

RECONNAISSANCE INVENTORY OF

BROWN PAINT LAKE

WATERSHED CODE 470-5259-01

SURVEY DATES : JULY 27 - 29, 1996

Brown Paint C
1/5/96 R

RECONNAISSANCE INVENTORY OF

BROWN PAINT LAKE

WATERSHED CODE 470-5259-01

SURVEY DATES : JULY 27 - 29, 1996

Prepared for:

MINISTRY OF ENVIRONMENT, LANDS AND PARKS

Fisheries Branch

Skeena Region

3726 Alfred Ave.

Box 5000

Smithers, BC V0J 2N0

By:

Joseph S. DeGisi

Chris Schell

RR#1, Site 27, C2

Smithers, BC V0J 2N0

March 31, 1997

CONTENTS

LIST OF TABLES ii

LIST OF FIGURES ii

LIST OF PHOTOGRAPHS..... iii

LIST OF APPENDICES iii

1. SUMMARY 1

2. INTRODUCTION.....2

3. DATA ON FILE.....3

4. GEOGRAPHIC AND MORPHOLOGIC INFORMATION3

4.1 Location.....3

4.2 Physical Data6

4.3 Benchmark.....6

4.4 Prior Surveys6

4.5 Lake Drainage6

4.6 Terrain and Vegetation.....7

 4.6.1 Immediate Shore7

 4.6.2 Surrounding Country7

5. ACCESS, DEVELOPMENTS AND LAND USE.....8

5.1 Access8

5.2 Development and Land Use.....8

 5.2.1 Resorts and Campsites8

 5.2.2 Mining Claims8

 5.2.3 Timber Harvest8

 5.2.4 Waste Permits8

 5.2.5 Water Permits8

 5.2.6 Obstructions and Pollutions8

 5.2.7 Recreation Resource Inventory.....9

 5.2.8 Special Regulations and Restrictions9

 5.2.9 Comments9

6. FISH POPULATION SAMPLING 11

7. LIMNOLOGICAL SAMPLING 12

7.1 Stratification 12

7.2 Water Chemistry 13

8. OTHER FLORA AND FAUNA 15

8.1 Aquatic Plants..... 15

8.2 Zooplankton..... 15

8.3 Waterfowl and Other Fauna..... 15

8.4 Summary of Rare and Endangered Species 15

9. MANAGEMENT COMMENTS 16

10. PHOTOGRAPHS 17

LIST OF FIGURES

Figure 1. Brown Paint Lake and surrounding features, as depicted on NTS mapsheet 103P/09.4

Figure 2. Brown Paint Lake, enlargement from air photo 30BCC94057 #1725

Figure 3. Planned cutblocks in the Brown Paint Lake area. 10

Figure 4. Temperature and dissolved O₂ profiles for Brown Paint Lake 12

LIST OF TABLES

Table 1. Fish sampling effort for all methods used at Brown Paint Lake..... 11

Table 2. Water chemistry parameters estimated by Zenon Laboratories..... 13

Table 3. Estimated nitrogen : phosphorus ratio, and chlorophyll *a* concentration 13

Table 4. Metals concentrations estimated by Zenon Laboratories 14

Table 5. Zooplankton collected by horizontal tow..... 15

LIST OF PHOTOGRAPHS

Photograph 1. Aerial view of Brown Paint Lake.....	17
Photograph 2. View to the south from mid-lake.....	17
Photograph 3. Upstream view of Brown Paint Creek, inlet.....	18
Photograph 4. Downstream view of Brown Paint Creek, outlet.....	18
Photograph 5. Upstream view of C2 (WC pending).....	19
Photograph 6. Upstream view of C3 (WC pending).....	19

LIST OF APPENDICES

APPENDIX A. ABBREVIATIONS AND OTHER NOTES	20
APPENDIX B. STREAM SURVEY FORMS	21
APPENDIX C. FISH SAMPLING FORMS.....	31
APPENDIX D. LIMNOLOGICAL SAMPLING FORMS.....	32
APPENDIX E. PHOTOGRAPH / NEGATIVE DIRECTORY	34
APPENDIX F. BATHYMETRIC MAP	35
APPENDIX G. WATER CHEMISTRY ANALYSIS BY ZENON LABORATORIES.....	37
APPENDIX H. ORIGINAL FIELD NOTES.....	46

1. SUMMARY

Brown Paint Lake is located in the Kispiox Forest District, 59 km northwest of the town of Hazelton. Reconnaissance inventory of the lake was made July 27 - 29, 1996. The lake covers 27.0 surface hectares, is oblong and complex in shape and moderately deep (mean and maximum depths of 9.6 m and 22.1 m). It lies 730 m above sea level and drains via Brown Paint Creek to the Kispiox River in the Skeena watershed. Access was achieved by helicopter from Smithers. The closest road at time of survey was located 1.0 km northeast of the lake although road construction was planned within 200 m of the lake by the end of 1996.

During the survey the lake was thermally stratified. Dissolved oxygen was depleted in the hypolimnion but not to anoxia. The lake is neutral and has low specific conductance. Nitrogen and phosphorus concentrations indicate oligotrophy and N : P ratio suggests that phosphorus is likely limiting primary productivity. Chlorophyll *a* concentration in the surface water suggests very low phytoplankton standing crop.

The Brown Paint Lake fish community was sampled with two standard experimental multi-mesh gillnets (one floating and one sinking) and five Gee-type minnow traps baited with salmon roe. The inlet-outlet streams that were deep enough to support fish were sampled for fish presence by electrofishing. No fish were captured by any method during the survey. No signs of fish activity were seen. Chaoborids and amphipods found in the plankton at midday are highly indicative of fish absence in Brown Paint Lake.

The lake outlet and four inlets were examined for fisheries potential. Three inlets were too shallow for fish. Brown Paint Creek, upstream and downstream of the lake offers mostly riffle and run flow over cobble, boulder and bedrock substrates. Channel gradient adjacent to the lake is low (1-2 %) though it increases (7-14 %) further upstream and downstream of the lake. Brown Paint Creek contains some good spawning substrate upstream of the lake and would offer some excellent rearing habitat downstream of the lake.

The pleasant, pristine setting of Brown Paint Lake creates moderate aesthetic value. Timber harvest located in the catchment area is currently not visible from the lake surface. No evidence of recreational use of the Brown Paint Lake area was observed during the survey. Absence of fish is likely due to barriers downstream of the lake. This survey should satisfy resource agencies that the inlets and outlet of Brown Paint Lake are non-fish bearing streams under the Forest Practices Code. Special access management is not recommended.

2. INTRODUCTION

This document was prepared to fulfill requirements of Service Contract CSK 2043 between Joseph S. DeGisi and the Province of British Columbia for the term of July 22, 1996 to March 31, 1997. The contract was funded by Forest Renewal BC and administered by the Ministry of Environment, Lands and Parks, Fisheries Branch, Skeena Region.

The report presents the results of a reconnaissance level "Fish and Fish Habitat Inventory" of Brown Paint Lake 470-5259-01 performed to the current standards provided by the Resources Inventory Committee (RIC). Brown Paint Lake 470-5259-01 is located in the Kispiox Forest District, 59 km northwest of the town of Hazelton. A search of Ministry files revealed no previous survey of the lake and its tributaries. In addition to the lake inventory as per the contract terms of reference, inlets and the outlet were surveyed to 500 channel metres from the lake.

The field component of the survey was carried out by Joseph DeGisi (crew leader) and Chris Schell (assistant) July 27- 29, 1996. Chris Schell, Joe Jazvac and Jay Leopkey contributed to data compilation. Chris Schell and Joseph DeGisi co-authored this report. Stream cards, photographs and negatives, field notes, lab reports and all other materials associated with this survey were deposited with the Ministry of Environment, Lands and Parks, Fisheries Branch, Skeena Region.

3. DATA ON FILE

Location	<u>√</u>	Dissolved Oxygen Profile	<u>√</u>
Physical Data	<u>√</u>	Temperature Profile	<u>√</u>
Bench Mark	<u>√</u>	Netting Record	<u>√</u>
Terrain Features	<u>√</u>	Lake Catch Summary	<u>√</u>
Access	<u>√</u>	Fisheries Comments	<u>√</u>
Resorts & Campsites	<u>√</u>	Individual Fish Data	<u>-</u>
Other Developments	<u>√</u>	Fish Preserved	<u>-</u>
Obstructions and Pollutions	<u>√</u>	Stomach Analysis	<u>-</u>
Special Restrictions	<u>√</u>	Scale Reading	<u>-</u>
Aquatic Plants	<u>√</u>	History of Previous Surveys	<u>√</u>
Wildlife Observations	<u>√</u>	Location of Inventory Sites	<u>√</u>
Miscellaneous Comments	<u>√</u>	Photograph Directory	<u>√</u>
Lake Drainage	<u>√</u>	Appendices	<u>√</u>
Inlets/Outlets	<u>√</u>	Bathymetric Reduction	<u>√</u>
Water Chemistry	<u>√</u>	Contour Map	<u>√</u>

4. GEOGRAPHIC AND MORPHOLOGIC INFORMATION**4.1 Location**

Survey Dates July 27-29, 1996
 Location 59 km northwest of the town of Hazelton
 Elevation 730 m
 Drainage Brown Paint C → Kispiox R → Skeena R
 Watershed Code..... 470-5259-01
 Latitude / Longitude 55° 38' 21'' / 128° 20' 33''
 U.T.M..... 09.541493.6166152 (Watershed Atlas)
 Biogeoclimatic Zone..... ICH mc2
 N.T.S. Map..... 103P/09 (1:50,000 scale)
 TRIM Map 103P.069 (1:20,000 scale)
 Forest Region..... Prince Rupert
 Forest District Kispiox
 Management Unit 6-30
 Native Land Claims Gitanyow Nation

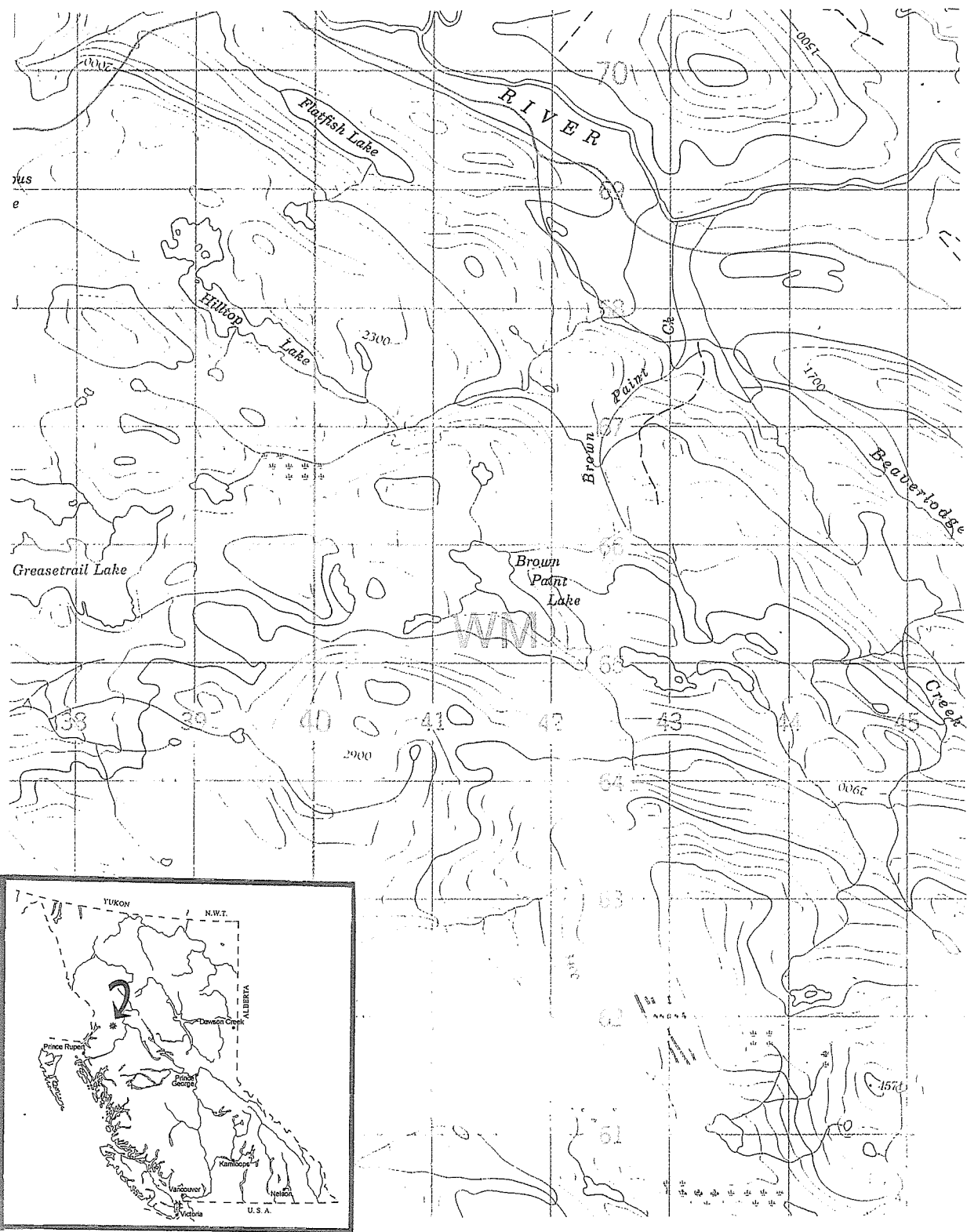


Figure 1. Brown Paint Lake and surrounding features, as depicted on NTS mapsheet 103P/09 (1:50,000 scale). Inset map shows the location within the province of British Columbia.

