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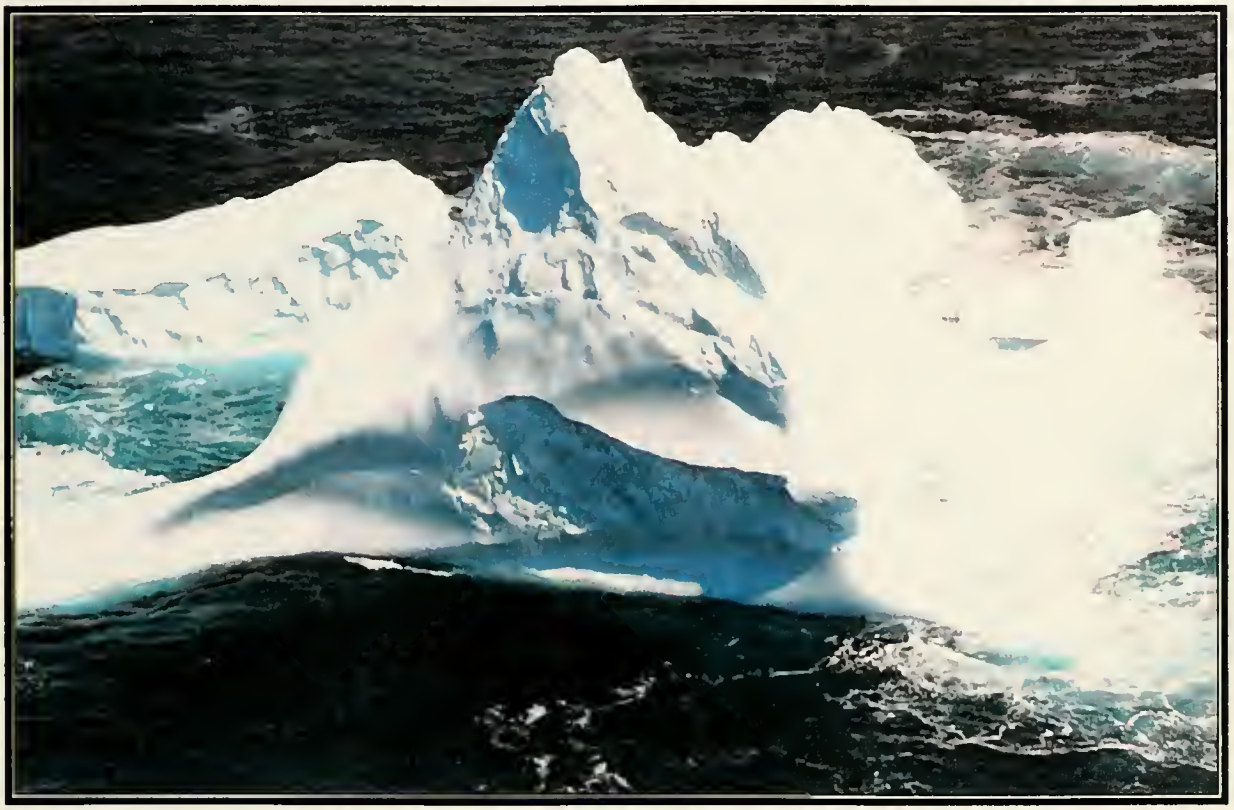
**United States
Coast Guard**

Report of the International Ice Patrol in the North Atlantic



**2000 Season
Bulletin No.86
CG-188-55**

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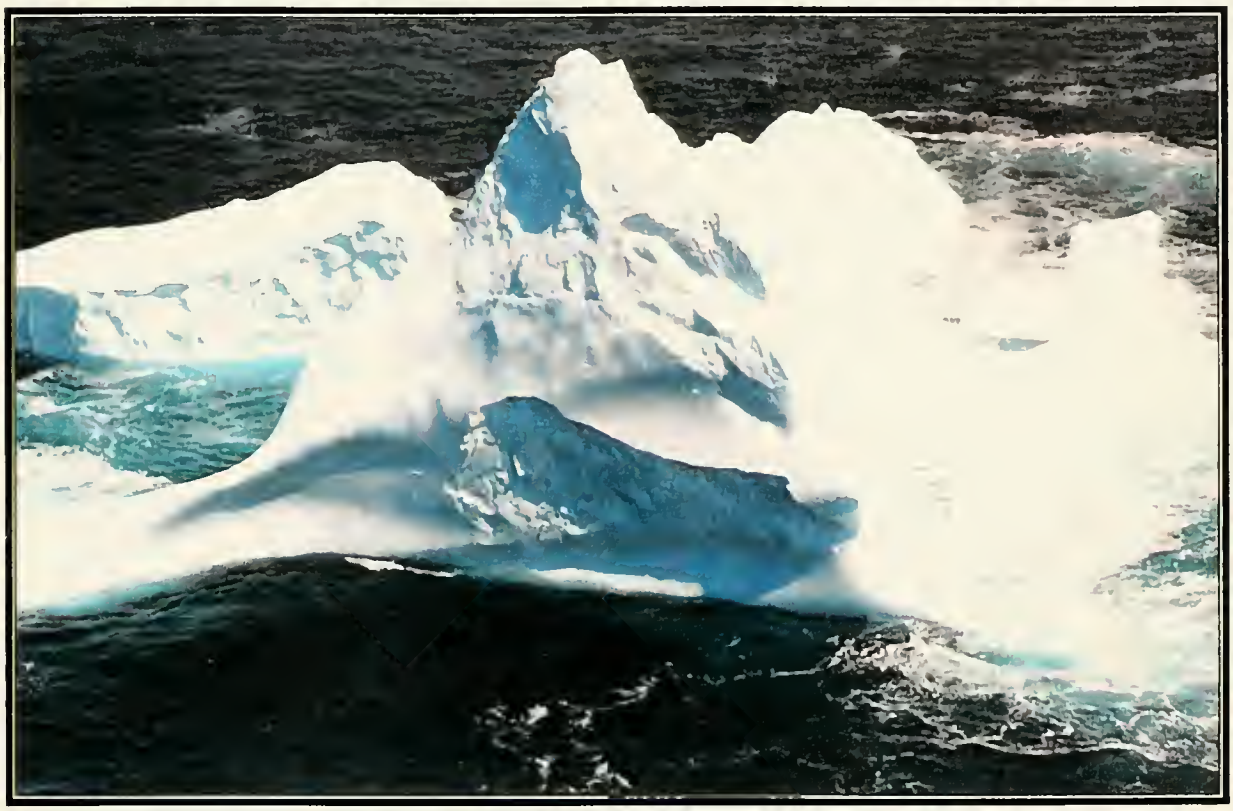
Report of the International Ice Patrol in the North Atlantic



**2000 Season
Bulletin No.86
CG-188-55**

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Bulletin No. 86

REPORT OF THE INTERNATIONAL ICE PATROL IN THE NORTH ATLANTIC

Season of 2000

CG-188-55

Forwarded herewith is Bulletin No. 86 of the International Ice Patrol, describing the Patrol's services, ice observations and conditions during the 2000 season. After an unusually light year in 1999 in which only 22 icebergs found their way south of the 48th parallel north, 2000 once again challenged the Ice Patrol with a "normal" season. The first year of the new millennium saw 843 icebergs cross 48º North to threaten the trans-Atlantic shipping lanes. The International Ice Patrol's efforts were once again successful in protecting vessels that heeded the posted limits of all known ice from collision with icebergs. Unfortunately, iceberg collision did claim a victim inside the limits. The *BCM Atlantic* was lost off the coast of Labrador in March after colliding with a small iceberg. Luckily, the crew was able to take to boats and all hands where successfully rescued. This latest casualty again reminds us just how dangerous a vessel/iceberg encounter can be. Mr. Brian T. Hill of the Institute for Marine Dynamics, National Research Council Canada has compiled a fascinating database of the over 560 iceberg collisions that have been documented in the North Atlantic over the past 200 years. This database builds nicely on a less comprehensive effort completed by Lieutenant Douglas W. Crowell and the Ice Patrol staff originally published as an appendix to Bulletin No. 59 documenting the 1973 season. While the International Ice Patrol does not typically include the works of other agencies in our *Annual Report*, Mr. Hill's work so appropriately aligns with the history, mission and core values of the Ice Patrol, that the opportunity to publish this fascinating documentation on the peril of icebergs at sea was irresistible and wholly appropriate. We extend our sincere thanks to Mr. Hill for the opportunity to present this intriguing article and historic database.

R. L. DESH
Commander, U. S. Coast Guard
Commander, International Ice Patrol

International Ice Patrol
2000 Annual Report

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List of Abbreviations and Acronyms

AXBT	Air-deployed eXpendable BathyThermograph
BAPS	iceBerg Analysis and Prediction
CAMSLANT	Communications Area Master Station Atlantic
CIS	Canadian Ice Service
DFO	Department of Fisheries and Oceans
FLAR	Forward-Looking Airborne Radar
HMCS	Her Majesty's Canadian Ship
IIP	International Ice Patrol
INMARSAT	International Maritime Satellite
IRD	Ice Reconnaissance Detachment
LAKI	Limit of All Known Ice
NIC	National Ice Center
nm	Nautical Mile
SOLAS	Safety Of Life At Sea
SLAR	Side-Looking Airborne Radar
SST	Sea Surface Temperature
WOCE	World Ocean Circulation Experiment

Introduction

This is the 86th annual report of the International Ice Patrol. It contains information on Ice Patrol operations, environmental conditions, and iceberg conditions for the 2000 season in the North Atlantic. Ice Patrol is supported by 17 member nations and conducted by the U. S. Coast Guard. Ice Patrol activities are delineated by U. S. Code, Title 46, Sections 738, 738a through 738d, and the International Convention for the Safety of Life at Sea, 1974. Ice Patrol was initiated shortly after the sinking of the RMS TITANIC on April 15, 1912 and has been conducted yearly since that time with the exception of brief periods during the two World Wars.

Commander, International Ice Patrol is under the operational control of Commander, Coast Guard Atlantic Area. IIP conducts aerial reconnaissance from St. John's, Newfoundland to search the southeastern, southern, and southwestern regions of the Grand Banks of Newfoundland for icebergs. IIP also receives iceberg location reports from ships and planes transiting its area of responsibility. We salute *M/V CSO Marianos* who provided the most ship reports during the 2000 season. IIP analyzes iceberg and environmental data at its Operations Center in Groton, Connecticut. IIP predicts iceberg drift and deterioration using a computer model and produces twice-daily iceberg warnings that are broadcast to mariners as bulletins and charts. IIP also responds to requests for iceberg information.

Vice Admiral John E. Shkor was Commander, U. S. Coast Guard Atlantic Area during the 2000 season. CDR Stephen L. Sielbeck was Commander, International Ice Patrol through 21 July 2000 when he was relieved by CDR Robert L. Desh.

For more information about International Ice Patrol, including iceberg bulletins and charts, see IIP's website at http://www.uscg.mil/lantarea/iip/home.html.

Summary of Operations

The 2000 ice year (1 October 1999 to 30 September 2000) marked the 86th anniversary of the International Ice Patrol which was officially established on 7 February 1914. Lines along 40°N, 52°N, 39°W and 57°W enclose IIP's operating area (Figure 1).

IIP's first Ice Reconnaissance Detachment of the year departed on 23 January 2000. IIP opened the 2000 iceberg season on 1 March 2000 and IRDs operated from Newfoundland every other week through 17 July 2000. IIP closed the season on 9 August 2000 and the post-season IRD concluded on 21 August 2000.

IIP's Operations Center in Groton, Connecticut analyzed 1,852 information reports from IRDs, merchant ships, Canadian Ice Service iceberg and sea ice reconnaissance flights, and other sources (Figure 2). Of these reports, 749 contained ice information (Figure 3). These ice reports contained 7,903 reported targets, of which 2,632 individual targets were merged into IIP's iceBerg Analysis and Prediction System model (Figure 4).

Merchant shipping continued to provide the majority of reports received by IIP. In 2000, 256 ships from 48 different nations provided IIP with 1,445 reports or 78% of total reports (Figure 2). This demonstrates that the number of nations using IIP services far exceeds the 17 member nations supporting IIP under SOLAS. Furthermore, the merchant industry's continued active participation indicates the value placed on IIP's services. Appendix B lists the ships that provided information reports, including ice,

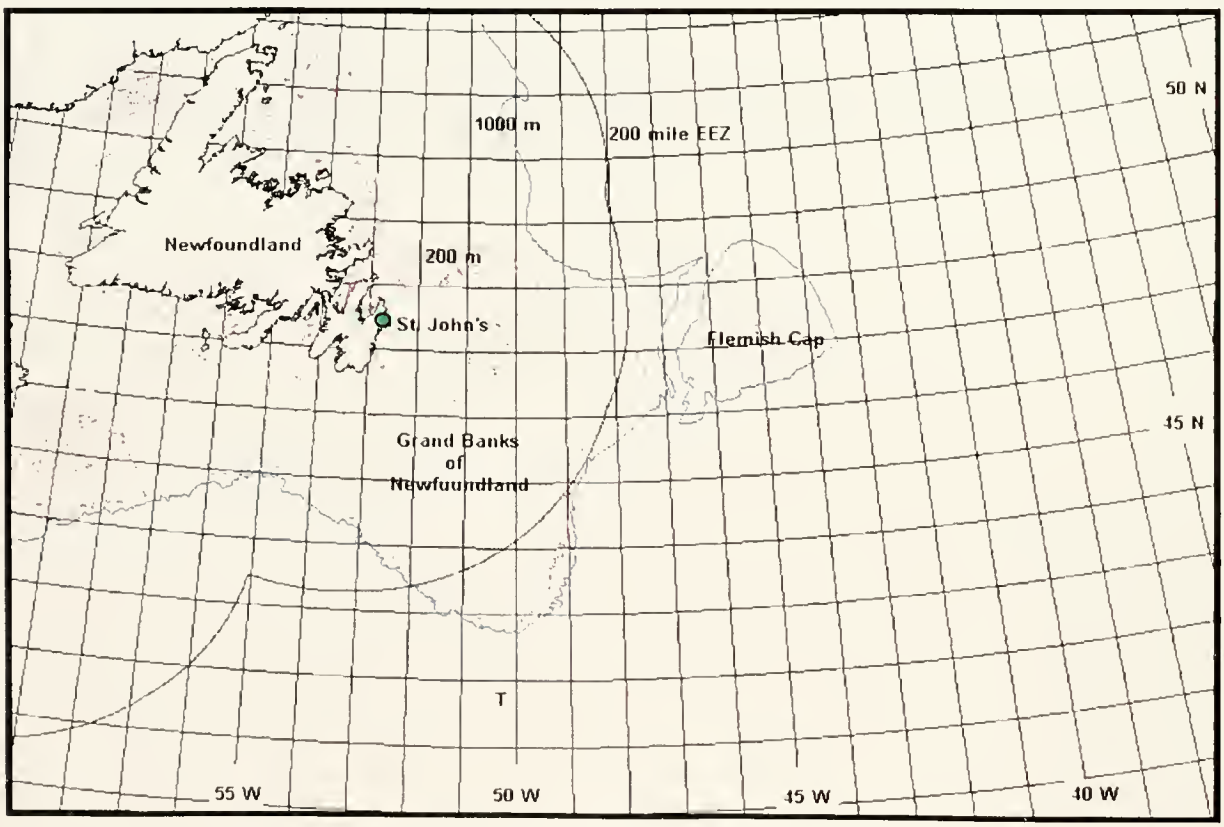

Figure 1. IIP's operating area 'T' indicates location of TITANIC sinking.

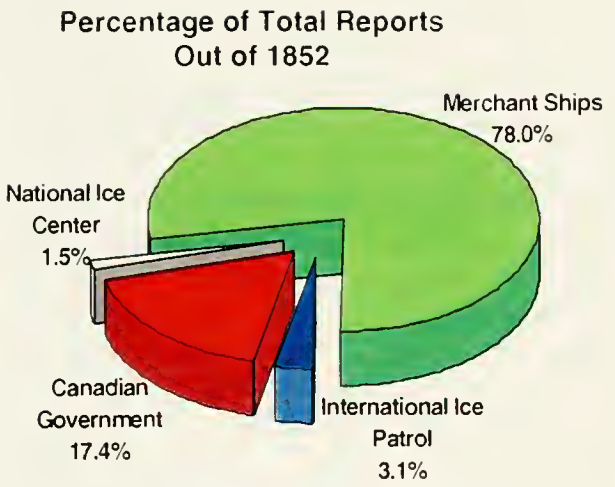

Figure 2. Sources of reports received in 2000, including ice, "no ice", and SST reports.

"no ice", stationary radar target, and sea surface temperature reports. In Appendix B, a single report may contain multiple targets. In 2000, the merchant vessel that provided the most reports was *M/V CSO Marianos*, submitting 77 separate reports. Though not all of the 1,445 information reports submitted by merchant vessels contained ice information, those that did (427 ice reports) still comprised 57% of the ice reports received by IIP (Figure 3).

The Canadian Government provided the next highest number of reports with 17.4% of total reports and 31.8% of the ice reports received by IIP (Figures 2,3). The Canadian Government category encompasses reporting from the CIS reconnaissance airplane, contract reconnaissance flights by Provincial Airlines, HMCS vessels at sea, and coastal lighthouses. CIS conducts ice reconnaissance using a SLAR-equipped Dash-7 airplane, focusing primarily on sea ice. Provincial Airlines is a private company that provides reconnaissance services on contract to DFO throughout the year, to CIS from June through December and to the offshore oil industry. DFO flights by Provincial Airlines monitor fishing vessel activity, frequently carrying them into areas of high iceberg concentrations.

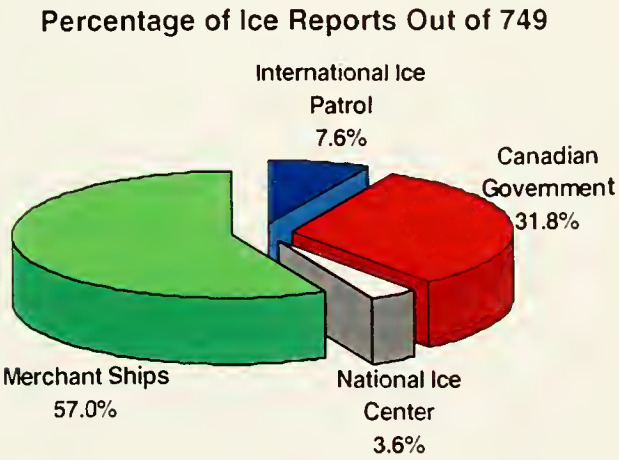

Figure 3. Sources of ice reports received in 2000.

Lighthouse	Ice Reports
Bacalhao	4
Baccalieu Island	20
Bell Island	29
Cape Race	1
Green Island	1
Puffin Island	23
Surgeons Cove	10
Twillingate	41
Total	**129**

Table 1. Newfoundland lighthouse reports.

The reporting sources that detected the most icebergs are those that included aerial reconnaissance since this method allows for covering the most ocean area. The sources with the most targets merged into IIP's BAPS model were the Canadian Government with 40.3% and IIP with 23.5% (Figure 4). Due to the ability of aerial reconnaissance to cover a larger area in a shorter time, their reports usually contain multiple targets within the same report in comparison to ships that report fewer, if any, targets per report. IIP, which accounted for only 7.6% of ice reports, provided 23.5% of targets merged into the BAPS model. Ships, which accounted for 57% of ice reports, provided 8% of merged targets (Figures 3,4). Admittedly, data transfers from CIS to IIP (BAPS category)

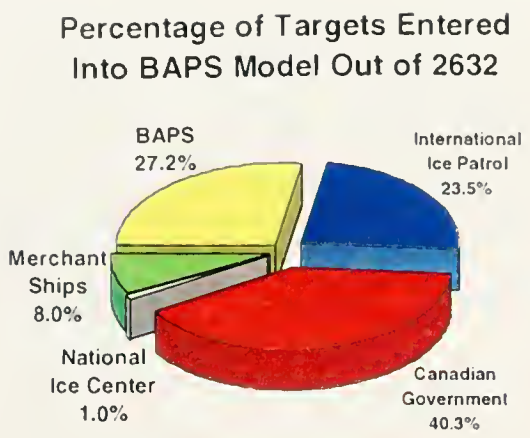

Figure 4. Original sources of all targets merged into BAPS model in 2000.

accounted for 27.2% of targets merged into the BAPS model (Figure 4). These transfers occur when targets cross the demarcation line between IIP and CIS operating areas at 52°N latitude. Therefore, although the BAPS category accounted for 27.2% of merged targets, it did not represent any reports submitted to IIP. The configuration of the BAPS model makes determining the original sources for targets of this type cumbersome. Consequently, no attempt is made to determine the original sighting source of targets transferred to IIP in this manner. The continued success and viability of the International Ice Patrol depends heavily upon all contributors of ice reports.

During the 2000 season, IIP flew fifty-four reconnaissance flights, detecting 1477 targets that were merged into BAPS. Because IIP is mandated to determine the limit of all known ice, IIP generally flies well offshore in the vicinity of the 1000-m bathymetric contour (Figure 1). The different areas covered by Canadian flights and IIP flights combine to form a complementary system that achieves good coverage of the entire Grand Banks area. This system allows for more complete and efficient coverage than either organization could achieve separately.

This combined system resulted in IIP and the Canadian Government detecting the majority of icebergs that set the limit of all known ice. IIP detected 45.1% of LAKI icebergs and the Canadian Government detected another 16.2% (Figure 5). Although IIP detected nearly half of the limit-setting icebergs due to the location of its reconnaissance, IIP also benefited significantly from the participation of ships of opportunity and from IIP's partnership with the National Ice Center. The merchant shipping industry was the original source of 28.9% of LAKI icebergs and NIC reported another 5.4%. The BAPS model generated information that accounted for 4.4% of LAKI icebergs.

To compare ice years in a historical perspective, IIP uses two different measurements. The first is the season's length in days (Figure 6). The second is the number of icebergs south of 48°N (Figure 7,8). This measurement includes both icebergs detected south of 48°N and those that were originally detected north of 48°N but were later predicted to have drifted south of 48°N. The icebergs south of 48°N measurement is generally preferred by IIP because it places the emphasis on icebergs that represent a significant hazard to transatlantic shipping. Additionally, the total number of targets

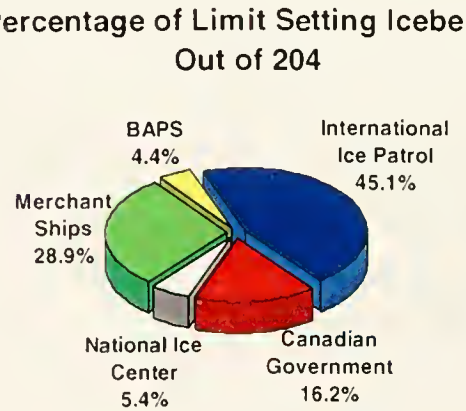

Figure 5. Original sources of limit-setting icebergs in 2000.

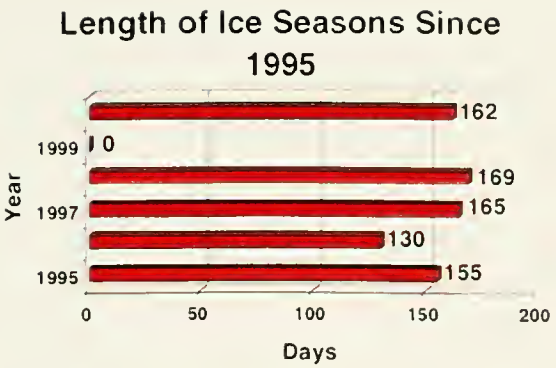

Figure 6. Ice season lengths since 1995.

merged into the BAPS model is not used because IIP does not necessarily merge all reported targets. Sightings of targets outside IIP's area of responsibility and coastal icebergs are usually not merged as they represent little threat to transatlantic shipping. Thus, the total number of merged targets is not necessarily an objective and unbiased measurement from year to year.

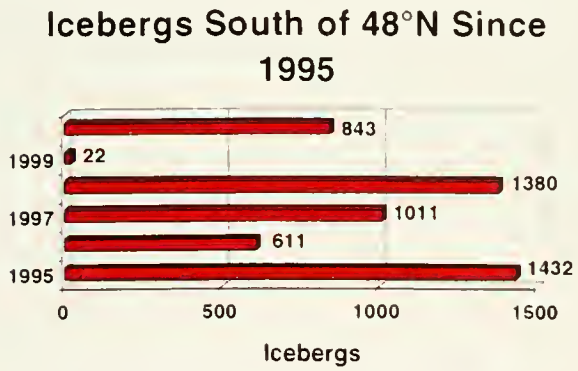

Figure 7 Icebergs south of 48°N since 1995, excluding growlers, bergy bits, and radar targets.

Season length is intertwined with the number of icebergs south of 48°N, as Commander, International Ice Patrol considers the iceberg population when determining when to open or close the season. Various authors have discussed the appropriate measurement for ice season severity (Alfultis, 1987; Trivers, 1994; Marko, *et al.*, 1994). Comparing 2000 to the past five years and measuring the statistics against historical standards in various papers, 2000 was moderate in terms of season length and extreme in terms of the number of icebergs south of 48°N. A moderate season length is defined as between 105 and 180 days (Trivers, 1994). Extreme for icebergs is defined as greater than 600 icebergs south of 48°N (Trivers, 1994, Marko, *et al.*, 1994).

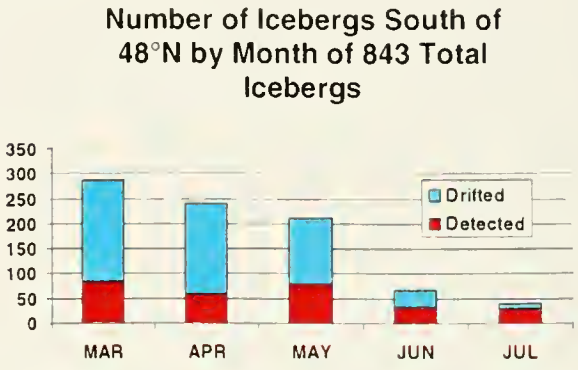

Figure 8. Icebergs south of 48°N in 2000, excluding growlers, bergy bits, and radar targets.

During the ice season, IIP prepares and distributes ice bulletins at 0000Z and 1200Z daily to warn mariners of the southwestern, southern, and southeastern LAKI. U. S. Coast Guard Communications Area Master Station Atlantic/NMF and Canadian Coast Guard Marine Communications and Traffic Service St. John's/VON are the primary radio stations responsible for the dissemination of ice bulletins. In addition, ice bulletins and safety broadcasts are delivered over the INMARSAT-C SafetyNET via the Atlantic East and West satellites. Another transmitting station for the bulletins is the Marine Communications and Traffic Services St. Anthony/VCM. IIP also prepares an ice chart depicting the 1200Z limit of all known ice for broadcast at 1600Z and 1810Z daily. U. S. Coast Guard Communications Area Master Station Atlantic/NMF and the National Weather Service assist with the transmission of the ice chart. On the European side of the Atlantic, Radio

Station Bracknell, United Kingdom/GFA and the German Federal Maritime and Hydrographic Agency stations Hamburg/DDH and Pinneberg/DDK transmit IIP's ice chart. Finally, both the bulletin and chart are placed on IIP's website.

IIP transmitted 324 scheduled ice bulletins in 2000. IIP measures the quality and timeliness of the bulletins it delivers to the mariner via the SafetyNET service, as this is the primary product for IIP's largest customer base. Of 324 total bulletins sent, 320 (98.8%) arrived at the system on time, or by 0000Z or 1200Z, respectively. Of the 324 bulletins, 323 (99.7%) were error free when delivered. The late deliveries were due primarily to human error on watch and the one erroneous bulletin was due to human error. IIP also sent 28 safety broadcasts during the 2000 season. IIP sends these special broadcasts whenever late-breaking ice information, received between the release of the 0000Z and 1200Z products, results in a LAKI change.

In 2000, IIP sent 324 ice charts via radiofacsimile. Of these, 317 (97.8%) were delivered on time and 323 (99.7%) were sent without errors. Late ice charts are defined as those for which the radio frequency start tone starts greater than one minute later than 1600Z or 1810Z. The primary cause of late ice charts was difficulty getting the signal from IIP through the line to CAMSLANT. The cause of the erroneous ice chart was operator error.

As in previous years, International Ice Patrol requested that all ships transiting the Grand Banks report ice sightings, weather, and sea surface temperatures via Canadian Coast Guard Radio Station St. John's/VON, U. S. Coast Guard Communications Area Master Station Atlantic/NMF or INMARSAT-C or INMARSAT-A using code 42. Ships are encouraged to make ice reports even if "no ice" is sighted. Knowledge of where ice is not found is also very important to IIP. IIP tabulated the number of SST reports received during the 2000 ice season in Table 2.

IIP received information from the following sources during the 2000 ice year: Canadian Coast Guard Marine Communications and Traffic Service St. John's/VON; Canadian Coast Guard Ice Operations Center St. John's; Canadian Coast Guard Marine Communication and Traffic Service Halifax/VCS; Canadian Ice Service; U. S. Coast Guard Atlantic Area Command Center; U. S. Coast Guard Automated Merchant Vessel Emergency Response System; and U. S. Coast Guard Operations Systems Center. International Ice Patrol extends its sincere appreciation to all stations and ships that contributed reports during 2000.

Source	Number
Ships providing reports	256
Total reports received	1445
Ships providing reports with SST	130
Reports received with SST	1201

Table 2. Iceberg and SST reports.

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Alfultis, M. 1987. Iceberg Populations South of 48°N Since 1900. Appendix B in *Report of the International Ice Patrol in the North Atlantic*, 1987 Season, Bulletin No. 73, CG-188-42, 63-67.

Marko, J. R., D. B. Fissel, P. Wadhams, P. M. Kelly and R. D. Brown, 1994. Iceberg Severity off Eastern North America: Its Relationship to Sea Ice Variability and Climate Change. *J. Climate*, 7, 1335-1351.

Trivers, G., 1994. International Ice Patrol's Iceberg Season Severity. Appendix C in *Report of the International Ice Patrol in the North Atlantic*, 1994 Season, Bulletin No. 80, CG-188-49, 49-59.

Iceberg Reconnaissance & Oceanographic Operations

Reconnaissance Operations

International Ice Patrol formally begins its seasonal ice observation and Ice Patrol service when icebergs threaten primary shipping routes between Europe and North America. This usually occurs in February and extends through July, but Ice Patrol commences operations when iceberg conditions dictate. The 1992 season, the longest on record, ran for 203 days from March 7th through September 26th. Except during unusually heavy ice years, the Grand Banks of Newfoundland are normally iceberg free from August through January.

IIP utilizes a Coast Guard C-130 long-range aircraft equipped with a Motorola AN/APS-135 Side-Looking Airborne Radar and a Texas Instruments AN/APS-137 Forward-Looking Airborne Radar to conduct iceberg reconnaissance. Reconnaissance flights are made on the average of five days every other week during the ice season. Coast Guard aircraft are the primary means of detecting icebergs that form the limit of all known ice. When iceberg reconnaissance is not being conducted, IIP relies on computer modeling to predict iceberg drift and deterioration and determine the LAKI.

The Ice Reconnaissance Detachment is a sub-unit under Commander, International Ice Patrol with Coast Guard Air Station Elizabeth City providing the aircraft platform. The IRD is deployed to observe and report ice and oceanographic conditions on the Grand Banks of Newfoundland. Oceanographic observations are used for operational and research purposes.

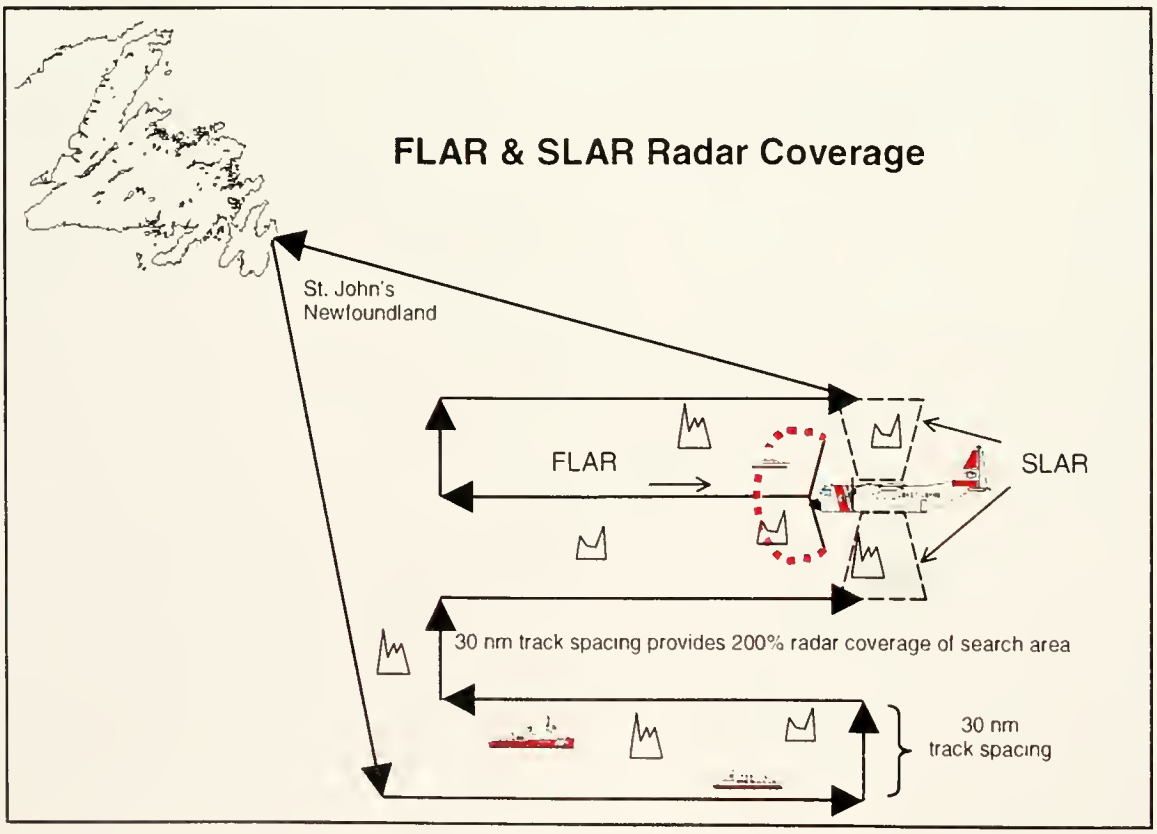

Figure 9. Radar reconnaissance plan.

Environmental conditions on the Grand Banks allow adequate visibility only 30% of the time during iceberg reconnaissance operations. Therefore, IIP relies heavily on its two airborne radar systems to detect and identify icebergs through cloudy and foggy conditions. IIP has used SLAR since 1983 and FLAR since 1993. The radar combination of SLAR and FLAR to detect and identify icebergs in pervasive low visibility conditions minimizes the flight hours required to accurately determine the LAKI. The radar combination allows IIP to use 30 NM track spacing compared to the 10 NM track spacing used prior to 1983. The C-130 with SLAR and FLAR covers a larger ocean area and still provides 200% radar coverage (Figure 9). IIP can currently cover 40,000 NM^2 at 30 NM track spacing in any visibility conditions. A detailed description of IIP's reconnaissance strategy is provided at http://www.uscg.mil/lantarea/iip/FAQ/faq25.html.

An IRD was deployed to IIP's base of operations in St. John's, Newfoundland for 128 days during the 2000 ice season (Table 3). IIP scheduled airborne reconnaissance every other week. IIP flew 99 sorties, 28 of which were transit flights to and from St. John's. 54 sorties were iceberg reconnaissance flights to determine the southwestern, southern and southeastern LAKI. Five sorties were research flights flown in support of a joint research project with the Canadian Ice Service to evaluate satellite radar imagery for iceberg detection. Twelve sorties were logistics flights from Coast Guard Air Station Elizabeth City to maintain and repair the aircraft. Figure 10 displays associated IIP flight hours for 2000.

IRD	Days Deployed	Patrol Sorties	Flight Hours
Pre	8	2	24.5
1	9	4	53.3
2	9	4	45.7
3	9	5	46.1
4	9	4	46.6
5	11	5	44.6
6	11	4	42.4
7	11	4	43.6
8	10	5	35.3
9	9	4	46.3
10	9	5	45.0
11	9	4	43.4
12	9	4	52.5
Post	5	0	15.0
Total	128	54	584.1

Table 3. 2000 IRD summary.

IIP used 584.1 flight hours in 2000, a 46% increase over 1999 (Figure 11). This increase was due to a moderate ice season in 2000 compared to no ice season in 1999 in terms of season length. Figure 12 compares flight hours with the number of icebergs south of 48°N latitude since 1986. This figure demonstrates that IIP expends a fairly consistent number of flight hours but the number of icebergs varies significantly. A few icebergs can extend the geographic distribution of the LAKI even with a low number of icebergs passing south of 48°N. IIP is often in the position of having to patrol a large ocean area with widely distributed icebergs.

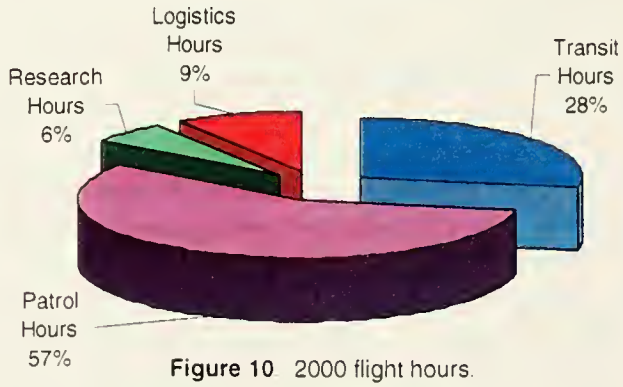

Figure 10. 2000 flight hours.

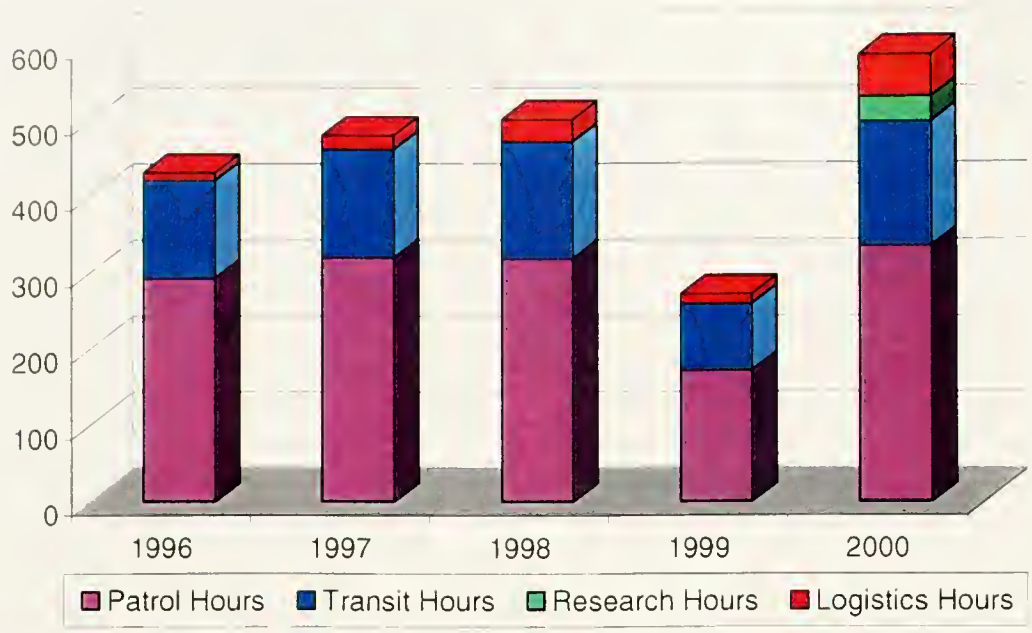

Figure 11 Breakdown of flight hours (1996-2000).

