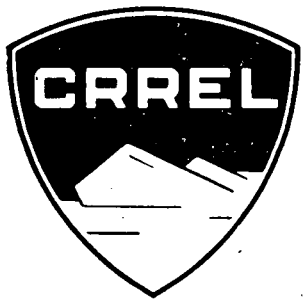
SR 43, Pt. VII



Special Report 43, Pt. VII

ICE THICKNESS OBSERVATIONS, NORTH AMERICAN ARCTIC AND SUBARCTIC 1970–71, 1971–72

Michael A. Bilello and Roy E. Bates

April 1975

PREPARED FOR
OFFICE, CHIEF OF ENGINEERS
BY
CORPS OF ENGINEERS, U.S. ARMY
COLD REGIONS RESEARCH AND ENGINEERING LABORATORY
HANOVER, NEW HAMPSHIRE

The findings in this report are not to be construed as an official Department of the Army position unless so designated by other authorized documents.

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: Special Report 43, Part VII	2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER	
4. TITLE *(and Subtitle)*: ICE THICKNESS OBSERVATIONS, NORTH AMERICAN ARCTIC AND SUBARCTIC, 1970-71, 1971-72	5. TYPE OF REPORT & PERIOD COVERED
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR*(s)*: Michael A. Bilello and Roy E. Bates	8. CONTRACT OR GRANT NUMBER*(s)*: DA Task 4A161102B52E02 DA Task 4A162131A89401
9. PERFORMING ORGANIZATION NAME AND ADDRESS: U.S. Army Cold Regions Research and Engineering Laboratory Hanover, New Hampshire 03755	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS: Office, Chief of Engineers Washington, D.C. 20314	12. REPORT DATE
	13. NUMBER OF PAGES
14. MONITORING AGENCY NAME & ADDRESS*(if different from Controlling Office)*	15. SECURITY CLASS. *(of this report)*: Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

Approved for public release and sale; distribution unlimited.

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Ice
Ice formation
Ice reporting
Ice-thickness

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

This seventh in a series of reports on lake and river ice and land-fast sea ice presents ice thickness measurements observed throughout the North American Arctic and subarctic during the 1970-71 and 1971-72 winter seasons. Information on surface ice conditions, dates of first ice, freeze-over and breakup, and detailed measurements of ice thickness across Alaskan rivers are also included. Some reports from the Alaska National Guard network on ice thickness measurements in remote areas of western Alaska are also presented. Analyses were made of maximum observed ice thicknesses reported during the two winters, and deviations from the mean ice thickness measured across rivers and creeks in southeast Alaska between 1965 and 1972.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

Unclassified

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

20. Abstract (cont'd)

A tabulation of the dates when maximum ice was observed at 25 locations in Alaska, 44 in Canada and 1 in Greenland during each year from 1961 to 1972 is also given. Computations of the average annual date of maximum ice at all the stations and an isoline map showing the results for northern North America is presented.

PREFACE

This report was prepared by Michael A. Bilello, Meteorologist, and Roy E. Bates, Meteorological Technician, Snow and Ice Branch, Research Division, USA CRREL. The work was performed under DA Project 4A161102B52E, *Research in Military Engineering and Construction*, Task 02, *Research in Snow, Ice and Frozen Soil*; and DA Project 4A162121A894, *Engineering in Cold Environments*, Task 01, *Winter Mobility Assurance and Denial*, Work Unit 015, *Environmental Prediction in Winter Environments*.

This is the seventh in a series of reports on the thickness of lake and river ice and land-fast sea ice throughout the North American Arctic and subarctic. It also contains information on surface ice conditions, dates of first ice, freeze-over and breakup, and detailed measurements of ice thickness across Alaskan rivers.

The data presented in this study were obtained through a cooperative ice observing program established by the U.S. Army Cold Regions Research and Engineering Laboratory (USA CRREL) with the following U.S. and Canadian agencies: 1) National Weather Service, Alaskan Region, National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce; 2) Alaska Eskimo Scouts, National Guard, U.S. Army Alaska (USARAL); 3) Water Resources Division of the Alaska Geological Survey, U.S. Department of the Interior; and 4) Atmospheric Environmental Service, Department of the Environment, Canada.

