

A PROPOSAL
FOR A
REVISORY SURVEY SCHEDULE
FOR
CENTRAL REGION
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Summary

In 1968 Central Region began a revisory survey program to up-date the charts of the St. Lawrence River, Great Lakes and connecting waterways. It was intended to be a continuing project for one party to systematically revise these 125 charts on a perpetual cycle. Over the past six seasons they have been revised at the rate of from 19 to 24 charts per year. In the past two years 22 and 24 charts have been revised. By the end of 1974 nearly all will have been revised at least once. Those on Lake Ontario and Upper St. Lawrence River will have been revised twice. With this performance history it is now possible to plan a continuing program to keep these charts up-dated. This new plan assumes that both the Verity and the Vedette will be available for revisory work in the future.

Besides these charts Central Region has responsibility for charts in Hudson Bay and in scattered areas from Lake Winnipegosis to Lake Memphremagog. These charts are all inaccessible to the Verity and the Vedette. Of this bunch only about 40 are worth considering for revision. The others are either of a provisional nature or have been compiled from reconnaissance type surveys or from data supplied by Provincial or private agencies. None of the charts in Hudson Bay is of a quality to warrant a revisory survey. (See Appendix "b")

This paper is an attempt to organize our future revisory surveys into a cyclical pattern. Two alternative schedules are outlined.

Revisory production in the past two years was a little above the six-year average presumably because most of the charts covered had been revised previously in 1968 and 1969. Obviously the charts that have been revised most frequently or most recently should be the simplest and the quickest to deal with in the future. This trend has been projected into 1974 when 50 charts are scheduled to be revised by the Verity and the Vedette. For purposes of this proposal 25 charts is taken as a representative estimate of one launch-year's production. (We are assuming that no technical innovations, such as the increased use of aircraft, will be implemented to substantially increase production.)

By dividing 125 charts by 25 charts per launch-year we arrive at a figure of 5 launch-year's work per revisory cycle. For simplicity of organization I have designated these launch-years "A", "B", "C", "D", and "E". Each letter corresponds to a block of 25 charts in a particular locality. (See Appendix "a")

Verity	"A"	Lake Ontario; Upper St. Lawrence River.
Verity	"B"	Rideau Waterway; Lower Ottawa River; Richelieu River; Trent-Severn Waterway; Bay of Quinte; Eastern Georgian Bay.
Vedette	"C"	St. Lawrence River, Montreal to Pte. au Pere.
Vedette	"D"	Lake Erie; Georgian Bay.
Vedette	"E"	Lake Huron; Lake Superior.

Two alternative programs, designated "2-4" and "2-3-6" are presented:

The "2-4" Plan

The 1974 revisory program has already been planned. The Verity will be in the Lower St. Lawrence River revising an area which is nearly identical in limits to our section "C". (In future years section "C" will belong to Vedette.) In 1974 Vedette will be covering the charts approximating our section "E". So for all practical purposes we can list the 1974 plans as follows:

Verity	"C"
Vedette	"E"

Backing up a couple of years we find that areas approximating sections "A" and "B" were revised in the 1972 and 1973 seasons. The logical starting point for this plan in 1975 will be:

Verity "A"
Vedette "D"

And the complete program will look something like this:

Year No.	1	2	3	4	1	2	3	4	1	2	3	4
Date	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Verity	A	B	A	B	A	B	A	B	A	B	A	B
Vedette	D	C	E	C	D	C	E	C	D	C	E	C

This plan has a period of four years for the complete cycle with a two year period for Lake Ontario, the St. Lawrence River and the canal systems. The fourth year is identical to the second.

Because the composition of past years' quotas doesn't match exactly the limits of our proposed sections, there will be some initial frequency irregularities in breaking-in this system. It may be necessary to do a little juggling right at the start to avoid unnecessarily frequent revisions. If the 1974 surveys are completed as planned then we will have a small overlap in the North Channel of Lake Huron. Charts 2257, 2258, 2259, 2268, 2286 and 2294 fall on both the 1974 and 1975 schedules. Because the 1974 plans call for the revision of about 28 charts I would suggest that most, if not all of these charts be postponed until 1975. Several others in Georgian Bay and Lake Superior, which were done in 1970, are planned for 1974 and again for 1977. The remainder of Lake Huron and Georgian Bay, first revised in 1970 and 1971, will be re-done in either 1975, 1976 or 1977. The longest time gap will be 6 years for charts 2235, 2273, 2274, 2289, 2290, 2291, 2292, 2297 and 2298. Except for 2289 which waits from 1970 to 1976, all of these were first revised in 1971 and must wait now until 1977 for their next turn. Many are scheduled to be re-surveyed in the interim so there should be no particular problem.