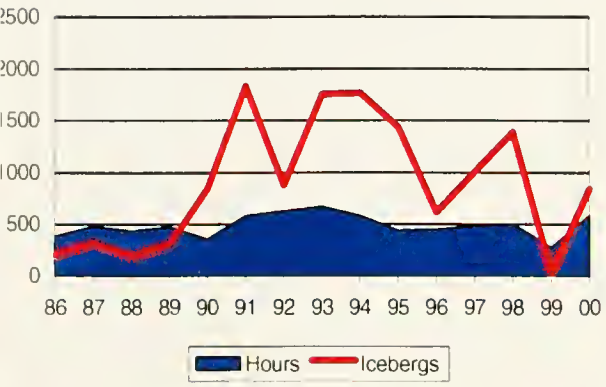

Figure 12. Flight hours versus icebergs south of 48 N.

Differentiating among types of targets on the Grand Banks is a continuous challenge for IIP reconnaissance. Visibility is frequently poor and targets are often identified solely from their radar image. Both SLAR and FLAR provide valuable clues about the identity of targets. However, in most cases, FLAR's superior imaging capability provides definitive target identification. Figure 13 displays the numbers and types of targets detected by reconnaissance patrols during the 2000 season. Of 2117 icebergs detected, 51% were detected and identified with radar only, demonstrating IIP's reliance on radar identification. However, determining whether a radar target is an iceberg or a vessel is difficult with small vessels and small icebergs. The Grand Banks is a major fishing area frequented by fishing vessels ranging in size from 60 to over 200 feet. Small vessels and small icebergs sometimes present similar radar returns and cannot be differentiated. When there are no clear distinguishing features, the target is classified as a radar target.

Since 1997, the Grand Banks region has been rapidly developed for its oil reserves. In November 1997, Hibernia, a gravity-based oil production platform, was set in position approximately 150 NM offshore on the northeastern portion of the Grand Banks. Each year, there are several mobile drilling rigs in the Terra Nova and White Rose drilling fields on the Grand Banks. Increased development has increased air and surface traffic in IIP's area of responsibility, further complicating reconnaissance efforts. This emphasizes the need to pursue technological innovations in reconnaissance equipment and strategy.

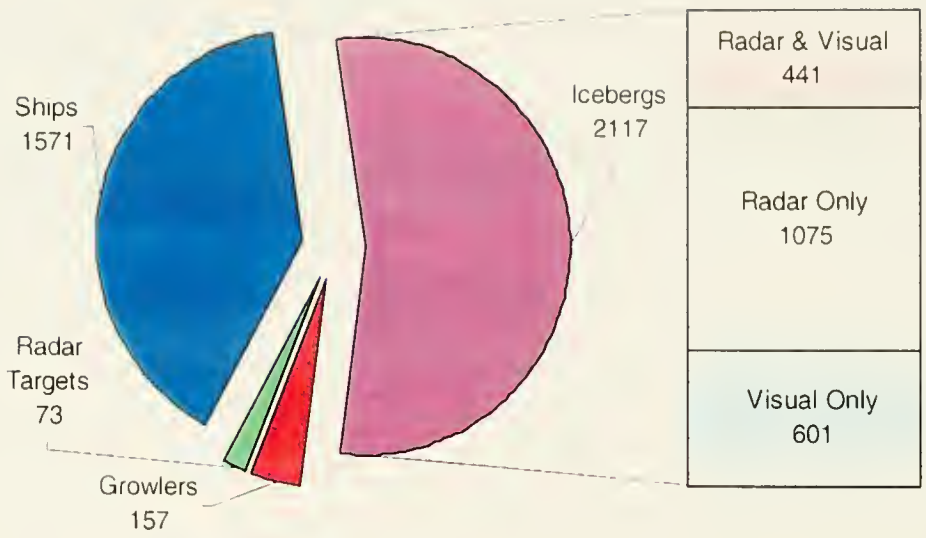

Figure 13. Breakdown of targets detected by IRD in 2000.

Oceanographic Operations

Historically, IIP conducted extensive oceanographic surveys on the Grand Banks. Oceanographic operations peaked in the 1960's when the Coast Guard devoted substantial ship resources to collecting oceanographic data. Two factors combined to change the nature of IIP's oceanographic operations. First, increased competition among the various Coast Guard missions made it increasingly difficult for IIP to obtain ship resources. Second, there was a vast improvement in the capability and reliability of deployable oceanographic instruments.

IIP collects oceanographic data with satellite-tracked drifting buoys deployed by aircraft or ship and Air-deployed eXpendable BathyThermograph probes. The drifters, popularly known as WOCE (World Ocean Circulation Experiment) buoys, are drogued at a depth of either 15 or 50 meters and provide valuable current information. The historical current database used by IIP's computer model is modified weekly using the current information from the drifting buoys.

During the 2000 season, IIP deployed 13 satellite-tracked drifting buoys, seven from reconnaissance aircraft, and six from volunteer ships. Figure 14 shows composite tracks for the deployed buoys. Two buoy recoveries were planned but not attempted due to poor weather conditions. Drifter information is provided in IIP's 2000 WOCE Buoy Drift Track Atlas, available upon request.

AXBT probes are dropped to determine the water temperature profile. This information helps IIP determine the location of the Labrador Current, validate temperatures from satellite-tracked drifting buoys, and obtain precise SST measurements for numerical models. During the 2000 season IIP dropped 124 AXBT probes. Data was collected from 96 of the AXBT drops, a failure rate of 23%. Figure 15 shows the development of IIP's AXBT program since 1996. IIP awarded a contract in 1999 to replace the AXBT receiver with a more reliable system. The new system was tested and used operationally during the 2000 season. The results were encouraging but there is much room for improvement. More experience

with the new system is expected to reduce failures.

AXBT information is coded into a standard format and shared with the Canadian Maritime Atlantic Command Meteorological and Oceanographic Centre, IIP's supplier of AXBT probes. Data is also sent to the U. S. Naval Fleet Numerical Oceanographic and Meteorological Center where it is quality controlled and redistributed via oceanographic products.

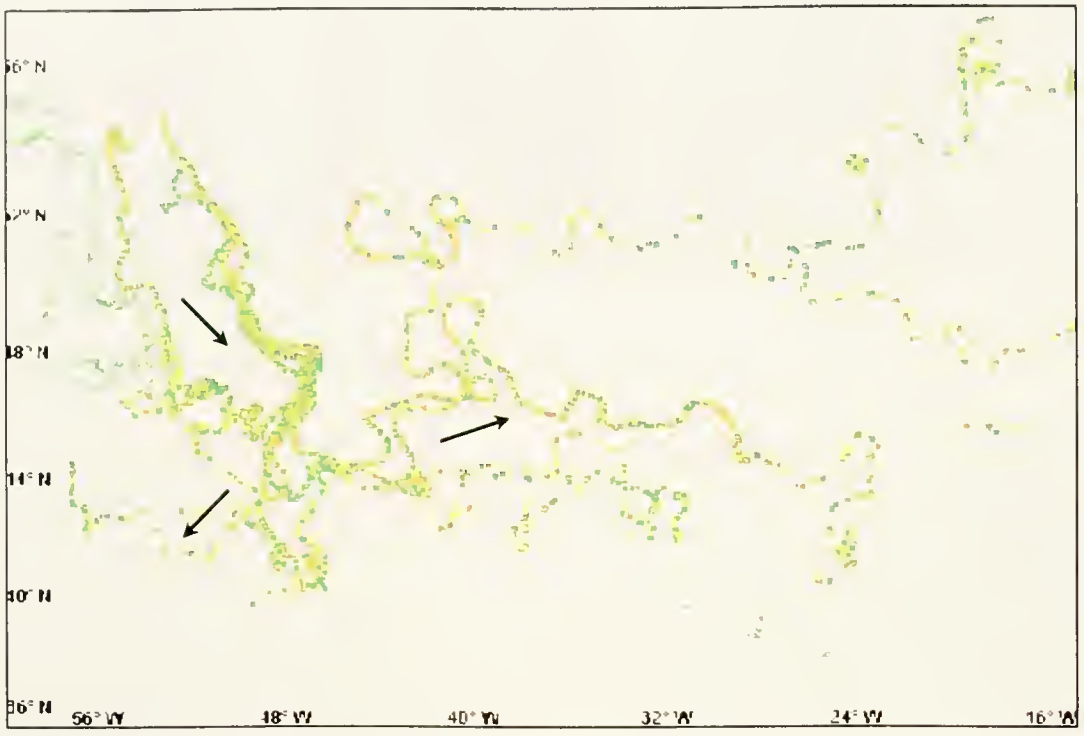

Figure 14 2000 satellite-tracked drifting buoy tracks.

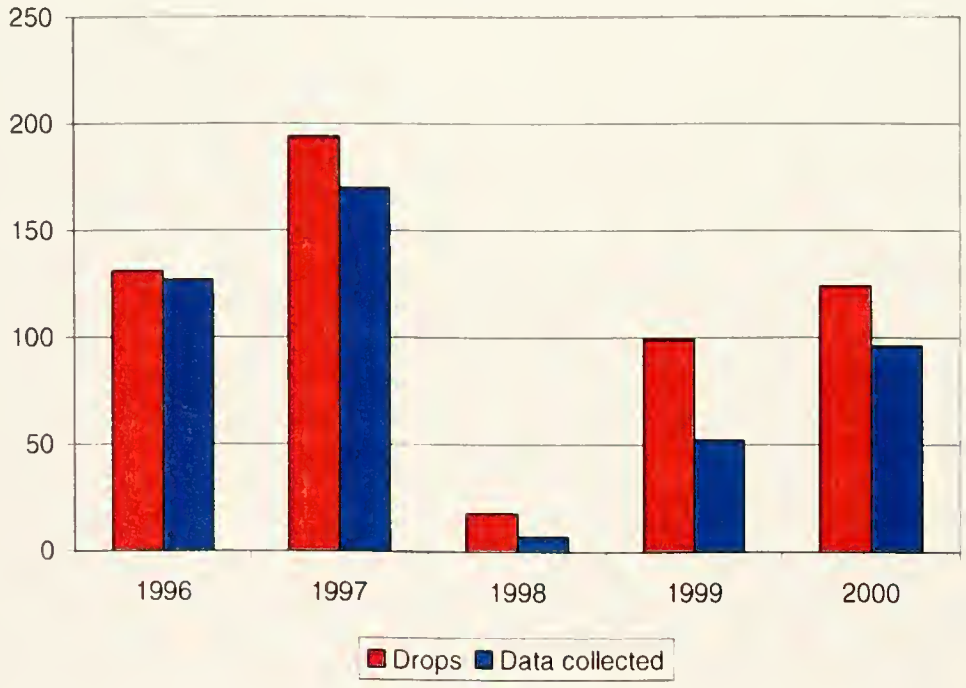

Figure 15 AXBT drops and drops with data collected (1996-2000).

Ice and Environmental Conditions

Introduction

Icebergs returned in large numbers to the transatlantic shipping lanes near Newfoundland in 2000, creating dangerous navigational conditions for mariners. Although the air temperatures in the region were generally warmer than normal and the sea ice cover less extensive and thinner than normal, International Ice Patrol counted 843 icebergs that passed south of 48°N latitude, the boundary below which icebergs are considered a threat to transatlantic shipping. This active iceberg season followed one of the lightest in IIP's history, with only 22 icebergs counted in 1999. This section describes evolution of the 2000 iceberg season and the environmental conditions it accompanied.

For record keeping purposes, the IIP ice year extends from October through September. The following month-by-month narrative of the progress of the 2000 ice season begins as sea ice began forming along the Labrador coast in mid-November 1999, and concludes in July 2000 as the last vestiges of the sea ice departed the Labrador coast. The narrative draws from several sources, including the Seasonal Summary for Eastern Canadian Waters, Winter 1999-2000 (Canadian Ice Service, 2000a); sea ice analyses (pages 22-30) provided by the Canadian Ice Service and the National Ice Center; the Integrated Global Ocean Services System Products sea surface temperature anomaly (Climate Data Library, International Research Institute for climate prediction at Lamont-Doherty Earth Observatory of Columbia University); and finally, summaries of iceberg data collected by IIP and CIS. The Biweekly Iceberg Charts section (pages 31-43) documents the LAKI on the first and 15th of each month during the season.

Comparing the 1999-2000 sea ice and iceberg observations to the historical record emphasizes the departures from normal and gives a greater appreciation for the variability of the ice distribution in the western North Atlantic. For sea ice, Sea Ice Climatic Atlas, East Coast of Canada, 1971-2000 (Canadian Ice Service, 2000b) provides a 30-year median of ice concentration at seven-day intervals for the period from 26 November through 16 July. Viekman and Baumer (1995) present an iceberg limits climatology from mid-March to 30 July based on 21 years of Ice Patrol observations from 1975 through 1995. They provide the extreme, median, and minimum extent of the LAKI for the period. Finally, the average number of icebergs estimated to have drifted south of 48°N for each month was calculated using 101 years (1900 through 2000) of IIP records.

The pre-season sea ice forecast (Canadian Ice Service, 1999), which was issued in early December, predicted the following:

- normal freeze-up,
- ice edge movement into the Strait of Belle Isle during late December,
- sea ice reaching the Avalon Peninsula the last week of February,
- maximum extent of the sea ice at the end of March, and
- retreat at a slower pace than usual due to predicted lower than normal spring air temperatures.

November – December 1999

The fall and early winter freeze-up in 1999 began normally. By the end of November, new ice had formed in the bays and inlets along the Labrador coast north

of Hamilton Inlet and there was new ice near Cape Chidley, Labrador's northernmost point. By mid-December, new ice was present along the Labrador coast and had formed in the Strait of Belle Isle. By late December, the sea ice extent was slightly ahead of normal.

January 2000

There were two distinct sea ice growth and weather regimes in January. During the first half of the month, ice growth proceeded at a faster than normal pace both in Labrador and east Newfoundland waters. This was due in part to below normal air temperatures and moderate northwesterly winds in Labrador. The second half of January was a particularly stormy period in the western North Atlantic, and several of the storms moved up through Labrador to the Davis Strait area (Bancroft, 2000a). As a result, moderate southwest winds and mean air temperatures 3°C above normal dominated the southern Labrador coast and east Newfoundland waters. The elevated air temperatures and ice destruction brought about by the gales caused ice growth to stagnate. By month's end, the sea ice extent in east Newfoundland waters was about a week behind normal, with a less than normal ice thickness.

During the last week of January, Ice Patrol deployed its pre-season Ice Reconnaissance Detachment. The intent of the survey flight was to monitor the progress of icebergs toward the Grand Banks and to help determine the start date for the season. An iceberg survey on 24 January flew near the edge of the sea ice along the Labrador coast south of 57°30'N and found 79 icebergs. On the same day, a CIS reconnaissance flight found 21 icebergs within the sea ice along the Labrador coast south of 54°N. Thus, based on this limited aerial ice reconnaissance, the January population of icebergs appeared sparse. No icebergs passed south of 48°N during the month.

February

Newfoundland was dominated by moderate westerlies due, in large part, to a series of low pressure systems that passed through the province. During the first half on the month, air temperatures were about 2°C greater than normal in northern Newfoundland and near normal elsewhere. The mid-month ice extent and thickness were slightly less than normal. During the second half of the month, the mean air temperature in all of Newfoundland was 1° to 2°C above normal. Due to the prevailing westerlies during February, the eastern sea ice limit was slightly greater than normal, while both the southern ice extent and thickness were less than normal.

Ice Patrol began routine aerial reconnaissance for the 2000 ice season with the deployment of IRD #1 on 10 February 2000. From 10 to 13 February, IIP, CIS and Provincial Airlines conducted extensive aerial surveys of the iceberg population from 47°N to 60°N. Five flights, including concurrent sorties by two IIP aircraft, provided excellent spatial and temporal coverage. The surveys, which enjoyed good visibility, documented a population of approximately 300 icebergs, almost all within the sea ice (Figure 16). Despite good visibility, it is likely that there were more than the nearly 300 icebergs counted, for finding small icebergs in areas of heavily ridged sea ice is difficult, particularly in low light conditions. Although no icebergs passed south of 48°N during February, it was clear there was a large population of icebergs not far to the north, and the early part of the 2000 season would be active.

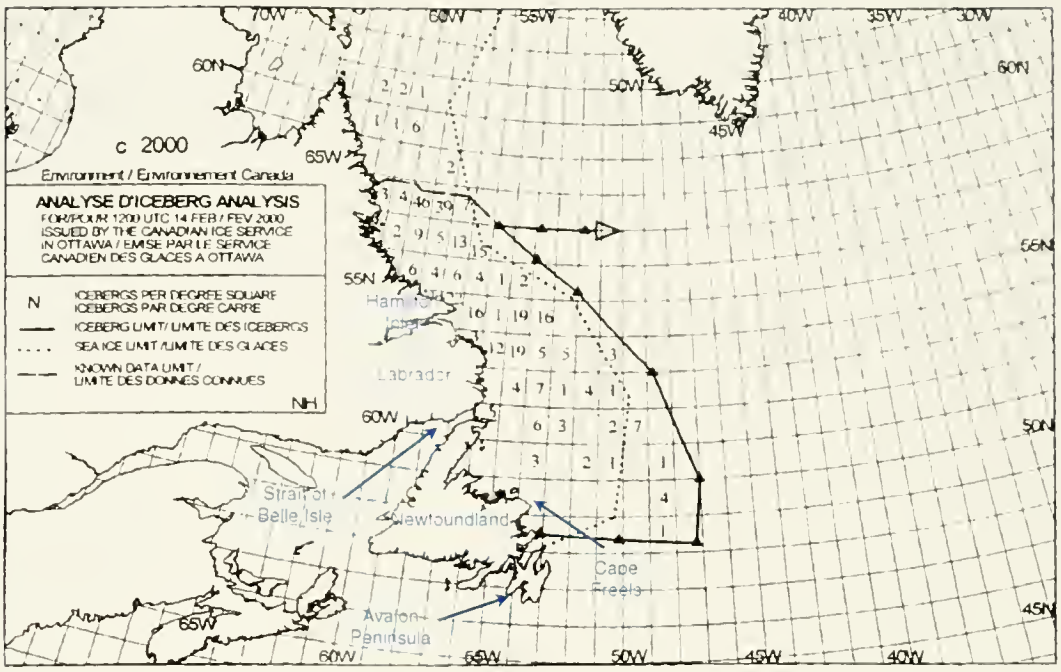

Figure 16. Iceberg distribution on 14 February 2000 from the iceberg analysis issued by the Canadian Ice Service. There are approximately 340 icebergs shown on this plot.

March

In March, low pressure systems continued to cross Newfoundland frequently, resulting in moderate winds that were primarily from the southwest in the south and central part of the island, and moderate northeast winds in the northern part. Across the entire island, the mean air temperature was warmer than normal for the entire month, 3.5° to 5°C during the first half of the month and 1° to 1.5°C in the second half. Labrador was also experiencing above normal mean air temperatures, particularly in the north where they were 3° to 5°C above normal for the entire month.

The eastern and southern limits of sea ice in east Newfoundland waters grew slowly during the first half of March. By mid-month, the southern and eastern sea ice extent was less than normal, and the ice was looser and thinner than normal. Throughout the remainder of the month, the ice edge changed very little, and, by month's end, the sea ice extent was slightly less than normal.

On 1 March, Ice Patrol formally opened the 2000 ice season. The mid-month distribution of icebergs was about at the median for the southern extent and slightly less than the median for the easterly extent. The first month of the season was very active, with an estimated 286 icebergs drifting south of 48°N, well above the 101-year average of 61 for the month. In March, more icebergs passed south of 48°N than in any other month of the 2000 season. Most frequently (73 of 101 years), the busiest month of an iceberg season is April or May.

April

During the first half of April, Labrador's south coast and east Newfoundland waters experienced moderate southwest winds and mean air temperatures 2° to 5°C warmer than normal. This pattern was caused by a

ridge of high pressure in the central North Atlantic, which steered the tracks of the storms leaving the U. S. coast in early April to the Labrador coast. By mid-month, the blocking high had weakened and, for the remainder of April, the region experienced light to moderate west winds and near normal air temperatures.

The persistent offshore winds in early April created a vast near-shore lead that extended southward from Hamilton Inlet to the southern ice limit near Cape Freels, Newfoundland. In some places the lead was over 50 NM wide. Warmer than normal air temperatures in the early part of the month hastened the sea ice retreat both along the Labrador Coast and in east Newfoundland waters. By mid-month, ice retreat was 3 to 4 weeks earlier than normal in both areas. Although ice destruction slowed somewhat during the second half of the month, the retreat was 2 to 3 weeks ahead of normal at the end of April. Aside from a few, isolated small patches, there was no sea ice south of 51°N. Thus, the icebergs that threatened transatlantic shipping lanes no longer had the protection sea ice cover affords.

The mid-month distribution of icebergs was at the 25th percentile for the southern limit and about median for the eastern limit. In April, 239 icebergs were estimated to have drifted south of 48°N; the average for the month is 120.

May

Early May was characterized by light to moderate north winds and 1.5° to 2.5°C colder than normal mean air temperatures in both Labrador and Newfoundland. Both areas were dominated by light to moderate southwest winds and near normal air temperatures during the second half of the month.

The sea ice retreat continued to be well ahead of normal, by about 2 weeks, in both Labrador and Newfoundland. By mid-month, the only appreciable sea ice concentration near Newfoundland was in the Strait of Belle Isle and along the northern arm of Newfoundland. Sea ice destruction continued at a rapid rate, but it lingered in the vicinity of the Strait of Belle Isle until 26 May, when the Strait was declared safe for marine traffic. By 31 May the southern extent of the sea ice had retreated to 55°N.

The mid-May iceberg limit was at the median for both the southern and eastern limits. An estimated 212 icebergs drifted south of 48°N in May, while the average for the month is 147. In the 101-year average, May is the busiest month of the year for IIP in terms of number of icebergs passing south of 48°N. In 2000, the number, while higher than normal, declined from the two previous months.

On 24 May, the westernmost sighted iceberg during the 2000 ice season was seen by a Canadian reconnaissance flight at 50°00'N and 56°40'W. The westernmost drifted iceberg was at 49°58'N and 56°47'W on 29 May 2000.

June

Both the southern and eastern iceberg limits were at the median in mid-June. In June, 65 icebergs were estimated to have drifted south of 48°N; the average is 87. By month's end the southern limit had retreated so that it was between the median and the 75th percentile and the eastern limit was near the median.

The southernmost sighted and drifted iceberg was seen by an IIP reconnaissance flight on 8 June at 41°12'N and 47°56'W.

July

In mid-July both the southern and eastern iceberg limits were near median extent. In July, 41 icebergs were estimated to have drifted south of 48°N; the average is 31. The last IRD deployed from 12 to 20 July and found 64 icebergs. The last of the sea ice departed the coast of Labrador during the final week of July.

On 7 July, the easternmost observed iceberg was seen at 48°00'N and 38°00'W. Four days later, on 11 July, the same iceberg was estimated to have drifted to 48°05'N and 37°25'W, the easternmost modeled iceberg drift during the 2000 iceberg season. By month's end the iceberg limit in the south was near the median, however, there were only two isolated icebergs setting the limit. The eastern limit was well west of the median, at about the 75th percentile. Part of the reason for the rapid retreat of the iceberg limit was warmer than normal sea surface temperatures throughout the area. The July SSTs were 1° to 2°C above normal on the northeast Newfoundland shelf and along the southern Labrador coast and over 2°C warmer than normal over most of the Grand Banks (Figure 17).

August

The rapid iceberg destruction continued into August, with 2.5°C warmer-than-normal SSTs throughout the waters east of Newfoundland and southern Labrador. IIP closed the 2000 iceberg season on August 9, at which time there were only scattered icebergs south of Hamilton Inlet.

Summary

From mid-January through the end of April, air temperatures in Labrador and Newfoundland were warmer than normal. This created unfavorable conditions for ice growth and accelerated ice retreat once the maximum had passed.

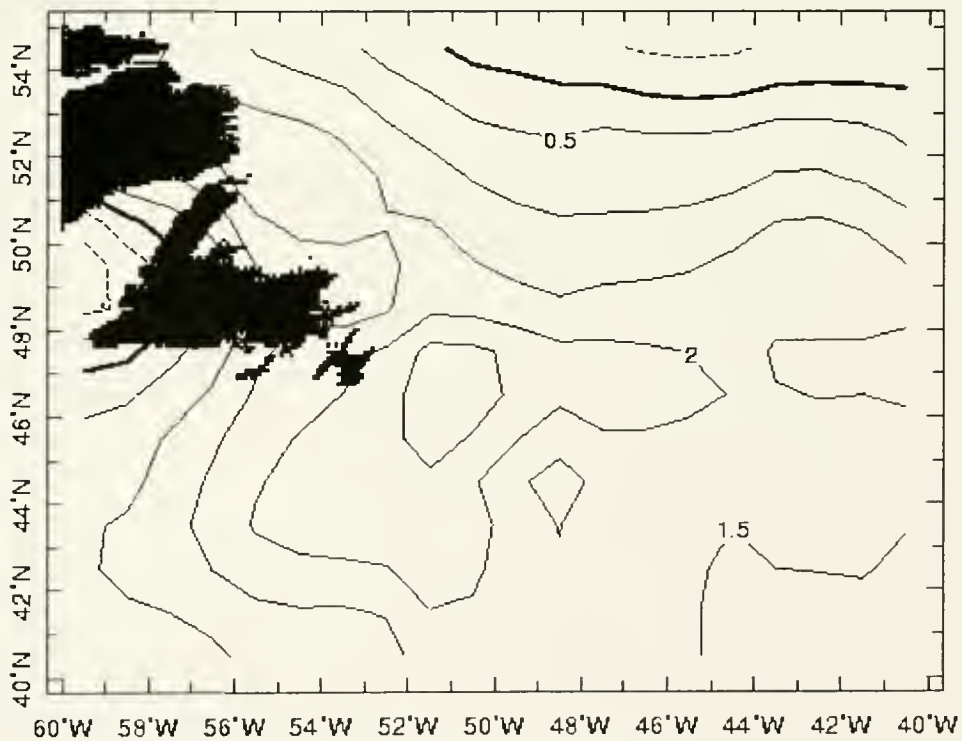

Figure 17. Mean sea surface temperature anomaly (blended from ship, buoy, and bias-corrected satellite data) for July 2000. (NOAA NCEP EMC CMB GLOBAL sea surface temperature anomaly product from IRI/LDEO Climate Data Library)

Although sea ice arrived somewhat earlier than normal in east Newfoundland waters, the maximum southern extent, eastern extent, and thickness were less than normal for 2000. A large shore lead formed in mid-April and persisted throughout the sea ice retreat from east Newfoundland waters, which proceeded two to three weeks ahead of normal. The pre-season sea ice forecast proved to be accurate for the early part of the season, including the progress of the ice edge to the Avalon Peninsula. However, the warmer than normal air temperatures caused a less extensive sea ice distribution and earlier retreat than predicted.

Icebergs arrived on the Grand Banks in March, a month later than normal. However, the first two months of the season were the busiest for IIP, with over 60% of the season's icebergs passing south of 48°N in March and April. The normal pattern is one of a steady monthly increase in the number of icebergs passing south of 48°N, building to a maximum in May, after which it declines (Figure 18). This pattern is evident in both the entire IIP record (1900-2000) and the era of modern airborne radar reconnaissance (1983-2000).

Classifying the severity of the 2000 iceberg season is not straightforward. Indeed, there are several ways to classify iceberg season severity. The simplest and most popular indicator uses the number of icebergs that pass south of 48°N. Ice Patrol estimated that 843 icebergs passed south of 48°N in 2000, which is well above the mean of 479 for the 1900 to 2000 period. This places the 2000 iceberg season in the extreme category according to the iceberg season severity classes developed by Trivers (1994). However, fewer icebergs passed south of 48°N than the mean for the modern reconnaissance era, which is 1005. Season length, which measures the number of days IIP provided formal ice warnings to mariners, is also a useful indicator of season severity. The 2000 iceberg season length was 162 days, which according to Trivers (1994) classifies it as an average length season. Thus, overall, the 2000 season should be viewed as having been an average season, rather than extreme.

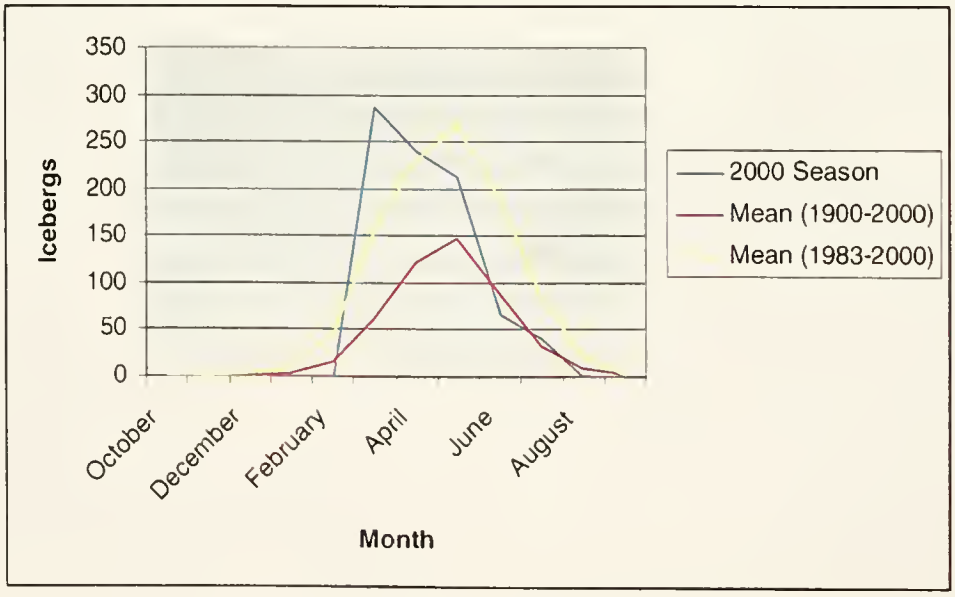

Figure 18. The distribution by month of the number of icebergs that passed south of 48°N for the 2000 season, the mean for the entire IIP record (1900-2000), and the mean for the era of modern airborne radar reconnaissance (1983-2000).