CONTENTS

ILLUSTRATIONS

TABLES

ICE THICKNESS OBSERVATIONS NORTH AMERICAN ARCTIC AND SUBARCTIC 1970-71 AND 1971-72

by

Michael A. Bilello and Roy E. Bates

Introduction

The first six reports of this series[1,2] present ice thickness data gathered from 1958 to 1970 at locations throughout Alaska, Canada and the northern conterminous United States. These earlier reports describe the history of the two primary networks in the program, the equipment used to make the measurements, weekly records of ice thickness, and information on surface conditions such as dates of ice formation and breakup. With the publication of this seventh report, which provides weekly data for the winters of 1970-71 and 1971-72, the series now provides 14 years of continuous information on seasonal ice.

Detailed measurements of ice thickness across a number of rivers in Alaska were made occasionally during the winters between 1968 and 1972, and these data have been furnished by the U.S. Department of the Interior, Geological Survey, Water Resources Division, Alaska. This information, along with similar but previously unpublished USGS data obtained during the winters of 1965 to 1967, is included in this report.

The Department of the Environment, Canada, Atmospheric Environment Service, has published two reports[3,4] which provide ice thickness data for selected Canadian stations from freeze-up to break-up during 1970-71 and 1971-72. To avoid duplication only the values reported during the brief periods of maximum ice growth and decay at these Canadian sites have been published here. The two Canadian reports also present a tabulation of monthly average ice thicknesses for about 40 stations in Canada. These averages were based on a 10- or 11-year period of available observations and are updated each year by including the ice measurements obtained during succeeding winters.

The Canadian Department of the Environment also publishes a series of annual *Ice Summary and Analysis* reports for the Hudson Bay region, the Eastern Canadian Seaboard and the Canadian Arctic. The results obtained for these three areas during the winter of 1969-70 are given in ref. 5, 6 and 7. These and other pertinent publications on ice are listed on p. 9-10. Parts I-VI of Special Report 43[1,2] should be referred to for additional references on ice conditions, ice thicknesses and forecasting techniques.

Through the cooperation of U.S. Army Alaska (USARAL) and the Alaska National Guard ice thickness measurements were made along the coastlines and rivers in western Alaska at irregular intervals during 1970-71 and 1971-72. Although ice reports in this network were received from fewer stations during these two winters than previously, sufficient data were collected to warrant inclusion in this report.

The personnel making the ice observations at the numerous sites mentioned above are associated with, or are under the jurisdiction of: 1) the Department of the Environment, Canada; 2) the U.S. Department of Commerce, National Oceanic and Atmospheric Administration; 3) the U.S. Army Alaska (USARAL), Alaska National Guard; and 4) the U.S. Department of the Interior, Geological Survey, Alaska. These government agencies, in cooperation with CRREL, validate the data as they are received and regularly communicate with the observers in the field to ensure the receipt of reliable information.

The ice thickness, ice condition and snow depth data collected from the first two agencies listed above for the years 1970-71 and 1971-72 are given in Tables I and II, respectively. The information in these tables is presented in a format similar to that used in Parts I-VI of this series.[1,2] The ice data received from the third and fourth agencies are given in Tables III and IV, respectively, as supplementary data. Isoline maps which show maximum ice thickness observed during 1970-71 and 1971-72, and another map which shows the average date when maximum ice is observed, were also included in this study.

