18. APPENDIX TABLES

APPENDIX TABLE A_1. Inventory of headwater lakes and reservoirs in the Okanagan Basin which are known to harbor sport-fishing opportunities. Those lakes which have been developed and are actively utilized as reservoir storage are checked in the last column.

No.	Lake	Latitude deg	Latitude min	Latitude sec	Longitude deg	Longitude min	Longitude sec	Drainage sub-basin	Alt, feet	Area,[a] acres	Dev't storage
1	Aeneas	49	24	00	119	41	50	Marron	2400	38	✓
2	Agur	49	35	00	119	49	50	No drainage	3800	9	
3	Alex	50	06	10	119	12	40	Vernon	4800	21	
4	Allendale	49	23	20	119	19	50	Shuttleworth	5000	49	✓
5	Baker	49	43	30	119	37	10	Frederick	4500	25	
6	Bardolph	50	16	10	119	03	10	Coldstream	3200	27	
7	Bear	50	09	10	119	10	40	Coldstream	4400	20*	
8	Becker	50	15	40	119	09	20	Coldstream	4000	25*	
9	Big Meadow	49	40	50	119	27	40	Chute	5400	56	✓
10	Bouleau	50	17	10	119	39	10	Whiteman	4600	158*	
11	(Little) Bouleau	50	17	10	119	41	10	Whiteman	4600	40*	
12	Brent	49	30	00	119	46	40	Shingle	2700	58	✓
13	Browne (Island)	49	48	50	119	11	10	Mission	4300	61	✓
14	Burnell (Sawmill)	49	12	20	119	36	50	Park Rill	2400	41	
15	(Upper) Canyon (KLO)	49	42	20	119	17	00	Mission	5500	40	✓
16	Chapman	49	47	00	120	02	10	Trout	5600	25	✓
17	Christie	50	05	40	119	38	50	Shorts	4400	7*	
18	Chute (Leguime)	49	41	40	119	31	50	Chute	3800	70	✓
19	Clarke Meadows	49	22	20	119	24	30	Shuttleworth	5000	19	✓

Continued .....

APPENDIX TABLE A_1. Continued.

No.	Lake	Latitude deg	min	sec	Longitude deg	min	sec	Drainage sub-basin	Alt, feet	Area,[a] acres	Dev't storage
20	(Big) Clarke	49	22	20	119	23	40	Shuttle-worth	5300	13	✓
21	(Little) Clarke	49	22	00	119	24	20	Shuttle-worth	5100	11	✓
22	Corpor-tion	49	39	50	119	26	50	Penticton	5700	12*	✓
23	Crescent	49	48	30	120	24	30	Trout	4500	80	✓
24	Crooked**	50	04	20	119	11	50	Vernon	4400	155	✓
25	Culper	49	24	30	119	27	10	McLean	5700	8*	
26	Darke	49	42	50	119	51	50	Trout	3000	72	✓
27	Dee**	50	06	30	119	09	40	Vernon	4400	100	✓
28	Deep	50	12	10	119	12	30	Cold-stream	1600	10*	
29	Deer (Tsuh)	49	45	00	119	56	20	Trout	4700	28*	
30	Deer**	50	04	50	119	10	50	Vernon	4400	110	✓
31	Derenzy	49	24	30	119	29	00	McLean	5300	18	✓
32	Divide	49	42	50	119	35	50	Chute	5000	14*	
33	Dobbin	49	59	50	119	48	50	Powers	4800	20	✓
34	Duo Via	50	05	30	119	39	20	Lambly	4400	10*	
35	Eastmere	49	44	30	120	11	20	Trout	4700	30*	
36	Echo	50	03	40	119	16	40	Vernon	4800	35*	✓
37	Elinor	49	40	00	119	31	20	Chute	4100	20	✓
38	Ellis Res.1	49	24	40	119	22	50	Ellis	5050	45	✓
39	Ellis Res.4	49	28	20	119	21	50	Ellis	4400	100	✓
40	Ellison	49	59	30	119	23	40	Vernon	1400	520	
41	(Big)Eneas	49	45	40	119	50	30	Eneas	4700	25*	✓
42	(Little) Eneas	49	45	20	119	55	50	Eneas	4700	14	✓
43	Esperon	50	04	40	119	45	10	Lambly	5400	50	✓
44	Farleigh	49	27	10	119	45	00	Shingle	2500	35*	✓

Continued .....

APPENDIX TABLE A_1. Continued.

No.	Lake	Latitude deg	min	sec	Longitude deg	min	sec	Drainage sub-basin	Alt, feet	Area, acres	Dev't storage
45	Fish	49	48	30	119	11	50	Mission	4300	35	✓
46	Fish Hawk	50	01	40	118	51	30	Mission	6000	43	
47	Gallagher	49	14	20	119	31	10	No drainage	1400	17*	
48	Garnet Valley	49	41	40	119	47	10	Eneas	2100	87	✓
49	Geen (Twin)	49	57	10	119	11	10	Kelowna	5400	40*	
50	Gemmill	49	41	40	119	33	30	Chute	4700	8*	
51	Glen	49	46	50	119	57	20	Peachland	3800	29	✓
52	Glenmore Res.	49	58	45	119	25	50	No drainage	1200	18*	✓
53	Goose	49	19	00	119	16	50	Vernon	1600	89	✓
54	Graystoke	49	59	00	118	51	50	Mission	6000	89	✓
55	Greyback Res.	49	37	30	119	25	10	Penticton	5200	307	✓
56	Guest	49	57	30	119	16	00	Kelowna	4400	28*	
57	Haynes	49	45	00	119	10	10	Mission	4200	136	✓
58	Headwaters 1	49	48	40	120	00	20	Trout	4200	161	✓
59	Headwaters 2	49	49	20	120	00	00	Trout	4300	54	✓
60	Headwaters 3	49	49	20	120	00	10	Trout	4300	54	✓
61	Headwaters 4	49	49	10	120	00	40	Trout	4300	52	✓
62	Hereron	49	59	30	119	10	10	Kelowna	5200	25*	
63	High	50	09	10	119	14	20	Oyama	4500	30*	
64	Hudson Bay	50	11	20	119	42	50	Whiteman	5200	15*	
65	Hydraulic (McCulloch)	49	46	10	119	11	10	Mission	4000	644	✓
66	Ideal (Belgo)	50	01	10	119	05	10	Mission	4400	420*	✓

Continued .....

APPENDIX TABLE A_1. Continued.

No.	Lake	Latitude deg	min	sec	Longitude deg	min	sec	Drainage sub-basin	Alt, feet	Area, acres	Dev't storage
67	Isintok (Canyon)	49	32	20	119	58	40	Trout	5400	97	✓
68	Islaht (Horseshoe)	49	59	40	119	48	10	Powers	4800	67	✓
69	Island**	50	05	40	119	10	40	Vernon	4400	120	✓
70	Island	49	45	40	119	56	00	Eneas	4700	10*	
71	Jackpine	49	54	50	119	48	10	Powers	4300	106	✓
72	James (Trapper)	49	57	30	119	14	40	Kelowna	4500	140	✓
73	Kaiser Bill	50	09	10	119	12	10	Cold-stream	4500	6*	
74	Kathleen	49	44	10	120	05	20	Trout	4500	5*	
75	King Edward	50	09	10	119	13	10	Cold-stream	4500	82	✓
76	Lacoma	49	55	20	119	51	30	Trepanier	3500	13*	
77	Lady King	50	25	50	119	37	20	Equesis	3300	15*	
78	Lambly*** (Bear)	49	57	30	119	42	10	Lambly, Powers***	3800	182	✓
79	Labanon	49	44	20	119	30	50	Lebanon	4000	3*	
80	Loch Drinkie	50	07	20	119	37	40	Shorts	4600	45*	
81	Loch Katrine	49	57	50	118	49	00	Mission	6400	30*	
82	Lone Pine	49	21	20	119	16	30	Vaseux	5500	25*	
83	Long Meadow	49	48	30	119	10	30	Mission	4300	60	✓
84	Lost	50	04	50	119	11	50	Vernon	4500	45*	
85	MacDonald	49	53	20	119	01	30	Trepanier	5600	12*	✓
86	McCall	49	47	30	119	46	30	Peachland	3300	15*	✓
87	McLean Clan	49	23	10	119	25	20	McLean	5300	25*	✓
88	Madden	49	13	50	119	37	30	Park Rill	2800	17	✓

Continued .....

APPENDIX TABLE A_1. Continued.

No.	Lake	Latitude deg	min	sec	Longitude deg	min	sec	Drainage sub-basin	Alt, feet	Area, acres	Dev't storage
89	Marron	49	22	30	119	40	30	Marron	2000	35*	✓
90	Meadow	49	58	10	119	13	20	Kelowna	4500	12*	
91	Minnow	49	45	40	119	10	10	Mission	4200	35	✓
92	Mission	50	00	40	118	49	10	Mission	6000	133	✓
93	Morrison	50	13	20	119	43	50	Whiteman	4500	5*	
94	Munro	49	42	50	119	55	10	Trout	5200	35	✓
95	Naramata	49	39	20	119	31	50	Robinson	4150	35	✓
96	Norman	49	43	50	119	37	10	Frederick	4600	3*	
97	Nuttal	49	41	50	119	26	50	Chute	5700	13*	✓
98	Otter	50	24	30	119	15	10	Deep	1150	120*	✓
99	Oyama	50	06	10	119	16	10	Oyama	4400	630	✓
100	Paynter	49	57	30	119	48	10	Powers	4500	57	✓
101	Peachland	49	49	50	119	58	00	Peachland	4100	60*	✓
102	Pinaus	50	25	40	119	35	50	Equesis	3300	407	✓
103	(Little) Pinaus	50	25	10	119	33	10	Equesis	3100	17*	
104	Postill	49	59	20	119	12	30	Kelowna	4500	226	✓
105	Rankin	50	06	00	119	13	00	Vernon	4800	10*	
106	Ratnip	49	43	10	119	30	10	Chute	4100	5*	
107	Reed	49	35	10	119	22	30	Penticton	6000	8*	
108	Ripley	49	14	40	119	37	50	Park Rill	3100	13	✓
109	Rod	50	04	10	119	10	50	Vernon	4600	10*	
110	Rose Valley	49	54	00	119	33	50	Duncans	2000	70	✓
111	Round (Damer)	50	08	30	119	15	50	Oyama	4800	35*	
112	Round	50	03	40	119	12	00	Vernon	4500	30	✓
113	Seaton	50	13	50	119	44	30	Whiteman	4550	30*	
114	Shannon	49	51	20	119	36	40	McDougall	1700	54	✓

Continued .....

APPENDIX TABLE A_1. Concluded.

No.	Lake	Latitude deg	min	sec	Longitude deg	min	sec	Drainage sub-basin	Alt, feet	Area,[a] acres	Dev't storage
115	Silver	49	49	50	119	50	10	Trepanier	3400	30*	✓
116	South	49	58	50	119	13	10	Kelowna	4500	60*	✓
117	Square	50	25	40	119	33	30	Equesis	3600	25	
118	Streak	50	07	40	119	14	20	Oyama	4500	50*	
119	Swalwell (Beaver)	50	03	10	119	13	50	Vernon	4500	750	✓
120	Swan	50	19	00	119	15	20	Vernon	1300	973	✓
121	Tadpole	50	01	10	119	47	00	Lambly	5300	17*	
122	Thirsk Res.	49	42	40	120	05	50	Trout	3400	148	✓
123	Tugulnuit	49	11	50	119	32	30	Okanagan	1100	125	
124	Twin (Upper)	49	18	40	119	43	20	Park Rill	2700	79	✓
125	Twin (Lower)	49	19	20	119	44	20	Park Rill	2700	82	✓
126	West	49	59	20	119	48	50	Powers	4900	10	✓
127	Whitehead	49	47	20	120	10	50	Trout	4700	105	✓
128	Wilma	50	07	10	119	09	00	Vernon	4500	25*	
129	Wilson	49	50	30	119	52	30	Peachland	4300	12	✓
129	Totals									10399	79

[a]Data from reservoir inventories, map descriptive notes, and miscellaneous information from B.C. Water Rights Branch, Kelowna (J. Botham pers. comm.).

Unrecorded lake areas were estimated from topographic maps.

**Part of "Dee Lake Chain".

***Drainage diverted within Okanagan Basin.

APPENDIX TABLE A_2. Capacities and surface conductivity data (where available) for developed Okanagan Basin headwater reservoirs which are known to harbor sport-fishing opportunities[a].

	At full supply level (FSL)			At drawdown				
Reservoir	Area, acres	Maximum depth, feet	Total volume, acre-ft	Area, acres,	Maximum depth, feet[b]	"Live" storage, acre-ft	Licenced storage, acre-ft	Spec. cond. umho
Aeneas	38.0	53.4	800	13.0	32.4	476	480	-
Allendale	48.9	-	-	35.2	-	424	350	-
Big Meadow	56.3	18.7	421	0	0	421	1000	-
Brent	58.0	46.8	1125	20.0	22.0	986	986	-
Browne	61.3	32.8	834	41.2	24.0	454	500	47
Canyon (KLO)	39.6	-	304	0	0	304	400	-
Chapman	25.0	6.5	131	0	0	131	100	-
Chute	70.0	46	-	65.2	-	291	272	-
Clarke Meadows	18.8	-	-	-	-	94	94	-
(Big) Clarke	12.9	-	-	-	-	65	50	-
(Little)Clarke	11.3	-	-	-	-	45	45	-
Corporation	12.0	15.0	155	0	0	155	150	-
Crescent	80.0	20.0	-	-	-	755	755	38
Crooked	155	21.0	2761	-	10.0	2445	4000	52

Continued ....