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Monthly Sea Ice Charts

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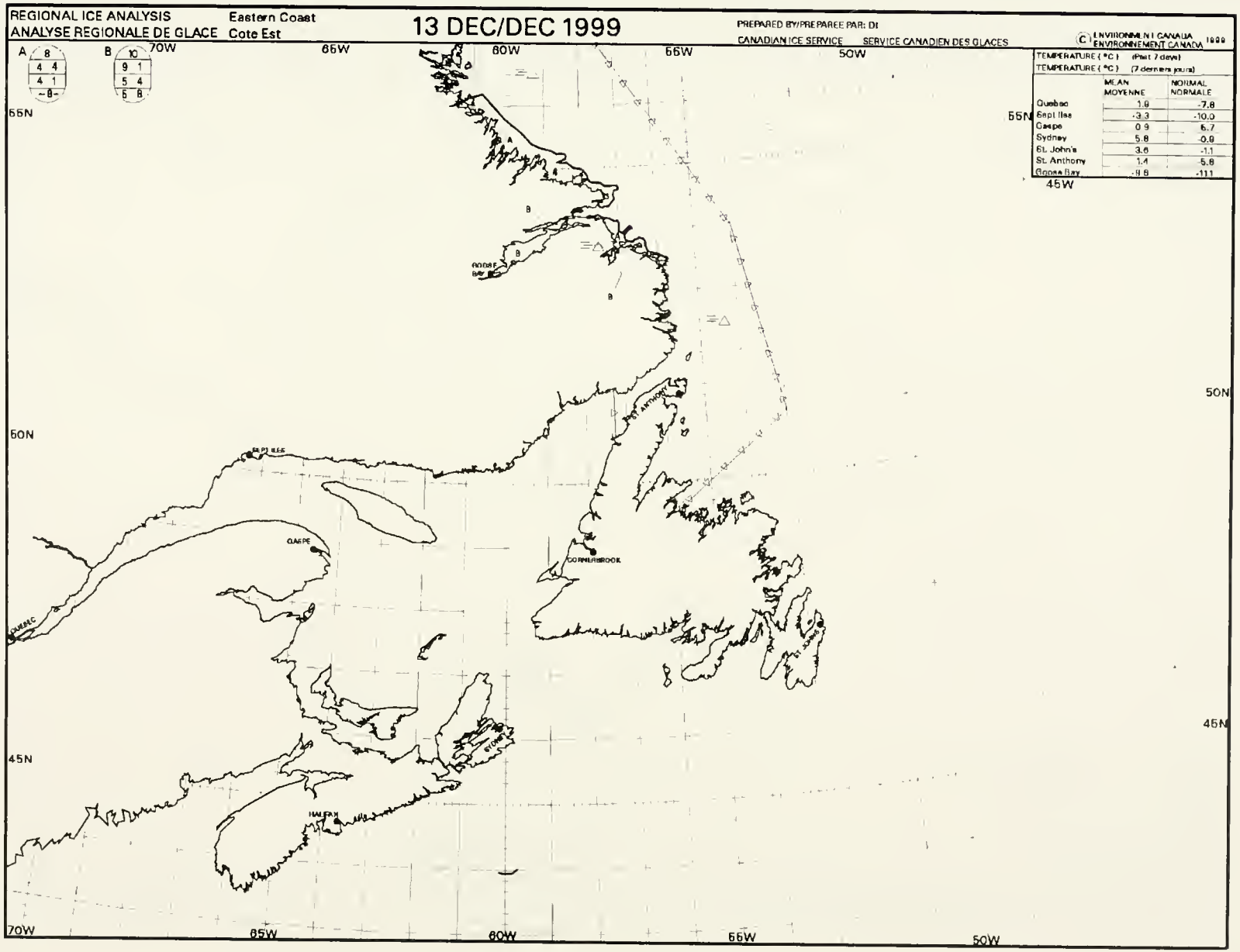
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B 10 9 1 5 4 5 6
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Sept Iles -3.3 -10.0
Gaspe 0.9 -6.7
Sydney 5.8 -0.9
St. John's 3.6 -1.1
St. Anthony 1.4 -5.8
Goose Bay -9.8 -11.1
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ST ANTHONY
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ST JOHN'S
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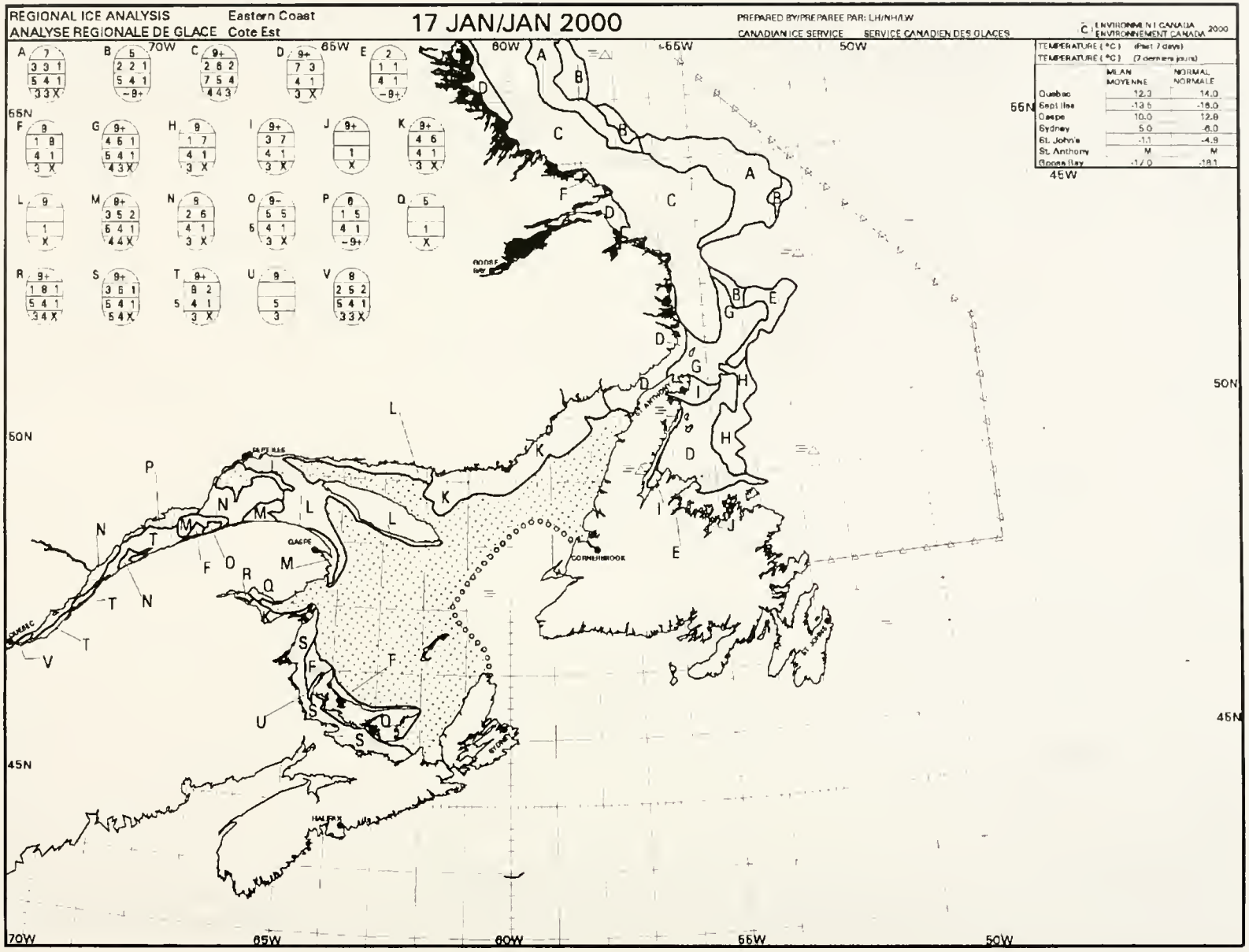
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Gaspe 10.0 12.8
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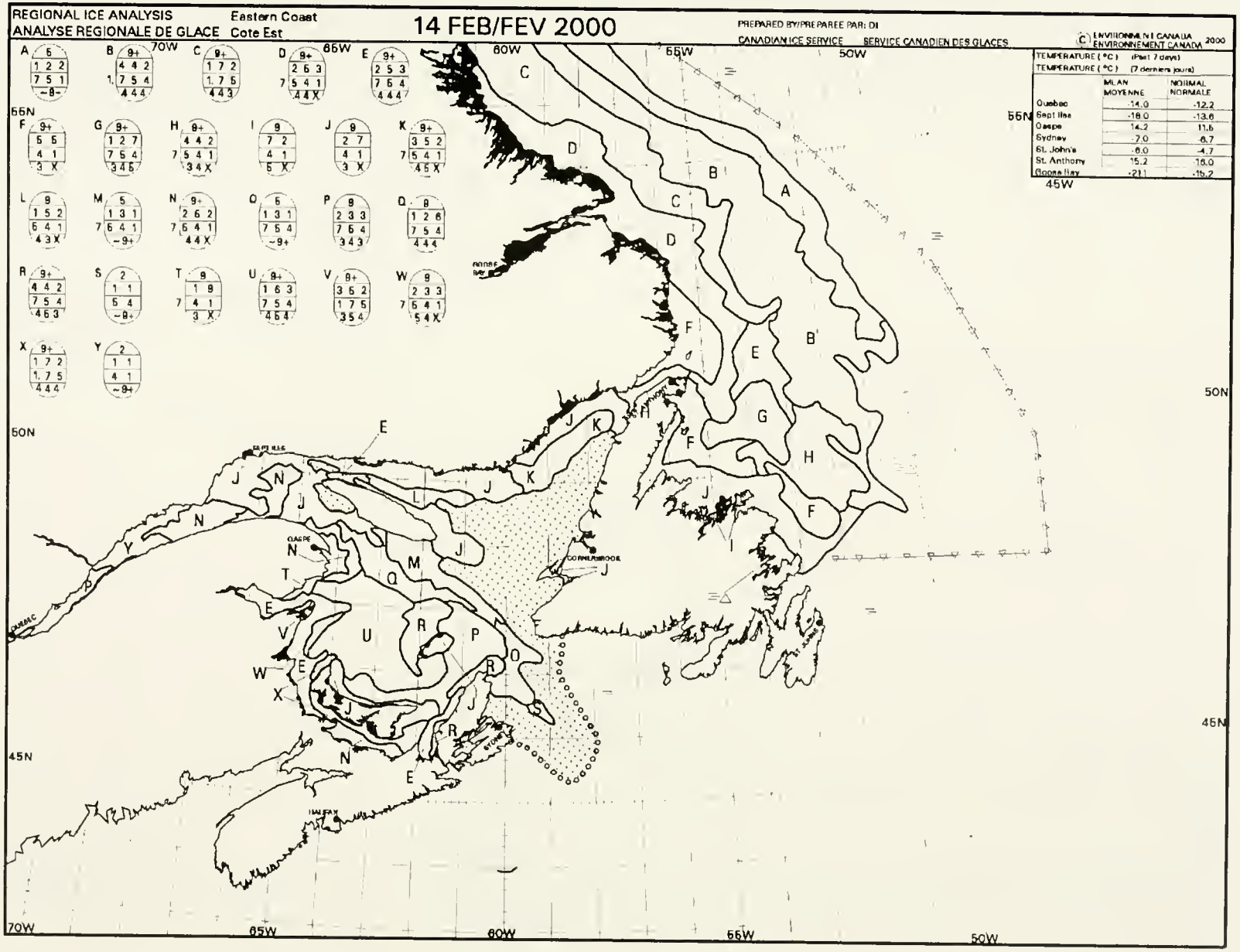
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St. Anthony 15.2 -16.0
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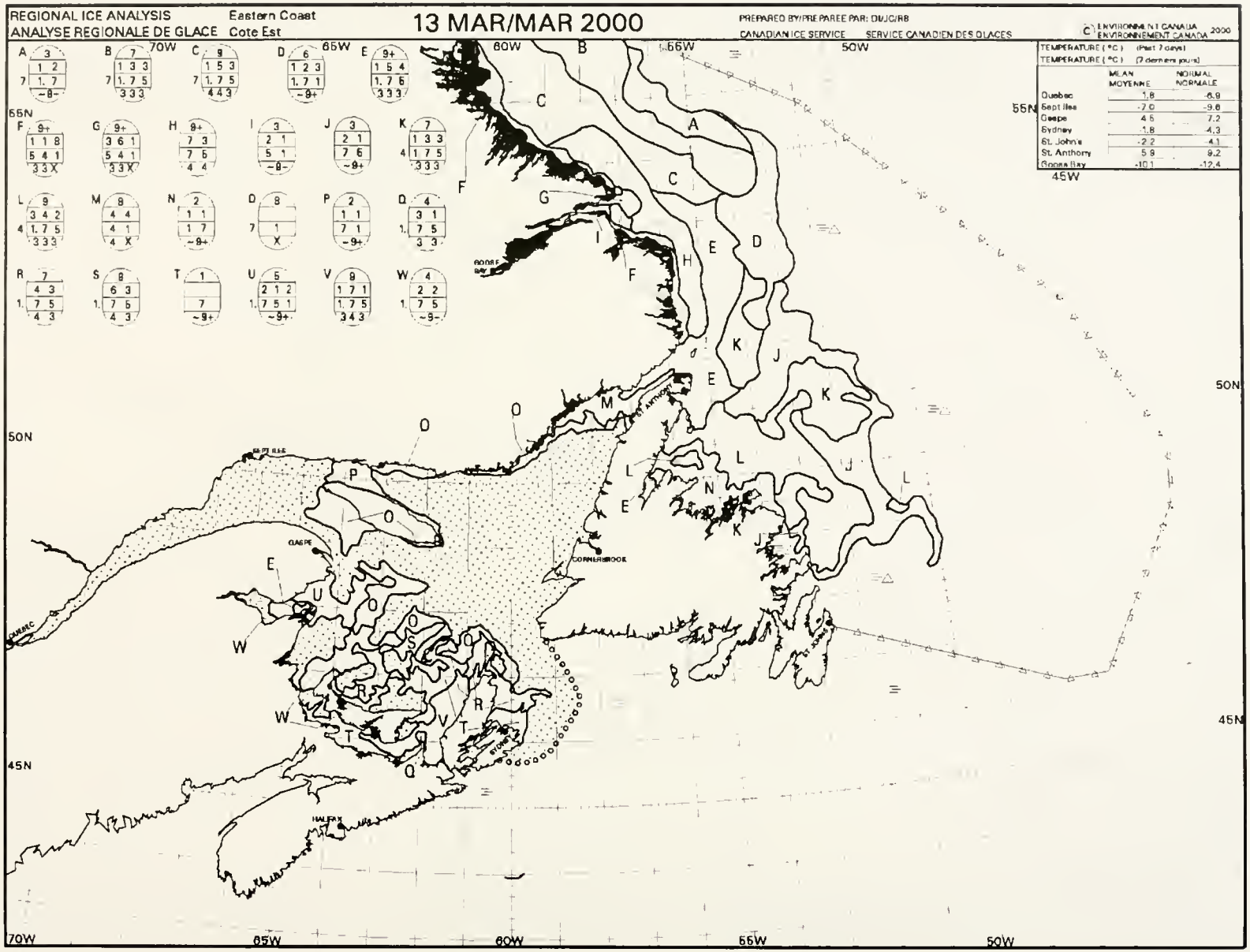
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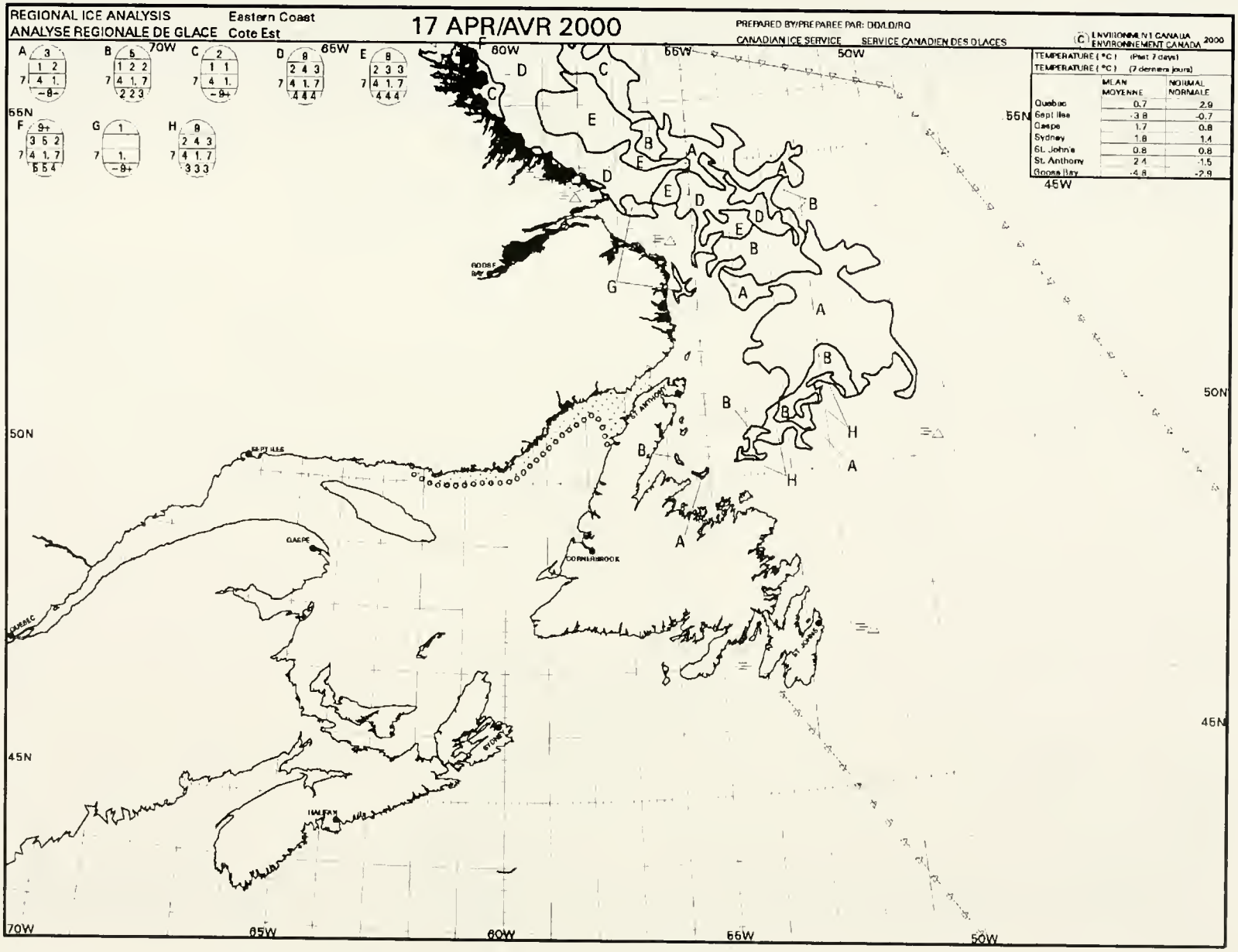
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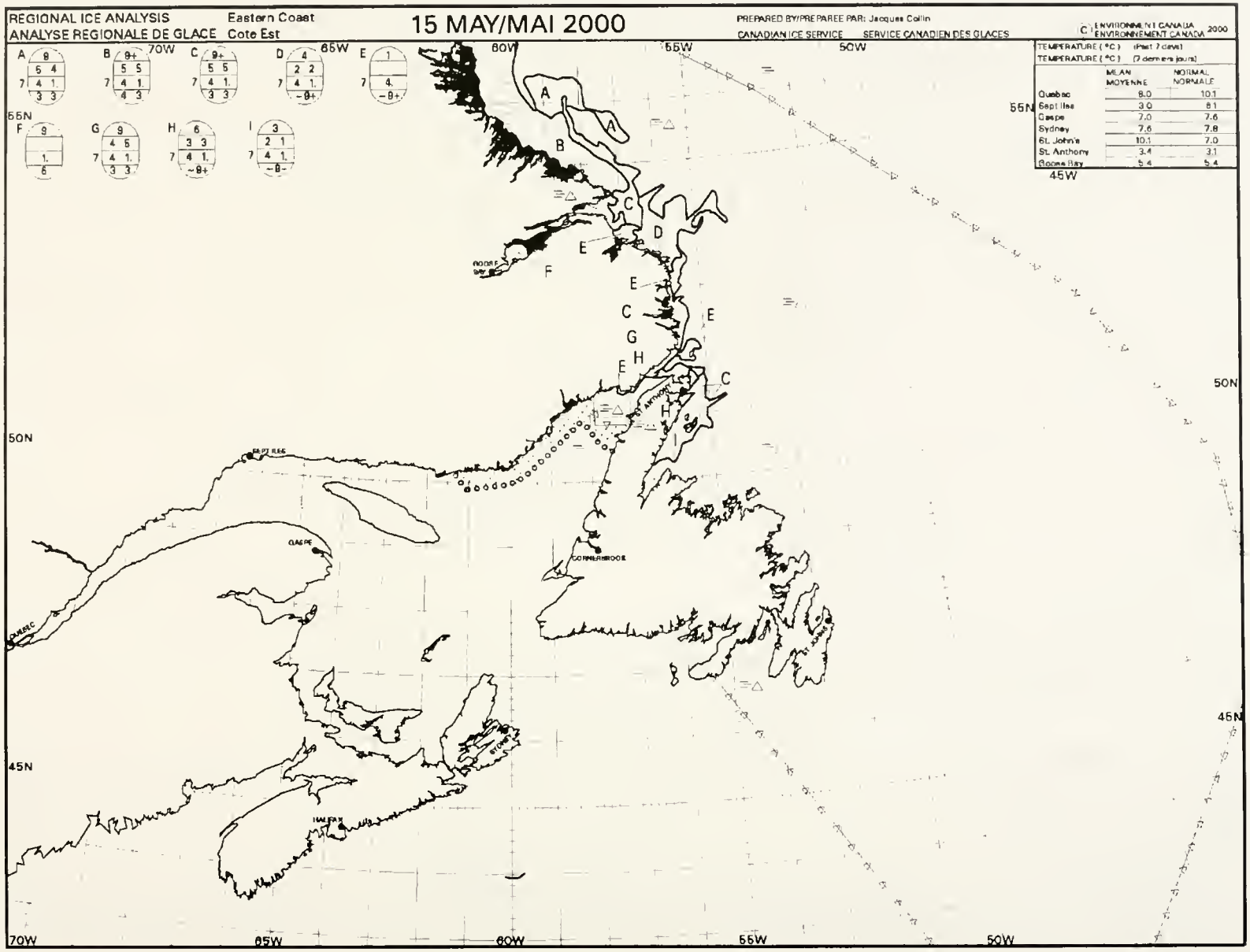
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Sept Iles 3.0 8.1
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St. Anthony 3.4 3.1
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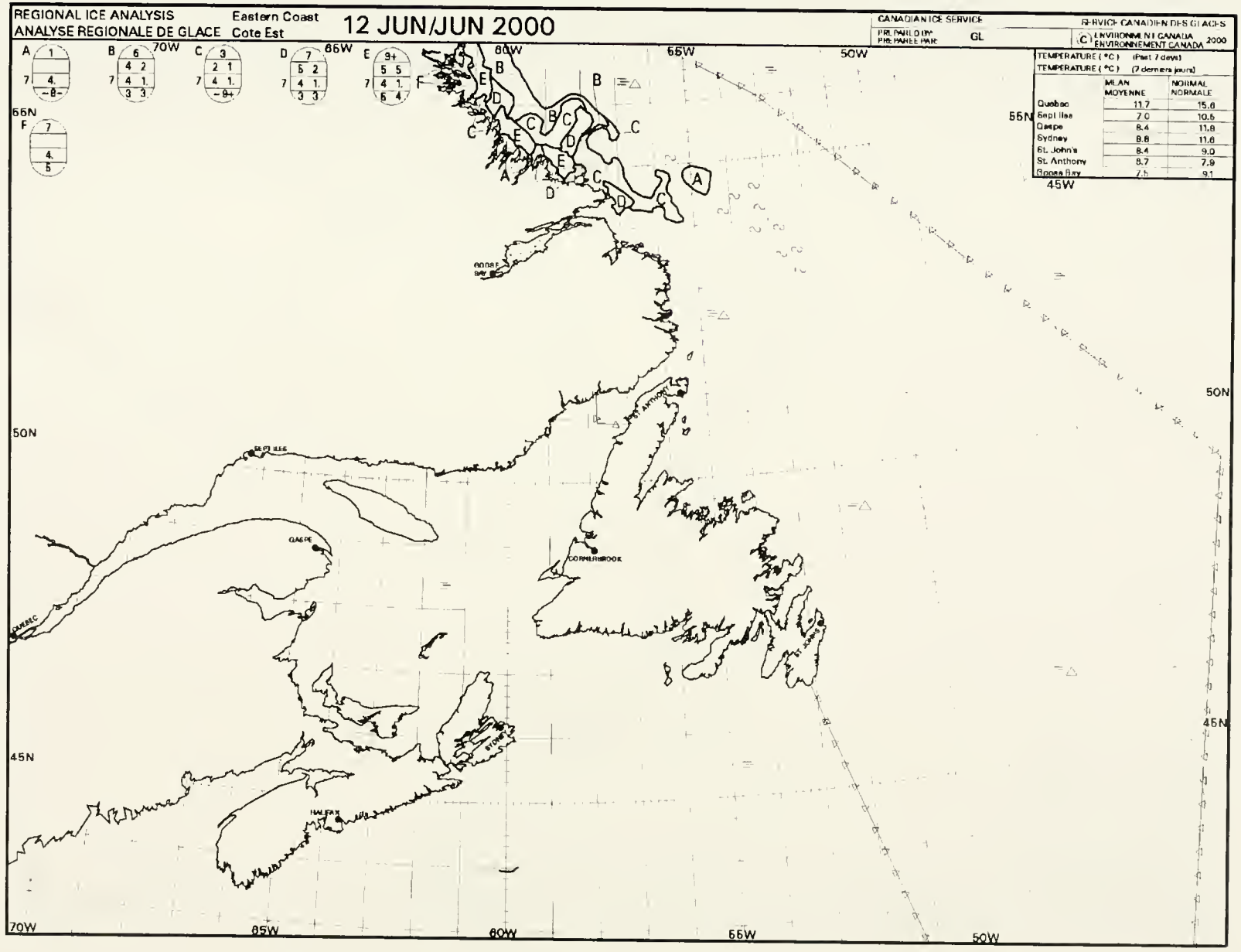
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Sydney 8.8 11.6
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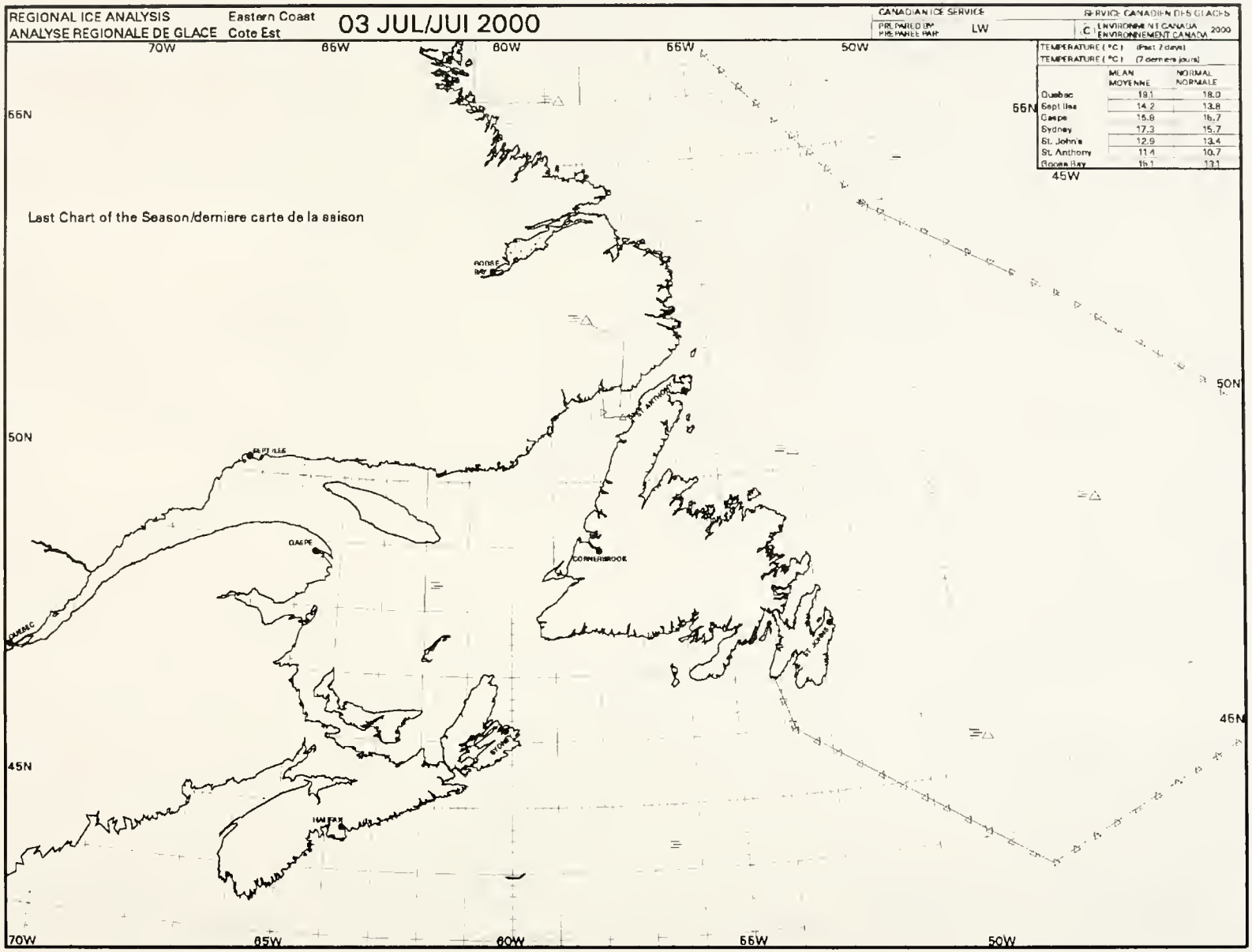
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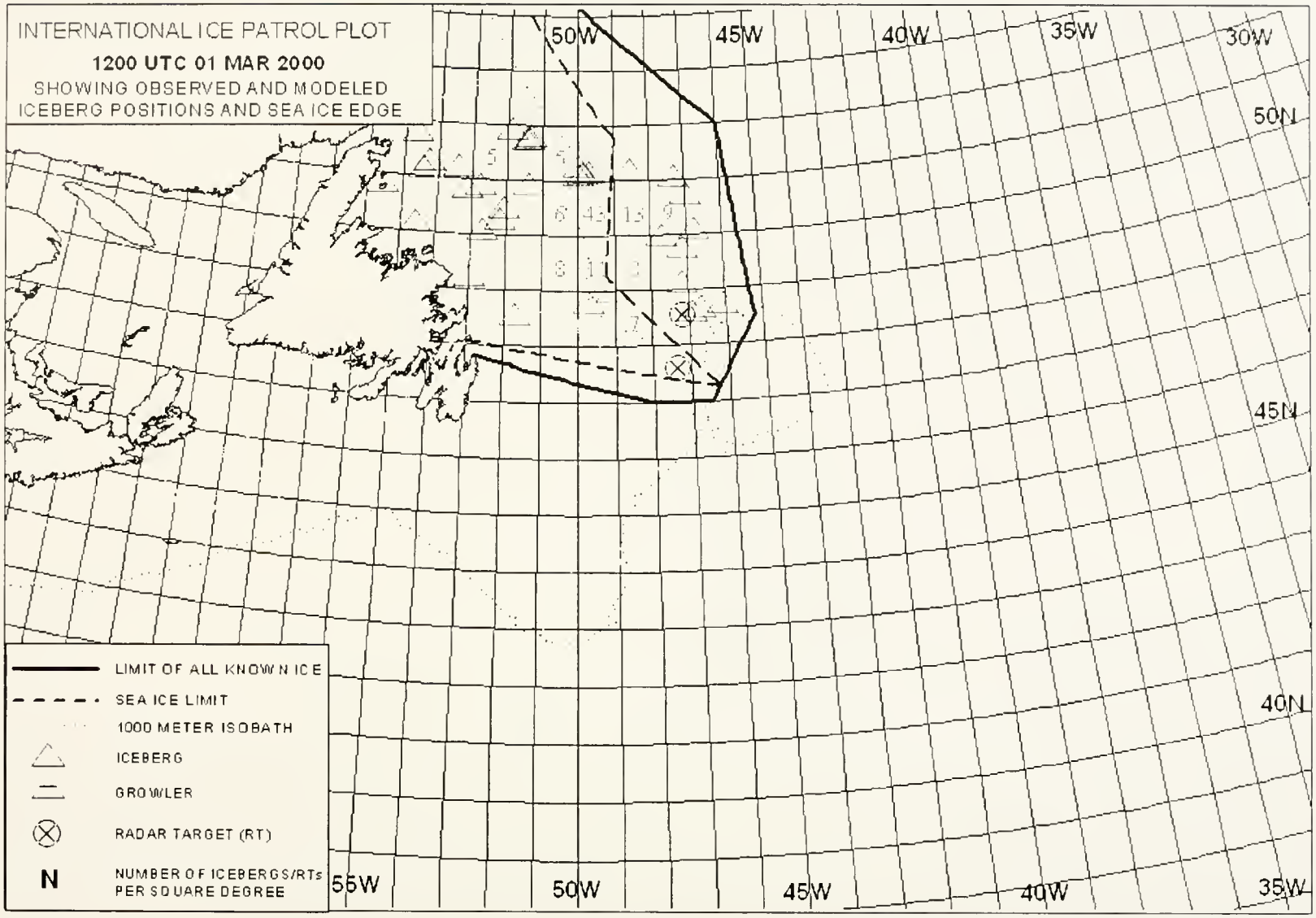
ANALYSE REGIONALE DE GLACE Cote Est
03 JUL/JUI 2000
CANADIAN ICE SERVICE
SERVICE CANADIEN DES GLACES
PREPARED BY LW
PREPARE PAR
ENVIRONMENT CANADA
ENVIRONNEMENT CANADA
2000
TEMPERATURE (°C) (Past 7 days)
TEMPERATURE (°C) (7 derniers jours)
MEAN MOYENNE
NORMAL NORMALE
Quebec 19.1 18.0
Sept Iles 14.2 13.8
Gaspe 15.9 16.7
Sydney 17.3 15.7
St. John's 12.9 13.4
St. Anthony 11.4 10.7
Goose Bay 16.1 13.1
Last Chart of the Season/derniere carte de la saison
70W
65W
60W
55W
50W
45W
66N
56N
50N
46N
45N
ROMAIE BAY
SEPT ILES
GASPE
QUEBEC
CORNERBROOK
ST ANTHONY
SYDNEY
ST JOHN'S
HALIFAX