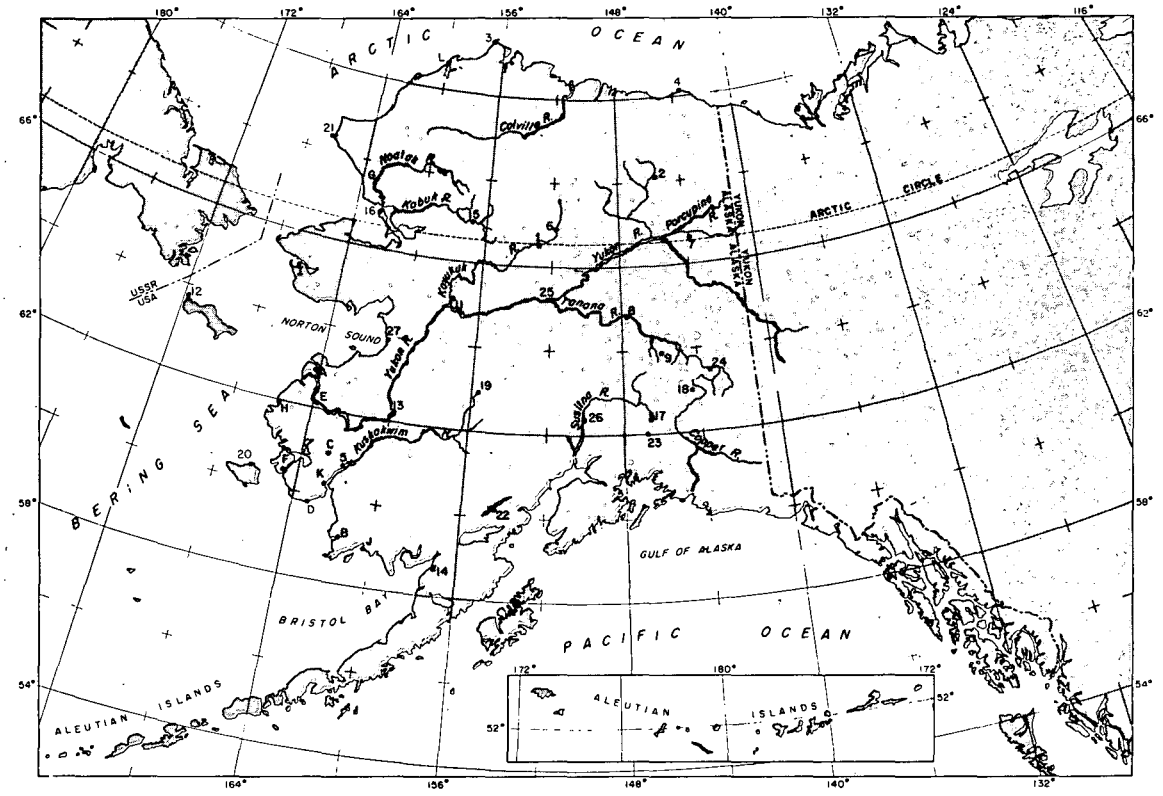
Network changes

A list of most of the stations currently participating in the program is given in Part II of this series.[1] Discussions on changes in the ice networks, such as new and/or deactivated stations from 1962 through 1970 are given in Parts III-VI.[2] Since 1960 35-50 stations in Canada and 16-27 stations in Alaska have been providing data in the two primary networks (Department of the Environment, Canada, and U.S. Department of Commerce, NOAA).

During the winters of 1970-71 and 1971-72 three new stations in Alaska began making ice observations: Arctic Village (in September 1970), Lake Louise (in April 1972) and Tanana (in December 1971). Between 1969 and 1971 observations terminated at Point Hope and Gambell, Alaska, and Galena was reactivated in 1970-71 after an absence of two winters. Minto, Alaska, discontinued measurements after the winter of 1969-70 and no data have been received from Lake Chandalar, Alaska, since November 1969. At the end of the 1971-72 winter season 27 stations in the primary Alaskan network were providing information on ice cover thickness and conditions.

In Canada, 14 new ice observing sites appear in Tables I and II for the winters of 1970-71 and 1971-72. Six of these sites (Lachine Canal, Lake Ontario, Lake St. Lawrence, Ogdensburg, Lake St. Francis and Lake St. Louis) are located along the St. Lawrence Seaway; of these six only the last two reported during both winters. The other eight new stations (Cape Dorset, Cree Lake, Gimli, Island Lake, Koartak, Norway House, Port Alfred and Tuktoyaktuk) are located in other parts of Canada, and all but Gimli, Koartak and Tuktoyaktuk provided ice data during both winters. Data from three other stations in Canada (Holman Island, Pond Inlet and Nicolet) appeared in Part VI[2] but no information was received from these sites during 1970-71 and 1971-72. Measurements were not made at Brochet during one winter (1970-71) and although South Shore Canal was missing during 1969-70 it reported in both winters covered by this report.

It should be noted that at some stations, particularly along the St. Lawrence Seaway (e.g. Iroquois and Lake St. Francis), ice measurements are made at more than one location. Also, the names of two reporting stations in Canada, Port Harrison and Port Arthur, have been changed to Inoucdjouac and Thunder Bay, respectively. Thus, at the end of the 1971-72 season there were 50 stations reporting from Canada, or a total of 77 sites in the two primary networks. Their locations are shown in Figures 1, 2 and 3. As noted in previous reports, about one-third of the sites in Canada and about two-thirds of those in Alaska are inland freshwater sites. The other harbor, bay or river delta locations are near salt or brackish water bodies where the ice thickness measurements are made on land-fast sea ice.



