2014

S. Whitley

Photo by: Heather Unrau Photography

SAIL LAKE WINNIPEG:

A CRUISING GUIDE

A Gimli Yacht Club Publication – Unofficially & Partially updated in 2012 and again in 2014

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FOREWORD

Please read this foreword; it may concern your safety.

It was not experience or compulsion that promoted this guidebook. It was a vacuum. When one turns to the literature relating to Lake Winnipeg, there is very little to help pass a long and tedious winter; nothing to fuel a prairie mariner's reverie. There is no catalogue of places to go, or data regarding the lake. The winter of 1978-79 was especially long and cold. There was plenty of time to ferret out information, and it was during the course of research that the Master Plan for the Recreational Craft Harbour Development of Lake Winnipeg was discovered. This was commissioned by the Manitoba Government some ten years ago, and was a joint undertaking between the Department of Tourism, Recreation and Cultural Affairs, and the Department of Mines, Natural Resources and Environmental Management. The report studied the existing features of the lake at that time, and was to provide a guide for recreational planning.

Suffice it to say that this report furnished a tremendous wealth of information, the essential parts of which are contained in this inventory of harbours. Freedom to use the reports was granted by the directors of the appropriate agencies of the provincial government; this is acknowledged with grateful thanks. Such a work as this could not otherwise be prepared without enormous cost-and commensurate published price-was it not for the interest taken by the province in the lake a decade ago. And so this guide is made possible.

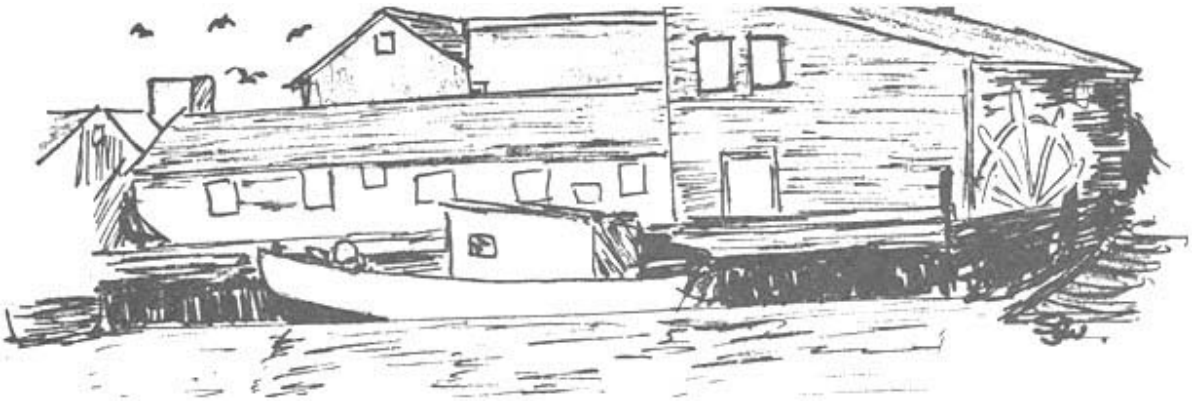
The purpose of this handbook is simply to promote safe recreational boating on Lake Winnipeg. A compendium of where to go, to be used with, not in place of, the usual navigational charts. It is not a pilot in the true sense, since the survey was done a decade or so ago, at a time of higher water levels, and with a different intention in mind. There are inaccuracies therefore, and this must be strictly borne in mind by the user. Where possible, errors have been corrected and recent photo-graphs have been included. Mistakes have been confirmed in the data, which suggest that other errors may exist as well.

The basic premise of all the comments hereafter is one of safety. To that end though it is believed that the information contained herein is largely accurate, no liability or responsibility can attach for reliance on anything in this handbook. The Manitoba Government expressly disclaims any liability for reliance upon facts and figures which they may have instructed to be taken, and upon which this handbook is based. Simply put, SAIL LAKE WINNIPEG: A CRUISING GUIDE is intended to be a guide only. Final responsibility for all actions falls upon the skipper of the individual craft. The comments prefacing the discussion on safety afloat are valid here: prudent boatmen, after considering all of the physical factors which they observe from the helm, make their decision with a wide margin for error. That means finally, basing their craft's movement on known data and common sense.

Some of the photographs are of poor quality, or outdated. They have been included because there are no other choices.

All of the people who made this work possible are acknowledged with gratitude. All wish to see the image of Lake Winnipeg enhanced as a recreational boating resource. The Gimli Yacht Club supports this book to that extent, and without club support the guide might not otherwise be available. Bob Ward has worked diligently to promote the idea; the local branch of the Coast Guard were helpful and patient. Northern Affairs (planning section) were most helpful as a resource, including John Kokorsch and Kevin Lalor. Phil Issac is especially thanked for his thoughtful notes in review; updating the inventory of harbours is largely due to his comments, made as they were from experience on the lake in Triskele. Lastly, gratitude is expressed to Billie Johnston who tirelessly prepared and proofread the manuscript.

Finally a word on the price, It is closely keyed to the expected break-even point. Any surplus will be used to reimburse those who saw fit to sponsor publication. Hopefully, a second volume, featuring the north end of the lake can be commenced. Lake Winnipeg has much to offer. The boating community is expanding rapidly as people become increasingly aware of the vast recreation potential of this huge body of water. Cruising, power or sail is a viable, richly rewarding alternative to owning a summer home; it can serve as a focus for family interest, that experience has shown will endure.



SJW

2012 REVISIONS

In the winter of 2012 I found myself looking to move into a larger sailboat, after only 2 seasons of sailing/vacationing on a Mirage 25 (see cover) moored in the south basin out of Boundary Creek Marina – Winnipeg Beach. I had enjoyed the time learning to sail in the open waters of the south basin, and I'd also really enjoyed spending time at the thriving town of Winnipeg Beach. However, the winter was extremely dry and concerns of a low water season had me wondering how likely it might be that my new (slightly older) larger, deeper sailboat could get stuck in the mud all summer. Add that to a few other factors and I found myself moving north to Hecla.

As a novice sailor I wanted as much information on the Hecla area as possible – where are all of these anchorages that I had heard of? Where should I go? Where shouldn't I go? What do I need to know about where I might go?

I was surprised to find this reference for the lake, an old reference, but a reference none the less. I found the wealth of information to be extremely valuable; the only downside is the age of the information and the somewhat low quality copy of the original book. In order to address these issues I ran it through an OCR program and spent a weekend re-formatting and adding some additional information where it was easily available (references cited at end of document). I did not spend any time validating or fact checking any of the information, as such, S. Whitleys original warning, still stands.

> *"Simply put, SAIL LAKE WINNIPEG: A CRUISING GUIDE is intended to be a guide only. Final responsibility for all actions falls upon the skipper of the individual craft".*

I hope no one finds offence in the fact that I took the liberty to re-format and add information into this guide. I took from S. Whitleys original copy that he intended this to simply be a method to share information and promote the use and enjoyment of Lake Winnipeg. I'd like to help do the same.

Clint Unrau (clint.unrau@gmail.com)

2014 REVISIONS

In the Winter of 2013/2014 Willy Froese and Marvin Hamm saw an advantage to refining the Guide for all users, mainly due to a few transcription errors from the scanning process. After communicating with Clint, we combed over the guide fixing spelling and data errors as best we could. As well, we verified and updated the Coast Guard and RCMP contact numbers, VHF radio repeater locations and added Weather Radio availability. The coordinates of the harbours were checked and the format changed to decimal degrees, to aid entry into chartplotters, and Google Maps for planning purposes. We trust the Guide is more usable for it.

Of note is that the Coast Guard is undergoing some restructuring; what impact this may have on Lake Winnipeg services is not yet known.

We encourage sailors to gather and submit information, particularly of Northern Basin harbours, for future versions. Photos that show newer additions (like breakwaters) to southern harbours to illustrate current entry routes and conditions would also be valuable. We know some of the photos in the guide are dated, but until better ones are available to us, we'll keep the old photos.

CHAPTER I: Cruising Lake Winnipeg

Lake Winnipeg is located in the Manitoba lowlands between the Manitoba Escarpment in the west, and the Precambrian shield on the east. It is the largest lake in Manitoba; it is the twelfth largest in the world, with a surface area of 9430 square miles.

Boaters who choose to take advantage of this immense body of inland water have the advantages of coastal cruising together with the excitement and discipline of offshore navigation. Apart from fishing and some transportation, and the shore-lived Lord Selkirk cruise ship, the lake has remained largely ignored as a cruising resource. For those unfamiliar, the name evokes a frisson of fear and wonder at the fury which can erupt quickly on the lake. Some of the tragedies which the lake has seen have enhanced this feeling. On August 6, 1906, the Princess, with 26 staterooms, one of the finest boats then on the lake, foundered in a blow south of Warrens Landing. Six lives were lost including the captain, John Hawes of Selkirk, who refused to leave his passengers clinging to the wreck. An account of the disaster was recorded on the front page of the Winnipeg Free Press, that day.

"About 4:15 the steamer gave a great lurch and towering waves twenty five feet high struck her, breaking her almost in two, and the smokestack went down through the bottom of the hull..." And the lake's darker side imbedded itself in the sub consciousness of history.

Such accounts, and other embroidered in the re-telling do little to convey the attractions of Lake Winnipeg as a cruising ground. Picture the stillness of a cove, illuminated by a silver sliver of moon, just come up - the far-away call of an owl, and the symphonic strains of easy music from one of Manitoba's many nearby radio stations drifting faintly out over the dark water. One truly feels at peace with the world, which seems at this secluded anchorage so far away- and not at all part of the great South Basin of Lake Winnipeg, which lies at the doorstep of the City of Winnipeg, in Manitoba.

The attraction of the basin then, apart from the long summer days, the steady breezes, the variety, beaches, secluded anchorages, colonies of bird life, is its immediacy. Cruising holidays whether for a weekend or a month are possible, commencing literally within minutes of the city.

In large part, however, this is wilderness cruising, and boats must be stocked with food and fuel. Villages are far apart, and as a rule, supplies are not to be had. Drinking water must be brought along, for the lake water has silt and a high algae content. In season, pickerel and perch - the most common game fish, among others, make for a succulent fry ashore or afloat. There are no restrictions in terms of destination or access to beaches and harbour facilities where they exist, beyond restraints of common sense and decency. One can choose freely between the heavily populated areas to the south, or the wild pre-Cambrian beauty offered by the east shore to the narrows. Pre-planning of some kind is wise; adherence to basic safety rules is requisite. Nothing in this however, can detract from the romantic spontaneity possible afloat on vast Lake Winnipeg

CHAPTER II: A Brief History on Lake Winnipeg

The earliest date recorded for a sighting of Lake Winnipeg is 1656. Medard Chouart, a Frenchman, made his report to Quebec late that year saying that he had met

> *... a nation of the sea which some have called stinkards because its people who formerly live on the shores of the sea called Ouinipeg - that is, stinking water;*

Anthony Henday in the employ of the Hudson's Bay Company in 1754 encountered the vast body of water with its 'mysterious tides', and determined the name to be derived from two words in the Cree language: Win (murky) and Nipy (water).

The Hudson's Bay Company, determined to preserve its monopoly, established the outpost of Norway House on Playgreen Lake, connecting with the Nelson River and Lake Winnipeg. This became a centre for the construction of York boats. These craft, broad of beam and high at stern, had shallow draft. It was designed by the Orkney Islanders to withstand the rigors of trade on Lake Winnipeg. The boats, in their final stages of development ranged from a 24 foot keel (3600 lb. capacity) to a 33 foot keel (10,800 lb. capacity). These craft were propelled by a team of oarsmen or single mast and square-rigged sail (or a combination of both). Boats would ply the lake in groups called brigades.

The journey from Lower Fort Garry to Norway House, loaded with furs and supplies (a distance of approximately 260 miles), usually took eight to ten days. As settlement proceeded however, the York boat became secondary, then eclipsed by the introduction of steam powered vessels such as the stern wheelers International (1870) and Chief Commissioner (1872.) These were part of a fleet of shallow draft steamboats belonging to the two large shipping firms, the Northwest Navigation Co., and the Winnipeg and Western Transportation Co. Later on these companies, after the coming of the Canadian Pacific Railroad, dominated trade and travel on Lake Winnipeg and the lower Saskatchewan River. The hull design changed too, from shallow to deep draft displacement hulls. The craft themselves were driven by side and stern wheels, as well as screw. One of the most well-known vessels from this period was the S.S. Princess. She was driven by brightly colored side wheels and could accommodate up to eighty passengers in twenty-six staterooms. In addition to passenger freight service to the North-West, she was popular as a moonlight cruiser along the Red River. With the decline in passenger traffic, and excessive operating costs, early in this century she was redesigned and re-powered. With a compound engine and single-screw propeller she operated

on the eke hauling cordwood, fish, railway ties, supplies and passengers to Selkirk. She sank in the storm to which reference was made earlier, in 1906.

Freight always was the principal commodity, and passengers were forced to rely on their own initiative to ensure that passage was obtained. Scheduling was random at the best of times. The trip from Selkirk to Grand Rapids took anywhere from one to two weeks, and could be affected by a number of variables such as stopovers, weather, and barges to be towed (these barges occasionally exceeded eight-hundred tons).

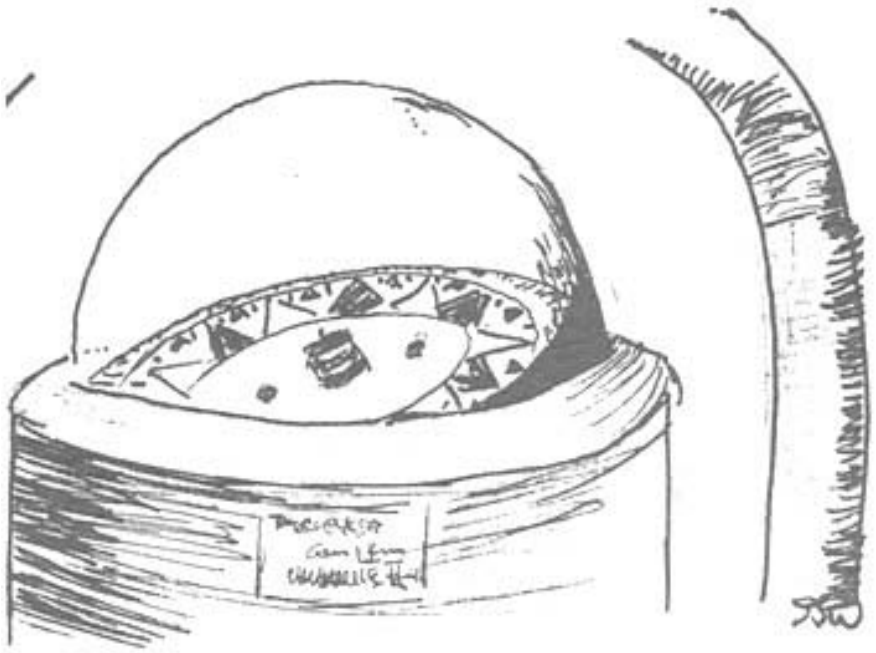
It was these barges which partly promoted the development of the tugboat Industry. As well, the lumber industry, with huge rafts, then booms, to be transported to Selkirk from various sites around the lake, required powerful tugs. In 1889 the shallow draft Rocket was built in Sarnia, Ontario. Built of oak, the eighty-ton tug served for four years before haul-out and dismantling at Selkirk. At least fifteen or sixteen craft operated on Lake Winnipeg at the turn of the century, as tugs/ fish packets. Some, like the S.S. Red River were designed principally to do towing work. The Red River was an unusual boat, being one hundred and thirty feet long, its housing located well aft and completely under-powered. Light, and during calm conditions, she could barely make five knots. The booms however, could not be towed at a speed greater than one mile an hour.

Lake Winnipeg remains an important source of commercially available fresh water fish. The first business in this connection was started in 1882 by D.F. Reid and D. Clark, using a single sailboat. The next year, Dominion Fisheries was organized, with help from Booth Fisheries of Chicago. The Icelandic fishing traditions were leaned upon, in particular the type of sailboat which the Icelandic fishermen favored at that time. However, the square-sterned flat-bottomed boat was not suitable for the short choppy waters of Lake Winnipeg.

The sailing craft built at Collingwood, in Ontario for use on Georgian Bay, was perfect for use on Lake Winnipeg. Masts fore and aft, sharp-sterned, she had a removable centre-board. These boats would proceed to the fishing grounds by tug, and return the same way (or make their own way back, depending upon the circumstances). Fishing continued in this rather severe way until the development fifty years or so later of readily-available inboard and outboard engines. This technology spurred the increase of the vessel which came to be known as the 'whitefish boat.' This usually was laid upon a 40 foot keel, being 45 feet or so overall. There was a single (usually flush) deck, motor amidship, and cargo hold forward. These boats are seen presently during the early and late boating season, tending to nets set at various places about the lake. However, though the basic style still remains as described and the hulls now of steel follow closely the sea-worthy lines of their predecessors, the superstructure without exception is a utilitarian affair that lacks the shippy

appeal of the earlier wooden models. The availability of the outboard has brought with it the development of the fishing yawl-a boat some 16 to 20 feet overall, high in the bows, and rounded chines. These graceful craft are ideally suited to the choppy conditions prevalent during the fishing season on the lake. They are now invariably constructed of fiberglass. Here and there on the eastern shoreline, one may yet see hulks which remain as transient tribute to the craftsmanship necessary when wood was the only boatbuilding material.

Today there is still freight and ferry traffic of consequence. There is still halting attempts to promote passenger/excursion voyaging. By far the dominant nautical traffic, apart from fishing, is pleasure boating. Overseeing this activity is the Namao (Cree for 'sturgeon'), Lake Winnipeg's Coast Guard vessel. Operated by Transport Canada, she was built at Riverton Boat Works, has a seven foot draft and is one hundred and ten feet over all length. In addition to monitoring traffic, her responsibilities will include the setting up and servicing of buoys. Her presence certainly has to be a comfort to those boaters having radio telephone capability.



CHAPTER III: The Physical Characteristics of the Lake

Lake Winnipeg is the 6th largest lake on the North American Continent. It occupies an area of water some 9600 square miles (most of which is in the North basin.) It has a vast drainage basin of 370,000 square miles. This guide deals mainly with the south basin, comprising less than one fifth of the total surface of the lake.

At one time, in the glacial age, it was referred as Lake Agassiz. It overspread much territory in Minnesota, the Dakotas and the Provinces of Manitoba and Saskatchewan. Its area was estimated at 110,000 square miles, with beaches carved on what is now Duck Mountain, at an elevation of 1365 feet above sea level. This suggested to geologists that there was a gradual rise of the entire region with resultant draining away of surface waters. Originally, this huge sea drained into the Mississippi, but as the Keewatin icecap retreated, it turned eastward to drain into Hudson's Bay, principally by the Nelson. Thousands of lakes remain as relics of Agassiz, notably Lake Winnipeg, Winnipegosis, Manitoba, and Lake of the Woods.

The underlying rock formations provide the key to shoreline. The surface bedrock has served as the major control in the evolution of shoreline characteristics. The east portion of Lake Winnipeg lies on the contact zone, between the old Precambrian and later Paleozoic eras; as a result the west and east shorelines have sharply contrasting shorelines. The east shore is typically shield topography, numerous islands, and bedrock outcropping, and in places, shoaling rapidly, even abruptly. Interspersed are low-lying areas of muskeg and associated growth, such as scrub pine. It is this contrast that gives the east shore its beauty (and hazardous navigation). Geologic fault lines along the major contact zone account for the straight line appearance along some parts of the shoreline.

The west shore, on the other hand, is regular regionally and locally. Long stretches of gently rolling shoreline with large bays are typical. In some places the eroding lacustrine shoreline yields to limestone cliffs. This transitional zone (Hecla Island, for example) between the two major bedrock formations provides some of the most interesting shoreline with limestone, granites and sandstones creating complex pattern of landforms, which include, incidentally, some lovely and secluded beaches.

These are a number of navigable river systems which drain into south Lake Winnipeg. These include the Winnipeg River, which supplies thirty-two percent of the total inflow. The Red River contributes six per cent of the inflow, but it is the major boating channel to the lake. In addition its estuary forms part of a large marsh complex famous for abundant waterfowl of different species. Other significant systems are the Black and O'Hariley, Manigotagan, Wanipigow, Rice and Icelandic Rivers. The Sandy and Brokenhead Rivers are small systems which lend themselves only to the yachts, dinghy or inflatable. Other small systems in this category are the Boundary, Sugar, Loon, Willow and Steep Rock Creeks.

The mouth of the Red River at the south end of the lake (latitude 50' 23 ' N) and East Doghead at the north end of the narrows (latitude 51' 45 ' N) contain the area reviewed by this guide. Within this region, the widest section in the South Basin is about 26 miles across; the narrows, on the other hand is about 1½ miles across. The south Basin extends about 66 miles from the Red River channel to the N tip of

Hecla Island. The island complex, about the narrows, extends some 25 miles from the southern tip of Hecla Island to Grindstone Point. Between the exposed area of the lake north of Grindstone Point and East Doghead, there is about 28 miles of water.

The average depth is approximately 30 feet, though this does not accurately reflect local conditions. There are expansive shallow areas in the extreme south end, and the north of the Icelandic and Manigotagan Rivers, Loon Straits and Grassy Narrows, for example, but there are areas which are characterized by strong currents and significant depths. East of Black Island, for example are depths of 140 feet, and in the Narrows area are some depths of 75 feet.

The south end of the lake forms a large sand pressure ridge which is backed by Netley Marsh and the estuary of the Red River. Slopes offshore are shallow and breaker action is common in these waters.

Moving along the west shore the land rises slightly. Clay banks and boulder-gravel foreshores are broken by stretches of sand. Slopes offshore are moderate to shallow but vary greatly depending on the location of shifting sand bars. This type of shoreline continues, except for Willow Island Marsh, to the Riverton Marsh and the Icelandic River. The Riverton Marsh continues through Grassy Narrows and well up the east side of Grindstone Peninsula to a point adjacent Goose Island. Here the shoreline changes quickly to pressure ridges backed by lowlands, (Washow Bay). Here the moderate to steep offshore slopes change to shallow conditions with frequent shoals.

The west shore of Hecla is almost entirely low marshy land, with discontinuous pressure ridges along the shoreline. Along the east shore, the shoreline changes from sand at the south end to boulder-shingle and 50 foot limestone cliffs on the north tip of the Island. These cliffs continue in an almost uninterrupted fashion to the northwest corner of the Island where the land quickly slopes down to create marshy conditions.

Moving north from Washow Bay, the land rises slightly and creates a somewhat better drained backshore with sand and gravel foreshores and slightly steeper offshore slopes. North of Beaver Creek, the land begins to rise sharply and forms jagged limestone cliffs with steep offshore slopes. The limestone boulder shoreline continues to West Doghead (Narrows) and is broken occasionally by stretches of shingle bars against the shore and large bays. Biscuit Bay is the largest indentation and has more accessible sand-gravel-boulder shorelines with lower backshore. The back of the bay is characterized by marshy conditions and some sand beaches. Pine Dock Bay has higher backshore and the foreshore is mostly shingle bar or stretches of sand and gravel. Little Bullhead Bay is one of the most attractive areas on the west shore with a long sandy beach forming the back of the bay.

The east shore beginning at East Doghead is only about 1 1/2 miles across the channel from the limestone cliffs of West Doghead, yet it exhibits an entirely different type of shoreline. Typical shield topography with bedrock outcrops and an irregular shoreline consisting of sandy bays and steep offshore slopes continues southward to Loon Bay. Here, the shoreline changes to sandy beaches, low backshore and numerous offshore shoals. Slightly higher land with bedrock outcrops occur in the Loon Straits area but offshore conditions remain hazardous. Muskeg and low sand pressure ridges constitute most of the shoreline south of Loon Straits until a variety of small islands begin to occur east of

Pipestone Rock. These islands together with bedrock outcrops and pleasant bays become the dominant landscape which continues through to Observation Point. In many places such as around the Rice and Wanipigow Rivers, the shoreline is almost entirely masked by a number of small islands. The outlets of these rivers can provide scenic anchorages. In general, sheltered boating conditions prevail except north of Observation Point where numerous small islands or reefs extend off the mainland.

Black Island rises slowly but steadily from south west to northeast. Much of the south side exhibits steep cliffs. The north side changes from relatively low backshore to high sand ridges and a variety of offshore islands. The high degree of relief, large beaches, and the consequent spectacular viewing opportunities make Black Island the most visually interesting area on the lake.

Deer Island is very similar to Black Island in the backshore of its north and east shoreline. While smaller in size, far more of the shoreline is characterized by steep cliffs. The east side provides most interesting scenery with white sand beaches and numerous offshore granite outcrops.

Between Observation Point and the Winnipeg River, the shoreline is both irregular and regular in shape depending on the occurrence of granite outcrops. Long stretches of pressure ridges backed by muskeg are common and provide little shelter. The Sandy River, Black and O'Hanley estuary are the only exceptions. The latter is an all-weather natural harbour and is the most outstanding attraction in the area. Unfortunately this part of the shore has not been charted and therefore must be considered hazardous. Proceeding southward towards the Winnipeg River, occurrences of actively eroding clay cliffs become more common.

Glacial drift, with end moraine and beach ridges characterize the shoreline from Elk Island to Balsam Bay. Large beaches, till and lacustrine cliffs with boulder rubble offshore occur throughout the area. The relatively high backshore drops off quickly at the south end of the lake where it joins the Netley Marsh and various river estuaries.

The Red River and it various tributaries such as the Assiniboine and Seine Rivers forms the heart of the Red River Valley. Flat topography, deep lacustrine deposits and impeded drainage characterize much of the land through which the Red River flows and eventually empties into the south end of Lake Winnipeg. Only a narrow fringe of what was once a wide riparian vegetation cover continues to grow along the river banks. Most of the meandering river course is enclosed by 5 to 10 ft. of actively eroding clay banks.

The main channel and the associated offshore slopes vary depending on the characteristics of the river course at any particular location. Generally slopes are gently on the inside and steep on the outside of a bend or meander curve. Depths vary from 10 to 20 feet but where the channel is hard to follow or shallow conditions prevail, aids to navigation are required to direct traffic.

As the Red River flows through the Netley Marsh, it splits into three channels. The center channel is the main boating channel and provides access to the lake. The east and west channels further divide into a complex pattern of possible routes but are susceptible to water fluctuations and their outlets to the lake are complicated by sand bars. High water in recent years has somewhat reduced the hazards of large

yachts travelling to the outlets, but has not alleviated the sand bar problems. Constant dredging and breakwaters are necessary to keep the main or central channel open for all types of craft.

CLIMATICAL FEATURES

By reason of its position relatively near the centre of the North American Continent, Manitoba has a climate which is "continental" or "land controlled". Weather characteristics such as large seasonal temperature ranges and moderately dry conditions generally reflect the minor influence of Canada's moderating coastal waters. The cold winters and consequent freezing of even the largest inland waters, unfortunately limits the season to less than six months.

TEMPERATURES AND PRECIPITATION

The climatic data from the Winnipeg International and Gimli Airports generally reflects the influence of latitude; mean daily temperatures decrease slightly from south to north. This decline in mean temperature becomes even more evident as illustrated by the data record for Grand Rapids. (See accompanying chart figure I.)

The mean daily, and maximum and minimum daily temperatures roughly identify a possible boating season from May to November; in reality the lake is usually icebound during the first part of May and does not usually freeze over till the middle of November. Unfortunately, only June, July and August have mean daily temperatures over 60°F. While temperatures are cooler in September, conditions in May and October are obviously marginal with the number of suitable days varying from year to year. The earliest and latest recorded dates for spring breakup (May 1 to May 25) and freeze up (November 5 to December 1) clearly illustrate the degree which the absolute length of boating season can vary. The variability is further demonstrated by recorded maximum temperatures which reflect the possibility of ideal conditions (May 93°F and October 84°F) at the beginning and end of the boating season but severe weather conditions even during the best months (July 36°F and August 35°F).

STATION AND ELEMENT

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
GRAND RAPIDS Lat 53 09 N Long 99 17 N Elevation 730 Ft. ASL												
Mean Daily Temperature (DEC F)												
-7.6	0.0	12.5	31.1	45.2	56.7	64.8	62.3	51.4	39.6	19.7	3.1	31.5
GIMLI Latitude 50 38 M Longitude 97 03 W Elevation 725 Ft. ASL												
Mean Daily Temperature (DFG F)												
-1.1	3.4	16.2	36.3	50.3	60.3	67.0	64.1	53.8	42.2	23.0	7.2	35.2
Mean Daily Maximum Temperature												
7.3	12.7	25.9	45.2	60.9	70.1	77.3	74.0	.62.6	50.1.	29.5	15.1	44.2
Mean Daily Minimum Temperature												
-9.5	-5.9	6.5	27.4	39.7	50.5	56.7	54.2	45.0	34.0	16.5	-0.7	26.2
Maximum Temperature												
43	46	72	91	93	98	94	104	90	84	63	42	104
Minimum Temperature												
-50	-39	-40	-19	7	29	36	35	18	-2	-23	-39	-50
Mean Rainfall (inches)												
0.00	0.06	0.20	0.57	1.86	3.32	2.92	2.86	2.27	1.49	0.29	0,02	15.86
Mean Snowfall												
9.4	6.6	6.6	4.2	1.4	0.0	0.0	0.0	OW	2.4	11.1	9.7	-51.4
Mean Total Precipitation												
0.94	0.72	0.86	0.99	2.00	3.32	2.92	2.86	2.27	1.73	1.40	0.99	21.00
No. of Days with Measurable Rain												
*	*	1	0. 4	8	12	11	9	10	6	2	*	63
No. of Days with Measurable Snow												
11	10	8	4	0. 1	*	*	*	*	2	8	11	55
No. of Days with Meas. Precipitation												
11	10	8	7	9	12	11,	9	10	8	10	11	116
Maximum Precipitation in 24 Hrs.												
0.67	0.65	1.27	0.73	1.68	2.06	4.31	2.85	2.25	3.47	1.07	0.68	4.31

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR.
WINNIPEG INTERNATIONAL A Lat 49 54 N							Long 97 14 W				Elevation 786 Ft. ASL	
Mean Daily Temperature (DEG F)												
0.1	4.1	17.7	38.0	52.4	61.7	68.3	66.0	55.1	43.2	23.3	8.7	36.5
Mean Daily Maximum Temperature												
8.8	13.5	26.7	47.5	64.1	72.6	79.7	77.5	65.6	52.6	30.3	16.1	46.2
Mean Daily Minimum Temperature												
-8.6	-5.3	8.6	28.5	40.6	50.8	56.8	54.5	44.6	33.7	16.3	1.2	26.8
Maximum Temperature												
46	53	74	93	100	101	108	105	99	86	71	53	108
Minimum Temperature												
-48	-48	-38	-18	11	21	35	30	17	-5	-34	-54	-54
Mean Rainfall			(inches)									
0.01	0.03	0.27	0.78	1.87	3.19	2.71	2.76	2.14	1.17	0.26	0.03	15.22
Mean Snowfall												
10.2	7.9	8.1	3.9	1.0	0.0	0.0	0.0	0.2	2.7	8.8	8.5	51.3
Mean Total Precipitation												
1.03	0.82	1.08	1.17	1.97	3.19	2.71	- 2.76	2.16	1.44	1.14	0.88	20.35
No. of Days with Measurable Rain												
*	1	1	6	9	13	11	11	10	7	3	1	73
No. of Days with Measurable Snow												
12	10	10	4	1	*	*	*	*	2	9	11	59
No. of Days with Means Precipitation												
12	10	10	8	10	13	11	11	10	8	11	11	125
Maximum Precipitation in 24 Hrs.												
0.75	0.93	1.50	1.30	1.91	1.93	2.72	2.57	2.56	2.93	1.09	0.98	2.93

FIGURE 1 - Temperature and Precipitation for the Period 1930-1960

The highest amounts of precipitation occur between May and October with the crest occurring in June. The same pattern is evident in the number of days of recorded precipitation although the frequency declines rapidly in October. This decline in precipitation towards the end of the boating season corresponds to the significant occurrence of snowfall (see Figure 2). In contrast the snowfall frequency in May is less than half of the total for October. Daily and seasonal extremes in temperature and a summer maximum in precipitation amounts and frequency are clearly characteristic of a Continental climate.

Most important, is the fact that even during the best boating months of June, July, and August over 33 1/3 percent of the days have some measurable form of precipitation. Also the maximum precipitation occurring in 24 hours reflects to some degree the influence of violent local convective and frontal storms during the long hot summer days of July, and the larger scale synoptic storms associated with the prevailing unstable conditions in October. The latter type also occurs during the months of March, April, and May, but obviously has only a limited effect on the sailing season.

SUNSHINE

The Weather Bureau records an hour of bright sunshine when the sun is strong enough to shine through magnifying glass and burn a hole in a piece of paper. If the length of day and the strength of the sun's rays were the only influencing factors, the largest number of hours of bright sunshine would be recorded in June (see Figure 3). However, cloud cover is also a major factor and is responsible for the lower than expected rate for June.

J	F	M	A	M	J	J	A	S	0	N	D
100	131	168	204	247	252	291	263	177	127	86	78

FIGURE 3 - Hours of Bright Sunshine for a Period of 57 years (Winnipeg)

Hour	MAY	JUN	JUL	AUG	SEP	OCT	
00	5 - 4				2	8	10
01	7 - 4				2	13	13
02	7 - 4					14	13
03	4 - 3				1	16	15
04	2 - 4					15	16
05	4 - 2				1	15	15
06	3 - 1				1	12	13
07	4 - 1				1	16	12
08	7 - 1					16	12
09	7 - 1					13	10
10	7 - 2				2	13	10
11	6 - 3	1			1	15	5
12	4 - 4	1			1	12	5
13	5 - 3	1				12	7
14	6 - 5				1	10	9
15	6 - 6				1	12	4
16	5 - 6					11	6
17	3 - 5					6	2
18	5 - 3					9	3
19	5 - 4					11	7
20	4 - 6					10	7
21	4 - 4				1	11	5
22	5 - 4				1	9	9
23	5 - 4					11	8
FREQUENCY	120 - 84	3			11- 5	290	216

Figure 2 — Mean Snowfall Frequency for the period 1957-1966(hrs.)

(Column sequence repeating Gimli Wpg. Beach for each month)

This is an 'HDS' chart. See figure 4 for explanation.

The highest recordings which occur in July and August are to be expected since this is the period when sunshine-filled days are common. The obvious decline in September and October once again is not only the influence of the length of day and strength of the sun's rays, which are decreasing, but the effect of the increasing frequency of cloud cover.

While an important measurement, the hours of bright sunshine data does not include the numerous hours when the sun is present but is not strong enough to be recorded. This is true on hot days when the sun may be masked by cloud cover. However, most important, the records do not illustrate the significant visual appeals of the truly beautiful sunrises and sunsets which occur throughout the season on the lake.

Records for both Gimli and Winnipeg reveal that fogs occur most frequently during the spring and fall (see Figure 4). They also indicate the influence of the lake as Gimli receives a significantly greater number of fogs than Winnipeg.

Advection fogs occur most frequently during the spring. They result from the movement of moist air masses which have been headed over the land and then are blown over the cooler water surface. The longer the water remains in a relatively cool state, the greater the chance of fogs occurring within the summer season. This was the case in 1969 when prevailing cold water created a number of foggy periods during the early part of July.

In contrast fall fog conditions are not caused by the movement of air masses, but by local rapid cooling properties of land and surface vegetation. These radiation fogs as they are called frequently develop during the evenings and are especially noticeable along the shorelines and over the marshes. However, this type of fog usually quickly dissipates with the rising of the early morning sun.

WIND

The lack of weather data from stations inside the study area is best illustrated by wind records. There are no over-water or water-surface wind records available for Lake Winnipeg. Consequently, wind frequencies and speeds of Winnipeg and Gimli had to be considered knowing that they are inland stations and are recording from high towers. In general, it can be expected that wind conditions over the water will be stronger than at point well above and over an adjoining land surface.

HOUR	MAY	JUNE	JULY	AUG.	SEPT	OCT.
00	10-2	12-4	8-1	10-7	10-5	17-7
01	14-3	13-6	6-4	6-7	11-5	14-8
02	15-3	12-5	8-5	12-7	13-8	20-9
03	17-4	13-9	11-6	18-7	15-6	21-10
04	21-5	26-12	19-5	24-10	17-13	22-11
05	22-13	20-15	27-13	25-14	25-18	24-13
06	23-13	20-14	22-15	27-18	37-18	29-12
07	17-17	16-8	13-14	15-11	37-26	42-32
08	22-14	11-12	13-11	13-10	24-22	36-25
09	19-11	6-8	11-8	6-5	17-16	29-21
10	19-10	9-5	12-4	5-6	16-10	17-19
11	13-11	6-6	7-5	4-2	15-8	9-15
12	16-9	8-5	6-5	5-2	11-5	10-11
13	13-4	11-5	5-3	7 -1	6-2	10-10
14	11-7	7-7	6-4	6-3	9-2	8-8
15	11-8	8-4	6-2	7-3	6-2	11-6
16	11-8	4-3	3-2	5-2	10-4	8-8
17	12-7	8-2	7-2	8-2	9-5	9-7
18	11-5	5-5	6-1	5-1	7-6	12-7
19	11-3	6-3	5-3	4-1	10-6	10-6
20	10-5	7-3	3-2	6 -4	12-3	8-5
21	13-6	6-3	8-1	6-3	12-3	10-7
22	13-4	8-3	7-2	6-2	11-4	12-7
23	9-3	9-2	9-1	9-4	12-6	14-7
Frequency	353-175	251-149	228-119	239-132	352-203	402-271

FIGURE 4 - Fog Frequency for the Period 1957-1966 (Columns Sequence

This is an 'HDS' chart, or Hourly Data Summary. The numbers indicate frequencies within the hour of fog, at Gimli and at Winnipeg.

To get the percentage, place the total over the total theoretically possible.

Despite these problems it is still possible to make a number of important observations. Data from the Winnipeg International Airport was not used as the major source of information; the distance from the airport to the lake being around 35 miles. Therefore, reference is made to percentage frequencies, and wind speed frequencies by speeds gathered at the Gimli Airport (see Figures 5 and 6).

During May, winds occur most frequently from the NE, N, and NW. However, the strongest winds (greater than 25 m.p.h.) occur from the S, NW, WSW, NNW and N.

Winds are fairly evenly distributed between the N, S and W during June. The frequency of stronger winds in the range from 25 to 46 is noticeably less.

Conditions in July set a trend which carries through September. During this period NW is the prevailing wind with winds from other directions being fairly evenly distributed from W, SW, S, SE and NE. The stronger winds appear to be distributed through an arc from NW, W to S. In September, an increasing trend towards more frequent and stronger S winds becomes evident,

In October, the NW wind is still the most frequent but winds from the S are also common. The prevailing winds through an arc from NW, W to S becomes clearly dominant. Most important, the frequency of stronger winds (25 m.p.h.) increases by nearly 50 percent over the previous month. "Strong S and NW winds occur over 40 percent of the time while strong S and SW winds occur 25 percent of the time.

MEAN MONTHLY WIND SPEED/ FREQUENCY *Given in Hours Duration*

May 1957-1966 WIND STATION GIMLI A MAN (MPH) MOD B

	1-3	4-7	8-12	13-18	19-24	25-31	32-3E	39-46	47-54	55-63	64+	Total	Mean Speed
CALM												35.8	
NNE	1.6	9.1	17.9	20.5	7.0	2.1	.1					58.3	12.9
NE	1.6	14.7	26.9	23.1	3.3	.7						70.3	11.3
ENE	2.3	17.7	21.5	11.8	.9	.1						54.3	9.4
E	2.9	11.9	10.9	3.8	.3	.1						29.9	8.2
ESE	2.4	11.2	17.2	12.5	1.3	.4						45.0	10.3
SE	2.8	9.0	14.2	15.8	2.2	.2	.1					44.3	11.1
SSE	2.1	7.8	10.0	11.0	5.9	2.3	.5	.2	.1			39.9	13.4
S	2.4	6.1	9.3	9.2	6.8	6.2	2.0	.8	.1	.1		43.0	16.3
SSW	1.7	5.6	9.4	14.3	6.5	3.1	1.0	.3				41.9	14.8
SW	1.9	4.9	9.1	8.6	3.2	1.2	.6	.1				29.6	12.9
WSW	1.3	4.3	5.9	11.9	5.6	4.2	.7	.1				34.0	15.8
W	1.4	4.0	5.1	7.5	4.8	3.0	1.2	.6				27.6	16.0
WNW	1.2	5.0	6.5	8.9	5.6	3.3	2.6	.3	.1			32.5	16.1
NW	1.3	6.9	9.9	16.2	7.2	5.9	1.7	.3				49.4	15.7
NNW	1.7	7.5	14.4	25.5	11.3	4.1	.9					65.4	14.7
N	1.2	6.2	11.6	14.3	5.1	4.1	.3					42.8	13.9
Total	29.8	131.9	199.8	214.9	76.0	41.0	11.7	2.7	.3	.1		744.0	12.5

June 1957-1966 WIND STATION GIMLI A MAN (MPH) MOD B

	1-3	4-7	8-12	13-18	19-24	25-31	32-3E	39-46	47-54	55-63	64+	Total	Mean Speed
CALM												49.1	
NNE	2.2	9.7	12.5	15.1	4.9	2.0	.2					46.6	12.4
NE	5.2	12.3	17.7	15.3	3.4	.5	.2					54.6	10.6
ENE	4.3	15.0	17.3	9.4	2.0							48.0	9.2
E	2.6	12.6	10.5	2.5	.3	.1						28.6	7.7
ESE	2.2	10.9	18.2	10.2	3.3	.1						44.9	10.4
SE	2.8	8.1	10.7	12.8	3.8	.4	.1					38.7	11.6
SSE	2.7	6.2	10.8	11.2	6.7	3.9	1.2	.1				42.8	14.4
S	2.6	7.7	10.9	14.6	8.8	3.8	1.6	.2				50.2	14.7
SSW	1.7	6.4	12.4	11.9	4.3	1.0	.2	.1				33.0	12.4
SA;	4.2	8.9	8.3	7.2	1.9	1.0	.4	.2				32.1	10.5
WSW	2.8	8.0	8.8	10.6	5.3	2.1	.2					37.8	12.5
W	3.5	10.9	8.1	6.6	3.1	2.2	.2					34.6	11.0
WNW	2.7	9.1	10.9	10.8	6.1	1.9	.2					41.7	12.5
NW	2.7	13.9	14.0	13.3	4.6	1.9	.3					50.7	11.4
NNW	2.7	15.2	10.9	13.5	4.2	1.1						47.6	11.0
N	2.4	9.6	9.4	9.3	2.7	.6						34.0	10.7
Total	47.3	164.5	191.4	174.3	65.4	22.6	4.8	.6				720.0	10.7

July 1957-1966 WIND STATION GIMLI A MAN (MPH) MOD B

	1-3	4-7	8-12	13-18	19-24	25-31	32-3E	39-46	47-54	55-63	64+	Total	Mean Speed
CALM												53.3	
NNE	3.5	8.7	9.8	5.3	1.4	.2						23.9	9.2
NE	3.5	10.7	14.0	6.7	.4							35.3	8.8
ENE	3.9	12.5	10.8	3.1	.6	.5						31.4	8.2
E	3.1	10.9	6.8	2.0	.3							23.1	7.2
ESE	2.3	10.3	9.4	3.4		.1						25.5	8.1
SE	2.9	10.7	11.7	9.8	1.3	.4	.2	.1				37.1	10.1
SSE	2.1	8.3	14.3	12.5	4.3	1.2	.1					42.8	11.9
S	3.8	12.3	16.9	14.9	4.9	1.0	.1					53.9	11.3
SSW	2.4	8.7	18.5	14.5	4.0	.3						48.4	11.4
SW	5.7	15.6	16.2	11.9	2.3	.6	.1					52.4	9.7
WSW	2.4	13.2	11.6	13.0	3.1	.8	1.2	.1				45.4	11.6
W	6.7	14.9	16.4	10.6	4.0	2.0	.6					55.2	10.5
WNW	3.7	17.1	20.5	17.0	5.8	2.0	.2					66.3	11.3
NW	5.6	18.1	19.0	16.5	5.4	.8						65.4	10.5
NNW	3.0	16.4	18.1	9.5	2.4.	.3		.1				49.8	9.6
N	2.9	12.3	7.8	5.0	1.6	.2						29.8	8.8
Total	57.5	200.7	221.8	155.7	41.8	10.4	2.5	.3				744.0	9.5

August 1957-1966 WIND STATION GIMLI A MAN (MPH) MOD B

	1-3	4-7	8-12	13-18	19-24	25-31	32-3E	39-46	47-54	55-63	64+	Total	Mean Speed
CALM												48.0	
NNE	3.7	10.5	11.6	9.3	2.8	.5	.4	.3				39.1	10.6
NE	3.5	11.2	11.3	8.8	1.6	.5						36.9	9.6
ENE	2.4	11.0	12.0	10.2	2.2	.3						38.1	10.2
E	3.7	12.1	9.2	4.4	.3							29.7	7.9
ESE	3.0	12.4	11.8	6.8	2.2	1.2						37.4	9.9
SE	2.4	11.5	11.4	9.4	2.8	.8						38.2	10.5
SSE	1.5	9.9	13.5	15.6	6.2	1.2	.1					48.0	12.5
S	4.6	12.9	14.3	9.3	5.3	2.5	.1					49.0	11.1
SSW	2.6	9.3	13.4	9.7	4.3	1.5	.3	.1				41.2	11.7
SW	4.1	11.7	14.7	8.5	1.6	1.2	.2					42.0	9.9
WSW	2.4	10.6	10.4	9.6	2.8	1.3	.2	.1				37.4	11.1
W	5.8	16.0	10.2	6.9	2.9	2.4	1.1	.1				45.4	10.5
WNW	4.0	13.3	13.1	10.3	6.8	3.3	.9	.2				51.9	12.3
NW	5.2	21.7	18.7	12.7	4.5	2.3	.2	.1				65.4	10.3
NNW	4.1	15.7	22.7	9.6	1.4	.3	.2	.1				54.1	9.5
N	3.8	14.2	11.8	9.5	2.0	.9						42.2	9.8
Total	56.8	204.0	210.1	150.5	49.7	20.2	3.7	1.0				744.0	9.9

September 1957-1966 WIND STATION GIMLI A MAN (MPH) MOD B

	1-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47-54	55-63	64+	Total	Mean Speed
CALM												41.4	
NNE	1.0	5.0	8.8	12.8	3.2	1.1						31.9	12.8
NE	2.1	7.8	7.8	6.0	2.5	.7	.2					27.1	10.9
ENE	1.2	10.0	10.4	5.0	1.2	.6	.4	.1				28.9	10.3
E	1.9	6.5	5.9	3.5	.4	.1	.1					18.4	9.0
ESE	.7	5.9	7.5	7.1	1.3	.2						22.7	11.1
SE	2.1	7.7	6.7	9.2	2.7	4						28.8	11.3
SSE	1.9	6.5	9.0	17.4	7.5	3.3	.4					46.0	14.4
S	2.6	12.7	15.3	19.9	12.3	5.5	.7	.1				69.1	14.0
SSW	2.9	8.6	14.2	15.5	9.3	3.3	.7	.1				54.6	23.8
SW	3.6	9.3	11.4	10.4	3.6	1.8	.7	.3				41.1	12.0
WSW	3.0	10.3	14.7	11.4	5.5	2.6	.8					48.3	12.3
W	2.7	13.5	17.7	10.4	4.1	2.4	.2					51.0	11.2
WNW	2.7	12.6	20.2	17.9	4.5	2.8	.4					61.1	12.1
NW	3.4	11.3	19.0	16.8	6.3	3.0	1.1	.2				61.1	12.8
NNW	2.0	13.2	18.0	14.7	6.2	2.0	.2					56.3	11.9
N	1.2	7.3	11.8	8.1	2.5	1.2	.1					32.2	11.6
Total	35.0	148.2	198.4	186.1	73.1	31.0	6.0	.8				720.0	11.6

October 1957-1966 WIND STATION GIMLI A MAN (MPH) MOD B

	1-3	4-7	8-12	13-18	19-24	25-31	32-38	39-46	47-54	55-63	64+	Total	Mean Speed
CALM												41.6	
NNE	1.4	6.7	7.3	7.8	2,2	1.1						26.5	11.6
NE	1.4	6.3	5.2	7.8	1.8	1.9	.1					24.5	12.3
ENE	1.6	4.9	5.7	4.1	.5	.4	.3					17.5	10.3
E	1.6	4.5	4.0	3.6	.1							13.8	9.0
ESE	1.7	7.8	6.5	5.3	1.7	.1						23.1	9.8
SE	2.8	9.4	8.6	10.7	2.9	.9						35.3	10.8
SSE	1.2	7.4	10.7	18.1	7.3	2.0	.4					47.1	13.7
S	1.6	11.7	18.9	24.3	11.8	6.6	1.2	.3	.1			76.5	14.5
SSW	1.2	8.3	16.3	19.4	9.7	3.3	.5					58.7	14.0
SW	1.8	9.6	14.1	7.5	3.4	1.1						37.5	11.0
WSW	1.0	7.0	13.9	8.8	3.7	3.2	1.1	.3				39.0	13.6
W	1.6	9.2	12.1	7.6	3.7	2.5	.9	.1	.1			37.8	12.6
WNW	1.7	12.9	18.1	13.4	6.8	5.7	1.6	.2				60.4	13.7
NW	1.7	14.6	20.9	23.9	10.8	8.4	2.1	.4	.1			82.9	14.6
NNW	2.7	12.7	21.9	26.9	8.6	4.5	.4	.1		.1		77.9	13.3
N	1.4	8.2	12.1	14.0	5.4	2.8						43.9	13.0
Total	26.4	141.2	196.3	203.2	80.4	44.5	8.6	1.4	.3	.1		744.0	12.3

STATION GIMLI (A) MAN. HEIGHT OF ANEMOVANE 58 ft.

PERIOD 1946-1954

PERCENTAGE FREQUENCY

	JAN.	FEB.,	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT	OCT.	NOV.	DEC.	YEAR
N	18	17	18	19	17	12	8	9	7	8	10	14	13
NE	6	9	13	16	23	15	9	11	9	8	7	6	11
E	2	5	5	6	7	8	6	7	6	4	4	2	5
SE	7	8	9	9	9	11	11	12	11	11	8	6	9
S	18	16	14	11	11	13	15	16	16	19	16	23	15
SW	10	8	7	10	9	12	14	13	12	13	11	9	11
W	14	11	12	9	9	13	16	13	15	14	13	12	13
NW	23	25	20	18	14	14	19	18	23	22	30	26	21
CALM	2	1	2	2	1	2	2	2	1	1	1	2	2

AVERAGE WIND SPEED IN MILES FER HOUR

N	10.5	10.3	11.6	11.7	11.4	10.2	8,9	8.6	9.3	9.8	10.4	10.1
NE	9.8	9.2	10.2	11.8	11.7	12.5	9.4	10.4	11.4	13.2	12.6	11.4
E	6.3	7.4	6.0	7.3	7.7	8.6	8.7	8.1	11.6	10.6	10.7	8.3
SE	10.0	9.3	7.6	10.1	10.5	10.2	11.0	9.7	11.1	11.8	11.1	11.7
S	11.3	11.6	9.9	11.4	11.2	11.3	10.9	10.5	12.0	13.1	13.3	11.6
SW	8.9	7.8	10.5	12.7	12.6	10.8	10.0	8.9	10.0	10.6	9.0	8.6
W	6.8	7.6	7.9	10.6	10.2	10.4	8.5	7.3	8.3	8.9	8.4	6.9
NW	10.5	10.3	10.2	12.7	11.1	10.4	10.2	9.0	10.3	11.8	11.4	9.8
ALL DIRECTIONS												
	9.6	9.7	9.5	11.3	11.0	10.5	9.6	8.9	10.3	11.3	10.8	9.8	10.2

STATION INFORMATION

Airport is located 2 mi. W of town and Lake Winnipeg. Surrounding country away from lake is very flat.