Biweekly Iceberg Charts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1200 UTC 01 MAR 2000
SHOWING OBSERVED AND MODELED
ICEBERG POSITIONS AND SEA ICE EDGE
50W
45W
40W
35W
30W
50N
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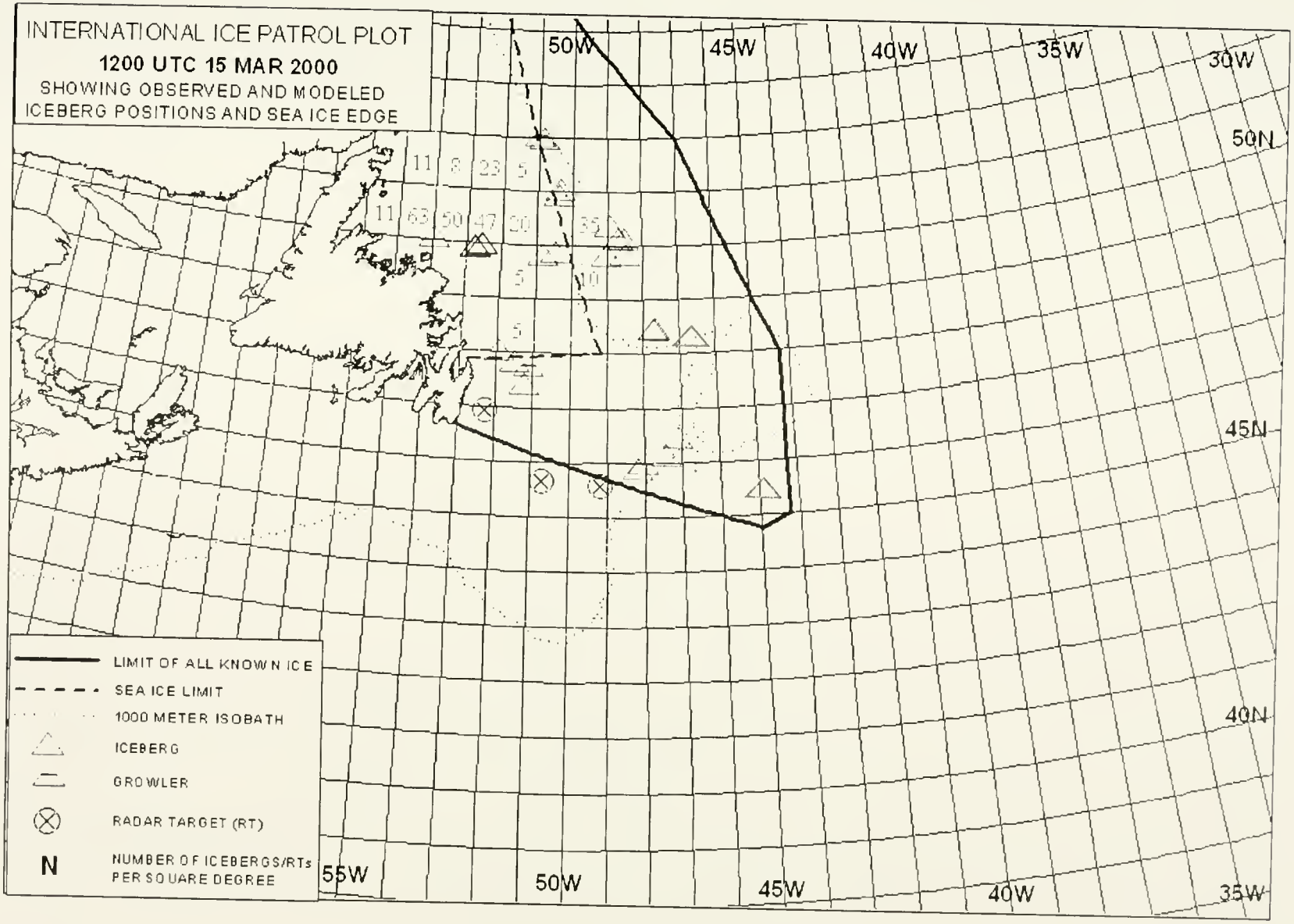
55W
50W
45W
40W
35W
LIMIT OF ALL KNOWN ICE
SEA ICE LIMIT
1000 METER ISOBATH
ICEBERG
GROWLER
RADAR TARGET (RT)
N
NUMBER OF ICEBERGS/RTs
PER SQUARE DEGREE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ICEBERG POSITIONS AND SEA ICE EDGE
50W
45W
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35W
30W
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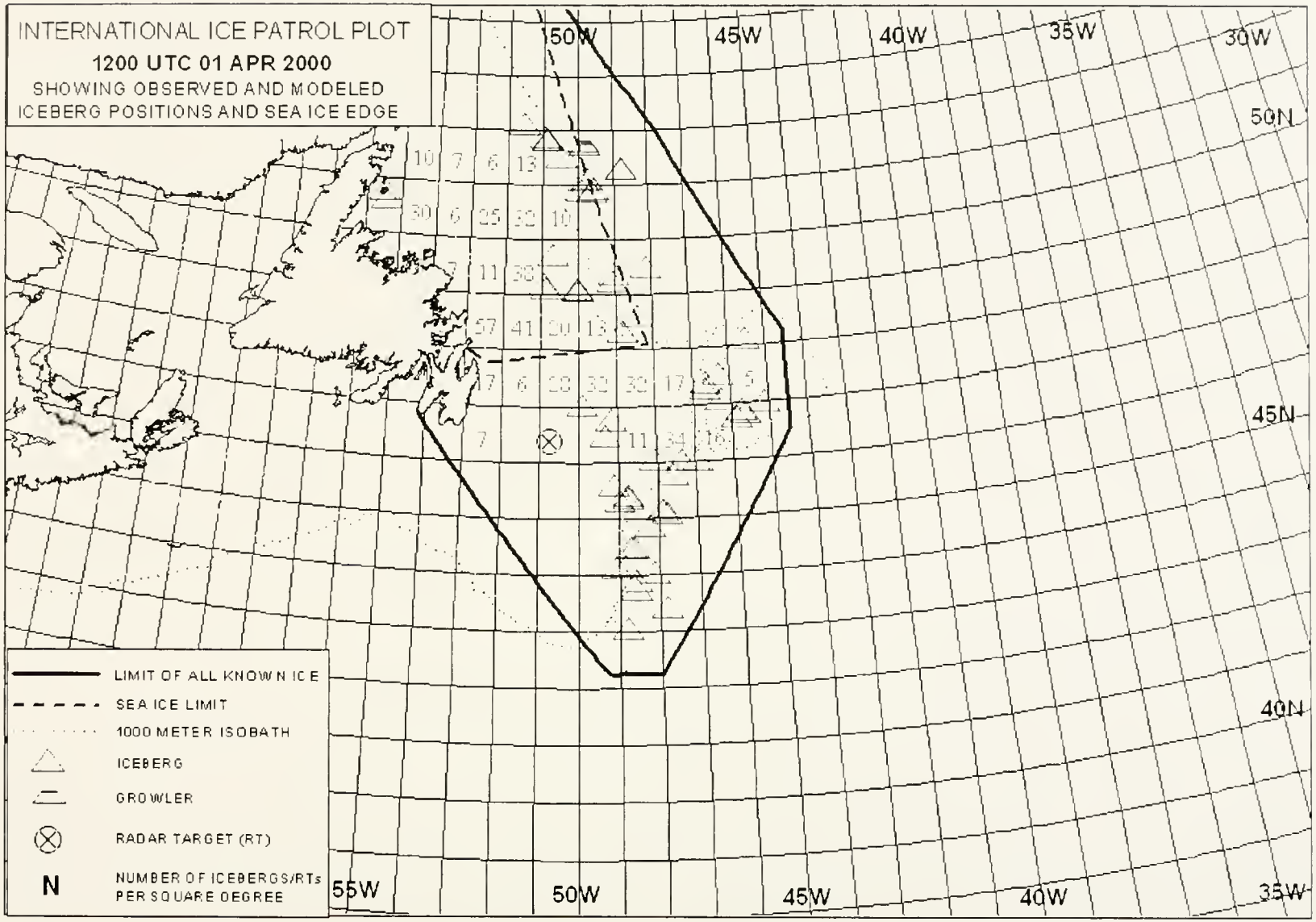
45N
40N
55W
50W
45W
40W
35W
11
8
23
5
11
63
50
47
30
35
5
10
5
LIMIT OF ALL KNOWN ICE
SEA ICE LIMIT
1000 METER ISOBATH
ICEBERG
GROWLER
RADAR TARGET (RT)
N
NUMBER OF ICEBERGS/RTs
PER SQUARE DEGREE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30W
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45N
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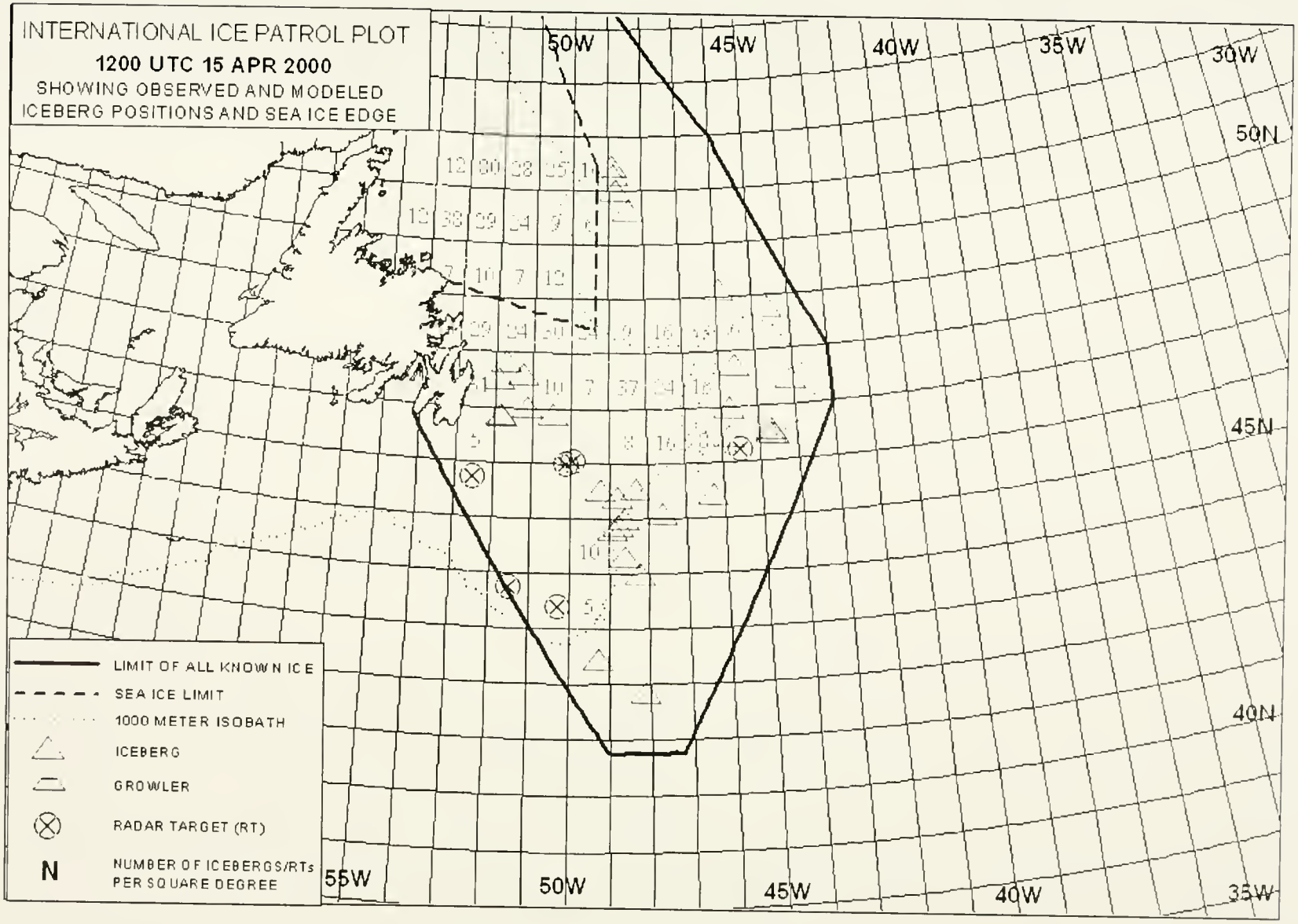
35W
LIMIT OF ALL KNOWN ICE
SEA ICE LIMIT
1000 METER ISOBATH
ICEBERG
GROWLER
RADAR TARGET (RT)
N
NUMBER OF ICEBERGS/RTs
PER SQUARE DEGREE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ICEBERG POSITIONS AND SEA ICE EDGE
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1000 METER ISOBATH
ICEBERG
GROWLER
RADAR TARGET (RT)
N
NUMBER OF ICEBERGS/RTs
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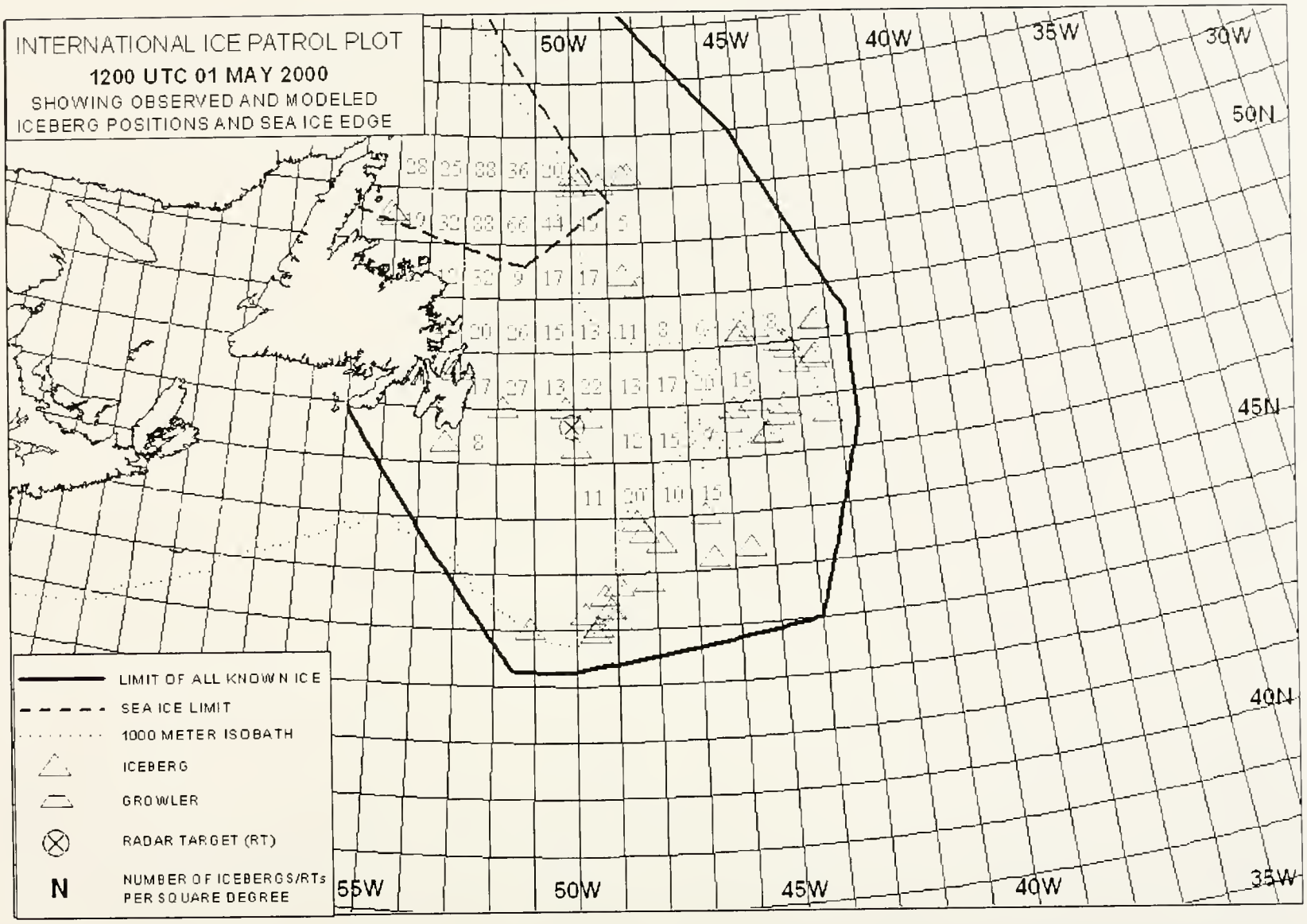
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35W
LIMIT OF ALL KNOWN ICE
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1000 METER ISOBATH
ICEBERG
GROWLER
RADAR TARGET (RT)
N
NUMBER OF ICEBERGS/RTs
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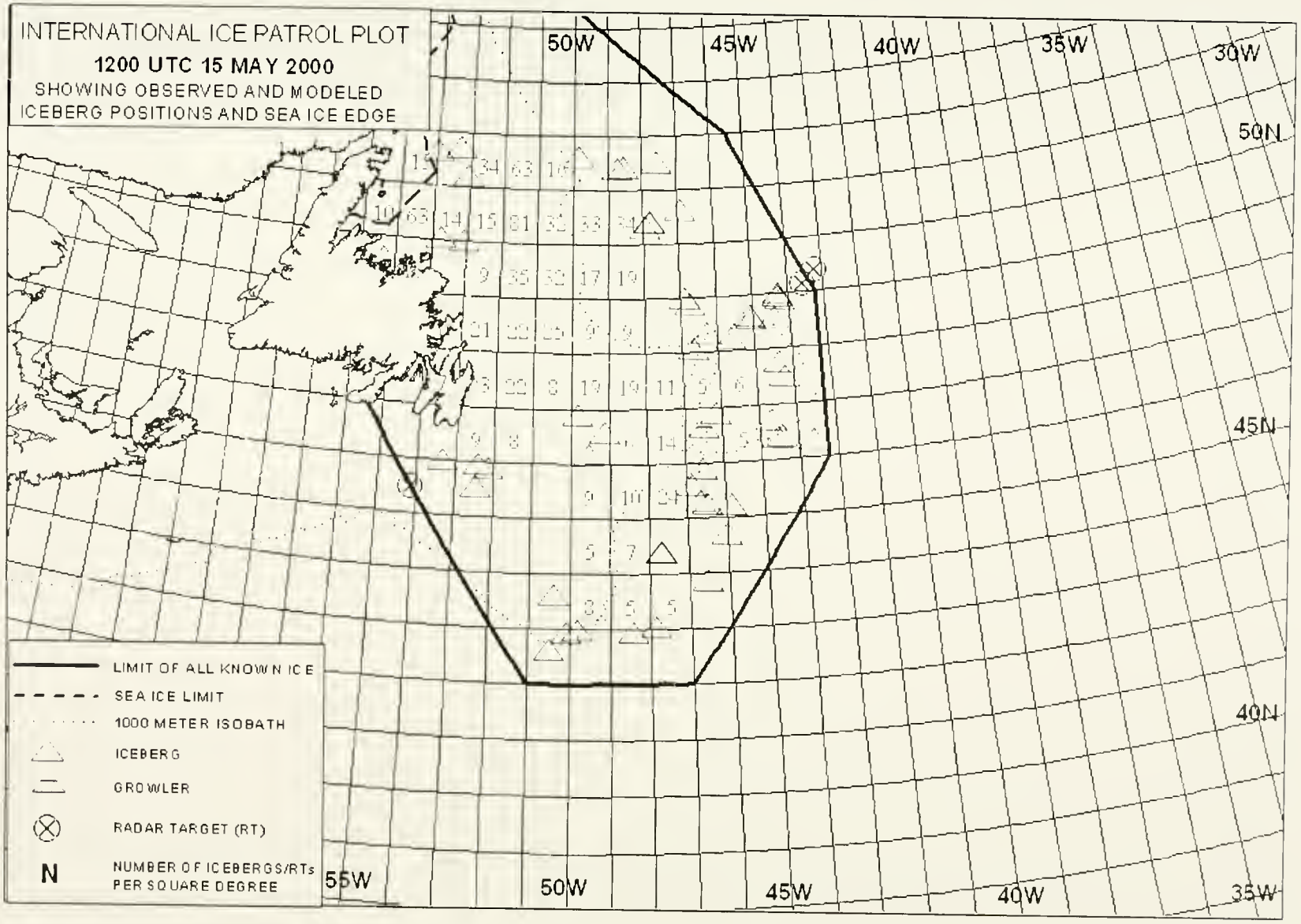
INTERNATIONAL ICE PATROL PLOT
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SHOWING OBSERVED AND MODELED
ICEBERG POSITIONS AND SEA ICE EDGE
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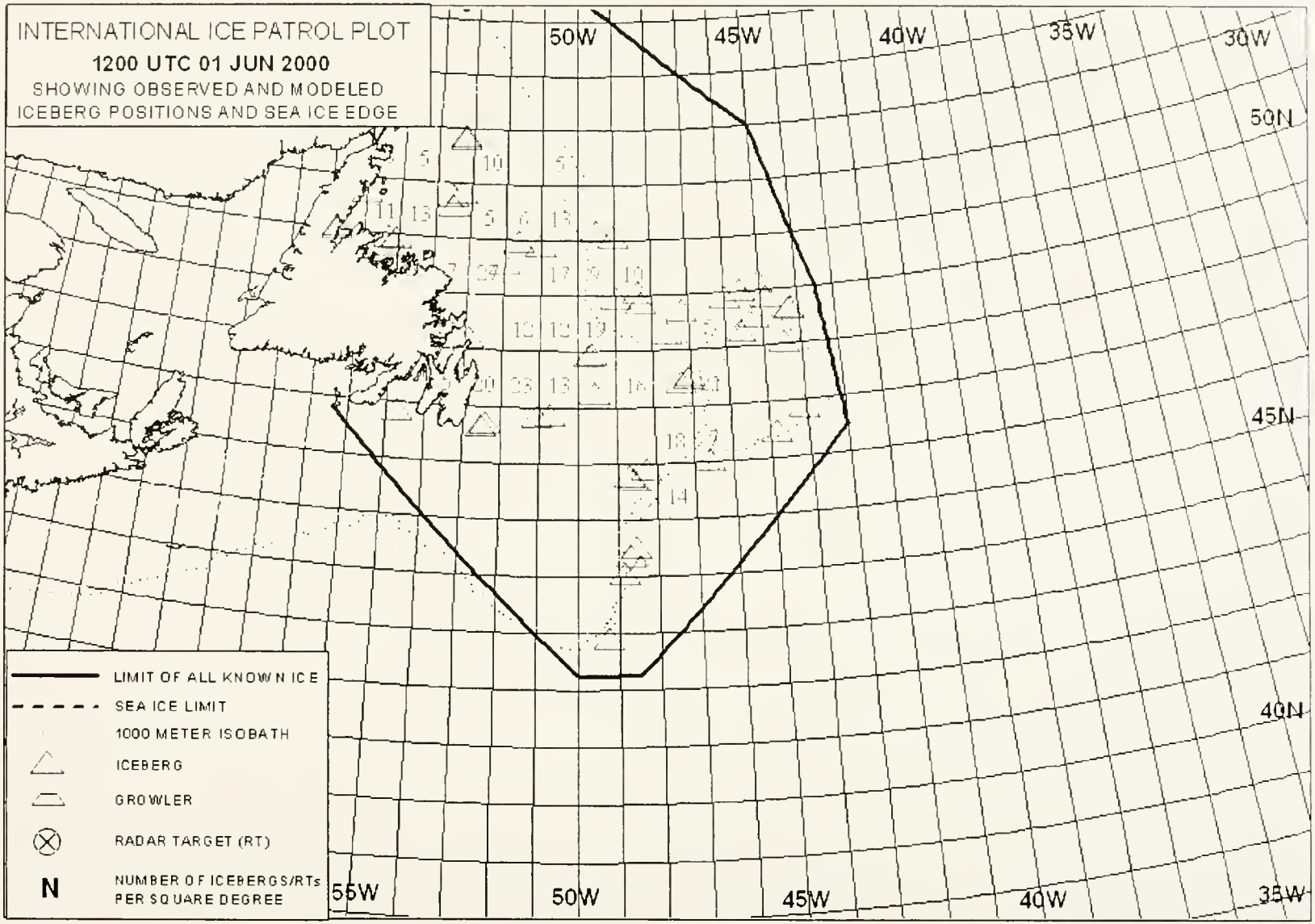
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ICEBERG
GROWLER
RADAR TARGET (RT)
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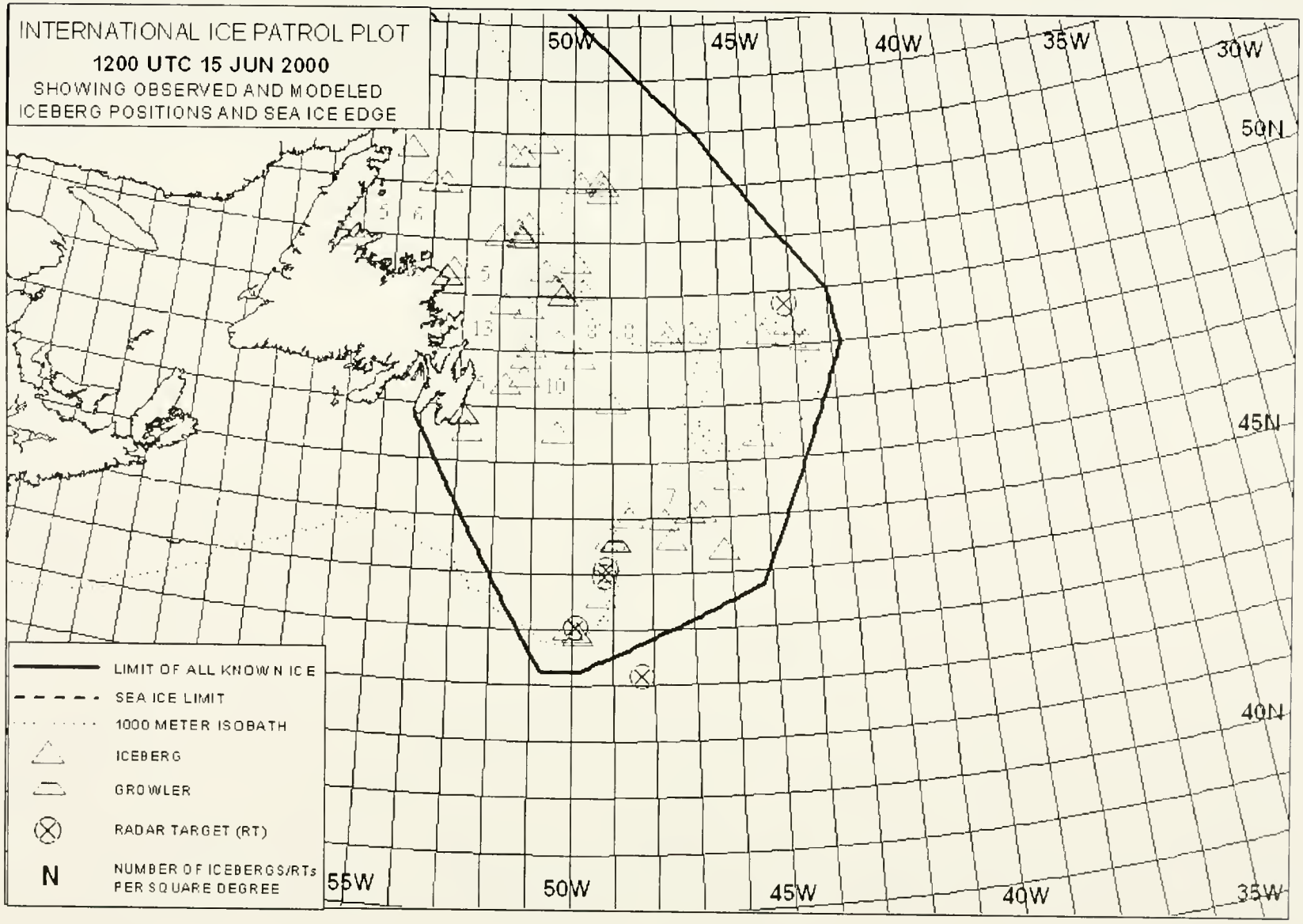
INTERNATIONAL ICE PATROL PLOT
1200 UTC 15 JUN 2000
SHOWING OBSERVED AND MODELED
ICEBERG POSITIONS AND SEA ICE EDGE
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SEA ICE LIMIT
1000 METER ISOBATH
ICEBERG
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RADAR TARGET (RT)
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NUMBER OF ICEBERGS/RTs
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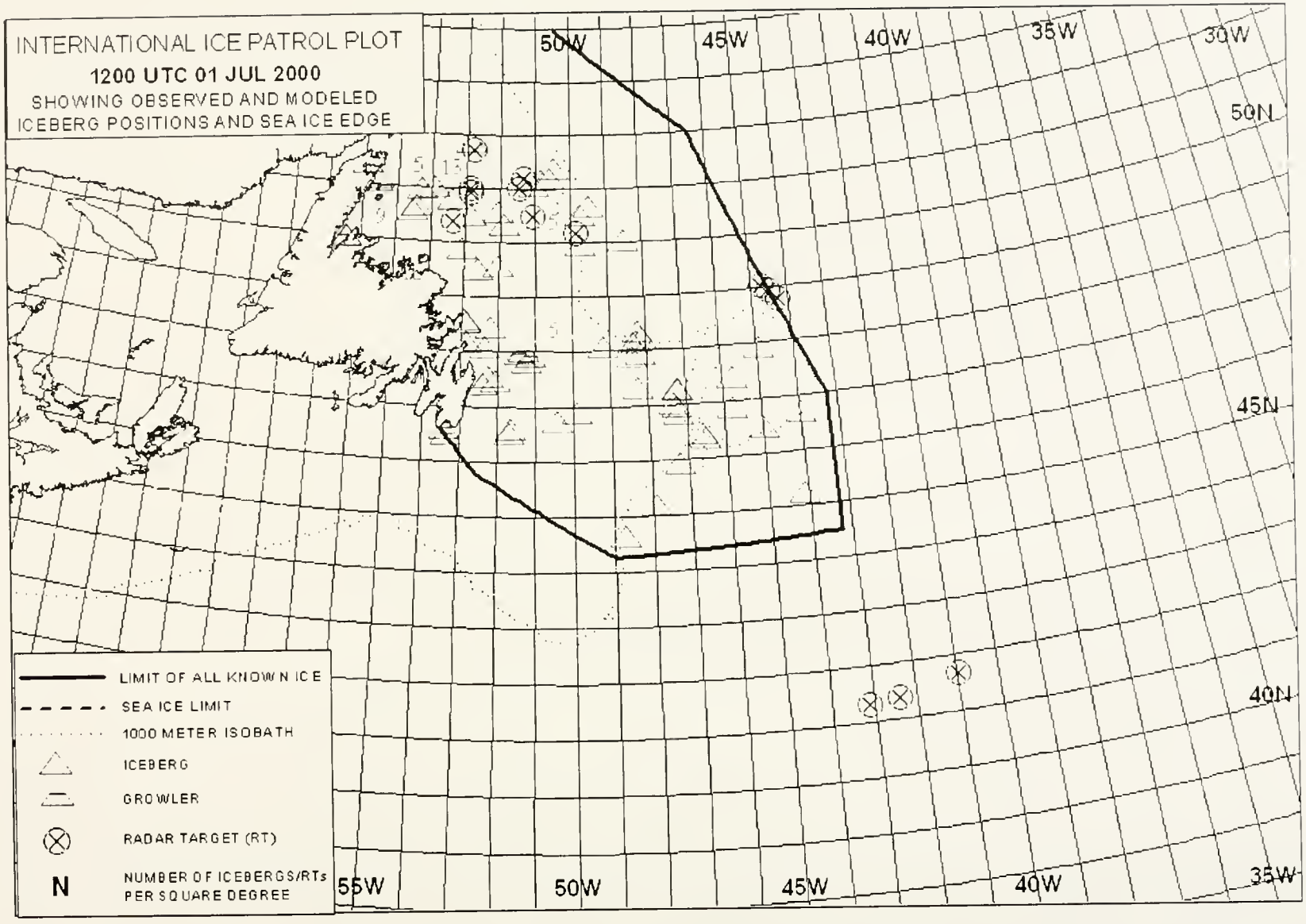
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SHOWING OBSERVED AND MODELED
ICEBERG POSITIONS AND SEA ICE EDGE
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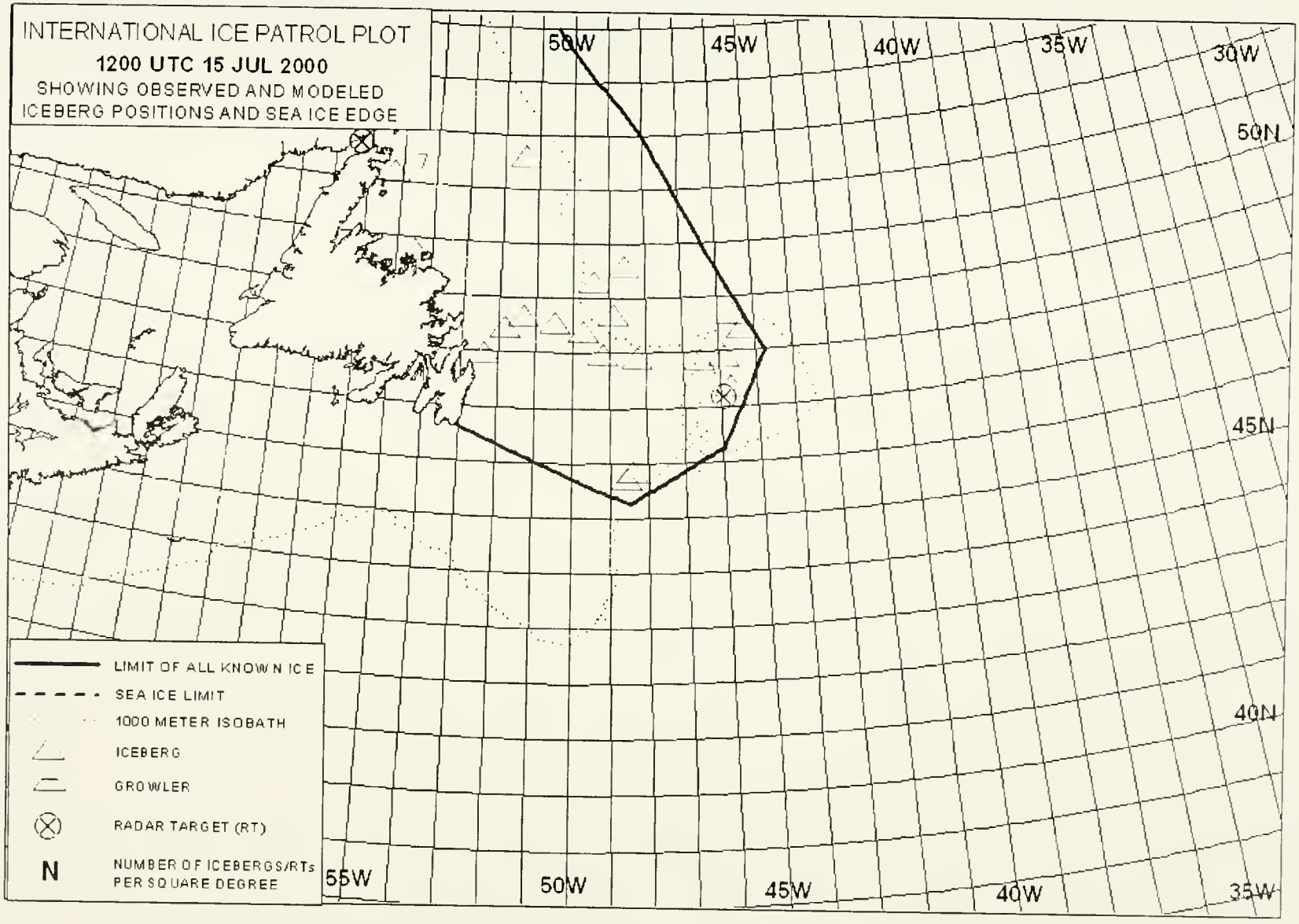
INTERNATIONAL ICE PATROL PLOT
1200 UTC 15 JUL 2000
SHOWING OBSERVED AND MODELED
ICEBERG POSITIONS AND SEA ICE EDGE
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GROWLER
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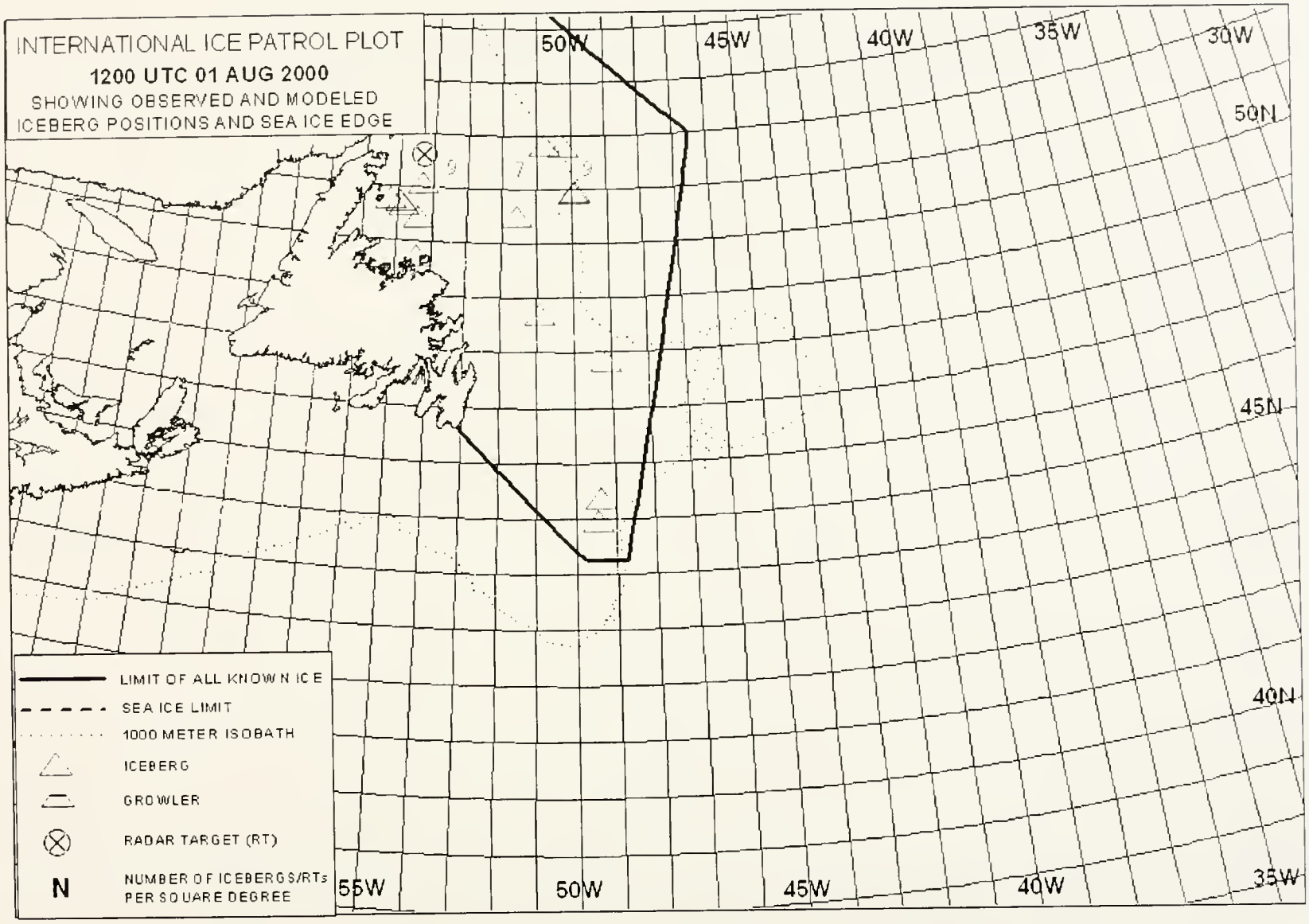
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ICEBERG POSITIONS AND SEA ICE EDGE
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ICEBERG
GROWLER
RADAR TARGET (RT)
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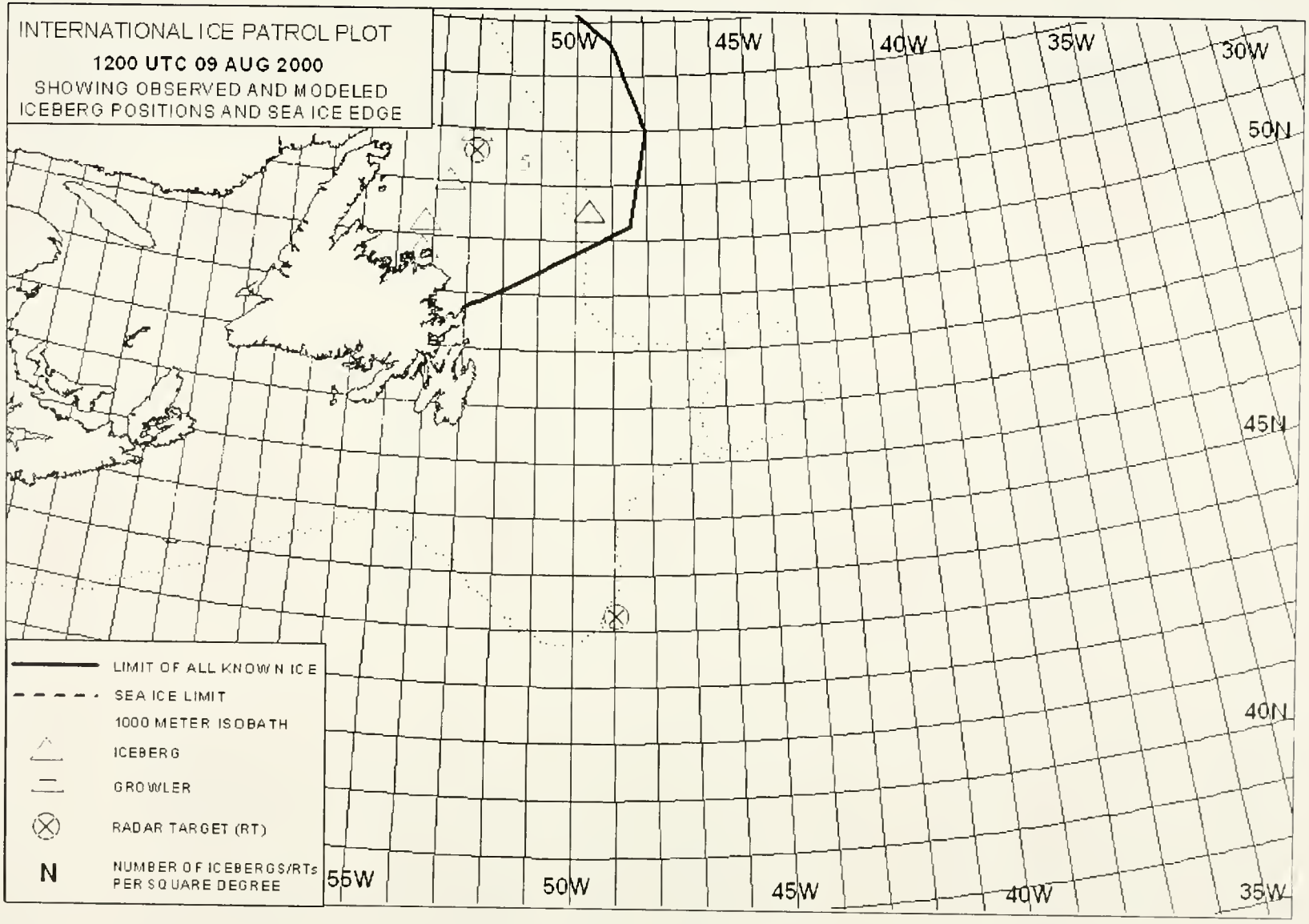
INTERNATIONAL ICE PATROL PLOT
1200 UTC 09 AUG 2000
SHOWING OBSERVED AND MODELED
ICEBERG POSITIONS AND SEA ICE EDGE
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ICEBERG
GROWLER
RADAR TARGET (RT)
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NUMBER OF ICEBERGS/RTs
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Acknowledgements

Commander, International Ice Patrol acknowledges the assistance and information provided by:

Canadian Ice Service
Canadian Coast Guard
Navy / NOAA / USCG National Ice Center
U. S. Naval Fleet Numerical Meteorology and Oceanography Center
U. S. Naval Atlantic Meteorology and Oceanography Center
U. S. Coast Guard Research and Development Center
U. S. Coast Guard Atlantic Area Staff
U. S. Coast Guard Atlantic Area Command Center
U. S. Coast Guard Atlantic Area Master Communications Center

We extend our sincere appreciation to the staffs of these organizations for their excellent support during the 2000 International Ice Patrol season:

Canadian Coast Guard Radio Station St. John's, Newfoundland/VON
Ice Operations St. John's, Newfoundland
Air Traffic Control Gander, Newfoundland
Canadian Forces Gander and St. John's, Newfoundland
Nav Canada Flight Services Station St. John's, Newfoundland
U. S. Coast Guard Air Station Elizabeth City, North Carolina
National Weather Service, Maryland

It is important to recognize the outstanding efforts of the personnel at the International Ice Patrol:

CDR S. L. Sielbeck
LCDR T. P. Wojahn
Dr. D. L. Murphy
Mr. G. F. Wright
LT J. E. Andrews
LT L. K. Mack
LT C. A. Strong
MSTCM S. B. Bell
MSTC V. L. Fogt
MST1 M. J. O'Brien
MST1 L. S. Howell
MST1 J. C. Luzader
MST1 H. R. Harbuck
YN1 G. J. McCarthy
YN1 S. J. Hoss
MST2 S. R. Houle
MST2 T. T. Krein
MST2 P. J. Jenicek
MST3 M. L. Seeger
MST3 D. A. Jolly
MST3 R. J. Kenward

International Ice Patrol staff produced this report using Microsoft® Word 2000 and Excel 2000.

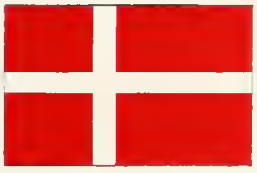
Appendix A

Nations Currently Supporting International Ice Patrol

Belgium

Canada

Denmark



Finland

France

Germany

Greece

Italy

Japan

Netherlands

Norway

Panama

Poland

Spain

Sweden

United Kingdom

United States of America

Appendix B

Ship Reports

Ships Reporting By Flag	Reports
ALGERIA	
AIN TEMOUCHENT	3
ANTIGUA / BARBUDA	
ENNO B	1
GEYSER	1
MALTE B	2
MARTRADER	3
ARUBA	
SWAN SONG	1
BAHAMAS	
AEOLIAN	11
ATLANTIC CARTIER	21
BALTIIMAR ORION	3
BLACK SWAN	24
BLUE MOON	1
CHIQUITA BELGIE	52
*CSO MARIANOS	77
FALSTER SPIRIT	1
INVIKEN	2
LUZON SPIRIT	3
ORKNEY SPIRIT	3
SHERINGHAM	7
UTVIKEN	1
VICTORY	1
WREN ARROW	2
YEOMAN BRIDGE	2
BARBADOS	
FEDERAL BAFFIN	2
KENT VOYAGEUR	17
BELGIUM	
O BELGIUM	6
BERMUDA	
CANMAR CONQUEST	2
CANMAR HONOUR	2
CAST POWER	1
CAST PRIVILEGE	3

Ships Reporting By Flag	Reports
BERMUDA continued	
CORNER BROOK	1
IVAN GORTHON	1
MARGIT GORTHON	3
CANADA	
ALGOFAX	2
ALGOSCOTIA	1
ANN HARVEY	9
ARCTIC	1
ATLANTIC EAGLE	1
ATLANTIC ERIE	3
ATLANTIC OAK	1
ATLANTIC POPLAR	2
ATLANTIC SPRUCE	1
CAPE NEDDICK	1
DES GROSEILLIERS	5
ESCORT PROTECTOR	2
JADE STAR	1
LEONARD J. COWLEY	7
MAERSK BONAVISTA	2
MAERSK CHIGNECTO	2
MAERSK GABARUS	1
MAERSK NORSEMAN	4
MARIA DESGAGNES	2
PIERRE RADISSON	3
S/V GAME II	1
SAUNIERE	1
SIR HUMPHREY GILBERT	5
TERRA NOVA FPSO	13
TERRY FOX	1
WELLINGTON KENT	10
CAYMAN ISLANDS	
BRITISH STEEL	4
FETISH	3
ICE STAR	4

Ships Reporting By Flag	Reports
CAYMAN ISLANDS continued	
IRONBRIDGE	1
MAGIC	9
MILLENIUM OSPREY	1
CHINA, TAIWAN	
CHOU SHAN	2
CROATIA	
KONAVLE	1
ORSULA	1
CYPRUS	
AGIE SB	1
IRMA	1
IRYDA	32
ISA	3
ISOLDA	11
MIDEN AGAIN	66
OKEANATOR	3
NEDLLOYD OTTAWA	1
POLAR HONDURAS	1
SELNES	2
STRANGE ATTRACTOR	7
VAMAND WAVE	5
WASHINGTON RAINBOW II	9
DANISH INTERNATIONAL REGISTER	
SKANDIA	4
DENMARK	
DANSUS	2
ICE BIRD	1
IRENA ARCTICA	1
EGYPT	
EBN AL WALEED	1
ESTONIA	
GUSTAV SULE	1
HELTERMAA	4
FAEROE ISLANDS	
GREEN SKANDIA	2
NORDIC ICE	4
FINLAND	
CAMILLA	13
DEGERO	1

Ships Reporting By Flag	Reports
FINLAND continued	
MASTERA	2
FRANCE	
CARNAC	1
FRESNEL	13
ODET	1
FRENCH ANTARCTIC TERRITORY	
GERARD LD	2
GERMANY	
ABITIBI ORINOCO	2
BAVARIA	1
GAUSS	26
HONG KONG SENATOR	1
SANTIAGO	2
STUTTGART EXPRESS	1
GREECE	
ANANGEL SPLENDOUR	1
ASTRO MARIA	2
CAP GEORGES	5
CAP JEAN	2
CAP LAURENT	1
CAP ROMUALD	1
NISSOS SERIFOS	5
PINDAR	3
PONTOKRATIS	4
PRIDEVENTURE L	1
RHEA	1
TREASURE ISLAND	11
VERDON	1
HONG KONG	
APTMARINER	7
DARYA KAMAL	14
FEDERAL OSHIMA	1
LADY HAMILTON	3
OOCL CANADA	5
OOCL FAITH	1
OOCL FIDELITY	5
OOCL FREEDOM	2
RAINBOW QUEST	2

Ships Reporting By Flag	Reports
HONG KONG continued	
WORLD ACTION	1
ICELAND	
RAUDINUPUP	2
INDIA	
APJ SHALIN	6
DARYA TAAL	8
LOK PRATAP	13
ISLE OF MAN	
DONAUSTERN	5
ITALY	
MT ISOLA AMARANTO	11
XSITE	1
KOREA (SOUTH)	
SABINA	5
LIBERIA	
AFRICAN DAHLIA	2
BREMEN SENATOR	2
EL DORADO	20
FANTASY	1
GISELA OLDENDORFF	7
JOSEPH	2
KNOCK SALLIE	15
PHILIPPOS	2
RIO GAS	3
SINTRA	6
ST PETERSBURG SENATOR	1
STOLT ALLIANCE	1
STOLT ASPIRATION	11
TRENT	10
UNITED STELLA	15
VLADIVOSTOK SENATOR	4
LITHUANIA	
CAPE CIRCLE	1
KAPITONAS A. LUCKA	6
KAPITONAS KAMINSKAS	1
MALAYSIA	
BUNGA MELOR TIGA	2

Ships Reporting By Flag	Reports
MALTA	
CHALLENGE	18
FAIR LADY	1
GREEN SPRING	1
HESNES	1
MARSHALL ISLANDS	
LAKE CARLING	21
LAKE CHAMPLAIN	7
LAKE ERIE	24
LAKE SUPERIOR	1
SEA-LAND FREEDOM	14
SEA-LAND MARINER	5
NETHERLANDS	
ARION	12
ARTISGRACHT	1
DINTLBORG	1
EGBERT WAGENBORG	5
EGELANTIERSGRACHT	2
FAIRLOAD	3
HAPPY BUCCANEER	1
MERWEBORG	5
VLISTBORG	12
NETHERLANDS ANTILLES	
CONDOCK I	1
NOVA KLIPPER	4
REDEPLEIN	30
VECHTBORG	1
NORWAY	
BERGE NORD	53
BRUNTO	7
ELLEN KNUTSEN	1
INGAR IVERSEN	1
MARINETTE	1
NOMADIC POLLUX	7
NORTHERN CHALLENGE	1
SIDSEL KNUTSEN	2
TASCO	1
TOBA	5

Ships Reporting By Flag	Reports
NORWAY continued	
TURID KNUTSEN	3
WESTON	4
NORWEGIAN INTERNATIONAL REGISTER	
ALOUETTE ARROW	2
BALSFJORD	2
CONCORD	14
GREEN COOLER	1
GREEN CRYSTAL	4
HELGA	3
HUAL ANGELITA	1
MUNKSUND	2
NEVA TRADER	9
POLAR DUKE	1
SIBOELF	3
STAR GRINDANGER	1
TEAM SATURN	7
PANAMA	
CAPE HAWK	5
CHOYANG PARK	1
FEDERAL FRASER	23
FEDERAL MCKENZIE	7
LOWLANDS YARRA	2
MAERSK PLACENTIA	1
MILLINIUM HARMONEY	4
NEGRIL BAY	1
OKLAHOMA RAINBOW	11
OLYMPIC MENTOR	7
PARNASO	1
PENTLAND PHOENIX	1
PODRAVINA	1
PRINCESS NADIA	4
PRINCESS SUSANA	4
SEAFROST	1
SONORA	3
UNITED SAGE	17
YICK HUA	5

Ships Reporting By Flag	Reports
PHILIPPINES	
CHANNEL ALLIANCE	3
MARQUESA	6
STAR SAVANNAH	7
POLAND	
ZIEMIA CHELMINSKA	1
ZIEMIA ZAMOJSKA	10
RUSSIA	
AKADEMIK SHATSKIY	7
METELITSA	1
ONEZHSKIY	1
SINGAPORE	
EMILIE MAERSK	19
FIDELITY	6
KILCHEM LABRADOR	1
ROTTERDAM EXPRESS	1
SELFOSS	12
VEGA	6
ST. VINCENT	
AZUR	7
SWEDEN	
ADA GORTHON	1
INGRID GORTHON	2
JOH. GORTHON	4
MARIA GORTHON	4
TURKEY	
BIBI-M	3
CIMIL	2
UKRAINE	
MAKEEVKA	1
MARIUPOL	2
UNITED KINGDOM	
DESTINY	1
GB AEOLIAN	1
GLASGOW MAERSK	2
GRASMERE MAERSK	7
QUEEN ELIZABETH II	3
VICKI LYNN	1

Ships Reporting By Flag Reports

UNITED STATES OF AMERICA

GALVESTON BAY	2
GUS W. DARNELL	24
LIBERTY SUN	2
PLAYSTATION S/V	1
PRINCESS STEPHANIE	1
USCGC HEALY	46

*DENOTES VESSEL PARTICIPATION AWARD WINNER

Appendix C

2000 Fax Chart Reception Project

MST3 Jonathan Dale and LT Christopher Strong

The International Ice Patrol strives to locate and track icebergs south of 52°N that may pose a threat to North Atlantic mariners. Ice Patrol then provides the Limit of All Known Ice (LAKI) to the mariner with the Daily Radiofacsimile (fax chart). This is broadcast from three different locations around the North Atlantic on 10 different high frequencies.