Other initial breaking-in periods will be:

Lake Ontario - three years for most; four years for the
Bay of Quinte; seven years for 2065, 2067
which are being re-surveyed.

St. Lawrence River	- two years for most; three years for 1409 and 1410.
Lake Erie	- three years.
Lake Superior	- three years.
Canals	- three years.

While it is doubtful that the original make-up of each section will prove to be the ideal size for one launch-year, there should be no problem in transferring a few charts from one section to another. If the work load for the complete cycle should prove to be too great for the two-launch concept then some charts could be omitted from the system. (e.g. 1325, 1326, 1510, 1511, 1512, 1513). These would be shifted to the group in Appendix "b". If on the other hand the work load were found to be too small, then some charts could be revised every year; (e.g. 2065, 2067, 2068, 1340, 1352).

In addition to the fine-tuning to be achieved with chart trade-offs we have the additional flexibility of juggling sections or omitting complete sections for one cycle. For instance, in 1978 Verity could forgo the canal survey and concentrate instead on ranges, picking up the canals again in 1980. Or if some particular need arose, the Vedette could exchange "C" and "D" in 1978 and 1979. The pattern would be resumed in 1980, 90 degrees out of phase with the original, but with the plan's intrinsic integrity intact. In effect we would have accomplished a three year turn-around on "D" (Lake Erie and Georgian Bay) at the expense of the normal two year cycle on "C" (Lower St. Lawrence River), which assumes a temporary three year cycle. Other variations and adjustments are possible.

The "2-3-6" Plan

If the two considerations which were used as a basis of the "2-4" plan, namely that Verity is unsuited to offshore areas of Lake Huron, Lake Superior and the Lower St. Lawrence River, and that Vedette is unsuited to canal work, were disregarded, we could institute a three year cycle on the upper lakes and canals, still keeping a two year turn-around on the St. Lawrence, Lake Ontario Route. The base of this "2-3-6" plan would be the same:

Year No.	1	2	3	4	5	6	1	2	3	4	5	6
Date	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Verity	A		A		A		A		A		A	
Vedette		C		C		C		C		C		C

In fact the first three years would be identical to the "2-4" plan:

Year No.	1	2	3
Date	1975	1976	1977
Verity	A	B	A
Vedette	D	C	E

The fourth year would have the Verity in Lake Erie and Georgian Bay, the fifth would put Vedette in the canals, and the sixth would see Verity in Lake Huron and Lake Superior:

Year No.	1	2	3	4	5	6
Date	1975	1976	1977	1978	1979	1980
Verity	A	B	A	D	A	E
Vedette	D	C	E	C	B	C

The fifth year would look better if we traded Verity's "A" for Vedette's "B", but there would seem to be no simple solution to the sixth year dilemma. But then there are three years before we must commit ourselves to one plan or the other. There may be a solution by them.

The complete "2-3-6" Plan:

Year No.	1	2	3	4	5	6	1	2	3	4	5	6
Date	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Verity	A	B	A	D	B	E	A	B	A	D	B	E
Vedette	D	C	E	C	A	C	D	C	E	C	A	C

The trimming adjustments described for the previous plan would apply equally well to this one.

