THUNDER BAY - LAKE WINNIPEG HARBOURS
APRIL 28 TO SEPTEMBER 27, 1975
PROJECT FILE NUMBERS 6600-73-3
6600-62-2

FINAL FIELD REPORT

HIC - K.G. HIPKIN

CONTENTS

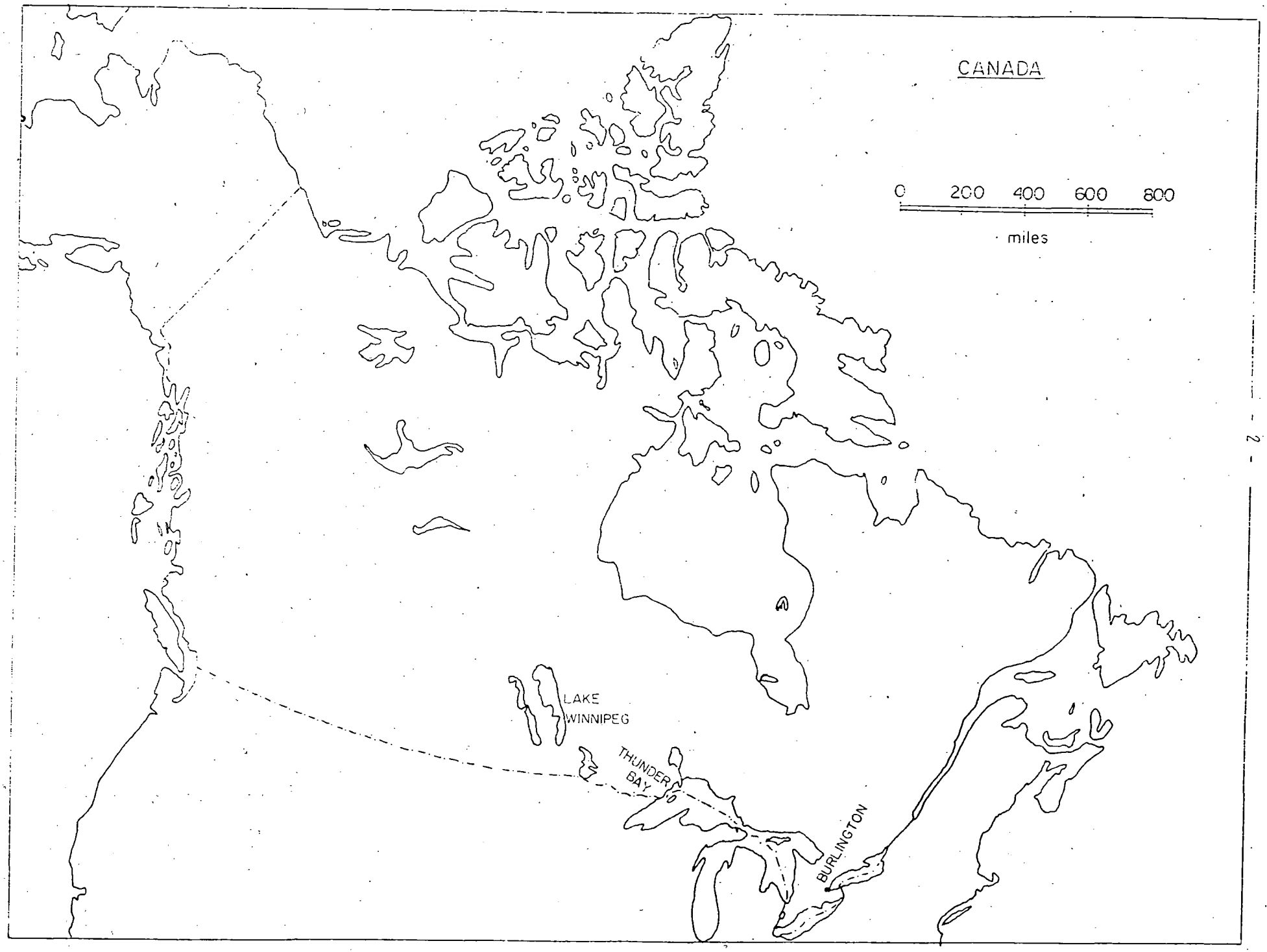
INTRODUCTION

This Hydrographic survey party was active in two main locations: Lake Winnipeg Harbours and Thunder Bay.

The Thunder Bay survey's purpose was to permit updating of the chart and the project, which was completed, was a continuation of the 1974 effort.

The Lake Winnipeg Harbours survey was necessitated by a lack of soundings in several harbours. Two harbours were completed.

This report will dwell mainly on the survey methods, operations and results. Reports have been filed on equipment. Therefore, only noteworthy remarks will be made on this aspect.


CANADA
0 200 400 600 800
miles
LAKE WINNIPEG
THUNDER BAY
BURLINGTON

STAFF ASSIGNMENTS

NAME	POSITION	ARRIVAL	DEPARTURE
STAFF			
K. Hipkin	Hydrographer	May 5	September 28
J. Medendorp	Hydrographer	May 5	September 27
B. Eidsforth	Hydrographer	May 6	June 23
R. Chapeskie	Hydrographer	August 5	August 10
I. Padgett	Electronic Technician	May 6	May 23
T. Dyas	Electronic Technician	July 1	July 4
R. Covey	Student Assistant	May 5	August 22
M. Brewes	Student Assistant	August 21	September 27
CREW			
M. Robinson	Mechanic	April 28	September 27
G. Settee	A/Coxswain	April 28	September 27
R. Gay	Coxswain	May 7	June 23
D. Wortman	Seaman	April 28	September 27
B. Robinson	Seaman	April 28	May 27
C. Smith	Seaman	May 7	June 19
G. Irvine	Seaman	May 28	June 25

CHRONOLOGY OF EVENTS

THUNDER BAY

April 28	Four crew members reported to Selkirk, Manitoba to prepare equipment.
May 4	Crew departed Selkirk for Thunder Bay.
May 7	All staff and crew at Thunder Bay preparing equipment.
May 9	Launches arrived at Thunder Bay.
May 10	All launches lifted into water.
May 14	First sounding day.
June 9	E. Brown, Assistant Regional Hydrographer, arrived.
June 10	E. Brown departed for Burlington.
June 15	K. Hipkin travelled to Selkirk, Manitoba to inspect GRAND MARAIS for needed alterations for Lake Winnipeg portion of the survey.
June 21	Sounding complete at Thunder Bay.
June 23	Launches shipped from Thunder Bay to Burlington.
June 24	Remainder of staff and crew departed Thunder Bay.