FIGURE 5 - Percentage Frequency of Winds and average wind speed

In general, the early part of the season is dominated by winds from a wide arc extending from NE through W to S, although the strongest winds originate from the South. During the main part of the season the winds tend to be from a narrower arc from NW, W to S with the prevailing wind being from the NW. Towards the end of the season this pattern continues, although frequency of stronger winds becomes significant especially from the NW and S.

WATER FEATURES

TEMPERATURES

The water temperature mean for the period 1948 - 1968 has been determined by collecting data at the Gimli wharf (see Figure 7). It is suggested that even in the north end of the lake where depths are greater, only limited thermal stratification occurs. No doubt the shallower exposed south end is subjected to greater mixing. Therefore, it seems safe to assume that the temperatures recorded at Gimli generally indicate temperature conditions in the south end of the lake.

Ideal water temperatures obviously exist between the latter part of June (65°F) and early September (75°F). While it may be expected that temperatures will be slightly colder moving north, these conditions can probably be expected to apply where there are steep offshore slopes or strong currents. In contrast, water temperatures along shallow sloped sandy beaches such as those around the Hecla - Black Island area, are more likely to be higher than the mean despite their position north of Gimli.

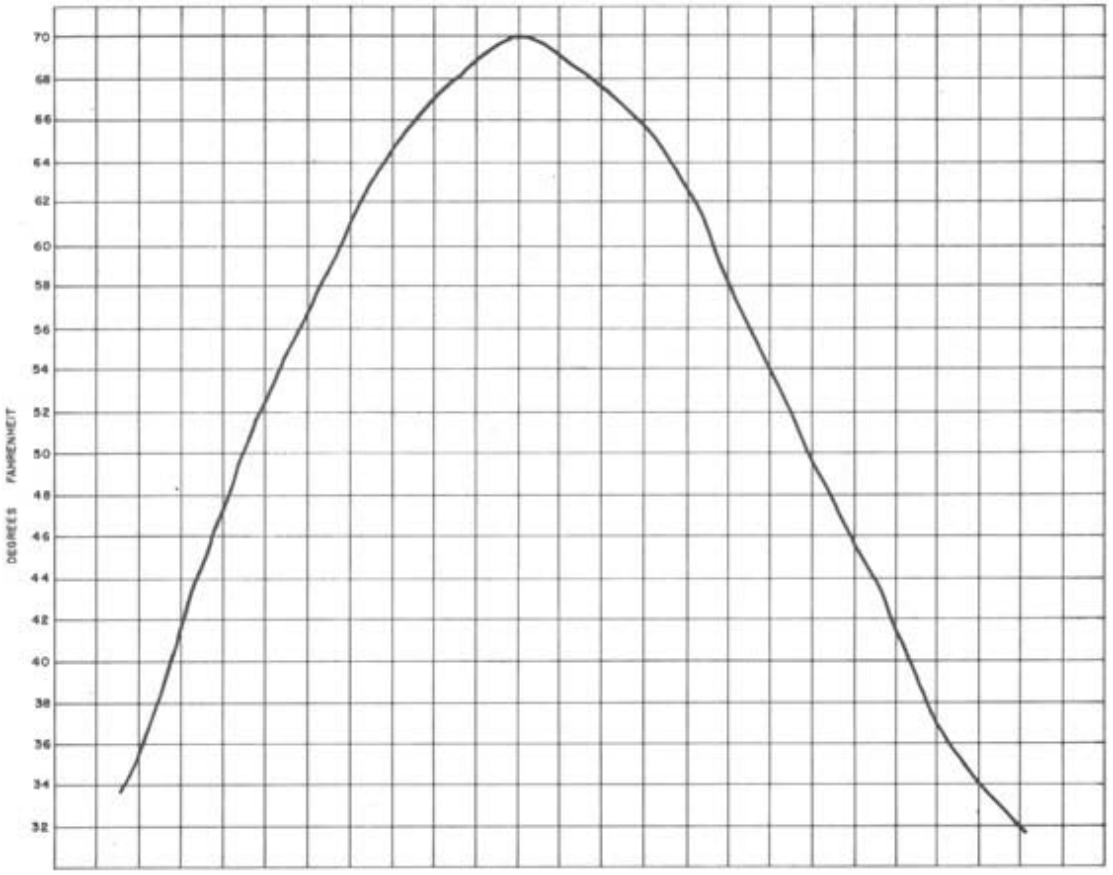


FIGURE 7 Mean Gimli Water Temperatures (1948 - 1968)

WAVES

Waves are undulating forms that move along the surface of a body of water. They are mainly caused by three disturbances: earthquakes, gravitational pull of the moon and sun, and winds. Earthquakes and gravitational pull are phenomena which are more commonly associated with the world oceans and seas. Wind generated waves are the characteristic of inland bodies of water such as Lake Winnipeg and is the major consideration here.

Lake Winnipeg is best known for its rough sea and a short choppy wave action. This reputation is exemplified by the design of many of the boats seen on the lake today. Despite the long history of wave influence, on the variety of commercial transportation systems and locally oriented enterprises, and more recently on serious erosion and flooding problems, very little is known about even their basic properties. Certainly, there is a great mystique surrounding accounts of what the waves are like, but there is little factual data to either support or question their validity. Normally Lake Winnipeg and its tremendous associated summer recreational activity, goes entirely unnoticed until an occasional storm contributes to either human tragedy or property damage -- then the media fills with statements describing the scene.

The following two excerpts were taken from the local newspapers and in part account for one of the more popular conceptions people have of Lake Winnipeg:

“Men who have sailed off Iceland say it is more dangerous for small boats then the Atlantic Ocean”
(Winnipeg Free Press, January 18, 1958).

“About 4:15 the steamer gave a great lurch and towering waves twenty-five feet high struck her, breaking her almost in two..."
(Winnipeg Free Press, August 27, 1906).

While it would be unfair to dismiss these accounts as hysterical, there is a certain amount of journalistic license taken here. That being said, the quickly-changing face of the lake is well documented, and should not be simply shrugged off. It does not take long for even a minor disturbance to whip up severe wave conditions, which may in turn pose a threat to small craft. More about waves in the next chapter.

CHAPTER IV: Present Navigation Conditions

WEATHER DISTURBANCES

Fog and rain are not necessarily major boating hazards. However, strong winds or a combination of strong winds and rain can very quickly create undesirable boating conditions on any body of water. Prolonged winds over 25 M.P.H. have been known to form tremendous waves on some part of Lake Winnipeg despite prevailing sunny skies. At other times, periods of rough seas are characterized by rapidly changing atmospheric pressures, frequent wind directional changes and sudden thunderstorms accompanied by wind and rain squalls.

The causes of these weather disturbances and the consequent undesirable effect on boating, develop most frequently from complex weather conditions involving frontal, low pressure cell and convectional activity. In addition these large scale and micro-weather systems are influenced by the lake which acts as a massive source of water vapour and as a moderating agent. The former situation is especially applicable during the long hot days of summer while the latter applies to the spring and fall when the lake warms and cools more slowly respectively, than the adjacent land.

The continental middle latitude cyclones or fronts move from west to east in a belt which extends over Lake Winnipeg. Generally they involve the contact zone between the cooler more stable northern air masses and the warmer less stable southern air masses. Moist unstable air from the Gulf of Mexico sometimes sweeps towards these lows and associated fronts bring large amounts of precipitation. A passing warm front is usually accompanied by steady rains and falling barometric pressure while a cold front involves rising barometric pressure, lightning storms and brief but sudden heavy precipitation squalls (see Figure 8). Wind conditions, the nature of the storm, and time intervals associated with the various passing weather disturbances depend on the position of the lake relative to the fronts and low pressure center, and the degree of contrast between the two confronting air masses. The most important factor about frontal disturbances if that while the associated storms could be severe, they tend to move slowly and generally can be predicted by weather stations or by careful observations of a barometer and other weather indicators.

Hour	May	June	July	Aug.	Sept.	Oct.
00	-1	10-7	11-10	14-12	5-1	
01	3-3	7-4	10-10	16- 7	6-3	
02	2-2	2-4	11- 6	9-11	4-3	
03		2-7	9- 5	5- 8	2-1	
04	2-2	5-5	8- 2	10- 7	3-2	-1
05	1-2	5-1	3- 4	8- 7	1-1	2-
06	2-1	4-6	6- 4	5- 6	1-2	1-
07	4-	2-4	3- 3	3- 2	-1	
08	2-1	2-1	3- 3	4- 2	2-1	
09	2-	1-1	2- 4	3- 2	-1	
10			4- 2	4- 2		
11			5- 1	3- 2	2-1	
12			4-	3- 1	3-	
13	-1	2-	3- 2	6- 2	2-1	
14	2-1	3-2	5- 5	4- 2	-1	
15	1-	4-	5- 5	2- 1	2-	
16	3-3	3-2	9- 2	5- 3	1-3	
17	1-	4-3	5- 6	5- 3	2-1	
18	2-	4-4	6- 4	3- 5	1-	1-
19	3-3	6-2	5- 8	- 3	-2	
20	-1	9-7	9- 8	2- 4	3-1	
21	3-4	8-7	10- 4	4- 7	3-2	
22	4-1	7-6	11- 7	9- 9	3-1	
23	1-	6-6	12-11	12-11	4-2	
FREQUENCY	38-26	96-79	159-116	139-119	50-31	4-1

FIGURE 9 - Mean Thunderstorm Frequency for the Period 1957 - 1966

(Column Sequence Repeating Gimli - Winnipeg for each month).

This is a 'HDS' chart; see Figure 4 for explanation.

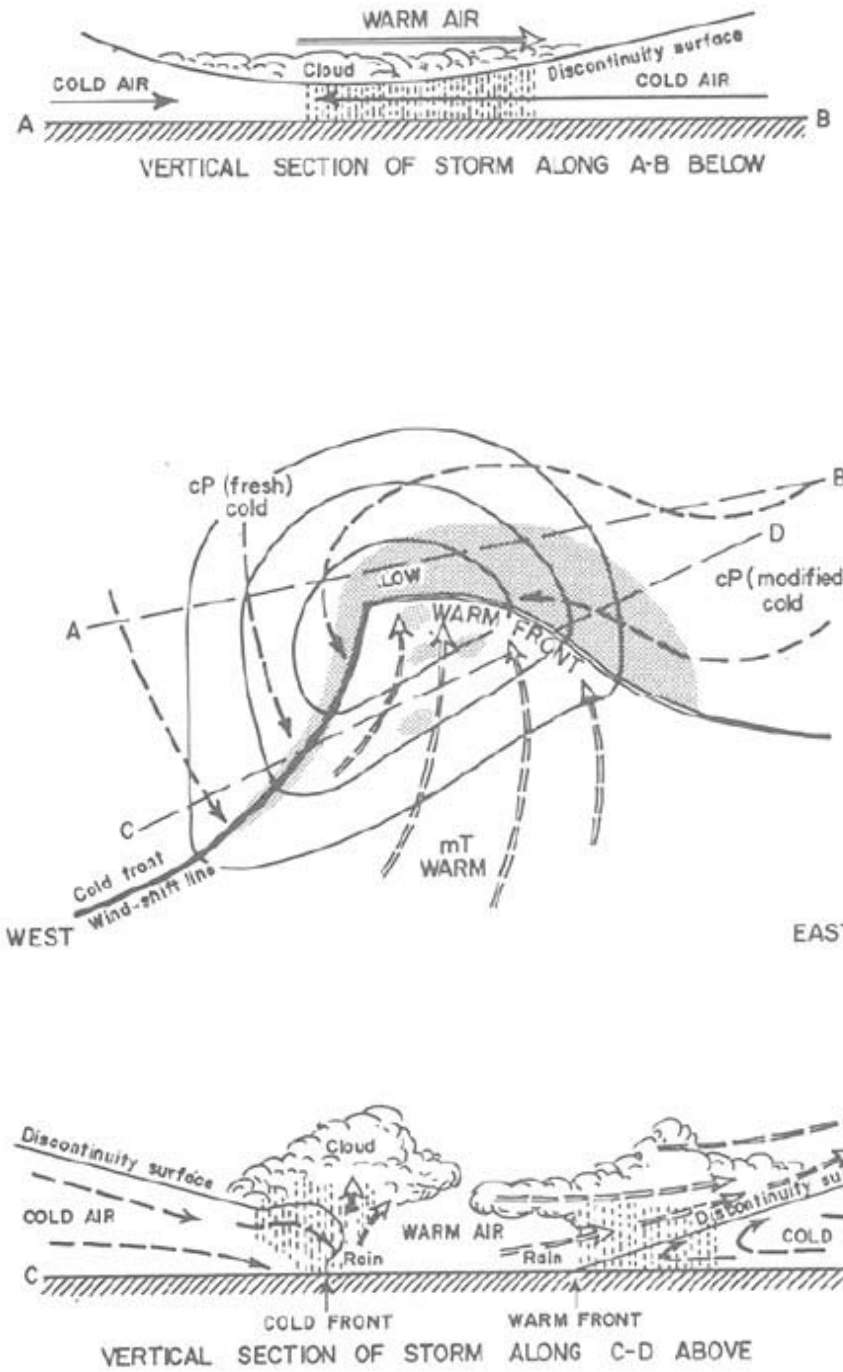


FIGURE 8 CROSS SECTION OF FRONTAL ACTIVITY

In contrast, convective storms can occur suddenly and with little warning. The associated thunder and lightning, with violent up and down drafts, create turbulent local squalls. This type of a disturbance occurs most frequently on the lake after a long hot sunny day (see Figure 9). Heated unstable air together with the vapour evaporated from the lake are sometimes subjected to thermal or frontal lifting. The resulting magnificent thunderhead cloud formations indicate an impending squall. These storms are difficult to predict and require the aid of local observations, major weather station analysis, and radar. Hail does not occur very often but when it does, it is usually associated with a violent convectional storm.

The third type of weather condition which can create unsuitable boating conditions is the development and subsequent passage of an intense low pressure system. Some can be small and weak and pass over or near the lake without major effect. Others such as the one that developed in 1940 was nowhere near the lake, yet it was strong enough to inflict damages over a large area. This low occurred over Lake Superior and resulted in tremendous loss of life on the Great Lakes and significant winds on Lake Winnipeg (see Figure 10). In addition water levels rose 4 feet at Winnipeg Beach over the period of the storm. Fortunately, the movement and growing strength of low pressure cells are usually predictable well in advance.

In general, disturbances tend to get more violent towards the end of the boating season. Bitterly cold strong winds and rough seas are common especially during October. Not only is the overall incidence of well-developed storm centers much greater at this time (equinoctial gales) but in addition, the effect of the air on the water surface is greater because of the stability factor. In May, for example, the water surface is cold in comparison to the air passing over it. Hence, the flow in the air mass tends to be laminar and the flow in the surface layer tends to be much slower than the flow aloft.

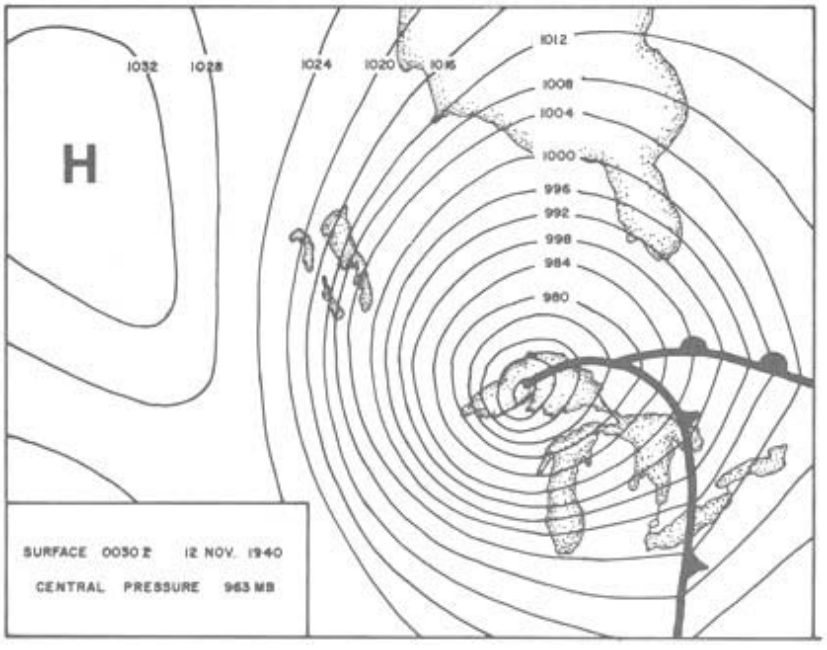


FIGURE 10 STRONG LOW CENTERED OVER LAKE SUPERIOR (November 12, 1940)

In October, however, the water surface is often warmer than the air mass passing over it. This contributes to convective overturning in the air mass, and a much greater proportion of the energy in the air aloft is transmitted to the water surface.

There are very few calm days on Lake Winnipeg. Aside from stormy periods many days begin with light breezes, but are quickly followed by 5 to 15 M.P.H. winds and increasing cloud cover. However, the lake's large size and shape dictates to a large extent, the local effects of prevailing weather conditions. For example 20 M.P.H. offshore winds at Gimli present few problems but the same onshore winds at Grand Beach will probably result in unsuitable boating conditions. Among the islands off Black Island the same winds if present, will probably not even be noticed. It is also just as possible that on the next day the opposite conditions could prevail at each of these sites.

WAVES CURRENTS AND WATER LEVELS

Very little research has been conducted on the nature of waves on Lake Winnipeg. Despite this fact, publicity over the years has been directed towards the effects of an occasional storm rather than the numerous opportunities offered by the lake.

While little factual information is available, it is still possible to predict probable wave characteristics by applying the theoretical properties of waves to the various physical characteristics of regions within the study area. Briefly, in review wave sizes are determined by wind speed, duration and fetch and therefore the shape and surface area components of the lake will to a large degree, govern the type of wave developed. Secondly, because of the large size of the lake and its long north-south orientation, prevailing conditions cannot be assumed to occur at all places, at all times.

Finally, because the property of waves changes drastically under certain conditions of depth and wind, the relationship of depth to shape and surface area becomes a significant consideration.

Wave forecasting is a very complex field, and formulas and graphs developed for another part of the continent cannot simply be applied to Lake Winnipeg. However one such graph developed for shallow wave forecasting clearly illustrates the importance of fetch and wind strength (see Figure 11). If we assume the average depth of the south basin to be 30 feet. and the wind speed to be over 50 m.p.h., the predicted size of waves ranges from 1.5 to 10 feet depending on the fetch.

Running into Gimli before an 18 kt. NE wind. Note that few whitecaps have formed though the fetch has produced large seas.

Continuing winds greater than 25 mph. over a certain period of time will create unsuitable wave conditions. The consequent cresting waves with shorter wave lengths probably create even higher waves than would be indicated by the graph. More important the greater effect on the breaking waves creates havoc for yachtsmen and shoreline facilities. It also follows though, that the breakers common to the south basin would not be expected to occur in the Hecla Island Area where the fetches are 10 to 20 times smaller and steeper offshore slopes prevail. Similarly, the waves north of Grindstone Point, because of the large fetch area and deeper water would not be expected to be the same as those occurring around Hecla Island or in the south basin.

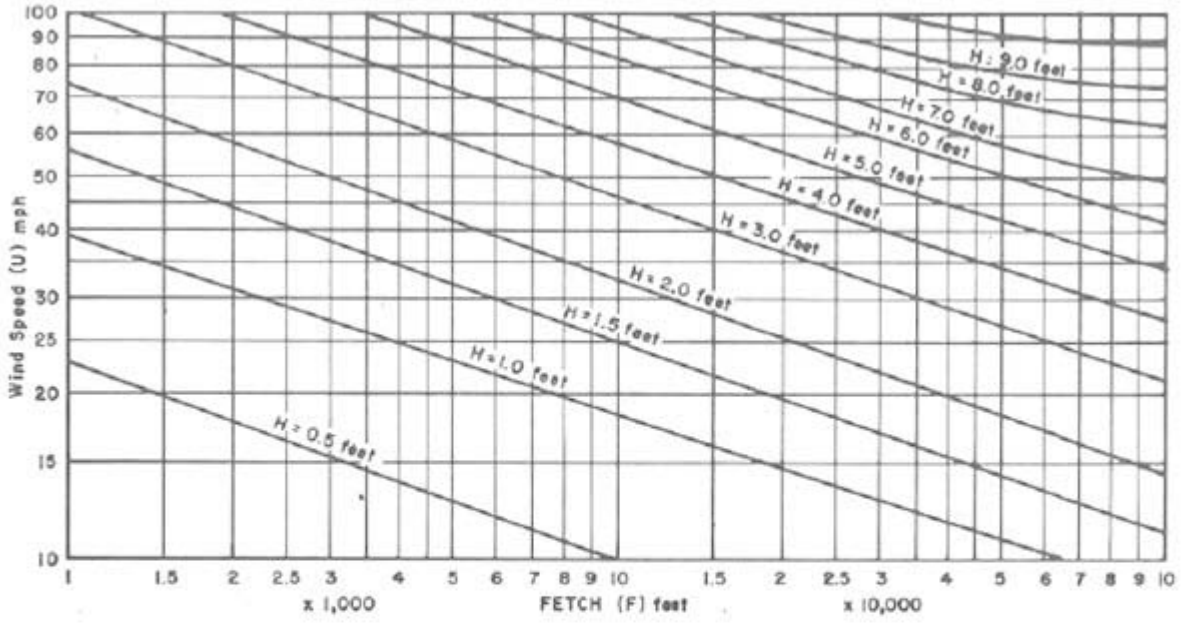


FIGURE 11- WAVE FORECASTING GRAPH FOR AN AVERAGE DEPTH OF 30 FT.

Wind duration is also a major factor in determining wave size. Sudden local thunderstorms can create hazardous chaotic wave conditions but they generally do not in any way compare with the big sea which accompanies longer duration disturbances.

The South Basin is a large exposed area and is relatively shallow, especially along the shores and southern perimeter. Consequently, severe wave conditions are generally common. Occasional storms will result in the formation of sharp and closely spaced breaker waves which create hazardous conditions for small craft.

The area around Hecla Island West and Black Island East is characterized by a maze of large and small islands with relatively steep offshore slopes. The complex pattern of numerous protective bays and irregular shaped land masses reduces the fetch and the effects of prevailing winds. Consequently, rough water conditions occur less frequently than in the South Basin.

While not as exposed as the South Basin, the area north of Grindstone Peninsula is susceptible to large wave development. Large fetches from the north, south and southwest frequently provide ideal conditions for big seas.

The problem of exposure is not as serious in the narrows area because of the long narrow shape and countless small sheltered bays along the shoreline. However, strong winds down or up the "gut" for long

durations and an average depth of 50 feet are ideal conditions for the formation of the classic large rolling deep trough waves. It was here that clambers smashed the Suzanne E in 1906. Wave conditions have not changed.

In short, navigational conditions in the Hecla - Black Island complex are favorable or at least as favorable as conditions on any other lake in Manitoba. However, the south basin and area north of Grindstone while providing suitable conditions at time are subject to the effects of strong winds from a variety of directions and rough wave conditions at times are subject to the effects of strong winds from a variety of directions and rough wave conditions are common. The narrows area can be subject to rough wave conditions but its long narrow shape reduces the frequency of their occurrence.

Seiching and the accompanying set-ups have two effects for sailors on the lake, namely: the development of strong currents and the influence on water levels. Obviously, the tremendous movement of water from one end of the lake to the other creates noticeable currents. These currents are usually strongest during and after northerly or southerly winds of long duration. They appear east of Black Island, east of Gull Harbour, southeast of Deer Island, Grassy Narrows, Loon Straits and East Doghead. They are readily observable because the characteristics of the waves within the current will be different from those in the surrounding area. This phenomenon is common just outside the mouth of Gull Harbour where winds blowing in the opposite direction to the current create a lower wave than appears south or north of the constricted area. Generally, areas with currents do not pose a serious problem to boating although novice skippers should treat these areas with extreme caution. The one exception occurs southeast of Deer Island where a combination of weather conditions over a period of time can create a confused type of wave action which creates hazardous conditions for small craft.

Small deviations from the normal water levels have varying effects on navigation. However, during periods of significantly lower water levels, shallower areas become less suitable for boating. This is especially true around the southern end of Hecla Island and the mouth of the Icelandic River. Similar effects occur in the vicinity of the mouth of the Red River and the Loon Straits area. High water, logically, makes these areas more navigable.

The complicating factor is the seiching action of the lake which can act as an aid or limiting factor (and one of which sailors must be aware). For example during low water periodic rise in the water could make a shallow area accessible by boat during a certain time of the day. Unfortunately, once the low end of the wave occurs boats could be left stranded. As well, seiches with the greatest amplitude usually occur when the disturbance causing them crosses the lake at the free-wave speed. Or the largest seiche waves occur in conjunction with large local and possibly breaking types of waves. On September 5, 1966, wind effect added forty-two inches to the water level at Victoria Beach. The height of the local waves together with their significant destructive power greatly increases the effect of a seiche wave. In addition, when seiche waves correspond with already high water levels, moored yachts behind less effective breakwaters become the more subjected to the effects of winds and waves. This effect at Gimli eventually resulted in the increased height of the north sea wall. The South Basin, because of its size and exposure is especially susceptible to both long longitudinal and latitudinal or pressure-differential originating seiching waves and it is not surprising that the rising and falling action can occur numerous

times throughout the day. However, by far the greatest seiche wave set-ups develop as the result of long periods of strong winds especially when this condition persists for more than 18 hours.

Wave research, especially in the United States, has been increasing rapidly and the science of wave theory and its application is well founded. However, wave development is tremendously complex and there are still many areas of theoretical disagreement. Any discussion of waves on Lake Winnipeg is immediately premised by two considerations: Firstly, the nature of the waves is related to the physical characteristics of the water body in question, and secondly; lack of surface water, wind and wave data makes it difficult to apply wave theory developments such as wave property forecasting.

Therefore, in order to describe wave conditions and more important boating suitability it becomes necessary to outline the fundamental principles of wave theory. With this background, it is possible to correlate theory with the characteristics of the lake. This process will permit a rational assessment of the probable nature and frequency of waves which occur on the lake.

Waves develop as the result of local or regional air pressure changes and the consequent movement of air against the surface of the water. This transfer of energy to the water becomes more efficient as the wave grows in size and as an increasingly steeper area is exposed to the wind. Continually then, in this fashion, a process of small waves becoming big waves occurs. A sea may be complicated by the existence of old waves, which, depending on their direction of flow either, cancel or accentuate the newer ones. The turbulent nature of winds creates further local variances.

Normally three basic factors influence the size of wind waves: firstly, the wind velocity; secondly, the fetch or length of water exposed to the wind; and thirdly, the duration of time that the wind blows. However, depth becomes an important factor in shallow waters. Waves change sharply as they move away from the winds that are generating them and as they move along a shoreline with a variety of underwater topography.

The science of wave mechanics is complicated, and of recent development, a long history of ocean use notwithstanding. The fundamental property of a normal wave is oscillatory: Particles of water making up the wave oscillate in a circular orbit about some mean position.

The velocity C with which an oscillatory wave progresses is related to time (the time for two successive crests to pass a given point) and length (the horizontal distance between corresponding points on two successive waves) by

$L = C\,T$

And to depth and length by

$$C^2 = \frac{gL}{2\pi} \tanh \frac{2\pi d}{L}$$

where g is the acceleration of gravity. (This is called the Merian formula, after an oceanographer of the same name in 1928). Eventually as the depth of water becomes deeper there is a point where the velocity of the wave becomes independent of depth or

$$C^2 = \frac{gL}{2\pi}$$

However, in shallow water, which is more applicable to Lake Winnipeg, depth becomes an important factor as the hyperbolic function tan h 2rd/L approaches 204 and the velocity become

$$C^2 = gd$$

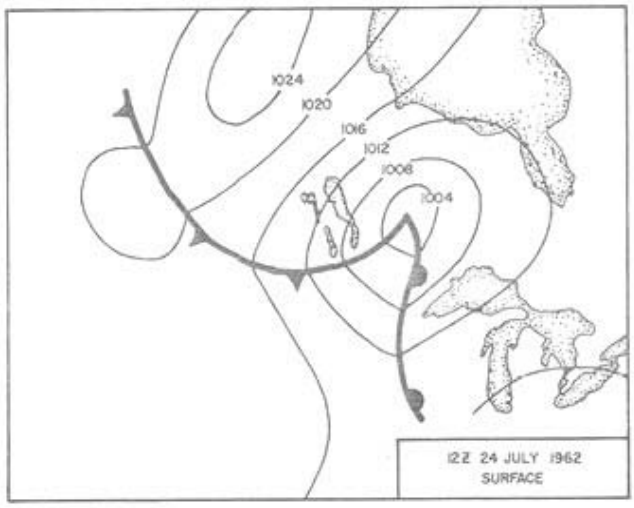
In addition, it appears that there is a critical relationship between wave height and length. When the wave height exceed one—seventh of the wave length, the wave begins to break down. This usually occurs when the wave crest angle becomes greater than 1200. As waves become steeper they also increase slightly in velocity until at 1:7, the maximum is attained. The heights of waves feeling the full effect of the bottom increase rapidly and the wave length decreases. Eventually the unstable wave collapses in a turbulent fashion which uses up most of the wave's energy. The rate at which the wind moves and generates breaking waves is called the "free wave speed".

A knowledge of free wave speed and its relationship to a variety of conditions involving depth, fetch, and wind. duration and strength is a major prerequisite to understanding the nature of waves on Lake Winnipeg. Also large open expansive of relatively shallow water which is characteristic of most of the south basin provided ideal conditions for the development of breaker waves.

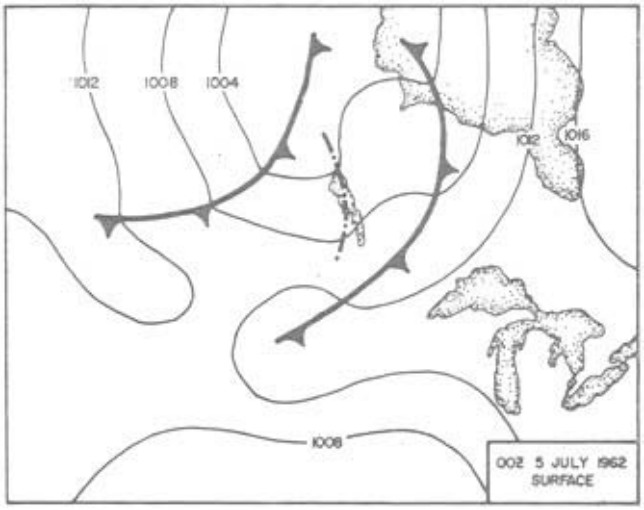
However, on the other hand, it becomes readily apparent that because of the large size and irregular shape of the lake, the type of waves occurring in one area cannot necessarily be assumed to occur in other parts.

SEICHING

Two centuries ago, Pierre Radisson, on his arrival at Hudson Bay, was told of a large body of water whose surface rose and fell, like the oceanic tides. While Radisson reasoned that this was the tidal flows of the Western ocean the Indians were in all likelihood talking about Lake Winnipeg, and then unknown process called “seiching”.



LONGITUDINAL SEICHES



TRANSVERSE SEICHES

Weather Maps - Illustrating Prevailing Weather Conditions During Longitudinal and Transverse Seiching.

Seiching is a rhythmic sloshing action which is a common phenomenon on most enclosed lakes and bays. It is best described by observing the action of water in a bath tub which has been rocked. The resulting

wave pattern is composed of nodes at which the height of water surface stays the same and loops where the surface moves up and down. Water motion is characterized by high horizontal action at the nodes and mainly vertical action at the extremities. Depending on the nature of the wave, the vertical action may occur either at the reflecting boundaries or between the nodes. While seiches are virtually invisible because of their low wave height and long wave length, their adverse effects on the efficiency of breakwater structures can be marked and quite obvious over a relatively short period of time.

Seiches or standing waves occur frequently on Lake Winnipeg as indicated by water level records. Longitudinal seiches are generally associated with the eastward passage systems and southward moving cold fronts while transverse seiches are associated with flat pressure systems with north-south orientated instability lines moving eastward across the lake (see Figure 12). Seiches on the southern basin appear to take two forms: (1) having a period of 1.7 hr. and an amplitude as great at 18 in., and (2) having a period of 5.0 hr. and generally smaller amplitude of less than 16 in. Besides affecting daily water levels at facilities such as wharfs and launching ramps, seiches are the cause of the currents which are common to certain sections of the lake.

Seich waves originating from persistent strong wind conditions have a far greater influence on shoreline erosion and marine facilities. In contrast, they do not originate from local variations in atmospheric pressure, but develop during and after periods of strong winds. Strong northerly or southerly winds of long duration literally push the water to one or the other end of the lake and have been known to raise the water at certain locations by 3 to 4 feet within a period of hours. If the winds die down seiching action resulting from the influence of gravity will continue to oscillate the water levels. Naturally the heights of the peaks will decrease with time providing there is no further significant wind activity. The resulting higher set—ups from wind driven seiches probably have the greatest influence on the flow direction and strength of currents.

CURRENTS

Littoral currents and the associated drift or transport is as common on Lake Winnipeg as on any large body of water including the oceans. It manifests itself in the form of shoreline erosion and deposition. While it plays a major role in the development of beaches and sandy bars, it is a significant factor in the creation of small as well as large protected bays. The most effective bars are the ones that are constructed of course materials. These bars are associated with the west shore and are characterized by shingle ridges down wind and off of eroding limestone cliffs. Harbours such as Wells, Gull, and Biscuit depend on the materials passed along the shorelines in their respective areas for protection. The location of most fish camps behind these parts accentuates the importance of this continuing process.

Little work has been done on researching the nature of currents other than the littoral type, although investigation is currently underway at Grassy Narrows adjacent the causeway. Strong currents are readily observable at the Narrows and within the Black-Hecla Island complex. These currents are closely related to the action of seiches and set-ups as the areas where they occur act as constructions to the flows initiated by the large-scale waves. It therefore follows that the larger the seich, and/or set-up the stronger the current in the constricted areas. Winds complicate the effects of current depending on the

direction of wind relative to the current flow. The resulting wave characteristics also tend to reflect the influence of the current.

WATER LEVELS

Lake Winnipeg with an area of almost 9500 square miles has a vast drainage basin which covers much of Manitoba, Saskatchewan and Alberta and parts of Ontario, Minnesota, North Dakota, and Montana. Its seasonal water levels are therefore subject to complex patterns of natural and manmade factors which are not easily predicted. Normal seasonal rise in water level, the limited carrying capacity of the outlet channel, climatic conditions, seasonal water carry over and wind, all affect the water levels in any particular year. Various combinations of the influence of these factors have led to extreme low periods such as in 1961-62, and extreme high water periods such as 1879-80, 1901-02, and 1966 (see Figure 13).

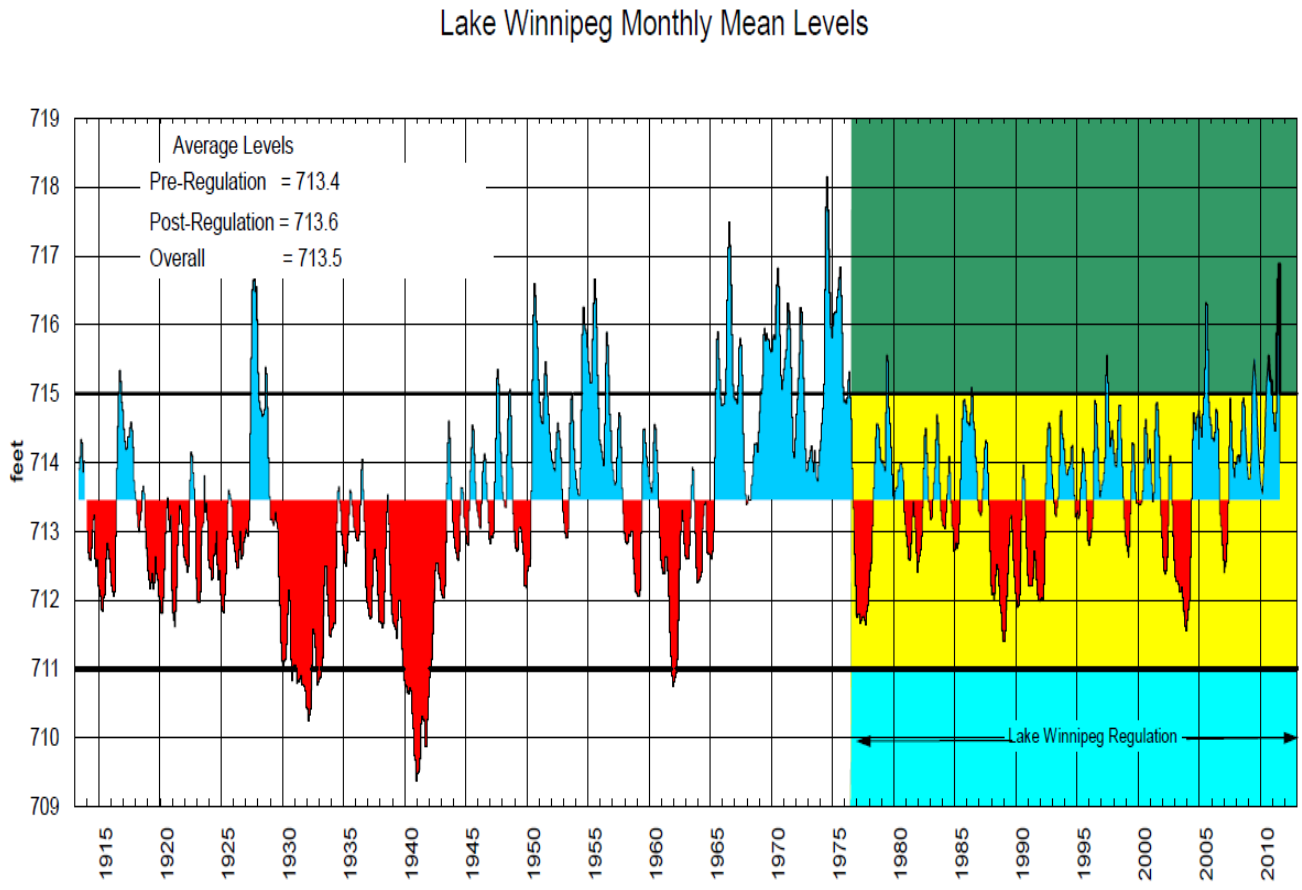


FIGURE 13, LONG TERM MEAN WATER LEVEL OF LAKE WINNIPEG (updated 2012 from Manitoba Hydro http://www.hydro.mb.ca/corporate/water_regimes/lake_winnipeg_means.pdf)

At the end of July 1966, the water level stood at 717.6 feet above mean sea level, the highest since 1913. Later on September 5th, the highest recorded level of 719.88 feet occurred at Gimli. The Winnipeg

Tribune on March 3, 1977 quoted the then Mines Minister for Manitoba, Sidney Green, as saying that "Manitoba Hydro, in embarking upon its regulation Lake Winnipeg for the Nelson River Hydro Electric Project, is licensed to regulate Lake Winnipeg at 711 feet above sea level. The regulation limit would work between 711 and 718 feet. “It can be expected that with the regulation of the lake by Manitoba Hydro, as the result of their Nelson River hydroelectric project, levels of the lake will not fall below 711 feet. This will not reflect possible variations brought about by seiching, mentioned earlier.

NOTE: Added April 2012

Lake Winnipeg was at 713.4 feet on April 1, 2012. The lake level is expected to rise 4 inches to 713.7 feet by the end of the month. The lake peaked at 716.9 feet on July 8,

Record 2011 floodwaters flowing into Lake Winnipeg raised the level of the lake to its highest elevation since regulation began in 1976. Inflows to the lake decreased dramatically since mid-summer 2011, allowing the lake level to drop to near-normal levels by winter 2011 and to a spring 2012 level of 713.3 feet.

The Lake Winnipeg Regulation project includes additional outlet channels at the north end of Lake Winnipeg which allow up to 50 per cent more water to flow out of the lake under flood conditions. Similar inflows to the lake pre-regulation caused the level of the lake to peak almost one and a half feet higher in 1974.

CHAPTER V: Aids to Navigation

The length of the navigational season closely follows the spring breakup and fall freeze up periods. While a full 6 month season is possible, the normal length is closer to a 5 month period.

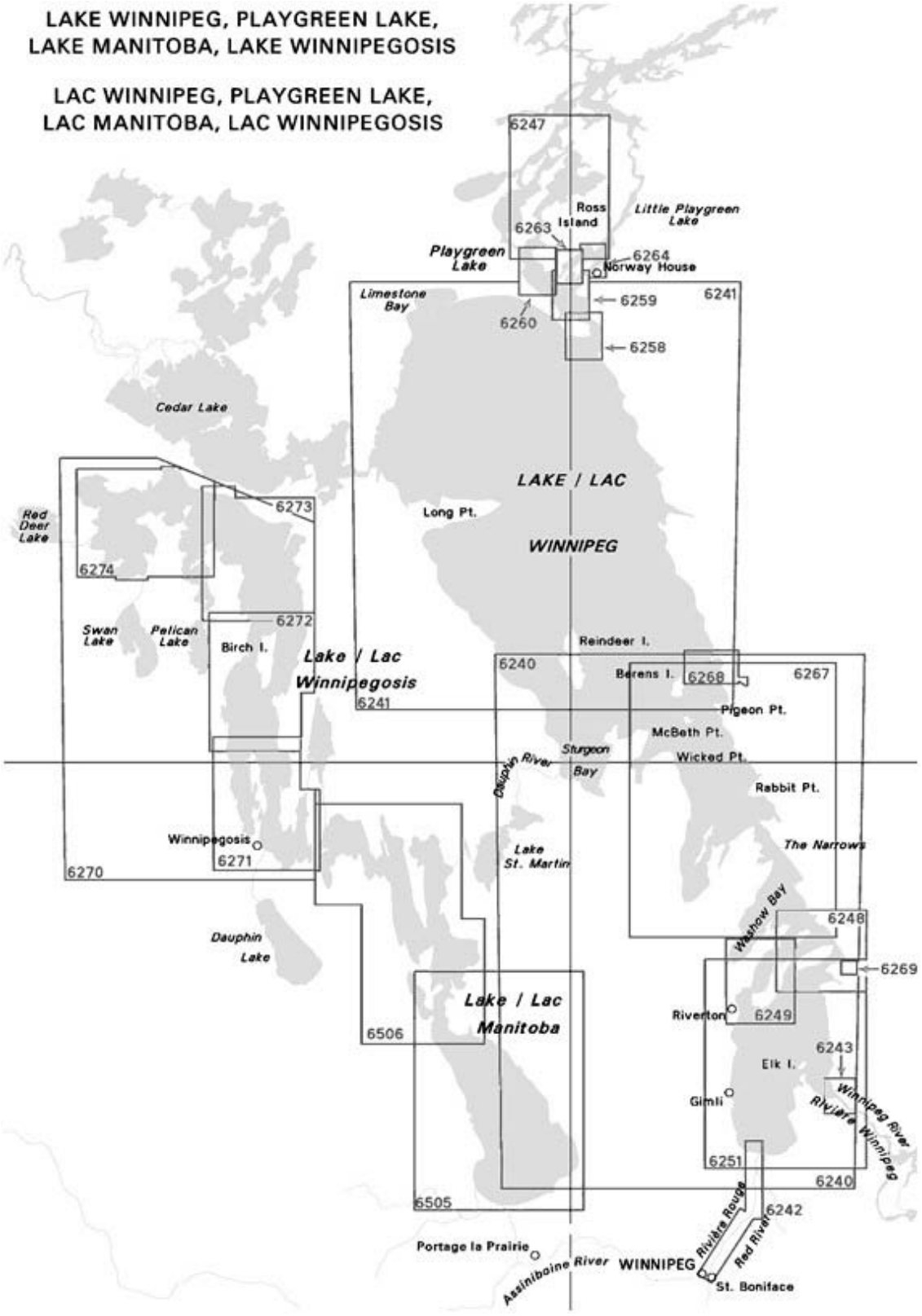
The Federal Department of Transport is responsible for the establishment, maintenance and repair of all aids to navigation. Suitability and improvement are also part of the D.O.T. program. The seasonal nature of boating on Lake Winnipeg with the freezing winter period, (mean freeze up November 15), necessitates the maintenance and installation of many aids during the spring and their winter servicing or removal during the late fall. The existence of operational aids to navigation are closely related to prevailing ice conditions and therefore usually coincide with boating activity on the lake. However, at times, in view of equipment limitations and the enormous size of the job, it is possible that some boating especially commercial transport may occur before or after all the aids to navigation are functioning or removed respectively.

While the time of the official opening of the navigational season varies, the closing period is more regular and occurs in the last week in October. The latter corresponds to October 31st, when the water is released at Lockport and the level on the Red River is drastically reduced. Unfortunately, the establishment of the aids to navigation on the Red River is a more difficult problem than those associated with Lake Winnipeg. The placement of aids to navigation on the Red River is almost entirely governed by the nature of the spring flow in any year. If the aids are placed too soon, adjustments at Lockport resulting from sudden heavy flows of water could cause the aids to shift and necessitate readjustment. Consequently, the placement of aids has at times -especially during flood years - been delayed as late as the middle of July. Generally, however, the Red River buoys have been set by the middle of June. Remember, mean breakup is May 20th.

The principal aid to navigation on the lake is the navigation chart. This guide should always be read in conjunction with the chart and additionally the chart should always be brought up to date by closely following the ‘Notices to Mariners’.

These charts are available from the Mapping Branch of the Manitoba Government, located at 1007 Century Street, in Winnipeg. Their telephone number is (204) 633-9543. A guide showing the available navigational charts, and their reference number for ordering purposes, is shown overleaf. A handbook for interpretation of the symbols used on the chart is available at the same location.

The next most important aid to navigation are the physical aids placed around the lake by the Department of Transport (note that 'department' is at this writing, fashionable again, by bureaucratic edict). On-the¬water aids are placed by the Coast Guard ship Namao, as soon as break-up allows in the spring.



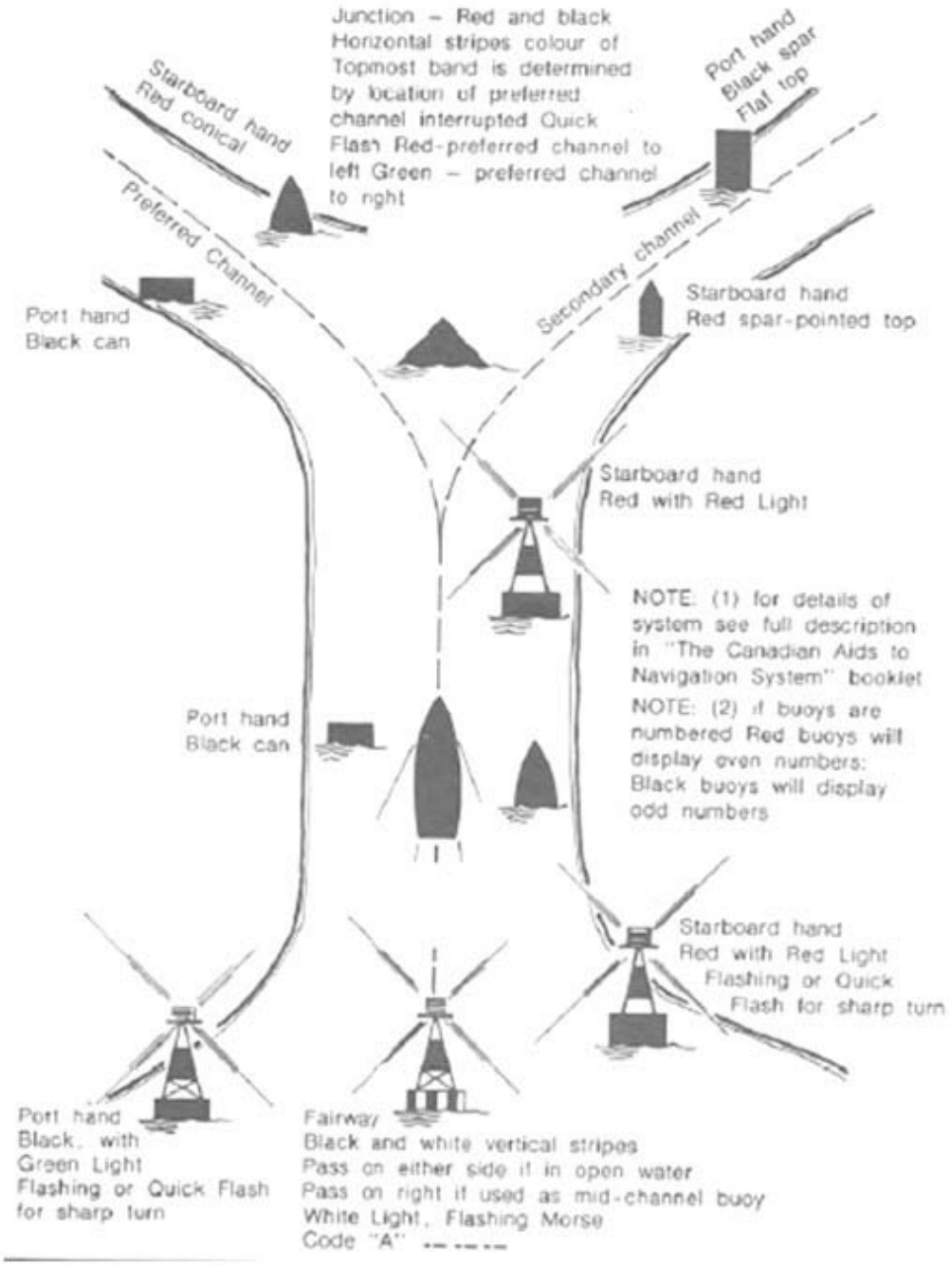
Charts available for Manitoba Lakes – Winnipeg River Charts not shown (See Lake of the Woods)

BUOYS

Buoys are systems to alert the yachtsman as to danger, whether in the positive sense, as in marking a reef, or in the negative sense, in marking the preferred channel. Canada uses the lateral system of buoyage (as opposed to the 'cardinal' system which relates to the points of the compass), which observes that port hand buoys (black) and starboard hand buoys (red) be interpreted as if proceeding from seaward, toward the headwaters. Red and black buoys mark junctions, wrecks, or other obstructions which may be passed on either side. The shape of the buoy is helpful in that port hand, black buoys are flat, and referred as cans. Starboard hand, red buoys are pointed in shape, and referred as nun buoys. Channel junction markers may be either can or nun in shape; if the uppermost hand is black the buoy is to be regarded as can, and kept to port; if the uppermost hand is red it is nun, and must be kept to starboard when returning from seaward. See the accompanying diagram.