Conclusion

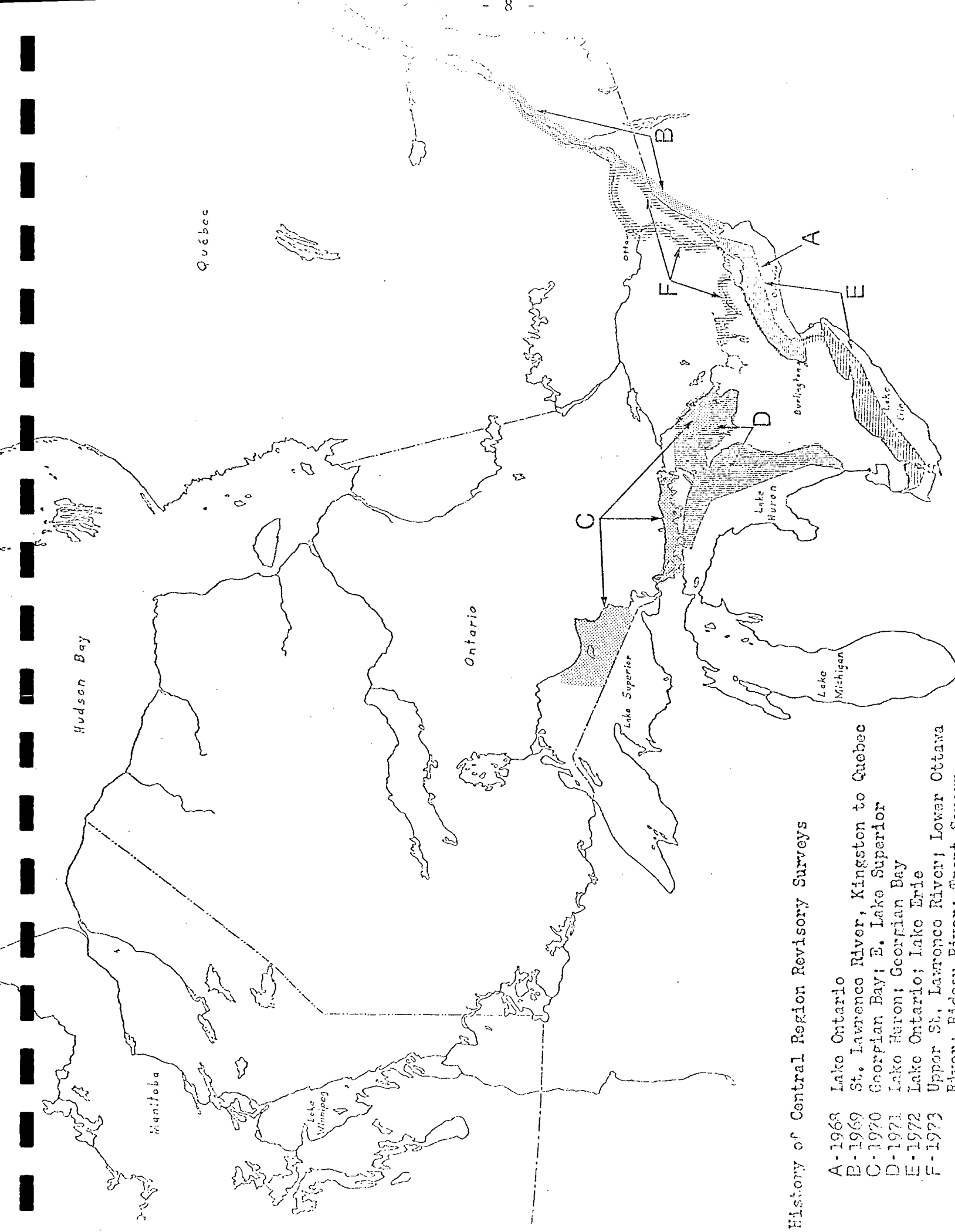
The concept of a cyclical revisory scheme has evolved since 1968 when only one party was envisaged, to today's idea of two continual surveys. The next six years will undoubtedly see further policy changes that will make these plans obsolete. New schemes will be needed to deal with new contingencies and new priorities. In order to make efficient plans for the new conditions it will be necessary to keep a running account of the history of chart revisions.

