WATER QUALITY BRANCH

ENVIRONMENTAL PROTECTION DEPARTMENT

MINISTRY OF ENVIRONMENT, LANDS AND PARKS

Water Quality in British Columbia

Objectives Attainment in 1993

December, 1994

Canadian Cataloguing in Publication Data
Main entry under title:
Water quality in British Columbia : objectives attainment in ... -- 1992-

Annual.
Continues: The Attainment of ambient water quality objectives. ISSN 1194-515X
ISSN 1195-6550 = Water quality in British Columbia

1. Water quality - Standards - British Columbia - Periodicals. I. BC Environment. Water Quality Branch.

TD227.B7W37 363.73'942'0218711 C93-092392-8

SUMMARY

The task of setting water quality objectives in priority basins in British Columbia began in 1982. By the end of 1994, the Ministry had set water quality objectives in 40 bodies of water, including fresh and marine, throughout the Province. Annual monitoring to check the attainment of objectives started in 1987. This report presents the results of monitoring done in 1993 to check the attainment of objectives in 32 basins.

We have summarized the results in a series of tables. Over all Ministry Regions, the objectives were met about 87 percent of the time, a slightly lower result than in previous years when attainment ranged from 94 percent in 1987 to 89 percent in 1992. Although we fell short of an ideal 100 percent compliance, we must remember that objectives are set in areas where we expect water quality problems. Monitoring results therefore describe how well problems are being dealt with, but are a conservative reflection of the state of water quality in the Province as a whole.

Variables for which objectives were sometimes exceeded in three or more basins in 1993 included microbiological indicators (fecal coliforms, *E. coli*, enterococci), suspended solids, turbidity, phosphorus in lakes, chlorophyll-*a* (a measure of algal growth in lakes and streams), dissolved oxygen, and certain heavy metals (aluminum, chromium, copper, iron, and lead). Among organics, the objectives for chlorophenols in water were exceeded in three basins and for PAHs in sediments in two.

Cases of objectives being exceeded need investigation to determine the cause and the possible need for corrective action. Monitoring in future years will indicate whether problems are persisting or being solved. Monitoring also shows how close water quality conditions are to ideal and results are thus one measure of the state of the environment in B.C.

We recently issued fact sheets describing the state of water quality in specific basins based on objectives monitoring data. We plan to expand this type of publication to a report card for all bodies of water, fresh and marine, where people are interested to know about impacts and their effects on water quality and on water uses.

ACKNOWLEDGEMENTS

The regional staff of Environmental Protection carried out most of the monitoring, either directly or by using co-op students and contractors. Zenon Environmental Inc. analyzed the samples except those for mercury which were analyzed by Analytical Service Laboratories Ltd. Information was also obtained from regional offices of B.C Environment, from the Canada-B.C. Water Quality Monitoring Agreement, from regional offices of the Ministry of Health, from the federal departments of Environment and of Fisheries and Oceans, from B.C. Hydro, from Bullmoose Operating Corporation, and from the Greater Vancouver Regional District.

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INTRODUCTION

In 1981, the Auditor General recommended that the Ministry develop a method of measuring its performance in safeguarding water quality. To fulfill this recommendation, the Ministry undertook to set water quality objectives for fresh and marine surface waters of British Columbia.

Water quality objectives are safe conditions or threshold levels of a substance which will protect the most sensitive water use of a specific body of water. They establish a reference against which the state of water quality at a specific site is checked, as recommended by the Auditor General. They are also used to prepare Waste Management Permits or Plans and to measure their effectiveness. They are thus a basic tool for use in maintaining a healthy aquatic environment.

We began work on water quality objectives in 1982. The Ministry has now published objectives on 40 separate bodies of water and updated them in one. In addition, objective-setting in six other basins is at an advanced stage. In each basin considered, we expected some type of water quality problem due to human activity. We set objectives for lakes, rivers, creeks, and marine areas covering all seven Environmental Regions of the Province.

This report for 1993 is the eighth in a series of annual reports which began in 1986. Since 1987, we were allocated funds for limited monitoring of ambient water to check the attainment of the objectives. As a result, we have obtained an annual picture of how well objectives are being met since 1987. The report is a condensation of monitoring data for use by managers of the water resource. It indicates where conditions are acceptable and provides a warning of where further evaluation may be needed to solve water quality problems. It can also be used by anyone interested in the present state of water quality in a given basin although, to keep this report to a reasonable length, we assume some reader familiarity with the detailed background reports on water quality objectives for each basin. You may obtain copies of the background reports on objectives from the Water Quality Branch of the Ministry in Victoria.

We usually chose the basins for setting water quality objectives on the basis of perceived water quality problems. Thus, results presented here indicate conditions in likely problem areas, but do not reflect the state of water quality in the Province as a whole. There are many bodies of water where water quality is relatively unaffected by humans and likely to remain so for the foreseeable future. Nevertheless, reports in this series are an important measure of the state of the environment regarding water quality in British Columbia.

We have used the results from checking objectives over a period of years to issue fact sheets on water quality for seven bodies of water. These are short bulletins aimed at informing the public about the state of the water where they live. We plan to expand this type of publication to a report card for all bodies of water in the province where agencies and other interested parties wish to know about impacts and their effects on water quality. We expect to cover fresh and marine water as well as groundwater.

METHODS OF PRESENTING AND INTERPRETING THE DATA

Reports on Objectives

At the present time, the Ministry of Environment has completed 40 reports on water quality objectives. The complexity and size of the reports varies considerably, depending upon the body of water considered. These waterbodies are distributed among the Environment Regions as follows:

Vancouver Island	4
Skeena	4
Omineca-Peace	7
Cariboo	2
Southern Interior	11
Kootenay	3
Lower Mainland	9
Total	40

Work is in progress on another 6 reports for different water basins. These reports are now at a fairly advanced stage of completion.

Tables of Results

We have summarized the data collected in 1993 to check objectives in Tables 2 to 33, with a separate table for each of the 32 water basins monitored. Because of funding limitations, we did not monitor eight basins in 1993 for which objectives exist. We consulted with the Regions early in the year to decide which basins to monitor and the details of monitoring and funding.

Monitoring schedules describe the work to be done, usually by contractors or students under regional supervision.

In each table we list all the objectives that have been set, as they appear in the summary table of each report on objectives. We have updated a few of the objectives to reflect new water quality criteria and procedures. For example, we are now using chlorophyll-*a* instead of periphyton biomass and total ammonia-N instead of un-ionized ammonia-N. The 90th percentile of 400 MPN/100 mL for fecal coliform values is used when high fecal coliform values are recorded at bathing beaches. In a few cases, such as the Peace River and Kitimat Arm, we have added some generalized water quality criteria to allow for the fact that threats to water quality have changed or are better understood since publication of the objectives reports.

Five different concluding statements are used: objective met, objective not met, indefinite result, objective not checked, and omitted 1993. We consider the objective met if it was either equalled or not exceeded by the monitoring result. We report the result as indefinite if there were insufficient data to check the objective, the data were suspect, or the mimimum detectable concentration was too high. We report the objective as not checked if, for some reason, planned data collection did not take place. We report the objective as omitted if the plan was to not monitor because of low priority, taking into account past results. We consider these tables to be the most important part of this report since they summarize where, when, and by how much objectives were met in 1993.

Text

Following this chapter, the text presents the results of our 1993 quality assurance program to test the accuracy and precision of laboratory data. We then give a provincial overview of the attainment monitoring results. Finally, we describe briefly the tabulated data for each body of water, by Region, mentioning the highlights and sometimes drawing some general conclusions. At this stage, we avoid qualifying statements such as: "...the objectives were nearly met, slightly exceeded or probably met..." . We consider them to be too speculative without the support of further evidence to explain them. Thus, we categorize objectives exceeded by a wide margin equally with apparent borderline cases. Although a more detailed interpretation is desirable, we do not comment

on the significance of results in more detail because the presentation of data that would then be required is beyond the scope of this province-wide summary report.

We also do not attempt to explain what may have caused the results or to comment on the effect of objectives not being met. Such assessments would entail consideration of river flows, effluent discharges, whether objectives are long-term or short-term, the degree to which objectives are exceeded, quality assurance, and other factors. We have presented information collected over a period of time in short state-of-environment type of bulletins or fact sheets for seven basins and plan to issue a report-card type of report based on objectives attainment for all basins in the future.

The report guides those involved in managing water quality by focusing on areas of concern where further assessment or inspection may be needed. Since monitoring to check water quality objectives covers only a short time span, usually at most 30 days, we believe that any instance when objectives were not met could be significant and is worth a more detailed look. Further study could show that certain objectives were exceeded due to natural phenomena. On the other hand, it could reveal the need for corrective action if there were human causes to the problem.

Figures

A location map in Figure 1 shows the 40 basins where objectives have been set. Separate maps, Figures 2 to 33, illustrate the 32 water basins monitored in 1993 and show the sampling sites referred to in the tables. Each figure number corresponds to the table of the same number.

Guide to Ranking Future Monitoring

Due to limited funds, we cannot monitor all basins where objectives have been set each year. We have therefore ranked monitoring as follows:

- **1st priority**: any basin with less than three years of complete monitoring and any basin the Ministry considers provincially or internationally significant. Examples of significant basins

are the Fraser River due to fisheries, the Okanagan Valley lakes due to recreation, the lower Columbia River due to transboundary effects, and Burrard Inlet due to a federal-provincial plan.

- **2nd priority**: any basin in which, after at least three years monitoring, a number of objectives are not regularly attained and there is either a local expression of concern or a plan for short-term action.

- **3rd priority**: any basin as for the 2nd priority above, but where there is no known concern or plan of action.

- **4th priority**: any basin in which, after at least three years monitoring, most objectives are either being met or the situation is fairly well documented with no change in status expected in the short term.

QUALITY ASSURANCE PROGRAM

Introduction

This is the third year of our quality assurance program which describes the accuracy and precision of test results. Details on procedures and results are in a separate report which the Water Quality Branch issued in December, 1993.

We chose 14 variables for testing in the program. These were mercury, aluminum, arsenic, cadmium, chromium, copper, iron, lead, moybdenum, zinc, cyanide, ammonia nitrogen, nitrite nitrogen and suspended solids. In addition to solutions, we also tested bottom sediments for the first time in 1993. We chose the variables based on important objectives most frequently exceeded as well as availability of reference materials. For example, we did not include fecal coliforms due to the lack of standard references.

In an ideal situation one would aim to measure the accuracy and precision of the total monitoring process. This would include sample collection, handling in the field, shipping, storage, and laboratory analysis. In 1993, we measured mainly the accuracy and precision of the laboratory analyses with some work on combined field plus laboratory precision. The results apply to the June to September operating period of the laboratory when most ambient sampling occurs.

Procedure

For metals other than mercury, we obtained standard reference solutions and sediments from established laboratories which had certified the metal levels. For mercury, nutrients, cyanide, and suspended solids, we had commercial laboratories prepare standard solutions using clean-room techniques as required. Where possible, we chose concentrations for these references that were usually close to the maximum criterion level to protect aquatic life for each substance. Results thus indicate the confidence one may have in laboratory data at levels where sensitive objectives may be

exceeded. However, these levels were often near and sometimes below laboratory detection limits and tended to produce poor accuracy and precision, as one might expect.

We submitted all reference samples blind to the analyzing laboratory; that is to say the laboratory was not aware that they were reference samples. All variables were analyzed in their unfiltered or total state.

Mercury

The National Research Council prepared the reference solutions for mercury. The Council used Ottawa River water spiked with mercury at the following levels:

Mercury range of concentrations: 70 to 88 ng/L

The literature indicates that, due to contamination problems, clean-room techniques for all routine mercury analyses are essential to ensure reliable analytical results. Our past experience showed that the laboratory with the best results was ASL (Analytical Service Laboratories Ltd.) of Vancouver. We subsequently chose ASL to analyze the reference samples and to perform all 1993 routine mercury analyses to check objectives. We submitted reference samples four times in batches of five to twelve to ASL between June and September for a total of 30 samples. NRC sent out the samples monthly.

In measuring mercury, we used travel blanks to monitor the effect that sampling in the field might have on sample contamination. Travel blanks are sample bottles containing pre-acidified, mercury-free distilled water. These are opened in the field, subjected to the same handling as normal sample bottles (except they are not filled with sample or preservative), capped and sent to the laboratory for mercury analysis along with the true samples. Any mercury found in the travel blanks, together with a knowledge of laboratory accuracy, gives a measure of contamination from the field.

Other metals in water

For the other metals, the National Water Research Institute provided two reference solutions. The Institute used Lake Ontario water fortified with a mixture of 14 metals. One reference solution contained about double the metal levels of the other. Actual certified concentrations of the eight metals of interest reported on here were as follows:

Aluminum:	39 and 61 µg/L	Iron:	6.4 and 28.4 µg/L
Cadmium:	4.9 and 10.4 µg/L	Lead:	5.5 and 10.1 µg/L
Chromium:	7.1 and 13.0 µg/L	Molybdenum:	7.0 and 14.4 µg/L
Copper:	7.6 and 13.2 µg/L	Zinc:	7.5 and 15.2 µg/L

Zenon Environmental Inc. of Vancouver, which is the laboratory generally used for objectives work, analyzed samples of the reference solutions for total metals in batches of five to six. We submitted the samples five times between June and September for a total of 51 samples.

Ammonia and nitrite

CB Research International Corp (CBR), a Victoria area laboratory, prepared reference solutions of ammonia and nitrite at the following concentrations:

Ammonia nitrogen:	10.7 mg/L
Nitrite nitrogen:	0.056 mg/L

We submitted samples of each of these reference solutions in batches of five to Zenon Environmental. We sent in the batches five times between June and August for a total of 25 samples for each variable.

Cyanide

CBR prepared reference solutions of cyanide immediately before we submitted them to Zenon for analysis. We were thus assured that the samples were analyzed within 72 hours of their formation,

as required by the Ministry protocol. CBR certified the actual cyanide levels, expressed as strong-acid dissociable cyanide, as follows:

Cyanide range of concentrations: 0.185 to 0.199 mg/L SAD-CN

We submitted the samples four times in batches of five between June and September for a total of 20 samples.

Suspended solids

The Ministry of Environment Laboratory Services had a contractor (B.C. Research) prepare two reference solutions. ASL verified the concentrations at the following levels:

Suspended solids concentrations: 27.2 and 101.8 mg/L

We submitted samples to Zenon for analysis in batches of five. We sent in four batches between June and August for a total of 20 samples for each concentration. Zenon used full-bottle analysis meaning all of the one litre sample was filtered instead of just an aliquot.

Metals in bottom sediment

The National Research Council supplied three reference sediment samples from Esquimalt Harbour, the Gulf of St. Lawrence and the Beaufort Sea. The certified levels for seven metals of interest were as follows:

	Esquimalt	St. Lawrence	Beaufort
Mercury			0.092 µg/g
Arsenic	211 µg/g	11.1 µg/g	
Cadmium	2.38 µg/g	0.25 µg/g	
Chromium	113 µg/g	123 µg/g	

Copper	452 µg/g	18.5 µg/g
Lead	404 µg/g	22.7 µg/g
Zinc	824 µg/g	119 µg/g

We submitted three samples of Esquimalt and St. Lawrence sediments to Zenon for metal analysis and of Beaufort sediment to ASL for mercury analysis.

Field replicates

To get an idea of field plus laboratory precision, we carried out some replicate sampling at sites on the Thompson River, the Bonaparte River, Cahill Creek, and the Quinsam River. We collected duplicate samples in quick succession and had them analyzed by Zenon for metals, nutrients, and suspended solids.

Results

We calculated the accuracy and the precision of the laboratory measurements. The accuracy is a measure of how the analytical result differs from the true value. It is expressed as a percent by dividing the analytical result by the true concentration of the reference solution or material. The precision is a measure of the repeatability of the analysis. It is also expressed as a percent by dividing the standard deviation of the analytical results by their mean.

We present the results as average accuracy and precision for all samples submitted at a given concentration with bracketed ranges obtained from the subset batches of five or more samples.

Mercury in water

ASL achieved an average accuracy of 115% (97 - 134%) and a precision of 4.1% (3.1 - 6.8%). This means that, on average, mercury results near the 100 ng/L level are expected to be 15% above the true value and can be replicated within 4% as far as laboratory measurements are concerned. At any one time, however, the data show that results can range from 3% below to 34% above the true

value. The problem of mercury contamination in the field during sampling was partly addressed by the results from travel blanks. Partial results showed no contamination in the field in 1993.

In a paper presented at an EP Impact Biologists' meeting (Victoria, February 1994), L. Pommen showed that our present method of measuring mercury in water does not give meaningful results in the long run. The problem is artificial contamination at the low mercury levels (5 to 10 ng/L in polluted water) that occur in water. Therefore, until our sampling methods improve, we will discontinue routine sampling of mercury in ambient water. We will continue sampling for the accumulation of mercury in sediments and aquatic life since meaningful levels are higher in these media.

Aluminum in water

Analysis of the spiked Lake Ontario samples by Zenon at the 39 µg/L level showed 24 out of 26 samples as being below Zenon's minimum detection limit of 60 µg/L. We could not therefore calculate accuracy and precision for this data set, although results were close to those expected.

At the 61 µg/L level, only 6 of the 26 samples analyzed showed a value above Zenon's minimum detection limit of 60 µg/L, a result we could expect. The accuracy for the data set of 6 was 104% and the precision 8%.

Cadmium in water

The Zenon analysis of spiked Lake Ontario water produced an accuracy of 98% (92 - 102%) and a precision of 7% (0 - 12%) at the 4.9 µg/L cadmium level. At the 10.4 µg/L level the accuracy was 99% (96 - 102) and the precision 6% (4.4 - 8.2%). These are good results, but the concentrations tested are quite high for ambient waters.

Chromium in water

Analysis of the Lake Ontario samples by Zenon gave an average accuracy of 94% (79 - 103%) and an average precision of 33% (7 - 62%) at a chromium level of 7.1 µg/L. At 13.0 µg/L the results were an accuracy of 101% (86 - 125%) and a precision of 35% (4 - 63%). These results are a great improvement over those of 1992 and become even more acceptable if we remove the outlier that occurred at each concentration.

Copper in water

For the prepared Lake Ontario solutions, Zenon gave an average accuracy of 110% (103 - 118%) and a precision of 20% (11 - 31%) at the 7.6 µg/L level. At 13.2 µg/L copper, the results were an accuracy of 104% (95 - 117%) and a precision of 10% (3 - 11%).

We therefore expect copper results, on average, to be no more than 10% higher than the true value and to be reproducible to within 10 to 20% by the laboratory. There were no outliers in this data set. The results have improved over previous years, possibly due to testing at a higher concentration in 1993.

Iron in water

The levels of iron in the reference solutions, at 6.4 and 28.4 µg/L, were both below Zenon's minimum detection limit of 50 µg/L. We could therefore not calculate accuracy or precision although we noted that a few analyses exceeded the detection limit, one by a wide margin. Such results, called false positives, indicate possible laboratory contamination.

Lead in water

The Zenon accuracy for Lake Ontario reference solution averaged 118% (98 - 153%) and the precision 29% (0 - 49%) at the 5.5 µg/L level. At the 10.1 µg/L level, Zenon obtained average results of 111% (93 - 135%) for accuracy and 27% (5 - 30%) for precision. A few outliers affected the results which were slightly better at the higher concentration, as one might expect.

The overall averages for both concentrations were 115% for accuracy and 28% for precision. On average one can therefore expect lead results to be 15% above the true value and to be reproducible within 28%. These results are not as good as those of previous years.

Molybdenum in water

Zenon's accuracy with Lake Ontario water was 93% (86 - 111%) and the precision 17% (9 - 20%) at 7 µg/L. At 14.4 µg/L the accuracy became 111% (100 - 120%) and the precision 9% (4 - 9%). There were no outliers. This is our first report on molybdenum and the results are reasonable.

Zinc in water

At the 7.5 µg/L level, the level of zinc in the reference Lake Ontario solution was below Zenon's minimum detection limit of 10 µg/L. Even so, Zenon showed positive results with an accuracy of 6339% (2300 - 9200%) and a precision of 105% (49 - 211%). At the 15.2 µg/L level, the results were only slightly better showing an accuracy of 284% (171 - 460%) and a precision of 90% (34 - 104%).

These results show that we had a problem with the analysis of zinc at relatively low levels, as we did in 1992.

Ammonia nitrogen

The testing of CBR's reference solution by Zenon gave an average accuracy of 71% (59 - 90%) and precision of 16% (2 - 13%) at the 10.7 mg/L level. These results are similar to those of last year.

Nitrite nitrogen

Out of the 25 samples of CBR's reference solution, which contained 0.056 mg/L nitrite-N, Zenon reported 10 with less than 0.005 mg/L. We assumed these results to be due to sample mixup rather than analytical error and disregarded them.

With the remaining 15 samples, Zenon obtained an accuracy of 35% (34 - 36%) and a precision of 10% (2 - 18%).

Cyanide (strong-acid dissociable)

This was the first time in our quality assurance program that we submitted samples wthin 72 hours of their formation, as required by the protocol. For solutions containing just under 0.2 mg/L SAD-CN, Zenon obtained an accuracy of 100% (88 - 106%) and a precision of 4.3% (1.5 - 9.8%). This means that, at this concentration, laboratory results on average will equal the true value and can be replicated to within about 4%.

Suspended solids

The testing of the Ministry-prepared solutions by Zenon gave an accuracy of 96% (93 - 99%) and a precision of 4.3% (1.7 - 5.0%) at the 27.2 mg/L level. At the higher concentration of 101.8 mg/L, Zenon results gave an accuracy of 91% (78 - 99%) and a precision of 11.7% (0.8 - 13%) once an obvious outlier (<4 mg/L) was disregarded. These results were similar to those we had in 1992.

Metals in bottom sediments

This is the first time we have done reference work with bottom sediments and the results indicate analyses are within reasonable limits. Zenon's analysis of three replicate reference samples from Esquimalt Harbour and the Gulf of St. Lawrence showed good precision, with all results within 10%. Regarding accuracy, Zenon's analyses meant that, with the exception of chromium and arsenic, results could be expected to be within 15 to 25% of the true value.

We have summarized results for metals of interest as follows:

		Accuracy	Precision
Arsenic	211 µg/g	49%	6.8%
	11.1 µg/g	99%	10.2%
Cadmium	2.38 µg/g	84%	0%
	0.25 µg/g	below Zenon's detection limit	
Chromium	113 µg/g	41%	2.2%
	123 µg/g	39%	4.8%
Copper	452 µg/g	86%	0.7%
	18.5 µg/g	76%	4.0%
Lead	404 µg/g	86%	1.5%
	22.7 µg/g	119%	2.2%
Zinc	824 µg/g	81%	1.3%
	119 µg/g	86%	0.6%

ASL obtained the following results from three replicate samples of reference material from the Beaufort Sea containing 0.092 µg/g mercury: an accuracy of 92% and a precision of 2.3%

Field replicates

We get a measure of field plus laboratory precision from duplicate sampling of receiving water. Accuracy cannot be calculated without knowing the true concentrations in the ambient sample. The few results obtained in this program indicate that the field plus laboratory precision was similar to the laboratory precision alone. This means that the sampling did not have a substantial effect on reproducibility. We have summarized the results as follows:

- Suspended solids:

  In the 50 to 80 mg/L range, the precision was 3.6% to 12% at North and South Thompson River sites. At the 250 mg/L level, the precision was 1.9% at the Bonaparte River site. These compare well with the laboratory precision of 4.3 to 11.7%. Elsewhere (Thompson River, Cahill Creek, and Quinsam River) levels were below 4 mg/L.

- Nutrients:

  Ammonia and nitrite nitrogen levels were near or less than 0.005 mg/L and the reproducibility was good at all sites.

- Metals:

  Most values were below detection limits. A few cases with higher results gave a precision for iron of 1.8% to 12.9% (no lab data for comparison) and for lead 10.1% to 35.4% (lab precision 27 to 29%).

PROVINCIAL OVERVIEW OF RESULTS

Presentation of Results

In the tables summarizing the monitoring data, there are five kinds of concluding statement. These are: objective met, objective not met, objective not checked, omitted 1993, and indefinite result.

To get an overview of performance for the Province, we totalled the number of occurrences of each conclusion for each water basin from the summary tables. In compiling these totals, we counted each instance of a maximum (or minimum) objective being met or not met plus all average and percentile values.

Table 1 shows the results of this compilation. For each Region we give the sum of occurrences for each kind of conclusion and then total them for the whole Province. We also express the occurrences as a percent of the total of all occurrences, both by Region and for the Province as a whole.

Discussion of Results

Although the results apply to specific occurrences, we assume in this analysis that they are representative of the whole year. This simplification is a conservative approach to describing the state of water quality since we usually attempt to collect data during worst-case conditions.

Table 1 shows that the objectives were met 84.6% of the time in the Province as a whole in 1993. This result varied according to Region from 61% to 89%. Objectives were not met from between 8.5% to 33.6% of the time, with an overall average of 12.8%.

The occurrence of objectives not checked, omitted 1993, or indefinite results averaged 0.4%, 1.3%, and 1.5%, respectively. If we subtract these relatively minor instances of no result from the

total, then the number of instances (or percent of time) that objectives were met overall becomes 87% and the number not met 13%.

We can therefore state that, in the Province as a whole, the objectives were met about 87% of the time in 1993. This is an approximate statement since it can be influenced by several monitoring factors. For example, the frequency at which particular objectives in any Region are monitored can change the final result. The inclusion or omission of water basins with either serious or minor water quality problems will obviously also affect the outcome.

The overall result for objectives met in 1993 was slightly lower than results for previous years. The objectives were met 94% of the time in 1987, 93% in 1988, 92% in 1989, 93% in 1990, 90% in 1991, 89% in 1992, and 87% in 1993. The data suggest a minor downward trend. As the monitoring program is repeated in future years the general picture could change even further. New basins will be added and, with a shrinking monitoring budget, there will be a tendency to cease monitoring in areas where objectives are being met consistently by a wide margin, as described in the Methods section (Guide to ranking future monitoring).

As a first priority, we will probably concentrate on areas where the worst human-made water quality problems occur. This strategy could, at first, produce a more negative general result. We would expect the situation to improve in subsequent years as corrective action is taken. The goal, of course, is for water quality objectives to be met 100% of the time in all such areas. Monitoring in future years, followed by corrective action where required, will show how close we can get to this ideal situation.

VANCOUVER ISLAND REGION

Cowichan-Koksilah Rivers

Table 2 lists results and Figure 2 shows site locations.

The Cowichan River is the most important river on Vancouver Island for recreational and commercial fisheries. The Koksilah River is a major tributary of the Cowichan River near its mouth. Possible sources of contamination include treated municipal sewage, agriculture, urban development, and effluents from a fish hatchery and abandoned metal mines.

The objectives for fecal coliforms, *E. coli* , and enterococci were generally not met in the Cowichan and Koksilah rivers, as has been the case since monitoring started in 1988. These objectives are fairly restrictive upstream from Duncan since they were set to protect drinking-water use after disinfection only. As recommended in the 1989 report, we need to establish the sources of possible bacteriological contamination before the situation can be corrected.

Dissolved oxygen levels, measured during the summer, at times did not meet the objective in both rivers, especially in the lower reaches. Similar results have been reported since 1988. We suspect that the low levels may result naturally from warm summer water temperatures.

The objectives for turbidity, suspended solids, ammonia, and heavy metals were generally met throughout the Cowichan River as has usually been the case in the past. The objective for chlorophyll-a was met around the Lake Cowichan discharge, but was not measured around the Duncan discharge where there have been complaints of excessive algal growth.

We recommend discontinuing routine monitoring until corrective action is taken, as required.

Middle Quinsam Lake

Table 3 lists results and Figure 3 shows site locations.

Middle Quinsam Lake drains via the Quinsam River into the Campbell River near its estuary. The Middle Quinsam Lake sub-basin is a valuable habitat for trout and salmon but could be impacted by an open-pit coal mine operating in the area.

Most of the objectives were met. The major exception was the objective for zinc which was exceeded three times in the basin. This objective has also been exceeded a few times in the past, in 1990 and 1992. Other objectives exceeded once in 1993 were those for nickel, silver and lead.

Objectives met included those for phosphorus and chlorophyll-*a* in Middle Quinsam and Long lakes, suspended solids, turbidity, ammonia, nitrate, nitrite, dissolved oxygen, pH, aluminum, arsenic, cadmium, cobalt, copper, iron, manganese, and mercury. All these results were similar to those obtained since 1989. The objective for mercury in fish has yet to be checked.

Oyster River

Table 4 lists results and Figure 4 shows site locations.

The Oyster River flows from the Forbidden Plateau area into the Strait of Georgia, south of Campbell River. The river and its tributaries are important habitat for several species of trout and salmon. The main threats to water quality are logging and mine exploration. We expect the latter to lead to active mining in the future, especially for coal.

We checked most of the objectives in 1993 except those for nitrogen, and obtained similar results as in the past. The objective for chromium was exceeded as it was in 1991 and 1992. Other objectives exceeded for the first time included those for dissolved aluminum, total mercury and total zinc.

Objectives met included those for fecal coliforms, turbidity, suspended solids, pH, arsenic, cadmium, cobalt, copper, iron, manganese, and nickel. The objective for lead in fish has yet to be tested.

Elk and Beaver Lakes

Table 5 lists results and Figure 5 shows site locations.

Located near Victoria, these are the most important recreational fisheries lakes on southern Vancouver Island. Water-contact recreation is also very important in the lakes. Residential and agricultural development and the release of phosphorus from lake sediments are responsible for the present eutrophic state of the lakes.

Monitoring to check the attainment of objectives began in 1993. The objectives for dissolved oxygen, chlorophyll-*a* , and the phytoplankton community were all exceeded, reflecting the eutrophic nature of the lakes. Conditions were usually better in Elk Lake than in Beaver Lake. The objectives for temperature and water clarity were met. We recommend at least two more years of similar monitoring to document baseline conditions.

SKEENA REGION

Bulkley River

The Bulkley River is a major tributary to the Skeena River. It is an important river for fisheries and has some drinking water use. The main influences on water quality are treated municipal effluent from Houston and Smithers and possible contamination in the headwaters from mining.

We have monitored the attainment of objectives since 1988 and obtained consistent data in that time. We discontinued monitoring in 1993 because we considered the basin to be a relatively low priority.

Kathlyn, Seymour, Round, and Tyhee Lakes

Table 6 lists results and Figure 6 shows site locations.

These four small lakes, in the Smithers area, are used for recreation, domestic water supply, and irrigation. The main influences on water quality are agriculture and residential development around the lakes.

The fecal coliform objectives were met at all domestic water intakes and beaches where measured in all four lakes. Water near intakes in Kathlyn, Seymour, and Tyhee lakes has occasionally exceeded the objective in the past (1988-1990, 1992). The objectives for turbidity and colour were exceeded at times as has been the case in the past.

The total phosphorus objective was exceeded where measured, reflecting the tendency for the lakes to be eutrophic. Lake management plans to rehabilitate water quality are being drawn up, starting with Tyhee and Kathlyn lakes.

Lower Kitimat River and Arm

Table 7 lists results and Figure 7 shows site locations.

The river and arm are an important migration route for salmonids, and the water is also used for recreation and for industrial and municipal supplies. A kraft pulp mill and a municipal treatment plant discharge to the river and an aluminum smelter discharges at the head of the arm.

The objectives were monitored for three years from 1988 to 1990 and the data obtained were fairly consistent. No monitoring was carried out in 1991 but an assessment to update the existing objectives was drafted. Partial monitoring was also resumed in 1992. We undertook a larger scale program in 1993 based on some of the established objectives plus certain criteria set out in the draft assessment.

The objectives for fecal coliforms, set to protect shellfish harvesting, were exceeded although the less stringent objectives for recreational beaches were met. Other objectives exceeded in 1993 included those for fluoride, aluminum, copper, and iron in water as well as the criteria for iron in sediment and fluoride in the carapace of crabs.

Objectives met included those for suspended solids, turbidity, and pH. Criteria met included those for cadmium in sediment, copper in sediment, lead in sediment, colour in the river, dioxins and furans in crab muscle, and PAHs in crab muscle.

Lakelse Lake

Lakelse Lake drains into the Skeena River and is important for salmon spawning and rearing and for recreation. It is also used as a domestic water supply. The only threats to water quality are septic tanks around the shoreline and possibly logging in watersheds that drain into the lake. The objectives were last checked in 1992 and all were met. We discontinued monitoring in 1993 as we considered the lake to be a relatively low priority.

OMINECA-PEACE REGION

Charlie Lake

Table 8 lists results and Figure 8 shows site locations.

Charlie Lake is used as a drinking water supply and for recreation. Agriculture and residential development around the lake are factors affecting water quality.

The fecal coliform objectives for bathing beaches and water intakes were met. This result continues the improving trend in bacteriological water quality that has become evident over the last few years.

The phosphorus objectives were exceeded at times and met at others indicating that the lake is not as eutrophic as it was last decade.

Bullmoose Creek

Table 9 lists results and Figure 9 shows site locations.

Bullmoose Creek and its tributaries (West and South Bullmoose creeks) are important recreational fish habitat. The creeks are adjacent to an open pit coal mine.

We curtailed monitoring in 1993 and are only reporting results obained by the mining company during freshet. Objectives exceeded at times in this period included those for turbidity, suspended solids, and nitrate. The objectives for nitrite and pH were met.

Nechako River

Table 10 lists results and Figure 10 shows site locations.

The Nechako River, a major tributary to the Fraser River at Prince George, has its flow controlled for power generation. The river is an important route for migrating salmon. Water quality can be affected by treated municipal sewage and diffuse sources such as forestry and agriculture. Water temperature can be influenced by the flow of water released from the dams and by the manner in which it is released.

The fecal coliform objective was met in the Nechako River except immediately downstream from Vanderhoof. We have obtained similar results in the past. The temperature objectives immediately downstream from Cheslatta Falls and at Vanderhoof were met during the winter months but were often exceeded in the summer. We have obtained similar results since 1987. Temperature objectives will presumably be met when a coldwater release structure, planned for the Kenney Dam upstream from Cheslatta Falls, is installed.

Other objectives which were met included those for ammonia, nitrite, dissolved oxygen, and pH.

Pine River

The Pine River, a tributary to the Peace River, supplies water to Chetwynd and supports significant sportfish populations. The water quality is considered to be mostly in a natural state with the major influence coming from treated sewage from the Village of Chetwynd.

We consider monitoring to be a low priority for this basin and none was carried out in 1993. Past results show all objectives being met fairly consistently from 1987 to 1990 and in 1992.

Pouce Coupe River and Dawson Creek

The Pouce Coupe River runs into the Peace River inside the Alberta Border. Dawson Creek is its major tributary. The waters are affected mainly by municipal discharges.

The municipal treatment plants need to be upgraded if all objectives are to be met. We did not monitor in 1993 and we consider future monitoring to be a low priority at the moment.

Peace River

Table 11 lists results and Figure 11 shows site locations.

We have set objectives for the Peace River between the Bennett Dam and the B.C.-Alberta Border. The water is important for aquatic life and irrigation and can be affected by municipal discharges, a gas plant, and a pulp mill built in 1988 after the objectives were set. We first checked the objectives in 1988.

In 1993, we monitored for those objectives most likely to be exceeded. We also added resin acids to the program, comparing results to the province-wide criteria.

Objectives exceeded included those for fecal coliforms, turbidity, suspended solids, chromium, and zinc. These have all been exceeded at some time in the past. Among objectives met were those for ammonia, nitrite, dissolved oxygen, total dissolved gas, pH, temperature, copper, lead, nickel, and resin acids (compared to criteria).

Considering Alberta's interest in the quality of the water crossing the provincial border, we recommend continued monitoring of the Peace River.

Upper Finlay River

The Finlay River, located in the north east part of the Province, drains into the north end of Williston Lake. The area of the upper Finlay was the site of a gold and silver mine and mill, now closed. Objectives apply to Jock and Galen creeks which eventually flow into the upper Finlay River.

The objectives were checked in 1987. Since the area is remote and the operation is closed, no further monitoring has been carried out. Future monitoring or new objectives may be needed if development re-occurs in the area.

CARIBOO REGION

Williams Lake

Table 12 lists results and Figure 12 shows site locations.

Williams Lake drains to the Fraser River and is important for drinking water, recreation, and aquatic life. The water quality is affected by phosphorus which comes mainly from traditional farming practices in the San Jose River drainage, the main inlet to the lake, and to a lesser extent from residential septic systems around the lake.

Objectives exceeded in 1983 included those for turbidity, total phosporus at spring overturn, chlorophyll-*a*, dissolved oxygen, and water clarity. These results reflect the current eutrophic state of the lake. We recommend continued monitoring of objectives to track the progress of corrective measures being undertaken in the San Jose watershed.

San Jose River

Table 13 lists results and Figure 13 shows site locations.

The San Jose River originates at Lac La Hache and is the main inlet to Williams Lake. It is used mainly for irrigation, livestock watering, and water storage. Ranching is the activity with the most influence on water quality.

The Ministry set only one objective for the San Jose River, namely the total annual loading of dissolved phosphorus entering Williams Lake. The Region has measured this loading since the seventies. We measured it for the first time in 1993 under the present province-wide objectives program and found it to be met.

We derived the annual load by calculating daily loads (from dissolved phosphorus concentrations and river flows), plotting them against time, and measuring the area under the curve obtained. We based our calculation on a calendar year but we noted that over 90 percent of the loading occurred between March and September.

SOUTHERN INTERIOR REGION

Bonaparte River

Table 14 lists results and Figure 14 shows site locations.

The Bonaparte River is a tributary to the Thompson River. It is an important trout habitat and is affected by agricultural operations and municipal discharges. Its main tributaries are Clinton Creek and Loon Creek.

Water quality objectives exceeded include those for fecal coliforms, suspended solids, turbidity, chlorophyll-*a*, and the objective for dissolved oxygen in Loon Lake. Among objectives met were those for dissolved solids, ammonia, nitrite, dissolved oxygen in the river and its tributaries, and pH (except for one isolated instance). These results are similar to those obtained in the past.

There are plans to rehabilitate water quality and correct problems. Routine monitoring to check attainment of objectives will therefore be continued.

Okanagan Valley Lakes

Table 15 lists results and Figure 15 shows site locations.

To date, objectives have only been set in the five main lakes for phosphorus, which is the main factor controlling the trophic state of the lakes. The lakes are highly valued for recreation, fisheries, and as a source of drinking and irrigation water. The major inputs of phosphorus are from treated municipal sewage and from diffuse sources that include septic tanks, agriculture, and forestry.

The short-term phosphorus objective was met in Wood Lake, as it has been since 1990. This is a definite trend away from previous results obtained in 1987, 1988, and 1989 when the objective was not met. The phosphorus objective for Kalamalka Lake was met at the north end but not at the south end, a change from the past when it was usually met throughout. The objective for Okanagan Lake was met as usual, including in the Vernon Arm of Okanagan Lake. However, the objective was exceeded in the Armstrong Arm of Okanagan Lake as has been the case in the past. The objective was met in Skaha Lake, as it was for the first time in 1991 and also in 1992, indicating another improving trend. It was still exceeded in Osoyoos Lake as it has been in the past.

Similkameen River

Table 16 lists results and Figure 16 shows site locations.

The Similkameen River flows from Manning Park, through the south Okanagan, then south across the U.S. border. It is important for fisheries, drinking water, and irrigation. Water quality can be affected by mining and municipal discharges. We updated the water quality objectives in 1990 because of an increase in mining activity in the Hedley Creek area.

The objectives that were exceeded most frequently were those for microbiological indicators (fecal coliforms, *E. coli*, enterococci). Other objectives exceeded occasionally included those for suspended solids, and certain heavy metals (aluminum, chromium, copper, iron, manganese, and zinc). The phosphorus objective was not met in certain lakes of tributary watersheds.

Among objectives met were those for turbidity, cyanide in various forms, arsenic, ammonia, chlorophyll-*a*, dissolved oxygen, pH, and a number of heavy metals (lead, mercury, molybdenum, nickel, and uranium).

We recommend against further routine monitoring to check objectives until action, when identified, is taken to prevent objectives being exceeded.

Cahill Creek

Table 17 lists results and Figure 17 shows site locations.

Cahill Creek, its tributaries (Nickel Plate Mine Creek and Sunset Creek), and a parallel stream (Red Top Gulch Creek) enter the Similkameen River near Hedley. Fish from the Similkameen River use the creek near its mouth and the water is also used for irrigation. This watershed is the site of a gold mine and mill which began operating in 1987. Monitoring to check objectives began the same year.

We scaled down the objectives-checking program starting in 1990 since most objectives were either being met or there was a good record of the water quality. Objectives exceeded at times in 1993 included those for sulphate, cyanide in the weak-acid dissociable form only, nitrate, and aluminum.

Among objectives met were those for suspended solids, turbidity, dissolved solids, cyanide (in strong-acid dissociable and cyanate forms), arsenic, ammonia, nitrite, pH, selenium, and a number of heavy metals (cadmium, copper, lead, mercury, molybdenum, silver, and zinc).

We recommend continuing routine monitoring to check objectives.

Bessette Creek

Table 18 lists results and Figure 18 shows site locations.

Bessette Creek, which flows into the Shuswap River, is formed by the joining of Harris and Duteau creeks near the town of Lumby. Lawson Creek, and its tributary Spider Creek, flow into Duteau Creek. These creeks provide spawning habitat for trout and four species of salmon. Activities that can affect water quality include a telephone pole treatment plant near Harris Creek, a woodwaste landfill along Duteau Creek, and agricultural operations generally.

This was the third year that we checked most of the objectives. Results showed a number of objectives not being met. These included objectives for microbiological indicators (fecal coliforms, *E. coli*, enterococci), suspended solids, turbidity, colour, pH, dissolved oxygen, resin acids, and chlorophenols.

Objectives met included those for dissolved solids, ammonia, nitrite, nitrate, chlorophyll-*a*, and temperature.

Continued monitoring to check objectives will likely be a priority in this basin for the next few years.

Tributaries to Okanagan Lake near Westbank

Table 19 lists results and Figure 19 shows site locations.

We set objectives for Peachland, Trepanier, and Westbank creeks which flow into Okanagan Lake in the Peachland-Westbank area. Peachland and Trepanier creeks support spawning populations of kokanee or trout, and all three creeks are used for irrigation and domestic water supplies. Peachland and Trepanier creeks can be affected by seepage from a molybdenum mine which closed recently. Treated sewage effluent is discharged to Westbank Creek.

This was the third year that we checked most of the objectives. Only a few were exceeded including those for microbiological indicators (fecal coliforms, *E. coli*, and enterococci), chlorine residual, and aluminum.

Among objectives met were those for turbidity, dissolved solids, sodium, ammonia, nitrate, nitrite, chlorophyll-*a*, dissolved oxygen, pH, copper, molybdenum, iron, and zinc..

Continued monitoring to check objectives will not be a high priority in this basin in the future.

Tributaries to Okanagan Lake near Kelowna

Table 20 lists results and Figure 20 shows site locations.

Mission, Kelowna, and Brandt's creeks are tributaries to Okanagan Lake on its east shore near Kelowna. Mission and Kelowna creeks support salmonids and the water is also used for irrigation and domestic supply. Brandt's Creek is used mainly for just irrigation. The creeks can be affected by urban stormwater runoff in their lower reaches and by logging or agriculture further upstream. Treated wastewater is discharged to Brandt's Creek.

This was the third year of relatively complete monitoring to check objectives. The objectives for bacteriological indicators (fecal coliforms, *E. coli*, and enterococci) were generally not met as was the case in the past. The only other objective exceeded was the one for specific conductivity.

All other objectives checked were met. These included those for ammonia, nitrite, chlorophyll-*a*, pH, dissolved oxygen, aluminum, copper, lead, and zinc. Continued monitoring is unlikely to be a high priority in the future.

Tributaries to Okanagan Lake near Vernon

Table 21 lists results and Figure 21 shows site locations.

Lower Vernon Creek and Deep Creek are tributaries to Okanagan Lake at its north end. The water is used for domestic and irrigation purposes and has some fisheries values, especially in lower Vernon Creek. Potential sources of contamination are a municipal sewage discharge, agricultural operations, and groundwater affected by spray irrigation of treated sewage.

In 1993, we completed our first year of monitoring to check objectives. Objectives that were exceeded included those for fecal coliform, enterococci, suspended solids, chlorophyll-*a*, and

dissolved oxygen. Among the objectives met were those for ammonia, nitrite, and nitrate. We recommend continued monitoring of these creeks to check objectives.

Hydraulic Creek

Table 22 lists results and Figure 22 shows site locations.

Hydraulic Creek flows into Okanagan Lake via Mission Creek about 10 km upstream from the lake. Hydraulic Creek is an important source of drinking water relying on disinfection only. The creek also supports recreational fish and is used for irrigation. Commercial logging in the watershed can affect these water uses.

The summer of 1993 represents the third year of relatively complete monitoring. In 1993, only the objectives for bacteriological indicators (fecal coliforms, *E. coli*, and enterococci) were exceeded. The objectives for turbidity, temperature, and suspended solids were met although they have sometimes been exceeded in the past.

Monitoring to check objectives in Hydraulic Creek will probably be a lower priority in the future.

Thompson River

Table 23 lists results and Figure 23 shows site locations.

We set objectives in 1992 for the South Thompson which drains Little Shuswap Lake, the North Thompson which joins the South Thompson at Kamloops, Kamloops Lake, and the lower Thompson which is a major tributary to the Fraser River. This river system is very important for fish, especially salmon and trout. It is used extensively for recreation and is also a source of water for drinking, irrigation, and industrial use.

Between the North Thompson River and Kamloops Lake, the river receives treated effluents from a bleached kraft pulp mill and the from the City of Kamloops. There are also diffuse discharges from agriculture. These discharges can affect Kamloops Lake and the Thompson River downstream.

We checked objectives fairly completely for the first time in 1993. Objectives exceeded included those for fecal coliforms, chlorophyll-*a* and, in one instance, resin acids. The results for dioxins and furans in fish were below detection limits and therefore indefinite. This objective, which is designed to protect fish life, is much more stringent than the value normally used to protect humans who eat fish.

We recommend continued monitoring to check Thompson River objectives.

Christina Lake

Christina Lake, located in south central B.C., drains into the Kettle River which joins the Columbia River in Washington State. The lake is important for recreation, domestic water supply and sport fish. The potential sources of contamination are residential development, agriculture, and logging.

Objectives that we have set will be checked for the first time in 1994.

KOOTENAY REGION

Columbia and Windermere Lakes

The two lakes are important for fisheries, recreation, and as a source of drinking water. Residential development around the lakes is the main potential influence on water quality.

We monitored to check objectives between 1987 and 1992. Since the objectives have been met fairly consistently, we discontinued monitoring in 1993.

Toby Creek and Upper Columbia River

Toby Creek enters the Upper Columbia River just downstream from Windermere Lake. Both streams are important for aquatic life and recreation. Toby Creek can be affected by indirect discharges of domestic sewage and by drainage from an abandoned mine. The Upper Columbia River receives a discharge of treated sewage from Radium Hot Springs.

All objectives have generally been met except, on occasion, those for fecal coliforms. We did not monitor in 1993 and we consider future monitoring a low priority at this time.

Columbia River from Keenleyside to Birchbank

Table 24 lists results and Figure 24 shows site locations.

The Columbia River is one of the major rivers in British Columbia and in the United States further downstream. In B.C., the lower section of the river is important for aquatic life, sport fishing, recreation and, to a lesser extent, as a drinking water supply. In the U.S., it supports a food fishery, major salmon runs, and irrigation and drinking water supplies. In the section of river

from the Hugh Keenleyside Dam to Birchbank, the main influence is a kraft pulp mill discharging effluent about 3 km downstream from the dam. The mill has been expanded and modernized and the effluent treatment upgraded to secondary. There are also small discharges of secondary-treated municipal effluent.

This is the third year of monitoring to check the attainment of objectives. Objectives met in 1993 included those for dissolved oxygen, pH, colour, suspended solids, turbidity, fecal coliforms, *E. coli*, pulp mill toxicity in the river, chlorophenols, dioxins and furans in water, resin acids, chlorinated resin acids, and chlorophyll-*a*..

Among objectives exceeded were those for organic carbon in sediments, dissolved gases, and dioxins and furans in fish and sediments.

We set the objective for dioxins and furans in the muscle of mountain whitefish to prevent long-term chronic effects in the fish. This objective is far more stringent than the level recommended to protect those who eat fish. A public notice advising against consumption of mountain whitefish from the river was issued in 1990 and is still in effect.

Considering the international significance of the river and its importance to aquatic life, continued monitoring to check the attainment of objectives remains a high priority.

Elk River

Table 25 lists results and Figure 25 shows site locations.

The Elk River and its main tributaries, the Fording River, Line Creek and Michel Creek, are located in the south-eastern part of the province. The Elk River is a tributary of the Kootenay River before it enters Lake Koocanusa. We have set objectives for suspended solids and substrate sedimentation to protect aquatic life against the potential effects of coal mining operations in the basin. We will publish the objectives in 1995.

The objectives for suspended solids apply to base flow, or the non-freshet period, in the Elk River basin. They were met at all sites in 1993, with a single exception in mid April which may have been due to the start of freshet. We did not check the substrate sedimentation objective because we lack a satisfactory sampling procedure.

LOWER MAINLAND REGION

Fraser River from Hope to Kanaka Creek

Table 26 lists results and Figure 26 shows site locations.

We have set objectives for the Fraser River between Hope and Kanaka Creek, for tributaries entering from the south, and for all major water courses between the Fraser River and the International Border. The Fraser River is a major salmon migration route and the tributaries are important spawning areas. The major discharges to the Fraser River in this section are of treated municipal sewage.

Monitoring to check objectives was carried out in 1987,1988, 1990, 1992 and 1993. In 1993, most of the objectives that we checked were met in the river and creeks with just a few exceptions. Objectives met included those for fecal coliforms (except in Atchelitz and Saar creeks), ammonia, dissolved oxygen (except in Atchelitz Creek), and pH.

We plan to update the objectives for this reach of the Fraser River and its tributaries. We recommend monitoring be discontinued until new objectives are set.

Fraser River from Kanaka Creek to the Mouth

Table 27 lists results and Figure 27 shows site locations.

The river downstream from Kanaka Creek and outer estuary are very important for salmon migration and rearing. The water is used for irrigation and certain beaches are heavily used for recreation. Water quality can be affected by major discharges of municipal and industrial effluents.

We have monitored to check objectives annually since 1987. Due to the provincial importance of this river and the threats to water quality that exist in this section, we recommend that such monitoring be continued. We plan to update the objectives in 1995.

Among objectives exceeded in 1993 were those for fecal coliforms in the Main Arm and on Sturgeon Bank, dissolved oxygen in the sloughs and on the banks, chlorophenols in water in Deas Slough, and chlorophenols in sediments in the North Arm and on Sturgeon Bank.

Objectives met included those for fecal coliforms at all recognized bathing beaches, suspended solids, ammonia, dissolved oxygen in the main reaches of the river, pH, copper, lead, zinc, and the objective for PCBs in sediments.

Boundary Bay

Table 28 lists results and Figure 28 shows site locations.

Boundary Bay sustains a crab and herring fishery and is important for recreation. The little Campbell River, the Serpentine River, and the Nicomekl River are tributaries to Boundary Bay on the east side. They provide important habitat for trout and salmon and are used for irrigation. The main influences on water quality are from sewage pumping stations, stormwater, and septic tanks in Boundary Bay and from agriculture in the tributaries.

The only objectives that were checked in 1993 was those for fecal coliforms at bathing beaches. The objectives were exceeded at times in Whiterock and at Centennial Beach on the west side. Similar results have been obtained in the past. Considering the length of record for checking objectives (1988 to 1992) and the consistency of results, we consider further monitoring as a low priority at this time except where required for human health reasons.

Burrard Inlet

Table 29 lists results and Figure 29 shows site locations.

Burrard Inlet includes Port Moody Arm, Indian Arm, Vancouver Harbour, False Creek, and English Bay. The water is designated for aquatic life and wildlife in all areas and for primary-contact recreation in most areas, except in False Creek. There are several municipal and industrial discharges to Burrard Inlet which can affect water quality. These include primary-treated sewage, combined sewer overflows, stormwater, bulk-loading terminals, a sugar refinery, a sodium chlorate plant, a chlor-alkali plant, and oil depots.

This is the third year that objectives for Burrard Inlet have been checked fairly completely. We can divide the results into general characteristics, metals and organics.

Among general characteristics, objectives exceeded included those for chlorine-produced oxidants generally and for dissolved oxygen in False Creek and English Bay only. Objectives for fecal coliforms at bathing beaches were usually met except at Deep Cove in Indian Arm. Other general objectives met were those for suspended solids, turbidity, ammonia, cyanide, and pH.

For metals, objectives were exceeded most often in sediments. This list includes objectives for arsenic, cadmium, copper, lead, mercury, nickel, and zinc in sediments. Also, objectives for copper, lead, and mercury were not met at times in the water column. Objectives that were met included those for arsenic, cadmium, chromium, iron, nickel, and zinc in water and for chromium in sediments.

For organics, objectives exceeded included those for phenols and chlorophenols in water and for PCBs and PAHs in sediments. Among objectives met were those for tributyl tin and styrene in water, chlorophenols in sediments, and chlorophenols and PCBs in fish.

Considering the importance of Burrard Inlet and the number of instances that objectives are exceeded, we recommend continued monitoring to check objectives.

Burrard Inlet Tributaries

Table 30 lists results and Figure 30 shows site locations.

We have set objectives for the following three tributaries to Burrard Inlet: School House Brook which discharges to Port Moody Arm and could be influenced by a chemical polymer plant; Lynn Creek which discharges to Vancouver Harbour and could be affected by a municipal landfill; and the Capilano River which discharges to outer Burrard Inlet and may also be affected by a municipal landfill. The main uses of these tributaries are recreation, aquatic life, and wildlife.

Objectives were at times exceeded for the following: *E. coli*, enterococci, chlorophyll-*a*, dissolved oxygen, phenols, chromium, copper, iron, and zinc. Among objectives met were those for fecal coliforms, ammonia, nitrite, pH, cadmium, cobalt, lead, mercury in water and fish, chlorophenols in sediment and fish, and PCBs in sediment and fish.

Although this is the third year of monitoring, we recommend monitoring for a few more years because the past record is rather incomplete.

North Shore Lower Fraser Tributaries

Table 31 lists results and Figure 31 shows site locations.

Objectives have been set for the following four tributaries to the north shore of the lower Fraser River in the Lower Mainland: Kanaka Creek, the Pitt River, the Coquitlam River, and the Brunette River. All these streams, and their tributary streams and lakes, support salmon and trout fisheries to varying degrees. Most are important for recreation and some are sources of drinking water requiring treatment. Discharges which can affect water quality include stormwater, agricultural runoff, treated sewage, landfill leachates, wastewaters from gravel operations, and a wood preservation plant.

Objectives exceeded included those for microbiological indicators (fecal coliform, *E. coli*, enterococci, and *Pseudomonas aeruginosa*), suspended solids, turbidity, chlorophyll-*a*, dissolved oxygen, chromium, copper in water and sediments, lead in sediments, mercury in sediments and fish, and zinc in water and sediments. The objectives for heavy metals were exceeded in the Still Creek-Brunette River and Burnaby Lake-Deer Lake system while the distribution for other objectives not met was more widespread.

Among objectives met were those for ammonia, nitrite (except in the Brunette River), pH, mercury in water, and chlorophenols in water, sediment and fish.

Since this was the fouth year of monitoring with fairly consistent results, we consider future monitoring to be a relatively low priority.

Pender Harbour

Table 32 lists results and Figure 32 shows site locations.

Pender Harbour, a small coastal inlet on the Sechelt Peninsula, is important for recreational boating and fishing. It also supports commercial fishing and some commercial shellfish harvesting. The main influences on water quality are from diffuse sources such as septic tanks, some agriculture, and from sewage discharges from boats.

In 1993, the second year of monitoring, objectives were exceeded for the following metals: copper in water and sediments, zinc in sediments, lead in water and sediments, and iron in water. Objectives for tributyl tin in water and PAHs in sediments were also exceeded. Among objectives met were those for enterococci, ammonia, zinc in water, lead in oysters, and dissolved oxygen.

These results were similar to those of 1992. We recommend at least one more year of monitoring to establish a minimal data base.

Sechelt Inlet

Sechelt Inlet is located on the mainland coast about 80 km northwest of Vancouver. It is important for fisheries, especially fish farming, and recreation and has potential for shellfish harvesting. Potential sources of contamination include residential development, marinas, logging and minor discharges from gravel washing, a fish hatchery, and mariculture.

We checked objectives for the first time in 1993. Objectives that were exceeded at times included those for suspended solids, copper, and zinc, mostly near a dock in Porpoise Bay at the south end of the inlet. Among objectives met were those for fecal coliforms, enterococci, ammonia, and lead.

We recommend continuing the program for at least two more years.

Fraser River from the Source to Hope

This is the most important river in the Province for fisheries. Most of the contamination to the river between Moose Lake (the source of the river) and Hope is from pulp and paper mills and municipal treatment plants. We have set water quality objectives to protect aquatic life, wildlife, irrigation, livestock watering, and drinking water supplies.

Objectives will be checked for the first time in 1994.

R.J. Rocchini, P. Eng.
Water Quality Branch

TABLE 1

PROVINCIAL OVERVIEW OF WATER QUALITY OBJECTIVES - 1993

REGION	NUMBER OF OCCURRENCES					
	OBJECTIVES MET	OBJECTIVES NOT MET	OBJECTIVES NOT CHECKED	OMITTED 1993	INDEFINITE RESULT	TOTALS
Vancouver Island	1435 88%	138 8.50%	6 0.50%	40 2.50%	21 1%	1640 100%
Skeena	305 80%	59 15.50%	0 0%	14 4%	1 0.50%	379 100%
Omineca Peace	1793 89%	184 9%	11 0.50%	27 1%	9 0.50%	2024 100%
Cariboo	22 61%	11 31%	0 0%	1 3%	2 5%	36 100%
Southern Interior	2490 88%	278 9.80%	15 0.50%	25 0.90%	23 0.80%	2831 100%
Kootenay	865 65.80%	442 33.60%	0 0%	1 0.10%	7 0.50%	1315 100%
Lower Mainland	3448 86%	452 11%	16 0.40%	55 1.30%	52 1.30%	4023 100%
All Regions	10358 84.60%	1564 12.80%	48 0.40%	163 1.30%	115 1.50%	12248 100%
All Regions less occurrences with no result	10358 87%	1564 13%				11922 100%

TABLE 2

COWICHAN - KOKSILAH RIVERS WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <10/100 mL 90th perc. (np)	Cowichan River: E206108 d/s Cowichan Lake	Aug. 4 - Aug. 31	5	<1 - 10/100 mL np = 8/100 mL	Objective met
	E219339 500m u/s L. Cowichan STP	Aug 4 - Aug 31	5	<1 - 10/100 mL np = 9/100 mL	Objective met
	0120808 300m u/s L. Cowichan STP	Aug 4 - Aug 31	5	5 - 130/100 mL np = 60/100 mL	Objective not met
	E206107 400m d/s L. Cowichan STP	Aug 4 - Aug 31	5	3 - 32/100 mL np = 23/100 mL	Objective not met
	0120802 u/s Highway 1	Aug. 4 - Aug. 31	5	3 - 31/100 mL np = 21/100 mL	Objective not met
	Koksilah River: E207425 Pt. Renfrew Rd.	Aug. 4 - Aug. 31	5	<1 - 24/100 mL np =20/100 mL	Objective not met
	E206976 Koksilah Rd.	Aug. 4 - Aug. 31	5	5 - 35/100 mL np = 31/100 mL	Objective not met
	0123981 at Highway 1	Aug. 4 - Aug. 31	5	27 - 175/100 mL np = 172/100 mL	Objective not met
E. Coli <10/100 mL 90th perc. (np)	Cowichan River E206108 d/s Cowichan Lake	Aug. 4 - Aug. 31	5	< 1 - 15/100 mL np = 13/100 mL	Objective not met
	E219339 500m u/s L. Cowichan STP	Aug 4 - Aug 31	5	4 - 22/100 mL np = 16/100 mL	Objective not met
	0120808 300m u/s L. Cowichan STP	Aug 4 - Aug 31	4	2 - 22/100 mL	Indefinite result
	E206107 400m d/s L. Cowichan STP	Aug 4 - Aug 31	4	2 - 17/100 mL np = 23/100 mL	Indefinite result
	0120802 u/s Highway #1	Aug. 4 - Aug. 31	5	3 - 34/100 mL np = 25/100 mL	Objective not met
	Koksilah River : E207425 Pt. Renfrew Rd.	Aug. 4 - Aug. 31	5	1 - 20/100 mL np = 18/100 mL	Objective not met
	E206976 Koksilah Rd.	Aug. 4 - Aug. 31	5	1 - 31/100 mL np = 30/100 mL	Objective not met
	0123981 at Highway 1	Aug. 4 - Aug. 31	5	17 - 183/100 mL np = 175/100 mL	Objective not met

TABLE 2 continued

COWICHAN - KOKSILAH RIVERS WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
E. Coli <385/100 mL geometric mean (gm)	Cowichan River E206106 1 km d/s Duncan STP	Aug. 10 - Aug. 24	5	12 - 25/100 mL gm = 16/100 mL	Objective met
Enterococci <3/100 mL. 90th perc. (np)	Cowichan River E206108 d/s Cowichan Lake	Aug. 4 - Aug. 31	5	< 1 - 9/100 mL np = 7.5/100 mL	Objective not met
	E219339 500m u/s L. Cowichan STP	Aug 4 - Aug 31	5	<1 - 19/100 mL np = 12/100 mL	Objective not met
	0120808 300m u/s L. Cowichan STP	Aug 4 - Aug 31	5	2 - 100/100 mL np = 70/100 mL	Objective not met
	E206107 400m d/s L. Cowichan STP	Aug 4 - Aug 31	5	<1 - 26/100 mL np = 16/100 mL	Objective not met
	0120802 u/s Highway #1	Aug. 4 - Aug. 31	5	2 - 13/100 mL np = 11/100ml	Objective not met
	Koksilah River: E207425 Pt. Renfrew Rd.	Aug. 4 - Aug. 31	5	7 - 53/100 mL np = 50/100 mL	Objective not met
	E206976 Koksilah Rd.	Aug. 4 - Aug. 31	5	10 - 130/100 mL np = 75/100 mL	Objective not met
	0123981 at Highway 1	Aug. 4 - Aug. 31	5	73 - 170/100 mL np = 168/100 mL	Objective not met
Enterococci <100/100 mL geometric mean (gm)	Cowichan River E206106 1 km d/s Duncan STP	Aug 4 - Aug 31	5	8 - 20/100 mL gm = 14/100 mL	Objective met
Turbidity max increase: 5 NTU or 10%	Cowichan River: E206108 d/s Cowichan Lake	Aug. 4 - Aug. 31	5	0.2 - 0.7 NTU	Control site
	E206107 400m d/s L. Cowichan STP	Aug 4 - Aug 31	5	0.2 - 0.7 NTU max increase = 0 NTU	Objective met
	0120802 u/s Highway 1	Aug. 4 - Aug. 31	5	0.1 - 1.6 NTU max increase = 1.2 NTU	Objective met
	E206106 1 km d/s Duncan STP	Aug 4 - Aug 31	5	0.3 - 0.7 NTU max increase = 0.4 NTU	Objective met
	Koksilah River E207425 Pt. Renfrew Rd.	Aug. 4 - Aug 31	5	0.1 - 0.2 NTU	Control site

TABLE 2 continued

COWICHAN - KOKSILAH RIVERS WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Turbidity max increase: 5 NTU or 10%	Koksilah River: E206976 at Koksilah Rd	Aug. 4 - Aug. 31	5	0.1 - 0.4 NTU max increase = 0.2 NTU	Objective met
	0123981 at Highway #1	Aug. 4 - Aug. 31	5	0.2 - 0.5 NTU max increase = 0.3 NTU	Objective met
Suspended Solids max increase 10 mg/L or 10%	Cowichan River: E206108 d/s Cowichan Lake	Aug. 4 -16, Aug. 31	5	<4 - 17 mg/L	Control Site
	E206107 400m d/s L. Cowichan STP	Aug 4 - Aug 31	5	all < 4 mg/L max increase = 0 mg/L	Objective met
	0120802 u/s Highway 1	Aug. 4 - Aug. 31	5	all < 4 mg/L max increase = 0 mg/L	Objective met
	E206106 1 km d/s Duncan STP	Aug 4 - Aug 31	5	all < 4 mg/L max increase = 0 mg/L	Objective met
	Koksilah River: E207425 Pt. Renfrew Rd.	Aug 4 - Aug 31	5	all < 4 mg/L	Control site
	E206976 Koksilah Rd.	Aug. 4 - Aug. 31	5	all < 4 mg/L max increase = 0 mg/L	Objective met
	0123981 at Highway #1	Aug 4 - Aug. 31	5	< 4 - 4 mg/L max increase = 0 mg/L	Objective met
Ammonia-N <1.30 mg/L av 6.75 mg/L max at pH = 7.9 temp = 15 C	Cowichan River: E206108 d/s Cowichan Lake	Aug. 4 - Aug. 31 Apr 1 - Nov 3	5 12	av = 0.007 mg/L <0.005 - 0.020 mg/L	Av obj. met Max obj. met
	0120808 300m u/s L. Cowichan STP	Apr 1 - Nov 3	7	<0.005 - 0.009 mg/L	Max obj. met
	E206107 400m d/s L. Cowichan STP	Aug 4 - Aug 31 Apr 1 - Nov 3	5 12	av = 0.10 mg/L <0.005 - 0.024 mg/L	Av obj. met Max obj. met
	0120802 u/s Highway #1	Aug. 4 - Aug. 31 Apr 1 - Nov 3	5 12	av < 0.007 mg/L <0.005 - 0.017 mg/L	Av obj. met Max obj. met
	E206106 1 km d/s Duncan STP	Aug 4 - Aug 31 Apr 4 - Nov 3	5 12	av = 0.031 mg/L <0.005 - 0.110 mg/L	Av obj. met Max obj. met
Chlorophyll-a 50 mg/m2 max	Cowichan River E206107 400m d/s L. Cowichan STP	Aug. 4	6	13.4 - 33.0 mg/m2 av = 21 mg/m2	Objective met
		Aug. 11	3	33.9 - 41.2 mg/m2 av = 38.1 mg/m2	Objective met
Tot Cl2 Res. 0.002 mg/L max	Cowichan River	1993	0	no data collected	Ommitted 1993

TABLE 2 continued

COWICHAN - KOKSILAH RIVERS WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 8.0 mg/L min Jun - Sep 11.2 mg/L min Oct - May	Cowichan River: E206108 d/s Cowichan Lake	Jul 5 - Aug 31 Aug. 10 May. 4	5 1 1	8.0 - 9.7 mg/L 7.9 mg/L 9.1 mg/L	Obj. met Obj. not met Obj. not met
	0120808 300m u/s L. Cowichan STP	May. 4 Jul. 5	1 1	8.6 mg/L 8.2 mg/L	Obj. not met Obj. met
	E206107 400m d/s L. Cowichan STP	Jul 5 - Aug 31 May. 4	6 1	8.0 - 11.2 mg/L 8.8 mg/L	Obj. met Obj. not met
	0120802 u/s Highway 1	Jul 5 - Aug 31 May. 4	6 1	8.6 - 10.2 mg/L 9.0 mg/L	Obj. met Obj. not met
	E206106 1 km d/s Duncan STP	Jul 5 - Aug 31 May. 4	6 1	8.1 - 9.4 mg/L 7.6 mg/L	Obj. met Obj. not met
	Koksilah River: E207425 Pt. Renfrew Rd.	Jul 5 - Aug 31 Aug. 4 May. 4	5 1 1	10.0 - 10.6 mg/L 7.2 mg/L 9.0 mg/L	Obj. met Obj. not met Obj. not met
	E206976 Koksilah Rd.	Aug 10 - Aug 31 Jul 5 - Aug 4 May. 4	4 2 1	9.0 - 10.7 mg/L 6.2 - 7.0 mg/L 9.3 mg/L	Obj. met Obj. not met Obj. not met
	0123981 at Highway 1	Jul 5 - Aug 31 Aug. 16 May. 4	5 1 1	6.1 - 7.8 mg/L 9.6 mg/L 6.6 mg/L	Obj. not met Obj. met Obj. not met
Dissolved Cu <0.002 mg/L av 0.004 mg/L max or 20% increase	Cowichan River: E206108 d/s Cowichan Lake	Aug. 4 - Aug. 31	5	< 0.001 - 0.001 mg/L av = 0.001 mg/L	Objectives met
	E206107 400m d/s L. Cowichan STP	Aug 4 - Aug 31	5	all < 0.001 mg/L	Objectives met
	0120802 Highway #1	Aug. 4 - Aug. 31	5	< 0.001 - 0.003 mg/L av = 0.002 mg/L	Objectives met
	E206106 1 km d/s Duncan STP	Aug 4 - Aug 31	5	all < 0.001 mg/L	Objectives met
	Koksilah River: E207425 Pt. Renfrew Rd.	Aug. 4 - Aug. 31	5	all < 0.001 mg/L	Objectives met
	E206976 Koksilah Rd.	Aug. 4 - Aug. 31	5	< 0.001 - 0.001 mg/L av = < 0.001 mg/L	Objectives met
	0123981 Highway #1	Aug. 4 - Aug. 31	5	all < 0.001 mg/L	Objectives met
Dissolved Pb <0.003 mg/L av 0.008 mg/L max or 20% increase	Cowichan River: E206108 d/s Cowichan Lake	Aug. 4 - Aug. 31	5	all < 0.001 mg/L	Objectives met