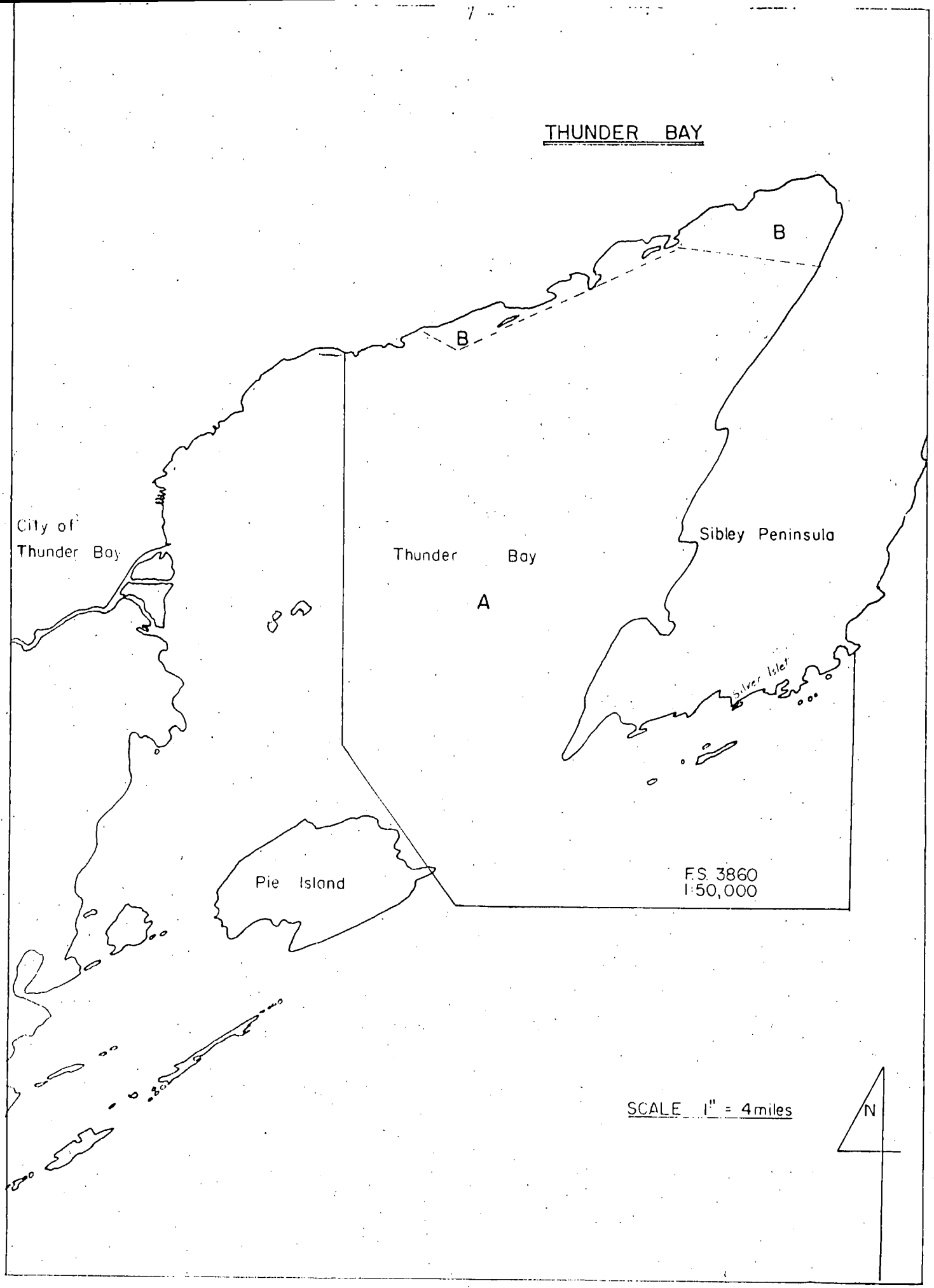
LAKE WINNIPEG HARBOURS

July 1	All staff and crew at Selkirk, Manitoba preparing for the Lake Winnipeg survey.
July 5	MV GRAND MARAIS departed Selkirk for Bloodvein River survey on Lake Winnipeg.
July 13	First survey day in new area.
August 30	Plywood house on floating workshop GANDER destroyed.
September 2	Departed Bloodvein River area for Big Black River.
September 5	First survey day at Big Black River.
September 25	Completed survey - departed Big Black River.
September 26	MV GRAND MARAIS arrived Selkirk.
September 28	All closed up. Work completed and all staff and crew departed for home.