Striped or banded buoys may be passed on either side. In the case of banded (horizontally striped) buoys, the uppermost band again, indicates the preferred channel (For example, if the uppermost band is red (starboard), then the buoy is kept on the right for the preferred channel).

NORMAL NAVIGATION



Red on Right from Seaward

For greater detail in this area, a piloting text should be studied.

Fairway buoy 2 miles from mouth of Red River; it is difficult to pick out. Blaze orange top; black and white; light - Morse code 'A'

RANGES

A range is an aid to navigation which has two fixed beacons, lighted or unlighted (day beacons) so that when lined up visually they indicate safe passage toward the harbour they mark. (It has to be borne in mind that this is only a safe bearing given; your present position may be such that one is too far out or too close, and other perils may present which are finally, the skipper's responsibility). By keeping these two points in line, then the safer approach to the harbour is marked. On a chart, the direction of the range is indicated alongside. When the beacons are lined up, the range is 'closed" when they are disparate, it is 'open'. It is necessary to keep the range closed in order to avoid the less safe approaches to the point sought. If wind or current is from either side, rather than abaft or ahead, it may be necessary to 'crab' the craft to compensate for this action, whilst keeping the range closed.

Beacons aren't always necessary. To pass a shoal, for example, one may take two objects on a chart, (such as a point and a buoy), connect them by straight-edge, and extend the line to open water. Bringing the boat roughly into position with this line, then maneuver also as to close the range ensures safe passage.

Compass accuracy can be checked using the beacons (or any two points as above), a line can be drawn and its magnetic heading can be determined from the chart, then compared with the compass heading on the boat (after, naturally, compensating for variation as shown on the chart, and deviation). Remember that actual deviation will be reduced if the compass is zeroed-in before mounting it aboard, using the integral magnetic compensators(usually controlled by set screws at the base of the compass housing). This is a relatively simple procedure that is described in the instructions with the instrument, available from the manufacturer, or any piloting text book.

MARINE RADIO

2014 Edit: Comments about Canadian Coast Guard Base in Selkirk and the ship Namao in previous editions are to be replaced with: Selkirk Coast Guard Base closed in about 1999, and the ownership of Namao was transferred to Lake Winnipeg Research Consortium in 2005. She was built in Riverton in 1975, and served as a Coast Guard vessel from 1975 until 2005. She now docks in Gimli.

Thunder Bay Coast Guard *did* provide a broadcast service for Lake Winnipeg using marine VHF channel 26 from repeater transmitter sites located at Jackhead, Beaver Creek and Long Point and on channel 19 from Fraserwood Manitoba.

Broadcasts of marine forecasts *were* made at 0140, 0840, 1240, 1640 and 2140 UTC. (That would be at 2040, 0340, 0740, 1140 and 0440 CDT or 8:40 PM, 3:40 AM, 7:40 AM, 11:40 AM and 4:40 PM CDT for the rest of us).

In spring of 2014, operation of the 4 Lake Winnipeg VHF repeater towers is to be transferred to Sarnia. The Sarnia operation is in turn supposed to be turned over to Prescott; but that date is not yet known. Those are all in the old Central and Arctic Region, where Manitoba used to be. The latest information on the Canadian Coast Guard Web site is that Manitoba has been placed into the Western Region, a modified version of the old Pacific Region, so further changes may be coming.

Time will tell if the past practices of warnings and marine forecasts are maintained.

As well as the channel usage above, below are the preferred channels recommended (largely also in use in the old Pacific Region, so channel assignments should remain static):

16 SAFETY, CALLING, DISTRESS (24 hours-Lake Winnipeg)

06 ship to ship - safety, navigation

19 metrological broadcasts (Lake Winnipeg - Fraserwood)

24 ship to shore telephone

26 metrological broadcasts (Lake Winnipeg – Beaver Creek, Jackhead, Long Point)

68 ship to ship - marinas - yacht clubs

70 Digital Select Calling - digital only; voice not allowed

72 ship to ship - pleasure craft

Channel 70 is not available on any of the four Lake Winnipeg Coast Guard repeater towers at Fraserwood, Beaver Creek, Jackhead or Long Point. When you select your distress button on your DSC radio it will switch all radio's that are DSC equipped to channel 16, including your own, if not already on the frequency. You would then need to make your *voice* distress broadcast, which everyone will hear, including the Coast Guard as they monitor channel 16 continuously. Your location must also be given by voice, since the DSC Distress location would only be received by your fellow sailors - if they are so equipped.

The VHF (FM) radio telephone is basically a line-of-sight communication; it does not 'bend' beyond the horizon. The range, therefore, is about 50 miles under good conditions. For the south end of the lake, there should be no place where one would necessarily be out of touch, assuming VHF set placement aboard.

It is important to note that FM (frequency modulation) 'locks out' all but the strongest signal. While this adds to the clarity of receipt and transmission, it does at the same time present the chance that a weaker, more distant call for help would be blocked out. It is for this very important reason that VHF calls are limited to 3 minutes. Once contact is made on Channel 16, parties normally should switch to a working channel or to CB equipment if possible.

The procedures to be used, briefly are as follows:

Calling

Item	Spoken
Name of station called (not more than three times)	COAST GUARD RADIO
The words THIS IS	THIS IS
Type, name and call sign of vessel calling (not more than three times)	SLOOP PTARMIGAN
Invitation to reply	OVER

Reply

An operator hearing a call directed to his station, shall reply as soon as possible, and advise the calling station to proceed with his message with the words "GO AHEAD", or "STANDBY" followed by the anticipated number of minutes delay. Do not ignore the call as this only results in unnecessary further call-ups, wasting air tine which may be needed by other stations.

In the Maritime Mobile service when a station is called and the identity of the calling station is uncertain, the operator should reply immediately using the words "STATION CALLING", his stations name and/or call sign and the words "SAY AGAIN". Emergency calls should be preceded by "MAYDAY", spoken three times (from the French - m'aider - help me). Allow some repetition, and if Coast Guard doesn't respond ¬ answer quickly.

The Phonetic Alphabet

The phonetic Alphabet is to be used where transmission is poor, and greater clarity is required in sending. It is as follows:

A – ALPHA	*N - NOVEMBER*
B – BRAVO	*O - OSCAR*
C – CHARLIE	*P - PAPA*
D – DELTA	*Q - QUEBEC*
E- ECHO	*R – ROMEO*
F – FOXTROT	*S - SIERRA*
G- GOLF	*T - TANGO*
H- HOTEL	*U - UNIFORM*
I- INDIA	*V - VICTOR*
J- JULIET	*W - WHISKEY*
K – KILO	*X - X-RAY*
L – LIMA	*Y - YANKEE*
M –MIKE	*Z - ZULU*

A word on CB equipment. There are a number of drawbacks to CB equipment, the most important of which is the lack of such equipment on Coast Guard bases and vessels. It is suggested that for the 1979 season, the Coast Guard dinghy based at Selkirk will have a CB set aboard in addition to VHF equipment. Monitoring will be informal however, and cannot be relied upon.

On the other hand, because CB is so inexpensive, and so easily available, it certainly is better than no radio. Clubs and Coast Guard Auxiliary units should plan for a uniform Channel (Channel 9?), and for regular monitoring during the first 15 minutes of each odd or even hour for call-up, bettering the chance of making contact. For unlike VHF, if the CB set is left on constantly, one must endure endless chatter, often in the idiotic jargon currently popular. And because it is so widely used, the chances are good that someone can be reached, who can relay by telephone a message to the authorities.

For completeness, these Emergency numbers are included:

Coast Guard - JRCC Trenton 1 800 267-7270
Coast Guard – Pollution Report or Failure of Navigation Aids - 1 800 265-0237

RCMP Gimli	204- 642-5104
RCMP Selkirk	204- 482-8114
RCMP Grand Beach	204- 754-2300

WEATHER RADIO

Weather Radio Canada operates a number of transmitters in Manitoba, three of which are of interest to Lake Winnipeg sailors. They are at Long Point, Riverton and Gull Lake, shown on the map below (green). They broadcast weather reports and forecasts continuously, including marine weather forecasts for Lake Winnipeg in summer, with weather alerts as required. Their broadcasts are alternately in English and in French, but may not provide coverage of the entire lake; even with a masthead receiver antenna.

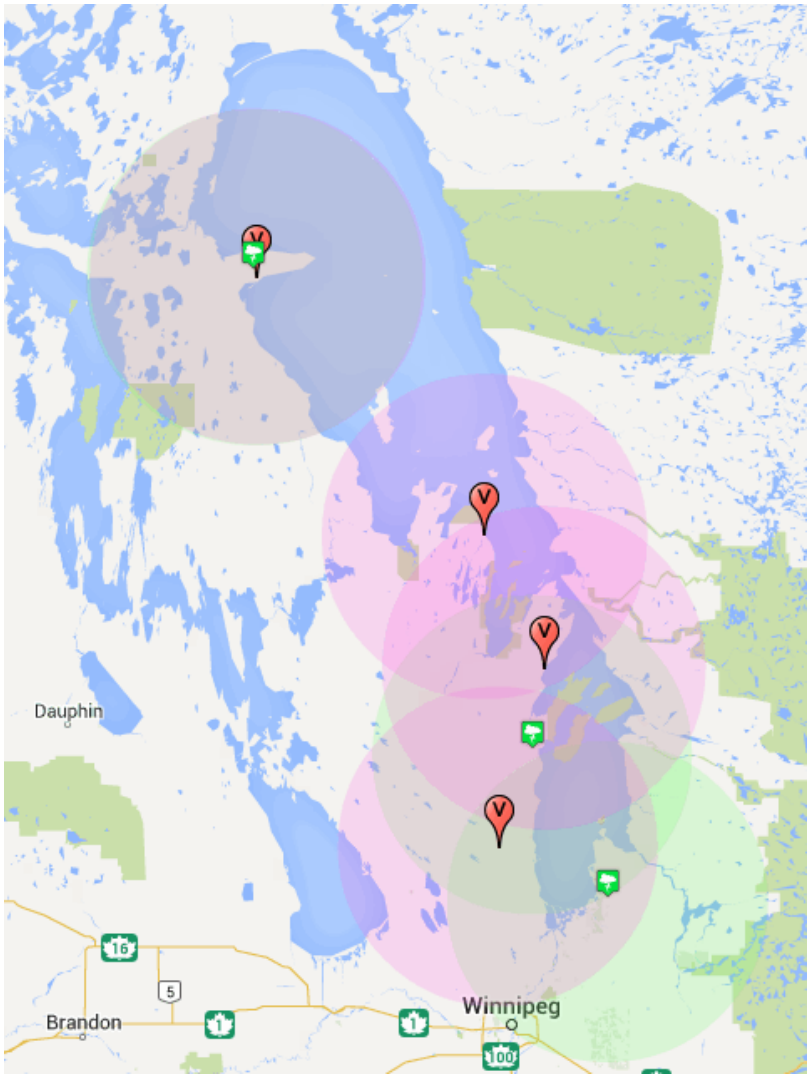
	WX Channel	Frequency
Long Point	1	162.550
Riverton	2	162.400
Gull Lake	7	162.525

Marine Forecasts are also offered by the Coast Guard from their repeaters on Marine VHF, as previously noted. They are announced on Channel 16 and delivered on Channel 19 from Fraserwood and Channel 26 from Beaver Creek, Jackhead and Long Point.

Shown in the illustration to the right are locations of the Coast Guard VHF repeaters at (North to South) Long Point, Jackhead, Beaver Creek and Fraserwood in Red 'V' marker with approximate coverage areas in pink circles.

Also shown are the Weather Radio transmitters in green markers (also North to South) at Long Point, Riverton and Gull Lake with approximate coverage areas in pale green circles.

Coverage areas assume masthead antenna and minimal interference from shoreline. Coverage over land will be considerably less.



ELT DEVICES

Any discussion of marine radio should mention the existence of ELT'S or Emergency Location Transmitters. They are referred as EPIRB's or Emergency Position Indicating Beacons in the United States. They are a compact electronic device capable of sending a distinctive siren-like sound over the aviation emergency frequency (121.5 MHz), complete with self-contained power source and antenna. There are (except for the American models manufactured expressly for boating-buoyant - about $250.00) three positions on the switch "on" "off" and "arm". The 'arm' position is to trigger the device in the event of a substantial shock, as in a forced or crash landing, and can be ignored. The device should be stored, preferably in a fixed mounting, free from accidental jarring, with switch taped in the 'off' position. An ELT can be tested by any aviation receiver for not more than 5 seconds, during the first 5 minutes of any hour. Accidental transmissions must be reported to Winnipeg Air Traffic Control (204-772-4920).

The receipt of a distress transmission brings the Armed Forces Air Rescue. An emergency situation, warranting the use of such a device is a condition of being threatened by serious and/or imminent danger, requiring immediate assistance. Elderly people, or those with a heart condition, for example, or those who choose to sail far into the season, and who do not have VHF equipment, are among those who might choose to have an ELT on board 'just in case'.

It cannot be stressed enough how care must be taken in the care and storage of these devices and that assistance cannot be called except in life-threatening circumstances.

One final note on these devices: assuming an extended cruise is planned, it would be of great assistance to Winnipeg Air Traffic Control if they were aware that a cruiser had an ELT aboard. When a signal is received, the first thing they would do would be to look for missing aircraft ¬ should the signal come from the lake area, ATC would already be alerted. As well, the orange distress flag (square and ball) should be stretched over the cabin trunk, and/or flown from the shrouds, to aid in detection.

CHAPTER VI: Safety Afloat

There have been numerous works, both private and governmental, which deal with proper boat handling and precautions to be taken. This handbook will not be exhaustive here, but should be read in conjunction with the plentiful authority - some of which should be aboard every cruising boat sailing beyond sight of launching.

In a larger sense, safety for the yachtsman is more a state of mind, an attitude rather than prescribed adherence to ritual. This attitude is marked by two things in particular: a healthy respect for the elements which are a sailor's milieu, and an awareness of certain local conditions, which together with the former, guide a skipper's hand in avoiding trouble as well as dealing with it. It is local conditions which concern this handbook.

Though the Department of Transport Regulations provide for certain minimum standards, the prudent yachtsmen should always exceed these criteria. One way to achieve this is to look at the requirements for bigger craft, and meet these. Under the Small Vessel regulations the following is a list of required equipment:

REQUIREMENTS FOR PLEASURE CRAFT

(UNDER THE SMALL VESSEL REGULATIONS – Effective April 2012)

Sail and powered pleasure craft up to 6 m (19'8")

Personal Lifesaving Appliances

1. One (1) Canadian-approved personal flotation device or lifejacket of appropriate size for each person on board
2. One (1) buoyant heaving line at least than 15 m (49’3”) long
3. One (1) reboarding device

Note: A reboarding device is only required if the vertical height that must be climbed to reboard the pleasure craft from the water is over 0.5 m (1’8”).

Visual Signals Only required if boat is equipped with a motor

4. One (1) watertight flashlight

OR

Three (3) Canadian-approved flares of Type A (Rocket Parachute), B (Multi-Star) or C (Hand)

Note: Flares are not required for a pleasure craft that:

- Is operating on a river, canal or lake in which it can never be more than one (1) nautical mile (1.852 km) from shore; **or**
- Has no sleeping quarters and is engaged in an official competition or in final preparation for an official competition.

Vessel Safety Equipment

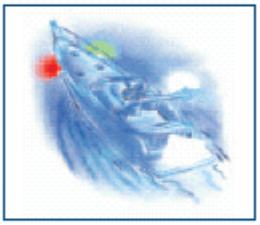
5. One (1) manual propelling device

OR

One (1) anchor and at least 15 m (49'3") of cable, rope or chain in any combination
One (1) bailer

OR

One (1) manual bilge pump
Note: A bailer or manual bilge pump is not required for a pleasure craft that cannot hold enough water to make it capsize or a pleasure craft that has watertight compartments that are sealed and not readily accessible.



Navigation equipment

6. One (1) sound-signaling appliance that meets the requirements set out in the *Collision Regulations*

OR

A sound-signaling device

7. Navigation lights meet the requirements set out in the Collision Regulations

Note: Sailing vessels less than 7 m in length can meet this requirement with a watertight flashlight
You can learn more about the requirements for your pleasure craft by consulting the navigation lights section of the **Safe Boating Guide**
Note: Navigation lights are only required if the pleasure craft is operated after sunset, before sunrise, or in periods of restricted visibility (fog, falling snow, etc.).

8. One (1) magnetic compass

Note: A magnetic compass is not required if the pleasure craft is 8 m (26'3") or less **and** is operated within sight of sea marks (navigation marks).

Firefighting Equipment

9. One (1) 5BC fire extinguisher if the pleasure craft is equipped with an inboard engine, a fixed fuel tank of any size, or a fuel-burning cooking, heating or refrigeration appliance
10. One (1) radar reflector is required under certain conditions

Sail and powered pleasure craft over 6 m and up to 9 m (19'8"- 29'6")

Personal Lifesaving Appliances

1. One (1) Canadian-approved personal flotation device or lifejacket of appropriate size for each person on board

2. One (1) buoyant heaving line at least than 15 m (49’3”) long

OR

One (1) lifebuoy attached to a buoyant line at least 15 m (49’3”) long

3. One (1) reboarding device

Note: A reboarding device is only required if the vertical height that must be climbed to reboard the pleasure craft from the water is over 0.5 m (1’8”).

Visual Signals

4. One (1) watertight flashlight
5. Six (6) Canadian-approved flares of Type A (Rocket Parachute), B (Multi-Star) or C (Hand)

Note: Flares are not required for a pleasure craft that:

- Is operating on a river, canal or lake in which it can never be more than one (1) nautical mile (1.852 km) from shore; **or**
- Has no sleeping quarters and is engaged in an official competition or in final preparation for an official competition.

Vessel Safety Equipment

6. 6. One (1) manual propelling device

OR

One (1) anchor and at least 15 m (49’3”) of cable, rope or chain in any combination

7. 7. One (1) bailer **or** manual bilge pump

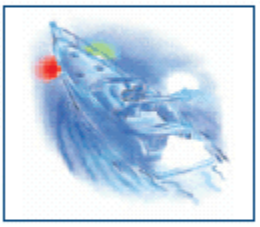
Note: A bailer or manual bilge pump is not required for a pleasure craft that cannot hold enough water to make it capsize or a pleasure craft that has watertight compartments that are sealed and not readily accessible.

Navigation equipment

8. One (1) sound-signaling appliance that meets the requirements set out in the *Collision Regulations*

OR

A sound-signaling device



9. Navigation lights that meet the requirements set out in the Collision Regulations

Note:

Sailing vessels less than 7 m in length can meet this requirement with a watertight flashlight

Navigation lights are only required if the pleasure craft is operated after sunset, before sunrise, or in periods of restricted visibility (fog, falling snow, etc.).

You can learn more about the requirements for your pleasure craft by consulting the navigation lights section of the **Safe Boating Guide**

Note: Navigation lights are only required if the pleasure craft is operated after sunset, before sunrise, or in periods of restricted visibility (fog, falling snow, etc.).

11. One (1) magnetic compass

Note: A magnetic compass is not required if the pleasure craft is 8 m (26'3") or less **and** is operated within sight of sea marks (navigation marks).

Firefighting Equipment

12. One (1) 5BC fire extinguisher if the pleasure craft is equipped with a motor

AND

13. One (1) 5BC fire extinguisher if the pleasure craft is equipped with a fuel-burning cooking, heating or refrigeration appliance
14. One (1) radar reflector is required under certain conditions

Date modified: 2011-05-31

Sail and powered pleasure craft over 9 m and up to 12 m (29'6"- 39'4")

Personal Lifesaving Appliances

1. One (1) Canadian-approved personal flotation device or lifejacket of appropriate size for each person on board
2. One (1) buoyant heaving line at least than 15 m (49'3") long
3. One (1) lifebuoy attached to a buoyant line at least 15 m (49'3") long
4. One (1) reboarding device

Note: A reboarding device is only required if the vertical height that must be climbed to reboard the pleasure craft from the water is over 0.5 m (1'8").

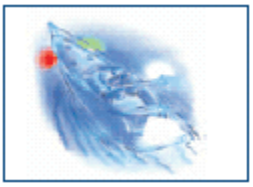
Visual Signals

5. One (1) watertight flashlight
6. Twelve (12) Canadian-approved flares of Type A (Rocket Parachute), B (Multi-Star),C (Hand), or D (smoke signals)

Note:
Not more than six (6) of which are of Type D (smoke signals).

Flares are not required for a pleasure craft that:

- Is operating on a river, canal or lake in which it can never be more than one (1) nautical mile (1.852 km) from shore; **or**
- Has no sleeping quarters and is engaged in an official competition or in final preparation for an official competition.


Vessel Safety Equipment

7. One (1) anchor and at least 30 m (98'5") of cable, rope or chain in any combination
8. One (1) manual bilge pump

OR

Bilge-pumping arrangements

Note: A bailer or manual bilge pump is not required for a pleasure craft that cannot hold enough water to make it capsize or a pleasure craft that has watertight compartments that are sealed and not readily accessible.

Navigation equipment

9. One (1) sound-signaling appliance that meets the requirements set out in the *Collision Regulations*

OR

A sound-signaling device

10. Navigation lights that meet the requirements set out in the *Collision Regulations*
11. One (1) magnetic compass

Firefighting Equipment

12. One (1) 10BC fire extinguisher if the pleasure craft is equipped with motor

AND

13. One (1) 10BC fire extinguisher if the pleasure craft is equipped with a fuel-burning cooking, heating or refrigeration appliance
14. One (1) radar reflector is required under certain conditions

Date modified: 2010-05-13

WHISTLE SIGNALS

All craft capable of being referred as a 'cruiser' on Lake Winnipeg should have a horn or other audible signaling device close by the helm. Signal by horn or whistle is governed by regulation as well, and they are set out below:

One blast-means "I am altering course to starboard".

Two blasts-mean "I am altering course to port".

Three blasts-mean "My engines are going astern".

Five or more blasts mean "Emergency or danger signal" or "signal not understood."

EXCEPTIONS

A vessel not over 8 m (26 feet) in length is required to sound the maneuvering signal, but if she does not do so she shall be maneuvered in such a manner as will prevent risk of collision or misunderstanding with any other vessel.

HYPOTHERMIA

Lake Winnipeg is a sub-arctic lake, and the cold water temperatures that prevail especially during the early and late parts of the season, can kill in a way other than by drowning. It is a known fact that many 'drowning victims' do not die by drowning but by HYPOTHERMIA, or that state of the body marked by very low temperature. There are a number of devices in the human body designed to keep the body temperature at 98.6°F. If these devices fail to maintain such a temperature (a 10°F fall is sufficient) then death occurs. There are a number of factors which affect the body temperature drop. These are:

water temperature

amount of clothing

amount of body fat

degree of activity

psychological state (panic appears to speed the cooling process)

physiological responses (shivering)

If immersion is imminent, as in a holed, sinking vessel, then clothing should be put on, either over or under lifejackets. This can help minimize heat loss. Bear in mind that swimming reduces the body's natural insulative devices, by increasing the blood flow to the arms and legs. The blood, circulating through the extremities is cooled. This in turn cools deep body temperature. Any movement should probably be deliberate and slow, arms tucked in leaning back in the lifejacket. In water 65°F and above, the heat produced by muscle action would be a net temperature gain, assuming some clothing and shoreline relatively close.

Assuming that the man overboard is retrieved in good time, hot drinks, massage and blankets are the rule, again, assuming he is capable of generating his own heat. This usually is indicated by shivering, alertness and consciousness. Under no circumstances should alcohol be provided since it inhibits the body's normal thermostatic responses. Man overboard retrieval exercises are a must for any prudent skipper.

Should the victim be hypothermic, however, when brought aboard, and evidence such signs as confusion/disorientation, unconsciousness, lack of spontaneity in shivering, then immediate heat contribution should commence Ideally, a warm bath (with arms and legs out, since cool blood in the extremities would be pumped into the heart, cooling it further) has the best results, but a partially inflated dinghy would do as well. All yachts, if not possessed of their own integral furnace, should carry small heaters of the catalytic or kerosene type, if only for this emergency, if not to extend the cruising

season. This of course should be fired at once. If all else fails use your own body heat, cautiously of course.

The best prevention for hypothermia is to stay out of the water. If the water temperature is known to be 65°F or less, then a safety harness is a must when working on deck. A man overboard situation is usually expected in confused seas and weather conditions. Remember, retrieval time is key in this situation, and a head is hard to see in the troughs, especially if there's only two aboard to begin with. A man overboard pole with bright flag, connected to a buoy with self-lighting beacon, ready to go by the helm, is cheap insurance while travelling on the cool waters of Lake Winnipeg.

CHAPTER VII: Inventory of Harbours

Following is an inventory of harbours, both natural and man-made, on Lake Winnipeg, including the narrows and the south basin. Below the data on each place is a blank space marked 'NOTES'. This is for the individual skipper to record his own observations, or log details of his visit at each point-or even stick in a snapshot if desired. This way, the facts already known can be enhanced, in the event of return or exchange with those bound for the same location.

The narrows/south basin portions of the lake are broken down into 4 areas for ease of discussion:

South Basin

Hecla Island West

Black Island East

Narrows

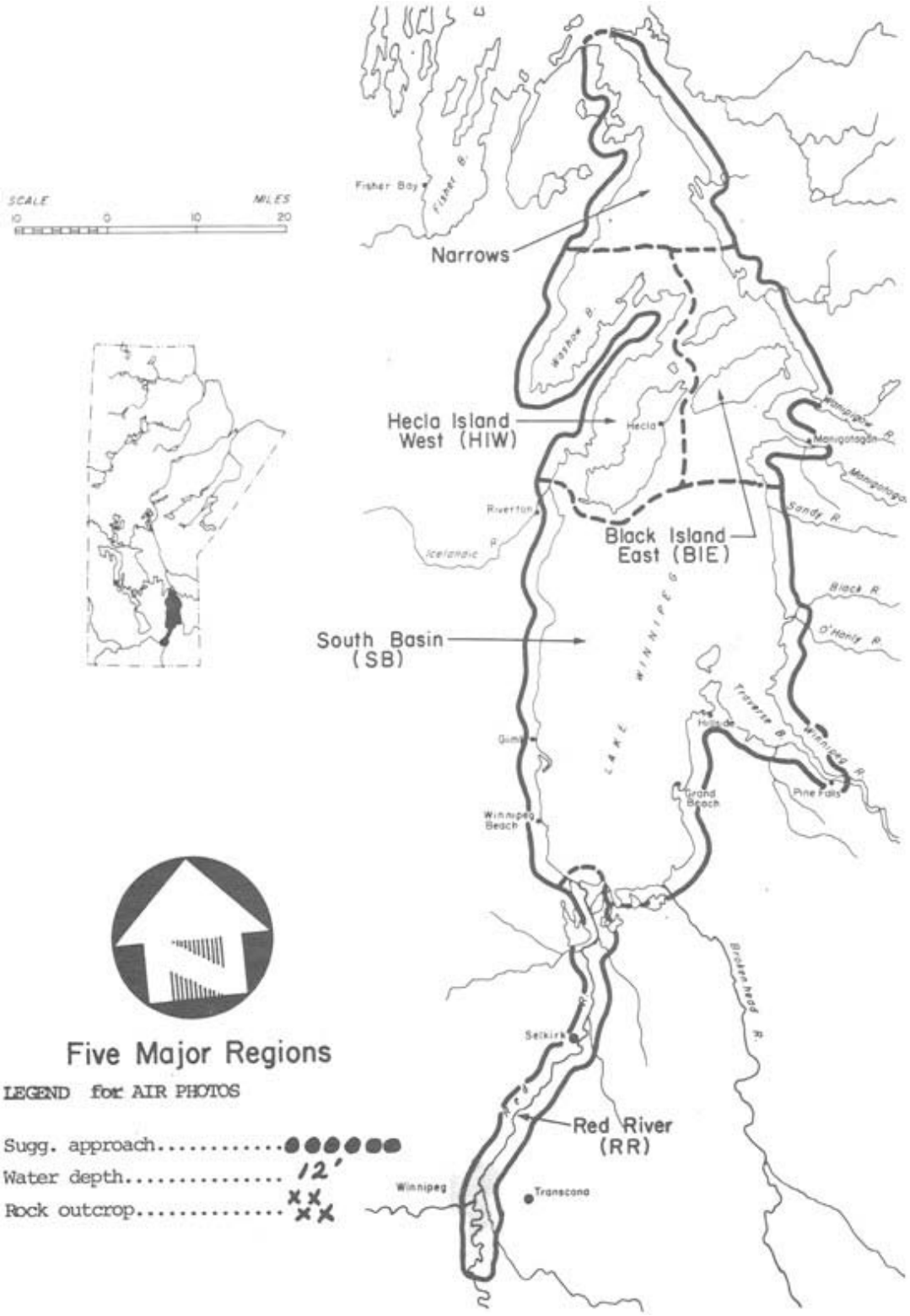
North Basin (added April 2012)

Simple charts precede each section, and each harbour has a code number, so that easy reference is made to the prefacing chart; thence to the appropriate navigational chart which should always be at hand.

Information on the North Basin Harbours is not readily available, and has been added as information is available. Please feel free to contact the author (page 6) to contribute both better detail as well as more harbours suitable for cruisers, both sail and power.

Latitude and Longitude coordinates have been updated from the original as of 2014. The original format was in degrees-minutes-seconds in NAD 27 Datum, as would have been in use at the time. Charts published since about 1997 have been in NAD 83 Datum, or the functional equivalent of it, WGS 84. With the popular use of GPS in Chartplotters and handheld devices such as hiking GPS's, SmartPhones and tablets with Navigation Apps, the more easily typed decimal degree format has become popular. That format has been used here, with the coordinates having been verified in a popular Internet mapping site offering satellite photos, found to be very reliable by the author.

The harbour locations are shown is as accurately as possible, but human errors can and have been made. Additionally, the approach to the harbours can and often is treacherous – carry and use official charts as the final authority.


SCALE
MILES
10 0 10 20
Narrows
Hecla Island West (HIW)
Black Island East (BIE)
South Basin (SB)
Red River (RR)
Five Major Regions
LEGEND for AIR PHOTOS
Sugg. approach.....
Water depth..... 12'
Rock outcrop.....
Fisher Bay
Hecla
Riverton
Icelandic R.
Sandy R.
Black R.
O'Hanly R.
Grand Beach
Pine Falls
Winnipeg Beach
Selkirk
Winnipeg
Transcona
LAKE WINNIPEG

Harbour plus code reference ..... (H)
Existing government wharf

Potential harbour ..... (P)
No government wharf

Safe anchorage from certain winds ..... ⚓

Small dock ..... D[11]
Probably at a fish station.
NUMBERS ADJACENT TO ABOVE SYMBOLS REPRESENTS DEPTH IN FEET.

Small settlement ..... S

Fish station ..... ●fs
Abandoned fish station ..... ●afs

Black channel buoy ..... ⚓b
Turning black channel buoy ..... ⚓bt

Red channel buoy ..... ⚓r
Turning red channel buoy ..... ⚓rt

Navigation light buoy ..... ⚓
Normal junction or fairway buoy

Ranges plus lights ..... •R

Pole light ..... •PL

Standard daybeacon ..... •SD

Green ..... (g)

White ..... (w)

Black ..... (b)

Red ..... (r)

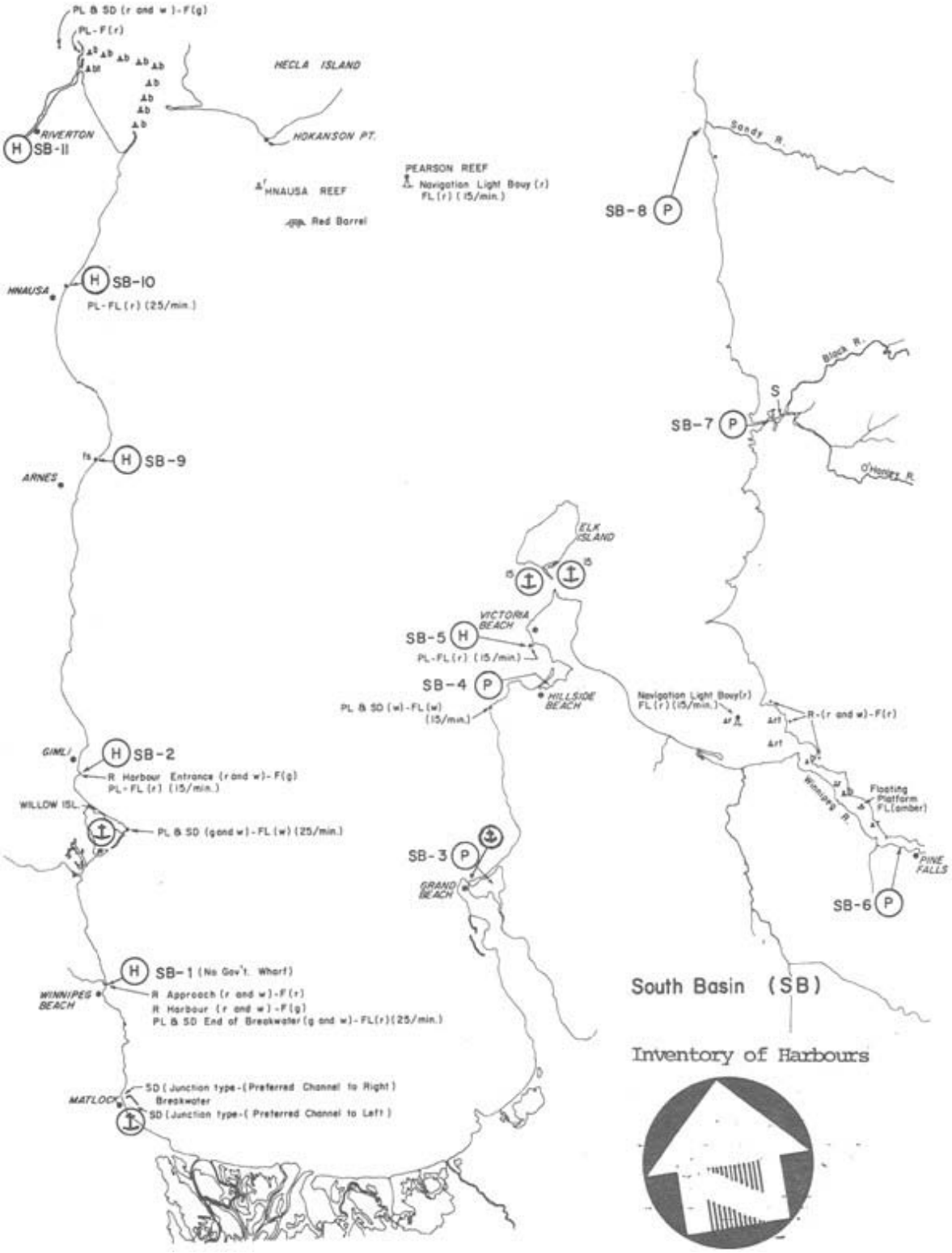
Fixed light ..... •F

Flashing light ..... •FL

Abandoned lumber camp ..... ●al

Key to the Harbours and Aids to Navigation Inventory Maps

SOUTH BASIN


PL & SD (r and w)-F(g)
PL-F(r)
HECLA ISLAND
RIVERTON
SB-11
HOKANSON PT.
PEARSON REEF
Navigation Light Buoy (r)
FL (r) (15/min.)
HNAUSA REEF
Red Barrel
SB-8
Sandy R.
HNAUSA
SB-10
PL-FL (r) (25/min.)
Black R.
S
SB-7
O'Hanley R.
ARNES
SB-9
ELK ISLAND
VICTORIA BEACH
SB-5
PL-FL (r) (15/min.)
SB-4
HILLSIDE BEACH
PL & SD (w)-FL (w) (15/min.)
Navigation Light Buoy (r) FL (r) (15/min.)
R-(r and w)-F(r)
GIMLI
SB-2
R Harbour Entrance (r and w)-F(g)
PL-FL (r) (15/min.)
WILLOW ISL.
PL & SD (g and w)-FL (w) (25/min.)
Floating Platform FL (amber)
Winnipeg R.
PINE FALLS
SB-3
GRAND BEACH
SB-6
SB-1 (No Gov't. Wharf)
WINNIPEG BEACH
R Approach (r and w)-F(r)
R Harbour (r and w)-F(g)
PL & SD End of Breakwater (g and w)-FL(r) (25/min.)
MATLOCK
SD (Junction type-(Preferred Channel to Right)
Breakwater
SD (Junction type-(Preferred Channel to Left)
South Basin (SB)
Inventory of Harbours

WINNIPEG BEACH SB-1

SURVEY DATE: (s) October 2, 1969, Soundings October 7, 1969
LOCATION: Lat/Long 50.5055, -96.963
Section -34 Township- 17 Range-4
REGIONAL: West shore at the mouth of Boundary Creek, 45 miles north of Winnipeg via P.T.H. 9. Winnipeg Beach.

HARBOUR AUTHORITY:
Winnipeg Beach Harbour Authority Inc., MB Winnipeg Beach
P.O. Box 274
MB R0C 3G0
Phone: (204) 389-2649

HARBOUR DESCRIPTION:

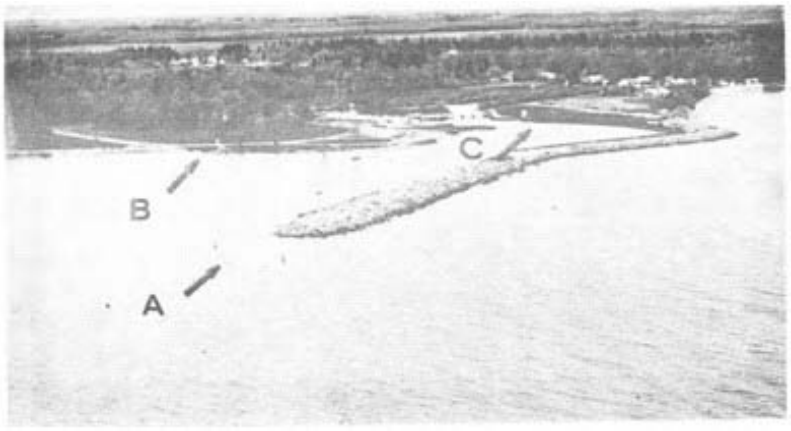
Physical Characteristics- Mouth of Boundary Creek- Inside portion forms small craft marina. Outside portion can be used by large craft.
Size - Inner and outer portions are each 2.3 acres.
Depth - Inner 5 to 7 ft. Outer 10 to 13 ft.
Orientation - East - Southeast facing entrance.
Bottom - Silty sand and clay.
Aquatic Vegetation No problem.

Protection:
Wind - Slight exposure to the SE but no problem. Entrance exposed to NE, E, SE, and S.
Waves - Same as wind. Strong winds from the NE, E, SE, and S create rough seas at the entrance.

Navigational Aids - 2 sets of ranges on the mainland. 1 light beacon on the end of the breakwater and 2 red buoys off the end of the breakwater.

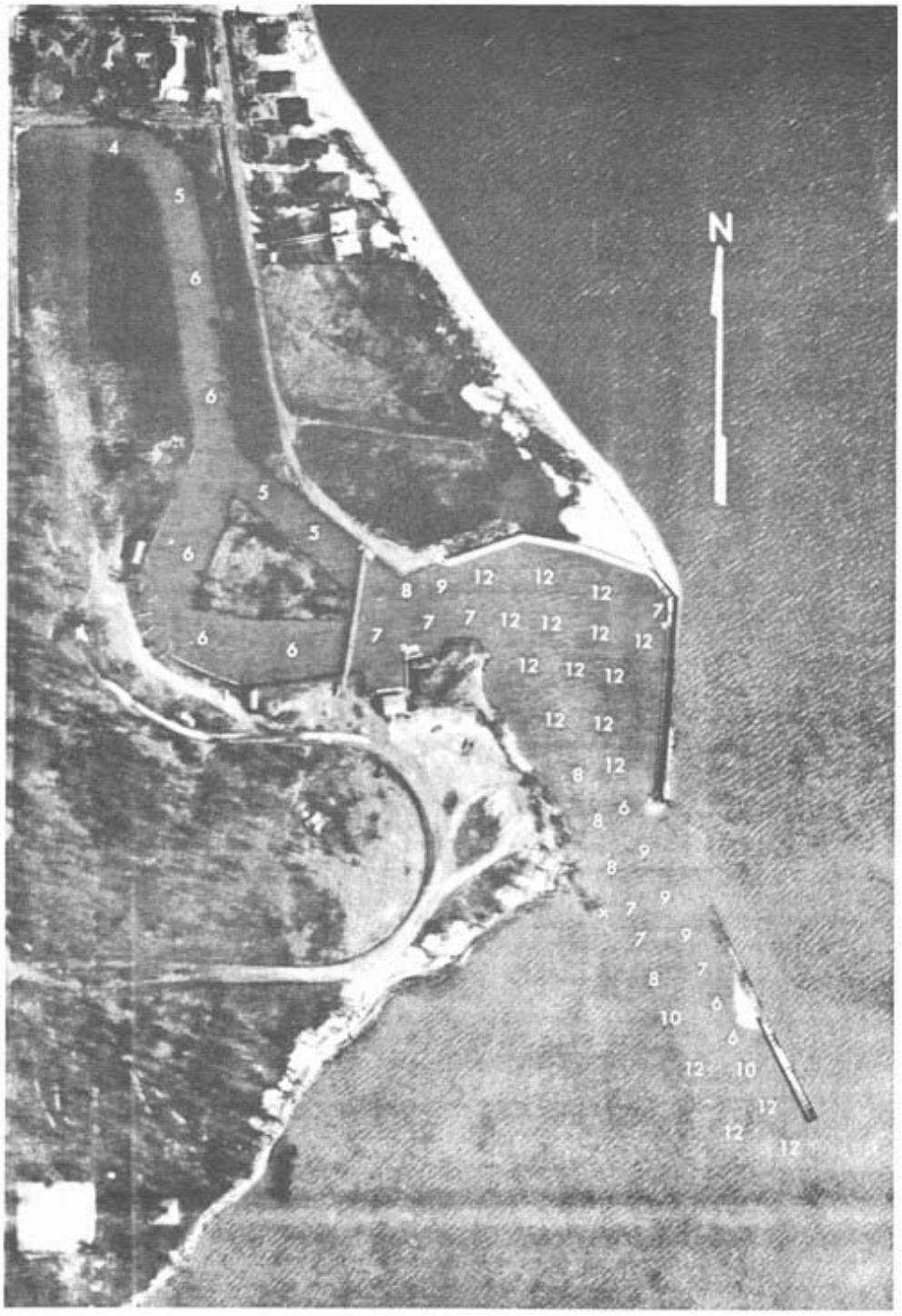
Approach - No problems. Line outside ranges (Red Lights) for approach. Line inside ranges (Green Lights) for entrance to the harbour. Breakwater light and buoys also act as guides.

Facilities:
Dock(s) - Runabout size docks. 325 ft. wood pile walkway (poor conditions for large boats.
Others - Shell gas and oil, boat launch, food, fuel, telephone and accommodation in town, boulder
Breakwater in three sections (325, 325, and 780 ft.)



Outside red buoys (A), Approach ranges (B) and Entrance ranges(C).

Winnipeg Beach. Note the poor condition of the dock. The sign (A) is a warning. Pole light and daybeacon (B).



WINNIPEG BEACH 0 225 450

GIMLI SB-2

SURVEY DATE: (s) October 2, 1969, Soundings October 6, 1968
LOCATION: Lat/Long 50.629, -96.979
Section- 16 Township - 19 Range 4
REGIONAL: West shore. Part of the Town of Gimli which is 55 miles north of Winnipeg via P.T.H. 9.

HARBOUR AUTHORITY:
Gimli Harbour Authority, MB GIMLI
P.O. BOX 2210
MB R0C 1B0
Phone: (204) 642-7517
Email: gimli@mts.net

HARBOUR DESCRIPTION:

Physical Characteristics -	Artificial harbour protected by breakwater structures. Located in a slight embayment in the shoreline.
Size	Inner portion 3.2 acres. Outer portion 2, acres.
Depth	10 to 12 ft.
Orientation	East - Southeast facing entrance.
Bottom	Silty sand and clay.
Aquatic Vegetation	No problem.

Protection:

Wind	Exposed to E. SE. and S. High water and strong wind creates unpleasant conditions for cruisers
Waves	S and SE storms send large rollers alongside the inside of the breakwater. Strong N. NE. E winds send waves onto the outside breakwater. Entrance susceptible to rough seas.

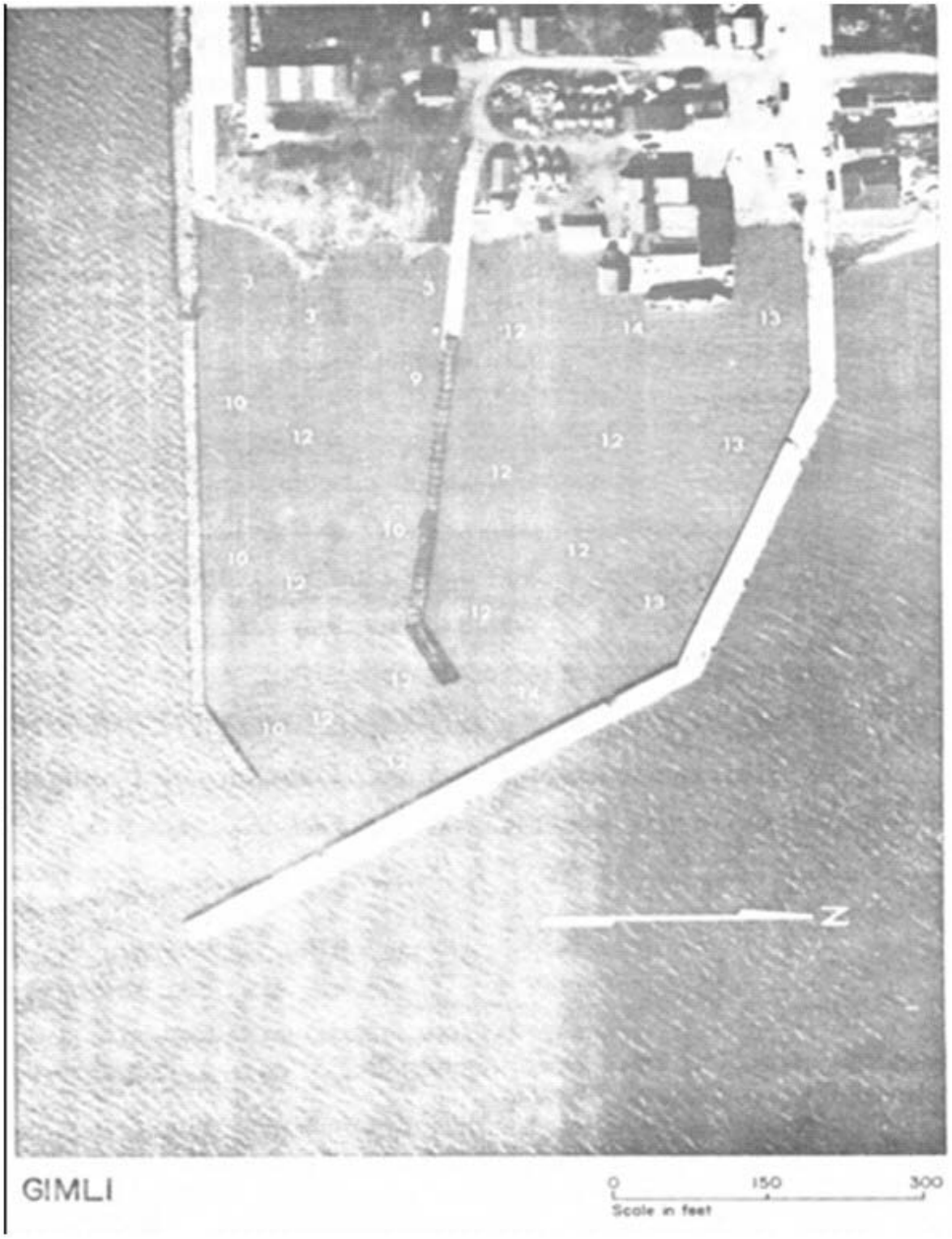
Navigational Aids	1 set of Ranges and 1 light beacon on the end of the main breakwater.
Approach	From the Southeast; Enter on closed ranges (green lights) when in close proximity to the dock.

Facilities:

Dock(s)	750 x 26 ft. concrete deck main wharf. 400 x 16 ft paved inner wharf and 550 x 14 ft. paved south breakwater
Others	Food, Fuel, Telephone, and accommodation in town, boat launch, Gimli Yacht Club,

Gimli. Pole light(A), Entrance ranges (B), Gimli Yacht Club (C) and Gimli Beach (D).

Gimli. The pole lamps have electrical outlets attached. The north sea wall has been increased five feet.


GIMLI
0
150
300
Scale in feet

GRAND BEACH SB-3

SURVEY DATE: (s)	Soundings October 8,1969.
LOCATION:	Lat/Long 50.564, -96.616
	Section (parts of) - 19, 20, 29, 30 Township - 18 Range— 7
REGIONAL:	Part of the Grand Beach Provincial Park and summer cottage area which is 50 miles northeast of Winnipeg via P.T.H. 59.

HARBOUR DESCRIPTION:

Physical Characteristics:	Large lagoon fronted by a high stable pressure ridge and backed by higher wooded land. Anchorage inside the point, in bay formed by beach and outcrop.
Size	Approximately 1 square mile.
Depth	Flat bottomed around 10 ft. 15 ft in outer bay
Orientation	Northwest.
Bottom	Mostly silty clay and organic materials.
Aquatic Vegetation	Generally not a problem but dense in some places.