TABLE 2 continued

COWICHAN - KOKSILAH RIVERS WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Pb <0.003 mg/L av 0.008 mg/L max or 20% increase	Cowichan River: E206107 400m d/s L. Cowichan STP	Aug 4 - Aug 31	5	all < 0.001 mg/L	Objectives met
	012802 at Highway #1	Aug. 4 - Aug. 31	5	< 0.001 - 0.001 mg/L	Objectives met
	E206106 1 km d/s Duncan STP	Aug 4 - Aug 31	5	all < 0.001 mg/L	Objectives met
	Koksilah River: E207425 Pt. Renfrew Rd.	Aug. 4 - Aug. 31	5	all < 0.001 mg/L	Objectives met
	E206976 Koksilah Rd.	Aug. 4 - Aug. 31	5	all < 0.001 mg/L	Objectives met
	0123981 at Highway #1	Aug. 4 - Aug. 31	5	all < 0.001 mg/L	Objectives met
Dissolved Zn <0.030 mg/L av 0.180 mg/L max or 20% increase	Cowichan River: E206108 d/s Cowichan Lake	Aug. 4 - Aug. 31	5	< 0.002 - 0.008 mg/L av = 0.005 mg/l	Objectives met
	E206107 400m d/s L. Cowichan STP	Aug 4 - Aug 31	5	<0.002 - 0.002 mg/L av < 0.002 mg/L	Objectives met
	0120802 u/s Highway #1	Aug. 4 - Aug. 31	5	< 0.002 - 0.071 mg/L av = 0.019 mg/L	Objectives met
	E206106 1 km d/s Duncan STP	Aug 4 - Aug 31	5	<0.002 - 0.004 mg/L av < 0.002 mg/L	Objectives met
	Koksilah River: E207425 Pt Renfrew Rd.	Aug. 4 - Aug. 31	5	< 0.002 - 0.020 mg/L av = 0.009 mg/L	Objectives met
	E206976 at Koksilah Rd.	Aug. 4 - Aug. 31	5	< 0.002 - 0.006 mg/L av = 0.003 mg/L	Objectives met
	0123981 at Highway #1	Aug. 4 - Aug. 31	5	< 0.002 - 0.005 mg/L av = 0.003 mg/L	Objectives met
Cu-8 Quinolinolate 0.0005 mg/L max	Cowichan River	1993	0	no data collected	Omitted 1993

TABLE 3

MIDDLE QUINSAM LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE		MEASUREMENT			CONCLUSION
	SITE	DATE	n	VALUE	
Total-P <0.007 mg/L av (May - Sep)	Long Lake: E206619 over deepest point	Jul 31 - Aug 21	6	< 0.003 - 0.009 mg/L (1 - 9 m) av = 0.004 mg/L	Objective met
Total-P <0.006 mg/L av (May - Sep)	Middle Quinsam Lake: E206618 over deepest point	May 16 - July 14	9	<0.003 - 0.007 mg/L (1 - 9 m) av = 0.004 mg/L	Objective met
Chlorophyll-a < 50 mg/m2	Quinsam River E206901 into Middle Quinsam L.	Jul. 14	6	7.3 - 22.7 mg/m2 av = 16.2 mg/m2	Objective met
	0900504 d/s Middle Quinsam L.	Jul. 14	6	8.1 - 67.7 mg/m2 av = 28.8 mg/m2	Objective met
	Long Lake outflow E219412	Jul. 31	5	0.6 - 3.5 mg/m2 av = 2.3 mg/m2	Objective met
	Flume Lake outflow	1993	0	No data collected	Omitted 1993
Turbidity <1.0 NTU av 5.0 NTU max	Quinsam River: 0900504 d/s Middle Quinsam L.	June 16 - July 14	5	0.2 - 0.3 NTU av = 0.2 NTU	Objectives met
		Nov 3-Nov 30	5	0.1 -0.7 NTU av = 0.5 NTU	Objectives met
Suspended Solids <5 mg/L av 25 mg/L max or 10 mg/L max increase	Quinsam River: 0126402 u/s Middle Quinsam L.	June 16 - July14	5	all < 4.0 mg/L	Control site
		Nov 3 - Nov 23	4	all < 4.0 mg/L	
	E206901 into Mid. Quinsam L.	June 16 - July 14	5	all < 4.0 mg/L	Objectives met
	0900504 d/s Middle Quinsam L.	June 16 - July 14	5	all < 4.0 mg/L	Objectives met
		Nov. 3 - Nov 30	5	< 4.0 mg/L	Objectives met
	Middle Quinsam Lake: E206618 over deepest point	May 18 - August 18	7	(1 - 9m) all < 4.0 mg/L	Objectives met
		Nov 3 - Nov 30	5	all < 4.0 mg/L	
	Long Lake E206619 over deepest point	Jul. 31, Aug 21	2	all < 4.0 mg/L	Max obj. met Av not chekd.
	E219412 at outlet	Nov 3 - Nov 30	5	all < 4.0 mg/L	Objectives met
	Flume Lake outflow	1993	0	no data collected	Omitted 1993
Ammonia-N <1.82 mg/L av 12.5 mg/L max at pH = 7.5 temp = 12 C	Quinsam River: 0126402 u/s Middle Quinsam L.	June 16 - July 14	5	<0.005 - 0.009 mg/L	Objectives met
		Nov 3 - Nov 23	4	<0.005 - 0.014 mg/L	Max obj. met
	E206901 into Middle Quinsam L.	June 16 - July 14	5	<0.005 - 0.011 mg/L	Objectives met
		Nov 3 - Nov 30	4	<0.005 - 0.006 mg/L	Max obj. met
	0900504 d/s Middle Quinsam L.	June 16 - July 14	5	< 0.005 - 0.007 mg/L	Objectives met
		Nov 3 - Nov 30	5	0.005 - 0.011 mg/L	Objectives met

TABLE 3 continued

MIDDLE QUINSAM LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Ammonia-N	Mid. Quinsam Lk.			(1 - 9m)	
	E206618	May 15 - August 18	7	0.006 - 0.015 mg/L	Max obj. met
<1.82 mg/L av	over deepest point	Nov 3 - Nov 30	5	0.006 - 0.012 mg/L	Objectives met
12.5 mg/L max	Long Lake				
at	E206619	Aug. 21	3	all < 0.005 mg/L	Max obj. met
pH = 7.5	over deepest point				Av not chekd.
temp = 12 C	E219412				
	at outlet	Nov 3 - Nov 30	5	< 0.005 - 0.010 mg/L	Objectives met
	Flume Lake outflow	1993	0	no data collected	Objective not checked
Nitrate-N	Quinsam River:				
	0126402	Jun 16 - Jul 14	5	< 0.02 - 0.05 mg/L	Objectives met
	u/s Middle Quinsam L.	Nov 3 - Nov 23	4	< 0.02 - 0.03 mg/L	Max obj. met
<40 mg/L av					
200 mg/L max	E206901	Jun 16 - Jul 14	5	<0.02 - 0.04 mg/L	Objectives met
	into Middle Quinsam Lk.	Nov 3 - Nov 30	4	<0.005 - 0.006 mg/L	Max obj. met
	Middle Quinsam Lake:			(1 - 9m)	
	E206618	Jun 16 - Jul 14	15	<0.02 - 0.03 mg/L	Objectives met
	over deepest point	Nov 3 - Nov 23	12	<0.02 - 0.03 mg/L	Objectives met
	Long Lake				
	E206619	Aug. 21	3	<0.02 - 0.03 mg/L	Max obj. met
	over deepest point			(1 - 9m)	
	E219412	Nov 3 - Nov 30	5	<0.02 - 0.02 mg/L	Objectives met
	at outlet				
	Flume Lake outflow	1993	0	no data collected	Omitted 1993
Nitrate	Quinsam River:				
10 mg/L max	0900504	Jun 16 - Nov 30	11	<0.02 - 0.03 mg/L	Objective met
	d/s Middle Quinsam L.				
Nitrite-N	Quinsam River:				
	0126402	June 16 - July 14	5	all < 0.005 mg/L	Objectives met
<0.02 mg/L av	u/s Middle Quinsam L.	Nov. 3 - Nov. 23	4	all < 0.005 mg/L	Max obj. met
0.06 mg/L max					
	E206901	June 16 - July 14	5	all < 0.005 mg/L	Objectives met
	into Mid. Quinsam Lk.	Nov 3 - Nov 30	5	all < 0.005 mg/L	Objectives met
	0900504	June 16 - July 14	5	all < 0.005 mg/L	Objectives met
	d/s Middle Quinsam L.	Nov. 3 - Nov. 30	5	all < 0.005 mg/L	Objectives met
	Middle Quinsam Lake			(1 - 9m)	
	E206618	Jun 16 - Jul 14	15	all < 0.005 mg/L	Objectives met
	over deepest point	Nov 3 - NOv. 30	15	all < 0.005 mg/L	Objectives met
	Long Lake:				
	E206619	Aug. 21	3	all < 0.005 mg/L	Max obj. met
	over deepest point			(1 - 9m)	
	E219412	Nov. 3 - Nov. 30	5	all < 0.005 mg/L	Objectives met
	at outlet				
	Flume Lake outflow	1993	0	no data collected	Omitted 1993

TABLE 3 continued

MIDDLE QUINSAM LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Diss. Oxygen 3 mg/L min 1m above seds. May - Sep	Middle Quinsam Lake E206618 at deepest point	May 18 - Aug 18	4	7.8 - 11.9 mg/L (10 - 11m)	Objective met
	Long Lake E206619 at deepest point	Jul 31 - Aug 21	2	7.5 - 8.0 mg/L at 10 m	Objective met
pH >6.5 90th perc (np) >6.9 median (med)	Quinsam River: 0126402 u/s Middle Quinsam L.	Jun 16 - Jul 14	6	np = 7.8 med = 7.8	Objectives met
		Nov 3 - Nov 23	4	7.0 - 7.8	Objectives met
	E206901 into Mid. Quinsam Lk.	Jun 6 - Jul 14	5	np = 7.7 med = 7.6	Objectives met
		Nov 9 - Nov 30	3	7.1 - 7.3	Objectives met
	0900504 d/s Middle Quinsam L.	Jun 16 - Jul 14	6	np = 7.7 med = 7.7	Objectives met
		Nov 9 - Nov 30	4	7.1 - 7.5	Objectives met
	Middle Quinsam Lake E206618 over deepest point	Jun 16 - Jul 14	15	np = 7.7; med = 7.6 (1 - 9m)	Objectives met
		Nov 3 - Nov 30	15	np = 7.3; med = 7.2 (1 - 9m)	Objectives met
	Long Lake E206619 over deepest point	Aug. 21	3	6.6 - 7.6 (1 - 9m)	Indefinite result
	E219412 at outlet	Nov 3 - Nov 30	5	np = 7.2 med = 7.1	Objectives met
	Flume Lake outflow	1993	0	no data collected	Omitted 1993
Dissolved Al <0.05 mg/L av 0.1 mg/L max	Quinsam River: 0126402 u/s Middle Quinsam L.	Jun 16 - Jul 14 Nov 3 - Nov 23	6 4	all < 0.02 mg/L <0.02 - 0.02 mg/L	Objectives met Max obj. met
	Quinsam River: E206901 into Mid. Quinsam Lake	Jun 16 - Jul 14 Nov 3 - Nov 30	5 4	all < 0.02 mg/L all < 0.02 mg/L	Objectives met Max obj. met
	0900504 d/s Middle Quinsam L.	Jun 16 - Jul 14 Nov 3 - Nov 30	5 5	all < 0.02 mg /L <0.02 - 0.03 mg/L	Objectives met Objectives met
	Middle Quinsam Lake: E206618 over deepest point	Jun 16 - Jul 14 Nov 3 - Nov 30	15 15	(1 - 9m) all < 0.02 mg/L <0.02 - 0.02 mg/L	Objectives met Objectives met
	Long Lake: E206619 over deepest point	Aug. 21	3	<0.02 - 0.02 mg/L (1 - 9m)	Max obj. met Av not chekd.
	E219412 at outlet	Nov 3 - Nov 30	5	all < 0.02 mg /L	Objectives met
	Flume Lake outflow	1993	0	no data collected	Omitted 1993
Total As <0.05 mg/L max	Quinsam River: 0126402 u/s Middle Quinsam L.	June 16 - Nov 23	10	all < 0.04 mg/L	Objective met
	E206901 into Mid. Quinsam Lk.	June 16 - Nov 30	9	all < 0.04 mg/L	Objective met

TABLE 3 continued

MIDDLE QUINSAM LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Total As <0.05 mg/L max	Quinsam River: 0900504 d/s Middle Quinsam L.	June 16 - Nov 30	11	all < 0.04 mg/L	Objective met
	Middle Quinsam Lake: E206618 over deepest point	May 18 - Nov 30	36	(1 - 9m) all < 0.04 mg/L	Objective met
	Long Lake E206619 over deepest point	July 31 & Aug 21	6	all < 0.04 mg/L (1 - 9m)	Objective met
	E219412 at outlet	Nov 3 - Nov 30	5	all < 0.04 mg/L	Objective met
	d/s from Flume Lk.	1993	0	no data collected	Omitted 1993
Total Cd <0.0002mg/L av 0.0003mg/L max	Quinsam River: 0126402 u/s Middle Quinsam L.	June 16 - July 14 Nov 3 - Nov 23	6 4	all < 0.0001 mg/L all < 0.0001 mg/L	Objectives met Max obj. met
	E206901 into Middle Quinsam Lk.	June 16 - July 14 Nov 3 - Nov 30	5 4	all < 0.0001 mg/L all < 0.0001 mg/L	Objectives met Max obj. met
	0900504 d/s Middle Quinsam L.	June 16 - July 14 Nov 3 - Nov 30	6 5	all < 0.0001 mg/L all < 0.0001 mg/L	Objectives met Max obj. met
	Middle Quinsam Lake: E206618 over deepest point	Jun 16 - Jul 14 Nov 3 - Nov 30	15 15	all < 0.0001 mg/L all < 0.0001 mg/L (1 - 9m)	Objectives met Objectives met
	Long Lake: E206619 over deepest point	July 31 & Aug 21	6	all < 0.0001 mg/L (1 - 9m)	Max obj. met
	E219412 at outlet	Nov 3 - Nov 30	5	all < 0.0001 mg/L	Objectives met
	Flume Lake outlet	1993	0	no data collected	Omitted 1993
Total Co 0.05 mg/L max	Quinsam River: 0900504 d/s Middle Quinsam L.	June 16 - July 14 Nov 3 - Nov 30	6 5	< 0.004 mg/L < 0.004 mg/L	Objective met Objective met
Total Cu <0.002 mg/L av	Quinsam River: 0126402 u/s Mid. Quinsam L.	June 16 - July 14 Nov 3 - Nov 23	6 4	all < 0.002 mg/L all < 0.002 mg/L	Objective met Indef. result
	E206901 into Mid. Quinsam L.	June 16 - July 14 Nov 3 - Nov 30	5 4	all < 0.002 mg/L all < 0.002 mg/L	Objective met Indef. result
	0900504 d/s Middle Quinsam L.	June 16 - July 14 Nov 3 - Nov 30	6 5	all < 0.002 mg/L all < 0.002 mg/L	Objective met Objective met
	Middle Quinsam Lake: E206618 over deepest point	Jun 16 - Jul 14 (1 - 9m)	15	<0.002 - 0.003 mg/L av < 0.002 mg/L	Objective met
		Nov 3 - Nov 30 (1 - 9m)	15	<0.002 - 0.003 mg/L av < 0.002 mg/L	Objective met
	Long Lake: E206619 over deepest point	July 31 & Aug 21	6	all < 0.002 mg/L (1 - 9m)	Indefinite result
	E219412 at outlet	Nov 3 - Nov 30	5	all < 0.002 mg/L	Objective met

TABLE 3 continued

MIDDLE QUINSAM LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Total Cu < 0.002 mg/L av	Flume Lake outlet	1993	0	no data collected	Omitted 1993
Total Fe <0.3 mg/L av	Quinsam River: 0126402 u/s Middle Quinsam L.	June 16 - July 14 Nov 3 - Nov 23	6 4	<0.05 - 0.06 mg/L <0.05 - 0.32 mg/L	Objective met Indet. result
	E206901 into Mid. Quinsam Lk.	June 16 - July 14	5	0.10 - 0.12 mg/L av = 0.11 mg/L	Objective met
		Nov 3 - Nov 30	4	0.08 - 0.10 mg/L	Indefinite result
	0900504 d/s Middle Quinsam L.	June 16 - July 14 Nov 3 - Nov 30	6 4	0.05 - 0.07 mg/L 0.05 - 0.08 mg/L	Objective met Indef. result
	Middle Quinsam Lake E206618 over deepest point	Jun 16 - Jul 14 Nov 3 - Nov 30	15 15	<0.05 - 0.10 mg/L <0.05 - 0.08 mg/L (1 - 9m)	Objective met Objective met
	Long Lake E206619 over deepest point	July 31 & Aug 21	2	<0.05 - 0.10 mg/L (1 - 9m)	Indefinite result
	E219412 at outlet	Nov 3 - Nov 30	5	0.05 - 0.11 mg/L	Objective met
	Flume Lake outflow	1993	0	no data collected	Omitted 1993
Total Pb <0.003 mg/L av 0.005 mg/L max	Quinsam River: 0126402 u/s Middle Quinsam L.	June 16 - July 14	6	<0.003 - 0.005 mg/L av < 0.003 mg/L	Objectives met
		Nov 3 - Nov 23	4	all < 0.003 mg/L	Max obj. met
	E206901 into Mid. Quinsam Lk.	June 16 - July 14 Nov 3 - Nov 30	5 4	<0.003 - 0.003 mg/L all < 0.003 mg/L	Objectives met Max obj. met
	0900504 d/s Middle Quinsam L.	June 16 - July 14 Nov 3 - Nov 30	6 5	all < 0.003 mg/L <0.003 - 0.003 mg/L	Objectives met Objectives met
	Middle Quinsam Lake: E206618 over deepest point	Jun 16 - Jul 14	15	(1 - 9m) all < 0.003 mg/L	Objectives met
		Nov 3 - Nov 30 Nov 3 - Nov 30 Nov. 30	15 14 1	av < 0.003 mg/L <0.003 - 0.005 mg/L 0.007 mg/L (at 9m)	Av obj. met Max obj. met Max not met
	Long Lake: E206619 over deepest point	July 31 & Aug 21	6	all < 0.003 mg/L (1 - 9m)	Max obj. met Av not chekd.
	E219412 at outlet	Nov 3 - Nov 30	5	all < 0.003 mg/L	Objectives met
	Flume Lake outflow	1993	0	no data collected	Omitted 1993
Total Mn 0.05 mg/L max	Quinsam River: 0900504 d/s Middle Quinsam L.	June 16 - July 14 Nov 3 - Nov 23	6 5	0.006 - 0.010 mg/L 0.013 - 0.016 mg/L	Objective met Objective met
Total Hg 0.1 ug/L max	Quinsam River: 0126402 u/s Middle Quinsam L.	Jun 16 - Jul 14 Nov 3 - Nov 30	5 5	<0.005 - 0.006 ug/L <0.005 - 0.005 ug/L	Objective met Objective met
	E206901 into Mid. Quinsam Lk.	Jun 16 - Jul 14 Nov 3 - Nov 30	6 4	<0.005 - 0.009 ug/L <0.005 - 0.005 ug/L	Objective met Objective met

TABLE 3 continued

MIDDLE QUINSAM LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE		MEASUREMENT			CONCLUSION
	SITE	DATE	n	VALUE	
Total Hg	Quinsam River:				
	0900504	Jun 16 - Jul 14	6	all < 0.005 ug/L	Objective met
0.1 ug/L max	d/s Middle Quinsam L.	Nov 3 - Nov 30	6	<0.005 - 0.008 ug/L	Objective met
	Middle Quinsam Lake: E206618 over deepest point	May 18 - Nov 30	40	(1 - 9m) <0.005 - 0.022 ug/L	Objective met
	Long Lake: E206619 over deepest point	Jul 31 & Aug 31	8	<0.005 - 0.005 ug/L (1 - 9m)	Objective met
	E219412 at outlet	Jul 31 - Nov 30	8	all < 0.005 ug/L	Objective met
	Flume Lake outflow	1993	0	no data collected	Omitted 1993
Total Hg	Middle Quinsam Lake Long Lake	1993	0	no data collected	Objective not checked
0.5 mg/kg max in fish, wet wt.	Quinsam River Flume & Long lake outflows	1993	0	no data collected	Omitted 1993
Total Ni	Quinsam River:				
	0126402	Jun 16 - Nov 23	9	all < 0.01 mg/L	Objective met
0.025 mg/L max	u/s Middle Quinsam L.	Nov. 9	1	0.03 mg/L	Obj. not met
	E206901 into Mid. Quinsam Lk.	Jun 16 - Nov 30	9	all < 0.01 mg/L	Objective met
	0900504 d/s Mid Quinsam L.	Jun 16 - Nov 30	11	all < 0.01 mg/L	Objective met
	Middle Quinsam Lake: E206618 over deepest point	May 18 - Nov 30	36	all < 0.01 mg/L (1 - 9m)	Objective met
	Long Lake: E206619 over deepest point	Jul 31 & Aug 21	6	<0.01 - 0.01 mg/L (1 - 9m)	Objective met
	E219412 at outlet	Nov 3 - Nov 30	5	all < 0.01 mg/L	Objective met
	Flume Lake outlet	1993	0	no data collected	Omitted 1993
Total Ag	Quinsam River:				
	0126402	Jun 16 - Nov 23	10	all < 0.0001 mg/L	Objective met
0.0001mg/L max	u/s Middle Quinsam L.				
	Quinsam River: E206901 into Mid. Quinsam Lk.	Jun 16 - Nov 30	9	<0.0001 - 0.0001 mg/L	Objective met
	0900504 d/s Middle Quinsam L.	Jun 16 - Nov 30	11	<0.0001 - 0.0001 mg/L	Objective met
	Middle Quinsam Lake: E206618	May 18 - Nov 30	35	(1 - 9m) <0.0001 - 0.0001 mg/L	Objective met

TABLE 3 continued

MIDDLE QUINSAM LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT SITE	DATE	n	VALUE	CONCLUSION
Total Ag 0.0001mg/L max	Long Lake: E206619 over deepest point	Jul 31 & Aug 21	6	all < 0.0001 mg/L (1 - 9m)	Objective met
	E219412 at outlet	Nov 9 - Nov 30 Nov. 3	4 1	all < 0.0001 mg/L 0.0002 mg/L	Objective met Obj. not met
	Flume Lake outlet	1993	0	no data collected	Omitted 1993
Total Zn 0.03 mg/L max	Quinsam River: 0126402 u/s Middle Quinsam L.	Jun 16 - Nov 23 Jul. 14	9 1	<0.01 - 0.02 mg/L 0.45 mg/L	Objective met Obj. not met
	E206901 into Mid. Quinsam Lk.	Jun 16 - Nov 30	9	<0.01 - 0.01 mg/L	Objective met
	0900504 d/s Middle Quinsam L.	Jun 16 - Nov 30 Jul. 14	10 1	<0.01 - 0.01 mg/L 0.08 mg/L	Objective met Obj. not met
	Middle Quinsam Lake: E206618 over deepest point	May 18 - Nov 30	36	<0.01 - 0.02 mg/L (1 - 9m)	Objective met
	Long Lake E206619 over deepest point	Jul 31 & Aug 21	5	<0.01 - 0.02 mg/L (1 - 9m)	Objective met
		Jul. 31	1	0.07 mg/L (at 9m)	Objective not met
	E219412 at outlet	Nov 3 - Nov 30	5	<0.01 - 0.02 mg/L	Objective met
	Flume Lake outlet	1993	0	no data collected	Omitted 1993

TABLE 4

OYSTER RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <100/100 mL 90th perc. (np)	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15 Aug. 5 - Aug. 31	5 5	np = 6.5 mg/L np = 6 mg/L	Objective met Objective met
	0125582 u/s Woodhus	May 19 - June 15 Aug. 5 - Aug. 31	5 5	np = 3.5 mg/L np = 9.5 mg/L	Objective met Objective met
	0125580 at Highway	May 19 - June 15 Aug. 5 - Aug. 31	5 5	np = 33 mg/L np = 19 mg/L	Objective met Objective met
Turbidity <7 NTU 90th perc.	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	< 0.1 - 0.2 NTU np = 0.15 NTU	Objective met
	0125582 u/s Woodhus	May 19 - June 15	5	0.3 - 0.7 NTU np = 0.65 NTU	Objective met
	0125580 at highway	May 19 - June 15	5	0.4 - 1.2 NTU np = 0.9 NTU	Objective met
Susp. Solids 12 mg/L max	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	all < 4 mg/L	Objective met
	0125582 u/s Woodhus	May 19 - June 15	5	all < 4 mg/L	Objective met
Susp. Solids <15 mg/L 90th perc.	Oyster River 0125580 at highway	May 19 - June 15	5	all < 4 mg/L	Objective met
Ammonia-N <1.85 mg/L av 12.7 mg/L max at pH = 7.5 temp = 10 C	Oyster River Woodhus Creek Little Oyster River	1993	0	no data collected	Omitted 1993
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Oyster River Woodhus Creek Little Oyster River	1993	0	no data collected	Omitted 1993
Nitrate-N 10 mg/L max	Oyster River Woodhus Creek Little Oyster River	1993	0	no data collected	Omitted 1993
pH 6.5 - 8.5	Oyster River: E208377 u/s Adrian Creek	May 19 - June 15	5	6.7 - 7.5	Objective met

TABLE 4 continued

OYSTER RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
pH 6.5 - 8.5	Oyster River: 0125582 u/s Woodhus	May 19 - June 15	5	7.4 - 7.5	Objective met
	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15	5	7.5 - 7.8	Objective met
	Little Oyster River: E207430 near the mouth	May 19 - June 15	5	7.3 - 7.8	Objective met
pH >6.5 90th perc (np) 8.5 max	Oyster River: 0125580 near the mouth	May 19 - June 15	5	7.2 - 7.7 np = 7.6	Objectives met
Dissolved Al <0.05 mg/L av 0.1 mg/L max	Oyster River: E208337 u/s Adrian Cr.	May 19 - June 15	5	0.01 - 0.03 mg/l av = 0.02 mg/L	Objectives met
	0125582 u/s Woodhus	May 19 - June 15	5	0.03 - 0.07 mg/L av = 0.05 mg/L	Objectives met
	0125580 at highway	May 19 - June 15	5	0.04 - 0.07 mg/L av = 0.05 mg/L	Objectives met
	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15 Jun. 2 May 19 - June 15	5 1 4	av = 0.09 mg/L 0.18 mg/L 0.05 - 0.10 mg/L	Av not met Max not met Max obj. met
	Little Oyster River: E207430 near the mouth	May 19 - June 15 Jun. 2 May 19 - June 15	5 1 4	av = 0.10 mg/L 0.23 mg/L 0.05 - 0.08 mg/L	Av not met Max not met Max obj. met
Total As 0.05 mg/L max	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	all < 0.001 mg/L	Objective met
	0125582 u/s Woodhus	May 19 - June 15	5	all < 0.001 mg/L	Objective met
	0125580 at highway	May 19 - June 15	5	all < 0.001 mg/L	Objective met
	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15	5	all < 0.001 mg/L	Objective met
	Little Oyster River: E207430 near the mouth	May 19 - June 15	5	all < 0.001 mg/L	Objective met

TABLE 4 continued

OYSTER RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Cd 0.2 ug/L max	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	all < 0.1 ug/L	Objective met
	0125582 u/s Woodhus	May 19 - June 15	5	all < 0.1 ug/L	Objective met
	0125580 at highway	May 19 - June 15	5	all < 0.1 ug/L	Objective met
	Woodhus Creek: E207431 ~ 5km from mouth	May 19 - June 15	5	< 0.1 - 0.1 ug/L	Objective met
	Little Oyster River: E207430 near mouth	May 19 - June 15	5	all < 0.1 ug/L	Objective met
Total Cr 2 ug/L max	Oyster River : E208377 u/s Adrian Cr.	May 19 - June 15 Jun. 26	4 1	all < 2 ug/L 5 ug/L	Obj. met Obj. not met
	0125582 u/s Woodhus	May 19 - June 15	5	< 2 - 2 ug/L	Objective met
	0125580 at highway	May 19 - June 15	5	< 2 - 2 ug/L	Objective met
	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15 Jun. 8	4 1	all < 2 ug/L 8 ug/L	Obj. met Obj. not met
	Little Oyster River: E207430 near the mouth	June 9 - June 16 May 19 - June 2	2 3	all < 2 ug/L all = 3 ug/L	Obj. met Obj. not met
Total Co 50 ug/L max	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	all < 4 ug/L	Objective met
	0125582 u/s Woodhus	May 19 - June 15	5	all < 4 ug/L	Objective met
	0125580 at highway	May 19 - June 15	5	all < 4 ug/L	Objective met
	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15	5	all < 4 ug/L	Objective met
	Little Oyster River: E207430 near the mouth	May 19 - June 15	5	all < 4 ug/L	Objective met

TABLE 4 continued

OYSTER RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Cu < 3 ug/L av 5 ug/L 90th perc. (np)	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	av = 2.6 ug/L np = 3 ug/L	Objectives met
	0125582 u/s Woodhus	May 19 - June 15	5	av = 3 ug/L np = 4 ug/L	Objectives met
	0125580 at highway	May 19 - June 15	5	av = 2.6 ug/L np = 3.5 ug/L	Objectives met
Total Cu < 10 ug/L 90th perc. (np)	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15	5	< 2 - 6 ug/L np = 4.5 ug/L	Objective met
	Little Oyster River: E207430 near the mouth	May 19 - June 15	5	< 2 - 4 ug/L np = 4 ug/L	Objective met
Dissolved Fe <0.3 mg/L 90th perc. (np)	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	< 0.005 - 0.007 mg/L np = 0.007 mg/L	Objective met
	0125582 u/s Woodhus	May 19 - June 15	5	0.014 - 0.033 mg/L np = 0.032 mg/L	Objective met
	0125580 at highway	May 19 - June 15	5	0.036 - 0.076 mg/L np = 0.055 mg/L	Objective met
Total Pb < 3.5 ug/L av 5.4 ug/L max at hardness 11.8 mg/L	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	all < 3 ug/L	Objectives met
	0125582 u/s Woodhus	May 19 - June 15	5	all < 3 ug/L	Objectives met
	0125580 at highway	May 19 - June 15	5	all < 3 ug/l	Objectives met
Total Pb < 3.6 ug/L 8.9 ug/L max at hardness 17.6 mg/L	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15	5	all < 3 ug/L	Objectives met
	Little Oyster River: E207430 near the mouth	May 19 - June 15	5	< 3 - 4 ug/L av < 4 ug/L	Objectives met
Total Pb 0.8 ug/g max in fish muscle	Oyster River Woodhus Creek Little Oyster River	1993	0	no data collected	Objective not checked
Total Mn 0.05 mg/L max	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	< 0.002 - 0.004 mg/L	Objective met

TABLE 4 continued

OYSTER RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Mn 0.05 mg/L max	Oyster River: 0125582 u/s Woodhus	May 19 - June 15	5	< 0.002 - 0.004 mg/L	Objective met
	0125580 at highway	May 19 - June 15	5	0.003 - 0.005 mg/L	Objective met
	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15	5	0.005 - 0.008 mg/L	Objective met
Total Hg <0.02 ug/L av 0.1 ug/L max	Oyster River: E208377 u/s Adrian Creek	May 19, June 15 Jun. 1 May 25, June 8	2 1 2	all < 0.005 ug/L 0.810 ug/L 0.92 - 2.08 ug/L	Max obj. met Max not met Indef. result (contamination)
	0125582 u/s Woodhus Cr.	May 19, June 15 Jun. 1 May, 25, June 8	2 1 2	all < 0.005 ug/L 0.470 ug/L 1.66 - 2.51	Max obj. met Max not met Indef. result (contamination)
	0125580 at highway	May 19, June 15 Jun. 1 May 25, June 8	2 1 2	all < 0.005 ug/L 0.139 ug/L 0.970 - 4.71 ug/L	Max obj. met Max not met Indef. result (contamination)
	Woodhus Creek: E207431 ~ 5 km from mouth	May 19, June 15 Jun. 1 May 25, June 8	2 1 2	all < 0.005 ug/L 0.131 ug/L 1.98 - 4.50 ug/L	Max obj. met Max not met Indef. result (contamination)
	Little Oyster Creek: E207430 near mouth	May 19, June 15 Jun. 1 May 25, June 8	2 1 2	all < 0.005 ug/L 0.257 ug/L 0.570 - 1.81 ug/L	Max obj. met Max not met Indef. result (contamination)
Total Hg 0.5 ug/g max in fish muscle	Oyster River Woodhus Creek Little Oyster River	1993	0	no data collected	Objective not checked
Total Ni 0.025 mg/L max	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	all < 0.01 mg/L	Objective met
	0125582 u/s Woodhus	May 19 - June 15	5	all < 0.01 mg/L	Objective met
	0125580 at highway	May 19 - June 15	5	all < 0.01 mg/L	Objectives met
	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15	5	all < 0.01 mg/L	Objective met
	Little Oyster River: E207430 near the mouth	May 19 - June 15	5	all < 0.01 mg/L	Objective met

TABLE 4 continued

OYSTER RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Zn <0.01 mg/L av 0.03 mg/L max	Oyster River: E208377 u/s Adrian Cr.	May 19 - June 15	5	av = < 0.01 mg/L max = 0.01 mg/L	Objectives met
	0125582 u/s Woodhus	May 19 - June 15 Jun. 8 May 19 - June 15	5 1 4	av = 0.02 mg/L 0.05 mg/L <0.01 - 0.02 mg/L	Av not met Max not met Max obj. met
	0125580 at highway	May 19 - June 15	5	all < 0.01 mg/L	Objectives met
	Woodhus Creek: E207431 ~ 5 km from mouth	May 19 - June 15	5	av = 0.014 mg/L max = 0.02 mg/L	Av not met Max obj. met
	Little Oyster River: E207430 near the mouth	May 19 - June 15	5	all < 0.01 mg/L	Objectives met

TABLE 5

ELK AND BEAVER LAKES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Temperature 15 C max in hypolimnion	Elk Lake 1100844 at centre	May 12 - Aug 31	5	6 - 12 C at 11m (start of hypolimnion)	Objective met
	Beaver Lake E207470 at centre	May 12 - Aug 31	5	13 - 23.5 C at 0 to 5 m (no hypolimnion formed)	Indefinite result
Dissolved Oxygen 5 mg/L min 1 m above sediment May - August	Elk Lake 1100844 at centre	May 12 - Aug 31	5	0.95 - 4.00 mg/L at 9 - 12 m	Objective not met
	Beaver Lake E207470 at centre	May 12 - Aug 31	4	0.8 - 1.5 mg/L at 4 - 5 m	Objective not met
Chlorophyll-a 1.5 - 2.5 ug/L av of duplicates at 0,2,4,6 m May - Aug	Elk Lake 1100844 at centre	May 12 - Aug 31	40	<0.5 - 7.8 ug/L duplicates at 0,2,4,6 m av = 3.7 ug/L	Objective not met
	Beaver Lake E207470 at centre	May 12 - Aug 31	30	5.3 - 31.4 ug/L duplicates at 0,2,4 m av = 12.9 ug/L	Objective not met
Water Clarity 1.9 m min Secchi disc reading	Elk Lake 1100844 at centre	May 12 - Aug 31	5	5.0 - 8.2 m	Objective met
	Beaver Lake E207470 at centre	May 12 - Aug 31	5	2.0 - 4.5 m	Objective met
Phytoplankton Community <50% Cyanophytes (cells/mL at surface) May - Aug	Elk Lake 1100844 at centre	Jun 10 & Aug 4	2	15.0 - 28.4 % Cyanophytes	Objective met
		May12, Jul 5, Aug 31	3	65.7 - 79.8 % Cyanophytes	Objective not met
	Beaver Lake E207470 at centre	May 12 - Aug 31	5	81.9 - 94.5 % Cyanophytes	Objective not met

TABLE 6

KATHLYN, SEYMOUR, ROUND & TYHEE LAKES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms: <10/100 mL 90th perc. (np) at water intakes <200/100 mL geometric mean (gm) <400/100 mL 90th perc. (np) at beaches	Kathlyn Lake: E207548 beach	Jul. 8 - Aug. 5	4	<1 - 36/100 mL	Indefinite result
	E207549 intake #2	Jul. 8 - Aug. 5	5	all < 1/100 mL	Objective met
	E207550 intake #3	Jul. 8 - Aug. 5	4	all < 1/100 mL	Indefinite result
	E207551 intake #4	Jul. 8 - Aug. 5	5	all < 1/100 mL	Objective met
	Seymour Lake: E207552 intake #1	Jul. 8 - Aug. 5	5	<1 - 1/100 mL np = <1/100 mL	Objective met
	E207553 intake #2	Jul. 8 - Aug. 5	5	<1 - 1/100 mL np = 1/100 mL	Objective met
	E207554 intake #3	Jul. 8 - Aug. 5	5	<1 - 1/100 mL np < 1/100 mL	Objective met
	Round Lake: E207555 beach	Jul. 8 - Aug. 5	5	1 - 159/100 mL gm = 9/100 mL np = 95/100 mL	Objectives met
	E207556 intake #2	Jul. 8 - Aug. 5	5	<1 - 2/100 mL np = 1/100 mL	Objective met
	E207557 intake #3	Jul. 8 - Aug. 5	5	<1 - 3/100 mL np = 2/100 mL	Objective met
	E207558 intake #4	Jul. 8 - Aug. 5	5	<1 - 1/100 mL np < 1/100 mL	Objective met
	Tyhee Lake: E207559 beach	Jul. 8 - Aug. 5	5	<1 - 7/100 mL gm = 1/100 mL np = 3.5/100 mL	Objectives met
	E207560 intake #2	Jul. 8 - Aug. 5	5	<1 - 4/100 mL np < 1/100 mL	Objective met
	E207561 intake #3	Jul. 8 - Aug. 5	5	all < 1/100 mL	Objective met
	E207562 intake #4	Jul. 8 - Aug. 5	5	all < 1/100 mL	Objective met
Turbidity <1 NTU av 5 NTU max	Kathlyn Lake: E207549 intake #2	Jul. 8 - Aug. 5	5	0.3 - 0.7 NTU av = 0.5 NTU	Objectives met

TABLE 6 continued

KATHLYN, SEYMOUR, ROUND & TYHEE LAKES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Turbidity <1 NTU av 5 NTU max	Kathlyn Lake: E207550 intake #3	Jul. 8 - Aug. 5	4	0.3 - 0.9 NTU	Max obj. met
	E207551 intake #4	Jul. 8 - Aug. 5	5	0.6 - 1.4 NTU av = 0.8 NTU	Objectives met
	Seymour Lake: E207552 intake #1	 Jul. 8, 29 Jul 22, Aug 5	 2 2	 4.5 - 4.7 NTU 5.4 - 6.0 NTU	 Max obj. met Max not met Av not chkd.
	E207553 intake #2	Jul. 22 Jul 8, 29, Aug 5	1 3	0.5 NTU all = 0.6 NTU	Max obj. met Max not met
	E207554 intake #3	Jul.8 - Aug. 5	4	0.2 - 0.4 NTU	Max obj. met
	Round Lake: E207556 intake #2	Jul. 8 - Aug. 5	5	0.3 - 2.0 NTU av = 0.9 NTU	Objectives met
	E207557 intake #3	Jul. 8 - Aug. 5 Jul 8,15,22 Jul 29, Aug 5	5 3 2	av = 3.4 NTU 0.3 - 3.0 NTU 5.8 - 6.5 NTU	Av obj. not met Max obj. met Max not met
	E207558 intake #4	Jul. 8 - Aug. 5	5	1.2 - 1.6 NTU av = 1.4 NTU	Max obj. met av not met
	Tyhee Lake: E207560 intake #2	Jul. 8 - Aug. 5	5	0.3 - 0.6 NTU av = 0.4 NTU	Objectives met
	E207561 intake #3	Jul. 8 - Aug. 5	5	0.4 - 1.6 NTU av = 0.7 NTU	Objectives met
	E207562 intake #4	Jul. 8 - Aug. 5	5	0.5 - 3.5 NTU av = 1.6 NTU	Max obj. met Av not met
Total P <0.015 mg/L av at spring overturn	Kathlyn Lake 1131007 North Basin	Apr. 19	3	0.0 m: 0.010 mg/L 4.0 m: 0.019 mg/L 8.0 m: 0.031 mg/L av = 0.020 mg/L	Objective not met
	Round Lake 1131008 mid-lake	Apr. 19	3	0.0 m: 0.049 mg/L 8.0 m: 0.054 mg/L 16.0 m: 0.306 mg/L av = 0.136 mg/L	Indefinite result
	Tyhee Lake 1131009 North Basin	Apr. 15	3	0.0 m: 0.022 mg/L 8.0 m: 0.021 mg/L 16 m: 0.033 mg/L av = 0.025 mg/L	Objective not met

TABLE 6 continued

KATHLYN, SEYMOUR, ROUND & TYHEE LAKES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total P <0.015 mg/L at spring overturn	Tyhee Lake 1131009 North Basin	Mar. 30	3	0.0 m: 0.011 mg/L 8.0 m: 0.024 mg/L 16.0 m: 0.029 mg/L av = 0.021 mg/L	Objective not met
Colour 15 TCU max near water intakes	Kathlyn Lake: E207549 intake #2	Jul. 8 - Aug. 5	5	5 - 15 TCU	Objective met
	E207550 intake #3	Jul. 8 - Aug. 5	4	10 - 15 TCU	Objective met
	E207551 intake #4	Jul 8,22,28, Aug 5 Jul. 14	4 1	10 - 15 TCU 20 TCU	Objective met Obj. not met
	Seymour Lake E207552 intake #1	Jul. 8 - Jul. 14	2	all = 80 TCU	Objective not met
	E207553 intake #2	Jul. 8 - Jul. 14	2	50 - 70 TCU	Objective not met
	E207554 intake #3	Jul. 8 - Jul. 14	2	50 - 70 TCU	Objective not met
	Round Lake: E207556 intake # 2	Jul 8,29, Aug 5 Jul 15,22	3 2	all = 15 TCU all = 20 TCU	Objective met Obj. not met
	E207557 intake #3	Jul. 8 Jul 15 - Aug 5	1 4	15 TCU 30 - 120 TCU	Objective met Obj. not met
	E207558 intake #4	Jul 8,29, Aug 5 Jul 15,22	3 2	all = 15 TCU all = 20 TCU	Objective met Obj. not met
	Tyhee Lake: E207560 intake #2	Jul. 8 - Aug. 5	5	all = 5 TCU	Objective met
	E207561 intake #3	Jul. 8 - Aug. 5	5	all = 5 TCU	Objective met
	E207562 intake #4	Jul 15 - Aug 5 Jul. 8	4 1	all = 5 TCU 40 TCU	Objective met Obj. not met

TABLE 7

LOWER KITIMAT RIVER AND ARM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Fecal Coliform shellfish: <14/100 mL median (med) <43/100 mL 90th perc. (np) recreation: <200/100 mL geometric mean (gm)	Kitimat River E218981 d/s Eurocan	June 30 - July 27	14	30 - 230/100 mL gm = 111/100 mL	gm met
		Aug 3 - Aug 31	15	100 - 850/100 mL gm = 299/100 mL	gm not met
	Kitimat Harbour & Arm: 0400510 Ocelot Dock, N end	July 5 - Aug 3	15	<10 - 100/100 mL gm = 21/100 mL	gm met
	E218982 Yacht Basin South	July 5 - Aug 3	15	<10 - 490/100 mL gm = 46/100 mL	gm met
	E207572 Hospital Beach	July 5 - Aug 3	15	<10 - 150/100 mL gm = 22/100 mL np = 108/100 mL med = 20/100 mL	gm met np not met med not met
	E207573 Mission Beach	July 5 - Aug 3	15	10 - 50/100 mL gm = 17/100 mL np = 44/100 mL med = 10/100 mL	gm met np not met med met
	E207574 Henderson's Beach	July 5 - Aug 3	15	<10 - 40/100 mL gm = 15/100 mL np = 34/100 mL med = 10/100 mL	gm met np met med met
Suspended Solids max increase: 10 mg/L or 10%	Kitimat River: 0430025 at Highway Bridge	Mar 31 - Oct 14	8	<4 - 21 mg/L	Control site
	E218981 d/s Eurocan	Mar 31 - Oct 14	8	5 - 24 mg/L max inc = 9 mg/L	Objective met
	Kitimat Arm	1993	0	no data collected	Omitted 1993
Turbidity max increase: 5 NTU or 10%	Kitimat River: 0430025 at Highway Bridge	Mar 31 - Oct 14	8	0.7 - 5.3 NTU	Control site
	E218981 d/s Eurocan	Mar 31 - Oct 14	8	1.8 - 8.3 NTU max inc = 3.0 NTU	Objective met
	Kitimat Arm	1993	0	no data collected	Omitted 1993
WAD Cyanide 0.001 mg/L max or min detection level of 0.005 mg/L	Kitimat Harbour & Arm	1993	0	no data collected	Omitted 1993

TABLE 7 continued

LOWER KITIMAT RIVER AND ARM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE		MEASUREMENT			CONCLUSION
	SITE	DATE	n	VALUE	
Fluoride 1.5 mg/L max	Kitimat Harbour & Arm: 0400510 Ocelot Dock, N end	Apr 8 - Oct 14	8	0.22 - 1.29 mg/L	Objective met
	E218985 scow grid	Mar 31 - Oct 14	8	2.31 - 80.50 mg/L	Objective not met
		Jul. 19	1	0.82 mg/L	Objective met
	E218983 Yacht Basin North	Jul. 20	3	4.70 - 12.50 mg/L	Objective not met
	E218982 Yacht Basin South	Apr 8 - Oct 14	5	1.72 - 7.70 mg/L	Objective not met
		Apr 21 - Sep 8	3	0.84 - 0.97 mg/L	Objective met
	E207572 Hospital Beach	Apr 8 - Oct 14	7	0.34 - 0.93 mg/L	Objective met
		May. 27	1	1.73 mg/L	Objective not met
	E207573 Mission Beach	Apr 8 - Oct 14	8	0.17 - 0.66 mg/L	Objective met
	E207574 Henderson's Beach	Apr 8 - Oct 14	8	0.21 - 0.90 mg/L	Objective met
Fluoride (criterion) < 300 ug/g in the carapace (dry weight)	Hospital Beach E207572	Sept 9	2	147 - 234 ug/g	Criterion met
		Sept 9	1	322 ug/g	Criterion not met
H2S 0.002 mg/L max	Kitimat River	1993	0	no data collected	Omitted 1993
Chlorophyll-a <50 mg/m2 av	Kitimat River	1993	0	no data collected	Omitted 1993
Ammonia-N <1.8 mg/L av 14.0 mg/L max at pH = 7.4 temp = 13 C	Kitimat River	1993	0	no data collected	Omitted 1993
Ammonia-N <2.4 mg/L av 11.0 mg/L max at pH = 7.8 temp = 15 C sal. = 30g/Kg	Kitimat Arm	1993	0	no data collected	Omitted 1993

TABLE 7 continued

LOWER KITIMAT RIVER AND ARM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE		MEASUREMENT			CONCLUSION
	SITE	DATE	n	VALUE	
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Kitimat River	1993	0	no data collected	Omitted 1993
Diss. Oxygen 7.8 mg/L min	Kitimat River	1993	0	no data collected	Omitted 1993
pH 6.5 - 9.0	Kitimat River: E218981 d/s Eurocan	Mar 31 - Sept 8	7	7.2 - 7.9	Objective met
Total Al 20% max increase	Kitimat Arm: E207573 Mission Beach	Apr 8 - Oct 14	8	<0.02 - 0.05 mg/L (diss. Al)	control site
	0400510 Ocelot Dock, N end	Apr 8 - Oct 14	6	<0.02 - 0.03 mg/L max inc. = 0%	Objective met
		May 27 - Aug 3	2	0.08 - 0.17 mg/L inc. = 170 - 240%	Objective not met
	E218985 scow grid	Apr 21 - Oct 14	7	0.04 - 2.01 mg/L inc. = 100 - 6600%	Objective not met
	E218982 Yacht Basin South	Apr 21 - Oct 14	3	all < 0.02 mg/L max inc. = 0%	Objective met
		May 27 - Aug 10	4	0.05 - 0.13 mg/L inc. = 100 - 160%	Objective not met
	E207572 Hospital Beach	Sep 8 - Oct 14	2	all < 0.02 mg/L max inc. = 0%	Objective met
		Apr 21 - Aug 10	5	0.03 - 0.22 mg/L inc. = 33 - 340%	Objective not met
	E207574 Henderson's Beach	Apr 8 - Oct 14	6	<0.02 - 0.04 mg/L max inc. = 0%	Objective met
		May 27 - Jun 21	2	0.06 - 0.08 mg/L inc. = 100 - 170%	Objective not met
Total Cd <0.012 mg/L av 0.038 mg/L max	Kitimat Arm	1993	0	no data collected	Omitted 1993
Total Cd (criterion) 5 ug/g in sediment	Kitimat Arm: 0400510 Ocelot Dock, N end	Sep. 9	3	all < 1 ug/g	Criterion met
	E218985 Scow Grid	Jul. 20	3	<1 - 1 ug/g	Criterion met
	E218983 Yacht Basin North	Jul. 20	3	all < 1 ug/g	Criterion met
Total Cu <0.002 mg/L av 0.003 mg/L max or 20% increase	Kitimat Arm: E207573 Mission Beach	Apr 8 - Oct 14	8	<0.001 - 0.004 mg/L	control site
	0400510 Ocelot Dock, N end	Mar 31 - Oct 14	8	<0.001 - 0.003 mg/L	Max obj. met Av not chkd.
	E218985 Scow Grid	Mar 31 - Oct 14	4	<0.001 - 0.003 mg/L	Max obj. met
		Apr 21 - Sep 8	4	0.004 - 0.012 mg/L	Max not met

TABLE 7 continued

LOWER KITIMAT RIVER AND ARM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Total Cu <0.002 mg/L av 0.003 mg/L max or 20% increase	Kitimat Arm: E218982 Yacht Basin South	Mar 31 - Oct 14	8	< 0.001 - 0.004 mg/L max inc. = 0%	Max obj. met
	E205572 Hospital Beach	Mar 31 - Oct 14	8	<0.001 - 0.003 mg/L	Max obj. met
	E207574 Henderson's Beach	Apr 8 - Oct 14	8	<0.001 - 0.004 mg/L max inc. = 0%	Max obj. met
Total Cu (criterion) 70 ug/g in sediment	Kitimat Arm: 0400510 Ocelot Dock, N end	Sep. 9	3	43 - 44 ug/g	Criterion met
	E218985 Scow Grid	Jul. 20	3	54 - 66 ug/g	Criterion met
	E218983 Yacht Basin North	Jul. 20	3	54 - 58 ug/g	Criterion met
Total Fe 0.3 mg/L max	Kitimat Arm: 0400510 Ocelot Dock, N end	Mar 31 - Oct 14	7	0.03 - 0.275 mg/L	Objective met
		May 27	1	0.592 mg/L	Objective not met
	E218985 Scow Grid	Apr 21 - Oct 14	4	0.130 - 0.204 mg/L	Objective met
		May 27 - Aug 8	4	0.567 - 1.790 mg/L	Objective not met
	E218982 Yacht Basin South	Mar 31 - Oct 14	7	0.064 - 0.230 mg/L	Objective met
		May 27	1	0.447 mg/L	Objective not met
	E207572 Hospital Beach	Mar 31 - Oct 14	7	0.05 - 0.245 mg/L	Objective met
		May 27	1	0.347 mg/L	Objective not met
	E207573 Mission Beach	Apr 8 - Oct 14	7	0.023 - 0.184 mg/L	Objective met
		May 27	1	0.305 mg/L	Objective not met
	E207574 Henderson's Beach	Apr 8 - Oct 14	7	<0.005 - 0.155 mg/L	Objective met
		May. 27	1	0.433 mg/L	Objective not met
Total Fe (criterion) 21200 ug/g in sediment	Kitimat Arm: 0400510 Ocelot Dock, N end	Sep. 9	3	37800 - 39000 ug/g	Criterion not met
	E218985 Scow Grid	Jul. 20	3	32400 - 35000 ug/g	Criterion not met
	E218983 Yacht Basin North	Jul. 20	3	28500 - 36400 ug/g	Criterion not met

TABLE 7 continued

LOWER KITIMAT RIVER AND ARM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Total Pb <0.009 mg/L av 0.22 mg/L max or 20% increase	Kitimat Arm	1993	0	no data collected	Omitted 1993
Total Pb (criterion) 33 ug/g in sediment	Kitimat Arm: 0400510 Ocelot Dock, N end	Sep. 9	3	all < 10 ug/g	Criterion met
	E218985 Scow Grid	Jul. 20	3	15 - 27 ug/g	Criterion met
	E218983 Yacht Basin North	Jul. 20	3	13 - 16 ug/g	Criterion met
Toxicity % mill effluent in river: < 0.05 of the 96-h LC50	Kitimat River	1993	0	no data collected	Omitted 1993
Colour (criterion) 15 TCU	Kitimat River: E218981 d/s Eurocan	Mar 31 - Oct 14	8	5 - 15 TCU	Criterion met
Dioxins & Furans (criterion) <15 pg/g TCDD-TEQ (wet weight) in crab muscle	Kitimat Arm E207572 Hospital Beach	Sep. 9	3	<16.6 - <18.8 pg/g TCDD-TEQ	Criterion met
PAHs (criterion) 1 ug/kg max benzo (a) pyrene (wet weight) in crab muscle	Kitimat Arm E207572 Hospital Beach	Sep. 9	3	all < 1ug/kg benzo (a) pyrene	Criterion met

TABLE 8

CHARLIE LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <10/100 mL 90th perc. (np) near water intakes	Fort St. John intake	Jan 6 - Feb 3	5	all < 2/100 mL	Objective met
		Feb 10 - Mar 10	5	all < 2/100 mL	Objective met
		Mar 17 - April 14	5	all < 2/100 mL	Objective met
		April 21 - May 19	5	all < 2/100 mL	Objective met
		May 26 - June 23	5	2.0 - 3.0/100 mL	Objective met
		June 30 - July 28	5	2.0/100 mL np < 2/100 mL	Objective met
		Aug 4 - Sept 8	5	<2 - 3/100 mL np < 3/100 mL	Objective met
		Sept 15 - Oct 13	5	2 - 10 /100 mL np = 5/100 mL	Objective met
		Sept 27 - Oct 24	5	2 - 20/100 mL np = 9.5/100 mL	Objective met
		Dec 1 - Dec 22	5	all < 2/100 mL	Objective met
Fecal Coliforms <200/100 mL geometric mean (gm) <400/100 mL 90th perc. (np) at beaches	Beatton Park Beach south	May 17 - June 15	5	all < 5/100 mL	Objectives met
		Jun 28 - Sep 7	3	<5 - 20/100 mL	Indefinite result
	Charlie Lake Park boat launch	May 17 - June 15	5	all = 5/100 mL	Objectives met
		June 28 - Sept 22	7	5 - 185/100 mL	Indefinite result
	Charlie Lake Beach Off Rotary floating dock	May 17 - June 15	5	all ≤ 5/100 mL	Objectives met
		Jun 28 - Sept 22	7	5 - 50/100 mL	Indefinite result
Total-P <0.050 mg/L av at spring overturn <0.075 mg/L av at all other times	Charlie Lake: 0400390 deep station	Mar. 17	3	2 m: 0.052 mg/L 6 m: 0.047 mg/L 12 m: 0.331 mg/L av = 0.143 mg/L	Objective not met

TABLE 8 continued

CHARLIE LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total-P <0.050 mg/L av at spring overturn <0.075 mg/L av at all other times	Charlie Lake: 0400390 deep station	May. 10	3	1 m: 0.076 mg/L 6 m: 0.043 mg/L 12 m: 0.037 mg/L av = 0.051 mg/L	Objective met
		Jun. 10	3	0m: 0.039 - 0.0.071 mg/L	Indefinite result (surface only)
		Jul. 12	3	1 m: 0.083 mg/L 6 m: 0.063 mg/L 12 m: 0.237 mg/L av = 0.128 mg/L	Objective not met
		Aug. 10	3	1 m: 0.126 mg/L 6 m: 0.117 mg/L 12 m: 0.122 mg/L av = 0.122 mg/L	Objective not met
		Sep. 2	3	1 m: 0.175 mg/L 6 m: 0.110 mg/L 13 m: 0.220 mg/L av = 0.168 mg/L	Objective not met
		Nov. 9	3	1 m: 0.050 mg/L 7 m: 0.054 mg/L 13 m: 0.060 mg/L av = 0.055 mg/L	Objective met
	E207459 north arm	Mar. 17	3	2 m: 0.018 mg/L 4 m: 0.040 mg/L 6 m: 0.040 mg/L av = 0.033 mg/L	Objective met
		May. 10	3	1 m: 0.034 mg/L 3 m: 0.044 mg/L 7 m: 0.055 mg/L av = 0.044 mg/L	Objective met
		Aug. 10	3	1 m: 0.130 mg/L 3 m: 0.144 mg/L 7 m: 0.137 mg/L av = 0.137 mg/L	Objective not met
		Sep. 2	3	1 m: 0.154 mg/L 4 m: 0.134 mg/L 7 m: 0.197 mg/L av = 0.162 mg/L	Objective not met
		Nov. 9	3	1 m: 0.064 mg/L 4 m: 0.063 mg/L 7 m: 0.075 mg/L av = 0.067 mg/L	Objective met

TABLE 9

BULLMOOSE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <10/100 mL 90th perc. (np)	West Bullmoose Creek South Bullmoose Creek Bullmoose Creek	1993	0	no data collected	Omitted 1993
Turbidity max increase: 5 NTU or 10%	West Bullmoose Creek: E206225 u/s sediment ponds	May 5 - Jun 29	8	0.46 - 8.2 NTU	Control site
	E206226 d/s sediment pond 3	May 5 - Jun 29	6	0.54 - 4.6 NTU max inc. = 2.2 NTU	Objective met
		May 14 - May 18	2	10 - 22 NTU inc. = 7.6 - 13.6 NTU	Objective not met
	E206227 d/s sediment ponds 1 & 2	Apr 12 - Jun 29	7	0.5 - 4 NTY max inc. = 2.2 NTU	Objective met
		May 14 - May 18	2	16 - 25 NTU inc. = 13.6 - 16.6 NTU	Objective not met
	South Bullmoose Creek: E206228 u/s plant	Apr 12 - Jun 29	7	0.5 - 6.2 NTU	Control site
	E206229 d/s plant	Apr 12 - Jun 29	7	0.34 - 9.4 NTU max inc. = 3.2 NTU	Objective met
		May 5 - May 14	2	7.6 - 24 NTU	Indef. result (no control)
	un-numbered site d/s sediment pond 2	Apr 12 - Jun 29	7	0.34 - 9.2 NTU max inc. = 3.0 NTU	Objective met
		May 5 - May 14	2	7.2 - 24 NTU	Indef. result (no control)
	Bullmoose Creek: 0410094 d/s tailing pond	Apr 12 - Jun 29	8	0.54 - 4.8 NTU max inc. 3.2 NTU	Objective met
		May. 14	1	30 NTU inc. = 21.6 NTU	Objective not met
	E206232 20 km d/s tailing pond	Apr 12 - Jun 24	6	0.52 - 3.6 NTU max inc. = 2.3 NTU	Objective met
		May 14 - Jun 29	3	12 - 86 NTU inc. = 10.4 - 7.6 NTU	Objective not met
Suspended Solids max increase: 10 mg/L or 10%	West Bullmoose Creek E206225 u/s sediment ponds	May. 14	1	15 mg/L	Control site
	E206226 d/s sediment pond 3	May. 14	1	47 mg/L inc. = 32 mg/L	Objective not met
	E206227 d/s sediment ponds 1 & 2	May. 14	1	37 mg/L inc. = 22 mg/L	Objective not met
	South Bullmoose Creek: E206229 d/s plant	May. 14	1	36 mg/L	Indef. result (no control)

TABLE 9 continued

BULLMOOSE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Suspended Solids max increase: 10 mg/L or 10%	South Bullmoose Creek: un-numbered site d/s sediment pond 2	May. 14	1	38 mg/L	Indef. result (no control)
	Bullmoose Creek: 0410094 d/s tailing pond	May. 14	1	87 mg/L inc. = 72 mg/L	Objective not met
	E206232 20 km d/s tailing pond	May. 14	1	223 mg/L inc. = 208 mg/L	Objective not met
		May. 18	1	13 mg/L	Indef. result (no control)
Substrate Sedimentation: no increase in particulate < 3 mm diameter	West Bullmoose Creek South Bullmoose Creek Bullmoose Creek	1993	0	no data collected	Omitted 1993
Chlorophyll-a <50 mg/m2 av	West Bullmoose Creek South Bullmoose Creek Bullmoose Creek	1993	0	no data collected	Objective not checked
Ammonia-N <0.467 mg/L av 2.43 mg/L max at pH = 8.4 temp = 8 C	West Bullmoose Creek South Bullmoose Creek Bullmoose Creek	1993	0	no data collected	Omitted 1993
Nitrite - N <0.02 mg/L av 0.06 mg/L max	West Bullmoose Creek: E206225 u/s sediment ponds	May 18 - Jun 10	2	all < 0.001 mg/L	Max obj. met Av not chkd.
	E206226 d/s sediment pond 3	May 18 - Jun 10	2	all < 0.001 mg/L	Max obj. met
	E206227 d/s sediment ponds 1 & 2	Apr 12 - Jun 8	3	0.001 - 0.002 mg/L	Max obj. met
	South Bullmoose Creek: E206228 u/s plant	Apr 12 - Jun 8	3	all < 0.001 mg/L	Max obj. met Av not checked
	E206229 d/s plant	Apr 12 - Jun 8	3	<0.001 - 0.013 mg/L	Max obj. met
	un-numbered site d/s sediment pond 2	May 18 - Jun 8	2	all < 0.001 mg/L	Max obj. met
	Bullmoose Creek: 0410094 d/s tailing pond	Apr 12 - Jun 8	3	<0.001 - 0.001 mg/L	Max obj. met Av not chkd.
	E206232 20 km d/s tailing pond	Apr 12 - Jun 8	3	<0.001 - 0.001 mg/L	Max obj. met

TABLE 9 continued

BULLMOOSE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Nitrate+Nitrite - N 10 mg/L max	West Bullmoose Creek: E206225 u/s sediment ponds	May 18 - Jun 8	2	all < 0.005 mg/L	Objective met
	E206226 d/s sediment pond 3	May 18 - Jun 8	2	0.886 - 1.52 mg/L	Objective met
	E206227 d/s sediment ponds 1 & 2	May 18 - Jun 8	2	2.42 - 7.27 mg/L	Objective met
		Apr. 12	1	15.3 mg/L	Objective not met
	South Bullmoose Creek: E206228 u/s plant	Apr 12 - Jun 8	3	<0.005 - 0.026 mg/L	Objective met
	E206229 d/s plant	Apr 12 - Jun 8	3	0.05 - 0.778 mg/L	Objective met
	un-numbered site d/s sediment pond 2	May 18 - Jun 8	2	0.052 - 0.077 mg/L	Objective met
	Bullmoose Creek: 0410094 d/s tailing pond	May 14 - Jun 8	4	0.567 - 3.6 mg/L	Objective met
		Apr. 12	1	10.6 mg/L	Objective not met
	E206232 20 km d/s tailing pond	Apr 12 - Jun 8	3	0.912 - 2.04 mg/L	Objective met
Dissolved Oxygen 7.75 mg/L min	West Bullmoose Creek South Bullmoose Creek Bullmoose Creek	1993	0	no data collected	Omitted 1993
pH 6.5 min	West Bullmoose Creek: E206225 u/s sediment ponds	May 18 - Jun 8	2	8.2 - 8.5	Objective met
	E206226 d/s sediment pond 3	May 18 - Jun 8	2	7.7 - 8.3	Objective met
	E206227 d/s sediment ponds 1 & 2	Apr 12 - Jun 8	3	7.9 - 8.3	Objective met
	South Bullmoose Creek: E206228 u/s plant	Apr 12 - Jun 8	3	7.9 - 8.4	Objective met
	E206229 d/s plant	Apr 12 - Jun 8	3	8.0 - 8.5	Objective met
	un-numbered site d/s sediment pond 2	May 18 - Jun 8	2	8.0 - 8.5	Objective met

TABLE 9 continued

BULLMOOSE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
pH 6.5 min	Bullmoose Creek: 0410094 d/s tailing pond	Apr 12 - Jun 8	3	8.1 - 8.5	Objective met
	E206232 20 km d/s tailing pond	Apr 12 - Jun 8	3	8.1 - 8.4	Objective met

TABLE 10

NECHAKO RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <100/100 mL 90th perc. (np)	Nechako River: 0400629 200 m u/s Fort Fraser	Feb 8 - Mar 15	5	all < 2/100 mL	Objective met
		Oct 6 - Nov 3	5	1 - 6/100 mL np = 5/100 mL	Objective met
	0400631 200 m d/s Fort Fraser	Feb 8 - Mar 15	5	14 - 28/100 mL np = 27/100 mL	Objective met
		Oct 6 - Nov 3	5	1 - 6/100 mL np = 4/100 mL	Objective met
	0400449 u/s Vanderhoof	Feb 8 - Mar 15	5	<2 - 2/100 mL np = 2/100 mL	Objective met
		Oct 6 - Nov 3	5	<1 - 6/100 mL np = 5/100mL	Objective met
	0400450 100 m d/s Vanderhoof	Feb 8 - Mar 15	5	410 - 5300/100 mL np = 5200/100 mL	Objective not met
		Oct 6 - Nov 3	5	170 - 810/100 mL np = 620/100 mL	Objective not met
	E207450 0.5 km d/s Vanderhoof	Feb 8 - Mar 15	5	240 - 900/100 mL np = 700/100 mL	Objective not met
		Oct 6 - Nov 3	4	17 - 35/100 mL	Indefinite result
	E207451 2 km d/s Vanderhoof	Oct 6 - Nov 3	5	7 - 25/100 mL np = 24/100 mL	Objective met
	Chilako River 0400039 ~ 30 km from mouth	Oct 12 - Nov 10	5	3 - 48/100 mL np = 25/100 mL	Objective met
Fecal Coliforms <10/100 mL 90th perc. (np)	Stuart River: 0400488 E bank at Highway 27	Oct 7 - Nov 2	5	2 - 12/100 mL np = 9/100 mL	Objective met
	0920101 W bank at Highway 27	Oct 7 - Nov 2	5	<1 - 2/100 mL np = 1/100 mL	Objective met
Fecal Coliforms <200/100 mL geometric mean (gm)	Necoslie River: 0400801 d/s Fort St. James 20 m u/s Highway 27	Oct 7 - Nov 2	5	1 - 34/100 mL gm = 3	Objective met
Total Cl2 Res. 0.002 mg/L max	Nechako & Stuart rivers	1993	0	no data collected	Omitted 1993
Ammonia-N <1.83 mg/L av 9.50 mg/L max at pH = 7.7 temp = 12 C	Nechako River: 0400629 200 m u/s Fort Fraser	Feb 8 - Mar 15	5	<0.005 - 0.007 mg/L av = 0.005 mg/L	Objectives met
		Oct 6 - Nov 3	5	<0.005 - 0.015 mg/L av < 0.007 mg/L	Objectives met
	0400631 200 m d/s Fort Fraser	Feb 8 - Mar 15	5	<0.005 - 0.141 mg/L av = 0.036 mg/L	Objectives met
		Oct 6 - Nov 3	5	all < 0.005 mg/L	Objectives met