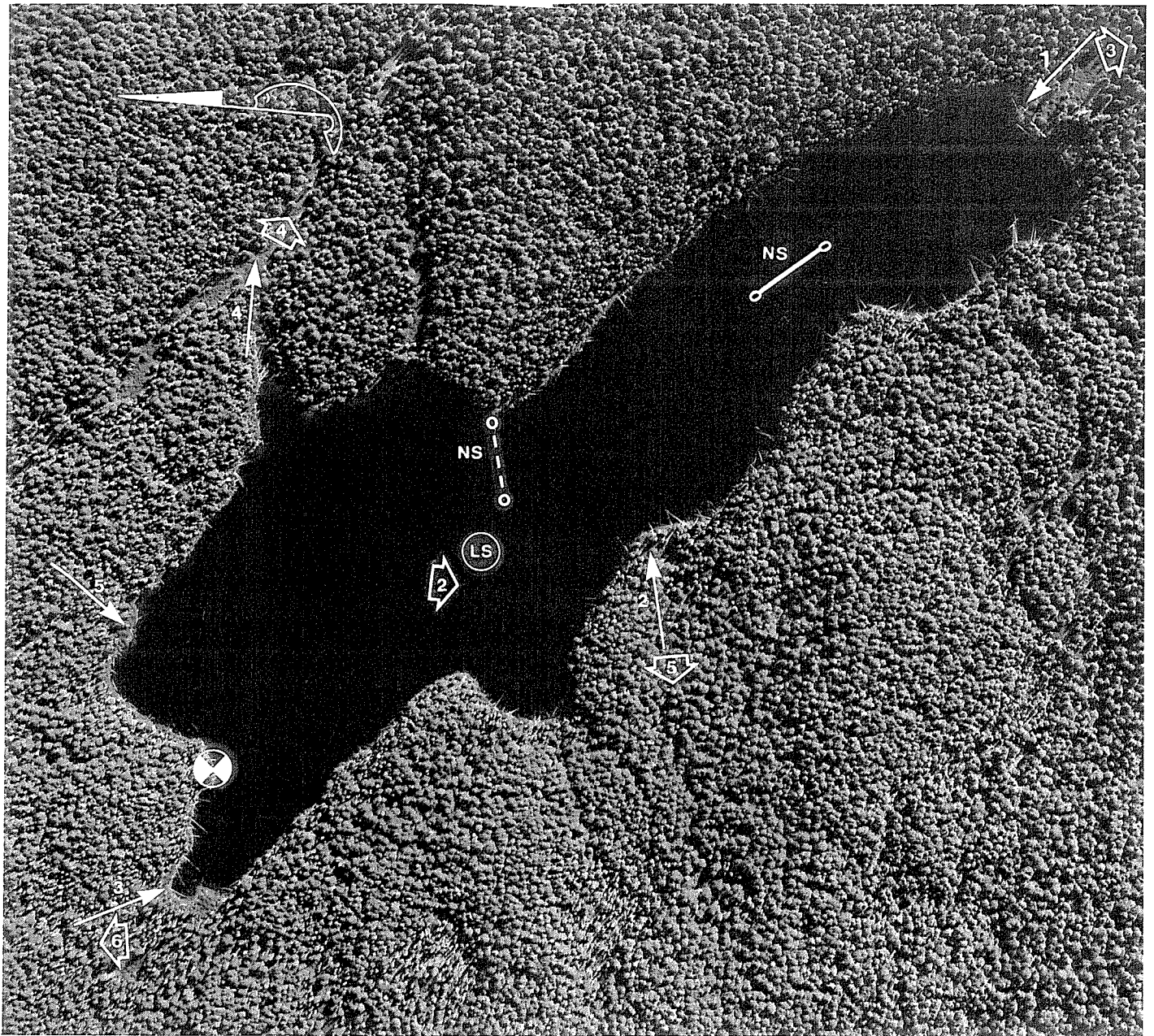


Figure 2. Enlargement from air photo.

LAKE: Brown Paint

WC: 470-5259-01


AIR PHOTO #: 30BCC94057 #172


SCALE: 1 : 5560

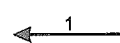
OUTLET UTM: 09.541493.6166152

LEGEND

 Benchmark

 Photo site, direction, number

 Floating/Sinking gillnet set

 Stream number, flow direction

LS Limnology station

4.2 Physical Data

Elevation	730 m	Elevation Source.....	NTS mapsheet
Water Surface Area.....	270084 m ²	Area Above 6 m Contour.....	95527 m ²
Lake Drainage Area	9.6 km ²	Flushing Time.....	211 days
Shoreline Perimeter	3136 m	Volume	2554417 m ³
Number of Islands.....	0	Perimeter of Islands	N/A
Maximum Depth	22.1 m	Mean Depth	9.6 m
Secchi Depth.....	8.0 m	Filterable Residue (T.D.S.)...	44 mg/L
Sounding Device	Lowrance X15B		

4.3 Benchmark

The benchmark was established in a 60 cm dbh spruce 6.0 m from shore, on the point that forms the north side of the bay at the northwest end of the lake. An iron spike was placed in an orange circle painted on the tree trunk, 2.15 m above the current lake level. The location of the benchmark is shown in Figure 2. The high water mark was located 10 cm above the current lake level.

4.4 Prior Surveys

A search of Skeena Region inventory files yielded no records for Brown Paint Lake, its outlet or inlets.

4.5 Lake Drainage

Quantitative characteristics of the stream surveys and fish sampling can be found on the stream survey forms in Appendix B and in Table 1. Numbering of the streams (C1, C2, etc.) in this section corresponds to labels on Figure 2 and other figures and tables in this report.

Five channels were examined.

- C1. Brown Paint Creek, WC 470-5929, inlet to the southeast shore of Brown Paint Lake at UTM 09.542015.6165234 (NAD27). Order 1, magnitude 1, drainage area 5.1 km², proposed classification S5. Several debris dams and chutes (1.0 m max. height) were observed, some of which would form seasonal barriers to fish passage. The channel bears mostly riffle flow over larges and bedrock substrate. Average gradient is 17 % and the channel is entrenched. Adjacent to the lake gradient is lower and bed material is predominantly gravels. Discharge was estimated at 0.04 m³/s. Electrofishing for 79 seconds captured no fish.
- C2. Unnamed channel (WC pending), inlet to the southwest shore of Brown Paint Lake at UTM 09.541575.6165550 (NAD27). Order 1, magnitude 1, drainage area 0.77 km², proposed classification S6. The stream is too shallow to constitute fish habitat and flow appears ephemeral. Discharge was estimated at 0.002 m³/s. Chutes (< 1.0 m max. height) would form seasonal barriers to fish passage. The channel bears riffle habitat over gravel and cobble. Visual observation during the survey detected no fish.

- C3. Unnamed channel (WC pending), inlet to the northwest bay of Brown Paint Lake at UTM 09.541150.6165950 (NAD27). Order 1, magnitude 1, drainage area 0.22 km², proposed classification S6. Channel bears intermittent and ephemeral flow over organic fines. The stream is too shallow to constitute fish habitat. Visual observation during the survey detected no fish. t
- C4. Brown Paint Creek, WC 470-5929, outlet from the northeast shore of Brown Paint Lake at UTM 09.541650.6165935 (NAD27). Proposed classification S5. Two reaches are contained within the 500 m surveyed length of stream. Near the lake the channel gradient is low and much emergent vegetation grows in the organic fines bed material. Further downstream the channel steepens and carries riffle and run flow over cobble, boulder and bedrock substrates. Electrofishing for 202 seconds captured no fish.
- C5. Unnamed channel, WC 470-5929-390, inlet to the north shore of Brown Paint Lake at UTM 09.541400.6166025 (NAD27). Order 1, magnitude 1, drainage area 0.37 km², proposed classification S6. The channel drains the wetland north of the lake and bears intermittent and ephemeral flow over organic fines. Alder overgrow the channel in many places. The stream is too shallow to constitute fish habitat. Visual observation during the survey detected no fish. t

The primary inlet, C1 contains good salmonid spawning substrate adjacent to the lake. The outlet channel, C4 would offer excellent rearing habitat in the upstream reach. Inlets C2, C3 and C5 are too shallow to constitute fish habitat.

4.6 Terrain and Vegetation

4.6.1 Immediate Shore

Shoreline substrate consists of large cobble, boulder and bedrock, covered by a thin layer of organic fines in sheltered areas. Immediate shoreline vegetation is a mix of *Equisetum fluviatile*, sedges (*Carex* sp.) and alder, with mature forest beginning above the high water line. Sweepers are abundant around the lake, impeding access to shore in many areas.

4.6.2 Surrounding Country

The lake is located in the Hazelton variant of the Moist Cold subzone of the Interior Cedar - Hemlock biogeoclimatic zone. Surrounding country consists of rolling hills sufficiently high to eliminate any distant views. The hills are forested with a mix of hemlock, fir and spruce. Terrain rises steeply to the south and features many rock outcrops.

5. ACCESS, DEVELOPMENTS AND LAND USE

5.1 Access

Access was achieved by Bell Long Ranger helicopter from Smithers, an air distance of approximately 140 km. The crew disembarked in a small wetland meadow, approximately 200 m northwest of the lake. The crew departed the lake from the same site.

5.2 Development and Land Use

5.2.1 Resorts and Campsites

The survey crew camped at the landing site, a wetland 200 m northwest of the lake. A rough trail was established to move equipment to the lake. No other campsites or cabins were observed.

5.2.2 Mining Claims

No evidence of mining claims or mineral exploration was observed at the lake. Omineca Mining Division four-post registration files for the locale showed no claims. No placer staking is allowed in this area of the province.

5.2.3 Timber Harvest

Cutblocks in the lake area were not visible from any vantage point on the lake surface. The lake lies within the Repap-Carnaby operating area in the Kispiox TSA. The closest existing cutblock to the lake lies 1.0 km to the northwest. The block was logged in 1994. Another cutblock located 100 m south of the lake was planned for 1996 but was not present at time of survey (see Figure 3). Flagging tape, possibly marking the cutblock boundary was observed during the survey of C1. This cutblock may be visible from the lake when harvested.

5.2.4 Waste Permits

A search of the provincial waste management database (WASTE) showed no active effluent permits in the watershed of Brown Paint Lake.

5.2.5 Water Permits

A search of Skeena Region water permit files yielded no records for Brown Paint Lake.

5.2.6 Obstructions and Pollutions

No obstructions or pollutions were observed by the survey crew. No sign of past or recent beaver activity was seen.

5.2.7 Recreation Resource Inventory

The latest Forest Service Recreation Resource Inventory for the Brown Paint Lake area was completed June 1994. IGDS-format coding for the polygon which includes the lake is:

X1E3

arD2

3

ROS status is thus “Semi-Private Motorized”. Note that although the “feature-related recreational activity” code includes angling, no fish were captured in Brown Paint Lake during the survey.

5.2.8 Special Regulations and Restrictions

None known; none listed in the BC Freshwater Angling Regulations synopsis for 1996.

5.2.9 Comments

The pleasant, pristine setting creates moderate aesthetic value for Brown Paint Lake.

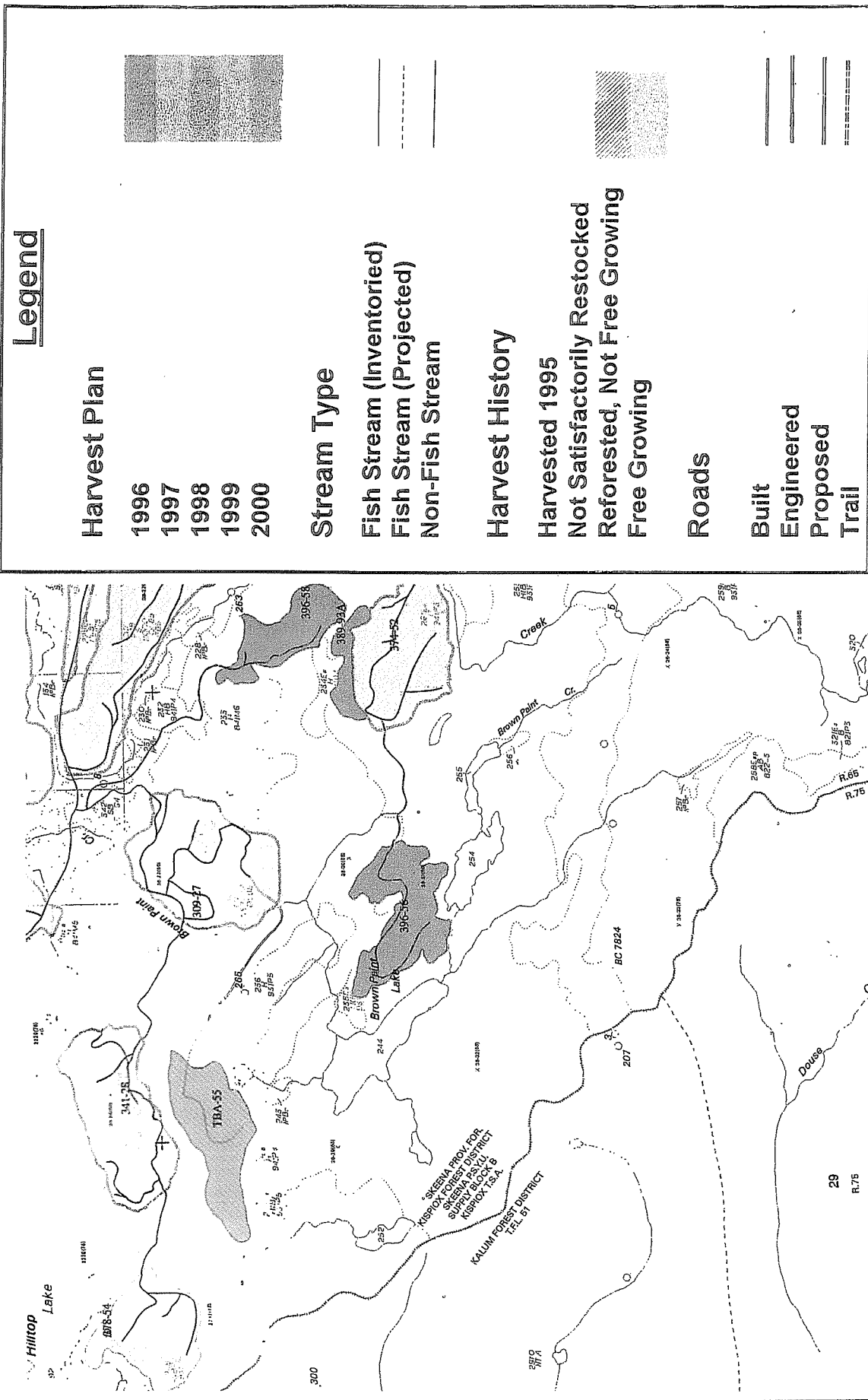


Figure 3. Planned cutblocks in the Brown Paint Lake area. Reproduced with permission from Repap - Carnaby.