APPENDIX A

STATISTICS and DIAGRAMS
REVISORY SURVEYS in the GREAT LAKES,
ST. LAWRENCE RIVER
and
CONNECTING WATERWAYS

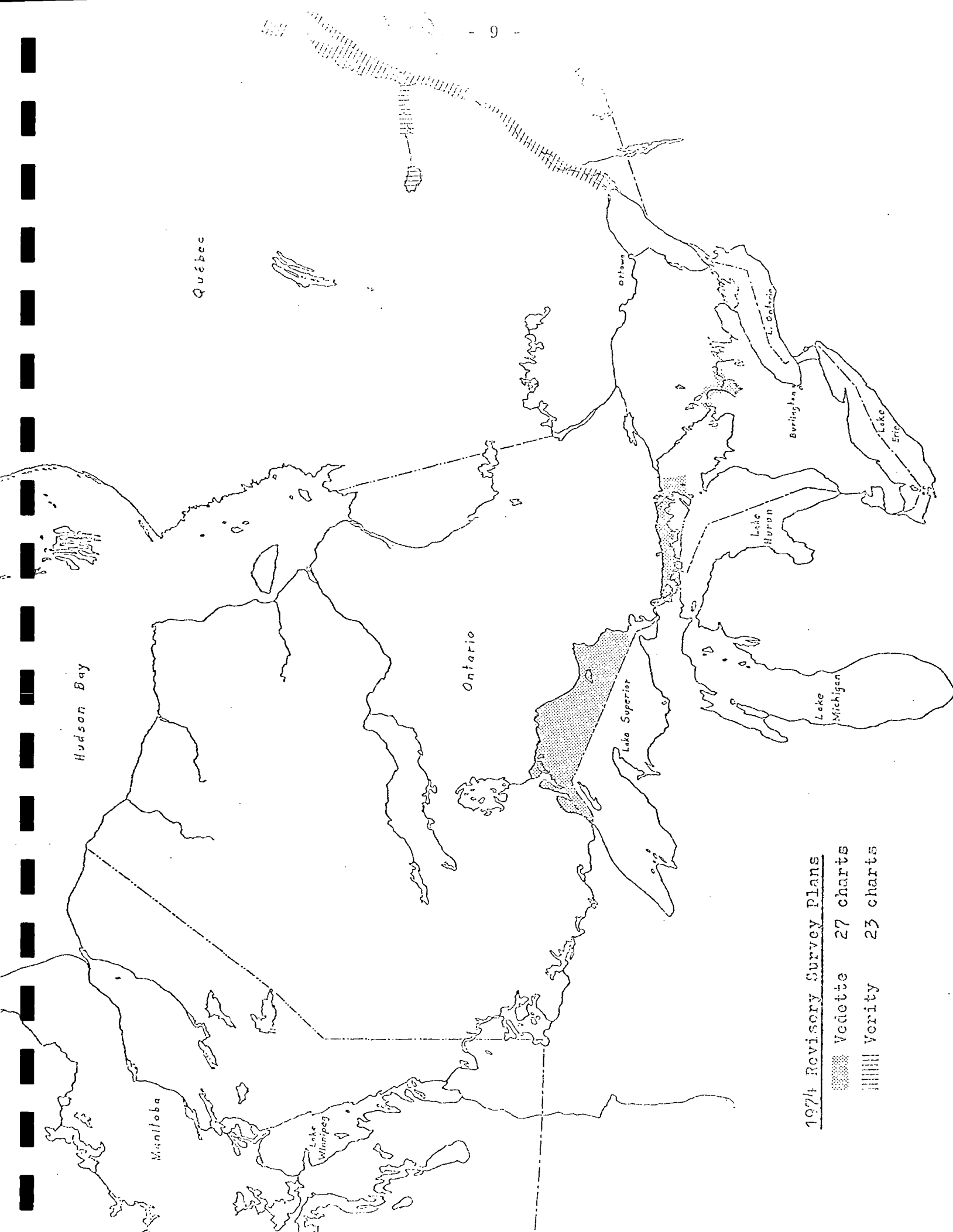
History of Central Region's Revisory Surveys

