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Evaluation of the Feasibility of a Lake Whitefish Trap Net Fishery in the East Arm of Great Slave Lake, Northwest Territories

M.M. Roberge, S. Matkowski and W.J. Ward

Western Region
Department of Fisheries and Oceans
Winnipeg, Manitoba R3T 2N6

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INTRODUCTION

Commercial fishing on Great Slave Lake commenced in 1945 after a survey by Rawson (1947) indicated that a commercial gillnet fishery on the lake was feasible. The fishery was directed toward harvesting lake whitefish and lake trout; however by the mid-1950's Scott (1956) recognized that the fishery was over-exploiting some of the lake trout stocks. It was felt that lake trout were not able to withstand continual commercial gillnetting and were threatened with consnercial extinction in the western basin. Bond and Turnbull (1973) indicated that this elimination process was moving eastward toward the east arm of Great Slave Lake.

The east arm of Great Slave Lake has for years supported one of the major high quality sports fishery for lake trout in the Northwest Territories. However, the east arm is biologically the least productive region of the lake with its cold, clear and deep waters resulting in lake trout characterized by slow growth, extreme longevity, late age of maturity, low reproductive potential and low equilibrium yield. In order to sustain this high quality sport fishery for lake trout in the east arm the management strategy must be directed toward maintaining a low rate of exploitation (G. Yaremchuk, Department of Fisheries and Oceans, Winnipeg, Nan., personal consnunication). Therefore in response to the reccmsnendation by Bond and Turnbull (1973) the Department of Fisheries and Oceans (DFO) closed the east arm (Administrative Area VI) (Fig. 1) to commercial fishing effective 1 April 1975 in order to protect the lake trout stocks from over-exploitation due to the unselectivity of gillnets.

However, a fw years after the closure of Area VI to consnercial fishing requests were made by various resource user groups to re-establish Area VI as a commercial fishing zone. In response to these requests, a study was conducted by DFO in the Hearne Channel area in 1980 to determine if the eastern boundaries of Area V could be extended into Area VI. The reconsnendation resulting from the study was that the Area V-VI boundary be maintained and that Area VI remain closed to commercial gillnet fishing (R. Moshenko - report submitted by DFO to the Great Slave Lake Advisory Committee).

Nevertheless while the existing management strategy is designed to protect the lake trout stocks from a gillnet fishery, whitefish stocks in the east arm remain relatively unexploited. There appeared to exist the potential for a selective trap net fishery for whitefish in certain parts of the east arm. Therefore in 1980, upon a reccxnnendation from the Great Slave Lake Advisory Committee, DFO initiated plans to conduct an experimental trap net fishery (R. Moshenko, Department of Fisheries and Oceans, Winnipeg, Man., personal comsnunication). In 1982, DFO, Fish and Marine Mammal Management Division and the Fisheries Development Program undertook a two-year study in Area VI to determine the feasibility of selectively fishing for lake whitefish at the same time protecting the lake trout stocks from over-exploitation. Fisheries Development Program provided funding, budgetary control and technical assistance throughout the study. This report presents the results of the two-year study including recommendations as to the suitability of establishing a trap net fishery in Area VI.

STUDY AREA

Great Slave Lake is located in the south-east corner of the District of Mackenzie, Northwest Territories (Fig. 1). The lake has two distinct physiographic regions. The western basin, which has a water surface area of 14 400 km^2, overlies the alluvial plain known as the Mackenzie Lowlands and has few islands and gently sloping shores. The eastern arm, which has a water surface area of 5 980 km^2, lies within the Precambrian Shield and has irregular precipitous margins. The rivers entering the east arm from the Shield are cold, clear and rapidly flowing. The physical limnology and fish populations of the lake were initially assessed by Rawson (1947, 1951, 1953a, b) as were the morphometric and physical description of the area (Rawson 1950). The east arm has an irregular bottom with mean depths for various areas of the arm varying between 76 m and 249 m with a maximum depth of 625 m. The dissolved solids are low and PM 6.6-6.9 (Rawson 1950). Densities of lake whitefish are higher in the generally more productive western basin while lake trout are more consnon in the more oligotrophic east arm (Keleher 1972).

METHODS AND MATERIALS

1982 SURVEY

In July 1982, Area VI (Hearne Channel and west end of Christie Bay) was surveyed to determine areas suitable for setting trap nets (Fig. 2). Suitable areas were identified by sounding the lake bottom using either a Bristol Electronics digital depth sounder and/or a Lowrence fish finder/depth sounder. Five suitable areas were found where the bottom was relatively level and where lake whitefish were assumed to inhabit (Fig. 2); Blanchet Island, Cabin Bay, Et-then Island, Murky Channel and Narrow Islands.

1983 SURVEY

Upon arrival at each study area, depth soundings were again done to determine suitable sites for setting trap nets.

TRAP NETTING

Areas, sites and duration of sets

Trap nets were set in five areas in the east arm (Area VI) from 12 July to 2 October 1983 (Fig. 2). Netting was done in two phases: Phase I from 12 July to 2 August and Phase II from 16 August to 2 October. Spent lake whitefish were found in catches prior to 2 October indicating that netting included periods of whitefish spawning.

Two to six sites were netted in each area (Fig. 3-7). Actual net sites were chosen by considering probable locations and movements of fish,. water depth, bottom type and wind (velocity and direction) at time of setting. The majority of the sets were made perpendicular to shore to capture fish travelllng along the shore or on edges of bars or shoals. Depths varied from 3 m to 18 m and duration set from one day to five days. Trap nets were checked daily except on one occasion when severe weather prevented travel for one day. Time between lifts was approximately 24 hours.

Trap design

Three trap nets were used during the study. Designs were similar to that for deep water trap nets used for the capture of lake whitefish and walleye on the Great Lakes and Lake Winnipeg (Fig. 8). The nets used however. varied in mesh size, color and dimensions (Table 1) in order to determine suitability of the net designs to provide the highest yield of fish.

After only one set, trap #1 was modified to prevent gilling of lake whitefish in the heart and wings. This was accomplished by seaming black webbing, 3.8 cm mesh (stretched measure), on the wings and inside the walls of the heart. Trap #3 was set only once also due to a high percentage of gilling in the heart and wings. Small mesh webbing was not available for modification of this trap.

Nets were outfitted with floats, anchors and lines. Float lines, approximately 20 m in length, were coiled and tied off for use in shallow depths. Side and wing anchor lines varied from 10 m to 30 m depending upon the slope of the bottom at the net site while lead anchor lines used were generally about 10 m in length.

Leads used were 3.1 m high, black and varied in length and mesh size (Table 2). In Phase 1, in an attempt to increase the barrier formed by the 154 m lead, the lead was folded double lengthwise to form a 76 m length lead; it was restored to its original length in Phase II. In addition, in Phase II small mesh leads were also used in order to provide a complete barrier to the passage of large-sized fish. All leads were used randomly with either trap.

GILLNETTING

For purpose of comparison to trap net catches as to the availability of fish, gillnets were set within 200 m of most trap sites. Locations were such that passage of fish to traps would not be blocked. Gillnets were of 91 m lengths, 14 cm mesh (stretched measure) and 36 meshes deep. Gillnets were usually set while traps were on site or within 24 hours of the setting of the trap net. Those set more than 24 hours before or after traps were not considered comparable to trap sets or used in comparative anaiyses.

LIMNOLOGICAL FEATURES

Biological dissolved oxygen and water temperature were measured at one meter intervals from surface to bottom during each period of netting. These measurements were taken at least once at each trap site, usually while traps were on site. Temperature profiles were measured with a temperature meter (Model FT 3 m). Before 31 July oxygen profiles were measured using a, Kensnerer sampler and a standard Hach kit. After 31 July oxygen profiles were measured with a digital dissolved oxygen meter (YSI Nodel 58). After 14 September turbidity was also measured using a Secchi disk.

OATA COLLECTION

Dates and times of setting and lifting were recorded for each trap net and gillnet set (Appendix 1 and 2). Catches were recorded by counts and total weight (kg) by species. Where a large number of a species were caught, a total count was taken and a subsample of 50 fish weighed for extrapolation to total catch weight. Catches from the trap nets were categorized according to location and means of capture in the trap: trapped in the pot, gilled in the heart and/or wings or gilled in the lead.

Tagging

Uninjured lake whitefish and lake trout caught in the trap nets and gillnets were tagged in order to determine migration patterns. Fish caught were placed in a measuring trough to obtain fork length (±1 nsn) and round weight (±50 g). Orange Floy (spaghetti) tags containing a reference number and return address were attached using a Dennison tagging gun. Tags were inserted on the left side at the base of the dorsal fin and anchored between the pterygiophores. Fish were then either returned to the water and released or held in a small mesh holding net (3 m x 1.5 m x 1.5 m) overnight before being released.

Biological sampling

Lake whitefish and lake trout caught in the trap nets and gillnets were sampled for fork length (*1 nsn), round weight (*50 g), aging structures (scales/otoliths/pelvic fins), sex and stage of maturity (Appendix 7-26). Sex and the relative stage of maturity were determined by examination of the gonads and coded according to the stages described in Falk et al. (1982).

Scales and pelvic fins were removed from lake whitefish as described by Hatfield et al. (1972) and stored dry in coin envelopes. In the laboratory, scales were mounted between glass slides and the completed annuli counted on the image produced by an Eberbach microprojector (X40). For comparison purposes, ages were determined using pelvic fins. Age determinations using pelvic fins are not presented in this report.

Sagittal otoliths were taken from lake trout and stored dry in coin envelopes. In the laboratory, the otoliths were selectively ground on a Carborundum stone and placed in a cleaning/clarifying solution of benzyl benzoate before being read under a binocular dissecting scope (X30). A reflecting light source against a black backgrwnd was used to emphasize the annual growth zones which were counted to determine the ages.

Scientific names follow Scott and Crossman (1973) as follows: lake whitefish, Coregonus clupeaformis (Mitchill); lake trout, Salvelinus namaycush (Walbaum); lake cisco, Coregonus artedii Lesueur; Arctic grayling, Thymallus arcticus (Pallas); burbot, Lota lota (Linnaeus); round whitefish, Prosopium cylindraceum (Pallas); longnose sucker, Catostomus catostomus (Forster); and northern pike, Esox lucius (Linnaeus).

DATA ANALYSIS

Catch per unit effort (CPUE)

Catch per unit effort was calculated as number of fish trapped per 24 h for trap net sets and as number of fish caught per 91 m net per 24 h for gillnet sets. Data from each trap net used included sets from all depths and lead lengths.

In the Cabin Bay and Narrw Islands areas, three and four different netting periods were examined respectively. For each of these areas an analysis of variance was performed to test for differences in CPUE for different netting periods throughout the sunsner and fall. In order to perform an analysis of variance data should be normally distributed, have independent means and variances and have equal variances in all strata (i.e. netting periods). To check for independence of means and variance, logs of variances versus logs of means were plotted for each of lake whitefish and lake trout in each area. The plots indicate that as means increases so does variance and the assumption of independence is not satisfied. To test for equal variances in all strata, Bartlett's test (Elliot 1977) was performed for both species in both areas. The hypothesis of homogeniety of variances was accepted for all but lake trout from Narrow Islands.

Because data do not appear to satisfy the assumption of independence and because lake trout data from Narrow Islands do not satisfy the assumption of equal variances, transformations were done according to Taylor's power law (Elliot 1977). Once transformed the data should satisfy all three of the assumptions necessary for analysis of variance. Bartlett's test was again performed on each group of data and homogeniety of variances was accepted for all.

Correlations

For each of lake whitefish and lake trout, correlations of trap net catches to gillnet catches, biological dissolved oxygen, temperature and turbidity were examined. The sample correlation coefficients were calculated for data over all areas as well as specifically within the Narrow Islands and Cabin Bay areas. Temperature and oxygen data used were calculated as the mean of measurements from the bottom four meters (i.e. depths at which the trap is located).

Location and means of capture in traps

For each trap and each of lake whitefish and lake trout, the number and percentage of fish caught in different categories, (location and means of capture in trap) was calculated for all trap net sets.

RESULTS

CATCH PER UNIT EFFORT (CPUE)

Lake whitefish

Catch of lake whitefish per trap net set was very low during the study ranging from 0 to 19 fish caught per 24 h set (Appendix 1). CPUE was low in all areas surveyed (3.5 fish per 24 h set for traps #1 and 2 combined) and during the different netting periods (0.4 fish to 8.0 fish per 24 h set for traps #1 and 2 combined) (Table 3). Despite the low catches, analysis of variance showed a significant difference ($P<0.05$) in CPUE between the different sized traps used (trap #1 (unmodified), #1, #2 and #3), as well as when comparing only trap #1 to trap #2. No significant difference ($P>0.05$) was noted between the areas surveyed using either trap #1 or trap #2. In the Cabin Bay area, a significant difference ($P<0.05$) was found between using trap #1 and trap #2. When comparing the CPUE at different netting periods, analysis of variance showed no significant difference ($P>0.05$) using either trap #1 or trap #2. In the Narrow Islands area, no significant difference ($P>0.05$) was found between using trap #1 and trap #2. When comparing the CPUE at different netting periods, a significant difference ($P<0.05$) was found using trap #1. In all other areas surveyed there was no significant difference ($P>0.10$) in CPUE between using either trap #1 or trap #2.

Lake trout

Catch per set of lake trout was also very low ranging from 0 to 7 fish caught per set (Appendix 1). No significant difference ($P>0.05$) was found in the CPUE between trap #1 and trap #2 (Table 3) or between areas surveyed. Estimated CPUE was low in all areas surveyed irregardless of the trap used (0.5 fish per set) and during the different time periods ranged from 0.1 fish to 1.6 fish per set (Table 3). Analysis of variance showed no significant difference. ($P>0.05$) between different netting periods at either Cabin Bay or Narrow Islands areas.

CORRELATIONS

Sample correlations are low for data when all areas are combined. However, correlations generally tend to be greater when area effects are considered and data from each area is analyzed separately. As well, correlation coefficients from two different areas sometimes differ in sign (positive or negative).

Lake whitefish

,Trap net catches of lake whitefish are only slightly correlated with temperature and dissolved oxygen In the Narrow Islands area (Table 4). There is a slight negative correlation with Secchl disk readings In all areas and Narrow Islands area in particular. There is a positive correlation (r=0.71) of catches Of whitefish caught in the trap nets to those captured by gillnets in the Narrow Islands area only.

Lake trout

Trap net catches of lake trout are not correlated with water temperature or dissolved oxygen, but are positively correlated with Secchi disk readings In the Narrow Islands area only (Table 4). There is a slight correlation in catches of lake trout caught using trap nets and gillnets in all areas and Narrow Islands and Cabin Bay areas, in particular.

LOCATIONS ANO NEANS OF CAPTURE IN TRAP NETS

Lake whitefish

One hundred percent of lake whitefish caught in the single set of trap #3 and traP #l (unmodified) were gilled in the 11.4 cm mesh of the heart and wings (Table 5). The 3.8 cm mesh covering the heart and wings of trap #l gilled only 47% of whitefish caught, while 52% were trapped in the pot. Trap #2 with 9.5 cm mesh On the heart and wings gilled 96% of lake whitefish caught, trappin9 only 4%. Only in one set was a lake whitefish gilled in a lead. On one occasion several whitefish Were observed swimming easily through the 20.3 cm mesh of a lead.

Lake trout

In all traps a large percentage of lake trout captured were gilled in the 20.3 cm mesh leads (Table 5). Approximately half of those fish not caught in the lead were gilled in the heart and wings while the other half were traPped *in* the pot.

Other species

Lake cisco were primarily gilled in small mesh size areas, such as trap funnels and in the 3.8 cm mesh leads (Table 5). The Percentage of lake cisco gilled in the lead of trap #2 is much larger than that for trap #l. Trap #1 gilled a large percentage of lake cisco in the 3.8 cm mesh covering the heart and wings. Those lake cisco which did enter the pot often gilled themselves in the small mesh of the sides.

Locations of capture of northern pike are similar to those of lake whitefish (Table 5). In trap #1 over half were trapped in the pot while in trap *#2* close to 90% were gilled in the heart and wings. As a general observation, any species gilled in the heart or wings had almost always been traveling along the inside surface ' of the trap and had attempted to pass through. . ,

In both traps #l and #2 over 80% of burbot were trapped in the pot (Table 5). Of the four burbot in the heart and wings category of trap #1, only one was actually gilled. The other three were trapped in the corners formed by the sides of the heart and the wings entering the heart (Fig. 8). Too few Individuals of other species were caught to generalize on location and means of capture in traps.

LIMNOLOGICAL FEATURES

Biological dissolved oxygen measurements decreased slightly from July to mid-September (Appendix 4). Water temperatures in the east arm increased during July and began to decrease in September (Appendix 5). Secchi disk readings varied only slightly within each netting area (Appendix 6).

GILLNETTING

Lake whitefish

Gillnet sets yielded few lake whitefish from the Cabin Bay area in any netting period, while at Narrow Islands gillnet catches of whitefish increased significantly in the fall (Table 6). CPUE for lake whitefish catches from Murky Channel, Et-then Island and Blanchet Island areas were all low.

Lake trout

Number of lake trout caught in gillnets in Cabin Bay increased in the fall (Table 6). In the Narrow Islands area CPUE for lake trout were highest in late September while CPUE for lake trout from the other three areas were all low.

DISCUSSION

In all areas catches of fish were relatively small. Patterns in data with such small ranges may be obscured by random variation. Random variation by one or two fish in lake trout catches could easily hide any patterns in catches or produce patterns which do not actually exist. This applies to all correlations where numbers of fish caught are consistently small and especially where the number of data points to be correlated Is small.

CATCH PER UNIT EFFORT (CPUE)

The significant difference between catches using different traps suggests that the capture success of lake whitefish In the east arm of Great Slave Lake may be affected by differences in either trap size, structure, color or mesh size. Miller et al. (1980) found no significant difference between catches of 3.1 m and 4.6 m high trap nets nor between catches using nets consisting of either one or two funnels. Eshenroder (1979) and Westerman (1932) thought that shadows caused by small mesh sizes and heavy twine may inhibit lake whitefish entry into trap nets. When examining separately the CPUE for each area of study there was no significant difference found between catches using trap #1 and trap #2 except in the Cabin Bay area. This lack of a significant difference between catches in each area using different traps does not allow an indication of the reason(s) for differences in capture success of lake whitefish. Within each netting period in Cabin Bay and Narrow Islands areas the CPUE was consistently low for both lake whitefish and lake trout. There was no significant difference in trap net catches using either trap #1 or trap #2 at different netting periods except when using trap #1 in the Narrow Islands area. Gillnet catches in the Narrow Islands area indicate that there is a significant increase in the relative abundance of lake whitefish and lake trout with each netting period. Subsequently, this increase in fish abundance has a positive affect on trap #l catches. Generally though, the catch success for either trap #1 or trap #2 was no better when there was an abundance of fish in an area than when there were few. Catches were low in some areas even when trap nets were set in an area where fish were known to be congregated.

CORRELATIONS

Trap net catches do not appear to be highly correlated with any of the limnological variables considered. Some variables such as temperature and oxygen result in very low correlation coefficients which are positive for some areas and negative for others. This indicates little if any correlation with trap net catches.

The apparent correlation of turbidity with the trap net catch of lake whitefish over all areas and specifically in the Narrow Islands area implies that visibility of the trap may be a factor in the capture of whitefish. In more turbid waters where traps would not be as easily recognized more fish were caught. All of the areas netted in the east arm, however, had low turbidity. Perhaps if the range of turbidity in areas sampled had been greater a higher correlation would have been more evident.