APPENDIX TABLE A_2. Continued

Reservoir	At full supply level (FSL) Area, acres	Maximum depth, feet	Total volume, acre-ft	At drawdown Area, acres,	Maximum depth, feet[b]	"Live" storage, acre-ft	Licenced storage, acre-ft	Spec. cond. µmho
Darke	71.6	32.0	1246	33.7	16.0	935	745	100
Dee	100	-	-	-	-	-	-	68
Deer	110	-	-	-	-	-	-	60
Derenzy	18.0	6.5	116	0	0	116	116	-
Dobbin	20.4	59.0	445	15.0	53.0	104	513	-
Echo	35.0	-	-	-	-	22	22	-
Elinor	19.9	16.7	242	11.3	5.0	220	250	-
Ellis Res.1	44.6	15.6	340	0	0	340	359	-
Ellis Res.4	100.0	16.8	600	0	0	600	725	-
(Big) Eneas	25	-	256	19.0	-	237	500	-
(Little)Eneas	13.8	52.0						
Esperon	50.2	54.0	-	-	51.0	100	100	-
Farleigh	35.0	-	650	-	FSL-20.0	630	164	-
Fish	35.3	23.2	296	24.6	19.1	125	175	72
Garnet Valley	87.0	56.0	1520	24.7	31.7	1329	1500	-
Glen	29.3	41.0	250	15.5	35.0	50	250	239

Continued .....

APPENDIX TABLE A_2. Continued.

Reservoir	At full supply level (FSL)			At drawdown		"Live" storage, acre-ft	Licenced storage, acre-ft	Spec. cond. µmho
	Area, acres	Maximum depth, feet	Total volume, acre-ft	Area, acres,	Maximum depth, feet [b]			
Glenmore Res.	18	34.0	931	-	20.0	807	772	-
Goose	88.6	25.0	-	40.5	9.0	1150	1550	-
Graystoke	88.5	-	-	22.4	FSL-39.1	2107	2300	23
Greyback Res.	307	70.0	-	-	-	9850	10000	25
Haynes	135.9	53.6	2632	107.3	46.3	881	2000	41
Headwaters 1	161.0	26.2	2563	112.8	10.0	2163		89
Headwaters 2	54.0	15.0	-	24.0	-	613		87
Headwaters 3	54.0	14.2	-	18.0	-	570	4000	85
Headwaters 4	52.0	24.5	652	0	0	657		84
Hydraulic	644.0	27.9	7338	1.4	2.7	7336	8700	31
Ideal	420.0	-	-	-	FSL-26.5	5467	5600	-
Isintok	97.0	25.6	870	0	0	870	1350	-
Islaht	66.7	58.0	1016	31.6	50.0	440	513	-
Island	120	-	-	-	-	-	-	-
Jackpine	106.0	24.6	1268	60	13.5	960	771	61
James	139.8	9.8	-	77.3	-	1112	1480	-
King Edward	82.3	62.0	-	46.9	-	1253	1100	31
Lambly	182.0	31.2	2649	110.0	17.0	2178	1805	75
Long Meadow	60.1	21.5	284	38.4	12.2	153	500	35

Continued ....

APPENDIX TABLE A_2. Continued.

Reservoir	At full supply level (FSL)			At drawdown		"Live" storage, acre-ft	Licenced storage, acre-ft	Spec. cond. µmho
	Area, acres	Maximum depth, feet	Total volume acre-ft	Area, acres,	Maximum depth, feet[b]			
MacDonald	12	24.0	-	-	-	-	-	21
McCall	15	-	-	-	-	30	75	-
McLean Clan	25	-	-	-	-	150	150	-
Madden	17	65.0	870	-	-	5	20	387
Marron	35	42.1	680	-	15.0	575	580	-
Minnow	34.6	35.0	-	18.0	27.0	219	-	41
Mission	133.0	25.0	-	70.0	7.0	1800	500	-
Munro	35.0	37.0	484	25.8	29.0	80	80	86
Naramata	35.3	-	612	7.9	-	604	600	-
Nuttall	13	-	-	-	-	20	100	-
Otter	120	-	-	-	FSL-5.0	3000	-	-
Oyama	630.0	78.4	13938	456.8	67.4	4988	3000	51
Paynter	56.8	13.5	384	0	0	384	350	-
Peachland	60	95.0	-	-	-	9575	9100	69
Pinaus	407.0	189.0	29400	390	184.0	2156	2190	123
Postill	226.2	-	-	12.0	FSL-34.5	4063	4000	-
Ripley	13	43.0	299	-	-	-	17	369
Rose Valley	70	-	-	-	-	2100	2500	265
Round	30	-	-	-	-	-	-	-

Continued .....

APPENDIX TABLE A2. Concluded.

Reservoir	At full supply level (FSL) Area, acres	Maximum depth, feet	Total volume, acre-ft	At drawdown Area, acres,	Maximum depth, feet[b]	"Live" storage, acre-ft	Licenced storage, acre-ft	Spec. cond., µmho
Shannon	54	62.0	1215	-	-	486	620	321
Silver	30	56.0	-	-	-	189	128	138
South	60	-	-	-	-	-	400	-
Swalwell	750.0	100.1	24015	400	77.9	9585	9672	44
Swan	972.8	29.0	14200	944.4	-	2460	1064	-
Thirsk Res.	147.9	50.0	2628	0	0	2628	2630	107
(Upper) Twin	78.9	-	-	72.6	FSL-5.0	379	200	-
(Lower) Twin	81.5	-	-	-	-	390	-	-
West	10.1	22.0	96	5.3	14.0	62	513	-
Whitehead	105.0	33.0	-	65.0	-	920	350	52
Wilson	12.3	15.0	81	0	0	81	200	-
79 TOTALS	8630					97350		

[a]Data are from several sources including our own derivations; B.C. Fish and Wildlife files; reservoir inventories, map descriptive notes, and miscellaneous information from B.C. Water Rights Branch (J. Botham, pers. comm.). Dashes in body of table indicate no information.

[b]Where depth at FSL is unknown but drawdown range is known, maximum depth at drawdown is expressed as depth at FSL minus drawdown range.

APPENDIX TABLE A_3. Selected morphometric and surface conductivity data (where available) for non-regulated headwater lakes in the Okanagan Basin which are known to harbor sport-fishing opportunities[a].

Lake	Area, acres	Depth, feet		Specific conductance μmhos/cm at 25C
		Maximum	Mean	
Agur	8.6	23.0	10.9	485
Alex	21.0	30.5	13.3	41
Baker	25	-	-	-
Bardolph	26.6	37	20.0	-
Bear	20	-	-	-
Becker	25	31	-	-
Bouleau	158	64	26.8	47
(Little) Bouleau	40	-	-	-
Burnell (Sawmill)	41	36	11.0	851
Christie	7	-	-	-
Culper	8	-	-	-
Deep	10	-	-	-
Deer (Tsuh)	28	-	-	-
Divide	14	-	-	-

Continued .....

APPENDIX TABLE A_3. Continued.

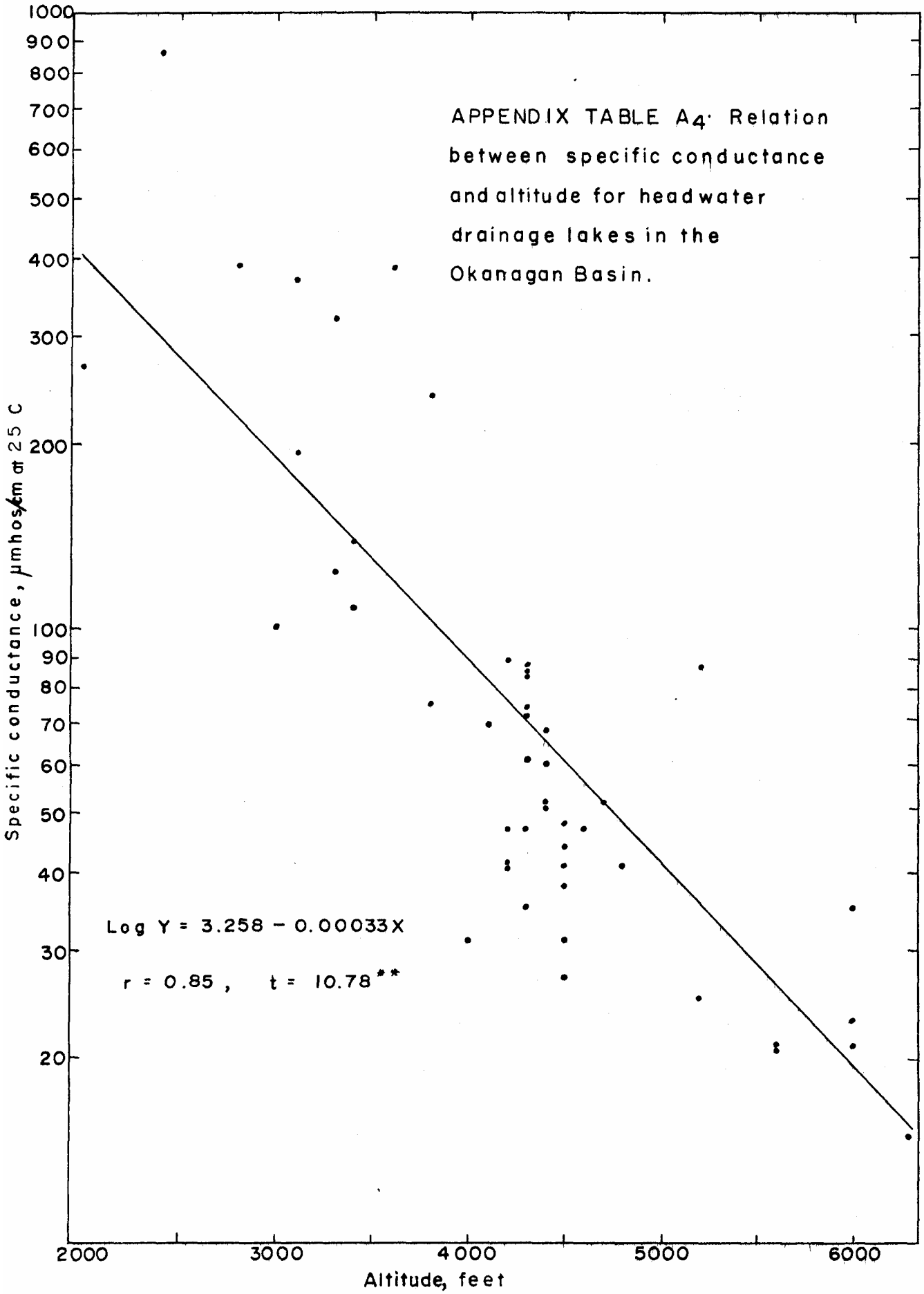
Lake	Area, acres	Depth, feet Maximum	Depth, feet Mean	Specific conductance, µmhos/cm at 25C
Duo Via	10	-	-	-
Eastmere	30	-	-	-
Ellison	520	-	-	-
Fish Hawk	43.0	19.7	6.7	21
Gallagher	15.3	58	34.2	-
Geen (Twin)	40	-	-	-
Gemmill	8	-	-	-
Guest	28	-	-	-
Hereron	25	-	-	-
High	30	-	-	48
Hudson Bay	15	-	-	-
Island	10	25	17.9	-
Kaiser Bill	6	-	-	27
Kathleen	5	-	-	-
Lacoma	13	-	-	-
Lady King	15	-	18.0	317
Lebanon	3	-	-	-
Loch Drinkie	45	-	-	-
Loch Katrine	30	-	-	-
Lone Pine	25	-	-	-
Lost	45	-	-	-

Continued .....

APPENDIX TABLE A_3. Concluded.

Lake	Area, acres	Depth, feet Maximum	Depth, feet Mean	Specific conductance, µmhos/cm at 25C
Meadow	12	–	–	-
Morrison	5	–	–	-
Norman	3	–	–	-
(Little) Pinaus	17	–	12.3	193
Rankin	10	–	–	-
Ratnip	5	–	–	-
Reed	8	–	–	-
Rod	10	–	–	-
Round (Damer)	35	–	–	-
Seaton	30	–	–	-
Square	25	71	34	384
Streak	50	–	–	-
Tadpole	17	–	–	-
Tugulnuit	125	26	18.8	330
Wilma	25	–	–	-
50 Totals	1767.5			

[a]Data are from several sources, primarily our own derivations and British Columbia Fish and Wildlife files. Dashes in body of table indicate no information.


APPENDIX TABLE A4· Relation between specific conductance and altitude for headwater drainage lakes in the Okanagan Basin.
Log Y = 3.258 − 0.00033X
r = 0.85 , t = 10.78**
Specific conductance, µmhos/cm at 25 C
Altitude, feet
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
2000
3000
4000
5000
6000

APPENDIX TABLE B . Water areas and water volumes for 11 selected lakes in the Okanagan Basin 1971. Values are on the basis of full supply level.

	Depth units, meters	Area in depth zone km^2	% area in depth zone	Volume in depth stratum $meters^3 \times 10^6$	% volume in depth stratum
AGUR	0-2	0.0088	25.3	0.0605	52.4
	2-4	0.0139	39.9	0.0367	31.9
	4-6	0.0081	23.3	0.0154	13.4
	6-7.0	0.0040	11.5	0.0026	2.3
	Total water	0.0348	100.0	0.1152	100.0
MUNRO	0-2	0.0347	24.9	0.2430	40.6
	2-4	0.0305	21.9	0.1780	29.7
	4-6	0.0273	19.6	0.0932	15.6
	6-8	0.0243	17.4	0.0533	8.9
	8-10	0.0165	11.8	0.0271	4.5
	10-11.3	0.0062	4.4	0.0041	0.7
	Total water	0.1395	100.0	0.5987	100.0
HEADWATERS #1	0-2	0.0996	15.3	1.1879	44.5
	2-4	0.0607	9.3	0.9869	37.0
	4-6	0.2833	43.5	0.4071	15.2
	6-8.0	0.2064	31.9	0.0864	3.3
	Total water	0.6500	100.0	2.6683	100.0
JACKPINE	0-2	0.1093	25.6	0.7525	48.1
	2-4	0.1073	25.2	0.5366	34.2
	4-6	0.1497	35.2	0.2455	15.6
	6-7.5	0.0607	14.0	0.0321	2.1
	Total water	0.4270	100.0	1.5667	100.0
LAMBLY	0-2	0.1781	24.4	1.3841	49.4
	2-4	0.2549	34.9	0.6921	24.6
	4-6	0.2509	34.2	0.5860	20.9
	6-8	0.0364	4.9	0.1283	4.6
	8-9.5	0.0121	1.6	0.0123	0.5
	Total water	0.7324	100.0	2.8028	100.0
PINAUS	0-2	0.0919	5.6	3.2022	8.8
	2-4	0.0629	3.8	3.0444	8.4
	4-6	0.0602	3.7	2.9230	8.1
	6-8	0.0935	5.7	2.7678	7.6
	8-10	0.1271	7.7	2.5494	7.0
	10-15	0.1151	6.9	5.7650	15.9
	15-20	0.2814	17.1	4.7590	13.1
	20-25	0.1906	11.6	3.5845	9.9
	25-30	0.1321	8.0	2.7833	7.7
	30-35	0.0982	6.0	2.2075	6.1
	35-40	0.1310	7.9	1.6321	4.5
	40-45	0.1877	11.4	0.7972	2.2
	45-50	0.0539	3.3	0.2259	0.6
	50-57.6	0.0210	1.3	0.0350	0.1
	Total water	1.6466	100.0	36.2763	100.0

continued...