<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Lake Ontario	St. Lawrence, Montreal to Quebec	Georgian Bay Lake Superior	Georgian Bay Lake Huron	Lake Ontario Lake Erie	Upper St. Lawrence Ottawa River Rideau River Trent-Severn
(19 charts)	(22 charts)	(22 charts)	(19 charts)	(22 charts)	(24 charts)
1421	1321	2203	2201	1459	1340
1459	1333	2222	2202		1352
	1334	2224	2203	2005	
2005	1335	2225	2211	2006	1409
2006	1336	2226	2216	2007	1410
2007	1337	2227	2217	2031	1411
2042	1338	2252	2271	2042	1412
2043	1339	2257	2273	2043	1413
2052	1340	2258	2274	2052	1414
2058	1352	2259	2282	2058	1415
2060		2268	2283	2060	1416
2061	1409	2284	2285	2061	1417
2062	1410	2286	2290	2062	1418
2063	1411	2288	2291	2063	1419
2064	1412	2289	2292	2064	1420
2065	1413	2294	2293	2068	
2067	1414	2295	2296	2069	1510
2068	1415		2297	2070	1511
2069	1416	2305	2298		1512
2070	1417	2307		2100	1513
	1418	2308		2101	
	1419	2309		2110	2021
	1420	2310		2181	2022
				2183	2023
					2024
					2025
					2026



History of Central Region Revisory Surveys

- A-1968 Lake Ontario
- B-1969 St. Lawrence River, Kingston to Quebec
- C-1970 Georgian Bay; E. Lake Superior
- D-1971 Lake Huron; Georgian Bay
- E-1972 Lake Ontario; Lake Erie
- F-1973 Upper St. Lawrence River; Lower Ottawa River; Bidart River; ...



1974 Revisory Survey Plans



	Vedette	27 charts
	Vority	23 charts

Chart list for each of five proposed sections: (25 charts each)

(The last year revised, including 1974 plans, appears in brackets after the chart number)