Trap net catches of lake trout appear not to be correlated with turbidity when data from all areas are considered, and positively correlated when data from Narrow Islands area only are considered. Since the measure of turbidity is a Secchi disk measurement, higher values indicate greater visibility in the water. The positive correlation therefore implies that more lake trout were caught when the trap could be seen more easily. This seems improbable since usually most lake trout caught were gilled in the leads.

Positive correlations of trap net catches with gillnet catches appear to exist in most comparisons. Although such correlations may occur the increases in trap net catches are very small while gillnet catches increase notably in some instances.

LOCATION AND MEANS OF CAPTURE IN TRAP NETS

Mesh size appears to play an important role in the location and method of capture of lake whitefish in trap netS SinCe a **large** mesh size allowed lake whitefish to pass through instead of leading along them as intended. Trap nets with the heart and wings of mesh size large enough to gill whitefish did in fact gill almost all those captured. When the wings and sides of the heart of trap #1 were covered with mesh too small for gilling whitefish, less than half of those captured were gilled. More than 50% travelled on to become trapped in the pot, and most of those fish which became gilled did so in the top of the heart, which had not been covered with small mesh. Although the smaller mesh size covering trap #1 did increase the percentage of lake whitefish trapped In the pot it did not alter the capture success of the trap. This indicates that in the east arm of Great Slave Lake mesh sizes smaller than that of trap #2 (9.5 cm) will probably not change capture success, but will increase the number of fish properly trapped in the pot.

Fish which cannot clearly see a barrier (i.e. a lead) may travel along Its front rather than trying to pass through or avoid it. If smaller mesh had been covering the heart and wings perhaps most of the fish captured would have travelled into the pot or perhaps the smaller mesh would have been more obvious and prevented fish from entering the trap.

Large lake trout could not pass through leads with large mesh size and instead of leading, approximately half of those captured were gilled in the leads. Half of the lake trout which did reach the trap were gilled in the heart and wings while the other half travelled on to the pot. This is true for both trap #1 and trap #2 and may be related to mesh size and size of trout. The trout were often too large to become easily gilled In even the 11.4 cm mesh on the top of the heart in trap #1 and would therefore be forced to either travel into the pot or escape completely.

Uherever small mesh was present on the traps lake cisco became gilled. This is illustrated by the high percentage of lake cisco gilled in the 3.8 cm mesh covering the heart and wings of trap #1. For trap #2, the high percentage of lake cisco gilled in the lead is due not to a consistently high percentage of capture in all sets, but may be ascribed to only two sets where large schools of lake cisco travel led into the small mesh lead attached to trap #2. The trap which was attached to the lead probably had no influence on the capture, but by coincidence it was trap #2 both times.

The similarity in location and means of capture of northern pike to that of lake whitefish may be due to similarities in behaviour and in vulnerability to gilling. Both may be easily gilled in large mesh but may pass by small mesh and travel into the pot. Burbot were almost always trapped **in** the pot. This may be due to a behavioral tendency to lead or perhaps because the body shape of burbot is such that they are not easily gilled. Few of any other species were captured in any location and by any means in the trap nets.

CONCLUSIONS

The trap nets used in the east arm were not successful in capturing substantial numbers of lake whitefish or other marketable species. Even when concentrations of fish in the areas around trap nets were high trap net catches did not increase significantly. Perhaps changes in construction such as mesh size would increase catch, or perhaps some other factor(s) than trap construction prevents fish from being caught. Turbidity, and therefore visibility of the trap, may affect trap success as is suggested in the data. Such an effect has been suspected in other studies as well.

The different mesh sizes of traps used did not appear to affect the numbers of lake whitefish or lake trout caught, but did determine how and where in the trap net they were caught since smaller mesh sizes decreased gilling and increased capture in the pot. However, increased gilling of lake cisco occurred in traps with smaller mesh sizes and necessitated time spent in removal of these fish.

The two mesh sizes used in the leads were not successful in leading lake whitefish. As well, the frequent capture of larger lake trout in the large mesh leads is contrary to the purpose of using trap nets in the restricted areas. Gilling of large numbers of lake cisco in small mesh leads is also undesirable both because of time and labour spent in removing them and destruction of lake trout food stocks.

On the basis of this study commercial trap netting "does not seem feasible in the areas tested and with the equipment used. The traps do not capture sufficient numbers of lake whitefish for a commercial venture and may have a detrimental effect on lake trout populations. In addition, the number of suitable sites for setting trap nets within Area VI is minimal due to great water depths, numerous dropoffs and irregular bottoms.

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Table 1. Mesh sizes (stretched measure), color and dimensions of trap nets used in the Great Slave Lake trap net study, 1983.

							Mesh Size (stretched measure (cm))								
							Heart			Front Pot			Back Pot		
Trap No.	Mesh Color	Height (m)	Length of Trap* (m)	No. of Pots	W'ngs	Funne' s)	Top	Sides	Bottom	Top	Sides	Bottom	Top	S'des	Bottom
1	green	3.1	12.5	1	11.4	3.8	11.4	11.4	-	-	-	-	6.4	6.4	3.8
1	green (modified with black wings and heart)	3.1	2.[illegible]	1	3.8	[illegible]	11.4	3.8	-	-	-	-	6.	6.4	3.8
2	black	2.7	13.1	2	9.5	3.8/ 3.2†	6.4	3.2	3.2	6.4	6.4	3.8	10.2	3.8	3.2
3	green	3.7	13.4	1	11.4	3.8	11.4	11.4	-	-	-	-	6.4	6.	3.8

*Does not include wings
†Front funnel/back funne

Table 2. Dimensions of leads used with trap nets in the Great Slave Lake trap net study, 1983.

Length (In)	Mesh Size (stretched measure) (cm)
153	20.3
69	20.3
76	20.3 (double wall)
46	3.8
92	3.8

Table 3. Catch per unit effort (CPUE) for lake whitefish and lake trout caught in the trap nets in each netting area of the east arm, Great Slave Lake, 1983.

Location	Time Period	Trap Number	No. of Sets	CPUE* Lake whitefish	CPUE* Lake trout
Cabin Bay	12-20 July	1†	1	32.6	5.1
		1	2	0.0	0.0
		2	4	2.7	0.2
		3	1	3.6	0.0
		1-2	6	5.9	0.8
	17-24 Aug	1	7	0.2	0.3
		2	7	6.0	1.0
		1-2	14	3.1	0.7
	21-25 Sept	1	4	0.3	3.0
		2	4	2.3	0.3
		1-2	8	1.3	1.6
Narrow Islands	20-25 July	1	5	0.7	0.0
		2	4	5.2	0.3
		1-2	9	2.7	0.1
	24 Aug-3 Sept	1	10	0.6	0.0
		2	9	3.2	0.1
		1-2	19	1.8	<0.1
	13-2(I Sept	1	7	2.4	0.9
		2	7	5.2	1.4
		1-2	14	3.8	1.1
	26 Sept-2 Oct	1	6	in.5	1.0
		2	3	2.9	0.0
		1-2	9	8.0	0.7
Murky Channel	25-29 July	1	4	1.6	0.0
		2	3	3.7	100
		1-2	7	2.5	0.4
Et-then Island	29 Ju1-2 Aug	1	3	0.7	0.0
		2	2	0.0	0.3
		1-2	5	0.4	0.1
Blanchet Island	5-11 Sept	1	5	3.5	(-)orl
		2	5	7.4	0.2
		1-2	10	5.4	0.1
Total	12 Ju1-2 Oct	lt	1	32.6	5.1
		1	53	2.2	0.5
		2	48	4.3	0.5
		3	1	3.6	0.0
		1-2	103	3.5	0.6

*Number of fish caught per 24 h set.
†Unmodified trap net.

Table 4. Correlations of trap netted lake whitefish (LWF) and lake trout (LT) with temperature, oxygen, turbidity and gillnet catches during the Great Slave Lake trap net study, 1983.

Correlation	Area(s)	Number of Sets	Correlation Coefficient (r)
LWF in trap with temperature	all	37	-0.24
	Narrow Islands	18	0.59
	Cabin Bay	10	0.14
LT in trap with temperature	all	37	0.11
	Narrow Islands	18	0.20
	Cabin Bay	10	0.04
LWF in trap with oxygen	all	37	0.13
	Narrow Islands	18	0.54
	Cabin Bay	10	-0.09
LT in trap with oxygen	all	37	-0.25
	Narrow Islands	18	-0.25
	Cabin Bay	10	-0.25
LWF in trap with turbidity	all	10	-0.61
	Narrow Islands	8	-0.65
LT in trap with turbidity	all	10	0.18
	Narrow Islands	8	0.69
LWF in trap with LWF in gillnets	all	36	0.38
	Narrow Islands	16	0.71
	Cabin Ray	12	0.18
LT in trap with LT in gillnets	all	36	0.64
	Narrow Islands	16	0.77
	Cabin Bay	12	11.59

Table 5. Location and means of capture of fish in trap nets set in the east arm of Great Slave Lake (number caught/percentage of total caught), 1983.

Species	Trap	Total Caught	Trapped in Pot	Gilled in Heart and Wings*	Gilled in Lead
Lake whitefish	#1 (unmodified)	19	0/(-)	19/100	0/0
	#3	4	0/0	4/100	0/0
	#1	121	63/52	57/47	1/1
	#2	185	8/4	177/96	0/0
Lake trout	#1 (unmodified)	3	1/33	0/0	2/66
	#1	23	5/22	4/17	14/61
	#2	26	7/27	7/27	12/46
Lake cisco	#1	400	44/11	277/69	79/20
	#2	913	22/2	68/8	823/90
Northern pike	#1	16	9/56	6/38	1/8
	#2	27	4/15	23/85	0/0
Burbot	#1	22	18/82	4/18	0/0
	#2	6	5/83	1/17	0/0

*Catch figures for the heart and wings include those fish gilled in the funnel (s).

Table 6. Catch per unit effort (CPUE) for lake whitefish and lake trout caught by gillnets in each rietting area of the east arm of Great Slave Lake, 1983.

Location	period	Lake whitefish Number of Sets	Lake whitefish CPUE*	Lake trout Number of Sets	Lake trout CPUE*
Cabin Bay	Jul 12-Jul 20	2	10.7	2	0.0
	Aug 17-Aug 24	7	9.2	7	7.1
	Sept 21-Sep 25	4	6.1	4	16.7
Narrow Islands	Jul 20-Jul 25	3	4.7	3	0.7
	Aug 24-Sep 3	5	10.6	5	5.5
	Sep 13-Sep 20	7	27.2	7	9.4
	Sep 26-Oct 2	3	117.3	3	0.0
Murky Channel	Jul 25-Jul 29	2	6.0	2	1.6
Et-then Island	Jul 29-Aug 2	2	3.0	2	3.0
Blanchet Island	Sep 5-Sep 11	6	9.2	6	1.0
All areas	Jul 12-Oct 2	41	18.7	41	5.8

*No. of fish caught/91 m net/24 h

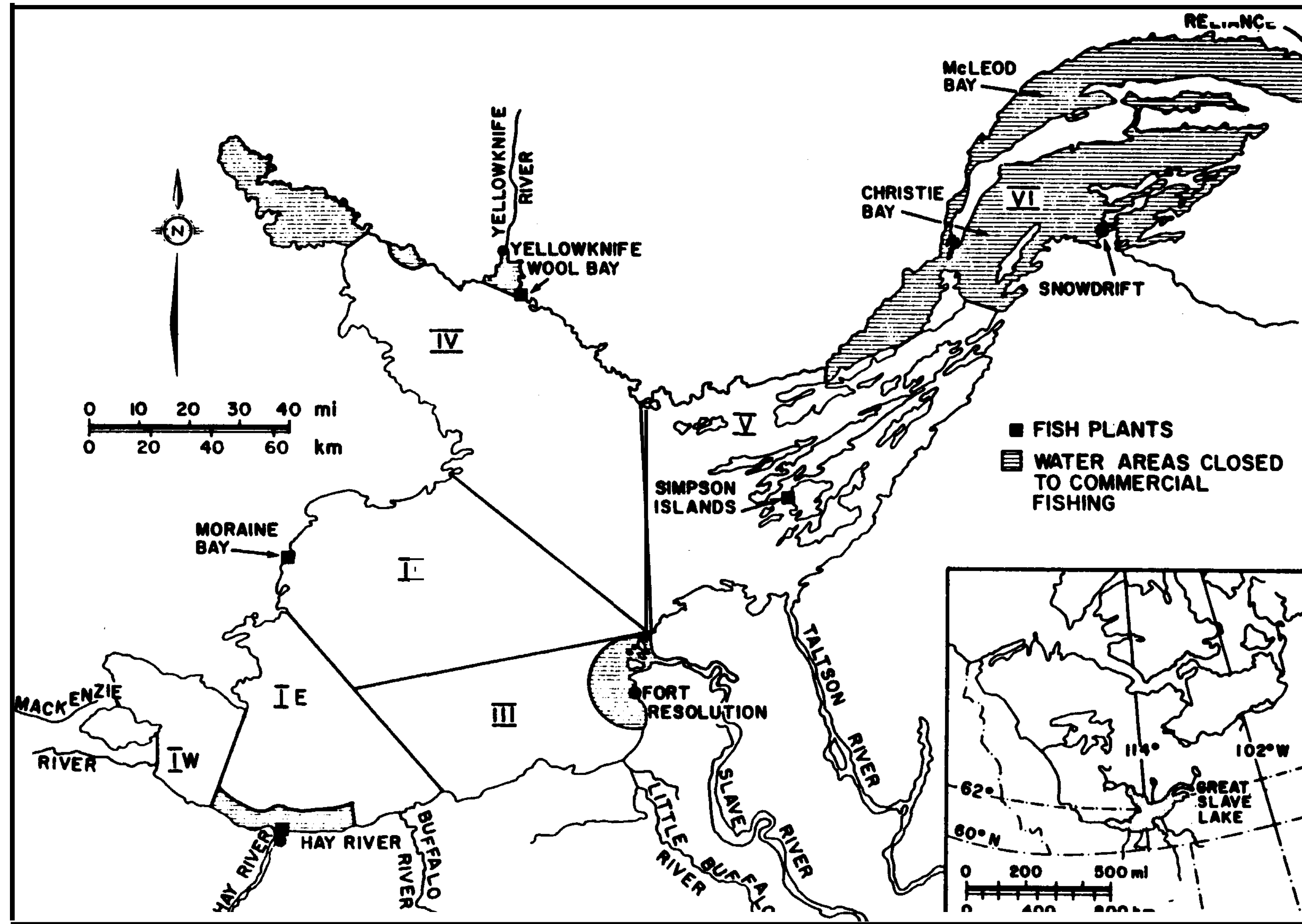


Figure 1. Map of Great Slave lake illustrating the administrative areas and areas closed to commercial fishing.

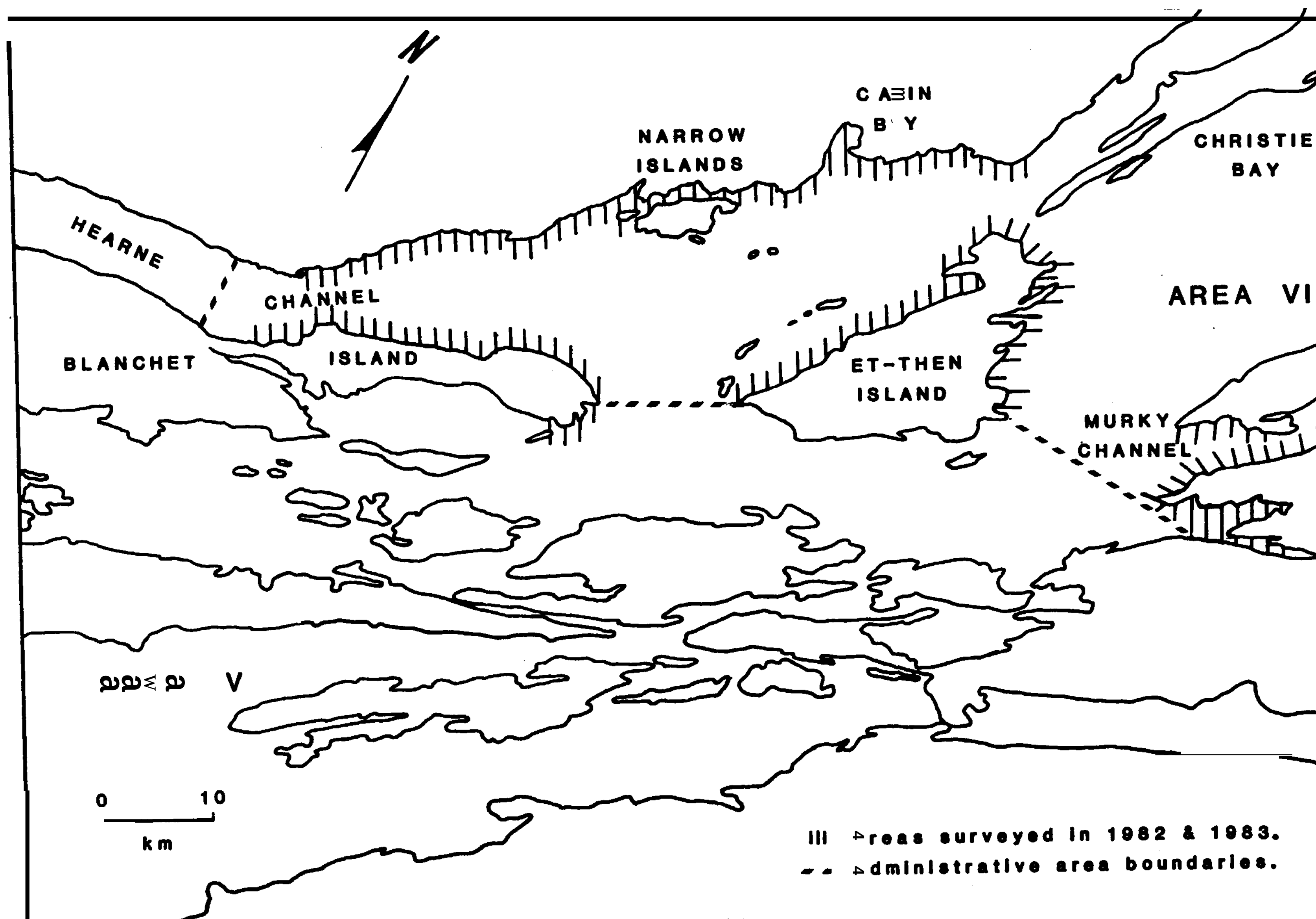


Figure 2. Map of the east arm of Great Slave Lake depicting the areas surveyed during the Great Slave Lake trap net study, 1982 and 1983.