6. FISH POPULATION SAMPLING

Details of fish population sampling in Brown Paint Lake and its inlets and outlet are given in Table 1. The raw data were recorded on the RIC standard "Fish Collection Method Information Form" which is reproduced in Appendix C. No fish were captured in Brown Paint Lake or its inlet-outlet streams. No signs of fish were seen.

Table 1. Fish sampling effort for all methods used at Brown Paint Lake and its inlet-outlet streams, July 27 - 29, 1996. **Water Body** gives the location where the gear was fished, where Lake = Brown Paint Lake; and C1, C2 etc. are streams numbered as in Section 4.5. **Date** is the date of set for gear fished overnight. **Capture Effort** gives the time in minutes for which the gear was deployed. **Depth** unit is metres. GN(S) and GN(F) = MOE / RIC standard experimental sinking and floating gillnets, length 91.2 m and depth 2.4 m with panels (in order) of 25, 76, 51, 89, 38, and 64 mm mesh. The sinking net set was made with the smallest mesh close to shore. See Figure 2 for exact set locations and orientation. MT = Gee-type minnow trap baited with salmon roe; EL = electrofishing; VO = visual observation.

Water Body	Capture Method	Site or Trap #	Date	Set Time	Haul Time	Capture Effort	Depth
Lake	MT	1	96/07/27	1350	1810	1700	0.5
Lake	MT	2	96/07/27	1355	1815	1700	1.5
Lake	MT	3	96/07/27	1400	1515	1515	0.2
Lake	MT	4	96/07/27	1405	1330	1405	0.2
Lake	MT	5	96/07/27	1410	1130	1280	0.2
Lake	GN (F)	-	96/07/27	1800	900	900	0 to 2.4
Lake	GN (S)	-	96/07/27	1820	920	900	0 to 15
C1	EL	1	96/07/28	-	-	1.3	-
C2	VO	1	96/07/28	-	-	-	-
C3	VO	1	96/07/28	-	-	-	-
C4	EL	1	96/07/28	-	-	3.4	-
C5	VO	1	96/07/28	-	-	-	-

7. LIMNOLOGICAL SAMPLING

Limnological sampling was conducted at midday on July 29, 1996 at the Brown Paint Lake limnology station labelled on Figure 2. The sky was mostly clear at time of survey and a very light westerly wind created calm surface conditions. Raw data and associated information were recorded on the RIC standard "Lake Biophysical Data Form" which is reproduced in Appendix D. Water samples were collected at 0.0 m, 7.5 m and 20.0 m depths, apportioned into aliquots for general chemistry and metals analysis, and shipped on ice to Zenon Laboratories for processing. Zenon's records show that the Brown Paint Lake samples were received on August 01, 1996, within the 72 hr RIC standard time frame for water sample transport.

7.1 Stratification

The oxygen - temperature profile of Brown Paint Lake on July 29, 1996 is shown in Figure 4. The lake was thermally stratified at time of survey. Dissolved oxygen was depleted in the hypolimnion but not to anoxia.

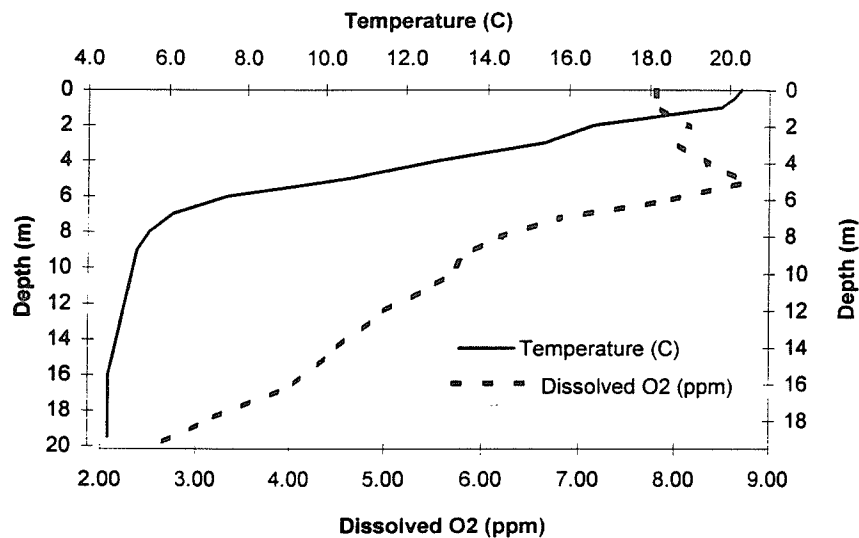


Figure 4. Temperature and dissolved O₂ profiles for Brown Paint Lake on July 29, 1996. The sampling device was a YSI 57 temperature/oxygen meter. Sample interval was 1.0 m from the surface to 12.0 m depth, and 2.0 m in deeper water.

Table 2. Water chemistry parameters estimated by Zenon Laboratories. Samples were collected at the limnology station labelled in Figure 2. Each sample was collected by a single cast of a 3.2 L non-metallic Van Dorn bottle on July 29, 1996 and received by Zenon on August 1, 1996. MDC = minimum detectable concentration for the analytic method.

Parameter	Shallow	Thermocline	Deep	Unit	MDC	Method
Time of Day	12:05	12:00	11:35	h	-	-
Depth	0.0	7.5	20.0	m	-	-
pH	7.5	7.2	7	pH	0.1	Automated pH Meter
Specific Conductance	52	56	58	uS/cm	1	Cond. Meter Siebold
Residue Filterable 1.0u (TDS)	44	44	44	mg/L	4	Grav; Subsamp Buch 105C
Alkalinity Phen. 8.3	< 0.5	< 0.5	< 0.5	mg/L	0.5	Automated Electrometer
Alkalinity Total 4.5	24.2	27.5	28.3	mg/L	0.5	Automated Electrometer
Carbonate	< 0.5	< 0.5	< 0.5	mg/L		Calculated Result
Bicarbonate	29.5	33.5	34.5	mg/L		Calculated Result
Hydroxide	< 0.5	< 0.5	< 0.5	mg/L		Calculated Result
Organic Nitrogen - Total	0.09	0.06	0.08	mg/L		Calculated Result
Total Kjeldahl Nitrogen	0.09	0.06	0.08	mg/L	0.04	HgSO ₄ Dig. Auto. Colour.
Total Nitrogen	< 0.11	< 0.08	< 0.10	mg/L		Calculated Result
Ammonia Nitrogen	< 0.005	< 0.005	< 0.005	mg/L	0.005	Berthelot Reaction
Nitrate+Nitrite (N)	< 0.02	< 0.02	< 0.02	mg/L	0.02	Auto. Cadmium Reduction
Nitrate Nitrogen Dissolved	< 0.02	< 0.02	< 0.02	mg/L		Calculated Result
Nitrite Nitrogen	< 0.005	< 0.005	< 0.005	mg/L	0.005	Auto. Diazotization
Phosphorus Total Dissolved	< 0.003	0.004	0.004	mg/L	0.003	Dig. Auto. Ascorbic Acid
Phosphorus - Total	0.003	0.005	0.007	mg/L	0.003	Pres. Dig. Auto. Ascorbic A

7.2 Water Chemistry

Results of the general chemistry and metals analyses are given in Table 2 and Table 4. Brown Paint Lake is neutral with very low specific conductance and filterable residue. Lake water was clear at time of survey. Phosphorus and nitrogen concentrations imply ultra-oligotrophy and the estimated N : P ratio (Table 1) is greater than 15 : 1, indicating phosphorus is likely limiting primary productivity. Chlorophyll *a* concentration in the surface water suggested very low phytoplankton standing crop at time of survey.

Table 3. Estimated nitrogen : phosphorus ratio, and chlorophyll *a* concentration for surface water samples from Brown Paint Lake. All analyses were performed by Zenon Laboratories, except calculation of ratio. Suction was used to draw 1.0 L of sample water through a 0.45 µ membrane filter which was desiccated immediately after collection and shipped on ice to Zenon Laboratories for chlorophyll *a* extraction.

Parameter	Value	Unit	MDC	Method
Chlorophyll <i>a</i>	0.7	ug/L	0.5	Spectrophotometer
Nitrogen - Total	< 0.11	mg/L		Calculated result
Phosphorus - Total	0.003	mg/L	0.003	Pres. Dig. Auto Ascorbic Acid
N : P RATIO	< 37 : 1			Calculated result (total N / total P)

Table 4. Metals concentrations estimated by Zenon Laboratories. Sample collection is described in the caption to Table 2. All metals aliquots were fixed immediately after collection with 1 ml HNO₃ and subjected to HNO₃ digestion by Zenon. Analysis was performed using a Jarrell-Ash Model 61E (inductively coupled argon plasma analysis). MDC = minimum detectable concentration for the analytic method.

Parameter	Shallow	Thermocline	Deep	Unit	MDC	Method
Time of Day	12:05	12:00	11:35	h	-	-
Depth	0.0	7.5	20.0	m	-	-
Silver	< 0.03	< 0.03	< 0.03	mg/L	0.03	ICAP 61E
Aluminum	< 0.06	< 0.06	< 0.06	mg/L	0.06	ICAP 61E
Arsenic	< 0.04	< 0.04	< 0.04	mg/L	0.04	ICAP 61E
Boron	< 0.04	< 0.04	< 0.04	mg/L	0.04	ICAP 61E
Barium	0.012	0.014	0.015	mg/L	0.001	ICAP 61E
Beryllium	< 0.001	< 0.001	< 0.001	mg/L	0.001	ICAP 61E
Bismuth	< 0.02	0.02	< 0.02	mg/L	0.02	ICAP 61E
Calcium	6.46	7.33	7.54	mg/L	0.05	ICAP 61E
Cadmium	< 0.002	< 0.002	< 0.002	mg/L	0.002	ICAP 61E
Cobalt	< 0.004	< 0.004	< 0.004	mg/L	0.004	ICAP 61E
Chromium	0.005	0.006	0.007	mg/L	0.002	ICAP 61E
Copper	< 0.002	< 0.002	< 0.002	mg/L	0.002	ICAP 61E
Iron	< 0.05	< 0.05	0.09	mg/L	0.05	ICAP 61E
Potassium	< 0.4	< 0.4	< 0.4	mg/L	0.4	ICAP 61E
Magnesium	1.14	1.26	1.3	mg/L	0.02	ICAP 61E
Manganese	0.004	0.002	0.034	mg/L	0.002	ICAP 61E
Molybdenum	< 0.004	< 0.004	< 0.004	mg/L	0.004	ICAP 61E
Sodium	2.1	2.4	2.5	mg/L	0.4	ICAP 61E
Nickel	< 0.01	< 0.01	< 0.01	mg/L	0.01	ICAP 61E
Phosphorus	< 0.04	< 0.04	< 0.04	mg/L	0.04	ICAP 61E
Lead	< 0.03	< 0.03	< 0.03	mg/L	0.03	ICAP 61E
Sulphur	0.4	0.5	0.5	mg/L	0.1	ICAP 61E
Antimony	< 0.02	< 0.02	< 0.02	mg/L	0.02	ICAP 61E
Selenium	< 0.03	< 0.03	< 0.03	mg/L	0.03	ICAP 61E
Silicon	1.6	1.6	2	mg/L	0.8	ICAP 61E
Tin	< 0.02	< 0.02	< 0.02	mg/L	0.02	ICAP 61E
Strontium	0.09	0.106	0.108	mg/L	0.001	ICAP 61E
Tellurium	< 0.02	< 0.02	< 0.02	mg/L	0.02	ICAP 61E
Titanium	< 0.003	< 0.003	< 0.003	mg/L	0.003	ICAP 61E
Thallium	< 0.03	< 0.03	< 0.03	mg/L	0.03	ICAP 61E
Vanadium	< 0.003	< 0.003	< 0.003	mg/L	0.003	ICAP 61E
Zinc	0.03	0.01	0.03	mg/L	0.01	ICAP 61E
Zirconium	< 0.003	< 0.003	< 0.003	mg/L	0.003	ICAP 61E

8. OTHER FLORA AND FAUNA

8.1 Aquatic Plants

Greater than 98 % of the lake surface is open water. *Nuphar polysepalum*, *Potamogeton richardsonii*, and *Hippuris vulgaris* were observed in moderate abundance in the bays. Identification references used for aquatic plants are listed in Appendix A.

8.2 Zooplankton

The Brown Paint Lake zooplankton community was numerically dominated by calanoid copepods. Chaoborids were also collected from the plankton and amphipods were seen swimming in open water at midday. The zooplankton taxonomic composition and size structure were typical of fishless lakes.

Table 5. Zooplankton collected by horizontal tow of a 150 μ mesh conical plankton net, Brown Paint Lake offshore, 1100 h. on July 29, 1996. Net mouth diameter was 30 cm and net length was 1 m. Tow duration was 2.0 minutes, at velocity of 0.38 m/sec and depth between 0 m and 2 m.

Taxa	No. / L	Max (mm)	Mode (mm)
Calanoida	7.3	1.1	0.7
Chaoboridae	0.5	5.5	2.8
Nauplii	1.0	-	-

8.3 Waterfowl and Other Fauna

Common loons were present on the lake at the time of survey. Osprey were seen soaring over the lake. No molluscs were found during the survey.

8.4 Summary of Rare and Endangered Species

No tailed frogs or harlequin ducks were observed during the survey.

9. MANAGEMENT COMMENTS

The pleasant, pristine setting of Brown Paint Lake creates moderate aesthetic value. Timber harvest in the lake's catchment area is not currently visible from the lake surface. No evidence of recreational use of the Brown Paint Lake area was observed during the survey.

The survey found no limnological explanation for fish absence from Brown Paint Lake. NTS mapsheet review found a section of Brown Paint Creek downstream of the lake with 31 % average gradient. Fish absence from the lake is likely due to barriers to fish passage in this section. This survey should satisfy resource agencies that the inlets and near-lake reaches of the outlet of Brown Paint Lake are non-fish bearing streams under the Forest Practices Code. Special access management is not recommended for the lake at this time.

10. PHOTOGRAPHS



Photograph 1. Aerial view of Brown Paint Lake, on approach from the south.