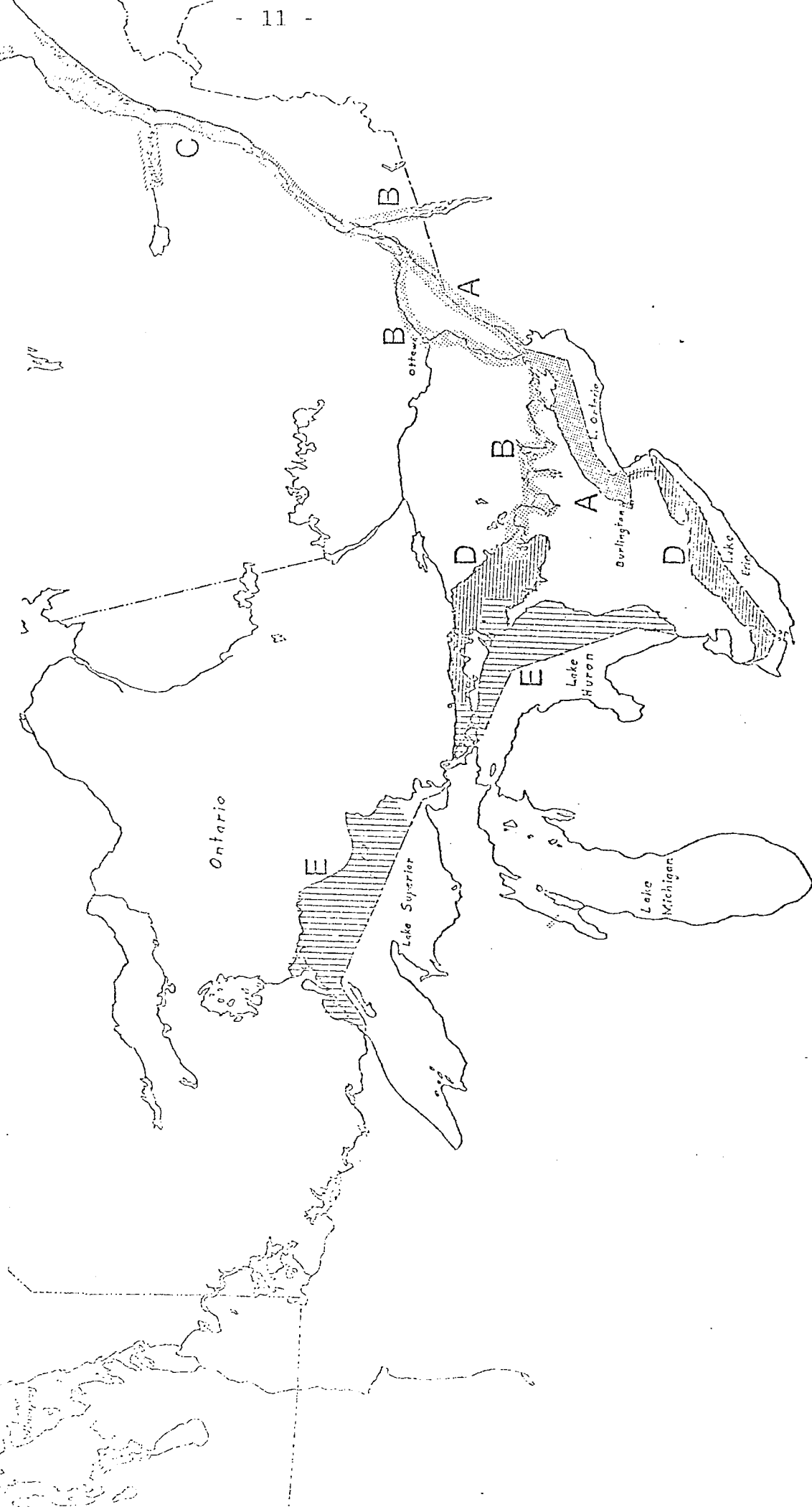
Verity "A" (75, 77, --) Lake Ontario Upper St. Lawrence	Verity "B" (76, 78, --) Rideau River Lower Ottawa Richelieu Trent-Severn Bay of Quinte E. Georgian Bay	Vedette "C" (76, 78, --) St. Lawrence, Montreal to Pte. au Père	Vedette "D" (75, 79, --) Lake Erie Georgian Bay	Vedette "E" (77, 81, --) Lake Huron Lake Superior
1411 (73)	1325 (--)	1201 (74)	2042 (72)	2235 (71)
1412 (73)	1326 (--)	1202 (74)		2273 (71)
1413 (73)		1203 (74)	2100 (72)	2274 (71)
1414 (73)	1510 (73)	1204 (74)	2101 (72)	2288 (70, 74)
1415 (73)	1511 (73)	1207 (74)	2110 (72)	2290 (71)
1416 (73)	1512 (73)	1208 (74)	2181 (72)	2291 (71)
1417 (73)	1513 (73)	1209 (74)	2183 (72)	2292 (71)
1418 (73)		1210 (74)		2295 (70, 74)
1419 (73)	2006 (72)	1217 (74)	2201 (71)	2297 (71)
1420 (73)	2007 (72)	1222 (74)	2203 (71)	2298 (71)
1421 (68)	2015 (74)	1223 (74)	2204 (74)	
1459 (72)	2021 (73)	1230 (74)	2224 (70)	2301 (74)
	2022 (73)	1245 (74)	2225 (70)	2302 (74)
2005 (72)	2023 (73)		2226 (70)	2303 (74)
2043 (72)	2024 (73)	1321 (74)	2227 (70)	2304 (74)
2058 (72)	2025 (73)	1333 (74)	2252 (70)	2305 (74)
2060 (72)	2026 (73)	1334 (74)	2257 (70, 74)	2306 (74)
2061 (72)	2028 (74)	1335 (74)	2258 (70, 74)	2307 (74)
2062 (72)	2029 (74)	1336 (74)	2259 (70, 74)	2308 (74)
2063 (72)	2031 (72)	1337 (74)	2268 (70, 74)	2309 (74)
2064 (72)	2052 (72)	1338 (74)	2271 (71)	2310 (74)
2065 (68)		1339 (74)	2282 (71)	2311 (74)
2067 (68)	2202 (71)	1340 (74)	2284 (70)	2312 (74)
2068 (72)	2211 (71)	1352 (73, 74)	2285 (71)	2313 (74)
2069 (72)	2216 (71)		2286 (70, 74)	2314 (74)
2070 (72)	2217 (71)	1409 (73)	2293 (71)	2318 (74)
	2283 (71)	1410 (73)	2294 (70, 74)	
	2289 (70)			