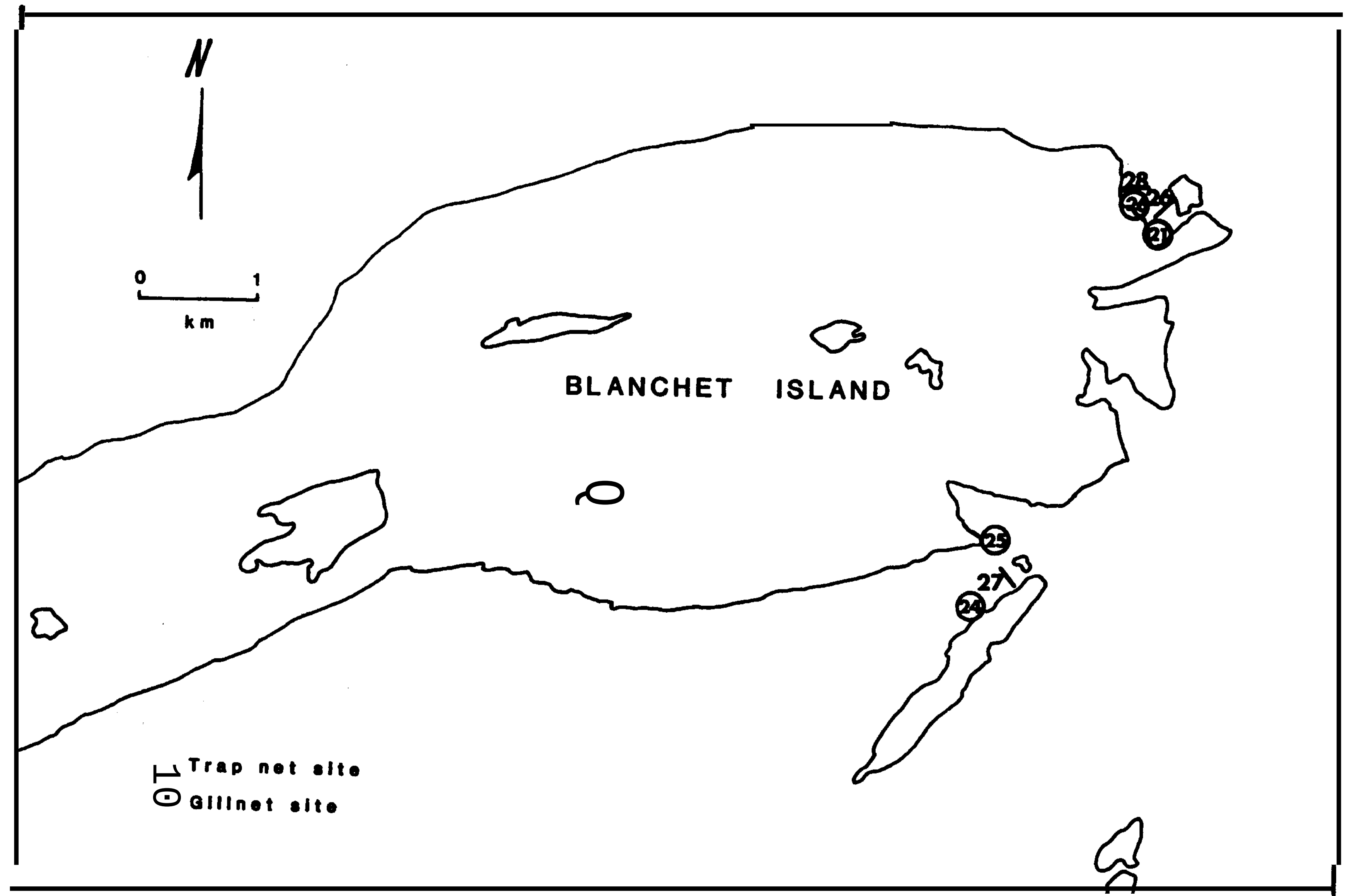


Figure 3. Map of the east arm of Great Slave Lake depicting the trap net and gillnet sites, Blanchet Island area, 1983.

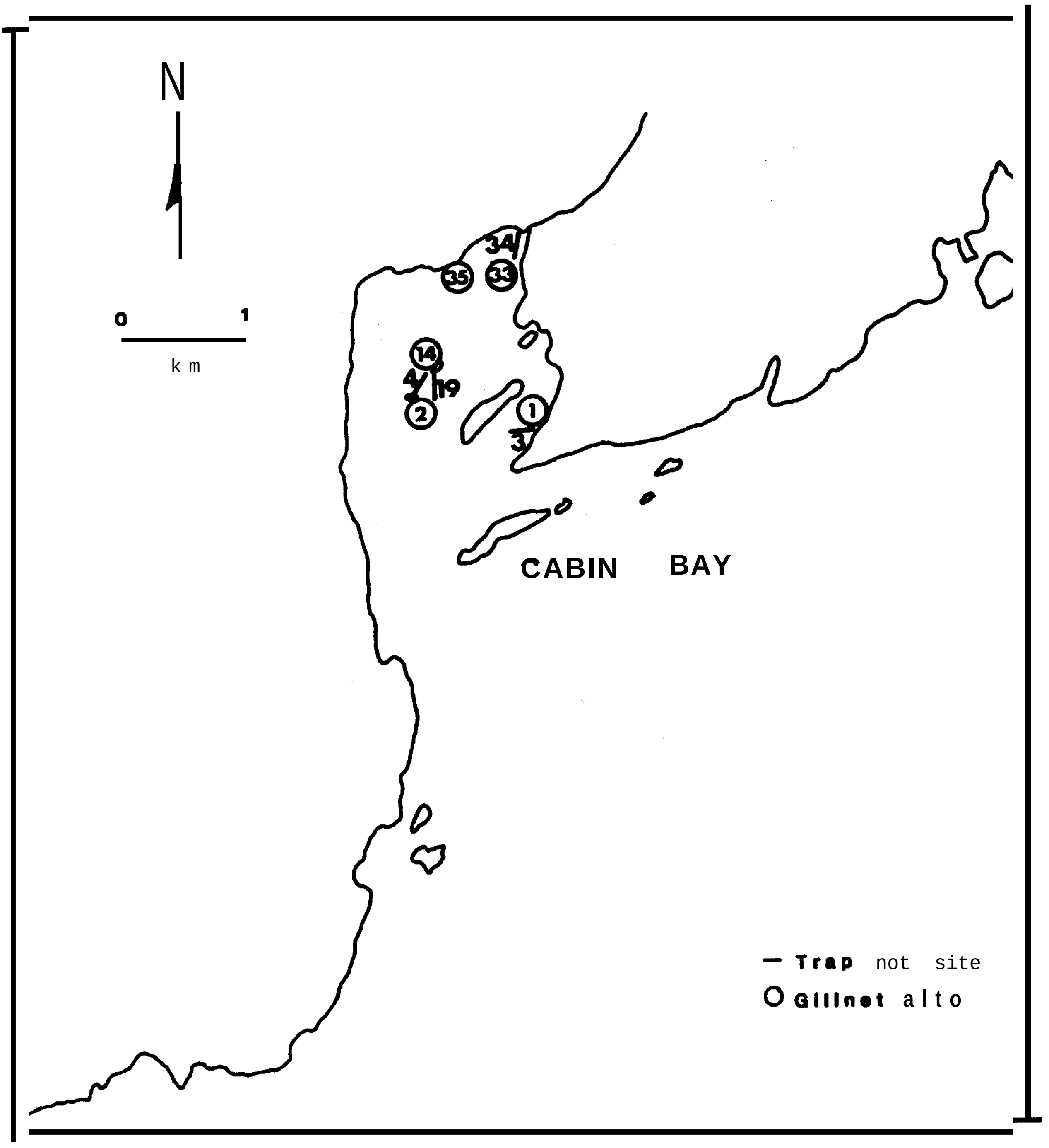


Figure 4. Map of the east arm of Great Slave Lake depicting the traP net and gillnet sites, Cabin Bay area, 1983.

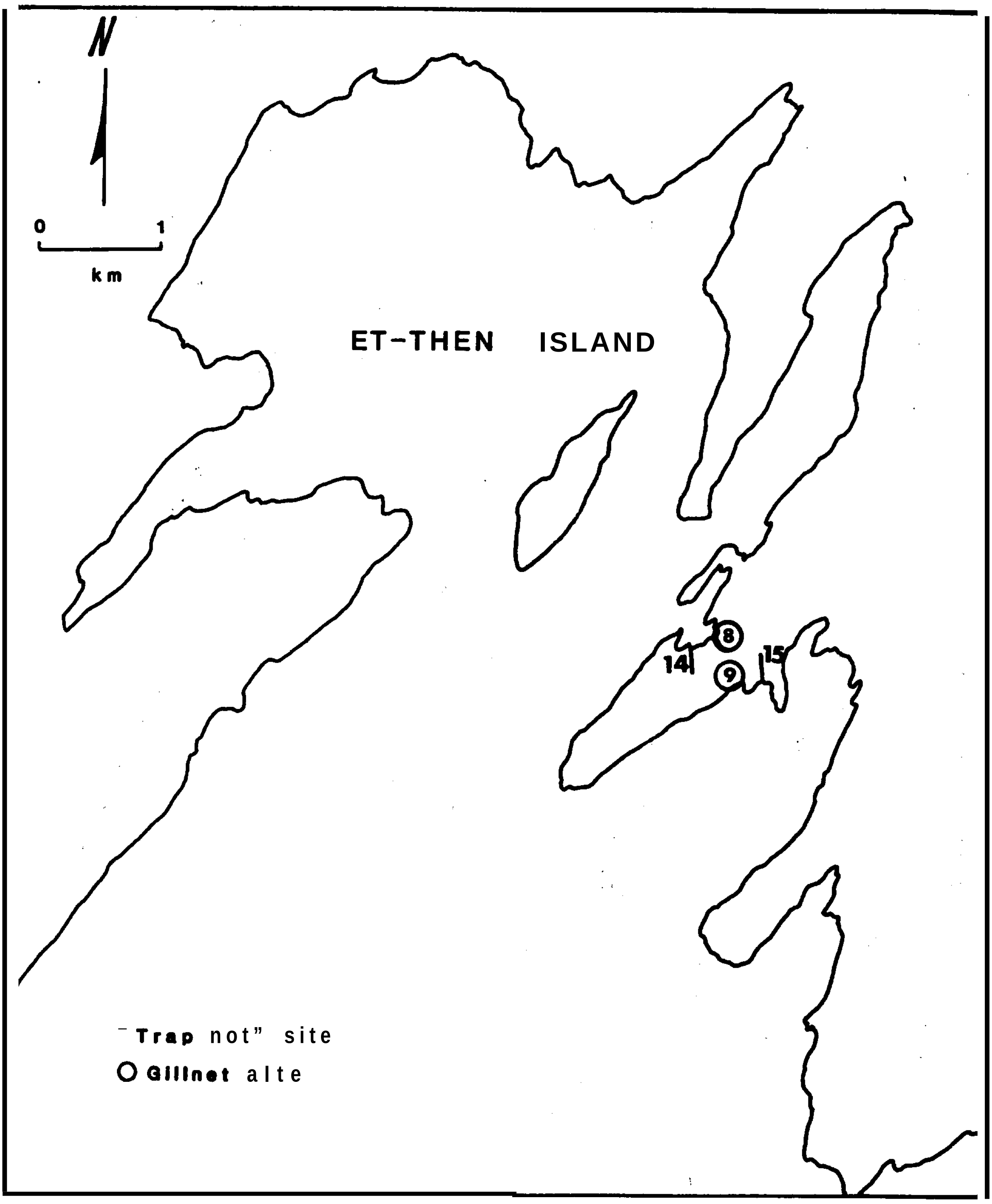


Figure 5. Map of the east arm of Great Slave Lake depicting the trap net and gillnet sites, Et-then Island area, 1983.

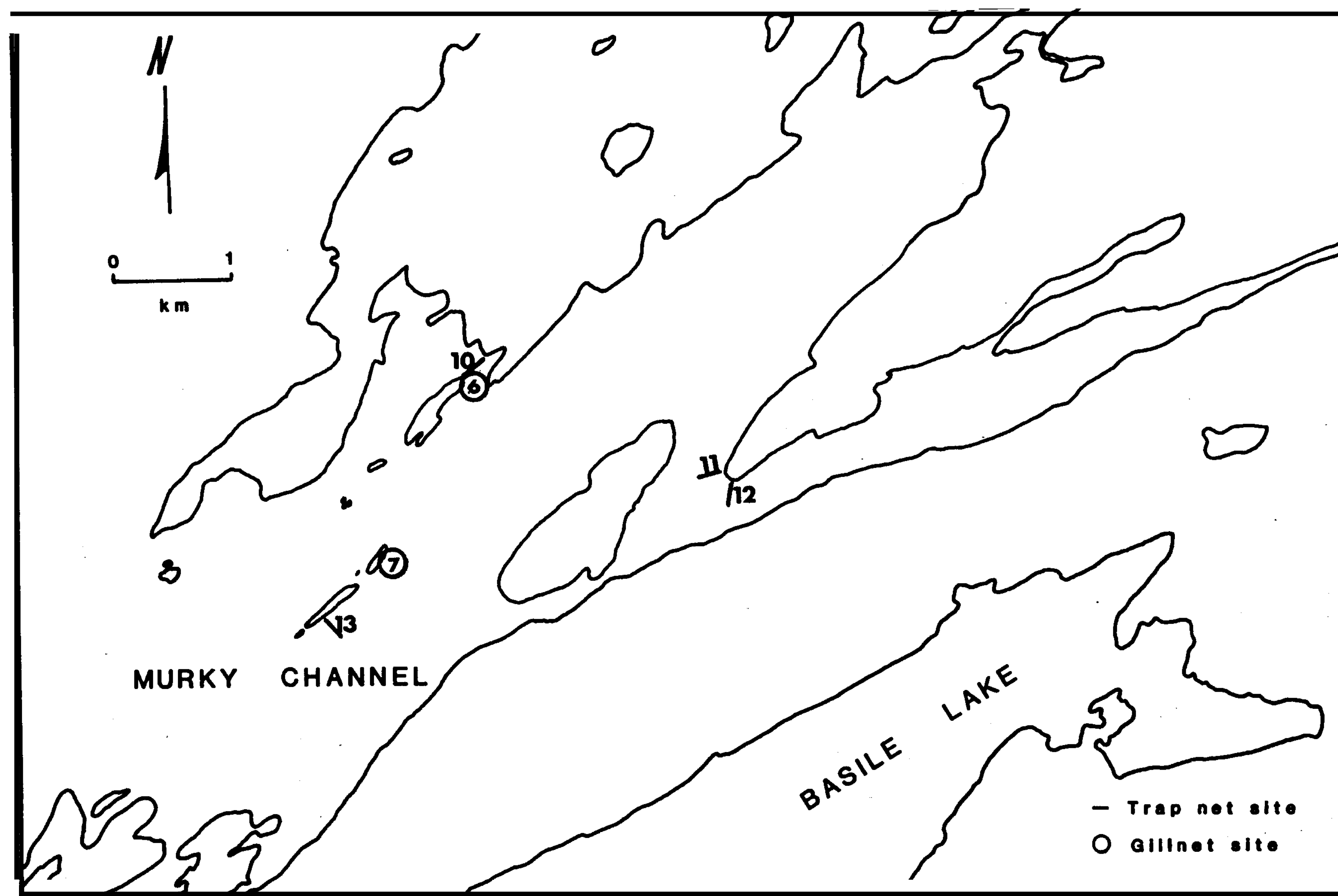


Figure 6. Map of the east arm of Great Slave Lake depicting the trap net and gi net sites, Murky Channel area, 1983.

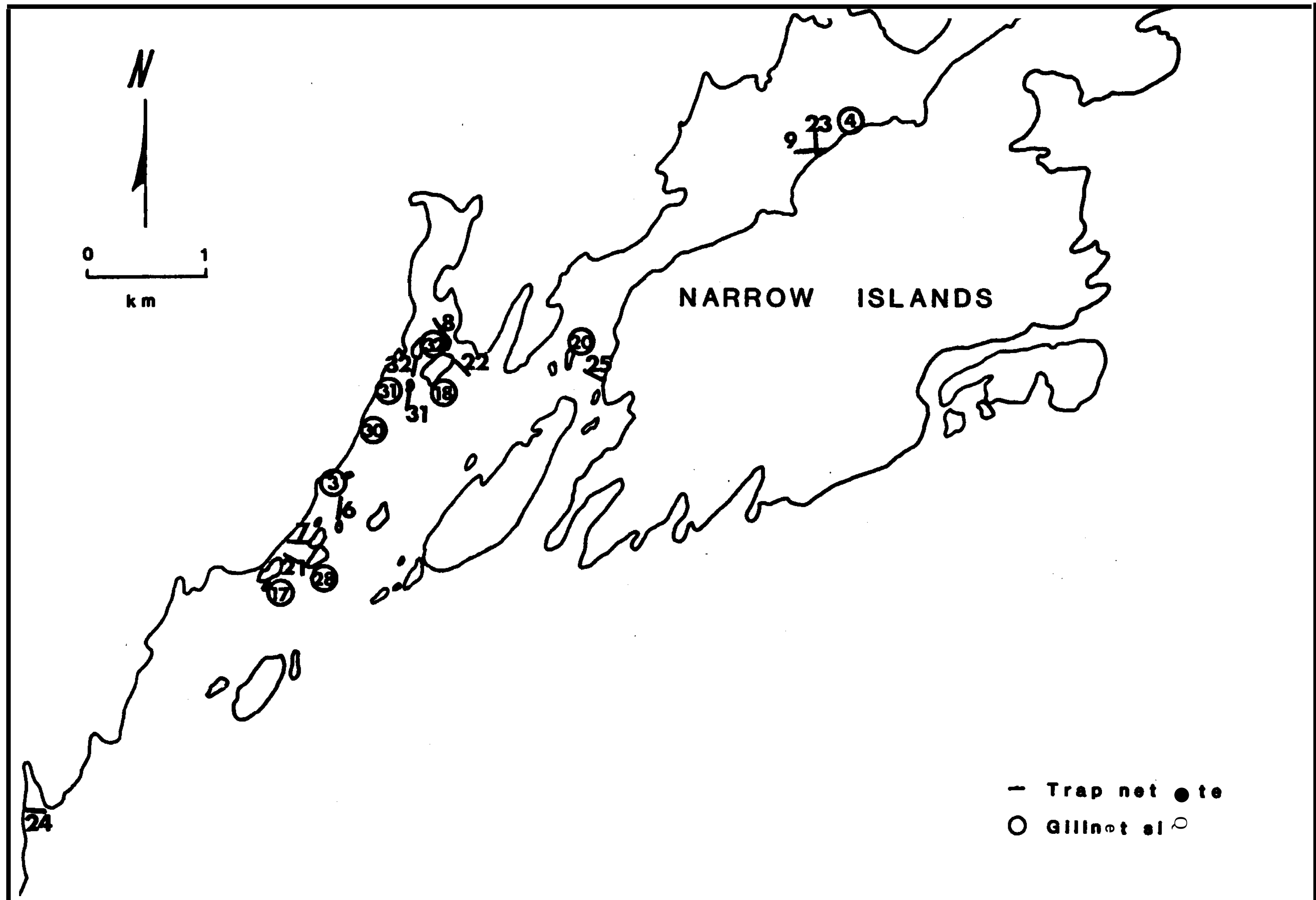


Figure 7. Map of the east arm of Great Slave Lake depicting the trap net and gillnet sites, Narrow Island area, 1983.