Photograph 2. View to the south from mid-lake.



Photograph 3. Upstream view of Brown Paint Creek, WC 470-5259, inlet to southeast end of Brown Paint Lake.



Photograph 4. Downstream view of Brown Paint Creek, WC 470-5259, outlet of Brown Paint Lake.



Photograph 6. Upstream view of C3 (WC pending), inlet to northwest bay of Brown Paint Lake.



Photograph 5. Upstream view of C2 (WC pending), inlet to southwest shore of Brown Paint Lake.

APPENDIX A. ABBREVIATIONS AND OTHER NOTES

MOE = Ministry of Environment, Lands and Parks
RIC = Resources Inventory Committee
TSA = Timber Supply Area
UTM = Universal Transverse Mercator
WC = Watershed Code
WCD = Watershed Code Dictionary
NTS = National Topographic Survey
NAD27 = North American Datum 1927

Note: UTM values were derived from two sources:

1. For lakes, UTM at the outlet was obtained from the WCD, and this is noted after the UTM.
2. For streams, UTM at the point they enter/exit the lake was estimated from NTS 1:50,000 mapsheets, using interpolation. UTM datum year (i.e. NAD27) is recorded after the estimate.

NTS 1 : 50,000 scale mapsheets were used to determine lake drainage area, stream order, stream magnitude and stream drainage area. Corrections were made for NTS mapsheet inaccuracies noted during the survey.

Native land claims information was derived from the following source:

“Native Land Claims in Skeena Region.” Skeena Region GIS. Ministry of Environment Lands and Parks. February 1995. Map scale 1 : 1,500,000.

All information from the above source was confirmed current as of February 1997 by the following first nation band council offices:

Gitanyow Hereditary Chiefs
Gitxsan Hereditary Chiefs
Lake Babine Nation (Nat’oot’en)
Wet’suwet’en Nation
Nisga’a Nation

Aquatic plants were identified using the following sources:

Brayshaw, T.C. 1985. Pondweeds and bur-reeds, and their relatives, of British Columbia. British Columbia Provincial Museum No. 26 Occasional papers series.

Pojar, J. and A. MacKinnon. 1994. Plants of coastal British Columbia including Washington, Oregon and Alaska. B.C. Ministry of Forests and Lone Pine Publishing.

Warrington, P.D. 1994. Identification keys to the aquatic plants of British Columbia. Resources Inventory Committee Report 029. Discussion Document.

The contractor assigned a reference number of 9628 to Brown Paint Lake 470-5259-01. This number appears in field notes and other contractor records associated with this survey.

DFO/MoELP Stream Survey Form

17-Mar-97

Stream: Brown Paint Creek

Stream Survey Report

470-5259 000-400-000 000-400-000 000-400-000

Watershed Code:

Stream/Valley Cross-Section

Fish Summary



Obstructions



Comments

- 1 Several 1 m high debris jams and 1 m high cascades are present as barriers within the channel, they are potentially passable by fish at high flows
- 2 74 sec of electrofishing yielded no fish, the lower 200 m (u/s of the lake) offers good salmonid spawning potential, and fair rearing potential, while the upper 300 m (u/s of the lake) offers fair to poor salmonid spawning and rearing potential
- 3 The first 200 m u/s from the lake has a more gravelly substrate, higher cover, and a lower gradient, the survey applies to the upper 300 m u/s of the lake
- 4 All distances estimated by ground estimate

Stream Survey Report

DFO/MoELP Stream Survey Form

Stream: Unnamed
Watershed Code: Unnamed

Watershed Code:

Header Information

Stream Name:	Unnamed	Stream "Local":	Contractor Reference Number - 9628-C2	Access:	FT
Watershed Code:	Pending	Map #:	10317/9	Reach No.:	1
Location:	Inlet to the E shore of Brown Paint Lake	U.T.M.:	09 541575.6165550	Site No.:	1
Date:	28/07/96	Survey Crew:	JD \ CS	Length surveyed (m):	0.3
	Time: 13 30	Agency:	C58	Field:	Yes
				Historical:	No
				Air Photos:	

Channel Characteristics

Av. Chan. Width (m):	1.9	Method	Av. Chan. Width (m):	MS	
Av. Wet. Width (m):	1.4	Method	Av. Wet. Width (m):	MS	
Av. Max. Rif. Depth (cm):	6	Av. Max. Rifle Depth (cm):		MS	
Av. Max. Pool Depth (cm):	18	Av. Max. Pool Depth (cm):		6	
Gradient (%):	10.5	Method	Gradient (%):	CL	
% Pool:	5	% Riffle:	75	% Run:	20
% Side Channel:		Method	Side Channel:	GE	
% Debris Area:	10-40	Method	Debris Area:	GE	

Bed Material

% Fines (<2mm):	5	% Fines (<2mm):	5
% Gravels:	45	Small (2-16mm):	15
% Largest:	45	Large (16-64mm):	30
% Bedrock:	5	Small cobble (64-128mm):	30
D90 (cm):		Large cobble (128-256mm):	10
		Boulder cobble (>256mm):	5
		% Bedrock:	5
		Compaction:	Medium

Cover

Cover Total %:	5	Method	Cover Total %:	GE	
Dp Pool:	0	L.O.D.:	0	In Veg.:	0
Crown Closure %:	8	Method	Crown Closure:	GE	

Discharge

Wetted Width (m):		Method	Wetted Width (m):	GE
Mean Depth (m):		Method	Mean Depth (m):	GE
Mean Velocity (m/s):		Method	Mean Velocity (m/s):	GE
Discharge (m3/s):	0.00	Method	Discharge (m3/s):	GE

Reach Symbol

(Fish)
(Width, Valley, Channel, Slope)
(Bed Material)

Banks

Height (m):	0.5	% Unstable:	No	Gravel:	No	Largest:	No	Bedrock:	Yes
Textures Fines:		Confinement:	1	Valley: Chan. Ratio:	5	Stage:	M	Flood Signs Ht(m):	0.5
						Braided:	N	Method	Flood Signs:
						Bars (%):	10	Method	Braided:
						pH:	7.5	Method	pH:
						02 (ppm):	15.0	Method	Dissolved Oxygen:
						Water Temp. (°C):		Method	Temperature:
						Turb. (cm):		Method	Turbidity:
						Cond. (umhos):	62	Method	Conductivity:

DFOMoELP Stream Survey Form

Stream: Unnamed

Stream Survey Report

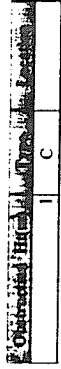
Watershed Code:

Stream/Valley Cross-Section

Fish Summary



Obstructions



Comments

- 1 A few drops and falls of less than 1 m are present. These would likely be passable at higher flow stages. Stream is too shallow to comprise fish habitat, and may be intermittent in flow.
- 2 Moss covered rock occurs along the banks. Near the lake where the gradient is lower, bank composition is fines.
- 3 All distances estimated by ground estimate.

Stream Survey Report

DFO/MoELP Stream Survey Form

Stream: Unnamed
17-Mar-97

Watershed Code:

Header Information

Stream Name: Unnamed	Stream "Local": Contractor Reference Number - 9628-C3	Access: F F
Watershed Code: Pending	Map #: 103P79	Reach Length (km): 1
Location: Inlet to SW end of Brown Paint Lake	U.T.M.: 095411506165950	Length surveyed (m): 1
Date: 27/07/96	Agency: C58	Field: Yes
Time: 14:45	Survey Crew: JD VCS \ \ \ \ \	Historical: No
		Air Photos:

Channel Characteristics

Av. Chan. Width (m): 1.0	Method Av. Chan. Width (m): 1.0	GL: GE
Av. Wet. Width (m): 0.6	Method Av. Wet. Width (m): 0.6	GE
Av. Max. Rif. Depth (cm): 5	Av. Max. Riffle Depth (cm): 5	GE
Av. Max. Pool Depth (cm): 20	Av. Max. Pool Depth (cm): 20	GE
Gradient (%): 0.5	Method Gradient: 0.5	GE
% Pool: 10	% Riffle: 0	% Other: 90
% Side Channel: 0-10	Method Side Channel: GE	GE
% Debris Area: 10-40	Method Debris Area: GE	GE

Bed Material

% Fines (<2mm): 100	% Fines (<2mm): 100	Method: GE
% Gravels: 0	Small (2-16mm): 0	Method: GE
% Largess: 0	Large (16-64mm): 0	Historical: No
% Bedrock: 0	Small cobble (64-128mm): 0	
D90 (cm): 0	Large cobble (128-256mm): 0	
	Boulder cobble (>256mm): 0	
	% Bedrock: 0	
	Compaction: High	

Cover

Cover Total %: 10	Method Cover Total %: 10	Cutbank: GE
Dp Pool: 60	Boulder: 0	Over Veg: 10
Crown Closure %: 80	Method Crown Closure: GE	Aspect: NE
		Method Aspect: GE

Discharge

Wetted Width (m): 1.0	Method Wetted Width (m): 1.0	(Fish)
Mean Depth (m): 0.33	Method Mean Depth (m): 0.33	
Mean Velocity (m/s): 0.00	Method Mean Velocity (m/s): 0.00	
Discharge (m ³ /s): 0.00	Method Discharge (m ³ /s): 0.00	

Reach Symbol

(Width, Valley: Channel, Slope) (Bed Material)

Banks

Height (m): 0.3	% Unstable: No	Largess: No
Textures Fines: Yes	Gravel: No	Bedrock: No
Confinement: 5	Valley: Chan. Ratio: 4	
Stage: M	Method Flood Signs: N	Method Braided: 0
Flood Signs H(m): 0	Method Flood Signs: 0	Method Bars: 0
Method Bars (%): 0	Method pH: 0.2	Method Dissolved Oxygen: 0.2
Water Temp. (°C): 14.45	Method Temperature: 14.45	Method Turbidity: 0.5
Turb. (cm): 0.5	Method Conductivity: 0.5	

DFO/MoELP Stream Survey Form

Stream: Unnamed

Stream Survey Report

Watershed Code:

Stream/Valley Cross-Section

Fish Summary



Obstructions

Comments

- 1 Channel bears an intermittent stream. Shallow water and short seasonal duration of water flow render this stream unfit for fish habitat
- 2 All distances estimated by ground estimate

DFO/MoELP Stream Survey Form

17-Mar-97

Stream: Unnamed

Stream Survey Report

470-5259-391-006-000-000-400-000-000-000-000-000-000

Watershed Code:

Stream/Valley Cross-Section

Fish Summary

NF											
			J							VO	

Obstructions

Comments

- 1 This channel carries intermittent flow to Brown Paint Lake from the wetland and small pond north of the lake. Much of the channel is overgrown by alder. The substrate is organic debris and fines. The stream is certainly seasonal and too shallow to provide fish habitat.
- 2 All distances estimated by ground estimate.

APPENDIX C. FISH SAMPLING FORMS

FISH COLLECTION METHOD INFORMATION

Card 1 of 1

Date (yy/mm/dd): 96/07/27 Agency: C58 Crew: JD / CS
 Gazetted Name: Brown Paint Alias: N/A UTM: 09.541493.6166152
 Lake/Stream/Wetland: Lake Location: _____ Source: Watershed Atlas
 Sequence No. 01 Weather: sunny
 Watershed code: 470-5259 Reach #: _____

Date (yy/mm/dd)	Sample Site No.	Pass # or trap/net #	Capture Method	Time In (24 hr clock)	Time Out (24 hr clock)	Sampling time (min)	Depth (m)
96/07/27		1	MT	1350	1810	1700	0.5
96/07/27		2	MT	1355	1815	1700	1.0
96/07/27		3	MT	1400	1515	1515	0.2
96/07/27		4	MT	1405	1330	1405	0.2
96/07/27		5	MT	1410	1130	1280	0.2
96/07/27		1	GN (F)	1800	0900	900	N/A
96/07/27		1	GN (S)	1820	0920	900	0-15

Comments : All gear fished over one night. Date recorded is date of set. GN(S) set with the small mesh inshore. No catch from any gear type.

APPENDIX D. LIMNOLOGICAL SAMPLING FORMS

Lake Biophysical Data Form					
Date (yy/mm/dd):	<u>96/07/29</u>	Crew:	<u>JD / CS</u>		
Site ID		Sequence No.:	<u>01</u>		
Watershed code:	<u>470-5259</u>	Alias:	<u>N/A</u>		
Gazetted name:	<u>Brown Paint</u>	UTM : Zone	<u>09</u>		
FW Region:	<u>06</u>	Easting	<u>541493</u>		
Management Unit:	<u>17b</u>	Northing	<u>6166152</u>		
NTS Map No.:	<u>103P/ 9</u>	Source	<u>Watershed Atlas</u>		
<i>Biophysical</i>					
Biogeo Zone	<u>ICH mc2</u>				
Benchmark (Y/N)	<u>Y</u>				
Benchmark details:	<u>see report</u>				
<i>Nutrient Status</i>					
SEAM No.:	<u>E223319</u>	Limno Station No:	<u>01</u>		
Secchi depth (m)	<u>8.0</u>	H2S (mg/l)	<u>0</u>		
Other samples taken:	<u>Zooplankton</u>	H2S comments	<u>no odour</u>		
		TDS method			
		DO method	<u>YSI 57</u>		
		TEMP method	<u>YSI 57</u>		
		Alkalinity			
<i>Field Conditions</i>					
wind velocity (km/h)	<u>2-10</u>	wind direction:	<u>W</u>	air temp. (c):	
cloud cover (/10 O.C.)	<u>2</u>	surface condition:	<u>calm</u>	water colour:	<u>clear</u>
<i>Development</i>					
MOF rec sites (Y/N)	<u>N</u>	Resort cmpsts (Y/N)	<u>N</u>	Residences (Y/N)	<u>N</u>
MOF campsites (Y/N)	<u>N</u>	Resorts (Y/N)	<u>N</u>	Co. Rec facilities	<u>N</u>
Parks campgrds (Y/N)	<u>N</u>	Resort cabins (Y/N)	<u>N</u>		
<i>Recreation</i>					
ROS	<u>3</u>	Biophys features:		Biophys sub-feat.:	
<i>Inlets/Outlets</i>					
	<u>see Stream Survey Card for mandatory fields</u>				
<i>Biological</i>					
Fish Card attached (Y/N)	<u>y</u>	Fish. Man. Com.	<u>see report</u>		
Wildlife:	<u>see report</u>	Reptiles:	<u>see report</u>		
Aquatic birds:	<u>see report</u>	Invertebrates:	<u>see report</u>		
Amphibians:	<u>see report</u>	Aquatic Plants:	<u>see report</u>		
<i>Comments:</i>					
Water samples:	<u>0.0 m @ 1205</u>	Chlorophyll-a: <u>1 L. filtered</u>			
	<u>7.5 m @ 1200</u>				
	<u>20.0 m @ 1130</u>				
Zooplankton: horizontal tow for 2 min @ 0.38 m/s @ 1100; 150 um mesh, 30 cm diameter net					