PART A

THUNDER BAY SURVEY

PROJECT FILE NUMBER 6600-73-3


THUNDER BAY
B
B
City of
Thunder Bay
Thunder Bay
A
Sibley Peninsula
Silver Islet
Pie Island
F.S. 3860
1:50,000
SCALE 1" = 4 miles
N

CRAFT AND MAJOR EQUIPMENT

Launches

1 Bertram (HYDRO III)
1 Bertram (HYDRO IV)
1 Botved (CSL HUNT)
1 Boston Whaler (17 ft.)

Trailers

1 Glendale office trailer (OT66-506)
1 Thorobred trailer (BT67-308)
1 Thorobred trailer (BT68-313)
1 Thorobred trailer (BT70-319)
1 Thorobred trailer (BT71-328)
1 Stewart trailer (B74-343)

Vehicles

1 1966 travelall, International (66-05)
1 GMC Carryall (74-302)

Electronics

4 Edo 9040 sounders
3 PT-400 radio-transceivers
3 Comco "608" transceivers
4 CH-25 radio-transceivers
1 Motorola RPS chain
1 Motorola Mini-Ranger chain
1 set MRA-3 Tellurometer

Instruments

2 Theodolites, Wild T-2
1 Theodolite, Wild T-1A
1 Theodolite, Wild T-16
1 level, Wild N-2

PLANNING AND PREPARATIONS

This stage of the Thunder Bay Survey actually began as a contract survey in 1974. This year, the survey was completed by this establishment. This work involved examining shoals and running splitters in previously sounded areas (Area A, Page 7) and completely surveying untouched areas (Area B, Page 7).

SURVEY DATA

Little preparation was involved with the data. Once the 1974 collected data was received, the biggest task was for the party members to familiarize themselves with the details.

ACCOMMODATIONS

The staff and crew of eleven were housed at the Voyageur Motel and received allowances for their meals.

EQUIPMENT

Equipment came from three sources:

(i) winter storage at Selkirk, Manitoba
(ii) Burlington, Ontario
(iii) winter storage at Thunder Bay, Ontario

On April 28th, four crew members reported for duty at Selkirk, Manitoba. These men took equipment out of storage, prepared the stored vehicle and packed equipment for the trip to Thunder Bay. The Botved launch HUNT was also prepared and towed to Thunder Bay. This group arrived at Thunder Bay on May 5th and began setting up the equipment.

On May 6th, the majority of staff and crew arrived at Thunder Bay and on May 7th the final contingent arrived with a second vehicle from Burlington. The same day, the two Hydros were shipped from Burlington. They arrived on May 9th.

On May 8th, the shipment of equipment from Burlington arrived and preparations were going well. The office trailer and whaler, which had been stored at Thunder Bay, were readied for service and the launch HUSTLE was prepared for shipment back to Burlington. This launch had been stored at Thunder Bay but needed too many repairs to be used this year.

On May 10th, all launches were lifted into the frigid waters by crane and installation of equipment began. Once the first launch was readied on May 14th, sounding operations began.

OPERATIONS

VERTICAL CONTROL

The local teleannouncing water level gauge was interrogated daily after an initial levelling check was made on the gauge.

HORIZONTAL CONTROL

Only four new horizontal control positions were established. These were required to maintain accuracy for positioning of soundings. One set of ranges, at Silver Islet was positioned.

LAUNCH POSITIONING

Motorola Mini-Ranger and Motorola Range Positioning Systems were both used in the two range mode in open areas. In closed quarters, the Mini-Ranger was employed in the range-bearing mode; and photographic techniques were used in a few very tight situations.

BATHYMETRY

Edo 9040, Imperial units sounders were used exclusively. The line density was to CHS specifications. However, in the extremely complicated areas off the southern tip of Sibley Peninsula, the coverage was very heavy because of the great number of shoal examinations.

EQUIPMENT

Two Bertram Hydro class launches and one Botved were employed. One Bertram worked the deep areas while the Botved handled the shallow waters. Later, when the Botved had engine troubles, the second Bertram was put into

service. Up to that time, the second Bertram had been used to service the shore electronic positioning transponders. One whaler rounded out the fleet.

The Hydros were excellent as sounding platforms. They were virtually trouble-free; and, the combination of excellent preparation at Burlington and similar maintenance in the field, resulted in high satisfaction with these launches.

The trucks both received only regular maintenance and served well.

The trailers all received a thorough inspection and necessary maintenance was carried out at Thunder Bay.

One electronic technician was supplied to set up this establishment. This set up was the most tidy and most sturdy set up that I have seen. This attention to initial detail, no doubt, helped the equipment to remain in good service throughout the survey. After the initial set up, the technician returned to Burlington.

WEATHER

This aspect was very co-operative. Only intermittent fog conditions around Sibley Peninsula bothered the survey. Very few days were lost to weather.

FIELD SHEET NO. 3860

MIDDLEBRUN BAY TO THUNDER BAY - SCALE 1:50,000

This sheet and related data which had been started by a private survey company in 1974, was completed by this establishment in 1975. The 1974 data was found to be accurate, with a couple minor exceptions. Only the field sheet gave problems. It was quite dirty. Attempts to clean the sheet before inking resulted in erasure of the previous inking and the new work would not take easily to the dirty sheet.

Shoals and splitters were found to be evenly spread over the area; but, a concentrated effort was placed on the area immediately south of Sibley Peninsula. The detail of this area was great for the chosen survey scale. It was necessary to move the positioning system frequently, in order to maintain required accuracy.

The bathymetry was characteristic of the shore topography - rolling bottom topography, accented by high, large and flat shoals.

GENERAL

During 1974, the Canadian Hydrographic Service surveyed the Nipigon River from Cook Point to Nipigon. The Ministry of Transport's Sub-District Manager at Thunder Bay requested help to recover the horizontal control that was used - in order that he could accurately position new buoys. Mr. John Medendorp, who had been on the original survey, accompanied the Sub-District Manager and recovered the 1974 control points.

The work went very well at Thunder Bay. Equipment worked and was maintained properly. The Ministry of Transport was very helpful with work space, equipment, and personnel. We were able to return a few of their favours. The crew and staff on this establishment were all very congenial. They displayed much initiative and co-operation. As a result, a system developed quickly which made management of this survey a simple task. Equipment was scattered from Burlington to Selkirk, Manitoba at the start of this survey and the systematic moving of these was simplified by the experience and initiative of staff and crew.