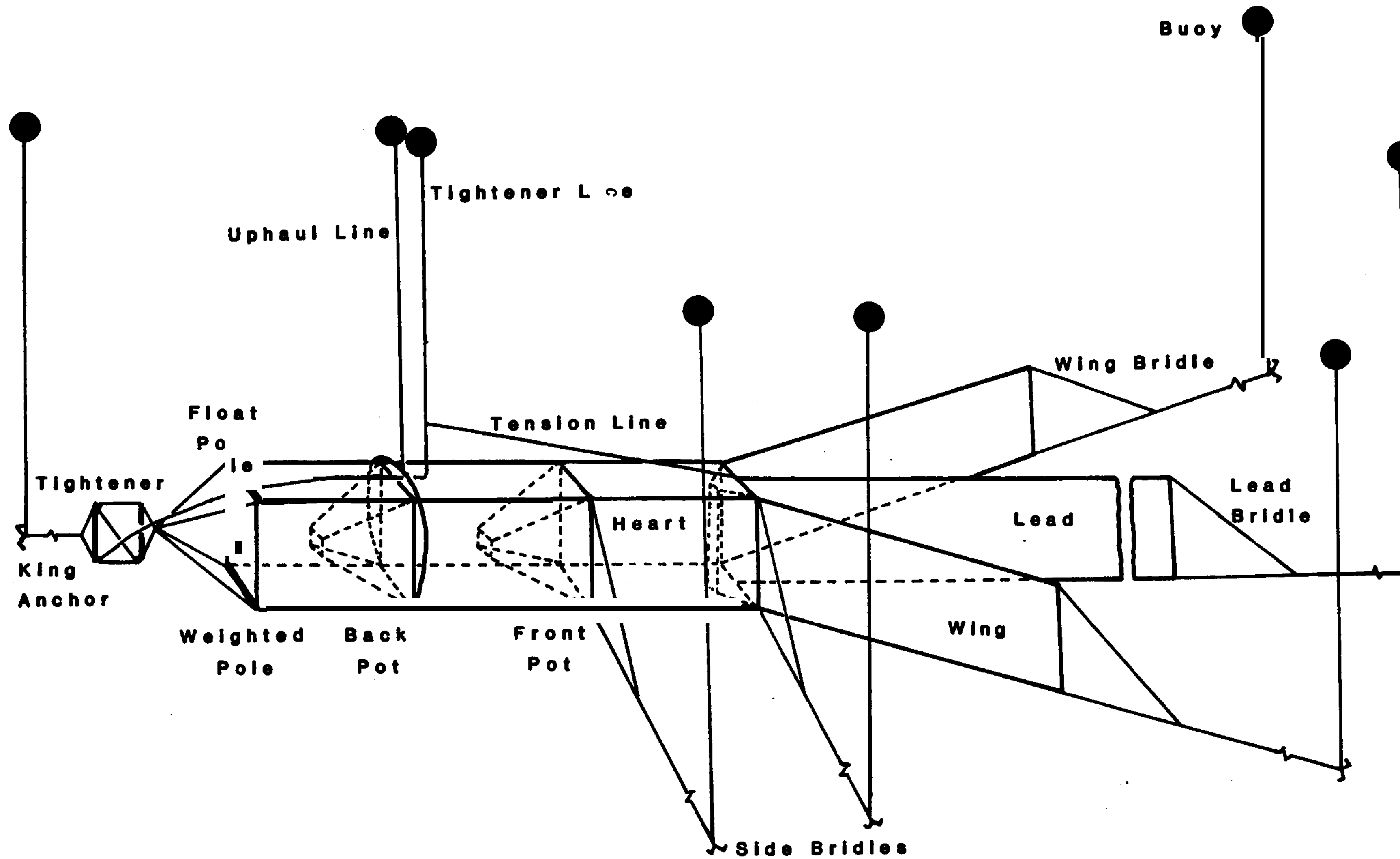


Figure 8. Diagram depicting a trap net in set position left side anchors not inl<ude⊂).

Appendix 1. Catch and effort data for fish caught by trap nets in the east arm of Great Slave Lake, 1983.

Site Number	Net Number-Lead Length (m)-and Mesh Size (cm)	Date and Time Set	Date and Time Lifted	Set Duration (hrs)	Depth at Pot (m)	Number of Fish Caught: Lake Whitefish	Lake Trout	Lake Cisco	Northern Pike	Burbot	Round Whitefish	Longnose Sucker	Arctic Grayling
1	1-69-20.3	July 12/14:00	July 13/09:00	19.0	3	19	3	1	-	-	-	-	1
2	2-153-20.3	July 14/11:30	July 15/07:30	20.0	6	1	-			-	-	-	1
3	2-153-20.3	July 15/19:30	July 16/08:00	12.5	7	4	-	-	-	-	-	-	1
3	2-153-20.3	July 16/09:30	July 17/11:00	25.5	7	2	1	-	-	-	1	-	1
4*	1-69-20.3	July 17/10:30	July 18/11:00	24.5	9			-	-	-	1	-	1
5	2-153-20.3	July 17/16:00	July 18/09:30	17.5	12	-	-	-	-	-	-	-	1
5	1-69-20.3	July 18/15:30	July 19/14:00	22.5	12	-	-	-	-			-	1
4†	3-76-20.3	July 19/12:30	July 20/15:00	26.5	9	4	-	1	-	-	1	-	1
6	1-69-20.3	July 20/12:30	July 21/11:30	23.0	7	-	-	-	-	-	-	-	1
7†	2-76-20.3	July 21/11:30	July 22/10:00	22.5	7	3	-	-	-	-	-	-	1,
6	1-69-20.3	July 21/12:00	July 22/10:30	22.5	7	-	-	3	-	-	-	-	
6	1-69-20.3	July 22/11:00	July 23/11:30	24.5	7	1	-	11		-	1	-	*
7†	2-76-20.3	July 22/10:30	July 23/10:00	23.5	7	2	-	-	-	-	-	-	*
8†	2-76-20.3	July 23/13:30	July 24/09:30	20.0	7	3	-	-	-	-	-	-	*
9	1-69-20.3	July 23/15:30	July 24/10:00	18.5	12	1	-	-	-	-	-	-	
8†	2-76-20.3	July 24/10:00	July 25/10:00	24.0	7	12	1	-	-	-	-	-	-
9	1-69-20.3	July 24/10:30	July 25/11:00	24.5	12	1	-	1	-	-	-	-	-
10	1-69-20.3	July 25/18:00	July 26/12:00	18.0	10	1	-	-	1	-	-	-	-
11†	2-76-20.3	July 26/12:00	July 27/10:30	22.5	18	-	-	-	1	-	-	-	-
10	1-69-20.3	July 26/12:30	July 27/08:30	20.0	10	1	-	1	-	1	-	-	-
12	1-69-20.3	July 27/10:30	July 28/08:00	21.5	5	3	-	-	-	-	-	-	-
13†	2-76-20.3	July 27/12:30	July 28/09:00	20.5	8	-	-	-	2	1	-	-	-
12	1-69-20.3	July 28/08:30	July 29/11:30	27.0	5	1	-	1	-	2	-	-	-
13†	2-76-20.3	July 28/09:30	July 29/09:30	24.0	8	11	3	3		1	-	-	-
14	1-69-20.3	July 29/15:00	July 30/15:00	24.0	8	-	-	-	-	-	-	-	-
14	1-69-20.3	July 30/11:30	July 31/10:30	23.0	8	-	-	-	-	-	-	-	-
15†	2-76-20.3	July 30/12:30	July 31/11:30	23.0	7	-	-	-	-	-	-	-	T’
14	1-69-20.3	July 31/11:00	Aug. 2/11:00	48.0	8	4	-	14	1	-	-	-	
15†	2-76-20.3	July 31/12:00	Aug. 2/12:30	48.5	7	-	1	-	4	-	-	-	
1	2-69-20.3	Aug. 17/12:30	Aug. 18/09:30	21.0	4	7	-	-	-	-	-	-	’l’”
17	1-153-20.3	Aug. 17/15:30	Aug. 18/09:00	17.5	9	1	-	-	-	-	-	-	
1	2-69-20.3	Aug. 18/10:00	Aug. 19/09:30	23.5	4	19	2	19	-	-	1	-	
17	1-153-20.3	Aug. 18/09:30	Aug. 19/11:00	25.5	9	-	-	15	-	-	-	-	-
1	2-46-3.8	Aug. 19/11:00	Aug. 20/09:00	22.0	4	7	3	515	1	-	-	-	-
5	1-153-20.3	Aug. 19/14:30	Aug. 20/10:30	20.0	13	-	-	1	-	-	-	-	-
1	2-46-3.8	Aug. 20/10:00	Aug. 21/10:00	24.0	4	7	2	243	-	-	1	-	-
5	1-153-20.3	Aug. 20/11:00	Aug. 21/11:00	24.0	13	-	-	-	-	-	-	-	-
19	2-69-20.8	Aug. 21/11:30	Aug. 22/09:30	22.0	11	-	-	-	-	-	-	-	-
5	1-153-20.8	Aug. 21/11:30	Aug. 22/10:00	22.5	13	-	-	1	-	-	-	-	-
19	2-69-20.3	Aug. 22/10:00	Aug. 23/10:00	24.0	11	-	-	-	-	-	-	-	-
5	1-153-20.3	Aug. 22/10:30	Aug. 23/09:30	23.0	13	-	-	2	-	-	-	-	
19	2-46-3.8	Aug. 23/10:30	Aug. 24/09:30	23.0	11	-	-	2	-	-	-	-	
5	1-153-20.3	Aug. 23/10:00	Aug. 24/10:30	24.5	13	-	2	-	-	-	-	-	-
6	1-153-20.3	Aug. 24/14:00	Aug. 25/11:00	21.0	8	1	-	-	-	-	-	-	-
21	2-69-20.3	Aug. 24/15:00	Aug. 25/10:00	19.0	6	-	-	-	-	-	-	-	-
21	2-69-20.3	Aug. 25/10:30	Aug. 26/13:30	27.0	6	7	1	-	-	-	1	-	-
6	1-153-20.3	Aug. 25/11:30	Aug. 26/10:30	23.0	8	3	-	3	-	-	1	-	-
22	1-153-20.3	Aug. 26/12:00	Aug. 27/11:00	23.0	5	-	-	-	-	-	-	-	-
21	2-46-3.8	Aug. 26/14:30	Aug. 27/10:30	20.0	6	3	-	1	-	-	-	1	-
21	2-46-3.8	Aug. 27/11:00	Aug. 28/11:30	24.5	6	2	-	20	1	-	2		
22	1-153-20.3	Aug. 27/11:30	Aug. 28/11:00	23.5	5	2	-	40	1	-	-	-	-
22	1-153-20.3	Aug. 28/11:30	Aug. 29/11:30	24.0	5	-	-	6	-	-	-	-	-

Appendix 1 Continued

Site Number	Net Number-Lead Length (m)-and Mesh Size (cm)	Date and Time Set	Date and Time Lifted	Set Duration (hrs)	Depth at Pot (m)	Number of Fish Caught: Lake Whitefish	Lake Trout	Lake Cisco	Northern Pike	Burbot	Round Whitefish	Longnose Sucker	Arctic Grayling
23	2-69-20.3	Aug. 28/13:00	Aug. 29/12:00	23.0	15	-	-	-	-	-	-	-	-
22	1-46-3.8	Aug. 29/11:30	Aug. 30/12:00	24.5	5	1	-	1	-	-	-	-	-
23	2-69-20.3	Aug. 29/12.30	Aug. 30/11:30	24.0	15	-	-	-	-	-	-	-	-
23	2-69-20.3	Aug. 30/11:30	Aug. 31/10:30	23.0	15	-	1	13	8	-	-	-	-
22	1-46-3.8	Aug. 30/12:00	Aug. 31/15:00	27.0	5	8	-	-	-	-	-	-	-
24	2-69-20.3	Aug. 31/14:00	Sept. 1/16:30	26.5	11	-	-	-	-	-	-	-	-
25	1-153-20.3	Aug. 31/17:00	Sept. 1/15:30	22.5	11	-	-	-	-	-	-	-	-
25	1-153-20.3	Sept. 1/16:00	Sept. 2/12:30	20.5	11	-		-	-	-	-	-	-
24	2-69-20.3	Sept. 1/17:00	Sept. 2/14:00	21.0	11	5	-	30	-	-	-	-	-
25	1-153-20.3	Sept. 2/13:00	Sept. 3/10:30	21.5	11			1	-	-	-	-	-
26	1-69-20.3	Sept. 5/13:30	Sept. 6/16:00	26.5	7	7	-	6	-	-	1	-	-
27	2-153-20.3	Sept. 6/15:30	Sept. 7/15:00	23.5	5	9	-	-	-	-	-	-	-
26	1-69-20.3	Sept. 6/16:30	Sept. 7/11:00	18.5	7	2	-	2	-	1	1	-	-
26	1-46-3.8	Sept. 7/12:00	Sept. 8/10:00	22.0	7	5	-	17	-	-	-	-	-
27	2-153-20.3	Sept. 7/15:30	Sept. 8/14:00	22.5	5	-	-	-	-	-	-	-	-
28	1-69-20.3	Sept. 8/12:00	Sept. 9/10:30	22.5	8	1	-	10	-	1	1	-	-
27	2-153-20.3	Sept. 8/14:30	Sept. 9/11:00	20.5	5	-	1	-	-	-	-	-	-
28	1-69-20.3	Sept. 9/11:00	Sept. 10/11:00	24.0	8	2	-	5	-	1	1	-	-
27	2-46-3.8	Sept. 9/12:00	Sept. 10/12:00	24.0	5	19	-	4	-	-	1	-	-
28	2-69-20.3	Sept. 10/11:30	Sept. 11/09:30	22.0	8	6	-	11	-	4	1	-	-
6	1-69-20.3	Sept. 13/13:30	Sept. 14/13:00	23.5	6	-	-			-	-	-	-
7	2-153-20.3	Sept. 13/15:30	Sept. 14/13:30	22.0	5	-	-	-	-	-	-	-	-
6	1-69-20.3	Sept. 14/13:30	Sept. 15/13:30	24.0	6	2	3	-	-	-	-	-	-
7	2-153-20.3	Sept. 14/14:00	Sept. 15/11:00	21.0	5	-	6	-	-	-	-	-	-
7	2-153-20.3	Sept. 15/11:30	Sept. 16/12:00	24.5	5	14	1	-	1	-	1	-	1
6	1-46-3.8	Sept. 15/15:00	Sept. 16/11:30	20.5	6	2	-	-	-	-	-	-	-
6	1-46-3.8	Sept. 16/12:00	Sept. 17/13:00	25.0	6	3	-	13	1	1	-	-	-
31	2-153-20.8	Sept. 16/13:30	Sept. 17/12:00	22.5	5	2	-	1	2	-	-	-	-
31	2-153-20.8	Sept. 17/12:30	Sept. 18/13:00	24.5	5	2	2	-	3	-	-	-	-
32	1-69-20.3	Sept. 17/15:30	Sept. 18/12:00	20.5	6	1	-	-	4	-	-	-	-
32	1-69-20.3	Sept. 18/13:00	Sept. 19/12:00	23.0	6	4	2	-	5	1	-	-	-
31	2-92-3.8	Sept. 18/14:00	Sept. 19/12:00	22.0	5	4	-	-	2	-	-	-	-
32	1-69-20.3	Sept. 19/12:30	Sept. 20/12:30	24.0	6	4	1	12	3	-	-	-	-
31	2-92-3.8	Sept. 19/12:30	Sept. 20/12:30	24.0	5	14	-	48	1	2	-	-	-
1	1-69-20.3	Sept. 21/12:00	Sept. 22/12:00	24.0	6	-	1	94	-	-	-	-	-
34	2-92-3.8	Sept. 21/14:30	Sept. 22/13:00	22.5	10	-	-	2	-	-	1	-	-
1	1-69-20.3	Sept. 22/12:00	Sept. 23/12:00	24.0	6	-	7	11	-			-	-
34	2-92-3.8	Sept. 22/13:00	Sept. 23/10:30	21.5	10	6	1	9	-	1	-	-	-
34	2-69-20.3	Sept. 23/13:00	Sept. 24/11:30	22.5	10	-	-	-	-	-	1	-	-
1	1-92-3.8	Sept. 23/14:00	Sept. 24/13:00	23.0	6	-	2	37	-	-	1	-	-
34	2-69-20.3	Sept. 24/11:30	Sept. 25/14:00	26.5	10	3	-	-	1	-	-	-	-
1	1-92-3.8	Sept. 24/13:00	Sept. 25/09:00	20.0	6	1	2	57	-	5	-	-	-
6	1-69-20.3	Sept. 26/12:00	Sept. 27/09:00	21.0	5	-	-	-	-	-	-	-	-
7	2-92-3.8	Sept. 26/14:00	Sept. 27/09:30	19.5	4	2	-	-	1	-	-	-	-
6	1-69-20.3	Sept. 27/09:30	Sept. 28/15:30	30.0	5	-	1	6	-	1	-	-	-
7	2-92-3.8	Sept. 27/09:30	Sept. 28/15:00	29.5	4	3	-	-	-	-	-	-	-
32	1-69-20.3	Sept. 28/18:00	Sept. 29/14:30	20.5	4	13	-	1	-	-	-	-	-
7	2-92-3.8	Sept. 28/15:30	Sept. 29/16:00	24.5	4	4	-	3	2	-	2		
32	1-69-20.3	Sept. 29/15:30	Sept. 30/12:00	20.5	4	18	-	-	-	-	-	1	-
32	1-92-3.8	Sept. 30/13:00	Oct. 1/16:30	27.5	4	7	-	3	1	3	1	-	-
32	1-92-3.8	Oct. 1/17:00	Oct. 2/11:30	18.5	4	16	-	13	-	2	-	-	-

*Unmodified trap #1.
†Lead length doubled.

Appendix 2 Catch and effort data for fish caught by gillnets in the east arm of Great Slave Lake, 1983.