Protection :

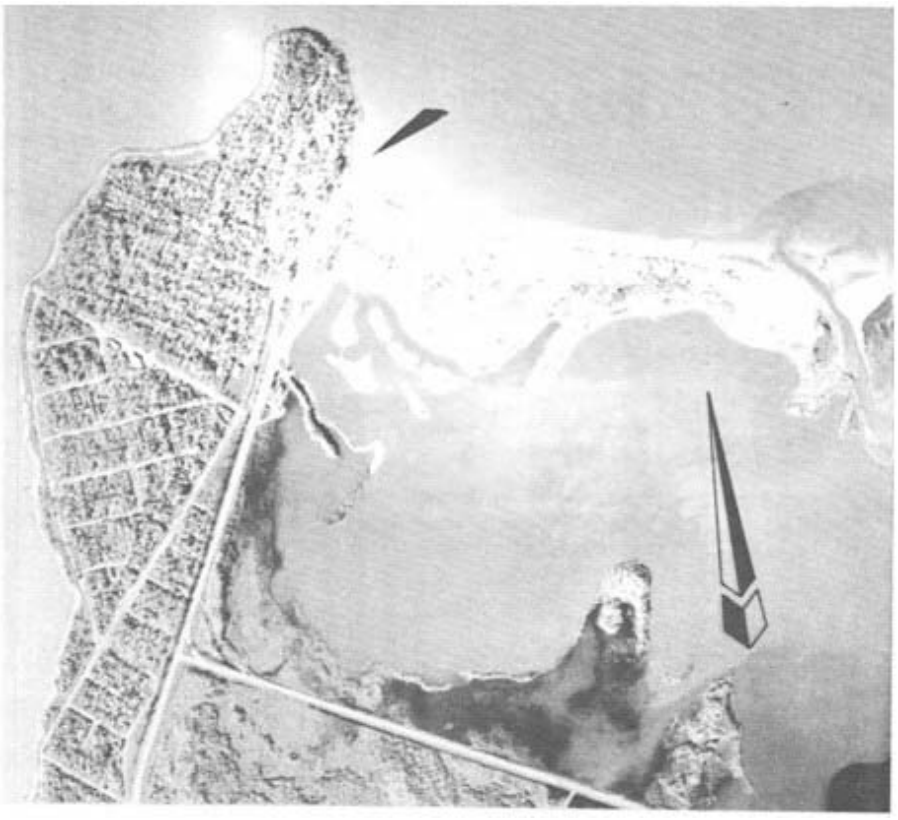
Wind -	Slightly exposed to the SE and E, in lagoon. In bay exposure to N, NE, NW.
Waves -	Lagoon has excellent protection from the lake. Best protection from lagoon waves in the W and N corners.

Navigational Aids - None

Approach - Serious entrance problems presently through the channel, to lagoon Small craft only. Exposed to prevailing NW winds. Usually requires raising the motor.

Facilities :

Dock (s) -	None
Others -	Poor boat launching facilities. Park Office, Grocery store, fuel on the main highway, motel and beverage room near the west end of the lagoon.



The poor channel from the lagoon is shown; not very much dredging would turn this into an excellent all-weather harbour. In the photo, the wind is from the SE and shows the excellent anchorage available as shown at the arrow. N and NE winds would force a move to Victoria Beach Harbour

HILLSIDE BEACH SB-4

SURVEY DATE (s)	Soundings October 2, 1969
LOCATION :	Lat/Long 50.685, -96.544
	Section (parts of) - 33, 34 Township- 19 Range- 7
Regional -	Just south of Victoria Beach. Approximately 57 miles northeast of Winnipeg via P.T.H. 59.

HARBOUR DESCRIPTION :

Physical Characteristics -	Large lagoon fronted by a stable pressure ridge and backed by marsh and low land.
Size	Approximately 320 acres.
Depth	Flat bottomed 8 to 9 ft.
Orientation	Northwest
Bottom	Mostly silty clay and organic materials.
Aquatic Vegetation	Light to dense except adjacent the opening and pressure ridge.
Protection:	
Wind -	Slight exposure to NE. Opening exposed to NW.
Waves -	Excellent protection from the lake. Entrance is exposed to NW winds.
Navigational Aids -	None at the side. Light beacon and range on Ironwood Pt. Light beacon on the end of Victoria Beach wharf.
Approach -	Limited to small craft outboards or outboard drives. Requires maneuvering. No stable channel. Difficulty depends on wind conditions.
Facilities:	
Dock (s) -	None.
Others -	Dredged ditch; poor boat launch at the South end. Hillside Beach residents use ditch for boat mooring. Gas and oil on main highway. Oil, Gas and Groceries on Traverse Bay Road (2 1/2 miles).

Hillside Beach. The land owner has dredged the ditch out and provided space for docking small boats. 2014 Edit: It appears from Satellite Images that there is now a Marina (Dockside Marina) in this lagoon.

VICTORIA BEACH SB-5

SURVEY DATE : (s) Soundings October 2, 1969.
LOCATION : Lat/Long 50.694, -96.562
Section - 9 Township - 20 Range - 7
Regional - Adjacent Victoria Beach summer cottage townsite which is 60 miles northeast of Winnipeg via P.T.H. 59.

HARBOUR AUTHORITY:

Victoria Beach Harbour Authority Inc., MB Victoria Beach
Box 95
MB R0E 2C0
Phone: (204) 756-3320

HARBOUR DESCRIPTION:

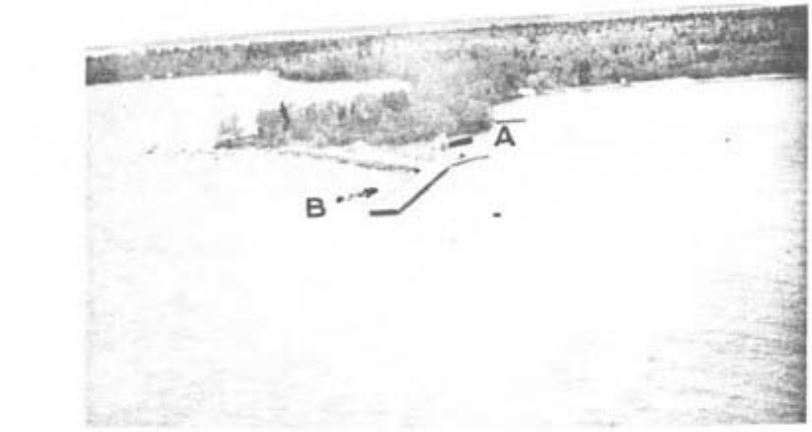
Physical Characteristics - Artificial structure extending off a narrow high peninsula of land.
- Size - 2/3 acre behind the approach wharf.
- Depth - 14 ft. on inside of outside wharf. 5 ft. behind approach.
- Orientation - Southwest
- Bottom - Clay and sand.
- Aquatic Vegetation None

Protection:
- Wind - Exposed. Protection from N and NE winds inside approach wharf.
- Waves - Exposed W, SW, S and SE. Protection for a few small boats behind old dock.

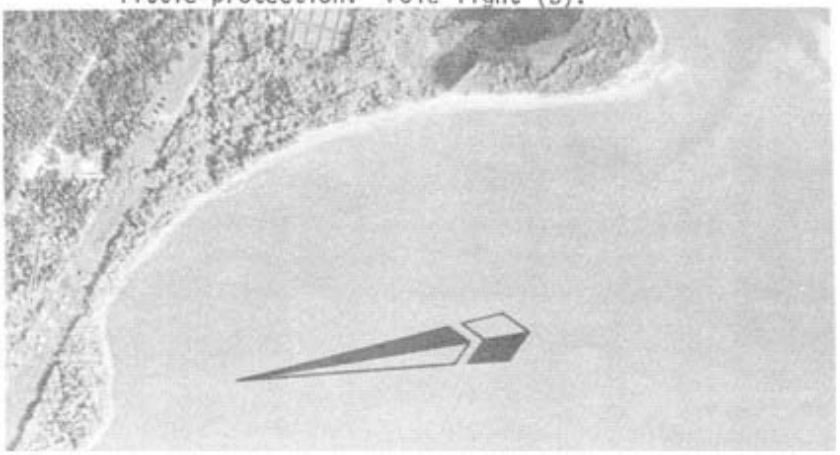
Navigational Aids - Light beacon on the end of the wharf.

Approach - No problem except when strong winds are blowing from exposed directions.

Facilities:
- Dock (s) - 320 ft. approach wharf and 280 x 25 ft. outer wharf. Both concrete docked. Old wharf. New slips for fishing Yawls.
- Others - Town site controls vehicle access. Groceries and telephone a short walk from pier. Gas and Oil on main highway outside resort area.



Victoria Beach. Except for a small area behind the old dock (A) this wharf provides little protection. Pole light (B).



PINE FALLS SB-6

SURVEY DATE: (s) October 5, 1969

LOCATION : Lat/Long 50.574, -96.233
Section- 25 Township- 18 Range - 9

Regional - Part of Pine Falls which is 70 miles northeast of Winnipeg via P.T.H. 59 and 11.

HARBOUR DESCRIPTION:

Physical Characteristics - Small embayment on the south shore of the Winnipeg River.
- Size - 1 acre.
- Depth - 8 ft. off the end of the wharf.
- Orientation - North
- Bottom - Silty clay to sand.
- Aquatic Vegetation None.

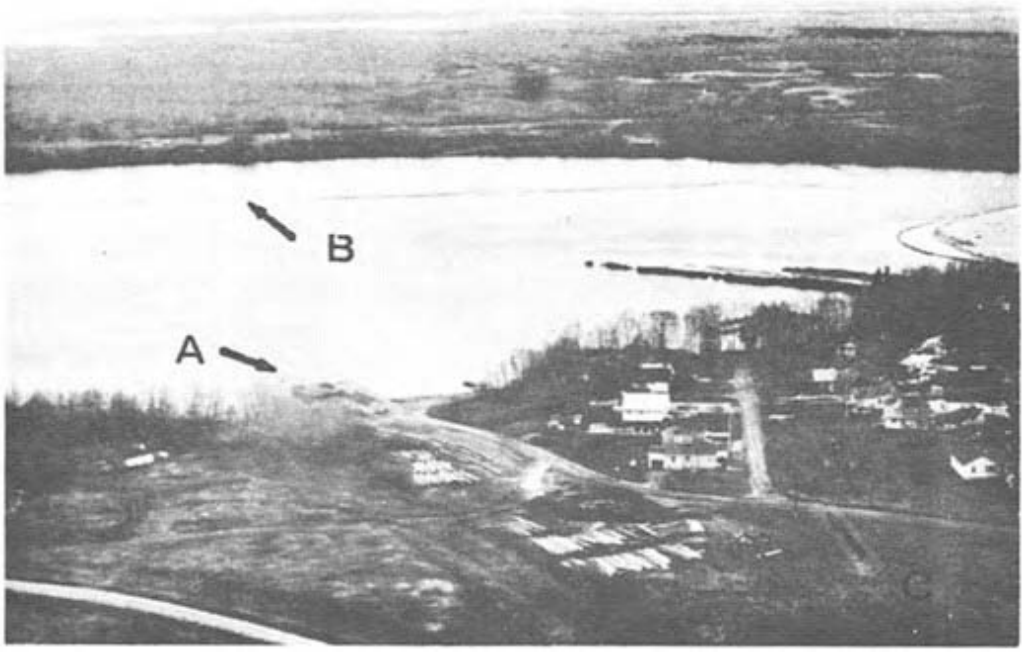
Protection:
- Wind - Excellent.
- Waves - Excellent. Limited wave activity from northerly winds.

Navigation Aids - None at the site. However, the main river channel is buoyed. 3 sets of ranges and lights mark the entrance to the mouth of the river.

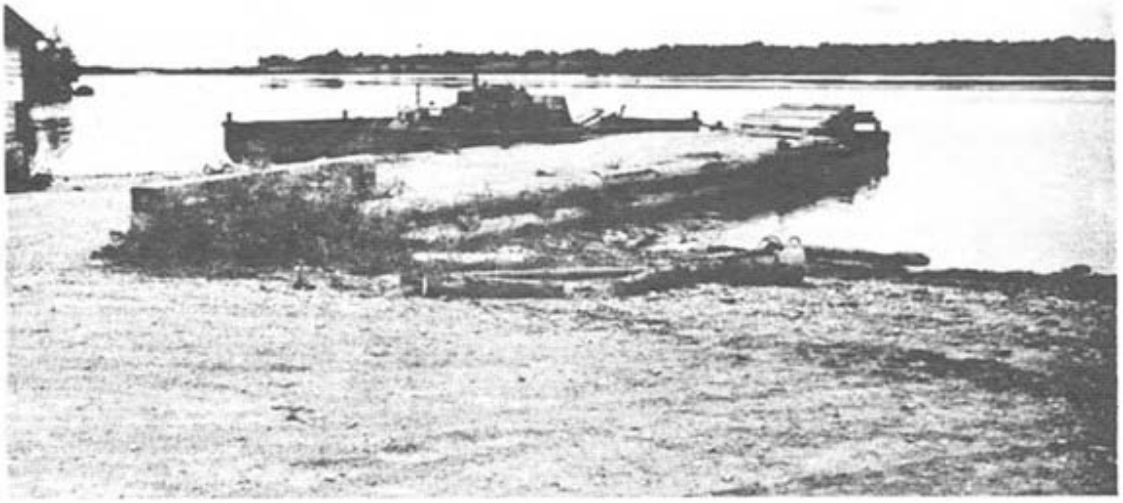
Approach - No problems. Simply follow the outside light buoy. Watch for light marking entrance through log boom.

Facilities:
- Dock (s) - Abitibi Company wharf (poor condition) 100 x 25 ft. pile log construction, with sand deck.
- Others - Food, fuel, telephone and accommodation available in town (1 M)

2014 Edit: The former Abitibi Mill is closed and will not re-open (equipment removed from building). The wharf is still there, but the condition is unknown at this time. No barges. Log boom is long gone. There is an adjacent small-boat launch, still in use.



Pine Falls. Abitibi dock(A), log booms (B) and access road (C).



Pine Falls. Abitibi dock and barge.

BLACK AND O'HANLY ESTUARY SB-7

SURVEY DATE: (s)	Soundings October 1, 1969
LOCATION:	Lat/Long 50.822, -96.358
	Section (parts of)- 30, 31 Township- 21 Range - 9
Regional -	East shore. Part of the Black River Indian Reserve which is 97 miles northeast of Winnipeg via P.T.H. 59, 11, 304 and reserve road.

HARBOUR DESCRIPTION:

Physical Characteristics -	Winding estuary of the Black and O'Hanly Rivers.
Depth-	Channel 8 to 20 ft.
Orientation -	West
Bottom -	Silty clays and sand.
Aquatic Vegetation	Some adjacent the main channel.

Protection:

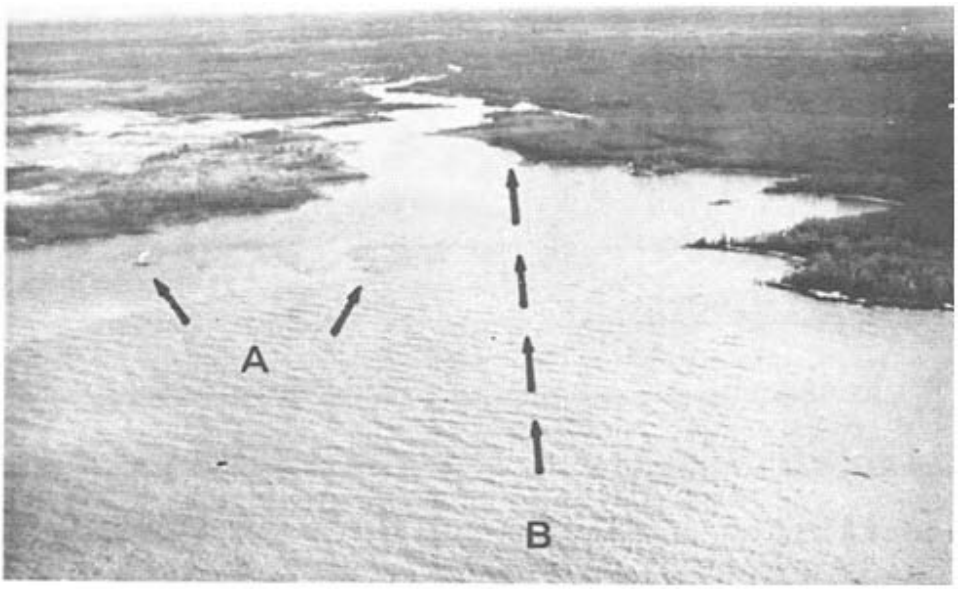
Wind -	Excellent.
Waves -	Excellent.

Navigational Aids - None.

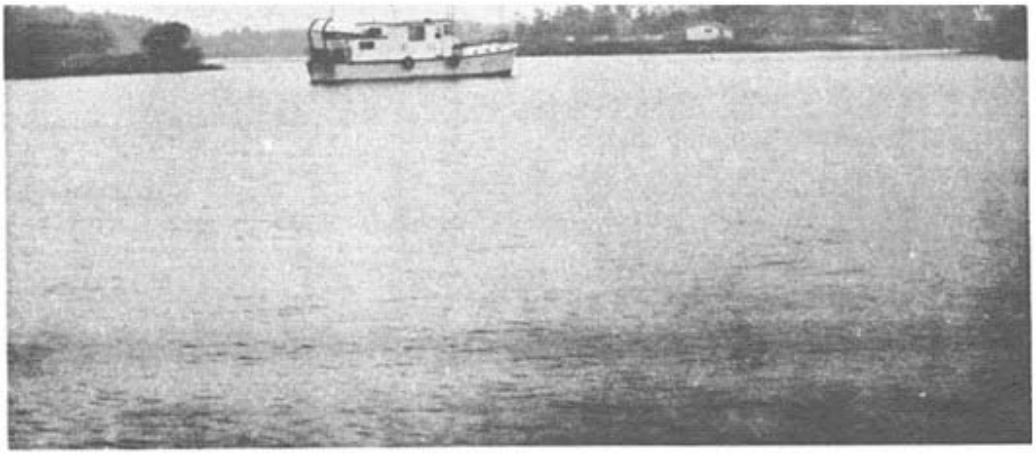
Approach - No serious problems. See accompanying photograph

Facilities:

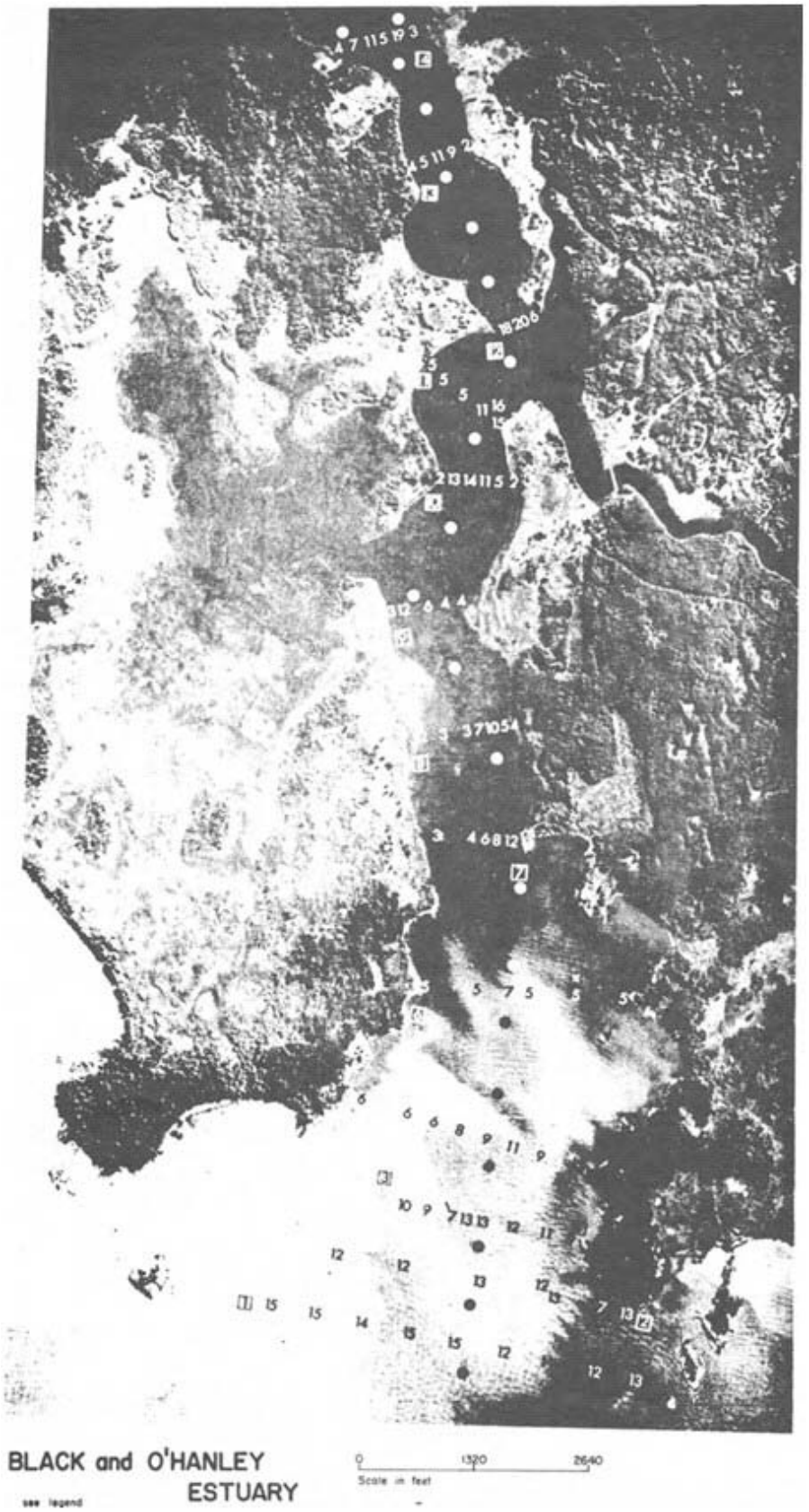
Dock (s) - Small log dock at the junction of the Black and O'Hanly River



Black and O'Hanly Rivers estuary. Four large reefs (A) and main entrance channel (B)



Black and O'Hanly estuary. The Acadian at the junction of the Black and O'Hanly rivers.


BLACK and O'HANLEY
ESTUARY
see legend
0
1320
2640
Scale in feet

SANDY RIVER SB-8

SURVEY DATE: (s) October 1, 1969

LOCATION: Lat/Long 51.000, -96.389
Section - 36 Township - 23 Range - 8

Regional - East shore 13 miles north of the Black and O'Hanly Estuary and 7 miles west of the P.T. H. 304.

HARBOUR DESCRIPTION:

Physical Characteristics - Mouth of the Sandy River which is located in a slight embayment in the shoreline.

- Size - Unlimited acreage.
- Depth - Main channel 50 to 10 ft.
- Orientation - West
- Bottom - Silty clay and sand.
- Aquatic Vegetation Some but no problem.

Protection:

- Wind - Excellent except the entrance is exposed to NW, W, and SW.
- Waves - Same as wind.

Navigational Aids - None

Approach - Limited to outboards or outboard drives. Few problems. Best approach from the NW. Watch for reef 150 yds west of south side of channel mouth.

Sandy River. Approximate approach route (A) and large offshore reef (B)

ARNES/Silver Harbour SB-9

SURVEY DATE: (s) N/A

LOCATION: Lat/Long 50.808, -96.960

Section – 15 Township - 21 Range - 4

Regional - West shore approximately 3/4 mile north-east of Arnes. Arnes is 66 miles north of Winnipeg via P.T.H. 9.

HARBOUR DESCRIPTION:

Physical Characteristics- Artificial structure on south side of Drunken Pt. Adjacent large lagoon.

Size - .87 acres behind the wharf, lagoon 6 acres.

Depth - 8 ft. inside dock. Lagoon 7 ft. in main channel. Orientation- South east

Bottom - Sand to silty clay.

Protection:

Wind - Wharf exposed to NE, E, SE, and S. Lagoon provides excellent protection.

Waves - Winds drive waves onto dock from exposed direction. Fish yawls are kept on shore.

Navigational Aids - 2014 Edit: now a Flashing Red light on South Breakwater.

Approach - 2014 Edit: East, after the addition of the breakwaters.

Facilities:

Dock (s) - L-shaped 260 x 15 ft. approach and 80 x 16 ft. arm. Timber deck.

Others - None at wharf. Gas, oil, and groceries at Arnes.

2014 Edit: Original photo removed, since it was badly outdated and misleading. The lagoon/Drunken River has been developed into Silver Harbour, a recreational boat marina and harbour. Above photo shows Silver Harbour Marina and development on north shore of the Drunken River, while the commercial fisherman's wharf is still on the south shore right at the breakwater.

HNAUSA SB-10

SURVEY DATE : (s) October 2, 1969, Soundings October 4, 1968.
LOCATION: Lat/Long 50.910, -96.979
Section - 21 Township 22 Range 4
Regional - West shore 1/2 mile northeast of Hnausa. Hnausa is 73 miles north of Winnipeg via P.T.H. 9.
HARBOUR AUTHORITY:

Hnausa Harbour Authority Inc, MB RIVERTON
BOX 130
MB R0C 2R0
Phone: (204) 378-2825

HARBOUR DESCRIPTION:

Physical Characteristics - Artificial structures extending out from a shoreline with a southeast orientation.
- Size - 3.5 acres.
- Depth - 8 to 10 ft.
- Orientation - Southeast. Entrance south.
- Bottom - Sand and silty clay.
- Aquatic Vegetation None

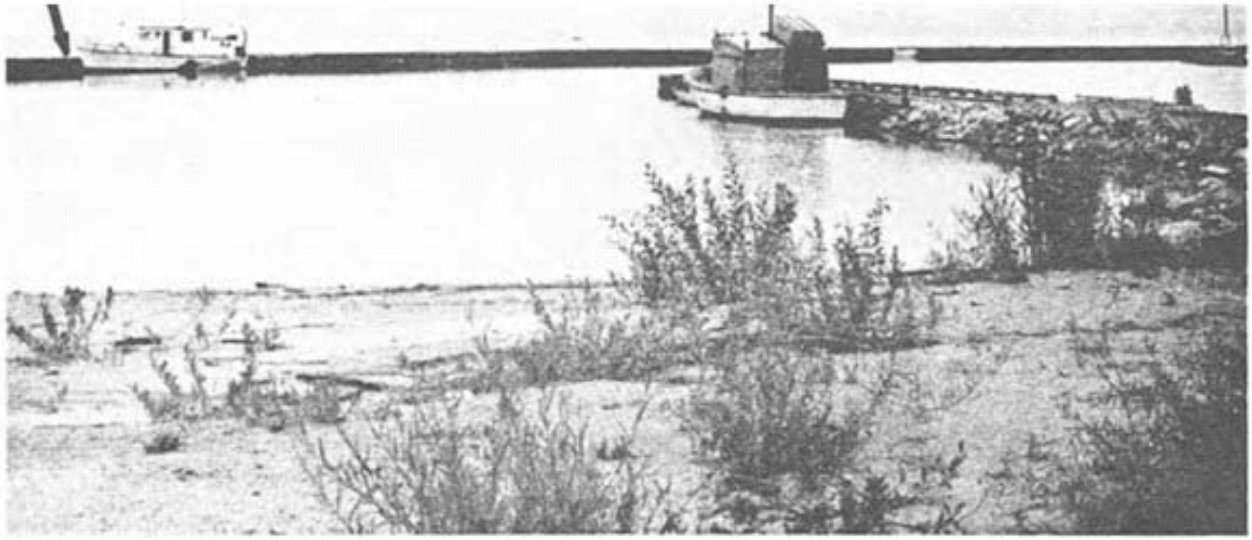
Protection :
- Wind - Exposed to N, NE, E, SE, and S. Wharf or main breakwater is low relative to water.
- Waves - Harbour is enclosed except to the south. Large waves break onto wharf from exposed directions.

Navigational Aids - Light beacon on the end of the main wharf.

Approach - South. Difficult with strong winds from exposed directions.

Facilities:
- Dock (s) - Main wharf 375 x 26 ft. arm 96 ft. concrete deck. Breakwater jetty 470 x 15 ft. boulder crib 14 x 120 ft. wharf inside harbour.

Hnausa. The shoreline in this area is obviously very exposed. The beach south of the breakwater is excellent for swimming and bathing.



Hnausa. The fact that the hull sticks above the wharf illustrates the poor protective qualities of this harbour. The new inside wharf is the best location but its size is limited.

RIVERTON SB-11

SURVEY DATE: (s)	September 26th, 1969
LOCATION:	Lat/Long 50.9993, -96.9942
	Section - 20 Township - 23 Range - 4
Regional -	West shore. Part of the Town of Riverton which is 80 miles north of Winnipeg via P.T.H. 8 or 9.

HARBOUR AUTHORITY: Riverton Harbour Authority Inc., MB Riverton
P.O. Box 27
MB R0C 2R0

HARBOUR DESCRIPTION:

Physical Characteristics -	Wharf located within Riverton on the north side of the Icelandic River.
Size -	Unlimited acreage.
Depth -	8 to 10 ft.
Orientation -	Wharf faces east. River runs north.
Bottom -	Silty clay.
Aquatic Vegetation	Not a major problem in the main channel.

Protection:

Wind -	Excellent at the Wharf. Mouth is exposed.
Waves -	Same as wind.

Navigational Aids- 2 sets of channel buoys. 1 range and light and 1 light beacon on a pole.

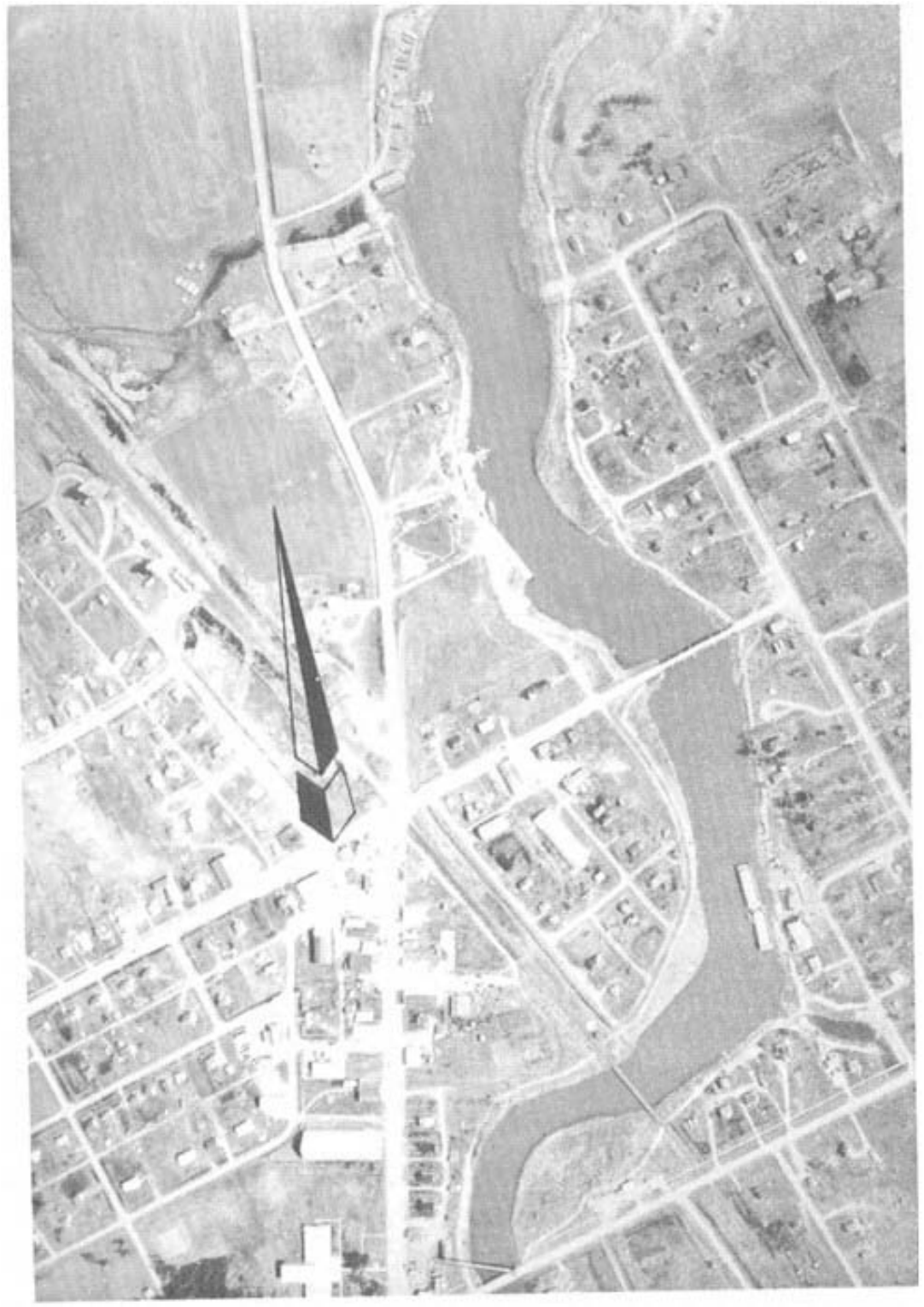
Approach - Can be approached from Grassy Narrows or Sandy Bar. Channel buoys and light poles demark the approach line to the mouth.

Facilities:

Dock (s) -	Timber decked. 200 x 20 ft. and 100 x 16 ft. Small loading decks for Airways Co.
Others -	Food, fuel, telephone and accommodation in Riverton a short walk from the wharf, DM & NR radio base.

Icelandic River. Boaters using this channel must be careful to navigate exactly according to the buoys and white plastic bottles.

Riverton. This DPW wharf provides the necessary dockage for boaters going into town for supplies such as fuel, food, and liquor.



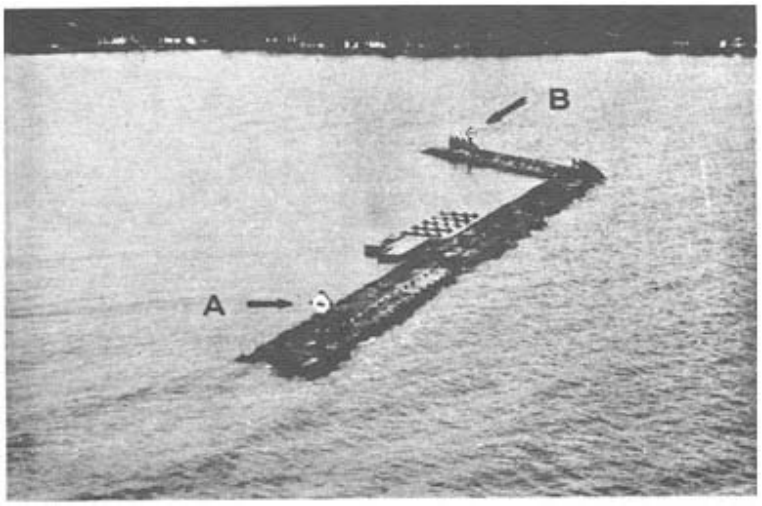
Townsite of Riverton; note that though the channel is between 6-12 feet, navigation may be limited for some craft by the bridge which has 12-15 feet clearance. Seiching affects this too; especially with a NE wind, which can substantially increase the river level.

BALSAM BAY SB-12

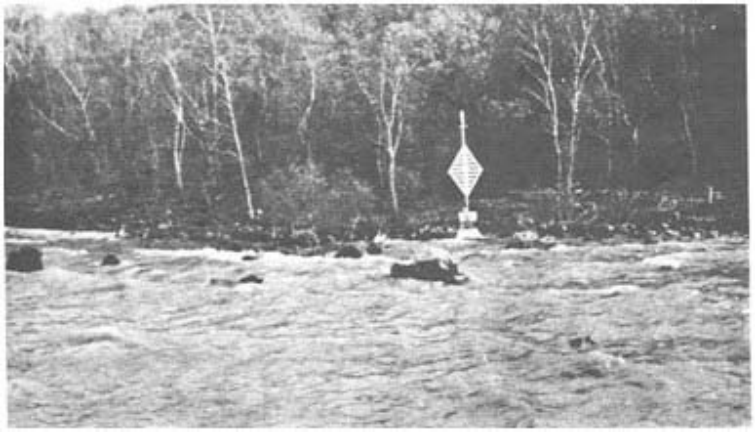
Location: Lat/Long 50.474, -96.585

HARBOUR AUTHORITY:

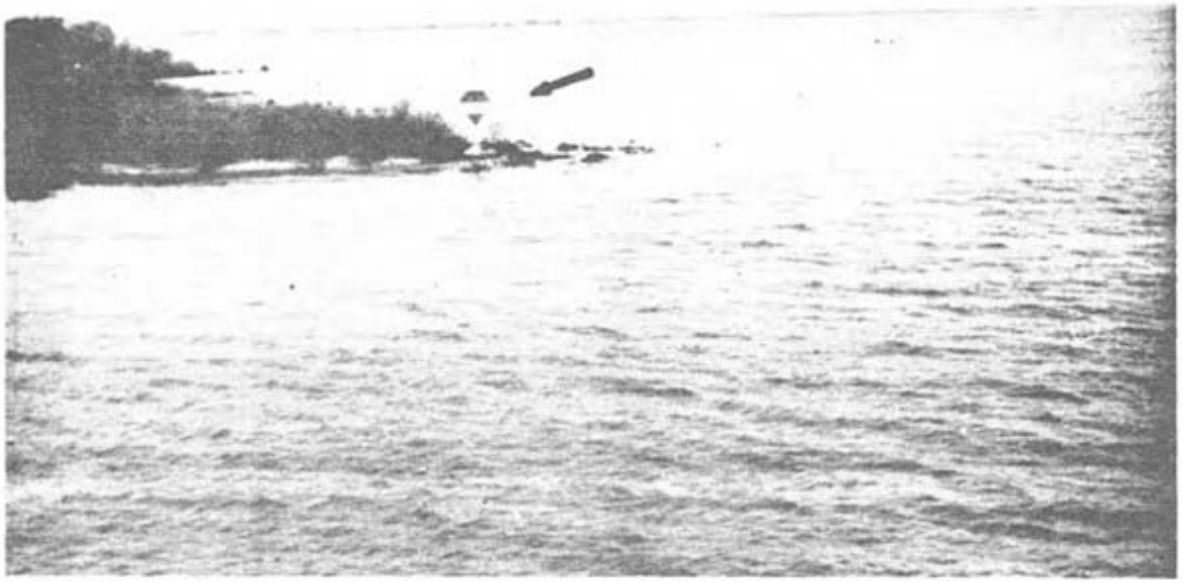
Beaconia
P.O. Box 66
MB R0E 0B0
Phone: (204) 754-2913



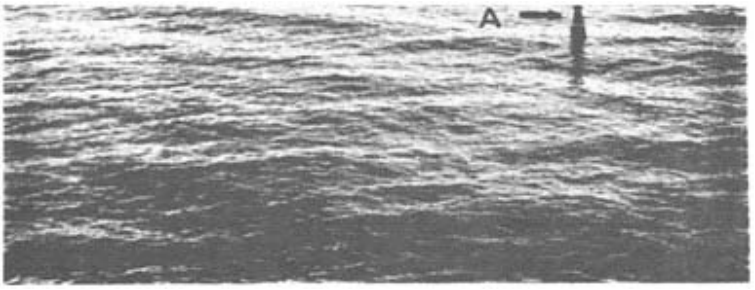
Matlock breakwater. Standard daybeacons. Junction preferred channel left (A) and right (B).



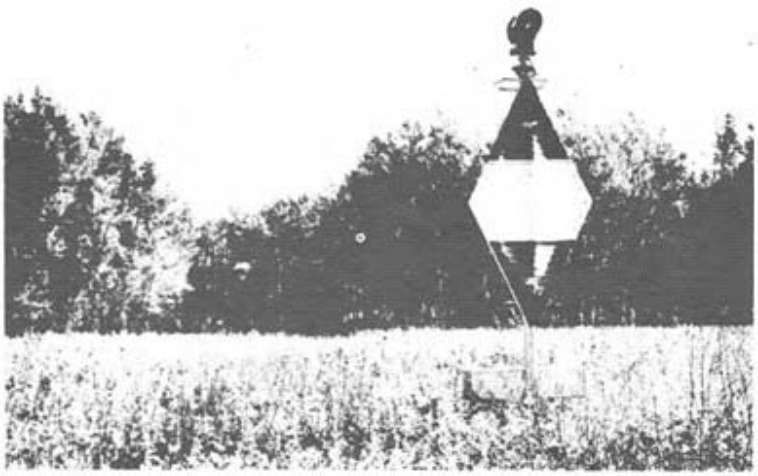
Pole light and standard daybeacon on Ironwood Point.



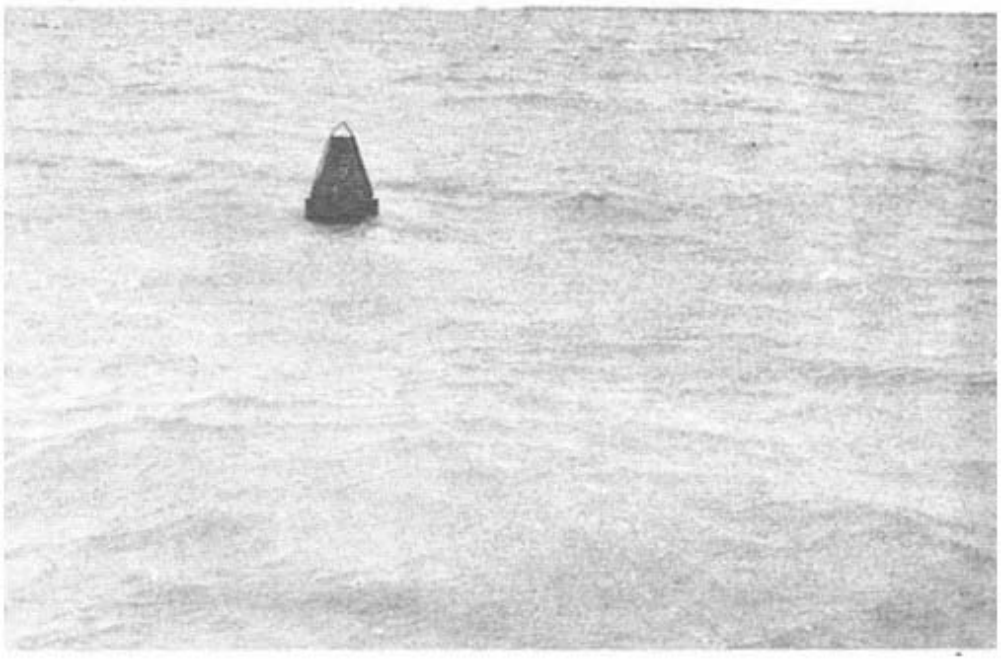
Pole light and standard daybeacon on the tip of Willow Island.



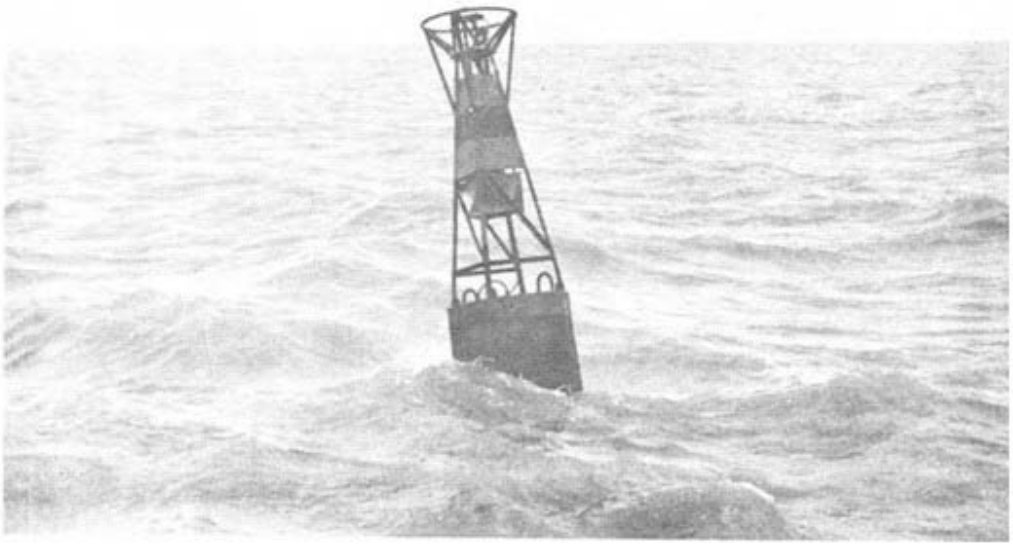
Navigation light buoy (A) and red channel buoy (B) outside the mouth of the Winnipeg River.



Ranges at the mouth of the Winnipeg River.

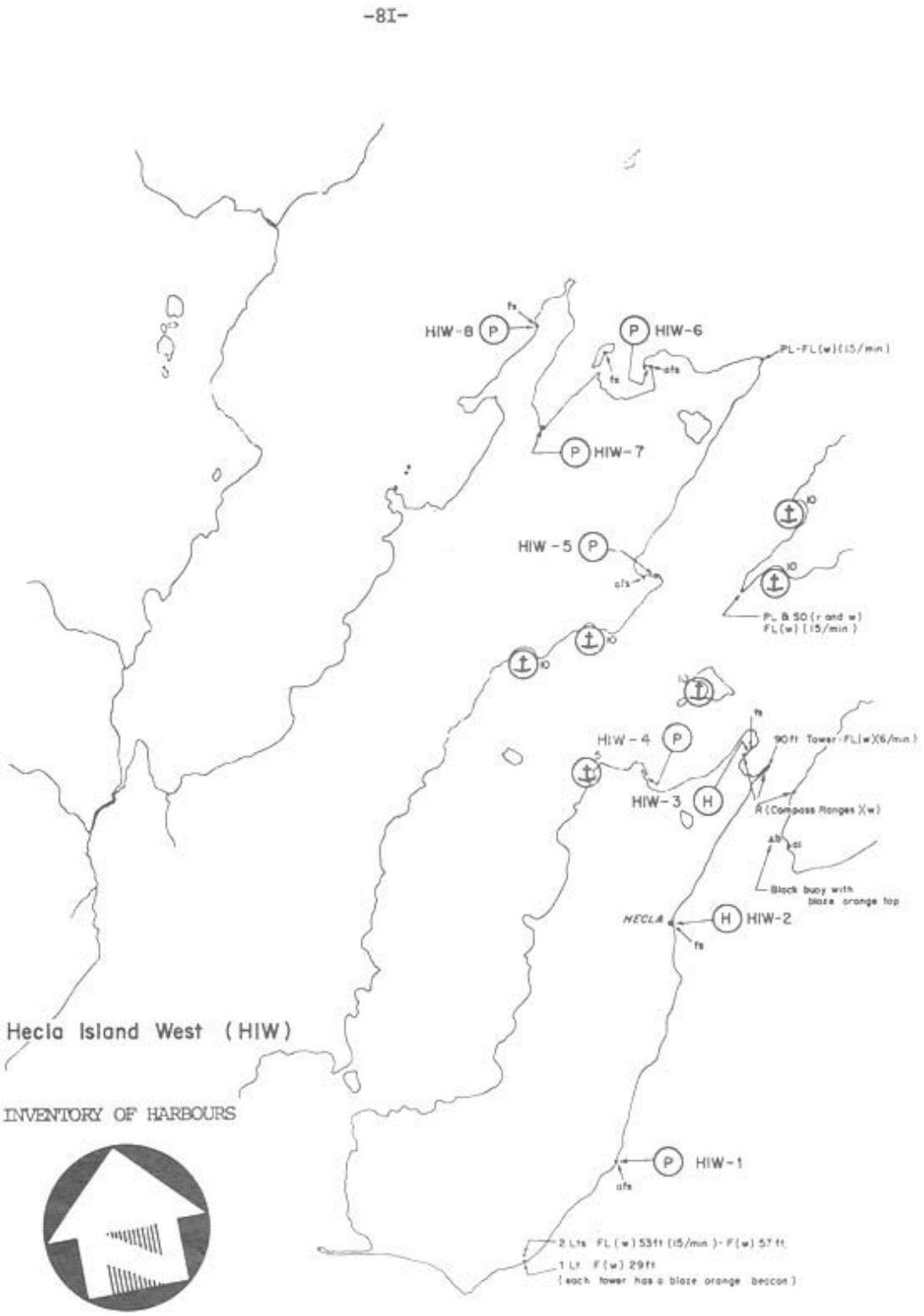


Red barrel indicating the preferred channel
east and the location of Hnausa Reef.



Navigation light buoy marking the preferred channel past Pearson Reef.

HECLA ISLAND - WEST



HECLA ISLAND SOUTHEAST HIW - 1

SURVEY DATE: (S) Soundings September 29, 1969.
LOCATION: Lat/Long 51.044, -96.699
Section - 4 Township - 24 Range - 6
Regional - Southeast corner of Hecla Island south of fishing village of Hecla.

HARBOUR DESCRIPTION:

Physical Characteristics - Small bay in a generally regularly shaped shoreline. Small bar offshore, sandy shoreline.

- Size – 2 acres.
- Depth - 4 to 7 ft.
- Orientation - East.
- Bottom - Firm sand.
- Aquatic Vegetation None.

Protection:

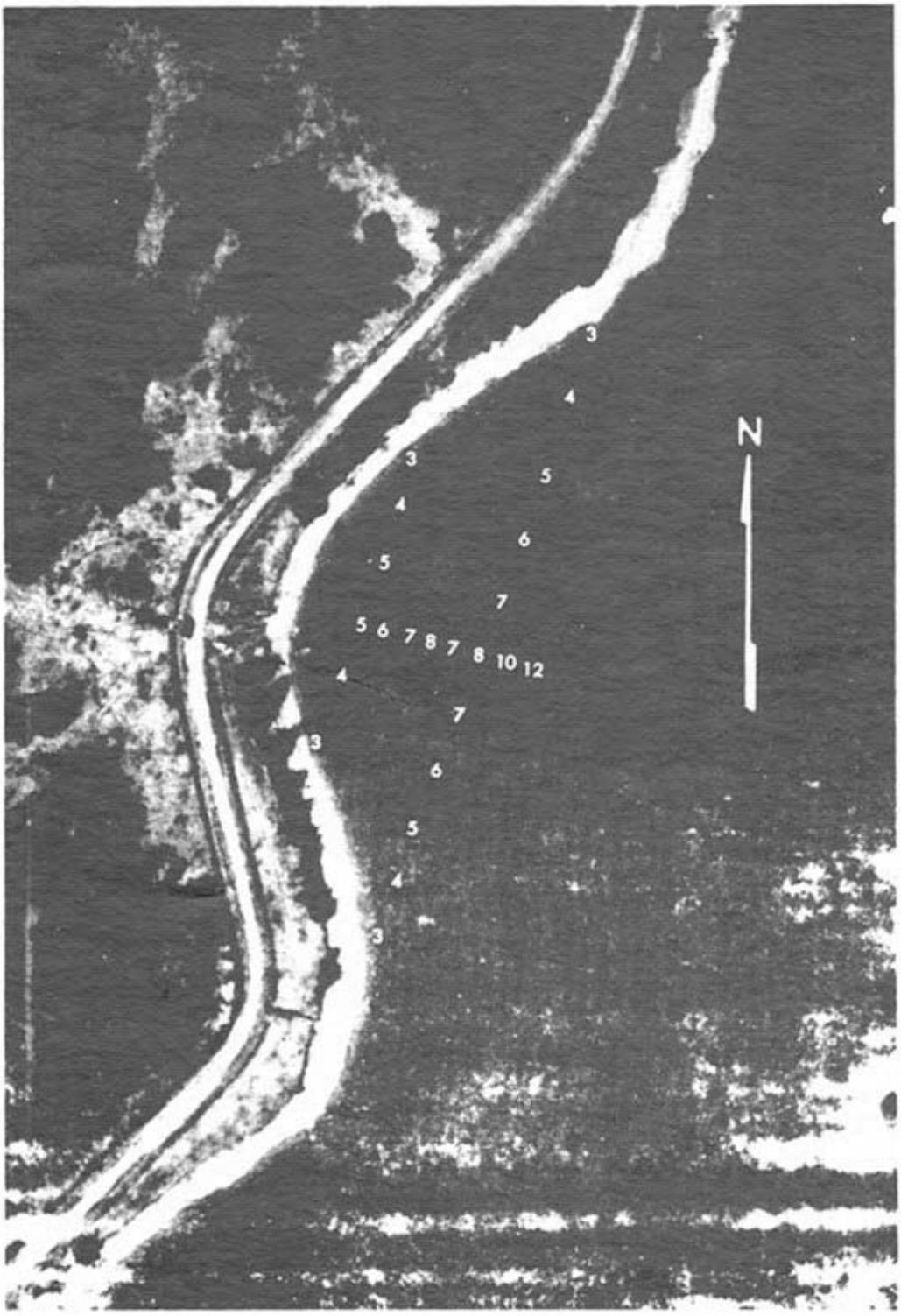
- Wind - Exposed to NE, E, SE and S.
- Waves - Same as wind.