On June 21st, all surveying was complete and the establishment began shipping of equipment to Selkirk, Manitoba, Burlington and Thessalon, Ontario. Some equipment was stored at Thunder Bay for later pick up.

Six of the men dispersed to other surveys while five continued to Selkirk, Manitoba to set up and begin the Lake Winnipeg Harbours survey.

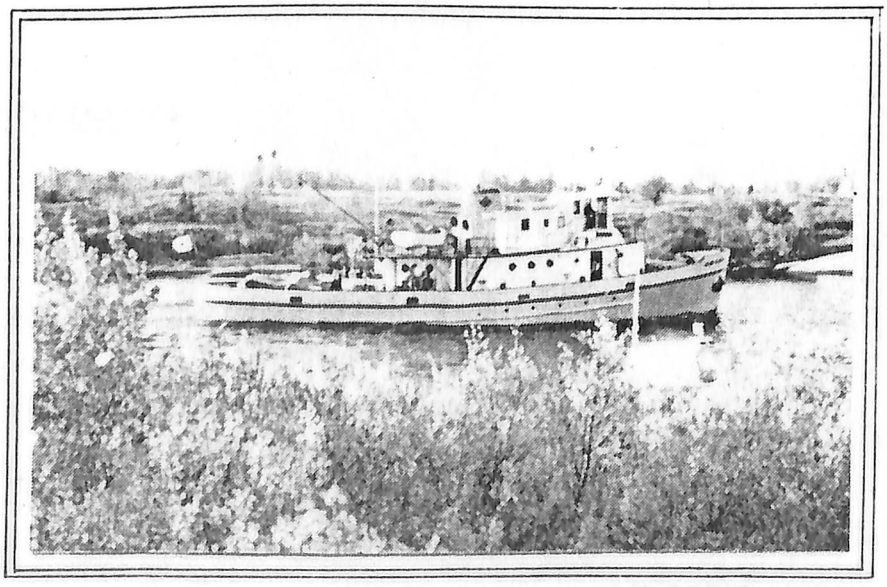
By June 25th, all staff and crew had departed Thunder Bay.

PART B

LAKE WINNIPEG HARBOURS SURVEY

PROJECT FILE NUMBER 6600-62-2

LAKE WINNIPEG AREA



M. V. GRAND MARAIS

LIST OF CRAFT AND MAJOR EQUIPMENT

Launches

1 25 foot steel hull (CSL WOODCOCK)
1 17 foot Boston Whaler *
1 17 foot Boston Whaler *
1 12 foot aluminum skiff *
1 17 foot Boston Whaler

Trailers

1 Thorobred (BT71-328)
1 Beatty-Gator (BT65-304) *
1 Stewart trailer (BT74-343) *
1 Glendale office trailer (OT66-507) *

Vehicle

1 1966 International Travelall (#66-05)

Electronics

3 Edo 9040 metric echo sounders
3 PT-400 radio-transceivers
3 Comco 608 transceivers
2 CH-25 transceivers
1 Motorola Mini-Ranger chain
1 set MRA-3 Tellurometers
1 set Hydrodist (MRB-2)

Instruments

2 Theodolites, Wild T-2
1 Theodolite, Wild T-1A
1 Theodolite, Wild T-16
1 level, Wild N-2

NOTES: * - this equipment was left in storage at Selkirk and was actually not used for the survey

PLANNING AND PREPARATIONS

After the completion of the Thunder Bay Survey, the staff and crew of six arrived at Selkirk, Manitoba to prepare for surveys of Bloodvein River, Big Black River, Berens River and Poplar River Harbours.

To perform this survey, the steel hull launch WOODCOCK and one Boston Whaler were employed.

The Department of Public Works tug boat MV GRAND MARAIS was chartered and Perimeter Marine Services, a private company, operated the vessel under contract to the Canadian Hydrographic Service. Six survey crew plus five contractor's personnel were accommodated on board this vessel. The vessel, which is ninety feet long, proved to be lacking in drafting and mechanical type repairs work space. Plans to build a shelter on the rear deck of the ship for this purpose were halted when it was found that DPW and the Steamship Inspector's approval were required. Therefore, the floating workshop GANDER was towed along for this purpose.

The GRAND MARAIS was taken on contract in mid-April. The Ministry of Transport took over the vessel, at that time, until July 1st for the purpose of setting out navigation aids. On July 1st, this establishment took over the ship until the survey was complete in late September. At that time, MOT again used the ship until mid-October, for removing navigation aids on Lake Winnipeg.

SURVEY DATA

All this data had been prepared during the previous winter and only minor adjustments were required.

EQUIPMENT

The launch WOODCOCK was prepared at Selkirk. It was painted, electronic instruments were installed, both engines were rebuilt, and a new steering assembly was installed.

The floating workshop GANDER had a make-shift drafting office built on board. The workshop's pontoons, which were badly pitted, were sandblasted and painted.

Accommodations on the GRAND MARAIS initially were unbearably hot, since the summer was now upon us. An attempt to install an air conditioner proved futile because no access could be supplied to the unit for outside air. The decks were then painted with bright aluminum paint. Temperatures in the quarters that previously stayed in the high nineties late into the night, now were bearable.

On July 5th, the GRAND MARAIS departed Selkirk for End of Road, with the WOODCOCK in tow and the Boston Whaler secured on deck. The floating workshop GANDER was trucked to End of Road and pushed into the water. Since Bloodvein River was too narrow and treacherous for the GRAND MARAIS, it was decided to dock at End of Road and traverse the eight miles of Bloodvein Bay to the work area daily via the WOODCOCK. However, since End of Road dock was wide open to storm effects, the ship was docked at the sheltered government wharf at Matheson Island.