Site Number*	Corresponding Trap Site	Date and Time Set	Date and Time Lifted	Set Duration (hrs)	Maximum Depth (m)	Number of Fish Caught: Lake Whitefish	Lake Trout	Tulibee	Longnose Sucker	Northern Pike	Round Whitefish	Arctic Grayling
G1	3	July 17/15:30	July 18/09:00	17.5	6	8	-	-	-	-	-	-
G2	4	July 20/16:30	July 21/08:30	16.0	7	7	-	-	-	-	-	-
G3	6	July 21/12:00	July 22/11:30	23.5	5	4	-	-	-	-	-	-
G4	9	July 23/16:00	July 24/10:30	18.5	20+	4	-	-	-	-	-	-
G5	9	July 24/11:00	July 25/11:30	24.5	20+	5	2	-	-	-	-	-
G6	10	July 27/14:00	July 28/09:30	19.5	8	3	1	-	-	-	-	-
G7	13	July 28/10:00	July 29/10:30	24.5	7	8	2	-	-	-	-	-
G8	14	July 30/11:30	July 31/11:00	23.5	7	2	2	-	-	-	-	-
G9	15	July 31/11:30	Aug. 2/12:00	24.5	8	4	4	-	-	2	-	-
G10	1	Aug. 16/20:00	Aug. 17/09:00	13.0	4	11	6	1	-	-	1	-
G11	17	Aug. 16/20:30	Aug. 17/09:30	13.0	4	14	17	1	-	-	-	-
G12	1	Aug. 18/10:00	Aug. 19/09:00	23.0	4	7	2	3	-	-	-	-
G13	5	Aug. 19/14:00	Aug. 20/10:00	20.0	12	2	2	-	-	-	-	1
G14	19	Aug. 21/10:30	Aug. 22/09:00	22.5	10	7	1	-	-	-	-	-
G15	5	Aug. 22/10:30	Aug. 23/09:00	22.5	13	2	8	-	-	-	-	-
G14	19	Aug. 23/22:00	Aug. 24/09:00	11.0	10	5	1	-	-	-	-	-
G3	20	Aug. 25/11:30	Aug. 26/10:30	23.0	7	4	1	-	1	-	-	-
G17	21	Aug. 25/12:00	Aug. 26/12:00	24.0	6	11	2	-	1	6	-	2
G18	22	Aug. 28/12:00	Aug. 29/10:30	22.5	5	10	2	-	-	3	-	-
G5	23	Aug. 30/12:00	Aug. 31/10:00	22.0	13	11	7	-	-	-	-	-
G20	25	Sept. 2/12:30	Sept. 3/10:00	21.5	11	14	14	-	2	2	-	-
G21	26	Sept. 6/17:30	Sept. 7/10:30	17.0	4	2	2	1	-	-	-	-
G22	26	Sept. 6/20:00	Sept. 7/09:00	13.0	16+	21	1	-	-	-	-	-
G23	26	Sept. 6/20:00	Sept. 7/09:00	13.0	18+							
G24	27	Sept. 7/16:00	Sept. 8/15:00	23.0	9	9			-	-	-	-
G25	27	Sept. 7/12:00	Sept. 7/21:00	9.0	5	4			-	-	-	-
G26	28	Sept. 9/10:00	Sept.10/10:30	24.5	6	2	1	-	-	-	-	-
G3	6	Sept.13/14:00	Sept.14/11:30	21.5	5	15	9	-	-	4	-	-
G28	7	Sept.14/11:00	Sept.15/10:30	23.5	7	9	31	-	-	-	-	-
G3	6	Sept.15/13:00	Sept.16/11:00	22.0	5	10	6	-	-	3	-	-
G30	31	Sept.16/13:30	Sept.17/11:30	22.0	9	16	3	-	-	2	-	-
G30	31	Sept.17/16:00	Sept.18/11:00	19.0	9	29	9	1	-	3	-	-
G31	32	Sept.18/14:30	Sept.19/11:30	21.0	10	32	1	-	-	7	-	-
G32	32	Sept.19/13:00	Sept.20/11:00	22.0	4	60	-	-	-	6	-	-
G33	34	Sept.21/14:00	Sept.22/10:00	20.0	15	2	22	-	-	-	-	-
G11	1	Sept.22/11:00	Sept.23/10:00	23.0	5	13	29	-	-	-	-	-
G35	34	Sept.23/13:00	Sept.24/09:30	20.5	15	2	8	-	-	1	-	-
G1	3	Sept.24/13.30	Sept.25/12:00	22.5	7	5	1	-	1	2	-	4
G32	32	Sept.26/14:00	Sept.27/08:00	18.0	4	100	-	-	1	-	-	-
G31	32	Sept.26/14:30	Sept.27/07:30	17.0	10	100	-	-	1	6	-	-
G31	32	Sept.29/15:30	Sept.30/11:00	19.5	7	64	-	-	-	2	-	-

* All sets originate at shore.

Appendix 3. A detailed description of the trap net operation.

The key to smooth setting of large trap nets seems to be in the preparation on deck. Organized arrangement and readiness prevents hurried operations while the trap net is being set. Tying off excess length, coiling and neat placement of ropes is essential to prevent tangles leading to problems such as sinking of buoys. For ease in identification of buoys and ropes, color coding may be used.

During this study, a 12 m long commercial fishing boat was used to carry and set trap nets and a 5.5 m skiff was used to set and tighten anchors once the trap net was in place. Other vessels such as small barges may be used instead.

Traps may be set lead first or pot first. During this study the method of setting depended largely upon wind direction at net site since sideways drift of the boat was necessary to pull the trap net off the side of the deck. Setting and lifting over the bow was not possible because of boat design. Both methods of setting and depth at site determined organization of the trap net on deck. The following outline includes details for surface, shallow and deep sets. "Lead first" setting is described first and in more detail than "pot first" setting because it may present more problems during setting. Figure 8 illustrates a trap net in set position including arrangement of tension, tightener and uphaul lines.

LEAD FIRST SETS

Loading and preparation procedures

Surface water set: Where the top of the trap will be at the water surface and therefore easily accessible:

- place anchors and buoys with attached lines in the skiff.
- place king anchor, with buoy attached, farthest **from** setting side of deck. **Coil** buoy line neatly and place beside anchor.
- attach king anchor lines to back bridle of tightener.
- place tightener, "in open position (see section on Tightener system), on deck in front of king anchor: back stud nearest king anchor, then the three ropes between pulleys coiled as one, then the front stud with free end of tightener line coiled and placed beside.
- tie front bridle of tightener to bridle at back pot of trap.
- pile net on deck with top Up keeping float and lead lines together.
- free end of tightener line is threaded under the uphaul line and through the tension line eye (Fig. 8). A buoy is then attached to prevent the tightener line from slipping back through the eye.
- uphaul and tension lines are coiled and placed on top of net where they should not become tangled while setting.
- tie front and back side bridles to float line of trap *net at* bridle origins to vrevent tangling during setting.
- attach back of lead to mouth of trap net and place lead on setting side of deck.
- again, to prevent tangling, tie wing bridles to the lead at the third float from the mouth.
- if starting from shore attach a length of rope to the free end of the lead to use in tying to shore.
- if starting in water attach an anchor **with** marker buoy.

Shallow water set: Where depth is less than length of side and wing bridles allowing them to reach the surface without lifting the trap net off the lake bottom. The loading and preparation procedure for a shallow water set is the same as that for a surface water set with the follwing changes:

- side and wing bridles are not tied to float lines of trap net and lead, and buoys are not placed in skiff.
- buoys, with lines, are attached to bridles, coiled, tied off according to depth 'of set and placed beside the trap net at the origin of the bridle. These must reach the surface when the trap net is dropped into the water.
- a small anchor is tied to each wing at the bridle and placed carefully, with the coiled buoy line, beside the wing. The small anchors will hold the wings in one place to prevent tangling or twisting and will be removed when the larger anchors are set.

Deep water set: **Where** bridles can not reach the surface without lifting of the trap net off the bottom. The loading and preparation procedure for a deep water set is the same as that for a shallow water set with the following changes:

- anchors are placed in the ski'ff without lines attached.
- anchor lines are tied to bridles, coiled and placed beside bridle origins with floats being attached to the free ends of the anchor lines.
- float lines without floats. are olaced in skiff.

Setting procedure

Surface water set: The following is the procedure used to set a trap net in shallow water:

- either tie the lead to shore or **drop** lead anchors in desired spot.
- as boat moves back from origin, lead is fed out.
- once lead is out, the mouth of the trap net will be pulled off deck. Feed trap net off deck as boat moves back.
- tightener, tension and uphaul lines will be out along with the trap net.
- after the trap net is out the tightener is fed out keeping the three pulley lines **separate** and preventing twists. The free end of the tightener line, attached forward to the tension loop, should be fed out *at* the side of the three lines.

- after back tension stud is out, king anchor line is fed out and the king anchor is dropped.
- once the trap net is in place anchors are attached from the skiff by means of the swig line (see section on Swig line).
- first untie one wing bridle from lead. Attach anchor line to bridle and float line to anchor. Set anchor and wing at 45 degrees from lead using swig line.
- untie second wing and set as above.
- front and back side anchors are set in similar fashion but anchor lines are perpendicular to net sides.
- pick up tightener and tension line floats and tighten trap net as described in section on tightener system.

Shallow water set: The setting procedure for a shallow water set is the same as that for a surface water set with the following changes:

- once the lead is wt and the mouth of the trap net is being pulled off the deck, the wings can be thrown over, being careful to prevent twists or have the small anchor become tangled in mesh.
- as the trap net is fed off the deck, the front and back side bridles or floats are thrown clear of the trap net.
- once the trap net is in place recover the float from one wing, remove the small anchor and float line from the bridle, attach the anchor line with the anchor to the bridle and the float line to the anchor. Set the anchor using swig line as described for a surface water set.
- repeat the above procedure for the opposite wing.
- front and back anchors are set similarly, excluding the small anchor. Before setting the anchors, be sure that the bridles come directly from the trap net without being tangled with other ropes.

Deep water set: The setting procedure for a deep water set is the same as that for a shallow water set with the followlng changes:

- the ropes attached to the bridles before trap net setting are anchor ropes. Buoys are attached directly to these.
- when setting the anchors the attached buoy is removed and tied to a buoy line. The anchor is tied to the anchor line and the buoy line to the anchor.
- setting continues as for the shallow water sets.

POT FIRST SETS

Loading and preparation procedure

Arrangement of the trap net on deck is the reverse of that for lead first sets with the lead on far side of deck and king anchor on the side over which the trap net is *to be* set.

Setting procedure: This is the reverse of lead first sets: setting king anchor, tighener, trap net and finally lead. There is less chance of problems with the wings than in lead first sets. Wings will go out from the origin at the mouth of the trap to the tips where anchors may be attached. As they are fed out twists may be undone and since the small anchors will go out after and away from the wing mesh there is less chance of entanglement. Wings will be almost in set position once the trap net is in place. All aspects of setting after the trap net *is* in place are the same as that described for the lead first sets.

SWIG LINE

- a line approximately 35 m long (longer for depths greater than 15 m) is threaded through a metal eye on a bridle at the back of the anchor (Appendix 3a).
- one end of this “swig line” is tied to the back of the skiff, the other Is “bitten” (wound) around some secure part of the skiff (e.g. an oarlock) to hold tension.
- the anchor line is fed out as the boat moves out slowly from the trap net.
- after the line is out the anchor and float are dropped.
- increasing to high speed, the skiff is driven on with the swig line quickly running out.
- once all swig line is out tension develops stretching the anchor line and pulling the anchor along the lake bottom.
- once the momentum of the skiff is stopped the bitten end of the swig line is released, pulled through the anchor loop and up to the skiff.
- this releases the anchor which digs into the bottom insnediately not allowing a recoil back toward the trap net as would occur if the anchor were released from the surface.

TIGHTENER SYSTEM

- two *spruce* studs (10 cm x 10 cm) each 1.2 m long formed the front and back studs of the tightener system (Appendix 3b).
- bridles were made from 3 m lengths of rope and attached to eye bolts on either end of the studs.
- two 7.6 cm steel tackle blocks were attached at ends of the back stud while an eye bolt and another tackle block were attached at ends of the front stud.
- approximately 120 m of 13 mm diameter rope was threaded through the pulley system and attached to the eye bolt.
- when in the open position the studs are spread about 25 m apart leaving about 40 m of rope at the free end to reach forward to the tension line.
- to tighten, the tightener line is pulled through the metal eye at the end of the tension line.
- the tightener studs are pulled together forcing the trap net backward stretching it back from the lead anchor.
- when no more tightener line can be pulled through the eye it is tied off on itself in front of the eye. A knot which can easily be released while under tension is reconsnended.
- excess tightener lines should be coiled and tied off leaving only enough for the buoy to reach the surface once the taut ropes sink.

CHECKING POT

- done similarly for all depths using a large boat.
- to lift at the side of the deck the boat is driven perpendicularly over the net so uphaul and tightener buoys are within reach (Appendix 3c).
- recover tightener and uphaul buoys.
- untie knot in tightener rope at tension eye allowing tightener line to feed through the eye loosening the tightener system. The tightener rope must remain threaded through the eye, therefore, if more slack is needed the tightener line should be extended in length.
- once loosened the tension/tightener line complex may be thrown back over or it may remain on deck. It is important that the lines remain free so the tightener line may feed through the tension eye to continue loosening as the trap net is lifted.
- the uphaul line is winched or pulled up until the back pot is against the side of the deck. It can then be tied to hold this position.
- the trap net is pulled in against the side of the deck, hand over hand up to the zipper (a cut in the trap net top which is laced shut). This should pocket the fish near the zipper.
- open the zipper to scoop the fish out with dip net. Before releasing trap net back to the water re-sew the zipper.
- to re-set, release trap net into the water and use skiff to tighten as described previously.

PULLING TRAP NET OUT

the trap net pot should be checked and trapped fish removed before the trap net is pulled back on deck.
the tightener system should be left loose after checking the pot.
remove the wing and side anchors using a skiff. If the set is in shallow water remove the anchors, with floats and anchor lines, at the bridles, but if the set is in deep water the anchor lines can be left on removing only the anchors and attached floats.
remve the lead anchor and line.

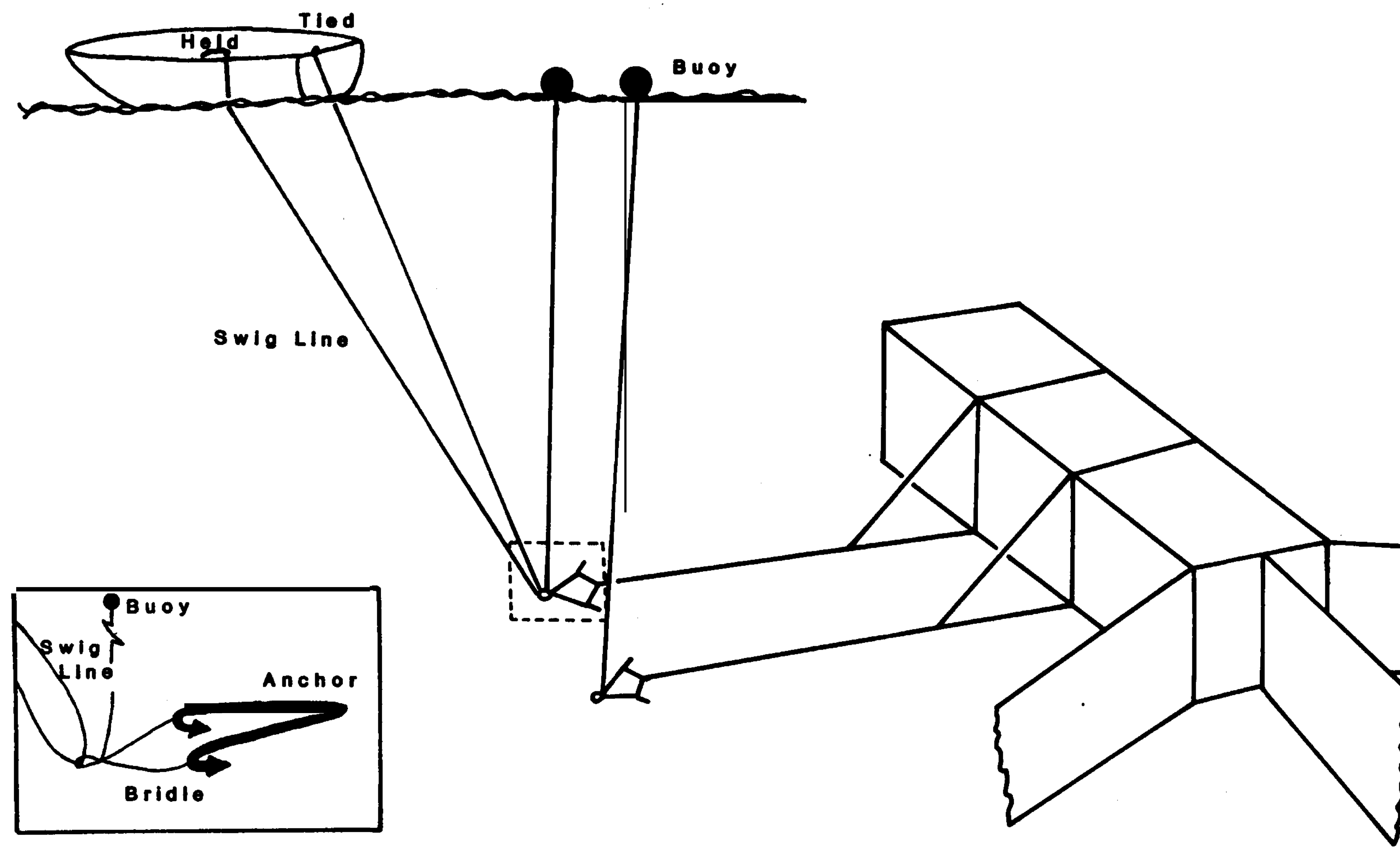
- a large boat is driven to the king anchor and held perpendicular to the trap net. On the setting (lifting) side of the deck the king anchor is then pulled up and placed against the opposite side.

pull the tightener system on board coiling the ropes as before when setting and place them in front of the king anchor.

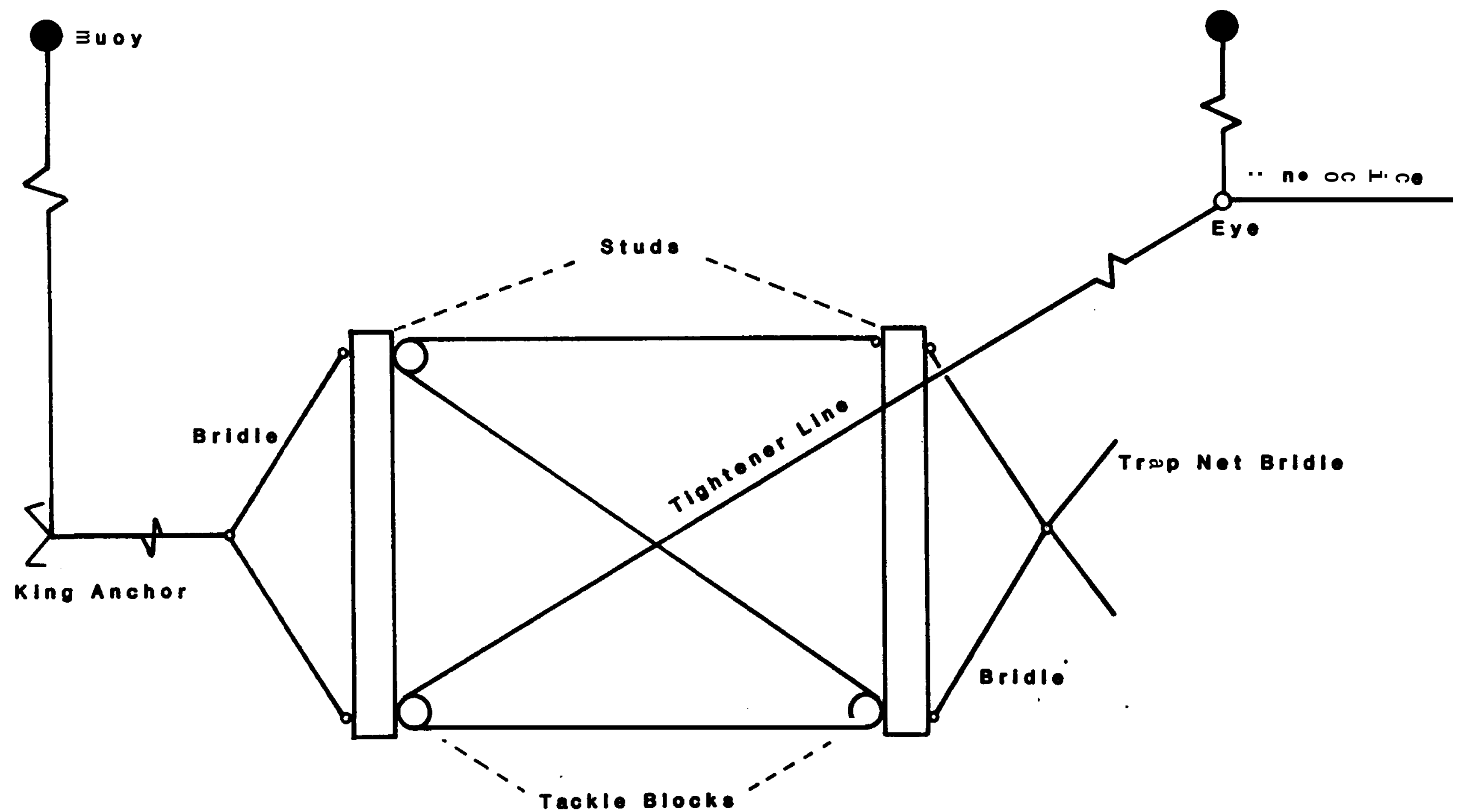
- depending upon wind and current direction and speed the boat may mve toward the trap net or vice versa as the trap net is dragged aboard.

once the trap net is reached it must be pulled onto the deck and placed against the tightener. As bridles are reached they should be coiled and placed at the sides of the trap net near their origins. Uphaul and tension lines should be coiled and placed on top of the trap net.