Navigational Aids - None.

Approach - No problem because of the relatively steep offshore slopes in the area. Simply approach from the east avoiding the two points which form the bay.

Facilities - Some buildings in poor condition.

Potential small harbour site on the southeast corner of Hecla Island. High well-wooded backshore and a sandy shoreline makes this an attractive location.



HECLA ISLAND SOUTHEAST

HECLA VILLAGE HIW - 2

SURVEY DATE:(S) Soundings September 29, 1969.
LOCATION: Lat/Long 51.1335, -96.6625
Section - 2 Township - 25 Range - 6
Regional - East shore of Hecla Island approximately 29 miles northeast of Riverton via P.T.H. 234 and 233.

HARBOUR AUTHORITY:

Hecla Village Harbour Authority, MB Riverton
P.O. Box 550
MB R0C 2R0
Phone: (204)378-2790

HARBOUR DESCRIPTION:

Physical Characteristics - Large embayment in the shore line. The harbour is protected by artificial structures.
- Size - 2.6 acres.
- Depth - 15 to 18 ft. 4 ft. near the shoreline.
- Orientation - East. Harbour entrances NNE
- Bottom - Silty clay and sand.
- Acquatic Vegetation None.

Protection:
- Wind - Exposed to NE, E, and SE.
- Waves - Exposed to NE.

Navigational Aids - Pole light on the end of the wharf.

Approach - No problem, deep water. Enter from the NE. Some difficulty during strong winds from exposed directions.

Facilities:
- Dock(s) - 500 x 30 ft. concrete decked wharf. 50 ft. pole dock (poor condition) adjacent an old ice house.
- Others - Food, telephone and fuel (outboards) may be obtained in a short walk from the dock.

Hecla Village Harbour

2014 Edit: the concrete wharf has been extended by a rock breakwater, with a second breakwater extending from shore to overlap the opening from the north, providing good wave protection from all directions. Some slips have been added as well.

GULL HARBOUR HIW - 3

SURVEY DATE:(S) Soundings October 3, 1968 and September 30, 1969.
LOCATION: Lat/Long 51.1965, -96.616
Section - 25 Township - 25 Range - 6
Regional - Northeast corner of Hecla Island approximately 7 miles north of Hecla.

HARBOUR AUTHORITY:

Gull Harbour Harbour Authority, MB Riverton
Box 371
MB R0C 2R0
Phone: (204) 378-2752
Email: afifish@mts.net

HARBOUR DESCRIPTION:

Physical Characteristics - Large natural bay, enclosed by the mainland of the island and a long limestone shingle bar.
- Size - Bay 260 acres. Behind the wharf 9.3 acres.
- Depth - 5 to 15 ft. behind the wharf. Center of the bay 20 ft.
- Orientation - Bay Northeast. Harbour southeast.
- Bottom - Silty clay and sand.
- Aquatic Vegetation None.

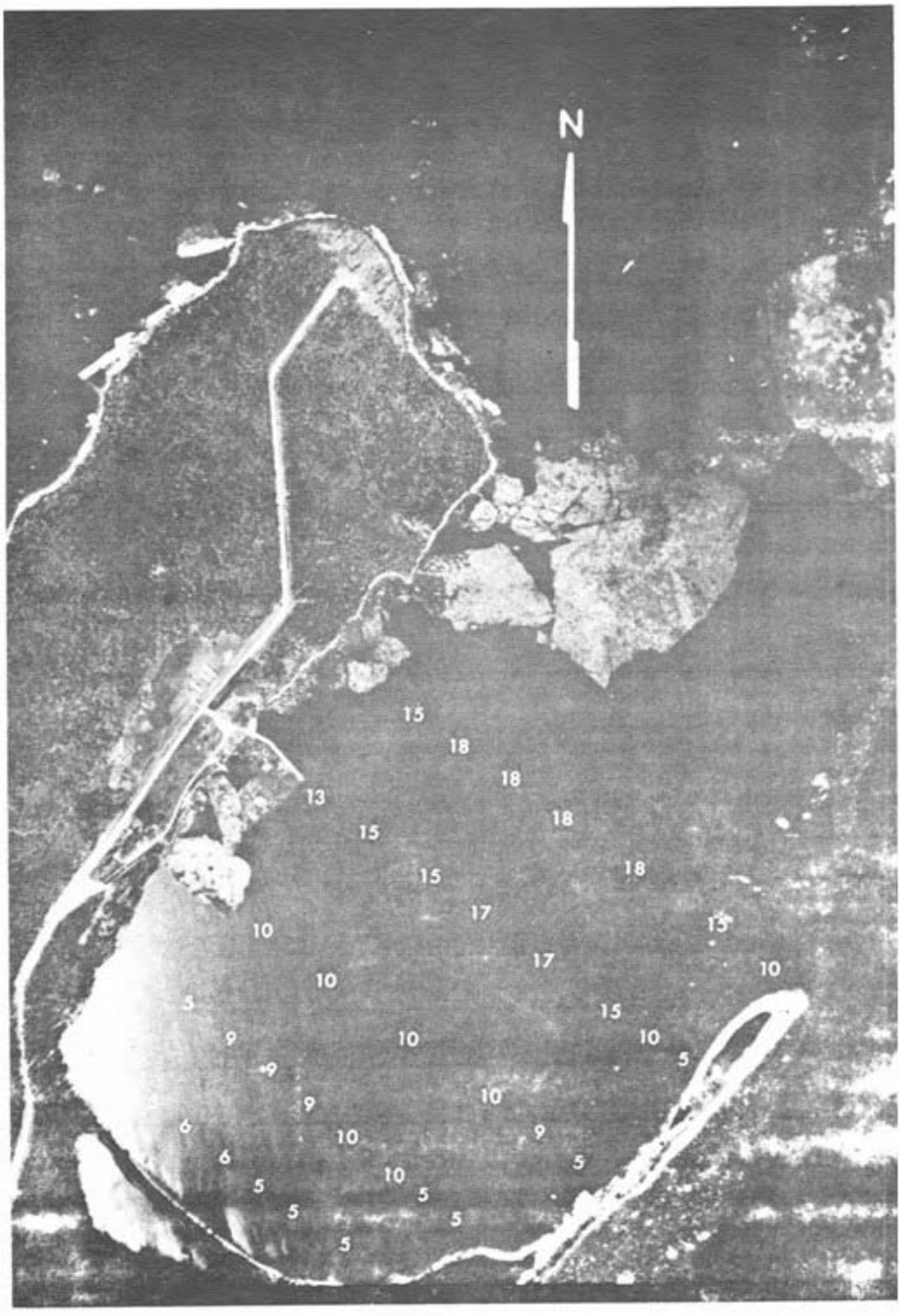
Protection:
- Wind - Exposed to NE.
- Waves - All-weather protection.

Navigational Aids - Lighthouse tower and 4 sets of white ranges (2 on Black Island and 2 in the bay). (one of these latter in channel).

Approach - No problems except for an occasional big sea at the entrance to the Bay. The ranges are for compass adjustments.

Facilities:
- Dock(s) - 450 x 22 ft. plank deck wharf 125 x 10 ft. wood pile wharf (low, water access only).
- Others - Manitoba Government recreational complex, motel, golf course, licensed dining room; gas and oil, (outboards - hose attachment for large boats), and Provincial Park camp ground with water (1 1/2 mile).

Gull Harbour showing all improvements to 1978.



GULL HARBOUR

0 900 1800
Scale in feet

*see legend

see photo p. 87; this included for soundings only. ignore ice patterns.

LIMESTONE QUARRY HIW - 4

SURVEY DATE:(S) Soundings September 7, 1968, September 25, 1969, and October 22, 1969.
LOCATION: Lat/Long 51.189, -96.6785
Section - 27 Township - 25 Range - 6
Regional - North end of Hecla Island approximately 2 1/2 miles west of Gull Harbour.

HARBOUR DESCRIPTION:

Physical Characteristics - Small harbour enclosed by a shingle bar. Sunken hull in the center of the harbour.
Size - Harbour .73 acres Lagoon 18 acres.
Depth - Harbour 8 to 12 ft. Lagoon 3 to 5 ft.
Orientation – East. South entrance for harbour. Bottom - Silty sand and clay.
Aquatic Vegetation Same in harbour. Dense in the lagoon.

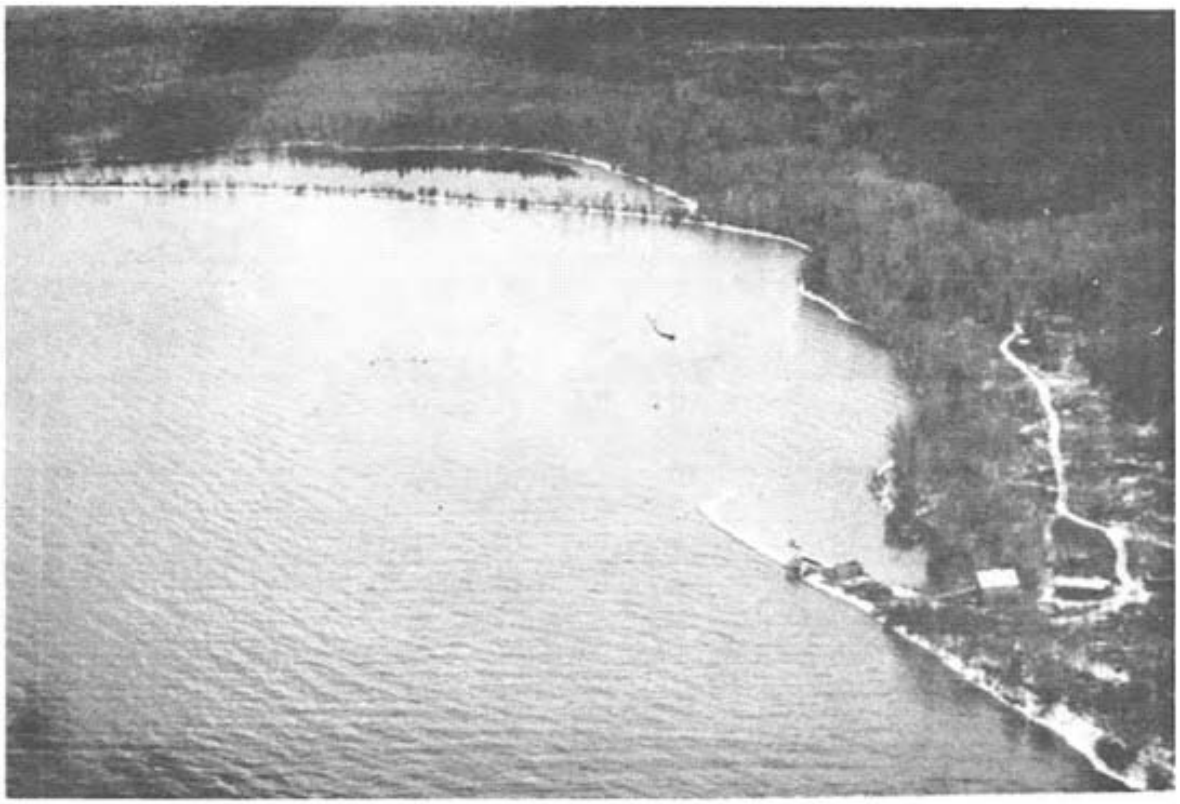
Protection:
Wind - Exposed to the NE. Lagoon is completely protected.
Waves - All-weather protection.

Navigational Aids - None.

Approach - No problem. Deep water off the end of the bar. Possibly some difficulty during a strong NE wind.

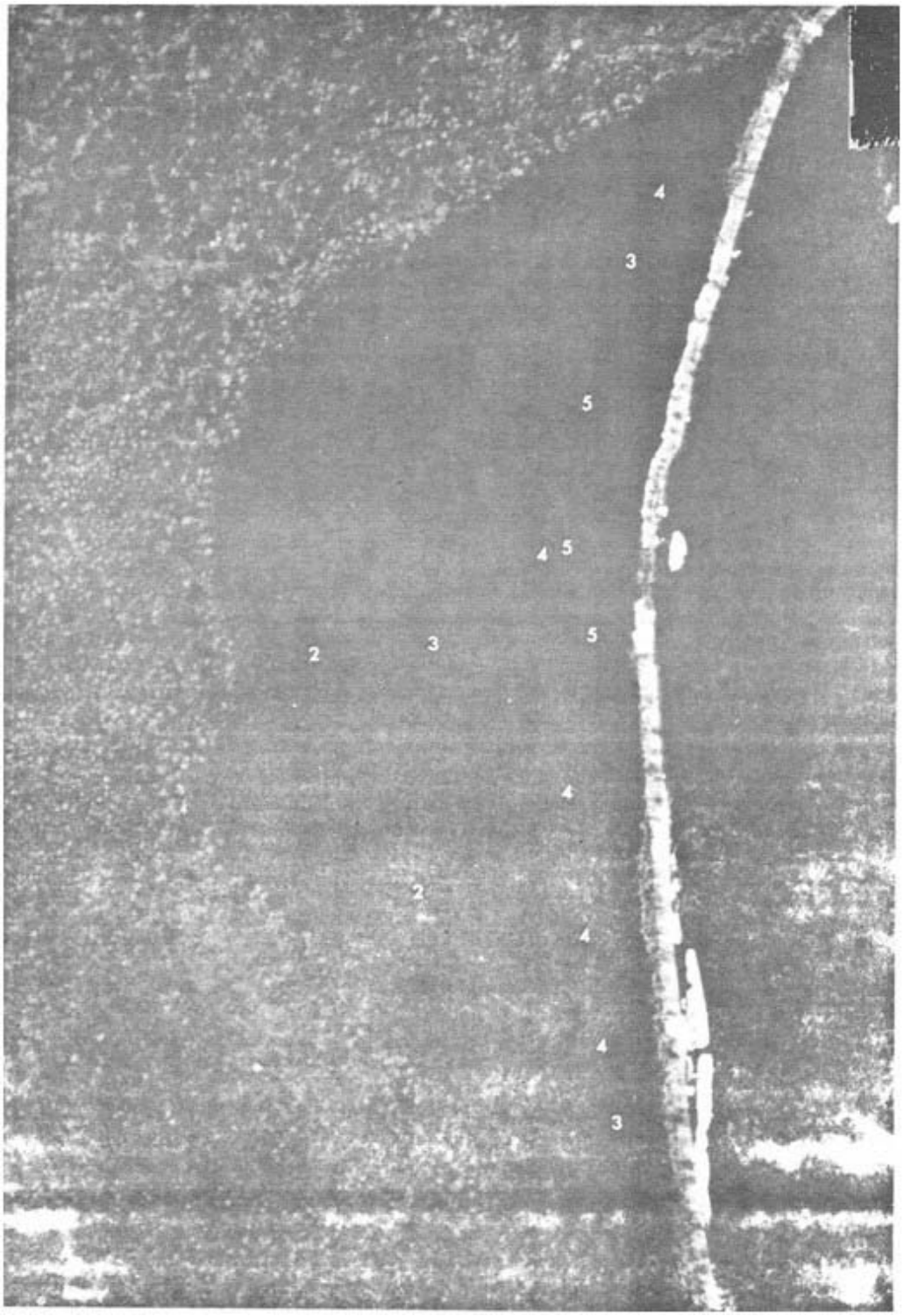
Facilities:
Dock(s) - Old pole type dock 30 x 5 ft. in poor condition.
Others - Fish shed, ice house, and 2 cabins (good condition).

2012 Edit: This data is out dated; the harbour is quite changed; proceed cautiously.



Limestone Quarry. This is a harbor for a limited number of small and large craft.

Limestone Quarry. Maneuvering is seriously hampered by the abandoned remains of the freighter in the center of the harbour.



LIMESTONE LAGOON 0 225 450
Scale in feet

LITTLE GRINDSTONE HIW - 5

SURVEY DATE:(S) September 22, 1969. Soundings September 27, 1968.
LOCATION: Lat/Long 51.2656, -96.6783
Section - 22 Township - 26 Range – 6
Regional - East shore of Grindstone Peninsula approximately 19 miles northeast of Grassy Narrows.

HARBOUR AUTHORITY:

Little Grindstone Harbour Authority Inc., MB Gimli
P.O. Box 91
MB R0C 2R0
Phone: (204)378-7130
Email: mikeeastman@lakenet.ca

HARBOUR DESCRIPTION:

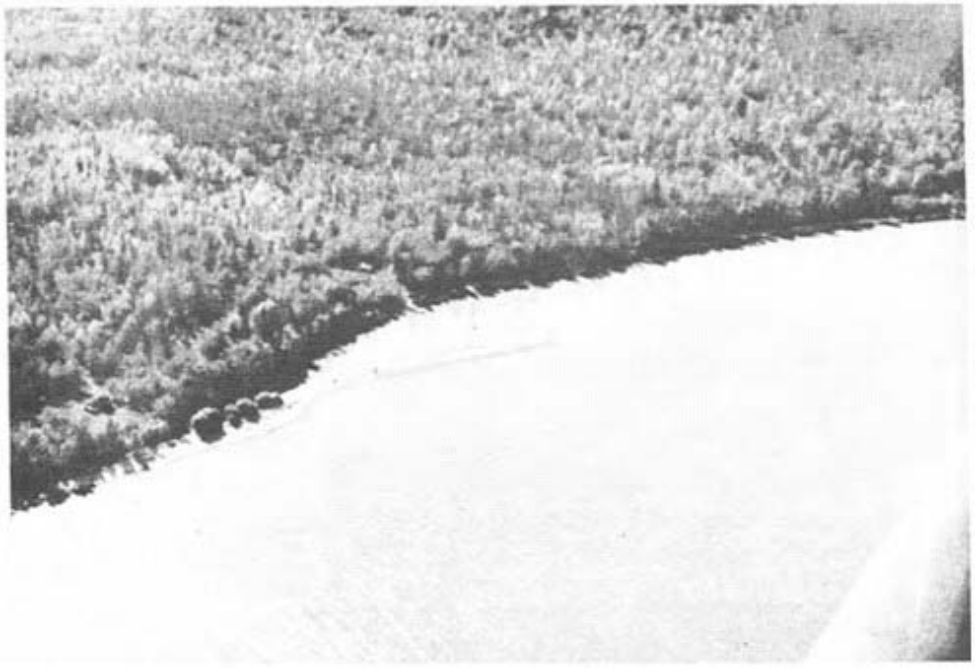
Physical Characteristics - Natural harbour formed by a bay and shingle bar.(Now a Marina.)
Size - 1.9 acres.
Depth - 3 to 8 ft.
Orientation - North, Entrance west.
Bottom - Silty sand and clay. Some shingle.
Aquatic Vegetation Dense at the back of the harbour.

Protection:
Wind - Exposed to N, NE.
Waves - Strong northeast winds will cause waves to wash over the end of the bar.

Navigational Aids - None.

Approach - No serious problems. Run from the northeast on an arc which curves wide of the bar.

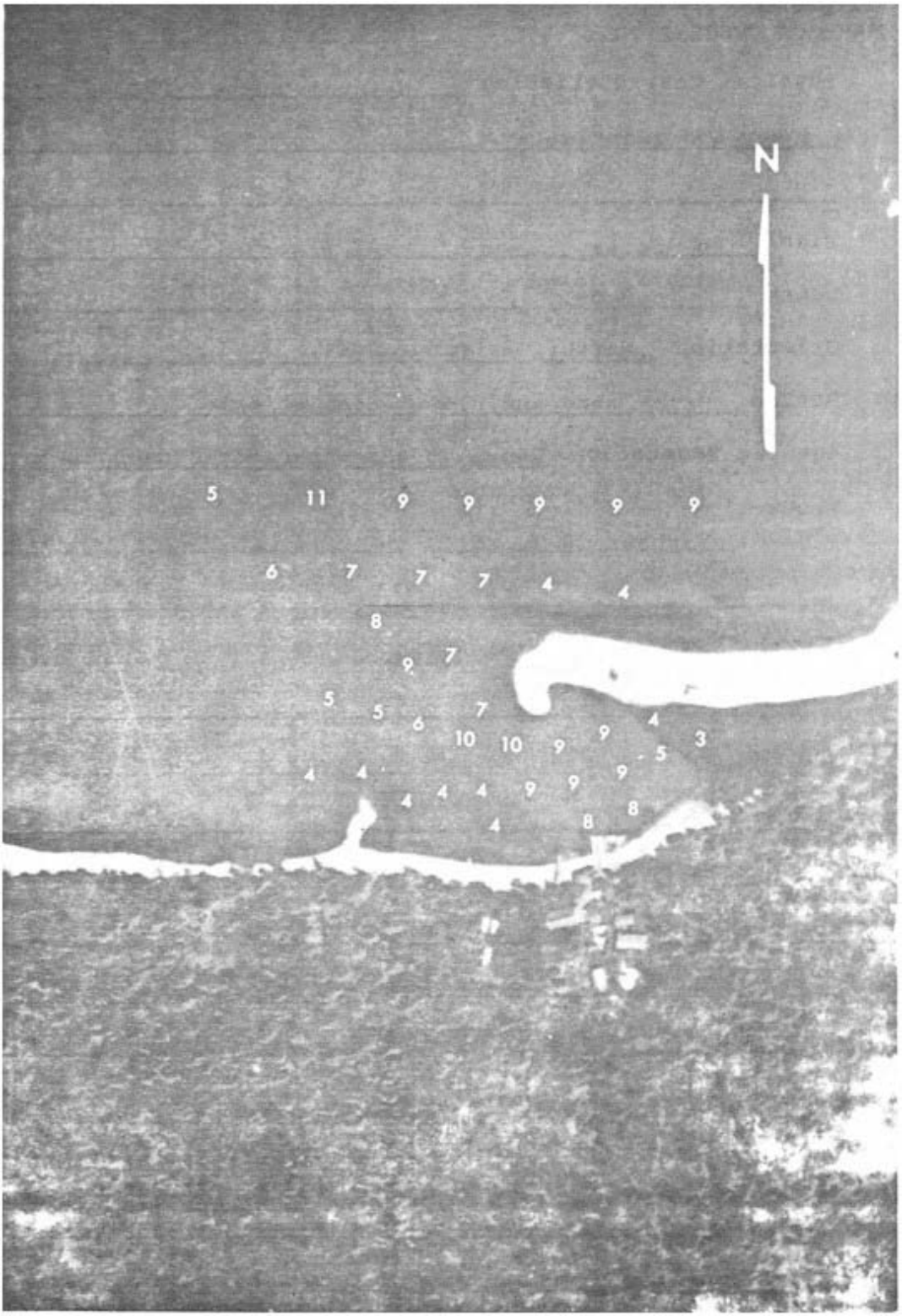
Facilities:
Dock(s) - Now a Marina.1-Docks available. Photos are out of date.



Little Grindstone

A new breakwater was installed in Feb. or March of 2011 to protect the harbour from North West winds. The shingle bar was enlarged and reinforced in winter 2004/5. The harbour was dredged around 1978 or 1979.

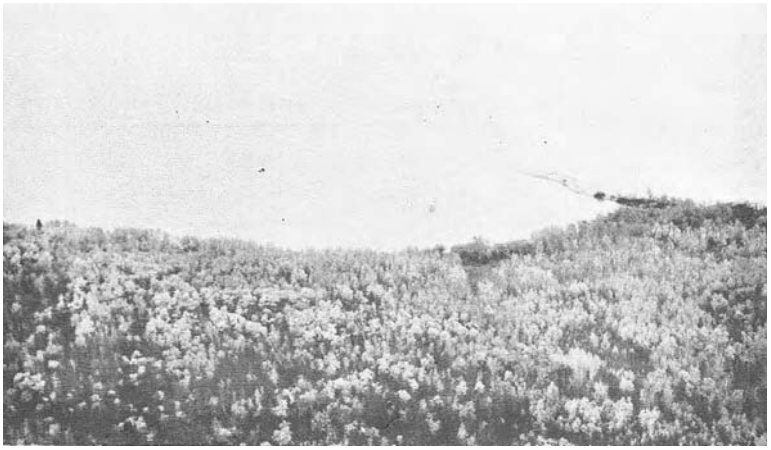
The top picture shows the new breakwater in the background. The bottom picture shows the new breakwater on the left.



LITTLE GRINDSTONE
Scale in feet

WELLS HARBOUR HIW – 6

SURVEY DATE:(S) Soundings September 26, 1968 and 23, 1969.
LOCATION: Lat/Long 51.3435, -96.676
Section - 15 Township - 27 Range - 6
Regional - North end of Grindstone Peninsula approximately 24 miles northeast of Grassy Narrows.



Wells Harbour. Excellent all-weather protection, well drained and wooded backshore plus a nearby beach makes this location attractive.

HARBOUR DESCRIPTION:

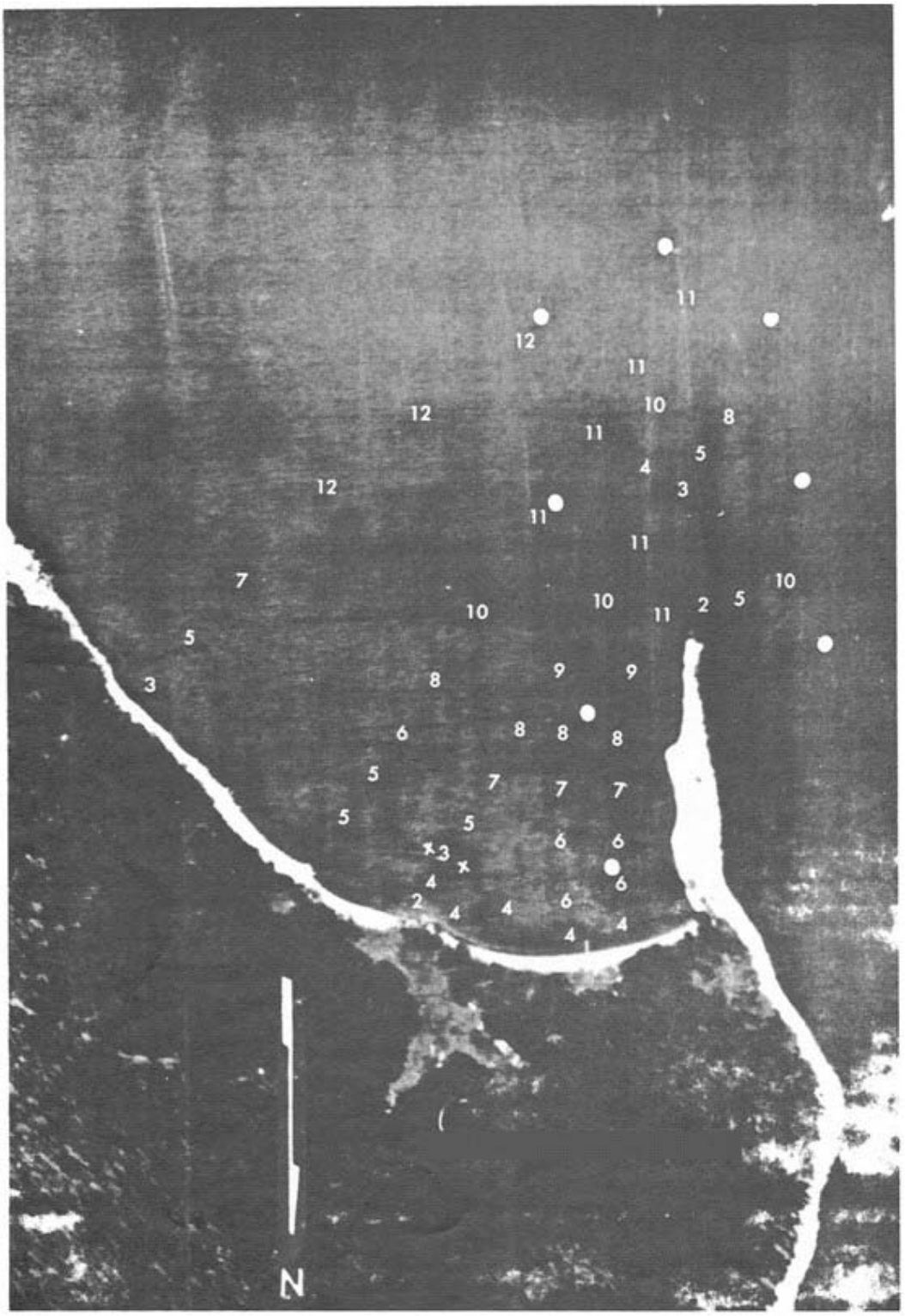
Physical Characteristics - Natural harbour enclosed by a shingle bar located on the east side of a large bay.
Size - 8.1 acres.
Depth - 5 to 10 ft. in the harbour. 2 to 5 ft. over the bar.
Orientation - West. Entrance south.
Bottom - Silty, sand and clay. Some organic materials.
Aquatic Vegetation No problems. Dense at the back of the harbour.

Protection:
Wind - Slight exposure to wind NW.
Waves - All-weather protection. Occasional rough sea adjacent the entrance during strong N wind.

Navigational Aids - None.

Approach - No problem, deep water in the bay. Must run a minimum of 150 yards south of the end of the bar before turning north to the back of the harbour.

Facilities - Abandoned fish camp.



WELLS HARBOUR [65 330
Scale in feet

JANORA BAY HIW - 7

SURVEY DATE:(S) Soundings September 23, 1969.
LOCATION: Lat/Long 51.325, -96.742
Section - 7 Township - 27 Range - 6
Regional - North end of Grindstone Peninsula approximately two miles southwest of Janora Island (JI is 1 mile W of Wells Harbour).

HARBOUR DESCRIPTION:

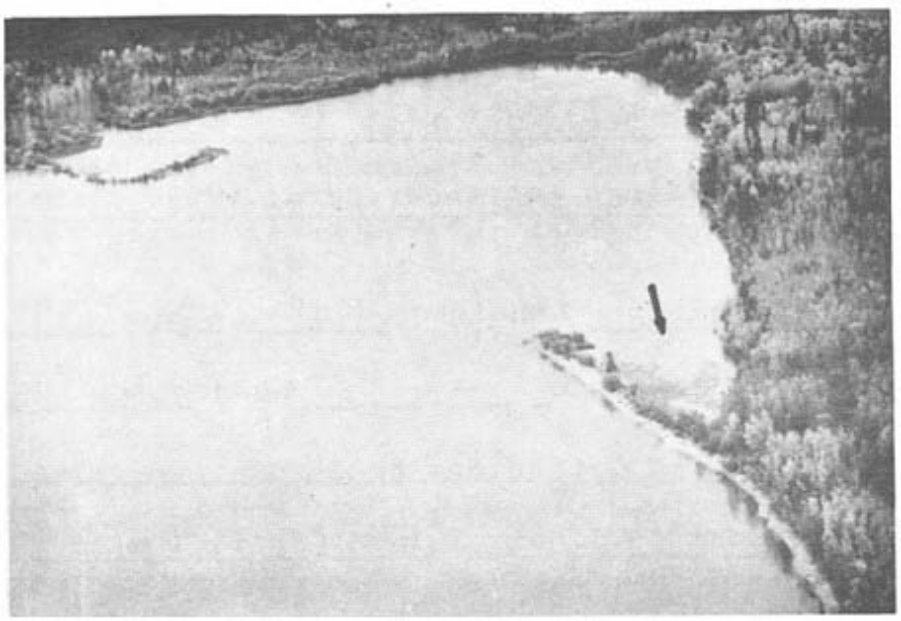
Physical Characteristics - 2 shingle bars which enclose the end of a long narrow bay.
Size - 2 enclosures each 1.9 acres.
Depth - 5 to 10 ft. (North West bar is best for large craft)
Orientation - Northeast. Entrance S and NE.
Bottom - Silty sand and clay. Some organic materials.
Aquatic Vegetation Dense at the back of the harbours.

Protection:
Wind - Entrance is exposed to NE.
Waves - Same as wind.

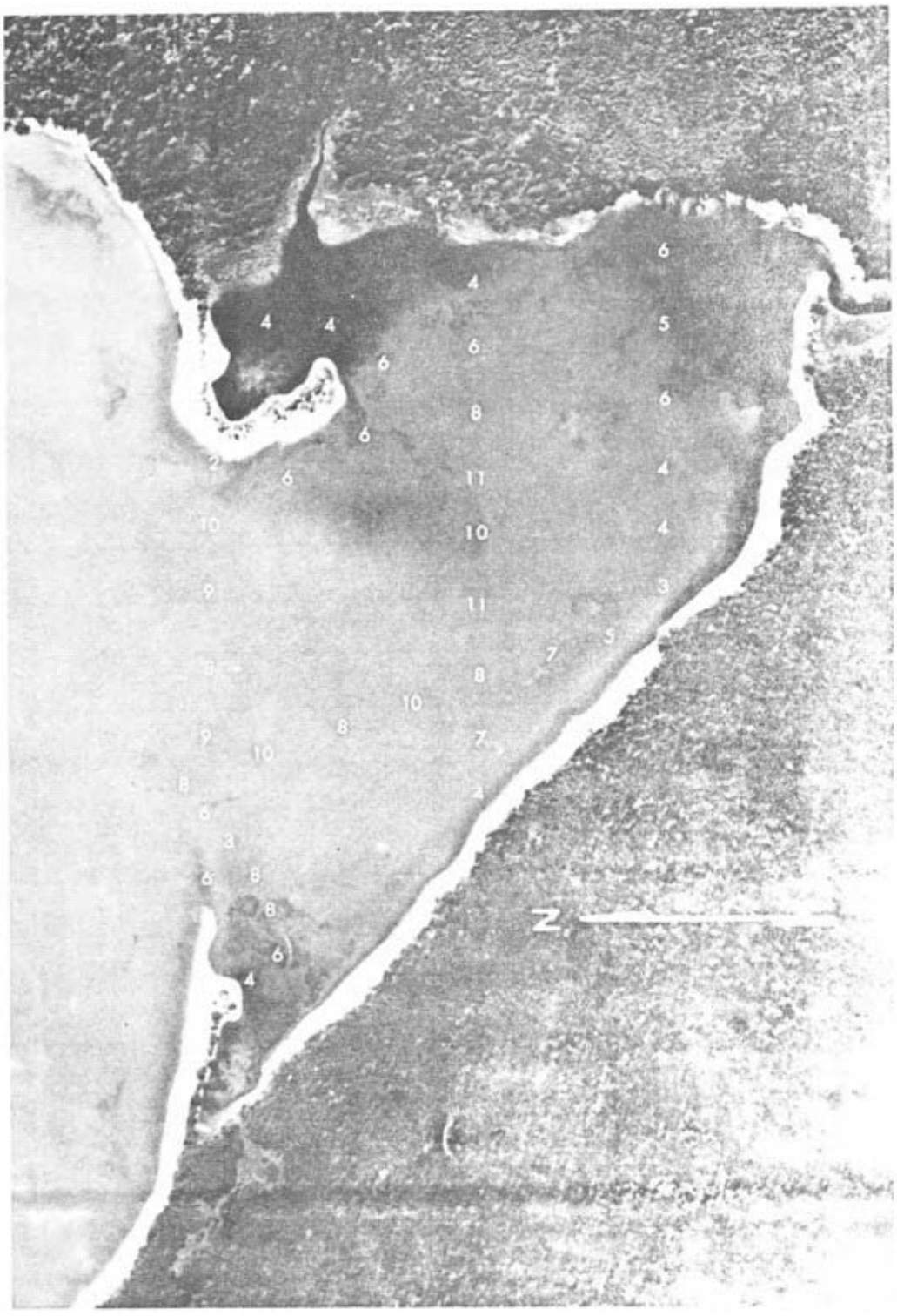
Navigational Aids - None.

Approach - Depths drop quickly off the bars. NE wind can create a rough sea in the bay but does not present a serious problem in running behind the bars.

(The dock has changed; this is one of the few stations in the South end in good shape and still operating.)



Janora Bay




12
12
12
5
12
6
6
12
12
N
JANORA ISLAND (fish station)
0
165
330
Scale in feet

ALBERT'S HARBOUR HIW - 8

SURVEY DATE:(S) Sounding September 23, 1969.
LOCATION: Lat/Long 51.360, -96.745
Section - 19 Township - 27 Range - 6
Regional - Northwest corner of Grindstone Peninsula approximately 8 miles east of Beaver Creek cottage development.

HARBOUR DESCRIPTION:

Physical Characteristics - Small bay partially enclosed by a shingle bar.
- Size - 2.2 acres.
- Depth - 5 ft. in the bay. 15 ft. in the dredged channel.
- Orientation - South.
- Bottom - Silty sand and clay.
- Aquatic Vegetation None.

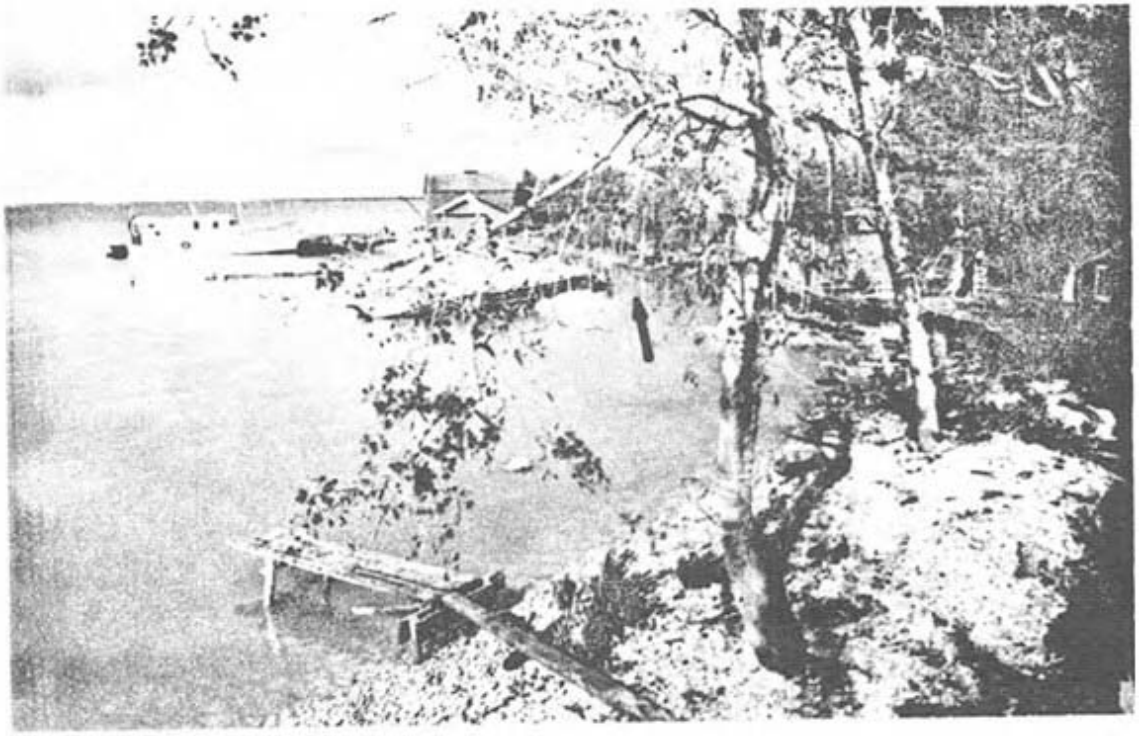
Protection:
- Wind - Exposed to W and SW. Partial exposure to NW.
- Waves - Same as wind.

Navigational Aids - None.

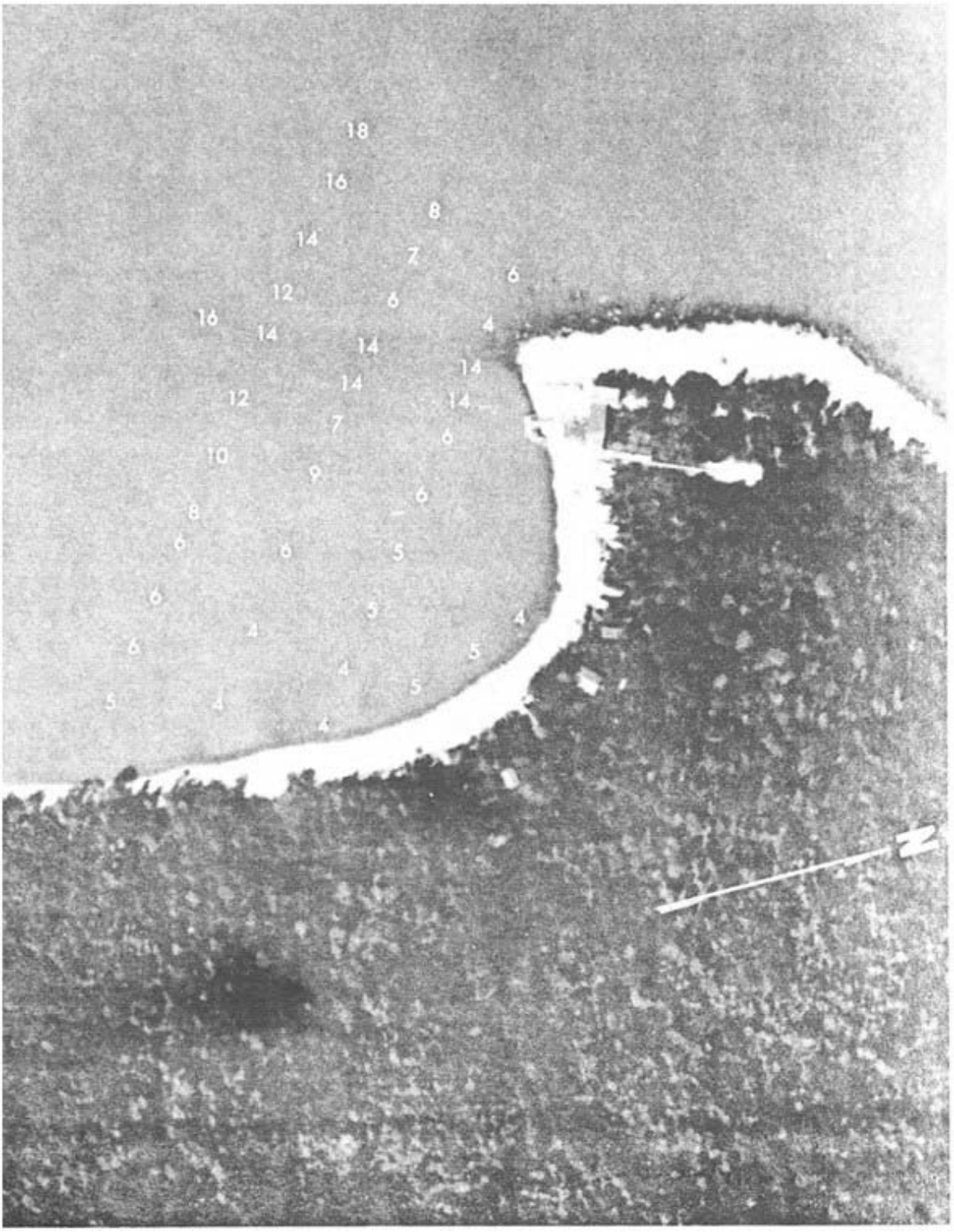
Approach - Deep water in the area. Channel runs straight south of the fish shed and present dock.

Facilities:
- Dock(s) - 45' x 6' pole plank which must be maintained yearly.
- Others - Cook house, fish shed and cabins associated with the fish operation (poor condition).

Albert's Harbour. Strong winds and the recent high water have made the shingle breakwater less effective.

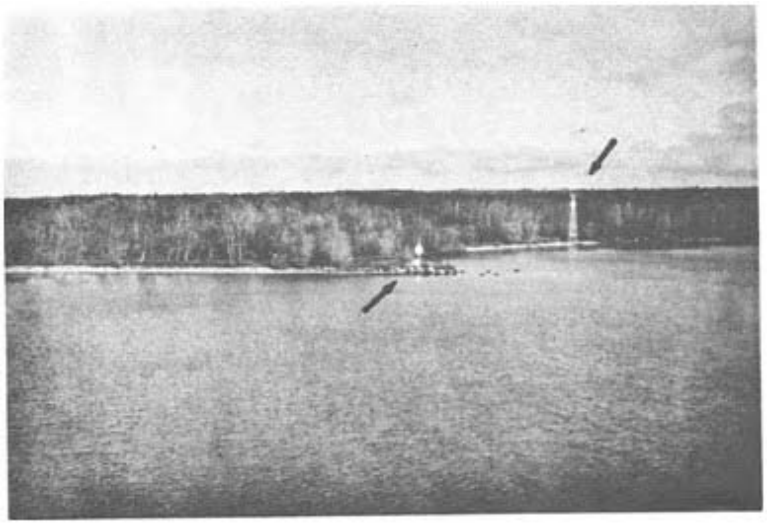


Albert's Harbour. Only a limited number of small craft can obtain shelter behind the shingle bars.

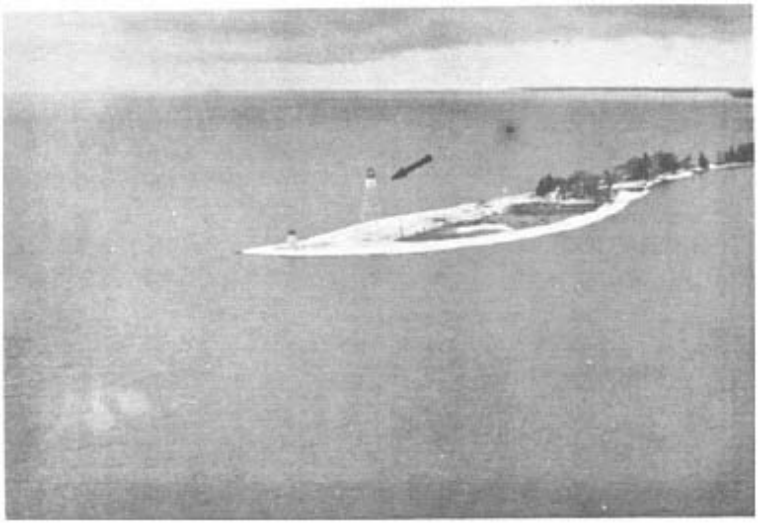


ALBERTS HARBOUR

Additional Hecla Island Navigation Aids



Light towers on Smoky Point provide the course line past Hnausa and Pearson reefs.

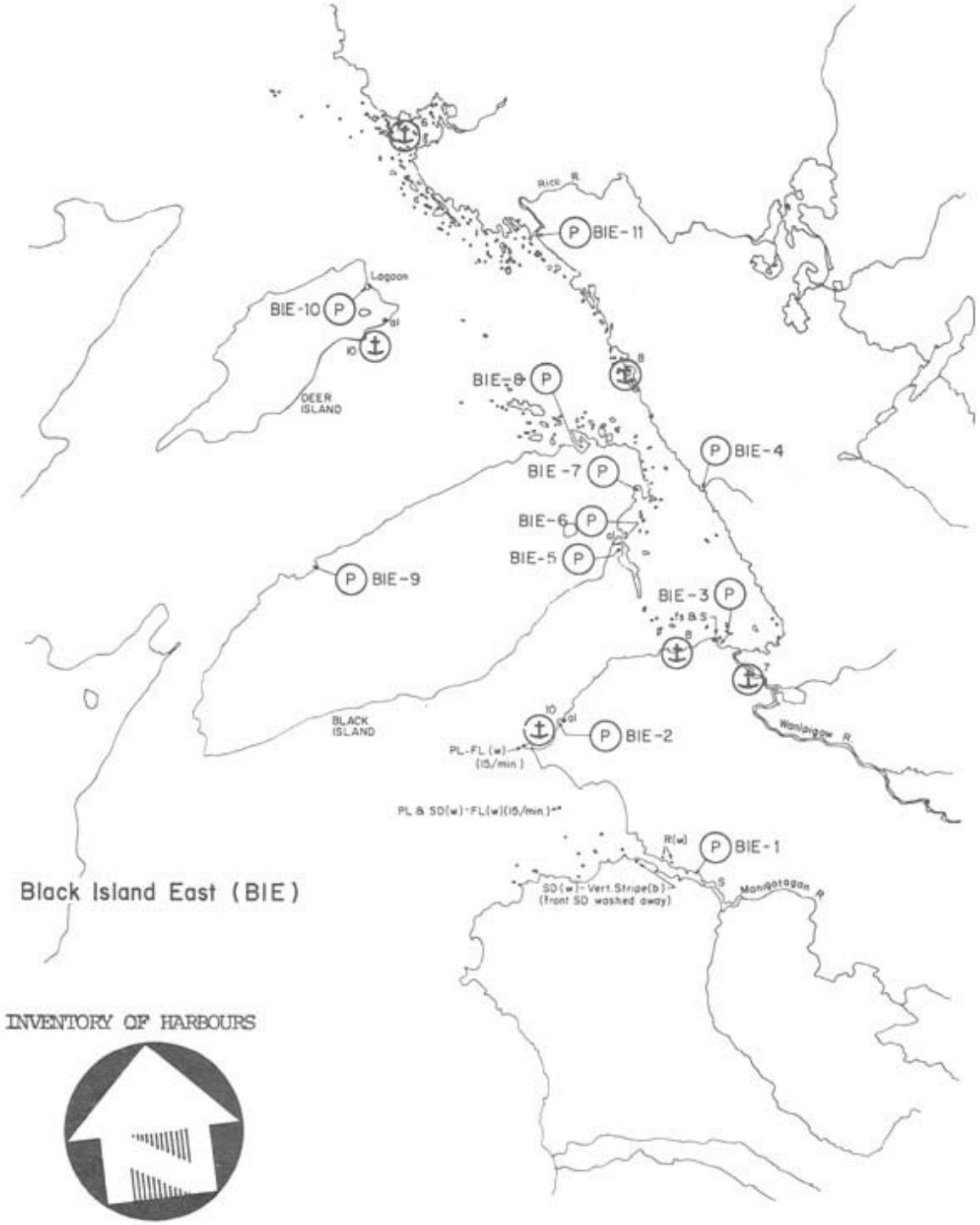


The lighthouse at Gull Harbour is one of the most important aids to navigation on Lake Winnipeg and is in operation all year round.