Lake Survey Profile Data

Sequence number: 01

Date: 96/07/29 Time: 11:15
 (yy/mm/dd) (hhmm)

Limnology station: 01

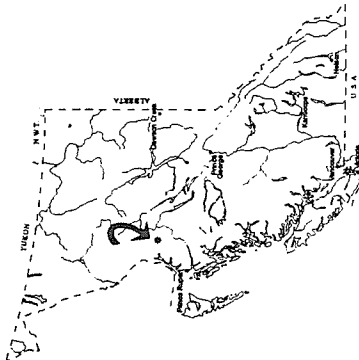
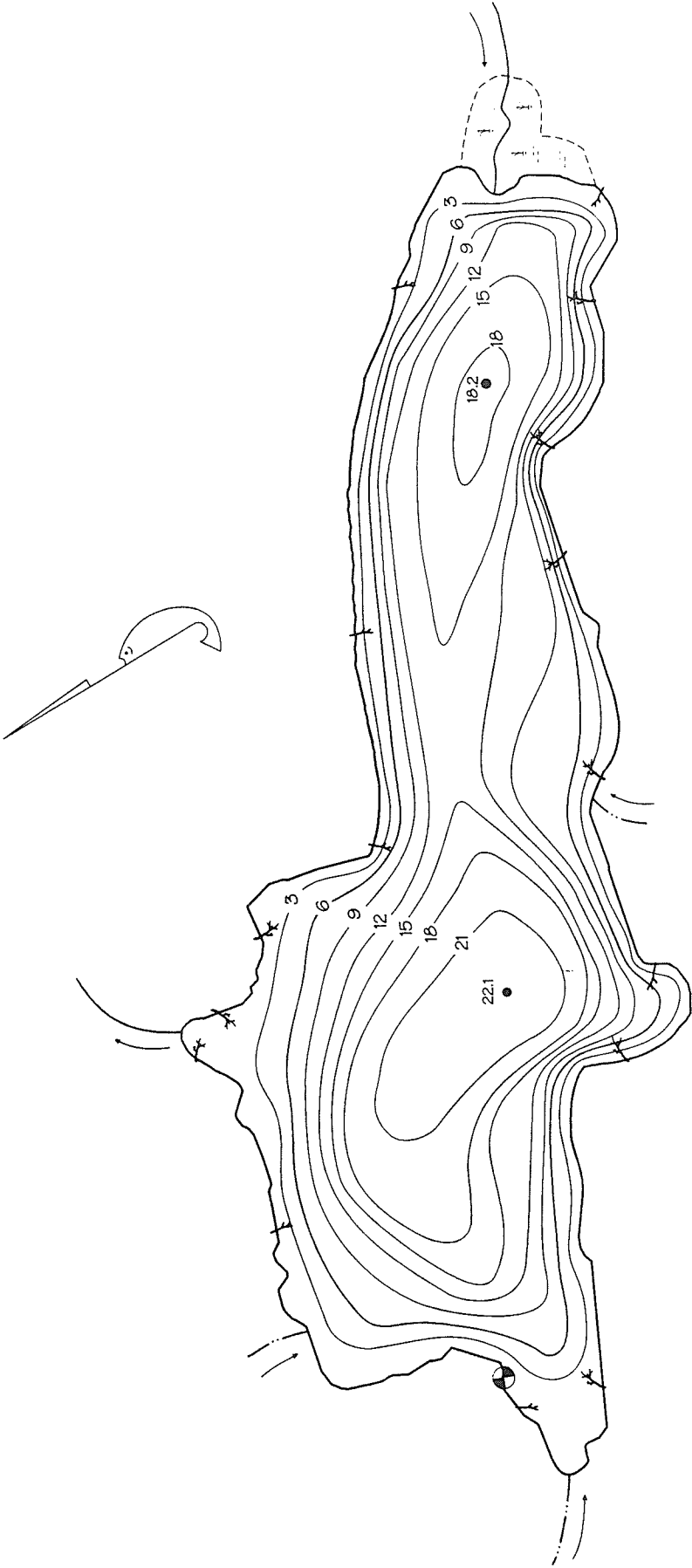
Depth (m)	D.O. (mg/l)	Temp (c)	TDS (ppm)	Conduct. (umhos/cm)
surface	7.80	20.3		
0.5	7.80	20.1		
1.0	7.85	19.8		
1.5				
2.0	8.15	16.6		
2.5				
3.0	8.05	15.4		
3.5				
4.0	8.35	12.8		
4.5				
5.0	8.75	10.6		
5.5				
6.0	7.95	7.5		
6.5				
7.0	6.80	6.1		
7.5				
8.0	6.20	5.5		
8.5				
9.0	5.80	5.2		
9.5				
10.0	5.70	5.1		
10.5				
11.0	5.35	5.0		
11.5				
12.0	5.00	4.9		
12.5				
13.0				
13.5				
14.0	4.50	4.7		
14.5				
15.0				
15.5				
16.0	4.05	4.5		
16.5				
17.0				
17.5				
18.0	3.10	4.5		
18.5				
19.0				
19.5	2.50	4.5		
20.0				

Depth (m)	D.O. (mg/l)	Temp (c)	TDS (ppm)	Conduct. (umhos/cm)
20.5				
21.0				
21.5				
22.0				
22.5				
23.0				
23.5				
24.0				
24.5				
25.0				
25.5				
26.0				
26.5				
27.0				
27.5				
28.0				
28.5				
29.0				
29.5				
30.0				
30.5				
31.0				
31.5				
32.0				
32.5				
33.0				
33.5				
34.0				
34.5				
35.0				
35.5				
36.0				
36.5				
37.0				
37.5				
38.0				
38.5				
39.0				
39.5				
40.0				

APPENDIX E. PHOTOGRAPH / NEGATIVE DIRECTORY

Negative #	Photo # (report)	Description
9628 - 1		start of a 360° clockwise panorama of Brown Paint Lake, taken from the center of the lake, view to the SE
9628 - 2	2	panorama continued, view to the S
9628 - 3		panorama continued, view to the S
9628 - 4		panorama continued, view to the SW
9628 - 5		panorama continued, view to the SW
9628 - 6		panorama continued, view to the W
9628 - 7		panorama continued, view to the NW
9628 - 8		panorama continued, view to the NW
9628 - 9		panorama continued, view to the N
9628 - 10		panorama continued, view to the N
9628 - 11		panorama continued, view to the NE
9628 - 12		panorama continued, view to the E
9628 - 13		panorama continued, view to the E
9628 - 14		panorama continued, view to the SE
9628 - 15		panorama continued, view to the SE
9628 - 16	3	Brown Paint Creek (C1), WC 470-5259, inlet to the SE end of Brown Paint Lake; upstream view
9628 - 17	6	unnamed channel C3 (WC pending), inlet to the NW end of Brown Paint Lake; upstream view
9628 - 18	5	unnamed channel C2 (WC pending), inlet to the SW shore of Brown Paint Lake; upstream view
9628 - 19		Brown Paint Creek (C4), WC 470-5259, outlet of Brown Paint Lake; upstream view
9628 - 20	4	Brown Paint Creek (C4) WC 470-5259, outlet of Brown Paint Lake; downstream view
9628 - 21		blank
9628 - 22		aerial view of Brown Paint Lake
9628 - 23		aerial view of Brown Paint Lake
9628 - 24		aerial view of Brown Paint Lake
9628 - 25		aerial view of Brown Paint Lake
9628 - 26		aerial view of Brown Paint Lake
9628 - 27		aerial view of Brown Paint Lake
9628 - 28		aerial view of Brown Paint Lake
9628 - 29		aerial view of Brown Paint Lake
9628 - 30	1	aerial view of Brown Paint Lake

APPENDIX F. BATHYMETRIC MAP



Reduced to
33%
of Original Size

NOTES: 1. Depths are in Metres; 2. Datum: British Columbia Datum; 3. Not included for navigational use. Uncharted rocks and shoals may exist.

SURVEYED BY: J. BEGISH/C. SCHELL DATE: JULY 27-28 1986
 OUTLINE SOURCE: Air Photo 306CG4037 #172 (JULY 1984)

Elevation	720	m.
Surface Area	210 004	sq.m.
Area above 6m. Contour	86 527	sq.m.
Volume	2 504 417	cu.m.
Mean Depth	9.6	m.
Minimum Depth	2.1	m.
Perimeter, Main Shore	3 136	m.
Perimeter, Islands	0	m.
Bench Mark	2.5	m.

BROWN PAINT LAKE

DEPTHS IN METRES
 WATERBODY CODE: A1-1-24-25
 UTM COORDINATE: UTM 12
 FLIGHT DATE: MAY 1987
 SCALE: 1:2 000
 CONSIDERED: 2 J J
 APPROVED: [Signature]
 NTS NO: 103 P/9

PREPARED FOR: [Signature]
 BY: [Signature]
 LOCATION: British Columbia

APPENDIX G. WATER CHEMISTRY ANALYSIS BY ZENON LABORATORIES



A division of PHILIP Analytical Services Corp.

17-Aug-96
Page 1 of 7

ZENON LABORATORIES
Certificate of Analysis

8577 Commerce Court
Burnaby, B.C.
Canada V5A 4N5
Tel 604 444 4808
Fax 604 444 4511

Reported To :

JOSEPH S. DEGISI

Client Code DJ

R.R.#1, SITE 27, C2
SMITHERS, B.C.
VOJ 2N0

Attention : JOE DEGISI
Phone : (604) 847-3575
FAX : (604) 847-2959

Project Information :

Project ID : BROWN PAINT LAKE
Submitted By : JOE DEGISI

Requisition Forms :

Form 06111187 logged on 1-Aug-96 completed on 17-Aug-96

Remarks :

- ☞ All organic data is blank corrected except for PCDD/F, Hi-res MS and CLP volatile analyses
- ☞ 'MDC' = Minimum Detectable Concentration, '<' = Less than MDC, '---' = Not analyzed
- ☞ Solids results are based on dry weight except Biota Analyses & Special Waste Oil & Grease
- ☞ Organic analyses are not corrected for extraction recovery standards except for Isotope Dilution methods. (i.e. CARB 429 PAH, all PCDD/F and DBD/DBF analyses)
- ☞ All Groundwater samples are decanted and/or filtered prior to analysis

Methods used by Zenon are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', 18th Edition, published by the American Public Health Association, or on US EPA protocols found in the 'Test Methods For Evaluating Solid Waste, Physical/Chemical Method, SW846', 3rd Edition. Other procedures are based on methodologies accepted by the appropriate regulatory agency. Methodology briefs are available by written request.

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done. There is no other warranty expressed or implied. Your samples will be retained at Zenon for a period of 30 days from receipt of data or as per contract.

ZENON Project Manager: Jack Wilson

9628

ZENON

LABORATORIES

A division of PHILIP Analytical Services Corp.

17-Aug-96
Page 2 of 7

ANALYTICAL REPORT

Form 06111187

Client : JOSEPH S. DEGISI
Project : BROWN PAINT LAKEZenon ID : METHOD 96020697 96020697 96020698
Client ID : BLANK E223319 Duplicate E223319
20.0m 7.5m

Sparcode	Parameter	Unit	MDC				
PHYSICAL							
00041220	pH	pH units	0.1	n/a	7.0	---	7.2
00111160	Specific Conductance	uS/cm	1	< 1	58	---	56
007H1033	Residue Filterable 1.0u (TDS)	mg/L	4	16	44	56	44
GENERAL INORGANICS							
01011211	Alkalinity Phen. 8.3	mg/L	0.5	< 0.5	< 0.5	---	< 0.5
01021210	Alkalinity Total 4.5	mg/L	0.5	2.1	28.3	---	27.5
CO3-CALC	Carbonate	mg/L			< 0.5		< 0.5
HCO3CALC	Bicarbonate	mg/L			34.5		33.5
OH-CALC	Hydroxide	mg/L			< 0.5		< 0.5
NITROGEN							
0112CALC	Organic Nitrogen - Total	mg/L			0.08		0.06
0113136A	Total Kjeldahl Nitrogen	mg/L	0.04	< 0.04	0.08	---	0.06
0114CALC	Total Nitrogen	mg/L			< 0.10		< 0.08
11081351	Ammonia Nitrogen	mg/L	0.005	< 0.005	< 0.005	---	< 0.005
11091350	Nitrate + Nitrite (N)	mg/L	0.02	< 0.02	< 0.02	---	< 0.02
1110CALC	Nitrate Nitrogen Dissolved	mg/L			< 0.02		< 0.02
11111354	Nitrite Nitrogen	mg/L	0.005	< 0.005	< 0.005	---	< 0.005
PHOSPHORUS							
P--D1390	Phosphorus Total Dissolved	mg/L	0.003	0.005	0.004	---	0.004
P--T139A	Phosphorus - Total	mg/L	0.003	0.005	0.007	---	0.005
METALS TOTAL							
Ag-T0042	Silver	mg/L	0.03	< 0.03	< 0.03	---	< 0.03
Al-T0042	Aluminum	mg/L	0.06	< 0.06	< 0.06	---	< 0.06
As-T0042	Arsenic	mg/L	0.04	< 0.04	< 0.04	---	< 0.04
B--T0042	Boron	mg/L	0.04	< 0.04	< 0.04	---	< 0.04
Ba-T0042	Barium	mg/L	0.001	< 0.001	0.015	---	0.014
Be-T0042	Beryllium	mg/L	0.001	< 0.001	< 0.001	---	< 0.001
Bi-T0042	Bismuth	mg/L	0.02	< 0.02	< 0.02	---	0.02
Ca-T0042	Calcium	mg/L	0.05	< 0.05	7.54	---	7.33
Cd-T0042	Cadmium	mg/L	0.002	< 0.002	< 0.002	---	< 0.002
Co-T0042	Cobalt	mg/L	0.004	< 0.004	< 0.004	---	< 0.004
Cr-T0042	Chromium	mg/L	0.002	0.002	0.007	---	0.006
Cu-T0042	Copper	mg/L	0.002	< 0.002	< 0.002	---	< 0.002
Fe-T0042	Iron	mg/L	0.05	< 0.05	0.09	---	< 0.05

Matrix :
Sampled on:Fresh Water
96/07/29 11:35Fresh Water
96/07/29 12:00

CONTINUED on page 3

ZENON

LABORATOIRES

A division of PHILIP Analytical Services Corp.