TABLE 10 continued

NECHAKO RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Ammonia-N <1.83 mg/L av 9.50 mg/L max at pH = 7.7 temp = 12 C	Nechako River: 0400449 u/s Vanderhoof	Feb 8 - Mar 15	5	<0.005 - 0.012 mg/L av = 0.009 mg/L	Objectives met
		Oct 6 - Nov 3	5	<0.005 - 0.007 mg/L av < 0.006 mg/L	Objectives met
	0400450 100 m d/s Vanderhoof	Feb 8 - Mar 15	5	0.334 - 0.504 mg/L av = 0.407 mg/L	Objectives met
		Oct 6 - Nov 3	5	0.190 - 0.583 mg/L av = 0.292 mg/L	Objectives met
	E207450 0.5 km d/s Vanderhoof	Feb 8 - Mar 15	5	0.025 - 0.043 mg/L av = 0.032 mg/L	Objectives met
		Oct 6 - Nov 3	4	<0.005 - 0.010 mg/L	Max obj. met
	E207451 2 km d/s Vanderhoof	Oct 6 - Nov 3	5	<0.005 - 0.021 mg/L av = 0.011 mg/L	Objective met
Ammonia-N <0.887 mg/L av 4.61 mg/L max at pH = 8.1 temp = 12 C	Stuart River: 0400488 E bank at Highway 27	Oct 7 - Nov 2	5	<0.005 - 0.052 mg/L av = 0.026 mg/L	Objectives met
	0920101 W bank at Highway 27	Oct 7 - Nov 2	5	<0.005 - 0.009 mg/L av = 0.006 mg/L	Objectives met
	Chilako River 0400039 ~ 30 km from mouth	Oct 12 - Nov 10	3	<0.005 - 0.007 mg/L	Max obj. met
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Nechako River: 0400629 200 m u/s Fort Fraser	Feb. 17	1	<0.005 mg/L	Max obj. met
	0400631 200 m d/s Fort Fraser	Feb. 17	1	<0.005 mg/L	Max obj. met
	0400449 u/s Vanderhoof	Feb 8 - Mar 15	5	0.003 - 0.005 mg/L av = 0.004 mg/L	Objectives met
		Oct 6 - Nov 3	5	<0.001 - 0.003 mg/L av = 0.002 mg/L	Objectives met
	0400450 100 m d/s Vanderhoof	Feb 8 - Mar 15	5	<0.005 - 0.006 mg/L av = 0.005 mg/L	Objectives met
	E207450 0.5 km d/s Vanderhoof	Feb 8 - Mar 15	5	0.004 - 0.005 mg/L av = 0.005 mg/L	Objectives met
		Oct 6 - Nov 3	4	<0.001 - 0.003 mg/L	Max obj. met
	Stuart River: 0400488 E bank at Highway 27	Oct 7 - Nov 2	5	0.003 - 0.006 mg/L av = 0.004 mg/L	Objectives met
	0920101 W bank at Highway 27	Oct 7 - Nov 2	5	<0.001 - 0.003 mg/L av = 0.002 mg/L	Objectives met
	Chilako River 0400039 ~ 30 km from mouth	Oct 12 - Nov 11	5	<0.001 - 0.003 mg/L av = 0.002 mg/L	Objectives met

TABLE 10 continued

NECHAKO RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Chlorophyll-a <50 mg/m2 av	Nechako River Stuart River	1993	0	no data collected	Objective not checked
Chlorophyll-a <100 mg/m2 av	Chilako River	1993	0	no data collected	Objective not checked
Dissolved Oxygen 7.75-11.2 mg/L min, depending on fish egg stage	Nechako River: 0400629 200 m u/s Fort Fraser	Feb 8 - Mar 2 Oct 6 - Nov 3	3 5	13.6 - 14.4 mg/L 9.7 - 10.3 mg/L	Obj. met Obj. met
	0400631 200 m d/s Fort Fraser	Feb 8 - Mar 2 Oct 6 - Nov 3	3 5	13.6 - 14.1 mg/L 9.4 - 10.3 mg/L	Obj. met Obj. met
	0400449 u/s Vanderhoof	Feb 8 - Mar 2 Oct 6 - Nov 3	2 5	12.6 - 13.2 mg/L 9.5 - 10.3 mg/L	Obj. met Obj. met
	0400450 100 m d/s Vanderhoof	Mar. 2 Oct 6 - Nov 3	1 5	13.2 mg/L 9.4 - 10.5 mg/L	Obj. met Obj. met
	E207450 0.5 km d/s Vanderhoof	Feb 8 - Mar 2 Oct 6 - Nov 3	2 5	13.2 mg/L 9.1 - 10.2 mg/L	Obj. met Obj. met
	E207451 2 km d/s Vanderhoof	Feb 8 - Mar 2 Oct 6 - Nov 3	3 4	11.1 - 13.1 mg/L 9.2 - 10.4 mg/L	Obj. met Obj. met
	Chilako River 0400039 ~ 30 km from mouth	Oct 12 - Nov 10	4	9.9 - 13.8 mg/L	Objective met
	Stuart River: 0400488 E bank at Highway 27	Oct 7 - Nov 2	5	9.1 - 10.1 mg/L	Objective met
	0920101 W bank at Highway 27	Oct 7 - Nov 2	5	9.1 - 9.9 mg/L	Objective met
pH 6.5 - 8.5	Nechako River: 0400629 200 m u/s Fort Fraser	Feb 8 - Nov 3	15	7.2 - 8.2	Objective met
	0400631 200 m d/s Fort Fraser	Feb 8 - Nov 3	15	7.2 - 8.2	Objective met
	0400449 u/s Vanderhoof	Feb 8 - Nov 3	10	7.3 - 7.8	Objective met
	0400450 100 m d/s Vanderhoof	Feb 8 - Nov 3	14	7.2 - 8.1	Objective met
	E207450 0.5 km d/s Vanderhoof	Feb 8 - Nov 3	12	7.2 - 8.0	Objective met
	E207451 2 km d/s Vanderhoof	Feb 8 - Nov 3	6	7.4 - 8.1	Objective met

TABLE 10 continued

NECHAKO RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
pH 6.5 - 8.5	Stuart River: 0400488 E bank at Highway 27	Oct 7 - Nov 2	5	7.7 - 8.1	Objective met
	0920101 W bank at Highway 27	Oct 7 - Nov 2	5	7.6 - 7.9	Objective met
	Chilako River 0400039 ~ 30 km from mouth	Oct 12 - Nov 10	4	8.1 - 8.2	Objective met
Temperature <15 C av ~ 100m d/s Cheslatta Falls	Nechako River: immediately d/s Cheslatta Falls (DFO site)	Jan 1 - Aug 4	216	0 - 14.8 C	Obj. met
		Aug. 5	1	15.1 C	Obj. not met
		Aug 6 - Aug 16	11	14.6 - 14.7 C	Obj. met
		Aug 17 - Aug 22	6	15.2 - 15.8 C	Obj. not met
		Aug 23 - Sep 13	22	13.4 - 14.9 C	Obj. met
		Sep 14 - Sep 18	5	15.2 - 15.7 C	Obj. not met
		Sep 19 - Dec 31	104	2.0 - 14.6 C	Obj. met
	10 km d/s Cheslatta Falls* (DFO's B. Irvine site)	Jan 1 - Jun 25	167	0 - 14.9 C	Obj. met
		Jun. 26	1	15.2 C	Obj. not met
		Jun27 - Jul 2	6	13.3 - 14.8 C	Obj. met
		Jul. 3	1	15.2 C	Obj. not met
		Jul 4 - Jul 6	3	14.6 - 15.0 C	Obj. met
		Jul 7 - Sep 14	70	15.1 - 18.1 C	Obj. not met
		Sep 15 - Dec 31	99	1.0 - 14.7 C	Obj. met
Temperature <20 C Jul-Aug <18 C Sep-Jun ~ 100m u/s Stuart River	Nechako River: at Vanderhoof* ~ 40 km u/s Stuart R confl. (DFO site)	Jan 1 - May 22	142	0 - 15.5 C	Obj. met
		May 23 - Jun 8	17	18.1 - 23.1 C	Obj. not met
		Jun 9 - Jun 11	3	17.9 - 18 C	Obj. met
		Jun 12 - Jun 14	3	18.3 - 19.3	Obj. not met
		Jun 15 - Jun 25	11	15.3 - 17.9 C	Obj. met
		Jun 26 - Jun 28	3	18.3 - 18.8 C	Obj. not met
		Jun 29 - Jul 25	27	14.9 - 19.9 C	Obj. met
		Jul 26 - Jul 27	2	20.3 - 21.1 C	Obj. not met
		Jul 28 - Aug 2	6	17.5 - 20.0 C	Obj. met
		Aug 3 - Aug 9	7	20.4 - 21.9 C	Obj. not met
		Aug 10 - Aug 12	3	19.3 - 19.7 C	Obj. met
		Aug 13 - Aug 26	14	20.1 - 22.4 C	Obj. not met
		Aug 27 - Sep 7	12	17.4 - 20.0 C	Obj. met
		Sep. 8	1	18.2 C	Obj. not met
		Sep 9 - Dec 31	113	0 - 17.8 C	Obj. met
	at Finmore 7.5 km u/s Stuart R confl. (DFO site)	Jul 10 - Aug 4	26	16.0 - 19.4	Obj. met
		Aug. 5	1	20.1 C	Obj. not met
		Aug 6 - Aug 20	15	16.9 - 19.7 C	Obj. met
Total Gas Pressure 109 % max	Nechako River	1993	0	no data collected	Objective not checked

* These sites, although not at the ideal location, are assumed to be representative

TABLE 11

PEACE RIVER MAINSTEM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Fecal Coliforms <100/100 mL 90th perc. (np)	Peace River: 0400134 3.2 km u/s Ft. St. John (N. Side)	July 19 - Aug 16	5	<1 - 58/100 mL np = 57/100 mL	Objective met
	0400492 100 m d/s Ft. St. John	July 19 - Aug 16	5	1 - 100 /100 mL np = 83/100 mL	Objective met
	0400138 u/s Petro-Canada (N. Side)	July 19 - Aug 16	5	2 - 88/100 mL np = 77/100 mL	Objective met
	0410054 100m d/s Petro Canada	July 19 - Aug 16	5	6 - 189/100 mL np = 90/100 mL	Objective met
	E207631 200 m d/s Fibreco	July 19 - Aug 16	5	15 - 771/100 mL np = 400/100 mL	Objective not met
	E207965 1 km d/s Fibreco	July 19 - Aug 16	5	6 - 360/100 mL np = 300/100 mL	Objective not met
	0400142 5 km d/s Petro-Canada	July 19 - Aug 16	5	5 - 368/100 mL np = 340/100 mL	Objective not met
Fecal Coliforms <200/100 mL geometric mean	Beatton River E207448 u/s Fort St John STP	May - June 2	5	4 - 13/100 mL gm = 7/100 mL	Objective met
Turbidity max increase: 5 NTU or 10%	Peace River 0400134 3.2 km u/s Ft. St. John (N. Side)	July 19 - Aug 16	5	13 - 88 NTU	Control site
	0400492 100 m d/s Ft. St. John	Jul 19 - Aug 16	3	18 - 88 NTU max inc. = 5 NTU	Objective met
		Jul 28 - Aug 4	2	60 - 96 NTU increase = 28 - 48 NTU	Objective not met
	0400138 u/s Petro-Canada (N. Side)	Jul 19 - Aug 16	4	14 - 88 NTU max inc. = 3 NTU	Objective met
		Aug. 4	1	88 NTU increase = 40 NTU	Objective not met
	0410054 100 m d/s Petro-Canada	Jul 28 - Aug 16	3	15 - 78 NTU max inc. = 2 NTU	Objective met
		Jul 7 - Aug 4	2	35 - 88 NTU increase = 7 - 40 NTU	Objective not met
	E207631 200 m d/s Fibreco	Jul 19 - Aug 16	4	13 - 80 NTU max inc. = 5 NTU	Objective met
		Aug. 4	1	88 NTU max inc. = 40 NTU	Objective not met

TABLE 11 continued

PEACE RIVER MAINSTEM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Turbidity max increase: 5 NTU or 10%	Peace River: E207965 1 km d/s Fibreco	Jul 28 - Aug 11	2	23 - 68 NTU max inc. = 0 NTU	Objective met
		Jul 19 - Aug 4	2	35 - 88 NTU increase = 7 - 40 NTU	Objective not met
	0400142 5 km d/s Petro-Canada (N. Side)	Jul 28 - Aug 16	3	14 - 96 NTU max inc. = 2 NTU	Objective met
		Jul 19 - Aug 4	2	40 - 96 NTU increase = 12 - 48 NTU	Objective not met
	Beatton River E207448 u/s Fort St John STP	May 6 - Jun 2	5	27 - 150 NTU	Objective not checked (control site)
Suspended Solids max increase: 10 mg/L or 10%	Peace River 0400134 3.2 km u/s Ft. St. John (N. Side)	July 19 - Aug 16	5	5 - 151 mg/L	Control site
	0400492 100 m d/s Ft. St. John	Jul 19 - Aug 16	4	33 - 152 mg/L max inc. = 8 mg/L	Objective met
		Aug. 4	1	284 mg/L max inc. = 279 mg/L	Objective not met
	0400138 u/s Petro-Canada (N. Side)	Jul 19 - Aug 16	4	34 - 144 mg/L max inc. = 9 mg/L	Objective met
		Aug. 4	1	268 mg/L increase = 263 mg/L	Objective not met
	0410054 100 m d/s Petro-Canada	Jul 19 - Aug 16	4	27 - 144 mg/L max inc. = 5 mg/L	Objective met
		Aug. 4	1	368 mg/L max inc. = 363 mg/L	Objective not met
	E207631 200 m d/s Fibreco	Jul 19 - Aug 11	3	35 - 147 mg/L max inc. = 7 mg/L	Objective met
		Aug 4 - Aug 16	2	37 - 389 mg/L increase = 12 - 384 mg/L	Objective not met
	E207965 1 km d/s Fibreco	Jul 28 - Aug 11	2	40 - 152 mg/L max inc. = 1 mg/L	Objective met
		Jul 19 - Aug 4	2	69 - 397 mg/L increase = 11 - 392 mg/L	Objective not met
	0400142 5 km d/s Petro-Canada (N. Side)	Jul 28 - Aug 16	3	27 - 153 mg/L max inc. = 5 mg/L	Objective met
		Jul 19 - Aug 4	2	76 - 373 mg/L increase = 16 - 368 mg/L	Objective not met
	Beatton River E207448 u/s Fort St John STP	May 6 - Jun 2	5	29 - 200 mg/L	Objective not checked (control site)
Tot Cl2 Res. 0.002 mg/L max	Peace River	1993	0	no data collected	Omitted 1993
Dissolved Fluoride 1.0 mg/L max	Peace River	1993	0	no data collected	Omitted 1993
WAD - CN <0.005 mg/L av 0.01 mg/L max	Peace River	1993	0	no data collected	Omitted 1993

TABLE 11 continued

PEACE RIVER MAINSTEM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Chlorophyll-a < 50 mg/m2 av	Peace River Beatton River	1993	0	no data collected	Objective not checked
Ammonia-N <0.709 mg/L av 3.69 mg/L max at pH = 8.2 temp = 12 C	Peace River: 0400134 3.2 km u/s Ft. St. John (N. side)	Jul 19 - Aug 16	5	all <0.005 mg/L	Objectives met
	0400492 100 m d/s Ft. St John	July 19 - Aug 16	5	< 0.005 - 0.014 mg/L av = 0.008 mg/L	Objectives met
	0400138 u/s Petro-Canada (N side)	July 19 - Aug 16	5	<0.005 - 0.006 mg/L av < 0.005 mg/L	Objectives met
	0410054 100 d/s Petro-Canada	July 19 - Aug 16	5	<0.005 - 0.005 mg/L	Objectives met
	E207631 200 m d/s of Fibreco	July 19 - Aug 16	5	<0.005 - 0.005 mg/L	Objectives met
	E207965 1 km d/s Fibreco	July 19 - Aug 16	5	all < 0.005 mg/L	Objectives met
	0400142 5 km d/s Petro-Canada	July 19 - Aug 16	5	<0.005 - 0.007 mg/L av = 0.005 mg/L	Objectives met
	Beatton River E207448 u/s Fort St. John STP	1993	0	no data collected	Omitted 1993
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Peace River: 0400134 3.2 km u/s Ft. St. John (N. side)	July 19 - Aug 16	5	all < 0.005 mg/L	Objectives met
	0400492 100 m d/s Ft. St John	July 19 - Aug 16	5	<0.005 - 0.006 mg/L av < 0.005 mg/L	Objectives met
	0400138 u/s Petro-Canada (N side)	July 19 - Aug 16	5	<0.005 - 0.005 mg/L	Objectives met
	0410054 100 d/s Petro-Canada	July 19 - Aug 16	5	<0.005 - 0.005 mg/L	Objectives met
	E207631 200 m d/s of Fibreco	July 19 - Aug 16	5	<0.005 - 0.005 mg/L	Objectives met
	E207965 1 km d/s Fibreco	July 19 - Aug 16	5	<0.005 - 0.006 mg/L av < 0.005 mg/L	Objectives met
	0400142 5 km d/s Petro-Canada	July 19 - Aug 16	5	all < 0.005 mg/L	Objectives met
	Beatton River E207448 u/s Fort St John STP	1993	0	no data collected	Omitted 1993

TABLE 11 continued

PEACE RIVER MAINSTEM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Dissolved Oxygen 7.25 mg/L min	Peace River: 0400134 3.2km u/s Ft. St John (N side)	July 19 - Aug 16	4	8.7 - 10.8 mg/L	Objective met
	0400492 100 m d/s Ft. St John	July 19 - Aug 16	4	8.8 - 10.8 mg/L	Objective met
	0400138 u/s Petro-Canada (N side)	July 19 - Aug 16	4	8.8 - 10.7 mg/L	Objective met
	0410054 100m d/s Petro-Canada	July 19 - Aug 16	4	8.9 - 10.6 mg/L	Objective met
	E207631 200 m d/s Fibreco	July 28 - Aug 16	3	9.2 - 9.5 mg/L	Objective met
	E207965 1 km d/s Fibreco	July 19 - Aug 16	4	9.5 - 10.6 mg/L	Objective met
	0400142 5 km d/s Petro-Canada (N side)	July 19 - Aug 16	4	9.0 - 10.3 mg/L	Objective met
	Beatton River	1993	0	no data collected	Omitted 1993
Total Dissolved Gas 110% max	Peace River: 0400134 3.2km u/s Ft. St John (N side)	July 19 - Aug 16	4	102 - 104 %	Objective met
	0400142 5 km d/s Petro-Canada	July 19 - Aug 16	4	102 - 104 %	Objective met
pH 6.5 - 9.0	Peace River: 0400134 3.2km u/s Ft. St John (N side)	July 19 - Aug 16	5	8.2 - 8.3	Objective met
	0400492 100 m d/s Ft. St John	July 19 - Aug 16	5	8.2 - 8.3	Objective met
	0400138 u/s Petro-Canada (N side)	July 19 - Aug 16	5	8.2 - 8.3	Objective met
	0410054 100m d/s Petro-Canada	July 19 - Aug 16	5	8.0 - 8.3	Objective met
	E207631 200 m d/s Fibreco	July 19 - Aug 16	5	8.2 - 8.3	Objective met

TABLE 11 continued

PEACE RIVER MAINSTEM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
pH 6.5 - 9.0	Peace River: E207965 1 km d/s Fibreco	July 19 - Aug 16	5	8.2 - 8.3	Objective met
	0400142 5 km d/s Petro-Canada (N side)	July 19 - Aug 16	5	8.2 - 8.3	Objective met
	Beatton River	1993	0	no data collected	Omitted 1993
Temperature max increase: 1 °C	Peace River: 0400134 3.2km u/s Ft. St John (N side)	July 19 - Aug16	4	11.4 - 15.3 °C	Control site
	0400492 100 m d/s Ft. St John	July 19 - Aug16	4	11.7 - 15.6 °C max increase = 0.7 °C	Objective met
	0400138 u/s Petro-Canada (N side)	July 19 - Aug16	4	11.4 - 15.1 °C	Control site
	0410054 100m d/s Petro-Canada	July 19 - Aug16	4	11.4 - 15.3 °C max increase = 0.9 °C	Objective met
	E207631 200 m d/s Fibreco	July 28 - Aug16	3	12.1 - 15.4 °C max increase = 0.7 °C	Objective met
	E207965 1 km d/s Fibreco	July 19 - Aug16	4	11.6 - 15.2 °C max increase = 0.3 °C	Objective met
	0400142 5 km d/s Petro-Canada (N. side)	July 19 - Aug16	4	12.0 - 15.1 °C max increase = 0.6 °C	Objective met
Total Cu ≤ 5.36 ug/L av 14 .6 ug/L max at hardness 134 mg/L or 20% increase	Peace River: 0400134 3.2km u/s Ft. St John (N side)	July 19 - Aug16	5	< 2.0 - 10.0 ug/L av = 5.2 ug/L	Control site
	0400492 100 m d/s Ft. St John	July 19 - Aug16	5	<2.0 - 8.0 ug/L av = 5.0 ug/L	Objectives met
	Peace River: 0400138 u/s Petro-Canada (N. Side)	July 19 - Aug 16	5	<2.0 - 7.0 ug/L av = 3.8 ug/L	Objectives met
	0410054 100 m d/s Petro-Canada	July 19 - Aug 16	5	<2.0 - 10.0 ug/L av = 4.8 ug/L	Objectives met
	E207631 200 m d/s Fibreco	July 19 - Aug 16	5	<2.0 - 10.0 ug/L av = 4.8 ug/L	Objectives met

TABLE 11 continued

PEACE RIVER MAINSTEM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE		MEASUREMENT			CONCLUSION
	SITE	DATE	n	VALUE	
Total Cu ≤ 5.36 ug/L av 14 .6 ug/L max at hardness 134 mg/L or 20% increase	Peace River: E207965 1 km d/s Fibreco	July 19 - Aug 16	5	<2.0 - 7.0 ug/L av = 4.2 ug/L	Objectives met
	0400142 5 km d/s Petro-Canada (N. side)	July 19 - Aug 16	5	2.0 - 11.0 ug/L av = 5.0 ug/L	Objectives met
Chlorophenols (tri + tetra + penta) 0.0002 mg/L max	Peace River	1993	0	no data collected	Omitted 1993
Total Chromium 0.002 mg/L max or 20% increase	Peace River: 0400134 3.2km u/s Ft. St John (N side)	Jul 28 - Aug 16 Jul 19 - Aug 11	2 3	all < 0.002 mg/L 0.004 - 0.006 mg/L	Control site
	0400492 100 m d/s Ft St John	Jul 19 - Aug 16	5	0.003 - 0.058 mg/L min increase = 40%	Objective not met
	0400138 u/s Petro-Canada (N. Side)	July 19 - Aug 16	4	<0.002 - 0.004 mg/L max increase = 20%	Objective met
		Aug. 4	1	0.009 mg/L increase = 124%	Objective not met
	0410054 100 m d/s Petro-Canada	Aug. 11	1	<0.002 mg/L	Objective met
		Jul 19 - Aug 16	4	0.003 - 0.036 mg/L min increase = 50%	Objective not met
	E207631 200 m d/s Fibreco	Jul 19 - Aug 11	2	<0.002 - 0.006 mg/L max increase = 20%	Objective met
		Jul 28 - Aug 16	3	0.003 - 0.012 mg/L min increase = 50%	Objective not met
	E207965 1 km d/s Fibreco	July 19 - Aug 11	3	all < 0.002 mg/L	Objective met
		Aug 4 - Aug 16	2	0.003 - 0.007 mg/L min increase = 50%	Objective not met
	0400142 5 km d/s Petro-Canada (N. side)	Aug. 11	1	<0.002 mg/L	Objective met
		Jul 19 - Aug 16	4	0.003 - 0.016 mg/L min increase = 50%	Objective not met
Total Lead < 7.9 ug/L av 118 ug/L max at hardness 134 mg/L or 20% increase	Peace River: 0400134 3.2 km u/s Ft. St John	July 19 - Aug 16	5	<3 - 4 ug/L av < 3 ug/L	Control site
	0400492 100 m d/s Ft St John	July 19 - Aug 16	5	<3 - 4 ug/L av = 3 ug/L	Objectives met
	0400138 u/s Petro-Canada (N. Side)	July 19 - Aug 16	5	all ≤ 3 mg/L	Objectives met
	0410054 100 m d/s Petro-Canada	July 19 - Aug 16	5	<3 - 5 ug/L av = 4 ug/L	Objectives met

TABLE 11 continued

PEACE RIVER MAINSTEM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Total Lead < 7.9 ug/L av 118 ug/L max at hardness 134 mg/L or 20% increase	Peace River: E207631 200 m d/s Fibreco	July 19 - Aug 16	5	<3 - 6 ug/L av = 4 ug/L	Objectives met
	E207965 1 km d/s Fibreco	July 19 - Aug 16	5	<3 - 6 ug/L av = 4 ug/L	Objectives met
	0400142 5 km d/s Petro-Canada (N. side)	July 19 - Aug 16	5	<3 - 7 ug/L av = 4 ug/L	Objectives met
Total Nickel 0.11 mg/L max at hardness 134 mg/L	Peace River: 0400134 3/2 km u/s Ft. St John	July 19 - Aug 16	5	all < 0.01 mg/L	Objective met
	0400492 100 d/s Ft St John	July 19 - Aug 16	5	< 0.01 - 0.04 mg/L	Objective met
	0400138 u/s Petro-Canada (N. Side)	July 19 - Aug 16	5	all < 0.01 mg/L	Objective met
	0410054 100 m d/s Petro-Canada	July 19 - Aug 16	5	< 0.01 - 0.04 mg/L	Objective met
	E207631 200 m d/d Fibreco	July 19 - Aug 16	5	< 0.01 - 0.02 mg/L	Objective met
	E207965 1 km d/s Fibreco	July 19 - Aug 16	5	all < 0.01 mg/L	Objective met
	0400142 5 km d/s Petro-Canada (N. side)	July 19 - Aug 16	5	all < 0.01 mg/L	Objective met
Total Zinc 0.03 mg/L max or 20% increase	Peace River: 0400134 3.2 km u/s Ft. St John	July 19 - Aug 16	5	0.02 - 0.03 mg/L	Control site
	0400492 100 m d/s Ft St John	July 19 - Aug 16	4	0.01 - 0.03 mg/L	Objective met
		Aug. 4	1	0.04 mg/L increase = 100%	Objective not met
	0400138 u/s Petro-Canada (N. Side)	July 19 - Aug 16	5	0.01 - 0.03 mg/L	Objective met
	0410054 100 m d/s Petro-Canada	Jul 28 - Aug 16	3	0.01 - 0.02 mg/L	Objective met
		Jul 19 - Aug 4	2	all = 0.04 mg/L increase = 100%	Objective not met
	E207631 200 m d/s Fibreco	July 19 - Aug 16	4	0.01 - 0.03 mg/L	Objective met
		Aug. 4	1	0.04 mg/L increase = 100%	Objective not met
	E207965 1 km d/s Fibreco	July 19 - Aug 11	3	0.01 - 0.03 mg/L	Objective met
		Aug 4 - Aug 16	2	0.04 - 0.06 mg/L min increase = 100%	Objective not met

TABLE 11 continued

PEACE RIVER MAINSTEM WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE		MEASUREMENT			CONCLUSION
	SITE	DATE	n	VALUE	
Total Zinc 0.03 mg/L max or 20% increase	Peace River: O400142 5 Km d/s Petro-Canada	July 19 - Aug 16	4	0.01 - 0.03 mg/L	Objective met
		Aug. 4	1	0.05 mg/L increase = 150%	Objective not met
Phenol <0.002 mg/L av or 20% increase	Peace River	1993	0	no data collected	Omitted 1993
Sulfide 0.002 mg/L max or 20% increase	Peace River	1993	0	no data collected	Omitted 1993
2,4-D (ester) 0.004 mg/L max	Peace River	1993	0	no data collected	Omitted 1993
Resin Acids (criteria) 13 ug/L max DHA 52 ug/L max total	0410054 100 m d/s Petro-Canada	July 19 - Aug 16	5	DHA: all < 1 ug/L total: 7 - 13 ug/L	Criteria met
	E207631 200 m d/d Fibreco	July 19 - Aug 16	5	DHA: all < 1 ug/L total: 7 - 26 ug/L	Criteria met
	E207965 1 km d/s Fibreco	July 19 - Aug 16	5	DHA: <1 - 5 ug/L total: 7 - 44 ug/L	Criteria met
	0400142 5 km d/s Petro-Canada (N. side)	July 19 - Aug 16	5	DHA: all < 1 ug/L total: all < 7 ug/L	Criteria met

TABLE 12

WILLIAMS LAKE WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliform <10/100 mL 90th perc. at water intakes	Williams Lake water intake sites	1993	0	no data collected	Omitted 1992
Fecal Coliform <200/100 mL geometric mean (gm) <400/100 mL 90th perc. (np) at beaches	Scout Island Beach	Aug 4 - Aug 19	2	85 - 610/100 mL	Indefinite result
	Russett Bluff Beach	Aug 5 - Aug 17	2	< 5/100 mL	Indefinite result
Turbidity <1 NTU av 5 NTU max	0603019 at lake centre	Aug 2 - Sep 3 Aug 2, Sep 3 Aug 7,17,23	5 2 3	av = 7.2 NTU 13.0 - 15.0 NTU 2.5 - 3.0 NTU	Av not met Max not met Max obj. met
Total P <0.020 mg/L av at spring overturn	0603019 at lake centre	Apr. 15	1 1 1 1	0.5m : 0.048 mg/L 5 m : 0.049 mg/L 10 m : 0.047 mg/L 19 m : 0.049 mg/L av = 0.048 mg/L	Objective not met
Chlorophyll-a <5 ug/L av May - August	0603019 at lake centre	May 11 - Aug 2	4	8.3 - 24.5 ug/L av = 14.8 ug/L	Objective not met
Diss. Oxygen 4 mg/L min 5m above sed.	0603019 at lake centre (sediments at 20 m)	May 11, Jun 5, Jul 5, Oct 25,31	5	4.0 - 8.8 mg/L (at 14.5 m)	Objective met
		Sep 3,26, Oct 11,17	4	0.2 - 1.4 mg/L (at 14.5 m)	Objective not met
Water Clarity 1.2m min Secchi reading May - August	0603019 at lake centre	May 11 - Aug 23	13	1.25 - 3.50 m	Objective met
		Aug 7,17	2	1.00 m	Objective not met

TABLE 13

SAN JOSE RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved P 2500 kg/year max max loading at the inlet to Williams L.	San Jose River: 0600316 d/s Borland Creek	Apr 15 - Nov 16	21 21	0.019 - 0.065 mg/L diss-P 0.39 - 7.7 m3/s river flow 1750 kg diss-P total loading in period	Objective met
	San Jose River: 0600317 u/s Borland Creek	Jan 22 - Apr 11	26 26	0.028 - 0.462 mg/L diss-P 0.173 - 2.08 m3/s river flow	
	Borland Creek: 0600105 at the mouth	Jan 22 - Apr 11	26 26	0.066 - 0.757 mg/L diss-P 0.011 - 2.26 m3/s creek flow	
	San Jose River: 0600316 d/s Borland Creek	Jan 22 - Apr 11		610 kg diss-P total loading in period	
	San Jose River: 0600316 d/s Borland Creek	Jan 22 - Nov 16		2360 kg diss-P total loading in period	

TABLE 14

BONAPARTE RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <100/100 mL 90th perc. (np)	Bonaparte River: 0600017 u/s Clinton Cr.	May 11 - June 9	5	8 - 34/100 mL np = 33/100 mL	Objective met
	E207297 d/s Loon Cr.	May 11 - June 9	5	19 - 59/100 mL np = 49/100 mL	Objective met
	E207291 d/s Hat Creek	May11 - June 9	5	43 - 72/100 mL np = 60/100 mL	Objective met
	0600506 u/s Cache Cr. STP	May 11 - June 9	5	24 - 270/100 mL np = 205/100 mL	Objective not met
	0600508 d/s Cache Cr. STP	May 11 - June 9	5	77 - 180/100 mL np = 175/100 mL	Objective not met
	0600329 near mouth	May 11 - June 16	8	74 - 250/100 mL np = 240/100 mL	Objective not met
	Clinton Creek: 0600503 u/s Clinton STP	May 11 - June 10	6	17 - 130/100 mL np = 120/100 mL	Objective not met
	0600258 d/s Lagoon	May 11 - June 9	6	11 - 940/100 mL np = 535/100 mL	Objective not met
	Loon Creek: 0600297 u/s fish hatchery	May 11 - June 10	5	25 - 140/100 mL np = 132/100 mL	Objective not met
	E206110 d/s fish hatchery	May 11 - June 10	5	26 - 100/100 mL np = 95/100 mL	Objective met
	0600336 near mouth	May 11 - June 9	5	16 - 190/100 mL np = 185/100 mL	Objective not met
Fecal Coliforms <10/100 mL 90th perc. (np) at water intakes	Loon Lake: E218769 at water intake	July 19 - Aug. 17	4	<1 - 2/100 mL	Indefinite result
Fecal Coliform <200/100 mL geometric mean (gm) at beaches	Loon Lake: E207959 Prov. Park Beach	July 19 - Aug. 17	5	<1 - 34/100 mL gm = 4/100 mL	Objective met
Suspended Solids max increase: 10 mg/L or 10%	Bonaparte River: 0600017 u/s Clinton Creek	May 11 - June 9	5	13 - 21 mg/L	Control site
	E207297 d/s Loon Creek	May 11 - May 25 May 18 - Jun 10	2 3	max inc. = 11 - 12 mg/L max inc. = 7 mg/L	Obj. not met Obj. met

TABLE 14 continued

BONAPARTE RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Suspended solids max increase: 10 mg/L or 10%	Bonaparte River: E207291 d/s Hat Creek	May 11 - May 31 Jun. 9	4 1	max inc. = 15 - 86 mg/L max increase = 8 mg/L	Obj. not met Obj. met
	0600506 u/s Cache Creek STP	May 11 - June 9	5	37 - 140 mg/L max inc. = 24 - 121 mg/L	Objective not met
	0600508 d/s Cache Creek STP	May 11 - June 9	5	32 - 183 mg/L max inc. = 19 - 162 mg/L	Objective not met
	0600329 near mouth	May 11 - June 9	7	36 - 152 mg/L max inc. = 23 - 133 mg/L	Objective not met
	Clinton Creek 0600503 u/s Clinton STP	May 11 - June 9	5	6 - 17 mg/L	Control site
	0600258 d/s Lagoon	May 11 - June 9	5	4 - 21 mg/L max inc. = 6 mg/L	Objective met
	Loon Creek: 0600297 u/s hatchery	May 11 - June 10	5	11 - 71 mg/L	Control site
	E206110 d/s hatchery	May 11 - June 1 Jun. 10	4 1	max inc. = 0 mg/L max inc. = 425 mg/L	Obj. met Obj. not met
	0600336 near mouth	May 11 - June 10	5	11 - 61 mg/L max inc. = 2 mg/L	Objective met
Turbidity max increase: 5 NTU or 10%	Bonaparte River: 0600017 u/s Clinton Creek	May 11 - June 9	5	1.3 - 2.4 NTU	Control site
	E207297 d/s Loon Creek	May 11 - June 10	5	2.8 - 5.0 NTU max inc. = 2.8 NTU	Objective met
	E207291 d/s Hat Creek	May 11 - May 25 May 31 - June 9	3 2	max inc. = 9.6 - 15.8 NTU max inc. = 3.8 NTU	Obj. not met Obj. met
	0600506 u/s Cache Creek STP	May 11 - June 9	5	6.6 - 20.0 NTU max inc. = 5.2 - 17.8 NTU	Objective not met
	0600508 u/s Cache Creek STP	May 11 - June 9	5	6.9 - 20.0 NTU max inc. = 5.5 - 17.8 NTU	Objective not met
	0600329 near mouth	May 11 - June 9	5	7.6 - 29.0 NTU max inc. = 6.2 - 26.8 NTU	Objective not met
	Clinton Creek: 0600503 u/s Clinton STP	May 11 - June 9	5	0.6 - 3.4 NTU	Control site

TABLE 14 continued

BONAPARTE RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Turbidity max increase: 5 NTU or 5%	Clinton Creek: 0600258 d/s Lagoon	May 11 - June 9	5	0.8 - 4.3 NTU max inc. = 0.9 NTU	Objective met
	Loon Creek: 0600297 d/s hatchery	May 11 - June 10	5	2.0 - 15.0 NTU	Control site
	E206110 d/s hatchery	May 11 - June 10	5	2.1 - 15.0 NTU max inc. = 0.6 NTU	Objective met
	0600336 near mouth	May 11 - June 10	5	2.0 - 15.0 NTU max inc. = 0.9 NTU	Objective met
Diss. Solids 500 mg/L max	Clinton Creek: 0600503 u/s Clinton STP	May 11 - June 9	5	316 - 367 mg/L	Objective met
	0600258 d/s Lagoon	May 11 - June 9	5	232 - 439 mg/L	Objective met
Tot Cl2 Res. 0.002 mg/L max	Bonaparte River Clinton Creek	1993	0	no data collected	Omitted 1993
Ammonia-N <0.365 mg/L av 1.90 mg/L max at pH = 8.5 temp = 15 C	Bonaparte River: 0600017 u/s Clinton	May 11 - June 9	5	<0.005 - 0.010 mg/L av = 0.007 mg/L	Objectives met
	E207297 d/s Loon Creek	May 11 - June 9	5	<0.005 - 0.007 mg/L av = 0.005 mg/L	Objectives met
	E207291 d/s Hat Creek	May 11 - June 9	5	<0.005 - 0.015 mg/L av = 0.008 mg/L	Objectives met
	0600506 u/s Cache Creek STP	May 11 - June 9	5	<0.005 - 0.009 mg/L av = 0.005 mg/L	Objectives met
	0600508 d/s Cache Creek STP	May 11 - June 9	5	<0.005 - 0.023 mg/L av = 0.009 mg/L	Objectives met
	0600329 near mouth	May 11 - June 9	6	<0.005 - 0.043 mg/L av = 0.011 mg/L	Objectives met
	Clinton Creek: 0600503 u/s Clinton STP	May 11 - June 9	5	all < 0.005 mg/L	Objectives met
	0600258 d/s Lagoon	May 11 - June 9	5	< 0.005 - 0.027 mg/L av = 0.012 mg/L	Objectives met

TABLE 14 continued

BONAPARTE RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Ammonia-N <0.365 mg/L av 1.90 mg/L max at ph = 8.5 temp = 15 C	Loon Creek: 0600297 u/s hatchery	May 11 - June 10	5	< 0.005 - 0.007 mg/L av = 0.005 mg/L	Objectives met
	E206110 d/s hatchery	May 11 - June 9	5	< 0.005 - 0.009 mg/L av = 0.006 mg/L	Objectives met
	0600336 near mouth	May 11 - June 9	5	< 0.005 - 0.006 mg/L av = 0.005 mg/L	Objectives met
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Bonaparte River: 0600017 u/s Clinton Creek	May 11 - June 9	5	all < 0.005 mg/L	Objectives met
	E207297 d/s loon Creek	May 11 - June 9	5	<0.005 - 0.008 mg/L av = 0.006 mg/L	Objectives met
	E207291 d/s Hat Creek	May 11 - June 9	5	< 0.005 - 0.005 mg/L av = < 0.005 mg/L	Objectives met
	0600056 u/s Cache Creek STP	May 11 - June 9	5	all < 0.005 mg/L	Objectives met
	0600508 d/s Cache Creek STP	May 11 - June 9	5	< 0.005 - 0.006 mg/L av = 0.005 mg/L	Objectives met
	0600329 near mouth	May 11 - June 9	5	all < 0.005 mg/L	Objectives met
	Clinton Creek: 0600503 u/s Clinton STP	May 11 - June 10	5	<0.005 - 0.007 mg/L av = 0.005 mg/L	Objectives met
	0600258 d/s Lagoon	May 11 - June 9	5	<0.005 - 0.009 mg/L av = 0.006 mg/L	Objectives met
Chlorophyll-a <50 mg/m2 av	Bonaparte River 0600329 near mouth	Aug. 24	6	70 - 419 mg/m2 av = 222 mg/m2	Objective not met
Chlorophyll-a <100 mg/m2 av or 20% increase	Clinton Creek	1993	0	no data collected	Objective not checked
Dissolved Oxygen 7.75-11.2 mg/L min depending on fish egg stage	Bonaparte River 0600017 u/s Clinton Cr.	May 11 - June 9	5	8.4 - 9.8 mg/L	Objective met
	E207297 d/s Loon Creek	May 11 - June 10	5	9.1 - 9.4 mg/L	Objective met

TABLE 14 continued

BONAPARTE RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 7.75-11.2 mg/L min depending on fish egg stage	Bonaparte River: E207291 d/s Hat Creek	May 11 - June 9	5	9.2 - 9.6 mg/L	Objective met
	0600506 u/s Cache Creek STP	May 11 - June 9	5	9.1 - 9.4 mg/L	Objective met
	0600508 d/s Cache Creek STP	May 11 - June 9	5	9.1 - 9.4 mg/L	Objective met
	0600329 near mouth	May 11 - June 9	5	9.3 - 9.9 mg/L	Objective met
	Clinton Creek: 0600503 u/s Clinton STP	May 11 - June 9	5	8.8 - 10.4 mg/L	Objective met
	0600258 d/s Lagoon	May 11 - June 9	5	9.3 - 10.4 mg/L	Objective met
	Loon Creek: 0600297 u/s fish hatchery	May 11 - June 10	5	9.2 - 10.8 mg/L	Objective met
	E206110 d/s fish hatchery	May 11 - June 10	5	9.2 - 10.8 mg/L	Objective met
	0600336 near mouth	May 11 - June 10	5	8.4 - 10.8 mg/L	Objective met
Dissolved Oxygen 5 mg/L min above bottom	Loon Lake 0603050 above deepest point (30 m)	Sep. 2	1	0.2 mg/L at 25 m	Objective not met
pH 6.5 - 8.5 (u/s Cache Creek & Clinton Creek)	Bonaparte River: 0600017 u/s Clinton Creek	May 11 - June 9	5	8.0 - 8.3	Objective met
	E207297 d/s Loon Creek	May 11 - June 10	5	8.3 - 8.4	Objective met
	E207291 d/s Hat Creek	May 11 - June 9	5	8.2 - 8.4	Objective met
	Clinton Creek: 0600503 u/s Clinton STP	May 18 - June 9	4	8.4 - 8.5	Objective met
		May. 11	1	8.6	Objective not met
	0600258 d/s Clinton STP	May 11 - June 9	5	8.3 - 8.5	Objective met

TABLE 14 continued

BONAPARTE RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
pH 6.5 - 9.0 (d/s Cache Creek & Loon Creek)	Bonaparte River: 0600506 u/s Cache Creek STP	May 11 - June 9	5	8.2 - 8.4	Objective met
	0600508 d/s Cache Creek STP	May 11 - June 9	5	8.2 - 8.4	Objective met
	0600329 near mouth	May 11 - June 9	7	8.3 - 8.4	Objective met
	Loon Creek: 0600297 u/s hatchery	May 11 - June 10	5	8.5 - 8.6	Objective met
	E206110 d/s hatchery	May 11 - June 10	5	8.5 - 8.6	Objective met
	0600336 near mouth	May 11 - June 10	5	8.5 - 8.6	Objective met

TABLE 15

OKANAGAN VALLEY LAKES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total-P <0.040 mg/L av at spring overturn (short-term)	Wood Lake 0500848 lake centre	Apr. 6	1 1 1	1 - 10 m: 0.016 mg/L 15 m: 0.025 mg/L 20 m: 0.025 mg/L av = 0.022 mg/L	Objective met
Total-P <0.008 mg/L av at spring overturn	Kalamalka Lake: 0500246 south end	Apr. 5	1 1 1	0-10m: 0.005 mg/L 15 m: 0.011 mg/L 20 m: 0.017 mg/L av = 0.011 mg/L	Objective not met
	0500461 north end	Apr. 5	1 1 1	0-10m: 0.005 mg/L 15 m: 0.006 mg/L 20 m: 0.007 mg/L av = 0.006 mg/L	Objective met
Total-P <0.010 mg/L av at spring overturn	Okanagan Lake: 0500239 Armstrong Arm	Apr. 6	1 1 1	0-10m: 0.009 mg/L 15 m: 0.014 mg/L 20 m: 0.026 mg/L av = 0.016 mg/L	Objective not met
	0500238 Vernon Arm	Mar. 22	1 1	1-10m: 0.007 mg/L 20 m: <0.003 mg/L av = 0.005 mg/L	Objective met
	0500730 north basin	Mar.22	1 1 1	1-10m: <0.003 mg/L 15 m: <0.003 mg/L 20 m: <0.003 mg/L av < 0.003 mg/L	Objective met
	0500236 central basin	Mar. 8	1 1 1	1-10 m: <0.003 mg/L 15 m: 0.007 mg/L 20 m: 0.004 mg/L av < 0.005 mg/L	Objective met
	0500729 south basin	Mar. 15	1 1 1	1-10 m: <0.003 mg/L 15 m: 0.006 mg/L 20 m: <0.003 mg/L av < 0.004 mg/L	Objective met
Total-P <0.015 mg/L av at spring overturn	Skaha Lake 0500615 lake centre	Mar. 23	1 1 1	1-10m: 0.012 mg/L 15 m: 0.012 mg/L 20 m: 0.012 mg/L av = 0.012 mg/L	Objective met
	Osoyoos Lake 0500249 north end	Mar. 31	1 1	1-10m: 0.022 mg/L 20 m: 0.020 mg/L av = 0.021 mg/L	Objective not met

TABLE 16

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <10 /100 mL 90th perc. (np)	Similkameen River: 0500075 u/s Newmont	Jul. 21 - Aug. 17	5	2 - 51/100 mL np = 22/100 mL	Objective not met
	0500629 d/s Newmont	Jul. 21 - Aug. 17	5	2 - 120/100 mL np = 77/100 mL	Objective not met
	0500724 u/s Princeton STP	Jul. 21 - Aug. 17	5	2 - 85/100 mL np = 60/100 mL	Objective not met
	0500725 d/s Princeton STP	Jul. 27 - Aug. 17	4	1 - 25/100 mL	Indefinite result
	E207462 d/s Hedley Cr.	Jun. 29 - Jul. 27	5	4 - 15/100 mL np = 13.5/100 mL	Objective not met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	5 - 150/100 mL np = 75/100 mL	Objective not met
	0500693 d/s Keremeos STP	Jul. 27 - Aug. 17	4	2 - 20/100 mL	Indefinite result
	0500073 near U.S. border	Jul. 27 - Aug. 17	4	8 - 28/100 mL	Indefinite result
	Allison Creek: 0500003 near mouth	Jul. 21 - Aug. 17	5	11 - 39/100 mL np = 35/100 mL	Objective not met
	Allison, Missezula & Osprey lakes	1993	0	no data collected	Objectives not checked
E. Coli <10/100 mL 90th perc.	Similkameen River: 0500075 u/s Newmont	Jul. 21 - Aug. 17	5	1 - 60/100 mL np = 38/100 mL	Objective not met
	0500629 d/s Newmont	Jul. 21 - Aug. 17	5	3 - 98/100 mL np = 53/100 mL	Objective not met
	0500724 u/s Princeton STP	Jul. 21 - Aug. 17	5	4 - 92/100 mL np = 50/100 mL	Objective not met
	0500725 d/s Princeton STP	Jul. 27 - Aug. 17	4	4 - 16/100 mL np = 15/100 mL	Indefinite result
	E207462 d/s Hedley Cr.	Jun. 29 - Jul. 27	5	2 - 20/100 mL np = 18/100 mL	Objective not met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	5 - 160/100 mL np = 110/100 mL	Objective not met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	<1 - 150/100 mL np = 80/100 mL	Objective not met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
E. Coli <10/100 mL 90th perc.	Similkameen River: 0500073 near U.S. border	Jul. 21 - Aug. 17	5	5 - 100/100 mL np = 63/100 mL	Objective not met
	Allison Creek: 0500003 near mouth	Jul. 21 - Aug. 17	5	11 - 36/100 mL np = 36/100 mL	Objective not met
Enterococci <3/100 mL 90th perc.	Similkameen River: 0500075 u/s Newmont	Jul. 21 - Aug. 17	5	4 - 23/100 mL np = 16/100 mL	Objective not met
	0500629 d/s Newmont	Jul. 21 - Aug. 17	5	<1 - 81/100 mL np = 40/100 mL	Objective not met
	0500724 u/s Princeton STP	Jul. 21 - Aug. 17	5	2 - 69/100 mL np = 40/100 mL	Objective not met
	0500725 d/s Princeton STP	Jul. 21 - Aug. 17	4	1 - 17/100 mL	Indefinite result
	E207462 d/s Hedley Cr.	Jun. 29 - Jul. 27	5	3 - 40/100 mL np = 29/100 mL	Objective not met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	8 - 78/100 mL np = 47/100 mL	Objective not met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	4 - 78/100 mL np = 40/100 mL	Objective not met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	4 - 77/100 mL np = 44/100 mL	Objective not met
	Allison Creek: 0500003	Jul. 21 - Aug. 17	5	17 - 42/100 mL np = 41/100 mL	Objective not met
Suspended Solids max increase: 10 mg/L or 10%	Similkameen River: 0500724 u/s Princeton STP	Jul. 21 - Aug. 17	5	<4 - 21 mg/L	Control site
	0500725 d/s Princeton STP	Jul. 27 - Aug. 17	4	all < 4 mg/L	Objective met
	E207461 u/s Hedley Cr.	Jun 23 - Jul 20	5	55 - 107 mg/L	Control site
	E207462 d/s Hedley Cr.	Jun 23 - Jul 14 Jul. 27	4 1	max increase = 3 mg/L mac increase = 11 mg/L	Obj. met Obj. not met
	E207463 d/s Candorado	Jun 23 - Jul 14 Jul. 20	4 1	max increase = 10 mg/L max increase = 22 mg/L	Obj. met Obj. not met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Suspended Solids max increase: 10 mg/L or 10%	Similkameen River: 0500692 u/s Keremeos STP	Jul 21 - Aug 17	5	<4 - 39 mg/L	Control site
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	<4 - 31 mg/L max increase = 0 mg/L	Objective met
	0500073 near U.S. border	Jul 21 - Aug 17	5	<4 - 36 mg/L max increase = 0 mg/L	Objective met
	Hedley Creek: 0500032 u/s Candorado	Jun 23 - Jul 20	5	43 - 56 mg/L	Control site
	E207464 at the mouth	Jun 23 - Jul 20 Jul. 7	4 1	max increase = 5 mg/L max increase = 15 mg/L	Obj. met Obj. not met
Substrate Sedimentation: no increase in weight of particles <3 mm dia	Similkameen River: Princeton to border & Hedley Creek	1993	0	no data collected	Omitted 1993
Turbidity max increase: 1-5 NTU or 10%	Similkameen River: 0500724 u/s Princeton STP	Jul. 21 - Aug. 17	5	0.3 - 5.0 NTU	Control site
	0500725 d/s Princeton STP	Jul. 27 - Aug. 17	4	0.3 - 0.6 NTU max increase = 0.1 mg/L	Objective met
	E207561 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	0.3 - 1.6 NTU	Control site
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	0.2 - 0.6 NTU max increase = 0 NTU	Objective met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	0.2 - 0.7 NTU max increase = 0.2 NTU	Objective met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	0.3 - 5.9 NTU	Control site
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	0.3 - 7.0 NTU max increase = 1.1 NTU	Objective met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	0.3 - 7.4 NTU max increase = 1.5 NTU	Objective met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	0.2 - 0.4 mg/L	Control site
	E207464 at the mouth	Jun. 23 - Jul. 20	5	0.2 - 0.4 NTU max increase = 0 NTU	Objective met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Tot. Cl2 Res. 0.002 mg/L max	Similkameen River : Princeton to border	1993	0	no data collected	Omitted 1993
WAD-CN <0.005 mg/L av 0.010 mg/L max	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.005 mg/L	Objectives met
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.005 mg/L	Objectives met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	all < 0.005 mg/L	Objectives met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.005 mg/L	Objectives met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.005 mg/L	Objectives met
	0500073 near U.S border	Jul. 21 - Aug. 17	5	all < 0.005 mg/L	Objectives met
WAD-CN <0.005 mg/L av 0.010 mg/L max or 20% increase	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	all < 0.005 mg/L	Objectives met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	< 0.005 - 0.006 mg/L av = < 0.005 mg/L	Objectives met
SAD-CN + Thiocyanate as CN 0.20 mg/L max	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.032 mg/L	Objective met
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.038 mg/L	Objective met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	all < 0.038 mg/L	Objective met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.039 mg/L	Objective met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.061 mg/L	Objective met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	all < 0.040 mg/L	Objective met
SAD-CN + Thiocyanate as CN 0.20 mg/L max or 20% inc.	Hedley Creek 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	all < 0.045 mg/L	Objective met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	all < 0.038 mg/L	Objective met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Cyanate as CN 0.45 mg/L max	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.05 mg/L	Objective met
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.05 mg/L	Objective met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	all < 0.05 mg/L	Objective met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.05 mg/L	Objective met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.05 mg/L	Objective met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	all < 0.05 mg/L	Objective met
Cyanate as CN 0.45 mg/L max or 20% inc.	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	all < 0.05 mg/L	Objective met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	all < 0.05 mg/L	Objective met
Total Arsenic 0.05 mg/L max or 20% increase	Similkameen River: E207461 u/s Hedley	Jun. 23 - Jul. 20	5	all < 0.001 mg/L	Control site
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	< 0.001 - 0.002 mg/L	Objective met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	< 0.001 - 0.001 mg/L	Objective met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.001 - 0.002 mg/L	Objective met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.001 - 0.003 mg/L	Objective met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	< 0.001 - 0.007 mg/L	Objective met
Total Arsenic 0.05 mg/L max	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	all < 0.001 mg/L	Objective met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	0.002 - 0.006 mg/L	Objective met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Ammonia-N <1.09 mg/L av 5.68 mg/L max at pH = 8.0 temp = 15 C	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.005 mg/L	Objectives met
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.005 mg/L	Objectives met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	all < 0.005 mg/L	Objectives met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.005 - 0.008 mg/L	Objectives met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.005 - 0.005 mg/L	Objectives met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	all < 0.005 mg/L	Objectives met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	all < 0.005 mg/L	Objectives met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	all < 0.005 mg/L	Objectives met
Total-P <0.020 mg/L av at spring overturn	Missezula Lake 0500928	May. 18	3	1 m: 0.029 mg/L 5 m: 0.026 mg/L 10 m: 0.025 mg/L av = 0.027 mg/L	Objective not met
	Allison Lake 1131013	May. 18	4	1 m: 0.010 mg/L 5 m: 0.008 mg/L 10 m: 0.030 mg/L 14 m: 0.017 mg/L av = 0.016	Objective met
	Osprey Lake E206818	May. 18	3	1 m: 0.021 mg/L 5 m: 0.019 mg/L 10 m: 0.043 mg/L av = 0.028 mg/L	Objective not met
Chlorophyll-a <50 mg/m2 av	Similkameen River: 0500725 d/s Princeton STP	Sep. 22	6	1.6 - 6.4 mg/m2 av = 3.9 mg/m2	Objective met
	0500693 d/s Keremeos STP	Sep. 22	6	2.5 - 11.0 mg/m2 av = 6.8 mg/m2	Objective met
Chlorophyll-a <100 mg/m2 av	Hedley Creek: E207464 at the mouth	Sep. 22	5	0.9 - 6.2 mg/m2 av = 2.2 mg/m2	Objective met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Diss. Oxygen 8 mg/L min July - March 11 mg/L min April - June	Similkameen River: 0500075 u/s Newmont	Jul. 21 - Aug. 17	5	10.2 - 11.0 mg/L	Objective met
	0500629 d/s Newmont	Jul. 21 - Aug. 17	5	8.8 - 11.0 mg/L	Objective met
	0500724 u/s Princeton STP	Jul. 21 - Aug. 17	5	9.2 - 11.2 mg/L	Objective met
	0500725 d/s Princeton STP	Jul. 27 - Aug. 17	4	9.0 - 10.4 mg/L	Objective met
	E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	9.5 - 11.0 mg/L	Objective met
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 27	6	8.0 - 10.1 mg/L	Objective met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	8.0 - 11.2 mg/L	Objective met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	10.0 - 11.0 mg/L	Objective met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	9.5 - 11.2 mg/L	Objective met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	9.1 - 10.8 mg/L	Objective met
	Allison Creek: 0500003 near mouth	Jul 21 - Aug 17	5	10.6 - 11.2 mg/L	Objective met
pH 6.5 - 8.5	Similkameen River: 0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	7.8 - 8.1	Objective met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	7.8 - 8.1	Objective met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	all 8.0	Objective met
	Hedley Creek	1993	0	no data collected	Omitted 1993
	Wolf Creek: 0500397 u/s Newmont	Jul. 21 - Aug. 17	5	7.9 - 8.3	Objective met
	0500101 d/s Newmont	Jul. 21 - Aug. 17	5	7.9 - 8.3	Objective met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Al <0.05 mg/L av 0.10 mg/L max or 20% inc.	Similkameen River: 0500075 u/s Newmont	Jul. 21 - Aug. 17	5	< 0.02 - 0.04 mg/L av = 0.03 mg/L	Objectives met
	0500629 d/s Newmont	Jul. 21 - Aug. 17	5	< 0.02 - 0.02 mg/L av < 0.02 mg/L	Objectives met
	0500724 u/s Princeton STP	Jul. 21 - Aug. 17	5	< 0.02 - 0.03 mg/L av = 0.02 mg/L	Objectives met
	0500725 d/s Princeton STP	Jul. 27 - Aug. 17	4	all < 0.02 mg/l	Max obj. met
	E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.02 mg/L	Objectives met
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	< 0.02 - 0.06 mg/l av = 0.04 mg/L	Objectives met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	< 0.02 - 0.04 mg/L av = 0.02 mg/L	Objectives met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.02 - 0.05 mg/L av = 0.03 mg/L	Objectives met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.02 - 0.04 mg/L av = 0.02 mg/L	Objectives met
	0500073 near U.S border	Jul. 21 - Aug. 17	5	< 0.02 - 0.05 mg/L av = 0.03 mg/L	Objectives met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	< 0.02 - 0.09 mg/L av = 0.06 mg/L	max obj. met av not met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	< 0.02 - 0.09 mg/L av = 0.054 mg/L	max obj. met av not met
Total Cr <0.002 mg/L av 0.02 mg/L max or 20% increase	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	<0.002 - 0.003 mg/L av = 0.002 mg/L	Objectives met
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	< 0.002 - 0.003 mg/L av = 0.002 mg/L	Objectives met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	< 0.002 - 0.003 mg/L av = 0.002 mg/L	Objectives met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.002 mg/L	Objectives met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.002 - 0.006 mg/L av = 0.003 mg/L	max obj. met av not met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Cr <0.002 mg/L av 0.02 mg/L max or 20% increase	Similkameen River: 0500073 near U.S border	Jul. 21 - Aug. 17	5	all < 0.002 mg/L	Objectives met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	< 0.002 - 0.002 mg/L av = < 0.002 mg/L	Objectives met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	< 0.002 - 0.002 mg/L av = < 0.002 mg/L	Objectives met
Total Cu <0.002 mg/L av 0.006 mg/L max or 20% increase at hardness = 46	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	< 0.002 - 0.003 mg/L av = 0.002 mg/L	Control site
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	< 0.002 - 0.004 mg/L av = 0.002 mg/L	Objectives met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	< 0.002 - 0.002 mg/L av = < 0.002 mg/L	Objectives met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.002 - 0.004 mg/L av = 0.002 mg/L	Objectives met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.002 - 0.004 mg/L av = 0.002 mg/L	Objectives met
	0500073 near U.S border	Jul. 21 - Aug. 17 Jul 27 - Aug 17 Jul. 21	5 4 1	av = 0.003 mg/L <0.002 - 0.002 mg/L 0.008 mg/L	Av not met Max obj. met Max not met
Total Cu <0.002 mg/L av 0.003 mg/L max or 20% inc. at hardness = 14	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20 Jun. 29 Jun 23 - Jul 20	5 1 4	av = 0.002 mg/L 0.004 mg/L all < 0.002 mg/L	Av obj. met Max not met Max obj. met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	< 0.002 - 0.002 mg/L av = < 0.002 mg/L	Objectives met
Dissolved Cu <0.002 mg/L av 0.004 mg/L max or 20% increase at hardness = 46	Similkameen River: 0500075 u/s Newmont	Jul 21 - Aug 17	5	all < 0.001 mg/L	Control site
	0500629 d/s Newmont	Jul 21 - Aug 17	5	all < 0.001 mg/L	Objectives met
	0500724 u/s Princeton	Jul 21 - Aug 17	5	<0.001 - 0.002 mg/L av = 0.001 mg/L	Objectives met
Dissolved Cu <0.010 mg/L av 0.015 mg/L max or 20% increase at hardness = 163	Wolfe Creek: 0500397 u/s Newmont	Jul 21 - Aug 17	5	0.004 - 0.008 mg/L	Control site
	0500101 d/s Newmont	Jul 21 - Aug 17	5	0.001 - 0.005 mg/L av = 0.003 mg./L	Objectives met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Fe 0.3 mg/L max or 20% increase	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	0.05 - 0.19 mg/L	Control site
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	0.08 - 0.16 mg/L	Objective met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	< 0.05 - 0.16 mg/L	Objective met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	0.07 - 0.83 mg/L	Control site
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	0.06 - 0.91 mg/L max increase = 10%	Objective met
	0500073 near U.S border	Jul. 27 - Aug. 17	4	0.09 - 0.23 mg/L	Obj. met
		Jul. 21	1	1.32 mg/L max increase = 59%	Objective not met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	0.09 - 0.17 mg/L	Control site
	E207464 at the mouth	Jun. 23 - Jul. 20	5	0.10 - 0.18 mg/L	Objective met
Dissolved Fe 0.3 mg/L max or 20% increase	Wolfe Creek: 0500397 u/s Newmont	Jul 21 - Aug 17	5	0.011 - 0.086 mg/L	Control site
	0500101 d/s Newmont	Jul 21 - Aug 17	5	0.027 - 0.102 mg/L	Objective met
Total Pb 0.004 mg/L av 0.030 mg/L max or 20% increase at hardness = 46	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.003 mg/L	Control site
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.003 mg/L	Objectives met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	all < 0.003 mg/L	Objectives met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.003 mg/L	Objectives met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.003 mg/L	Objectives met
	0500073 near U.S border	Jul. 21 - Aug. 17	5	all < 0.003 mg/L	Objectives met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Pb <0.004 mg/L av 0.007 mg/L max or 20% increase hardness = 14	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	all < 0.003 mg/L	Control site
	E207464 at the mouth	Jun. 23 - Jul. 20	5	all < 0.003 mg/L	Objectives met
Total Pb 0.8ug/g wet wt max in fish muscle	Similkameen River: Princeton to border & Hedley Creek	1993	0	no data collected	Omitted 1993
Total Mn 0.05 mg/L max or 20% increase	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	0.003 - 0.007 mg/L	Control site
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	0.002 - 0.004 mg/L	Objective met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	< 0.002 - 0.006 mg/L	Objective met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	0.003 - 0.034 mg/L	Control site
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	0.003 - 0.037 mg/L	Objective met
	0500073 near U.S. border	Jul. 21	1	0.057 mg/L max increase = 68%	Objective not met
		Jul 27 - Aug 17	4	0.006 - 0.009 mg/L	Obj. met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	< 0.002 - 0.003 mg/L	Control site
	E207464 at the mouth	Jun. 23 - Jul. 20	5	< 0.002 - 0.004 mg/L	Objective met
Dissolved Mn 0.2 mg/L max or 20% increase	Wolfe Creek: 0500397 u/s Newmont	Jul 21 - Aug 17	5	<0.002 - 0.002 mg/L	Control site
	0500101 d/s Newmont	Jul 21 - Aug 17	5	0.037 - 0.073 mg/L	Objective met
Total Hg <0.02 ug/L av 0.1 ug/L max	Similkameen River: E207461 u/s Hedley Cr.	Jun 23 - Jul 20	5	<0.005 - 0.006 ug/L av < 0.005 ug/L	Objectives met
	E207462 d/s Hedley Cr.	Jun 23 - Jul 20	5	<0.005 - 0.009 ug/L av < 0.006 ug/L	Objectives met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Hg <0.02 ug/L av 0.1 ug/L max	Similkameen River: E207463 d/s Candorado	Jun. 23 - Jul. 20	5	< 0.005 - 0.007 ug/L av < 0.005 ug/L	Objectives met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 10	5	<0.005 - 0.008 ug/L av < 0.006 ug/L	Objectives met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 10	5	<0.005 - 0.008 ug/L av < 0.006 ug/L	Objectives met
	0500073 near U.S. border	Jul 21 - Aug 10	5	<0.005 - 0.008 ug/L av < 0.007 ug/L	Objectives met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	<0.005 - 0.005 ug/L av < 0.005 ug/L	Objectives met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	<0.005 - 0.006 ug/L av < 0.005 ug/L	Objectives met
Total Hg 0.5ug/g wet wt max in fish muscle	Similkameen River: Princeton to border & Hedley Creek	1993	0	no data collected	Omitted 1993
Total Mo <0.01 mg/L av 0.05 mg/L max May - Sep	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	all <0.004 mg/L	Objectives met
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	all <0.004 mg/L	Objectives met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	all < 0.004 mg/L	Objectives met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.004 mg/L	Objectives met
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.004 mg/L	Objectives met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	all < 0.004 mg/L	Objectives met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	all < 0.004 mg/L	Objectives met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	all < 0.004 mg/L	Objectives met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Mo 0.02 mg/L av 0.05 mg/L max or 20% increase May - September	Wolfe Creek: 0500397 u/s Newmont	Jul 21 - Aug 17	5	all < 0.004 mg/L	Control site
	0500101 d/s Newmont	Jul 21 - Aug 17	5	0.014 - 0.023 mg/L av = 0.017mg/L	Objectives met
Total Ni 0.025 mg/L max or 20% increase at hardness <65	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.01 mg/L	Control site
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	< 0.01 - 0.02 mg/L	Objective met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	all < 0.01 mg/L	Objective met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.01 mg/L	Control site
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	all < 0.01 mg/L	Objective met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	all < 0.01 mg/L	Objective met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	all < 0.01 mg/L	Control site
	E207464 at the mouth	Jun. 23 - Jul. 20	5	all < 0.01 mg/L	Objective met
Total U <0.01 mg/L av 0.10 mg/L max or 20% increase	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	0.0003 - 0.0006 mg/L av = 0.0004 m/L	Control site
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	0.0003 - 0.0005 mg/L av = 0.0004 mg/L	Objectives met
	E207463 d/s Candorado	Jun. 23 - Jul. 20	5	0.0003 - 0.0007 mg/L av = 0.0004 mg/L	Objectives met
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	0.0003 - 0.0008 mg/L av = 0.0004 mg/L	Control site
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	0.0003 - 0.0004 mg/L av = 0.0003 mg/L	Objectives met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	0.0003 - 0.0004 mg/L av = 0.0004 mg/L	Objectives met