The 1966 International Travelall truck towed a boat trailer to End of Road. The trailer was to be available to pull the WOODCOCK out of the water if repairs were necessary.

All was in readiness to survey Bloodvein River on July 6th. However, high winds curtailed the survey and finally on July 13th the first sounding day was achieved.

The survey of Bloodvein River was completed on August 28th and the GRAND MARAIS, with survey crafts, proceeded north to Big Black River. However, about ten miles north of Matheson Island, the GANDER began to dive and the plywood house broke off the pontoons. A comprehensive report was filed. The party returned to Matheson Island to re-stock. On September 2nd, the party again proceeded to Big Black River. High winds came up and the ship was forced into Berens River for a day. On September 4th, the party arrived at Big Black River and work began on September 5th.

A technician was provided to set up electronic equipment at Selkirk. After the set up was complete, he returned to Burlington.

OPERATIONS

VERTICAL CONTROL

At Bloodvein River, vertical control bench marks on Matheson Island were recovered and a temporary gauge was set in. At Big Black River, values were set on new bench marks as the result of a water level transfer from Grand Rapids, Manitoba which was facilitated by the co-operation of the Hydrographic party on the LADY CANADIAN.

HORIZONTAL CONTROL

Control for the Bloodvein River was brought in from Black Bear Island and Red Rock. No prepared shoreline plots were available. Therefore, many additional points were established, and using available photography and a portable sketchmaster, shoreline was constructed for the field sheet. Three sets of ranges were also positioned.

At Big Black River, control had been established in 1974 by CHS. Therefore, only a few additional points plus three of the five range sets were positioned.

LAUNCH POSITIONING

At both Bloodvein and Big Black Rivers, all soundings were positioned by the range-bearing method using theodolite and Motorola Mini-Ranger. In very tight quarters, some minor use of photographic sounding was employed.

BATHYMETRY

Edo 9040 metric sounders were used exclusively. Line densities will be explained under each field sheet later in the report.

EQUIPMENT

The WOODCOCK again operated very successfully this year. This launch, despite looking very awkward, has many advantages:

1. it is roomy,
2. it has a steel hull which is a great help to electrical grounding,
3. its shallow draft steel hull is ideal for shallow shoal infested areas,
4. its V-6 engines are compact, powerful and easy to repair and adjust; and relatively cheap automotive parts are readily available for them,
5. the modular feature of the OMC lower units was a real time saving feature this year.

Some problems were experienced with the WOODCOCK this year. However, these problems were easily remedied with relatively little time loss.

The engines, although overhauled every spring, have received heavy use over the last three or four years. This year, one engine had to be replaced when its crank shaft broke and caused irreparable damage to the engine block.

We experienced much initial trouble with the old lower units. However, we actually suffered little time loss on this account because our mechanic has, through the years, saved old parts from lower units and the modular feature of the OMC lower units permitted relatively easy repairs without having to take the launch out of water. The party's mechanic had to work often and late but he was able to minimize greatly the time losses. New lower units were eventually fitted and problems ceased.

Electronic equipment worked well. Minor problems were handled by the Hydrographers. The Motorola Mini-Ranger was especially dependable, easy to use and install and very stable.

The International travelall and trailers were not used except to set up and pack up the party. The truck was left at End of Road while the Big Black River survey progressed. It was driven back to Selkirk upon the return trip of the GRAND MARAIS to its home port.

WEATHER

Weather was a particularly troublesome aspect of the survey. Historically, trends show May, June and part of July to be the best survey periods. Late July and August are generally poor weather months and September is usually a virtual loss because of bad weather. This year, the trend was true to form but the storms were unusually long, extreme and closely spaced.

At Bloodvein River, the survey took twice as long as predicted because we were often unable to traverse Bloodvein Bay to the work area during frequent bad weather periods.

However, at Big Black River, the effects of bad weather were reduced because we were docked in the immediate work area.

Weather statistics are noted in the appendix.

COMMUNICATIONS

Radio communications on Lake Winnipeg are always poor and intermittent. However, shippers, the MOT at Selkirk, the DPW dredge at the Red River mouth, the light keeper at Georges Island and the Manitoba Telephone System all co-operate immensely. This survey party also installed one of our Marconi CH-25 radios in Selkirk at the home of the owner of Perimeter Marine Services. Between all these radios, we were able to keep reasonable touch with Burlington.

BLOODVEIN RIVER SURVEY

A small Indian settlement, which is on a reservation, occupies the shores at the mouth of the Bloodvein River. Fishing is the main industry of the area. Yawls are used to harvest the fish and bring the catches to Princess Harbour and End of Road. Some pulp wood is cut in the area. Plans are in progress to locate a small pulp mill in the community. The community has one store and an elementary school. Children are flown to a government

boarding school for their high school education. Shipping is infrequent but important to the community. Approximately five to ten trips by ships of about eighty to one hundred feet in length are made into the community annually. The government dock is very small for unloading cargo. The route into the dock is generally very narrow and shoal infested. Ships must follow the navigation aids explicitly to avoid dangers, which often lie close to the channel.

FIELD SHEET NO. 3890

ENTRANCE TO BLOODVEIN RIVER - SCALE 1:10,000

Sounding lines, spaced to CHS specifications, were run about three hundred metres each side of the range lines. The bathymetry was accented often by shoals which were shallow and close to the channel.