17-Aug-96
Page 3 of 7

ANALYTICAL REPORT

Form 0611187

Client : JOSEPH S. DEGISI
Project : BROWN PAINT LAKE

Zenon ID : METHOD 96020697 96020697 96020698
Client ID : BLANK E223319 Duplicate E223319
20.0m 7.5m

Sparcode	Parameter	Unit	MDC				
K_T0042	Potassium	mg/L	0.4	< 0.4	< 0.4	---	< 0.4
Mg-T0042	Magnesium	mg/L	0.02	< 0.02	1.30	---	1.26
Mn-T0042	Manganese	mg/L	0.002	< 0.002	0.034	---	0.002
Mo-T0042	Molybdenum	mg/L	0.004	< 0.004	< 0.004	---	< 0.004
Na_T0042	Sodium	mg/L	0.4	< 0.4	2.5	---	2.4
Ni-T0042	Nickel	mg/L	0.01	< 0.01	< 0.01	---	< 0.01
P_T0042	Phosphorus	mg/L	0.04	< 0.04	< 0.04	---	< 0.04
Pb-T0042	Lead	mg/L	0.03	< 0.03	< 0.03	---	< 0.03
S_T0042	Sulphur	mg/L	0.1	< 0.1	0.5	---	0.5
Sb-T0042	Antimony	mg/L	0.02	< 0.02	< 0.02	---	< 0.02
Se-T0042	Selenium	mg/L	0.03	< 0.03	< 0.03	---	< 0.03
Si-T0042	Silicon	mg/L	0.8	< 0.8	2.0	---	1.6
Sn-T0042	Tin	mg/L	0.02	< 0.02	< 0.02	---	< 0.02
Sr-T0042	Strontium	mg/L	0.001	< 0.001	0.108	---	0.106
Te-T0042	Tellurium	mg/L	0.02	< 0.02	< 0.02	---	< 0.02
Ti-T0042	Titanium	mg/L	0.003	< 0.003	< 0.003	---	< 0.003
Tl-T0042	Thallium	mg/L	0.03	< 0.03	< 0.03	---	< 0.03
V-T0042	Vanadium	mg/L	0.003	< 0.003	< 0.003	---	< 0.003
Zn-T0042	Zinc	mg/L	0.01	0.01	0.03	---	0.01
Zr-T0042	Zirconium	mg/L	0.003	< 0.003	< 0.003	---	< 0.003

Matrix : Fresh Water
Sampled on: 96/07/29 11:35 Fresh Water 96/07/29 12:00



A division of PHILIP Analytical Services Corp.

17-Aug-96
Page 4 of 7ANALYTICAL REPORT
Form 06111187Client : JOSEPH S. DEGISI
Project : BROWN PAINT LAKEZenon ID : METHOD 96020699
Client ID : BLANK E223319
0.0m

Sparcode	Parameter	Unit	MDC		
PHYSICAL					
00041220	pH	pH units	0.1	=	7.5
00111160	Specific Conductance	uS/cm	1	=	52
007H1033	Residue Filterable 1.0u (TDS)	mg/L	4	---	44
GENERAL INORGANICS					
01011211	Alkalinity Phen. 8.3	mg/L	0.5	=	< 0.5
01021210	Alkalinity Total 4.5	mg/L	0.5	=	24.2
CO3-CALC	Carbonate	mg/L			< 0.5
HCO3CALC	Bicarbonate	mg/L			29.5
OH--CALC	Hydroxide	mg/L			< 0.5
NITROGEN					
0112CALC	Organic Nitrogen - Total	mg/L			0.09
0113136A	Total Kjeldahl Nitrogen	mg/L	0.04	=	0.09
0114CALC	Total Nitrogen	mg/L			< 0.11
11081351	Ammonia Nitrogen	mg/L	0.005	=	< 0.005
11091350	Nitrate + Nitrite (N)	mg/L	0.02	=	< 0.02
1110CALC	Nitrate Nitrogen Dissolved	mg/L			< 0.02
11111354	Nitrite Nitrogen	mg/L	0.005	=	< 0.005
PHOSPHORUS					
P--D1390	Phosphorus Total Dissolved	mg/L	0.003	=	< 0.003
P--T139A	Phosphorus - Total	mg/L	0.003	=	0.003
METALS TOTAL					
Ag-T0042	Silver	mg/L	0.03	=	< 0.03
Al-T0042	Aluminum	mg/L	0.06	=	< 0.06
As-T0042	Arsenic	mg/L	0.04	=	< 0.04
B--T0042	Boron	mg/L	0.04	=	< 0.04
Ba-T0042	Barium	mg/L	0.001	=	0.012
Be-T0042	Beryllium	mg/L	0.001	=	< 0.001
Bi-T0042	Bismuth	mg/L	0.02	=	< 0.02
Ca-T0042	Calcium	mg/L	0.05	=	6.46
Cd-T0042	Cadmium	mg/L	0.002	=	< 0.002
Co-T0042	Cobalt	mg/L	0.004	=	< 0.004
Cr-T0042	Chromium	mg/L	0.002	=	0.005
Cu-T0042	Copper	mg/L	0.002	=	< 0.002
Fe-T0042	Iron	mg/L	0.05	=	< 0.05

Matrix : Fresh Water
Sampled on: 96/07/29 12:05

CONTINUED on page 5



A division of PHILIP Analytical Services Corp.

17-Aug-96
Page 5 of 7ANALYTICAL REPORT
Form 06111187Client : JOSEPH S. DEGISI
Project : BROWN PAINT LAKEZenon ID : METHOD 96020699
Client ID : BLANK E223319
0.0m

Sparcode	Parameter	Unit	MDC		
K_T0042	Potassium	mg/L	0.4	=	< 0.4
Mg-T0042	Magnesium	mg/L	0.02	=	1.14
Mn-T0042	Manganese	mg/L	0.002	=	0.004
Mo-T0042	Molybdenum	mg/L	0.004	=	< 0.004
Na_T0042	Sodium	mg/L	0.4	=	2.1
Ni-T0042	Nickel	mg/L	0.01	=	< 0.01
P_T0042	Phosphorus	mg/L	0.04	=	< 0.04
Pb-T0042	Lead	mg/L	0.03	=	< 0.03
S_T0042	Sulphur	mg/L	0.1	=	0.4
Sb-T0042	Antimony	mg/L	0.02	=	< 0.02
Se-T0042	Selenium	mg/L	0.03	=	< 0.03
Si-T0042	Silicon	mg/L	0.8	=	1.6
Sn-T0042	Tin	mg/L	0.02	=	< 0.02
Sr-T0042	Strontium	mg/L	0.001	=	0.090
Te-T0042	Tellurium	mg/L	0.02	=	< 0.02
Ti-T0042	Titanium	mg/L	0.003	=	< 0.003
Tl-T0042	Thallium	mg/L	0.03	=	< 0.03
V-T0042	Vanadium	mg/L	0.003	=	< 0.003
Zn-T0042	Zinc	mg/L	0.01	=	0.03
Zr-T0042	Zirconium	mg/L	0.003	=	< 0.003
GENERAL BIOLOGY					
01431810	Chlorophyll A	ug/L	0.5	n/a	0.7 (1)

Matrix : Fresh Water
Sampled on: 96/07/29 12:05

Result comments and/or text results :

(1) SAMPLE LEFT AT ROOM TEMPERATURE FOR TWO DAYS



A division of PHILIP Analytical Services Corp.

17-Aug-96
Page 6 of 7**SPIKE SUMMARY**
Form 06111187

Parameter	Client ID	Zenon ID	Sample Conc.	Sample & Spike Conc.	Spike Amount	Unit	Percent Recovery
Residue Filterable 1.0u (TDS)	Blank Spike. Batch :	64402261	16	120	100	mg/L	104
Nitrite Nitrogen	Blank Spike. Batch :	64100796	< 0.005	0.105	.1	mg/L	105
Nitrate+Nitrite (N)	Blank Spike. Batch :	64100796	< 0.02	0.40	.4	mg/L	100
Ammonia Nitrogen	Blank Spike. Batch :	64100796	< 0.005	0.097	.1	mg/L	99

ZENON

LABORATORIES

A division of PHILIP Analytical Services Corp.

17-Aug-96
Page 7 of 7

ANALYSIS DATES

Form 06111187

Zenon ID:		96020697	96020698	96020699
Client ID:		E223319	E223319	E223319
		20.0m	7.5m	0.0m
00041220	pH	07-AUG-1996	07-AUG-1996	07-AUG-1996
00111160	Specific Conductance	07-AUG-1996	07-AUG-1996	07-AUG-1996
007H1033	Residue Filterable 1.0u (TDS)	12-AUG-1996	15-AUG-1996	15-AUG-1996
01011211	Alkalinity Phen. 8.3	07-AUG-1996	07-AUG-1996	07-AUG-1996
01021210	Alkalinity Total 4.5	07-AUG-1996	07-AUG-1996	07-AUG-1996
0113136A	Total Kjeldahl Nitrogen	13-AUG-1996	13-AUG-1996	13-AUG-1996
11081351	Ammonia Nitrogen	02-AUG-1996	02-AUG-1996	02-AUG-1996
11091350	Nitrate+Nitrite (N)	02-AUG-1996	02-AUG-1996	02-AUG-1996
11111354	Nitrite Nitrogen	02-AUG-1996	02-AUG-1996	02-AUG-1996
P--D1390	Phosphorus Total Dissolved	12-AUG-1996	12-AUG-1996	12-AUG-1996
P--T139A	Phosphorus - Total	12-AUG-1996	12-AUG-1996	12-AUG-1996
MET-F	Water:Total Metal Pk:ICP	08-AUG-1996	08-AUG-1996	08-AUG-1996
01431810	Chlorophyll A	--	--	16-AUG-1996
Matrix:		Fresh Water	Fresh Water	Fresh Water
Sampled on:		29-JUL-1996	29-JUL-1996	29-JUL-1996

APPENDIX H. ORIGINAL FIELD NOTES

Reconnaissance Lake Inventory Field Notes

Gazetted Name :

Alias :

Location and Access

Watershed code (including sequence no.) :

UTM (with source) :

N.T.S. map no. :

SEAM site no. :

Forest District :

Drainage :

Accessed by JET RANGER from SMITHERS

Details

(Road: surface condition: directions; odometer distances; Air: mode, distance, flight path, time, disembarkment point)

Physical Data and Sources

Elevation _____ m

Elevation Source _____

Sounding Device _____

Contractor lake reference number: 9628

Benchmark

The benchmark was established in a 60 cm dbh SPRUCE located _____
6m FROM SHORE ON POINT DELIMITING NORTH SIDE OF
BAY AT EXTREME WEST END OF LAKE

An iron spike was placed in an orange circle painted on the tree trunk, 2.15 m above the current lake level. The high water mark was located 10cm m above the current lake level.

Terrain and Vegetation

Immediate shore

(shoreline substrates: immediate shoreline vegetation: transition to forest: wetland locations: sweepers)

[EQUISETUM AQUATILIS NUBAR POLYSEPALUM, POTAMOGETON RICHARDSONI
'COON'S TAIL' SEDGES CAREX spp.]

- SHORELINE SUBSTRATE LARGE COBBLE BOULDER, AND BEDROCK WITH AREAS OF ORGANIC FINES.
- ALDER AND SEDGE ABUNDANT ON IMMEDIATE SHORELINE, MATURE FOREST TO HIGH WATER LINE
- SHORELINE CHARACTERISED BY SWEEPERS

Surrounding country

(terrain: forest cover: cliffs / rock outcrops / meadows: mountains or other visible features)

- HEMLOCK, FIR, SPRUCE | MIXED MATURE FOREST WITH ALDER ON SHORE
- TERRAIN RISES STEEPLY ON SOUTH SIDE OF LAKE SAME ROCK OUTCROPS
- ROLLING HILLS SURROUND LAKE, NEAR VIEW OF STEEP FORESTED HILL TO THE EAST OF LAKE.
- NO FAR VIEWS.

Aquatic macrophytes

(types, relative abundance, location of beds)

- EQUISETUM + SEDGES ON MUCH OF SHORE, N. POLYSEPALUM, P. RICHARDSONI, COON'S TAIL IN BAYS AS WELL.
- HIGHEST CONCENTRATION OF MACROPHYTES IN BAYS.

Development and Land Use

Campsites or cabins NONE

Timber harvest

(locations visible from lake; along inlets or outlet)

- NO SIGN OF TIMBER HARVESTING FROM LAKE SURFACE.
- FLAGGING TAPE MARKING CUTBLOCK ON NORTH SIDE OF C1, 400 m UPSTREAM FROM LAKE.

Mining claims, trapping or other human activity

NONE VISIBLE.

Obstructions and pollutions

(beaver dams; beaver activity; other obstructions - waterfalls, cascades, etc. near the lake)

- OLD BEAVER SIGN NEAR C3; NO DAMS.
- NO WATERFALLS CLOSE TO LAKE.

Comments, including fish population / angling quality

(trails; aesthetics; fish condition/ appearance; other features/characteristics of interest not previously mentioned)

NICE LAKE. VERY PLEASANT. NO FISH

- SWEEPERS MAKE NAVIGATION NEAR SHORELINE DIFFICULT.
- AMPHIPOD SEEN SWIMMING PELAGICALLY, MIDDAY
- PLANKTON HAUL - 2 WENS, 0.38 M/S, 30CM DIAM. NET OPENING, 11:00.