TABLE 16 continued

SIMILKAMEEN RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total U <0.01 mg/L av 0.10 mg/L max or 20% increase	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	0.0003 - 0.0005 mg/L av = 0.0004 mg/L	Objectives met
	E207464 at the mouth	Jun. 23 - Jul. 20	5	0.0003 - 0.0008 mg/L av = 0.0004 mg/L	Objectives met
Total Zn <0.01 mg/L av 0.03 mg/L max or 20% increase	Similkameen River: E207461 u/s Hedley Cr.	Jun. 23 - Jul. 20	5	< 0.01 - 0.01 mg/L	Control site
	E207462 d/s Hedley Cr.	Jun. 23 - Jul. 20	5	all < 0.01 mg/L	Objectives met
	E207463 d/s Candorado	Jun. 23 - Jul. 20 Jun. 29 Jun 23 - Jul 20	4 1 5	all < 0.01 mg/L 0.05 mg/L av < 0.02 mg/L	Max obj. met Max not met Av indefinite
	0500692 u/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.01 - 0.02 mg/L av = 0.01 mg/L	Control site
	0500693 d/s Keremeos STP	Jul. 21 - Aug. 17	5	< 0.01 - 0.02 mg/L av = 0.01 mg/L	Objectives met
	0500073 near U.S. border	Jul. 21 - Aug. 17	5	< 0.01 - 0.02 mg/L av = 0.01 mg/L	Objectives met
	Hedley Creek: 0500032 u/s Candorado	Jun. 23 - Jul. 20	5	< 0.01 - 0.02 mg/L av = 0.01 mg/L	Control site
	E207464 at the mouth	Jun. 23 - Jul. 20	5	< 0.01 - 0.01 mg/L av = < 0.01 mg/L	Objectives met
Dissolved Zn <0.05 mg/L av 0.08 mg/L max or 20% increase at hardness = 46	Similkameen River: 0500075 u/s Newmont	Jul 21 - Aug 17	5	<0.002 - 0.003 mg/L	Control site
	0500629 d/s Newmont	Jul 21 - Aug 17	5	all < 0.002 mg/L	Objectives met
	0500724 u/s Princeton	Jul 21 - Aug 17	5	<0.002 - 0.002 mg/L	Objectives met
Dissolved Zn <0.05 mg/L av 0.32 mg/L max or 20% increase at hardness = 163	Wolfe Creek: 0500397 u/s Newmont	Jul 21 - Aug 17	5	<0.002 - 0.003 mg/L	Control site
	0500101 d/s Newmont	Jul 21 - Aug 17	5	<0.002 - 0.020 mg/L av < 0.006 mg/L	Objectives met

TABLE 17

CAHILL CREEK AND TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Susp. Solids max increase: 10 mg/L or 10%	Cahill Creek: E206637 at highway	June 23 - July 20	5	<4 - 7 mg/L	Objective met
	Red Top Gulch at Hwy. E206638	Jun 23, Jul 7, 14 Jun 29, Jul 20	3 2	5 - 8 mg/L 11 - 14 mg/L	Obj. met Indef. result (no control)
Susp. solids max increase: 20 mg/L or 10%	Cahill Creek: u/s confluence Sunset Cr. E206635	June 23 - July 20	5	all < 4 mg/L	Control site
	d/s tailings E206636	June 23 - July 20	5	<4 - 6 mg/L	Objective met
	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	all <4 mg/L	Objective met
Turbidity max increase: 5 NTU or 10%	Cahill Cr. u/s confluence E206635	June 23 - July 20	5	0.6 - 1.4 NTU	Control site
	Cahill Cr d/s tailing E206636	June 23 - July 20	5	0.3 - 1.7 NTU	Objective met
Turbidity max increase: 5 NTU or 10%	Cahill Cr. at Hwy #3 E206637	June 23 - July 20	5	0.3 - 1.7 NTU	Objective met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	0.6 - 2.5 NTU	Objective met
Turbidity max increase: 10 NTU or 20%	Sunset Creek: E215954 u/s Canty Pit	June 23 - July 20	5	0.2 - 0.7 NTU	Control site
	E215955 d/s Canty Pit	June 23 - July 20	5	2.8 - 5.6 NTU	Objective met
	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	< 0.1 - 0.4 NTU	Objective met
Diss. Solids 500 mg/L max	Cahill Creek: E206635 u/s confluence	June 23 - July 20	5	41 - 85 mg/L	Objective met
	E206636 d/s tailings	June 23 - July 20	5	120 - 293 mg/L	Objective met
	E206637 at highway	June 23 - July 20	6	193 - 298 mg/L	Objective met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	283 - 393 mg/L	Objective met

TABLE 17 continued

CAHILL CREEK AND TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Diss. Solids 500 mg/L max	Nickel Plate Mine Creek E206633	June 23 - July 20	5	976 - 1090 mg/L	Objective not met
Sulphate < 50 mg/L av 150 mg/L max	Cahill Cr u/s confluence E206635	June 29 - July 20	4	6.3 - 9.3 mg/L	Max obj. met
	Cahill Cr d/s tailing E206636	June 29 - July 20	4	18.9 - 52.4 mg/L	Max obj. met
	Cahill Cr. at Highway E206637	June 23 - July 20	6	19.3 - 50.4 mg/L av = 38 mg/L	Objectives met
	Red Top Gulch at Hwy. E206638	June 23 - July 20 Jul. 7 Jun 23 - Jul 20	4 1 5	22 - 111 mg/L 167 mg/L av = 84 mg/L	Max obj. met Max not met Av not met
	Nickel Plate Mine Creek E206633	June 23 - July 20	5	230 - 312 mg/L av = 258 mg/L	Objectives not met
WAD-CN <0.005 mg/L av 0.010 mg/L max	Cahill Cr. at Highway E206637	June 23 - July 20	6	av = 0.005 mg/L max = 0.008 mg/L	Objectives met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	av = 0.006 mg/L max = 0.009 mg/L	av not met max obj. met
SAD-CN + Thiocyanate as CN 0.20 mg/L max	Cahill Cr. u/s confluence E206635	June 23 - July 20	5	all < 0.034 mg/L	Objective met
	Cahill Cr. d/s tailing E206636	June 23 - July 20	5	all < 0.037 mg/L	Objective met
	Cahill Cr. at Highway E206637	June 23 - July 20	6	<0.005 - 0.014 mg/L SAD-CN	Indefinite result
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	0.012 - 0.022 mg/L SAD-CN	Indefinite result
Cyanate as CN 0.45 mg/L max	Cahill Cr. at Highway Red Top Gulch Creek	1993	0	no data collected	Omitted 1993
Total As 0.05 mg/L max	Cahill Cr. u/s confluence E206635	June 23 - July 20	5	all < 0.04 mg/L	Objective met
	Cahill Cr. d/s tailing E206636	June 23 - July 20	5	all < 0.04 mg/L	Objective met
	Cahill Cr. at Highway E206637	June 23 - July 20	6	all < 0.04 mg/L	Objective met
	Red Top Gulch Creek E206638	June 23 - July 20	5	all < 0.04 mg/L	Objective met

TABLE 17 continued

CAHILL CREEK AND TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total As 0.5 mg/L max	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	all < 0.04 mg/L	Objective met
Ammonia-N <0.491 mg/L av 3.61 mg/L max at pH = 8.2 temp = 20 C	Cahill Cr. at hwy #3 E206637	June 23 - July 20	6	< 0.005 - 0.007 mg/L	Objectives met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	all < 0.005 mg/L	Objectives met
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Cahill Cr. at Highway E206637	June 23 - July 20	6	< 0.005 - 0.006 mg/L	Objectives met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	<0.005 - 0.014 mg/L	Objectives met
Nitrite-N 1 mg/L max	Cahill Cr u/s confluence E206635	June 23 - July 20	5	all < 0.005 mg/L	Objective met
	Cahill Cr d/s tailing E206636	June 23 - July 20	5	< 0.005 - 0.007 mg/L	Objective met
Nitrite-N 10 mg/L max	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	< 0.005 - 0.011 mg/L	Objective met
Nitrate-N 10 mg/L max	Cahill Cr u/s confluence E206635	June 23 - July 20	5	< 0.02 - 0.04 mg/L	Objective met
	Cahill Cr d/s tailing E206636	June 23 - July 20	5	4.71 - 9.34 mg/L	Objective met
	Cahill Cr. at Highway E206637	June 23 - July 20	6	4.72 - 9.11 mg/L	Objective met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	5.75 - 8.15 mg/L	Objective met
Nitrate-N 100 mg/L max	Nickel Plate Mine Cr. E206633	June 23 - July 20 Jun. 29	4 1	56.9 - 66.0 mg/L 123.0 mg/L	Obj. met Obj. not met
pH 6.5 - 8.5	Cahill Cr u/s confluence E206635	June 23 - July 20	5	7.0 - 7.8	Objective met
	Cahill Cr d/s tailing E206636	June 23 - July 7	2	all = 8.2	Objective met
	Cahill Cr. at Highway E206637	June 23 - July 20	6	8.0 - 8.2	Objective met
	Red Top Gulch Creek E206638	June 23 - July 20	5	8.2 - 8.3	Objective met
	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	8.2 - 8.3	Objective met

TABLE 17 continued

CAHILL CREEK AND TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Al 0.30 mg/L max or 20% increase at pH > 7	Cahill Cr. at Highway E206637	June 23 - July 20	6	0.09 - 0.26 mg/L	Objective met
Total Al 0.30 mg/L max at pH > 7	Red Top Gulch at Hwy. E206638	Jul 7 - Jul 20 Jun. 23 - Jun 29	3 2	0.14 - 0.27 mg/L 0.31 - 0.35 mg/L	Obj. met Obj. not met
Total Cd 0.0002 mg/L	Cahill Cr. at Highway E206637	June 23 - July 20	6	all < 0.0001 mg/L	Objective met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	all < 0.0001 mg/L	Objective met
Total Cd 0.005 mg/L max	Cahill Cr u/s confluence E206635	June 23 - July 20	5	all < 0.0001 mg/L	Objective met
	Cahill Cr d/s tailing E206636	June 23 - July 20	5	all < 0.0001 mg/L	Objective met
Total Cd 0.02 mg/L max	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	< 0.0001 - < 0.002 mg/L	Objective met
Total Cu <0.005 mg/L av 0.007 mg/L max or 20% increase	Cahill Cr. at Highway E206637	June 23 - July 20	6	av = 0.002 mg/L max = 0.004 mg/L	Objectives met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	av = 0.002 mg/L max = 0.003 mg/L	Objectives met
Total Cu 0.2 mg/L max	Cahill Cr u/s confluence E206635	June 23 - July 20	5	<0.002 - 0.004 mg/L	Objective met
	Cahill Cr d/s tailing E206336	June 23 - July 20	5	<0.002 - 0.004 mg/L	Objective met
Total Cu 0.3 mg/L max	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	< 0.002 - 0.007 mg/L	Objective met
Dissolved Fe 0.3 mg/L max	Cahill Cr. u/s confluence E206635	June 23 - July 20	5	0.041 - 0.071 mg/L	Objective met
	Cahill Cr. d/s tailing E206636	June 23 - July 20	5	0.013 - 0.029 mg/L	Objective met
	Cahill Cr. at Highway E206637	June 23 - July 20	6	0.008 - 0.039 mg/L	Objective met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	0.007 - 0.017 mg/L	Objective met
	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	< 0.003 - 0.008 mg/L	Objective met

TABLE 17 continued

CAHILL CREEK AND TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Pb <0.005 mg/L av 0.007 mg/L max or 20% increase	Cahill Cr. at Highway E206637	June 23 - July 20	6	all < 0.003 mg/L	Objectives met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	all < 0.003 mg/L	Objectives met
Total Pb 0.05 mg/L max	Cahill Cr u/s confluence E206635	June 23 - July 20	5	< 0.003 - 0.011 mg/L	Objective met
	Cahill Cr d/s tailing E206636	June 23 - July 20	5	all < 0.003 mg/L	Objective met
Total Pb 0.1 mg/L max	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	all < 0.003 mg/L	Objective met
Total Hg 0.10 ug/L max	Cahill Cr. at Highway E206637	June 23 - July 20	5	<0.005 - 0.006 ug/L	Objective met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	<0.005 - 0.009 ug/L	Objective met
Total Hg 0.001 mg/L max	Cahill Cr u/s confluence E206635	June 23 - July 20	5	<0.005 - 0.005 ug/L	Objective met
	Cahill Cr d/s tailing E206636	June 23 - July 20	5	<0.005 - 0.005 ug/L	Objective met
Total Hg 0.003 mg/L	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	<0.005 - 0.013 ug/L	Objective met
Total Hg in fish 0.5 ug/g wet wt. (muscle) max	Red Top Gulch at Hwy. and Cahill Cr. at Highway	1993	0	no data collected	Objective not checked
Total Mo <0.01 mg/L av 0.05 mg/L max or 20% increase (May-Sep)	Cahill Cr. u/s confluence E206635	June 23 - July 20	5	all < 0.004 mg/L	Objectives met
	Cahill Cr. d/s tailing E206636	June 23 - July 20	5	all < 0.004 mg/L	Objectives met
	Cahill Cr. at Highway E206637	June 23 - July 20	6	all < 0.004 mg/L	Objectives met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	all < 0.004 mg/L	Objectives met
Total Mo 0.05 mg/L max	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	all < 0.004 mg/L	Objective met

TABLE 17 continued

CAHILL CREEK AND TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Se 0.001 mg/L max or 20% increase	Cahill Cr. u/s confluence E206635	June 23 - July 20	5	all 0.002 mg/L	Control site
	Cahill Cr. at Highway E206637	June 23 - July 20	6	all 0.002 mg/L max increase = 0 mg/L	Objective met
Total Se 0.001 mg/L	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	0.002 - 0.005 mg/L	Objective not met
Total Se 0.01 mg/L	Cahill Cr. d/s tailing E206636	June 23 - July 20	5	all 0.002 mg/L	Objective met
Total Se 0.05 mg/L max	Nickel Plate Mine Cr. E206633	June 23 - July 30	5	0.023 - 0.045 mg/L	Objective met
Total Ag 0.0001 mg/L max or 20% increase	Cahill Cr. at Highway E206637	June 23 - July 20	6	all < 0.0001 mg/L	Objective met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	< 0.0001 - 0.0001 mg/L	Objective met
Total Ag 0.05 mg/L max or 20% increase	Cahill Cr. u/s confluence E206635	June 23 - July 20	5	all < 0.0001 mg/L	Objective met
	Cahill Cr d/s tailing E206636	June 23 - July 20	5	all < 0.0001 mg/L	Objective met
	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	all < 0.0001 mg/L	Objective met
Total Zn 0.05 mg/L max	Cahill Cr. u/s confluence E206635	June 23 - July 20	5	< 0.01 - 0.01 mg/L	Objective met
	Cahill Cr. d/s tailing E206636	June 23 - July 20	5	all < 0.01 mg/L	Objective met
	Cahill Cr. at Highway E206637	June 23 - July 20	6	all < 0.01 mg/l	Objective met
	Red Top Gulch at Hwy. E206638	June 23 - July 20	5	< 0.01 - 0.04 mg/L	Objective met
	Nickel Plate Mine Cr. E206633	June 23 - July 20	5	all < 0.01 mg/L	Objective met

TABLE 18

BESSETTE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <100/100 mL 90th perc. (np) 200/100 mL max	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11 Jul 15, Aug 5 Jul 22,29, Aug 11	5 2 3	np = 385/100 mL 133 - 160/100 mL 220 - 460/100 mL	np not met Max obj. met Max not met
	0500697 d/s Lumby	Jul. 15 - Aug. 11 Jul 17, Aug 5 Jul 22,29, Aug 11	5 2 3	np = 290/100 mL 100 - 170/100 mL 210 - 400/100 mL	np not met Max obj. met Max not met
	Lawson Creek: 0500645 u/s Riverside mill	Jul. 15 - Aug. 11 Jul 15,22, Aug 11 Jul 29 - Aug 5	5 3 2	np = 270/100 mL 18 - 140/100 mL 240 - 363/100 mL	np not met Max obj. met Max not met
	0500646 d/s Riverside mill	Jul. 15 - Aug. 11	4	210 - 800/100 mL	Max objective not met
	Spider Creek 0500644 near mouth	Jul. 15 - Aug. 11	5	290 - 1710/100 mL np = 1100/100 mL	Objectives not met
E. Coli <100/100 mL 90th perc. 200/100 mL max	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11	5	125 - 460/100 mL np = 385/100 mL	Objectives not met
	0500697 d/s Lumby	Jul. 15 - Aug. 11	5	115 - 420/100 mL np = 340/100 mL	Objectives not met
	Lawson Creek: 0500645 u/s Riverside mill	Jul. 15 - Aug. 11	5	23 - 373/100 mL np = 325/100 mL	Objectives not met
	0500646 d/s Riverside mill	Jul. 15 - Aug. 11	4	240 - 830/100 mL	Indefinite results
	Spider Creek 0500644 near mouth	Jul. 15 - Aug. 11	5	330 - 1800/100 mL np = 1325/100 mL	Objectives not met
Enterococci <25/100 mL 90th perc. 50/100 mL max	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11	5	91 - 285/100 mL np = 275/100 mL	Objectives not met
	0500697 d/s Lumby	Jul. 15 - Aug. 11	5	83 - 340/100 mL np = 330/100 mL	Objectives not met
	Lawson Creek: 0500645 u/s Riverside mill	Jul.15 - Aug. 11 Jul. 15 Jul22 - Aug 11	5 1 4	np = 305/100 mL 46/100 mL 130 - 400/100 mL	np not met Max obj. met Max not met

TABLE 18 continued

BESSETTE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Enterococci <25/100 mL 90th perc. 50/100 mL max	Lawson Creek: 0500646 d/s Riverside mill	Jul.15 - Aug. 11	4	260 - 1100/100 mL	Max objective not met
	Spider Creek 0500644 near mouth	Jul. 15 - Aug. 11	5	330 - 1600/100 mL np = 1100/100 mL	Objectives not met
Diss. Solids 500 mg/L max or 20% increase	Lawson Creek: 0500645 u/s Riverside mill	Jul. 15 - Aug. 11	5	278 - 397 mg/L	Objective met
	0500646 d/s Riverside mill	Jul. 15 - Aug. 11	4	36 - 443 mg/L	Objective met
	Spider Creek: 0500644 near mouth	Jul. 15 - Aug. 11	5	287 - 442 mg/L	Objective met
Susp. Solids 10 mg/L or 10% max increase	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11	5	4 - 27 mg/L	Control site
	0500697 d/s Lumby	Jul. 15 - Jul. 29 Aug. 5 - Aug. 11	3 2	increase = 11 - 25 mg/L max inc. = 2 mg/L	Obj. not met Obj. met
	Lawson Creek: 0500645 u/s Riverside mill	Jul. 15 - Aug. 11	5	<4 - 8 mg/L	Control site
	0500646 d/s Riverside mill	Jul. 15 - Aug. 11	4	increase= 31 - 203 mg/L	Objective not met
	Spider Creek: 0500643 at highway	Jul. 15 - Aug. 11	5	5 - 12 mg/L	Control site
	0500644 near mouth	Jul. 15, Aug 5,11 Jul 22,29	3 2	increase = 5 - 8 mg/L increase = 13 - 14 mg/L	Obj. met Obj. not met
	Harris Creek: E209072 u/s Bell Pole	Jul. 15 - Aug. 11	5	<4 - 18 mg/L	Control site
	E210219 at Bell Pole	Jul. 15 - Aug. 11	5	increase = 0 - 9 mg/L	Objective met
Substrate Sedimentation: no increase in weight of particles <3 mm diameter	Bessette Creek Lawson Creek Spider Creek Harris Creek	1993	0	no data collected	Omitted 1993

TABLE 18 continued

BESSETTE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Turbidity 5 NTU or 10% max increase	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11	5	0.9 - 4.0 NTU	Control site
	0500697 d/s Lumby	Jul. 15 - Aug. 11	5	increase = 0 - 3.6 NTU	Objective met
	Lawson Creek 0500645 u/s Riverside mill	Jul. 15 - Aug. 11	5	0.7 - 1.5 NTU	Control site
	0500646 d/s Riverside mill	Jul. 15 - Aug. 11	4	increase = 10.8 - 34.3 NTU	Objective not met
	Spider Creek: 0500643 at highway	Jul. 15 - Aug. 11	5	0.7 - 2.0 NTU	Control site
	0500644 near mouth	Jul. 15 - Aug. 11	5	increase = 0 - 1.6 NTU	Objective met
	Harris Creek: E209072 u/s Bell Pole	Jul. 15 - Aug. 11	5	0.4 - 2.5 NTU	Control site
	E210219 at Bell Pole	Jul. 15 - Aug. 11	5	increase = 0 - 0.8 NTU	Objective met
Ammonia-N <1.09 mg/L av 5.68 mg/L max at pH = 8.0 temp = 15 C	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11	5	all < 0.005 mg/L (diss)	Objectives met
	0500697 d/s Lumby	Jul. 15 - Aug. 11	5	< 0.005 - 0.014 mg/L av = 0.007 mg/L	Objectives met
	Lawson Creek: 0500645 u/s Riverside mill	Jul. 15 - Aug. 11	5	0.037 - 0.083 mg/L av = 0.054 mg/L	Objectives met
	0500646 d/s Riverside mill	Jul. 15 - Aug. 11	4	0.04 - 0.086 mg/L	Max obj. met
	Spider Creek: 0500644 near mouth	Jul. 15 - Aug. 11	5	< 0.005 - 0.026 mg/L av = 0.012 mg/L	Objectives met
	Harris Creek: E209072 u/s Bell Pole	Jul. 15 - Aug. 11	5	< 0.005 - 0.006 mg/L av = 0.005 mg/L	Objectives met
	E210219 at Bell Pole	Jul. 15 - Aug. 11	5	< 0.005 - 0.007 mg/L av = 0.006 mg/L	Objectives met

TABLE 18 continued

BESSETTE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Nitrite-N <0.04 mg/L av 0.12 mg/L max Cl = 2-4 mg/L	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11	5	< 0.005 - 0.006 mg/L av = 0.005 mg/L	Objectives met
	0500697 d/s Lumby	Jul. 15 - Aug. 11	5	< 0.005 - 0.006 mg/l av = 0.005 mg/L	Objectives met
	Lawson Creek: 0500645 u/s Riverside mill	Jul. 15 - Aug. 11	5	0.014 - 0.020 mg/L av = 0.017 mg/L	Objectives met
	0500646 d/s Riverside mill	Jul. 15 - Aug. 11	4	0.017 - 0.022 mg/L	Max obj. met
	Spider Creek: 0500644 near mouth	Jul. 15 - Aug. 11	5	all < 0.005 mg/L	Objectives met
Nitrite-N <0.02 mg/L av 0.06 mg/L max Cl < 2 mg/L	Harris Creek: E209072 u/s Bell Pole	Jul. 15 - Aug. 11	5	all < 0.005 mg/L	Objectives met
	E210219 at Bell Pole	Jul. 15 - Aug. 11	5	all < 0.005 mg/L	Objectives met
Nitrate-N 10 mg/L max	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11	5	< 0.02 - 0.06 mg/L	Objective met
	0500697 d/s Lumby	Jul. 15 - Aug. 11	5	0.03 - 0.08 mg/L	Objective met
	Lawson Creek: 0500645 u/s Riverside mill	Jul.15 - Aug. 11	5	0.68 - 0.73 mg/L	Objective met
	0500646 d/s Riverside mill	Jul.15 - Aug. 11	4	0.34 - 0.39 mg/L	Objective met
	Spider Creek: 0500644 near mouth	Jul. 15 - Aug. 11	5	< 0.02 - 0.04 mg/L	Objective met
	Harris Creek: E209072 u/s Bell Pole	Jul. 15 - Aug. 11	5	< 0.02 - 0.03 mg/L	Objective met
	E210219 at Bell Pole	Jul. 15 - Aug. 11	5	< 0.02 - 0.03 mg/L	Objective met

TABLE 18 continued

BESSETTE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Chlorophyll-a 100 mg/m2 max	Bessette Creek 0500697 d/s Lumby	Sep. 1	6	6 - 234mg/m2 av = 99.7 mg/m2	Objective met
	Harris Creek E210219 d/s Bell Pole	Sep. 30	6	2.0 - 19.9 mg/m2 av = 7.6 mg/m2	Objective met
	Spider Creek Lawson Creek	1993	0	no data collected	Objective not checked
Colour 15 TCU max or 20% increase	Lawson Creek: 0500645 u/s Riverside mill	Jul. 15 - Aug. 11	5	5 - 15 TCU	Objective met
	0500646 d/s Riverside mill	Jul. 15 - Jul 29 Aug. 11	3 1	all = 20 TCU 15 TCU	Obj. not met Obj. met
	Spider Creek: 0500644 near mouth	Jul. 15 - Aug. 11	5	all = 5 TCU	Objective met
Temperature 1 C max increase	Duteau Creek	1993	0	no data collected	Omitted 1993
pH 6.5 - 8.5 or 0.2 max increase at pH >8.5	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11	5	7.6 - 8.2	Objective met
	0500697 d/s Lumby	Jul. 15 - Aug. 11	5	7.8 - 8.3	Objective met
pH 6.5 - 8.5	Lawson Creek: 0500645 u/s Riverside mill	Jul. 15 - 29, Aug. 11 Aug. 5	4 1	7.8 - 8.2 8.6	Obj. met Obj. not met
	0500646 d/s Riverside mill	Jul. 15 - Aug. 11	4	7.9 - 8.2	Objective met
	Spider Creek 0500644 near mouth	Jul. 15 - Aug. 11	5	8.2 - 8.4	Objective met
	Harris Creek E210219 d/s Bell Pole	Jul. 15 - Aug. 11	5	7.5 - 8.0	Objective met
Dissolved Oxygen 8-11 mg/L min	Bessette Creek: 0500293 u/s Lumby	Jul. 15 - Aug. 11	5	9.0 - 10.2 mg/L	Objective met

TABLE 18 continued

BESSETTE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 8-11 mg/L min	Bessette Creek: 0500697 d/s Lumby	Jul. 15 - Aug. 11	5	9.5 - 11.2 mg/L	Objective met
	Lawson Creek: 0500645 u/s Riverside mill	Jul. 15 - Aug. 11	5	5.2 - 6.5 mg/L	Objective not met
	0500646 d/s Riverside mill	Jul. 15,22,28, Aug. 11 Aug. 5	4 1	5.6 - 7.8 mg/L 8.0 mg/L	Obj. not met Obj. met
	Spider Creek: 0500643 u/s Riverside	Jul. 15 - Aug. 11	5	9.8 - 10.4 mg/L	Objective met
	0500644 near mouth	Jul. 15 - Aug. 11	5	8.4 - 10.0 mg/L	Objective met
	Harris Creek: E209072 u/s Bell Pole	Jul. 15 - Aug. 11	4	9.5 - 11.0 mg/L	Objective met
	E210219 at Bell Pole	Jul. 15 - Aug. 11	5	9.6 - 10.6 mg/L	Objective met
Resin Acids DHA: 0.013 mg/L max Total: 0.052 mg/L max at pH 8.0	Lawson Creek: 0500645 u/s Riverside mill	Jul 15 - Aug 11	5 5	DHA: all < 0.001 mg/L Total: all < 0.001 mg/L	Objectives met
	0500646 d/s Riverside mill	Jul 15 - Aug 11 Jul 15 - Aug 5 Aug. 11	5 4 1	DHA: <0.001 - 0.008 mg/L Total: all < 0.001 mg/L Total: 0.12 mg/L	Objective met Objective met Obj. not met
	Spider Creek: 0500644 near mouth	Jul 15 - Aug 11	5 5	DHA: all < 0.001 mg/L Total: all < 0.001 mg/L	Objectives met
	Harris Creek	1993	0	no data collected	Objective not checked
Total Chlorophenols in sediments: 0.005 ug/g max dry weight	Harris Creek:	1993	0	no data collected	Objective not checked

TABLE 18 continued

BESSETTE CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Chlorophenols in fish: 0.1 ug/g max wet weight	Harris Creek: E209072 u/s Bell Pole	Jul 25 - Aug 11	5	tri-CP: <0.01 - 0.04 ug/g tetra-CP: all <0.01 ug/g penta-CP:<0.01 - 0.02 ug/g total: < 0.07 ug/g (rainbow trout minnows)	Objective met
	E210219 at Bell Pole	Jul. 15	3	tri-CP: all < 0.01 ug/g tetra-CP: all < 0.01ug/g penta-CP:<0.01 - 0.01 ug/g total: <0.03 ug/g (rainbow trout minnows)	Objective met
		Aug. 5	1	tri-CP: 0.03 ug/g tetra-CP: 0.05 ug/g penta-CP: 0.05 ug/g total: 0.13 ug/g (leeches)	Objective not met
Mono-CP 0.5 ug/L max Di-CP 0.1 ug/L max	Harris Creek:	1993	0	no data collected	Omitted 1993
Tri-CP 0.05 ug/L max	Harris Creek: E209072 u/s Bell Pole	Jul. 15 - Aug. 11	5	all < 0.1 µg/L	Indefinite result
	E210219 at Bell Pole	Jul. 15 - Aug. 11	5	all < 0.1 ug/L	Indefinite result
Tetra-CP 0.1 ug/L max	Harris Creek: E209072 u/s Bell Pole	Jul. 15 - Aug. 11	5	all < 0.1 µg/L	Objective met
	E210219 at Bell Pole	Jul. 15 - Aug. 11	5	all < 0.1 µg/L	Objective met
Penta-CP 0.05 ug/L max	Harris Creek: E209072 u/s Bell Pole	Jul. 15 - Aug. 11	5	all < 0.1 µg/L	Indefinite result
	E210219 at Bell Pole	Jul. 15 - Aug. 11	5	all < 0.1 µg/L	Indefinite result

TABLE 19

TRIBUTARIES TO OKANAGAN LAKE NEAR WESTBANK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <200/100 mL geometric mean (gm)	Westbank Creek 0500096 at the mouth	Jun. 29 - Jul. 28	5	380 - 3500/100 mL gm = 915/100 mL	Objective not met
E. Coli <77/100 mL geometric mean (gm)	Westbank Creek 0500096 at the mouth	Jun. 29 - Jul. 28	5	400 - 3600/100 mL gm = 962/100 mL	Objective not met
Enterococci <20/100 mL geometric mean (gm)	Westbank Creek 0500096 at the mouth	Jun. 29 - Jul. 28	5	170 - 7400/100 mL gm = 1201/100 mL	Objective not met
Pseudomonas aeruginosa <2/100mL 75th perc (sp)	Westbank Creek 0500096 at the mouth	Jul. 7, Jul. 21	2	10.0, 45.0 CFU/cL	Indefinite result
Residual Chlorine 0.002mg/L max	Westbank Creek 0500096 at the mouth	Jun. 29 - Jul. 28	5	0.07 - 0.10 mg/L	Objective not met
Suspended Solids 10 mg/L or 10% max increase	Westbank Creek 0500096 at the mouth	Jun. 29 - Jul. 28	5	15 - 190 mg/L	Indefinite result (no control)
Substrate Sedimentation no increase in weight of particles <3 mm dia	Westbank Creek	1993	0	no data collected	Omitted 1993
Turbidity 1-5 NTU or 10% max increase	Westbank Creek 0500096 at the mouth	Jul. 28 Jun 29 - Jul 21	1 4	5.0 NTU 8.5 - 35.0 NTU	Obj. met Indef. result (no control)
Diss. Solids 500 mg/L max	Peachland Creek: 0500355 d/s Brenda Mine	Jun. 29 - Jul. 28	5	80 - 97 mg/L	Objective met
	0500056 at the mouth	Feb. 3 - Jul. 28	7	148 - 162 mg/L	Objective met
	Trepanier Creek: 0500362 near source	Jun. 29 - Jul. 28	5	75 - 86 mg/L	Objective met

TABLE 19 continued

TRIBUTARIES TO OKANAGAN LAKE NEAR WESTBANK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Diss. Solids 500 mg/L max	Trepanier Creek: 0500078 at the mouth	Feb. 3 - Jul. 28	7	93 - 137 mg/L	Objective met
Sodium 49 mg/L max at creek mouths (Ca=37, Mg=4.5) May - Sep 270 mg/L max at other times at creek mouths and elsewhere at all times	Peachland Creek: 0500355 d/s Brenda Mine	Jun. 29 - Jul. 28	5	3.2 - 6.0 mg/L	Objective met
	0500056 at the mouth	Feb. 3 - Jul. 28	7	3.7 - 5.8 mg/L	Objective met
	Trepanier Creek: 0500362 near source	Jun. 29 - Jul. 28	5	1.6 - 2.7 mg/L	Objective met
	0500078 at the mouth	Feb. 3 - Jul. 28	7	4.3 - 8.9 mg/L	Objective met
Ammonia-N <0.261 mg/L av 1.92 mg/L max at pH = 8.5 temp = 20 C	Peachland Creek: 0500355 d/s Brenda Mine	Jun. 29 - Jul. 28	5	all < 0.005 mg/L	Objectives met
	0500056 at the mouth	Feb. 3 - Jul. 28	7	all < 0.005 mg/L	Objectives met
	Westbank Creek 0500096 at the mouth	Jun. 29 - Jul. 28	5	<0.005 - 0.005 mg/L av < 0.005 mg/L	Objectives met
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Peachland Creek: 0500355 d/s Brenda Mine	Jun. 29 - Jul. 28	5	all < 0.005 mg/L	Objectives met
	0500056 at the mouth	Jun. 29 - Jul. 28	5	all < 0.005 mg/L	Objectives met
	Westbank Creek 0500096 at the mouth	Jun. 29 - Jul. 28	5	< 0.005 - 0.013 mg/L av = 0.010 mg/L	Objectives met
Nitrate-N 10 mg/L max	Peachland Creek: 0500355 d/s Brenda Mine	Jun. 29 - Jul. 28	5	all < 0.02 mg/L	Objective met
	0500056 at the mouth	Jun. 29 - Jul. 28	5	0.08 - 0.16 mg/L	Objective met
	Westbank Creek 0500096 at the mouth	Jun. 29 - Jul. 28	5	1.45 - 1.62 mg/L	Objective met

TABLE 19 continued

TRIBUTARIES TO OKANAGAN LAKE NEAR WESTBANK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Chlorophyll-a <100 mg/m2 av	Peachland Creek: 0500355 d/s Brenda Mine	Aug. 13	6	21.2 - 94.7 mg/m2 av = 42.0 mg/m2	Objective met
	050056 at the mouth	Aug. 13	6	4.8 - 54.2 mg.m2 av = 27.8 mg/m2	Objective met
	Westbank Creek: 0500096 at the mouth	Aug. 13	6	37.6 - 270 mg/m2 av = 152.1 mg/m2	Objective not met
Diss. Oxygen 8 - 11 mg/L Mar - May and Jun 15 - Aug 15	Westbank Creek: 0500096 at the mouth	Jun. 29 - Jul. 28	4	9.2 - 9.4 mg/L	Objective met
pH 6.5 - 9.0	Peachland Creek: 0500355 d/s Brenda Mine	Jun. 29 - Jul. 29	5	7.8 - 8.1	Objective met
	0500056 at the mouth	Jun. 29 - Jul. 28	5	8.3 - 8.4	Objective met
pH 6.5 - 8.5	Trepanier Creek: 0500362 near source	Jun. 29 - Jul. 28	5	7.9 - 8.1	Objective met
	0500078 at the mouth	Jun. 29 - Jul. 28	5	8.1 - 8.2	Objective met
Diss. Al <0.05 mg/L av 0.1 mg/L max or 20% increase	Peachland Creek: 0500355 d/s Brenda Mine	Jun. 29 - Jul. 28	5	0.01 - 0.05 mg/L av = 0.03 mg/L	Objectives met
	0500056 at the mouth	Jun. 29 - Jul. 28 Jun. 29 - Jul. 28 Jul. 21	5 4 1	av = 0.04 mg/L < 0.01 - 0.02 mg/L 0.14 mg/L	Av obj. met Max obj. met Max not met
Diss. Al <0.05 mg/L av 0.1 mg/L max	Trepanier Creek: 0500362 near source	Jun. 29 - Jul. 28	5	0.01 - 0.05 mg/L av = 0.03 mg/L	Objectives met
	0500078 at the mouth	Jun. 29 - Jul. 28	5	< 0.02 - 0.08 mg/L av = 0.04 mg/L	Objectives met
	Westbank Creek 0500096 at the mouth	Jun. 28 - Jul. 29	5	0.02 - 0.05 mg/L av = 0.04 mg/l	Objectives met

TABLE 19 continued

TRIBUTARIES TO OKANAGAN LAKE NEAR WESTBANK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Cu <0.003 mg/L av 0.008 mg/L max hard. = 69mg/L or 20% increase	Peachland Creek: 0500355 d/s Brenda Mine	Jun. 29 - Jul. 28	5	< 0.002 - 0.007 mg/L av = 0.004 mg/L	Max. obj. met Av indefinite (no control)
	0500056 at the mouth	Jun. 29 - Jul. 28	5	< 0.002 - 0.003 mg/L av = 0.002 mg/L	Objectives met
	Trepanier Creek: 0500362 near source	Jun. 29 - Jul. 28	5	all < 0.002 mg/L	Objectives met
	0500078 at the mouth	Jun. 29 - Jul. 28	5	< 0.002 - 0.003 mg/L av = 0.002 mg/L	Objectives met
Total Cu <0.016 mg/L av 0.039 mg/L max hard. = 392 mg/L	Westbank Creek 0500096 at the mouth	Jun. 29 - Jul. 28	5	< 0.002 - 0.006 mg/L av = 0.003 mg/L	Objectives met
Total Mo 0.05 mg/L max	Peachland Creek: 0500355 d/s Brenda Mine (u/s Peachland L)	Jun. 29 - Jul. 28	5	0.021 - 0.049 mg/L av = 0.033 mg/L	Objective met (Control for d/s site)
	0500056 at the mouth	Jun. 29 - Jul. 28	5	0.014 - 0.018 mg/L	Objective met
Total Mo < 0.01 mg/L av or 20% increase (d/s Peachland L) May - Sep	Peachland Creek: 0500056 at the mouth (d/s Peachland L)	Jun. 29 - Jul. 28	5	0.014 - 0.018 mg/L av = 0.016 mg/L	Objective met
Total Mo 0.25 mg/L max	Trepanier Creek: 0500362 near source	Jun. 29 - Jul. 28	5	all < 0.004 mg/L	Objective met
Total Mo <0.01 mg/L av 0.05 mg/L max 2.5 km u/s Okgan. L (May - Sep)	Trepanier Creek: 0500078 at the mouth	Jun. 29 - Jul. 28	5	all < 0.004 mg/L	Objectives met
Total Fe 0.3 mg/L max	Westbank Creek: 0500096 at the mouth	Jun. 29 - Jul. 28	5	0.47 - 4.54 mg/L	Objective not met
Total Zn 0.03 mg/L max	Westbank Creek: 0500096 at the mouth	Jun. 29 - Jul. 28	5	0.01 - 0.03 mg/L	Objective met

TABLE 20

TRIBUTARIES TO OKANAGAN LAKE NEAR KELOWNA WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <100/100 mL 90th perc. (np)	Mission Creek: E209637 at E Kelowna Bridge	Jun. 8 - Jul. 5	5	12 - 26/100 mL np = 23/100 mL	Objective met
	0500046 at the mouth	Jun. 8 - Jul. 5	5	23 - 150/100 mL np = 110/100 mL	Objective not met
	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	6	140 - 320/100 mL np = 250/100 mL	Objective not met
	E215986 d/s feedlot	Jun. 8 - Jul. 5	5	410 - 1500/100 mL np = 1400/100 mL	Objective not met
	0500039 at the mouth	Jun. 8- Jul. 5	6	430 - 1800/100 mL np = 1350/100 mL	Objective not met
E. Coli <100/100 mL 90th perc. (np)	Mission Creek: E209637 at E Kelowna Bridge	Jun. 8 - Jul. 5	5	13 - 36/100 mL np = 26/100 mL	Objective met
	0500046 at the mouth	Jun. 8 - Jul. 5	5	25 - 110/100 mL np = 70/100 mL	Objective met
	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	5	140 - 310/100 mL np = 245/100 mL	Objective not met
	E215986 d/s feedlot	Jun. 8 - Jul. 5	5	370 - 1800/100 mL np = 1625/100 mL	Objective not met
	0500039 at the mouth	Jun. 8 - Jul. 5	6	450 - 1300/100 mL np = 1080/100 mL	Objective not met
Enterococci <25/100 mL 90th perc. (np)	Mission Creek E209637 at E Kelowna Bridge	Jun. 8 - Jul. 5	5	14 - 60/100 mL np = 53/100 mL	Objective not met
	0500046 at the mouth	Jun. 8 - Jul. 5	5	38 - 140/100 mL np = 107/100 mL	Objective not met
	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	6	220 - 560/100 mL np = 325/100 mL	Objective not met
	E215986 d/s feedlot	Jun. 8 - Jul. 5	5	650 - 2000/100 mL np = 1850/100 mL	Objective not met
	0500039 at the mouth	Jun. 8 - Jul. 5	6	520 - 2100/100 mL np = 1750/100 mL	Objective not met

TABLE 20 continued

TRIBUTARIES TO OKANAGAN LAKE NEAR KELOWNA WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Specific Conductivity 1200 uS/cm max (May - Sep)	Brandt's Creek: E208958	Jun. 15 - Jul. 5	4	2500 - 2850 uS/cm	Objective not met
	0500009 at the mouth	Jun. 15 - Jul. 5 Jun. 23	3 1	1300 - 1430 uS/cm 750 uS/cm	Obj. not met Obj. met
Ammonia-N <0.700 mg/L av 3.64 mg/L max at pH = 8.2 temp = 15 C	Mission Creek: E209637 at E Kelowna Bridge	Jun. 8 - Jul. 5	5	<0.005 - 0.009 mg/L av = 0.006 mg/L	Objectives met
	0500046 at the mouth	Jun. 8 - Jul. 5	5	<0.005 - 0.009 mg/L av = 0.006 mg/L	Objectives met
	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	4	< 0.005 - 0.025 mg/L	Max obj. met
	E215986 d/s feedlot	Jun. 8 - Jul. 5	5	< 0.005 - 0.035 mg/L av = 0.019 mg/L	Objectives met
	0500039 at the mouth	Jun. 8 - Jul. 5	6	< 0.005 - 0.031 mg/L av = 0.017 mg/L	Objectives met
Nitrite-N <0.02 mg/L av 0.06 mg/L max Cl < 2 mg/L	Mission Creek: E209637 at E Kelowna Bridge	Jun. 8 - Jul. 5	5	all < 0.005 mg/L	Objectives met
	0500046 at the mouth	Jun. 8 - Jul. 5	5	all < 0.005 mg/L	Objectives met
Nitrite-N <0.20 mg/L av 0.60 mg/L max Cl > 10 mg/L	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	4	all < 0.005 mg/L	Max obj. met
	E215986 d/s feedlot	Jun. 8 - Jul. 5	5	< 0.005 - 0.033 mg/L av = 0.015 mg/L	Objectives met
	0500039 at the mouth	Jun. 8- Jul. 5	6	< 0.005 - 0.018 mg/L av = 0.010 mg/L	Objectives met
Chlorophyll-a <100 mg/m2 av	Mission Creek 0500046 at the mouth	Aug. 13	6	10.1 - 81.8 mg/m2 av = 38.7 mg/m2	Objective met
	Kelowna Creek E209638 at Hereron Rd.	Aug. 18	6	7.3 - 30.5 mg/m2 av = 13.7 mg/m2	Objective met
	0500039 at the mouth	Aug. 18	6	17.6 - 64.9 mg/m2 av = 33.0 mg/m2	Objective met

TABLE 20 continued

TRIBUTARIES TO OKANAGAN LAKE NEAR KELOWNA WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Diss. Oxygen 8-11 mg/L min	Mission Creek: E209637 at E Kelowna Bridge	Jun. 15 - Jul. 5	4	9.8 - 10.4 mg/L	Objective met
	0500046 at the mouth	Jun. 15 - Jul. 5	4	10.1 - 10.4 mg/L	Objective met
	Kelowna Creek: E209638 at Hereron Road	Jun. 15 - Jul. 5	4	9.5 - 9.8 mg/L	Objective met
	E215986 d/s feedlot	Jun. 15 - Jul. 5	4	9.3 - 9.7 mg/L	Objective met
	0500039 at the mouth	Jun. 15 - Jul. 5	4	8.6 - 9.5 mg/L	Objective met
pH 6.5 - 9.0	Mission Creek: E209637 at E Kelowna Bridge	Jun. 8 - Jul. 5	5	7.1 - 8.0	Objective met
	0500046 at the mouth	Jun. 8 - Jul. 5	5	7.5 - 8.0	Objective met
pH 6.5 - 8.5	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	4	7.8 - 8.2	Objective met
	E215986 d/s feedlot	Jun. 8 - Jul. 5	5	8.0 - 8.4	Objective met
	0500039 at the mouth	Jun. 8 - Jul. 5	6	8.1 - 8.4	Objective met
Diss. Al 0.1 mg/L max or 20% increase	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	6	0.04 - 0.11 mg/L	Control site
	0500039 at the mouth	Jun. 8 - Jul. 5	6	0.02 - 0.11 mg/L max increase = 0 mg/L	Objective met
Total Cu <0.006 mg/L av 0.016 mg/L max or 20% increase at hardness = 148 mg/L	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	6	< 0.002 - 0.003 mg/L av = 0.002 mg/L	Objectives met
	0500039 at the mouth	Jun. 8 - Jul. 5	6	< 0.002 - 0.005 mg/L av = 0.003 mg/L	Objectives met

TABLE 20 continued

TRIBUTARIES TO OKANAGAN LAKE NEAR KELOWNA WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Pb <0.005 mg/L av 0.134 mg/L max or 20% increase at hardness = 148 mg/L	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	6	all < 0.003 mg/L	Objectives met
	0500039 at the mouth	Jun. 8 - Jul. 5	6	av < 0.003 mg/L max = 0.003 mg/L	Objectives met
Total Pb 0.8 ug/g wet wt max in fish muscle	Kelowna Creek	1993	0	no data collected	Objective not checked
Total Zn 0.03 mg/L max or 20% increase	Kelowna Creek: E209638 at Hereron Road	Jun. 8 - Jul. 5	6	<0.01 - 0.01 mg/L	Objective met
	0500039 at the mouth	Jun. 8 - Jul. 5	6	<0.01 - 0.02 mg/L	Objective met

TABLE 21

TRIBUTARIES TO OKANAGAN LAKE NEAR VERNON WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms < 100/100 mL 90th. percentile (np)	Lower Vernon Creek: 0500089 Kalamalka Lake outlet	Jul 6 - Aug 5	5	6 - 340/100 mL np = 110/100 mL	Objective not met
	0500091 Okanagan Lake inlet	Jul 6 - Aug 5	5	37 - 460/100 mL np = 400/100 mL	Objective not met
	Deep Creek: 0500258 u/s Armstrong	Jul 6 - Aug 5	4	250 - 480/100 mL np > 100/100 mL	Objective not met
	0500768 d/s Otter L. (Larkin Rd.)	Jul 6 - Aug 5	5	57 - 140/100 mL np = 130/100 mL	Objective not met
	0500020 Okanagan Lake inlet	Jul 6 - Aug 5	5	160 - 360/100 mL np = 355/100 mL	Objective not met
E. coli < 100/100 mL 90th. percentile (np)	Lower Vernon Creek Deep creek	1993	0	no data collected	Omitted 1993
Enterococci < 25/100 mL 90th. percentile (np)	Lower Vernon Creek: 0500089 Kalamalka Lake outlet	Jul 6 - Aug 5	5	4 - 220/100 mL np = 90/100 mL	Objective not met
	0500091 Okanagan Lake inlet	Jul 6 - Aug 5	5	47 - 1700/100 mL np = 990/100 mL	Objective not met
	Deep Creek: 0500258 u/s Armstrong	Jul 6 - Aug 5	4	174 - 890/100 mL np > 25/100 mL	Objective not met
	0500768 d/s Otter L. (Larkin Rd.)	Jul 6 - Aug 5	5	44 - 280/100 mL np = 200/100 mL	Objective not met
	0500020 Okanagan Lake inlet	Jul 6 - Aug 5	5	169 - 340/100 mL np = 310/100 mL	Objective not met
Suspended Solids 10 mg/L or 10% maximum increase	Lower Vernon Creek: 0500089 Kalamalka Lake outlet	Jul 6 - Aug 5	5	< 4 - 12 mg/L	Control site
	0500091 Okanagan Lake inlet	Jul 6, Aug 5 Jul 13 - Jul 27	2 3	max inc. = 8 mg/L max inc. = 14 - 19 mg/L	Obj. met Obj. not met
	Deep Creek: 0500258 u/s Armstrong	Jul 6 - Aug 5	4	< 4 - 6 mg/L	Control site
	0500768 d/s Otter L. (Larkin Rd.)	Jul 6 - Aug 5	4	17 - 40 mg/L max inc. = 13 - 24 mg/L	Objective not met
	0500020 Okanagan Lake inlet	Jul 6, Aug 5 Jul 13, Jul 27	2 2	max inc. = 8 - 10 mg/L max inc. = 11 - 12 mg/L	Obj. met Obj. not met

TABLE 21 continued

TRIBUTARIES TO OKANAGAN LAKE NEAR VERNON WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Turbidity 5 NTU or 10% maximum increase	Lower Vernon Creek Deep creek	1993	0	no data collected	Omitted 1993
Ammonia-N <0.491 mg/L av 3.61 mg/L max at pH = 8.2 temp = 20 C	Lower Vernon Creek: 0500089 Kalamalka Lake outlet	Jul 6 - Aug 5	5	<0.005 - 0.023 mg/L av = 0.009 mg/L	Objectives met
	0500091 Okanagan Lake inlet	Jul 6 - Aug 5	5	<0.005 - 0.009 mg/L av = 0.006 mg/L	Objectives met
	Deep Creek: 0500258 u/s Armstrong	Jul 6 - Aug 5	4	0.018 - 0.059 mg/L	Max objective met
	0500768 d/s Otter L. (Larkin Rd.)	Jul 6 - Aug 5	5	<0.005 - 0.025 mg/L av = 0.009 mg/L	Objectives met
	0500020 Okanagan Lake inlet	Jul 6 - Aug 5	5	0.008 - 0.043 mg/L av = 0.022 mg/L	Objectives met
Nitrite-N < 0.10 mg/L av 0.30 mg/L max at Cl = 8 - 10 mg/L	Lower Vernon Creek: 0500089 Kalamalka Lake outlet	Jul 6 - Aug 5	5	all < 0.005 mg/L	Objectives met
	0500091 Okanagan Lake inlet	Jul 6 - Aug 5	5	<0.005 - 0.006 mg/L	Objectives met
	Deep Creek: 0500258 u/s Armstrong	Jul 6 - Aug 5	4	0.006 - 0.018 mg/L	Max objective met
	0500768 d/s Otter L. (Larkin Rd.)	Jul 6 - Aug 5	5	<0.005 - 0.007 mg/L	Objectives met
	0500020 Okanagan Lake inlet	Jul 6 - Aug 5	5	<0.005 - 0.014 mg/L	Objectives met
Nitrate + Nitrite-N 10 mg/L max	Lower Vernon Creek: 0500089 Kalamalka Lake outlet	Jul 6 - Aug 5	5	<0.02 - 0.35 mg/L	Objective met
	0500091 Okanagan Lake inlet	Jul 6 - Aug 5	5	<0.02 - 0.31 mg/L	Objective met
	Deep Creek: 0500258 u/s Armstrong	Jul 6 - Aug 5	4	0.35 - 0.83 mg/L	Objective met
	0500768 d/s Otter L. (Larkin Rd.)	Jul 6 - Aug 5	5	<0.02 - 0.03 mg/L	Objective met
	0500020 Okanagan Lake inlet	Jul 6 - Aug 5	5	<0.02 - 0.06 mg/L	Objective met

TABLE 21 continued

TRIBUTARIES TO OKANAGAN LAKE NEAR VERNON WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Chlorophyll-a < 100 mg/m2 av	Lower Vernon Creek: 0500091 Okanagan Lake inlet	Aug. 11	6	26 - 101 mg/m2 av = 47 mg/m2	Objective met
	Deep Creek: 0500020 Okanagan Lake inlet	Aug. 11	6	46 - 268 mg/m2 av = 172 mg/m2	Objective not met
pH 6.5 - 9.0	Deep Creek	1993	0	no data collected	Omitted 1993
Dissolved Oxygen 8.0 mg/L max May - Oct 11.0 mg/L max Nov - Apr	Lower Vernon Creek: 0500089 Kalamalka Lake outlet	Jul 6 - Aug 5	5	8.7 - 9.2 mg/L	Objective met
	0500091 Okanagan Lake inlet	Jul 6 - Aug 5	5	8.3 - 9.7 mg/L	Objective met
	Deep Creek: 0500258 u/s Armstrong	Jul 6 - Aug 5	4	8.9 - 10.5 mg/L	Objective met
	0500768 d/s Otter L. (Larkin Rd.)	Jul 6, Jul 13 Jul 22 - Aug 5	2 3	8.4 - 9.5 mg/L 6.2 - 7.2 mg/L	Obj. met Obj. not met
	0500020 Okanagan Lake inlet	Jul 6, Aug 5 Jul 13 - Jul 27	2 3	8.0 - 8.9 mg/L 6.9 - 7.6 mg/L	Obj. met Obj. not met

TABLE 22

HYDRAULIC CREEK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Turbidity 5 NTU max	0500658 Hydraulic Lake outlet	Jun. 15 - Jul. 13	5	0.9 - 2.3 NTU	Objective met
		Sept. 1 - Sept. 28	5	0.7 - 1.6 NTU	Objective met
	E215840 at SEKID intake	Jun. 15 - Jul. 13	5	1.4 - 2.4 NTU	Objective met
		Sept. 1 - Sept. 28	5	1.1 - 1.4 NTU	Objective met
Turbidity 10 NTU max	E215842 near headwaters	Jun. 15 - Jul. 13	5	0.3 - 0.9 NTU	Objective met
		Sept. 1 - Sept. 28	5	0.4 - 0.8 NTU	Objective met
Suspended Solids 20 mg/L max	E215842 near headwaters	Jun. 15 - Jul. 13	5	< 4 - 4 mg/L	Objective met
		Sept. 1 - Sept. 28	5	all < 4 mg/L	Objective met
	E215841 u/s Hydraulic Lake	Jun. 15 - Jul. 13	5	< 4 - 8 mg/L	Objective met
		Sept. 1 - Sept. 21	4	4 - 7 mg/L	Objective met
		Sep. 28	1	63 mg/L	Obj. not met
	0500658 Hydraulic Lake outlet	Jun. 15 - Jul. 13	5	all < 4 mg/L	Objective met
		Sept. 1 - Sept. 28	5	< 4 mg/L	Objective met
	E215840 at SEKID intake	Jun. 15 - Jul. 13	5	< 4 - 5 mg/L	Objective met
		Sept. 1 - Sept. 28	5	4 - 6 mg/L	Objective met
Temperature 18 C max	E215842 near headwaters	Jun. 15 - Jul. 13	4	8.9 - 11.1 C	Objective met
		Sept. 1 - Sept. 28	5	7.5 - 11.1 C	Objective met
	E215841 u/s Hydraulic Lake	Jun. 15 - Jul. 13	4	8.9 - 11.1 C	Objective met
		Sept. 1 - Sept. 28	5	7.5 - 12.2 C	Objective met
	0500658 Hydraulic Lake outlet	Jun. 15 - Jul. 13	4	11.1 - 16.6 C	Objective met
		Sept. 1 - Sept. 28	5	12.2 - 17.2 C	Objective met
	E215840 at SEKID intake	Jun. 15 - Jul. 13	4	11.7 - 12.5 C	Objective met
		Sept. 1 - Sept. 28	5	8.5 - 15.0 C	Objective met
Fecal Coliforms 10/100 mL 90th perc. (np)	E215840 at SEKID intake	Jun. 15 - Jul. 13	5	8 - 31/100 mL np = 23/100 mL	Objective not met
		Sept. 1 - Sept. 28	5	<1 - 8/100 mL np = 5/100 mL	Objective met
E. Coli 10/100 mL 90th perc.	E215840 at SEKID intake	Jun. 15 - Jul. 13	5	10 - 30/100 mL np = 29/100 mL	Objective not met
		Sept. 1 - Sept. 28	5	<1 - 6/100 mL np = 5/100 mL	Objective met
Enterococci 3/100 mL 90th perc.	E215840 at SEKID intake	Jun. 15 - Jul. 13	5	12 - 37/100 mL np = 34/100 mL	Objective not met
		Sept. 1 - Sept. 28	5	4 - 33/100 mL np = 32/100 mL	Objective not met

TABLE 23

THOMPSON RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms < 10/100 mL 90th perc. (np)	South Thompson 0600135 Kamloops d/s Peterson C.	July 19 - Aug 17	5	6 - 44/100 mL np = 32/100 mL	Objective not met
	North Thompson 0600164 Kamloops u/s Paul Creek	May 19 - June 16	5	3 - 34/100 mL np = 30/100 mL	Objective not met
		Jun 19 - Aug 17	5	5 - 16/100 mL np = 15/100 mL	Objective not met
	Kamloops Lake: E218768 near outlet	July 19 - Aug. 17	5	<1 - 1/100 mL	Objective met
	Lower Thompson: 0600004 at Savona	July 19 - Aug 17	5	<1 - 2/100 mL	Objective met
	0600163 d/s Walhachin	July 19 - Aug 17	5	<1 - 3/100 mL	Objective met
	E206586 Spences Br. d/s Nicola R.	July 19 - Aug 17	7	<1 - 8/100 mL np = 8/100 mL	Objective met
E. coli < 200/100 mL geometric mean (gm)	South Thompson 0600135 Kamloops d/s Peterson C.	July 19 - Aug 17	5	5 - 43/100 mL gm = 11/100 mL	Objective met
	North Thompson 0600164 Kamloops u/s Paul Creek	July 19 - Aug 17	5	5 - 18/100 mL gm = 10/100 mL	Objective met
	Kamloops Lake: E218768 near outlet	July 19 - Aug. 17	5	<1 - 2/100 mL	Objective met
	Lower Thompson: 0600004 at Savona	July 19 - Aug 17	5	<1 - 1/100 mL	Objective met
	0600163 d/s Walhachin	July 19 - Aug 17	5	<1 - 4/100 mL	Objective met
	E206586 Spences Br. d/s Nicola R.	July 19 - Aug 17	7	3 - 6/100 mL	Objective met
Colour 15 TCU max or 5 TCU increase over average of N + S Thompson rivers	Kamloops Lake: E219877 at inlet	Dec. 14	1	5 TCU	Objective met
	Lower Thompson: 0600004 at Savona	Sept 14 - Dec 14 Jan 14 - April 14	5 10	3 - 6 TAC 8 - 14 SWU	Indefinite results
	0600163 d/s Walhachin	Sept 14 - Dec 14 Jan 14 - April 14	5 10	2 - 6 TAC 6 - 12 SWU	Indefinite result
	E206586 Spences Br. d/s Nicola R.	Jan 14 - April 14	7	8 - 12 SWU	Indefinite result

TABLE 23 continued

THOMPSON RIVER WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Chlorophyll-a < 50 mg/m2	Lower Thompson: 0600004 at Savona	Jan. 14	6	35.6 - 325.0 mg/m2 av = 215 mg/m2	Objective not met
	0600163 d/s Walhachin	Jan. 14	6	361 - 515 mg/m2 av = 430 mg/m2	Objective not met
	E206586 Spences Br. d/s Nicola R.	Jan. 14	6	139 - 311 mg/m2 av = 201 mg/m2	Objective not met
Dioxins & Furans 0.2 pg/L max TEQ - TCDD	Lower Thompson Kamloops Lake	1993	0	no data collected	Omitted 1993
Dioxins & Furans 1.0 pg/g max TEQ - TCDD wet wt. in fish	Lower Thompson 0600163 d/s Walhachin	Oct. 19	5	non-detectable <4.4 - <9.0 pg/g TEQ-TCDD (in rainbow trout)	Indefinite result
Dioxins & Furans 0.7 pg/g max TEQ - TCDD dry wt. in sediments	Lower Thompson Kamloops Lake	1993	0	no data collected	Objective not checked
Resin Acids 12 ug/L DHA max 45ug/L total max at pH = 7.5	Kamloops Lake: E219877 at inlet	Dec. 14	1	< 1 ug/L DHA < 12 ug/L total	Objectives met
	Lower Thompson: 0600004 at Savona	Jan 14 - Dec 14 Jan 14 - Apr 14 Dec.14	9 8 1	< 1 - 2 ug/L DHA all < 7 ug/L total 128 ug/L total	Objective met Objective met Obj. not met
	0600163 d/s Walhachin	Jan 14 - Dec 14	9 9	all < 1 ug/L DHA all < 7 ug/L total	Objectives met
	E206586 Spences Br. d/s Nicola R.	Jan 14 - April 14	6 6	all < 1 ug/L DHA all < 7 ug/L	Objectives met

TABLE 24

COLUMBIA RIVER FROM KEENLEYSIDE TO BIRCHBANK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 10 mg/L min	Columbia River: 0200183 3 km u/s Celgar	Apr. 28 - May 25	6	12.4 - 13.8 mg/L	Objective met
	E213039 400 m d/s Celgar south bank	Apr. 28 - May 25 Aug. 7	6 3	12.1 - 13.3 mg/L all = 11.7 mg/L	Objective met
	0200200 400 m u/s Kootenay	Apr. 28 - May 25 Aug. 7	6 3	12.1 - 13.3 mg/L all = 11.4 mg/L	Objective met
	0200003 at Birchbank	Apr. 28 - May 25 Aug. 7	6 3	12.8 - 13.5 mg/L all = 11.2 mg/L	Objective met
pH 6.5 - 8.5	Columbia River: 0200183 3 km u/s Celgar	Apr 28 - May 25	5	7.9 - 8.1	Objective met
	E213039 400 m d/s Celgar south bank	Apr. 28 - May 25	5	7.7 - 8.0	Objective met
	0200200 400 m u/s Kootenay	Apr. 28 - May 25	5	7.2 - 8.0	Objective met
	0200003 at Birchbank	Apr. 28 - May 25	5	7.8 - 8.0	Objective met
Colour 15 TCU max	Columbia River: 0200183 3 km u/s Celgar	Apr. 28 - May 25	6	<5 - 5 TCU	Objective met
	E213039 400 m d/s Celgar south bank	Apr. 28 - May 25	6	<5 - 5 TCU	Objective met
	0200200 400 m u/s Kootenay	Apr. 28 - May 25	6	<5 - 5 TCU	Objective met
	0200003 at Birchbank	Apr. 28 - May 25	6	<5 - 5 TCU	Objective met
Suspended Solids 10 mg/L max increase	Columbia River: 0200183 3 km u/s Celgar	Apr. 28 - May 25	6	all < 4 mg/L	Control site
	E213039 400 m d/s Celgar south bank	Apr. 28 - May 25	6	all < 4 mg/L	Objective met
	0200200 400 m u/s Kootenay	Apr. 28 - May 25	6	all < 4 mg/L	Objective met
	0200003 at Birchbank	Jan 11 - Jun 7	15	< 4 - 6 mg/L max increase < 6 mg/L	Objective met

TABLE 24 continued

COLUMBIA RIVER FROM KEENLEYSIDE TO BIRCHBANK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Turbidity 5 NTU max increase	Columbia River: 0200183 3 km u/s Celgar	Apr. 28 - May 25	6	0.2 - 0.4 NTU	Control site
	E213039 400 m d/s Celgar south bank	Apr. 28 - May 25	6	0.3 - 0.4 NTU max increase = 0.1 NTU	Objective met
	0200200 400 m u/s Kootenay	Apr. 28 - May 25	6	0.2 - 0.5 NTU max increase = 0.2 NTU	Objective met
	0200003 at Birchbank	Apr. 28 - May 25	6	0.3 - 0.7 NTU max increase = 0.5 NTU	Objective met
Sediment TOC no increase u/s to d/s at 95% confidence	Columbia River: 0200003 at Birchbank	Aug. 7	3	7.9 - 18.6 mg/g av = 12.1 mg/g TOC	assumed control site
	0200200 400 m u/s Kootenay	Aug. 7	3	13.0 - 17.9 mg/g av = 14.8 mg/g TOC % increase = 22%	Objective not met
Dissolved Gas 110% max	Columbia River: at Hugh Keeleyside u/s dam (B.C. Hydro site)	Jan 2 - May 13 May 14 - May 22 May. 23 - May 24 May 25 - May 28 May 29 - Jun 3 Jun. 4 Jun 5 - Dec 31 (n = No of days)	129 9 2 4 6 1 210	94 - 110 % 111 - 115 % all 110 % all 111 % 108 - 110 % 111% 96 - 110 %	Obj. met Obj. not met Obj. met Obj. not met Obj. met Obj. not met Obj. met
	at Robson ~ 3.5 km d/s Celgar (B.C. Hydro site)	Jan 1 - May 7 May. 18 May. 19 May 20 - Dec 31 (n = No of days)	119 1 1 226	96 - 109 % 112% 108% 111 - 140 %	Obj. met Obj. not met Obj. met Obj. not met
	at Birchbank (B.C. Hydro site)	May 25 - Jun 27 Jun. 28 Jun 30 - Nov 3 Nov. 4 Nov 5 - Dec 30 (n = No of days)	32 1 108 1 54	112 - 145 % 110% 112 - 142 % 104% 115 - 121 %	Obj. not met Obj. met Obj. not met Obj. met Obj. not met
Fecal Coliforms <100/100 mL 90th perc. (np)	Columbia River: 0200183 3 km u/s Celgar	Apr. 28 - May 25	5	< 2 - 1/100 mL	Objective met
	E213039 400 m d/s Celgar south bank	Apr. 28 - May 25	5	<2 - 7/100 mL	Objective met
	0200200 400 m u/s Kootenay	Apr. 28 - May 25	5	<2 - 3/100 mL	Objective met
	0200003 at Birchbank	Apr. 28 - May 25	8	<2 - 4/100 mL	Objective met

TABLE 24 continued

COLUMBIA RIVER FROM KEENLEYSIDE TO BIRCHBANK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
E. Coli <100/100 mL 90th perc. (np)	Columbia River: 0200183 3 km u/s Celgar	Apr. 28 - May 25	5	< 2 - 2/100 mL	Objective met
	E213039 400 m d/s Celgar south bank	Apr. 28 - May 25	5	< 2 - 7/100 mL	Objective met
	0200200 400 m u/s Kootenay	Apr. 28 - May 25	5	< 2 - 4/100 mL	Objective met
	0200003 at Birchbank	Apr. 28 - May 25	5	< 2 - 5/100 mL	Objective met
Toxicity % mill effluent in river: < 0.05 of the 96-h LC50	Columbia River at Celgar			% effl. 0.05(96-hLC50)	
		Jan 14 - 15	1	0.079 1.05	Obj. met
		Feb 24 - 25	1	0.093 0.65	Obj. met
		Mar 19 - 20	1	0.237 1.45	Obj. met
		Apr 15 - 16	1	0.311 0.65	Obj. met
		May 31 - June 1	1	0.292 5.00	Obj. met
		June 17 - 18	1	0.355 5.00	Obj. met
		Jul 20 - 21	1	0.123 5.00	Obj. met
		Aug 17 18	1	0.092 5.00	Obj. met
		Sep 20 - 21	1	0.221 5.00	Obj. met
		Oct 16 - 17	1	0.242 5.00	Obj. met
		Nov 16 - 17	1	0.146 5.00	Obj. met
		Dec 14 - 15	1	0.117 5.00	Obj. met
Chlorophenols <0.05 ug/L tri <0.10 ug/L tetra <0.05 ug/L penta	Columbia River: 0200183 3 km u/s Celgar	Apr. 28	1	tri: <0.1 ug/L (for any of 6 isomers)	Indef. result
			1	tetra: <0.1 ug/L (for any of 3 isomers)	Objective met
			1	penta: <0.1 ug/L	Indef. result
	E213039 400 m d/s Celgar south bank	Apr. 28	1	tri: <0.1 ug/L (for any of 6 isomers)	Indef. result
			1	tetra: <0.1 ug/L (for any of 3 isomers)	Objective met
			1	penta: <0.1 ug/L	Indef. result
	0200200 400 m u/s Kootenay	Apr. 28	1	tri: <0.1 ug/L (for any of 6 isomers)	Indef.result
			1	tetra: <0.1 ug/L (for any of 3 isomers)	Objective met
			1	penta: <0.1 ug/L	Indef. result
	0200003 at Birchbank	Apr. 28	1	tri: <0.1 ug/L (for any of 6 isomers)	Indef. result
			1	tetra: <0.1 ug/L (for any of 3 isomers)	Objective met
			1	penta: <0.1 ug/L	Indef. result
Dioxins/Furans 1pg/g TCDD TEQ max in fish (wet weight)	Columbia River: 0200183 3 km u/s Celgar	Jul. 29	2	0.30 - 0.46 pg/g TCDD TEQ	Obj. met
			2	1.15 - 1.92 pg/g TCDD TEQ (mountain whitefish)	Obj. not met
	E213039 400 m d/s Celgar south bank	Jul. 30	3	0.00 - 0.97 pg/g TCDD TEQ	Obj. met
			3	1.46 - 3.25 pg/g TCDD TEQ (mountain whitefish)	Obj. not met