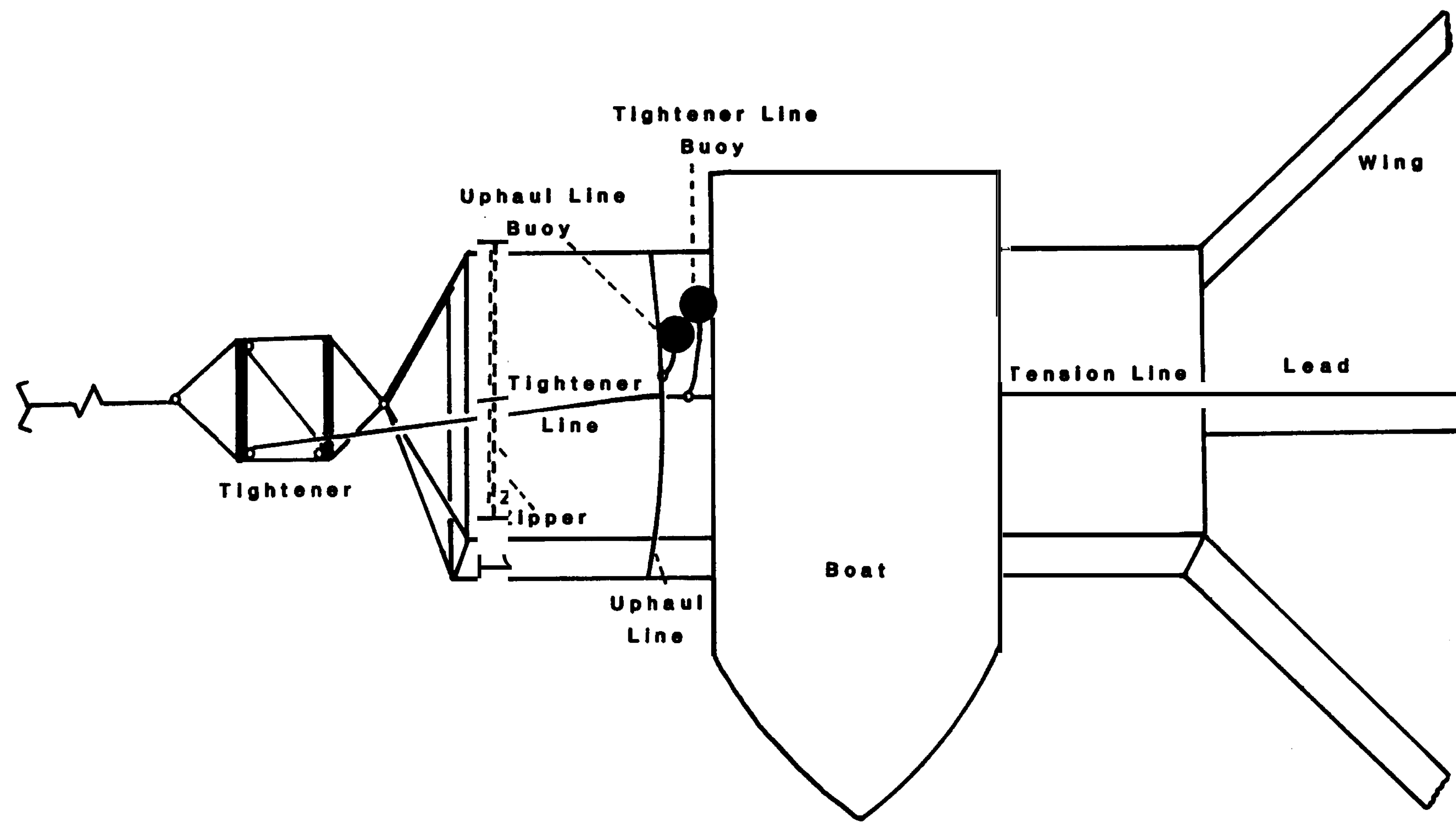
- finally Pull the lead on board piling it in front of the trap net and followed by anchor and float.



Appendi× 3a. Swig line m and operation for setting trap net anchors.



× 3b. Tightener arrangement for the trap net.



Appendix 3c. Orientation of the boat to the trap net for lifting the pot.

Appendix 4a. Dissolved oxygen $(mg \cdot L^{-1})$ profiles from traP net sites during the Great Slave Lake trap net study from 12 July to 31 July, 1983.

Depth (m)	1 July 12	2 July 14	3 July 15	4 July 17	5 July 16	6 July 20	7 July 20	8 July 22	9 July 21	10 July 26	11 & 12* July 26	13 July 27	14 July 30	15 July 31
	Site Number and Date													
0	13.0	11.0	13.0	13.0	13.0	11.0	15.0	13.0	11.0	11.0	11.0	12.0	13.0	11.0
1	13.0	12.0	12.0	13.0	13.0	12.0	14.0	12.0	11.0	11.0	11.0	12.0	12.0	11.2
2	13.0	13.0	12.0	13.0	13.0	12.0	13.0	12.0	10.II	12.0	11.0	12.0	12.0	11.2
3	13.0	13.0	12.0	13.0	13.0	12.0	13.0	12.0	10.0	12.0	11.0	12.0	12.0	11.4
4	13.0	13.0	12.0	13.0	13.0	12.0	13.0		10.0	12.0	11.0	12.0	12.0	11.5
5		13.0	12.0	13.0	13.0	12*O	13.0		10*O	12.0	12.0	12.0	12.0	11.5
6		13.0	12.0	13.0	13.0	12.0	12.0		10.0	12.0	12.0	12.0	12.0	11.5
7			12.0	13.0	13.0	12.0	12.0		10.0	12.0	12.0	12.0	12.0	12.3
8				13.0	13.0				10.0	12.0	12.0	11.0	12.0	
9				13.0	13.0				10.0	12.0	12.0		12.0	
10					13.0				10.0	12.0	12.0			
11					13.0									
12														
13														
14														
15														

*Oxygen profile covers both Sites 11 and 12 due to proximity of these sites.

Appendix 4b. Oissolved oxygen $(mg \cdot L^{-1})$ profiles from trap net sites during the Great Slave Lake trap net study from 17 August to 15 September, 1983

Oepth (m)	Aug. 17	17 Aug. 17	5 Aug. 19	19 Aug. 21	6 Aug. 25	21 Aug. 25	22 Aug. 28	23 Aug. 30	24 Sept. 1	25 Sept. 1	26 Sept. 6	27 Sept. 7	28 Sept. 10	6 Sept.15
	Site Number and Date													
o	13.0	11.0	13.0	13.0	13.0	11.0	15,0	13.0	11.0	11.0	11.0	12.0	13.0	11.0
1.	13.0	12.0	12.0	13.0	13.0	12.0	14.0	12.0	11.0	11.0	11.0	12.0	12.0	11.2
2	13.0	13.0	1200	13.0	13.0	12.0	13.0	12*O	10.0	12.0	11.0	12.0	12.0	11.2
3	13.0	13.0	12.0	13.0	13.0	12.0	13.0	12.0	10*O	12.0	11.0	12.0	12.0	11.4
4	13.0	13.0	12.0	13.0	13.0	12.0	13.0		10.0	12.0	11.0	12.0	12.0	11.5
5		13.0	12.0	13.0	13.0	12.0	13.0		10.0	12.0	12.0	12.0	12.0	11.5
6		13.0	12.0	13.0	13.0	12.0	12.0		10.0	12.0	12.0	12.0	12.0	11.5
7			12.0	13.0	13.0	12.0	12.0		10.0	12.0	12.0	12.0	12.0	12.3
8				13.0	13.0				10.0	12.0	12.0	11.0	12.0	
9				13.0	13.0				10.0	12.0	12.0		12.0	
10					13.0				10.0	12.0	12.0			
11					13.0									
12														
13														
14														
15														

Appendix 4c. Dissolved oxygen ($mg \cdot L^{-1}$) profiles from trap net sites during the Great Slave Lake trap net study from 15 September to 2 October, 1983.

Depth (m)	Site Number and Date								
	7 Sept. 15	31 Sept. 17	32 Sept. 18	1 Sept. 22	34 Sept. 22	6 Sept. 29	7 Sept. 29	32 Sept. 19	32 Oct. 2
0	10.6	11.4	11.1	11.0	10.7	11.7	11.5	12.4	12.2
1	10.7	11.2	11.1	11.1	10.6	11.3	11.2	12.4	12.1
2	10.8	11.2	11.0	11.1	10.6	11.1	11.1	12.3	12.1
3	10.8	11.1	10.9	11.2	10.7	11.1	11.1	12.4	12.1
4	10.8	11.0	10.9	11.2	10.7	11.2	11.2	12.2	12.1
5	10.8	11.2	10.8	11.2	10.8	10.6			
6			10.6	11.3	10.8				
7					10.8				
8					10.8				
9					10.8				
10					10.8				
11									
12									
13									
14									
15									

Appendix 5a. Temperature ("C) profiles from trap net sites during the *Great Slave* Lake trap net study from 12 July to 31 July, 1983.

Depth (m)	Site Number and Date													
	1 July 12	2 July 14	3 July 15	4 July 17	5 July 16	6 July 20	7 July 20	8 July 22	9 July 21	10 July 26	11 & 12* July 26	13 July 27	14 July 30	15 July 31
0	9.0	9.5	7.0	7.5	8.0	10.6	9.6	12.6	9.0	16.5	15.5	11.2	14.1	14.6
1	8.8	9.4	7.0	7.5	7.6	9.4	9.6	12.5	8.8	15.4	14.9	11.0	14.0	14.4
2	8.5	8.5	6.9	7.4	7.8	9.4	8.9	10.0	8.7	15.1	14.4	10.8	13.9	14.4
3	8.3	7.8	6.8	7.2	7.2	8.4	8.4	9.8	8.7	14.5	12.5	in.5	13.7	14.2
4	8.3	7.5	6.6	7.0	7.0	8.1	8.0		8.7	10.0	10.4	9.5	13.4	14.2
5		7.2	6.5	7.0	6.7	7.7	7.4		8.5	8.2	9.1	8.6	12.6	14.0
6		7.2	6.5	7.0	6.5	7.6	6.9		8.4	8.0	7.0	7.8	12.4	13.9
7			6.5	6.8	6.4	7.6	6.7		8.4	8.0	6.6	7.5	12.0	13.1
8				6.7	6.4				8.2	7.8	6.6	7.5	11.0	
9				6.7	6.3				7.8	7.8	6.6			
10					6.2				7.7	7.6				
11					6.2									
12					6.1									
13														
14														
15														

● Temperature profile covers both Sites 11 and 12 due to proximity of these sites.

Appendix 5b. Temperature ("C) profiles from trap net sites during the Great Slave Lake trap net study from 17 August to 15 September, 1983.

Oepth (m)	Site Number and Date													
	1 Aug. 17	17 Aug. 17	5 Aug. 19	19 Aug. 21	6 Aug. 25	21 Aug. 25	22 Aug. 28	23 Aug. 30	24 Sept. 1	25 Sept. 1	26 Sept. 6	27 Sept. 7	28 Sept. 10	6 Sept.15
o	12.0	12*1	12.1	1 2 . 0	12.6	12.6	12.2	12.0	12.9	12.7	12.0	12.5	11.8	11.1
1	12.1	12.0	12.0	1109	12.6	12.6	12.1	12.0	12.8	12.6	1108	12.4	11.8	11.0
2	12.1	12.0	12.0	12.0	12.3	12.2	12.1	12.0	12.7	12.6	11.7	12.3	11.8	11.0
3	12.1	12.0	12.1	11.9	12.0	11.3	12.0	11.8	12.6	12.6	11.7	12.2	11.8	11.0
	12.1	12.0	12.0	11*9	11.6	11.5	12.0	11.7	12.6	12.5	11.7	12.0	11.8	11.0
:		12.0	12.0	11.9	11.5	11.3	12*O	11.5	12.6	12.4	11.7	12.0	11.8	11.0
6		11.9	12.0	11.9	11.2	1101		11.4	12.s	12.2	11.5		11.8	11.0
7		11.9	11.8	11.8	11.1			11.3	12.5	12.1	11.5		11.9	11.0
8		11.11	11.6	11.6				11.3	12.5	12.1	11.5		11.8	
9		11.9	11.4	11.4				11.3	12.2	12.0			11.8	
in			11.4	11.2				11.2	12.2	11.8				
11			11.2	10.8				11.1	12.1	11.5				
12								11.0						
13								in.8						
14								10.5						
15														

Appendix 5c. Temperature (°C) profiles from trap net sites during the Great Slave Lake trap net study from 15 September to 2 October, 1983.

	Site Number and Date								
Depth (m)	7 Sept. 15	31 Sept. 17	32 Sept. 18	1 Sept. 22	34 Sept. 22	6 Sept. 29	7 Sept. 29	32 Sept. 19	32 Oct. 2
0	11.2	9.3	9.1	10.0	9.7	6.8	6.5	6.6	5.8
1	11.1	9.4	9.2	9.6	9.6	6.9	6.5	6.6	5.7
2	11.1	9.4	9.2	9.5	9.5	6.9	6.5	6.6	5.7
3	11.1	9.4	9.2	9.5	9.5	6.9	6.5	6.6	5.7
4	11.0	9.4	9.1	9.5	9.5	6.9	6.5	6.7	5.7
5	11.0	9.4	9.1	9.5	9.4	6.9			
6			8.0	9.5	9.4				
7					9.4				
8					9.4				
9					9.4				
10					9.4				
11									
12									
13									
14									
15									

Appendix 6. Secchi disk measurements from trap net sites during the Great Slave Lake trap net study, 1983.

Area	Site Number	Pate	Secchi Disk Reading (m)
Narrow Islands	6	Sept. 15	3.5
	7	Sept. 15	4.0
	31	Sept. 17	3.0
	32	Sept. 18	3.0
Cabin Ray	1	Sept. 22	4.9
	34	Sept. 22	5.0
Narrow Islands	6 "	Sept. 29	4.0
	7	Sept. 29	3.0
	32	Sept. 29	3.0
	32	Oct. 2	2.5

Appendix 7. Biological data by **length** interval for laka **whitefish** caught in the **Blanchet** Island **area,east** arm of Great Slave Lake. 19a3.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINEO					
		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%
	N	MEAN	MEAN	SO	K	MAT	N	MEAN	MEAN	SO	K	MAT	N	MEAN	MEAN	SD	K	MAT
280	3	287	283	29	1.20	0	2	287	250	0	1.06	0	5	287	270	27	1.14	0
290	1	293	300		1.19	0	-						2	296	300		1.19	0
300	3	303	300	0	1.08	0	-						3	303	300	0	1.08	0
310	1	319	350		1.08	0	-						1	319	350		1.08	0
320	2	324	375	35	1.10	0	2	324	400	0	1.18	0	4	324	388	25	1.14	0
330	-						2	337	450	0	1.18	0	3	335	450	0	1.18	0
340	1	349	600		1.41	0	-						2	349	550	71	1.30	0
350	-						3	356	583	29	1.29	0	3	356	563	29	1.29	0
360	1	361	600		1.28	0	-						1	361	600		1.28	0
370	2	375	650	71	1.23	0	5	373	690	42	1.33	0	7	373	679	49	1.30	0
360	5	385	760	160	1.33	0	4	365	775	50	1.37	0	9	385	767	117	1.35	0
390	3	393	B33	76	1.37	0	.3	393	783	58	1.29	0	6	393	808	66	1.33	0
400	2	403	750	0	1.15	0	1	406	900		1.34	0	3	404	800	87	1.22	0
410	2	415	1025	35	1.44	0	4	412	1063	25	1.52	0	6	413	1050	32	1.49	0
420	1	421	1100		1.47	0	4	426	1125	29	1.45	50	7	425	1120	27	1.46	40
430	1	435	1150		1.40	0	3	430	1117	15	1.40	33	4	431	1125	96	1.40	25
440	2	446	1150	71	1.30	50	3	446	1367	58	1.5"4	00	6	446	1280	130	1.44	80
450	1	450	1200		1.32	0	2	454	1375	06	1.47	50	3	453	1317	126	1.42	33
470	-												1	470				
480	-						1	483	la50		1.64	00	1	483	1850		1.64	100
490	-												1	496				
TOTAL	31						39						78					
MEAN		369	685	313	1.26			393	BB6	359	1.37			385	793	351	1.32	

Appendix 8. Biological data by length interval for lake whitefish caught in the Cabin Bay area, east arm of Great Slave Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%
	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT
330	1	335	550	-	1.46	0	-	-	-	-	-	-	1	335	550	-	1.46	0
350	2	355	625	35	1.40	50	2	357	650	71	1.43	0	4	356	638	48	1.42	25
360	-	-	-	-	-	-	-	-	-	-	-	-	1	368	700	-	1.40	100
370	1	373	700	-	1.35	0	4	372	663	48	1.29	0	5	372	670	45	1.30	0
380	2	386	775	35	1.35	50	4	384	728	32	1.29	0	6	385	743	38	1.31	17
390	4	393	800	41	1.32	0	6	396	808	74	1.31	33	11	394	809	58	1.32	27
400	5	405	893	86	1.35	20	3	404	933	126	1.41	0	8	405	908	96	1.37	13
410	5	414	958	83	1.35	40	5	413	1035	82	1.47	40	10	414	997	88	1.41	40
420	2	426	1125	35	1.46	50	11	426	1171	240	1.51	45	13	426	1164	220	1.51	46
430	4	435	1143	64	1.39	50	7	433	1161	110	1.43	43	17	434	1155	93	1.42	45
440	9	444	1259	109	1.44	44	11	445	1263	104	1.43	45	22	445	1261	104	1.43	45
450	3	456	1290	115	1.36	67	8	454	1346	157	1.44	63	12	455	1331	143	1.42	64
460	4	463	1488	26	1.50	100	4	465	1498	55	1.49	50	11	465	1460	105	1.46	78
470	6	475	1439	151	1.34	100	7	473	1592	134	1.51	71	15	474	1522	157	1.43	85
480	2	487	1585	78	1.38	50	4	483	1753	137	1.56	75	6	484	1697	141	1.50	67
490	3	492	1623	357	1.37	00	5	493	1659	300	1.38	100	9	493	1646	297	1.38	100
500	1	507	2000	-	1.53	[illegible]00	2	505	1920	325	1.49	100	3	506	1947	235	1.50	100
510	1	512	2060	-	1.53	00	-	-	-	-	-	-	1	512	2060	-	1.53	100
520	-	-	-	-	-	-	2	522	2055	134	1.45	100	2	522	2055	134	1.45	100
530	2	537	2185	21	1.42	[illegible]00	-	-	-	-	-	-	2	537	2185	21	1.42	100
550	-	-	-	-	-	-	1	555	1410	-	0.82	100	1	555	1410	-	0.82	100
560	1	565	1500	-	[illegible].83	0	-	-	-	-	-	-	1	565	1500	-	0.83	0
590	-	-	-	-	-	-	1	597	3450	-	1.62	100	1	597	3450	-	1.62	100
630	-	-	-	-	-	-	-	-	-	-	-	-	1	634	-	-		
640	1	642	4350	-	[illegible]	00	-	-	-	-	-	-	1	642	4350	-	[illegible]	[illegible]
650	-	-	-	-	-	-	-	-	-	-	-	-	1	655	4350	-	[illegible]	[illegible]
830	-	-	-	-	-	-	1	833	650	-	0.11	0	1	833	650	-	[illegible]	[illegible]
940	-	-					1	[illegible]	[illegible]	-	[illegible]	[illegible]	1	947	1200	-	[illegible]	[illegible]
TOTAL	59						[illegible]9						167					
MEAN		445	1 78	561	1.39			452	1264	441	1.40			451	1283	548	.40	

Appendix 9. Biological data by length interval for Iaka whitefiah **caught** in the Et-than **Island** area,eaat arm of Graat Slave Lake, 1983.