Lake Biophysical Data Form

Date (yy/mm/dd): 96-07-29

Crew: _____

Site ID _____

Watershed code: _____

Sequence No.: _____

Gazetted name: BROWN PAINT L.

Alias: _____

FW Region: _____

UTM (Zone, Easting, Northing): _____

Management Unit: _____

NTS Map No.: _____

Biophysical

Biogeo Zone _____

Benchmark (Y/N) _____

Benchmark details: _____

Nutrient Status

SEAM No.: E223319

Secchi depth (m) 8

Other samples taken: _____

Limno Station No:	_____	_____	_____
H2S (mg/l)	_____	_____	_____
H2S comments	_____	_____	_____
TDS method	_____	_____	_____
DO method	_____	_____	_____
TEMP method	_____	_____	_____
Alkalinity	_____	_____	_____

Field Conditions

wind velocity (km/h) 2-10 km/h

wind direction: W

air temp. (c): _____

cloud cover (/10 O.C.) 2

surface condition: CALM

water colour: CLEAR

Development

MOF rec sites (Y/N) _____

Resort cmpsts (Y/N) _____

Residences (Y/N) _____

MOF campsites (Y/N) _____

Resorts (Y/N) _____

Co. Rec facilities _____

Parks campgrds (Y/N) _____

Resort cabins (Y/N) _____

Recreation

ROS _____

Biophys features: _____

Biophys sub-feat.: _____

Inlets/Outlets

see Stream Survey Card for mandatory fields

Biological

Fish Card attached (Y/N) _____

Fish. Man. Com. _____

Wildlife: _____

Reptiles: _____

Aquatic birds: ✓

Invertebrates: ZOOP.

Amphibians: VARIOUS FROGS. NOT I.D.FO. COULD NOT CAPTURE

Aquatic Plants: _____

Comments:

- PLANKTON HAUL : 2 MINS . 0.38 m/s , 20cm DIA. NET OPENING 150um MESH , 11:00 AM
 - WATE SAMPLES 20m @ 1130 , 7.5m @ 1200 , 0.0 @ 1205

Lake Survey Profile Data

Sequence number: _____

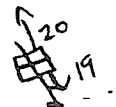
Date : 96-07-29 - 1130
(yy/mm/dd)

Limnology station: 1

Depth (m)	D.O. (mg/l)	Temp (c)	TDS (ppm)	Conduct. (umhos/cm)
surface	7.8	20.3		
0.5	7.8	20.1		
1.0	7.85	19.8		
1.5				
2.0	8.15	16.6		
2.5				
3.0	8.05	15.4		
3.5				
4.0	8.35	12.8		
4.5				
5.0	8.75	10.6		
5.5				
6.0	7.95	7.5		
6.5				
7.0	6.8	6.1		
7.5				
8.0	6.2	5.5		
8.5				
9.0	5.8	5.2		
9.5				
10.0	5.7	5.1		
10.5				
11.0	5.35	5.0		
11.5				
12.0	5.0	4.9		
12.5				
13.0				
13.5				
14.0	4.5	4.7		
14.5				
15.0				
15.5				
16.0	4.05	4.5		
16.5				
17.0				
17.5				
18.0	3.10	4.5		
18.5				
19.0				
19.5	2.5	4.5		
20.0				

Depth (m)	D.O. (mg/l)	Temp (c)	TDS (ppm)	Conduct. (umhos/cm)
20.5				
21.0				
21.5				
22.0				
22.5				
23.0				
23.5				
24.0				
24.5				
25.0				
25.5				
26.0				
26.5				
27.0				
27.5				
28.0				
28.5				
29.0				
29.5				
30.0				
30.5				
31.0				
31.5				
32.0				
32.5				
33.0				
33.5				
34.0				
34.5				
35.0				
35.5				
36.0				
36.5				
37.0				
37.5				
38.0				
38.5				
39.0				
39.5				
40.0				

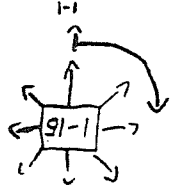
1-5-1
2-0.77
3-0.22
50.37



(SEEPAGE)

No channel found

INTERMITTENT SEEPAGE



BROWN

SURVEYED BY:

OUTLINE SO:

UTM: .5

WG: 47

SURVEY ON:

REF no.:

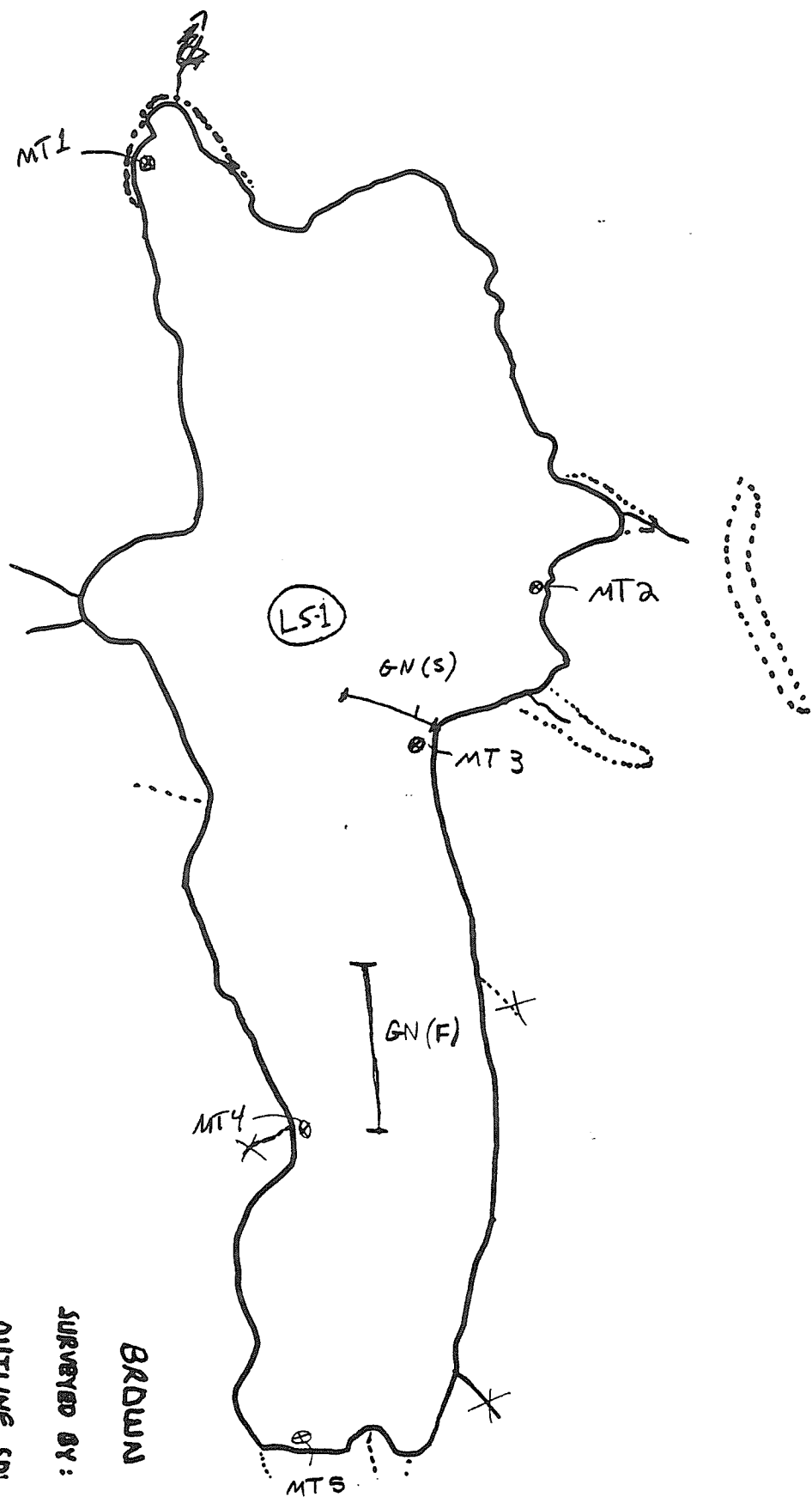
(wetland) (camp site)

B.M.

(seepage)
no channel found

photo sites refer to Roll # 1





BROWN

SURVEYED BY:

AUTLINE SDI

UTM: .5

WC: 47

SURVEY ON

REF NO.:

8296

FISH COLLECTION METHOD INFORMATION

Card 1 of 1

Date (yy/mm/dd):	<u>July 27, '96</u>	Agency:	<u>CS8</u>	Crew:	<u>JD/CS</u>
Gazetted Name:	<u>Brown Point</u>	Alias:		UTM:	
Lake/Stream/Wetland:	<u>LAKE</u>	Location:		Datum:	
Sequence No.:		Weather:	<u>- sunny</u>		
Watershed code:		Reach #:			

Date (yy/mm/dd)	Sample Site No.	Pass # or trap/net #	Capture Method	Time In (24 hr clock)	Time Out (24 hr clock)	Sampling time (min)	Depth (m)
<u>07-27-96</u>	<u>1</u>		<u>MT</u>	<u>13:50</u>	<u>1810</u>		<u>0.5m</u>
<u>07-27-96</u>	<u>2</u>		<u>MT</u>	<u>13:55</u>	<u>1815</u>		<u>1.0m</u>
<u>07-27-96</u>	<u>3</u>		<u>MT</u>	<u>14:00</u>	<u>1515</u>		<u>0.2m</u>
<u>07-27-96</u>	<u>4</u>		<u>MT</u>	<u>14:05</u>	<u>1330</u>		<u>0.2m</u>
<u>07-27-96</u>	<u>5</u>		<u>MT</u>	<u>14:10</u>	<u>10:30</u>		<u>0.2m</u>
<u>96-07-27</u>	<u>6</u>		<u>GN(F)</u>	<u>18:00</u>	<u>09:00</u>		<u>N/A</u>
<u>96-07-27</u>	<u>7</u>		<u>GN(S)</u>	<u>18:20</u>	<u>0920</u>		<u>0-15</u>

mud / macrophyte
mud / macrophyte
mud / sedge
clay shell / sedge
mud / macrophyte

Comments : All gear fished over one night. Date recorded is date of set. Sinking gillnet fished with large mesh inshore.

DFO / MOE
STREAM SURVEY FORM

Stream Name: (gaz)	(local)	Access	Method
Watershed Code		Reach No. /	Length (km)
Location		Sta No. /	Ab. Sta. (km)
Date: YMD: 9/6/07	Time: 10:30	U.T.M.	Photos: 2-16
PARAMETER		VALUE	METH
Ave. Chan. Width (m)			MS 3.2, 2.8, 4.3, 1.9
Ave. Wet Width (m)			MS 3, 2.4, 2.4, 1.8
Ave. Max. Riffle Depth (cm)			MS 15, 12, 12, 12
Ave. Max. Pool Depth (cm)			MS 31, 45, 30
Gradient %		14.20	CL
COVER: Total %		10	
Comp. Op. Pool		50	
Comp. L.O.D.		10	
Comp. Boulder		30	
Comp. InVeg		0	
Comp. OverVeg		0	
Comp. Cutbank		0	
Crown Closure %		90	
Aspect		N	
DISCHARGE			
Parameter	Value	Method	Specific Data
Wetted Width (m)		MS	1.0
Mean Depth (m)		MS	5.0, 5.0, 12.0, 19.0, 11.0, 12.0, 8.0, 4.0
Mean Velocity (m/s)		FO	0.4 m/s
Discharge (m3/s)			
BED MATERIAL			
Finest	clay, silt, sand (<2mm)		
Gravels	small (2-16mm)		
	large (16-64mm)	25	
	sm. cobble (64-128mm)		
	lg. cobble (128-256mm)	50	
	boulder (>256mm)	10	
BANKS			
Height (m)	OS % Unstable		
Texture	F C L R		
Confinement	CO FC OC UC NA		
Valley: Channel Ratio	0-2 2-5 5-10 10+		
Flood Signs H(m)	Dry L M H Flood		
Bars (%)	S pH	7.50	
Water Temp (C)	Turb (cm)		
Cond (25C)		51	
REACH SYMBOL (Fish)			
17°C			

FISH SUMMARY						STREAM/VALLEY CROSS-SECTION (Looking Downstream)	
Species	No.	Size Range (mm)	Use	Members			
NA	0			ES-7			
				79 SEC			
COMMENTS						PLANIMETRIC VIEW	
Channel Stability <input type="checkbox"/> Debris <input type="checkbox"/> Management Concerns <input type="checkbox"/> Obstructions <input checked="" type="checkbox"/> Riparian Zone <input type="checkbox"/> Valley Wall Processes <input type="checkbox"/> Etc.						L R	
1 - SEVERAL 1m DEBRIS TAMS AND 1m SMALL FALLS. POTENTIALLY PASSABLE AT HIGH FLOWS							
- LOWER 200 m - GOOD SPAWNING FISH REARING HABITAT							
- UPPER 300 m - FAIL TO POOR REARING + SPAWNING							
- BOTTOM FIRST 200 m FROM LAKE IS LOWER GRADIENT AND HAS MORE COVER; CALO APPLIES TO UPPER 300m							
						Edited by:	
						Date YMD	

9628 C1

DFO / MOE
STREAM SURVEY FORM

Stream Name (gaz)	(local)		Access	Method	
Watershed Code	Region No. 1		Length (km)		
Location	Map	Station No. 1	Station (m) 250		
Date Y-M-D 9/6/07	Time 1:30	U.T.M.	Y N F	Upland Fish	
Asst. S. J. O. S.	CSB	Photos	✓	AirPhotos	
PARAMETER		VALUE	METH	SPECIFIC DATA	OBSTRUCTIONS
Ave. Chan. Width (m)		AS	1.9	1.30, 1.1, 2.5, 1.55	
Ave. Wet Width (m)		AS	1.65	1.25, 1.0, 1.65, 1.35	
Ave. Max. Riffle Depth (cm)		AS	5.5	7, 6, 6	
Ave. Max. Pool Depth (cm)		AS	13	2.5, 15	
Gradient %	13.9	CL			
% Pool	0.5	GE			
Side Chan. %	1.5	GE			
Debris Stable %	2.0				
COVER: Total %	5				
Comp. sum 100%	0	50		50	
Crown Closure %	8.0	Aspect E			
DISCHARGE					
Parameter	Value	Method	Specific Data		
Wetted Width (m)					
Mean Depth (m)					
Mean Velocity (m/s)					
Discharge (m3/s)	0.002	GE			
			REACH SYMBOL (Fish)		