TABLE 24 continued

COLUMBIA RIVER FROM KEENLEYSIDE TO BIRCHBANK WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dioxins/Furans 0.2 pg/L TCDD TEQ max in water	Columbia River at Celgar	Jan 19 - Dec 13	7	effluent levels: <0.01 - 2.3 pg/L TCDD TEQ calculated river levels: <0.00001 - 0.0020 pg/L TCDD TEQ	Objective met
Dioxins/Furans 0.7 pg/g TCDD TEQ max in seds	Columbia River: E213039 400 m d/s Celgar south bank	Sep. 13	3	2.8 - 6.0 pg/g TCDD TEQ av = 4.2 pg/g TCDD TEQ	Objective not met
	0200003 at Birchbank	Sep. 14	3	0.4 - 0.9 pg/g TCDD TEQ av = 0.6 pg/g TCDD TEQ	Objective met
Resin Acids 10 ug/L max DHA 35 ug/L max total at pH = 7.2	Columbia River: 0200183 3 km u/s Celgar	Apr. 28	1 1	DHA < 1 ug/L total < 7 ug/L	Objectives met
	E213039 400 m d/s Celgar south bank	Apr. 28	1 1	DHA < 1 ug/L total < 7 ug/L	Objectives met
	0200200 400 m u/s Kootenay	Apr. 28	1 1	DHA < 1 ug/L total < 7 ug/L	Objectives met
	0200003 at Birchbank	Apr. 28	1 1	DHA < 1 ug/L total < 7 ug/L	Objectives met
Chlorinated Resin Acids 6 ug/L max of mono Cl-DHA & di CL-DHA	Columbia River: 0200183 3 km u/s Celgar	Apr. 28	1 1	Cl-DHA < 1 ug/L Cl2-DHA < 1 ug/L	Objectives met
	E213039 400 m d/s Celgar south bank	Apr. 28	1 1	Cl-DHA < 1 ug/L Cl2-DHA < 1 ug/L	Objectives met
	0200200 400 m u/s Kootenay	Apr. 28	1 1	Cl-DHA < 1 ug/L Cl2-DHA < 1 ug/L	Objectives met
	0200003 at Birchbank	Apr. 28	1 1	Cl-DHA < 1 ug/L Cl2-DHA < 1 ug/L	Objectives met
Chlorophyll-a <50 mg/m2 av	Columbia River: 0200183 3 km u/s Celgar	Oct. 4	6	0.3 - 7 mg/m2 av = 1.6 mg/m2	Objective met
	0200200 400 m u/s Kootenay	Oct. 4	6	2.2 - 16.8 mg/m2 av = 5.5 mg/m2	Objective met
	0200003 at Birchbank	Oct. 4	6	0.6 - 13.7 mg/m2 av = 3.2 mg/m2	Objective met

TABLE 25

ELK RIVER BASIN WATER QUALITY OBJECTIVES - 1993/94

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Suspended Solids < 25 mg/L av 80 mg/L max in period Sept. - mid April	Elk River: E220374 u/s site between Forsyth & Bingay creeks	Sep 1 - Apr 18	35	0 - 30 mg/L av = 2.9 mg/L	Objectives met
	E220376 d/s Fording River	Sep 1 - Apr 18	36	1 - 24 mg/L av = 4.5 mg/L	Objectives met
	E220371 d/s site at Fernie	Sep 1 - Apr 18	36	av = 7.1 mg/L	Av objective met
		Sep 1 - Apr 11	35	1 - 15 mg/L	Max objective met
		Apr. 18	1	109 mg/L	Max objective not met
	Fording River: E220375 12 km u/s Elk River	Sep 1 - Apr 18	34	0 - 24 mg/L av = 3.7 mg/L	Objectives met
	Line Creek: E220373 at the mouth	Sep 1 - Apr 19	36	0 - 19 mg/L av = 3.7 mg/L	Objectives met
	Michel Creek: E220372 at the mouth	Sep 1 - Apr 18	36	0 - 53 mg/L av = 4.0 mg/L	Objectives met
Substrate Sediment no increase in particulates < 3 mm in period Sept. - mid April	Elk River tributaries with salmonid spawning sites	1993/94	0	no data collected	Omitted 1993

TABLE 26

FRASER RIVER (HOPE TO KANAKA CREEK) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <1000/100 mL geometric mean (gm) 4000/100 mL max April-October	Fraser River: E207393 u/s Kent STP	Jul 18 - Aug 2	4	9 - 39/100 mL	Max obj. met
	E207603 100m d/s Kent STP	Jul 18 - Aug 2	4	5 - 44/100 mL	Max obj. met
	0301506 75m u/s Chilliwack STP	Jul 18 - Aug 2	4	6 - 122/100 mL	Max obj. met
	0301507 100m d/s Chilliwack STP	Jul 18 - Aug 2	4	27 - 608/100 mL	Max obj. met
	E207391 u/s MSA STP	Jul 11 - Aug 2	5	12 - 124/100 mL gm = 32/100 mL	Objectives met
	E207602 100 m d/s MSA STP	Jul 11 - Aug 2	4	15 - 172/100 mL	Max obj. met
	0301548 50m u/s Aldergrove STP	Jul 18 - Aug 2	4	9 - 290/100 mL	Max obj. met
	0301550 100m d/s Aldergrove STP	Jul 18 - Aug 2	4	12 - 135/100 mL	Max obj. met
	Hope Slough 0300141 at Young Road	Jul. 11 - Aug. 2	5	36 - 405/100 mL gm = 155/100 mL	Objectives met
	Elk Creek 0300046 at Yale Road	Jul. 11 - Aug. 2	5	72 - 2460/100 mL gm = 379/100 mL	Objectives met
	Chilliwack Creek 0300040 at Wolfe Road	Jul. 11 - Aug. 2	5	<1 - 780/100 mL gm = 37/100 mL	Objectives met
	Luckakuck Creek 0300036 at Yale Road	Jul. 11 - Aug. 2	5	180 - 2800/100 mL gm = 670/100 mL	Objectives met
	Atchelitz Creek E207623 near mouth	Jul 11 - Aug 2 Jul 11 - Aug 2 Jul. 29	5 4 1	gm = 524/100 mL 140 - 380/100 mL 11,300/100 mL	gm obj. met Max obj. met Max not met
	Sumas River 0300030 d/s Saar Cr. confluence	Jul 11 - Aug 2	5	80 - 279/100 mL gm = 127/100 mL	Objectives met
	Saar Creek 0300032 ~ 5 km from border	Jul 11 - Aug 2 Jul 11 - Aug 2 Jul. 29	5 4 1	gm = 1227/100 mL 190 - 1790/100 mL 5450/100 mL	gm not met Max obj. met Max not met

TABLE 26 continued

FRASER RIVER (HOPE TO KANAKA CREEK) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <1000/100 mL geometric mean (gm) 4000/100 mL max April-October	Salmon River E207612 d/s Trinity	Jul 11 - Aug 2	5	28 - 555/100 mL gm = 101/100 mL	Objectives met
	Bertrand Creek E207092 d/s Aldergrove	Jul 11 - Aug 2	5	240 - 1500/100 mL gm = 675/100 mL	Objectives met
Fecal Coliforms <100/100 mL 90th percentile (np)	Chilliwack River 0300033 at Vedder Canal	Jul 11 - Aug 2	5	9 - 59/100 mL np = 40/100mL	Objective met
Fecal Coliforms <200/100 mL geometric mean (gm) at beaches	Cultus Lake: E207095 north beach	Jul 11 - Aug 2	5	0 - 5/100 mL	Objective met
	E207096 middle beach	Jul 11 - Aug 2	5	0 - 19/100 mL	Objective met
	E209098 south beach	Jul 11 - Aug 2	5	0 - 15/100 mL	Objective met
Fecal Coliforms <10/100 mL 90th perc. at water intakes	Cultus Lake	1993	0	no data collected	Omitted 1993
Tot. Cl2 Res. 0.002 mg/L max	Fraser River	1993	0	no data collected	Omitted 1993
Ammonia-N <0.944 mg/L av 5.64 mg/L max at pH = 8.0 temp = 17 C	Fraser River: E207393 u/s Kent STP	Jul 18 - Aug 2	4	<0.005 - 0.006 mg/L	Max obj. met
	E207603 100m d/s Kent STP	Jul 18 - Aug 2	4	all < 0.005 mg/L	Max obj. met
	0301506 75m u/s Chilliwack STP	Jul 18 - Aug 2	4	<0.005 - 0.007 mg/L	Max obj. met
	0301507 100m d/s Chilliwack STP	Jul 18 - Aug 2	4	<0.005 - 0.044 mg/L	Max obj. met
	E207391 u/s MSA STP	Jul 11 - Aug 2	5	<0.005 - 0.024 mg/L av = 0.013 mg/L	Objectives met
	E207602 100 m d/s MSA STP	Jul 11 - Aug 2	5	<0.005 - 0.013 mg/L av = 0.007 mg/L	Objectives met
	0301548 50m u/s Aldergrove STP	Jul 18 - Aug 2	4	<0.005 - 0.053 mg/L	Max obj. met

TABLE 26 continued

FRASER RIVER (HOPE TO KANAKA CREEK) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Ammonia-N <0.944 mg/L av 5.64 mg/L max at pH = 8.0 temp = 17 C	Fraser River: 0301550 100m d/s Aldergrove STP	Jul 18 - Aug 2	4	<0.005 - 0.005 mg/L	Max obj. met
Ammonia-N <1.54 mg/L av 8.02 mg/L max at pH = 7.8 temp = 14 C	Hope Slough 0300141 at Young Road	Jul. 11 - Aug. 2	5	0.008 - 0.182 mg/L av = 0.056 mg/L	Objectives met
	Elk Creek 0300046 at Yale Road	Jul 11 - Aug 2	5	0.005 - 0.103 mg/L av = 0.054 mg/L	Objectives met
	Chilliwack Creek 0300040 at Wolfe Road	Jul. 11 - Aug. 2	5	0.013 - 0.051 mg/L av = 0.028 mg/L	Objectives met
	Luckakuck Creek 0300036 at Yale Road	Jul. 11 - Aug. 2	5	0.011 - 0.019 mg/L av = 0.015 mg/L	Objectives met
	Atchelitz Creek E207623 near mouth	Jul. 11 - Aug. 2	5	<0.005 - 0.070 mg/L av = 0.028 mg/L	Objectives met
	Salmon River E207612 d/s Trinity	Jul. 11 - Aug. 2	5	0.005 - 0.020 mg/L av = 0.015 mg/L	Objectives met
	Bertrand Creek E207092 d/s Aldergrove	Jul. 11 - Aug. 2	5	0.016 - 0.056 mg/L av = 0.037 mg/L	Objectives met
Total-P <0.01 mg/L av at spring overturn	Cultus Lake: 0300037 at lake centre	1993	0	no data collected	Objective not checked
Dissolved Oxygen 7.75 mg/L min	Fraser River: E207393 u/s Kent STP	Jul 18 - Aug 2	4	9.8 - 10.2 mg/L	Objective met
	E207603 100m d/s Kent STP	Jul 18 - Aug 2	4	9.9 - 10.1 mg/L	Objective met
	0301506 75m u/s Chilliwack STP	Jul 18 - Aug 2	4	9.5 - 10.3 mg/L	Objective met
	0301507 100m d/s Chilliwack STP	Jul 18 - Aug 2	4	9.6 - 10.0 mg/L	Objective met

TABLE 26 continued

FRASER RIVER (HOPE TO KANAKA CREEK) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 7.75 mg/L min	Fraser River: E207391 u/s MSA STP	Jul 11 - Aug 2	5	9.5 - 10.1 mg/L	Objective met
	E207602 100 m d/s MSA STP	Jul 11 - Aug 2	5	9.3 - 10.3 mg/L	Objective met
	0301548 50m u/s Aldergrove STP	Jul 18 - Aug 2	4	9.3 - 10.3 mg/L	Objective met
	0301550 100m d/s Aldergrove STP	Jul 18 - Aug 2	4	9.7 - 10.3 mg/L	Objective met
Dissolved Oxygen 8.0-11.2 mg/L min depending on fish egg stage 6.0 mg/L min at other times (7.75 mg/L min in Chilliwack. R)	Hope Slough 0300141 at Young Road	Jul. 11 - Aug. 2	5	7.2 - 8.5 mg/L	Objective met
	Elk Creek 0300046 at Yale Road	Jul 11 - Aug 2	5	8.5 - 10.5 mg/L	Objective met
	Chilliwack Creek 0300040 at Wolfe Road	Jul. 11 - Aug. 2	5	6.3 - 9.1 mg/L	Objective met
	Luckakuck Creek 0300036 at Yale Road	Jul. 11 - Aug. 2	5	8.2 - 9.0 mg/L	Objective met
	Atchelitz Creek E207623 near mouth	Jul. 11 - Aug. 2	5	4.0 - 4.9 mg/L	Objective not met
	Chilliwack River 0300033 at Vedder Canal	Jul 11 - Aug 2	5	10.0 - 10.5 mg/L	Objective met
	Sumas River 0300030 d/s Saar Cr. confluence	Jul 11 - Aug 2	5	6.0 - 9.6 mg/L	Objective met
	Saar Creek 0300032 ~ 5 km from border	Jul 11 - Aug 2	5	2.6 - 3.8 mg/L	Objective met
	Salmon River E207612 d/s Trinity	Jul. 11 - Aug. 2	5	10.8 - 11.3 mg/L	Objective met
	Bertrand Creek E207092 d/s Aldergrove	Jul. 11 - Aug. 2	5	6.3 - 9.5 mg/L	Objective met

TABLE 26 continued

FRASER RIVER (HOPE TO KANAKA CREEK) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 5.0 mg/L min in hypolimnion	Cultus Lake beach sites	Jul 11 - Aug 2	12	9.6 - 10.3 mg/L at the surface	Indefinite result
pH 6.5 - 8.5	Fraser River E207602 100 m d/s MSA STP	Jul. 7 - Aug. 4	5	7.7 - 8.0	Objective met
pH 6.5 - 8.5	Fraser River: E207393 u/s Kent STP	Jul 18 - Aug 2	4	8.0 - 8.1	Objective met
	E207603 100m d/s Kent STP	Jul 18 - Aug 2	4	8.0 - 8.1	Objective met
	0301506 75m u/s Chilliwack STP	Jul 18 - Aug 2	4	8.0 - 8.1	Objective met
	0301507 100m d/s Chilliwack STP	Jul 18 - Aug 2	4	8.0 - 8.1	Objective met
	E207391 u/s MSA STP	Jul 11 - Aug 2	5	8.0 - 8.1	Objective met
	E207602 100 m d/s MSA STP	Jul 11 - Aug 2	5	8.0 - 8.1	Objective met
	0301548 50m u/s Aldergrove STP	Jul 18 - Aug 2	4	7.9 - 8.0	Objective met
	0301550 100m d/s Aldergrove STP	Jul 18 - Aug 2	4	8.0 - 8.1	Objective met
	Hope Slough 0300141 at Young Road	Jul. 11 - Aug. 2	5	7.7 - 8.3	Objective met
	Elk Creek 0300046 at Yale Road	Jul 11 - Aug 2	5	7.7 - 8.3	Objective met
	Chilliwack Creek 0300040 at Wolfe Road	Jul. 11 - Aug. 2	5	7.4 - 8.0	Objective met
	Luckakuck Creek 0300036 at Yale Road	Jul. 11 - Aug. 2	5	7.3 - 7.7	Objective met
	Atchelitz Creek E207623 near mouth	Jul. 11 - Aug. 2	5	7.2 - 7.8	Objective met

TABLE 26 continued

FRASER RIVER (HOPE TO KANAKA CREEK) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
pH 6.5 - 8.5	Salmon River E207612 d/s Trinity	Jul. 11 - Aug. 2	5	7.7 - 8.1	Objective met
	Bertrand Creek E207092 d/s Aldergrove	Jul. 11 - Aug. 2	5	7.5 - 8.0	Objective met

TABLE 27

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <1000/100 mL geometric mean (gm) 4000/100 mL max Apr - Oct	Main Stem: 0300005 at Pattullo Bridge	Aug 5 - Sep 2	5	25 - 58/100 mL gm = 36/100 mL	Objectives met
	Main Arm: GVRD 1 u/s Annacis	Apr 20 - Aug 12 Oct. 13	3 1	20 - 800/100 mL 30,000/100 mL	Max obj. met Max not met
	0301308 u/s Annacis	Aug 5 - Sep 2	5	30 - 71/100 mL gm = 14/100 mL	Objectives met
	0301311 d/s Annacis	Aug 5 - Sep 2	5	41 - 73/100 mL gm = 54/100 mL	Objectives met
	GVRD 2 d/s Annacis	Apr 20 m- Aug 12 Oct. 13	3 1	40 - 110/100 mL 60,000/100 mL	Max obj. met Max not met
	FREMP site off Tilbury Island	Mar 3 - Oct 18	13	<2 - 2300/100 mL	Max obj. met
	E105892 u/s Lulu	Aug 5 - Aug 26	3	33 - 190/100 mL	Max obj. met
	E207407 d/s Lulu	Aug 5 - Aug 26	3	55 - 130/100 mL	Max obj. met
	GVRD 4 d/s Lulu	Apr 20 - Aug 12 Oct. 13	3 1	80 - 1,700/100 mL 17,000/100 mL	Max obj. met Max not met
	GVRD 5 d/s Steveston	Apr 20 - Aug 12 Oct. 13	3 1	20 - 1,400/100 mL 30,000/100 mL	Max obj. met Max not met
	North Arm: E207398 u/s Scott Paper	Aug 5 - Nov 2	4	60 - 100/100 mL	Max obj. met
	E207396 u/s Belkin	Aug 5 - Sep 2	5	36 - 80/100 mL gm = 52/100 mL	Objectives met
	E207397 d/s Belkin	Aug 5 - Sep 2	4	52 - 69/100 mL	Max obj. met
	0300002 Oak Street Bridge	Aug 5 - Sep 2	4	67 - 90/100 mL	Max obj. met
	FREMP site Oak Street Bridge	May 4 - Oct 19	13	14 - 2200/100 mL	Max obj. met

TABLE 27 continued

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <1000/100 mL geometric mean (gm) 4000/100 mL max Apr - Oct	Middle Arm: E207601 100 m d/s North Arm	Aug 5 - Sep 2	5	34 - 100/100 mL gm = 64/100 mL	Objectives met
	E207600 at Dinsmore Bridge	Aug 5 - Sep 2	4	34 - 120/100 mL	Max obj. met
Fecal Coliforms <200/100 mL geometric mean (gm) Jun - Aug at beaches	Iona Beach: every 1.5 km along jetty, east to west GVRD 4	Jul 2 - Jul 27 Aug 5 - Aug 24	6 6	gm = 38/100 mL gm = 22/100 mL	Obj. met Obj. met
	GVRD 6	Jul 2 - Jul 27 Aug 5 - Aug 24	6 6	gm = 22/100 mL gm = 20/100 mL	Obj. met Obj. met
	GVRD 8	Jun 2 - Jun 23 Aug 5 - Aug 24	6 6	gm = 27/100 mL gm - 25/100 mL	Obj. met Obj. met
	GVRD 10	Jun 2 - Jun 23 Jul 27 - Aug 23	6 6	gm = 22/100 mL gm = 32/100 mL	Obj. met Obj. met
	GVRD 12	Jun 2 - Jun 23 Aug 5 - Aug 24	6 6	gm = 20/100 mL gm = 27/100 mL	Obj. met Obj. met
	GVRD 14	Jul 6 - Jul 27 Jun 4 - Jul 2	6 6	gm = 20/100 mL gm = 20/100 mL	Obj. met Obj. met
	Tsawwassen Beach: GVRD 1 Causeway-north, 0 km	Jun 4 - Jul 9 Jul 23 - Aug 27	5 5	gm = 23/100 mL gm = 30/100 mL	Obj. met Obj. met
	GVRD 2 Causeway-north, 2 km	Jun 4 - Jul 9 Jul 23 - Aug 27	5 5	gm < 20/100 mL gm = 42/100 mL	Obj. met Obj. met
	GVRD 3 Causeway-north, 3 km	Jun 4 - Jul 9 Jul 23 - Aug 27	5 5	gm = 23/100 mL gm < 20/100 mL	Obj. met Obj. met
	Sturgeon Bank: E216048 d/s MacDonald Slough	Aug 5 - Sep 2	5	160 - 640/100 mL gm = 263/100 mL	Objective not met
	Roberts Bank E216049 Causeway centre-S	Aug 5 - Sep 2	5	2 - 17/100 mL gm = 4/100 mL	Objective met
Susp. Solids max increase: 10 mg/L or 10%	North Arm E207398 u/s Scott Paper	Feb. 2	1	5 mg/L	Control site
	0300002 Oak Street Bridge	Feb. 2	1	9 mg/L max inc. = 4 mg/L	Objective met
	Middle Arm: E207601 100 m d/s North Arm	Feb. 2	1	9 mg/L	Control site
	E207600 at Dinsmore Bridge	1993	0	no data collected	Objective not checked

TABLE 27 continued

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Cl2 Res. 0.002 mg/L max	Main Arm GVRD 1,2,3,4, & 5	Feb 23 - Dec 7	30	all < 0.05 mg/L	Indefinite result
Ammonia-N <1.09 mg/L av 5.7 mg/L max at pH = 8.0 temp = 15 C	Main Arm: GVRD 1 u/s Annacis	Feb 23 - Dec 7	6	<0.01 - 0.13 mg/L	Max obj. met Av not chkd.
	0301308 u/s Annacis	Feb. 2	1	0.057 mg/L	Max obj. met
	0301311 d/s Annacis	Feb 2 - Feb 21	2	0.054 - 0.076 mg/L	Max obj. met
	GVRD 2 d/s Annacis	Feb 23 - Dec 7	6	<0.01 - 0.08 mg/L	Max obj. met
	FREMP site off Tilbury Island	Jan 26 - Dec 28	39	<0.005 - 0.096 mg/L	Max obj. met
	GVRD 3 12 km d/s Annacis	Feb 23 - Dec 7	6	0.03 - 0.11 mg/L	Max obj. met
	GVRD 4 d/s Lulu	Feb 23 - Dec 7	6	0.03 - 0.10 mg/L	Max obj. met
	GVRD 5 d/s Steveston	Feb 23 - Dec 7	6	0.03 - 0.13 mg/L	Max obj. met
	North Arm: E207398 u/s Scott Paper	Feb. 2	1	0.054 mg/L	Max obj. met Av not chkd.
	0300002 Oak Street Bridge	Feb. 2	1	0.057 mg/L	Max obj. met
	FREMP site Oak Street Bridge	Jan 25 - Dec 27	35	<0.005 - 0.089 mg/L	Max obj. met
	Middle Arm E207601 100 m d/s North Arm	Feb. 2	1	0.050 mg/L	Max obj. met Av not chkd.
	Sturgeon Bank: E216048 d/s MacDonald Slough	Aug 5 - Sep 2	5	<0.005 - 0.074 mg/L av = 0.026 mg/L	Objectives met
	Roberts Bank: E216049 Causeway centre-S	Aug 5 - Sep 2	5	0.037 - 0.075 mg/L av = 0.060 mg/L	Objectives met
Dissolved Oxygen 7.75 mg/L min	Main Stem: E206965 Barnston Island	Aug 5 - Sep 2	5	9.0 - 9.8 mg/L	Objective met
	0300005 d/s Pattullo Bridge	Aug 5 - Sep 2	5	8.8 - 9.8 mg/L	Objective met

TABLE 27 continued

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 7.75 mg/L min	Main Arm: Gunderson Slough E216045	Aug. 5	17	0-4.9 m: 7.8 - 9.8 mg/L	Objective met
		Oct. 30	17	0-4.9 m: 9.3 - 9.8 mg/L	Objective met
	GVRD 1 u/s Annacis	Feb 23 - Oct 13	5	10.0 - 12.9 mg/L	Objective met
	0301308 u/s Annacis	Aug 5 - Sep 2	5	8.9 - 9.4 mg/L	Objective met
	0301311 d/s Annacis	Aug 5 - Sep 2	5	9.0 - 9.4 mg/L	Objective met
	GVRD 2 d/s Annacis	Feb 23 - Dec 7	6	9.8 - 13.0 mg/L	Objective met
	FREMP site off Tilbury Island	Jan 26 - Dec 28	31	8.8 - 12.8 mg/L	Objective met
	Deas Slough E216044	Aug. 6	19	0-5.5 m: 8.8 - 9.0 mg/L	Objective met
		Oct. 31	14	0-4m: 7.9 - 10.3 mg/L	Objective met
	GVRD 3 12 km d/s Annacis	Feb 23 - Dec 7	6	9.2 - 11.8 mg/L	Objective met
	Ladner Slough E216043	6-Aug	1 20	0 m: 8.2 mg/L 0.3-6.1 m: 6.0 - 7.4 mg/L	Obj. met Obj. not met
		Oct. 31	15 1	0-5 m: 8.2 - 10.4 mg/L 5.5 m: 6.4 mg/L	Obj. met Obj. not met
	E105892 100 m u/s Lulu	Aug 5 - Sep 2	5	8.7 - 9.2 mg/L	Objective met
	E207407 100 m d/s Lulu	Aug 5 - Sep 2	5	8.8 - 9.3 mg/L	Objective met
	GVRD 4 d/s Lulu	Feb 23 - Dec 7	6	10.1 - 11.7 mg/L	Objective met
	GVRD 5 d/s Steveston	Feb 23 - Dec 7	6	9.6 - 11.7 mg/L	Objective met
	North Arm: E207398 u/s Scott Paper	Aug 5 - Sep 2	5	8.8 - 9.7 mg/L	Objective met
	E207397 d/s Scott Paper	Aug 5 - Sep 2	5	8.8 - 9.6 mg/L	Objective met
	Tree Island Slough E216038	Aug. 5	9	0-2.4 m: 8.2 - 9.2 mg/L	Objective met
		Oct. 31	11 1	0-13 m: 8.4 - 10.0 mg/L 14 m: 4.6 mg/L	Obj. met Obj. not met

TABLE 27 continued

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 7.75 mg/L min	North Arm: 0300002 Oak Street Bridge	Aug 5 - Sep 2	5	8.5 - 9.2 mg/L	Objective met
	FREMP site Oak Street Bridge	Jan 25 - Dec 27	29	8.4 - 12.4 mg/L	Objective met
	Eburne Slough E216039	Aug. 5	7 4	0- 1.8 m: 7.8 - 8.2 mg/L 2 - 3 m: 3.9 - 7.7 mg/L	Obj. met Obj. not met
		Oct. 30	11 4	0-2.7 m: 7.9 - 8.8 mg/L 3 - 4 m: 5.3 - 7.6 mg/L	Obj. met Obj. not met
	MacDonald Slough E216037	Aug. 5	9 6	0-2.4 m: 7.8 - 8.0 mg/L 2.7-4.3 m: 5.6 - 7.6 mg/L	Obj. met Obj. not met
		Oct. 30	10 8	0-2.7 m: 7.8 - 8.8 mg/L 3-5.2 m: 3.6 - 7.4 mg/L	Obj. met Obj. not met
	Middle Arm: E207601 100 m d/s North Arm	Aug 5 - Sep 2	5	8.6 - 9.4 mg/L	Objective met
	E207600 at Dinsmore Bridge	Aug 5 - Sep 2	5	8.6 - 9.6 mg/L	Objective met
Dissolved Oxygen 9.0 mg/L min	Sturgeon Bank E216048 d/s MacDonald Slough	Aug. 12	1	10 mg/L	Objective met
		Aug 5 - Sep 2	4	6.9 - 8.7 mg/L	Objective not met
	Roberts Bank E216049 Causeway centre-S	Aug 5 - Sep 2	4	9.8 - 10.6 mg/L	Objective met
		Aug. 19	1	6.1 mg/L	Objective not met
pH 6.5 - 8.5	Main Stem: E206965 Barnston Island	Aug 5 - Sep 2	5	7,4 - 7.8	Objective met
	0300005 d/s Pattullo Bridge	Aug 5 - Sep 2	5	7.5 - 7.7	Objective met
	Main Arm: GVRD 1 u/s Annacis	Feb 23 - Dec 7	6	7.1 - 7.6	Objective met
	0301308 u/s Annacis	Aug 5 - Sep 2	5	7.2 - 7.7	Objective met
	0301311 d/s Annacis	Aug 5 - Sep 2	5	7.4 - 7.8	Objective met
	GVRD 2 d/s Annacis	Feb 23 - Dec 7	6	7.2 - 7.7	Objective met
	FREMP site off Tilbury Island	Jan 26 - Dec 28	37	7.3 - 7.9	Objective met

TABLE 27 continued

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
pH 6.8 - 8.5	Main Arm GVRD 3 12 km d/s Annacis	Feb 23 - Dec 7	6	7.3 - 7.8	Objective met
	E105892 100 m u/s Lulu	Aug 5 - Sep 2	5	7.4 - 7.8	Objective met
	E207407 100 m d/s Lulu	Aug 5 - Sep 2	5	7.4 - 7.8	Objective met
	GVRD 4 d/s Lulu	Feb 23 - Dec 7	6	7.4 - 7.8	Objective met
	GVRD 5 d/s Steveston	Feb 23 - Dec 7	6	7.4 - 7.7	Objective met
	North Arm: E207398 u/s Scott Paper	Aug 5 - Sep 2	5	7.4 - 7.9	Objective met
	E207397 d/s Scott Paper	Aug 5 - Sep 2	5	7.3 - 7.8	Objective met
	0300002 Oak Street Bridge	Aug 5 - Sep 2	5	7.3 - 7.6	Objective met
	FREMP site Oak Street Bridge	Jan 25 - Dec 27	37	6.9 - 7.7	Objective met
	Middle Arm: E207601 100 m d/s North Arm	Aug 5 - Sep 2	5	7.2 - 7.4	Objective met
	E207600 at Dinsmore Bridge	Aug 5 - Sep 2	5	7.2 - 7.6	Objective met
Total Cu <0.004 mg/L av 0.006 mg/L max at hardness > 35 or 20% increase	Main Arm: GVRD 1 u/s Annacis	Feb 23 - Dec 7	6	<0.001 - 0.001 mg/L (Dissolved Cu)	Control site
	0301308 u/s Annacis	Feb 2 - Feb 28	5	<0.002 - 0.003 mg/L av = 0.002 mg/L (Total Cu)	Control site
	0301311 d/s Annacis	Feb 2 - 28	5	<0.002 - 0.004 mg/L av = 0.003 mg/L (Total Cu)	Objectives met
	GVRD 2 d/s Annacis	Feb 23 - Dec 7	6	<0.001 - 0.001 mg/L (Dissolved Cu)	Indefinite results
	FREMP site off Tilbury Island	Jan 26 - Dec 28 Apr 19, May 18	34 2	<0.001 - 0.006 mg/L 0.008 - 0.016 mg/L	Max obj. met Indef. results
	GVRD 3 12 km d/s Annacis	Feb 23 - Dec 7	6	<0.001 - 0.001 mg/L (Dissolved Cu)	Indefinite results

TABLE 27 continued

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Cu <0.004 mg/L av 0.006 mg/L max at hardness > 35 or 20% increase	Main Arm: GVRD 4 d/s Lulu	Feb 23 - Dec 7	6	<0.001 - 0.002mg/L (Dissolved Cu)	Indefinite results
	GVRD 5 d/s Steveston	Feb 23 - Dec 7	6	<0.001 - 0.001 mg/L (Dissolved Cu)	Indefinite results
	North Arm: E207398 u/s Scott Paper	Feb 2 - Feb 28	5	<0.002 - 0.003 mg/L av = 0.002 mg/L (Total Cu)	Objectives met
	0300002 Oak Street Bridge	Feb 2 - Feb 28	5	0.001 - 0.003 mg/L av = 0.002 mg/L (Total Cu)	Objectives met
	FREMP site Oak Street Bridge	Jan 25 - Dec 27 May. 17	35 1	<0.001 - 0.006 mg/L 0.008 mg/L (Total Cu)	Max obj. met Indef. result
	Middle Arm: E207601 100 m d/s North Arm	Feb 2 - Feb 28	5	<0.002 - 0.004 mg/L av = 0.002 mg/L (Total Cu)	Objectives met
Total Pb <0.003 mg/L av 0.010 mg/L max	Main Arm: GVRD 1 u/s Annacis	Feb 23 - Dec 7	6	<0.001 - 0.001 mg/L (Dissolved Pb)	Indefinite result
	0301308 u/s Annacis	Feb 2 - Feb 28	5	all <0.003 mg/L (Total Pb)	Objectives met
	0301311 d/s Annacis	Feb 2 - Feb 28	5	all < 0.003 mg/L (Total Pb)	Objectives met
	GVRD 2 d/s Annacis	Feb. 23 - Dec. 7	6	all < 0.001 mg/L (Dissolved Pb)	Indefinite result
	FREMP site off Tilbury Island	Mar 22 - Dec 28	28	<0.001 - 0.003 mg/L (Total Pb)	Max obj. met
	GVRD 3 12 km d/s Annacis	Feb. 23 - Dec. 7	6	all < 0.001 mg/L (Dissolved Pb)	Indefinite result
	GVRD 4 d/s Lulu	Feb. 23 - Dec. 7	6	<0.001 - 0.001 mg/L (Dissolved Pb)	Indefinite result
	GVRD 5 d/s Steveston	Feb. 23 - Dec. 7	6	all < 0.001 mg/L (Dissolved Pb)	Indefinite result
	North Arm: E207398 u/s Scott Paper	Feb 2 - Feb 28	5	all <0.003 mg/L (Total Pb)	Objectives met
	0300002 Oak Street Bridge	Feb 2 - Feb 28	5	<0.003 - 0.003 mg/L (Total Pb)	Objectives met
	FREMP site Oak Street Bridge	Apr 20 - Dec 27	26	<0.001 - 0.005 mg/L (Total Pb)	Max obj. met

TABLE 27 continued

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Pb <0.003 mg/L av 0.010 mg/L max	Middle Arm: E207601 100 m d/s North Arm	Feb 2 - Feb 28	5	<0.003 - 0.003 mg/L (Total Pb)	Objectives met
Total-Zn <0.050 mg/L av 0.100 mg/L max	Main Arm: GVRD 1 u/s Annacis	Feb. 23 - Dec. 7	6	<0.001 - 0.002mg/L (Dissolved Zn)	Indefinite results
	0301308 u/s Annacis	Feb 2 - Feb 28	5	<0.01 - 0.007 mg/L (Total Zn)	Objectives met
	0301311 d/s Annacis	Feb 2 - Feb 28	5	<0.01 - 0.02 mg/L (Total Zn)	Objectives met
	GVRD 2 d/s Annacis	Feb. 23 - Dec. 7	6	<0.001 - 0.002 mg/L (Dissolved Zn)	Indefinite results
	FREMP site off Tilbury Island	Mar 9 - Dec 28	30	<0.001 - 0.070 mg/L (Total Zn)	Max obj. met
	GVRD 3 12 km d/s Annacis	Feb. 23 - Dec. 7	6	<0.001 - 0.002 mg/L (Dissolved Zn)	Indefinite results
	GVRD 4 d/s Lulu	Feb. 23 - Dec. 7	6	<0.001 - 0.001 mg/L (Dissolved Zn)	Indefinite result
	GVRD 5 d/s Steveston	Feb. 23 - Dec. 7	6	<0.001 - 0.002 mg/L (Dissolved Zn)	Indefinite result
	North Arm: E207398 u/s Scott Paper	Feb 2 - Feb 28	5	<0.01 - 0.009 mg/L (Total Zn)	Objectives met
	0300002 Oak Street Bridge	Feb 2 - Feb 28	5	all < 0.01 mg/L (Total Zn)	Objectives met
	FREMP site Oak Street Bridge	Jan 25 - Dec 27	28	<0.001 - 0.090 mg/L (Total Zn)	Max obj. met
	Middle Arm: E207601 100 m d/s North Arm	Feb 2 - Feb 28	5	all < 0.01 mg/L (Total Zn)	Objectives met
Chlorophenols (tri + tetra + penta) in water 0.0002mg/L max	Main Stem E206965 Barnston Island	Feb. 28	1	< 0.0001 mg/L for each homologue	Objective met
	Main Arm FREMP site off Tilbury Island	Jan 26-Dec 28	12	<1 - 5 ng/L Penta <1 - 4 ng/L Tri-CP <1 - 4 ng/L Tetra-CP	Objective met

TABLE 27 continued

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Chlorophenols (tri + tetra + penta) in water 0.0002mg/L max	Main Arm: E207624 Deas Slough	Feb. 28	1	0.0002 mg/L PCP < 0.0001 mg/L Tri-CP 0.0009 mg/L Tetra-CP	Objective not met
	North Arm: E207397 d/s Belkin	Feb. 28	1	<0.0001 mg/L for each homologue	Objective met
	E207401 d/s Mitchell Island	Feb. 28	1	<0.0001 mg/L for each homologue	Objective met
	FREMP site Oak Street Bridge	Jan 25 - Dec 27	11	1 - 13 ng/L PCP 1 - 12 ng/L Tri-CP 1 - 3 ng/L Tetra-CP	Objective met
	Middle Arm	1993	0	no data collected	Omitted 1993
Chlorophenols (tri + tetra +penta) in sediments 0.01 ug/g max av of replicates (dry weight)	Main Stem:	1993	0	no data collected	Omitted 1993
	Main Arm: E207624 Deas Slough	Mar. 4	3	0.007 - 0.011 ug/g PCP av = 0.009 ug/g PCP all < 0.005 ug/g for Tri & Tetra CP	Objective met
	North Arm: E207307 d/s Belkin	Mar. 4	3	<0.005 - 0.038 ug/g Tri CP av = 0.016 ug/g Tri CP all < 0.005 ug/g for Tetra & Penta CP	Objective not met
	Middle Arm: E207600 at Dinsmore Bridge	Mar. 4	3	all < 0.005 ug/g	Objective met
	Sturgeon Bank E216048 d/s MacDonald Slough	Mar.8	3	<0.005-0.024 ug/g PCP 0.028-0.230 ug/g Tetra CP all < 0.005 ug/g Tri CP av = 0.055 ug/g all CPs	Objective not met
	Roberts Bank E216049 Causeway centre-S	Mar. 8	3	all < 0.005 ug/g for each homologue	Objective met
Chlorophenols (Tri + tetra + penta) in fish 0.10 ug/g max (wet weight)	Main Stem Main Arm North Arm	1993	0	no data collected	Omitted 1993

TABLE 27 continued

FRASER RIVER (KANAKA CREEK TO THE MOUTH) WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
PCBs in sediments 0.03 ug/g max av of replicates (dry weight)	Main Stem:	1993	0	no data collected	Omitted 1993
	Main Arm: E207624 Deas Slough	Mar. 4	3	all < 0.02 ug/g	Objective met
	North Arm: E207397 d/s Belkin	Mar. 4	3	all < 0.02 ug/g	Objective met
	Middle Arm: E207600 at Dinsmore Bridge	Mar. 4	3	all < 0.02 ug/g	Objective met
PCBs in fish 0.50 ug/g max (wet weight)	Main Stem Main Arm North Arm Middle Arm	1993	0	no data collected	Omitted 1993

TABLE 28

BOUNDARY BAY WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <200/100 mL geometric mean (gm) <400/100 mL 90th perc. (np) April-October	Boundary Bay: MOH 2 Parker Street White Rock	Jun 9 - Jul 4	5	10 - 125/100 mL gm = 36/100 mL np = 90/100 mL	Objectives met
		Jul 18 - Aug 15	5	5 - 155/100 mL gm = 25/100 mL np = 60/100 mL	Objectives met
	MOH 3 Balsam Street White Rock	Jun 9 - Jul 4	5	5 - 375/100 mL gm = 44/100 mL np = 175/100 mL	Objectives met
		Jul 18 - Aug 15	5	5 - 1100/100 mL gm = 53/100 mL np = 500/100 mL	gm obj. met np not met
	GVRD 27 Balsam Street White Rock	Jun 4 - Jul 9	5	20 - 130/100 mL gm = 65/100 mL np = 100/100 mL	Objectives met
		Aug 20 - Sep 24	5	<20 - 230/100 mL gm = 47/100 mL np = 160/100 mL	Objectives met
	MOH 4 Vidal Street White Rock	Jun 15 - Jul 13	5	95 - 415/100 mL gm = 235/100 mL np = 405/100 mL	Objectives not met
		Jul 18 - Aug 15	5	15 - 260/100 mL gm = 32/100 mL np = 130/100 mL	Objectives met
	GVRD 29 Oxford Street White Rock	Jun 4 - Jul 9	5	40 - 2400/100 mL gm = 218/100 mL np = 1300/100 mL	Objectives not met
		Aug 13 - Sep 17	5	<20 - 80/100 mL gm = 46/100 mL np = 80/100 mL	Objectives met
	GVRD 30 High Street White Rock	Jun 4 - Jul 9	5	40 - 300/100 mL gm = 119/100 mL np = 250/100 mL	Objectives met
		Jul 30 - Sep 3	5	<20 - 500/100 mL gm = 163/100 mL np = 475/100 mL	gm obj. met np not met
	MOH 5 High Street White Rock	Jun 9 - Jul 4	5	95 - 2100/100 mL gm = 345/100 mL np = 1300/100 mL	Objectives not met
		Jul 18 - Aug 15	5	15 - 410/100 mL gm = 74/100 mL np = 350/100 mL	Objectives met
	MOH 8 Centennial Beach concession	Jun 10 - Jul 13	5	5 - 12150/100 mL gm = 80/100 mL np = 6000/100 mL	gm obj. met np not met
		Jul 27 - Aug 23	5	5 - 150/100 mL gm = 20/100 mL np = 90/100 mL	Objectives met
	MOH 9 Centennial Beach 3rd Avenue	Jun 10 - Jul 13	5	5 - 1050/100 mL gm = 17/100 mL np = 500/100 mL	gm obj. met np not met
		Jul 18 - Aug 17	5	5 - 220/100 mL gm = 24/100 mL np = 120/100 mL	Objectives met

TABLE 28 continued

BOUNDARY BAY WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <200/100 mL geometric mean (gm) <400/100 mL 90th perc. (np) April-October	Boundary Bay: MOH 10 Centennial Beach 1st Avenue	Jun 22 - Aug 18	5	5 - 1150/100 mL gm = 46/100 mL np = 800/100 mL	gm obj. met np not met
		Aug 3 - Aug 30	5	5 - 215/100 ml gm = 11/100 mL np = 100/100 mL	Objectives met

These were the only objectives measured in 1993. Other objectives, including those for suspended solids, turbidity, substrate sedimentation, ammonia, nitrite, chlorophyll-a, dissolved oxygen, pH, lead, and PCBs, were omitted

TABLE 29

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <200/100 mL geometric mean (gm) May - Oct	Port Moody Arm: GVRD 1 Barnett Pk. E of pier	Jun 11 - Jul 16	5	<20 - 500/100 mL gm = 85/100 mL	Objective met
		Aug 13 - Sep 13	5	<20 - 130/100 mL gm = 51/100 mL	Objective met
	GVRD 2 Barnett Pk. Sandy Bch	Jun 2 - Jul 9	5	<20 - 2400/100 mL gm = 98/100 mL	Objective met
		Jun. 26 - Jul. 31	5	<20 - 230/100 mL gm = 99/100 mL	Objective met
	Indian Arm: GVRD 35 Deep Cove Beach N	Jun 22 - Jul 21	10	20 - 700/100 mL gm = 81/100 mL	Objective met
		Sep 29 - Oct 26	5	40 - 1300/100 mL gm = 207/100 mL	Objective not met
	GVRD 39 Deep Cove Beach S	May 27 - Jun 28	10	70 - 9000/100 mL gm = 375/100 mL	Objective not met
		Jul 5 - Aug 6	10	80 - 800/100 mL gm = 272/100 mL	Objective not met
	2nd Narrows-Roche Pt. GVRD 36 Cates Park Beach	May 17 - Jun 16	6	<20 - 300/100 mL gm = 50/100 mL	Objective met
		Aug 11 - Sep 10	10	<20 - 130/100 mL gm = 29/100 mL	Objective met
	GVRD 29 Cates Park boat ramp	May 6 - Jun 7	7	<20 - 500/ 100 mL gm = 91/100 mL	Objective met
		Jun 29 - Jul 29	9	20 - 3000/100 mL gm = 144/100 mL	Objective met
	1st-2nd Narrows: GVRD 5 1 km W Brockton Pt.	Jun 1 - Jun 30	9	<20 - 500/100 mL gm = 92/100 mL	Objective met
		Jul 29 - Aug 30	8	20 - 500/100 mL gm = 74/100 mL	Objective met
	GVRD 1 1.5 km W Brockton Pt.	Jun 1 - Jun 30	9	<20 - 1400/100 mL gm = 161/100 mL	Objective met
		Jul 26 - Aug 25	7	40 - 1700/100 mL gm = 145/100 mL	Objective met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <200/100 mL geometric mean (gm) May - Oct	Outer Burrard: GVRD 14 Ambleside Beach	Jun 28 - Jul 29	10	<20 - 1300/100 mL gm = 60/100 mL	Objective met
		Sep 27 - Oct 26	9	<20 - 700/100 mL gm = 97/100 mL	Objective met
	GVRD 101 3rd Beach	Jun 9 - Jul 7	9	<20 - 230/100 mL gm = 45/100 mL	Objective met
		Sep 27 - Oct 28	10	<20 - 500/100 mL gm = 45/100 mL	Objective met
	GVRD 200 2nd Beach	May 24 - Jun 23	11	<20 - 500/100 mL gm = 109/100 mL	Objective met
		Jul 26 - Aug 26	10	<20 - 700/100 mL gm = 45/100 mL	Objective met
	GVRD 304 English Bay Beach	Jun 1 - Jun 30	10	20 - 130/100 mL gm = 43/100 mL	Objective met
		Aug 9 - Sep 10	10	20 = 3000/100 mL gm = 47/100 mL	Objective met
	GVRD 703 Locarno Beach	May 11 - Jun 10	15	<20 - 2400/100 mL gm = 72/100 mL	Objective met
		Sep 28 - Oct 28	17	<20 - 5000/100 mL gm = 159/100 mL	Objective met
	False Creek: GVRD 16 at the mouth	Jun 8 - Jul 7	8	<20 - 1100/100 mL gm = 53/100 mL	Objective met
		Jul 12 - Aug 12	7	20 - 500/100 mL gm = 138/100 mL	Objective met
Enterococci <20/100 mL geometric mean (gm) May - Oct	Burrard Inlet	1993	0	no data collected gm = 27/100 mL	Objective not checked
Suspended Solids 10 mg/L max increase	Port Moody Arm E216033 centre	Aug 18 - Sep 15	5	15-17m: <4 - 11 mg/L	Control Site
	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis.	Aug 18 - Sep 15	5	15-23m: <4 - 9 mg/L max inc. = 5 mg/L	Objective met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Suspended Solids 10 mg/L max increase	2nd Narrows-Roche Pt: E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8m: <4 - 8 mg/L max inc. = 0 mg/L	Objective met
	E207820 100 m S Can-Occ. disch.	Aug 18 - Sep 15	5	7-14m: <4 - 8 mg/L max inc. = 0 mg/L	Objective met
	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6m: <4 - 5 mg/L max inc. = 1 mg/L	Objective met
	E207819 mid-harbour(L-K bank)	Aug 18 - Sep 15	5	20-23m: <4 - 7 mg/L max inc. = 1 mg/L	Objective met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	6-11m: <4 - 17 mg/L max inc. = 6 mg/L	Objective met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	7-15m: <4 - 8 mg/L max inc. = 1 mg/L	Objective met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10m: <4 - 6 mg/L max inc. = 1 mg/L	Objective met
	Outer Burrard: E207812 off Locarno Park CSO	Aug 18 - Sep 15	5	8-10m: <4 - 9 mg/L max inc. = 5 mg/L	Objective met
	0300076 English Bay	Auf 18 - Sep 15	5	18-19m: <4 - 8 mg/L max inc. = 4 mg/L	Objective met
	False Creek: E207814 100m E Science World	Aug 18 - Seo 15	5	5-8m: <4 - 7 mg/L max inc. = 0 mg/L	Objective met
	E207815 at mid-point	Aug 18 - Sep 15	5	5-9m: <4 - 12 mg/L max inc. = 4 mg/L	Objective met
Turbidity 5 NTU max increase	Port Moody Arm E216033 centre	Aug 18 - Sep 15	5	15-17m: 0.1 - 1.4 NTU	Control Site
	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis.	Aug 18 - Sep 15	5	15-23m: <0.1 - 0.4 NTU max inc. = 0.2 NTU	Objective met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8m: 0.1 - 0.5 NTU max inc. = 0 NTU	Objective met
	E207820 100 m S Can-Occ. disch.	Aug 18 - Sep 15	5	7-14m: 0.1 - 0.4 NTU max inc. = 0.1 NTU	Objective met
	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6m: <0.1 - 0.3 NTU max inc. = 0.1 NTU	Objective met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Turbidity 5 NTU max increase	1st-2nd Narrows E207819 mid-harbour(L-K bank)	Aug 18 - Sep 15	5	20-23m: 0.2 - 0.6 NTU max inc. = 0.1 NTU	Objective met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	6-11m: 0.1 - 0.5 NTU max inc. = 0.1 NTU	Objective met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	7-15m: <0.1 - 0.6 NTU max inc. = 0.2 NTU	Objective met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10m: 0.2 - 0.8 NTU max inc. = 0.3 NTU	Objective met
	Outer Burrard: E207812 off Locarno Park CSO	Aug 18 - Sep 15	5	8-10m: 0.2 - 0.7 NTU max inc. = 0.3 NTU	Objective met
	0300076 English Bay	Auf 18 - Sep 15	5	18-19m: 0.1 - 1.1 NTU max inc. = 0.2 NTU	Objective met
	False Creek: E207814 100m E Science World	Aug 18 - Seo 15	5	5-8m: 0.2 - 1.3 NTU max inc. = 0.4 NTU	Objective met
	E207815 at mid-point	Aug 18 - Sep 15	5	5-9m: 0.2 - 2.0 NTU max inc. = 0.8 NTU	Objective met
Cl2-Produced Oxidants 3 ug/L av	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	1.0 - 10.5 ug/L av = 4.9 ug/L	Objective not met
	E207823 100m off loco disch.	Aug 18 - Sep 15	5	0.86 - 10.5 ug/L av = 5.8 ug/L	Objective not met
	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	<0.1 - 7.2 ug/L av = 4.1 ug/L	Objective not met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	0.1 - 8.0 ug/L av = 3.5 ug/L	Objective not met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	2.5 - 5.7 ug/L av = 4.1 ug/L	Objective not met
	1st-2nd Narrows E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	0.1 - 4.2 ug/L av = 2.9 ug/L	Objective met
Ammonia-N <1.0 mg/L av 2.5 mg/L max	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	9-14 m: 0.022 - 0.071 mg/L av = 0.049 mg/L	Objectives met
	E207823 100m off loco disch.	Aug 18 - Sep 15	5	10-11 m: 0.007 - 0.074 mg/L av = 0.039 mg/L	Objectives met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Ammonia-N <1.0 mg/L av 2.5 mg/L max	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	15-23 m: 0.021 - 0.042 mg/L av = 0.032 mg/L	Objectives met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8 m: 0.010 - 0.046 mg/L av = 0.024 mg/L	Objectives met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	7-14 m: 0.010 - 0.056 mg/L av = 0.027 mg/L	Objectives met
	1st-2nd Narrows E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6 m: 0.013 - 0.073 mg/L av = 0.039 mg/L	Objectives met
	E207819 mid-harbour(L-K bank)	Aug 18 - Sep 15	5	0.008 - 0.032 mg/L av = 0.019 mg/L	Objectives met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	6-11 m: 0.015 - 0.231 mg/L av = 0.089 mg/L	Objectives met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	7-15 m: 0.016 - 0.037 mg/L av = 0.028 mg/L	Objectives met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10 m: 0.018 - 0.064 mg/L av = 0.041 mg/L	Objectives met
	False Creek: E207814 100m E Science World	Aug 18 - Sep 15	5	5-8 m: 0.030 - 0.227 mg/L av = 0.093 mg/L	Objectives met
	E207815 at mid-point	Aug 18 - Sep 15	5	5-9 m: 0.016 - 0.345 mg/L av = 0.108 mg/L	Objectives met
Dissolved Oxygen 6.5 mg/L min	Indian Arm 0300080 3 km E of Deep Cove	Aug 18 - Sep 15	5	26-34 m: 7.0 - 8.4 mg/L	Objective met
	Outer Burrard E207812 off Locarno Park CSO	Aug 18 - Sep 15	5	9-11 m: 7.0 - 8.6 mg/L	Objective met
	0300076 English Bay	Aug 18 - Sep 15	4	19-20 m: 7.1 - 7.7 mg/L	Obj. met
		Sep. 8	1	19 m: 6.4 mg/L	Obj. not met
	False Creek: E207814 100m E Science World	Aug 18 - Sep 15	4	6-9 m: 6.6 - 7.7 mg/L	Obj. met
		Sep. 8	1	9 m: 6.2 mg/L	Obj. not met
	E207815 at mid-point	Aug 18 - Sep 15	5	6-10 m: 7.0 - 8.3 mg/L	Objective met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 6.5 mg/L min (long-term)	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	10-15 m: 7.2 - 7.8 mg/L	Objective met
	E216033 centre	Aug 18 - Sep 15	5	16-18 m: 7.1 - 7.9 mg/L	Objective met
	E207823 100m off loco disch.	Aug 18 - Sep 15	5	11-12 m: 7.0 - 8.2 mg/L	Objective met
	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	16-24 m: 6.6 - 7.5 mg/L	Objective met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	7-9 m: 6.8 - 8.3 mg/L	Objective met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	13-15 m: 6.8 - 7.8 mg/L	Objective met
	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	5-7 m: 7.4 - 8.8 mg/L	Objective met
	E207819 mid-harbour(L-K bank)	Aug 18 - Sep 15	5	21-24 m: 6.9 - 7.6 mg/L	Objective met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	7-12 m: 7.3 - 8.3 mg/L	Objective met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	8-16 m: 7.2 - 8.2 mg/L	Objective met
	E216035 Coal Harbour Marina	Aug 18 - Sep 15	5	6-9 m: 7.2 - 7.8 mg/L	Objective met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	6-11 m: 7.3 - 7.9 mg/L	Objective met
WAD-CN 0.001 mg/L max	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 25 - Sep 15	4	10-14 m: all < 0.005 mg/L	Objective met
	E207823 100m off loco disch.	Aug 25 - Sep 15	4	10-11 m: all < 0.005 mg/L	Objective met
H2S 0.002 mg/L max	Port Moody Arm: 2 sites	Aug 18 - Sep 15	8	all < 0.05 mg/L	Indefinite result
	1st-2nd Narrows: 4 sites	Aug 18 - Sep 15	20	all < 0.05 mg/L	Indefinite result

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
pH 6.5 - 8.5	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	16-24 m: 7.6 - 7.9	Objective met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	7-9 m: 7.6 - 7.9	Objective met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	13-15 m: 7.6 - 7.9	Objective met
Total As 0.010 mg/L max	2nd Narrows-Roche Pt. E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	15-23 m: <0.001 - 0.001 mg/L	Objective met
	E207821 50m off Chevron disch	Aug 18 - ,Sep 15	5	6-8 m: <0.001 - 0.002 mg/L	Objective met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	7-14 m: <0.001 - 0.001 mg/L	Objective met
	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6 m: <0.001 - 0.001 mg/L	Objective met
	E207819 mid-harbour(L-K bank)	Aug 18 - Sep 15	5	20-23 m: <0.001 - 0.001 mg/L	Objective met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	6-11 m: 0.001 - 0.002 mg/L	Objective met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	7-15 m: <0.001 - 0.001 mg/L	Objective met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10 m: <0.001 - 0.001 mg/L	Objective met
Total As <20 ug/g av in sediment (long-term)	Port Moody Arm E207823 100m off loco disch.	Sep. 28	1	21 ug/g	Objective not met
	1st-2nd Narrows: E207816 100-500m E Vn Wharves	Sept. 28	1	24 ug/g	Objective not met
	E207813 100m off Coal Hbr CSO	Sep. 28	1	22 ug/g	Objective not met
	False Creek: E207814 100m E Science World	Sept. 28	1	29 ug/g	Objective not met
Total As <20 ug/g av in sediment	Outer Burrard: E207812 off Locarno Park CSO	Sept. 28	1	< 10 ug/g	Objective met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Ba 0.5 mg/L max	2nd Narrows-Roche Pt:	1993	0	no data collected	Omitted 1993
Total Cd <0.009 mg/L av 0.043 mg/L max	Indian Arm 0300080 3 km E of Deep Cove	Aug 18 - Sep 15	5	25-33 m: all < 0.0005 mg/L	Objectives met
	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	9-14 m: all < 0.0005 mg/L	Objectives met
	E207823 100m off loco disch.	Aug 18 - Sep 15	5	all < 0.0005 mg/L	Objectives met
	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	15-23 m: all < 0.0005 mg/L	Objectives met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8 m: all < 0.0005 mg/L	Objectives met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	7-14 m: <0.0005 - 0.001 mg/L av < 0.001 mg/L	Objectives met
	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6 m: all < 0.0005 mg/L	Objectives met
	E207819 mid-harbour(L-K bank)	Aug 18 - Sep 15	5	20-23 m: all < 0.0005 mg/L	Objectives met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	6-11 m: all < 0.0005 mg/L	Objectives met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep15	5	7-15 m: all < 0.0005 mg/L	Objectives met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10 m: all < 0.0005 mg/L	Objectives met
	False Creek: E207814 100m E Science World	Aug 18 - Sep 15	5	5-8 m: all < 0.0005 mg/L	Objectives met
	E207815 at mid-point	Aug 18 - Sep 15	5	5-9 m: <0.0005 - 0.0005 mg/L av < 0.0005 mg/L	Objectives met
Total Cd <1.0 ug/g av in sediment (long-term)	Port Moody Arm E207823 100m off loco disch.	Sep. 28	1	2 ug/g	Objective not met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Cd <1.0 ug/g av in sediment (long term)	1st-2nd Narrows: E207816 100-500m E Vn Wharves	Sep. 28	1	5 ug/g	Objective not met
	E207813 100m off Coal Hbr CSO	Sept. 28	1	<1 ug/g	Objective met
	False Creek: E207814 100m E Science World	Sept. 10	3	2 - 3 ug/g av = 2.33 ug/g	Objective not met
Total Cd <1.0 ug/g av in sediment	Outer Burrard: E207812 off Locarno Park CSO	Sept. 28	1	< 1 ug/g	Objective met
	2nd Narrows-Roche Pt.	1993	0	no data collected	Omitted 1993
Total Cr 0.050 mg/L max	Port Moody Arm E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	9-14 m: 0.004 - 0.005 mg/L	Objective met
	E207823 100m off loco disch.	Aug 18 - Sep 15	5	10-11 m: 0.001 - 0.006 mg/L	Objective met
	2nd Narrows-Roche Pt E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	15-23 m: 0.002 - 0.004 mg/L	Objective met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8 m: 0.003 - 0.017 mg/L	Objective met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	7-14 m: 0.002 - 0.006 mg/L	Objective met
	False Creek: E207814 100m E Science World	Aug 18 - Sep 15	5	5-8 m: 0.001 - 0.008 mg/L	Objective met
	E207815 at mid-point	Aug 18 - Sep 15	5	5-9 m: 0.001 - 0.010 mg/L	Objective met
Total Cr <60 ug/g av in sediment	Port Moody Arm E207823 100m off loco disch.	Sep. 28	1	51 ug/g	Objective met
	1st-2nd Narrows: E207816 100-5m E Vn Wharves	Sept. 28	1	41 ug/g	Objective met
	E207813 100m off Coal Hbr CSO	Sept. 28	1	45 ug/g	Objective met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Cr <60 ug/g av in sediment	Outer Burrard: E207812 off Locarno Park CSO	Sept. 28	1	26 ug/g	Objective met
	2nd Narrows-Roche Pt.	1993	0	no data collected	Omitted 1993
Total Cr <60 ug/g av in sediment (long-term)	False Creek: E207814 100m E Science World	Sept. 28	1	56ug/g	Objective met
Total Cu <2 ug/L av 3 ug/L max (long-term)	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	9-14 m: < 1 - 1 ug/L av < 1 ug/L	Objectives met
	E207823 100m off loco disch.	Aug 18 - Sep 15	5	10-11 m: < 1 - 1 ug/L av < 1 ug/L	Objectives met
	Indian Arm 0300080 3 km E of Deep Cove	Aug 18 - Sep 15	5	25-33 m: < 1 - 2 ug/L av < 2 ug/L	Objectives met
	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	15-23 m: < 1 - 1 ug/L	Objectives met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8 m: all < 1 ug/L	Objectives met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	7-14 m: < 1 - 3 ug/L av < 2 ug/L	Objectives met
	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6 m: < 1 - 5 ug/L av < 2 ug/L	Objectives met
	E207819 mid harbour (L-K bank)	Aug 18 - Sep 15 Sep. 15 Aug 18 - Sep 8	5 1 4	20-23m: av = 3 ug/L 20m: 10 ug/L 20-23m: < 1 - 2 ug/L	Av not met Max not met Max obj. met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15 15-Sep Aug 18 - Sep 8	5 1 4	6-11m: av = 4 ug/L 6m: 14 ug/L 9-11m: all < 1 ug/L	Av not met Max not met Max obj. met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15 Sep. 15 Aug 18 - Sep 8	5 1 4	7-15m: av = 2 ug/L 7m: 8 ug/L 11-15m: all < 1 ug/L	Av obj. met Max not met Max obj. met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10 m: < 1 - 1 ug/L av < 1 ug/L	Objectives met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Cu <2 ug/L av 3 ug/L max (long-term)	Outer Burrard: E207812 off Locarno Park CSO	Aug 18 - Sep 15	5	8-10 m: all < 1 ug/L	Objectives met
	0300076 English Bay	Aug 18 - Sep 15	5	18-19 m: all < 1 ug/L	Objectives met
	False Creek: E207814 100m E Science World	Aug 18 - Sep 15	5	5-8 m: < 1 - 1 ug/L av < 1 ug/L	Objectives met
	E207815 at mid-point	Aug 18 - Sep 15	5	5-9 m: < 1 - 1 ug/L av < 1 ug/L	Objectives met
Total Cu <100 ug/g av in sediment	Port Moody Arm E207823 100m off Ioco disch.	Sep. 28	1	133 ug/g	Objective not met
Total Cu <100 ug/g av in sediment (long-term)	1st-2nd Narrows: E207816 100-500m E Vn Wharves	Sep. 28	1	2929 ug/g	Objective not met
	E207813 100m off Coal Hbr CSO	Sep. 28	1	240 ug/g	Objective not met
	Outer Burrard: E207812 off Locarno Park CSO	Sep. 28	1	35 ug/g	Objective met
	False Creek: E207814 100m E Science World	Sep. 28	1	144 ug/g	Objective not met
Total Fe 0.3 mg/L max (long-term)	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	9-14 m: <0.005 - 0.064 mg/L	Objective met
	E207823 100m off Ioco disch.	Aug 18 - Sep 15	5	10-11 m: <0.005 - 0.061 mg/L	Objective met
	False Creek E207814 100m E Science World	Aug 18 - Sep 15	5	5-8 m: <0.005 - 0.140 mg/L	Objective met
	E207815 at mid-point	Aug 18 - Sep 15	5	5-9 m: <0.005 - 0.107 mg/L	Objective met
Total Fe 0.3 mg/L max	Indian Arm 0300080 3 km E of Deep Cove	Aug 18 - Sep 15	5	25-33 m: <0.005 - 0.061 mg/L	Objective met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Fe 0.3 mg/L max	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6 m: <0.005 - 0.068 mg/L	Objective met
	E207819 mid-harbour(L-K bank)	Aug 18 - Sep 15	5	20-23 m: 0.027 - 0.076 mg/L	Objective met
	E207818 off Clark Drive CSO	August 18 - Sep 15	5	6-11 m: <0.005 - 0.049 mg/L	Objective met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	7-15 m: <0.005 - 0.055 mg/L	Objective met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10 m: <0.005 - 0.057 mg/L	Objective met
	Outer Burrard: E207812 off Locarno Park CSO	Aug 18 - Sep 15	5	8-10 m: 0.036 - 0.083 mg/L	Objective met
	0300076 English Bay	Aug 18 - Sep 15	5	18-19 m: <0.005 - 0.053 mg/L	Objective met
Total Pb <2 ug/L av (long-term) 140 ug/L max	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	9-14 m: < 1 - 12 ug/L av = 5 ug/L	Max obj. met Av not met
	E207823 100m off loco disch.	Aug 18 - Sep 15	5	10-11 m: < 1 - 2 ug/L av = 1 ug/L	Objectives met
	Indian Arm 0300080 3 km E of Deep Cove	Aug 18 - Sep 15	5	25-33 m: < 1 - 29 ug/L av = 8 ug/L	Max obj. met Av not met
	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	15-23 m: < 1 - 5 ug/L av = 2 ug/L	Objectives met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8 m: < 1 - 4 ug/L av < 2 ug/L	Objectives met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	7-14 m: 1 - 3 ug/L av = 2 ug/L	Objectives met
	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6 m: < 1 - 3 ug/L av < 2 ug/L	Objectives met
	E207819 mid-harbour (L-K bank)	Aug 18 - Sep 15	5	20-23 m: 1 - 13 ug/L av = 4 ug/L	Max obj. met Av not met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	6-11 m: < 1 - 5 ug/L	Objectives met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Pb <2 ug/L av (long-term) 140 ug/L max	1st-2nd Narrows: E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	7-15 m: < 1 - 20 ug/L av = 7 ug L	Max obj. met Av not met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10 m: < 1 - 9 ug/L av = 5 ug/L	Max obj. met Av not met
	Outer Burrard: E207812 off Locarno Park CSO	Aug 18 - Sep 15	5	8-10 m: < 1 - 7 ug/L av = 3 ug/L	Max obj. met Av not met
	0300076 English Bay	Aug 18 - Sep 15	5	18-19 m: < 1 - 10 ug/L av = 4 ug/L	Max obj. met Av not met
	False Creek: E207814 100m E Science World	Aug 18 - Sep 15	5	5-8 m: < 1 - 10 ug/L av = 4 ug/L	Max obj. met Av not met
	E207815 at mid-point	Aug 18 - Sep 15	4	5-9 m: all < 1 ug/L	Max obj. met
Total Pb <30 ug/g av in sediment (long-term)	Port Moody Arm: E207823 100m off loco disch.	Sep. 28	1	102 ug/g	Objective not met
	1st-2nd Narrows: E207816 100-500m E Vn Wharves	Sep. 28	1	360 ug/g	Objective not met
	E207813 100m off Coal Hbr CSO	Sep. 28	1	98 ug/g	Objective not met
	Outer Burrard: E207812 off Locarno Park CSO	Sep. 28	1	13 ug/g	Objective met
	False Creek: E207814 100m E Science World	Sep. 28	1	152 ug/g	Objective not met
	2nd Narrows-Roche Pt.	1993	0	no data collected	Omitted 1993
Total Pb 0.8 ug/g max wet weight in fish tissue	Port Moody Arm: E207823 100m off loco disch.	Oct. 17	5	all < 10 ug/g	Indefinite results
	Indian Arm: 0300080 3 km E of Deep Cove	Oct. 2	5	all < 10 ug/g	Indefinite results
	2nd Narrows-Roche Pt. E207821 50m off Chevron disch.	Oct. 2	5	all < 10 ug/g	Indefinite result