During the 2000 ice season the International Ice Patrol initiated the Fax Chart Reception Project to determine the quality of the reception received by our primary customer, the North Atlantic Mariner. In order to conduct the analysis the International Ice Patrol requested that mariners send copies of IIP's HF fax charts they received while underway. The copies were to be annotated with the reception position, time, and frequency. While IIP monitors the accuracy and quality of the HF fax chart at every transmission, the real goal of the project was to determine the quality of the reception received by our primary customer, the mariner. The response from the maritime community was good, and we received 195 different fax charts from 27 individual vessels (Table 3). To analyze the results, the faxes were first sorted according to the quality of reception. Then the position of receipt was plotted and the frequency of reception was noted.

The position and frequency of reception for fax charts received covered an enormous area from Germany to Puerto Rico. However, in order to focus our analysis efforts, IIP decided to narrow the analysis down to a region more representative of our area of operations. The area that we chose to examine extends north from 35°N to 59°N and west from 25°W to 65°W. As a result our sample size was reduced by more than half as only 79 charts were received within this area. Nonetheless, this represents a significant number of charts covering the major shipping routes in the North Atlantic.

The quality of reception analysis was conducted by binning the charts into five categories shown in Figure 1. In four of the five (1 through 4) categories the LAKI was readable, although in Category 4 it was difficult. The fifth category was so poor that the information was incomplete or entirely unreadable. Table 1 shows the number of fax charts in each reception group within the analysis region.

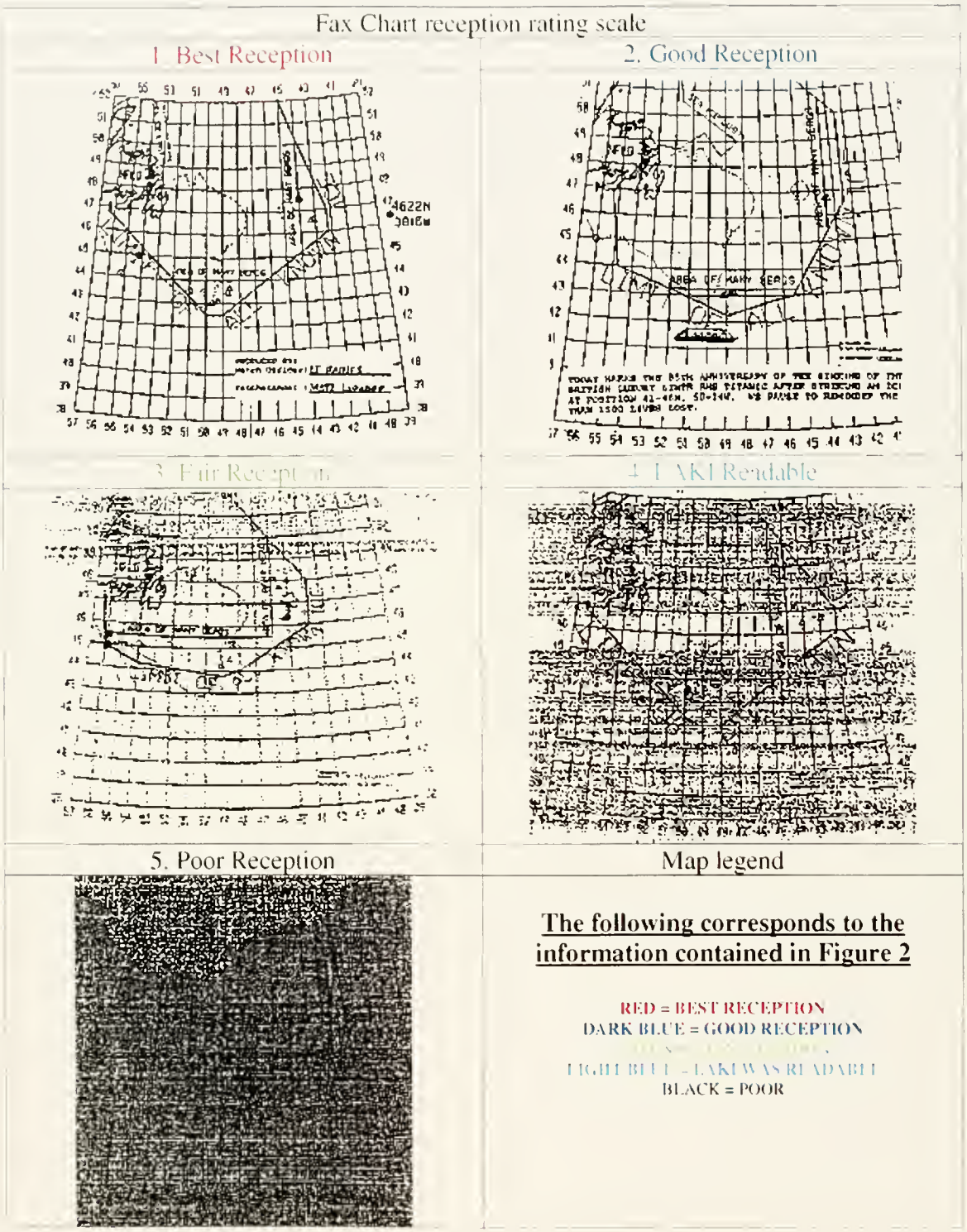


Figure 1. Chart used to assess reception quality.

RECEPTION QUALITY IN SAMPLE GROUP	
BEST	10
GOOD	21
FAIR	23
READABLE	21
POOR	4

Table 1. Quality of fax charts returned within the analysis region.

The data were also examined to determine the most popular frequencies. The results indicated the preferred frequency was 12750 MHz with 53% of the population (Table 2). This is the highest frequency at which the International Ice Patrol broadcasts its fax chart. The 13882.5 MHz chart is broadcast from Germany by the German Ice Service, and therefore would be expected to carry the farthest. It should be noted that other agencies also broadcast this product at high HF frequencies as well. It is noteworthy that, in general (83% of the charts), three major frequencies are used by the mariner: 9110 MHz, 12750 MHz, & 13822.5 MHz (Table 2).

Figure two shows the geographical distribution of the returned fax charts. The 13822.5 MHz frequency is the long HF fax chart broadcast from Germany, and was found principally on the eastern edge of the study area. The 9110 MHz frequency distribution showed that it was mainly copied West of 47°W since it is a lower HF frequency transmission. Finally, the 12750 MHz frequency was evenly distributed throughout the rest of the study area.

FREQUENCIES USED / PERCENT	
Percent	**Frequency**
53%	12750 MHz
20%	9110 MHz
10%	13882.5 MHz
3%	12250 MHz
1.5%	6340 MHz
12.5%	None Indicated

Table 2. Percentage of fax charts returned within the analysis region broken down by frequencies.

Many variables affect the quality of the fax chart reception: the vessel's antenna height and distance from the transmitter, the quality of the communications equipment aboard the vessel, the time of day, and even global atmospheric conditions. Despite this complexity and the small data set, the simple study described here provides some useful insight into the reception quality of IIP's fax chart. The 12750 MHz signal provides excellent service throughout most of the Western North Atlantic. The 13882.5 MHz frequency appears to provide a good signal for the Eastern and central North Atlantic. Over 90% of the returned charts in the study area were readable. IIP plans to conduct these analyses every three years. Therefore, based on this year's response from the maritime community, IIP expects to be able to continuously increase the sample size from which these analyses can be conducted in the future. IIP monitors every fax chart transmission from our Operations Center, yet there is no substitute for getting direct feedback from the mariner who relies on these charts.

VESSELS REPORTING	
BUNGA MECOR TIGA	NOMADIC POLLUX
CHANNEL ALLIANCE	PINDAR
EL DORADO	PRINCESS NADIA
FEDERAL BAFFIN	SITAYONA
GAUSS	STUTTGART EXPRESS
GERARD LD	TEAM SATURN
IRONBRIDGE	TRINA OLDENDORF
ISOLDA	USCGC COURAGEOUS
KENT VOYAGEUR	USCGC EAGLE
LUZON SPIRIT	USCGC HARRIET LANE
M/V MAGIC	USCGC NORTHLAND
M/V MIDDEN AGAIN	USCGC TAHOMA
MT CHALLENGE	ZIEMIA ZAMOJSKA
NEWARK BAY	

Table 3. Listing of vessels returning fax charts in 2000.

IIP greatly appreciates the maritime community's participation in this study and looks forward to working with you all again in the future. Your contributions to our efforts in increasing the quality of service we can provide the mariner are commendable. Please continue to provide IIP with any information that you feel will help us serve you better.

Fair winds and following seas,

The International Ice Patrol

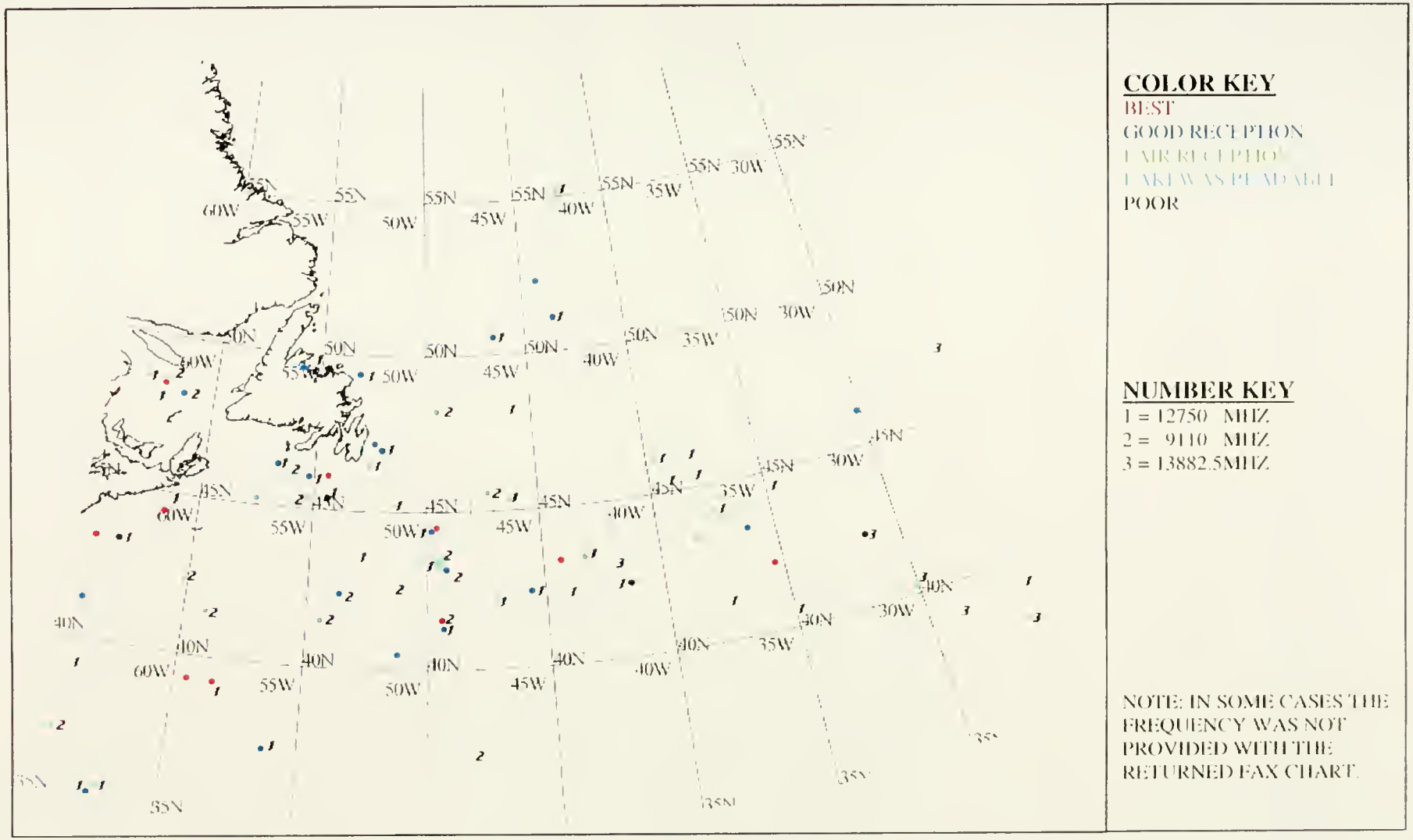


Figure 2. Distribution of fax charts returned within the analysis region with frequency and reception quality noted.

Appendix D

Reprinted from *Proceedings of the 16th International Conference on Port and Ocean Engineering under Arctic Conditions*, 2001. Vol. 2, 997-1006.

SHIP COLLISIONS WITH ICEBERGS: AN HISTORICAL RECORD OF COLLISIONS IN THE SEAS AROUND NORTH AMERICA AND GREENLAND

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ABSTRACT

A database of over 560 incidents of ship collisions with icebergs has been compiled. Most of these collisions occurred in the North Atlantic but there are also several from around Greenland, the Canadian Arctic and sub-Arctic, and from the fiords of Alaska. The database nominally covers a 200 year period from about 1800 to present, and was compiled from contemporary shipping newspapers and gazettes. It contains such information as the name of the vessel, geographic location, and other factors when known such as vessel speed, iceberg size, damage and loss of life. The long term trend of collisions with icebergs on and around the Grand Banks correlates well, for the most part, with the re-constructed sea ice records off the east coast. The decades around 1890 were unusually severe in ice conditions and this is reflected in the number of casualties. Correlation between the two data sets becomes increasingly less apparent throughout the 20th century and this is likely due to better iceberg monitoring and detection methods. Incidents still occur at an average of 1 to 2 per year and still pose a threat to operators and navigators on the Grand Banks where oil resources are being increasingly developed. This paper discusses the trends in collisions.

INTRODUCTION

Icebergs in waterways have long been objects of awe and of fear. Perhaps the first description to come down to us is from St. Brendan's reputed voyage from Ireland to North America in about 570 AD in which the iceberg is described as a column of pure crystal. It is highly likely there were many later encounters and probably losses sustained by the Vikings and by early Basque fishers and whalers but it is not until 1686 that we have the first recorded casualty when the *Happy Return* struck ice in Hudson Strait. The mariners were probably indifferent to the ice type of their encounter but the fate of the ship *Anne* (Treby, 1724) in April 1704 leaves no doubt as to the nature of the ice as the vessel bounced twice off a huge island of ice. Eleven men were to die, and survivors suffered from frostbite and subsequent amputations, in their struggle to reach St. John's in an open boat.

There are about 400 recorded collisions of ships of various types hitting icebergs in the North Atlantic during the 19th century and up until the most famous incident ever, the sinking of the *RMS Titanic* with the deaths of over 1500 people in 1912. The loss of life, huge in itself in this one event, is less than half the total recorded in the last 200 years. Prior to the *Titanic* disaster there had been concern for high speed marine traffic in natural hazards of fog and ice as well as derelicts and there had been calls for sea patrols to provide forewarning. The International Ice Patrol (IIP) was inaugurated shortly afterwards, and to this day regularly delineates the area within which floating ice poses danger to shipping in the Grand Banks area. No incident has occurred outside their posted ice limits in this area since, but despite their warnings and improved ship-borne aids to ice detection, there have been over 130 collisions in that time inside their limits. Of these, there have been 10 serious incidents in the approaches to Newfoundland since 1980 alone. In the last 20 years there have also been about 20 other incidents around the coastlines of North America including the Arctic and Alaska.

Better detection methods and ship technologies have changed the nature of the incidents. Larger icebergs are more easily detectable with current radar systems making a recurrence of a *Titanic* like tragedy extremely unlikely. It is the smaller icebergs, the growlers and the bergy bits which are hidden from radar in heavy seas or fields of sea ice, which pose the main threat, as is well illustrated in all the recent incidents. The potential for loss of life, while still a considerable concern particularly in smaller vessels, is now reduced due to improved rules and regulations for safety of life at sea and more expedient rescue services. However, vessels today are typically much larger, carrying huge amounts of expensive cargo. Repairs to the bulk carrier *m/v Trave Ore* after striking a bergy bit in 1989 amounted to $4M, not to mention losses due to damage and non-delivery of cargo and losses incurred with a vessel out of service. Ecological concerns are important factors. Fortunately, when a growler rent a 7 by 3 metre hole in the bow of the *m/v Omikronventure* in 1993, none of the 600,000 barrels of oil was lost, and although not in itself an impact with ice, the *m/v Exxon Valdez*, the largest ecological disaster of our time, went aground spilling 11 million gallons of crude oil when trying to manoeuvre around icebergs.

Incidental preparation of this report began during the preparation of another report, The Historical Record of Sea Ice and Iceberg Distribution around Newfoundland and Labrador,

1810 - 1958 (Hill, 1998). The collection of data for this report spanned many years and it became apparent while doing so, that it contained many reports of ships being damaged or sunk by pack ice and icebergs. As oil and gas discoveries on the Grand Banks were nearing the production phase at this time, there was increasing interest in the incidence of ice and how it may pose a threat to production platforms and supply vessels. The Institute for Marine Dynamics is currently involved in a 3 year Joint Industry Project on the interaction of bergy bits with ships and structures. Also, there was renewed interest in the *Titanic* theme thanks to Hollywood, and so it was decided to incorporate the collision database into a report to meet the many requests for information being received.

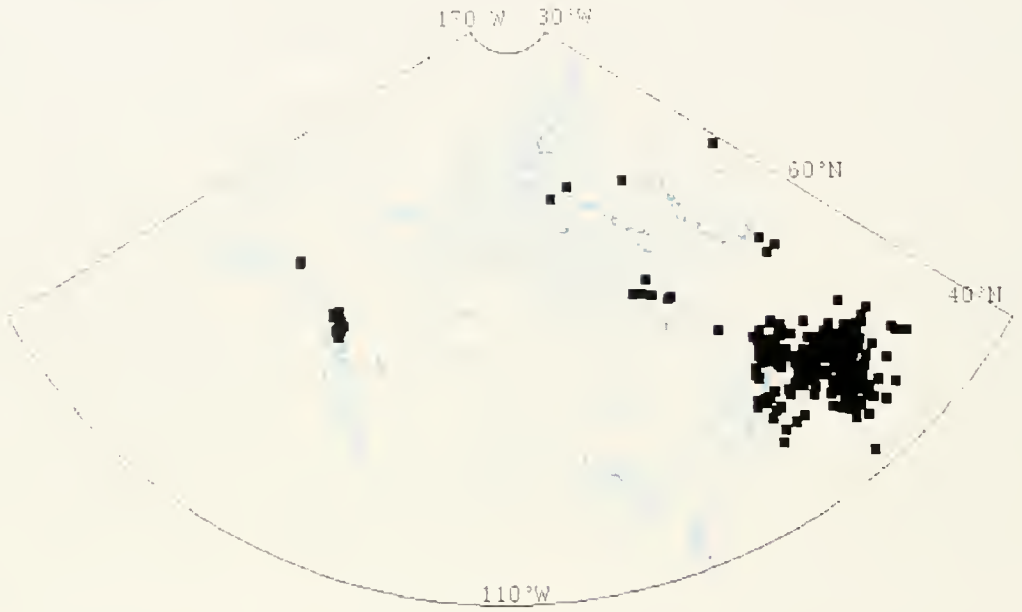

Figure 1: Geographic distribution of 360 known locations of iceberg incidents

Several of the incidents in the database presented here were found during the initial search for sea ice reports, as mentioned above. However, that search concentrated mainly on the winter months January to April and occasionally into May. While iceberg incidents from outside that time frame were noted, it left approximately half of each year unsearched. This is now essentially complete with contemporary daily to weekly material checked continuously from 1820 to 1947, 1985 to 1988, 1991 to 2000, reflecting archive sources available to the author, in addition to secondary sources covering the whole time frame. While further incidents will certainly come to light, it is believed that additional data will not greatly affect trends now discussed.

INFORMATION ABOUT THE SOURCES AND THE DATA

The primary sources of information on the ship collisions were the New York Maritime Register (1869) and Lloyd's List (1741) supplemented by other journals and newspapers as outlined in the Bibliography listed with the database. Compiled shipping and shipwreck databases, some available on the Internet, have also given information. Often, the information for each of the incidents was built from a number of sources, few giving the full

information. Some incidents have their stories set out in books as in the case of the *Anne*. The story of many others would be worthy as books.

The focus of the incidents was on ship collision with icebergs. However, the term iceberg was often used loosely, and while it should be ice of glacial origin as opposed to that formed by the freezing of sea water, mariners often made no such fine distinctions. Generally, if the term iceberg was used then it was included in the list of incidents. The exceptions were if the location made the presence of glacial ice doubtful as in the Bering Straits, where multiyear sea-ice would be more likely. These cases have been omitted until confirmatory reports are found. There were also several incidents in the Cabot Strait, around the east coast of Cape

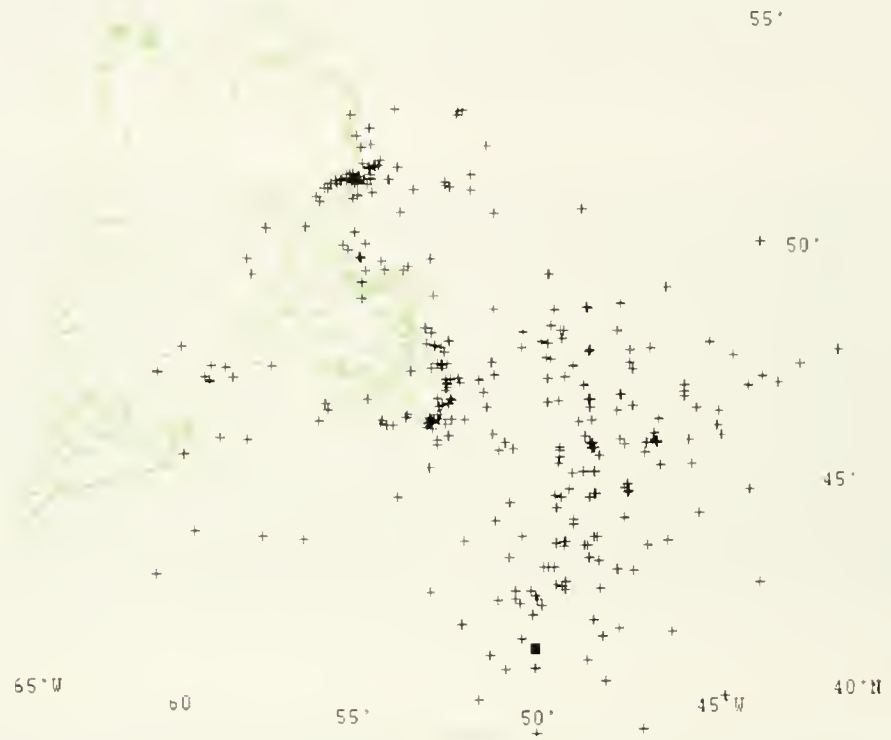

Figure 2: Chart of the approximately 300 known locations of iceberg collisions off Newfoundland with the Titanic location marked as a square.

Breton and the mouth of the St. Lawrence, where it was likely that some of these events were caused by thick ice floes rather than icebergs. In other cases the description just mentioned ice or pieces of ice and best judgment was used in deciding whether these could have been icebergs, depending on locality, nature of damage, and time of year.

DISCUSSION

The search for iceberg incidents was confined to North American shipping routes and waterways so any relating to icebergs off Antarctica were ignored, and there is only one incident far to the east of Greenland. The southern coasts of Alaska have many small valley glaciers which calve small icebergs into the Pacific waters and have caused some grief to shipping over the years, but it is the Labrador current flowing along the east coast of

Newfoundland and over the Grand Banks which bring south the huge Greenland icebergs calved from the ice cap. The annual count of icebergs drifting south of 48° N as established by the IIP varies enormously from nil to the thousands with the peak season being normally April to June with an average of about 200 icebergs being present at any one time. Figure 1 shows the distribution of the 360 known locations of the 560 incidents around North America and Figure 2 shows where most of the incidents occurred off Newfoundland. Approximately one third of the incidents have no exact location so could not be plotted. The density of plotted collisions in the Strait of Belle Isle area is partly a reflection of the trans-Atlantic traffic in and out of Quebec and partly because of descriptions like "in the Strait of Belle Isle" and "off Belle Isle" permit a degree of accuracy in plotting. This is in contrast to statements like "off Newfoundland" which can be used to describe incidents several hundred miles offshore.

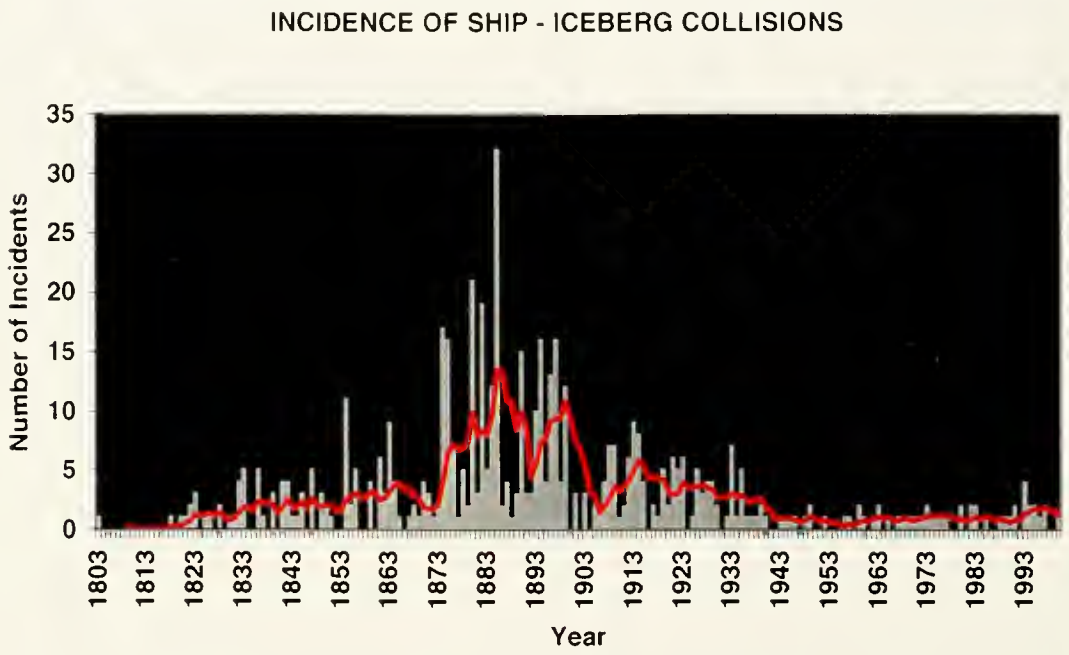

Figure 3: Annual number of iceberg incidents from 1803 to 2000 with 7 year moving average

Figure 3 illustrates the fluctuation of iceberg incidents in the North Atlantic over the years 1803 to present. While this may illustrate some bias in the reporting and publishing of incidents it is evident that there is a significant period of collisions centered about 1885 with smaller peaks of severity from the mid 1850's to mid 1860's, and again about 1913. Since about 1920 there has been an average of 1 to 2 incidents per year. In Figure 4, these data are compared with the historical sea ice extent off Newfoundland (Hill, 1998) and updated with recent data. Seven year moving averages were used to reduce noise levels. There is no accurate historic annual iceberg count prior to 1900 but there is a known general correlation between sea ice extent and iceberg severity (Marko et al, 1994) and in Figure 4 the periods of peak collision activity, are for most part, well matched with periods of unusually high ice extents. The historical sea ice extent from 1810 to 1958 was compiled from contemporary ice reports primarily from shipping newspapers and gazettes and revealed anomalously severe ice years between 1880 and 1900. The number of iceberg incidents during that time does appear to confirm the severity of those years. There has been a general decrease in ice

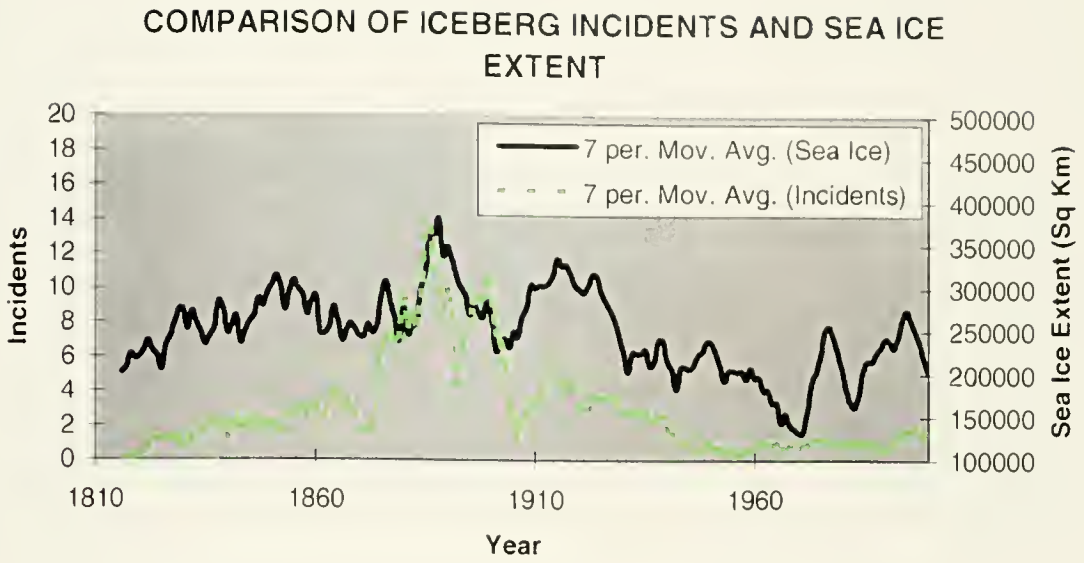

Figure 4: Comparison of iceberg incidents with the deduced sea ice extent (Hill, 1998) using 7 year moving averages

severity since about 1930, but there are trends to more severe conditions around 1950 and again in the '70's and '90's. The cyclical variation of ice extent is discussed in Hill & Jones, 1990. It is interesting to note that in these cases there was no real corresponding increase in collisions. Figure 5 shows the period 1900 to present in more detail and uses the annual iceberg count as provided by the IIP. The steady decline in incidents from the early 1910's through the 1920's is evident. Thereafter, the annual number of incidents remain at a low level often reflecting the occurrence of icebergs but not the magnitude. It is tempting to see

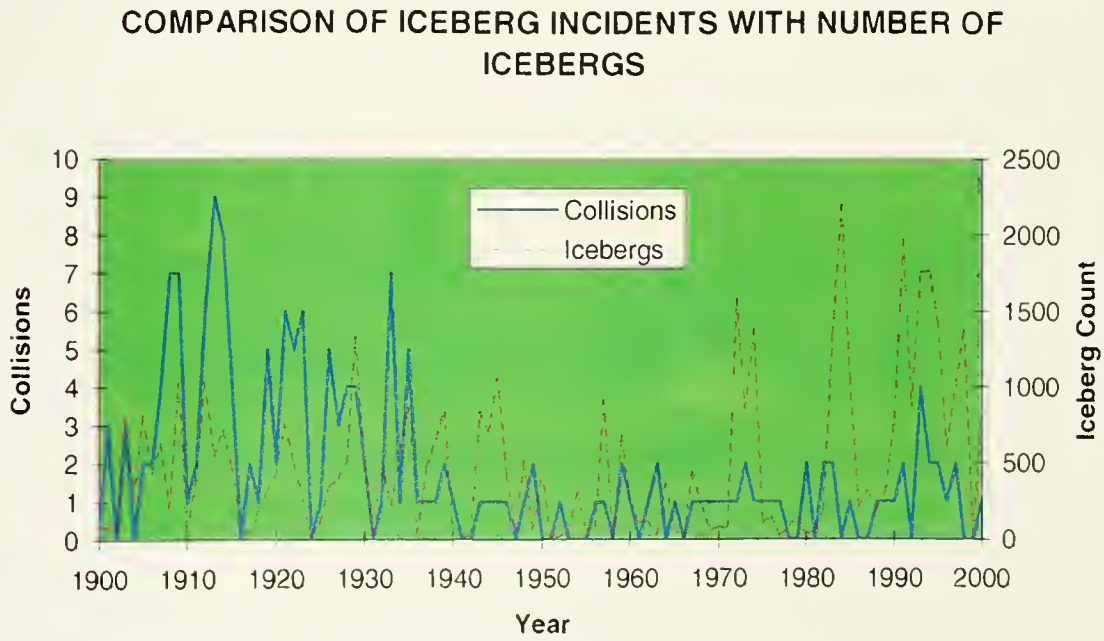

Figure 5: Comparison of iceberg incidents with the IIP annual iceberg count south of 48°N

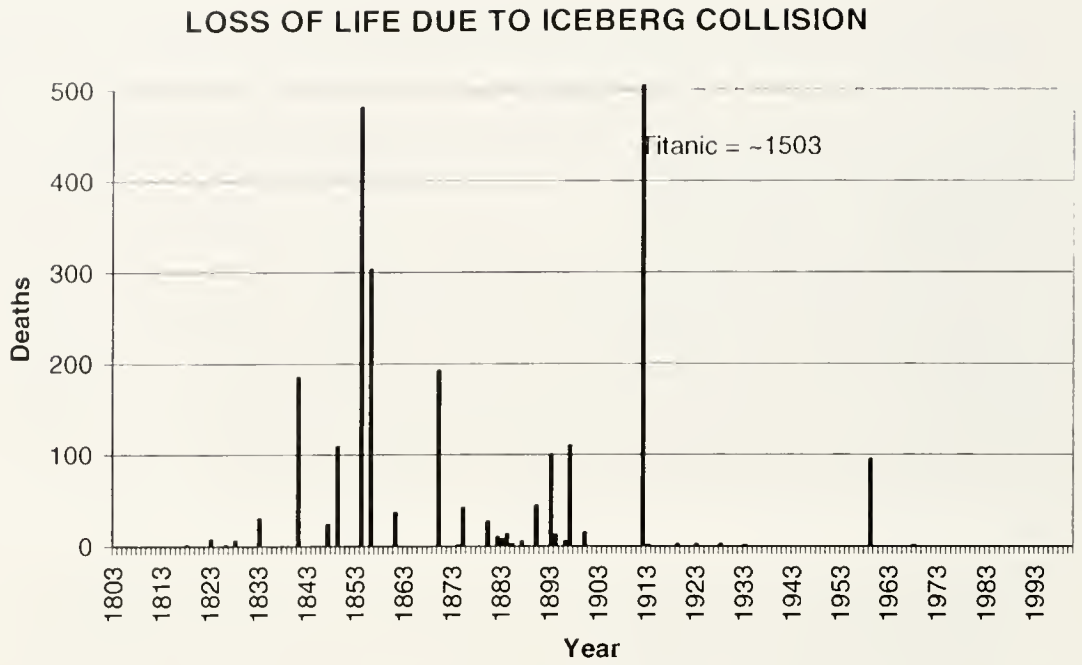

Figure 6: Distribution of loss of life in iceberg collisions from 1803 to 2000 during which 3377 souls perished

in this reduced level of incidents the awareness of danger brought about by the shock effects of the *Titanic* disaster, and the effectiveness of ice warnings given out by the IIP.