Alaskan Weather Stations		
1. Allakaket	10. Fort Yukon	19. McGrath
2. Arctic Village*	11. Galena*	20. Nunivak
3. Barrow	12. Gambell	21. Point Hope
4. Barter Island	13. Holy Cross	22. Port Alsworth
5. Bethel	14. King Salmon	23. Snowshoe Lake
6. Bettles	15. Kobuk	24. Tanacross
7. Chalkyitsik	16. Kotzebue	25. Tanana*
8. Fairbanks	17. Lake Louise*	26. Trappers Creek
9. Fort Greely	18. Mankomen Lake	27. Unalakleet

Alaska National Guard Stations	
A. Emmonak	G. Noatak
B. Goodnews Bay	H. Scammon Bay
C. Kasigluk	I. Teller
D. Kwigillingok	J. Togiak
E. Mountain Village	K. Tuntutuliak
F. Nightmute	L. Wainwright

* New ice stations.

Figure 1. Ice stations in Alaska.

The names of the bodies of water on which the measurements were made, and the dates, are given in the tabulated ice thickness data sheets (Tables I and II, pages 11-75). A description of the observational procedures, including a sample data sheet, is given in Part II[1] of this series. The tabulated ice thicknesses and depth of snow on the ice (Tables I and II) are given in both inches and centimeters. As in previous reports, all detailed information received on ice conditions from the date of first formation to complete ice clearance is given in the *Remarks* column in Tables I and II. Some observers also provide average snow depths on the ground near the station, and the density of the snow cover over the ice or on the ground; these measurements also appear in the *Remarks* column.

Many observations of surface ice conditions and a few measurements of ice thickness made during the winters under study here were available in the original Canadian station data sheets but were not published in Ice-1-71[3] and Ice-1-72.[4] This unpublished information as well as maximum