FISH SUMMARY						STREAM/VALLEY CROSS-SECTION (Looking Downstream)	
C	Species	No.	Size Range (mm)	Use	Method	L	R
		0			VO		
						PLANIMETRIC VIEW	
COMMENTS							
Channel Stability <input type="checkbox"/> Debris <input type="checkbox"/> Management Concerns <input type="checkbox"/> Obstructions <input type="checkbox"/> Riparian Zone <input type="checkbox"/> Valley Wall Processes <input type="checkbox"/> Etc.							
1 - few DEEPS/FRESSES < 1M PASSABLE AT HIGH FLOWS							
- TOO SHALLOW FOR FRESH HABITAT							
- POSSIBLY INTERMITTANT							
2 - ROCK AND MOSS							
- ORGANIC FINES AND LOWER GRADIENT NEAR LAKE							
						Edited by: _____ Date YMD _____	

9628 C2

DFO / MOE
STREAM SURVEY FORM

StreamName: (gaz) <u>Unnamed</u> (local)	Access	Method				
Watershed Code	Reach No: <u>1</u> Lngth(km)					
Location: <u>Inlet to W bay of Brown Point Lake</u> Map	Scale: <u>1</u> Dist: <u>200</u>					
Date: YMD: <u>9/6/07</u> Time: <u>14:45</u> U.T.M.	Reach No: <u>Y</u> (N)	Field No: <u>145</u>				
CSB: <u>JD/CS</u> Photos	AirPhotos					
PARAMETER	VALUE	METH	SPECIFIC DATA		OBSTRUCTIONS	
Ave.Chan.Width(m)	<u>1.0</u>	<u>GE</u>			C	Type Loc'n
Ave.Weir.Width(m)	<u>0.6</u>	<u>GE</u>				<u>N/A</u>
Ave.Max.Riffle Depth (cm)	<u>5</u>	<u>GE</u>				
Ave.Max.Pool Depth (cm)	<u>20</u>	<u>GE</u>				
Gradient%	<u><1</u>	<u>GE</u>	BED MATERIAL %		BANKS	
% Pools: <u>10</u> Rm: <u>0</u> Rm: <u>90</u> Other: <u>0</u>		<u>GE</u>	Fines: <u>100</u> clay, silt, sand (<2mm)	Height(m) <u>0.3</u> %Unstable <u>0</u>		
Side Chan. %	<u>0</u>	<u>GE</u>	Gravel: <u>0</u> small (2-16mm)	Texture <u>(F) G L R</u>		
Debris Stable %	<u>100</u>	<u>GE</u>	large (16-64mm) <u>0</u>	Confinement EN: CO: FC: OC: UC: NA		
COVER: Total%			sm. cobble (64-128mm) <u>0</u>	Valley:Channel Ratio <u>0-2 2-5 5-10 (10) N/A</u>		
Comp. Dp.Pool L.O.D. Boulder InVeg OverVeg Cutbank	<u>10 60 0 0 10 20</u>		large (128-256mm) <u>0</u>	Flood Signs H(m) <u>—</u> Braided <u>Y</u> (N)		
Crown Closure % <u>80</u> Aspect <u>NE</u>			boulder > 256mm <u>0</u>	Bars (%) <u>0</u> pH <u>—</u> O ₂ (ppm) <u>—</u>		
DISCHARGE			REACH SYMBOL (Fish)			
Parameter	Value	Method	Specific Data			
Wetted Width (m)						
Mean Depth (m)						
Mean Velocity (m/s)						
Discharge (m3/s)	<u>.0007</u>	<u>GE</u>				

FISH SUMMARY						STREAM/VALLEY CROSS-SECTION (Looking Downstream)	
C	Species	No.	Size Range(mm)	Use	Method	PLANIMETRIC VIEW	
	<u>N/A</u>	<u>0</u>	<u>—</u>	<u>—</u>	<u>VO</u>		
COMMENTS							
Channel Stability <input type="checkbox"/> Debris <input type="checkbox"/> Management Concerns <input type="checkbox"/> Obstructions <input type="checkbox"/> Riparian Zone <input type="checkbox"/> Valley Wall Processes <input type="checkbox"/> Etc.							
<u>Channel bears an intermittent stream, substrate organic fines and debris, low gradient, too shallow and temporary to serve as fish habitat</u>							
Edited by:							
Date YMD							

DFO / MOE
STREAM SURVEY FORM

Stream Name: (gaz)		(local)		Access	Method	
Watershed Code:		Reach No.:		Length (km)		
Location: OUBLET OF BROWN PAINT LK.		Map:		Stationing:	500 m	
Date: YMD 960728		Time: 1700		U.T.M.	Y (N)	
CSE		CSJO		Photos	2	
AirPhotos						
PARAMETER		VALUE	METH	SPECIFIC DATA		OBSTRUCTIONS
Ave. Chan. Width (m)			MS	8.5, 3, 2.1, 8.5, 4.5, 2.9		C
Ave. Wet. Width (m)			MS	4.5, 2.4, 2.0, 4.5, 3.5, 2.6		0.7 DJ
Ave. Max. Riffle Depth (cm)			MS	15, 22, 22		
Ave. Max. Pool Depth (cm)			MS	65, 35, 35, 55		
Gradient %		2.7	CC	BED MATERIAL %		BANKS
% Rock		10	GE	Fine: clay, silt, sand (<2mm)		Height (m) 1.0 % Unstable
Side Chan. %		0	GE	Gravel: small (2-16mm)		Texture (F) G L R
Debris Stable %		0	GE	large (16-64mm)		Confinement EN (C) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z)
COVER: Total %		<5		sm. cobble (64-128mm)		Valley: Channel Ratio 0-2 2-5 5-10 10+ N/A
Comp. sum 100%		70 40 30 30		lg. cobble (128-256mm)		Flood Signs H(m) Braided Y- (C)
Crown Closure %		80	AN	boulder > 256mm		Bars (%) <5 pH 7.23 O2 (ppm)
Aspect		WN		Bedrock		Water Temp (C) 19 Turb (cm) Cond (25C) 60
DISCHARGE				22°C REACH SYMBOL (Fish)		
Parameter	Value	Method	Specific Data			
Wetted Width (m)	1.20	MS				
Mean Depth (m)		MS	0.31, 33, 18, 25, 18, 14, 8, 0			
Mean Velocity (m/s)	0.165	F				
Discharge (m3/s)	0.143					

FISH SUMMARY						STREAM/VALLEY CROSS-SECTION (Looking Downstream)	
No.	Size Range (mm)	Observed	Use	Method	Code	L	R
0				ES-202	SEC		
						PLANIMETRIC VIEW	
COMMENTS							
Channel Stability <input type="checkbox"/> Debris <input type="checkbox"/> Management Concerns <input type="checkbox"/> Obstructions <input type="checkbox"/> Riparian Zone <input type="checkbox"/> Valley Wall Processes <input type="checkbox"/> Etc.							
- FIRST 250m FROM LK. LOW GRADIENT, ORGANIC FINES SUBSTRATE AND MUCH EMERGENT VEGETATION - EXCELLENT REARING HABITAT							
- POOR TO FAIR SPAWNING							
- LOWER REACH USED FOR SURVEY DATA, POOR SPAWNING AND REARING HABITAT							
						Edited by:	
						Date YMD	

DFO / MOE
STREAM SURVEY FORM

Stream Name (local)		(local)		Access	Method
Watershed Code		Lngth(km)			
Location: Inlet to the North shore of Brown Paint Lake, surveyed at the wetland ~250m N of the lake		U.T.M.		100	
Date: 9/6/07	Time: 2:50	Observer: JD/CS	Photos	AirPhotos	
PARAMETER		VALUE	METH	SPECIFIC DATA	
Ave.Chan.Width(m)			GE	2.0	1.0 0.8 5.0
Ave.Wet.Width(m)			GE	1.8	0.9 0.7 5.0
Ave.Max.Riffle Depth (cm)			GE	5	
Ave.Max.Pool Depth (cm)			GE	30 20 20	
Gradient%		<1	GE	BED MATERIAL %	
% Pool: 30		Riffle: 01	Channel: 69	BANKS	
Side Chan.%				Height(m) 30 %Unstable 0	
Debris Area% 0				Texture (F) G L R	
Debris Stable% 100				Confinement EN CO FC OC CC N/A	
COVER: Total% 10				Valley:Channel Ratio 0-2 2.5-5-10-10+ N/A	
Comp. Op.Pool 25 L.O.D. 25 Boulder 0 InVeg 0 OverVeg 25 Cutbank 25				Flood Signs H(m) N/A Braided Y N	
Crown Closure % 90		Aspect SE		Bars (%) 0 pH - O ₂ (ppm) -	
DB0(cm)		Comaction 0 M H		WaterTemp(C) - Turb(cm) - Cond(25C) -	
DISCHARGE			REACH SYMBOL (Fish)		
Parameter	Value	Method	Specific Data		
Wetted Width (m)					
Mean Depth (m)					
Mean Velocity (m/s)					
Discharge (m3/s)	0.003	GE			

FISH SUMMARY				STREAM/VALLEY CROSS-SECTION (Looking Downstream)		<input type="checkbox"/>	
ID	Species	No.	Size Range(mm)	Use	Method	R	
	NONE	0					
				PLANIMETRIC VIEW		<input type="checkbox"/>	
COMMENTS							
Channel Stability <input type="checkbox"/> Debris <input type="checkbox"/> Management Concerns <input type="checkbox"/> Obstructions <input type="checkbox"/> Riparian Zone <input type="checkbox"/> Valley Wall Processes <input type="checkbox"/> Etc.							
This channel carries intermittent flow to Brown Paint Lake from the wetland and tiny pond north of Brown Paint Lake. Much of the channel is overgrown by elder. the substrate is organic debris and fines. The stream is definitely seasonal and too shallow to provide fish habitat.							
						Edited by:	
						Date Y M O	

PHOTO SURVEY FORM - PHOTO DETAILS

Card ___ of ___

Date (yy/mm/dd):

96-07-27

Agency:

058

Crew:

TD G

Gazetted Name:

BROWN PAINT

Alias:

UTM:

Date (yy/mm/dd)	Roll No. Counter No.	Direction (N, S, E, W)	Subject description / location taken from
R -10R	96-07-27 12-1	E	Clockwise panorama - from lake centre
	12-2		- starting from E
	12-3		
	12-4		
	12-5		
	12-15		↓
R	96-07-28 12-16	E	VIEW U/STREAM OF C1
R	96-07-28 12-17	W	VIEW U/S OF C3
R	96-07-28 12-18	S	VIEW U/S OF C2
	96-07-28 12-19	W	VIEW U/S OF C4
R	07-28 12-20	E	VIEW D/S OF C4
	← 22-28		Aerial photographs
23	21-Blank		
	24-30		Aerial photographs

BROWN PAINT LAKE

SURVEYED BY: J. DEGISI

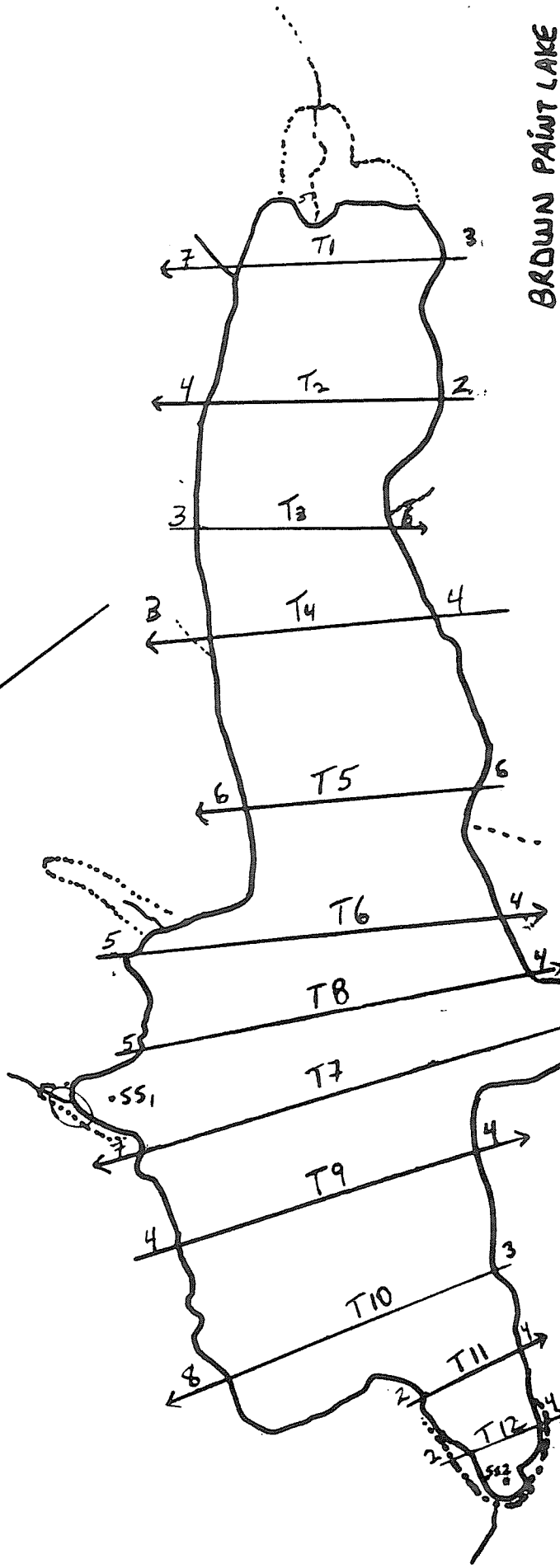
OUTLINE SOURCE: 30BCC

UTM: 54493.6166152

WC: 470-5259-01

SURVEY DATES:

RSF no.: 9628



width : 24
 height : 18
 x-off : 8
 y-off : 13
 UTM : 54493.6166152
 focal : 2304461
 alt : 2304461
 lake : 712

11098.08
 CM : 4627.44
 CML : 2348.64
 5602.36

SS1 = 1.1m
 SS2 = 1.0m