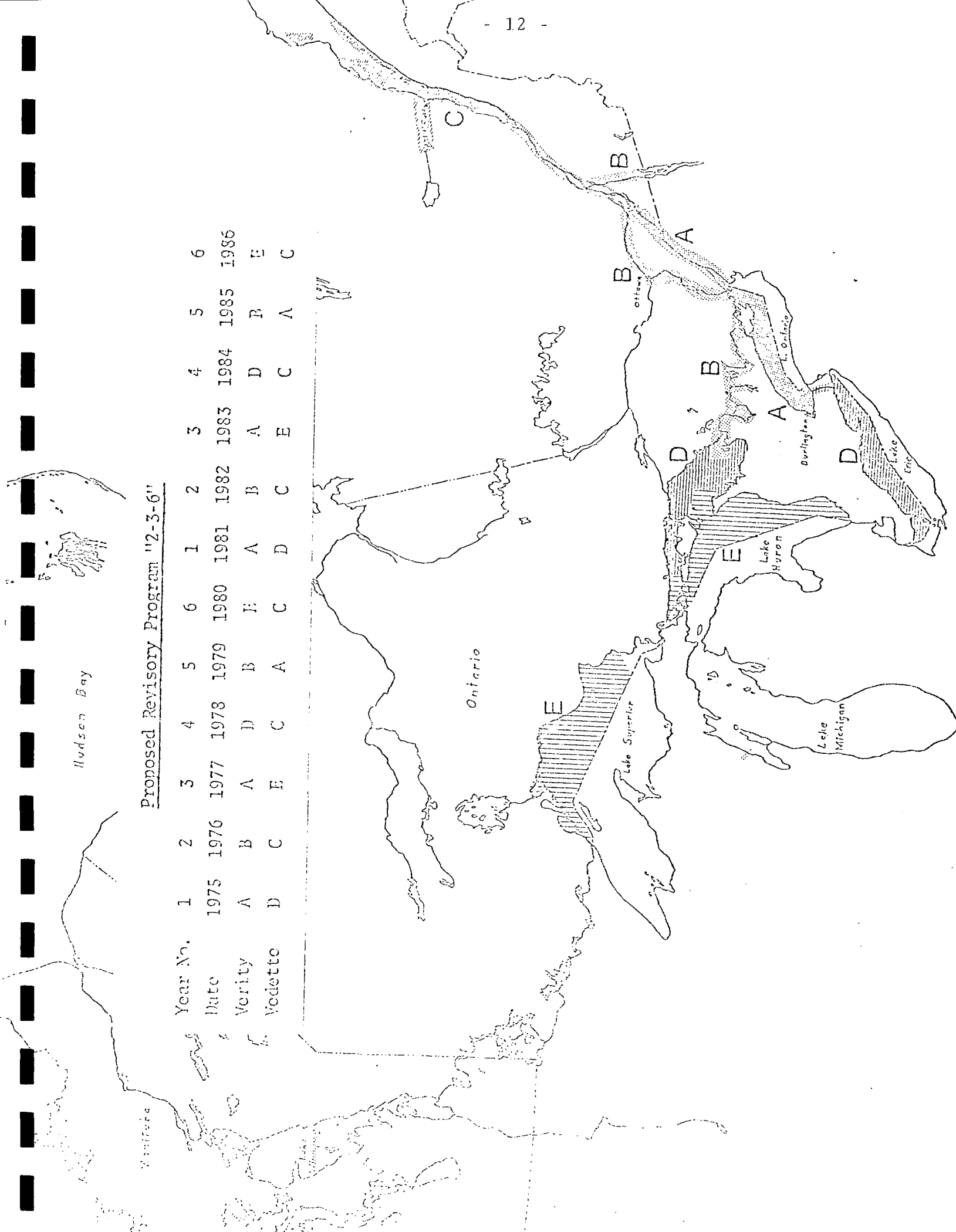
Proposed Revisory Program "2-4"

Year No.	1	2	3	4	1	2	3	4	1	2	3	4
Date	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Verity	A	B	A	B	A	B	A	B	A	B	A	B
Vedette	D	C	E	C	D	C	E	C	D	C	E	C

Proposed Revisory Program "2-4"

Year No.	1	2	3	4	1	2	3	4
Date	1975	1976	1977	1978	1979	1980	1981	1982
Verity	A	B	A	B	A	B	A	B
Vedette	D	C	E	C	D	C	E	C