Pole light and standard daybeacon off the southern tip of Deer Island.

Tower light on Grindstone Point.

BLACK ISLAND - EAST



MANIGOTAGAN RIVER BIE - 1

SURVEY DATE:(S)	October 2, 1968 and September 29, 1969.
LOCATION:	Lat/Long 51.107, -96.301
	Section - 4 Township - 25 Range - 9
Regional -	East shore of Lake Winnipeg adjacent the Manigotagan River. Manigotagan is 50 miles north of Pine Falls via P.T.H. 11 and 304.

HARBOUR DESCRIPTION:

Physical Characteristics -	Large winding channel of the Manigotagan River. Dock on the north bank.
Size -	Unlimited acreage.
Depth -	8 to 20 ft.
Orientation -	West.
Bottom -	Silty clay and sand. Some bedrock. Aquatic Vegetation - No problem in channel

Protection:

Wind -	All weather protection. Bay at the entrance is exposed to W and NW.
Waves -	Same as wind.

Navigational Aids - Pole light on Red Rock, 1 day beacon and 1 set of white day beacons.

Approach - As per chart 6248,

Facilities:

Dock(s) -	30 x 35 ft. pile plank dock.
Others -	Hotel, telephone, and fire tower, gas, oil and groceries on P.T.H. 304 - 1 1/2 miles from the dock.

(The aerial photo on page 127 is misleading; follow the new charts.)

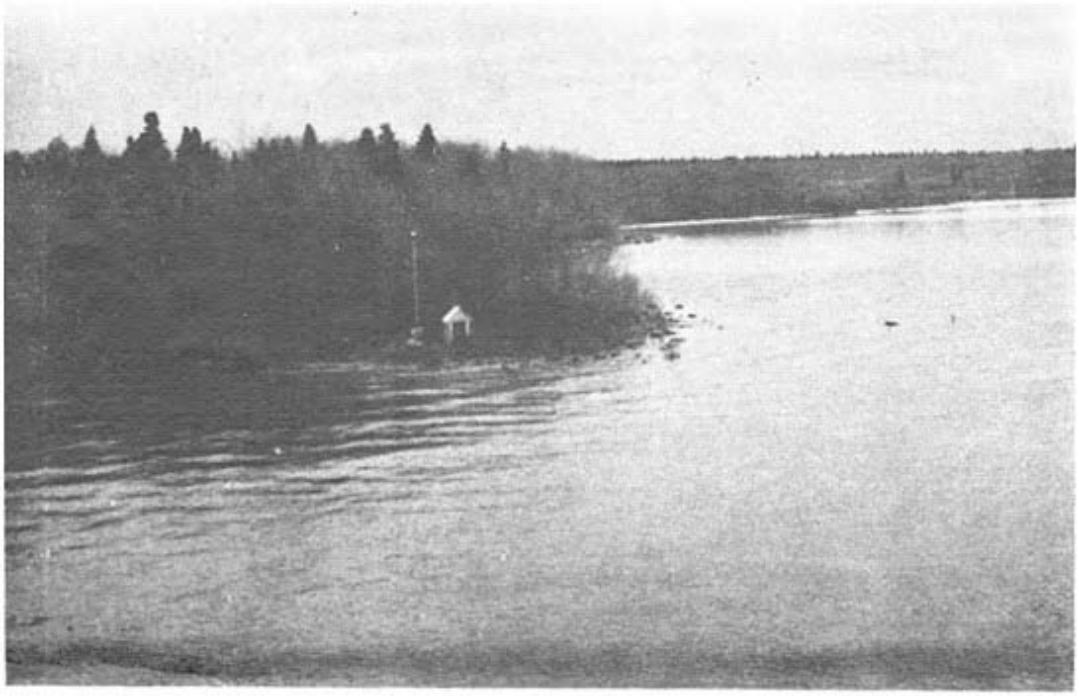
Manigotagan River. This location is characterized by a sheltered scenic waterway and attractions such as a hotel (A) and fire tower (B).

Manigotagan River. Local wharf near the hotel.

Townsite at Manigotagan; the arrows show the MTS tower to the E; the forestry tower to the W. Supplies are available here. The channel affords excellent shelter.
A low cable stretches between the points in the centre of the photo. (A to B).

MANIGOTAGAN RIVER

Manigotagan River. The back day beacon of the second ranges is obscured (A). Note how we had to go off course to starboard to see the beacon.



Pole light at Clement's Point.

AYRES COVE BIE - 2

SURVEY DATE:(S)	September 29, 1969, Soundings October 2, 1968.
LOCATION:	Lat/Long 51.167, -96.388
	Section - 26 Township - 25 Range - 8
Regional -	East shore of Lake Winnipeg approximately 3 miles west of the Hole River Indian Reserve road.

HARBOUR DESCRIPTION:

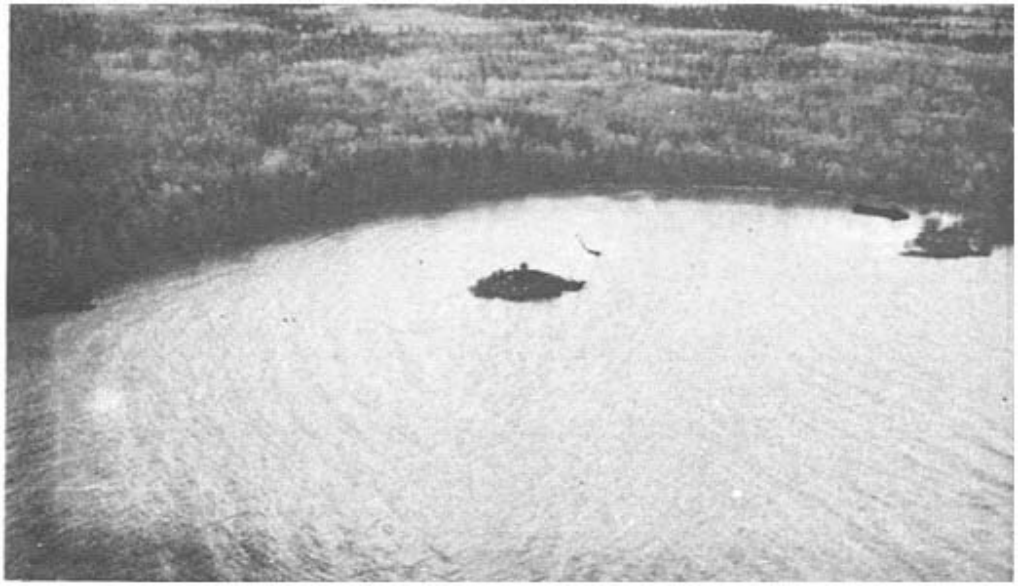
Physical Characteristics -	Natural bay enclosed by the mainland and a small bedrock peninsula.
Size -	6.3 acres.
Depth -	5 to 13 ft.
Orientation -	West. Entrance north.
Bottom -	Sand and bedrock.
Aquatic Vegetation	No problem.

Protection:

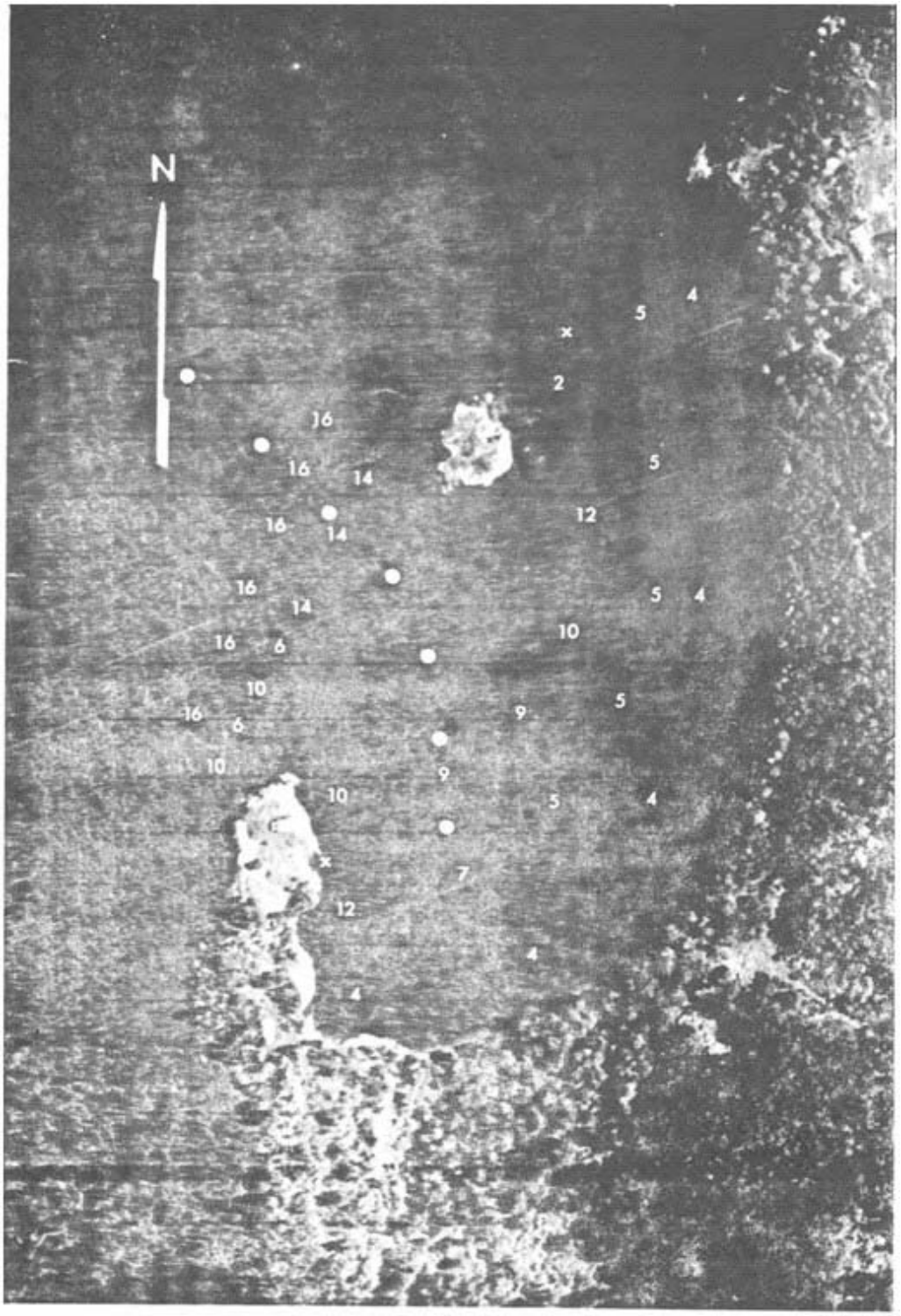
Wind -	Exposed to N and NW partial exposed to W.
Waves -	Same as wind.

Navigational Aids - None.

Approach - No problem. Deep water to the back of the bay. Run between the peninsula and island. Avoid pilings as marked on photo. Boats have to be moored well back in the harbour or they are exposed to the north.



Ayres Cove. This scenic site provides good protection for a limited number of boats.



AYERS COVE

0 220 440
Scale in feet

* see legend

HOLE RIVER BIE - 3

SURVEY DATE:(S) Soundings September 30, 1969

LOCATION: Lat/Long 51.195, -96.295
Section - 4 Township - 26 Range - 9

Regional East shore approximately 8 miles north of Manigotagan via service road and P.T.H. 304.

HARBOUR DESCRIPTION:

Physical Characteristics - Bay enclosed by a bedrock peninsula and shingle materials.

- Size - 15 acres.
- Depth - Flat bottomed 6 to 14 ft.
- Orientation - North. Entrance east.
- Bottom - Silty clay and organic materials.
- Aquatic Vegetation Dense in the back of the bay.

Protection:

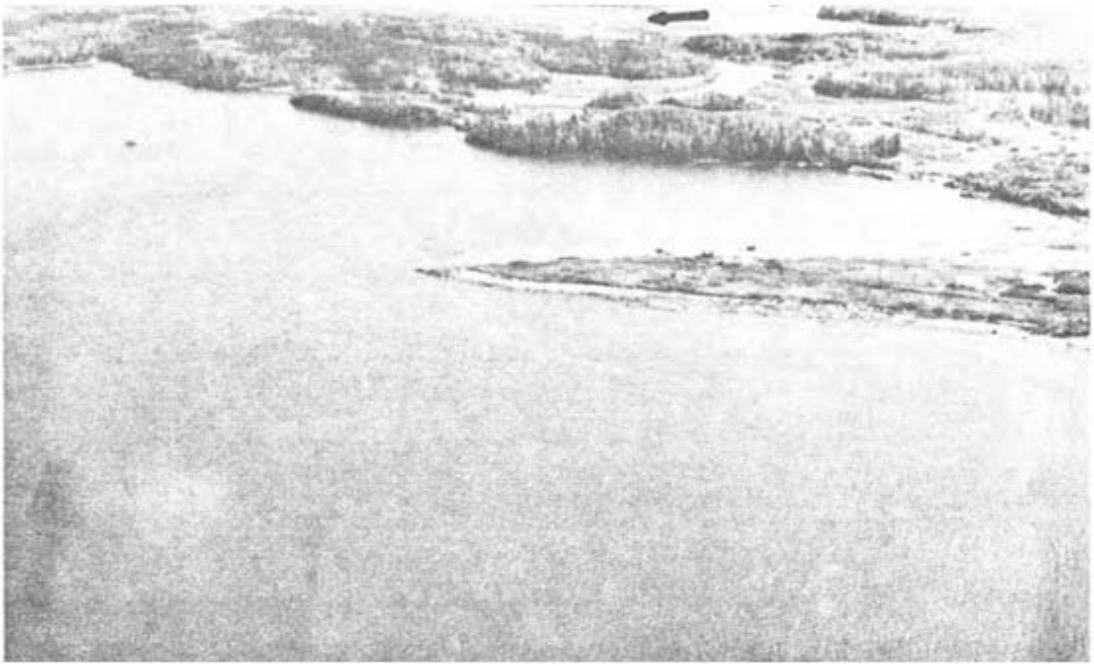
- Wind - Exposed to E.
- Waves - No wave problem because of small fetch available to E wind.

Navigational Aids - None.

Approach - Numerous. Deep water around the islands. Hole River entrance runs between island and mainland west side charts 6248 and 6249.

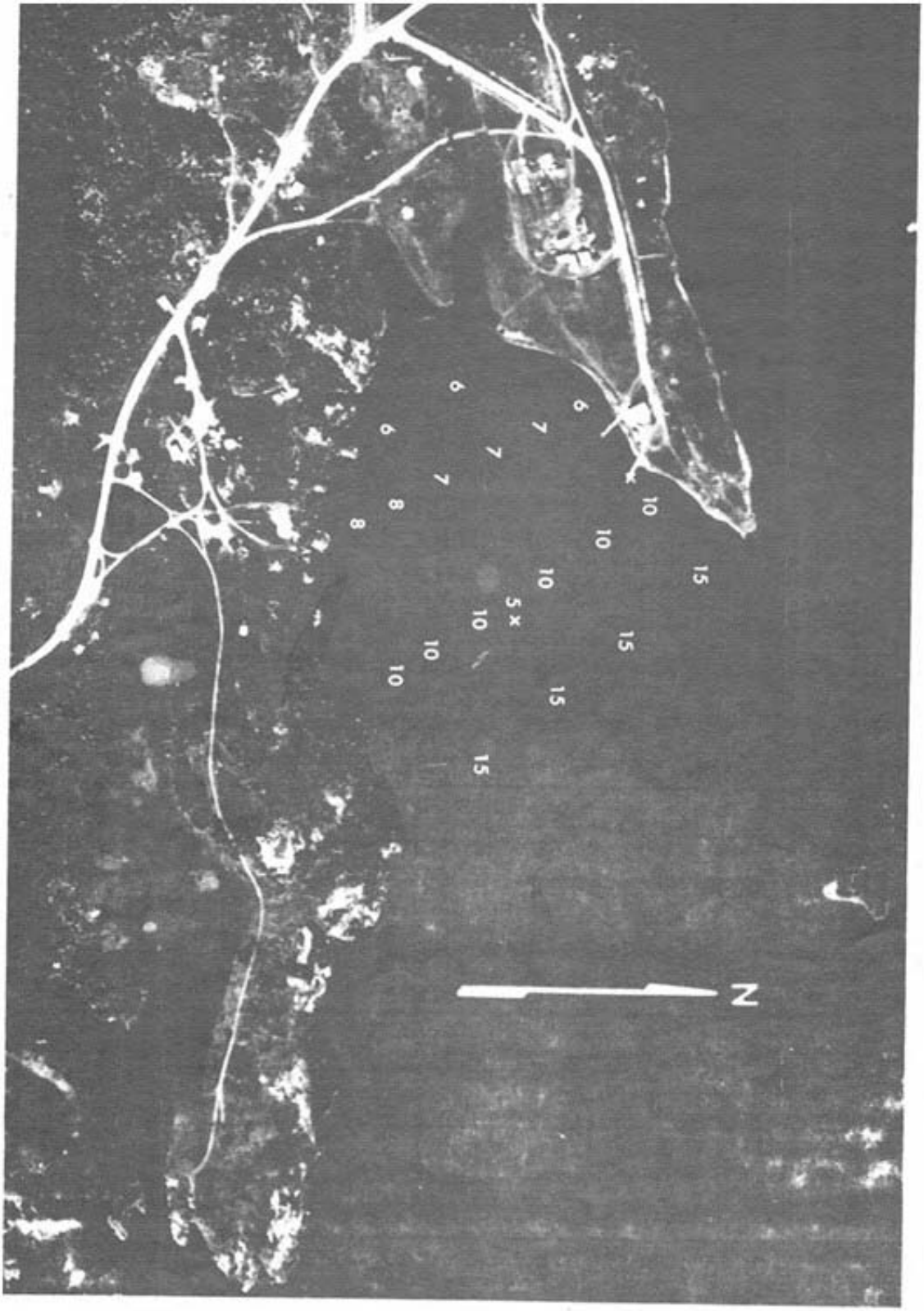
Facilities:

- Dock(s) - L-shaped log-plank dock. 100 x 8 ft. and the end section 16 x 8 ft.
- Others - Large craft can only use the end portion of the dock (1st 45 ft.). Telephone and road access.



Hole River. Aside from an all-weather harbour this location provides access to the Hole River which can accommodate large craft and provides fishing, canoeing and hunting opportunities.

Hole River. The Co-op fish wharf.



HOLE RIVER

0 660 1320
Scale in feet

*see legend

photo shows headwaters of Wanipigow River with existing facilities, note the high tension lines shown by the arrow - make a point of noting their location as you approach; there should not be difficulty with most craft.

STEEPROCK CREEK BIE - 4

SURVEY DATE:(S)	Soundings September 30, 1969.
LOCATION:	Lat/Long 51.2443, -96.3082
	Section - 29 Township - 26 Range 9
Regional -	East shore of Lake Winnipeg 4 miles north of Hole River settlement.

HARBOUR DESCRIPTION

Physical Characteristics -	Natural harbour which is part of the mouth of Steeprock Creek. Vertical granite cliffs form parts of the bank
Size -	6.3 acres
Depth -	6 to 12 ft.
Orientation -	East.
Bottom -	Sand, bedrock and organic materials.
Aquatic Vegetation	Dense in places, generally no problem.

Protection:

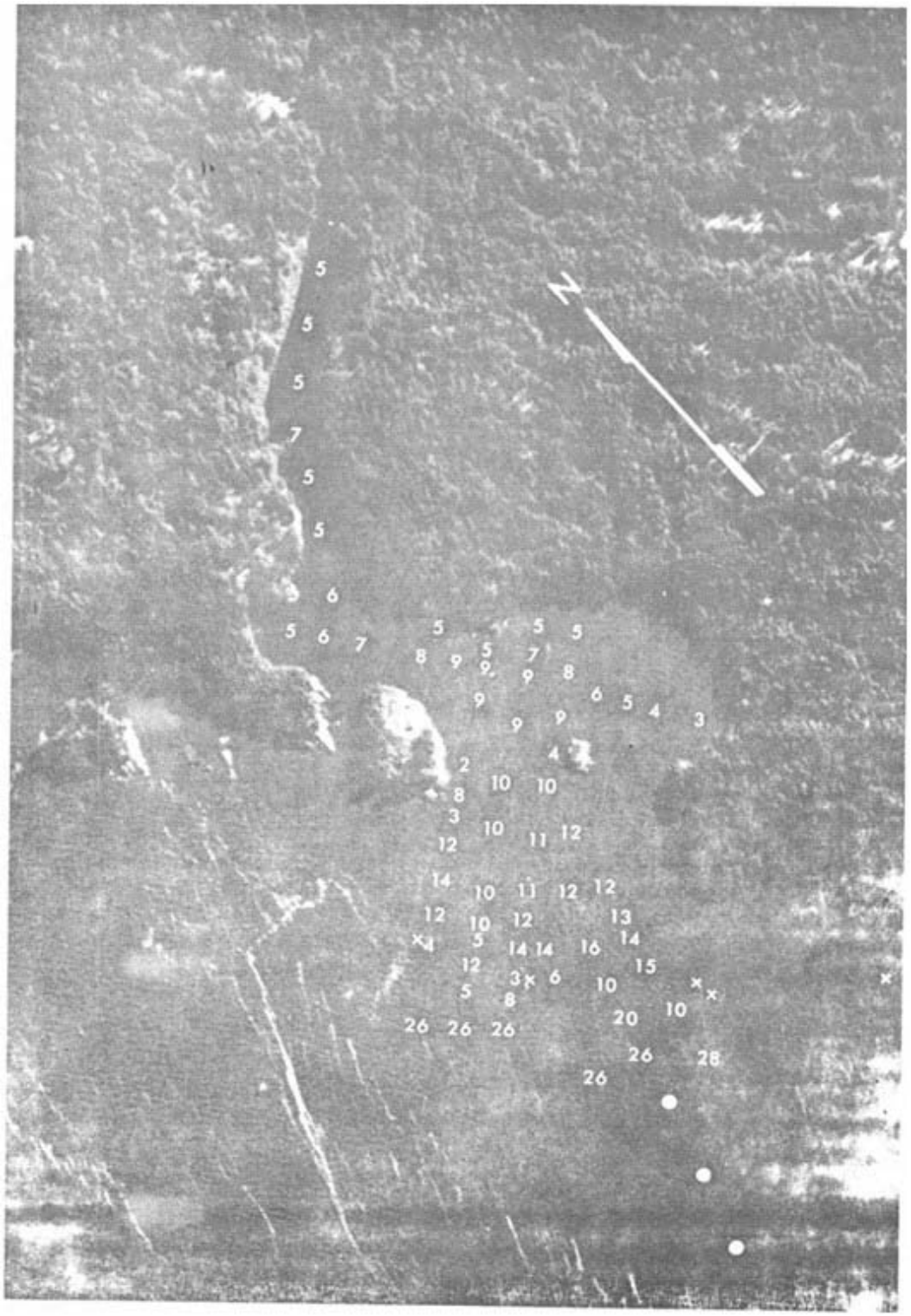
Wind -	All-weather protection. Entrance exposed to N, NW, and SW.
Waves-	Same as wind. Winds are an advantage as they make the reefs more clearly identifiable.

Navigational Aids - None.

Approach - Almost due west. See photo for between outside reefs.

Steeprock Creek. This cozy harbour provides shelter for large craft despite the somewhat tricky entrance course.

Steeprock Creek. The origin of the name no doubt stems from the vertical cliffs along the north side of the harbour.



STEEPROCK CREEK 300 600

BLACK ISLAND BIE -5

SURVEY DATE: (s)	Soundings September 25, 1968 and September 30, 1969.
LOCATION:	Lat/Long 51.2245, -96.354
	Section - 13 Township - 26 Range - 8
Regional -	Southeast corner of Black Island 3 miles northwest of Hole River. Part of Gray's Point.

HARBOUR DESCRIPTION:

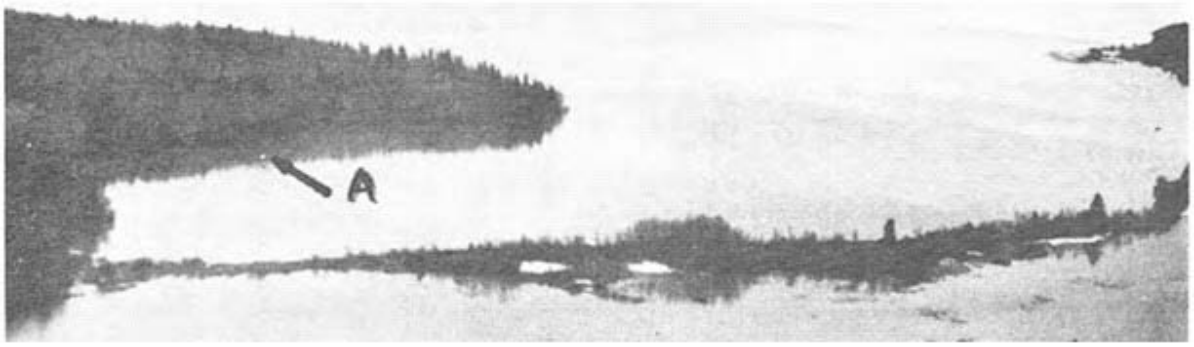
Physical Characteristics -	Large bay formed by a pressure ridge which links a long offshore island to the mainland.
Size -	20 acres. Depth - 7 to 13 ft.
Orientation -	South.
Bottom -	Silty sand and Clay. Some organic materials.
Aquatic Vegetation	No problem. Dense in the most protected portion of the bay against Gray's Point.

Protection:

Wind -	Western section of the bay is exposed to a S wind. The entrance is exposed to SW, S and SE.
Waves -	Same as wind. Do not see any major difficulties at the entrance except during storms from exposed directions.

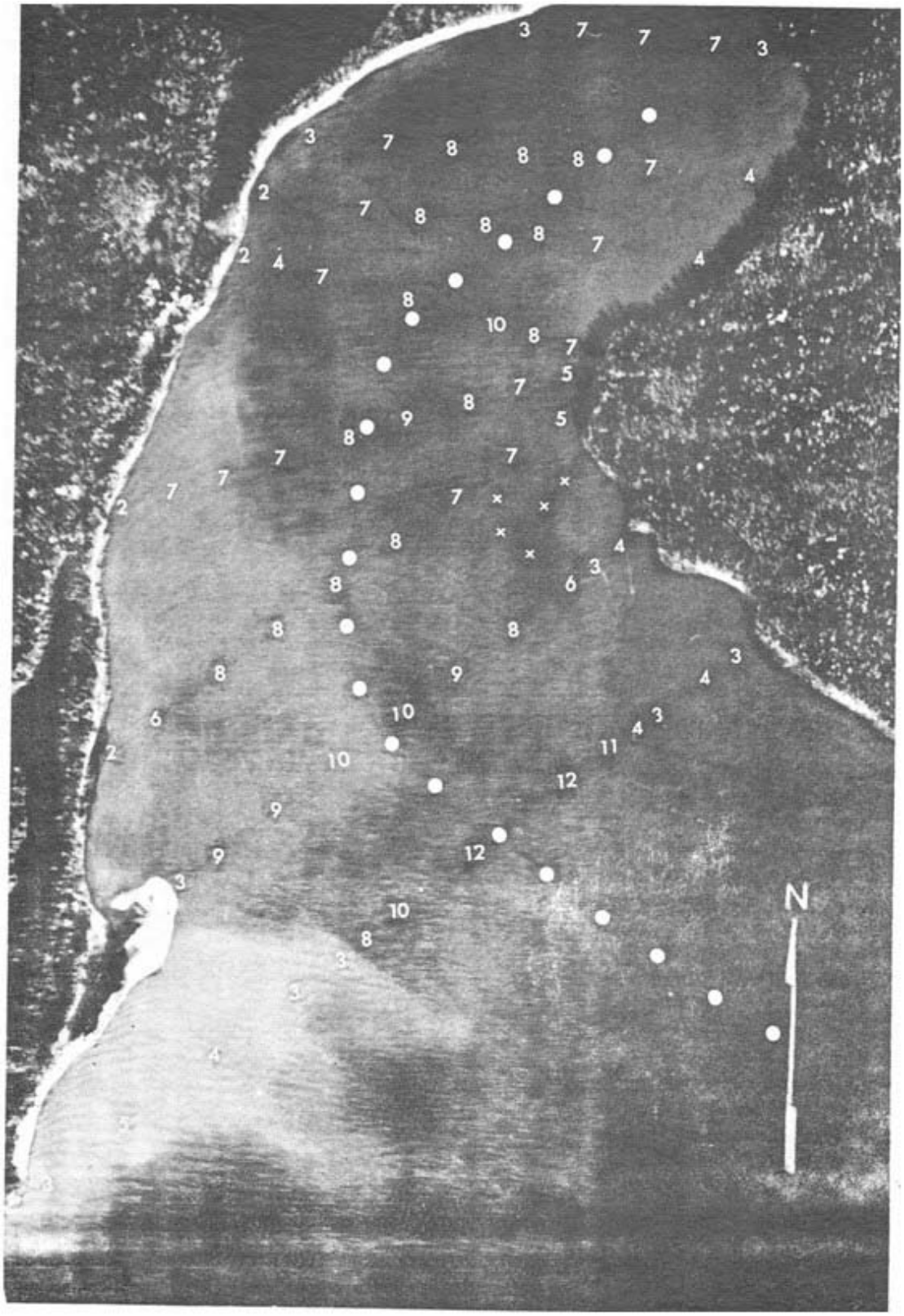
Navigational Aids - None.

Approach - Requires buoying to guide boats through the gap formed by the sandbar to the S and reefs to the N.



Black Island East 5. This harbour provides all-weather shelter, but will require buoys to identify the entrance channel. Location of craft in next photo (A).

Black Island East 5. A sandy beach and deep water characterize this harbour.


N

BLACK ISLAND BIE - 6

SURVEY DATE: (s) September 30, 1969 Soundings September 25, 1968.

LOCATION: Lat/Long 51.227, 51.227
Section - 13 Township- 26 Range - 8
Regional - Southeast corner of Black Island 3 miles northwest of Hole River. Part of Gray's Point.

HARBOUR DESCRIPTION

Physical Characteristics - Irregular shapes bay formed by a pressure ridge which finds the end of an offshore island with the mainland.

- Size'- 25 acres - 15 with dense aquatic vegetation.
- Depth - 4 to 10 ft.
- Orientation - Northeast.
- Bottom - Silty clay and sand, and organic material.
- Aquatic Vegetation Dense aquatic growth over most of the back portion.

Protection:

- Wind - All-weather protection.
- Waves- Same as wind.

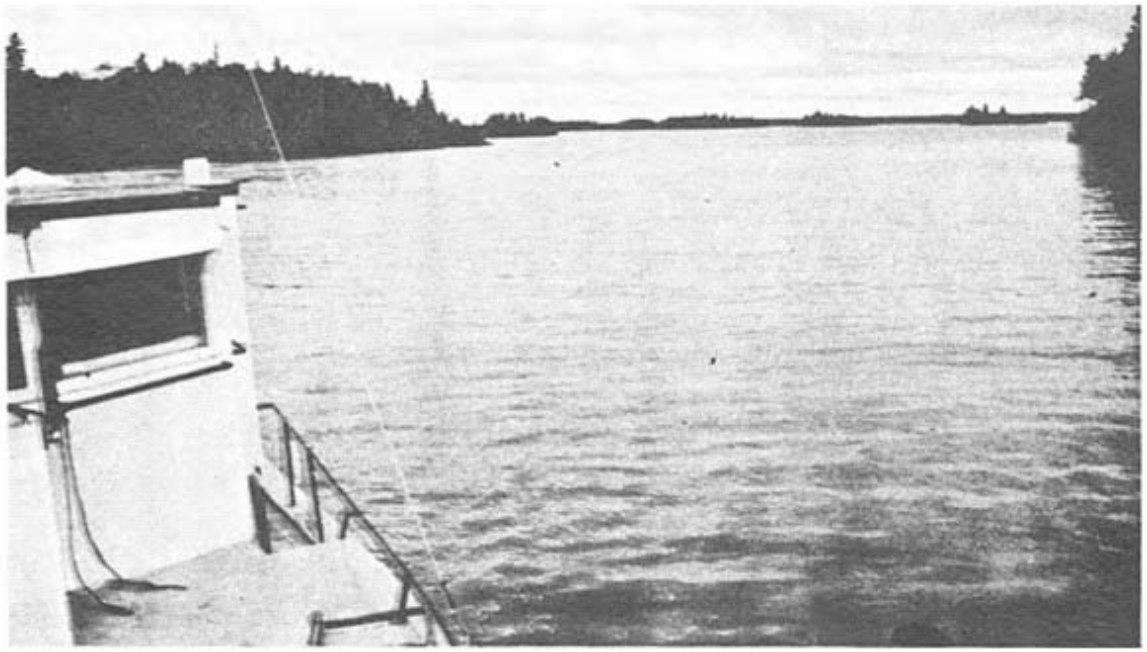
Navigational Aids- None.

Approach - No problems. Deep water at the entrance and around offshore islands.

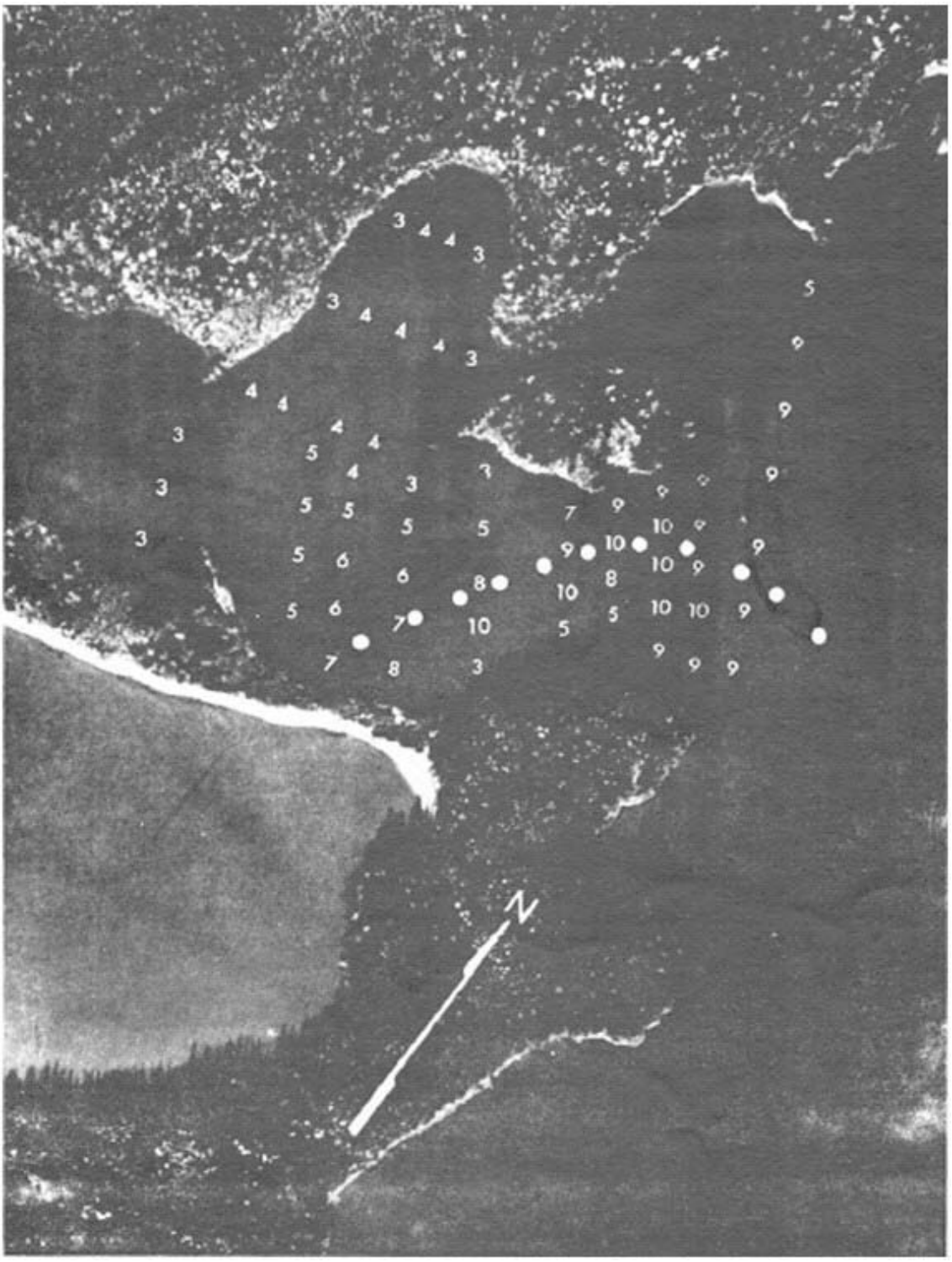
Facilities:

- Dock (s) - Pilings from old dock stick out of the water.

Black Island East 6. Notice the offshore islands that protect the entrance of this harbour. Arrow shows location from which next picture is taken



Black Island East 6. Despite the narrow entrance channel there is ample water for even the largest craft.



BLACK ISLAND no.6 0 350 700

* see legend Scale in feet

BLACK ISLAND BIE - 7

SURVEY DATE: (s)	September 29, 1969, Sounding September 26, 1968.
LOCATION:	Lat/Long 51.243, -96.343
	Section - 25 Township - 26 Range - 8
Regional -	Northwest corner of Black Island 1 1/2 miles west of Steeprock Creek.

HARBOUR DESCRIPTION :

Physical Characteristics -	Large bay which forms part of a very irregularly shaped shoreline. There are numerous offshore islands in the area.
Size -	50 acres.
Depth -	6 to 12 ft.
Orientation -	Southeast.
Bottom -	Silty sand and clay. Some organic material.
Aquatic Vegetation	No problems. Some in the smaller bay and around the shoreline.

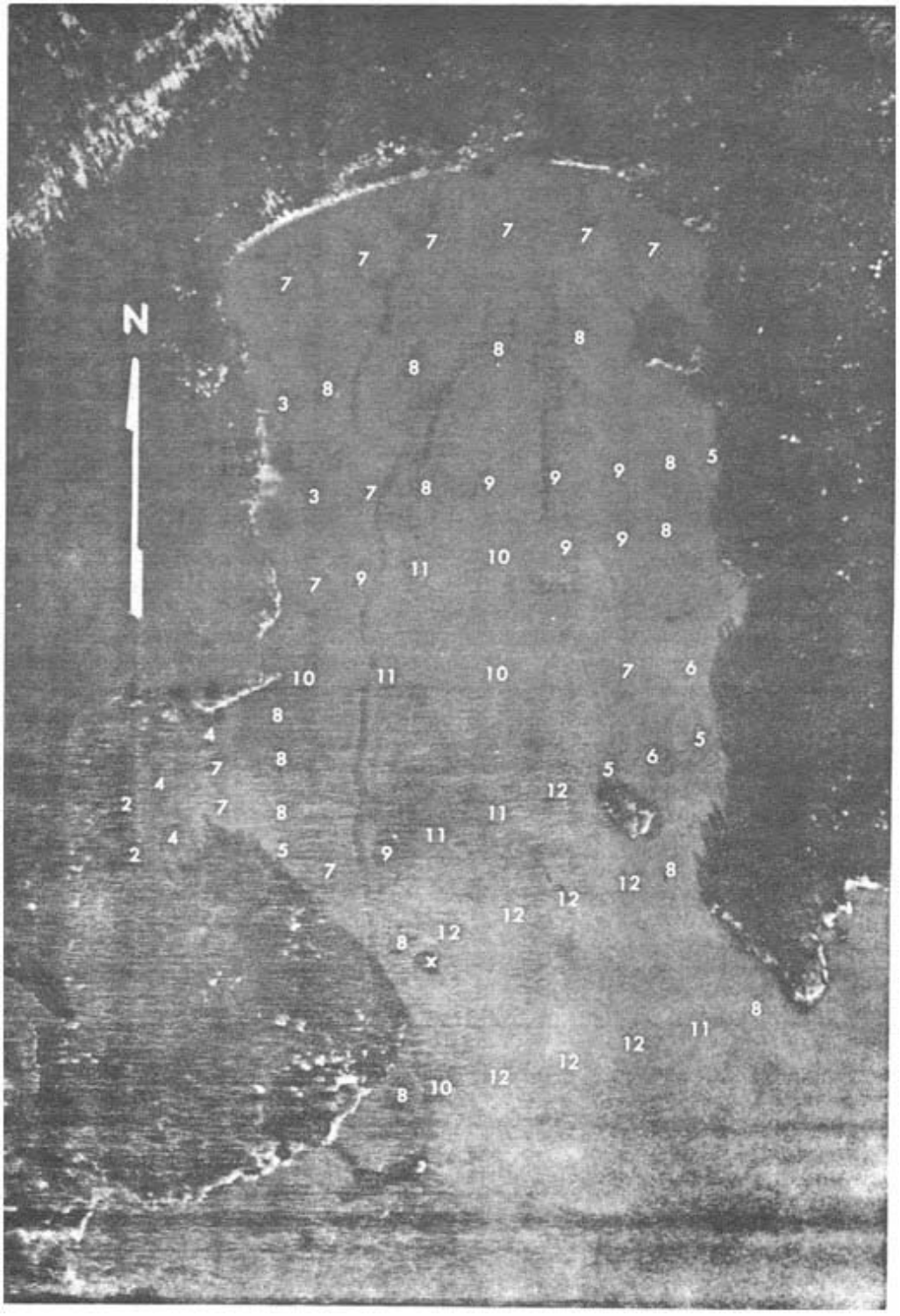
Protection:

Wind -	Nearly all-weather protection. Partially exposed to SE wind.
Waves -	Same as wind. Island in front of the entrance prevents sizeable wave build up from the SE.

Navigational Aids - None.

Approach - No problem. Deep water in the area. Can be approached from NE and S.

Black Island East 7. Offshore islands and High sandy backshore provide some of the best viewing opportunities on the lake.



BLACK ISLAND BIE - 8

SURVEY DATE : (s)	September 25, 1969. Soundings September 26, 1968.
LOCATION:	Lat/Long 51.262, -96.375
	Section - 35 Township - 26 Range - 8
Regional -	Northeast corner of Mack Island. Approximately 15 miles NE of Gull Harbour and 4 miles NW of Steeprock Creek.

HARBOUR DESCRIPTION:

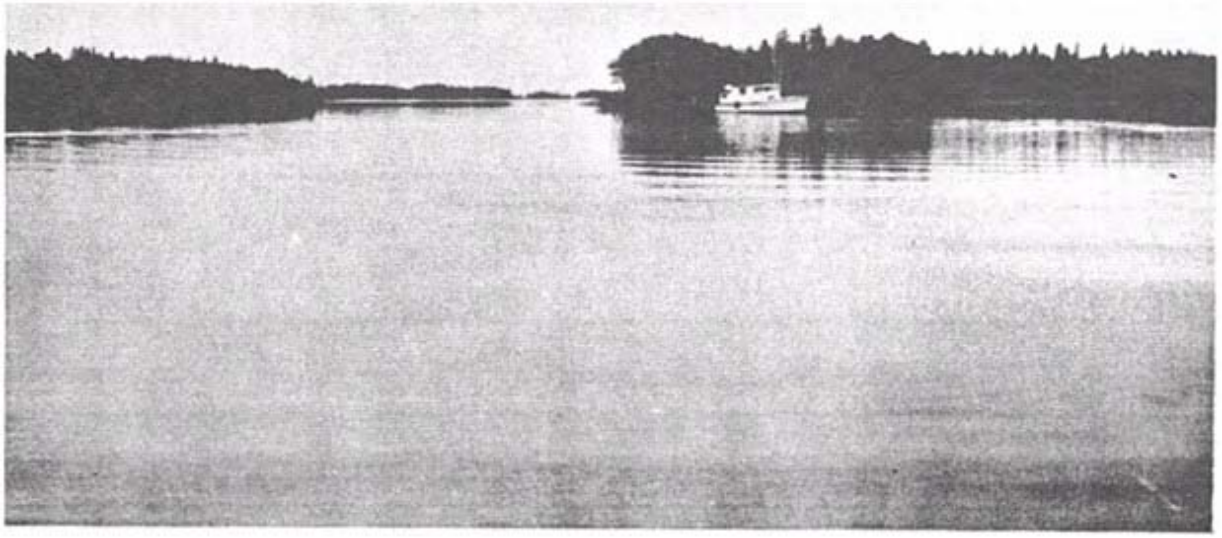
Physical Characteristics -	Large irregular shaped bay which is protected by numerous offshore islands.
Size -	50 acres.
Depth -	6 to 13 ft.
Orientation -	Northwest.
Bottom -	Silty clay and organic materials.
Aquatic Vegetation	Dense at the back of the various small bays.

Protection:

Wind -	All-weather protection.
Waves -	Same as wind.

Navigational Aids - None.

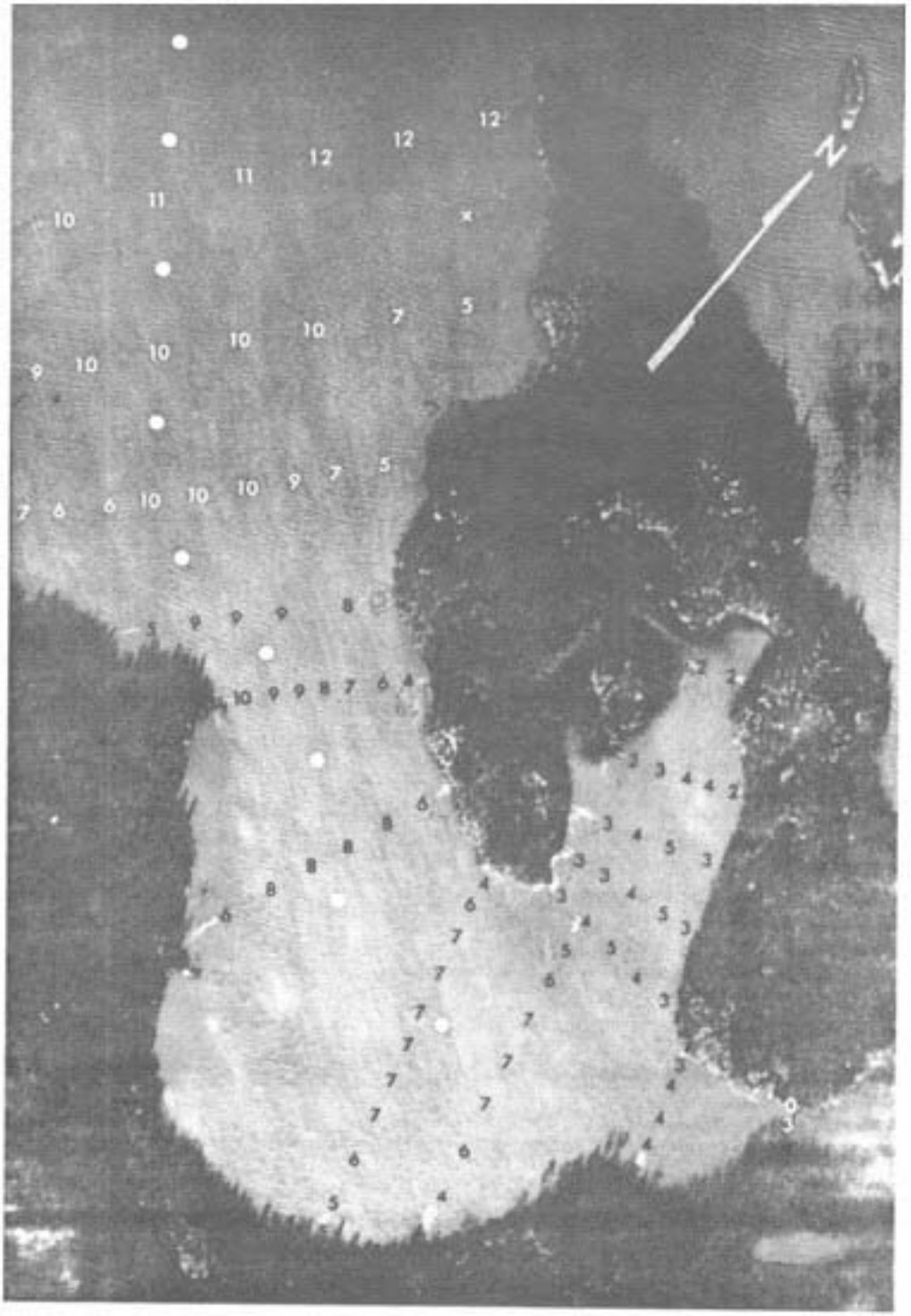
Approach - As per chart 6248 and enclosed photo. Basically NW from a point before the course to east shore turns sharply north. This is a hazardous approach; use caution and slow approach speed.



Black Island East 8. This picture clearly illustrates the large size of the harbour and its protective quality.

Black Island East. 8 Picture looking a little south of east. BIE 5, 6 (A) and 7 (B).

Black Island East 8. This is one of the finest harbours on Lake Winnipeg with numerous islands to protect the entrance and surrounding area.