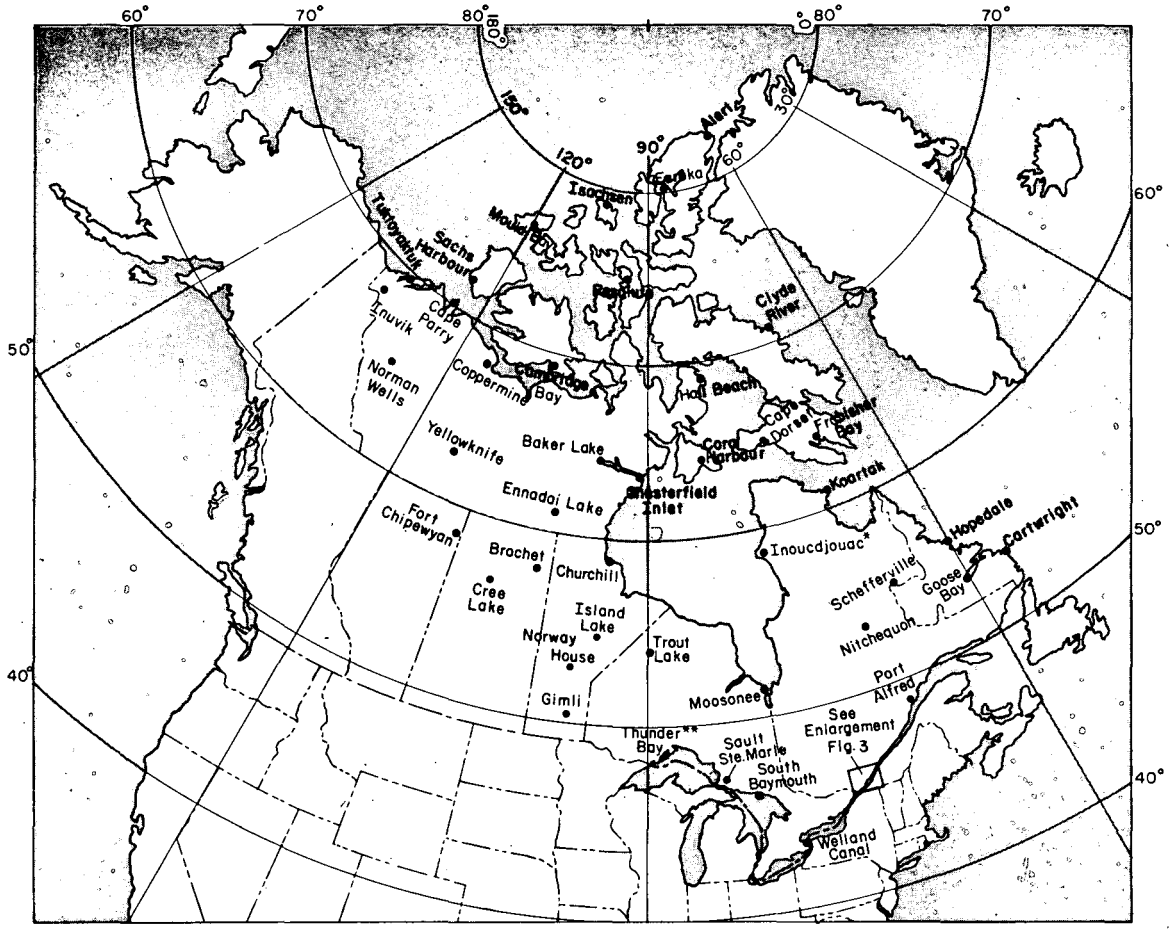


Figure 2. Ice stations in Canada.

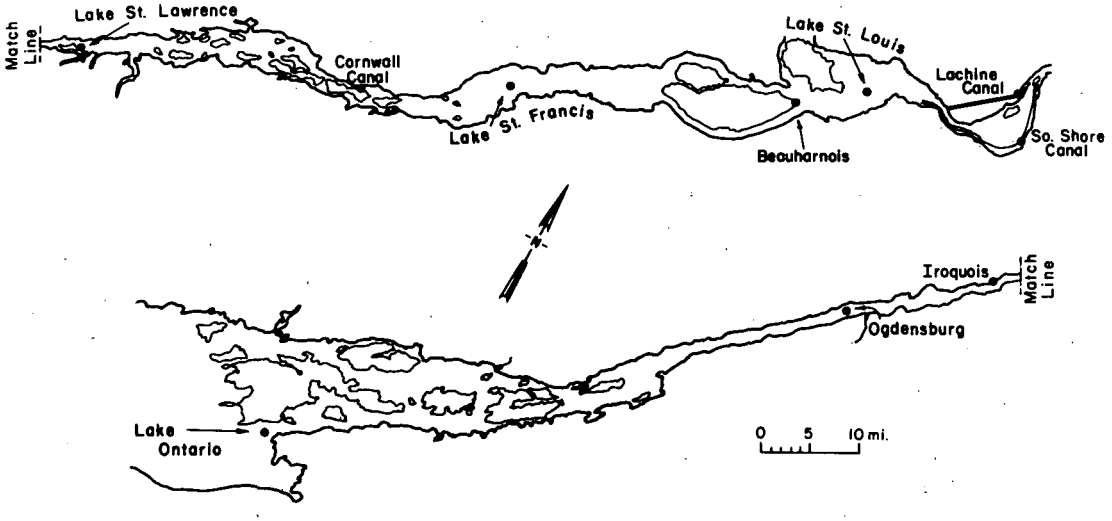


Figure 3. Ice stations along the St. Lawrence River.

ice and ice thicknesses during the period of decay at the end of each winter has been included in this report.

Supplementary ice thickness data

Since the number of stations in the Alaska National Guard (Eskimo Scouts) program varies from year to year and because the observations are made biweekly or monthly the information received from this network for 1970-71 and 1971-72 is presented separately in Table III (p. 76-78). Ice data were received during both winters from six of the regular stations in the network (Emmonak, Kasigluk, Mountain Village, Nightmute, Scammon Bay and Tuntutuliak). Another six stations (Kwigillingok, Togiak, Goodnews Bay, Noatak, Teller and Wainwright) provided information during one of the two winters. No measurements were received from Elim, Nulato, Selawik, Shishmaref and Stebbins. Three other former Eskimo Scout ice stations (Arctic Village, Fort Yukon and Tanana) are now part of the primary NOAA Alaskan network. The cooperation received from the members of the 1st and 2nd National Guard Scout Battalions and their battalion commanders in this ice observing program is appreciated. The locations of the stations in the Alaska National Guard network for 1970-71 and 1971-72 are shown in Figure 1.

Detailed measurements of ice thickness across rivers in Alaska for the period from 1969 to 1972, and some additional data collected prior to 1969 but not previously published, were obtained from the U.S. Geological Survey, Alaska, for publication in this report. These observations were made through holes cut in the ice at intervals ranging from 1 to 100 ft across 53 streams and rivers in Alaska. The U.S. Geological Survey conducts these observations to monitor the movement of water beneath the ice sheet and thus estimate the winter rate of discharge from streams and rivers. Thicknesses are measured to the nearest tenth of a foot. Since the tabulated data for this network differ from those given in Tables I and II and because the observations were made at irregular times, these data are presented separately in Table IV (p. 79-101). Most of the data in Table IV are chronological continuations of records published in Parts III, IV and V of this series.[2] The location of the station nearest each ice observation site is shown in Figure 4. At some stations, for example Fairbanks and Palmer, observations were made on more than one nearby river.