Proposed Revisory Program "2-3-6"

Year No.	1	2	3	4	5	6	1	2	3	4	5	6
Date	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Verity	A	B	A	D	B	E	A	B	A	D	E	E
Vodette	D	C	E	C	A	C	D	C	E	C	A	C

APPENDIX B

ISOLATED CHARTS

Outside of the Great Lakes and connecting waterways, outside of the range of the Verity and the Vedette, there are about 40 Central Region Charts that may be considered for revision. These charts, which lie in scattered bunches from Lake Memphremagog in Quebec to Lake Winnipegosis in Manitoba, have never been revised. (The remainder of Central Region's charts are concentrated in Hudson Bay. Because these are all of a provisional nature they may safely be excluded from our revisory plans.) Many of the inland charts are also provisional and may be omitted from revisory plans. Others have been compiled from data supplied by Provincial or private agencies. Three of these, 1361, 6023, 6209, could possibly stand revision. These and the other 37 charts that may be revised would probably occupy a single launch party for two years.

While revisory methods are outside the scope of this paper, it may nevertheless be interesting to speculate on the possibilities of operating this revisory survey from an aircraft rather than a survey launch. (A Cessna 180 charters for about \$65 per hour.) If inland charts can in fact be credibly revised from the air, rather than from a boat, then it may be possible to complete this bunch in one year. And if these charts can be done from the air then possibly all of our charts can be done from the air.

There would seem to be no need to repeatedly revise these charts on a rigid schedule. Nor should the work of revising them necessarily interfere with the orderly operation of the Verity and Vedette Surveys. Instead these charts should be tentatively planned to be revised independently every 6 to 10 years when necessity, priorities and budgetary considerations allow.

Following is a list of:

Charts of inland waters that are inaccessible to the Verity and the Vedette but which may nevertheless be considered for periodic revision.

1361	Lake Memphremagog
1550	Ottawa River, Britannia Bay to Chats Falls
1551	Ottawa River, Chats Falls to Chenaux
1555	Ottawa River, Portage-du-Fort to Bryson Dam and Lac du Rocher-Fendu
1561	Ottawa River, Rapides des Joachims to Moose Bay
1562	Ottawa River, Moose Bay to Mattawa

6010 Lac Saint-Jean
6020 A Lake Muskoka
6020 B Lake Rosseau and Lake Joseph
6023 Lake of Bays
6028 Blind River and Lake of the Mountains
6050 Plans in Lake Nipigon

6106 Rainy Lake (Northwest) Northwest Alexandria and Ash Bays
6107 Rainy Lake (Northwest) Hostess Island to Devils Cascade
6108 Rainy Lake (Western) Fort Frances to Hostess Island and Sandpoint Island
6109 Rainy Lake (Central) Sandpoint Islands to Anchor Islands
6110 Rainy Lake (Northern) Redgut Bay
6111 Rainy Lake (Eastern) Seine River, Seine Bay to Sturgeon Falls
6112 Rainy Lake (Southeast) Anchor Islands to Oakpoint Island

6202 Lake of the Woods - Southeastern portion including Sabaskong Bay
6203 Lake of the Woods - Southwestern portion
6204 Lake of the Woods - Northwestern portion including Shoal Lake
6205 Lake of the Woods - Northeastern portion including Whitefish Bay
6209 Brereton Lake
6212 Kenora to Aulneau Peninsula
6218 Kenora, Rat Portage Bay
6242 Red River
6243 Winnipeg River and Approaches
6244 Lake Winnipeg to Whitefish Islands
6245 Nelson River, Playgreen Lake (Whitefish Islands to Norway House)
6246 Nelson River, Playgreen Lake (Lake Winnipeg to Ballard Point)
6248 Observation Point to Grindstone Point
6249 Gull Harbour to Riverton
6251 Red River to Gull Harbour
6267 Grindstone Point to Berens River
6269 Wanipigow River, Entrance to Wanipigow River
6271 Winnipegosis to Red Deer Point, Winnipegosis Harbour
6272 Red Deer Point to North Manitou Island
6273 North Manitou Island to Whisky Jack Island
6274 Whisky Jack Island to Red Deer River