APPENDIX TABLE B . continued

	Depth units, meters	Area in depth zone km^2	% area in depth zone	Volume in depth stratum $meters^3 \times 10^6$	% volume in depth stratum
OYAMA	0-2	0.6350	24.9	4.4410	26.7
	2-4	0.4370	17.2	3.4788	20.9
	4-6	0.2950	11.6	2.5906	15.6
	6-8	0.3240	12.7	2.3068	13.8
	8-10	0.2990	11.7	1.3076	7.8
	10-15	0.3400	13.3	1.6654	10.0
	15-20	0.1300	5.1	0.7648	4.6
	20-23.9	0.0890	3.5	0.0987	0.6
	Total water	2.5490	100.0	16.6537	100.0
ALEX	0-2	0.0256	30.4	0.1417	41.4
	2-4	0.0171	20.3	0.0993	29.1
	4-6	0.0190	22.6	0.0626	18.3
	6-8	0.0123	14.6	0.0314	9.2
	8-9.3	0.0101	12.1	0.0068	2.0
	Total water	0.0841	100.0	0.3418	100.0
SWALWELL	0-2	0.7280	24.0	5.5697	18.8
	2-4	0.4170	13.7	3.8488	13.0
	4-6	0.2950	9.7	3.7255	12.6
	6-8	0.5020	16.5	3.0593	10.3
	8-10	0.1140	3.8	1.9368	6.5
	10-15	0.5180	17.1	4.4039	14.9
	15-20	0.2990	9.8	3.1210	10.5
	20-25	0.0810	2.7	1.9491	6.6
	25-30	0.0770	2.5	1.9244	6.5
	30-30.5	0.0040	0.1	0.0864	0.3
	Total water	3.0350	100.0	29.6249	100.0
FISH HAWK	0-2	0.0875	52.8	0.2385	70.2
	2-4	0.0333	20.1	0.0476	14.0
	4-6.0	0.0448	27.1	0.0536	15.8
	Total water	0.1615	100.0	0.3397	100.0
HYDRAULIC	0-2	0.6192	23.8	3.4615	36.9
	2-4	0.7163	27.5	4.3546	46.5
	4-6	0.1752	45.1	1.1102	11.9
	6-8	0.0904	3.5	0.2467	2.6
	8-8.5	0.0011	0.1	0.1998	2.1
	Total water	2.6022	100.0	9.3728	100.0

ABLE C . Chemical analysis of water from 11 headwater lakes of the Okanagan Basin, 1
Values are parts per million unless otherwise indicated.

	A G U R				M U N R O		
	12 June	19 August		20 Oct	16 June	31 July	
epth, m	0	0	7	0	0	0	11.2
	-	232	262	-	-	-	-
conductance (mho)	441	485	485	409	72	91	97
kalinity(as Ca CO_3)	190	201	201	211	34.0	36.3	37.5
	2.6	-	-	-	0.4	-	-
	2.8	-	-	-	7.2	-	-
SiO_2)(col)	-	6.4	6.5	7.3	10.4	8.5	12.4
	21.6	-	-	-	13.3	-	-
m	18.7	-	-	-	1.6	-	-
	29.2	-	-	-	1.9	-	-
m	10.4	-	-	-	1.0	-	-
eldahl nitrogen(N)	1.67	1.41	1.62	0.95	0.48	1.02	1.23
nitrogen (N)	0.01	0.30	0.05	<0.01	<0.01	0.17	0.01
osphate (PO_4)	0.01	<0.01	<0.01	<0.01	0.01	0.01	0.11
osphate (PO_4)	0.03	0.03	0.05	0.04	0.04	0.03	0.31
le residue	225	-	-	-	86	-	-
(as $CaCO_3$)	131	-	-	-	39.9	-	-
ganic carbon	20	23	21	22	16	15	21
organic carbon	43	42	43	41	7	6	8
organic carbon	20	23	21	19	15	14	34
inorganic carbon	43	42	43	43	7	6	8

continued...

APPENDIX TABLE C . continued.

	HEADWATERS #1				JACKPINE			
	14 June	19 July		6 Oct	13 June	12 Aug		3 Oct
Sample depth, m	0	0	7.5	0	0	0	7.5	0
TDS	-	88	102	-	-	90	97	62
Specific conductance (mho)	82	89	127	98.5	55	61	74	60
Total alkalinity(as $CaCO_3$)	38.6	40.0	40.5	44.3	20.8	24.8	24.6	24.7
Chloride	0.5	-	-	-	0.4	-	-	-
Sulfate	5.2	-	-	-	17.4	-	-	-
Silica (SiO_2)(col)	-	12.3	12.7	13.6	1.5	7.2	9.1	7.4
Calcium	14.2	-	-	-	7.1	-	-	-
Magnesium	1.4	0.01	-	-	1.3	-	-	-
Sodium	1.8	-	-	-	1.5	1.8	1.8	-
Potassium	0.9	-	-	-	0.8	0.9	0.9	-
Total Kjeldahl nitrogen (N)	0.52	<0.01	<0.01	0.33	1.11	0.64	0.97	0.39
Nitrate nitrogen (N)	0.01	0.01	0.05	<0.01	<0.01	0.01	0.01	0.05
Ortho-phosphate (PO_4)	0.01	0.01	0.01	<0.01	0.01	0.01	0.42	0.02
Total phosphate (PO_4)	0.04	0.05	0.06	0.04	0.05	0.05	0.68	0.08
Filterable residue	8.7	-	-	-	72			
Hardness (as $CaCO_3$)	41.3	126	147	-	23.0	-	-	-
Total organic carbon	14	12	11	9	16	-	-	14
Total inorganic carbon	8	7	8	10	4	-	-	6
Soluble organic carbon	11	10	9	-	15	17	11	14
Soluble inorganic carbon	8	9	9	-	4	5	9	6

continued ....

APPENDIX TABLE C. continued

	LAMBLY			PINAUS		
	13 June	22 July	4 Oct.	14 June	24 Aug.	26 Oct.
Sample depth, m	0	0 8.5	0	0	0 5.7	0
TDS	-	103 103	86	-	122 125	-
Specific conductance (mho)	64	75 92	90	122	123 136	174
Total alkalinity (as $CaCO_3$)	21.7	29.2 28.7	37.9	80.7	84.3 85.6	84.5
Chloride	0.5	- -	-	0.4	- -	1.1
Sulfate	13.0	- -	-	4.4	- -	-
Silica (SiO_2)(col)	-	17.0 18.5	17.7	8.5	20 22	19.4
Calcium	8.9	- -	-	16.2	- -	-
Magnesium	1.5	- -	-	6.6	- -	-
Sodium	1.9	- -	-	8.5	- -	8.8
Potassium	1.0	- -	-	1.6	- -	2.2
Total Kjeldahl nitrogen (N)	1.67	0.28 0.61	0.59	0.75	1.07 0.43	0.20
Nitrate nitrogen (N)	<0.01	0.02 <0.01	0.04	0.01	0.12 0.28	0.14
Ortho-phosphate (PO_4)	0.02	0.02 0.15	0.12	0.14	0.02 0.45	0.17
Total phosphate (PO_4)	0.11	0.05 0.41	0.25	0.18	0.06 0.62	0.24
Filterable residue	83	- -	-	124	- -	-
Hardness (as $CaCO_3$)	28.5	114 93	-	67.6	- -	-
Total organic carbon	17	- -	12	10	13 13	11
Total inorganic carbon	5	- -	14	17	16 17	13
Soluable organic carbon	14	14 15	16	10	13 13	10
Soluable inorganic carbon	5	6 8	7	17	16 17	12

Continued .....

PENDIX TABLE C. continued

	OYAMA				ALEX		
	10 June	26 Aug.		19 Oct.	15 June	4 Aug.	
epth, m	0	0	8.8	0	0	0	8.8
	-	54	52	-	-	53	60
conductance (mho)	49	51	57	49	24	41	48
alinity (as $CaCO_3$)	14.4	17.4	16.1	16.2	9.0	8.7	10.5
	0.4	-	-	-	0.6	-	-
	2.6	-	-	-	2.6	-	-
SiO_2) (col)	1.7	5.0	5.9	4.6	-	7.3	12.0
	4.2	-	-	-	3.7	-	-
n	1.4	-	-	-	1.3	-	-
	1.7	-	-	-	1.3	-	-
n	0.6	-	-	-	0.5	-	-
eldahl nitrogen (N)	0.13	0.49	0.56	0.15	0.69	1.26	1.23
nitrogen (N)	<0.01	<0.01	0.16	<0.01	0.01	0.04	0.06
osphate (PO_4)	0.01	0.01	0.17	0.03	0.01	0.01	0.04
osphate (PO_4)	0.06	0.05	0.44	0.09	0.04	0.03	0.14
le residue	42.0	-	-	-	44	-	-
(as $CaCO_3$)	16.2	-	-	-	14.7	-	-
ganic carbon	11	-	-	3	15	-	-
organic carbon	4	-	-	11	3	-	-
oraganic carbon	10	13	11	12	14	17	17
inorganic carbon	3	3	5	2	2	3	<2

Continued

APPENDIC TABLE C continued

	SWALWELL			FISH HAWK			HYDRAULIC		
	4 Aug.		12 Oct.	17 Aug.		20 Sep.	9 June	10 Aug.	
epth, m	0	28.5	0	0	6.0	0	0	0	6.0
	63	55	-	48	57	22	-	71	85
conductance (mho)	44	53	55	21	24	17	42	31	63
alinity (as $CaCO_3$)	21.0	21.3	19.1	4.3	5.1	4.6	5.3	12.0	12.4
	0.4	-	-	0.2	-	-	0.6	-	-
	3.5	-	-	1.7	2.1	-	1.8	-	-
iO_2) (col)	4.2	7.7	4.7	3.2	3.9	2.6	1.1	7.9	7.8
	6.8	-	-	1.6	2.1	-	3.6	-	-
	-	-	-	-	-	-	0.7	-	-
	2.0	-	-	1.0	0.8	-	1.1	-	-
	0.8	-	-	0.2	0.2	-	0.4	-	-
ldahl nitrogen (N)	1.15	0.90	0.36	1.16	0.10	0.03	0.41	0.82	0.43
itrogen (N)	0.03	0.32	0.04	0.03	0.02	<0.01	0.01	<0.01	0.04
sphate (PO_4)	<0.01	0.02	0.01	<0.01	0.01	<0.01	0.01	0.02	0.03
sphate (PO_4)	0.03	0.07	0.05	0.17	0.06	0.04	0.06	0.07	0.12
e residue	-	-	-	-	-	-	60	-	-
(as $CaCO_3$)	23.5	-	-	5.2	-	-	11.7	-	-
anic carbon	-	-	10	-	-	8	14	-	-
rganic carbon	-	-	6	-	-	2	2	-	-
oraganic carbon	10	12	12	8	7	8	12	-	-
inorganic carbon	3	3	4	<2	<2	<2	2	-	-

APPENDIX TABLE D. Occurrence and relative abundance[a] of phytoplankton species in eleven selected headwater lakes in the Okanagan Basin, 1971.

	AGUR		MUNRO		HEAD - WATERS		JACK-PINE		LAMBLY		PINAUS		OYAMA	
	Aug 19	Oct 20	Jul 31	Sep 26	Jul 31	Oct 7	Aug 12	Oct 3	Jul 24	Oct 26	Aug 24	Oct 26	Aug 26	Oct 19
CYANOPHYTA														
Anabaena circinalis			5										4	
Anabaena limnetica	4				5									
Aphanizomenon flos-aquae		5					3	4		2	5		3	5
Chroococcus limneticus	3													
Gloeothece sp.							5							
Lyngbya sp.		5		3		5	5	4		4		5		5
Phormidium tenue						5				3	5	5		
CHLOROPHYTA														
Chlorella sp.	4						4							
Closterium sp.								3					5	
Closterium leibleinii							3			3				5
Cosmarium sp.	5													
Crucigenia crucifera	5		5				5							
Elakatrthrix sp.							4							
Gloeocystis sp.		5									3			
Gloeocystis major	4						3							
Haematococcus lactus	3				1									
Oocystis sp.		2		4			4							
Pediastrum sp.														
Quadrigula sp.			5										5	
Quadrigula quadrata	5	5									4			
Quadrigula chodatii							2							
Quadrigula closterioides							4							
Scenedesmus abundans	5	4		5	5	5						5		
Scenedesmus bijuga							4							
Spirogyra sp.													5	
Staurastrum rotula			5		5		5						5	
Tetraedrom sp.,	5													
Treubaria cassispina														
Xanthidium sp.	5													
Xanthidium cistratum			5											
Unidentified filamentous	4													
Unidentified flagellate							3							

(see concluding page of table)

APPENDIX TABLE D. Continued. ....