Analysis

Maximum ice thickness maps for 1970-71 and 1971-72 are shown in Figures 5 and 6. The isolines shown in these figures are based on values observed at specific points for one year and should not be considered as maximum possible thicknesses. Fluctuations in snow depth and other meteorological parameters as well as differences in water depth and motion affect the growth of ice. Consequently, significant variations in thickness may be encountered from place to place and year to year.

The maximum ice thickness values used to prepare Figures 5 and 6 are given in Tables I and II. Maximum ice thicknesses observed at some of the Alaska National Guard stations (Table III) were also used in the analyses for 1970-71 and 1971-72. The familiar northwest-southeast pattern formed by the isolines of maximum ice in Canada (as found in previous winters) is again evident during these two winters. The values range from over 220 cm in northern Canada to about 60 cm in the Great Lakes region during both winters. The areas of thickest ice occurred in the north-central region of Canada and near Inoucdjouac (formerly Port Harrison). The area of comparatively thinner ice near the Lancaster Sound region is again evident as in previous years. It should be noted that the maximum value of 284 cm of ice reported at Inoucdjouac in May of 1972 was disregarded in the analysis in Figure 6. Correspondence with authors of the annual Canadian ice reports confirmed the fact that the value is an anomaly, caused by the unusual local river outflow conditions as described by Leahey.[6]

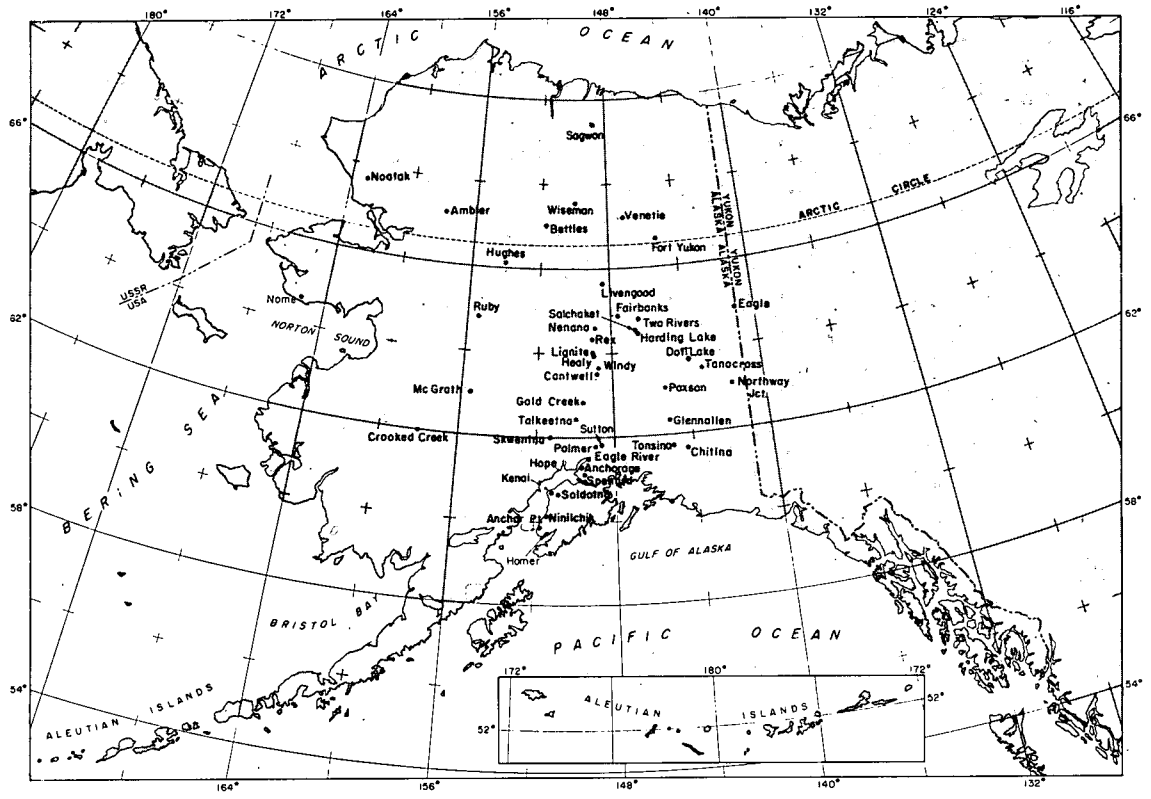


Figure 4. Map of U.S. Geological Survey, Alaska, ice stations (see Table IV).