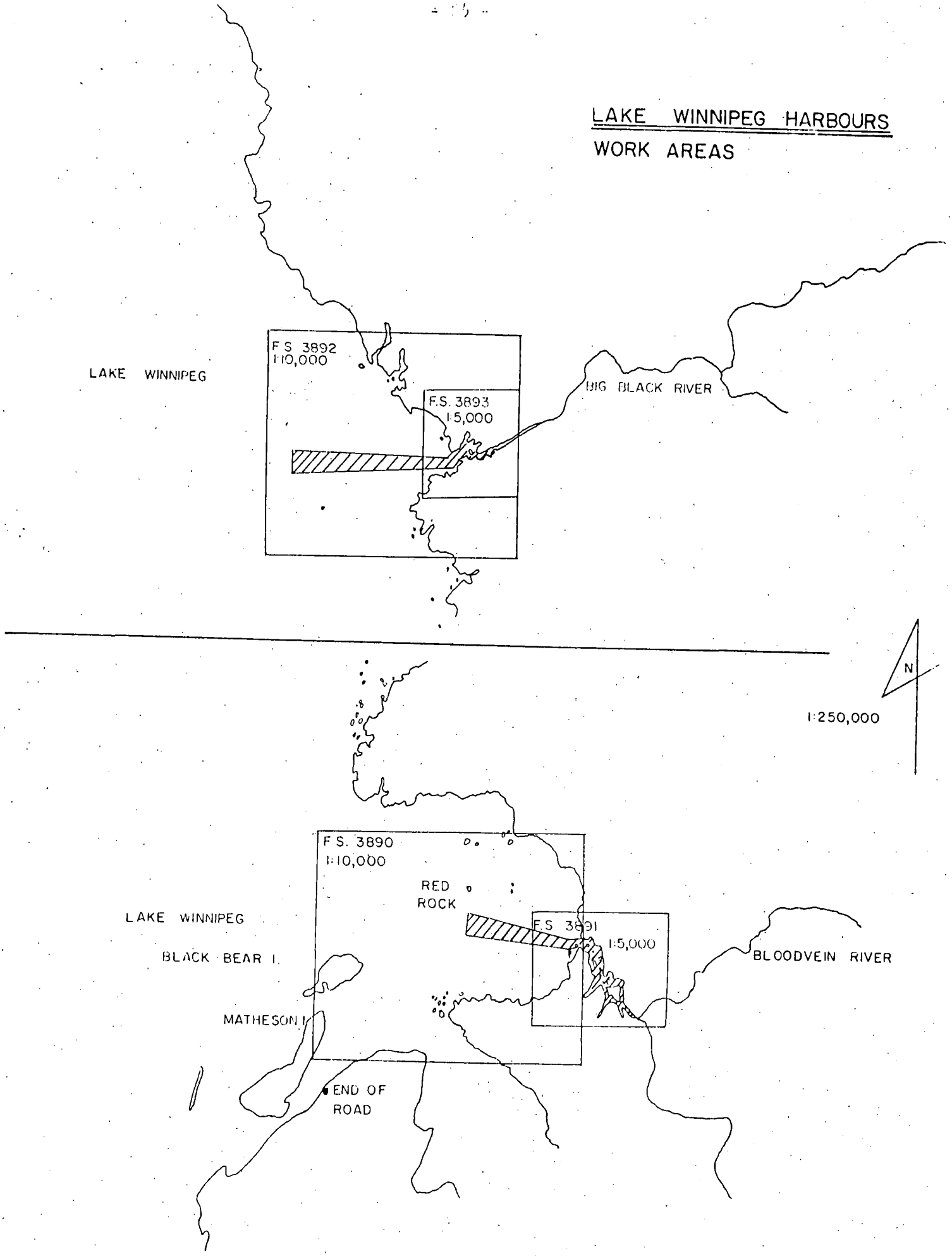
FIELD SHEET NO. 3891

BLOODVEIN RIVER - SCALE 1:5,000

It was anticipated to run lines strictly in a corridor on the field sheet. However, because of the very narrow, dangerous and often altering courses on this field sheet, some of the lines were run from shore to shore.

Immediately after leaving the previous field sheet (3890), a very narrow, shoal infested area is entered on the channel. Much concentration was needed here to ensure accuracy and explicit detail. After leaving this area, the route becomes wider and deeper but shoal areas still run very closely to the channel.

Many horizontal control points were needed on this field sheet in order to establish shoreline for the field sheet and to permit visibility for range-bearing launch positioning.


LAKE WINNIPEG HARBOURS
WORK AREAS
LAKE WINNIPEG
F.S 3892
1:10,000
F.S. 3893
1:5,000
BIG BLACK RIVER
N
1:250,000
F.S. 3890
1:10,000
RED
ROCK
LAKE WINNIPEG
F.S 3891
1:5,000
BLACK BEAR I.
BLOODVEIN RIVER
MATHESON I.
END OF
ROAD

BIG BLACK RIVER SURVEY

Big Black River is a community of four or five families. A very successful Co-Op is located here. This co-operative processes the fish for the main industry of the community. Shipping by large vessels includes cargos of construction material and equipment. The processed fish are also shipped out by large vessels except during the winter season when the catch goes out by air. There is twice weekly unscheduled air flights into the community by float equipped aircraft. A small but thoughtfully equipped store, which also sells gasoline and diesel fuel, is located at Big Black River.

FIELD SHEET NO. 3892

ENTRANCE TO BIG BLACK (MUKATAWA) RIVER - SCALE 1:10,000

Corridor sounding about three hundred metres each side of the range lines were taken. The depths averaged five to six metres and shoals were numerous. The first range set is very difficult to see from the start of the course, however, buoys mark the channel well.

FIELD SHEET 3893

BIG BLACK (MUKATAWA) RIVER - SCALE 1:5,000

Numerous ranges and buoys mark the often changing course through a small, narrow channel. Although there is sufficient depth for the ships of Lake Winnipeg, shoals do lie very close to the channel. Soundings were collected up to the Co-Op dock, since no government dock exists at Big Black River.

GENERAL

The harbours completed on Lake Winnipeg were adequately surveyed. Although there is relatively little shipping into these harbours, the trips involve large shipments. The sounding coverage reflected this fact; only a narrow route into the docks was surveyed.