3377 people have lost their lives in these incidents with almost half being in the *Titanic* alone and this is graphically represented in Figure 6. The next highest loss of 480 occurred when the *City of Glasgow* went missing in ice in 1854. The largest loss of life since the sinking of the *Titanic* was in the sinking of the *Hans Hedtoft* in 1959 after colliding with an iceberg off Cape Farewell, Greenland on the return portion of her maiden voyage en route for Copenhagen from Nuuk (Godthaab) when 95 people drowned. Figure 7 compares the 545 incidents, sorted by month, which occurred in the North Atlantic with the average monthly occurrence of icebergs from 1900 to present. As one might expect, the distribution is very similar, the most accidents occurring in the months in which the most icebergs occur though it is not known how this is influenced by seasonal variations in the volume of marine traffic. This demonstrates that icebergs pose a threat throughout all months of the year. The *SS Arizona* was a well known ship in her time and provides one of the most spectacular cases when in November 1879 she sailed full speed into a huge iceberg in foggy conditions and drove her bow in 20 feet. She remained afloat with her 509 passengers and going part of the way stern first, limped into St. John's where an early photograph was taken of her. As a Blue Ribband winner her popularity increased as she became renowned as one of the safest ships because what other ship could have withstood such an impact and stayed afloat!

All the incidents which occurred around North America are summarized in Table 1 and sorted by sailing vessels on one hand and steam and motor powered vessels on the other. Sailing vessels are typically comprised of full square rigged ships, barks and brigs. Schooners were classified as sailing vessels unless there was evidence that they were otherwise powered. The

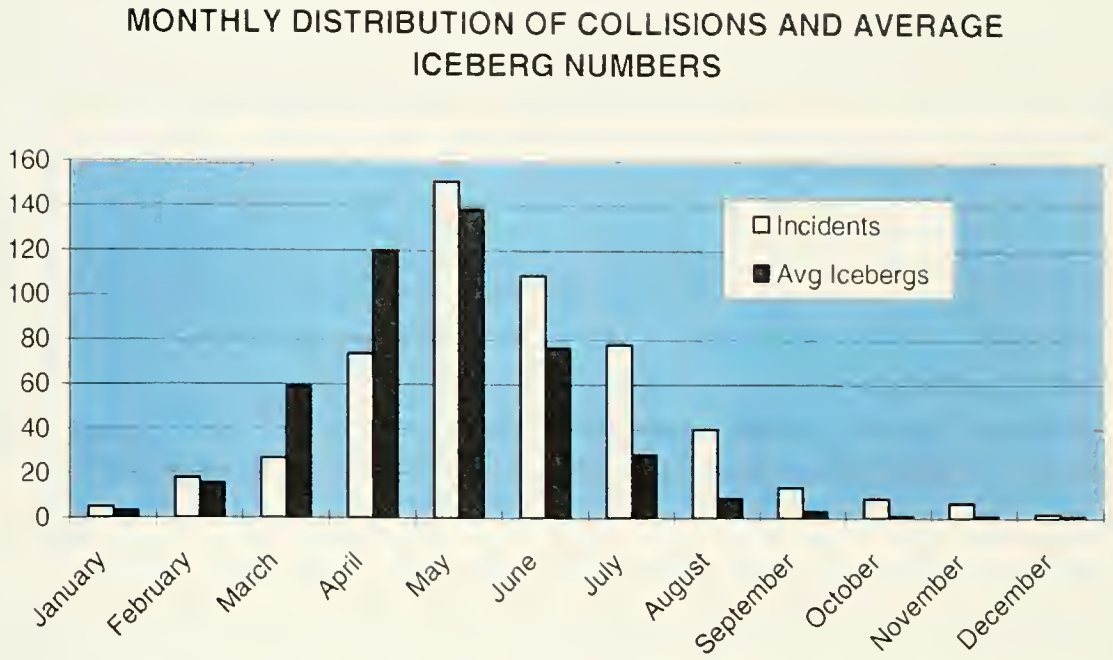

Figure 7: Comparison of 545 incidents in the North Atlantic sorted by month and the average monthly iceberg count south of 48°N

incidents are summarized over 10 year periods except for the last, 1990 – 2000. The transition to fuel powered ships is apparent, as is the increasing robustness of the vessels as iron and steel replaced wood and the ships were built to safer designs. The chances of a sailing vessel surviving an impact with an iceberg was only 50% compared with 20% for a more modern vessel. The percentage of vessels lost is high both for sailing and fuel powered ships in the decades 1940 – 1970. This could be partly due to the nature of the material researched covering that period where the tendency might be to highlight only the more serious incidents. The decades on either side of 1890 have the highest number of incidents over the entire record as reflected in the ice severity, and marks the transition of sailing ships to steam power: 65 to 39 in the period 1880-1889, then 41 to 60 in the decade after. Steam powered vessels totally lost to icebergs decreased over the same period from 23% to 15% while sailing vessels remained essentially the same. Percentage of steam vessels lost continued to fall in the following decades and those around the time of the *Titanic* have the lowest loss rate of the history. This illustrates that the ships of this time had an ability to survive impact. Of the other two steam ships which sank in the decade of the *Titanic*, one was SS *Yucatan* which hit a submerged berg in Icy Strait, Alaska and sank in 8 minutes without loss of life, and the other was the SS *Normandy* which either hit a rock or iceberg off Tors Cove, Newfoundland, again without loss of life. In this context the loss of the *Titanic* with over 1500 people is remarkable. The percentage of vessels lost after impact is higher in recent decades than those around the *Titanic* but this is probably due to the type and size of vessels involved. All of these recent incidents have been in more northerly waters such as freighters in Arctic waters or some kind of fishing vessel operating off northern Newfoundland or Labrador. The *Finnpolaris*, which went down at 72°N in 1991, had an ice class rating Type A, but it is doubtful if fishing vessels such as the *BCM Atlantic*, which was lost in 2000, had any ice rating and the smaller size of such vessels without subdivision put them at higher risk. During the high iceberg count years 1993 to 1995, six large carriers

were substantially damaged by contact with growlers or bergy bits on the Grand Banks or its approaches.

TABLE 1: Record of sailing and fuel powered ships damaged by icebergs in the North Atlantic

	TOTAL No.	SAILING VESSELS				STEAM & MOTOR VESSELS			
YEARS	INCIDENTS	DAMAGED	LOST	UNKNOWN	% LOST	DAMAGED	LOST	UNKNOWN	% LOST
1820-1829	11	5	6		54.5				
1830-1839	20	10	10		50.0				
1840-1849	22	8	13	1	59.1				
1850-1859	25	12	7		36.8	4	2		33.3
1860-1869	27	6	17		73.9	2	2		50.0
1870-1879	58	22	18	1	43.9	11	6		35.3
1880-1889	104	34	29	2	44.6	29	9	1	23.1
1890-1899	101	24	16	1	39.0	51	9		15.0
1900-1909	34	3	7	1	63.6	21	2		8.7
1910-1919	41	3	4	1	50.0	29	3	1	9.1
1920-1929	42	2	1		33.3	37	2		5.1
1930-1939	20	2	4		66.7	12	2		14.3
1940-1949	8	1	1		50.0	3	3		50.0
1950-1959	5		1		100.0	1	3		75.0
1960-1969	9		1		100.0	5	3		37.5
1970-1979	9					5	3	1	33.3
1980-1989	11					7	3	1	27.3
1990-2000	17					14	3		17.6
TOTALS	**564**	**132**	**135**	**7**	**49.3**	**231**	**55**	**4**	**19.0**

CONCLUSIONS

A database of over 560 ship collisions with icebergs in North American waters has been compiled. It spans a time frame of over 200 years and the collision trends help confirm fluctuating ice severity on the Grand Banks area of the North Atlantic over the same period as established by the author in an earlier work (Hill, 1998). Of particular note is the period of severe ice conditions between 1880 and 1900 when over 200 vessels were damaged. This also marks the transition of sailing to steam vessels. Correlation between collisions and ice extent becomes increasingly less apparent as the 20th century progresses and is likely due to better iceberg monitoring programs and better detection techniques. However, incidents are still occurring at an average rate of 1 to 2 per year. Fishing vessels operating in ice covered waters off the northern part of Newfoundland and off the east coast of Labrador comprise the main component of vessels lost in recent years while icebergs on or near the Grand Banks account for the majority of incidents with larger ocean going vessels. The database, which includes a summary of the incident, date, geographic location, damage and any known human injuries is included in the following pages.

ACKNOWLEDGEMENT

The author wishes to thank the staff of the Maritime History Archives at Memorial University of Newfoundland for their generous assistance.

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New York Maritime Register. New York, 1869

Treby, H. 1724: A narrative of the shipwreck and distress suffered by Mr. Thomas Manson, of Lympson in Devon, and his ship's crew, near the coast of Newfoundland, in the year 1704 / first briefly drawn up by Henry Treby. Exon, [Exmouth, England]

DATABASE OF SHIP COLLISIONS WITH ICEBERGS

Brian T. Hill

This database concentrates on iceberg collisions in the North Atlantic off Newfoundland and Labrador but does include a few incidents further north, around Greenland, and also in the fiords of Alaska. The format of the database follows the same style as that which appeared in the 1973 International Ice Patrol Bulletin. Now approximating 500 incidents, the database is comprised of the original 60 mentioned in the Bulletin plus what was found while researching material for the "Historical Record of Sea Ice and Iceberg Distribution around Newfoundland and Labrador, 1810 – 1958", report LM-1998-02. The scope of that report was mainly limited to the winter months January through April and provided a little over 200 incidents. The search now continues through the remainder of the calendar years using contemporary shipping journals and newspapers. Others have been found in a variety of databases, articles, and insurance records, the principal sources being acknowledged below.

The database focuses on incidents of ships striking icebergs which being ice of glacial origin also includes the smaller categories of growlers and bergy bits. Definitions can be found in MANICE. Sometimes it is unclear whether a "piece of ice" is a small iceberg or ice floe. Best judgement was used in deciding which was more likely though in practical terms the difference is only one of terminology since damage still occurred. There are many grim tales of death, destruction and survival in the ice without the presence of icebergs.

This database will continue to grow as more incidents are found. Any comments and additions are very welcome.

Additions and modifications since the previous version dated 1 March, 2000 are shown with the vessel name in bold and/or red.

Canadian Heritage Ship Information Database
http://daryl.chin.gc.ca:8010/basisbwdocs/sid/e_main.html
International Ice Patrol Bulletin 1973
Lloyd's List
Memorial University of Newfoundland's 1995 First Annual Report on Canadian Offshore Design for Ice Environments
New York Maritime Register
Northern Shipwreck Database, Northern Maritime Research, 1997
Polar Record, Vol 19, No 121, 1979, pp 343-362. Shipping losses caused by ice 1890-1977
Tacoma Public Library Ships and Shipping Database
http://www.tpl.lib.wa.us/cgi-win/shipcgi2.exe/form
Terra Nova Mutual Marine Insurance Losses and Claims, Maritime History Archives, M.U.N.

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
18 Mar 2000	53°09.4'N 52°11'W, ~240 km E of Goose Bay, Labrador	Shrimp Trawler BCM Atlantic, 870 t, operating in ice was holed 1am in heavy snow probably by a bergy bit	Crew took to boats rescued by FAME 3 hrs later	Sank
April 1997	53°11'N 54°26'W, 80 mi NNE of Bell Island; at Argentia 6 April	Stern Trawler ACADIENNE GALE, 748 gt struck by a large piece of ice	None	1 meter square hole in steering gear compartment on starboard quarter
20 Jun 1997	49°47.5'N 55°36.6'W Notre Dame Bay, NF for Bonavista	M search & rescue v HARP struck a bergy bit at 0315	None known	Small dent in port bow shell plating
21 Jul 1996	Hudson Strait? From Gydnia to Churchill, Manitoba	M/Bulk Carrier REDUTA ORDONA, 20,257 gt hit a berg	None known	Extensive damage to bow Nos 1 & 2 holds Out of service till Sep 16
26 Aug 1996	Glacier Bay Alaska ~58°22'N 136°W	Catamaran SPIRIT OF ADVENTURE took a large piece of ice (bergy bit?) between her hulls	None	Both hulls punctured, plugged with wood and returned safely
8 Jun 1995	Off Botwood, 49°09'N 55°20'W	M/V UB PRINCE struck a growler	None known	Split in bulbous bow, damage to forepeak tank. 1 mo. delay
19 Jul 1995	63°05'N 67°42'W, Daniel's Harbour Frobisher Bay, Arctic	Russian M/pass. ferry ALLA TARASOVA sustained ice damage	None known	Vessel holed but no help requested
2 Jan 1994	Prince William Sound, 25 mi S of Valdez, for Valdez, Alaska	Tanker OVERSEAS OHIO hit a ~4,000 ton berg at 10 kts	None	Bulbous bow squashed, ruptured ballast tank; ~$1M
7 April 1994	From Antwerp to Montreal	M/V Bulk Carrier FEDERAL THAMES in severe ice	None known	3m x .5m hole in bulbous bow
4 May 1994	44°44'N 49°12'W from Quebec to Norway	M/V Bulk carrier EIRINI L hit ice	None known	30 cm hole in bow port plate of bulbous bow
4 Feb 1993	45°N 49°13'W, from Montreal to UK and Europe	M/V OOCL CHALLENGE struck growler at 18½ kts	None known	Considerable damage, 30' gash in bow and additional cracking in ballast tanks
17 Apr 1993	46°12'N 46°04'W from Montreal to Antwerp	M/V CAST POLARBEAR hit "drifting pack ice"; almost certainly a small iceberg	None	Severe damage to bow and forward compartments, already repaired from ice damage received earlier in the Gulf of St Lawrence
28 Apr 1993	Approx. 47°45'N 48°30'W, from Norway to New York	M/V OMIKRONVENTURE L with 600,000 barrels of oil struck growler	None	7 by 3 meter hole in forepeak plus cracking; no oil pollution resulted
11 Sep 1993	Kangerlussuaq Fiord, Greenland	CSS HUDSON hit a berg	None known	Holed
22 Apr 1991	16 km off Cape Race	MARINE TRANSPORT struck ice floes	Crew rescued and arrested for drug smuggling	Sank, lying in 50m of water with several hundred kilos of cocaine onboard for Quebec
11 Aug 1991	72°N 59°58'W off Greenland, chartered to Canarctic to carry zinc	Cargo ship FINNPOLARIS with zinc ore struck a bergy bit on	Crew rescued	Listed and sank 15 hours later on the 12th

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
	ore form Nanisivik mines	the starboard bow		
16 Aug 1991	Prince William Sound, Alaska	Fv BALTIC SEA hit a berg (mobile glacier ice)	None known	Drydocking required
3 Oct 1990	Melville Bay Greenland, 73°48'N 78°04'W or near Arctic Bay Canada	TERRA NOVA struck iceberg while following USCG Polar Star	?	Constructive total loss
6 Jul 1989	158 nMi E of Belle Is 52°27'N 51°13'W, from Quebec to Hamburg, Germany	Bulk carrier TRAVE ORE struck a berg bit at full speed (12kts) in dense fog	None	Damage to forepeak tank, No 1 port wing tank, No 1 cargo hold. $4M
8 Apr 1988	North of Jan Mayen Island	M/fv VESLEMARI hit a berg	None known	Sprang a leak and sank
9 Aug 1988	Off Greenland coast, 67°47'N 29°48'W	M passenger/cargo AQQALUK ITTUK hit a large piece of ice	None known	4 x 40cm hole, leaking towed to Angmassik for repairs
31 Aug 1988	40 mi SE of Juneau, Alaska near twin Sawyer Glaciers	Catamaran sightseeing GLACIER EXPRESS hit a berg between hulls during tide rip	None	Serious leak, taook refuge in cove, additional pumps supplied
16 Jun 1985	53°10'N 52°05'W	Can. F/V PANDALUS hit ice	None known	Sank
27 Apr 1983	15-18 nM NE of Little Fogo Is., Newfoundland	Longliner GLADYS IRENE struck by floating ice	?	Sank
22 Jun 1983	Hopedale Channel Labrador	Dragger KRISTINA LOGOS struck large piece of ice while fishing	?	?
11 Mar 1982	Labrador Basin	Dragger H M KAISER struck piece of ice while fishing	?	Took on water
16 Jun 1982	47°29'N 49°19.5'W	M/V CANADIAN BULKER hit a 650,000 tonne iceberg	Unknown	Continued to St.John's for repairs
6 May 1980	Atlantic Ocean	Dragger BURHOUND struck iceberg in dense fog	?	Damage to port side aft
7 May 1980	Strait of Belle Isle	Tanker LAKE ANJA in pack with growlers	?	Damaged bow and port wing tank
2 Jun 1977	16 mi E of Square Is., Labrador 52°45'05"N 55°20'W	CN ferry M/V WILLIAM CARSON holed in heavy ice	None	Abandoned and sank
19 May 1976	Strait of Belle Isle	Bulk carrier LOUIS MAERSK struck floating ice	?	?
20 Aug 1975	60°27'N 64°59'W	Tug M/V AIGLE d'OCEAN hit a berg	None known	Sank
June 1974	Gulf of St. Lawrence towards Strait of Belle Isle	Freighter IVORY STAR struck a growler or bergy bit	None	Extensive bow damage
3 Feb 1973	45°48'N 46°23'W	M/V HAVJARL hit berg	None	Extensive bow damage
7 May 1973	Near Newfoundland coast	M/V NAVI CHAMPION hit a berg	None	Ruptured 4 meters in forepeak
12 Aug 1972	40 mi E. of Cape Bauld	M/V RATTRY HEAD hit a berg	None	Minor Damage
23 Apr 1971	53°04'N 52°14'W	F/V SANTA ISABEL hit a berg	None	Sank

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
Jul 1970	Baffin Bay	USCGC WESTWIND hit a berg	None	Minor damage
22 Apr 1969	Near Greenland	German vessel	?	Hole in bow
Jun 1968	Chance Harbour, Nfld	Ice fell from iceberg onto small boat	1 life lost	Boat crushed
23 Apr 1967	Off Newfoundland, probably on Southampton - Montreal run	M/V BATORY hit a berg	None	7' hole 15' below water line
1965	Strait of Belle Isle	SS KYLE struck berg	Unknown	Serious
25 Nov 1965	Off Kap Farvel, for Bremerhaven	BURGERMEISTER SMIDT hit berg	?	Sank
29 Apr 1963	Off S.E. Greenland	M/V VALO I hit a berg	?	Sank
3 Aug 1963	Hudson Strait for UK	Yugoslav freighter KASTELA hit a berg	No record of survivors	Sank
1962	Sealing grounds (same incident as 1962?)	SS sealer KYLE hit a grounded berg	None known	Grounded and derelict at Harbour Grace
May 1960	Off Newfoundland	M/V QUEENSGARTH hit a berg	None	Hold flooded
30 Jan 1959	59°30'N 43°00'W from Godthabb to Copenhagen	M/V HANS HEDTOFT hit a berg on return portion of maiden voyage	95 lives lost	Sank
24 May 1959	47°00'N 52°30'W	M/V LYDIA MARIA hit a berg 20' by 100' at 9 knots	None	Extensive dry-docking required
4 Feb 1957	48 mi E of Cape Breton from Sydney to St Pierre	M/V PETIT BRAS D'OR hit a berg	Unknown	Sank
10 Jun 1956	Off Twillingate, Nfld 49°57'N 54°43'W	Schooner THOMAS S GORTON hit berg from Carbonear to Labrador	0. Crew rowed to Twillingate	Sank
Sep 1952	Davis Strait	F/V RIO CAIMA hit a berg	Unknown	Sank
23 Jun 1949	Leaving St. Anthony, NF	Schooner JENNIE FLORENCE experienced engine trouble on leaving port and drifted into and iceberg	None	Slight damage
27 Jun 1949	Near Cape St. John, from Lewisporte to Baie Verte	Schooner GERALD & AIDEN struck a piece of ice	None	Slight damage
6 Jun 1948	48°12'N 52°55'W, 30 mi NE of St. John's	M/V NEVADA hit a berg in dense fog at 1 23 pm, proceeding to St. John's	None	Extensive damage above waterline, collision bulkhead tight: $35,000 damage
24 Jun 1946	Grand Banks	F/V COMMANDANTE TEN REIRO hit a berg	None	Sank
29 May 1945	43°08'N 49°18'W	Convoy O.N.303 encountered a berg 4,500 x 3,300 x 50' in fog. 2 ships hit berg, 19 ships collided with each other	None	Slight damage

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
14 Jun 1944	Davis Strait	F/V MARIA PRECIOSA hit a berg	Unknown	Sank
13 Mar 1943	~100 mi S of Cape Farewell 58°05'N 44°15'W	Tanker SS SVEND FOYN hit a berg from New York to Liverpool	Unknown	Sank 2 days later
19 Jun 1940	17 mi S of Groais Is, NF	Schooner SHIRLEY REID struck a piece of ice	None	Sank in 5-6 minutes
9 Jun 1939	48°16'N 49° 27'W, 150 mi E of St John's	Wood schooner (or Fr. Bark) BEN-HUR hit a berg	Crew transferred to DUCHESS OF BEDFORD	Set on fire and abandoned
7 Aug 1939	51°58'N 54°18'W from Montreal to London	SS BEAVERHILL hit a berg at 5.30 am	None	Minor damage to No4 tank plates
17 Jul 1937	Strait of Belle Isle, from Newcastle and Leith for Montreal	SS CAIRNGLEN hit a berg	None	Minor damage, arrived Montreal 20th.
12 Feb 1936	150 mi E of C. Sable	Fishing Schooner GERTRUDE M. FAUCI struck berg	Unknown Crew picked up	Leaking badly
11 Apr 1935	Labrador Sea	Wood schooner SAINT COULOMB hit a berg	Unknown	Sank
11 Apr 1935	Off Newfoundland	SS TOWER BRIDGE struck berg	Unknown	Leaking, 14 plates later replaced
5 Jun 1935	For Montreal arr. June 10	SS MANSEPOOL struck a berg	None known	Forecastle plates bent back and opened; above waterline
24 Jun 1935	Near St. John's arr. June 25	SS IMOGENE struck heavy submerged pieces of ice	None known	Leaking considerably in No.2 hold bilge
18 Jul 1935	Off Bell Isle from Montreal	SS PHILIP T DODGE grazed an iceberg	None known	3 port bow plates damaged and frames, lowest 12" above water
1 Oct 1935	Wakeham Bay, Hudson Strait 62°15'N 71°39'W	SS BRIGHT FAN hit a berg, from Churchill to London	Unknown	Sank
4 Jul 1934	Arrived Corner Brook July 15	Fin SS STARCK hit a berg	None known	Slight damage to forecastle plates above waterline
Apr 1933	N. Atlantic from Grangemouth to Montreal arr. 27 Apr	SS ASHWORTH suffered ice damage	None known	Forepeak flooded, 9 plates buckled,1 badly fractured, stem twisted, 6 side frames buckled, 2 broken
May 1933	Attempting to reach Botwood returned St. John's May 30	Stmr GERALDINE MARY struck a block of ice almost entirely submerged	None known	No 5 hold leaking, damage to plates and frames; estimated 10 days to repair
17 May 1933	Off Cape Francis from Wabana to Rotterdam with iron ore	SS SEIRSTAD struck a berg (see 21 July 1921)	Crew in boats all night; safe	Sank
28 May 1933	About 125 mi SE of Cape Spear on the Grand Banks, 45°N 50°W?	Schnr DOROTHY MELITA hit a berg; pumps manned for 2 days	1 man out of 23 lost	Abandoned 30th; crew rowed to Cape Spear in a day and a night
Jul 1933	Strait of Belle Isle, from London to Montreal arr. Aug 1	SS DUCHESS OF BEDFORD hit a berg	None known	3 plates damaged

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
Aug 1933	Limped into Port Union Aug 29	Schnr JENNIE AND ADA SMITH hit a berg	None known	Bowsprit and main boom cracked and hull damaged
11 Oct 1933	Labrador Sea	Wood schooner MAIA hit a berg	Unknown	Set on fire and sunk
19 Feb 1930	50 mi W of Cape Race	SS EMILIE MAERSK hit ice or wreckage	Unknown	Hole in port bow
18 Jul 1930	Atrait of Belle Isle, 51°33'N 55°39'W	SS DALRYAN ran aground on a berg from Swansea to Montreal	None known	Bow stuck on ledge of berg, Nos 1&2 hold leaking, floated off later
3 May 1929	For Botwood, arrived May 6	SS GERALDINE MARY fouled a growler	None known	Port side No 1 hold frames bent and rivets leaking
Jun 1929	North Atlantic, from Montreal arrived Hamburg 18 June	SS EMDEN hit a berg	None known	Damage to stem
14 Jun 1929	47°53'N 49°11'W from Montreal to London	SS CAIRNGOWAN struck a berg (see also 4 May 1914)	None known	Severe and extensive damage to forecastle and No 1 hold
20 Jul 1929	About 42°42'N 49°43'W from New Orleans to London	SS VIMEIRA hit a berg 11.50 pm in clear weather	None directly	Extensive damage to bow and propeller and had to be towed. When being drydocked in Rotterdam for repairs was destroyed by explosion and fire killing 12 crew and drowning 3.
18 Oct 1929	N. of Petersburg, Alaska	M/V NORCO hit a small berg	None known	Damage slight
23 Oct 1929	3 mi from Midway Light, Stephen's Passage, Alaska	M/V UNACANA hit ice from Ketchikan to Juneau	None known	2 plates set up and several rivets loosened
9 Apr 1928	From St.John,NB to Liverpool ~700 (?) mi off Canadian coast	SS MONTROSE struck a berg (see also 27 Jul 1909, and July 1899)	2 Men on deck killed by falling ice from iceberg	Extensive damage to stem and bows above waterline, anchors lost
May 1928	North Atlantic on Liverpool - Montreal runs	SS MONTCLARE encountered icebergs on both legs	None known	Propeller blades damaged
18 Jul 1928	Strait of Belle Isle from Montreal to Hamburg	SS WAZIRISTAN struck a berg	None known	Slight damage to port bow
27 Oct 1928	Bound for Lush's Bight, NF arr. Little Bay Islands 2 Nov	SS Lunenburg schooner ALSATIAN hit a berg	None known	Bowsprit gone
May 1927	Off Cape Farewell, Greenland, from Ivigtut May 20 for Copenhagen	Steamer HUGO disappeared, thought to have hit a berg	? all hands	Lost
Jun 1927	160 mi E of St. John's from Swansea to Montreal	SS HALSE hit a berg	None known	Water in forepeak, forehold and No.1 tank. Arrived St.John's 30 June
3 Jul 1927	Approximately 51°N 54°07'W from Montreal to Glasgow	SS MONTCALM struck a submerged iceberg	None known	One propeller blade bent
3 Jul 1927	50°30'N 58°38'W from Montreal to Manchester	SS MANCHESTER CITIZEN grazed an iceberg	None known	One port bow plate and 3 propeller tips damaged
Mar 1926	North Atlantic from New Orleans to Charlestown	SS TASMANIC. First report said she hit a berg; next that she	None known	Apparently none [not included in stats]

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
		passed near but did not strike		
12 May 1926	Off the Grand Banks from New York and Boston to Londonderry	SS CALIFORNIA collided with a berg and split it in two	None known	Unknown
26 May 1926	150 mi SE of Cape Race from Montreal to UK	SS WESTLEA hit a berg while going slowly in dense fog	None known	Put in to St. John's May 28 with serious damage, forepeak and No 1 tank being full of water
2 Jun 1926	Off Cape Race from Port Said to Montreal	SS INNERTON hit a berg	None known	Arrived St. John's Jun 2 with bows badly damaged; 42 plates
27 Jul 1926	Off Cape Spear from Montreal & Charlottetown for St.John's	SS HITHERWOOD hit a berg in fog	None known	Leaking
29 Aug 1926	When leaving the Strait of Belle Isle from Montreal? to Liverpool	SS AURANIA struck a berg a glancing blow at dead slow in fog which then bumped and scraped along the port side	None known	Unknown except for bent propeller blade which made contact with the iceberg
8 Nov 1926	4 mi N of Petersburg in Frederick Sound, Alaska	Gas boat IOWA struck an iceberg	None known	Partially filled with water and towed into Petersburg
23 Jun 1925	42°20'N 48°13'W from Alexandria for New York	SS SAUGUS ran aground (aberg?) on the flat shoal of a drydock iceberg in dense fog	None	Was able to back off without damage and proceeded with voyage
27 Mar 1923	Off Sable Island	Fishing schooner WILLIAM A. MORSE hit a berg	Unknown	Hole in stbd side at the waterline, prop shaft bent
Apr 1923	North Atlantic from Seville (75 days)	Schnr CAPE RACE hit a berg	None known	Arrived St.John's Apr 29 damaged above waterline
24 Apr 1923	48°57'N 47°55'W	French fishing schnr. LE RAYMOUND hit a berg	At least 2 dead, some crew adrift for 19 days. 30 brought into St Pierre by schnr CARLICA	Sank
25 Apr 1923	46°15'N 44°05'W	SS ET BRETAGNE hit a berg	None	Sank
19 May 1923	Off Cape Ray, NF	SS OXONIAN hit a berg	None known	Arrived St.John's May 21 with hole in bow and holds flooded
June 1923	North Atlantic from Burntisland	SS ELEANOR MAERSK hit a berg	None known	Arrived Botwood June 19 with stem broken, anchor broken and several plates above waterline on both bows stove
21 May 1922	North Atlantic from Rotterdam to Montreal	SS WEST KEBAR hit a berg	None known	Stem and plates damaged, stbd. hawse pipe broken
3 Jul 1922	North Atlantic from Quebec to Liverpool	SS NORBURN struck a berg	None known	Several frames broken and plated damaged. Put in to St John's July 5
24 Jul 1922	North Atlantic from Montreal to Liverpool	SS CANADIAN PIONEER hit a berg	None known	Stbd bow stove and forepeak flooded. Put in to Sydney CB
6 Aug 1922	Strait of Bell Isle 51°36'N 56°13'W	SS schnr MANCHESTER	Unknown	Bow damaged from forefoot to

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
	from Manchester to Montreal	CORPORATION hit a berg		forecastle, stem broken, plates broken and twisted, anchors broken and lost
25 Aug 1922	42°30'N 50°W from Galveston to Havre	SS HEGIRA was grazed by 2 large icebergs when she passed between them	None	Presumed not serious
1 Oct 1922	Point Adolphus, Icy Straits, Alaska	SS KETCHIKAN hit an iceberg and was beached	Crew saved	Serious; 50 plates to be removed; $40,000
26 Feb 1921	Off Cape Race	SS PRINCESS MATIOKA struck berg or submerged wreck	Unknown	Slight damage to steering gear
June 1921	46°48'N 46°41'W from Copenhagen to New York	Danish Bk ASTRID struck a berg	None known	Bow stove, repaired with cement, made St.John's 10th
7 Jun 1921	Off Nfld coast from Montreal for Dublin and Avonmouth	SS SEAPOOL struck an iceberg	None known	Forepeak full of water and other damage, arrived St. John's 10th.
8 Jun 1921	48°30'N 50°03'W from Philadelphia via St. John's to Hamburg	SS CHARLOT struck a berg	None known	Leaking in No 2 hold and returning to St. John's
21 July 1921	48°57'N 49°W from Bell Island to Rotterdam	Nor. SS SEIRSTAD with iron ore struck a berg	None known	Not seriously damaged and continued on journey (not so lucky 17 May 1933)
Aug 1921	North Atlantic from New York to Christiania	Nor. SS BERGENSFJORD hit a berg	None known	Arrived 11th with one prop blade bent, drydocked for examination
3 May 1920	45°08'N 48°46'W from Newport, UK to New York	SS TURRET CROWN hit a berg	Unknown	8' long hole in bow
June 1920	From Avonmouth to Port au Port, NF	SS HARTSIDE struck a growler	None known	Put into St. John's June 23 leaking
15 Aug 1920	Cape of Straits, Frederick Sound, Alaska	Motor schnr. TILLAMOOK struck an iceberg	None known	No leaks, docked for examination
25 May 1919	47°13'N 51°22'W for Glasgow from Montreal	SS CASSANDRA hit a berg	None	Forward compartments flooded
16 Jun 1919	Off Cape St. Mary's 46°31'N 54°23'W from Liverpool to Montreal	SS Schnr CRAFTSMAN hit a berg	Unknown	Partial loss, put in to Quebec. Arrived Montreal 30th.
26 Jun 1919	Off Cape Race from Sydney,CB for Wabana NF	SS MASKINONGE hit a berg	Unknown	10 plates stove in and hawse pipes broken; headed to St John's for repairs
9 Jul 1919	45 mi off St. John's, from Montreal to Liverpool	SS GRAMPIAN hit a berg in thick fog at reduced speed and reversing engines, 5 am	2 killed in their bunks in the bow and 2 injured	Forecastle deck demolished, stem flattened, bows cut into 30'; all above waterline
Aug 1919	North Atlantic, from Cadiz June 25	Schooner ASQUITH hit a berg	None known	Lost headgear; arrived St. John's Aug 8
24 April 1918	1 mi N of Petersburg from Ketchikan, Alaska to Anchorage	SS ADMIRAL FARRAGUT grounded on an iceberg	Unknown	Several oil and water tanks leaking though damage not dangerous
Jun 1918	Off Newfoundland coast	Schooner HARRY LEWIS hit a	Unknown	Towed into Cape Broyle June 10

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
		berg		with serious damage; headgear carried away and leaking
April 1917	42°50'N 51°W, arriving Baltimore April 25	Unnamed steamer ran into berg in fog at slow speed	None known	Backed off with slight injuries
4 May 1917	Off Cape Race from a European port	SS TRESILLIAN hit a berg, stranded before and after collision	Unknown	Serious damage, forward part of vessel crushed, drydocked
30 May 1915	Off Newfoundland coast	SS BEOTHIC struck a submerged berg	None known	Leaking badly, docking immediately at St John's
30 May 1915	North of St.John's from Cardiff to Bonavitsa Bay or Lewisporte	SS MANCUNIA struck an iceberg	None known	Serious damage and returned to St.John's for repairs departing again June 19
1 Jun 1915	Off Trinity Bay	Schooner FLOWER OF HOME struck an iceberg	Crew saved	Totally wrecked
11 Jul 1915	Straits of Belle Isle from Barry, Cardiff, UK to Montreal	SS Schooner AGENORIA hit a berg 100' high	Unknown	Severe damage to bow; after tanks fooded to raise bow
28 Apr 1914	Grand Banks	Fishing schooner ST. SOLENS hit a berg	Crew of 32 lifted by schooner MARIE and landed at St Pierre May 12	Abandoned May 5
30 April 1914	Arrived St. John's from Rotterdam	SS TELLUS collided with ice	None known	Forepeak and bow damaged and a new prop required
May 1914	East of Cape Race	SS ROYAL EDWARD hit a berg	None	Extensive damage to bow
4 May 1914	300 mi SE of Cape Race 41°21'N 50°50'W	SS Schooner CAIRNGOWAN hit a berg from Middlesburgh, UK to Montreal (see also 14 Jun 1929)	Unknown	Partial loss
16 May 1914	44°N 49°13'W	SS MANCHESTER SPINNER touched an iceberg	None known	Slight damage to bows
22 May 1914	110 mi NE of Cape Race 48°N 51°W	SS schnr ROYAL EDWARD hit a berg from Montreal to Avonmouth, UK	Unknown	Stem slightly damaged
29 May 1914	45°29'N 48°20'W	Wood schooner GOLFINO hit a berg	Unknown	Sank
Aug 1914	E of Belle Isle up St. Lawrence	SS PORT DALHOUSIE was injured by ice	None known	Injured, and later ran ashore in fog in St. Lawrence
29 Aug 1914	Atlantic, from Montreal to Avonmouth, UK	SS Schnr FLORISTON hit a berg	Unknown	Bows stove and forward parts filled with water. Compelled to run ashore 2½ mi W of Port Saunders, NF. Later refloated but went aground near Louisburg and was eventually wrecked
1913	Grand Banks	SS MOUNT TEMPLE hit a berg	Unknown	Unknown
1 May 1913	46°39'N 44°40'W	SS CHILTERN RANGE hit an iceberg 150' to 200' high	Unknown	Damaged bow plates

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
May 1913	North Atlantic from Fowey to Botwood	SS KASTALIA damaged by ice	None known	Arrived St John's 13th with bows damaged
3 May 1913	47°20'N 41°15'W from Pola, Spain to St.John's	SS SNOWDON RANGE, the way being off her, struck a berg 150' high and as long as could be seen in fog	None	No apparent damage
26 Jun 1913	Strait of Belle Isle from Shields to Montreal	SS CARLTON struck ice	None known	Bows dented, leak in ballast tank
10 Jul 1913	From Cardiff to Tilt Cove	SS MAGDA struck a small iceberg at slow speed in dense fog	None known	Damage not great
14 Jul 1913	Strait of Belle Isle	Schooner BRIGHT ROSE hit a berg	1 lost overboard	Unknown
Aug 1913	Off Belle Island from Southampton to Montreal	SS ANDANIA ran upon a submerged iceberg	None known	Smashed one of her propellers
1 Nov 1913	100 mi E of the Strait of Belle Isle from Montreal to Manchester	SS MANCHESTER COMMERCE struck a berg in early morning	Unknown	Severe damage, bows crushed to forward bulkhead. Arrived St. John's 4th, repairs estimated at 2 months
11 Apr 1912	Less than 10 mi from TITANIC's eventual fate	SS NIAGARA struck 2 bergs	Unknown	Cut below water line in 2 places.Pumps kept her free
14 Apr 1912	41°16'N 50°14'W. Located at 41°43'45"N 49°56'50"W	RMS TITANIC hit a berg from Southampton to New York	1234 fatalities reported at the time. Final tally 1503/2206? Survivors in boats picked up by CARPATHIAN	Sank early morning next day
21 May 1912	Off Cape St. Francis 47°45'N 52°45'W?	Schooner BONUS hit a berg from Bay Roberts to Sydney, NS	Unknown	Partial loss
July 1912	From Montreal July 20 (likely for Manchester in the Strait of Belle Isle)	SS MANCHESTER INVENTOR damaged by ice	None known	Put into St.John's 29th with forepeak full of water and water in No 1. hold
2 Aug 1912	Off King's Cove, Bonavista Bay	Schooner SEVEN SISTERS hit a berg	0 crew escaped	Sank
12 Aug 1912	Strait of Bell Isle 52°24'N 52°15'W from Montreal to Liverpool	SS CORSICAN hit a berg while going very slowly	Unknown	Stem injured above waterline, not leaking
Aug 1911	Near Bell Is.from Montreal Aug 12 for Glasgow	SS SATURNIA collided with a berg	None known	Slight damage, completed voyage to Glasgow
2 Aug 1911	Off Cape Race from Glasgow	SS COLUMBIA struck a berg during night	4 hurt	Bow pushed back 10 feet, 5' of water in forward compartment
16 Feb 1910	Icy Strait, Alaska	SS YUCATAN struck a submerged berg	All saved	Sank in 8 minutes, beached at Mud Bay. Later salvaged, towed to Victoria