	ALEX		SWAL - WELL		FISH HAWK		HY - DRAULIC	
	Aug 4	Oct 12	Aug 4	Oct 12	Sep 29		Aug 10	Sep 25
CYANOPHYTA								
Anabaena circinalis			5					
Anabaena limnetica					5			4
Aphanizomenon flos-aquae		2		5	5			5
Chroococcus limneticus								
Gloeothece sp.								
Lyngbya sp.				5	5			5
Phormidium tenue		2			4			
CHLOROPHYTA								
Chlorella sp.								
Closterium sp.								
Closterium leibleinii				5				5
Cosmarium sp.								5
Crucigenia crucifera	4		5				3	3
Elakotothrix sp.								
Gloeocystis sp.								5
Gloeocystis major								
Haematococcus lactus								
Oocystis sp.								5
Pediastrum sp.					5		5	
Quadrigula sp.								
Quadrigula quadrata								4
Quadrigula chodatii								
Quadrigula closterioides								
Scenedesmus abundans	5	5			5		5	3
Scenedesmus bijuga								
Spirogyra sp.					5			5
Staurastrum rotula							1	3
Tetraedrom sp.								
Treubaria cassispina							5	
Xanthidium sp.							5	
Xanthidium cistratum								
Unidentified filamentous								
Unidentified flagellate								

[a](see concluding page of table)

APPENDIX TABLE D continued

	AGUR		MUNRO		HEAD WATERS		JACK-PINE		LAMBLY		PINAUS		OYAMA	
	Aug 19	Oct 20	Jul 31	Sep 26	Jul 19	Oct 7	Aug 12	Oct 3	Jul 23	Oct 4	Aug 24	Oct 26	Aug 26	Oct 19
CHRYSOPHYTA														
BACILLARIOPHYCEAE														
Achnanthes sp.									5					5
Amphora ovalis									5					
Asterionella formosa		5	4	2	4	3		5	5			5	5	3
Cocconeis placentula		5		4	5	5	5		5		5			
Cyclotella sp.					5				4					
Cyclotella comta			5											
Cyclotella ocellata												5		
Cymbella cistula	4								5					
Diatoma vulgare									5					
Diatoma elongatum														
Fragilaria crotonensis	4	3			4	4	5		5					
Frasilaria construens					5				5					
Gomphonema ventricosum					4		5							
Melosira sp.	5										4		2	
Melosira islandica					4				5					
Melosira italica		2	5	3		2		2				2		3
Meridion sp.									5					
Navicula sp.	5	5			5	5		5	4	4				4
Nitzchia sp.		5								5				
Nitzchia fonticola			5											
Pinnularia sp.				4	5									
Pleurosigma sp.											5			
Stauroneis sp.														
Stephanodiscus astrea								3						
Synedra sp.				2		1		2		3	5	1		
Synedra acus	5				3									
Synedra constricta									5					
Synedra tenera					5									
Tabellaria fenestrata		2	5		5								2	1

APPENDIX TABLE D continued.

	ALEX		SWAL-WELL		FISH HAWK	HY-DRAULIC	
	Aug. 4	Oct. 12	Aug. 4	Oct. 12	Sept. 29	Aug. 10	Sept. 25
CHRYSOPHYTA							
BACILLARIOPHYCEAE							
Achnanthes sp.							
Amphora ovalis							
Asterionella formosa			5	3	5	2	3
Cocconeis placentula							5
Cyclotella sp.						5	5
Cyclotella comta	3	5			5		
Cyclotella ocellata							
Cymbella cistula							
Diatoma vulgare							
Diatom elongatum			1				
Fragilaria contruens							
Gomphonema venema ventricosum							
Melosira sp.	1	2			5	4	
Melosira islandica							
Melosira italica				5	2		2
Meridion sp.							
Navicula sp.	5			5	4	5	4
Nitzchia sp.							
Nitzchia fonticola							
Pinnularia sp.							
Pleurosigma sp.							
Stauroneis sp.						5	
Stephanodiscus astrea					5		
Synedra sp.				5	1		4
Synedra acus							
Synedra constricta							
Synedra tenera							
Tabellaria fenestrata				2		5	4

continued

APPENDIX TABLE D. Continued...

	AGUR		MUNRO		HEAD - WATERS		JACK - PINE		LAMBLY		PINAUS		OYAMA	
	Aug 19	Oct 20	Jul 31	Sep 26	Jul 19	Oct 7	Aug 12	Oct 3	Jul 23	Oct 4	Aug 24	Oct 26	Aug 26	Oct 19
CHRYSOPHYCEAE														
Dinobryon sp.		5		4								5		5
Dinobryon divergens			2										3	
Dinobyron sertularia					3	5								
Mallomonas sp.	5		5				5							
XANTHOPHYCEAE														
Characiopsis sp.			2						5		1			
PYRROPHYTA														
CRYPTOPHYCEAE														
Cryptomonas sp.			3		4				2					
Chroomonas sp.	2													
PERIDINEAE														
Ceratium hirundinella	4		3		4									
EUGLENOPHYTA														
Trachelomonas sp.			5		4		1		2		4			

[a]1 - very abundant, 2 - abundant, 3 - common, 4 - occasional, 5 - rare.

APPENDIX TABLE D. Continued. . .

	ALEX		SWAL-WELL		FISH HAWK	HY-DRAULIC	
	Aug 4	Oct 12	Aug 4	Oct 12	Sep 29	Aug 10	Sep 25
CHRYSOPHYCEAE							
Dinobyron sp.				5			
Dinobryon divergens			2				
Dinobryon sertularia					5	4	
Mallomonas sp.	5		5				
XANTHOPHYCEAE							
Characiopsis sp.		3					
PYRROPHYTA							
CRYPTOPHYCEAE							
Cryptomonas sp.	4		5				
Chroomonas sp.							
PERIDINEAE							
Ceratium hirundinella							
EUGLENOPHYTA							
Trachelomonas sp.							

[a]1 - very abundant, 2 - abundant, 3 - common, 4 - occasional, 5 - rare

APPENDIX TABLE E_1. Standing crop and composition[a] of bottom fauna in 11 headwater lakes in the Okanagan Basin, 1971

Depth (m)	SUMMER Wet weight, gm 0.2	0.4	0.6	Numbers[b] D	OI	O	A	M	Ot	AUTUMN Wet weight, gm 0.2	0.4	0.6	Numbers D	OI	O	A	M	Ot
AGUR LAKE																		
1.5				11	6	0	6	15	0				3	4	0	16	3	0
3.0				7	1	0	15	23	0				53	6	0	39	56	0
5.0				9	0	2	0	16	0				4	1	3	0	11	0
6.7				16	0	2	0	1	0				82	0	6	0	2	0
MUNRO LAKE																		
1.5				0	0	11	0	7	2				5	0	0	0	0	1
3.0				7	0	0	6	6	0				1	0	3	56	5	0
5.0				4	0	0	1	3	1				21	0	0	12	11	0
7.0				9	0	0	0	0	0				5	0	0	0	0	0
9.0				6	0	0	0	0	0				2	0	0	0	0	0
HEADWATERS LAKE #1																		
1.5				0	0	26	0	0	0				0	0	0	0	0	0
3.0				2	0	1	0	0	0				5	0	2	0	1	0
5.0				0	0	0	0	0	0				7	0	0	1	1	0
7.0				3	0	0	0	0	0				0	0	0	0	0	0
8.0				0	0	0	0	0	0				0	0	0	0	0	0
JACKPINE LAKE																		
1.5				54	0	0	2	1	0			1.22	255	3	4	0	7	0
3.0				35	1	1	2	7	0			0.69	14	0	1	5	19	0
5.0				4	0	0	0	2	0				25	0	0	0	1	0
7.0				7	0	0	0	1	0				22	0	1	0	0	0
LAMBLY LAKE																		
1.5				9	1	9	1	0	0	(zone eliminated)								
3.0				27	0	0	0	0	0				3	0	4	2	0	3
5.0				21	0	0	0	1	0				85	0	1	0	9	0
7.0				15	0	1	0	1	0				5	0	3	0	0	0
8.5				1	0	1	0	2	0				41	0	2	0	0	0

a,b (See concluding page of table)

continued.....

APPENDIX TABLE E_1. Continued

Depth (m)	SUMMER Wet weight, gm 0.2	0.4	0.6	SUMMER Numbers[b] D	OI	O	A	M	Ot	AUTUMN Wet weight, gm 0.2	0.4	0.6	AUTUMN Numbers D	OI	O	A	M	Ot
PINAUS LAKE																		
1.5				6	0	2	6	0	0				75	1	5	1	11	0
3.0				32	1	11	5	5	1			3.9	23	1	0	44	17	0
5.0				6	1	0	3	7	0				11	0	0	1	6	0
7.0				22	0	1	3	3	0				7	0	0	1	2	0
10.0				3	0	0	0	0	0				5	0	0	1	0	0
15.0				4	0	0	0	1	0				1	0	0	0	1	0
20.0				14	0	0	2	0	0				3	0	0	1	0	0
59.0				0	0	0	0	0	0				2	0	0	0	0	0
OYAMA LAKE																		
1.5				14	16	1	82	17	0				28	5	4	86	2	0
3.0				5	4	1	6	3	0				0	0	0	1	0	0
5.0				37	1	1	0	1	0				6	3	0	1	0	0
7.0				80	0	4	3	0	0				6	0	0	0	0	0
10.0				2	0	0	0	8	0				0	0	0	0	0	0
15.0				31	0	1	0	3	0			(no sample)	-	-	-	-	-	-
20.0				0	0	210	0	0	0				40	0	35	0	0	0
ALEX LAKE																		
1.5				2	0	1	11	2	2				7	0	0	25	3	0
3.0				36	0	0	1	1	0				3	0	2	12	1	0
5.0				12	0	1	0	0	0				58	0	4	0	0	0
7.0				7	0	0	0	0	1				19	0	0	0	0	0
8.9				2	0	0	0	0	0				1	0	0	0	0	0
SWALWELL LAKE																		
1.5				1	0	0	0	0	0				41	0	0	2	0	0
3.0				5	0	3	0	0	0				0	0	0	0	0	0
5.0				13	0	3	0	1	0				21	0	5	0	0	0
7.0				5	0	3	0	1	0				27	0	2	0	0	0
10.0				11	0	29	0	0	0				3	0	3	0	1	0
15.0				2	0	45	0	0	0				26	0	100	0	5	0
20.0				27	0	16	0	0	0				25	0	14	0	0	0
26.0				11	0	3	0	0	0			(no sample)	-	-	-	-	-	-

continued.....

APPENDIX TABLE E_1. Continued.

Depth (m)	Wet weight, gm			Numbers[b]						Wet weight, gm			Numbers					
	0.2	0.4	0.6	D	OI	O	A	M	Ot	0.2	0.4	0.6	D	OI	O	A	M	Ot
FISH HAWK LAKE																		
1.5				1	0	1	1	0	1				11	0	1	51	3	1
3.0				0	0	1	1	0	0				5	0	0	3	0	0
5.0				16	0	12	0	0	0				21	0	11	0	0	9
5.5				4	0	23	0	0	0				0	0	0	0	0	0
6.0				1	0	23	0	0	0				12	0	111	0	0	0
HYDRAULIC LAKE																		
1.5				1	0	2	0	0	0	(zone eliminated)			-	-	-	-	-	-
3.0				2	1	6	0	0	0	(zone eliminated)			-	-	-	-	-	-
5.0				2	0	0	0	1	0				16	0	5	0	0	0
7.0				1	0	0	0	0	0				5	0	0	0	0	0
8.3	(no sample)			-	-	-	-	-	-				35	0	0	0	0	0

[a]Values given are per 6-inch (232 sq.cm.) Ekman dredge

[b]D = Dipterous larvae and pupae (chironomids, Chaoborus, ceratopogonids)

0I = Other insect immature stages (dragonfly, damselfly, caddis, mayfly, stonefly, alderfly, beetle)

0 = Oligochaetes

A = Amphipods (Gammarus, Hyalella)

M = Molluscs (gastropods, sphaeriids)

Ot = Other, Miscellaneous (leeches, water mites)

APPENDIX TABLE E_2. Standing crop and composition of bottom fauna (macrobenthos) in the 0-6 meter zone in 11 selected headwater lakes in the Okanagan Basin, 1971.

	% lake area represented by 0-6m zone	Standing Crop		Percent numerical composition					
		gm/m^2 wet wt.	Number per m^2	Immature Diptera	Other aquatic insects	Amphi-pods	Molluscs	Oligo-chaetes	Misc-ellaneous
AGUR	88.5	8.8	2448	28	5	21	43	2	0
MUNRO	66.4	2.8	987	23	0	39	23	12	3
HEADWATERS #1	68.1	2.1	276	22	0	1	3	74	0
JACKPINE	86.0	13.4	2470	86	0.5	4	8	1	0.2
LAMBLY	93.5	7.8	1185	83	0	2	4	9	2
PINAUS	13.1	19.8	1802	52	0.5	19	18	9	1
OYAMA	53.6	6.9	2827	29	4	53	9	2	3
ALEX	73.4	3.2	1159	67	0	24	3	3	2
SWALWELL	47.5	2.3	547	84	0	2	1	13	0
FISH HAWK	100.0	4.2	853	27	0	15	1	54	3
HYDRAULIC	96.5	1.5	306	60	0	0	1.5	39	1.5

APPENDIX TABLE F_1. Ranking of 11 selected Okanagan headwater lakes for physical and chemical characteristics, and derivation of composite "physical-chemical scores".

	Agur	Munro	Headw. No. 1	Jack-pine	Lambly	Pinaus	Oyama	Alex	Swal-well	Fish Hawk	Hydrau-lic
Physiographic features											
Altitude	9.5	2	7	6	9.5	11	5	3	4	1	8
Precipitation	11	6	7.5	9.5	9.5	7.5	4	2	3	1	5
Morphometry											
Lake area	11	9	6	7	5	4	3	10	1	8	2
Shore development	2	1	9	5	7	6	10	4	8	3	11
% littoral area	8	4	5	7	9	1	3	6	2	11	10
Mean depth	10	5	4	8	7	1	3	6	2	11	9
Hydrologic manipulation											
History	9	5.5	2	2	11	2	5.5	9	5.5	9	5.5
Extent[a]	8	6	5	2.5	2.5	9.5	6.5	9.5	4.5	11	1
Physical characteristics											
Epilimnion temp.	7	5	6	10	11	4	3	2	8	1	9
Secchi transparency	1	3	8	7	9	2	6	11	5	4	10
Chemical constituents											
TDS	11	6	7	8	9	10	3	2	4	1	5
Ortho-P: autumn sfc.	3.5	3.5	3.5	8	10	11	9	3.5	7	3.5	3.5
midsummer bott.	1	7	2.5	10	8	11	9	6	4	2.5	5
Calcium	11	8	9	6	7	10	4	3	5	1	2
"Physical-chemical score"	103	71	81.5	96	114.5	90	74	77	63	68	86

[a]Average of the rankings for impacts on volume and area.