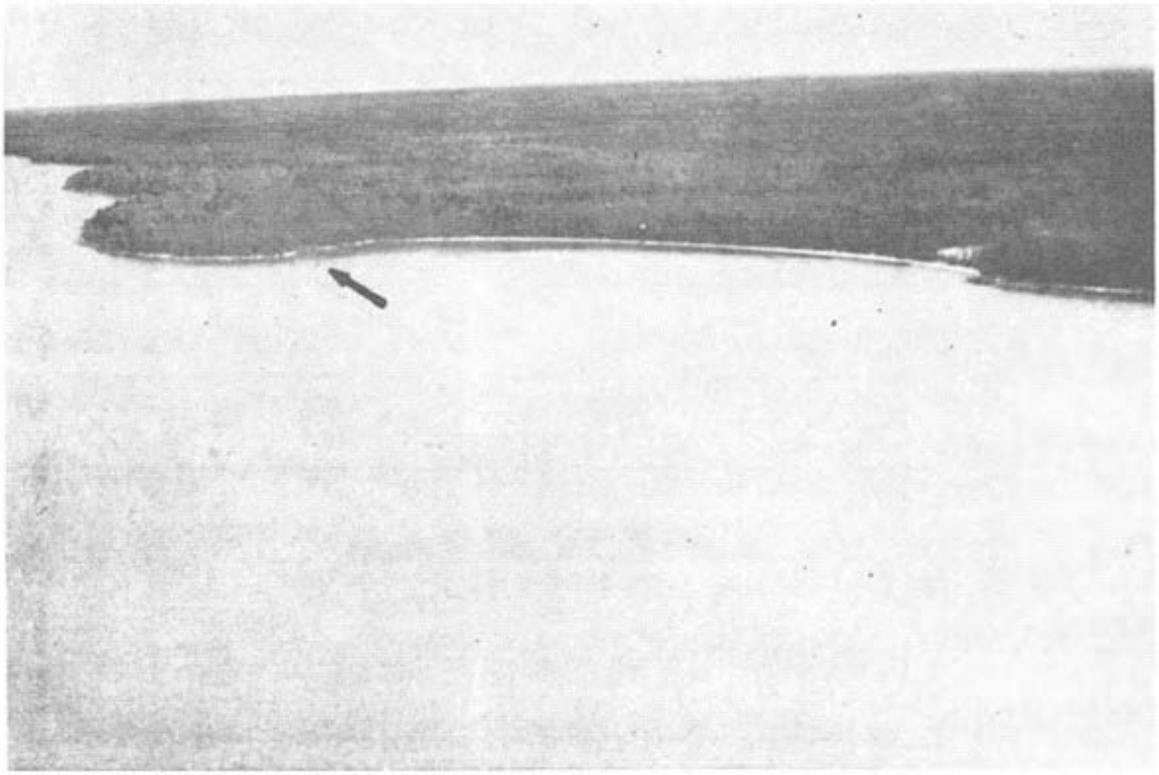

N
BLACK ISLAND no.8
0
400
800
Scale in feet
* see legend

BLACK ISLAND BIE - 9

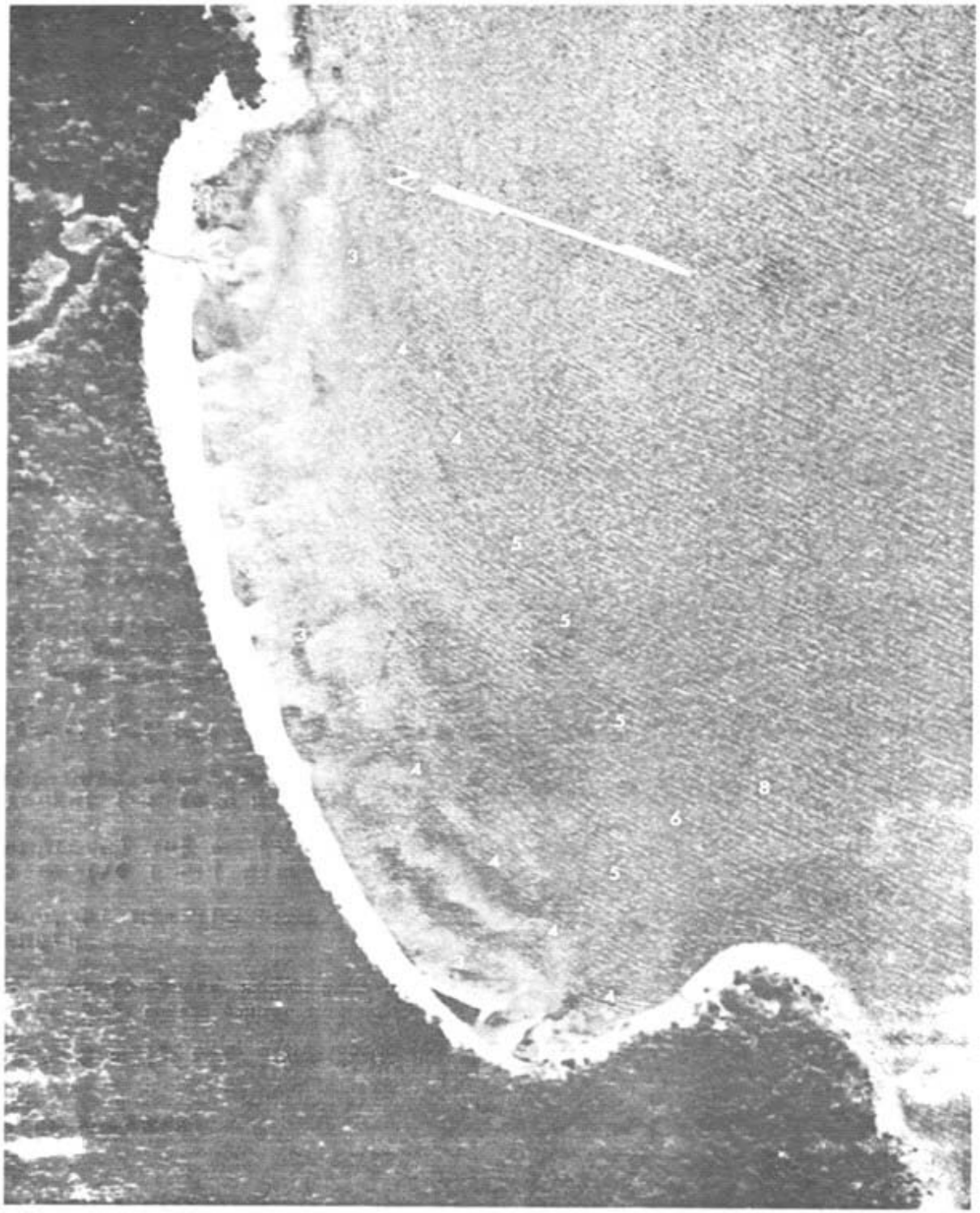
SURVEY DATE : (s)	Soundings October 22, 1969.
LOCATION:	Lat/Long 51.219, -96.529
	Section 2 Township 26 Range - 7
Regional -	North side of Black Island about 4 miles northwest of Gull Harbour.

HARBOUR DESCRIPTION :

Physical Characteristics -	Small bay in a generally regularly shaped shoreline. Back of the bay forms a long beach.
Size -	3 acres.
Depth -	4 to 7 ft.
Orientation -	Northwest.
Bottom -	Sand.
Aquatic Vegetation	None.
Protection:	
Wind -	Exposed to N, NW and W.
Waves -	Same as wind.
Navigational Aids-	None.
Approach -	No problems. Stay away from the south portion of the bay.



Black Island East 9. A class 2 beach is located in this slight indentation in the shoreline on Black Island. Possible small harbour site (A).



BLACK ISLAND no.9

0 400 800
Scale in feet

*see legend

DEER ISLAND BIE – 10 - *Potential Harbour*

SURVEY DATE : (s)	Soundings October 3, 1968.
LOCATION:	Lat/Long 51.319, -96.497
	Section - 1 and 12 Township - 27 Range - 7
Regional -	Northwest side of Deer Island approximately 14 miles northeast of Gull Harbour and 4 miles west of Rice River.

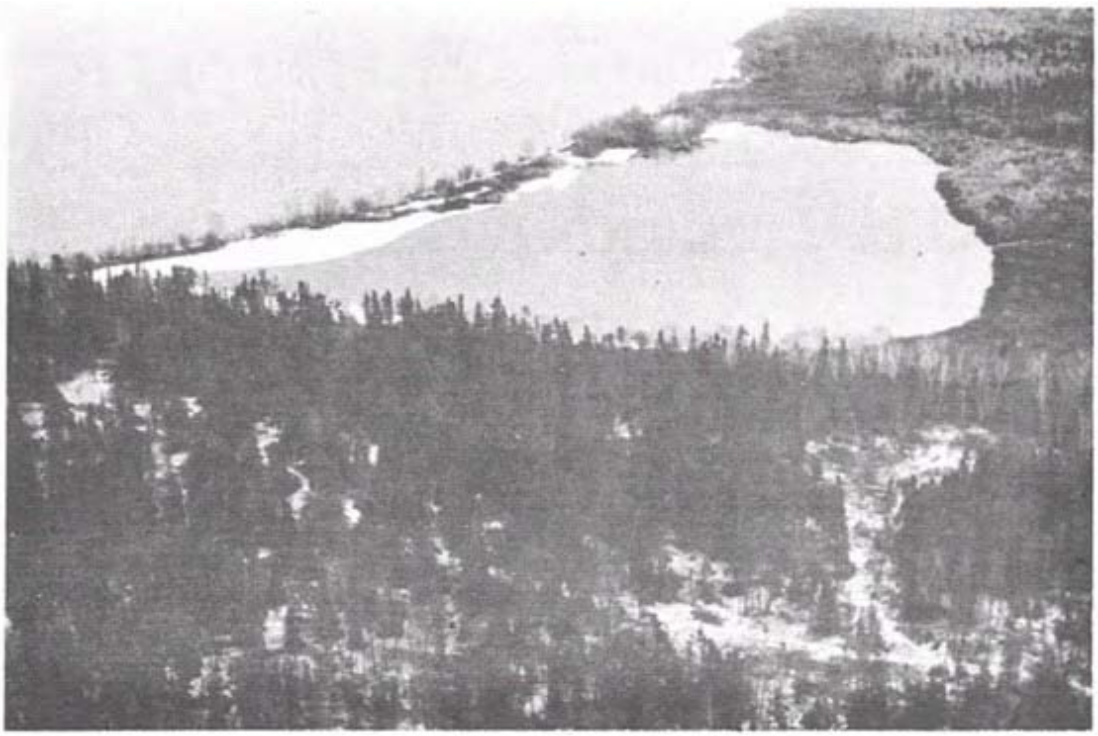
HARBOUR DESCRIPTION:

Physcial Characteristics -	Lagoon formed between two extensive silica sand upland areas and enclosed by a pressure ridge.
Size -	9.4 acres.
Depth -	3 to 7 ft.
Orientation -	Northeast.
Bottom -	Silty sand. Organic materials.
Aquatic Vegetation	Dense over most of the lagoon.

Protection :

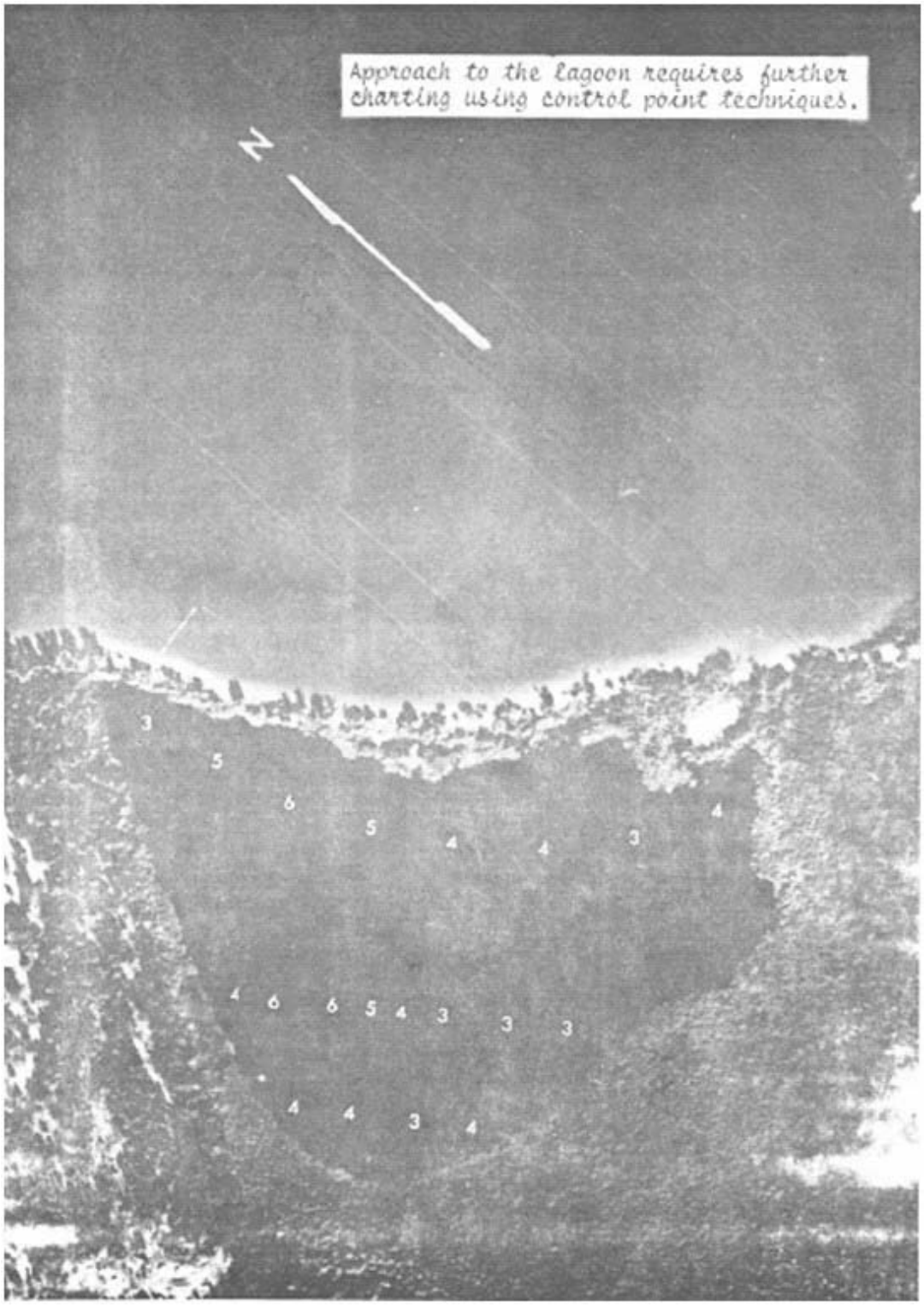
Wind -	All-weather protection. (potentially)
Waves -	Same.

Navigational Aids -	None.
Approach -	Requires further charting work. Present data indicates no problem in defining appropriate channels assuming one existed.
Notes:	This is a potential small craft harbour only.



Deer Island. Possible harbour location adjacent to an excellent potential campground.

East shore north of Rice River. Note the well sheltered waters for small craft. Deer Island potential harbour (A).


Approach to the lagoon requires further charting using control point techniques.
N
3
5
6
5
4
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3
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6
6
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4
3
3
3
4
4
3
4

RICE RIVER BIE - 11

SURVEY DATE : (s) Soundings September 20, 1968 and September 25, 1969.
LOCATION : Lat/Long 51.3355, -96.4035
Section - 27 Township - 27 Range - 8
Regional - East shore of Lake Winnipeg. 16 miles northeast of Gull Harbour and 14 miles north of Hole River.

HARBOUR DESCRIPTION:

Physical Characteristics - Meandering and scenic Rice River. The mouth is protected by numerous offshore islands.
- Size - Unlimited acreage.
- Depth - 8 ft. around the islands to 20 ft. in the Channel.
- Orientation - Southwest.
- Bottom - Silty clay and organic materials.
- Aquatic Vegetation Dense in places, but no problem.

Protection:
- Wind - All-weather protection.
- Waves - Same.

Navigational Aids - None.

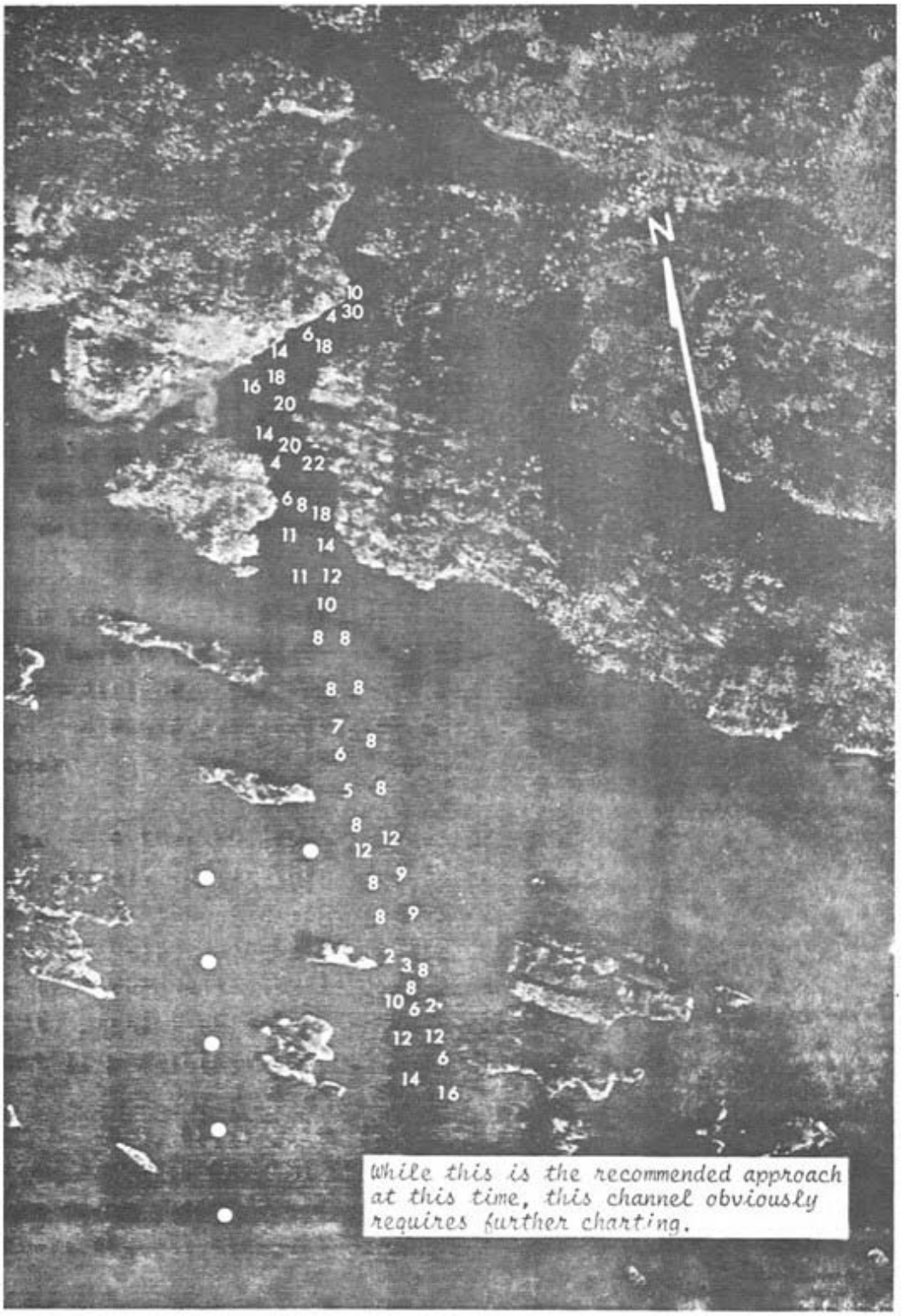
Approach - Requires further charting: identifying a course or courses can be a problem.

Notes:

This was charted at a time of high water levels; the course shown at page 154 turns too close to the centre island (and off-lying shallows); Allow a wider berth.

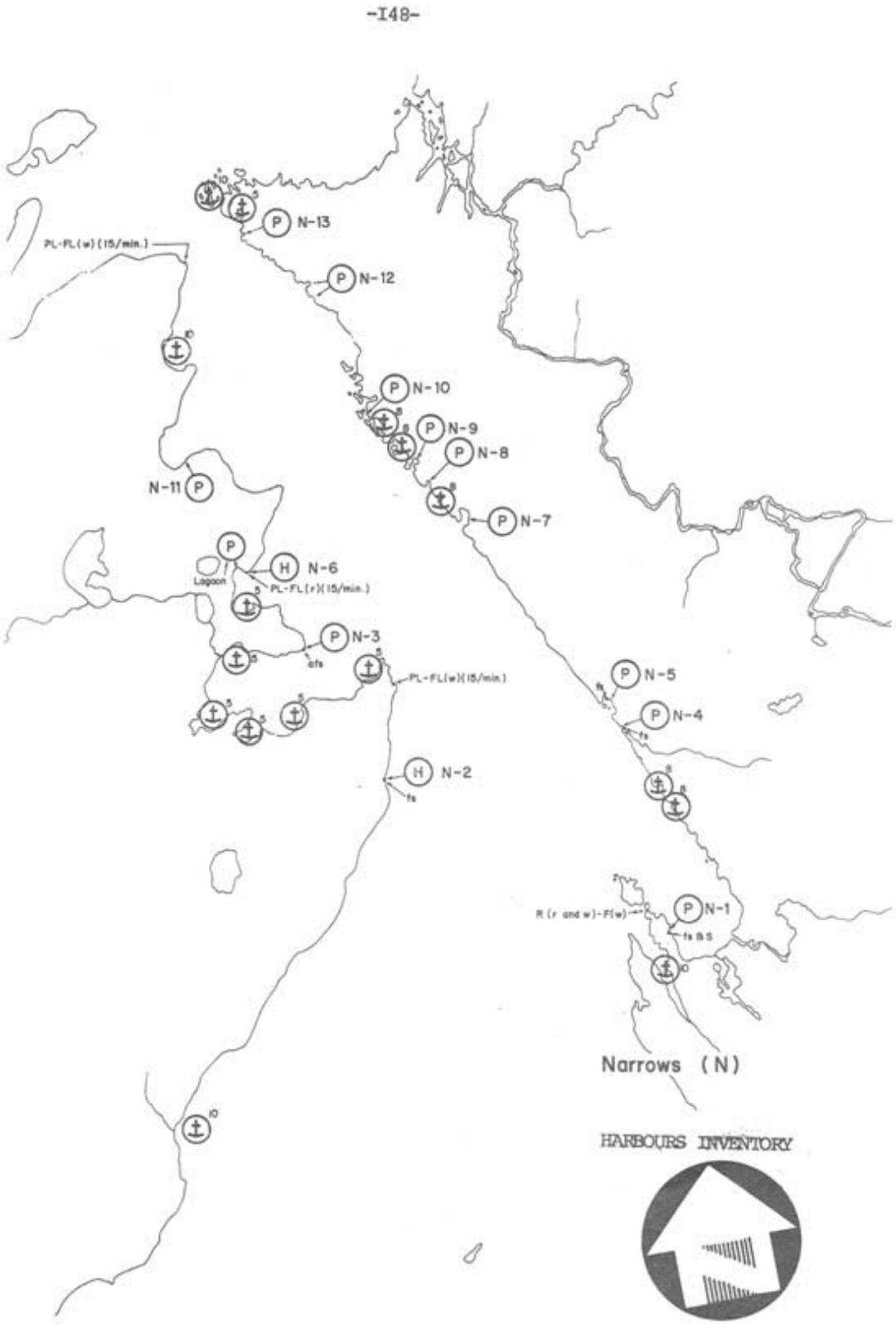
Rice River. Wilderness camping, fishing and over 10 miles of canoeable waters are some of the opportunities offered by this site.

200 yards up the Rice River. There is 20 feet of water at this location.



RICE RIVER 0 600 1200

NARROWS


-I48-
N-13
N-12
N-10
N-9
N-8
N-7
N-11
N-6
Lagoon
N-3
N-5
N-4
N-2
N-1
Narrows (N)
HARBOURS INVENTORY

East Doghead. A complex of islands and deep water make this an excellent area for cruising.

LOON BAY DOCK N-1

SURVEY DATE: (s)	October 1, 1968 and September 25, 1969.
LOCATION:	Lat/Long 51.524, -96.576 - approx. Dock not evident in 2014
	Section - 32 Township - 29 Range - 7
Regional -	East shore 8 miles east of Calders Dock and 17 miles north of Wells Harbour.

HARBOUR DESCRIPTION:

Physical Characteristics -	Two Peninsulas and island with irregular shaped shoreline. Numerous reefs.
Size -	.625 acres.
Depth -	5 to 10 ft.
Orientation -	Northeast.
Bottom -	Silty clay and sand.
Aquatic Vegetation	No problem

Protection:

Wind -	Exposed to N, NE, E and SE. Straits area exposed to N, NW, W and SW.
Waves -	Large fetch areas. Rough seas during strong winds from exposed directions.

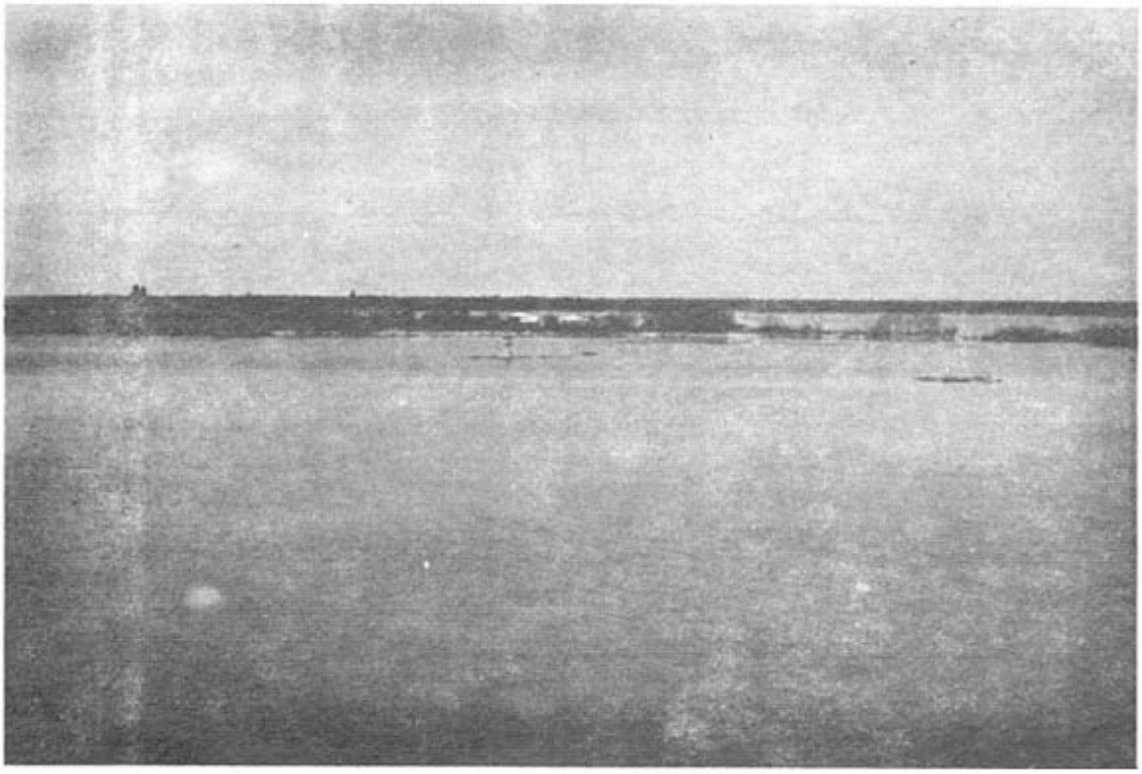
Navigational Aids - Ranges and lights at the west entrance to the straits. None at the dock.

Approach - Deep water offshore. Straits area requires careful maneuvering.

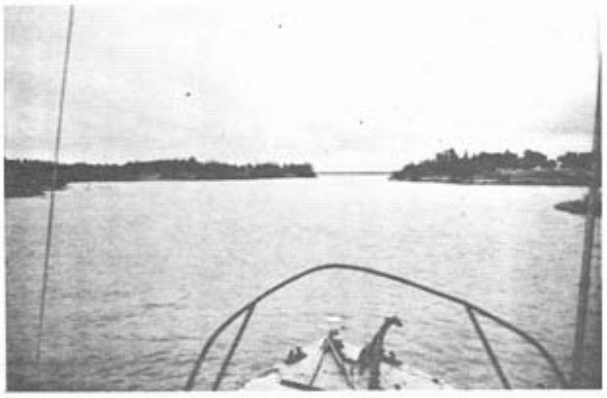
Facilities:

Dock (s) - 135' x 12' log square and plank dock.

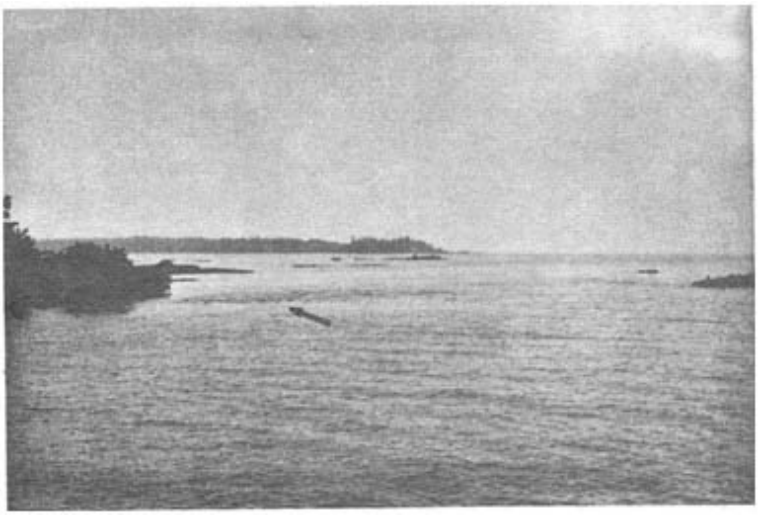
Entrance to Loon Straits. It is just about at this point that boaters can make a 90° starboard turn to enter South Bay.



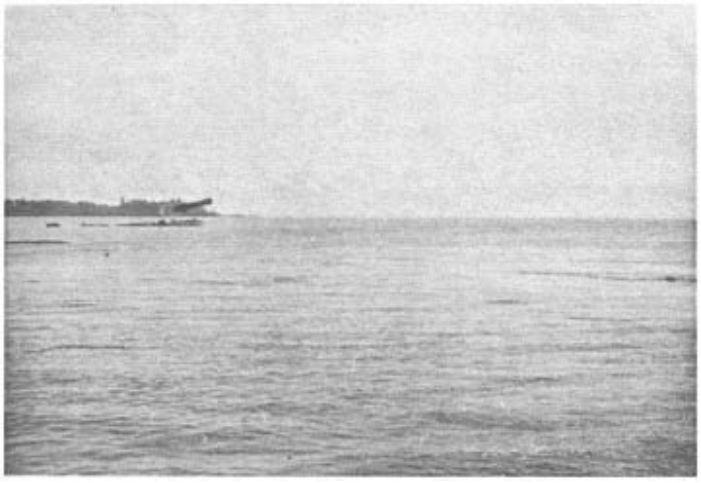
Shoreline along the east shore of Loon Bay. Small but deep inlets and an irregular shoreline characterize this area.



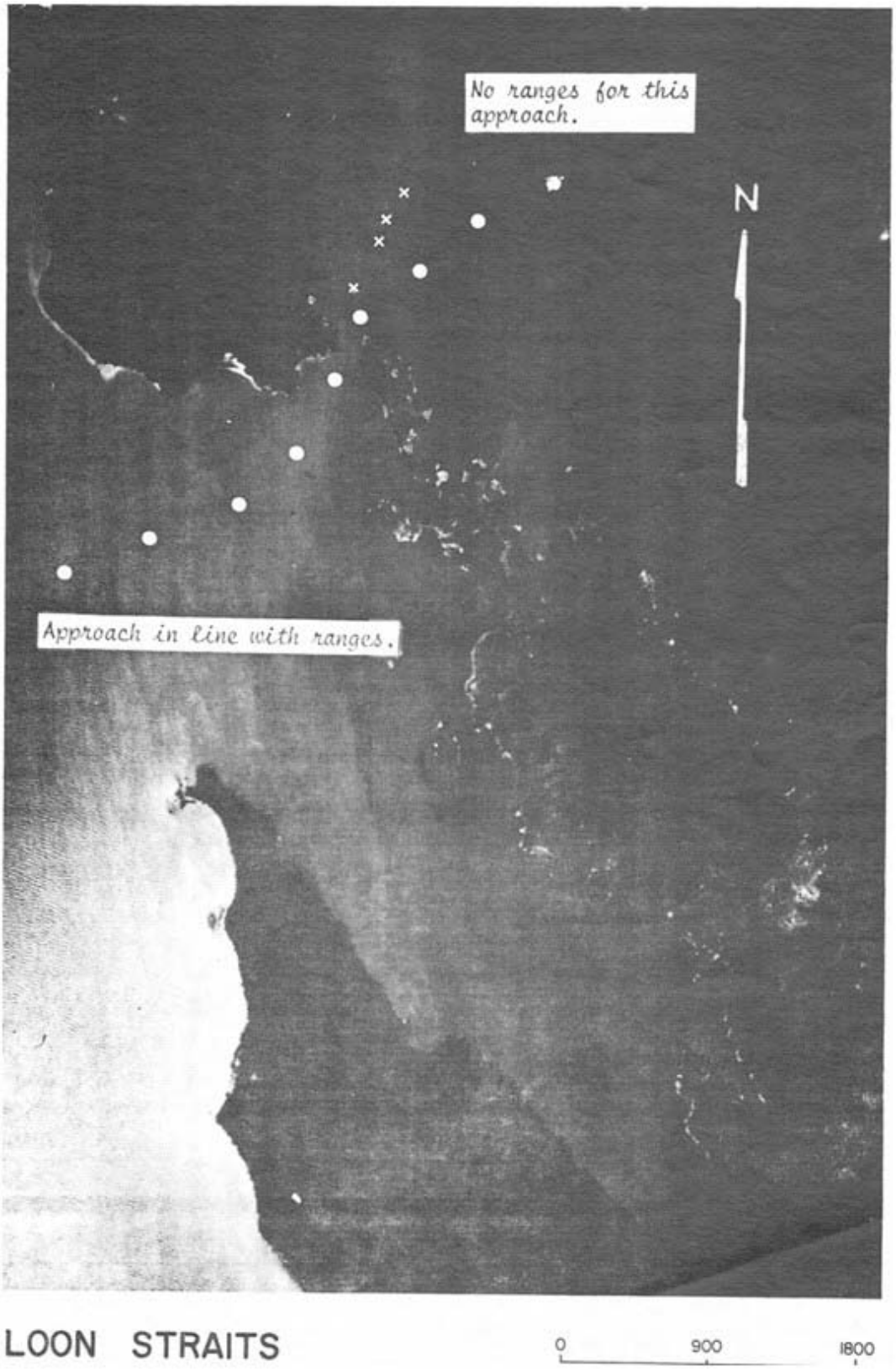
Loon Straits. The following three pictures are a sequence showing the course through the Straits from the east shore.



Loon Straits: There is a strong current here



Loon Straits. Boats must continue on this course till the ranges on the left are in line.


No ranges for this approach.
N
Approach in line with ranges.
LOON STRAITS
0
900
1800

CALDERS DOCK N-2

SURVEY DATE: (s)	September 23, 1969.
LOCATION:	Lat/Long 51.5728, -96.730
	Section - 18 Township - 30 Range - 6
Regional -	West shore south of Big Bullhead Point approximately 45 miles north of Riverton via P.T.H. 234.
HARBOUR AUTHORITY	Pine Dock General Delivery MB R0C 1V0 **Phone:** (204) 276-2064

HARBOUR DESCRIPTION :

Physical Characteristics -	Slight embayment in a predominantly regular shoreline characterized by limestone cliffs.
Size -	.25 acres. Depth - 5 to 10 ft.
Orientation -	East.
Bottom -	Silty clay and sand.
Aquatic Vegetation	None.
Protection:	
Wind -	Exposed to N, NE, E, SE, and S.
Waves -	Very little protection. Large waves develop with strong winds from exposed directions. 2014 Edit: North breakwater added recently
Navigational Aids -	None.
Approach -	Deep water in the area.
Facilities:	
Dock(s)-	90 x 16 ft. cribwork wharf with a plank deck. Last 45 ft. is 3 ft. below approach. Abandoned buildings.

This photo shows the (newer) North breakwater, but not the docks/slips

BISCUIT HARBOUR N-3

SURVEY DATE: (s)	September 23, 1969. Sounding September 30, 1968.
LOCATION:	Lat/Long 51.6135, -96.773
	Section 36 Township - 30 Range - 5
Regional	West shore of Lake Winnipeg on the northeast corner of Biscuit Bay 2 1/2 miles southeast of Pine Dock.

HARBOUR DESCRIPTION :

Physical Characteristics -	Small harbour behind a shingle bar which extends off the mainland.
Size -	1.9 acres (Could easily be expanded to 2 1/2 acres).
Depth -	5 to 10 ft.
Orientation -	South. Entrance west.
Bottom -	Silty clay, shingle, some organic.
Aquatic Vegetation	No problem in the harbour.

Protection:

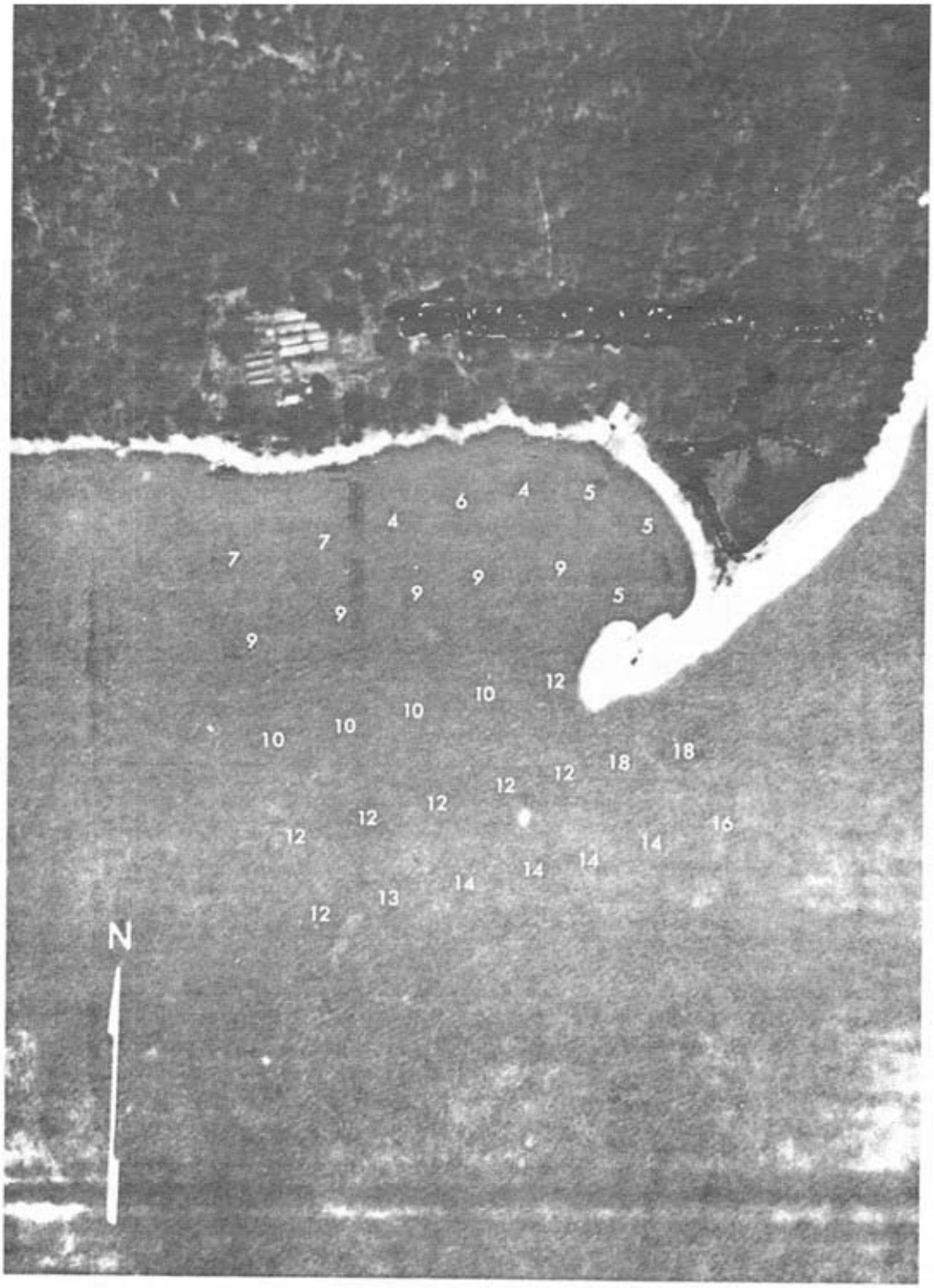
Wind -	Exposed to NE, E, SE, S and SW.
Waves -	Exposed to SW. Partial exposure to S.

Navigational Aids - None.

Approach - No problem, deep water immediately offshore.

Biscuit Harbour. This harbour is adjacent to the main water route through the narrows and could serve as an excellent emergency shelter.

Biscuit Harbour. Note the inner pressure ridge.


6
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12
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18
18
12
12
12
12
16
12
14
14
14
13
14
12
N
BISCUIT HARBOUR
0
150
300
Scale in feet

LOON DOCK N-4

SURVEY DATE: (s) Soundings
LOCATION : Lat/Long 51.591, -96.608
Section - 27, 34 Township - 30 Range - 7
Regional - East shore of Lake Winnipeg approximately 6 miles east of Calders Dock.

HARBOUR DESCRIPTION:

Physical Characteristics - Harbour formed by mouth of creek and a bedrock peninsula.
Size - Main harbour 5.6 acres. Creek 3.8 acres.
Depth - 8 to 18 feet.
Orientation - South west
Bottom - Silty clay and sand.
Aquatic Vegetation No problem some in the creek and in the back of the bay.

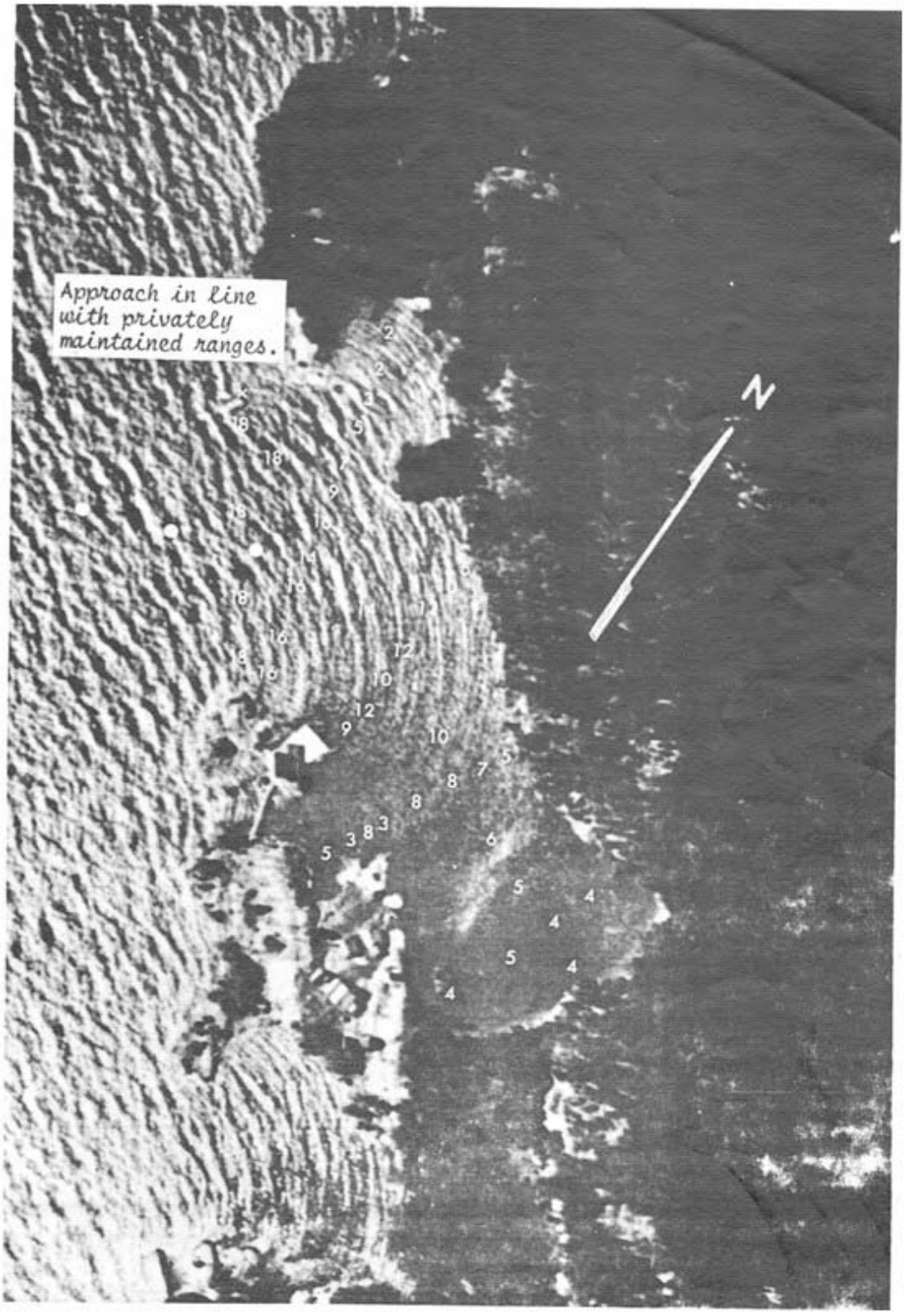
Protection :
Wind - Almost - all-weather protection. Slight exposure to a NW to W wind.
Waves - No problem. Reefs and opening protect the harbour.

Navigational Aids - Locally made ranges. Lamps are used at night to guide fish freighters.

Approach - Line up ranges.

Facilities:
Dock (s) - 50 ft. long loading dock. Assorted pole-pile type for yawls.

Loon Dock. This is one of the finer natural harbours along the east shore.


Approach in line with privately maintained ranges.
N

GRANITE QUARRY N-5

SURVEY DATE: (s) September 24, 1969. Soundings October 1, 1968.
LOCATION: Lat/Long 51.5955, -96.613
Section - 34 Township - 30 Range - 7

Regional – East shore of Lake Winnipeg approximately 6 miles east of Calders Dock and 1/4 mile north of Loon Dock.

HARBOUR DESCRIPTION:

Physical Characteristics: Large bay which is protected by a number of islands and reefs.
- Size:- 29.4 acres. Depth:- 5 to 12 ft.
- Orientation:- Southwest.
- Bottom :- Silty clay, sand and some organic materials.
- Aquatic Vegetation Only minor occurrences.

Protection:
- Wind - Some exposure to W and SW. No problem because of the variety of sheltered locations within the harbour.
- Waves - Very little wave activity in the harbour.

Navigational Aids - None.

Approach - Approach from south west, north approach takes on over reef that is always submerged.

Facilities:
Dock(s) - Almost nonexistent log-plank construction 170 x 9 ft. dock.

Granite Quarry. Ranges provide easy daytime access to this all-weather harbour.

Granite Quarry. Scenic rocky shield topography enclose this harbour. It is to be noted that the approach shown to be disregarded; approach from the south of the Islands

Granite Quarry. Abandoned fish station. The former Quarry loading site can be seen in the background

PINE DOCK N -6

SURVEY DATE: (s) September 23 1969. Soundings September 20, 1968.
LOCATION : Lat/Long 51.639, -96.807
Section - 2 Township - 31 Range - 5

Regional - West shore of Lake Winnipeg approximately 50 miles north of Riverton via P.T.H. 234.

HARBOUR AUTHORITY

Pine Dock Harbour Authority, MB Pine Dock
General Delivery
MB R0C 1V0
Phone: (204) 276-2064

HARBOUR DESCRIPTION:

Physical Characteristics- Harbour formed by wharf extending off the mainland.
- Size - .5 acres (3 1/2 acre lagoon west of wharf).
- Depth - 5 to 18 ft.
- Orientation - Southeast
- Bottom - Silty clay and shingle.
- Aquatic Vegetation None.

Protection :
- Wind - Exposed to NE, E, SE, S and SW.
- Waves - Exposed to E, SE, S, and SW. Strong winds from exposed directions create large waves.

Navigational Aids - Pole light on the end of the wharf.

Approach - No problem, deep water immediately offshore. Large offshore reefs just south of approach line.

Facilities:
- Dock(s) - 125 x 19 ft. Cribwork with a plank deck.
- Others - Fish shed and ice house, school, grocery store and MTS. Shell gas and oil at P.T.H. 234. Pine Dock Junction (1/2 mile).

Pine Dock. The exposed location and limited size of this dock make it unsuitable for overnighting.

Pine Dock. This well protected lagoon could provide all-weather shelter for craft, were there a channel.

WALKERS HARBOUR N-7

SURVEY DATE : (s) September 24, 1969. Soundings October, 1968.

LOCATION: Lat/Long 51.654, -96.692
Section - 16 Township - 31 Range - 6

Regional - East shore of Lake Winnipeg approximately 4 1/2 miles east of Pine Dock.

HARBOUR DESCRIPTION:

Physical Characteristics - Large bay enclosed by bedrock controlled upland and an island at the entrance to the harbour.

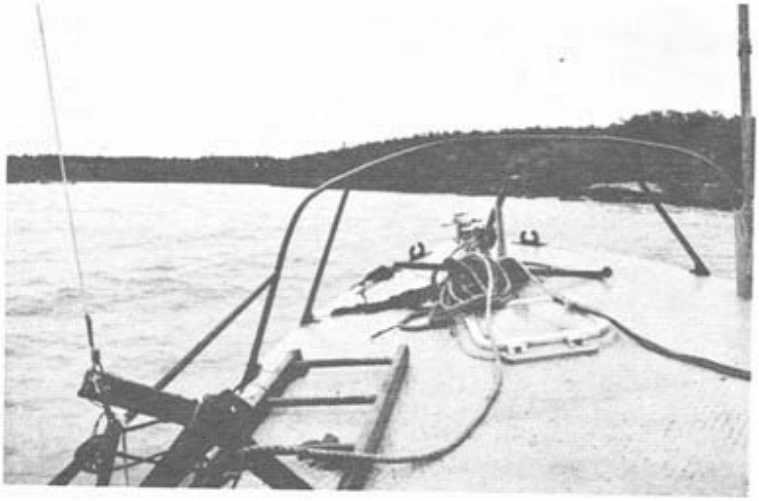
- Size - 35.6 acres.
- Depth - 5 to 12 ft.
- Orientation - Southwest.
- Bottom - Silty clay and organic materials.
- Aquatic Vegetation Dense at the north end.

Protection:

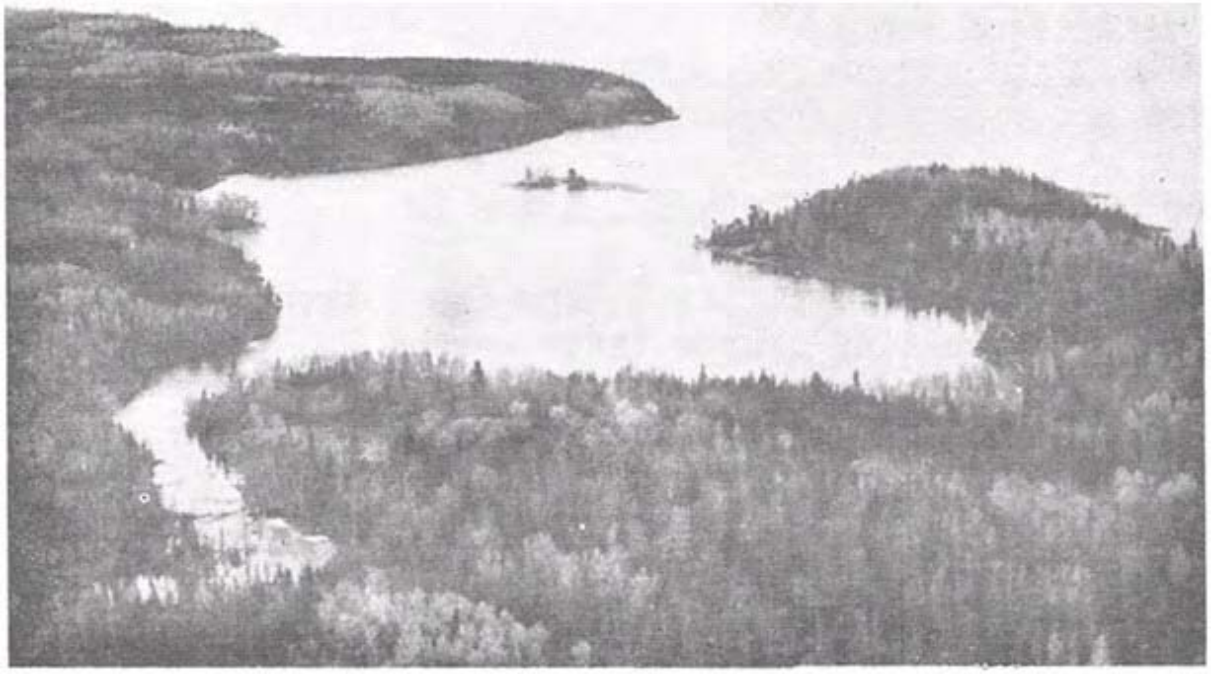
- Wind - Slight exposure to the W and SW.
- Waves - All-weather protection, except at the entrance which is exposed to W and SW.