In future, more attention should be paid to weather on Lake Winnipeg. The surveys should be ready "on the edge of the ice" in early May and sheltered work should be reserved for September and late August. Progress is generally at a standstill from late August onward as a result of the poor weather.

Originally, we had planned to be on Lake Winnipeg for five months (May to September) and complete four harbours. However, because the Ministry of Transport's own ship was not going to be available, we gave up the GRAND MARAIS for their use during May and June. The loss of these two good weather months, which had been counted on for high production periods, plus the unusually poor weather in July and August meant that we were able to complete two harbours. However, we made good use of May and June by completing the survey of Thunder Bay.

The GRAND MARAIS, which is owned by D.P.W., proved to have some downfalls. For example: the engines are so old that we had difficulty getting an injector; the toilet system was not common and we had quite an uncomfortable long period waiting for parts; the heating system was in such a state of disrepair that we had no heat for several cold fall days; the engine batteries were in such a state that constant charging was necessary to keep them ready to start the engines; the engines had no remote stop feature and we had to rig a temporary system in case of an accident that we could not enter the engine room; there were no gaskets on some of the engine heads. However, despite these and many more such difficulties, Perimiter Marine Services, through its personnel's experience and contacts, were able to handle all troubles. The contractor often went beyond his required responsibilities to keep the ship operational.

The CHS staff and crew were very competent and tolerant. Despite cramped and uncomfortable ship accommodation, the men continued to produce excellent work.

On one occasion, the federal Department of Public Works crew from Winnipeg arrived at Bloodvein River for a small pre-construction survey. We were able to help somewhat with beds and a few meals.

The Ministry of Transport also required some aid to place the light buoy at Big Black River. The M.O.T. personnel arrived in the area and the GRAND MARAIS was used to drop the light buoy. At the end of the season, we also dropped a buoy to mark a measured mile for the MOT's new ship trials.

The Ministry of Transport and Department of Public Works at Selkirk have, in the past, been very helpful with equipment, personnel and storage space. This help is especially appreciated in the spring when this party has had to set up boats, etc. in a muddy field with no heavy equipment. It was a pleasure to perform a couple tasks for these agencies in return for their help. The Ministry of Transport at Selkirk was particularly helpful this season with radio calls and message transfers.

The Manitoba government is now placing high priorities on the development of communications and transportation on Lake Winnipeg. A new provincial department has been created to handle all "off roads transportation". This department apparently, since its creation last fall, has acted on establishment of five ferries on the lake. This new department also wants to open up, by dredging, many lakes in the Playgreen Lake area for exploitation of lumber and pulp. The policy appears that the provincial government wishes to limit the roads up the east shore of the lake and make better use of the lake for transportation. If this new department's plans reach fruition, shipping activities on the lake should increase and become more important to the lake's economy.

APPENDIX A

- STATISTICS -

REPORT STATISTICS:- MONTHLY..... PROJECT..... FINAL FIELD..XX...

YEAR 1975 FROM APRIL 28 TO SEPTEMBER 27

Establishment LAKE WINNIPEG HARBOURS THUNDER BAY

H.I.C. K.G. HIPKIN

	Project Number	Project Number	Project Number	Project Number	
Project Name THUNDER BAY	6600-73-3				
Project Name LAKE WINNIPEG HARBOURS		6600-62-2			
Project Name					
Project Name					
Resources:					TO
Number of Hydrographers *	3/168	2/162			
Number of Scientists *	N/A	N/A			
Number of Electronic Technicians *	1/18	1/4			
No. of Student Assistants and Casuals *	1/56	1/61			
No. of Support Personnel (Ship's Crew, Etc.) *	6/56	3/61			
Total Personnel *	11/298	7/288			
Number of Ships	N/A	1			
Number of Launches	3	1			
Number of Land Vehicles	2	1			
Number (and type) of Aircraft	N/A	N/A			
Number of Minor Support staff	N/A	N/A			
Other (specify)					

* Should provide two figures separated by a slash. The first figure being the average number on strength and the second being the man days.
e.g. number of Hydrographers: 5/100 (an average of 5 Hydrographers spent 100 man days on the project).

FIELD REPORT STATISTICS:- MONTHLY ... PROJECT ... FINAL FIELD .xx

YEAR 1975 FROM APRIL 28 TO SEPTEMBER 27

Establishment THUNDER BAY LAKE WINNIPEG HARBOURS H.I.C. K.G. HIPKIN	Project Number 6600-73-3	Project Number 6600-62-2	Project Number	Project Number	T
Time:					
Total operational days.	49½	81			
Days actual field work.	28½	29½			
Days lost (weather)	7	24			
Days lost (Sat. Sun. Holidays)	6	11			
Days lost (Equipment failure)	3½	7½			
Days lost in Transit	5	14			
Days lost in port for Supplies, Bunker, etc.	N/A	2			
Days lost, other causes SET-UP	5½	6			
Total Man days in period (staff)	156	188			
Total Man days worked (staff)	138	162			
Man days:- (staff)					
(a) Sounding	4	38			
(b) Shoal Examinations	78	50			
(c) Wharf surveys	N/A	2			
(d) Oceanography	N/A	N/A			
(e) Geophysics	N/A	N/A			
(f) Tides & water levels	1	3			
(g) Collecting bottom samples	2	2			
(h) Horizontal Control	3	10			
(i) Shorelining & Low Watering	N/A	N/A			
(j) Data processing & office admin.	50	52			
(k) Sailing directions	N/A	2			
(l) Place Names	N/A	2			
(m) Current observations	N/A	N/A			
(n) Photo-Ident.	N/A	1			
(o) Others (specify)					