APPENDIX TABLE F_2. Ranking of 11 selected Okanagan headwater lakes for biological characteristics, and derivation of composite "bio-productivity scores".

	Agur	Munro	Headw. No. 1	Jack-pine	Lambly	Pinaus	Oyama	Alex	Swal-well	Fish Hawk	Hydra lic
Chlorophyll a, autumn	4	2	8.5	6	11	1	10	5	8.5	3	7
Phytoplankton composition	4.5	4.5	4.5	9.5	11	9.5	4.5	4.5	4.5	4.5	4.5
Zooplankton st. crop	5	6	11	7	9	4	1	3	2	10	8
Zooplankton composition	9	8	7	10	11	6	2.5	2.5	5	2.5	2.5
Zoobenthos st. crop	9	4	2	10	8	11	7	5	3	6	1
Zoobenthos composition	10	8	1	6	5	9	11	7	4	3	2
"Bio-productivity score"	41.5	32.5	34	48.5	55	40.5	36	27	27	29	25

APPENDIX TABLE F_3. Ranking of 11 selected Okanagan headwater lakes for rainbow trout population characteristics, and derivation of composite "trout population scores".

Trout standing crop	3	4	1	6	11	9	7	10	5	8	2
Trout growth	9	6	1	5	8	11	10	3	4	2	7
Trout condition	9	7	1	10	6	8	11	4	2	3	5
Trout fecundity	7	-	-	11	8	5	9	1	3	-	-
Catch/unit effort	8	5	6	2	9	3	4	(10)	7	11	1
"Trout population score[a]	7.2	5.5	2.2	6.8	8.4	7.2	8.2	5.6	4.2	6	3.7

[a]Arithmetic average of component scores.

APPENDIX TABLE G. Headwater lakes in the Okanagan Basin known to harbour fish species other than, or in addition to, rainbow trout. Data are from B.C. Fish and Wildlife files and personal communications. List is undoubtedly incomplete.

Lake	Rain-bow	Brook trout	Other species known present
Aeneas	X	X	
Agur	X	X	
Allendale	X		Coarse fish
Becker		X	
Belgo	X	X	
Darke	X	X	Redside shiner
Deep	X	X	
Ellison			Carp and others
Gallagher	X	X	Squawfish, chiselmouth, prickly sculpin, Redside shiner, coarse scale sucker, yellow perch, longnose dace, peamouth chub
Garnet Valley	X	X	Redside shiner, fine-scaled sucker, longnose dace, squawfish
Glen	X	X	
Glenmore	X	X	
Goose	X	X	Redside shiner

Continued ....

APPENDIX TABLE G. Concluded.

Lake	Rainbow	Brook trout	Other species known present
Haynes	X		Fine-scaled sucker, dace
Headwaters#1	X		Fine-scaled sucker
Hydraulic	X		Fine-scaled sucker, dace
McCall		X	
Marron	X	X	
Minnow	X		Fine-scaled sucker, dace
Otter	X	X	Coarse fish
Ratnip	X	X	
Rose Valley	X	X	
Shannon	X		Yellow perch, largemouth bass
Swan	X	X	Many
Thirsk	X	X	
Tugulnuit	X		Many
Twin(s)	X	X	Carp, brown bullhead

APPENDIX TABLE H. Record of treatment of lakes in the Okanagan Basin with fish toxicants.[a]

Lake	Year of treatment	Toxicant used	Success
Agur[b]	1967	Rotenone	Complete
Ellison	1957	Toxaphene	Partial
Gallagher	1956	Toxaphene	Complete
Garnet Valley	1958	Thiodan	Partial
Headwaters 1,2,3,4	1957	Toxaphene	Partial
Lady King	1956	Toxaphene	Complete
Madden	1954	Rotenone[c]	Complete
Pinaus	1958	Toxaphene	Complete
Little Pinaus	1958	Toxaphene	Complete
Square[b]	1967	Rotenone	Complete
Ripley	1954	Rotenone[c]	Complete
Tugulnuit	1958	Toxaphene	Complete
Peanut Pond	1957	Toxaphene	Complete?
Ernie's Pond	1958	Toxaphene	Unsuccessful

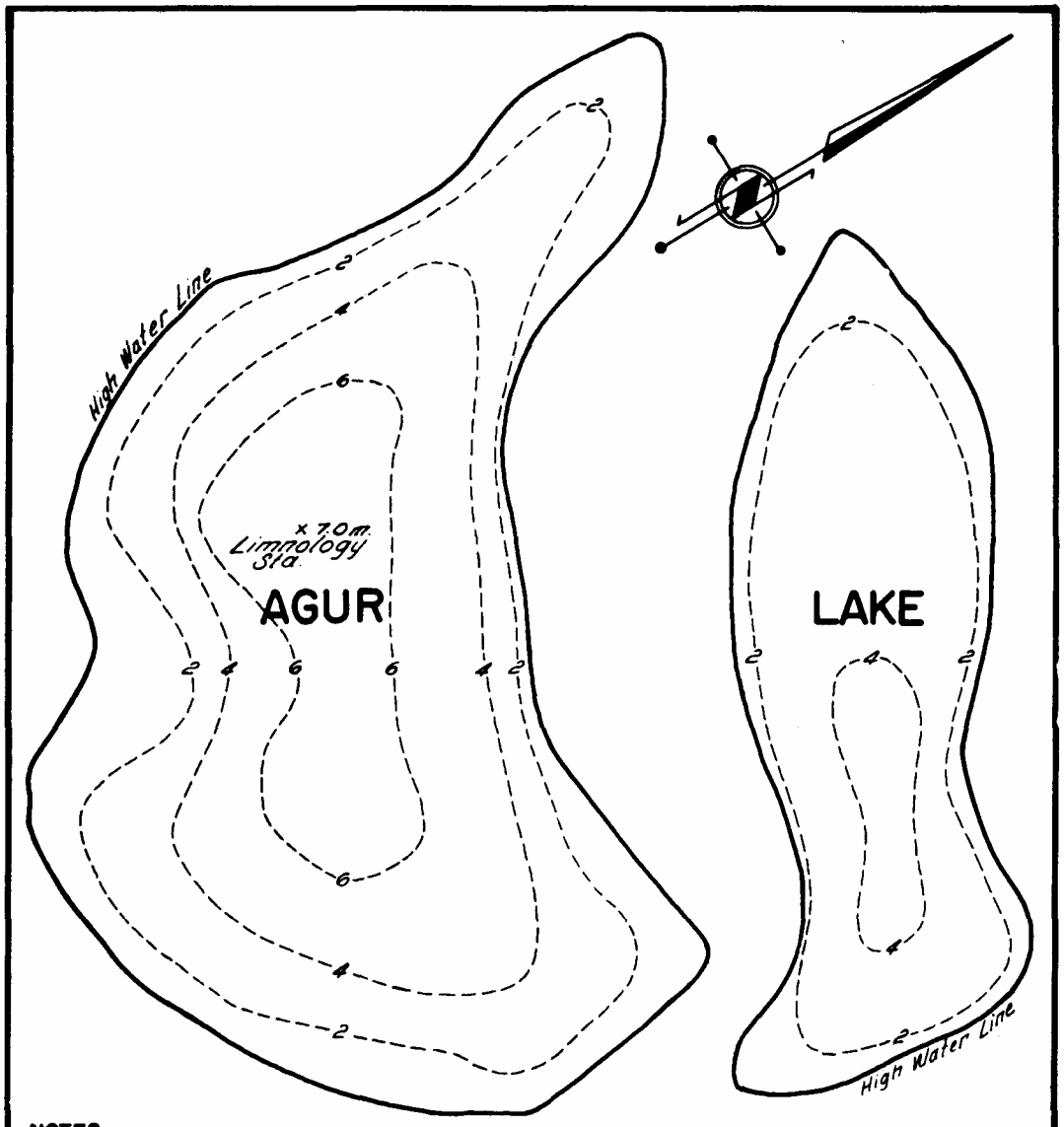
[a]Data courtesy G. Stringer, Regional Supervisor B.C. Fish and Wildlife Branch, Kamloops.

[b]Not inhabited by coarse fish. Treated for sampling of rainbow trout only.

[c]With unspecified amount of toxaphene included.

19. BATHYMETRIC MAPS

(Fig. 2 - 12)



-NOTES-

-Bathymetric lines 2,4,6, are shown in meters.

-This map was adapted from a sketch by G.D.K. of F.R.B.

-SCALES-

0 10 20 30 40 50 60 70 80 90 100m.

0 50 100 200 300ft.

CANADA-BRITISH COLUMBIA
OKANAGAN BASIN STUDY

FISHERIES RESEARCH BOARD OF CANADA

AGUR LAKE

DATE - FEB. 1972	DRWN. BY - G.S. Mc.	TASK No. - 66
SCALE - SEE BAR	CHK'D. BY - GDK	DRWG. No. - S.O. 72-09

Fig. 2.

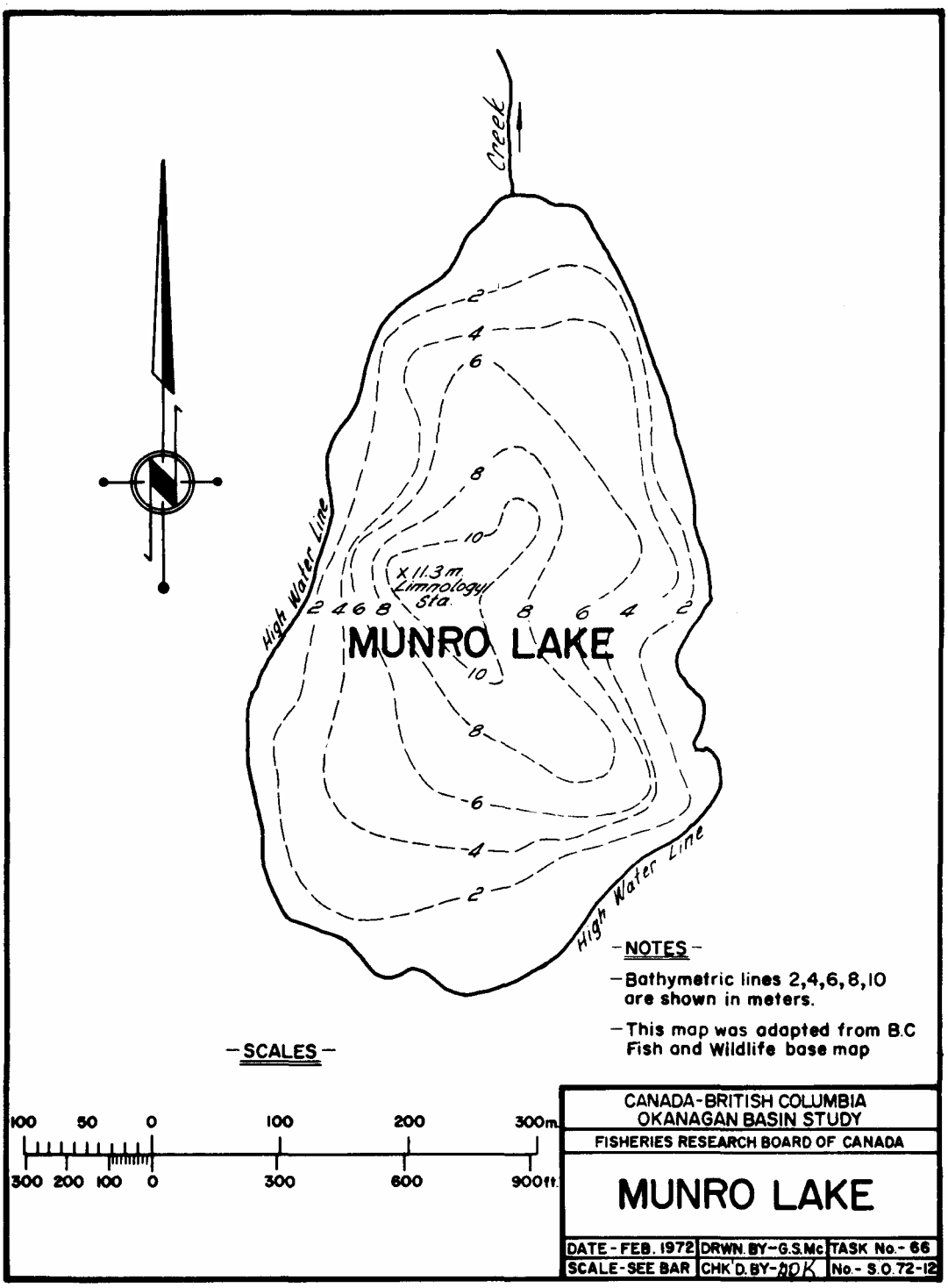
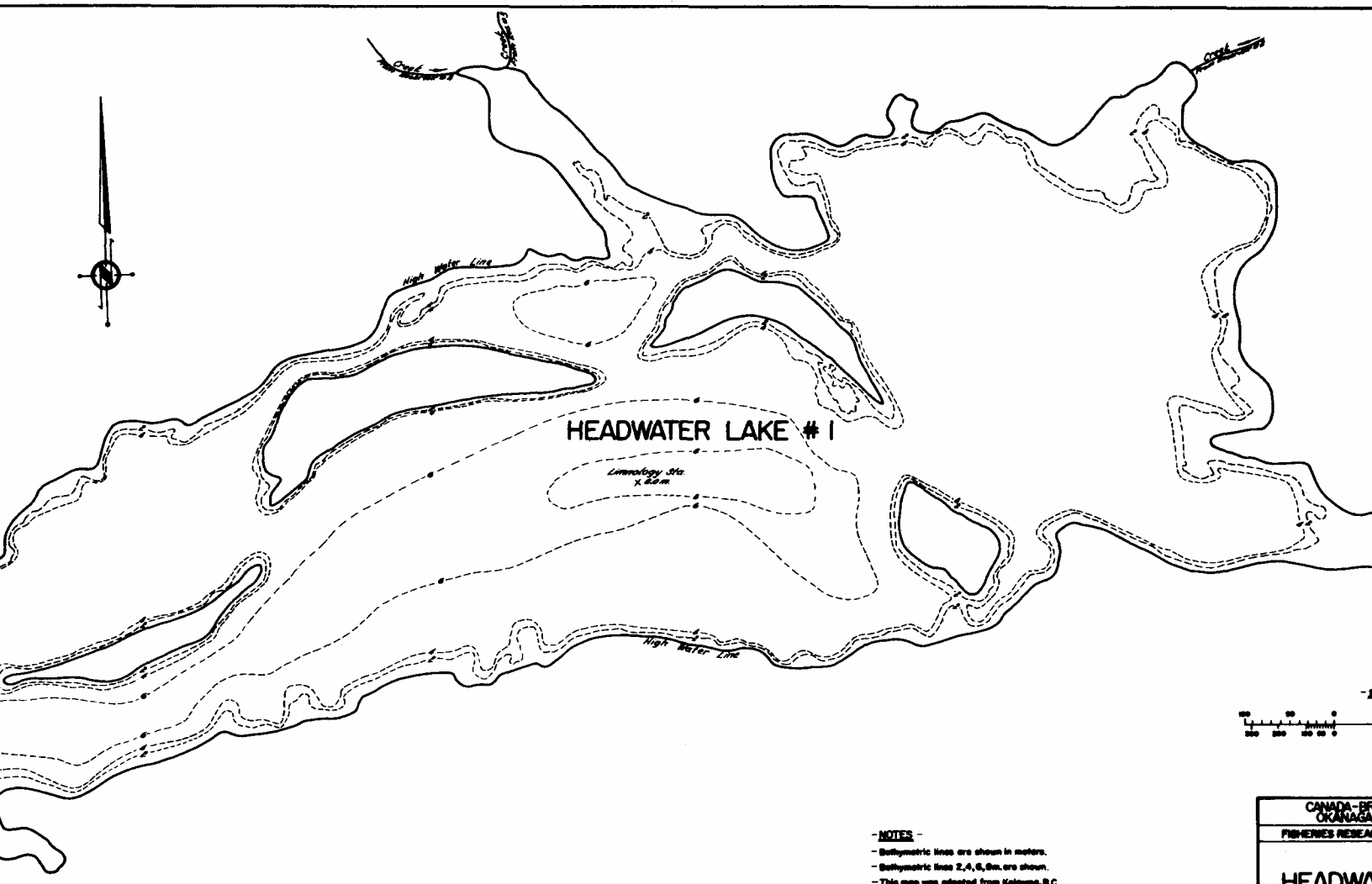