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Pb 0.8 ug/g max wet weight in fish tissue	Outer Burrard: E207812 off Locarno Park	Sep. 30	5	all < 10 ug/g	Indefinite result
	False Creek: E207814 100m E Science World	Oct. 2	5	all < 10 ug/g	Indefinite result
	1st-2nd Narrows	1993	0	no data collected	Objective not checked
Total Hg <0.02 ug/L av 2.0 ug/L max	1st-2nd Narrows: E207819 mid-harbour(L-K bank)	Aug 18 - Sep 15	5	0.018 - 0.095 ug/L av = 0.043 ug/L	Max obj. met Av not met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	0.025 - 0.087 ug/L av = 0.051 ug/L	Max obj. met Av not met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	0.018 - 0.063 ug/L av = 0.038ug/L	Max obj. met Av not met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	0.020 - 0.068 ug/L av = 0.039 ug/L	Max obj. met Av not met
	False Creek: E207814 100m E Science World	Aug 18 - Sep 15	5	0.031 - 0.083 ug/L av = 0.052 ug/L	Max obj. met Av not met
	E207815 at mid-point	Aug 18 - Sep 15	5	0.025 - 0.130 ug/L av = 0.059 ug/L	Max obj. met Av not met
	2nd Narrows-Roche Pt.	1993	0	no data collected	Omitted 1993
Total Hg 0.5 ug/g max wet weight in fish tissue	2nd Narrows-Roche Pt. E207821 50m off Chevron disch.	Oct. 2	5	all < 0.05 ug/g	Objective met
	Outer Burrard: E207812 0ff Locarno Park	Sep. 30	5	all < 0.05 ug/g	Objective met
	False Creek: E207814 100m E Science World	Oct. 2	5	all < 0.05 ug/g	Objective met
	1st-2nd Narrows	1993	0	no data collected	Objective not checked
Total Hg <0.15 ug/g av in sediment	Port Moody Arm 2nd Narrows-Roche Pt.	1993	0	no data collected	Omitted 1993
Total Hg <0.15 ug/g av in sed. (long-term)	1st-2nd Narrows: E207818 off Clark Drive CSO	Sep. 28	1	0.35 ug/g	Objective not met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Hg <0.15 ug/g av in sediment (long-term)	1st-2nd Narrows: E207816 100-500m E Vn Wharves	Sep. 28	1	0.36 ug/g	Objective not met
	E207813 100m off Coal Hbr CSO	Sep. 28	1	0.89 ug/g	Objective not met
	Outer Burrard: E207812 off Locarno Park CSO	Sep. 28	1	0.08 ug/g	Objective met
	False Creek: E207814 100m E Science World	Sep. 28	1	0.62 ug/g	Objective not met
Total Ni <8 ug/L av 75 ug/L max	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	15-23 m: all < 10 ug/L	Objectives met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8 m: all < 10 ug/L	Objectives met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	7-14 m: all < 10 ug/L	Objectives met
	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6 m: all < 10 ug/L	Objectives met
	E207819 mid-harbour(L-K bank)	Aug 18 - Sep 15	5	20-23 m: al < 10 ug/L	Objectives met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	6-11 m: all < 10 ug/L	Objectives met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	7-15 m: all < 10 ug/L	Objectives met
	E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10 m: all < 10 ug/L	Objectives met
	False Creek: E207814 100m E Science World	Aug 18 - Sep 15	5	5-8 m: all < 10 ug/L	Objectives met
	E207815 at mid-point	Aug 18 - Sep 15	5	5-9 m: all < 10 ug/L	Objectives met
Total Ni <45 ug/g av in sediment	Port Moody Arm: E207823 100m off loco disch.	Sep. 28	1	32 ug/g	Objective met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Ni <45 ug/g av in sediment	1st-2nd Narrows: E207816 100-500m E Vn Wharves	Sep. 28	1	54 ug/g	Objective not met
	E207813 100m off Coal Hbr CSO	Sep. 28	1	32 ug/g	Objective met
	Outer Burrard: E207812 off Locarno Park CSO	Sep. 28	1	34 ug/g	Objective not met
	False Creek: E207814 100m E Science World	Sep. 28	1	32 ug/g	Objective met
	2nd Narrows-Roche Pt.	1993	0	no data collected	Omitted 1993
Total Zn <86 ug/L av 95 ug/L max	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	9-14 m: < 5 - 14 ug/L av < 8 ug/L	Objectives met
	E207823 100m off loco disch.	Aug 18 - Sep 15	5	10-11 m: < 5 - 42 ug/L	Objectives met
	Indian Arm 0300080 3 km E of Deep Cove	Aug 18 - Sep 15	5	25-33 m: < 5 - 9 ug/L av < 6 ug/L	Objectives met
	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	15-23 m: < 5 - 19 ug/L av < 10 ug/L	Objectives met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8 m: < 5 - 35 ug/L av < 12 ug/L	Objectives met
	E207820 100m S Can-Occ. disch	Aug 18 - Sep 15	5	7-14 m: < 5 - 18 ug/L av < 9 ug/L	Objectives met
	1st-2nd Narrows: E216036 50m off Dow Chem Terminal	Aug 18 - Sep 15	5	4-6 m: < 5 - 15 ug/L av < 9 ug/L	Objectives met
	E207819 mid-harbour (L-K bank)	Aug 18 - Sep 15	5	20-23 m: < 5 - 24 ug/L av < 9 ug/L	Objectives met
	E207818 off Clark Drive CSO	Aug 18 - Sep 15	5	6-11 m: < 5 - 21 ug/L av < 9 ug/L	Objectives met
	E207816 100-500m E Vn Wharves	Aug 18 - Sep 15	5	7-15 m: < 5 - 22 ug/L av < 10 ug/L	Objectives met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Zn <86 ug/L av 95 ug/L max	1st-2nd Narrows E207813 100m off Coal Hbr CSO	Aug 18 - Sep 15	5	5-10 m: < 5 - 8 ug/L av < 6 ug/L	Objectives met
	Outer Burrard: E207812 off Locarno Park CSO	Aug 18 - Sep 15	5	8-10 m: < 5 - 27 ug/L av < 9 ug/L	Objectives met
	0300076 English Bay	Aug 18 - Sep 15	5	18-19 m: < 5 - 10 ug/L av < 6 ug/L	Objectives met
	False Creek: E207814 100m E Science World	Aug 18 - Sep 15	5	5-8 m: < 5 - 14 ug/L av < 7 ug/L	Objectives met
	E207815 at mid-point	Aug 18 - Sep 8	4	7-9 m: all < 5 ug/L	Max objective met
Total Zn <150 ug/g av in sediment (long term)	Port Moody Arm: E207823 100m off loco disch.	Sep. 28	1	213 ug/g	Objective not met
	1st-2nd Narrows: E207816 100-500m E Vn Wharves	Sep. 28	1	985 ug/g	Objective not met
	E207813 100m off Coal Hbr CSO	Sep. 28	1	187 ug/g	Objective not met
	Outer Burrard: E207812 off Locarno Park CSO	Sep. 28	1	79 ug/g	Objective met
	False Creek: E207814 100m E Science World	Sep. 28	1	366 ug/g	Objective not met
	2nd Narrows-Roche Pt.	1993	0	no data collected	Omitted 1993
Chlorophenols (tri + tetra + penta) 0.2 ug/L max in water	1st-2nd Narrows E216036 50m off Dow Chem Terminal	Aug 18 - Sep 28 Aug. 25 Sep. 15	4 1 1	4-6m: <0.1 ug/L each CP 5m: 0.2 ug/L tetra-CP 4m: 0.6 ug/L penta-CP	Obj. met Obj. not met Obj. not met
Chlorophenols (tri + tetra + penta) <0.1 ug/g av in sediment	1st-2nd Narrows E216036 50m off Dow Chem Terminal	Sep. 28	1	< 0.005 ug/g each CP	Objective met
Chlorophenols (tri + tetra+penta) 0.1 ug/g max wet weight in fish	1st-2nd Narrows E216036 50m off Dow Chem Terminal	Oct. 22	5	<0.01 ug/g penta or tri CP 0.01-0.02 ug/g tetra CP	Objective met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
PCBs <0.03 ug/g av in sediment	Port Moody Arm: E207823 100m off loco disch.	Sep. 28	1	< 0.02 ug/g	Objective met
	2nd Narrows-Roche Pt. E207821 50m off Chevron disch.	Sep. 28	1	< 0.02 ug/g	Objective met
	1st-2nd Narrows: E207818 off Clark Drive CSO	Sep. 28	1	< 0.02 ug/g	Objective met
	E207816 100-500 E Vn Wharves	Sep. 28	1	< 0.02 ug/g	Objective met
	E207813 100m off Coal Hbr CSO	Sep. 28	1	0.05 ug/g	Objective not met
	Outer Burrard: E207812 off Locarno Park CSO	Sep. 28	1	< 0.02 ug/g	Objective met
	False Creek: E207814 100m E Science World	Sep. 28	1	0.06 ug/g	Objective not met
PCBs 0.5 ug/g max wet weight in fish	Port Moody Arm: E207823 100m off loco disch.	Oct. 17	5	all < 0.1 ug/g	Objective met
	Outer Burrard: E207812 off Locarno Park CSO	Sep. 30	5	all < 0.1 ug/g	Objective met
	False Creek: E207814 100m E Science World	Oct. 2	5	all < 0.1 ug/g	Objective met
	1st-2nd Narrows	1993	0	no data collected	Omitted 1993
	2nd Narrows-Roche Pt.	1993	0	no data collected	Objective not checked
TBT 10 ng/L	1st-2nd Narrows E216035 Coal Harbour Marina	Aug 18 - Sep 15	5	< 2.2 - < 3.6 ng/L	Objective met
	False Creek: E216034 False Creek Marina	Aug 18 - Sep 15	5	< 1.8 - < 3.1 ng/L	Objective met
	Port Moody Arm Outer Burrard	1993	0	no data collected	Omitted 1993

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Ethylene Dichloride <0.2 mg/L av 2.0 mg/L max	1st-2nd Narrows	1993	0	no data collected	Objective not checked
Phenols 1 ug/L max	Port Moody Arm: E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	9-14 m: 3 - 29 ug/L	Objective not met
	E207823 100m off loco disch.	Aug 25 - Sep 15 Aug. 18	4 1	10-11m: 4 - 24 ug/L 10m: < 2 ug/L	Obj. not met Indef. result
	2nd Narrows-Roche Pt: E207822 50m off Shellburn dis	Aug 18 - Sep 15	5	15-23 m: 2 - 15 ug/L	Objective not met
	E207821 50m off Chevron disch	Aug 18 - Sep 15	5	6-8 m: 2 - 14 ug/L	Objective not met
	E207820 100m S Can-Occ. disch	Aug 25 - Sep 15 Aug. 18	4 1	7-14m: 4 - 10 ug/L 14 m: < 2 ug/L	Obj. not met Indef result
Styrene 50 ug/L max	Port Moody Arm E207698 50 m E Pacific Coast	Aug 18 - Sep 15	5	9-14 m: all < 0.4 ug/L	Objective met
	E207823 100m off loco disch.	Aug 18 - Sep 15	5	10-11 m: all < 0.4 ug/L	Objective met
L-PAH in sediment: (max) naphthy 0.20 ug/g acenphyl 0.06 ug/g acenaphe 0.05 ug/g fluor 0.05 ug/g phenant 0.15 ug/g anthrac 0.10 ug/g total 0.5 ug/g (long-term)	Port Moody Arm: E207823 100m Off loco disch.	Sep. 28 (composite of 3 reps)	1 1 1 1 1 1	naphthy: 0.11 ug/g acenphyl: 0.039 ug/g acenaphe: 0.029 ug/g fluor: 0.062 ug/g phenant: 0.23 ug/g anthrac: 0.150 ug/g total: 0.62 ug/g	Obj. met Obj. met Obj. met Obj. not met Obj. not met Obj. not met Obj. not met
	2nd Narrows-Roche Pt: E207821 50m off Chevron disch	Sep. 28 (composite of 3 reps)	1 1 1 1 1 1	naphthy: 0.098 ug/g acenphyl: 0.023 ug/g acenaphe: 0.031 ug/g fluor: 0.043 ug/g phenant: 0.16 ug/g anthrac: 0.082 ug/g total: 0.437 ug/g	Obj. met Obj. met Obj. met Obj. met Obj. not met Obj. met Obj. met
	1st-2nd Narrows: E207818 off Clark Drive CSO	Sep. 28 (composite of 3 reps)	1 1 1 1 1 1 1	naphthy: 0.065 ug/g acenphyl: 0.011 ug/g acenaphe: 0.036 ug/g fluor: 0.057 ug/g phenant: 0.32 ug/g anthrac: 0.170 ug/g total: 0.659 ug/g	Obj. met Obj. met Obj. met Obj. not met Obj. not met Obj. not met Obj. not met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
L-PAH in sediment: (max) naphthy 0.20 ug/g acenphyl 0.06 ug/g acenaphe 0.05 ug/g fluor 0.05 ug/g phenant 0.15 ug/g anthrac 0.10 ug/g total 0.5 ug/g (long-term)	1st-2nd Narrows E207813 100m off Coal Hbr CSO	Sep. 28 (composite of 3 reps)	1	naphthy: 0.054 ug/g	Obj. met
			1	acenphyl: 0.023 ug/g	Obj. met
			1	acenaphe: 0.044 ug/g	Obj. met
			1	fluor: 0.059ug/g	Obj. not met
			1	phenant: 0.65 ug/g	Obj. not met
			1	anthrac: 0.180 ug/g	Obj. not met
				total: 1.01 ug/g	Obj. not met
L-PAH in sediment (max) naphthy 0.20 ug/g acenphyl 0.06 ug/g acenaphe 0.05 ug/g fluor 0.05 ug/g phenant 0.15 ug/g anthrac 0.10 ug/g total 0.5 ug/g (long-term)	Outer Burrard: E207812 off Locarno Park CSO	Sep. 28 (composite of 3 reps)	1	naphthy: 0.13 ug/g	Obj. met
			1	acenphyl: 0.012 ug/g	Obj. met
			1	acenaphe: 0.012 ug/g	Obj. met
			1	fluor: 0.018 ug/g	Obj. met
			1	phenant: 0.083 ug/g	Obj. met
			1	anthrac: 0.030 ug/g	Obj. met
				total: 0.285 ug/g	Obj. met
	False Creek: E207814 100m E Science World	Sep. 28 (composite of 3 reps)	1	naphthy: 0.25 ug/g	Obj. not met
			1	acenphyl: 0.120 ug/g	Obj. not met
			1	acenaphe: 0.047 ug/g	Obj. met
			1	fluor: 0.080 ug/g	Obj. not met
			1	phenant: 0.46 ug/g	Obj. not met
			1	anthrac: 0.19 ug/g	Obj. not met
				total: 1.147 ug/g	Obj. not met
H-PAH in sediment: (max) fluorant 0.17 ug/g pyrene 0.26 ug/g bz-a-an 0.13 ug/g chrysene 0.14 ug/g bz-a-fl 0.32 ug/g bz-a-py 0.16 ug/g ind-pyr 0.06 ug/g dibz-an 0.06 ug/g bz-pery 0.07 ug/g total 1.2 ug/g (long-term)	Port Moody Arm: E207823 100m Off loco disch.	Sep. 28 (composite of 3 reps)	1	fluorant: 0.37 ug/g	Obj. not met
			1	pyrene: 1.2 ug/g	Obj. not met
			1	bz-a-an: 0.380 ug/g	Obj. not met
			1	chrysene: 0.57 ug/g	Obj. not met
			1	bz-a-fl: 0.980 ug/g	Obj. not met
			1	bz-a-py: 0.400 ug/g	Obj. not met
			1	ind-pyr: 0.15 ug/g	Obj. not met
			1	dibz-an: <0.001 ug/g	Obj. met
			1	bz-pery: 0.57 ug/g	Obj. not met
				total: 4.471 ug/g	Obj. not met
	2nd Narrows-Roche Pt: E207821 50m off Chevron disch	Sep. 28 (composite of 3 reps)	1	fluorant: 0.24 ug/g	Obj. not met
			1	pyrene: 1.7 ug/g	Obj. not met
			1	bz-a-an: 0.120 ug/g	Obj. met
			1	chrysene: 0.24 ug/g	Obj. not met
			1	bz-a-fl: 0.530 ug/g	Obj. not met
			1	bz-a-py: 0.200 ug/g	Obj. not met
			1	ind-pyr: 0.087 ug/g	Obj. not met
			1	dibz-an: <0.001 ug/g	Obj. met
			1	bz-pery: 0.24 ug/g	Obj. not met
			1	total: 3.358 ug/g	Obj. not met

TABLE 29 continued

BURRARD INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
H-PAH in sediment: (max) fluorant 0.17 ug/g pyrene 0.26 ug/g bz-a-an 0.13 ug/g chrysene 0.14 ug/g bz-a-fl 0.32 ug/g bz-a-py 0.16 ug/g ind-pyr 0.06 ug/g dibz-an 0.06 ug/g bz-pery 0.07 ug/g total 1.2 ug/g (long-term)	1st-2nd Narrows: E207818 50m off Chevron disch	Sep. 28 (composite of 3 reps)	1 1 1 1 1 1 1 1 1 1	fluorant: 1.0 ug/g pyrene: 0.78 ug/g bz-a-an: 0.420 ug/g chrysene: 0.64 ug/g bz-a-fl: 0.680 ug/g bz-a-py: 0.300 ug/g ind-pyr: 0.14 ug/g dibz-an: <0.001 ug/g bz-pery: 0.15 ug/g total: 4.111 ug/g	Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. met Obj. not met Obj. not met
H-PAH in sediment: (max) fluorant 0.17 ug/g pyrene 0.26 ug/g bz-a-an 0.13 ug/g chrysene 0.14 ug/g bz-a-fl 0.32 ug/g bz-a-py 0.16 ug/g ind-pyr 0.06 ug/g dibz-an 0.06 ug/g bz-pery 0.07 ug/g total 1.2 ug/g (long-term)	1st-2nd Narrows: E207813 100m off Coal Hbr CSO	Sep. 28 (composite of 3 reps)	1 1 1 1 1 1 1 1 1 1	fluorant: 0.91 ug/g pyrene: 1.4 ug/g bz-a-an: 0.710 ug/g chrysene: 0.11 ug/g bz-a-fl: 0.110 ug/g bz-a-py: 0.670 ug/g ind-pyr: 0.27 ug/g dibz-an: 0.11 ug/g bz-pery: 0.29 ug/g total: 4.58 ug/g	Obj. not met Obj. not met Obj. not met Obj. met Obj. met Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met
	Outer Burrard: E207812 off Locarno Park CSO	Sep. 28 (composite of 3 reps)	1 1 1 1 1 1 1 1 1 1	fluorant: 0.15 ug/g pyrene: 0.16 ug/g bz-a-an: 0.069 ug/g chrysene: 0.09 ug/g bz-a-fl: 0.056 ug/g bz-a-py: 0.063 ug/g ind-pyr: 0.030 ug/g dibz-an: 0.011 ug/g bz-pery: 0.035 ug/g total: 0.664 ug/g	Obj. met Obj. met Obj. met Obj. met Obj. met Obj. met Obj. met Obj. met Obj. met Obj. met
	False Creek: E207814 100m E Science World	Sep. 28 (composite of 3 reps)	1 1 1 1 1 1 1 1 1 1	fluorant: 0.79 ug/g pyrene: 1.4 ug/g bz-a-an: 0.610 ug/g chrysene: 0.68 ug/g bz-a-fl: 0.68 ug/g bz-a-py: 0.68 ug/g ind-pyr: 0.36 ug/g dibz-an: 0.14 ug/g bz-pery: 0.40 ug/g total: 5.74 ug/g	Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met

TABLE 30

BURRARD INLET TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <200 /100 mL geometric mean (gm)	Lynn Creek: 0300085 2 km from mouth	Jul. 7 - Aug. 3	5	76 - 320/100 mL gm = 147/100 mL	Objective met
	Capilano River: 0300083 near mouth	Jul. 7 - Aug. 3	5	40 - 98/100 mL gm = 62/100 mL	Objective met
E. Coli <77/100 mL geometric mean (gm)	Lynn Creek 0300085 2 km from mouth	Jul 7 - Aug 3	5	89 - 380/100 mL gm = 177/100 mL	Objective not met
	Capilano River: 0300083 near mouth	Jul 7 - Aug 3	5	40 - 98/100 mL gm = 62/100 mL	Objective met
Enterococci < 20/100 mL geometric mean (gm)	Lynn Creek 0300085 2 km from mouth	Jul 7 - Aug 3	5	42 - 300/100 mL gm = 97/100 mL	Objective not met
	Capilano River: 0300083 near mouth	Jul 7 - Aug 3	5	17 - 69/100 mL gm = 42/100 mL	Objective not met
Ammonia-N <1.82 mg/L av 14.1 mg/L max at pH = 7.4 temp = 12 C	Lynn Creek: 0300085 2 km from mouth	Jul 7 - Aug 3	5	0.028 - 0.052 mg/L av = 0.039 mg/L	Objectives met
	Capilano River: 0300083 near mouth	Jul 7 - Aug 3	5	<0.005 - 0.008 mg/L av < 0.006 mg/L	Objectives met
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Lynn Creek: 0300085 2 km from mouth	Jul 7 - Aug 3	5	all < 0.005 mg/L	Objectives met
	Capilano River: 0300083 near mouth	Jul 7 - Aug 3	5	all < 0.005 mg/L	Objectives met
Chlorophyll-a 50 mg/m2 max	Lynn Creek 0300085 2 km from mouth	Jul. 26	6	32.9 - 77.1 mg/m2 av = 53 mg/m2	Objective not met
	Capilano River 0300083 near mouth	Jul. 26	6	25 - 118 mg/m2 av = 63 mg/m2	Objective not met
Diss. Oxygen 8-11 mg/L min	Lynn Creek: 0300085 2 km from mouth	Jul. 7 - Aug. 3	5	9.6 - 11.3 mg/L	Objective met

TABLE 30 continued

BURRARD INLET TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Diss. Oxygen 8-11 mg/L min	Capilano River: 0300083 near mouth	Jul. 7 - Aug. 3	5	10.0 - 11.2 mg/L	Objective met
Phenols 1 ug/L max	School House Brook E207825 near mouth	Jul 6 - Aug 2 Jul. 26	3 1	2 - 5 ug/L < 2 ug/L	Obj. not met Obj. met
	Lynn Creek 0300085 2 km from mouth	Jul. 7 - Aug. 3 Jul. 20	4 1	4 - 6 ug/L < 2 ug/L	Obj. not met Obj. met
	Capilano River: 0300083 near mouth	Jul. 7 - Jul 26 Aug. 3	4 1	3 - 5 ug/L < 2 ug/L	Obj. not met Obj. met
Temperature max increase: 1 C	School House Brook: u/s site	1993	0	no data collected	Control site
	E207825 near mouth	Jul 6 - Aug 2	5	11 - 14 C	Indefinite result (no control)
pH 6.5 - 9.0	School house Brook E207825 near mouth	Jul 19 - Jul 26	2	7.9 - 8.0	Objective met
Total Cd 0.2 ug/L max	Lynn Creek 0300085 2 km from mouth	Jul 7 - Aug 3	5	all < 0.1 ug/L	Objective met
	Capilano River 0300083 near mouth	Jul 7 - Aug 3	5	all < 0.1 ug/L	Objective met
Total Cr 2 ug/L max	School house Brook E207825 near mouth	Jul 6 - Aug 2	5	all < 2 ug/L	Objective met
	Lynn Creek 0300085 2 km from mouth	Jul 7 - Aug 3 Jul. 20	4 1	all < 2 ug/L 11 ug/L	Obj. met Obj. not met
	Capilano River 0300083 near mouth	Jul 12 - Aug 3 Jul. 7, 20	3 2	all < 2 ug/L 6 - 9 ug/L	Obj. met Obj. not met
Total Co 50 ug/L max	Lynn Creek 0300085 2 km from mouth	Jul 7 - Aug 3	5	all < 4 ug/L	Objective met

TABLE 30 continued

BURRARD INLET TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Co 50 ug/L max	Capilano River 0300083 near mouth	Jul 7 - Aug 3	5	all < 4 ug/L	Objective met
Total Cu <2 ug/L av 3.4 ug/L max (at hard. = 15 mg/L)	School House Brook E207825 near mouth	Jul 6 - Aug 2	5	< 2 - 3 ug/g av < 2 ug/g	Objectives met
	Lynn Creek: 0300085 2 km from mouth	Jul 7 - Aug 3	5	< 2 - 2 ug/g av < 2 ug/g	Objectives met
	Capilano River: 0300083 near mouth	Jul 7 - Aug 3 Jul. 7 Jul 12 - Aug 3	5 1 4	av = 4 ug/g 12 ug/g < 2 - 3 ug/g	Av not met Max not met Max obj. met
Total Fe 0.3 mg/L max	School House Brook E207825 near mouth	Jul 6 - Aug 2 Jul. 26	4 1	0.36 - 0.65 mg/L 0.26 mg/L	Obj. not met Obj. met
	Lynn Creek: 0300085 2 km from mouth	Jul 7 - Aug 3	5	0.06 - 0.14 mg/L	Objective met
	Capilano River: 0300083 near mouth	Jul 7 - Aug 3	5	<0.05 - 0.07 mg/L	Objective met
Total Pb <4.6 ug/L av 34 ug/L max (at hard. = 50 mg/L)	School House Brook E207825 near mouth	Jul 6 - Aug 2	5	all < 3 ug/L	Objectives met
Total Hg 0.02 ug/L av 0.1 ug/L max (long term for Lynn Creek)	Lynn Creek: 0300085 2 km from mouth	Jul 7 - Aug 3	5	<0.005 - 0.010 ug/L av = 0.007 ug/L	Objectives met
	Capilano River: 0300083 near mouth	Jul 7 - Aug 3	5	<0.005 - 0.009 ug/L av = 0.006 ug/L	Objectives met
Total Hg 0.5 ug/g max wet weight in fish	Lynn Creek 0300085 2 km from mouth	Jul. 25	5	0.050 - 0.091 ug/g av = 0.069 ug/g	Objective met
	Capilano River: 0300083 near mouth	Sep. 15	5	0.036 - 0.057 ug/g av = 0.047 ug/g	Objective met
Total Zn 0.015 mg/L max	School House Brook E207825 near mouth	Jul 6 - Jul 26 Aug. 2	4 1	all < 0.01 mg/L 0.02 mg/L	Obj. met Obj. not met

TABLE 30 continued

BURRARD INLET TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Zn 0.015 mg/L max	Lynn Creek: 0300085 2 km from mouth	Jul 7 - Aug 3	5	all < 0.01 mg/L	Objective met
	Capilano River: 0300083 near mouth	Jul 7 - Aug 3	5	all < 0.01 mg/L	Objective met
Chlorophenols 0.2 ug/L max	Lynn Creek Capilano River	1993	0	no data collected	Omitted 1993
Chlorophenols 0.01 ug/g max in sediment	Lynn Creek 0300085 2 km from mouth	Sep. 24	3	< 0.005 ug/g for each of tri, tetra, & penta	Objective met
	Capilano River: 0300083 near mouth	Sep. 24	3	< 0.005 ug/g for each of tri, tetra, & penta	Objective met
Chlorophenols 0.1 ug/g max wet wt in fish	Lynn Creek 0300085 2 km from mouth	Jul. 25	5	< 0.01 ug/g for each of tri, tetra, & penta	Objective met
	Capilano River: 0300083 near mouth	Jul. 15	5	< 0.01 ug/g for each of tri, tetra, & penta	Objective met
PCBs 1 ng/L max	Lynn Creek Capilano River	1993	0	no data collected	Omitted 1993
PCBs 0.03 ug/g max in sediment	Lynn Creek 0300085 2 km from mouth	Sep. 24	3	all < 0.02 ug/g	Objective met
	Capilano River: 0300083 near mouth	Sep. 24	3	all < 0.02 ug/g	Objective met
PCBs 0.1 ug/g max wet wt in fish	Lynn Creek 0300085 2 km from mouth	Jul. 25	5	all < 0.1 ug/g	Objective met
	Capilano River: 0300083 near mouth	Jul. 15	5	all < 0.1 ug/g	Objective met

TABLE 31

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms 200/100 mL max (short-term) <100/100 mL 90th perc (np) (long-term)	Kanaka Creek: 0300025 112 Ave (mid-length)	Oct 20 - Nov 16	5	18 - 52 /100 mL np = 50/100 m L	Objectives met
	0300024 near mouth	Oct 20 - Nov 16	5	13 - 150/100 mL np = 125/100 mL	Max obj. met np not met
	Pitt River: E216028 u/s Alouette River	Oct 20 - Nov 16	5	20 - 51/100mL np = 40/100 mL	Objectives met
	0300012 near mouth	Oct 20 - Nov 16	5	21 - 120/100mL np = 91/100 mL	Objectives met
	Alouette River: 0300015 232 St (u/s Haney)	Oct 20 - Nov 16 Oct 20 - Nov 16 Nov. 2	5 4 1	np = 290/100 mL 22 - 130/100 mL 450/100 mL	np not met Max obj. met Max not met
	0300014 208 St (d/s Haney)	Oct 20 - Nov 16 Oct 20 - Nov 16 Oct. 26	5 4 1	np = 240/100 mL 30 - 200/100 mL 280/100 mL	np not met Max obj. met Max not met
Fecal Coliforms <10/100 mL 90th perc. (np)	Pitt Lake 0300013 near outlet	July 6 - Aug 2	5	<1 - 10/100mL np = 6/100 mL	Objective met
	Alouette Lake 0300016 near outlet	July 6 - Aug 2	5	<1 - 2/100 mL np = 2/100 mL	Objective met
	Or Creek 1189002 near mouth	Oct 20 - Nov 16	4	<1 - 2/100mL	Indefinite result
Fecal Coliforms <100/100 mL 90th perc. (np)	North Alouette River: 0300018 u/s Haney	Oct 20 - Nov 16	5	2 - 9/100mL np = 9/100 mL	Objective met
	0300017 near mouth	Oct 20 - Nov 16	5	6 - 110/100mL np = 60	Objective met
	Coquitlam River 0300019 d/s Or Creek	Oct 20 - Nov 10	3	<1 - 1/100 mL	Indefinite result
	0300011 u/s Coquitlam R. Park	Oct 20 - Nov 16	5	4 - 11/100 mL np = 10/100 mL	Objective met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Fecal Coliforms ≤200/100 mL geometric mean (gm)	Hoy Creek E216030 near mouth	Oct 20 - Nov 16	5	29 - 110/100mL gm = 50/100 mL	Objective met
	Scott Creek 1189007 d/s Hoy Creek	Oct 20 - Nov 16	5	180 - 5000/100mL gm = 1043/100 mL	Objective not met
	Coquitlam River 0300010 near mouth	Oct 20 - Nov 16	5	20 - 100/100mL gm = 48/100 mL	Objective met
Fecal Coliforms <200/100 mL geometric mean (gm) <400/100 mL 90th perc (np)	Burnaby Lake 0300009 near outlet	July 6 - Aug 3	5	26 - 830/100mL gm = 136/100 mL np = 500/100 mL	gm obj. met np not met
	Deer Lake E216032 at mid-lake	July 6 - Aug 3	5	46 - 880/100mL gm = 155/100 mL np = 500/100 mL	gm obj. met np not met
E. Coli 200/100 mL max (short-term) <100/100 mL 90th perc (np) (long-term)	Kanaka Creek: 0300025 112 Ave (mid-length)	Oct 20 - Nov 16	5	18 - 46/100mL np = 46/100 mL	Objectives met
	0300024 near mouth	Oct 20 - Nov 16	5	18 - 160/100 mL np = 125/100 mL	Max obj. met np not met
E. Coli <77/100 mL geometric mean (gm) (short-term) <100/100 mL 90th perc. (np) (long-term)	Pitt River: E216028 u/s Alouette River	Oct 20 - Nov 16	5	19 - 51/100mL gm = 26/100 mL np = 38/100 mL	gm obj. met np obj. met
	0300012 near mouth	Oct 20 - Nov 16	5	10 - 90/100mL gm = 12/100 mL np = 78/100 mL	gm obj. met np obj. met
	Alouette River: 0300015 232 St (u/s Haney)	Oct 20 - Nov 16	5	21 - 321/100mL gm = 66/100 mL np = 225/100 mL	gm obj. met np not met
	0300014 208 St (d/s Haney)	Oct 20 - Nov 16	5	23 - 310/100mL gm = 73/100 mL np = 260/100 mL	gm obj. met np not met
E. Coli <10/100 mL 90th perc. (np)	Pitt Lake 0300013 near outlet	Jul 6 - Aug 2	5	1 - 8/100 mL np = 6/100 mL	Objective met
	Alouette Lake 0300016 near outlet	Jul 6 - Aug 2	4	all < 1/100 mL	Indefinite result

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
E. Coli <10/100 mL 90th perc. (np)	Or Creek 1189002 near mouth	Oct 20 - Nov 16	4	all < 1/100ml	Indefinite result
E. Coli <100/100 mL 90th perc. (np)	North Alouette River: 0300018 u/s Haney	Oct 20 - Nov 16	5	4 - 18/100mL np = 16/100 mL	Objective met
	0300017 near mouth	Oct 20 - Nov 16	5	2 - 110/100mL np = 71/100 mL	Objective met
	Coquitlam River: 0300019 d/s Or Creek	Oct 20 - Nov 10	3	all < 1/100 mL	Indefinite result
	0300011 u/s Coquitlam R. Park	Oct 20 - Nov 16	5	1 - 5/100mL np = 5/100 mL	Objective met
E. Coli <77/100 mL geometric mean (gm)	Hoy Creek E216030 near mouth	Oct 20 - Nov 16	5	23 - 88/100mL gm = 46/100 mL	Objective met
	Scott Creek 1189007 d/s Hoy Creek	Oct 20 - Nov 16	5	180 - 4900/100mL gm = 1085/100 mL	Objective not met
	Coquitlam River 0300010 near mouth	Oct 20 - Nov 16	5	14 - 110/100mL gm = 49/100 mL	Objective met
E. Coli <77/100 mL geometric mean (gm) (long-term)	Burnaby Lake 0300009 near outlet	July 6 - Aug 3	5	41 - 970/100mL gm = 154/100 mL	Objective not met
	Deer Lake E216032 at mid-lake	July 6 - Aug 3	5	51 - 970/100mL gm = 154/100 mL	Objective not met
Enterococci 50/100 mL max (short-term)	Kanaka Creek: 0300025 112 Ave (mid-length)	Oct 20 - Nov 16 Oct 20 - Nov 16 Nov. 2	5 4 1	np = 110/100 mL 51 - 134/100 mL 14/100 mL	np not met Max not met Max obj. met
<25/100 mL 90th perc (np) (long-term)	0300024 near mouth	Oct 20 - Nov 16 Oct 20 - Nov 16 Nov 2 - Nov 10	5 3 2	np = 205/100 mL 74 - 270/100 mL 20 - 22/100 mL	np not met Max not met Max obj. met
Enterococci <200/100 mL geometric mean (gm) (short-term)	Pitt River: E216028 u/s Alouette River	Oct 20 - Nov 16	5	8 - 40/100mL gm = 16/100 mL np = 30/100 mL	gm obj. met np not met
<25/100 mL 90th perc. (np) (long-term)	0300012 near mouth	Oct 20 - Nov 16	5	5 - 38/100mL gm = 21/100 mL np = 37/100 mL	gm obj. met np not met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Enterococci <200/100 mL geometric mean (gm) (short-term)	Alouette River: 0300015 232 St (u/s Haney)	Oct 20 - Nov 16	5	14 - 53/100mL gm = 24/100 mL np = 48/100 mL	gm obj. met np not met
<25/100 mL 90th perc (np) (long-term)	0300014 208 St (d/s Haney)	Oct 20 - Nov 16	5 1	16 - 4700/100 mL gm = 84/100 mL np = 2400/100 mL	gm obj. met np not met
Enterococci <3/100 mL 90th perc. (np)	Pitt Lake 0300013 near outlet	Oct 20 - Nov 16	5	<1 - 2/100 mL np < 2/100 mL	Objective met
	Alouette Lake 0300016 near outlet	Oct 20 - Nov 16	4	all < 1/100 mL	Indefinite result
Enterococci <25/100 mL 90th perc. (np)	North Alouette River: 0300018 u/s Haney	Oct 20 - Nov 16	5	1 - 27/100mL np = 16/100 mL	Objective met
	0300017 near mouth	Oct 20 - Nov 16	5	4 - 92/100mL np = 76/100 mL	Objective not met
	Or Creek 1189002 near mouth	Oct 20 - Nov 16	4	1 - 6/100mL np = 4/100 mL	Objective met
	Coquitlam River 0300019 d/s Or Creek	Oct 20 - Nov 10	3	1 - 2/100ml	Indefinite result
	0300011 u/s Coquitlam R. Park	Oct 20 - Nov 16	5	3 - 16/100mL np = 15/100 mL	Objective met
Enterococci <20/100 mL geometric mean (gm)	Hoy Creek E216030 near mouth	Oct 20 - Nov 16	5	66 - 170/100 mL gm = 100/100 mL	Objective not met
	Scott Creek 1189007 d/s Hor Creek	Nov 20 - Nov 16	5	57 - 5400/100mL gm = 792/100 mL	Objective not met
	Coquitlam River 0300010 near mouth	Oct 20 - Nov 16	5	13 - 680/100mL gm = 83/100 mL	Objective not met
Enterococci <20/100 mL geometric mean (gm) (long-term)	Burnaby Lake 0300009 near outlet	Oct 20 - Nov 16	5	16 - 200/100mL gm = 34/100 mL	Objective not met
	Deer Lake E216032 at mid-lake	Oct 20 - Nov 16	5	8 - 210/100mL gm = 32/100 mL	Objective not met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Pseudomonas aeruginosa <2/100 mL 75th perc.	Coquitlam River Scott Creek Hoy Creek	1993	0	no data collected	Omitted 1993
	Burnaby Lake 0300009 near outlet	July 6 - Aug 3	4	<2 - 7/100 mL	Indefinite result
	Deer Lake E216032	July 6 - Aug 3	5	<2 - 15/100 mL 75th perc = 6	Objective not met
Suspended Solids max increase: 10 mg/L	Kanaka Creek: 0300025 112 Ave (mid-length)	Oct. 20 - Nov. 16	5	< 4 mg/L	Control site
	0300024 near mouth	Oct. 20 - Nov. 10	4	< 4 - 9 mg/L max inc = 5mg/L	Objective met
		Nov. 16	1	17 mg/L increase = 13 mg/L	Objective not met
	Pitt River E216028 u/s Alouette River	Oct. 20 - Nov. 16	5	< 4 - 10 mg/L	Control site
	0300012 near mouth	Oct 20 - Nov 10	4	6 - 13 mg/L max inc = 7 mg/L	Objective met
		Nov. 16	1	26 mg/L increase = 16 mg/L	Objective not met
	Alouette River: 0300015 232 St (u/s Haney)	Oct 20 - Nov 16	5	< 4 - 5 mg/L	Control site
	0300014 208 St (d/s Haney)	Oct 20 - Nov 16	5	< 4 - 6 mg/ L max inc = 2mg/L	Objective met
	Pitt Lake: E219176 u/s outlet	July 19 - Aug 2	3	< 4 - 5mg/L	control site
	0300013 near outlet	July 19 -Aug 2	3	< 4 - 13 mg/L max inc = 9 mg /L	Objective met
		July 6 - July12	2	4 - 6 mg/L	Objective met (no control)
	Alouette Lake: E219175 u/s outlet	July 19 - Aug 2	3	< 4 mg/L	control site
	0300016 near outlet	July 6 - Aug 2	6	all < 4 mg/L	Objective met
	North Alouette River: 0300018 u/s Haney	July 6 - Aug 2	6	< 4 mg/L	Control site
	0300017 near mouth	July 6 - Aug 2	5	all < 4 mg/L	Objective met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Suspended Solids max increase: 10 mg/L or 10%	Coquitlam River: 0300019 d/s Or Creek	Oct 20 - Nov 10	3	all < 4 mg /L	Control site
	0300011 u/s Coquitlam R. Park	Oct 26 - Nov 10	4	< 4 - 12 mg /L max inc. = 8 mg/L	Objective met
		Nov. 16	1	27 mg/L increase = 23 mg/L	Objective not met
	0300010 near mouth	Oct 20 - Nov 10	4	<4 - 8 mg/L max inc. = 4 mg/L	Objective met
		Nov. 16	1	15 mg/L increase = 11 mg/L	Objective not met
	Or Creek 1189002 near mouth	Oct 20 - Nov 16	4	all < 4 mg/L	Objective met
	Scott Creek 1189007 d/s Hoy Creek	Oct 20 - Nov 16	5	< 4 - 9 mg/L	Objective met
	Hoy Creek E216030 near mouth	Oct 20 - Nov 16	5	< 4 - 6 mg/L	Objective met
	Still Creek 0300008 near Burnaby L. inlet	1993	0	no data collected	Objective not checked
	Burnaby Lake 0300009 near outlet	Oct 20 - Nov 16	4	< 4 - 9 mg/L	Objective met
		Nov. 10	1	64 mg/L	Indef. result (no control)
	Brunette River	1993	0	no data collected	Obj. not checked
	Deer Lake E216032 at mid-lake	Oct 20 - Nov 16	5	< 4 - 10 mg/L	Objective met
Turbidity max increase: 1NTU, u/s <5 5NTU, u/s <50 or 10%	Kanaka Creek: 0300025 112 Ave (mid-length)	Oct 20 - Nov 16	5	0.6 - 1.8 NTU	Control site
	0300024 near mouth	Oct 20 - Nov 16	5	2.4 - 5.5 NTU increase = 1.8 - 3.7 NTU	Objective not met
	Pitt River: E216028 u/s Alouette River	Oct 20 - Nov 16	5	0.9 - 4.7 NTU	Control site
	0300012 at the mouth	Oct 20 - Nov 10	4	1.0 - 3.0 NTU max inc = 0.8 NTU	Objective met
		Nov. 16	1	7.0 NTU increase = 2.3 NTU	Objective not met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Turbidity max increase: 1NTU, u/s <5 5NTU, u/s <50 or 10%	Alouette River: 0300015 232 St (u/s Haney)	Oct 20 - Nov 16	5	0.2 - 0.7 NTU	Control site
	0300014 208 St (d/s Haney)	Oct 20 - Nov 10	3	0.9 - 1.1NTU max inc = 0.9 NTU	Objective met
		Nov 2 - Nov 16	2	1.5 - 3.5 NTU increase = 1.2 - 2.8 NTU	Objective not met
	North Alouette River: 0300018 u/s Haney	Oct 20 - Nov 16	5	< 0.1 - 0.2 NTU	control site
	0300017 near mouth	Oct 26 - Nov 16	4	0.5 - 1.1 NTU max inc = 1.0	Objective met
		Oct. 20	1	1.2 NTU increase = 1.1 NTU	Objective not met
	Pitt Lake: E219176 u/s outlet	July 19 - Aug 2	3	0.7 - 1.5 NTU	control site
	0300013 near outlet	July 6 - Aug 2	4	0.5 - 1.2 NTU max inc = 0.3 NTU	Objective met
		July 19	1	3.0 NTU increase = 2.3 NTU	Objective not met
	Alouette Lake E219175 u/s outlet	July 19 - Aug 2	3	all = 0.2 NTU	Control site
	0300016 near outlet	Oct 20 - Nov 16	5	0.1 - 0.3 NTU max inc = 0.1 NTU	Objective met
	Coquitlam River: 0300019 u/s Or Creek	Oct 20 - Nov 16	3	0.1 - 0 .3 NTU	Control site
	0300011 u/s Coquitlam R. Park	Oct 20 - Nov 16	5	6.4 - 29 NTU increase > 6 NTU	Objective not met
	0300010 near mouth	Oct 20 - Nov 16	5	1.6 - 11 NTU increase > 1 NTU	Objective not met
	Or Creek 1189002 near mouth	Oct 20 - Nov 16	4	< 0.1 - 0.2 NTU	Objective met
	Scott Creek 1189007 d/s Hoy Creek	Oct 20 - Nov 16	5	2.0 - 9.0 NTU	Indefinite result (no control)
	Hoy Creek E216030 near mouth	Oct 26 - Nov 16	4	1.5 - 3.3 NTU	Indef. result (no control)
		Oct. 20	1	1.0 NTU	Objective met
	Still Creek 0300008 near Burnaby L. inlet	1993	0	no data collected	Omitted 1993

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Turbidity max increase: 1NTU, u/s <5 5NTU, u/s <50 or 10%	Deer Lake E216032 at mid-lake	Oct 20 - Nov 16	5	3.2 - 6.4 NTU	Indefinite result (no control)
	Burnaby Lake 0300009	Oct 20 - Nov 16	5	2.7 - 5.2 NTU	Indefinite result (no control)
	Brunette River E208821	1993	0	no data collected	Omitted 1993
Substrate Sedimentation No significant increase by weight of particles <3 mm dia	Kanaka Creek Pitt Lake Alouette Lake Pitt River Alouette River N. Alouette River Coquitlam River Scott and Hoy Creek Or Creek Brunette River	1993	0	no data collected	Omitted 1993
Ammonia-N <1.79 mg/L av 9.31 mg/L max at pH = 7.7 temp = 15 °C	Kanaka Creek: 0300025 112 Ave (mid-length)	Oct 20 - Nov 16	5	av = 0.009 mg/L max = 0.015 mg/L	Objectives met
	0300024 near mouth	Oct 20 - Nov 16	5	av = 0.067 mg/L max = 0.118 mg/L	Objectives met
	Pitt River E216028 u/s Alouette River	Oct 20 - Nov 16	5	av = 0.013 mg/L max = 0.018 mg/L	Objectives met
	Pitt River 0300012 near mouth	Oct 20 - Nov 16	5	av = 0.014 mg/L max = 0.025 mg/L	Objectives met
	Alouette River: 0300015 232 St (u/s Haney)	Oct 20 - Nov 16	5	av = 0.188 mg/L max = 0.295 mg/L	Objectives met
	0300014 208 St (d/s Haney)	Oct 20 - Nov 16	5	av = 0.295 mg/L max = 0.432 mg/L	Objectives met
	North Alouette River: 0300018 u/s Haney	Oct 20 - Nov 16	5	av = 0.006 mg/L max = 0.009 mg/L	Objectives met
	0300017 near mouth	Oct 20 - Nov 16	5	av = 0.067 mg/L max = 0.204 mg/L	Objectives met
	Coquitlam River: 0300019 d/s Or Creek	Oct 20 - Nov 16	3	max = 0.007 mg/L	Max objective met
	0300011 u/s Coquitlam R. Park	Oct 20 - Nov 16	5	max = 0.021 mg/L	Max objective met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Ammonia-N <1.79 mg/L av 9.31 mg/L max at pH = 7.7 temp = 15 °C	Coquitlam River: 0300010 near mouth	Oct 20 - Nov 16	5	av = 0.031 mg/L max = 0.063 mg/L	Objectives met
	Or Creek 1189002 near mouth	Oct 20 - Nov 16	4	max = 0.005 mg/L	Max obj. met Av not checkd.
	Scott Creek 1189007 d/s Hoy Creek	Oct 20 - Nov 16	5	av = 0.059 mg/L max = 0.097 mg/L	Objectives met
	Hoy Creek E216030 near mouth	Oct 20 - Nov 16	5	av = 0.031 mg/L max = 0.052 mg/L	Objectives met
	Still Creek 0300008 near Burnaby L. inlet	Oct 20 - Nov 16	5	av = 0.828 mg/L max = 1.32 mg/L	Objectives met
	Burnaby Lake 0300009 near outlet	Oct 20 - Nov 16	5	av = 0.421 mg/L max = 0.702 mg/L	Objectives met
	Brunette River : 0300111 near mouth	Oct 20 - Nov 16	5	av = 0.135 mg/L max = 0.320 mg/L	Objectives met
	E208821 Hume Park	Oct 20 - Nov 16	5	av = 0.208 mg/L max = 0.324 mg/L	Objectives met
	Pitt Lake 0300013 near outlet	Jul 6 - Aug 2	5	av = 0.006 mg/L max = 0.009 mg/L	Objectives met
	Alouette Lake 0300016 near outlet	Jul 6 - Aug 2	5	av = 0.005 mg/L max = 0.006 mg/L	Objectives met
	Deer Lake E216032 at mid-lake	Oct 20 - Nov 16	5	av = 0.371 mg/L max = 0.446 mg/L	Objectives met
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Kanaka Creek: 0300025 112 Ave (mid-length)	Oct 20 - Nov 16	5	av = 0.006 mg/L max = 0.009 mg/L	Objectives met
	0300024 near mouth	Oct 20 - Nov 16	5	all < 0.005 mg/L	Objectives met
	Pitt River E216028 u/s Alouette River	Oct 20 - Nov 16	5	all < 0.005 mg/L	Objectives met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Pitt River: 0300012 near mouth	Oct 20 - Nov 16	5	all < 0.005 mg/L	Objectives met
	Alouette River: 0300015 232 St (u/s Haney)	Oct 20 - Nov 16	5	av = 0.006 mg/L max = 0.008 mg/L	Objectives met
	0300014 208 St (d/s Haney)	Oct 20 - Nov 16	5	av = 0.010 mg/L max = 0.013 mg/L	Objectives met
	North Alouette River: 0300018 u/s Haney	Oct 20 - Nov 16	5	all < 0.005 mg/L	Objectives met
	0300017 near mouth	Oct 20 - Nov 16	5	av = 0.006 mg/L max = 0.009 mg/L	Objectives met
	Coquitlam River: 0300019 d/s Or Creek	Oct 20 - Nov 16	3	all < 0.005 mg/L	Max objective met
	0300011 u/s Coquitlam R. Park	Oct 20 - Nov 16	5	all < 0.005 mg/L	Objectives met
	0300010 near mouth	Oct 20 - Nov 16	5	all < 0.005 mg/L	Objectives met
	Or Creek 1189002 near mouth	Oct 20 - Nov 16	4	all < 0.005 mg/L	Max objective met
	Scott Creek 1189007 d/s Hoy Creek	Oct 20 - Nov 16	5	all < 0.005 mg/L	Objectives met
	Hoy Creek E216030 near mouth	Oct 20 - Nov 16	5	all < 0.005 mg/L	Objectives met
	Brunette River: 0300111 near mouth	Oct 20 - Nov 16	5	av = 0.008 mg/L max = 0.014 mg/L	Objectives met
	At Hume Park E208821	Oct 20 - Nov 16	5	av = 0.024 mg/L max = 0.04 mg/L	Av not met Max obj. met
	Pitt Lake 0300013 near outlet	Jul 6 - Aug 2	5	all < 0.005 mg/L	Objectives met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Nitrite-N <0.02 mg/L av 0.06 mg/L max	Alouette Lake 0300016 near outlet	Jul 6 - Aug 2	5	all < 0.005 mg/L	Objectives met
Nitrite-N <0.20 mg/L av 0.60 mg/L max at Cl > 10 mg/L	Deer Lake E216032 at mid-lake	Oct 20 - Nov 16	5	av = 0.009 mg/L max = 0.012 mg/L	Objectives met
	Still Creek 0300008 near Burnaby L. inlet	Oct 20 - Nov 16	5	av = 0.039 mg/L max = 0.076 mg/L	Objectives met
	Burnaby Lake 0300009 near outlet	Oct 20 - Nov 16	5	av = 0.02 mg/L max = 0.027	Objectives met
Chlorophyll-a <50 mg/m2 av	Kanaka Creek: 0300024 near mouth	July 27	6	3.4 - 29.7 mg/m2 av = 13.4 mg/m2	Objective met
	Coquitlam River 0300010 near mouth	July 27	6	4.1 - 115.0 mg/m2 av = 54.5 mg/m2	Objective not met
	Scott Creek 1189007 d/s Hoy Creek	Jul. 27	6	36.1 - 127 mg/m2 av = 75.4 mg/m2	Objective not met
	Hoy Creek E216030 near mouth	Jul. 27	6	2.2 - 22.1 mg/m2 av = 10.8 mg/m2	Objective met
	Or Creek 1189002 near mouth	Jul. 27	6	12.5 - 323 mg/m2 av = 76.8 mg/m2	Objective not met
Chlorophyll-a <100 mg/m2 av	North Alouette River: 0300017 near mouth	Jul. 27	6	6.6 - 50.0 mg/m2 av = 20.3 mg/m2	Objective met
	Alouette River: 0300015 232 St (u/s Haney)	Jul. 27	6	90 - 69.8 mg/m2 av = 31.38 mg/m2	Objective met
	Brunette River: 0300111 near mouth	Jul. 26	6	106 - 232 mg/m2 av = 167 mg/m2	Objective not met
	At Hume Park E208821	Jul. 26	6	22.8 - 58.5 mg/m2 av = 33 mg/m2	Objective met
	Still Creek 030008 near Burnaby L. inlet	Jul. 26	6	19.5 - 461 mg/m2 av = 169 mg/m2	Objective not met
	Pitt Lake 0300013 near outlet	Jul. 27	6	2.2 - 18.9 mg/m2 av = 8.8 mg/m2	Objective met
Total-P <0.015 mg/L av Apr - Oct (long-term)	Burnaby Lake Deer Lake	1993	0	no data collected	Objective not checked

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Dissolved Oxygen 11.0 mg/L min Nov - Mar 8.0 mg/L min Apr - Oct	Kanaka Creek: 0300025 112 Ave (mid-length)	Oct 26 - Nov 16 Oct. 20	4 1	11.5 - 13.2 mg/L 7 mg/L	Obj. met Obj. not met
	0300024 near mouth	Oct 26 - Nov 16 Oct. 20 Nov. 2	3 1 1	10.2 - 11.6 mg/L 6.8 mg/L 10.5 mg/L	Obj. met Obj. not met Obj. not met
	Pitt River: E216028 u/s Alouette River	Oct 26 - Nov 16 Nov. 2	3 1	10 - 11.8 mg/L Oct 10.8 mg/L	Obj. met Obj. not met
	0300012 near mouth	Oct 20 - Nov 16 Nov. 2	5 1	9.5 - 12 mg/L 10.8 mg/L	Obj. met Obj. not met
	Alouette River: 0300015 232 St (u/s Haney)	Oct 20 - Nov 16	5	10 - 12.3 mg/L	Objective met
	0300014 208 St (d/s Haney)	Oct. 26 Nov 2 - Nov 10	1 3	9.6 mg/L 9.2 - 10.2 mg/L	Obj. met Obj. not met
	North Alouette River: 0300018 u/s Haney	Oct 20 - Nov 16	5	9.8 - 13.2 mg/L	Objective met
	0300017 near mouth	Oct 26 - Nov 16 Nov. 2	3 1	10.6 - 12.4 mg/L 9.7 mg/L	Obj. met Obj. not met
	Coquitlam River: 0300019 d/s Or Creek	Oct 26 - Nov 16	4	11.3 - 12.7 mg/L	Objective met
	0300011 u/s Coquitlam R. Park	Oct 26 - Nov 16	4	11.2 - 12.7 mg/L	Objective met
	0300010 near mouth	Oct 20 - Nov 16 Nov. 2	4 1	10.4 - 11.6 mg/L 10.8 mg/L	Obj. met Obj. not met
	Or Creek 1189002 near mouth	Oct 26 - Nov 16	4	11.3 - 12.6 mg/L	Objective met
	Scott Creek 1189007 d/s Hoy Creek	Oct 26 - Nov 16 Nov. 2	3 1	10.0 - 11.2 mg/L 7.8 mg/L	Obj. met Obj. not met
	Hoy Creek E216030 near mouth	Oct 26 - Nov 16 Nov. 2	3 1	10.2 - 11.6 mg/L 10.0 mg/L	Obj. met Obj. not met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Dissolved Oxygen 6.0 mg/L min (short-term) 8.0 mg/L min (long-term) 11.0 mg/L min Nov - Mar (long-term)	Still Creek 0300008 near Burnaby L. inlet	Oct 26 - Nov 16 Oct 20 - Nov 2	3 2	6.1 - 6.8 mg/L 1.7 - 4.8 mg/L	Obj. met Obj. not met
	Burnaby Lake 0300009 near outlet	Jul 26 - Nov 16 Jul 12 - Jul 19	8 2	2.6 - 5.9 mg/L 6.5 - 8.8 mg/L	Obj. not met Obj. met
	Deer Lake E216032 at mid-lake	Jul 12 - Nov 16 Oct 20 - Nov 10	5 4	7.5 - 9.8 mg/L 4.6 - 5.6 mg/L	Obj. met Obj. not met
Diss. Oxygen 8.0 mg/L min 11.0 mg/L min Nov - Mar (long-term)	Brunette River E208821 Hume Park	Oct 20 - Nov 16	5	9.3 - 11.8 mg/L	Objective met
	0300111 near mouth	Oct 20 - Nov 16	5	8.2 - 11.9 mg/L	Objective met
pH 6.5 - 8.5 (long-term)	Kanaka Creek: O300025 112 Ave (mid-length)	Oct 20 - Nov 16	5	6.8 - 7.2	Objective met
	0300024 near mouth	Oct 20 - Nov 16	5	6.8 - 7.5	Objective met
pH 6.5 - 8.5 or max change 0.2 if u/s pH <6.5	Pitt River: E216028 u/s Alouette River	Oct 20 - Nov 16	5	6.8 - 7.3	Objective met
	0300012 near mouth	Oct 20 - Nov 16	5	7.0 - 7.5	Objective met
	Alouette River: 0300015 232 St (u/s Haney)	Oct 20 - Nov 16	5	6.9 - 7.0	Objective met
	0300014 208 St (d/s Haney)	Oct 20 - Nov 16	5	6.7 - 6.9	Objective met
	North Alouette River: 0300018 u/s Haney	Oct 20 - Nov 16	5	6.8 - 7.4	Objective met
	0300017 near mouth	Oct 20 - Nov 16	5	6.6 - 7.0	Objective met
	Pitt Lake 0300013 near mouth	July 6 - Aug 2	5	6.9 - 7.5	Objective met
	Alouette Lake 0300016 near mouth	July 6 - Aug 2	5	6.6 - 7.4	Objective met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
pH 6.5 - 8.5 or max change 0.2 if u/s pH <6.5	Coquitlam River: 0300019 u/s Or Creek	Oct 20 - Nov 16	3	7.0 - 7.2	Objective met
	0300011 u/s Coquitlam R. Park	Oct 20 - Nov 16	5	6.8 - 7.4	Objective met
	0300010 at mouth	Oct 20 - Nov 16	5	6.9 - 7.3	Objective met
	Or Creek 1189002 near mouth	Oct 20 - Nov 16	4	7.0 - 7.1	Objective met
	Scott Creek 1189007 d/s Hoy Creek	Oct 20 - Nov 16	5	7.0 - 7.5	Objective met
	Hoy Creek E216030 near mouth	Oct 20 - Nov 16	5	7.0 - 7.3	Objective met
pH 6.5 - 8.5	Still Creek 0300008 near Burnaby L. inlet	Oct 20 - Nov 16	5	6.8 - 7.1	Objective met
	Burnaby Lake 0300009 near outlet	Oct 20 - Nov 16	5	6.8 - 7.1	Objective met
	Deer Lake E216032 at mid-lake	Oct 20 - Nov 16	5	7.1 - 7.3	Objective met
	Brunette River: E208821 At Hume Park	Oct 20 - Nov 16	5	7.2 - 7.4	Objective met
	0300011 near mouth	Oct 20 - Nov 16	5	7.0 - 7.5	Objective met
Total Cr 0.020 mg/L max (long-term)	Still Creek 0300008 near Burnaby L. inlet	Oct 20 - Nov 16	5	<0.002 - 0.003 mg/L	Objective met
	Burnaby Lake 0300009 near outlet	Oct 20 - Nov 16 Nov. 10	4 1	all < 0.002 mg/L 0.046 mg/L	Obj. met Obj. not met
	Brunette River : E208821 At Hume Park	Oct 20 - Nov 16	5	<0.002 - 0.018 mg/L	Objective met
	0300111 near mouth	Oct 20 - Nov 16	5	<0.002 - 0.004 mg/L	Objective met
	Deer Lake E216032 at mid-lake	Oct 20 - Nov 16	5	<0.002 - 0.004 mg/L	Objective met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Total Cu <0.002 mg/L av 0.005 mg/L max hard. >30 mg/L (long-term)	Still Creek 0300008 near Burnaby L. inlet	Oct 20 - Nov 16 Oct 26 - Nov 16 Oct. 20	5 4 1	av = 0.013 mg/L 0.014 - 0.019 mg/L <0.002 mg/L	Av not met Max not met Max obj. met
	Burnaby Lake 0300009 near outlet	Oct 20 - Nov 16 Nov. 16 Oct 20 - Nov 10	5 1 4	av = 0.004 mg/L 0.006 mg/L 0.002 - 0.005 mg/L	Av not met Max not met Max obj. met
	Brunette River: E208821 At Hume Park	Oct 20 - Nov 16	5	<0.002 - 0.004 mg/L av = 0.003 mg/L	Max obj. met Av not met
	0300111 near mouth	Oct 20 - Nov 16 Nov. 10 Oct 20 - Nov 16	5 1 4	av = 0.004 mg/L 0.008 mg/L 0.003 - 0.004 mg/L	Av not met Max not met Max obj. met
	Deer Lake E216032 at mid-lake	Oct 20 - Nov 16	5	0.002 - 0.004 mg/L av = 0.003 mg/L	Max obj. met Av not met
Total Cu <30 ug/g av in sediments (long-term)	Still Creek 0300008 near Burnaby L. inlet	Nov. 2	3	89 - 159 ug/g av = 114 ug/g	Objective not met
	Burnaby Lake 0300009 near outlet	Nov. 10	3	6 - 9 ug/g av = 7 ug/g	Objective met
	Brunette River: E208821 At Hume Park	Nov. 2	3	23 - 32 ug/g av = 26 ug/g	Objective met
	0300111 near mouth	Nov. 2	3	42 - 53 ug/g av = 47 ug/g	Objective not met
	Deer Lake E216032 at mid-lake	Nov. 11	3	32 - 38 ug/g av = 34 ug/g	Objective not met
Total Pb <0.004 mg/L av 0.018 mg/L max (long-term)	Still Creek 0300008 near Burnaby L. inlet	Oct 20 - Nov 16	5	all < 0.03 mg/L	Indefinite results
	Brunette River: E208821 At Hume Park	Oct 20 - Nov 16	5	all < 0.03 mg/L	Indefinite results
	0300111 near mouth	Oct 20 - Nov 16	5	all < 0.03 mg/L	Indefinite results
Total Pb <0.004 mg/L av 0.012 mg/L max (long-term)	Burnaby Lake 0300009 near outlet	Oct 20 - Nov 16	5	all < 0.03 mg/L	Indefinite results
	Deer Lake E216032 at mid-lake	Oct 20 - Nov 16	5	all < 0.03 mg/L	Indefinite results

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Total Pb <5 ug/g av in sediments (long-term)	Still Creek 0300008 near Burnaby L. inlet	Nov. 2	3	92 - 111 ug/g av = 99 ug/g	Objective not met
	Burnaby Lake 0300009 near outlet	Nov. 10	3	43 - 55 ug/g av = 48 ug/g	Objective not met
	Brunette River: E208821 At Hume Park	Nov. 2	3	24 - 50 ug/g av = 40 ug/g	Objective not met
	0300111 near mouth	Nov. 2	3	62 - 72 ug/g av = 65 ug/g	Objective not met
	Deer Lake E216032 at mid-lake	Nov. 11	3	all = 41 ug/g	Objective not met
Total Pb 0.8 ug/g max wet weight in fish muscle	Still Creek 0300009 near Burnaby L. inlet	Sept. 23	5	all< 10ug/g	Indefinite result
	Burnaby Lake 0300009 near outlet	July 17	3	all < 10 ug/g	Indefinite result
	Deer Lake E216032 at mid-lake	Sept 23	4	all < 10 ug/g	Indefinite result
	Brunette River: 0300111 near mouth	Sep. 23	5	all < 10 ug/g	Indefinite result
Total Hg <0.02 ug/L av 0.1 ug/L max (long-term)	Still Creek 0300008 near Burnaby L. inlet	Oct. 20 - Nov.16	5	0.005 - 0.028 ug/L av = 0.014	Objectives met
	Burnaby Lake 0300009 near outlet	Oct. 20 - Nov.16	5	<0.005 - 0.005 ug/L	Objectives met
	Brunette River: E208821 Hume Park	Oct. 20 - Nov.16	5	<0.005 - 0.008 ug/L av = 0.006 ug/L	Objectives met
	0300111 near mouth	Oct. 20 - Nov.16	5	<0.005 - 0.005 ug/L	Objectives met
	Deer Lake E216032 at mid-lake	Oct. 20 - Nov.16	5	<0.005 - 0.005 ug/L	Objectives met
Total Hg <0.07 ug/g av in sediments (long-term)	Still Creek 0300008 near Burnaby L. inlet	Nov 2	2	0.021 - 0.022 ug/g	Objective met
	Brunette River: E208821 Hume Park	Nov 2	2	0.073 - 0.075 ug/g	Objective not met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Total Hg <0.07 ug/g av in sediments (long-term)	Brunette River: 0300111 near mouth	Nov 2	1	0.010 ug/g	Objective met
	Burnaby Lake 0300009	Nov 10	3	0.025 - 0.070 mg/kg av = 0.042 mg/kg	Objective met
	Deer Lake E216032	Nov 10	4	0.054 - 0.083 ug/g av = 0.065 ug/g	Objective met
Total Hg 0.05 ug/g max wet weight in fish muscle	Still Creek 0300111 near Burnaby L. inlet	Sep. 23	5	0.007 -0.049 ug/g	Objective met
	Brunette River 0300111 near mouth	Jul. 27 Jul. 27	4 1	0.059 - 0.084 ug/g 0.049 ug/g	Obj. not met Obj. met
	Burnaby Lake 0300009 near outlet	Jul. 17 Jul. 17	2 3	0.043 - 0.046 ug/g 0.057 - 0.063 ug/g	Obj. met Obj. not met
	Deer Lake E216032	Sept. 23	4	0.032 - 0.044 mg/kg	Objective met
Total Zn 0.03 mg/L max (long-term)	Still Creek 0300008 near Burnaby L. inlet	Oct 20	1	0.03 mg/L	Objective met
		Oct 26 - Nov 16	4	0.04 - 0.09 mg/L	Objective not met
	Burnaby Lake 0300009 near outlet	Nov 2 - Nov 16	2	0.03 mg/L	Objective met
		Oct 20 - Nov 10	3	0.04 - 0.05 mg/L	Objective not met
	E208821 At Hume Park	Oct 26 - Nov 16	4	0.02 - 0.03 mg/L	Objective met
		Oct. 20	1	0.04 mg/L	Objective not met
	Brunette River: 0300111 near mouth	Oct 20 - Nov 2	3	0.01 - 0.02 mg/L	Objective met
		Nov 10 - Nov 16	2	0.04 mg/L	Objective not met
	Deer Lake E216032 at mid-lake	Oct 20 - Nov 2	3	0.01 - 0.03mg/L	Objective met
		Nov 10 - Nov 16	2	0.04 - 0.05 mg/L	Objective not met
Total Zn <70 ug/g av in sediments (long-term)	Still Creek 0300008 near Burnaby L. inlet	Nov. 2	3	207 - 329 ug/g av = 249 ug/g	Objective not met
	Burnaby Lake 0300009 near outlet	Nov. 10	3	155 - 199 ug/g av = 170 ug/g	Objective not met

TABLE 31 continued

NORTH SHORE LOWER FRASER TRIBUTARIES WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	SITE	MEASUREMENT DATE	n	VALUE	CONCLUSION
Total Zn <70 ug/g av in sediments (long-term)	Brunette River : E208821 At Hume Park	Nov. 2	3	94 - 114 ug/g av = 105 ug/g	Objective not met
	0300111 near mouth	Nov. 2	3	143 - 174 ug/g av = 156 ug/g	Objective not met
	Deer Lake E216032 at mid-lake	Nov. 10	3	78 - 87 ug/g av = 83 ug/g	Objective not met
Chlorophenols (tri + tetra + penta) in water 0.0002mg/L max	Pitt River : 0300012 near mouth	Sep. 24	1	< 0.0001 mg/L for each homologue	Objective met
Chlorophenols (tri + tetra + penta) in sediments <0.01 ug/g av	Pitt River 0300012 near mouth	Sep. 24	3	penta: all < 0.005 ug/g tetra: all < 0.005 ug/g tri: all < 0.005 ug/g	Objective met
Chlorophenols (tri + tetra + penta) in fish 0.10 ug/g max (wet weight)	Pitt River 0300012 near mouth	Jul. 19	5	penta: all < 0.01 ug/g tetra: all < 0.01 ug/g tri: all < 0.01 ug/g	Objective met