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
7 May 1910	About 15 mi off Tors Cove, Nfld from Middlesborough, UK to Halifax	SS NORMANDY in dense fog apparently hit a berg (likely a rock)	None	Sank
30 Mar 1909	From Philadelphia to Hamburg	SS PURELIGHT hit a berg	None known	5 bow plates to be renewed
6 May 1909	Off Cape Race, from Liverpool to Montreal	SS LAKE CHAMPLAIN hit a berg	Unknown, 1000 passengers aboard	Headed to St.John's for repairs with hole in bow
27 May 1909	From Liverpool to Halifax	SS ALMERANIA hit a berg, and after leaving St John's for repairs hit another berg in fog and went into Bay Bulls	Unknown	First incident bows badly damaged; not serious in second incident
6 Jun 1909	Off Cape Spear, Nfld from Cadiz to St John's	Schooner GEISHA hit a berg near the Newfoundland coast then hit an unlit schooner later that night, then finally another berg	None	Sank 7th after drifting in to the final berg by which time the crew had taken to the boats. Rowed 50 mi through floes to shore.
22 Jul 1909	Off Cape Race, from North Sydney, CB and St.Lawrence to St. John's	SS REGULUS hit a berg, and proceeded to St. John's	Unknown	Badly damaged, bow plates crushe but collision bulkhead held. Worst iceberg damge seen in St. John's for 20 years
25 July 1909	25 mi off Cape St Mary's, from Montreal to St.John's 46°30'N 54°30'W?	SS BONAVISTA struck a berg in dense fog	Unknown	Bow badly damaged but able to make port
27 July 1909	~30 mi E of Cape Race, 46°40'N 52°23'W	SS MONTROSE struck a berg from London to Montreal (see also 9 Apr 1928, and July 1899)	None known	Bows badly damaged and forepeak flooded. Made St John's
1908	North Atlantic, from Trinidad to London	Wood barque COLOMBA LOFARD (LOFARO?) hit a berg	Unknown	Put in to St Thomas condemned and sold, Nov '08
May 1908	On the Banks from Newfoundland to North Sydney	Schooner GEORGE hit floating ice	Crew saved	Sprung a leak and foundered
8 May 1908	48°N 48°W from St John's to Liverpool	SS EVANGELINE struck a berg	None known	Bowsprit and other gear carried away
9 May 1908	Atlantic, from Liverpool to Sydney, NS	SS-Schnr GUSTAF ADOLPH hit ice	Unknown	Partial loss
31 Jul 1908	Strait of Belle Isle to Montreal (from Boston?)	SS MONMOUTH hit a berg	None known	Leak in forward compartment, temporary repairs in Montreal
25 Sep 1908	Off Labrador coast, put into Turnavik Harbour for repairs	SS ERIK accompanying Peary expedition struck a berg	None known	Damaged hull above waterline not leaking
3 Oct 1908	Off Tickle [Indian?], Labrador	Schooner ESTELLA lost in ice	Unknown	Lost
7 May 1907	?, from Halifax and Sydney to Manchester	SS DAHOMEY struck icebergs	None known	Leaks in lower forepeak
9 May 1907	Off Newfoundland from Sweden	Swedish Bark ROBERTSFORS colided with a berg in fog	None known	Arrived St.John, NB May 28 leaking
Jul 1907	~130 mi E of Belle Isle from Montreal	SS DEVONA collided with a	None known	Forehold filled with water and

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
	to London	berg in fog and returned to Montreal for repairs		discarded part of cargo Lengthy narrow fracture on port side
Jul 1907	20 mi E of Cape Race from Hopewell Cape. NB to Glasgow	SS TREBIA hit a berg in fog	None known	Considerable damage to bows. arrived Glasgow Aug 2
8 Jul 1907	42°50'N 50°31'W	SS KRONPRINZ WILHELM struck a small berg a glancing blow	None known	Slight damage
21 Apr 1906	From Shields to Philadelphia	SS ANGLO-PERUVIAN hit a berg	All on board picked up by MOHAWK and landed at Weymouth	Foundered on 24th.
26 Jul 1906	Strait of Belle Isle, from St John's to Blanc Sablon	Wood schooner STELLA B WOOD hit a berg	Crew and captain's 2 daughters escaped	Sank
17 Apr 1905	Fecamp to Grand Banks	Wood schooner SAINT GEORGES hit a berg	Unknown	Unknown
24 Apr 1905	Off Newfoundland	SS GRAND LAKE hit a berg while on sealing trip	Unknown	Bows damaged, leaking badly
March 1903	From St Michael's arrived St John's 3 April	COLONEL BURNABY collided with an iceberg	Unknown	Deck damaged
1 Apr 1903	North Atlantic, arrived Halifax Apr 3rd	SS SARDINIAN struck a large berg a glancing blow at night	None known	No damage reported
May 1903	Grand Banks	Schooner WISTERIA struck an iceberg a glancing blow	Unknown	Arrived St.John's 28th with bow stove and leaking badly
9 Jun 1903	47°20'N 47°50'W from Belfast to Miramichi	Bark BELFAST hit a berg at midnight	None known	Abandoned and later set on fire
24 Jun 1903	Off Alaska 50 mi S of St Laurence from St.Michael and Nome to San Francisco arr Jul 20	Tanker SS ROSECRANS struck an iceberg	Unknown	Large hole in stbd bow, 5 plates stove.
July 1903	From Tyne arrived Philadelphia 27th	SS BAKU STANDARD injured by ice	None known	Hole in forward compartment and leaking badly
15 Jul 1903	On trhe Banks from Liverpool to Boston	SS BOSTONIAN grazed an iceberg in dense fog	None	No damage
26 Jul 1903	7 mi. SE of Point Amour, Strait of Belle Isle, 51°25'N 56°45'W, at Pictou July 30 for repairs	SS HEDWIG hit a berg from or Bathurst, NB to Manchester	None known	Berg drove anchor flukes into hull denting plates and holing bow, leaking
Sep 1903	South of Douglas Is , from Nome to Seattle	SS BURNSIDE struck an iceberg	None known	Repairs made at Juneau
2 Feb 1901	Yaku Inlet, Juneau (Pacific) 58°15'N 134°05'W	SS brig DANUBE struck ice	Unknown	Partial loss
11 Mar 1901	Off Newfoundland	Sealer ICELAND hit a berg	None known	Jib-boom, bowsprit and topmasts carried away; foredeck torn up and leaking considerably, pumps constantly

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
				going
28 Jun 1901	Hare Bay, Labrador 51°15'N 55°45'W	Unknown schooner collided with a large growler	Unknown	Sank
29 Jul 1901	From Quebec for Manchester	SS MANCHESTER CORPORATION hit submerged ice	Unknown	No 2 hold filled with water; voyage completed with pumps constantly going
15 Aug 1901	Pt Hilda Douglas Is., Stephen's Passage, Alaska 58°15'N 134°30'W	SS schnr ISLANDER hit a berg in fog at 1 40 am from Skagway to Victoria	42 lost out of 181/183, or maybe 65 out of 172	Sank in 20 minutes with $3M in gold. 24M salvaged, raised 1934
2 Nov 1901	Taku Bay, Alaska	Lynn Canal Steamer SS CITY OF TOPEKA hit a berg at night	None known	Broke stem and 7 plates bent, large hole near waterline
c 1900	Off Newfoundland coast	Fishing vessel EMMELINE hit a berg	15 lost	Sank, single survivor rescued off nearby rock
28 Dec 1900	Gastineau Channel, Alaska to Juneau	SS DIRIGO hit a berg	Unknown	Stem badly shattered below waterline; leaking
1899	Off the French shore, Nfld	British gunboat BUZZARD struck a growler	Unknown	Bow stove
11 Feb 1899	46°07'N 47°09'W from New Orleans to Belfast	SS TORR HEAD hit a berg a glancing blow, dead slow in heavy snow	None known	Little damage
13 Mar 1899	49°N 43°W from Glasgow to Baltimore	SS KASTELIA hit a flat large iceberg or piece of ice	None known	8 bow plates dented and rivets started
June 1899	From Montreal via Sydney to Newcastle arr Tyne June 24	SS FOREST HOLME hit a berg in dense fog	None known	Lost bowsprit and bows extensively damaged
June 1899	Strait of Belle Isle	British gunboat HMS Sloop BUZZARD struck a growler	Unknown	Bow stove, required to be docked for repair
1 Jun 1899	200 mi ESE of St. John's from Chicoutami to Manchester	SS HATASU going dead-slow struck a berg while trying to avoid another in dense fog	None known	Bow crumpled from forefoot to hawse-pipe. Reached St. John's 4th in sinking condition.
July 1899	From Montreal at Avonmouth 25th	SS MONTROSE hit a berg (see also 9 Apr 1928, and 27 July 1909)	None known	Plates damaged and leaking
July 1899	Strait of Belle Is., from Batiscan, Quebec to London, at St. John's 21 July	SS JOHN BRIGHT met a growler	None known	Bows stove from 21' mark to forefoot.Wooden bow fitted St. John's, torn apart and almost sank in storm 31st.
July 1899	130 mi E of Belle Isle from St Thomas (St.Lawrence) at Greenock Aug 7.	SS SAMARA encountered ice fields and bergs 500' – 600' high	None known	Stem is supposed to have been damaged and forepeak full of water
July 1899	Off the coast of Labrador on fishery patrol, arr St.John's Aug 2	French war vessel transport MANCHE hit a berg	Unknown	Bows stove in
15 Jul 1899	Straits of Belle Isle	SS MANCHESTER PORT collided with ice	Cattle uninjured beyond a few bruises	Starboard bow damaged, few plates gone, stem twisted, leaking badly; 300 tons cargo

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
				jettisoned
31 Aug 1899	48°30'N 48°44'W from Glasgow to New York	SS CITY OF ROME struck a berg (a growler) at half speed in fog at noon	None	Growler cut in two bow stove below waterline
Sept 1899	Off the Strait of Belle Isle from Labrador, arr St John's Sept 26th	Schooner LILY OF THE WEST struck an iceberg	Crew saved	Sank almost immediately
11 Mar 1898	Lynn Canal, Alaska At Victoria 14	Steam schooner ALICE BLANCHARD struck a floating lump of ice	None known	Hull punctured, forepeak filled with water even with pumps going
May 1898	55 mi S of Cape Race, from Marseilles to St Pierre; spoken to 23 May	Bark BAYARD hit a berg (see also 6 May 1885)	None known	Lost stem, bowsprit, jib boom, foremast, topgallantmast and yard; leaking badly
27 May 1898	43°40'N 48°15'W from Liverpool to Boston, arr 31st	SS CESTRIAN hit a berg at night in fog	None known	Twisted stem tp port 20', crushed plates and forcing topgallant forecastle skyward Bulkhead held, not leaking
18 Jun 1898	6 mi E of Gull Is, from Swansea to Tilt Cove, Nfld	SS PARA struck a berg (two reports: crushed in ice)	Unknown	Sank
July 1898	On the Banks of Nfld from Henley to Canada	Bark FORTUNA hit an iceberg (another report records Norwegian SS FORTUNAT)	Crew 12 days in open boat; picked up and landed at Tilt Cove	Sank
+17 Feb 1897	From Danzig Dec. 23 to Halifax, off Cape Race Feb 7	SS STATE OF GEORGIA last seen in field of ice	2 walked ashore before ship went missing, 32 lost	Lost
Apr 1897	From Saint John, NB, at Dublin 7 April after voyage of 19 days	SS GLEN HEAD hit a berg	Unknown	Unknown
1 Apr 1897	43°55'N 48°23'W from Bristol to New York	SS BROOKLYN CITY hit a large berg at 11.45 pm	Unknown	Bows stove in, flooding forepeak and damaging watertight bulkhead
9 Apr 1897	From Barbados arr St.John's April 11th	Bark CORDELIA hit a berg or floe	Unknown	Bows stove in and leaking, also lost foretopmast in a gale
12 Apr 1897	From Marseilles to Nfld, spoken to in 43°N 48°W on 18 April?), and put into St Pierre	Brigantine CLAIR struck ice (berg?)	None known	Bowsprit, figurehead, jib boom and headgear carried away, and leaky Forecastle stove in above waterline
12 Apr 1897	48°30'N 48°50'W from Glasgow? to New York	SS BOHEMIA encountered ice, heavy pack for 3 hours	None known	16 plates damaged above waterline
14 Apr 1897	Off entrance to St.Mary's Bay 46°30'N 54°W	French Brigt VAILLANT collided with a berg from St.Malo to St Pierre	78 lives lost, 4 survivors landed at St Pierre having resorted to cannibalism	Sank Survivors picked up by VICTOR EUGENE (see 28/4/1897) seven days later Victor and Eugene may be two separate vessels
26 Apr 1897	42°N 48°W from Cardiff to Norfolk (Virginia?)	SS KNIGHT BACHELOR hit a berg	Unknown	Bows stove to the bulkhead butts. 30' of bows gone, 62 plates broken Arr Halifax 30th

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
				stern first in sinking condition
28 Apr 1897	Grand Banks	VICTOR EUGENE struck a berg (see Valiant 14/4/1897)	Unknown	Unknown
29 Apr 1897	46°50'N 48°W from Antwerp to Philadelphia	SS LA CAMPINE hit a small berg a glancing blow in thick fog	None known	12 starboard bow plates damaged below waterline, leaky
May 1897	North Atlantic? at Stockholm 20th	SS COUNTY OF DURHAM hit a berg	None known	Bow plates injured
1 May 1897	150 mi off Nfld coast, from Cadiz to Montreal	SS SHEERNESS hit a berg	None known	Stove bows, smashed several plates, wrecked forecastle; forepart flooded
8 May 1897	2 mi S of Entry Is Magdalens. 47°15'N 61°40'N	Schooner NYANZA hit a berg from Lunenburg to Magdalens	Crew saved	Abandoned later taken over by wreckers
9 May 1897	260 mi E of St. John's, arr 15th, from Briton Ferry, Wales	Schooner SAMUAL MOSS struck a berg	Unknown	Badly damaged, lost bowsprit, jib boom and all attached gear; port side damaged kept afloat with great difficulty
29 Jun 1897	180 mi NE of St. John s from Parrsboro, NS to Barry.	SS FURTOR hit a berg Berg was under water	None known	Bows badly stove, bulkhead started; part of cargo had to be jettisoned
October 1897	Arrived St. John's Oct 25	Brig DIONE hit a berg	Unknown	Bow seriously damaged, leaking badly
1896	At seal fishery	SS Schnr ICELAND hit a berg	Unknown	Partial loss
1896	Strait of Belle Isle?	GIBRALTER hit a berg or ice	5 sank with ship	Foundered very quickly
13 May 1896	20 mi S of Cape St Mary's, 46°30'N 54°W?	SS FREMONA hit an iceberg, from Montreal to Dundee	Unknown	Holed in port bow, partial loss Put into N Sydney, NS
18 May 1896	Off Cape Race 45°N 45°W? from Northfield, UK to Nova Scotia	Wood barque ALICE M. CLARIDGE hit a berg	Crew in boats 2 days. Picked up by schr. CONGO	Sank Crew landed at Halifax June 6
19 May 1896	160 mi (or 140 mi) ESE of Cape Race from Liverpool to Pugwash	Wood barque VALBORG hit a berg	Capt. and 14 crew picked up by SS NETHER HOLME	Abandoned and capsized Crew landed at Greenock May 29
25 May 1896	From Cadiz to Harbour Grace arrived May 26th	Schnr. EMRYS hit a berg at night	None known	Lost bowsprit, cutwater, rigging, bulwarks and part of keel Arr in sinking condition
4 Jun 1896	Off St. John's	Schnr EUGENE PRINCE hit a berg	None known	Stove side and reached port in sinking condition
4 Jun 1896	Near St John's	Schnr RUNNYMEDE hit a berg in a gale	None known	Nearly foundered
Jul 1896	From Montreal arr Bristol Jul 8th	SS ETOLIA hit a berg	None known	Stem badly damaged
19 Jul 1896	Strait of Belle Isle from Montreal to Glasgow	SS CONCORDIA hit a berg on way to Liverpool	Unknown	Huge rent in foreparts Stem broken off at 80° angle, frames driven back to No.1 bulkhead. Limped into St John's

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
Aug 1896	Off Labrador 53°N 56°W?	Schooner ALEXANDER collided with a berg in snow	Unknown	Partial loss
4 Aug 1896	Crossing the Strait of Belle Isle	Labrador mail steamer SS GLOVER hit a berg	None known	Slight damage only
19 Aug 1896	200 mi S of Cape Race? 47°55'N 49°19'W from Cardiff to Halifax	SS cargo MOLDAVA hit a berg in fog	Crew took to boats picked up by SS CIRCASSIA	Filled rapidly and sank
October 1896	Near Cape Farewell, Greenland, Greenland –Denmark ferry service	CASTOR disappeared, thought to have hit iceberg	25 lost	Lost
May 1895	From Boston at Liverpool May 4th	SS ANGLOMAN in contact with ice (likely an iceberg)	None known	Down by stem so much could not get over bar at Liverpool so threw 286 head of cattle overboard
28 Jul 1895	Off Labrador coast, arr Hopedale, Labrador Aug 8 from London	Mission ship HARMONY struck a berg on dense fog	Unknown	Minor damage
1 Aug 1895	43°N 49°W from New York to Genoa at Gibralter Aug 10th.	SS VICTORIA hit a berg in fog	None known	Slight damage to port bow
Aug 1895	Off Newfoundland, from Newcastle, NB at Belfast Aug 10th	Bark CORONA hit a berg	None known	Figurehead, stem and bobstay carried away, planking twisted
Mar 1894	Off the Banks, from St John's arr Queenstown April 11.	Bark SIDDARTHA hit a berg	None known	Stem and cutwater damaged, part of deckload lost
17 Mar 1894	43°35'N 48°W from Mobile Alabama to Greenock, Scotland	Bark ARMENIA hit a berg ~40' high	Unknown	Leaking considerably
Apr 1894	From Marseilles arr St Pierre 12th	SS OLBIA struck a berg	Unknown	Stern post broken
7 Apr 1894	Grand Banks from Belfast to Miramichi	Bark RUTH PALMER struck a berg	Crew landed at St.Pierre by MARIA GABRIELLE	Sank
26 Apr 1894	From Barbados to St John's	Schnr ALGERIA hit a berg	None known	Leaking badly and compelled to run ashore at Renews to prevent sinking Sank anyway 26th.
9 May 1894	From St.John's, NF to Pernambuco, returned on 10th	Bark CORISANDE struck a berg	Unknown	Port bulwarks, rails and stanchions broken
19 May 1894	30 mi N of St. John's from Bonavista to St. John's	Schnr. ALBERTA hit a berg	Crew saved	Foundered
June 1894	From Philadelphia at Dieppe June 21st	Bark UNIONEN hit a berg	None known	Bows stove, bowsprit broken and twisted; other damage
June 1894	From Boston at Greenock June 30th	SS SCANDINAVIAN hit a berg	None known	Lost bowsprit and figurehead, bow stove 4' above waterline
June 1894	From Chatham, NB at Ayr Jul 9th	Bark FRI hit a berg	None known	Bows stove and full of water; jettisoned part of cargo
16 June 1894	From New York at Glasgow June 17th	SS ETHIOPIA hit a berg	None	Bow above waterline badly stove and broken, bulkheads tight.

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
				forward compartment full of water
17 Jun 1894	Off Partridge Point White Bay from Spaniard's Bay to Labrador	Schooner ROSE struck a berg on the way to the Labrador fishery	12 drowned	Sank immediately, 50 landed on ice and were saved
30 Jun 1894	Strait of Bell Isle from Montreal to Liverpool arrived July 6th	SS LAKE SUPERIOR hit a berg	None known	Forepeak filled with water, continued to Liverpool
9 Jul 1894	48°37'N 49°09'W	SS SCOTIA collided with a berg in fog at 1 am	None known	Broke bow girders, proceeded to Hearts Content for repairs
17 Jul 1894	Off Strait of Belle Isle, from St. John's to Greenland	SS MIRANDA (Dr Fred Cook's Greenland expedition ship) going dead slow in fog hit a berg	None known	Punctured bow (3 plates and hawsepipe broken) and returned for repairs Later struck rock off Greenland and sank
4 Aug 1894	Off Wolf Island, Nfld., from Harbour Grace to Indian Tickle, Labrador	Schooner BEAUMONT hit a berg	Unknown	Lost bowsprit and jib boom; other damage. Returned to Harbour Grace for repairs
19 Feb 1893	From Liverpool to New York, lifeboats found March 4 at 42°27'N 46°W	SS NARONIC struck a berg in blinding snow	Lost with all hands. 74	Sank, message in bottle found later at Ocean View, Virginia ~30 March
3 May 1893	385 km E of Cape Race from Danzig to Philadelphia, or from Dundee to New York	SS CASTLEGATE hit an iceberg in New York trip or crushed in ice to Philadelphia	Crew adrift on ice floe and picked up by sealer DIANA	Sank
Jun 1893	Notre Dame Bay, Nfld. from Pelley's Is to St. John's	SS PORTIA, 1,200 tons got too close to an iceberg and was hoisted 12' high and dry as the berg capsized	None	Some plates and keel damaged, slight leak (see also July 1890)
Jul 1893	Forteau Bay, Strait of Belle Isle, 51°25'N 56°55'W from Quebec to Liverpool	SS LAKE NEPIGON hit a berg and returned to Montreal (see also May 1886)	Unknown	Damaged, beached with No.1 hold full of water then refloated
Jul 1893	44°48'N 43°30'W from Parrsboro, NB arrived Dublin July 26	Bark KING'S COUNTY hit a berg	None known	Badly damaged forward, leaking a little
15 Jul 1893	47°N 49°W Grand Banks, from Chaleur Bay to Glasgow	Wood barque MARTHA hit a berg in dense fog	Unknown	Bows stove later condemned at St.John's
August 1893	Strait of Belle Isle, from Ardossan, UK arrived Quebec Aug 10	SS HAMPSHIRE hit a berg	None known	6 plates on stbd. bow stove or 2 plates and 5 frames
4 Aug 1893	Northern Straits (Strait of Belle Isle?) from Hamburg to Montreal	SS PICKHUBEN hit a berg 150' high & almost 1 mi long	None known	12' diameter dent in starboard bow
Sep 1893	Mid-Atlantic, from Baltimore to Dublin	Note found in bottle 8 Feb. 1894 at Gigha, Hebrides, "September, 1893 Sinking mid Atlantic. (SS) HORN HEAD. Collision iceberg."	Presume all hands	Sank
24 Apr 1892	Off Scaterie, NS, from St Pierre to Sydney	Schooner NANCY struck a berg (!?)	Landed safely at Flint Is	Ran ashore, then sank
May 1892	In the Gulf, from Havre arr Bathurst, NB May 10th.	Bark RATATA hit an iceberg	None known	Stem damaged and bowsprit broken

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
Nov 1892	Off Labrador, for Provincetown, Massachusetts	Schnr PEARL NELSON hit a berg 200' high in dense fog	All but 1 man deserted the captain	Crew came back on learning vessel was only partly disabled
22 Feb 1891	46°29'N 45°54 W from Boston to Liverpool	SS IOWA steamed through ice and hit a berg or was cut through by ice	Crew saved by SS Chester	Abandoned sinking in ice going down by the head
24 Feb 1891	46°N 48°W from Mobile to Liverpool	SS ARDANCORRAH (ARDANCORRACH) struck a berg (got amongst ice)	Unknown, perhaps some loss	Badly damaged and all but foundered; bows stove and forehold filled with water: lost propeller
16 Mar 1891	42°50'W 49°50'W from New York to Leith	SS CRITIC hit a small iceberg	None known	Hole in stbd bow, several plates abobe waterline damaged; fore compartment filled with water
1890	North Atlantic	SS ALCIDES struck in the side by a berg while caught in the ice pack	Unknown	Scored by a jagged gash that almost sank her Made St.John's
Summer 1890	Off Labrador	Unknown American yacht struck a berg in fog	1 dropped dead of a heart attack	Craft survived
13 Jan 1890	From Baltimore to Liverpool	SS NESSMORE hit a berg (see also 29 Apr 1883)	Unknown	Damage to bows
29 Jan 1890	From Hamburg to New York	SS CELLERT collided with iceberg, or enormous cake of ice, in icefield 100 mi. wide sustaining two shocks	None known	Hole in forepeak 1 foot square and several cracks in plates, otherwise uninjured
15 Apr 1890	43°50'N 39°37'W from New York to Liverpool	Bark MAGDALENA hit a berg at 10.30 pm	Crew picked up by SS Umbria	Badly damaged and abandoned next day
May 1890	Grand Banks from Liverpool to Shediac, NB	Barq SPERANZA struck a berg	Unknown	Abandoned, derelict sited July
May 1890	From Greenock arr. Quebec Jun 1	Ship NORWOOD hit a berg	Unknown	Bows damaged and headgear carried away
May 1890	Off the Banks of Newfoundland from Liverpool arr. Quebec 14th	SS PARISIAN hit a berg while proceeding cautiously	None known	Got clear without damage
2 May 1890	48°13'N 49°15'W from Antwerp to Montreal	SS NORSE KING sustained a number of heavy blows by ice	Unknown	Plates torn from stem, forward compartment full of water
13 May 1890	43°55'N 48°18'W from Newcastle to New York	SS BEACON LIGHT hit a berg 90' high and 600' long in dense fog trying to turn it and hitting a projecting ledge	None known	50 tons of ice landed on forecastle smashing deck and rails, vessel thrown on beam ends; hull damaged
19 May 1890	47°10'N 42° 30'W from Copenhagen to New York	SS THINGVALLA collided with a 20' high 1000' long berg head on at 5 kts at 5 15 am in thick weather	None	Stove stem and stem, bow boarded up and secured with quick setting concrete and continued to New York
27 May 1890	45°48'N 47°50'W	SS NORMANNIA sighted a berg dead ahead at 5:15pm in dense fog. Engines reversed, course changed and glanced off berg	None; passengers hardly felt the shock	Damaged turtle back and about 40' of plates.

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
		broadside on		
June 1890	Off the Newfoundland Banks from Liverpool to Shediac, NB	Bark SPERANZA ran into a berg	2nd Mate and 3 crew in 1 boat supposed lost	Bows crushed and vessel began to sink at once Crew took to boats, landed at Qubec July 31
8 Jul 1890	47°43'N 46°42'W from Glasgow to Philadelphia	SS HIBERNIAN hit a berg in dense fog	None known	Damaged 1 plate on port side
30 July 1890	From Pilley's Is to St John s	SS PORTIA struck a berg Another account passing berg when it broke into 3 pieces on of which came up under hull lifting her 5' (see also June 1893 - same incident?)	None known	Drove bow under water; no material damage Lloyd's List account: strained slightly midships, rudder twisted.
6 Aug 1890	48°N 46°40'W from Birkenhead to Quebec arr. 8th.	Bark HANNA hit a berg	Unknown	Partial loss, badly damaged about the bow
27 Aug 1890	Strait of Belle Isle, 51°30'N 56°30'W from Liverpool to Quebec	SS schnr VANCOUVER while going slowly struck a berg 1 mile long	Unknown	Partial loss, minor damage
Sep 1890	Glacier Bay, Alaska, from Alaska to Victoria arr. Sep 9	SS GEORGE W ELDER hit a berg, mostly submerged at half speed	None known	Jagged hole in port bow 3' by 3' Immediately beached to avoid sinking and patched
26 Nov 1890	North Atlantic	SS THANEMORE (old CITY OF ANTWERP) sailed and disappeared, assumed to have hit one of several icebergs in the area	43 lives lost	Assumed sank. SS NERO reports to have sighted the ship on fire near the Flemish Cap in December
14 May 1889	48°20'N 48°47'W from Jersey to Gaspe	Schnr BOLINA hit a berg in dense fog	None known	Damage to bow and stern
June 1889	North Atlantic	Unknown Vessel: iceberg with deep indentation as if been struck by vessel with wreckage at its base	Unknown.	Wreckage observed by SS Orsino from Gibralter at New York June 21
11 Jun 1889	42°54'N 49°54'W	SS SAALE at half speed hit a berg 50' high and ¼ square, full of hummocks and projections, and broke though one projection	Unknown	None
1888	Near Cape Farewell, Greenland Greenland –Denmark ferry service	CASTOR disappeared, thought to have hit iceberg	25 lost	Lost
18 Jun 1888	Strait of Belle Isle	**Ship LOYAL lay becalmed when a berg drifted in to her, or drifted into a grounded berg**	None known	Sufficient blow to cause severe leak; grounded to avoid sinking – later broke apart and became total loss
11 Mar 1887	43°20'N 47°W from Norfolk to Liverpool	SS HARTVILLE hit a large berg	Unknown	4 port bow plates smashed and 5' square hole: some cargo jettisoned
26 Mar 1887	Off Cape Broyle, Nfld. from St.John s to West Indies	Barquentine SUSAN struck a berg	5 Drowned	Sank shortly afterwards

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
April 1887	From Brest to Halifax	SS POUYER QUERTIER contact with ice [berg?]	None known	Bow plates broken above waterline
5 May 1887	Off Michaud Point, Cape Breton 45°35'N 60°35'W	Schooner LAURA BELLE hit a berg from Halifax to N Sydney	Unknown	Unknown
24 May 1886	Between C. Race and St.Pierre, from Montreal arr. Liverpool 4 Jun	SS LAKE NEPIGON hit a berg (see also July 1893)	None known	Slight damage to forecastle
25 Sep 1886	60 mi E of St.John's, (or 38 mi SE of Baccalieu Is) from Trinity to Oporto	Schooner LADY AGNES hit a berg at 8 pm	Unknown	Badly damaged losing spars, yards, companion, jib boom, bowsprit and cutwater; decks opened and leaking badly
ebruary 1885	47°N 43°W from Hamburg at New York 16th	SS RHAETIA hit a berg	None	No damage of importance
Mar 1885	North Atlantic from Antwerp arrived Halifax 19 Mar	SS DE RUYTER saw field ice and icebergs and struck something unkown	None known	Several bow plates damaged
Apr 1885	Off Newfoundland	SS NEPTUNE on sealing grounds ran into berg	Unknown	Broken bows and crippled
19 Apr 1885	Gulf of St. Lawrence (or east edge of Grand Banks)	Newfoundland sealer YOUNG PRINCE hit a berg (or crushed in ice)	Crew of 32 lived on ice floe for 19 days before being rescued	Sank almost immediately. Crew eventually picked up by ETOILE DES MERS and landed at St. Pierre
May 1885	On the Banks from Dublin at Quebec June 6	Russian Bark WAAJA hit a berg	None known	Lost fore and mizzen chains and sustained other damage
May 1885	From Greenock at Quebec 19th	Ship GATENAU hit a berg	None known	Lost head gear
May 1885	On the Banks, from La Rochelle to Quebec arr. 24th	Bark MINDET hit a berg	Mate lost overboard while trying to clear ship	Stbd bow stove; stanchions broken; lost bowsprit, jib boom, foreyard and head gear
May 1885	From Greenock arr Quebec 22nd	Bark PRINCESS ALEXANDRIA struck a berg	None known	Figure head carried away and other damage
May 1885	46°N 45°W from Elsinore to Quebec	Bark MOEN hit a berg in thick weather	1 man lost while taking to the boats	Berg fell on vessel shortly after crew took to the boats, cutting her in two
May 1885	Atlantic from Antwerp to Montreal	SS LAUDERDALE hit an iceberg or ice	Unknown	Damage to starboard bow
May 1885	On the Banks, from Flekkefjord to Bathurst,NB	Bark FLEKKEFJORD hit a berg	None known	Lost jib boom, spanker boom and bowsprit
May 1885	45°N 47°W from Shields to Baltimore	SS CILUREM or CILURNEM hit a berg	Unknown	3 bow plates stove, compartments filled with water
May 1885	46°N 48°W from Dnbak to Metis	Bark BAYARD hit a berg (see also May 1898)	Crew saved by Bark BRILLIANT	Abandoned

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
6 May 1885	45°N 47°W	Bark MAGDALENA hit a berg	Unknown	Abandoned
7 May 1885	From Liverpool arr Newcastle, NB May 20; spoken to in 46°N 47°W on 7th	Bark OSSUNA hit a berg	None known	Lost foreyard, foretopsail yard, mizzen, channels, rigging and steering gear Port side of cabin smashed
7 May 1885	Off Cape Race, from Glasgow to Montreal	SS COLINA struck a berg	Unknown	Smashed bulkhead, fore compartment flooded
7 May 1885	Grand Banks from Cork to Quebec	Bark ANNIE CHRISTINE struck a berg	Crew took to boats and rescued 18 hours later by ship CORNELIUS STOCKEM	Sank
9 May 1885	Between 47°N 46°W and 45°N 50°W, put into North Sydney NS, from Rotterdam to Montreal	SS JERANOS hit a berg at night	Unknown	Hole in bow, forward compartments full of water, 200 tons cargo jettisoned
9 – 12 May 1885	From Macelo to Quebec Arr.Montreal in tow 30th	Bark GRANT was completely blocked between icebergs	None known	Badly scraped and lost part of stem.
10 May 1885	43°30'N 49°20'W from Liverpool to Halifax	Bark R.W MERRIAM struck a large berg ~400' high and 1 mi long in thick fog 8 am at 3 kts	Crew taken aboard Bark AURORA	Bows stove and bowsprit driven into hold Abandoned 11th and later observed on fire
10 May 1885	46°N 49°W from New York to Newcastle	SS MARY LOUISA in ice and heavy swell, icebergs dashed against hull	Crew picked up by Barks BRILLIANT and CHARGER	Hull plates crushed causing forward hold to fill; crew left with prop sticking out of water Sank
13 May 1885	North Atlantic	Ship CEYLON hit a berg from Philadelphia to Cork, Ire.	Unknown	Lost stem and cutwater, slight damage to bows
16 May 1885	40°33'N 44°38'W from Rochefort to Halifax	Bark ALMA hit a berg	None known	Bows stove; lost bowsprit, foretopgallantmast and all head gear Not leaking
16 May 1885	On the Banks from Charente to Montreal; put in to Halifax 20th	SS DRACONA hit a berg at 11pm, steaming at 10 kts before reversing engines, surrounded by many bergs next day	None known	Extensive damage with hole in bow; not leaking behind collision bulkhead
18 May 1885	46°N 46°W from St.Nazaire to Parrsboro, NS	Bark FLORA hit a berg	None known	Side damaged and leaking badly
18 May 1885	North Atlantic from Havre to Miramichi	Ship THEMIS struck a berg	Crew saved by SS MISSOURI	Abandoned
19 May 1885	43°30'N 49°30'W from Liverpool to New York	SS CITY OF BERLIN hit an immense berg stem on, dead slow in dense fog at 3 15 am	None	Bowsprit and headgear carried away, no damage below waterline; ice fell through deck into hold
21 May 1885	On the Banks, from Montreal at Liverpool June 2	Bark BROOKLYN hit a berg in fog	None	Bowsprit smashed and other damage; ice fell on deck
27 May 1885	42°44'N 50°21'W from Liverpool to Philadelphia	SS LORD GOUGH collided slightly with a large iceberg	None	No damage

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
17 Jun 1885	From Harbour Grace to N Sydney	Bark ISABELLA WILSON hit a berg	None known	Lost bowsprit
5 Aug 1885	From Montreal to London, put into St.John's 14th.	SS ERL KING hit a berg	None known	Hole in stbd bow above waterline
14 Sep 1885	Off Cape Francis, Labrador, 52°35'N 55°45'W	Schooner BERTHA hit a berg in fog	Crew saved with great difficulty	Went to pieces and sank almost immediately
- February 1884	Spoken to in 45°N 48°W on 4th	SS SIDONIAN damaged by berg	None known	Hole in port bow and rudder slightly damaged
2 Feb 1884	46°N 46°20'W to New York from London	SS NOTTING HILL hit a heavy sunken berg twice at 11.50 pm	All hands rescued by SS STATE OF NEBRASKA	2 holes, abandoned on the 5th with 18' of water in the hold
27 Feb 1884	44°30'N 48°40'W from Bremen to New York	Ship WILHELM struck a berg ~200 yards long & 20' high	Unknown	Damage to bow
April 1884	From Havre to St Pierre	TROIS SOEURS hit a berg	Crew saved	Sank
25 Apr 1884	North Atlantic from Jersey UK to Arichat, NS	Brig PATRIUS or PATRUUS struck a berg	Unknown	Lost bowsprit and figurehead, beams broken, cargo damage
4 or 5 Jun 1884	49°25'N 45°30'W, from Liverpool to Charlottetown, PEI	Bark ETHEL BLANCHE hit a berg	All saved	Filled in 20 mins. and abandoned Gear saved 8th
15 Jun 1884	Off Bay Bulls, from Montreal to Harbour Grace, towed into St.John's 16th	Schnr EUGENIE struck a berg	None known. Crew abandoned but later reboarded	Lost foretopmast, jib boom, bowsprit, hull very badly shattered
18 Jun 1884	41°31'N 48°28'W from Baltimore to Weser	SS HOHENSTAUFEN hit a piece of ice 6' high ~ midnight, overcast and misty no other ice in sight	None known	Several frames broken, first compartment leaking
27 Aug 1884	Off Catalina, from Harbour Grace to Snug Harbour, Lab	Brig RESOLVEN likely hit a berg	13 crew and passengers presumed lost	Found derelict and abandoned 30 mi off Catalina and towed to Harbour Grace
Sep 1884	From Montreal to Bristol, arr St.John's 27th	SS BRISTOL hit ice; reports 378 icebergs between Cape Freels and Cape Race	None	Propeller smashed
12 Sep 1884	Conception Bay	Schnr MORDAUNT hit a berg	None known	Almost totally wrecked but managed to make Holyrood
20 Sep 1884	37°N [?!] 52°17'W from London to Baltimore	Bark HARVESTER hit a berg 3 am, in thick weather	None known	Lost jib boom, back ropes, foreyard and broke cutwater
1883	On the Grand Banks	Schooner ALBATROSS sailing east struck a low lying berg in a storm	8 went down, 2 escaped on dinghy	Sank quickly The 2 picked up by schooner ENERGY which was sunk in collision with SS LIDDESDALE when approaching to transfer survivors which in turn went aground at Cape Race.
21 or 23 Feb 1883	200 mi E of Cape Race 44°N 52°W from Bristol to New York	SS GLOUCESTER CITY hit a berg	All crew saved by SS FREJA	Sank
29 Apr 1883	Off the Banks of Newfoundland, from	SS NESSMORE hit a berg (see	None known	5 frames broken and 1 bow plate