SURVEY STATISTICS - MONTHLY ... PROJECT ... FINAL FILE ...X

YEAR 1975 FROM APRIL 28 TO SEPTEMBER 27

Establishment: THUNDER BAY LAKE WINNIPEG HARBOURS H.I.C. K.G. HIPKIN	Project Number 6600-73-3	Project Number 6600-62-2	Project Number	Project Number
Sounding (Linear Nautical Miles/KM):				
Ship Sounding	N/A	N/A		
Launch Sounding	144	329		
Other (specify)	N/A	N/A		
Total sounding	144	329		
Reconnaissance (Track) sounding	N/A	N/A		
Area sounded ($N.M^2$) (Km^2)	10	21		
Shoals Examined:				
Shoal Examinations (Ship)	N/A	N/A		
Shoal Examinations (Launch)	217	367		
Shoal Examinations (Sweep)	N/A	N/A		
Shoal Examinations (other) specify	N/A	N/A		
Shoal Examinations (Total)	217	367		
Navigational Aids:				
Shore Aids Positioned (including ranges)	2	12		
Floating Aids Positioned	0	28		
Navigational Ranges Sounded	1	8		
Navigational Ranges Drifted	0	0		
Sector Ranges Positioned	0	0		
Navigational Aids Established	0	0		

YEAR 1975 FROM APRIL 28 TO SEPTEMBER 27

Establishment THUNDER BAY LAKE WINNIPEG HARBOURS H.I.C. K.G. HIPKIN	Project Number 6600-73-3	Project Number 6600-62-2	Project Number	Project Number
Shore Control:				
Signals built	16	12		
Signals re-built	0	0		
Towers built	0	0		
Number of Stations occupied	8	15		
Number of Stations re-occupied	0	0		
Number of stations permanently marked	2	5		
Distance Traversed (N.M.)	10	27		
Number of Elevations Measured	42	52		
Number of Heights Measured	2	26		
Number of Stations Photo Ident.	4	15		
Other (specify)				
Calibrations:				
No. of Calibration Stations:	N/A	N/A		
Lambda, Decca, Hi-Fix, Mini Fix,	N/A	N/A		
Loran, Decca Navigator,	N/A	N/A		
No. of E/c's marked and referenced	2	2		

FIELD REPORT STATISTICS:- MONTHLY ... PROJECT ... FINAL FIELD XX.

YEAR 1975 FROM APRIL 28 TO SEPTEMBER 27

Establishment THUNDER BAY LAKE WINNIPEG HARBOURS	Project Number	Project Number	Project Number	Project Number
H.I.C. K.G. HIPKIN	6600-73-3	6600-62-2		
Tide and Current Data:				
Recording gauges established	1			
Recording gauges recovered	0	0		
Staff gauges established	0	0		
Bench Marks Recovered	1	2		
Bench Marks Established	3	3		
Bench Marks Levelled	0	3		
Distance Levelled (N.M.) (XXXX	3	6		
No. of Current Meters Set Out	1/10	1/10		
No. of Current Meters recovered	0	0		
No. of hours of Current Measurements	0	0		
(Other than with Moored Meters)	0	0		
Oceanography:				
No. of Oceanographic stations	N/A	N/A		
Gravity Profiles-survey (N.M.) (KM)	N/A	N/A		
Gravity Profiles-track, (N.M.) (KM)	N/A	N/A		
Magnetic Profile-survey (N.M.) (KM)	N/A	N/A		
Magnetic Profile-track, (N.M.) (KM)	N/A	N/A		
Seismic Profile-survey (N.M.) (KM)	N/A	N/A		
Seismic Profile-track (N.M.) (KM)	N/A	N/A		
Number of Water Samples	N/A	N/A		

FIELD STATISTICS: MONTHLY ... PROJECT ... FINAL FIELD XX

YEAR 1975 FROM APRIL 28 TO SEPTEMBER 27

Establishment THUNDER BAY LAKE WINNIPEG HARBOURS H.I.C. K.G. HIPKIN	Project Number 6600-73-3	Project Number 6600-62-2	Project Number	Project Number
Bottom Samples:				
Number of bottom samples (Grab)	0	0		
No. of bottom samples (underway)	0	0		
No. of bottom samples (Armed Lead)	20	91		
No. of Cores	0	0		
No. of Samples retained	0	0		
Miscellaneous:				
No. of Dangers to Navigation, rocks ruins, pilings, etc., fixed.				
Shoreline checked (H.H.) (SEE)	20	22		
Wharves surveyed	N/A	2		
No. of Reference buoys streamed	N/A	N/A		
No. of Reference buoys recovered	N/A	N/A		
No. of Shore Stations Established:	N/A	N/A		
Lambda, Hi-Fix,	N/A	N/A		
Helicopter flying hours	N/A	N/A		

FIELD REPORT STATISTICS: MONTHLY ... PROJECT ... FINAL FIELD .XX

YEAR 1975 FROM APRIL 28 TO SEPTEMBER 27

Establishment: THUNDER BAY LAKE WINNIPEG HARBOURS H.I.C. K.G. HIPKIN	Project Number 6600-73-3	Project Number 6600-62-2	Project Number	Project Number	T
Data submitted from the field: (Include file numbers:)					
THUNDER BAY:					
FIELD SHEET - MIDDLEBRUN BAY TO THUNDER BAY	3860				
SOUNDING NOTES	70581				
OBSERVATION NOTES	70582				
COMPUTATION NOTES	70582				
MISCELLANEOUS NOTES	70582				
LAKE WINNIPEG HARBOURS:					
COMPUTATION NOTES		70638			
OBSERVATION NOTES		70639			
MISCELLANEOUS NOTES		70640			
ENTRANCE TO BLOODVEIN RIVER (FIELD SHEET)		3890			
SOUNDING NOTES		70634			
BLOODVEIN RIVER (FIELD SHEET)		3891			
SOUNDING NOTES		70635			
ENTRANCE TO BIG BLACK RIVER (FIELD SHEET)		3892			
SOUNDING NOTES		70636			
BIG BLACK RIVER (FIELD SHEET)		3893			
SOUNDING NOTES		70637			