Creek
High Water Line
x 11.3 m
Limnology
Sta.
MUNRO LAKE
2
4
6
8
10
High Water Line
-NOTES-
-Bathymetric lines 2,4,6,8,10 are shown in meters.
-This map was adapted from B.C Fish and Wildlife base map
-SCALES-
100 50 0 100 200 300m
300 200 100 0 300 600 900ft
CANADA-BRITISH COLUMBIA
OKANAGAN BASIN STUDY
FISHERIES RESEARCH BOARD OF CANADA
MUNRO LAKE
DATE - FEB. 1972
DRWN. BY - G.S.Mc
TASK No. - 66
SCALE - SEE BAR
CHK'D. BY - DK
No. - S.O.72-12

Fig. 3.



- NOTES -
- Bathymetric lines are shown in meters.
- Bathymetric lines 2, 4, 6, 8m. are shown.
- This map was adapted from Kelowna, B.C Water Rights Branch Map No. 1093

CANADA-BR
OKANAGA
FISHERIES RESEA

HEADWA

DATE - FEB. 1972
SCALE - REF. MAP

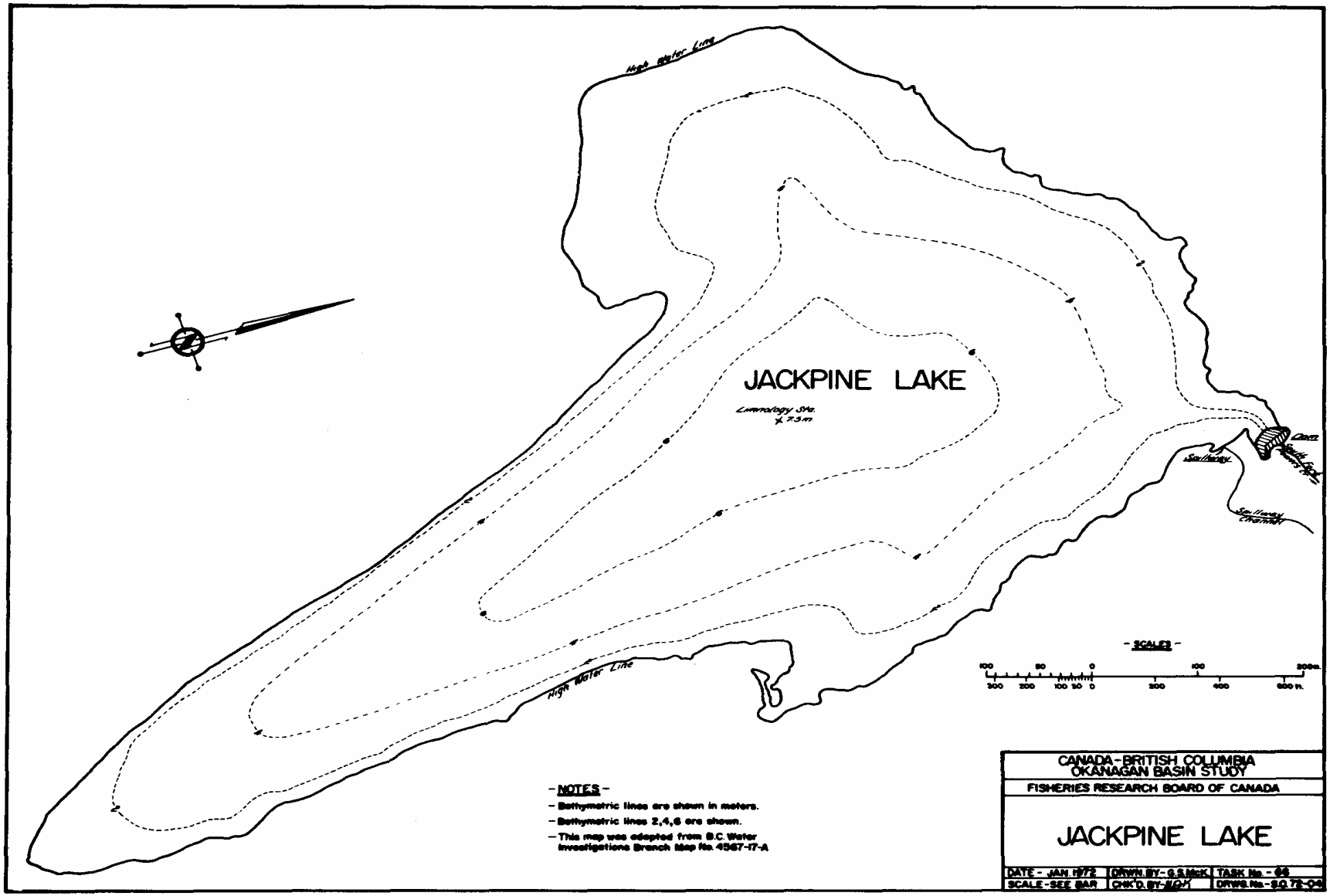
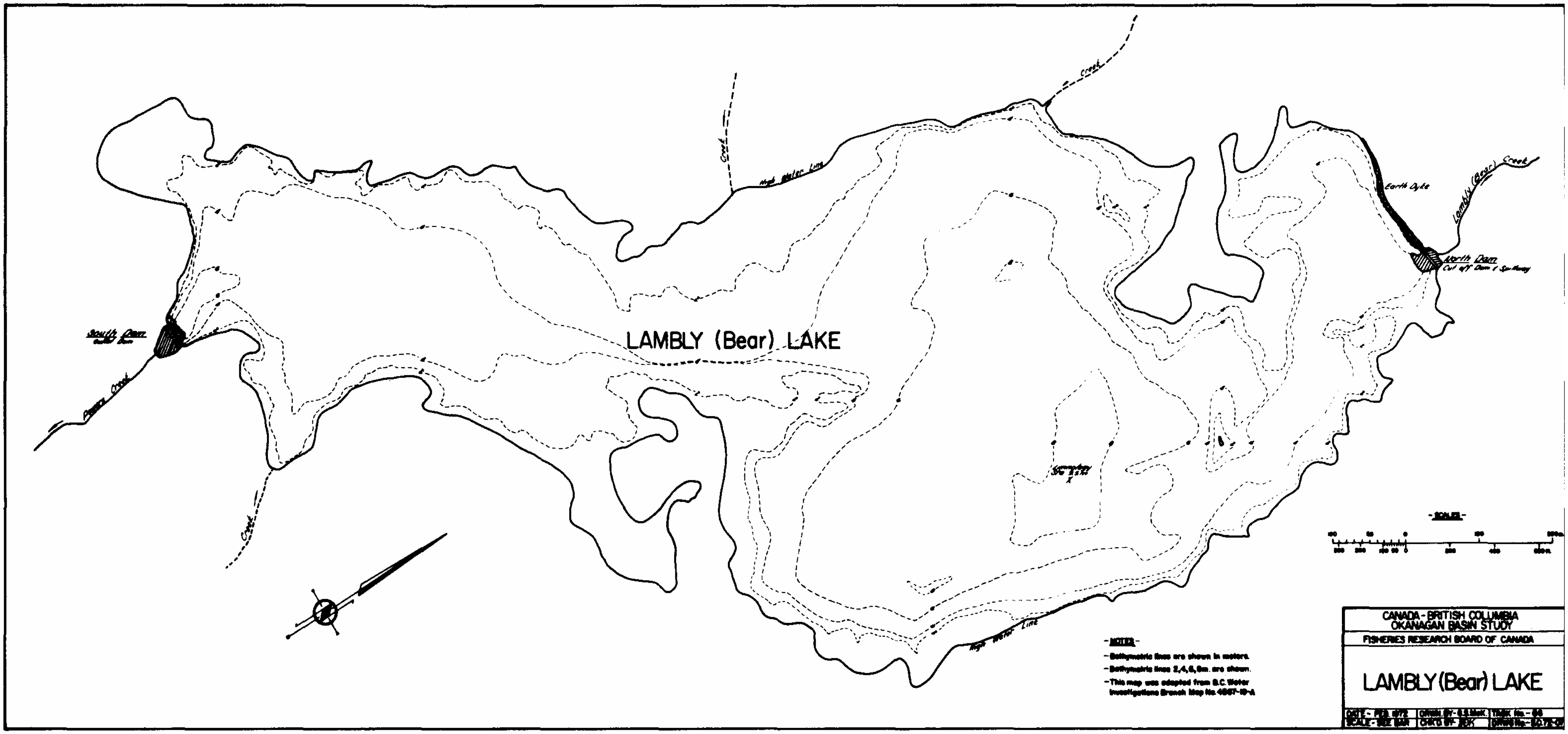
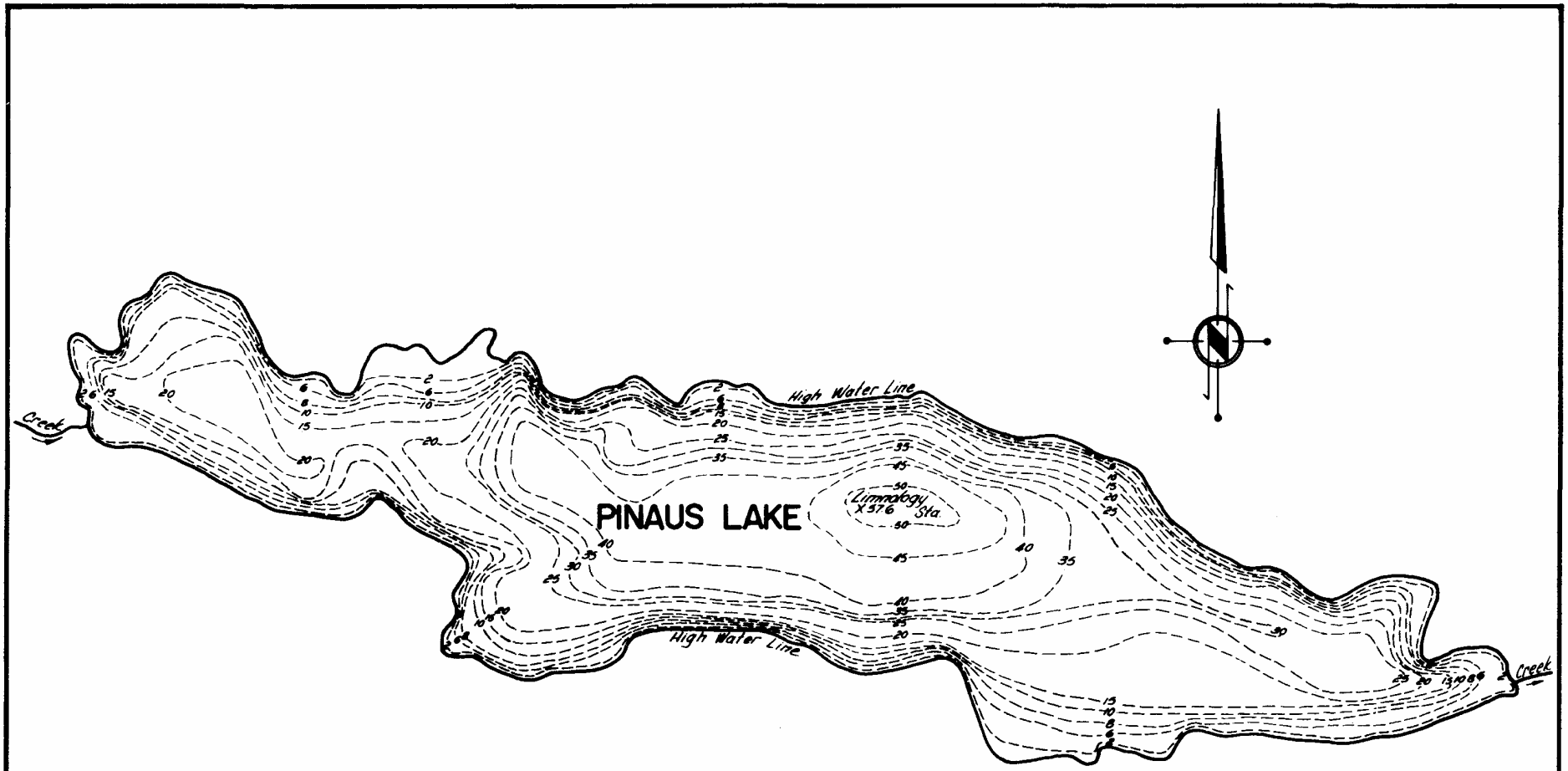