LENGTH INTERVAL (MM)	MALES N	MALES LENGTH(MM) MEAN	MALES WEIGHT(GL MEAN	MALES WEIGHT(GL SD	MALES K	MALES n MAT	FEMALES N	FEMALES LENGTti(MM) MEAN	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
400	1	401	B50	-	1.32	0	-		--		-		1	401	B50	-	1.32	0
420	1	428	1230	-	1.57	100	-		--		-		1	428	1230	-	1.57	100
440	1	447	1450	-	1.62	100	-		--		-		2	444	1375	106	1.57	100
450	-		--		-		1	455	1450	-	1.54	100	1	455	1450	-	1.54	100
460	1	466	1510	-	1.49	0	-		--		-		1	466	1510	-	1.49	0
470	1	470	1450	-	1.40	100	1	475	1560	-	1.46	100	2	473	1505	78	1.43	100
490	-		--		-	-	1	496	1950	-	1.60	100	1	496	1950	-	1.60	100
500	1	505	1940	-	1.51	0	-		--		-		1·	505	1940	-	1.51	0
TOTAL	6						3						10					
MEAN		453	1405	356	1.46			475	1653	263	1.53			456	1469	322	1.50	

Appendix 10. Biological data by **length** interval for Iaka **whitefish** caught in tha **Murky** Channal araa,aaat arm of Graat Slave Laka, 1983.

LENGTH INTERVAL (MM)	MALES N	MALES LENGTH(MM) MEAN	MALES WEIGHT(GL MEAN	MALES WEIGHT(GL SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
100	-		--		-		1	100	228	-	22.8	o	1	100	228		22.8	0
260	1	267	230	-	1.21	0	1	264	210	-	1.14	100	2	266	220	14	1.17	50
270	1	275	270	-	1.30	0	-		--		-		1	275	270		1.30	0
340	-		--		-		1	346	500	-	1.21	0	1	346	500		1.21	0
370	2	374	705	49	1.35	0	1	376	700	-	1.30	0	3	375	703	35	1.33	0
360	-		--		-		1	385	960	-	1.66	100	1	385	960		1.68	100
390	1	393	930	-	1.53	100	-		--		-		2	394	915	21	1.50	100
400	3	403	933	75	1.42	67	-		--		-		3	403	933	75	1.42	67
410	1	415	950	-	1.33	0	1	414	1070	-	1.51	100	2	415	1010	85	1.42	50
420	4	424	1073	106	1.41	75	1	427	1150	-	1.48	100	6	424	1096	92	1.44	a3
430	-		--		-		1	43B	1260	-	1.50	100	1	438	1260		1.50	100
440	-		--		-		1	440	1150	-	1.35	100	1	440	1150		1.35	100
450	2	456	1365	163	1.45	100	-		--		-		2	458	13B5	163	1.45	100
460	-		--		-		1	460	1400	-	1.44	100	1	460	1400		1.44	100
TOTAL	15						10						27					
MEAN		394	910	337	1.39			385	863	426	3.54			385	901	357	2.20	

Appendix 11. Biological data by length interval for lake whitefish caught in the Narrow Islands area, east arm of Great Slave Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%
	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT
180	-	-	-	-	-	-	-	-	-	-	-	-	1	188	100	-	1.50	0
290	-	-	-	-	-	-	-	-	-	-	-	-	1	297	250	-	0.95	100
300	1	309	500	-	.39	0	-	-	-	-	-	-	1	309	500	-	1.69	0
320	-	-	-	-	-	-	-	-	-	-	-	-	1	326	400	-	1.15	100
340	2	343	550	71	.37	0	1	348	600	-	.42	0	3	344	567	58	1.39	0
350	3	354	633	176	.44	0	3	351	567	29	.31	0	6	352	600	118	1.38	0
360	-	-	-	-	-	-	2	363	650	71	.37	0	2	363	650	71	1.37	0
370	3	375	667	58	.26	0	5	373	690	55	.33	20	8	374	681	53	1.30	13
380	1	382	780	-	.40	0	4	386	738	48	.29	0	5	385	746	46	1.31	0
390	9	393	1789	2892	.98	0	4	392	868	165	.44	25	13	393	1505	2404	2.51	8
400	5	405	960	89	.44	60	2	402	975	177	.50	20	7	404	964	103	1.46	71
410	7	415	1007	93	.41	43	8	415	1066	122	.48	03	15	415	1038	110	1.45	67
420	13	424	1075	84	.40	85	0	425	1070	86	.40	80	24	424	1073	83	1.40	74
430	20	435	1124	116	.37	90	1	434	1102	104	.35	62	38	434	1116	111	1.36	88
440	25	444	1233	82	.41	80	8	445	1323	119	.50	82	52	444	1279	110	1.46	77
450	46	454	1284	91	.38	91	8	453	1378	207	.48	79	74	454	1315	146	1.41	91
460	22	465	1386	145	.38	00	6	464	1398	141	.41	84	49	464	1392	141	1.39	97
470	24	475	1471	106	.37	96	5	475	1468	125	.37	90	44	475	1470	112	1.37	98
480	8	483	1507	143	.34	88	2	485	1583	116	.39	02	25	484	1553	128	1.37	90
490	13	495	1626	148	.34	00	9	494	1622	266	.35	90	26	495	1624	206	1.34	100
500	14	505	1765	204	.37	86	0	505	1771	214	.38	00	29	505	1768	204	1.37	92
510	8	512	1810	42	.34	00	8	512	1820	179	.35	00	25	513	1816	139	1.35	100
520	9	522	1890	276	.33	00	1	525	2250	-	1.55	00	14	523	1941	287	1.36	100
530	5	535	2100	91	.37	00	2	533	2050	141	1.36	00	11	535	2083	98	1.37	100
540	3	544	2125	35	.31	00	1	542	2600	-	1.63	00	6	543	2283	275	1.42	100
550	-	-	-	-	-	-	1	550	650	-	0.39	00	2	553	650	-	0.39	0
560	-	-	-	-	-	-	1	564	2750	-	1.53	100	1	564	2750	-	1.53	100
570	-	-	-	-	-	-	-	-	-	-	-	-	1	575	-	-	-	-
580	1	582	2900	-	1.47	100	-	-	-	-	-	-	1	582	2900	-	1.47	100
TOTAL	242						162						485					
MEAN		458	1369	686	1.45			454	1345	394	1.40			459	349	[illegible]	.43	

Appendix 12. Biological data by age group for lake whitefish caught in the Blanchet laland area,eaat arm of Great Slave Lake. 1983.

AGE	MALES							FEMALES							COMBINEO						
	LENGTII(MM)			WEIGHT(G)			%	LENGTII(MM)			WEIGHT(G1			%	LENGTH(MM)			WEIGHT(G)			n
(VR)	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SO	K	MAT
6	-		-	--		-		1	322	-	400	-	1.20	0	1	322	-	400	-	1.20	0
7	1	287		300	-	1.27	0	1	288	-	2!50	-	1.05	0	2	288	0.7	275	35	1.16	0
8	2	359	43.8	625	318	1.28	0	-	-	-	--		-		2	359	43.8	625	318	1.28	0
9	2	335	20.5	475	177	1.24	0	2	355	20.3	575	177	1.26	0	5	345	20.3	520	135	1.24	0
10	1	388	-	850	-	1.46	0	2	378	e.5	700	71	1.29	0	3	381	8.3	750	100	1.35	0
11	1	386	-	950	-	1.65	0	1	428		1100	-	1.40	0	2	407	29.7	1025	106	1.53	0
12	3	397	9.2	767	126	1.22	0	2	399	39.6	875	316	1.34	50	5	396	20.9	810	192	1.27	20
13	1	412	-	1000	-	1.43	0	-	-	-	--		-		4	446	36.6	1000	-	1.43	0
14	1	435	-	1150	-	1.40	0	2	436	8.5	1175	177	1.41	50	4	433	7.6	1167	126	1.41	33
TOTAL	12							11							20						
MEAN		374	43	729	273	1.33			379	49.9	764	335	1.30			386	50.3	735	295	1.31	
MEAN AGE	10.4							10.4							10.6						

Appendix 13. Biological data by age group for lake whitefish caught in the Cabin Bay area,east arm of Great Slave Lake, 1983.

AGE	MALES							FEMALES							COMBINED						
	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G}			%
(VR)	N	MEAN	SD	MEAN	SO	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SO	K	MAT
6	2	404	12.0	640	127	1.27	0	1	426	-	1100	-	1.42	0	4	416	10.5	927	175	1.32	0
9	1	437	-	1050	-	1.26	0	2	445	30.4	1325	177	1.51	50	5	441	15.9	1233	202	1.43	33
10	1	46\	-	1450	-	1.48	100	4	407	21.6	638	75	1.25	0	6	421	28.5	960	282	1.29	20
11	2	491	105	1190	430	1.03	50	4	412	25.0	1205	477	1.66	25	7	437	59.6	1200	418	1.47	33
12	5	432	27,7	1242	270	1.52	60	4	439	47.6	1338	477	1.51	25	11	453	67.6	1284	353	1.51	56
13	4	485	36.0	1630	393	1.41	50	7	461	42.2	1391	356	1.40	29	12	469	36,1	1478	370	1.41	36
14	2	476	50.9	1705	502	1.56	50	3	462	11.5	1423	266	1.44	67	7	472	25.0	1536	350	1.49	60
15	3	466	47.0	1623	560	1.37	67		-	-	--		-		4	479	41.5	1623	560	1.37	67
16	1	642		4350	-	1.64	100		-	-	--		-		1	642	-	4350	-	1.64	100
21	-	-	-	--		-			-	-	--		-		1	655	-	435D	-	1.55	100
TOTAL	21							25							56						
MEAN		468	61	1520	767	1.40			430	37.8	1251	371	1.45			459	56.5	1437	731	1.43	
MEAN AGE	11.6							11.6							12.0						

Appendix 14. Biological data by age group for lake whitefish caught in tha Et-then **Island** araa,east arm of Great Slave Lake, 1983.

AGE (YR)	MALES							FEMALES							COMBINED						
	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%
	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT
9	-	-	-	-	-	-		1	455	-	1450	-	1.54	100	1	4!55	-	1450	-	1.54	100
10	1	466	-	1510	-	1.49	0	1	496	-	1950	-	1.60	100	2	481	21.2	1730	311	1.55	50
TOTAL	1							2							3						
MEAN		466	-	1510	-	1.49			476	29.0	1700	354	1.57			472	21.2	1637	273	1.54	
MEAN AGE	9.5							9.5							9.7						

Appendix 15. Biological data by age group for lake whitefish caught in the Murky **Channel** area,east arm of Great Slave Lake, 1983.

AGE (VR)	MALES							FEMALES							COMBINED						
	LENGTH(MM)			WEIGHT(GL			%	LENGTH(MM)			WEIGHT(GZ			%	LENGTH(MM)			WEIGHT(G)			%
	N	MEAN	SD	MEAN	SO	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SO	K	MAT
5	1	275	-	270	-	.30	0	-	-	-	--		-		1	275	-	270	-	1.30	0
7	-	-	-	-	-			1	264	-	210	-	1.14	100	1	264	-	210	-	1.14	100
10	2	365	21.2	765	134	.33	0	1	460		1400	-	1.44	100	3	410	45.6	977	379	1.37	33
12	3	426	25.9	1093	153	.39	100	1	414	-	1070	-	1.51	100	4	425	22.2	1068	126	1.42	100
TOTAL	6							3							9						
MEAN		386	62	647	344	1.36			379	102.5	693	614	1.36			385	71.2	862	411	1.36	
MEAN AGE	9.7							9.7							10.0						

Appendix 16. Biological data by age group for lake whitefish caught in the Narrow Islands area, east arm of Great Slave Lake, 1983

AGE (YR)	MALES N	LENGTH(MM) MEAN	LENGTH(MM) SD	WEIGHT(G) MEAN	WEIGHT(G) SD	K	% MAT	FEMALES N	LENGTH(MM) MEAN	LENGTH(MM) SD	WEIGHT(G) MEAN	WEIGHT(G) SD	K	% MAT	COMBINED N	LENGTH(MM) MEAN	LENGTH(MM) SD	WEIGHT(G) MEAN	WEIGHT(G) SD	K	% MAT
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	188	-	100	-	1.50	0
8	1	376	-	600	-	1.13	0	2	370	28.3	650	141	1.27	0	4	384	29.2	633	104	1.23	0
9	1	395	-	900	-	1.46	0	5	422	26.8	1114	224	1.47	20	6	418	26.5	078	219	1.47	17
10	6	428	30.0	925	210	1.27	67	4	455	25.0	1350	158	1.44	50	14	443	26.9	138	285	1.35	60
11	16	444	15.8	191	145	1.35	81	9	468	29.5	1384	325	1.32	00	39	453	20.4	266	243	1.34	90
12	22	458	27.0	331	301	1.37	91	13	457	27.1	1288	231	1.33	77	47	459	25.0	310	265	1.35	86
13	28	461	34.7	275	276	1.39	86	6	475	25.3	1400	272	1.30	100	46	466	31.9	308	275	1.36	89
14	15	476	31.3	405	248	1.34	93	6	479	24.8	1680	239	1.54	100	29	486	32.9	497	272	1.41	95
15	10	500	18.2	625	244	1.38	90	3	477	25.5	1440	295	1.31	67	20	502	21.8	563	260	1.36	86
16	1	512	-	[illegible]	-	-	00	3	487	32.8	1720	339	1.48	00	7	500	33.3	720	339	1.48	00
17	1	463	-	[illegible]	-	-	00	-	-	-	-	-	-	-	1	463	-	[illegible]	-	-	00
18	-	-	-	[illegible]	-	-	-	-	-	-	-	-	-	-	1	538	-	-	-	-	[illegible]
TOTAL	1[illegible]1							5[illegible]							[illegible]15						
MEAN		461	34	1287	301	1.36			46[illegible]	35.[illegible]	3[illegible]	324	[illegible]38			464	39.6	1305	331	1.37	
MEAN AGE	12.0							[illegible].0							[illegible]2.4						

Appendix 17. Biological data by length interval for lake trout caught in the Blanchet Island area, east arm of Great Slave Lake, 1983.

LENGTH INTERVAL	MALES N	LENGTH(MM) MEAN	WEIGHT(G) MEAN	WEIGHT(G) SD	K	% MAT	FEMALES N	LENGTH(MM) MEAN	WEIGHT(G) MEAN	WEIGHT(G) SD	K	% MAT	COMBINED N	LENGTH(MM) MEAN	WEIGHT(G) MEAN	WEIGHT(G) SD	K	% MAT
425	-	445	00	-	.25	0			-	-	[illegible]		1	445	1100	-	1.25	0
475	[illegible]	-	-	-	-	-	1	487	1700	-	1.47	0	1	487	1700	-	1.47	0
525	[illegible]	-	-	-	-	-	1	525	2000	-	1.38	0	1	525	2000	-	1.38	0
550	-	-			-	-	2	557	2125	460	1.23	50	2	557	2125	460	1.23	50
600	-	[illegible]12	2700	[illegible]	1.18	0	2	610	3675	672	1.61	100	3	611	3350	737	1.47	67
650	[illegible]	-	-	[illegible]	-	-	1	661	3650	-	1.26	100	3	660	3650	-	1.26	00
675	-	[illegible]81	4450	[illegible]	1.41	[illegible]0	1	690	3850	-	1.17	100	2	686	4150	424	1.29	00
700	[illegible]	-	-	[illegible]			2	712	5350	141	1.48	100	2	712	5350	141	1.48	00
725		-	-	[illegible]	-	[illegible]	1	730	4550	-	1.17	100	[illegible]	730	4550	-	1.17	00
750	-	-	-	[illegible]	-	[illegible]	1	762	7100	-	1.60	100	[illegible]	762	7100	-	1.60	00
800	-	[illegible]	-	[illegible]	-	[illegible]	1	819	8800	-	1.60	100	[illegible]	819	8800	-	1.60	00
825	-	[illegible]	-	[illegible]	-	[illegible]			-	-	-	-	[illegible]	832		-	[illegible]	
850	-	[illegible]	-	[illegible]	-	[illegible]	[illegible]	855	9600	-	1.54	00	[illegible]	855	96[illegible]	-	1.54	[illegible]
925	-	[illegible]	-		-	[illegible]	[illegible]	-	-			-	[illegible]	945	[illegible]	-	-	[illegible]
950	-	[illegible]	[illegible]	-	-	[illegible]	[illegible]	-	-	[illegible]	-	-	[illegible]	970	[illegible]	-	-	[illegible]
TOTAL	3						14						22					
MEAN		579	2750	676	.2[illegible]			663	4[illegible]	25[illegible]	.4[illegible]			686	4224	2434	1.39	

x 8. Bio ogical data by ength interval for lake trout caught in the Cabin Bay area, east arm of Great Slave Lake, 1983.