TABLE 32

PENDER HARBOUR WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Enterococci <35/100 mL geometric mean (gm)	Pender Harbour: E207043 Hospital Bay Beach	Aug 8 - Sep 8	5	1 - 3/100 mL gm = 1.5/100 mL	Objective met
	E217042 Garden Bay Beach	Aug 8 - Sep 8	4	<1 - 3/100 mL	Indefinite result
	E217044 Beach S Gunboat Point	Aug 8 - Sep 8	5	<1 - 1/100 mL gm < 1/100 mL	Objective met
	E217045 Madeira Park Beach	Aug 8 - Sep 8	5	<1 - 5/100 mL gm = 1.8/100 mL	Objective met
	E217041 Beach E Bargain Narrows	Aug 8 - Sep 8	5	all < 1/100 mL	Objective met
Fecal Coliform <14/100 mL median <43/100 mL 90th percentile	Bargain Bay: E217035 at centre	Aug 12 - Sep 8	4	<1 - 2/100 mL	Indefinite result
Ammonia-N <1.65 mg/L av 10.8 mg/L max at temp = 17 C pH = 7.9 salinity = 25 ppt	Pender Harbour: E217031 E from Skardon Island	Aug 8 - Sep 14	16	<0.005 - 0.032 mg/L av = 0.011 mg/L (0 - 30m)	Objectives met
	Bargain Bay	1993	0	no data collected	Omitted 1993
Total Cu <0.002 mg/L av 0.003 mg/L max	Pender Harbour: E217040 Hospital Bay Dock	Aug 8 - Sep 14 Aug. 8 Aug 12 - Sep14	10 2 8	1-15m: av = 0.002 mg/L 1-14m: 0.004-0.013mg/L 1-15m:<0.001-0.001mg/L	Av obj. met Max not met Max obj. met
	E217036 Madeira Park Wharf	Aug 8 - Sep 14 Aug. 8 Aug 12 - Seo 14	10 2 8	1-14m: av = 0.003 mg/L 1-12m: 0.005-0.013mg/L 1-14m:<0.001-0.002mg/L	Av not met Max not met Max obj. met
	Bargain Bay: E217035 at centre	Aug 12 - Sep 15 Sep. 8 Aug 12 - Sep 15	7 1 6	1-12m: av = 0.002 mg/L 12m: 0.005 mg/L 1-12m:<0.001-0.001mg/L	Av obj. met Max not met Max obj. met
Total Cu 100 ug/g max in sediment (av of replicates)	Pender Harbour: E217040 Hospital Bay Dock	Sep. 14	3	104 - 154 ug/g av = 131 ug/g	Objective not met
	E217036 Madeira Park Wharf	Sep. 14	3	64 - 66 ug/g av = 65 ug/g	Objective met
	Bargain Bay: E217035 at centre	Sep. 15	3	6 - 7 ug/g av = 6 ug/g	Objective met

TABLE 32 continued

PENDER HARBOUR WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Zn 0.015 mg/L max (or as total Zn if low susp. solids)	Pender Harbour: E217040 Hospital Bay Dock	Aug 8 - Sep 14	10	<0.005 - 0.010 mg/L (1 - 15m)	Objective met
	E217036 Madeira Park Wharf	Aug 8 - Sep 14	10	<0.005 - 0.013 mg/L (1 - 14m)	Objective met
	Bargain Bay: E217035 at centre	Aug 12 - Sep 15	7	<0.005 - 0.008 mg/L (1 - 12m)	Objective met
Total Zn 150 ug/g max in sediment (av of replicates)	Pender Harbour: E217040 Hospital Bay Dock	Sep. 14	3	236 - 1370 ug/g av = 652 ug/g	Objective not met
	E217036 Madeira Park Wharf	Sep. 14	3	97 - 104 ug/g av = 99 ug/g	Objective met
	Bargain Bay: E217035 at centre	Sep. 15	3	16 - 18 ug/g av = 17 ug/g	Objective met
Total Pb <0.002 mg/L av 0.140 mg/L max <0.003 mg/L 20th percentile (tp)	Pender Harbour: E217040 Hospital Bay Dock	Aug 8 - Sep 14	10	<0.001 - 0.041 mg/L av = 0.006 mg/L tp = 0.001 mg/L (1 - 15m)	Max obj. met Av not met tp obj. met
	E217036 Madeira Park Wharf	Aug 8 - Sep 14	10	<0.001 - 0.020 mg/L av = 0.006 mg/L tp = 0.001 mg/L (1 - 14m)	Max obj. met Av not met tp obj. met
	Bargain Bay: E217035 at centre	Aug 12 - Sep 15	7	<0.001 - 0.005 mg/L av = 0.003 mg/L tp < 0.001 mg/L (1 - 12m)	Max obj. met Av not met tp obj. met
Total Pb 30 ug/g max in sediment (av of replicates)	Pender Harbour: E217040 Hospital Bay Dock	Sep. 14	3	77 - 155 ug/g av = 121 ug/g	Objective not met
	E217036 Madeira Park Wharf	Sep. 14	3	26 - 29 ug/g av = 28 ug/g	Objective met
	Bargain Bay: E217035 at centre	Sep. 15	3	all < 10 ug/g	Objective met
Total Pb 0.8 ug/g max in tissue (wet weight)	Pender Harbour E217038 Oyster Bay	Sep. 14	3	<0.017 - 0.29 ug/g (wet wt. in oysters)	Objective met

TABLE 32 continued

PENDER HARBOUR WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Total Pb 0.8 ug/g max in tissue (wet weight)	Bargain Bay E217039 at centre	Sep. 15	3	0.18 - 0.20 ug/g (wet wt. in oysters)	Objective met
Total Fe 0.05 mg/L max	Pender Harbour: E217040 Hospital Bay Dock	Aug 8 - Sep 14	9	<0.005 - 0.030 mg/L (1 - 15m)	Objective met
		Sep. 14	1	0.092 mg/L (13 m)	Objective not met
	E217036 Madeira Park Wharf	Aug 8 - Sep14	9	<0.005 - 0.044 mg/L (1 - 14m)	Objective met
		Sep. 14	1	0.052 mg/L (11 m)	Objective not met
	Bargain Bay: E217035 at centre	Aug 24 - Sep 15	5	<0.005 - 0.019 mg/L (1 - 12m)	Objective met
		Aug 12, Sep 8	2	0.069 - 2.610 (1 - 12m)	Objective not met
Tributyl Tin 0.001 ug/L max	Pender Harbour: E217040 Hospital Bay Dock	Sep. 14	1	0.004 ug/L (1 m)	Objective not met
			1	<0.003 ug/L (15 m)	Indefinite result
	E217036 Madeira Park Wharf	Sep. 14	2	all < 0.003 ug/L (1 - 13m)	Indefinite result
	Bargain Bay: E217035 at centre	Sep. 15	2	all < 0.003 ug/L (1 - 12m)	Indefinite result
L-PAH in sediment (max) naphthy 0.20 ug/g acenphyl 0.06 ug/g acenaphe 0.05 ug/g fluor 0.05 ug/g phenant 0.15 ug/g anthrac 0.10 ug/g total 0.5 ug/g	Pender Harbour: E217040 Hospital Bay Dock	Sep. 14 (3 reps)	 3 3 3 3 3 3 3	av of 3 replicates: naphthy: 0.016 ug/g acenphyl: 0.016 ug/g acenaphe: 0.051 ug/g fluor: 0.069 ug/g phenant: 0.45 ug/g anthrac: 0.134 ug/g total: 0.74 ug/g	 Obj. met Obj. met Obj. met Obj. not met Obj. not met Obj. not met Obj. not met
H-PAH in sediment (max) fluorant 0.17 ug/g pyrene 0.26 ug/g bz-a-an 0.13 ug/g chrysene 0.14 ug/g bz-a-fl 0.14 ug/g bz-a-py 0.32 ug/g ind-pyr 0.06 ug/g dibz-an 0.06 ug/g bz-pery 0.07 ug/g total 1.2 ug/g	Pender Harbour: E217040 Hospital Bay Dock	Sep. 10 (3 reps)	 3 3 3 3 3 3 3 3 3	av of 3 replicates: fluorant: 0.77 ug/g pyrene: 0.86 ug/g bz-a-an: 0.21 ug/g chrysene: 0.41 ug/g bz-a-fl: 0.55 ug/g bz-a-py: 0.24 ug/g ind-pyr: 0.083 ug/g dibz-an: 0.033 ug/g bz-pery: 0.082 ug/g total: 3.24 ug/g	 Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. not met Obj. met Obj. not met Obj. not met

TABLE 32 continued

PENDER HARBOUR WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Dissolved Oxygen 6.75 mg/L min	Pender Harbour: E217031 E from Skardon Island	Aug. 12	12	6.8 - 10.0 mg/L (1 - 15m)	Objective met

TABLE 33

SECHELT INLET WATER QUALITY OBJECTIVES - 1993

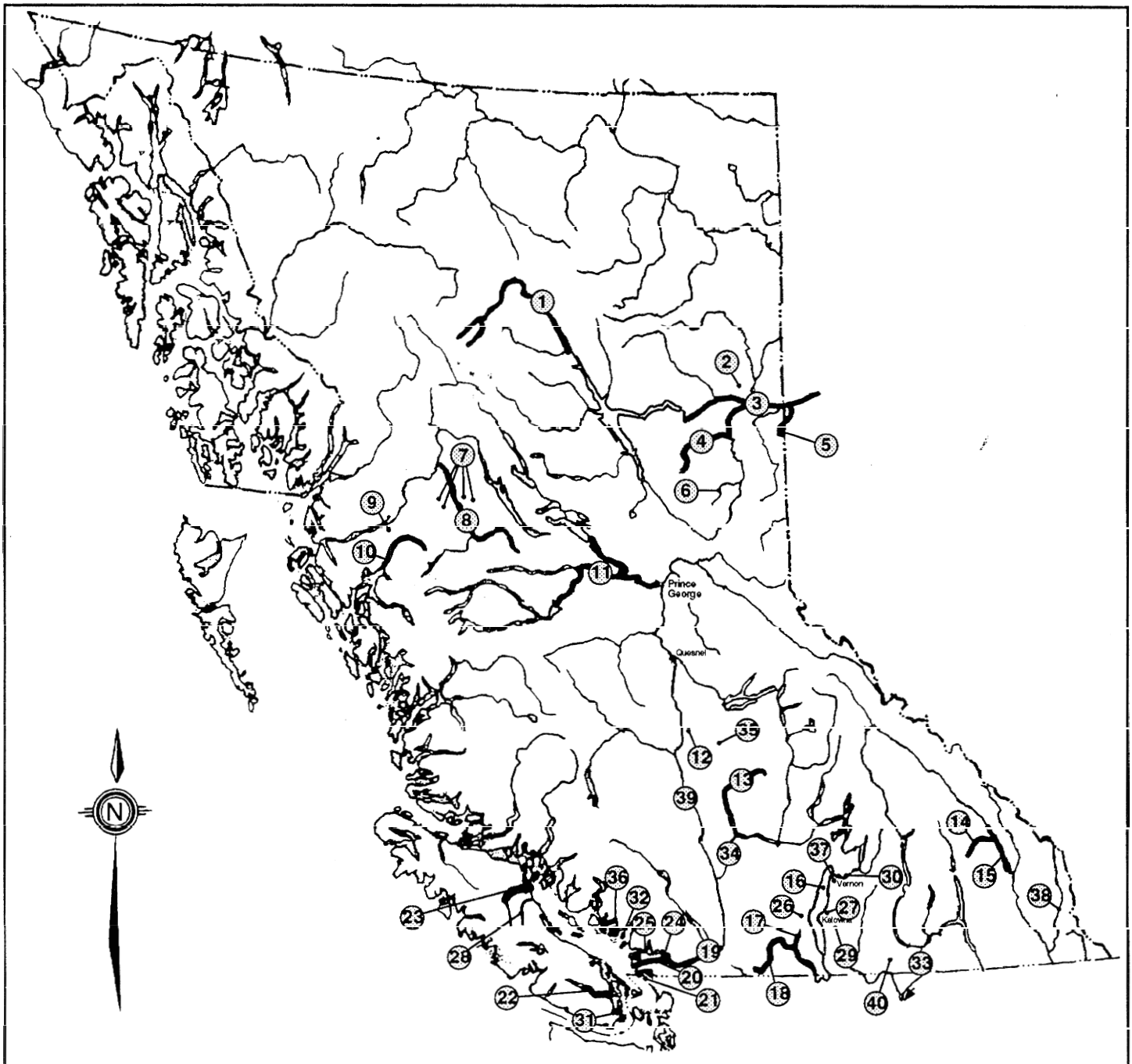
VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Fecal Coliforms <14/100 mL median (med) <43/100 mL 90th perc (np)	Sechelt Inlet E218926 mid channel-S Sechelt	Aug 12,24, Sep 2,8,15	11	<1 - 3/100 mL med < 1/100 mL np = 2/100 mL (1 - 30m)	Objectives met
Fecal Coliforms <200/100 mL geometric mean (gm)	Porpoise Bay E207599 south-east of Poise Island	Aug 12,24, Sep 2,8,15	11	<1 - 1/100 mL gm < 1/100 mL (1 - 29m)	Objective met
	E218927 50m north west Gov't dock	Aug 12,24, Sep 2,8,15	11	<1 - 14/100 mL gm = 2.3/100 mL (1 - 11m)	Objective met
Enterococci <4/100 mL median (med) <11/100 mL 90th perc (np)	Sechelt Inlet E218926 mid channel-S Sechelt	Aug 12,24, Sep 2,8,15	11	all < 1/100 mL (1 - 30m)	Objectives met
Enterococci <20/100 mL geometric mean (gm)	Porpoise Bay E207599 south-east of Poise Island	Aug 12,24, Sep 2,8,15	11	<1 - 1/100 mL gm < 1/100 mL (1 - 29m)	Objective met
	E218927 50m north west Gov't dock	Aug 12,24, Sep 2,8,15	11	<1 - 8/100 mL gm = 1.8/100 mL (1 - 11m)	Objective met
Pseudomonas aeruginosa <2/100 mL 75th perc.	Porpoise Bay	1993	0	no data collected	Omitted 1993
Ammonia-N <2.3 mg/L av 15 mg/L max at ph = 7.8 salinity = 20g/L temp = 15 C	Porpoise Bay E207599 south-east of Poise Island	Aug 12,24, Sep 2,8,15	11	<0.005 - 0.006 mg/L av < 0.005 mg/L (1 - 29m)	Objectives met
	E218927 50m north west Gov't dock	Aug 12,24, Sep 2,8,15	11	<0.005 - 0.028 mg/L av = 0.009 mg/L (1 - 11m)	Objective met
Suspended Solids 10 mg/L max increase	Sechelt Inlet E218926 mid channel-S Sechelt	Aug 12,24, Sep 2,8,15	10	<4 - 7 mg/L (1 - 30m)	Objective met
	(control site for Porpoise Bay)	Sep. 15	1	12 mg/L (15 m)	Indefinite result (no control)

TABLE 33 continued

SECHELT INLET WATER QUALITY OBJECTIVES - 1993

VARIABLE & OBJECTIVE	MEASUREMENT				CONCLUSION
	SITE	DATE	n	VALUE	
Suspended Solids 10 mg/L max increase	Porpoise Bay E207599 south-east of Poise Island	Aug 12,24, Sep 2,8,15	10	4 - 9 mg/L (1 - 27m)	Objective met
		Sep. 2	1	274 mg/L increase = 267 mg/L (29 m)	Objective not met
	E218927 50m north west Gov't dock	Aug 12,24, Sep 2,8,15	9	4 - 10 mg/L (1 - 9m)	Objective met
		Sep 2 & Sep 15	2	46 - 52 mg/L increase = 40 - 42 mg/L (6 - 11m)	Objective not met
Dissolved Oxygen 6.75 mg/L min at the surface	Sechelt Inlet Porpoise Bay	1993	0	no data collected	Objective not checked
Total Cu <2 ug/L av 3 ug/L max	Porpoise Bay E218927 50m north west Gov't dock	Aug 8,24, Sep 2,8,15	13	av = 3 ug/L (1 - 11m)	Av objective not met
		Aug 8, Sep 15	3	5 - 13 ug/L (1 - 10m)	Max objective not met
		Aug 8,24, Sep 2,8,15	10	<1 - 3 ug/L (1 - 11m)	Max objective met
Total Pb <2 ug/L av 140 ug/L max <3 ug/L 80th perc.	Porpoise Bay E218927 50m north west Gov't dock	Aug 8,24, Sep 2,8,15	13	<1 - 11 ug/L av = 2 ug/L 80th perc = 2.5 ug/L (1 - 11m)	Objectives met
Total Pb <0.8 ug/g wet weight in fish tissue	Porpoise Bay E218927 50m north west Gov't dock	Oct. 24	5	all < 2 ug/g wet weight (15 - 20.5m)	Indefinite result
Total Zn 15 ug/L max	Porpoise Bay E218927 50m north west Gov't dock	Aug 8,24, Sep 2,8,15	12	<5 - 10 ug/L (1 - 11m)	Objective met
		Sep. 15	1	31 ug/L (3 m)	Objective not met

FIGURE 1: WATER BASINS WHERE WATER QUALITY OBJECTIVES HAVE BEEN SET



1. Upper Finlay River
2. Charlie Lake
3. Peace River
4. Pine River
5. Pouce Coupe River
6. Bullmoose Creek
7. Kathlyn, Seymour, Round, and Tyhee Lakes
8. Bulkley River
9. Lakelse Lake
10. Lower Kitimat River and Arm
11. Nechako River
12. Williams Lake
13. Bonaparte River
14. Toby Creek
15. Columbia and Windermere Lakes
16. Okanagan Valley Lakes
17. Cahill Creek
18. Similkameen River
19. Lower Fraser River
20. Lower Fraser River
21. Boundary Bay
22. Cowichan-Koksilah Rivers
23. Quinsam River
24. Lower Fraser River Tributaries
25. Burrard Inlet
26. Okanagan Tribs., Westbank
27. Okanagan Tribs., Kelowna
28. Oyster River
29. Hydraulic Creek
30. Bessette Creek
31. Elk Lake
32. Pender Harbour
33. Columbia River (to Birchbank)
34. Thompson River
35. San José River
36. Sechelt Inlet
37. Vernon Tributaries
38. Elk River
39. Fraser River (Prince George to Hope)
40. Christina Lake