High Water Line
JACKPINE LAKE
Limnology Sta.
Z 7.5 m
Creek
Railway
Railway Crossing
High Water Line
SCALES
100 50 0 100 200m
300 200 100 50 0 200 400 600 ft.
NOTES
- Bathymetric lines are shown in meters.
- Bathymetric lines 2,4,6 are shown.
- This map was adapted from B.C. Water Investigations Branch Map No. 4567-17-A
CANADA-BRITISH COLUMBIA OKANAGAN BASIN STUDY
FISHERIES RESEARCH BOARD OF CANADA
JACKPINE LAKE
DATE - JAN 1972
DRWN. BY - G.S.MCK
TASK No. - 66
SCALE - SEE BAR
CHK'D. BY - W.C.H.
DRWG. No. - S.O. 72-09

Fig. 8.



LAMBLY (Bear) LAKE
Creek
High Water Line
Earth Dyke
Lambly (Bear) Creek
North Dam
South Dam
Creek
High Water Line
-NOTES-
-Bathymetric lines are shown in meters.
-Bathymetric lines 2,4,6,8m. are shown.
-This map was adapted from B.C. Water Investigations Branch Map No. 4667-19-A
CANADA-BRITISH COLUMBIA
OKANAGAN BASIN STUDY
FISHERIES RESEARCH BOARD OF CANADA
LAMBLY (Bear) LAKE



—NOTES—

— Bathymetric lines 2,6,8,10,15,20,25,30,35,40,45,50 are shown in meters.

— This map was adapted from B.C. Fish and Wildlife base map.

—SCALES—

200 100 50 0 200 400 600 800 900m.

800 400 0 800 1600 2400 3200 ft.

CANADA-BRITISH COLUMBIA
OKANAGAN BASIN STUDY

FISHERIES RESEARCH BOARD OF CANADA

PINAUS LAKE

DATE - FEB. 1972	DRWN. BY - G.S. Mc.	TASK No. - 66
SCALE - SEE BAR	CHK'D. BY - WBK	DRWG. No. - 8.0.72-13

Fig. 7.

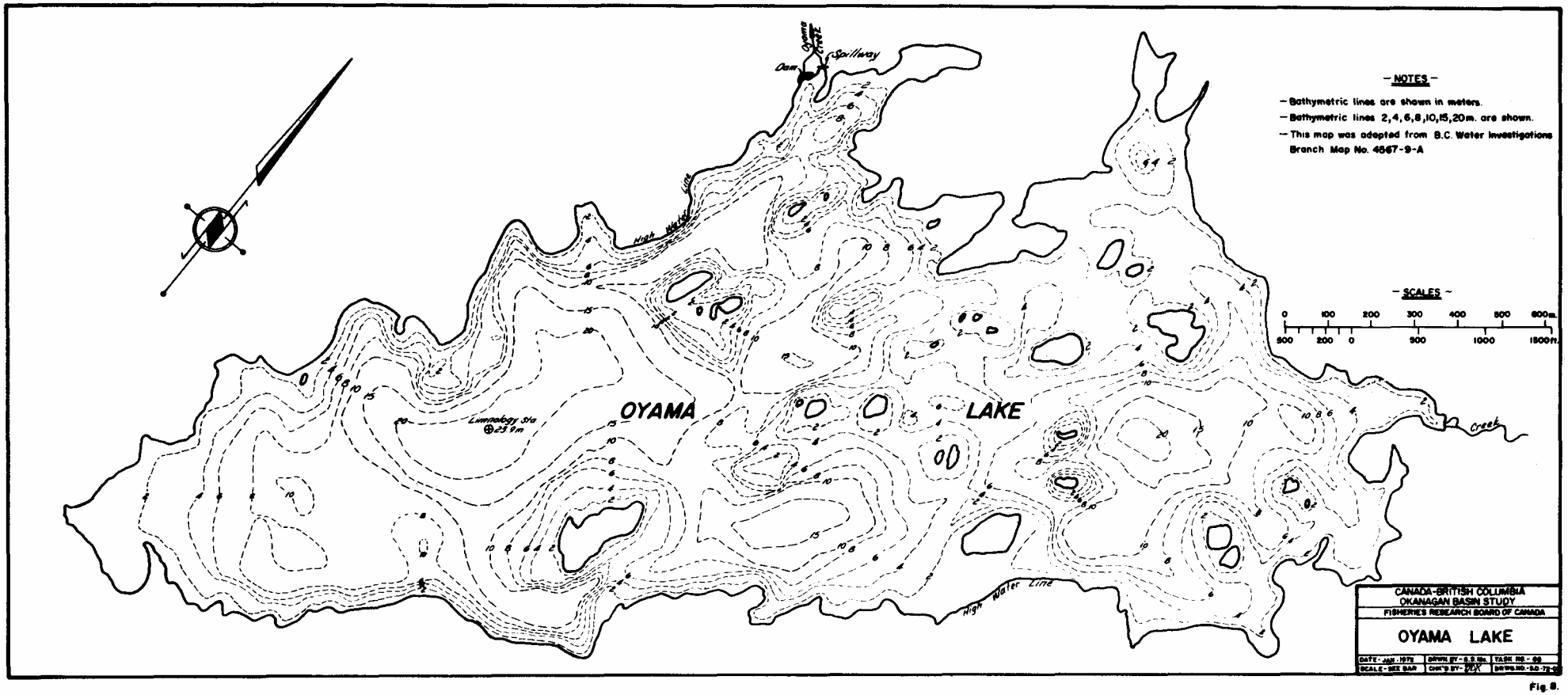

Dam
Spillway
Oyama Creek
High Water Line
OYAMA
LAKE
Limnology Sta
⊕25.9m
Creek
NOTES
- Bathymetric lines are shown in meters.
- Bathymetric lines 2,4,6,8,10,15,20m. are shown.
- This map was adapted from B.C. Water Investigations Branch Map No. 4867-9-A
SCALES
0 100 200 300 400 500 600m.
500 200 0 500 1000 1500ft.
CANADA-BRITISH COLUMBIA
OKANAGAN BASIN STUDY
FISHERIES RESEARCH BOARD OF CANADA
OYAMA LAKE
DATE- JAN. 1970
DRWN BY- B.B.Mc.
TASK NO.- 66
SCALE- SEE BAR
CHK'D BY- PBK
DRWG NO.- 50-72-0

Fig. 8.

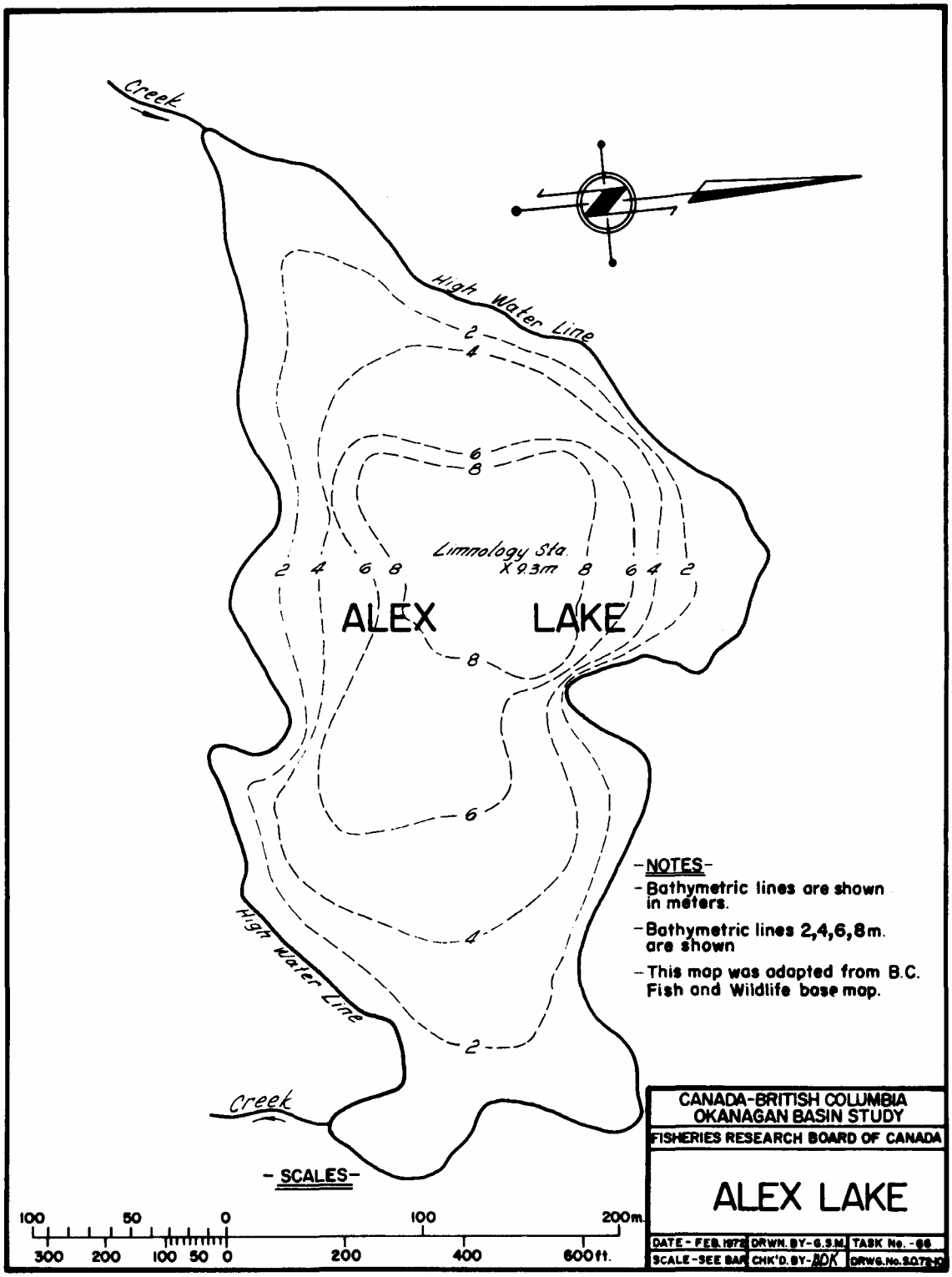

Creek
High Water Line
2
4
6
8
Limnology Sta.
X 9.3m
ALEX LAKE
High Water Line
Creek
-NOTES-
- Bathymetric lines are shown in meters.
- Bathymetric lines 2,4,6,8m. are shown
- This map was adapted from B.C. Fish and Wildlife base map.
-SCALES-
100 50 0 100 200m.
300 200 100 50 0 200 400 600ft.
CANADA-BRITISH COLUMBIA
OKANAGAN BASIN STUDY
FISHERIES RESEARCH BOARD OF CANADA
ALEX LAKE
DATE - FEB. 1972
DRWN. BY - G.S.M.
TASK No. - 66
SCALE - SEE BAR
CHK'D. BY - AOK
DRWG. No. 2.0.72-10

Fig. 9.