LENGTH INTERVAL (MM)	MALES N	MALES LENGTH(MM) MEAN	MALES WEIGHT(G) MEAN	MALES WEIGHT(G) SD	MALES K	MALES % MAT	FEMALES N	FEMALES LENGTH(MM) MEAN	FEMALES WEIGHT(G) MEAN	FEMALES WEIGHT(G) SD	FEMALES K	FEMALES % MAT	COMBINED N	COMBINED LENGTH(MM) MEAN	COMBINED WEIGHT(G) MEAN	COMBINED WEIGHT(G) SD	COMBINED K	COMBINED % MAT
350	1	3[illegible]2	2450	-	5.[illegible]	[illegible]	-	-	-	-	-	[illegible]	1	352	2450	-	5.62	80
375	-	-	-	-			[illegible]	395	600	-	.97	[illegible]	1	395	600	-	0.97	0
425	1	426	-	-	-	00	[illegible]	-	-	-	-	-	1	426	-			.00
450	1	472	1300	-	.24	0	[illegible]	-	-	-	-	0	2	462	1300	-	.24	0
475	3	487	1525	35	.27	00	[illegible]	487	1200	-	.04	0	6	487	1417	189	.19	50
500	2	505	1650	-	.29	00	[illegible]	505	1550	-	.20	0	5	503	1600	41	.26	80
525	4	538	2133	289	.35	00	[illegible]	534	2225	389	.46	50	7	537	2170	286	.39	86
550	8	566	2630	390	.43	00	[illegible]	561	2483	115	.41	00	16	564	2473	528	.37	00
575	9	586	2913	406	.43	00	[illegible]	585	3560	-	.78	00	12	585	3075	463	.52	.00
600	5	612	3267	389	.42	93	[illegible]	615	3750	-	.61	08	22	613	3583	601	.54	95
625	7	638	4038	206	.52	00	[illegible]	636	3590	610	.39	80	17	636	3725	519	.43	94
650	8	663	3670	445	.28	88	[illegible]	665	4400	-	.50	00	15	660	3855	479	.36	93
675	3	681	4350	849	.37	00	[illegible]	690	5083	765	.55	00	8	685	4790	796	.48	00
700	2	705	4700	354	.34	00	[illegible]	717	5600	-	.52	00	5	707	5588	1266	.57	00
725	-	-	-	-	-		[illegible]	739	4600	-	.14	00	2	735	4600	-	.14	.00
750	2	764	5900	283	1.[illegible]2	1[illegible]	[illegible]	773	7350	-	.59	00	5	764	6383	861	.41	.00
775	-	-	-	-	-	[illegible]	[illegible]	778	5700	-	.21	0	2	777	5700	-	.21	00
800	1	[illegible]05	7050	-	1.35	[illegible]	-	-	-	-	-	1:1	1	805	7050	-	.35	00
825	-	-	-	-	-	[illegible]	3	839	[illegible]50	[illegible]50	1.3[illegible]	1	3	839	8050	450	.36	00
850	-	-	-	-	-	-	-	-	-	-	-		1	870	10150	-	.54	.00
875	I	-	-	-	-	-	-	-	-	-	-	I	1	876	-	-		
900	I	-	-	-	-	-	-	-	-	-	-	I	1	910	12000	-	1.59	[illegible]
925	I	-	-	-	-	-	-	-	-	-	-	II	1	930	11750	-	1.46	[illegible]
TOTAL	67						30						135					
MEAN		[illegible]03	33[illegible]3	[illegible]	.49			646	4137	2120	1.40			624	3928	2212	1.46	

Appendix 19. Biological data by langth interval for lake trout cau9ht in the Et-than Island area,aast arm of Graat Slave Lake,1983.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINED					
		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%
	N	MEAN	MEAN	SO	K	MAT	N	MEAN	MEAN	SO	K	MAT	N	MEAN	MEAN	SD	K	MAT
550	3	565	2197	212	1.22	33	1	554	2130	-	1.25	100	4	562	2160	176	1.23	50
575	-		--		-		1	597	2900	-	1.36	100	1	597	2900	-	1.36	100
675	·		--		-				--		-		1	695	4300	-	1.28	100
700	1	700	5200	-	1.52	0	-		--		-		1	700	5200	-	1.52	0
TOTAL	4						2						7					
MEAN		599	2948	1512	1.29			576	2515	544	1.31			606	3017	1246	1.29	

Appendix 20. Biological data by length interval for lake trout caught in the Murky Channel araa.east arm of Great Slave Lake, 1963.

LENGTH INTERVAL (MM)	MALES						FEMALES						COMBINEO					
		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%		LENGTH(MM)	WEIGHT(G)			%
	N	MEAN	MEAN	SO	K	MAT	N	MEAN	MEAN	SO	K	MAT	N	MEAN	MEAN	SO	K	MAT
425	1	445	980	-	1.11	100	-		--		-		1	445	960	-	1.11	100
450	-		--		-				--		-		2	457	1000	0	1.05	100
475	-		--		-		1	486	600	-	0.52	0	1	486	600	-	0.52	0
550	-		--		-		1	565	2150	-	1.19	0	1	565	2150	-	1.19	0
650	·		--		-		1	655	3000	-	1.07	100	1	655	3000	-	1.07	100
TOTAL	1						3						6					
MEAN		445	960	-	1.11			569	1917	1217	0.93			511	1455	921	1.00	

Appendix 21. Biological data by length interval for lake trout caught in the Narrow Islands area, east arm of Great Slave Lake, 1983.

LENGTH INTERVAL (MM)	MALES						FEMALES							COMBINED					
	LENGTH(MM)		WEIGHT(G)			%	LENGTH(MM)		WEIGHT(G)			%		LENGTH(MM)		WEIGHT(G)			%
	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	N	MEAN	MEAN	SD	K	MAT	
425	1	443	950	-	1.09	0	1	[illegible]	-	-	-	[illegible]	1	443	950	-	1.09	0	
500							1	510	1450	-	1.04	0	2	515	1450	-	1.04	0	
525	5	539	888	379	[illegible]	[illegible]							5	539	1888	379	1.20	20	
550	-	-	-	-		-		565	[illegible]	-	[illegible]		1	565	2200	-	1.22	0	
575	1	580	2300	-	1.18	100							1	580	2300	-	1.18	100	
600	1	610	2500	-	1.10	100	1	612	3250	-	1.42	100	7	611	2888	419	1.29	100	
625	9	637	3169	30[illegible]	1.22	100	1	640	3800	-	1.45	100	10	638	3232	350	1.25	100	
650	[illegible]	660	3620	28[illegible]	1.26	100							11	659	3620	282	1.26	100	
675	4	686	4075	19[illegible]	1.26	100	2	677	4150	495	1.34	100	8	683	4107	247	1.30	100	
700	6	709	4742	35[illegible]	1.33	100	3	708	4900	568	1.38	100	5	710	4794	408	1.35	100	
725	5	732	4690	26[illegible]	1.20	100	4	732	4725	397	1.21	100	3	734	4706	306	1.20	100	
750	5	764	5440	45[illegible]	1.22	100	2	753	6600	212	1.55	100	3	761	5771	684	1.31	100	
775	2	790	7175	3[illegible]	1.46	100	2	789	6650	354	1.35	100	6	786	6913	366	1.41	100	
800	4	813	6938	98[illegible]	1.29	100	-	-					5	814	6938	981	1.29	100	
825	2	836	7125	24	1.22	100	1	825	[illegible]	-	[illegible]	[illegible]	3	832	7033	236	1.22	100	
850	1	868	7700	-	1.18	100							1	868	7700	-	1.18	100	
875	-		-	-	-	-	-	-	-	-	-	-	1	888	-	-	-		
TOTAL	[illegible]						18						103						
MEAN		688	4274	1657	1.25			703	4775	1559	1.32			697	4354	1624	1.27		

Appendix 22. Biological data by age group for lake trout caught in the Blanchet Island area, east arm of Great Slave Lake, 1983.

AGE (YR)	MALES							FEMALES								COMBINED							
	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%		LENGTH(MM)			WEIGHT(G)			%	
	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT		N	MEAN	SD	MEAN	SD	K	MAT	
9	-	-	[illegible]	-	[illegible]	-	-	[illegible]	560	[illegible]	1800	-	[illegible]	0		1	560	-	1800	-	1.02	0	
10	[illegible]	445	[illegible]	1100	[illegible]	1.25	0	[illegible]	-	[illegible]	-	-		[illegible]		1	445	-	1100	-	1.25	0	
11	[illegible]	612	[illegible]	[illegible]700	[illegible]	1.18	0	[illegible]	625	[illegible]	4400	3818	1.54	50		3	620	38	3833	2873	1.42	33	
12	-	-	[illegible]	-	[illegible]	-	-	[illegible]	719	[illegible]	5250	-	1.41	100		1	719	-	5250	-	1.41	100	
13		-	[illegible]	-	[illegible]	-	-	[illegible]	540	20.5	2225	318	1.41	50		2	540	20.5	2225	318	1.41	50	
14	-	-	[illegible]	-	[illegible]	-	-	[illegible]	661	-	3650	-	1.26	100		1	661	[illegible]	3650	-	1.26	100	
15	-	-	[illegible]	-	[illegible]	-	-	[illegible]	708	103	5600	[illegible]775	1.52	100		3	708	103	5600	2775	1.52	100	
17	-	-	[illegible]	-	[illegible]	-	-	[illegible]	730	-	4550	-	1.17	100		1	730	[illegible]	4550	-	1.17	100	
18	-	[illegible]81	[illegible]	4450	[illegible]	.41	100	[illegible]	605	-	3200	-	1.45	100		2	643	53.7	3825	884	1.43	100	
23	1	[illegible]	-	-	[illegible]	-	-	[illegible]	855	-	9600	-	1.54	100		1	855	-	9600	-	1.54	100	
TOTAL	3							[illegible]								16							
MEAN		579	121	2750	1676	1.28			660	114.5	4469	2588	1.41				645	116.3	4[illegible]47	2492	1.38		
MEAN AGE		4.3							14.3								[illegible]						

Appendix 23. Biological data by age group for lake trout caught in the Cabin Bay area, east arm of Great Slave Lake, 1983.

AGE (YR)	MALES N	LENGTH(MM) MEAN	SD	WEIGHT(G) MEAN	SD	K	% MAT	FEMALES N	LENGTH(MM) MEAN	SD	WEIGHT(G) MEAN	SD	K	% MAT	COMBINED N	LENGTH(MM) MEAN	SD	WEIGHT(G) MEAN	SD	K	% MAT
1	2	631	38.2	2825	177	1.13	0	1	530	-	1950	-	.31	0	3	597	64.3	2533	520	1.19	0
2	3	505	21.9	1617	161	1.25	100	1	561	-	2550	-	.44	00	4	519	33.1	1850	485	1.30	.00
3	2	455	145	2400	71	3.49	100	1	843	-	8050	-	.34	00	3	584	247	4283	3262	2.77	.00
4	4	580	86.6	2663	1228	.30	100	5	558	48.6	2712	1019	.49	80	9	568	64.3	2690	1042	1.41	89
5	2	580	11.3	2700	354	.38	100	2	569	89.8	2075	742	.12	0	4	574	52.7	2388	596	1.25	50
6	5	621	123	3690	2096	.42	80	2	722	79.9	5050	919	.35	00	7	650	117	4079	1873	1.40	86
7	1	572	-	3050	-	.63	100	2	636	2.8	4000	71	.56	00	3	615	37.0	3683	551	1.58	100
8	4	612	46.5	3463	923	.49	100	4	702	125	5538	2872	.47	00	8	657	99.9	4500	2265	1.48	100
9	2	687	106	4500	1697	.36	100		691	-	4500	-	.36	00	3	688	75.0	4500	1200	1.36	100
20	3	639	21.6	3733	321	.43	100		637	-	3400	-	.32	00	4	639	17.7	3650	311	1.40	100
21	3	687	68.7	4617	1285	.41	100		739	-	4600	-	.14	00	4	700	61.9	4613	1049	1.34	100
22	1	670	-	3950	-	.31	10		717	-	5600	-	.52	00	2	694	33.2	4775	1167	1.42	100
23	-	-	-	-			-		683	-	4800	-	.51	00	1	683	-	4800	-	1.51	100
24		619	-	3850	-	1.62	100	-				-	-	-	1	619	-	3850	-	1.62	100
[illegible]								-	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	100
TOTAL	33							25							58						
MEAN		604	90	3289	1305	1.51			655	104.2	4278	2035	.42			626	98.8	3716	1715	1.47	
MEAN AGE	7.4							17.4							16.9						

Appendix 24. Biological data by age group for lake trout caught in the Et-then Island area, east arm of Great Slave Lake, 1983.

AGE (YR)	MALES N	LENGTH(MM) MEAN	SD	WEIGHT(G) MEAN	SD	K	% MAT	FEMALES N	LENGTH(MM) MEAN	SD	WEIGHT(G) MEAN	SD	K	% MAT	COMBINED N	LENGTH(MM) MEAN	SD	WEIGHT(G) MEAN	SD	K	% MAT
11	[illegible]	56[illegible]	[illegible]	[illegible]075	3[illegible]	.18	0	-	-	[illegible]	-	-	-	-	2	56[illegible]	7.1	2075	[illegible]5	1.18	0
12	-	57[illegible]	-	[illegible]440	[illegible]	.30	00	1	554	[illegible]	2130	-	.25	00	2	56[illegible]	3.4	2285	2.9	1.27	00
13		-					-	1	597	[illegible]	2900	-	.36	00	1	59[illegible]	-	2900	-	1.36	.00
18		700	-	[illegible]0	-	1.[illegible]2	0	-	-	[illegible]	-	-	-	-	1	70[illegible]	-	5200	-	1.52	0
TOTAL	4							2							6						
MEAN		599	[illegible]	[illegible]94[illegible]	[illegible]	[illegible]			576	30.4	2515	544	1.31			59	[illegible]5.	2803	1[illegible]	.3[illegible]	
MEAN AGE	[illegible] 5							2.5							12.8						

Appendix 25. Biological data by age group for lake trout caught in the Murky Channel area,eaat arm of Great Slave Lake. 1983.

AGE	MALES							FEMALES							COMBINEO						
	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%
(YR)	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT	N	MEAN	SD	MEAN	SD	K	MAT
11	-	-	-	-	-	-		2	571	120	1800	1697	0.60	50	2	571	120	1800	1697	0.80	50
13	-	-	-	-	-	-	-	1	565	-	2150	-	1.19	0	1	565	-	2150	-	1.19	0
TOTAL	O							3							3						
MEAN		-	-	-	-	-			569	84.6	1917	1217	0.93			569	84.6	1917	1217	0.93	
MEAN AGE	11.7							11.7							11.7						

Appendix 26. Biological data by age group for lake trout caught in the Narrow Islands area,east arm of Graat Slave Lake, 1983.

AGE	MALES							FEMALES							COMBINED						
	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%	LENGTH(MM)			WEIGHT(G)			%
(VR)	N	MEAN	SO	MEAN	SO	K	MAT	N	MEAN	SO	MEAN	SO	K	MAT	N	MEAN	SD	MEAN	SO	K	MAT
11	1	540	-	1650		1.05	0	2	542	32.5	1825	530	1.13	0	3	541	23.0	1767	388	1.10	0
12	5	609	42.6	2844	563	1.25	80	1	675	-	3800		1.24	100	6	620	46.6	3003	637	1.25	a3
13	6	616	52.8	2925	848	1.22	83	1	679	-	4500		1.44	100	7	625	53.8	3150	977	1.25	86
14	6	603	91.4	2883	1082	1.25	83	1	612	-	3250		1.42	100	7	604	83.5	2936	997	1.27	66
15	3	710	54.6	4550	1277	1.25	100	4	706	46.4	5088	1241	1.43	100	7	708	46.6	4857	1181	1.35	100
16	4	702	56.5	4225	1023	1.21	100	3	725	27.8	5333	1100	1.38		7	712	44.8	4700	1131	1.28	100
17	4	704	52.4	4475	595	1.29	100		-	-					4	704	52.4	4475	595	1.29	100
18	3	724	17.2	4050	350	1.29	100		-	-					3	724	17.2	4850	350	1.29	100
19	1	710	-	4650	-	.30	100		-	-					1	710	-	4650		1.30	100
20	2	726	63.6	4975	1308	.28	100	2	789	1.4	6650	354	1.35	100	4	758	51.7	5813	1244	.32	100
21	2	751	96.9	4850	1202	.15			-	-					2	751	96.9	4850	1202	15	100
22	2	621	8,5	7325	530	.33	100	1	727	-	4400		1.15	100	3	790	54.6	6350	1730	:27	100
23	1	735	-	4300	-	.00	100	1	740	-	5300		1.31	100	2	738	3.5	4800	707	.20	100
24	2	827	25.5	7525	316	.34	100		-	-					2	627	25.5	7525	318	.34	100
27		.	.	-	-			1	825	-	6850		1.22	100	1	825	-	6850	-	.22	100
TOTAL	42							17							59						
MEAN		679	88	4096	1587	1.24			701	.60.7	4768	1606	1.33			685	86.1	4295	1610	1.27	
MEAN AGE	16.5							16.5							16.3						

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EVALUATION OF THE FEASIBILITY OF A LAKE WHITEFISH TRAP NET FISHERY IN THE EAST ARM OF GREAT SLAVE LAKE, NORTHWEST TERRITORIES

by

M.M. Roberge, S. Matkowski and W.J. Ward

Western Region
Department of Fisheries and Oceans
Winnipeg, Manitoba R3T 2N6

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ABSTRACT

ROBERGE, M. M., S. MATKOWSKI, and W.J. WARD. 1986. Evaluation of the feasibility of a lake whitefish trap net fishery In the east arm of Great Slave Lake, Northwest Territories. Can. Ind. Rep. Fish. Aquat. SCi. 167: V + 46 p.

An experimental trap net study was conducted in Great Slave Lake, Northwest Territories in 1982-83 to assess the potential for establishing a lake whitefish (Coregonus clupeaformis) trap net fishery in the east arm (Administrative Area VI). This study was conducted under the Fisheries Development Program, Department of Fisheries and Oceans. A preliminary survey to determine suitable areas within Administrative Area VI for setting trap nets was undertaken in 1982. In 1983 trap nets were set in five areas with netting being done In two phases: Phase I from 12 July to 2 August and Phase 11 from 16 August to 2 October. Different mesh sizes used in the trap nets did not affect the numbers of lake whitefish caught but did determine how and In what part of the trap net they were caught. Meter temperature and dissolved oxygen did not affect trap success but there is an indication that visibility did. This study indicates that the establishment of a trap net fishery in the east arm Is not feasible and may have a detrimental effect on the lake trout populations within the area.

Key words: commercial fishing; Coregonus clupeaformis; experimental fishing; trout, lake; trapnets

RÉSUMÉ

R08ERGE, M.M., S. MATKOWSKI, and U.J. WARD. 1986. Evaluation of the feasibility of a lake whitefish trap net fishery in the east arm of Great Slave Lake, Northwest Territories. Can. Ind. Rep. Fish. Aquat. SCi. 167: V + 46 p.

Une étude expérimentale au moyen de filet-trappes a été menée en 1982-1983 clans le Grand Lac des Esclaves, Terrftoires du Nerd-Ouest, pour évaluer le potentiel pour l'établissement clans le bras .Est (Région administrative VI) d'une pêche au grand corégone (Coregonus clupeaformis) avec des filet-trappes. L'Etude a été exécutée clans le cadre du Programme de développement des pêches du ministère des Pêches et des Océans. En 1982, une étude préliminaire avait été entreprise, clans la Région administrative VI, afin de déterminer des endroits propices à l 'installation de filet-trappes. En 1983, des filet-trappes ont été installés clans cinq endroits, et la pêche a été effectuée en deux phases: la première, du 12 juillet au 2 août, et la seconde, du 16 août au 2 octobre. Les différentes tailles de mailles utilisées sur les filet-trappes n'ont pas eu d'influence sur le nombre de prises de grand corégone, mais ant néanmoins déterminé la façon dent le grand corégone se maillait ou clans quelle partie du filet-trappe il se prenait. La température de l'eau et l'oxygène dissous n'ont pas influencé le succès de la pêche, mais il semble que la clarté de l'eau, par Contre, ait eu son importance. L'étude montre que l'établissement d'une pêche au filet-trappe clans le bras Est n'est pas praticable et qu'elle pourrait nuire aux Populations de touladi clans le secteur.

Mets-clés: Pêche consnerciale; Coregonus clupeaformis; pêche expérimentale; touladi; filet-trappe.