FIGURE 2: COWICHAN-KOKSILAH RIVERS

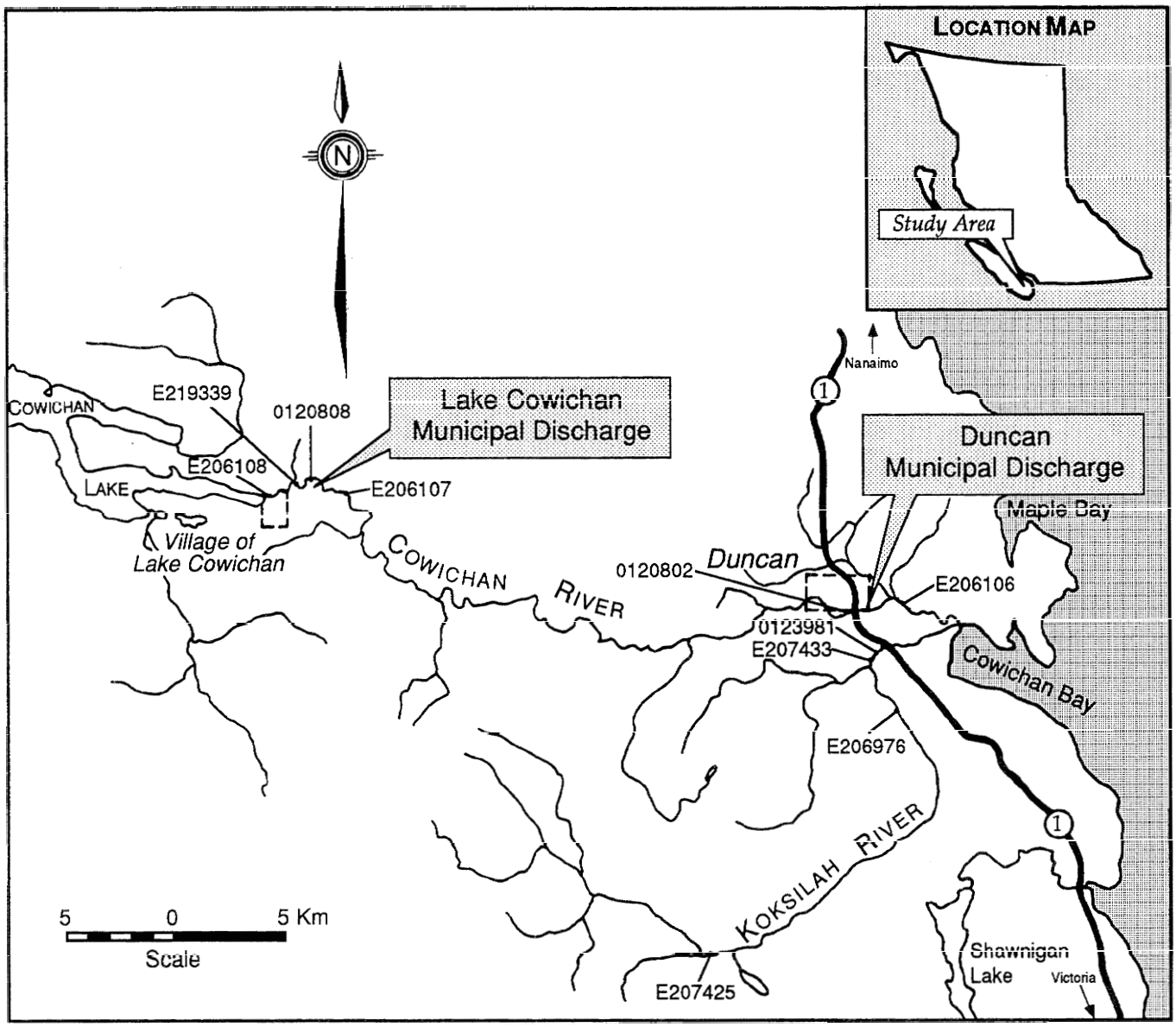


FIGURE 3: MIDDLE QUINSAM LAKE

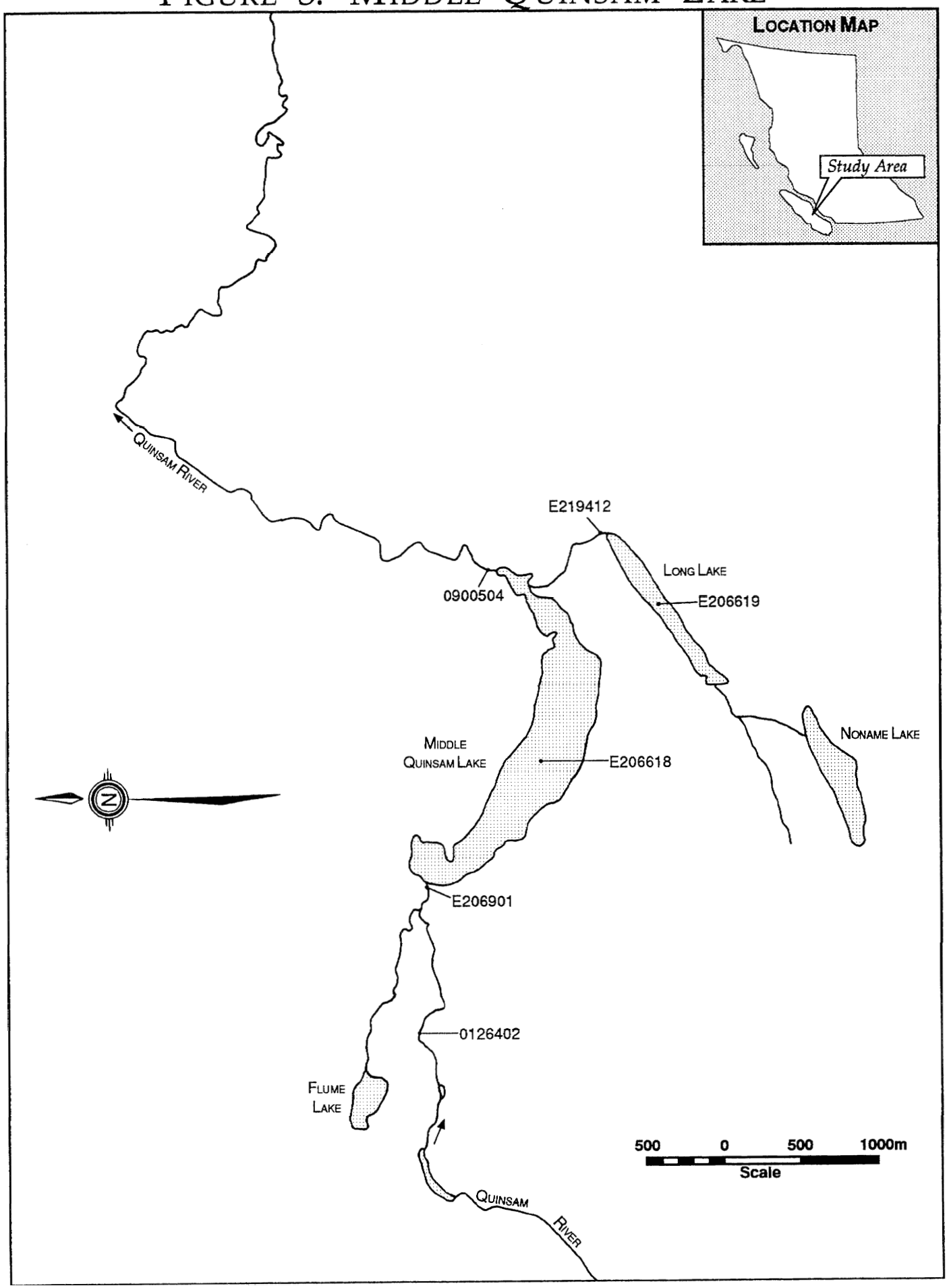


FIGURE 4: OYSTER RIVER

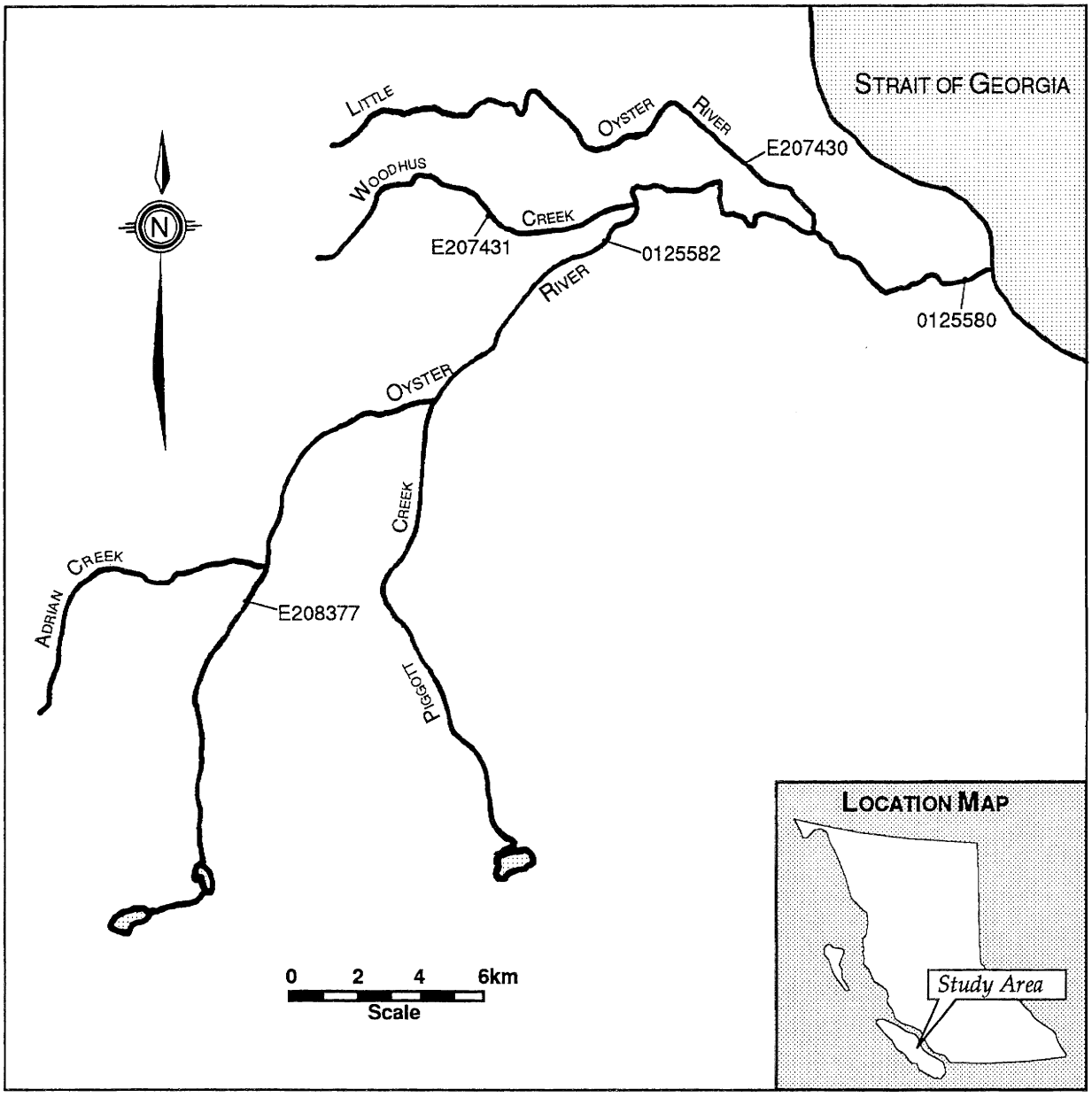


FIGURE 5: ELK AND BEAVER LAKES

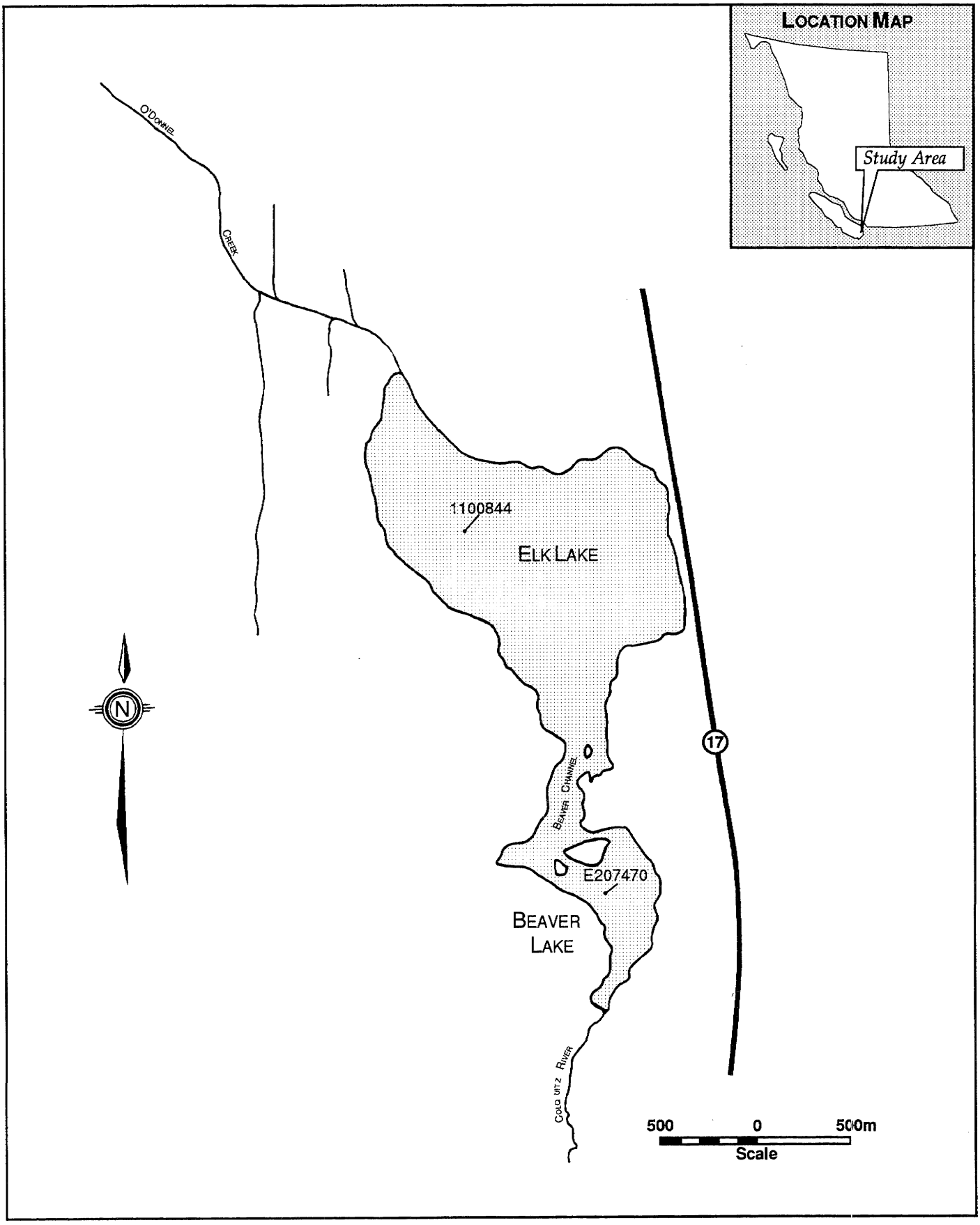


FIGURE 6: KATHLYN, SEYMOUR, ROUND AND TYHEE LAKES

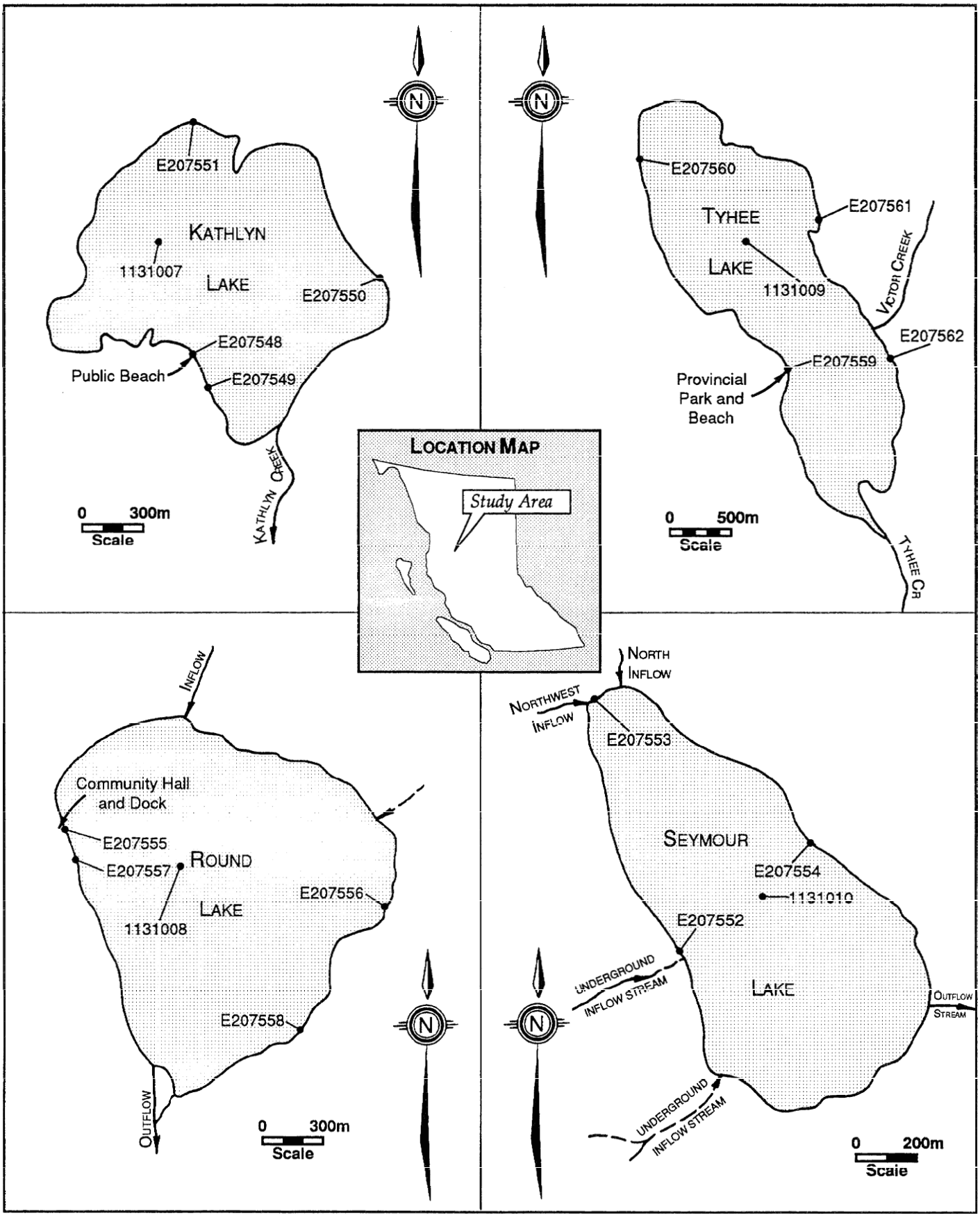


FIGURE 7: LOWER KITIMAT RIVER AND KITIMAT ARM

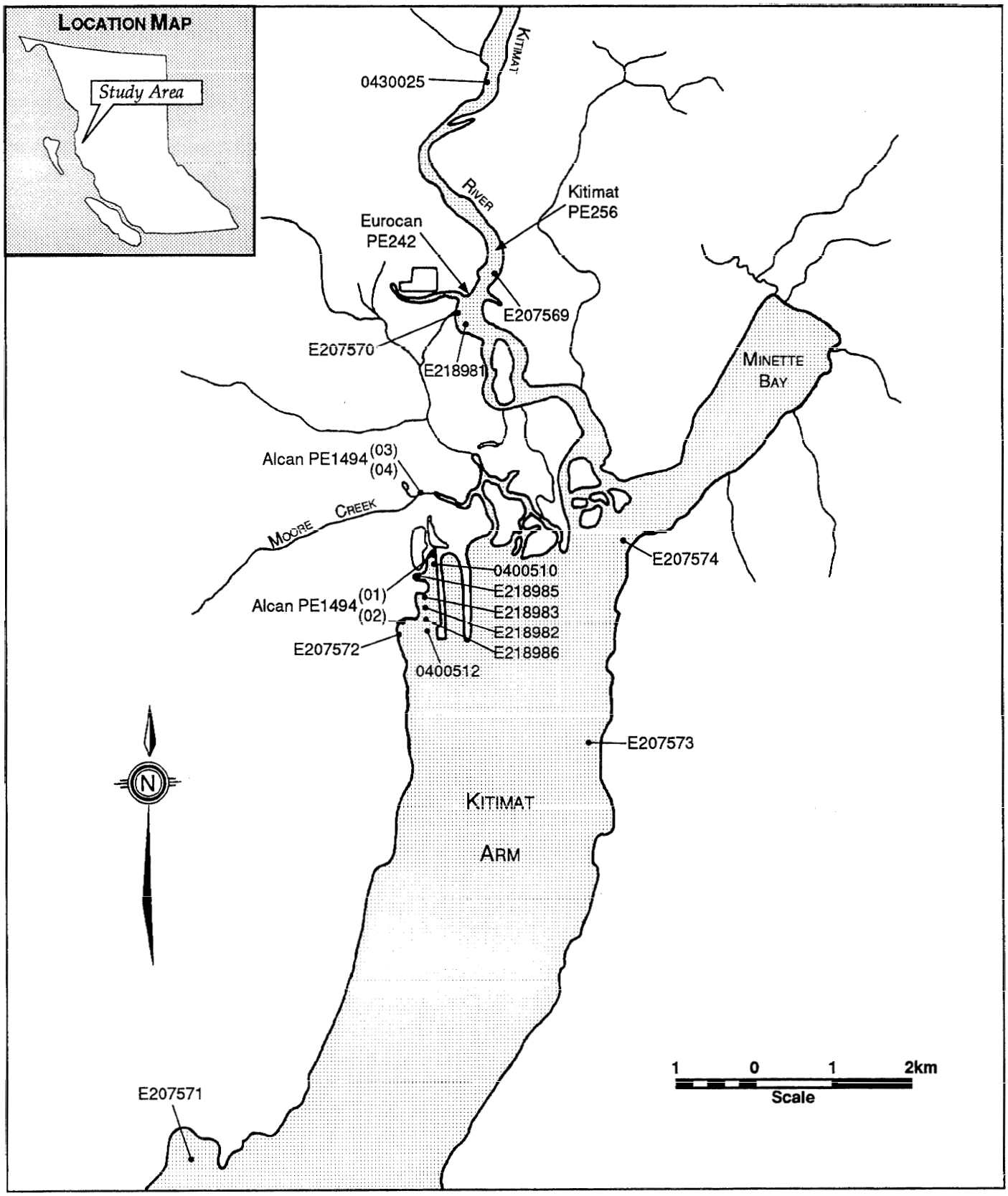


FIGURE 8: CHARLIE LAKE

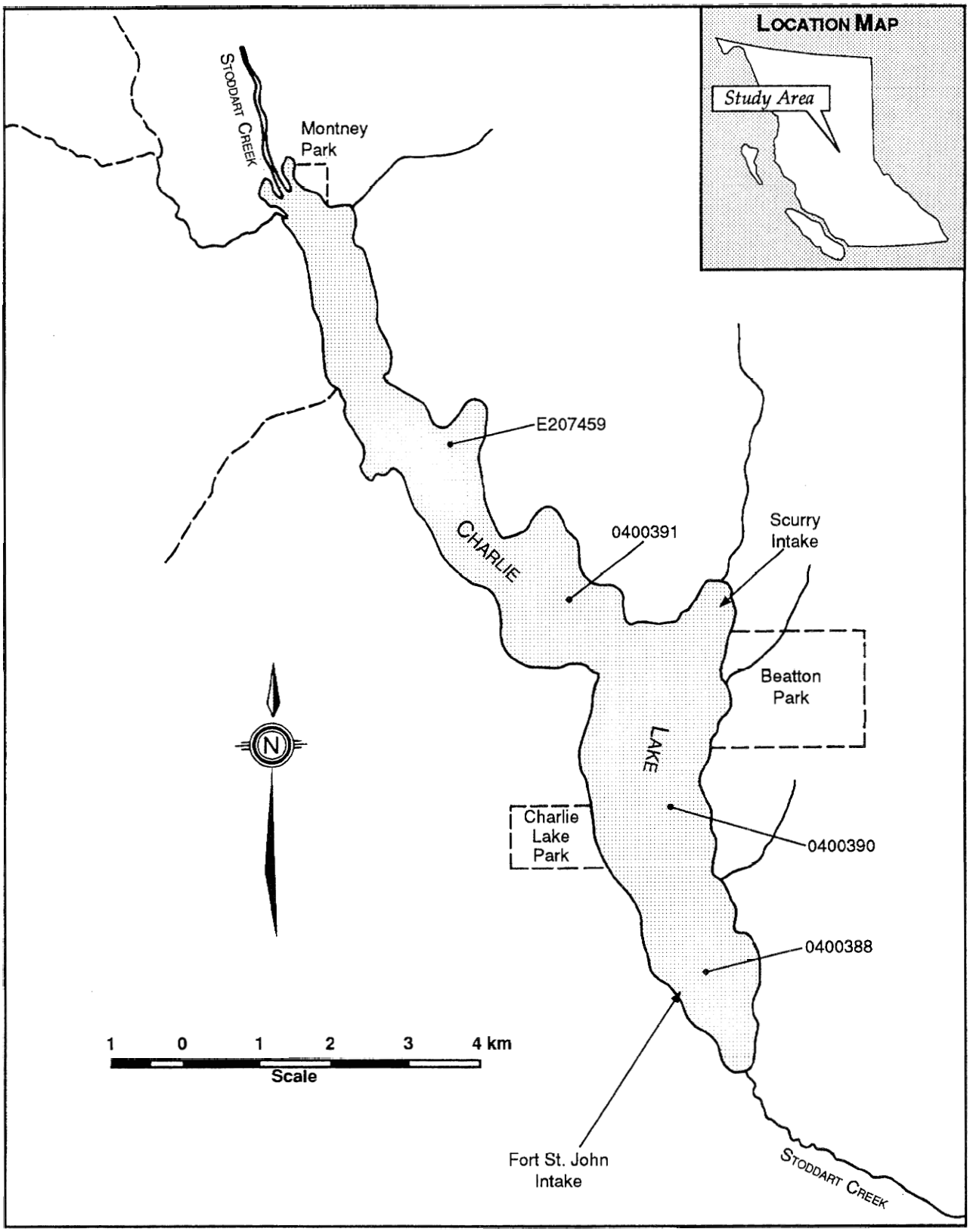


FIGURE 9: BULLMOOSE CREEK

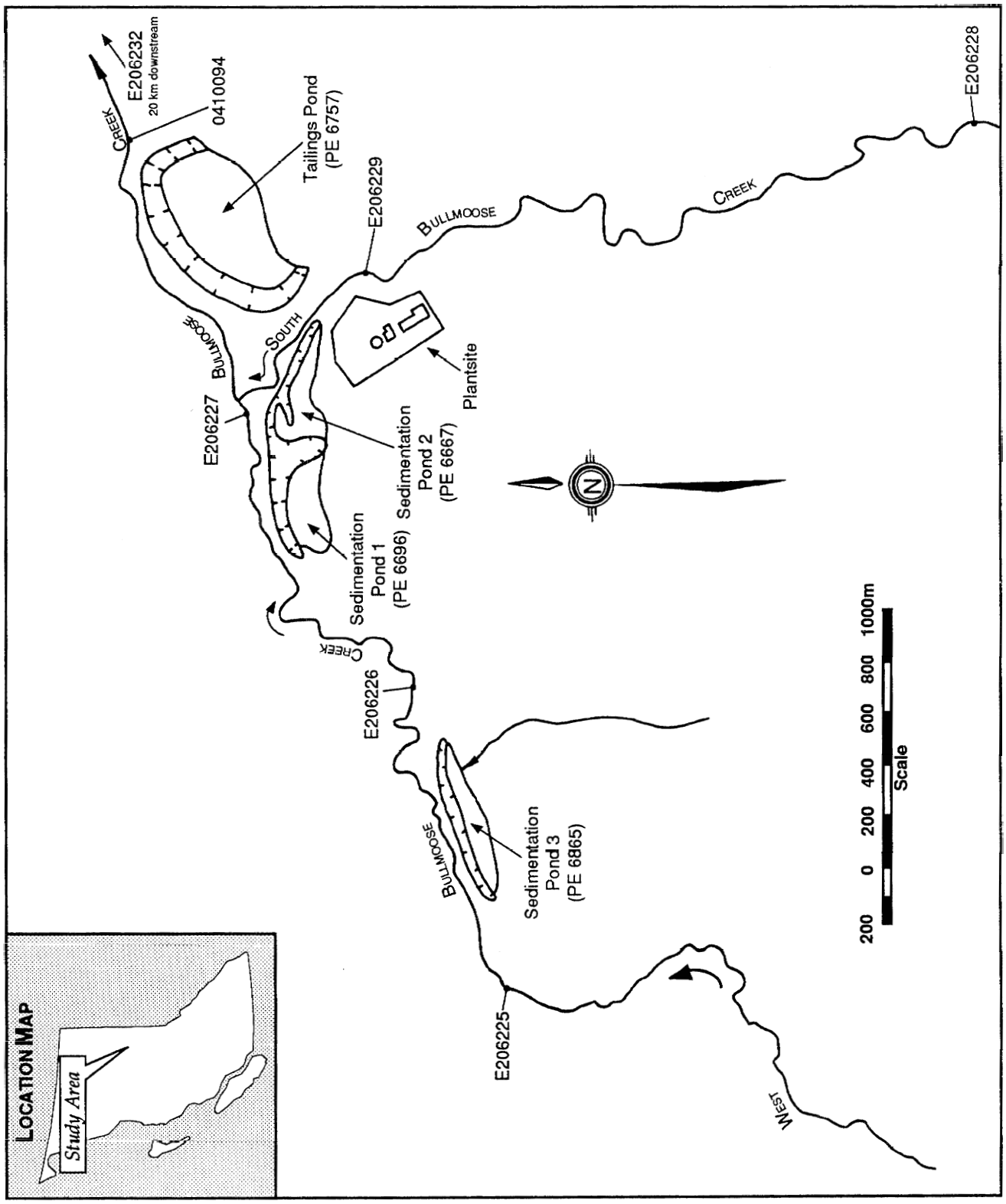


FIGURE 10: NECHAKO RIVER

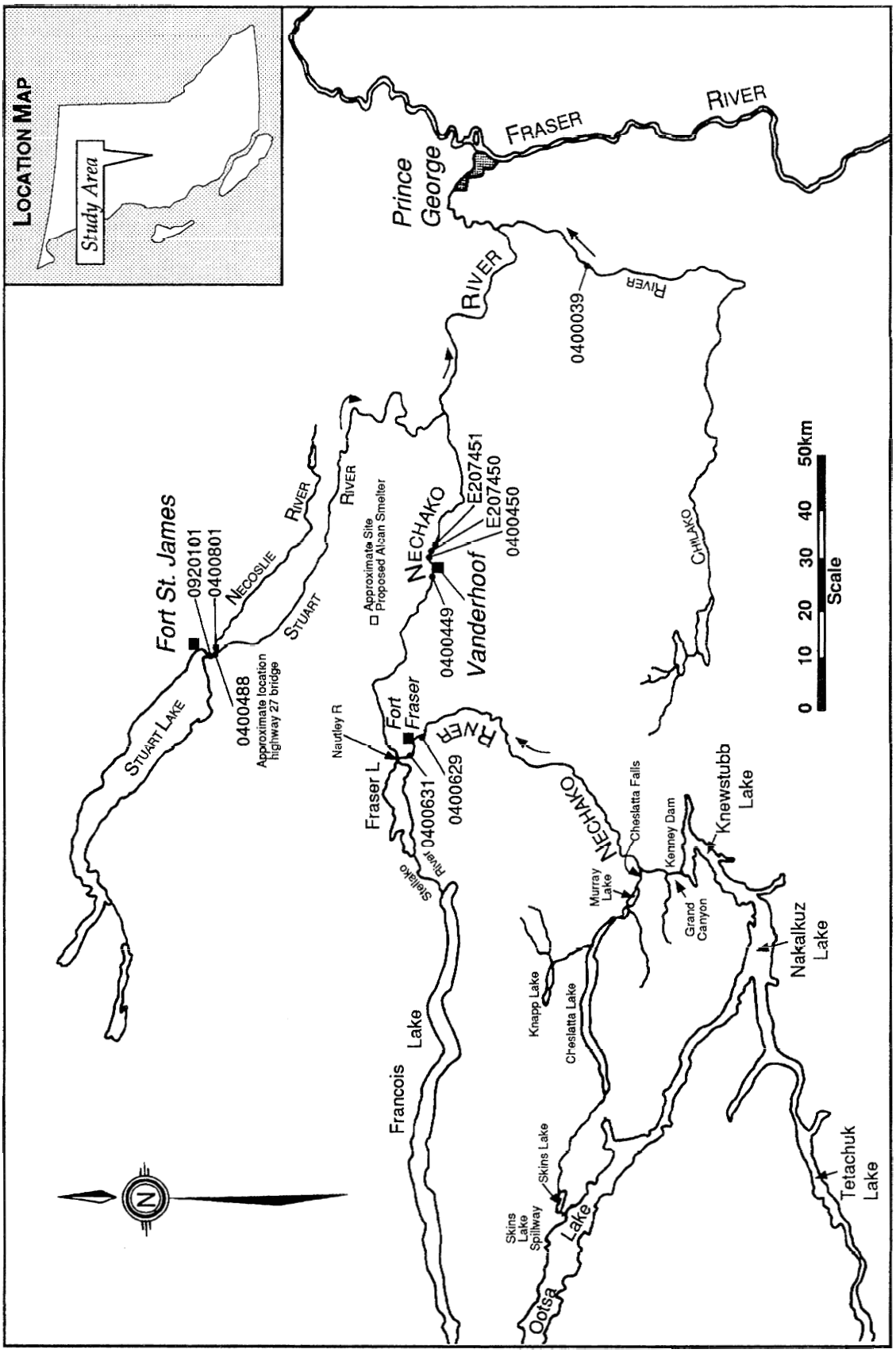


FIGURE 11: PEACE RIVER MAINSTEM

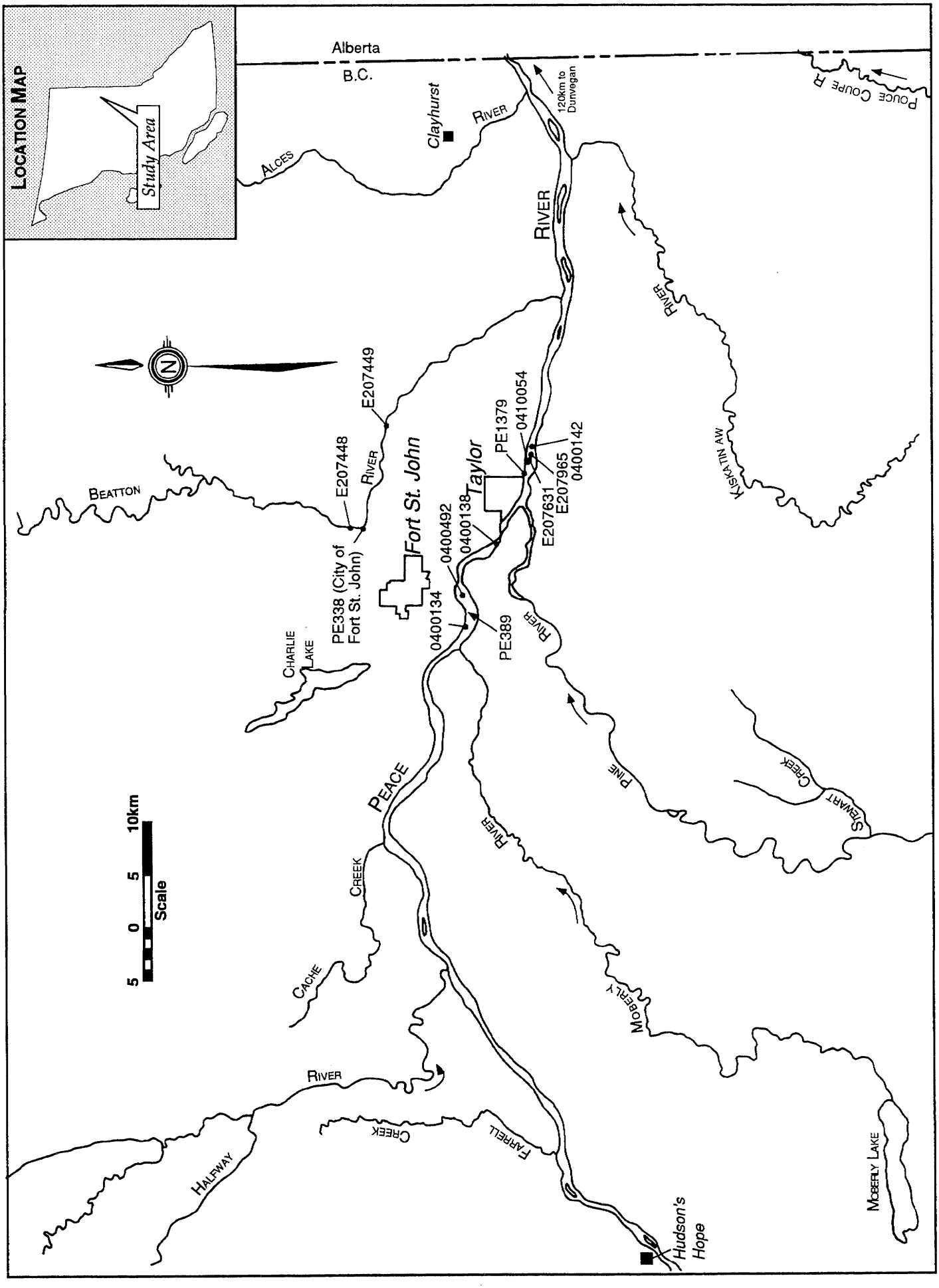


FIGURE 12: WILLIAMS LAKE

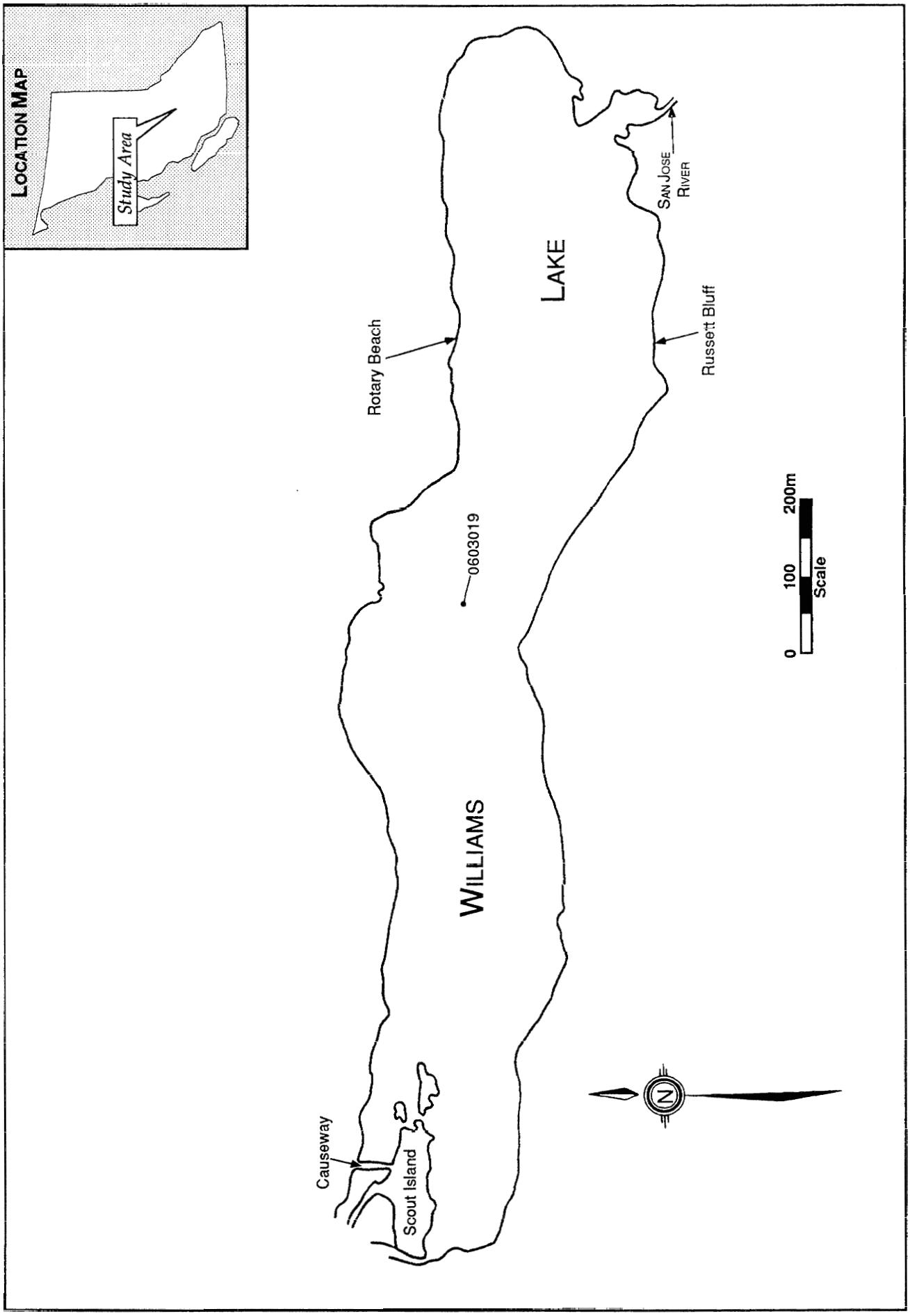


FIGURE 13: SAN JOSE RIVER

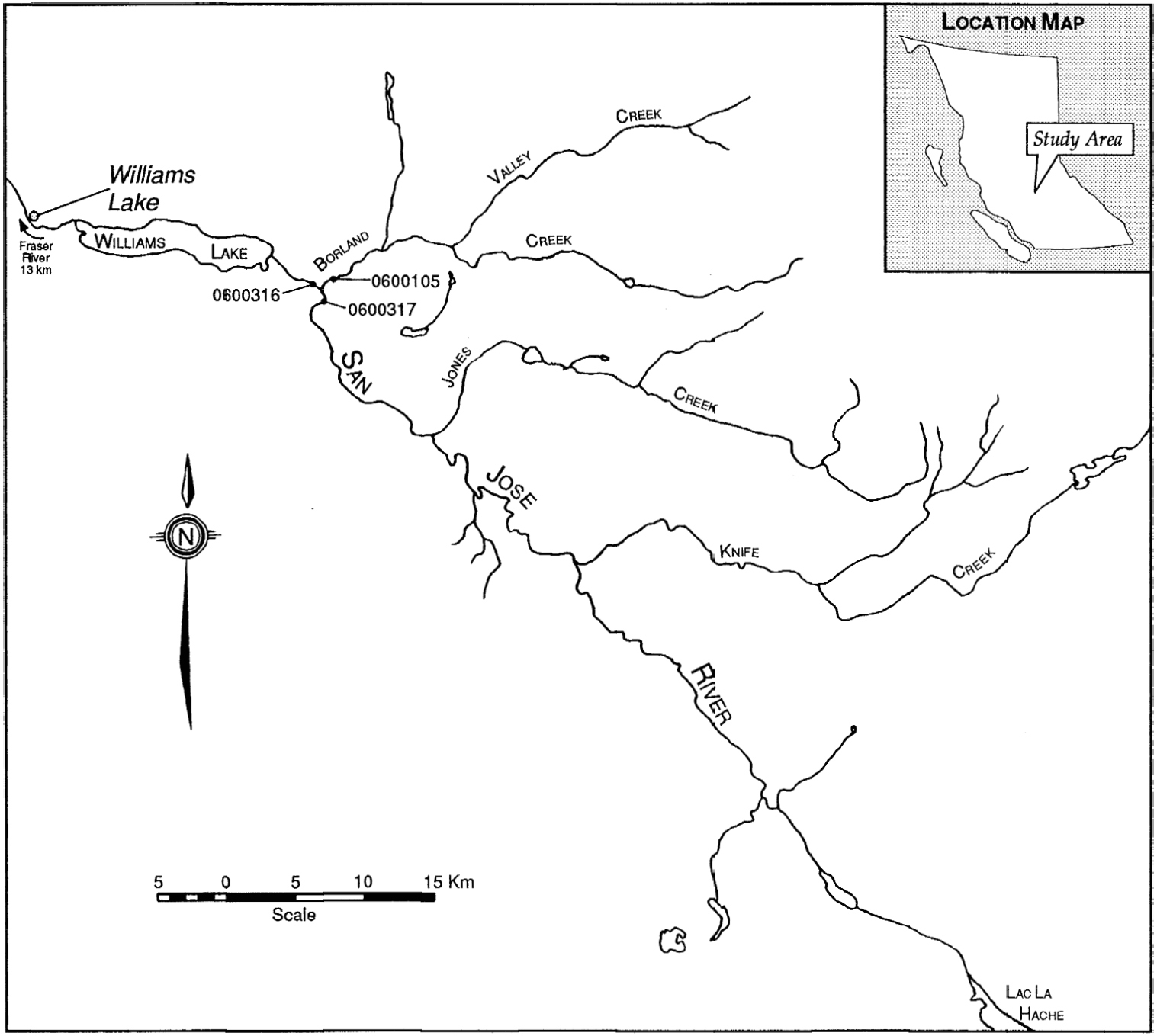


FIGURE 14: BONAPARTE RIVER

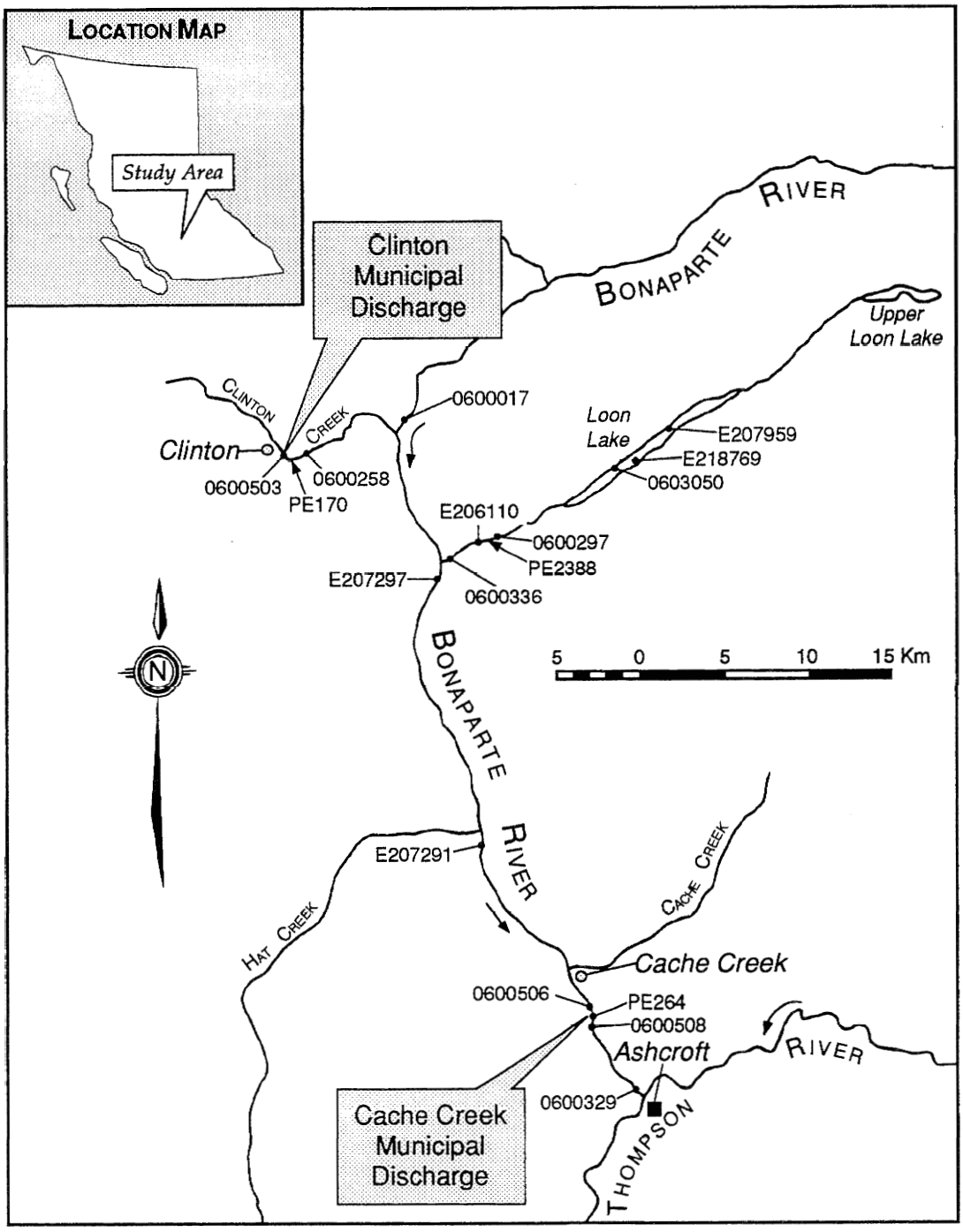


FIGURE 15: OKANAGAN VALLEY LAKES

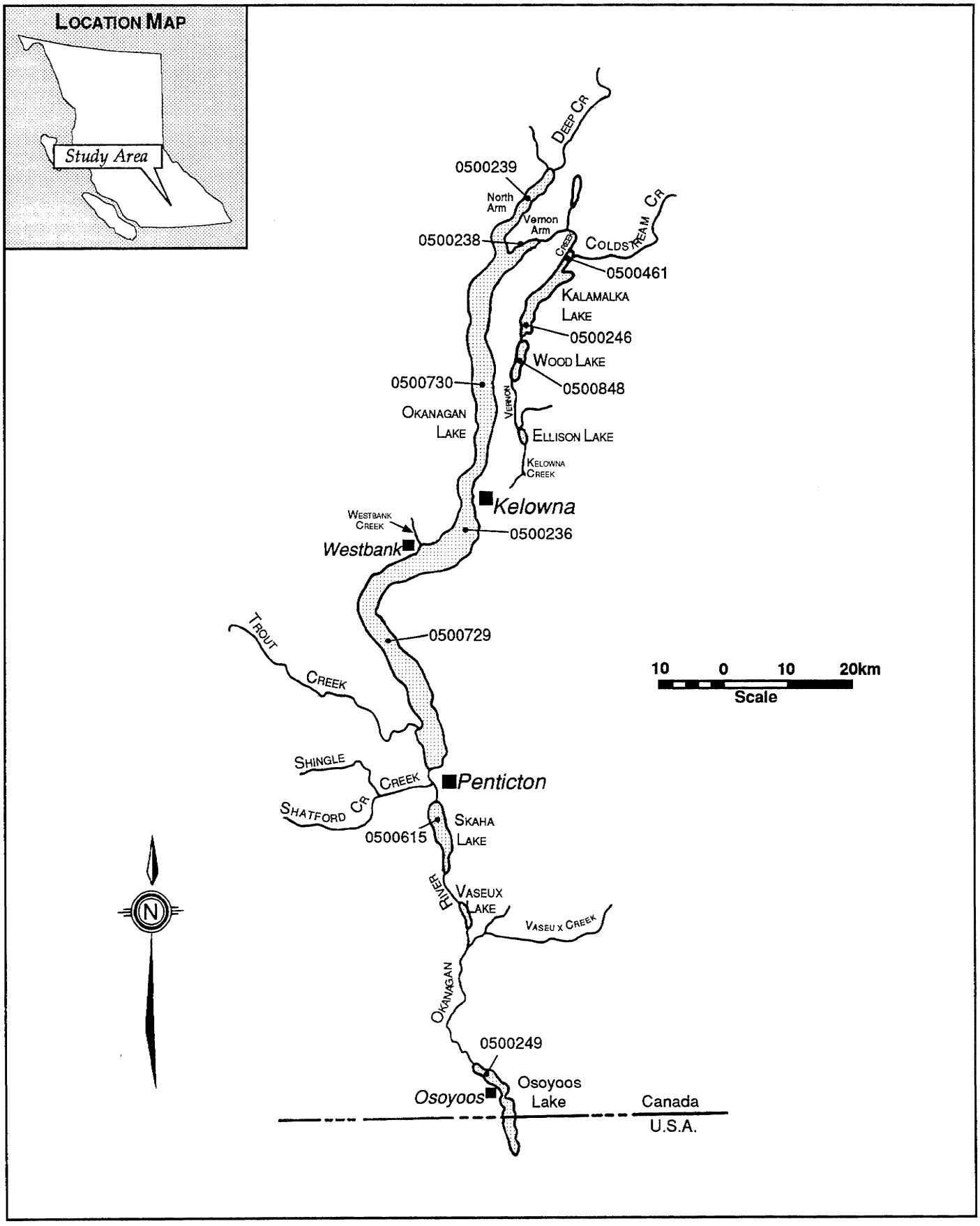


FIGURE 16: SIMILKAMEEN RIVER

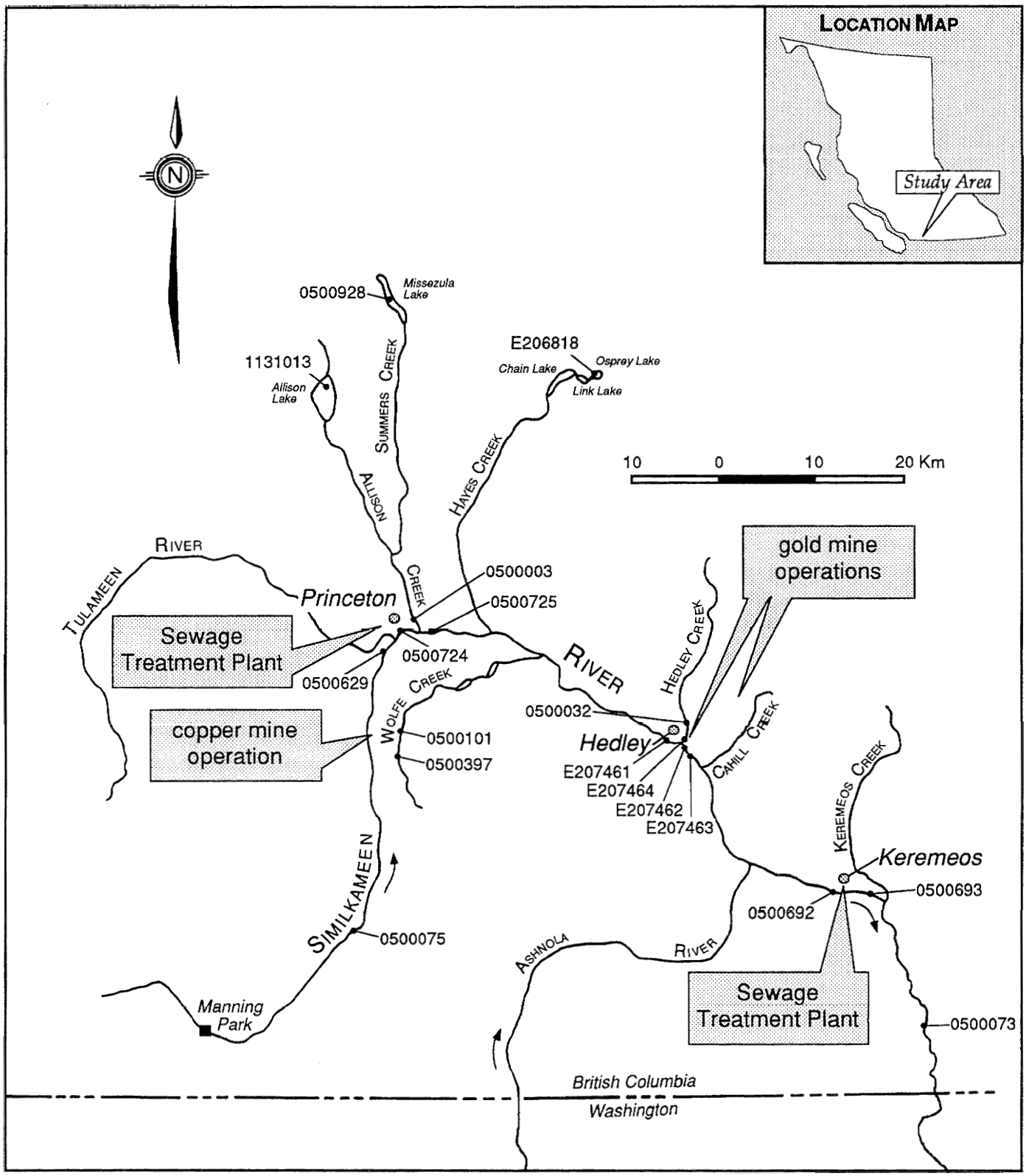


FIGURE 17: CAHILL CREEK

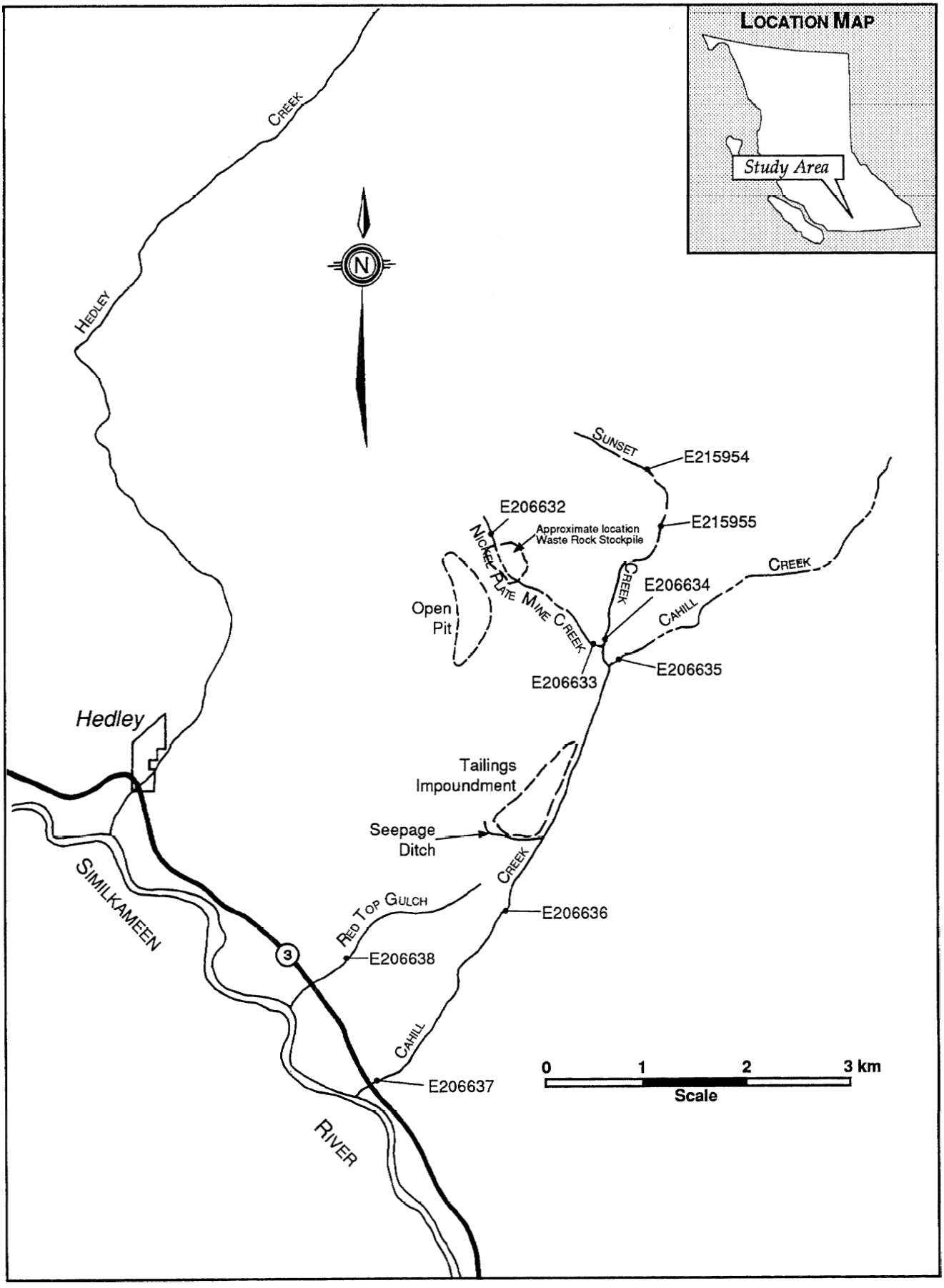


FIGURE 18: BESSETTE CREEK

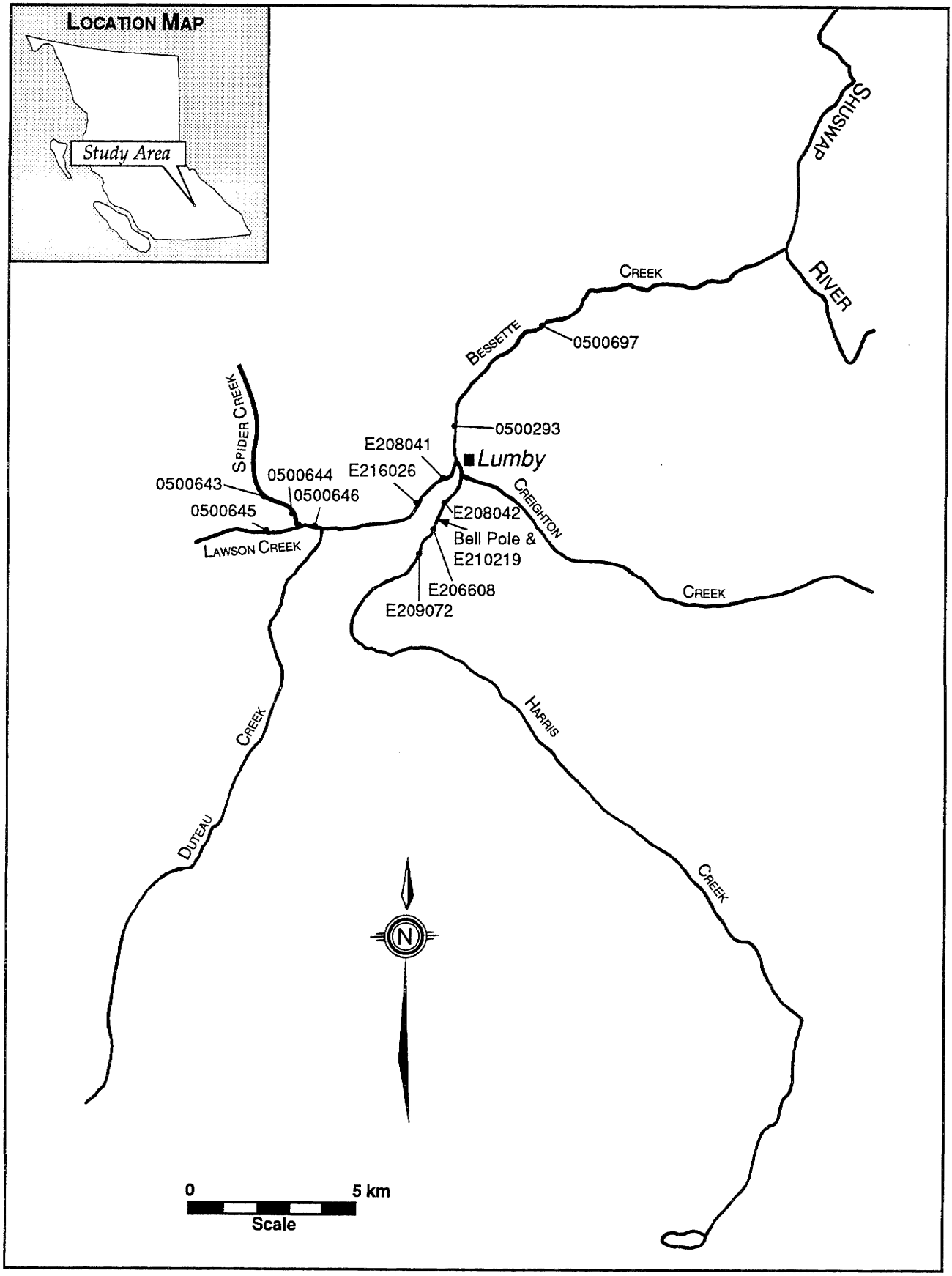


FIGURE 19: TRIBUTARIES TO OKANAGAN LAKE NEAR WESTBANK

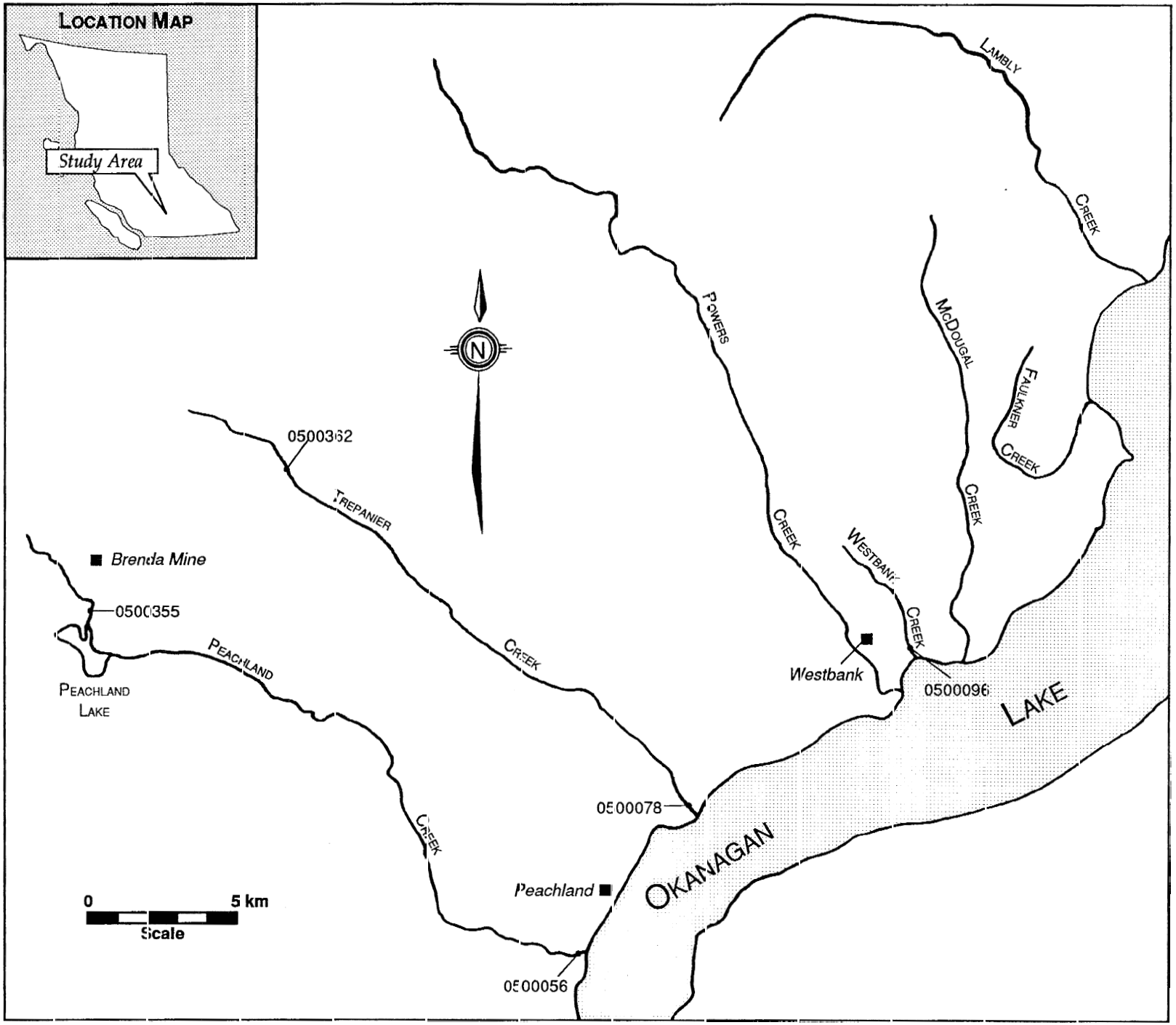


FIGURE 20: TRIBUTARIES TO OKANAGAN LAKE NEAR KELOWNA

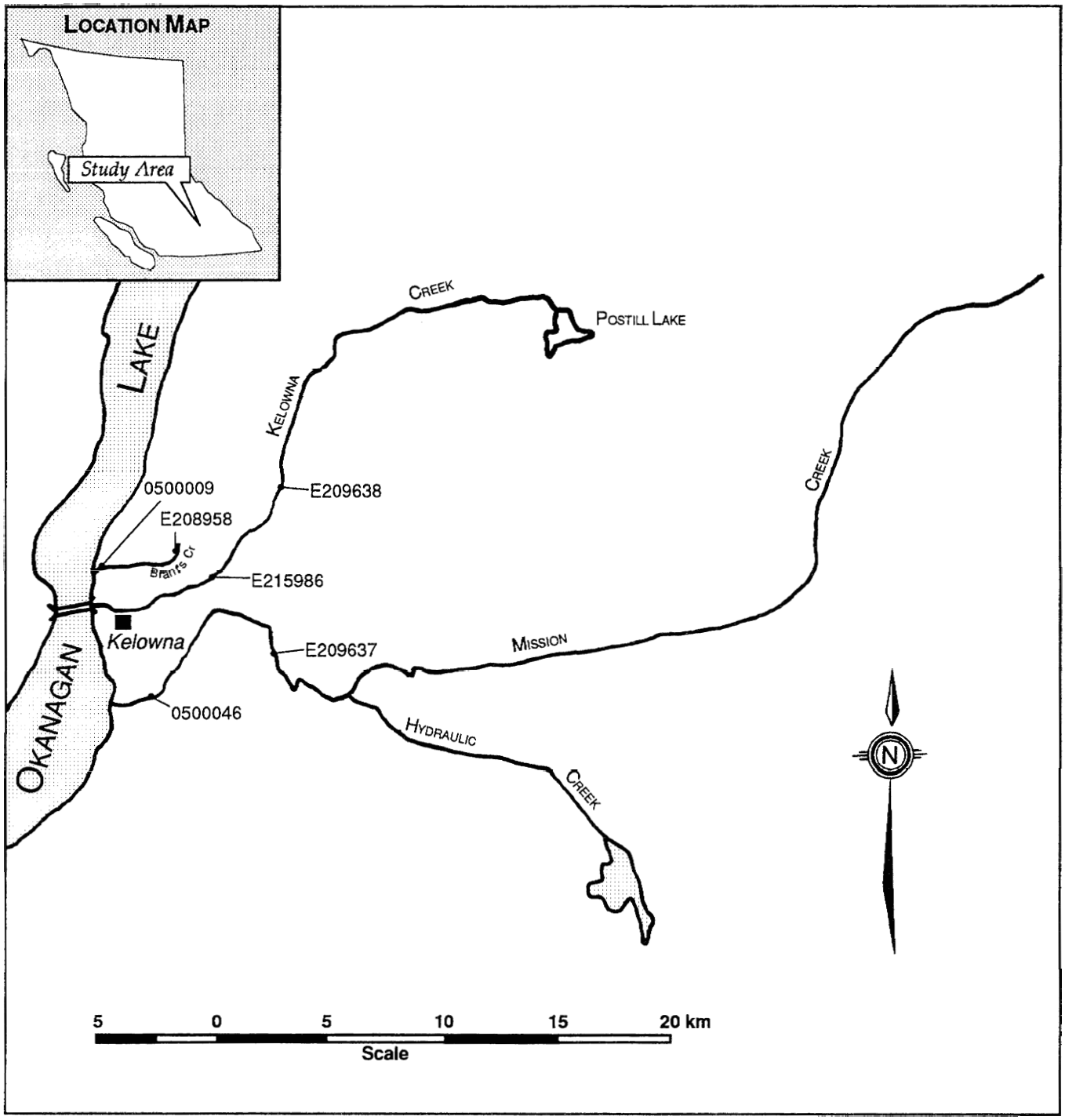


FIGURE 21: TRIBUTARIES TO OKANAGAN LAKE NEAR VERNON

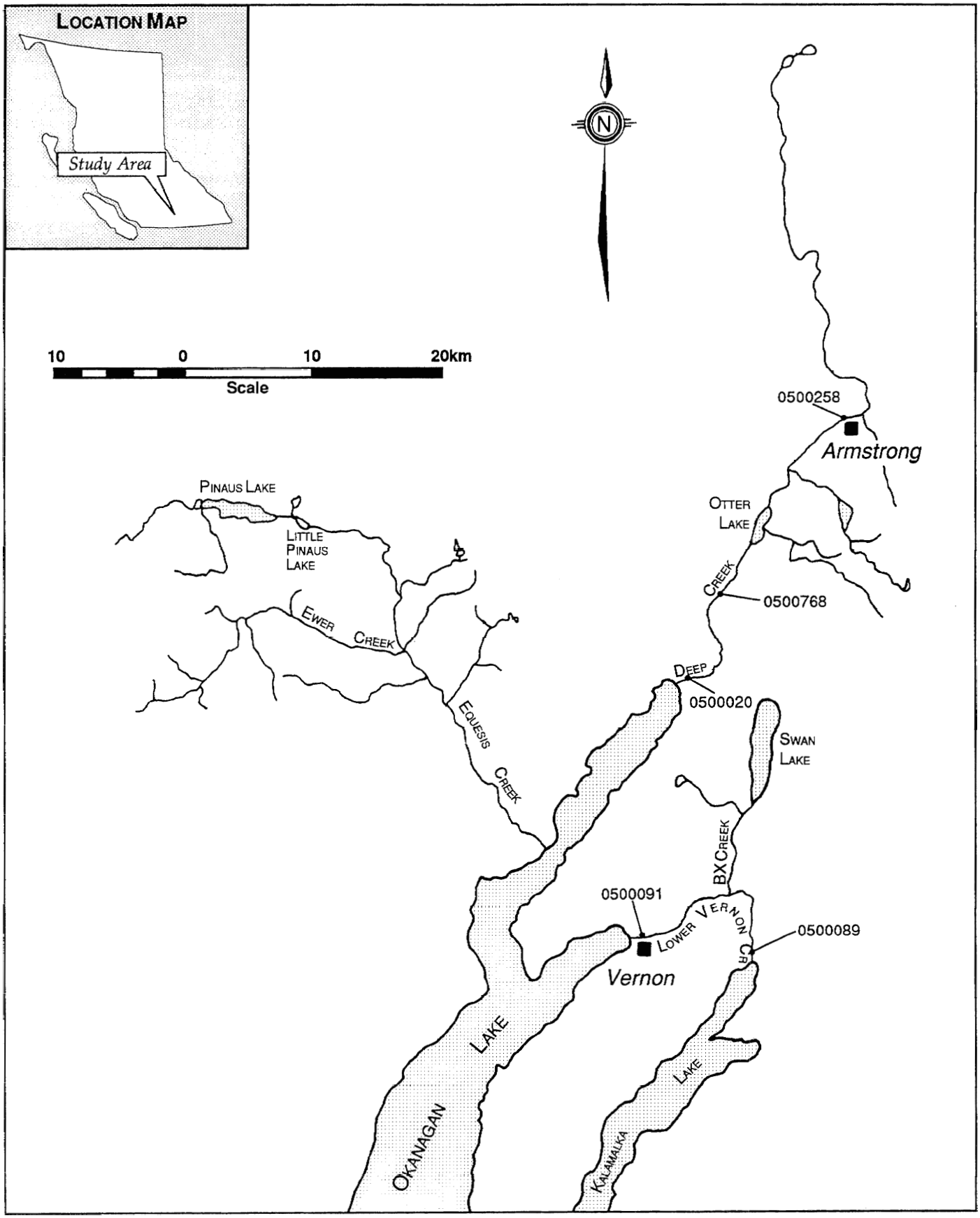


FIGURE 22: HYDRAULIC CREEK

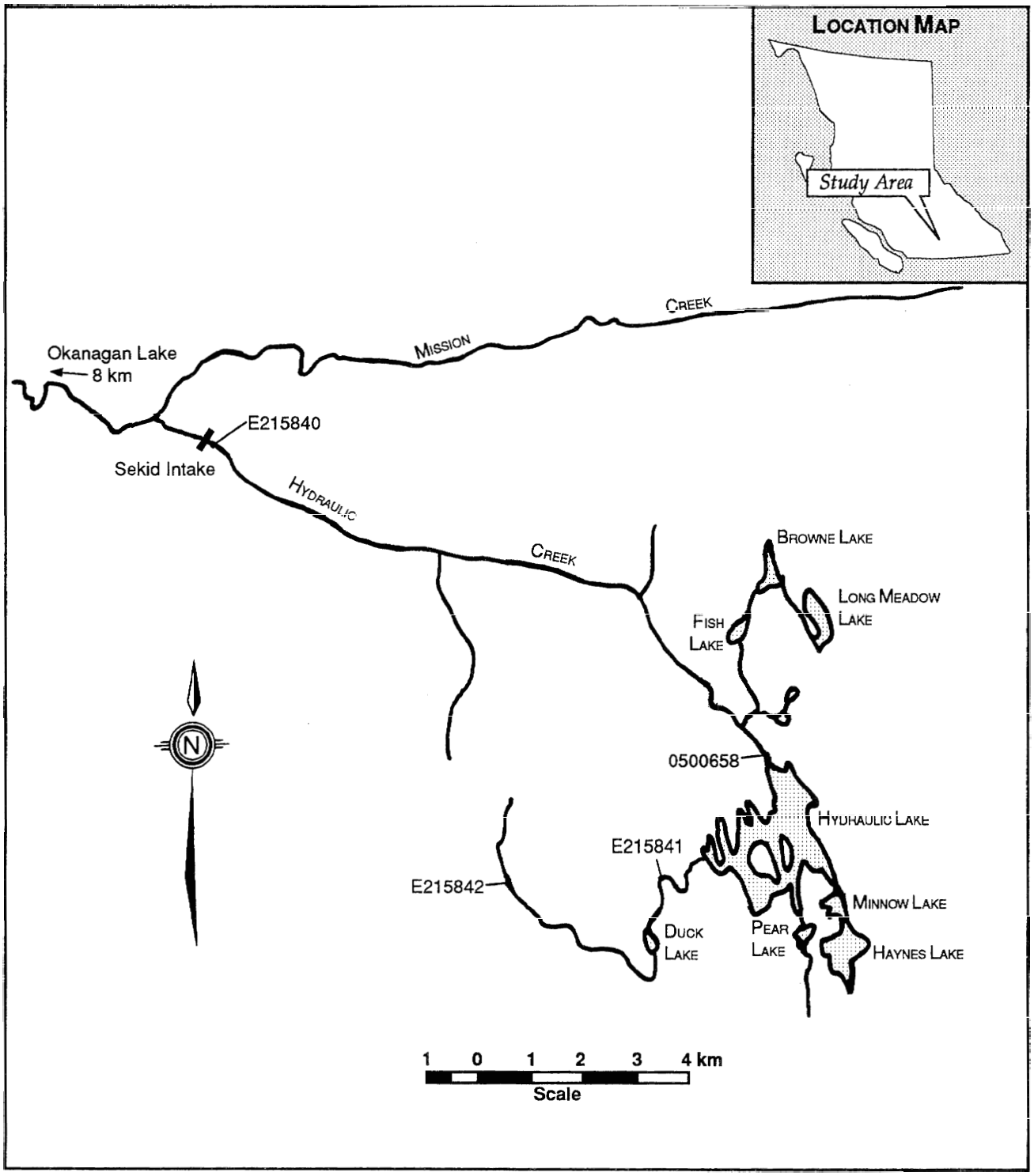


FIGURE 23: THOMPSON RIVER

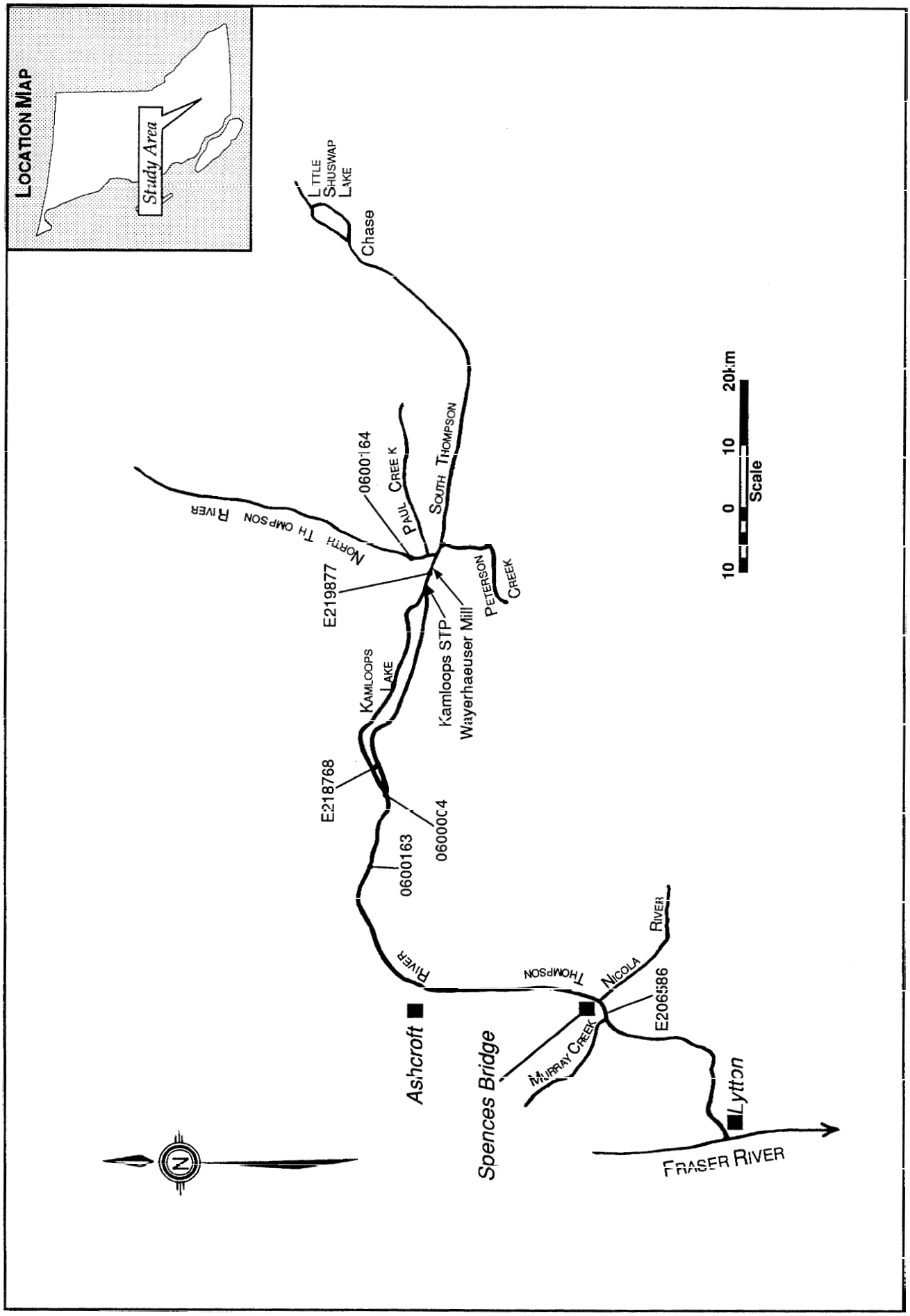


FIGURE 24: COLUMBIA RIVER FROM KEENLEYSIDE TO BIRCHBANK

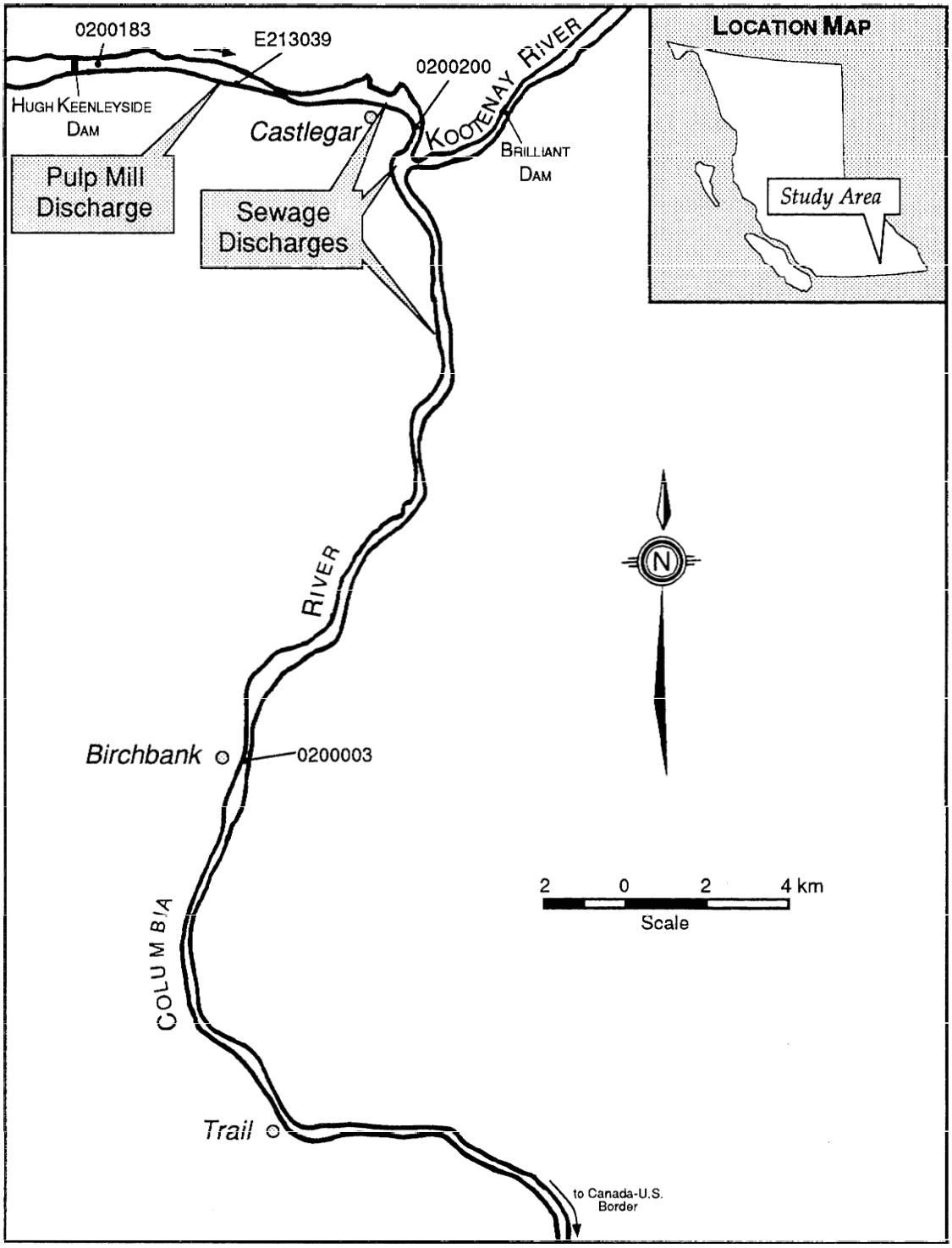


FIGURE 25: ELK RIVER

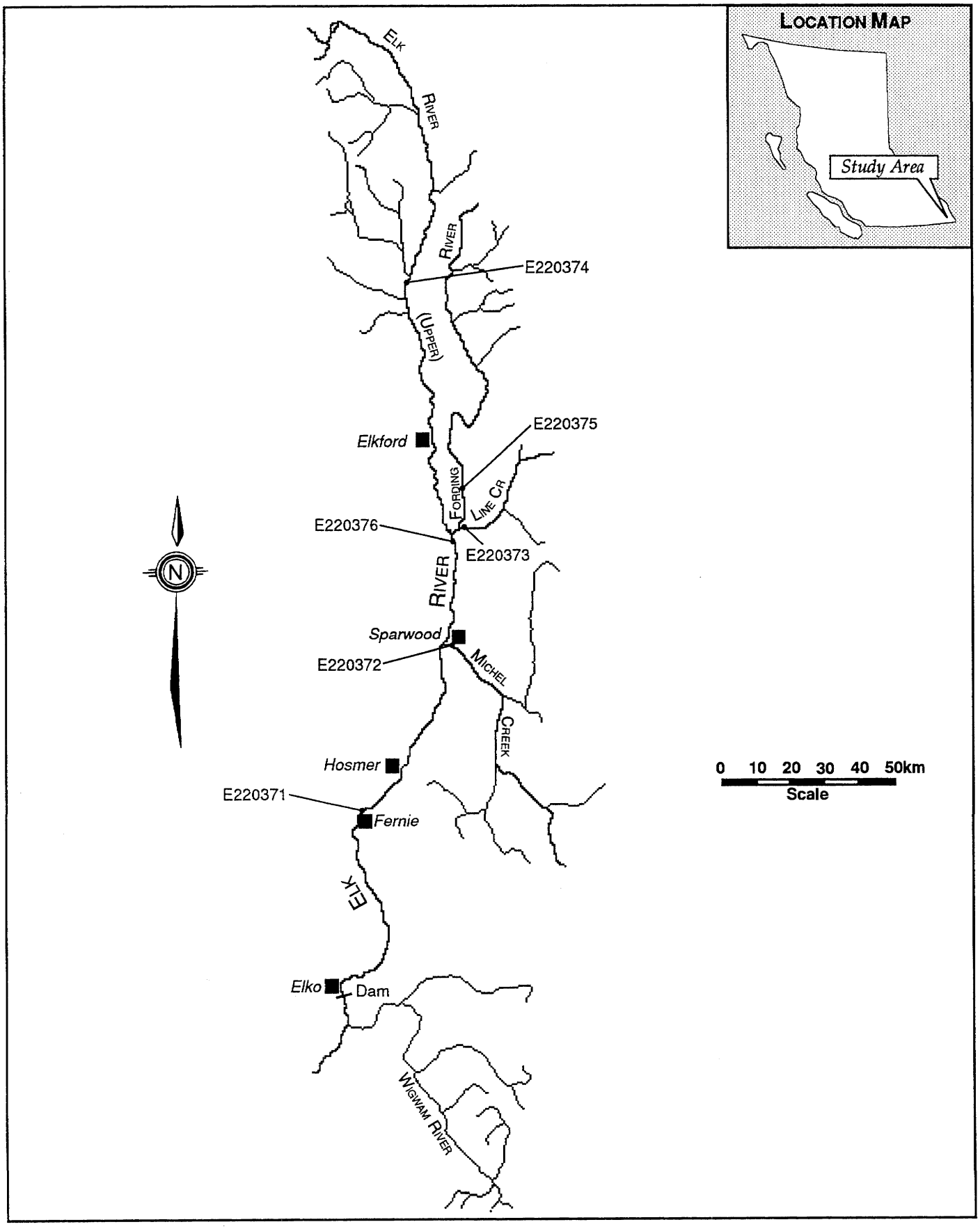


FIGURE 26: FRASER RIVER FROM HOPE TO KANAKA CREEK

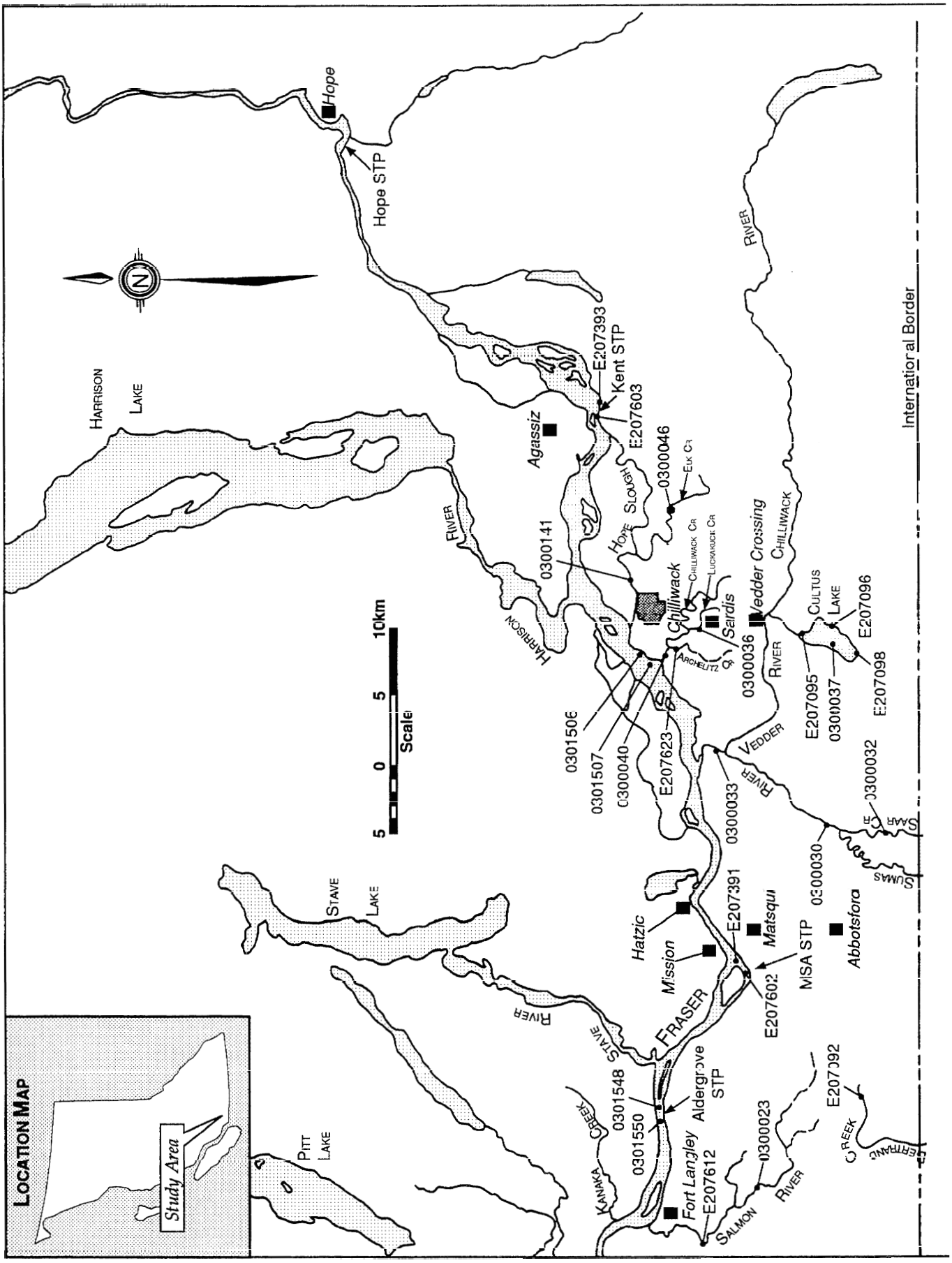


FIGURE 27: FRASER RIVER FROM KANAKA CREEK TO THE MOUTH

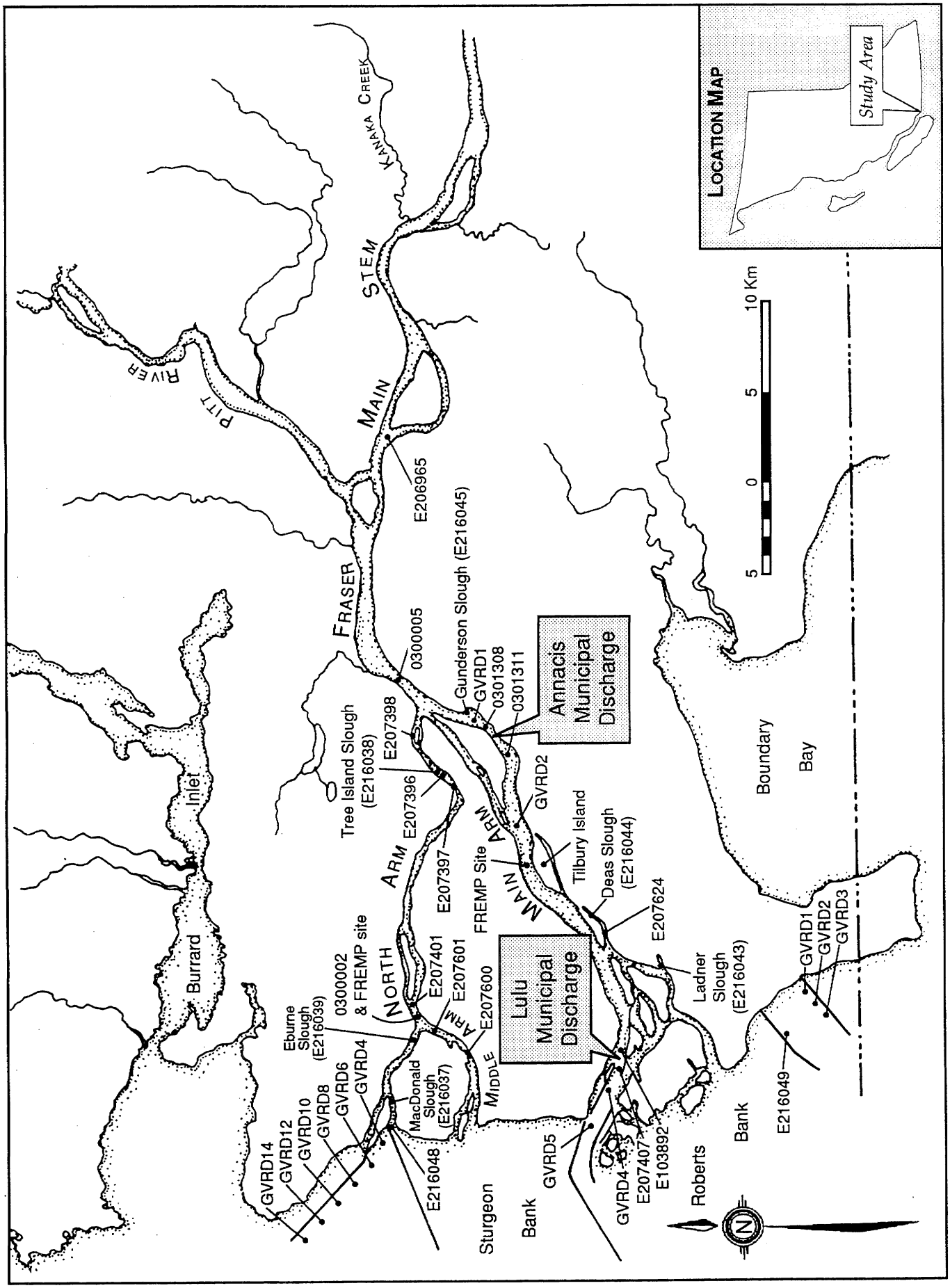


FIGURE 28: BOUNDARY BAY

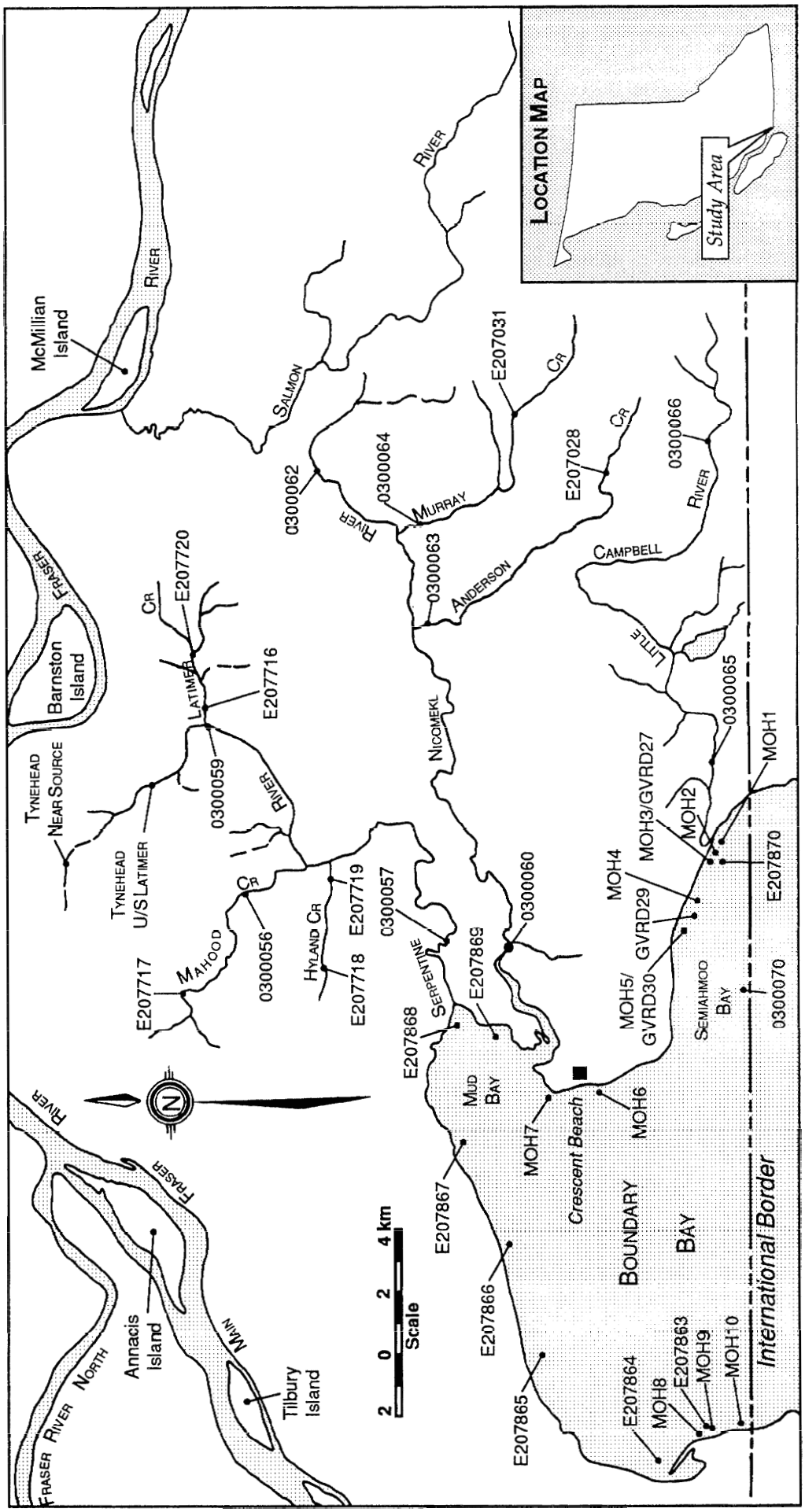


FIGURE 29: BURRARD INLET

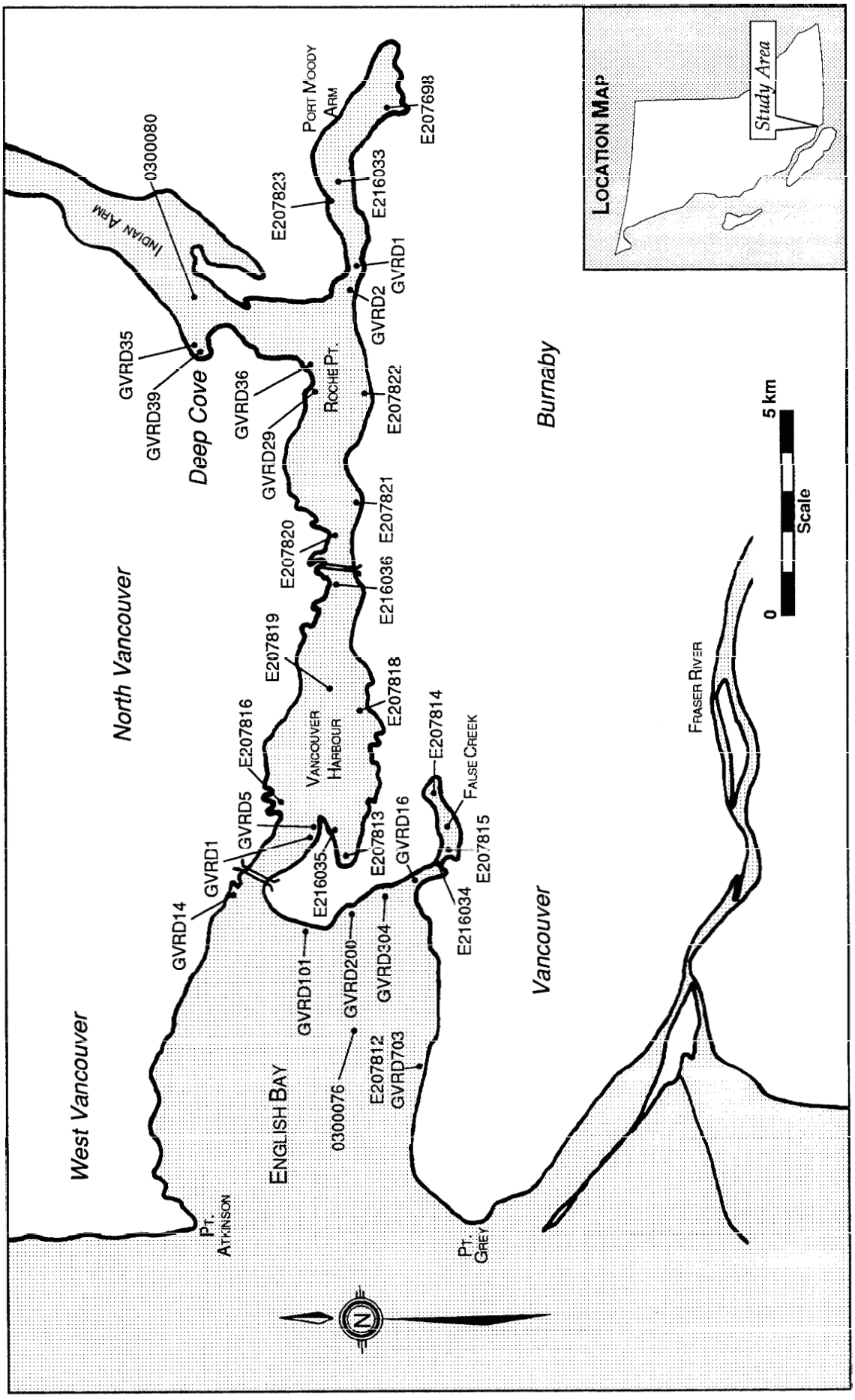


FIGURE 30: BURRARD INLET TRIBUTARIES

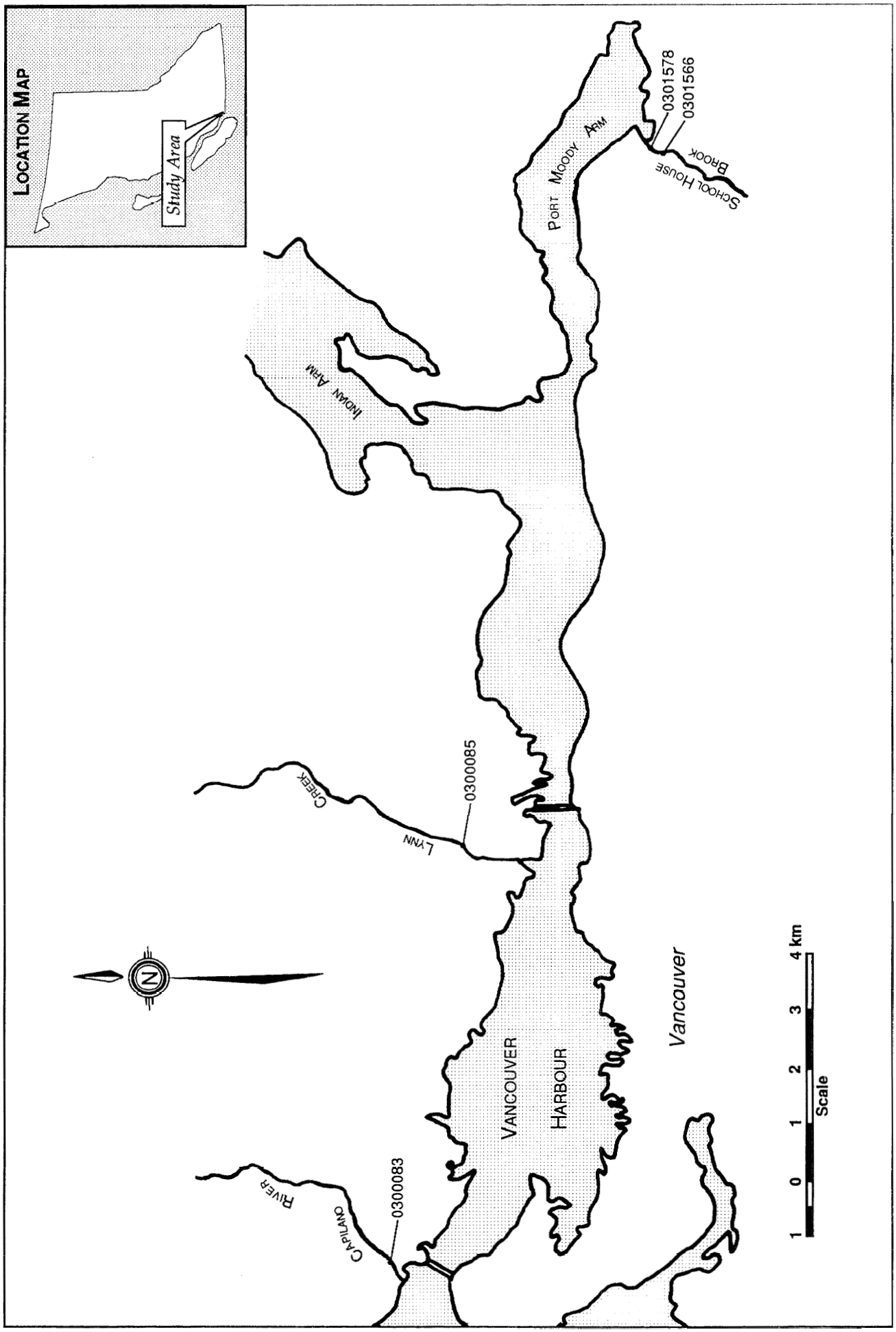


FIGURE 31: NORTH SHORE TRIBUTARIES TO THE LOWER FRASER RIVER

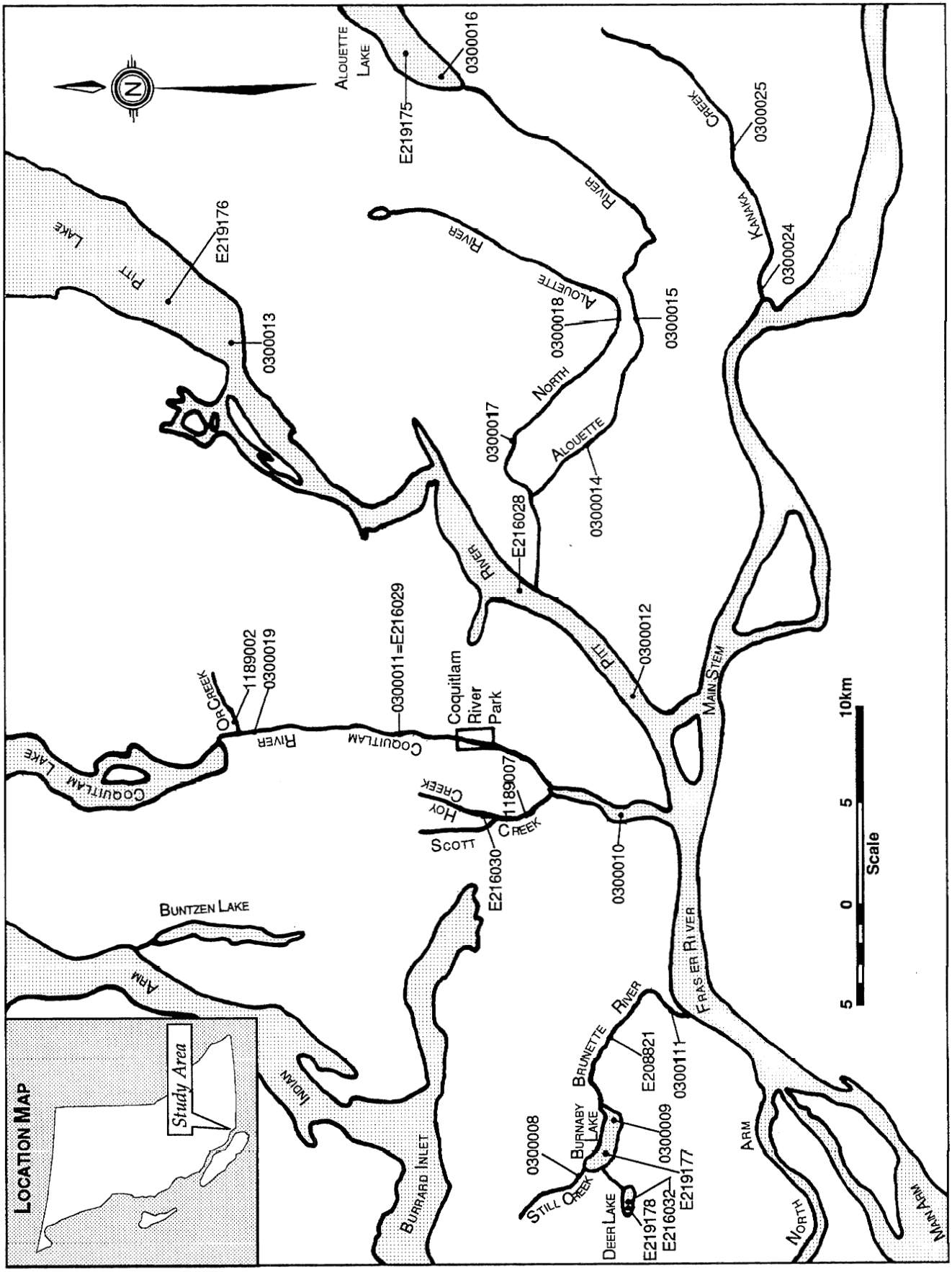


FIGURE 32: PENDER HARBOUR

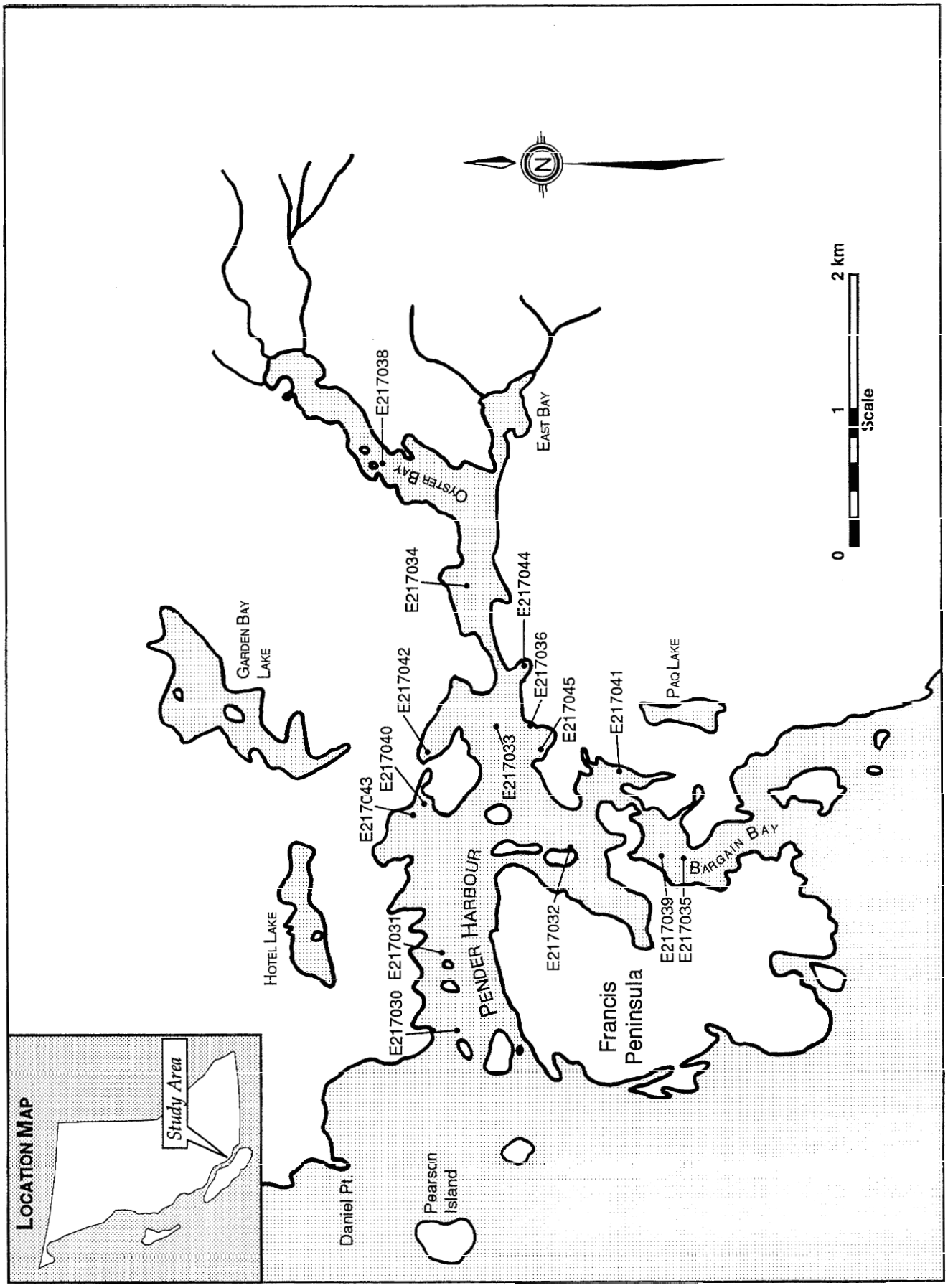


FIGURE 33: SECHELT INLET