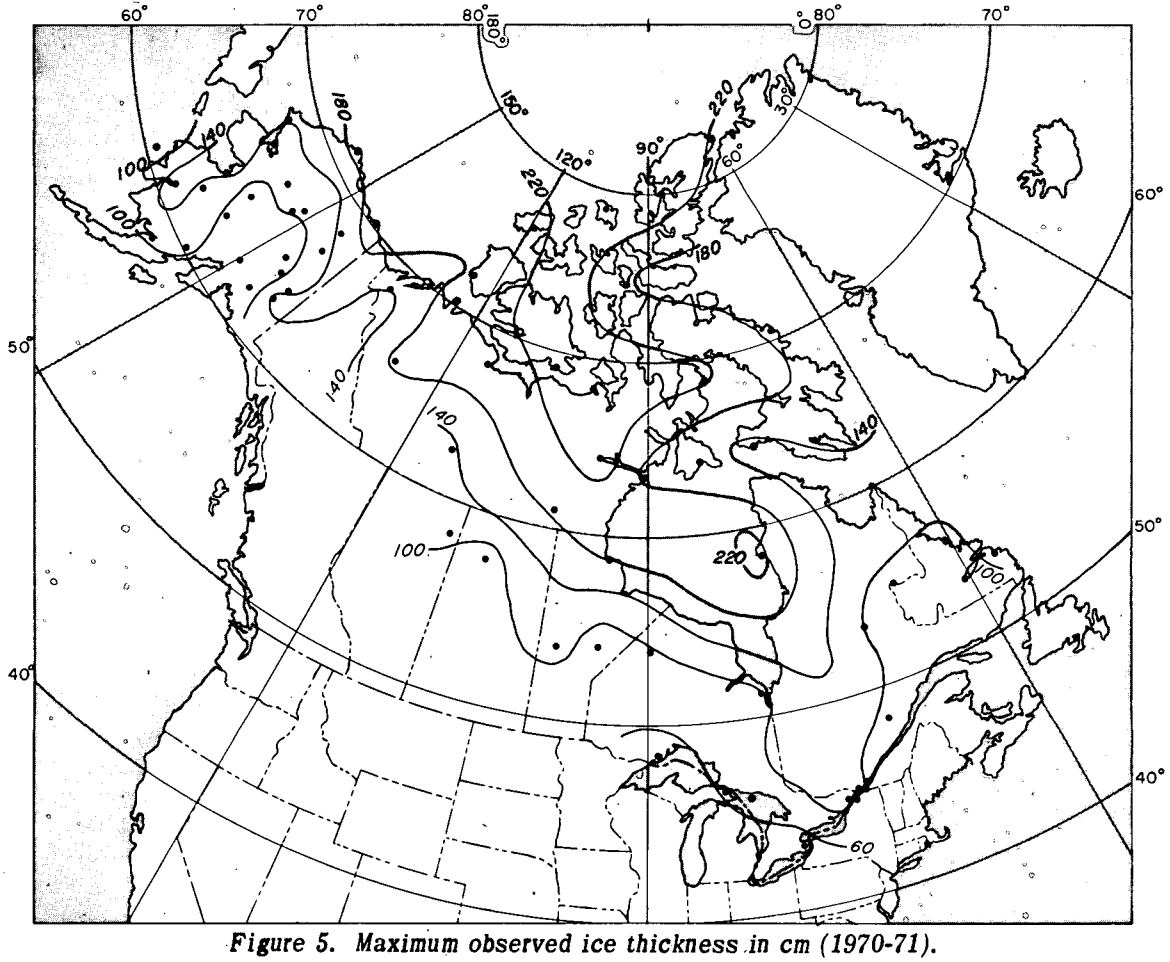


Figure 5. Maximum observed ice thickness in cm (1970-71).