Navigational Aids - None.

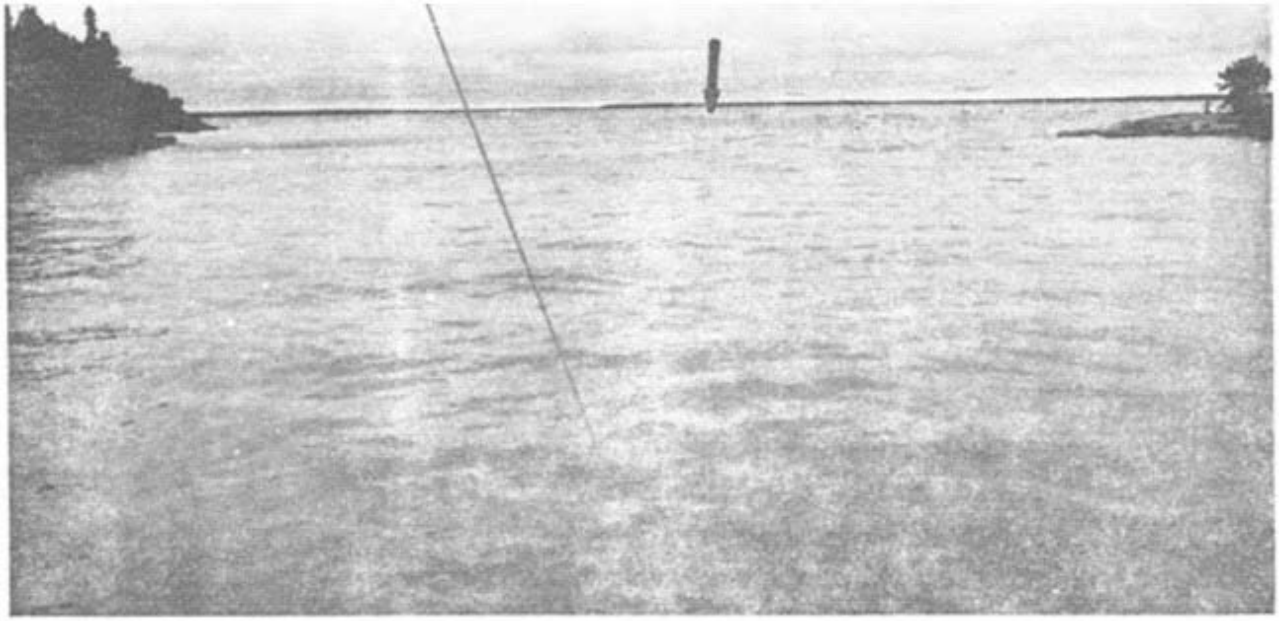
Approach - SW course on the south side of the island to miss off-lying reef.



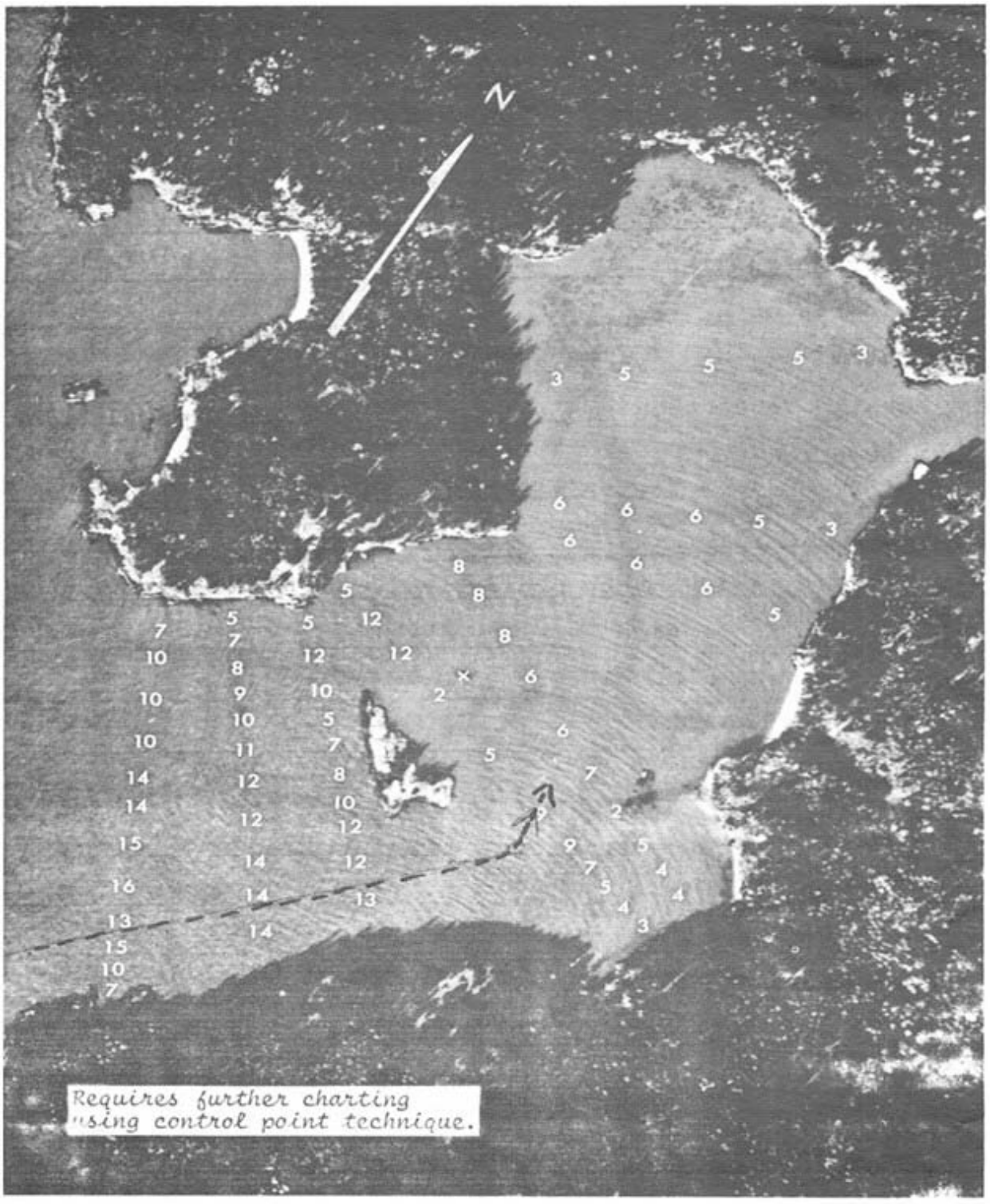
Walkers Harbour. Boats must be careful to keep close to the south side of the entrance.



Walkers Harbour. This is one of the largest all-weather harbours. Scenic surrounding topography provides a completely different atmosphere compared to the adjacent open lake.



Walkers Harbour. Offshore reefs completely protect the entrance to the harbour.



WALKERS HARBOUR

0 300 600
Scale in feet

* see legend

Note: approach as shown; extensive weeding to rear of cove.

HECTORS SOUTH N-8

SURVEY DATE: (s) September 24, 1969. Soundings October 1, 1968.

LOCATION: Lat/Long 51.6666, -96.709
Section -(s) 16, 21 Township - 31 Range - 6

Regional - East shore of Lake Winnipeg. 1 mile northwest of Walkers Harbour and 4 miles northeast of Pine Lock.

HARBOUR DESCRIPTION:

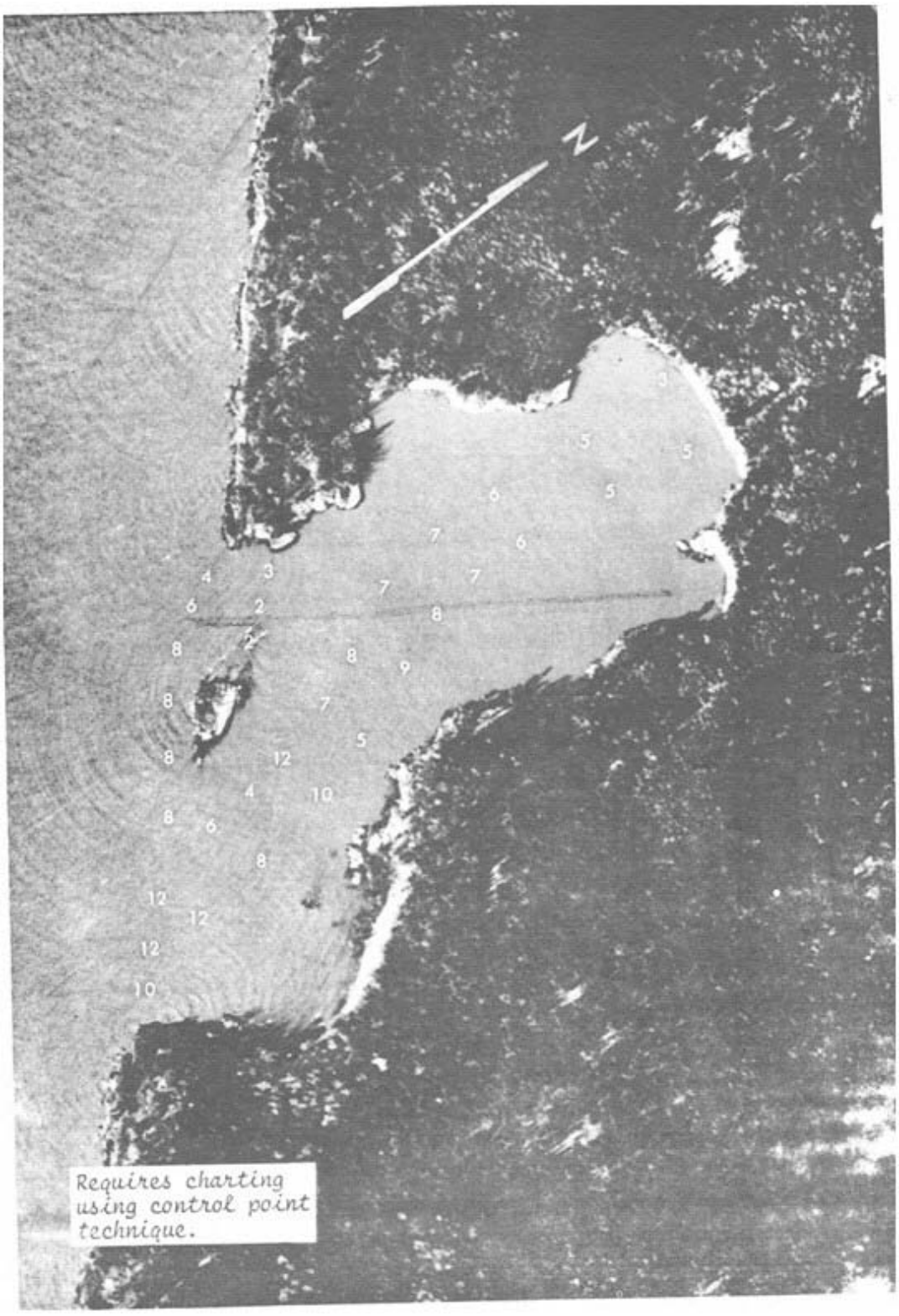
Physical Characteristics - Bay enclosed by bedrock upland and an island at the entrance.
- Size - 10 acres.
- Depth- 5 to 12 ft.
- Orientation - Southeast.
- Bottom - Silty clay and sand.
- Aquatic Vegetation Minor occurrences.

Protection:
- Wind - Exposed to S and SW. Partial exposure to the W.
- Waves - Island in the center of the entrance prevents large wave build up.

Navigational Aids - None.

Approach - No. problem. South approach on the east side of the entrance island.

Hectors South. While this bay is somewhat exposed to south winds, offshore reefs and the island protect vessels inside from heavy wave action.


N
Requires charting using control point technique.

HECTORS HARBOUR N - 9

SURVEY DATE: (s)	Soundings September 24, 1969.
LOCATION:	Lat/Long 51.671, -96.7172
	Section - 19 Township - 31 Range - 6
Regional –	East shore of Lake Winnipeg 4 miles northeast of Pine Dock and 1 1/2 miles northwest of Walkers Harbour.

HARBOUR DESCRIPTION:

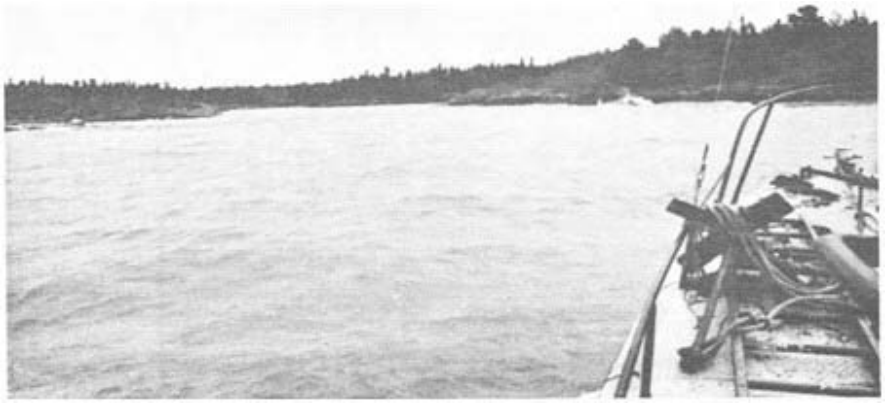
Physical Characteristics -	Long narrow winding inlet enclosed by bedrock uplands and reefs.
Size-	13.8 acres (about 1/2 has dense aquatic growth).
Depth -	5 to 15 ft.
Orientation -	Southwest
Bottom -	Silty clay and organic materials.
Aquatic Vegetation	Dense towards the back of the bay.

Protection:

Wind -	All-weather protection. Entrance is exposed to W, SW and S.
Waves -	Same as Wind. Wind conditions make the reefs more usable.

Navigational Aids - None.

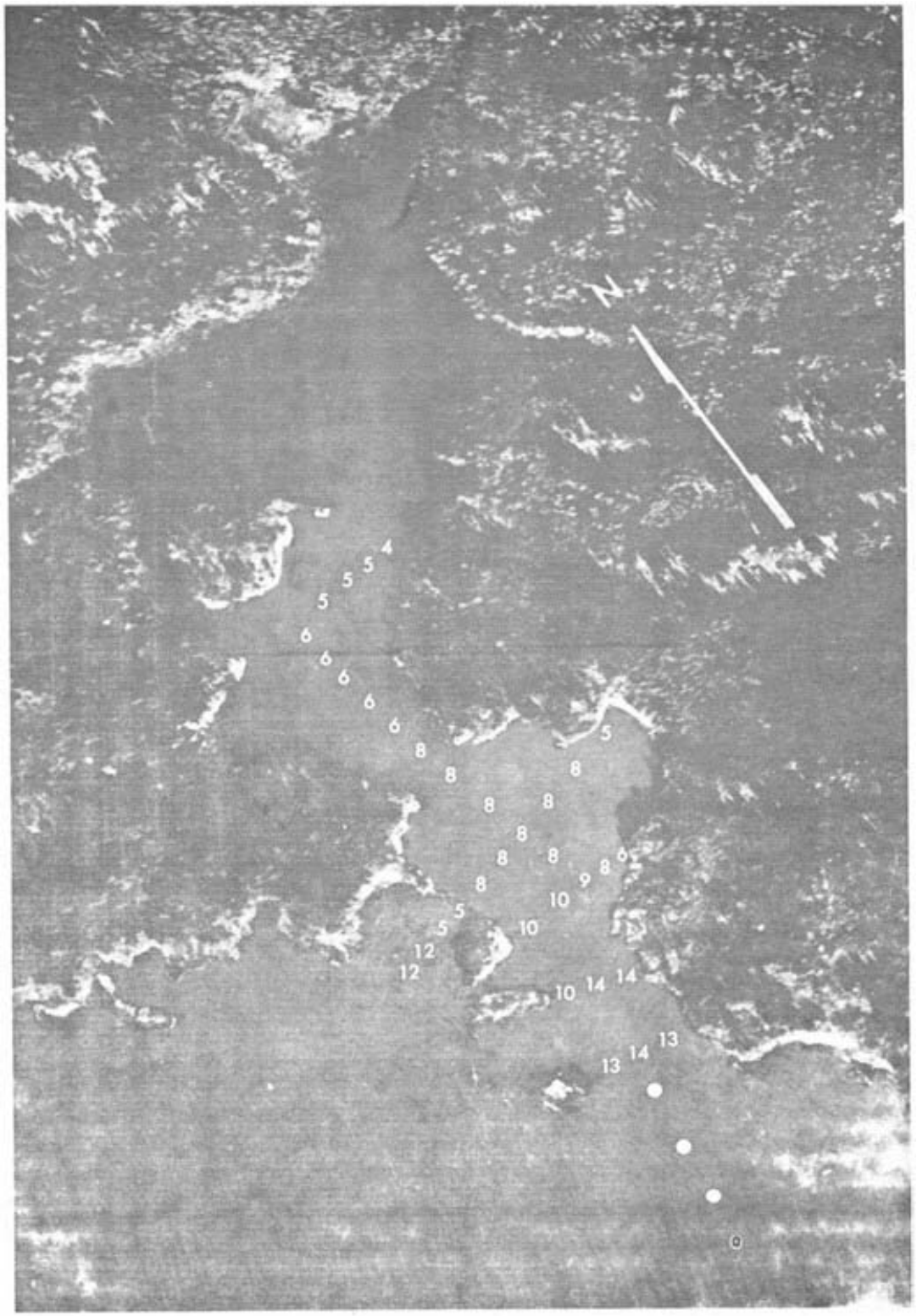
Approach - No problem. South on the east side of the island and reefs.



Hectors Harbour. Approximate approach course into the harbour.

Hectors Harbour. This is another excellent all-weather harbour.

Hectors Harbour. A series of islands and reefs make access to this harbour look difficult. actual fact they protect a deep channel and the mouth of the harbour.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13
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HECTORS HARBOUR
0
300
600
Scale in feet
* see legend

COLLINS HARBOUR N-10

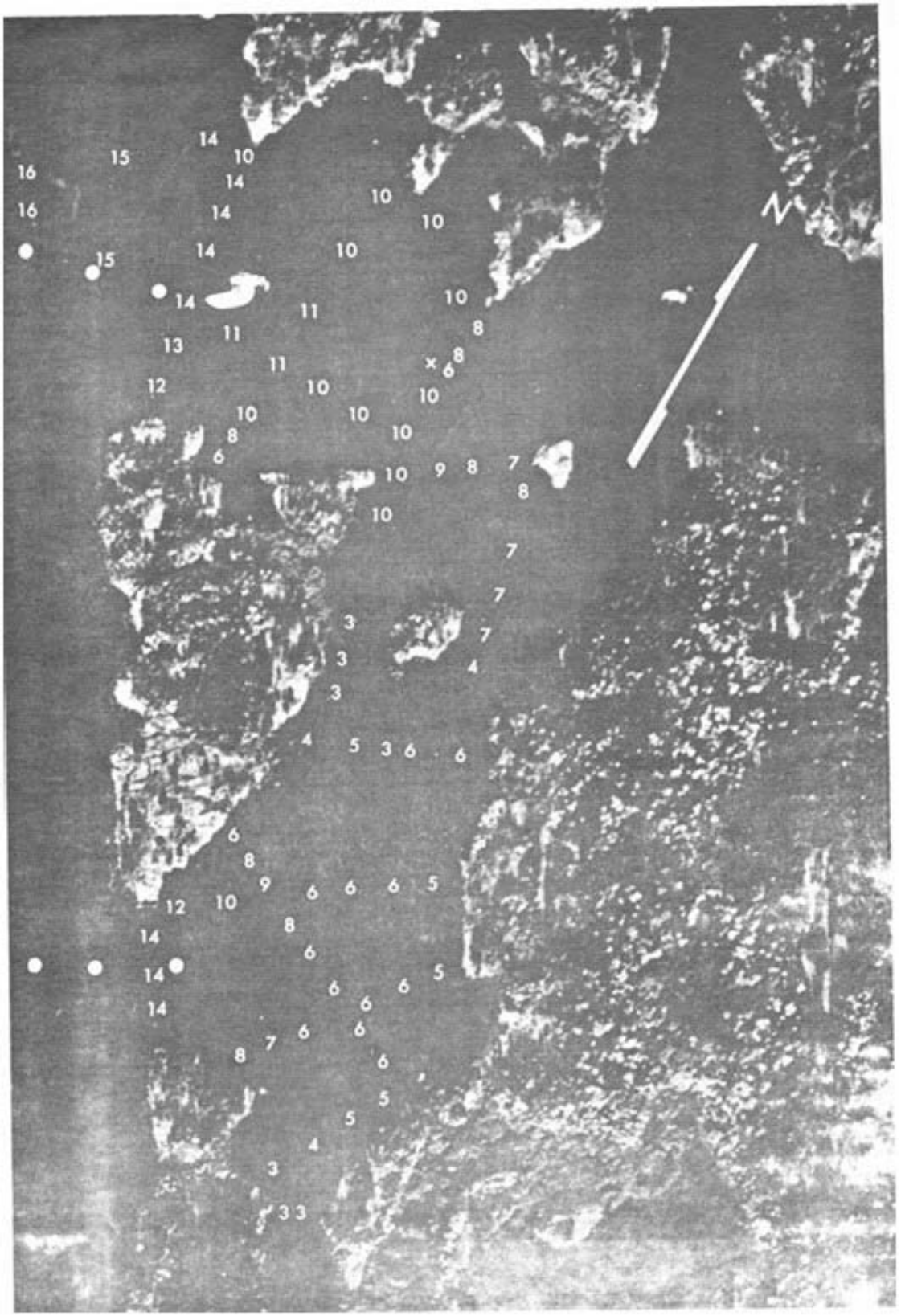
SURVEY DATE : (s)	Soundings September 20, 1968, September 24, 1969
LOCATION :	Lat/Long 51.6883, -96.743
	Section -(s) 30, 31 Township - 31 Range - 6
Regional -	East shore of Lake Winnipeg. 6 miles east of Little Bullhead Bay cottage subdivision.

HARBOUR DESCRIPTION:

Physical Characteristics -	Mainland area protected by numerous islands and reefS.
Size -	40 acres (1/4 has dense aquatic vegetation). Depth - 7 to 14 ft.
Orientation -	Southwest.
Bottom -	Silty clay and organic materials.
Aquatic Vegetation	Dense in the back of the bays.
Protection:	
Wind -	All-weather protection. A few areas are slightly exposed to W and SW.
Waves -	Very little wave activity behind the islands. Navigational Aids - None.
Approach -	Southwest approach on either side of large center island as shown on attached photo.

Collins Harbour. This is one of the most scenically attractive harbours on the east shore.

Collins Harbour. An old cabin and beach are part of the back portion of this sheltered area.


N

LITTLE BULLHEAD N - 11

SURVEY DATE: (s)	Soundings September 20, 1968.
LOCATION :	Lat/Long 51.6745, -96.838
	Section -(s) 2, 3 Township - 31 Range - 5
Regional -	West shore of Lake Winnipeg approximately 53 miles north of Riverton via P.T.H. 234.

HARBOUR DESCRIPTION:

Physical Characteristics -	Large indentation Former shingle bar protection now washed away
Size -	1/4 acre
Depth -	3 to 5 ft.
Orientation -	Northwest.
Bottom -	Silty clay and sand.
Aquatic Vegetation	Minor occurrences.

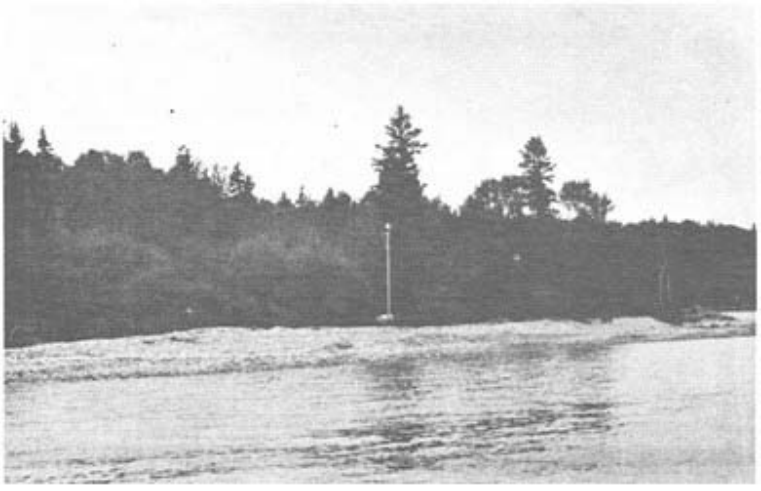
Protection:

Wind –	Exposed to N and NE.
Waves -	Large fetch area available for winds developing from the N and NE.

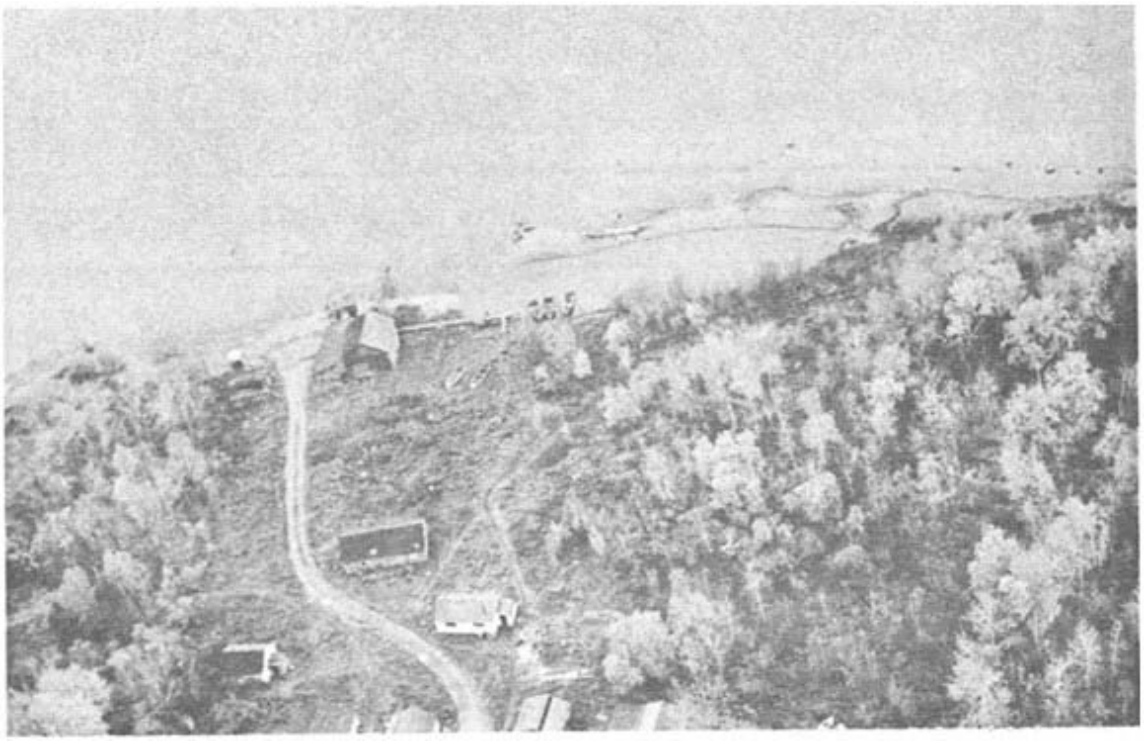
Navigational Aids - None.

Approach - No problem, deep water, and no reefs.

Facilities: Dock (s) - none
Abandoned fish station buildings.



Light on Bullhead Point.



Little Bullhead. Exposure and high water continue to modify the shingle bar and wreak havoc with the dock, now almost gone

Abigail& Little Bullhead. The only nice beach in the region is immediately adjacent this fish station.

TWIN COVES N - 12

SURVEY DATE: (s)	September 24, 1969. Soundings September 20, 1968.
LOCATION:	Lat/Long 51.728, -96.774
	Section - 12 Township - 31 Range -
Regional -	East shore of Lake Winnipeg 6 1/2 miles northeast of Little Bullhead.

HARBOUR DESCRIPTION:

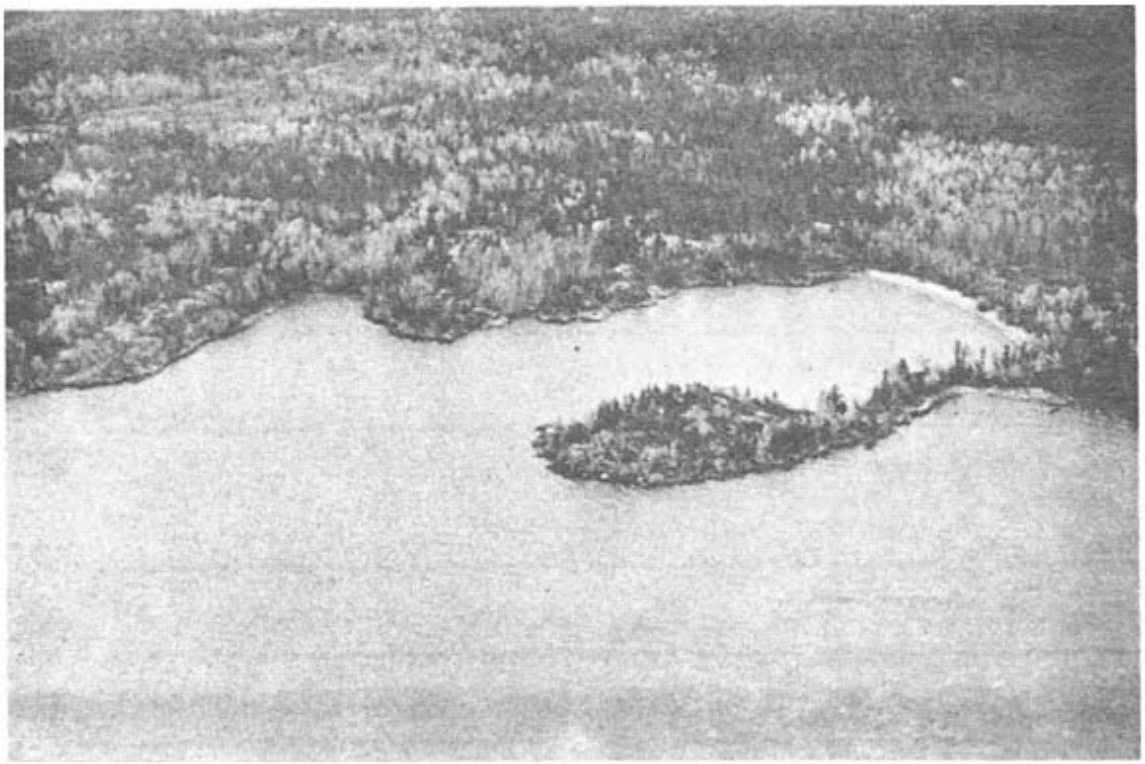
Physical Characteristics -	Two coves protected by bedrock uplands and the irregular shape of the shoreline.
Size -	North 10 acres. South 11 acres.
Depth -	7 to 18 ft.
Orientation -	Southwest.
Bottom -	Silty clay and sand. Some organic material.
Aquatic Vegetation	Dense at the back of the north cove.

Protection:

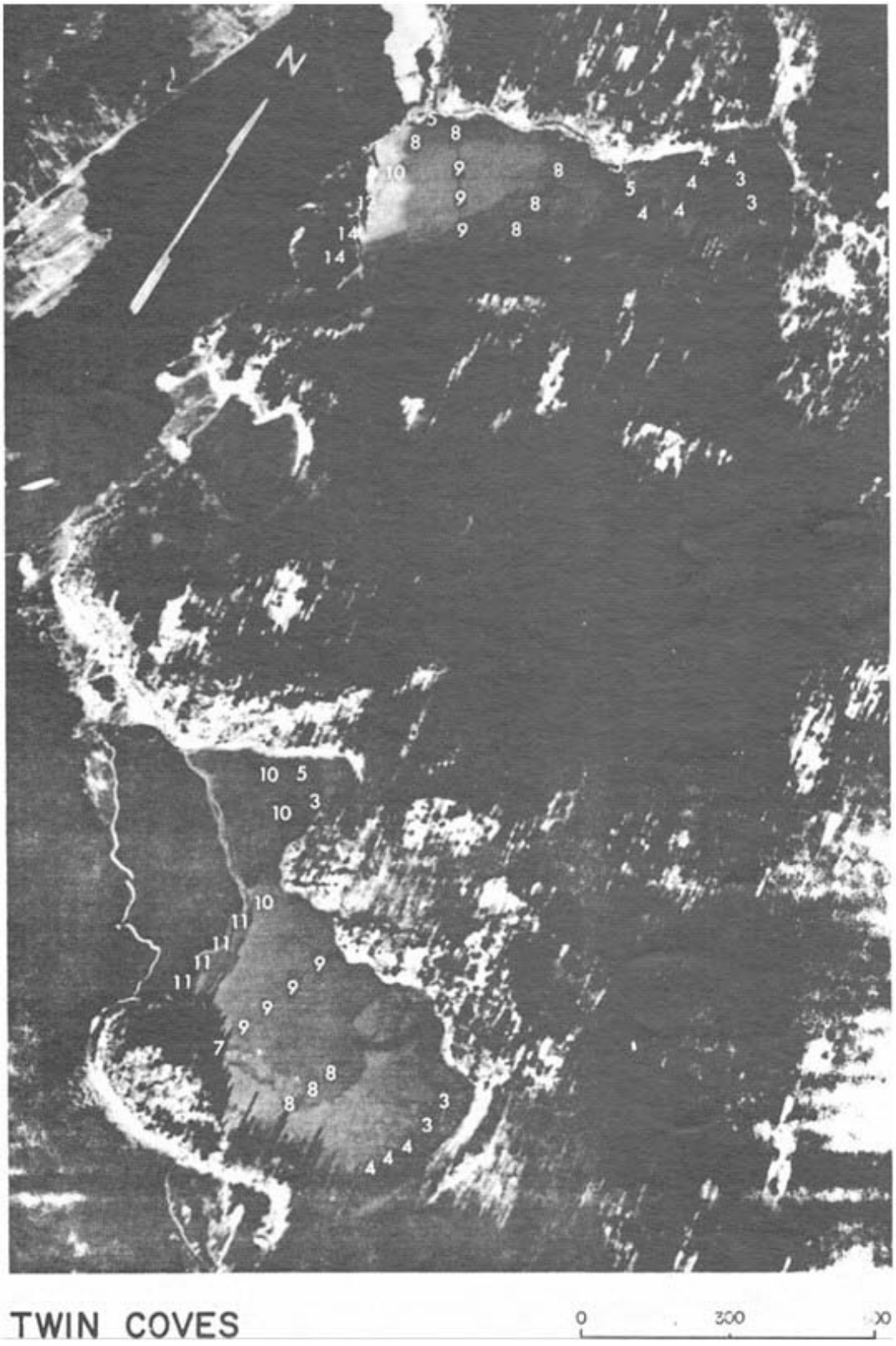
Wind -	North-slight exposure to SW. South - slight exposure to W.
Waves -	Despite the large fetch area in the narrows, waves are limited by the narrow openings of the bays.

Navigational Aids -	None.
Approach -	No problems. North - southwest. South - west.

Twin Coves.



Twin Coves. The southern cove has a large sandy beach. The peninsula provides a damping roam and relief from insects.


N
TWIN COVES
0
300

SEYMOURS HARBOUR N – 13

SURVEY DATE: (s)	September 24, 1969. Soundings September 20, 1968.
LOCATION	Lat/Long 51.742, -96.796
	Section - 11 Township - 32 Range - 5
Regional -	East shore of Lake Winnipeg approximately 1 3/4 miles from West Doghead. 1 1/2 miles northwest of Twin Coves.

HARBOUR DESCRIPTION:

Physical Characteristics -	Long narrow inlet which is part of the complex of islands and bays forming East Doghead.
Size -	9 acres (4 without dense vegetation).
Depth -	7 to 10 ft.
Orientation -	Southwest.
Bottom -	Silty clay and organic materials.
Aquatic Vegetation	Dense throughout the back portion.

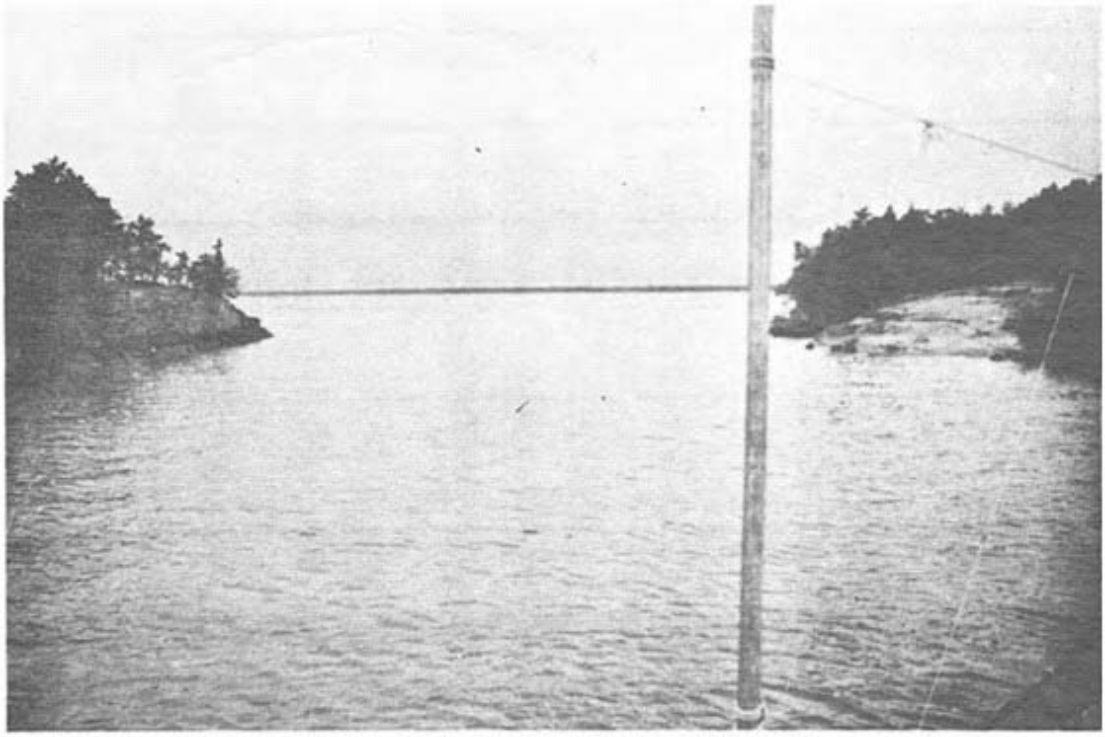
Protection:

Wind -	Slight exposure to SW.
Waves -	No problems. Very little wave action inside the inlet.

Navigational Aids - None. A large high bluff of bedrock marks the south side of the entrance.

Approach - From the southwest against the south shore and towards a large boulder in the back of the bay.

Seymours Harbour. This site provides shelter for only a limited number of boats.



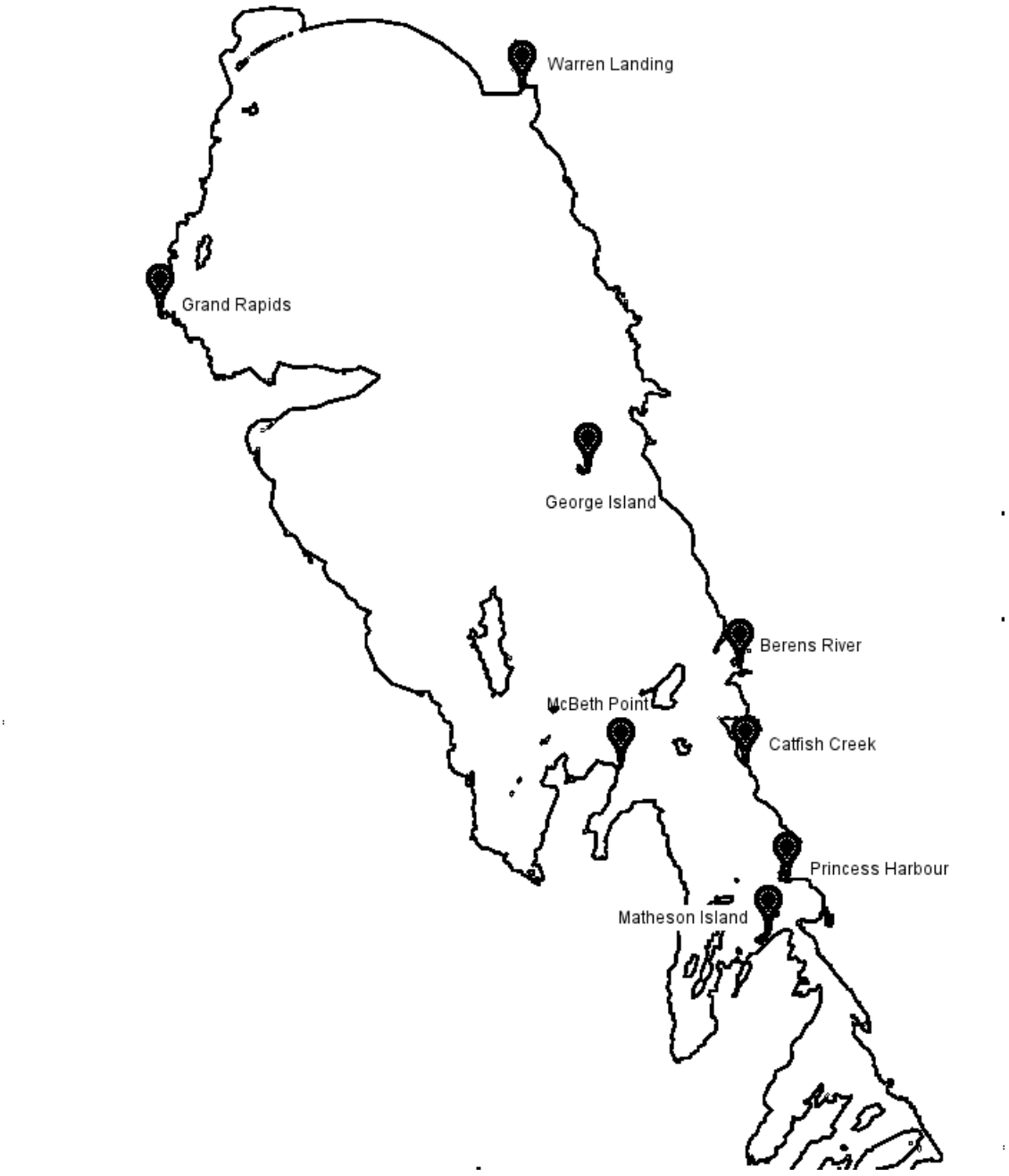
Seymours Harbour. Boaters could easily miss this harbour because of the narrow entrance.

SEYMOURS HARBOUR

0 300 600
Scale in feet

NORTH BASIN

Outline of the North Basin of Lake Winnipeg



From the Narrows to Warren Landing is about 125 Nautical Miles, or 230 Kilometers.

PRINCESS HARBOUR NB-1

LOCATION Lat/Long 51.858, -96.8725

Princess Harbour Community Council
General Delivery
Princess Harbour, MB R0C 2P0
Contact person: Barry Magunsson
E-Mail: bearsinthebush@xplornet.ca
Ph: (204) 276-2446

Photo needed.

BLACK BEAR HARBOUR – NB-2 - *Potential Harbour*

LOCATION Lat/Long 51.77, -96.911

This is a potential harbour site, that needs further investigation. It seems to have been used as a harbour in the past by commercial fishermen, who have moved on – some possibly to Matheson Island. The depth of water may not support a deep-draft sailboat, but the location and protection from long fetches in all directions but south seem to warrant further investigation. The size of the harbour and proximity to Matheson Island for provisioning while offering solitude or company of like-minded sailors seem a promising combination.

Please submit all updates to the author, contact listed on Page 6.

Note: The lighthouse built in 1898 on Black Bear Island is now on display at the Selkirk Marine Museum. see http://www.lighthousefriends.com/light.asp?ID=1710

MATHESON ISLAND NB-3

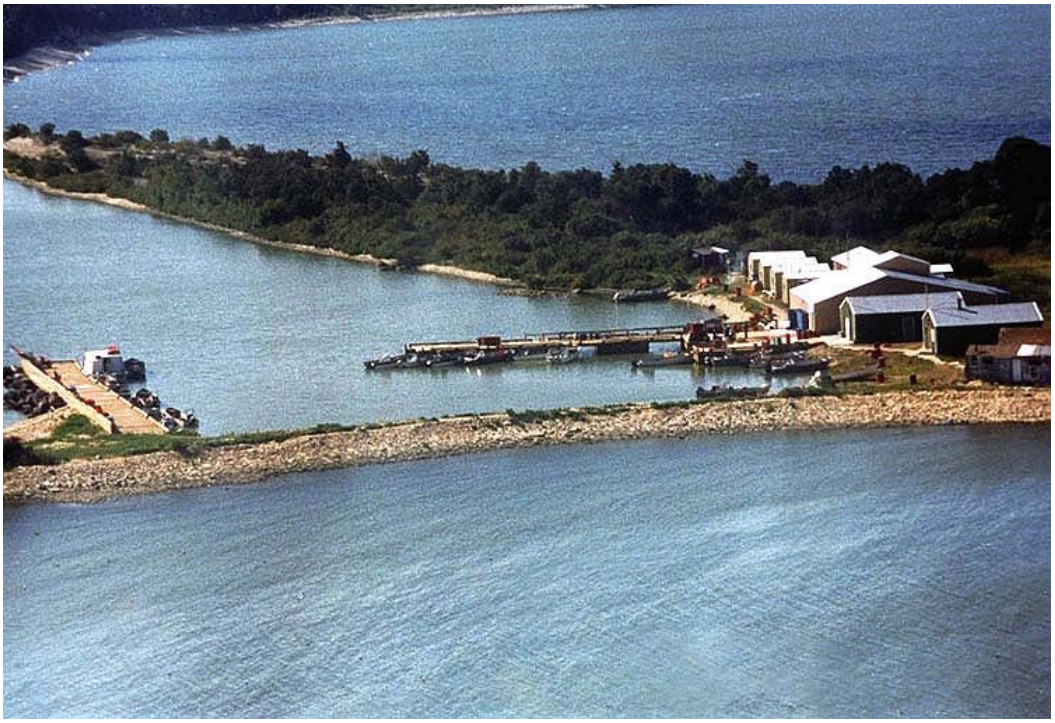
LOCATION Lat/Long 51.742, -96.919

Matheson Island Harbour Authority, MB Matheson Island
General Delivery
MB R0C 2A0
Phone: (204) 276-2150
(204)276-2196

MCBETH POINT NB-4

LOCATION Lat/Long 52.128, -97.4922

McBeth Point Harbour Authority Corporation, MB Koostatak
P.O. Box 116
MB R0C 1S0
Phone: (204) 645-2117



BERENS RIVER NB-5

LOCATION Lat/Long 52.364, -97.094

Berens River
Box 63
MB R0B 0A0
Phone: (204) 382-2273

CATFISH CREEK – NB-6

LOCATION Lat/Long 52.131, -97.018

Matheson Island Harbour Authority, MB Matheson Island
General Delivery
MB R0C 2A0
Phone: (204) 276-2150
Email: (204)276-2196

GEORGE ISLAND – NB-7

LOCATION Lat/Long 52.816, -97.6183

George Island Harbour Authority Corporation, MB Gimli
P.O. Box 1881 MB R0C 1B0
Email: kristjansonfish.com

GRAND RAPIDS RESERVE NB-8

LOCATION Lat/Long 53.1827, -99.255

Grand Rapids Fishermen's Cooperative Ltd., MB Grand Rapids
P.O. Box 20
MB R0C 1E0
Phone: (204) 639-2323

References Cited:

Original work published and created by S. Whitley; Publication of Gimli Yacht Club

Fisheries and Oceans Canada; Harbour Authorities – Manitoba
http://www.dfo-mpo.gc.ca/sch-ppb/list-liste/ha-ap-eng.asp?p=mb
Images and Information on Harbour Authorities in Lake Winnipeg MB

Manitoba Hydro – Lake Winnipeg Regulation
http://www.hydro.mb.ca/corporate/water_regimes/lake_wpg_regulation.shtml
Historical Lake Winnipeg water levels

Transport Canada
http://www.tc.gc.ca/eng/marinesafety/debs-obs-equipment-size-menu-
Minimum Safety Equipment Required for the Size and Type of your Pleasure Craft

STANDARD MARINE DISTRESS SIGNALS

VHF RADIO -156.8 MHz (Ch. I6) call
'MAYDAY' 'MAYDAY' 'MAYDAY'

> 2014 Edit: Information from the Central Region of the Coast Guard tells us that DSC (Digital Select Calling) is not active on the four Lake Winnipeg Coast Guard repeater stations. Use voice on channel 16 for all distress calls.

CB (Ch.9) call
'THIS IS AN EMERGENCY' notify etc.
ELT or EPIRB turn on and leave on

CODE FLAGS
N (November) (blue/white checks) over
C (Charlie) (blue outer panels)
(white inner panels) (red centre panels)
BALL over or under SQUARE (any type ball, over any type cloth)

WHERE TO CALL FOR HELP.
Canadian Coast Guard Emergency - JRCC Trenton 1 800 267 7270
Winnipeg Aeradio (Armed Forces) 786-4157
RCMP (Gimli Detach.) 642-5104
or call Operator and ask for ZENITH 50000

DISTRESS CLOTH orange cloth (72x45") with
black ball and square (18" in size and 18" apart) spread on deck or fly
ARM SIGNAL slowly and repeatedly raise and lower
arms from sides to shoulder height

FLASHLIGHT to signal S.O.S.
(three short flashes, three long flashes, three short flashes)

FLARES
parachute
hand held
rocket (stars)
dye (esp. to mark man overboard)

SOUND SIGNALS
continuous sounding of fog horn, bell whistle, gun, etc. at 60 second intervals