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
	Liverpool to Baltimore	also 13 Jan 1890)		above water stove in
5 Jul 1883	100 mi E of Anticosti from Newcastle to Montreal arr 9th.	SS BARCELONA hit a huge tabular berg ¾ mi long and 40' high in thick weather at 3 40 pm while reversing engines	Unknown	Bows crushed and stove 2", fore compartments full of water
6 Sep 1883	On the Banks, from Quebec to Greenock	Ship AMARANTH hit a berg	None known	Some damage to quarter
1882	North Atlantic	Unknown schooner hit a berg	5? crew and captain from Chester, Nova Scotia lost	Sank
21 Mar 1882	30 mi S of Cape Spear 47°05'N 52°50'W?	Schooner VOLANT hit a berg from St John's to Barbados	Crew saved	Partial loss, returned to St John's night of 22nd Lost?
May 1882	Banks of Newfoundland, from Amsterdam, at New York 16th	SS JASON struck a submerged ice floe	None known	Stove large hole in bow; sank 4' by the bow but reached port safely
1 May 1882	45°N 47°W	Ship WESTERN BELLE hit a berg	3 boats got away but 1 was swamped losing 13 crew and master. Others rescued badly frozen by schnr PRESIDENT	Sank in 20 minutes Survivors landed at Quebec
11 May 1882	46°N 46°W from St. Lucia, West Indies to Tignish, NS	Barqt OLIVETTE hit a berg 80' high in dense fog	Unknown	Lost bowsprit, jibboom, head gear and part of cutwater; no leaks
15 May 1882	48°26'N 47°W from London to Quebec	Ship GREYHOUND hit a berg	Unknown	Lost foremast and bowsprit
17 May 1882	45°N 47°W, arrived St.John's 19th	SS PRUSSIAN hit a berg in dense fog at slow speed	None known	Smashed bowsprit and figurehead
24 May 1882	44°25'N 44°52'W from Hamburg to New York	SS INDIA struck a berg 10 am at slow speed in fog	None known	Stove 2 holes on bow
25 May 1882	300 mi E of Cape Spear, or 43°N 50°W, from Newport to New York	SS FRIARY hit a huge iceberg at half speed in dense fog	Unknown	Bows smashed in 10'-12' and figure head and bowsprit carried away. Headed for St. John's. Port bow holed
5 Jun 1882	Off St. Pierre 46°54'N 56°20'W from Sydney, NS to St John's	Brig OBAN collided with a berg or rocks [more likely] off S end of St Pierre	Unknown	Unknown
13 or 15 Jun 1882	48°10'N 50°W from New York to Christiansund (or 43°N)	Bark EDELINE hit a berg	Crew took to boats and picked up 18th	Sank next day

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
16 Jun 1882	From Gloucester to the Banks. 25 mi N of Cape Ballard	Fishing schooner MASSASOIT hit a berg at full speed in fog	Some crew took to boats and landed at St John's others lost	Sank almost immediately
16 Jun 1882	32 mi SW of Cape Race 46°30'N 53°W? from Sydney to London	SS PERA struck berg at full speed	Crew saved 1 boat picked up by the FLORELLA ~32 mi SE by E of Cape Race; other 2 by LAKE MANITOBA	Cut through the hull to the foremast, total loss
16 Jun 1882	230 mi or 45°N 48°W off Newfoundland coast from Charlottetown to Bordeaux	Barque LIZZIE CAMERON hit a berg at 8 knots	Crew took to boats. picked up by banking schooner J W Bentley and landed at Bay Bulls Nfld	Port bow crushed, filled with water and turned on her beam ends in half an hour
21 Jun 1882	About 5 mi off Cape English, or 20 mi off Cape Race	SS ASDRUBEL struck a berg in dense fog from Saint John, NB to Bristol	Crew took to boats,rescued and brought into St. Mary's	Sank with bows still above water
21 Jun 1882	From Richtonete to Maryport, Eng spoken to 26th in 47°40'N 43°20'W	Bark LEON struck a berg	None known	Badly damaged, stoving bows and carrying away jib boom, fore and maintopmast and all yards; continued voyage
21 Jun 1882	42°20'N 52°05'W from Tenerife to Summerside, PEI	Bark MONTAGUE hit a berg in thick fog	None known	Jib boom smashed and 10' of cutwater lost
1 Jul 1882	45°29'N 48°40'W from Gottenburg to Philadelphia	Bark FRAMNAES hit a berg in dense fog	None known	Abandoned, crew losing everything
Oct 1882	A few days out from Ivigtut, Greenland, arr. Philadelphia 12th	Bark FLUORINE colided with a huge berg in dense fog	None known	Bulwarks stove, railings, spanker boom and wheel broken
10 May 1881	4 mi off Bird Rocks, Magdalen Islands	Bark GANANOQUE hit a berg in thick fog	Crew landed on Bird Rocks; picked up 12th	Stove starboard bow and filled rapidly; sank
5 May 1881	10 mi E of Sydney, Cape Breton 46°15'N 60°W?, from Cow bay to Quebec	SS MAYFIELD hit ice [some reports say iceberg]	Unknown	Partial loss, ran ashore at N. Sydney to avoid sinking, later refloated.
8 Jun 1881	20 mi E N E. of Cape St.John from Conception Bay to Labrador	Fishing vessel REUBEN J HART struck ice at 7 kts in thick fog	All of the 60 on board made it on to the ice	Sank in 3 minutes Crews picked up later in the day by schooner SELINA
July 1881	Strait of Belle Isle, from Hull to Quebec	SS LOMOSA (LIMOSA)hit a berg	None known	Bow stove, leak controlled
1880	Off Cape Race	SS FLAMINGO hit a berg	Unknown	Wrecked
3 Mar 1880	From Barrow to Philadelphia	SS LANGSHAW encountered fields of ice and icebergs for 3 days	None known	Stove port bow a d fore compartments filled with water
26 Mar 1880	46°N 48°W	SS FERNVILLE hit a berg	Crew landed at St Pierre	Filled and sank next morning

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
12 Apr 1880	From New Orleans to Antwerp	SS VIZCANO hit a berg	Crew landed at St.Pierre	Sank
14 Apr 1880	46°N 47°W	SS PRIOR hit a berg	Unknown	Unknown
1 May 1880	Off the southern coast of Nfld near Grand Bruit	Ship THORNDRAN, (THORDEAN, THORNDEAN?) lost in ice	Crew saved	Lost
13 May 1880	Off St. Paul's Is , from Marseille to Quebec	Bark SEBASTOPOL struck an iceberg	Crew took to boats arr St.Paul's 17th	Sank
10 May 1880	In Atlantic, from New Orleans to Calais	Ship EDITH TROOP last seen in ice	Crew of 25 missing	Presumed sank
11 May 1860	Off River St Lawrence, from Queenstown	Bark NEPTUNE hit berg	Crew lifted from boats by GANGER ROLF	Sank
26 May 1880	43°43'N 50°39'W from Fleetwood to New York	Bark CONDES (CONDOR) struck a large berg in dense fog by catching mainmast	2 injured, 1 fell of mainmast, other fell off OK but 2 legs broken by falling ice off berg	Mainmast brought down bringing everything with it, bulwarks smashed
June 1880	For Philadelphia	CORDELIA hit a berg (same as CADELIA below?)	Unknown	Stove and part of cargo jettisoned to lighten ship
3 Jun 1880	45°50'N for Philadelphia	German bark CADELIA hit huge berg	None known	Bow stove and headgear carried away Holes patched
5 Jun 1880	From Richmond to Queenstown, spoken to 13th June at 42°08'N 47°32'W	Bark GRID struck a berg in fog	None known	Lost bowsprit, foremast, jib boom and cutwater, planks started
5 Jun 1880	Off Cape Race 41°40'N 51°17'W from New York to Dijon	Barkt BIRDSTOWN (BIRDSTOW) hit a berg at 10.27am in thick fog at 6½ knots	Crew picked up by ship LIVERPOOL on 6th.	Abandoned, with head and steering gear carried away and settling fast
7 Jun 1880	From Ivigtut to Philadelphia	THYRA hit a berg	Unknown	Lost bowsprit and cutwater; stem damaged
12 Jun 1880	10 mi off St. John's for Newfoundland fishing grounds	HMS FLAMINGO ran into berg at reduced speed	None	No serious damage
30 Jun 1880	Near Little Fogo Island from Bristol to Twillingate	CHALLENGE struck a berg in dense fog at night	Unknown	Considerable damage
3 July 1880	About 50 miles SE of C. Spear from St. John's to Miramachi	Brig TITANIA struck a berg in fog	Owner went down with ship, others picked up by scnr P I WHITTEN	Sank 3 hours later
5 Aug1880	15 mi WNW of Cape Race from St.John's to Sydney,NS	Schnr JESSIE HOYT hit a berg	None known	Lost stem, jibboom, bowsprit; foremasthead sprung and other damage, returned 7th
29 Aug 1880	Off Belle Isle, 52°N 55°30'W? from Barrow, UK to Montreal	SS HURWORTH hit a berg	1 lost	Bow badly smashed

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
17 Sep 1880	Strait of Belle Isle 51°30'N 55°W? 85 mi SE of Belle Is. from Harbour Grace to Boulter s Rock	BELLE hit a berg in dense fog at 4 am	Crew saved	Abandoned
11 Nov 1880	Grand Banks from Cardiff to New York	Schooner SCHLESWIG damaged by ice	Unknown	Partial loss
July 1879	From Labrador to Quebec, 7th	Brig KAYOSUK hit a berg	None known	Some copper carried away
7 Nov 1879	241 mi E of St John's from New York to Liverpool, 47°N 45°W	SS ARIZONA hit a monstrous berg in dark and foggy conditions at 15½ mph, (other reports 18 kts) after ordering hard a'starboard and reversing the engines	No known deaths some injuries amongst the 509 passengers as many were thrown at impact	Bows driven in 20 feet but collision bulkhead held No water beyond first compartment Headed to St John's for repairs where they removed 200 tons of wedged ice
Before 2 Apr 1878	Green Bay area ?	Sealing ? Brig GLENGARRY struck a small island of ice whilst under sail	Crew saved	Sank
28 Apr 1878	From Cadiz to St John's arr 29th	FLYING SCUD struck a berg	Unknown	Leaking badly belowwaterline, grounded to save cargo
June 1878	Strait of Belle Isle, from Montreal to Liverpool, arrived 24th	SS POLYNESIA grazed a berg	None known	Scraped the "Poly" off her name and deposited 10 tons of ice on deck
11 Aug 1878	51°N 48°N, from Leith and Greenock Scotland to Quebec	Bark EVELINE hit the extreme end of a 100' high berg in dense fog	None known	Smashed jib boom, bowsprit, head rail, etc.
Sep 1878	100 or 130 mi E of the Banks, from Lancaster to Quebec arrived 14th	Bark ST. FRANCOIS struck against presumably an iceberg	None known	Cut through cutwater causing vessel to leak
5 Jun 1877	On Grand Banks, 45°N 45°W?, or more probably off Cape Ray	Brigt BEAUTY from London to Saint John, NB	Unknown	Bowsprit and all headgear lost
13 Mar 1876	Off Cape Ballard	Brigantine SARAH GRACE jammed in the ice and struck by an iceberg	Crew saved	Sank
June 1876	6 mi E of Cape St. Francis from Tilt Cove for Betty Cove and Swansea Arrived St. John's 3rd	Bark BELLE KEITH hit a berg while under control of pilot	Unknown	Lost jib boom, bowsprit, and part of headgear
16 Jun1876	Near Cape Race, from Liverpool to Quebec, arrived 22nd	SS SARDINIAN hit a berg at slow speed and managed to reverse engines before hitting	None known	A little damage to port bow, quantity of ice fell on deck
13 Jun 1876	Off Belle Island, from Prince Edward Island to Queenstown	TOPAZ hit a berg, beached on Bell is. to avoid sinking	Unknown	Lost cathead, deck planking started, very leaky Later floated off.
July 1876	46°N 48°W	Fresh wreckage of unknown vessel in lee of iceberg	Unknown	Wreckage passed by brig LILY
18 Aug 1876	Near Cape Norman, NF from Shields to Sagneny	ATLANTIC went ashore trying to avoid an iceberg in thick fog	Crew saved	Total wreck
23 Aug 1876	On the Banks from New Orleans to Liverpool	SS ARBITRATOR hit a berg	Crew saved by brigntne BALTIC	Foundered

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20 Apr 1875	41°N 48°W (or 44°N) from Galveston to Liverpool	Bark ROSE BRAE hit a berg	Crew lifted next day by bark THOR	Stove forward compartment, sank by the bow 21st
11 May 1875	From Norway to Quebec	AURORA hit an iceberg	Unknown	Abandoned by crew 13th and afterwards seen to sink
17 May 1875	Off Cape Race, from St John's to Brazil	Schooner CORISANDE struck a large piece of ice in dense fog	Unknown	Part of stem carried away, returned to St. John's
18 May 1875	47°N 47°W from Darien to Belfast	Bark MAUD HELEN hit a berg in dense fog	Unknown	Bows stove, lost bowsprit, etc
Jun 1876	From Liverpool arr. Quebec Jun 7	PRESIDENT hit a large piece of ice	Unknown	Considerable damage to bows and making 4-5" water/hour
1 Jun 1875	46°34'N 47°58'W or 120 mi SE of Cape Race, from Quebec to Liverpool	SS VICKSBURG lay to the night before in heavy ice and was eventually punctured	42 including captain lost, 44 saved	Sank, hole in port quarter; boats picked up by STATE OF GEORGIA
8 Jun 1875	On Grand Banks from Montreal to Glasgow	SS CORINTHIAN hit a berg in fog	None known	Lost bowsprit and figurehead
11 Jun 1875	43°23'N 47°26'W, also given as 43°20'N 48°20'W	SS STATE OF NEVADA struck a large berg just after midnight	Unknown	Forecastle head stove in and plates considerably damaged, much ice thrown on deck
12 Jun 1875	On Grand Banks from Greenock to Quebec	Ship MAUD (MAUDE) hit a berg	Unknown	Port bow stove
13 Jun 1875	60 mi W of Cow Head, 49°50'N 59°11'W	Bark LIBERTY hit a berg in fog	Crew saved	Grounded on a reef, condemned & sold; recovered without damage
25 Jun 1875	Near Strait of Belle Isle from St. John's to Labrador	Schnr ROYAL ARCH hit a berg	Passengers and crew saved	Sank
27 Jun 1875	90 mi off Fogo 50°N 53°W?	Schooner CALEDONIA hit a berg from Cupids, St John's to Batteaux, Labrador	82 survivors on iceberg for the night	Sank in 30 minutes Crew picked up by JANE AINSLEY
July 1875	~46°N 44°W	ROGATE with note in cabin saying ran foul of an iceberg	Unknown	Found abandoned and derelict, boarded July 8
18 Jul 1875	61°N [!] 51°W from Londonderry to Quebec	HENRY PALMER hit an immense berg in very thick fog	Unknown	Lost 6 stanchions, rail, bulwarks, anchor stock, etc. Put into Sydney for repairs
2 Sep 1875	~100 mi E of the Strait of Bell Isle from Liverpool to Quebec	SS MORAVIAN hit a large berg at 12 pm in fog	None known	Lost bowsprit and damaged plates above the waterline
11 Mar 1874	Off Baccalieu	Sealing SS MASTIFF struck iceberg	Unknown	Bowsprit, stern rail, cut head, bulwarks carried away, ship much damaged
Apr 1874	From Granville, Fr to St Pierre	Brig NIVE hit a berg Crew landed at St.Pierre 24th.	Crew saved by Brig ARNEE?	Sank
6 May 1874	Off Cape Race 47°20'N 48°10'W from Greenock to Quebec	Ship CALISTO HAWS hit a berg	Unknown	Partial loss; lost foremast, cutwater, jib boom, etc.
6 May 1874	Eastern edge of Banks	Ship ATLAS hit berg	Unknown	Lost bulwarks, jib-boom, etc

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6 May 1874	47°N 48°W from Liverpool to Halifax	Bark JOHN ABBOTT hit a berg in thick fog	Unknown	Bowsprit and headgear carried away
10 May 1874	44° 41'N 49°W from Hamburg to New York	Barque MAI hit a berg in thick fog	Unknown	Broke bowsprit, cutwater, figurehead, mast and jibboon and all sails attached
20 May 1874	Approx 45°N 47°W from Barrow UK to Bridgewater NS	Bark HENRIETTA hit a berg	Crew picked up by brig IRIS on 24th	Sank in 20 minutes after taking to the boats
22 May 1874	150 mi E of Cape Race 46°20'N 51°05'W from Christiana, Nwy to Quebec	Barq PONTECORVO hit a berg in fog	170 Passengers and crew lifted by ship MACEDONIA	Abandoned 23rd Damage to bowsprit and foremast and damage to hull above waterline
9 Jun 1874	44°56'N 48°10'W from Fernandina to London	Brig HANNAH hit a berg in thick fog 3 am	Unknown	Cutwater carried away, bowsprit and jib boom sprung, cathead and one stanchion sprung
Before 12 Jun 1874	48°N 46°W from Liverpool to Quebec	MELPOMENE hit a berg	Unknown	5 planks stove in port bow; leaking
13 Jun 1874	46°N 48°W from Quebec to Aberdeen	LAUREL hit a berg, fore and aft	Unknown	Lost bowsprit, then upper work of stern; leaking
24 Jun 1874	Off Quirpon	STAFFA struck a berg	Unknown	Unknown
26 Jun 1874	From New Orleans to Liverpool	STATE OF LOUISIANA hit a berg	None known	No damage
July 1874	30 mi NW [?] of Cape Race, at Pictou 22nd	SS CERDIC struck a berg	None known	4 plates and frames broken on stbd side
5 Jul 1874	Off Nfld., from Antwerp to Montreal	Brig ILIADE hit a berg	Crew manned pumps for 50 hours till rescued	Sank shortly after crew lifted Crew landed at Sydney
5 July 1874	From New York to Queenstown, arrived 12th.	SS NEVADA hit a berg in fog	Unknown	Some damage, and part of berg fell off onto forecastle
11 Jul 1874	From Quebec to Glasgow off Caoe Race	Ship GANONOQUE struck a berg	Crew, except 1, saved, arr Sydney, NS 21st	Towed into St John's, derelict
24 Oct 1873	28 mi ESE of Belle Isle, from Snug Harbour to Montreal	Brigantine ELMA hit a berg, arr St John's Nov 17th	None known	Bows stove and lost bowsprit and rigging
12 Dec 1873	From Harbour Grace, NF to Waterford	GLENCOE hit a berg	Unknown	Total loss
10 Jun 1872	15 mi SE of Ferryland, from Sydney, CB to Brigus, NF	EYRIE hit a berg in dense fog	None known	Lost bowsprit, headgear and cutwater; foremast and foreyard sprung and other considerable damage
1871	North Atlantic? (name of vessel is unconfirmed)	Message in bottle "SS BORSTON struck an iceberg, will sink in a few minutes; no hope, all lost. Arthur S."	Presume all hands	Lost
May 1871	40°43'N 51° 34'W	Unknown ship amidst 4 bergs	Unknown	Waterlogged, fore and main

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		passed by schnr RECRUIT 24th		masts lying on deck
3 May 1871	6 mi E of Cape St.Lewis, Labrador	SS WOLF hit a berg in running ice	Crew picked up by SS NIMROD	Sank in 5 minutes
16 Jun 1871	Near Trinity	SS OSPREY hit a berg	Unknown	Lost bowsprit
29 or 30 Jan 1870	Left Halifax Jan 28 for Liverpool	SS CITY OF BOSTON assumed to have hit a berg	192 lives lost	Sank without trace
17 Feb 1870	48°N 48°W from Glasgow to New York	Ship GLAD TIDINGS struck a berg	None known	Martingale carried away
4 May 1870	Off Gull Is., Cape St. John, NF, 50°N 55°30'W?	SS sealer WOLF struck a berg or running ice	Crew saved	Swamped then foundered
17 Jun 1870	From Montreal to Bristol	Shop ANCESTOR hit ice	Unknown	Foundered
1869	Off Cape Race	Sailing sealer VULCAN hit a berg	Unknown	Sank
26 May 1868	46°N 46°W from Shields to Quebec	Barque MAJESTIC struck a berg	Crew landed at Miramachi	Bows stove, abandoned in sinking state
5 Nov 1868	North Atlantic?	Ship WABENO (registered Miramichi) struck a berg	Unknown	Abandoned
22 Apr 1867	Off Cape Freels	SUPERIOR struck a berg	Crew saved	Abandoned
28 Jun 1865	From Quebec to Greenock	AILSA hit a berg in fog	None known	Lost jib boom, bowsprit, mainyard, etc and bow and stern stove, leaking 6"/hr
5 May 1864	42°N 48°W	CONSTANTINE hit a large berg in a dense fog	Unknown	Bowsprit carried away, larboard bow stove and other damage
23 or 28 May 1864	From New York to Corunna	Ship PROTECTOR hit a berg	Crew picked up by SS NORTH AMERICA	Sank
2 Jul 1864	From Cardiff to New York	OCEAN PEARL hit a berg in dense fog	None known	Lost cutwater; started a good deal of copper from each bow
3 Jul 1864	46°N 46°W, from Quebec to Berwick	Bark MARGARET hit a berg	Crew picked up by CAP ROUGE	Became waterlogged and was abandoned
Before 6 Mar 1863	From Baltimore to Dublin	EDMUND PRESTON struck a berg, part of cargo thrown overboard	Unknown	Fore compartment full of water
28 Apr 1863	~47°N 48°W	Iron ship CANADA amongst ice and icebergs hit one or the other (see also 9 July 1859)	Abandoned 28th crew lifted by ABLE SEAMAN	Observed with hawse pipes in water 29th and said to disappear
May 1863	49°N 51°W	Unknown vessel seen on an iceberg, many other vessels in ice	Unknown	Unknown, seen by THOS DUNHAM about May 4
May 1863	Off the Banks of Newfoundland	Side of unknown vessel surrounded by icebergs	Unknown	Wrecked, passed by MARY JANE May 23

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
1 May 1863	Off Newfoundland, from Liverpool to Halifax	Ship PRINCESS ROYAL struck a berg bound for Halifax	Crew saved	Abandoned
31 May 1863	North Atlantic, spoken to in 46°N 15°W returning to Bordeaux	Ship NICHOLAS hit a berg	None known	Lost bowsprit, foremast, etc
9 Jul 1863	48°N 44°W from Hamburg to New York	SS BORUSSIA hit a berg in dense fog	None known	Lost bowsprit and stove in bow to a considerable extent
5 Aug 1863	From Montreal to Liverpool	Brig GULTURUS hit a berg, crew landed at Gaspe	Crew took to boats and picked up by sch. PRINCE	After ~40 hours of pumping was about to be abandoned when accidentally caught fire
9 Aug 1863	~45°N 49°W, from Quebec to the Clyde	Bark CAMBRIA hit a berg	Crew taken off by LOTUS	Bows completely smashed, abandoned 3 days later and fired
14 May 1862	Off Cape Race	PIONEER struck a berg the day before. Some cargo saved by BLUE JACKET	Unknown	Sank
17 May 1862	47°N 55°W, from Liverpool (?) to Quebec	Ship BARON CLYDE hit a berg in dense fog, put in to St. Pierre 26th.	Unknown	Bowsprit, foretopgallantmast and headgear carried away; very leaky
30 Sep 1862	Strait of belle Isle, from Greenock to Montreal	SURINAM hit a berg	Crew saved	Sank shortly after
15 Apr 1861	From Liverpool to St.John's	PROSPERO struck a berg	Mate & 4 crew picked up by French brig FRANCE, master & rest of crew missing	Sank
May 1861	44°N 49°W	Unknown ship of ~600 tons surrounded by 7 icebergs sighted 25 May	Unknown	Unmanned, almost totally dismasted and badly cut on starboard side
Before 1 May 1861	Off Cape Race	SS BOHEMIAN hit a berg	Unknown	No serious damage
23 May 1861	About 44°N 48°W, from Hamburg to Quebec	CAESAR hit a berg	Crew lifted by DAVID	Bows stove, bowsprit and foremast gone, abandoned in a sinking state
4 Jun 1861	Straits of Belle Isle 51°30'N 55°30'W	SS CANADIAN struck a berg from Quebec to England	35 lost, 266 survivors	Sank in half an hour
23 Jun 1861	~45°N 49°W, from Montreal to Bristol	Bark ORNEN hit a berg in fog	Crew picked up 25th by WEBSTER	Sank
May 1859	45°N 54°W, from Shields to Quebec arr 10 May	NORDEN struck a berg	Unknown	Bow stove and bowsprit carried away
Jun 1859	100 mi from St.John's, 5 days out from New York for Glasgow	SS EDINBURGH hit a berg in dense fog and put into St John s June 7.	Safe	Considerably damaged about the bow with 2 compartments full of water
3 Jun 1859	From Quebec to Liverpool, put into Croque Harbour, French Shore	Brig NYSSIA hit an island of ice	None known	Forefoot and part of keel carried away
9 Jul 1859	49°N 48°W, from Liverpool to Halifax	SS CANADA hit a berg in dense	None known	Bowsprit, cutwater and

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
		fog (see also 28 April 1863)		headgear carried away
+23 Jan 1856	North Atlantic from Liverpool to New York	SS PACIFIC lost amongst icebergs	186, all hands. Message in bottle found in Hebrides ".... ship going down Confusion on board. Icebergs around us on every side. I know I cannot escape..."	Sank
19 Feb 1856	About 45°30'N 45°56'W	JOHN RUTLEDGE struck a berg	1 survivor out of 119 passengers and crew Left ship in 5 boats.	Bow holed and abandoned a few hours later
30 May 1856	Off Cape St.Francis	GRACE DARLING hit a berg of enormous size	Unknown	Masts, bowsprit, etc. carried away
5 Jul 1856	49°N 46°50'W from Plymouth	Barque ROSE; derelict found by the HEBE July 15 and learned from a board fastened to the rigging that she had been struck by an iceberg	Unknown, presumed lost	"..staving in the stbd bow, taking away bowsprit and foretopmast and ship making water fast, all hands employed at the pumps"
26 Dec 1856	North Atlantic	SS PERSIA scraped the side of a berg on maiden voyage from Liverpool to New York	Unknown	Arrived safely
May 1855	Grand Banks, from New York to Le Havre	SS ST. LOUIS hit a berg	Unknown	Arrived with badly damaged bow
14 Jun 1855	47°N 42°W from London to Newfoundland	Brig GAZELLE hit a berg	Crew saved by SOVEREIGA	Abandoned on the 17th in a sinking state
1 Mar 1854	North Atlantic left Liverpool for Philadelphia	SS CITY OF GLASGOW missing in ice	480 lost	Lost
12 Apr 1854	42°59'N 38°44'W	Brig ELISE & CHARLOTTE hit a berg in fog	Unknown	Stem stove in, bulwarks, rails, etc. carried away
19 Apr 1854	42°N 46°W from Apalachicola to Liverpool	LADY FALKLAND hit a berg in thick weather (see also May 1847)	Unknown	Lost bowsprit, head, cutwater, and making water
Before 26 Apr 1854	From London to New York	Ship G.B LAMAR hit a berg	Unknown	Lost cutwater and other slight damage
28 Apr 1854	Near the Banks, from Liverpool to Quebec	PUDYONA (PUDIANA?) struck a berg ?	Unknown	Stem split, bow ports started, brest hooks broken; in a sinking state
29 Apr 1854	From Liverpool to Philadelphia	Ship WESTMORELAND hit a berg	Unknown	Slight damage
30 Apr 1854	From Liverpool to Halifax in 44°N 68°(?)W., arrived May 15th	DEVON struck a berg ?	Unknown	Bowsprit,figure head,and cutwater carried away, stem started and ship very leaky
28 May 1854	44°N 49°W from Tobago to Bristol	Brig EAGLE hit a berg in dense	Crew in boats 3	Lost bowsprit and foretopmast.

DATE	POSITION	DESCRIPTION OF INCIDENT	LIVES LOST/INJURED	DAMAGE
		fog at night	days before being picked up by brig ESPERANCE, 1 man died of exposure	and abandoned, later found and towed with 7' of water in hold
30 May 1854	In 40°N 50°W from Charlestown to Liverpool	BRITON struck a berg in fog	Crew taken off by RALEIGH next day	Left in sinking state
31 May 1854	Grand Banks, from Shields April 11th	Brig LILBURN hit a berg	Crew picked up by the NICARAGUA	Sank
27 Jun 1854	From Shields to New York	PIONEER hit a berg	Crew saved by SYPHAX	Sank
25 May 1851	Approx. 44°30'N 51°W	CARLO MAURAN hit ice	None Known	Foremasthead, maintopgallant arm, etc carried away
27 Mar 1850	44°28'N 39°47'W	Ship FRANCIS hit a berg	Unknown	Rudder damaged and a quantity of copper stripped off
12 May 1850	50 mi E of St.John's	Schooner ANN SEMPLE struck a berg	Crew picked up by MARIA GRACE	Sank
22 Apr 1849	46°N 48°W from Bristol to Quebec	Brig JAMES AUDUS hit a berg at 7 knots in dense fog Put in to Halifax	Unknown	Lost bowsprit, foremast, bulwarks and stanchions on both bows and other damage
10 May 1849	50 mi off St. Paul's Is., 47°15'N 60°10'W	Schooner MARIA hit a berg from Limerick to Quebec	109 out of 122 immigrants lost	Sank
12 May 1849	44°N 46°W from Antwerp to New York	Ship GLASGOW hit a berg 20' high	Unknown	Cutwater, cathead, stanchions and head gear carried away, starboard bow stove causing ship to leak badly
27 Mar 1847	From Baltimore to Cork	ARGO struck a berg	Crew saved	Abandoned, very leaky
9 Apr 1847	From Alexandria to Waterford	ANN CAROLINE hit a berg	Crew saved by MESSENGER	Abandoned, bowsprit lost and stern and stern frame started
28 Apr 1847	44°27'N 47°10'W	Brig REWARD hit a berg in thick fog	Unknown	Fore yard and jib-boom carried away, bowsprit started, shear plank split and other damage
May 1847	From Jersey arr Arichat 13 May	LADY FALKLAND hit a berg (see also 19 April 1854)	Unknown	Lost bowsprit, head, foremast, maintopmast, etc., and bows stove
21 May 1847	About 42°N 50°20'W from Havana to St. Sebastian	Ship EULALIA (EULLEO?) hit a large berg	24 (19?) persons went down with ship, 34 in boats picked up by NEWPORT	Bow stove and sank shortly after
About 27 Apr 1845	150 mi W of Cape Race	Schooner ELLEN on seal fishery hit a berg	Crew took to the ice and picked up by ST.JOHN'S LASS	Sank
9 May 1845	Unknown	Barque NIAGARA struck a large	Unknown	Bows stove, bowsprit carried

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		berg		away and other damage
17 May 1845	About 45°28'N 48°W	Brig HUNTCLIFF hit a berg. Next day lifted the crew off the barque HOPE, sinking from damage by ice	Unknown	Bows stove
9 May 1844	About 50°N 42°W from Bristol to Quebec	Barque LOTUS hit a berg	Boats picked up by the SWALLOW from Hamburgh	Foundered immediately
29 Apr 1843	Off St Pauls' Island	Brig WM RIPPON hit a berg	Crew saved	Sank
16 or 17 May 1842	43°08'N 49°W (or 45°N), from New York to Antwerp	Barque ANNA LIFFEY or TIFFEY struck a berg	Crew saved	Sank
28 May 1842	From Newcastle to Pictou	Brig STEPHEN hit a berg	Crew landed at Pictou	Abandoned
July 1842	46°N 48°W from Quebec at Milford 7 August	MARIA struck an Island of Ice in dense fog	Unknown	Lost bowsprit, foretopmast, etc.; damage to hull and leaky
26 Jul or Aug 1842	47°30'N 40°W	Ship LAUREL hit a berg	Unknown	Unknown
11 Mar 1841	Sailed from New York for Liverpool	Steamer PRESIDENT disappeared, believed to have struck a berg	120 people lost	Disappeared
Apr 1841	43°30'N 49°39'W, from Liverpool to Philadelphia,	WILLIAM BROWN hit a berg in a gale	33 of 83 crew and passengers went down with ship, rest took to boats. 17 passengers thrown overboard to lighten 1 boat. Boat later picked up by CRESCENT. Other boat landed at St.Pierre.	Sank
24 Apr 1841	Off Cape Ray, from Liverpool to Montreeal	Bark STADACONA [STARDONA?] amongst icebergs, or lost in the Ice	Crew saved	Sank
9 May 1841	44°N 49°W Another reported position is 42°02'N 43°45'W	ISABELLA struck a berg	1 Fatality. Remainder picked up by KINGSTON	Sank immediately
12 May 1841	43°N 50°30'W from Yarmouth, NS to Liverpool	LONDON struck a berg	None known. Heard crash shortly after, supposed to be another vessel running against the iceberg	Stove larboard bow and lost bowsprit, main topmast etc.
24 Mar 1839	43°N 53°W	Packet ship WESTCHESTER hit a berg	Unknown	Bowsprit and fore rigging carried away, and stem seriously damaged. Some cargo jettisoned

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8 May 1839	For St John, NB	Brig FENWICK KEATING struck a berg	Crew saved by HESTER	Sank
July 1839	In 47°N, passed by the EMILY TAYLOR July 24 for Boston	Debris from unknown vessel beside 2 large icebergs	Unknown	Lower mast, topmast and topgallantmast of ship or brig with yards, sails and rigging
25 Mar 1837	About 46°N 51°W from Liverpool to St. John's	HOPE struck an ice island	Crew picked up by MARY ANN	Sank
5 Apr 1836	From Liverpool to Philadelphia, was spoken to on 14th in 40°N 47°W	Ship UNITED STATES hit an island of ice	Unknown	Lost foremast and bowsprit
11 Apr 1836	47°N 45°W from Cadiz to Arichat	GROG struck a berg	Unknown	Bowsprit, cat-head, etc. carried away
12 Jun 1836	43°N 61°W from Smirna to Halifax	Brig PLANET struck an ice island	Unknown	Stove her bow, etc.
2 Aug 1836	44°22'N 48°40'W on Grand Banks from Liverpool to New York	Ship BYRON struck a huge iceberg estimated more than 100' high	Unknown	Lost bowsprit
7 Oct 1836	Off the Banks from Labrador to Jersey	JOHN boarded by an iceberg at night	Unknown	Bowsprit carried away, and started the stern
1 Feb 1833	North Atlantic, from Halifax to UK	HMS Packet CALYPSO missing presumed hit a berg	30, all hands	Presumed sank
10 Jun 1833	From Miramichi to Mitford	PRINCE REGENT struck a berg	Unknown	Unknown; probably minor
11 Jun 1833	Grand Banks from Waterford	FRANCIS AND MARY struck a berg	Master and part of her crew arrived Cork	Dismasted, water-logged and abandoned
18 Jun 1833	On the Grand Banks from Greenock to King's Cove	GLEANOR struck an iceberg	Crew saved	Sank almost immediately
6 Jul 1833	46°N 48°W from Quebec to Plymouth	GENERAL WOLF struck an island of ice	Crew picked up by EARL DALHOUSIE	Water-logged and abandoned
26 Apr 1832	58°N 42°W from Hull to Davis Strait	SHANNON hit a berg	Crew taken off	Presumed sank
5 May 1832	From London to Quebec in Indian Bay, (Breton?)	ANNA MARIA struck an iceberg	Crew saved	Sank
5 Jun 1832	43°50'N 46°30'W	Ship QUEEN ADELAIDE struck an island of ice	Unknown	Lost jib and flying jib booms
28 Jun 1832	Near 47°N 47°W	WILLIAM struck a berg in the night	Crew took to boats and picked up by ARGO	Sank, after losing masts and rudder and becoming water-logged
June 1831	From Labrador to Bristol, news from St. John's July 9.	The WANDERER hit an island of ice	Crew and part of cargo saved	Wrecked
25 May 1830	44°N 48°W	PERCIVAL hit a berg at night	Unknown	Considerable damage to bows and very leaky
24 Mar 1828	Grand Banks	Ship DUBLIN PACKET hit an	Unknown	Sprung her bowsprit and tore off

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		island of ice		part of her copper
21 Apr 1828	Just E of the Grand Banks, possibly off Cape Ray	SUPERB from Bristol to Quebec struck a berg	Crews picked up as late as May 4, 11 days after abandoning vessel. At least 6 fatalities	Stove forward, abandoned and sank
3 Jul 1826	47°10'N 45°W	Brig DAVID SHAW hit a berg from Pictou to UK	Captain killed by rigging	Abandoned, crew 48 hours in boats
25 Apr 1825	Grand Banks in 43°N	Brig IRIS struck an island of ice	Unknown	Damaged
6 May 1823	From Plymouth to Newfoundland	MOUNTSTONE struck an iceberg	Crew picked up on 14th by which time 7 of the 10 had died	Sank
14 May 1823	About 44°N 52°W	LORD WELLINGTON struck a berg	Crew picked up by THOMPSON	Abandoned with 8' of water in the hold
21 Jul 1823	Off the Newfoundland coast	WILLING MIND struck a large piece of ice	Unknown	Totally lost with her cargo
14 May 1822	From St.John's to Barbados in 43°37'N	Brig FAVORITE hit an island of ice in thick fog and heavy sea	Unknown	Lost bowsprit and foremast, returned to St.John's on 25th.
25 Jul 1822	43°N 49°W	Ship LIVERPOOL lost, presumably hit berg	Unknown	Lost
20 Apr 1821	45°30'N 45°W	ANNA MARIA struck against an island of ice	None	None
14 or 15 May 1820	44°10'N 50°15'W from Jamaica to Liverpool	Ship ROSE ran foul of an iceberg in fog	Unknown	Lost bowsprit and very leaky
18 Jun 1818	Spoken to in 42°51'N 43°17'W	CHESAPEAKE hit berg on 16th	Lost chief mate overboard	Bowsprit, foremast, head of her mainmast and maintopmast carried away
28 Jun 1803	350 mi from St.John's in about 46°33'N 44°W	Packet LADY HOBART struck an island of ice at 7 mph in foggy night	29 people took to boats and picked up Jul 4 off Nfld coast, some frostbitten. A captured French Captain had thrown himself overboard	Sank immediately
31 Jul 1792	Off Newfoundland, from Dartmouth	DIANA on a rock of ice	Crew saved	Lost
Before 28 Aug 1761	From Glasgow to Virginia in 46°N	NANCY struck an island of ice	Crew taken up by LEOPARD	Sank
21 Apr 1704	About 50 leagues off Newfoundland coast from Lisbon	Ship ANNE struck underwater tail of a huge island of ice and started to leak. Bore off and very soon after hit same or another island of ice	Crew took to open boat and made St.John's in 7 days 5 men perished in boat, 6 soon after arrival. 3 survivors of which one had both legs amputated.	Sank

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10 Jul 1686	30 leagues within Hudson Strait. 62°N 75°W?	HAPPY RETURN struck ice on way to Hudson Bay for North West Fur Co.	Unknown	Sank
?	Off Cape Race from Gulf, US to Europe	SS? SEMMITY hit a berg, many passengers and millionaires aboard	Unknown	Unknown