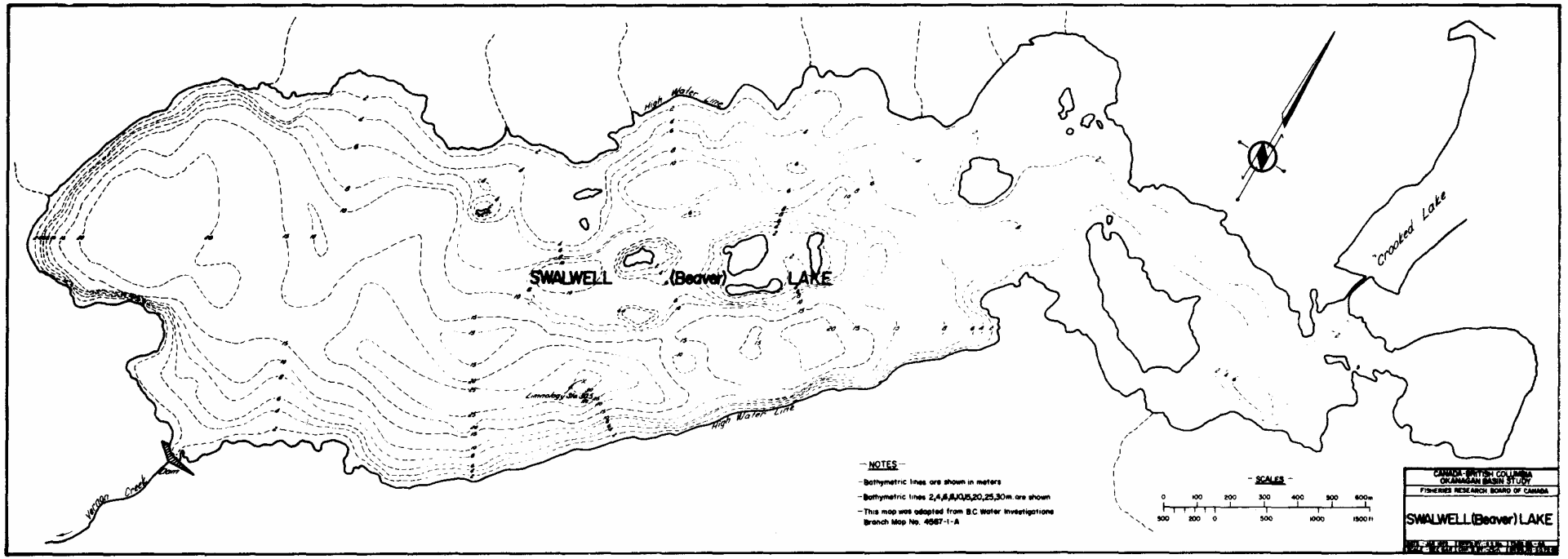

SWALWELL (Beaver) LAKE
High Water Line
High Water Line
Crooked Lake
Vernon Creek
NOTES
Bathymetric lines are shown in meters
Bathymetric lines 2,4,6,8,10,15,20,25,30m are shown
This map was adapted from B.C. Water Investigations Branch Map No. 4587-1-A
SCALES
0 100 200 300 400 500 600m
500 200 0 500 1000 1500 ft
CANADA-BRITISH COLUMBIA OKANAGAN BASIN STUDY
FISHERIES RESEARCH BOARD OF CANADA
SWALWELL (Beaver) LAKE

Fig. 10

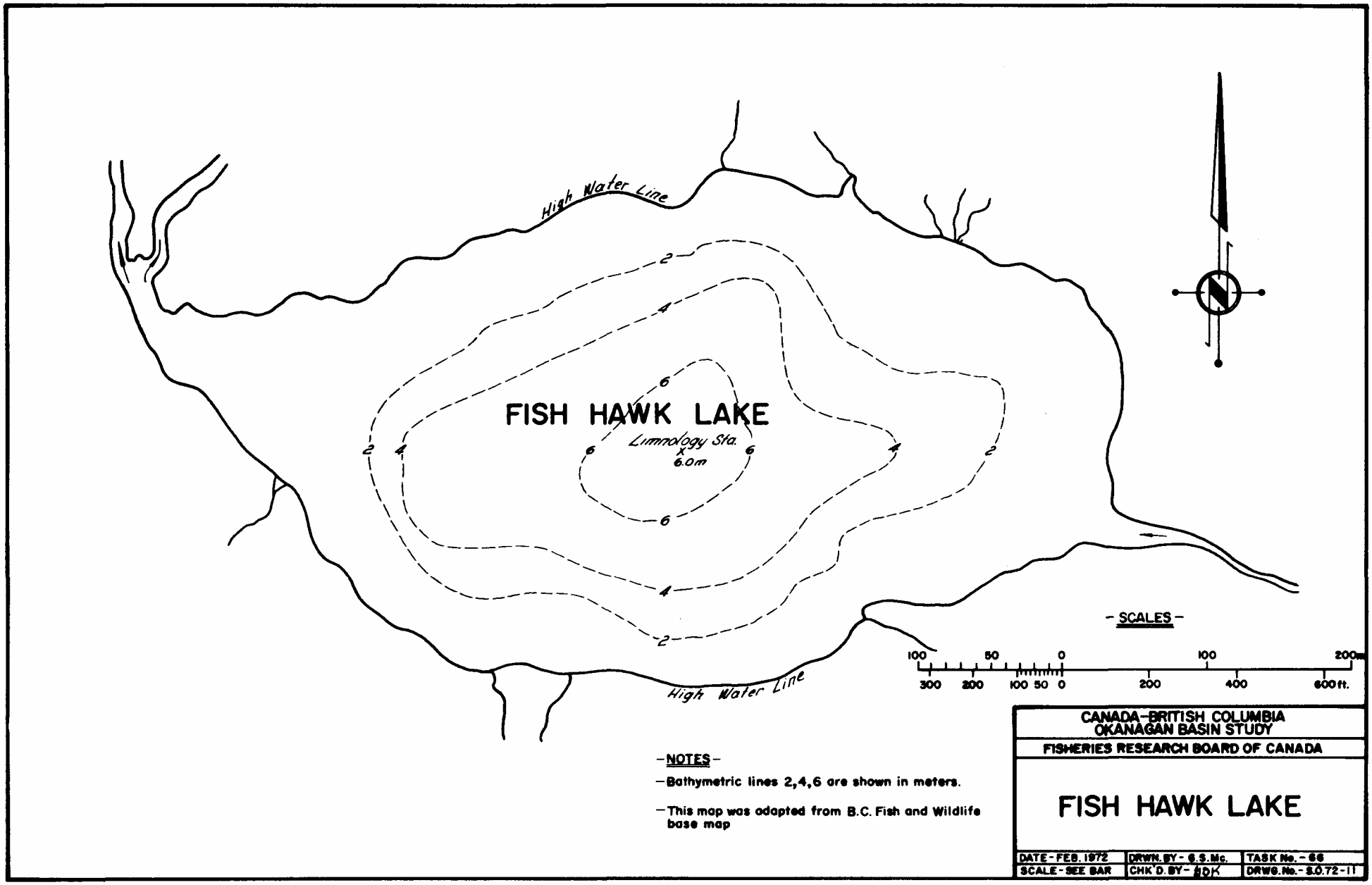
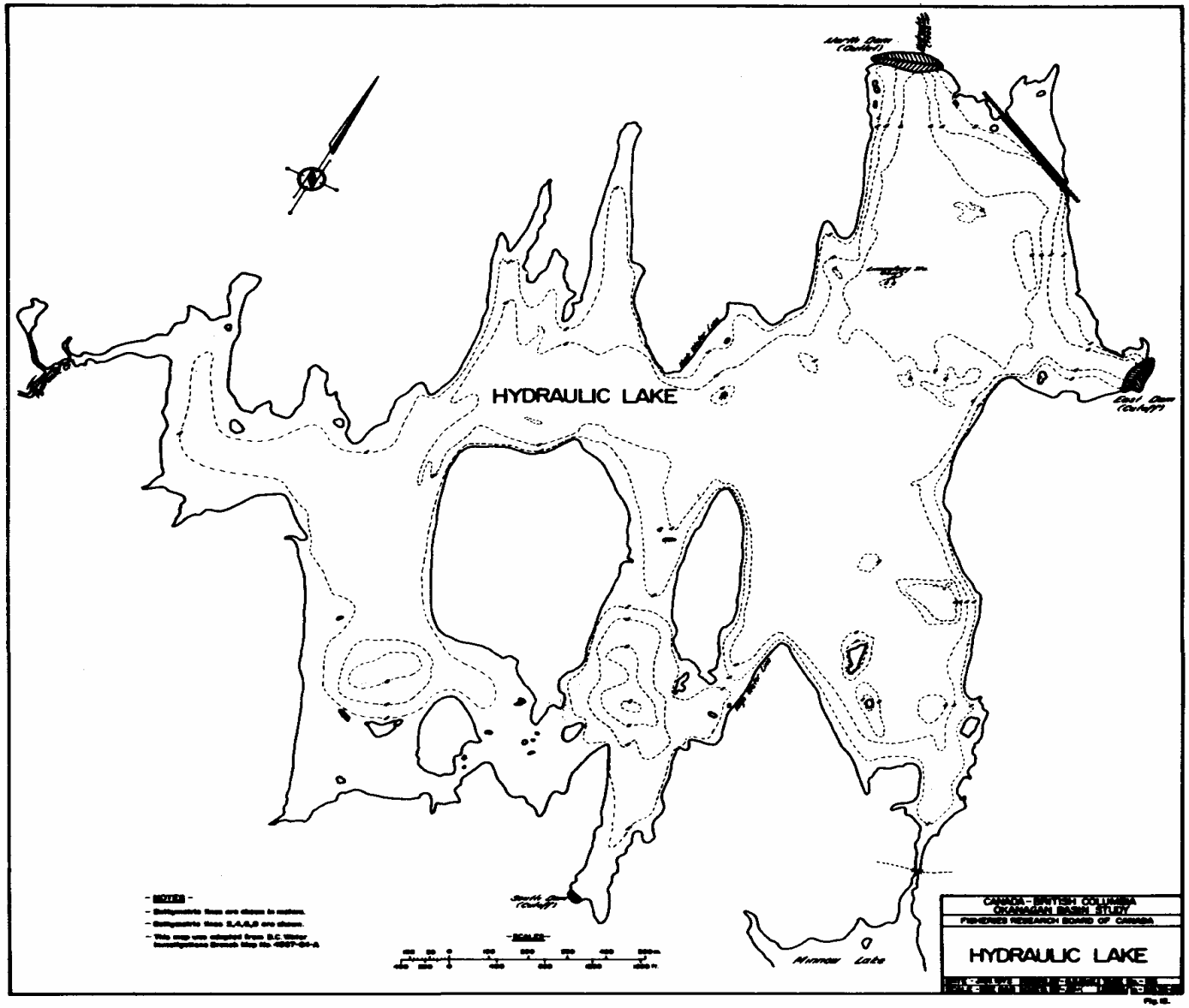
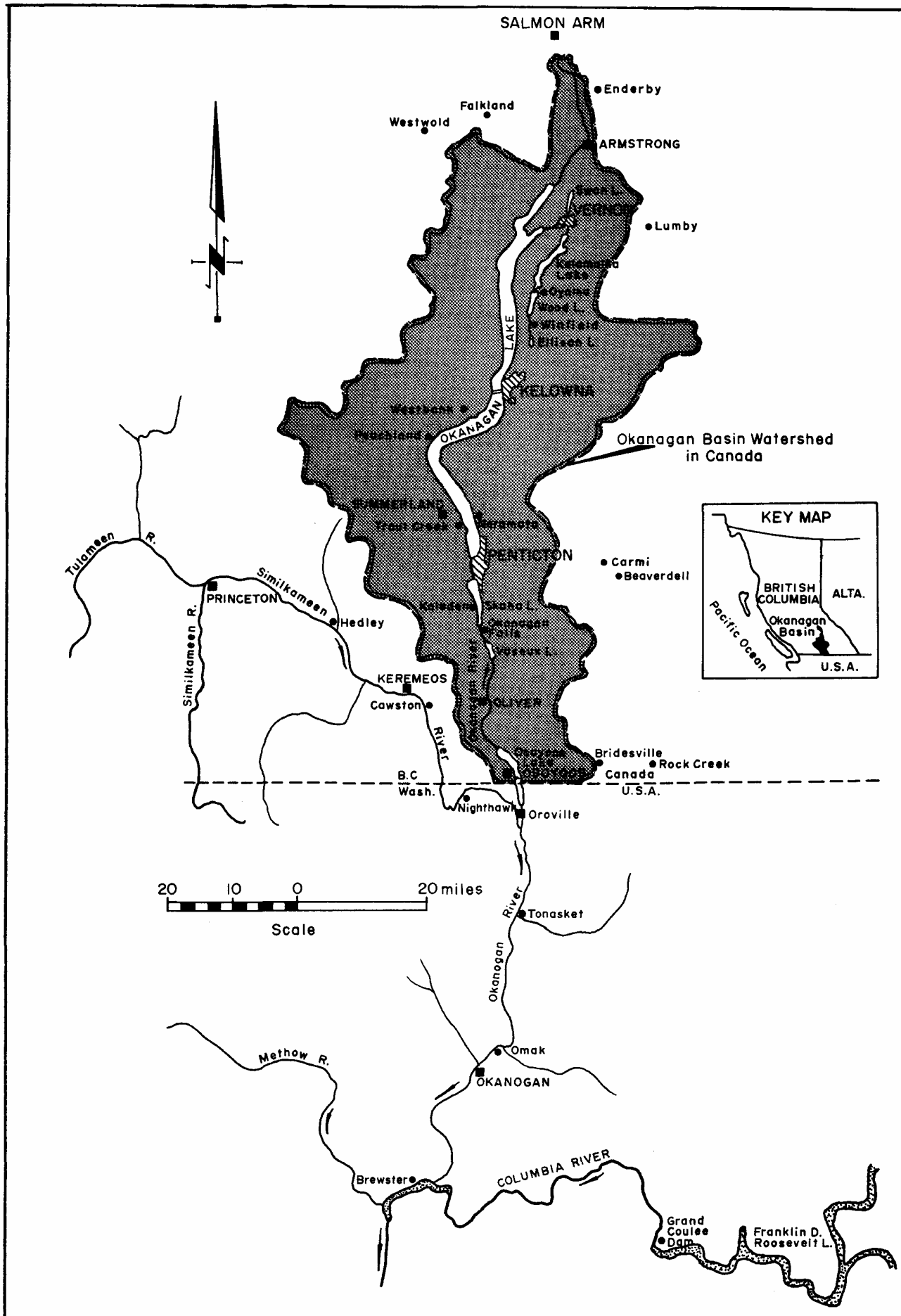

High Water Line
FISH HAWK LAKE
Limnology Sta.
6.0m
2
4
6
High Water Line
- SCALES -
100 50 0 100 200m
300 200 100 50 0 200 400 600 ft.
- NOTES -
- Bathymetric lines 2,4,6 are shown in meters.
- This map was adapted from B.C. Fish and Wildlife base map
CANADA-BRITISH COLUMBIA OKANAGAN BASIN STUDY
FISHERIES RESEARCH BOARD OF CANADA
FISH HAWK LAKE
DATE - FEB. 1972
DRWN. BY - G.S.Mc.
TASK No. - 66
SCALE - SEE BAR
CHK'D. BY - ADK
DRWG. No. - S.O.72-11

Fig. 11


HYDRAULIC LAKE
North Basin (Outlet)
East Basin (Outlet)
South Basin (Outlet)
Narrow Lake
NOTES
SCALES
CANADA - BRITISH COLUMBIA
OKANAGAN BASIN STUDY
FISHERIES RESEARCH BOARD OF CANADA
HYDRAULIC LAKE



OKANAGAN DRAINAGE BASIN IN CANADA