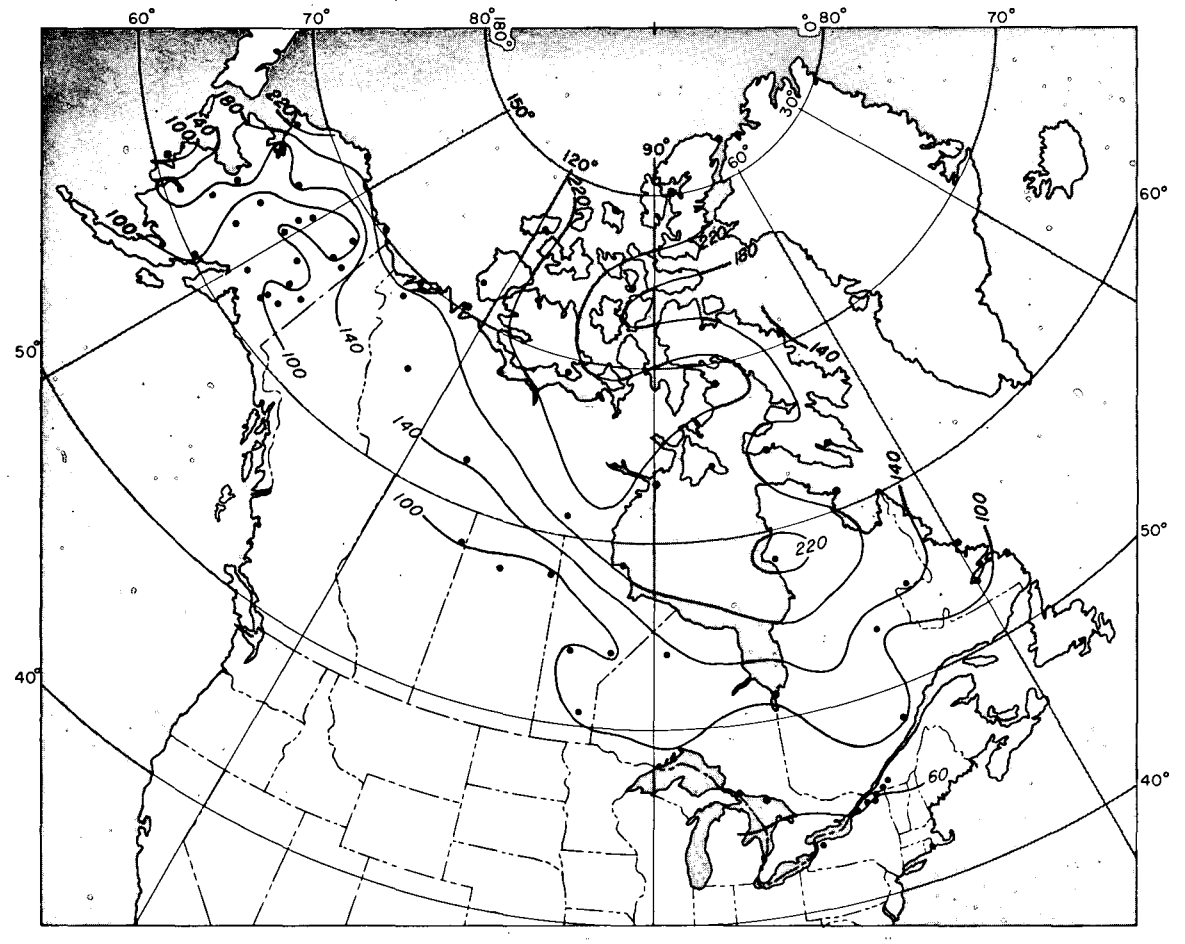


Figure 6. Maximum observed ice thickness in cm (1971-72).

In Alaska the 100-cm isoline locates the region of least ice thickness in south-central Alaska. Note that this line takes the approximate shape of an inverted U, with thicker ice on the west, north and east sides. This distribution of maximum ice thickness in Alaska can be discerned at the end of several previous winter seasons. The maximum value of 220 cm in northwestern Alaska in Figure 6 was found to be higher than is generally observed in this area.

The average date when maximum ice thickness occurs for stations with at least a 5-year period of record was computed for 67 stations in Canada and Alaska (Table V, page 102). The date when maximum ice was observed at each of the stations, for the years dating back to 1961 in Canada and 1962 in Alaska, is also given in Table V. In some cases it was assumed that ice measurements were terminated prior to maximum growth, so those years were considered to be incomplete.

The computed average dates were plotted (Fig. 7) and isolines were drawn for intervals of 15 days. As expected, the results in the eastern half of Canada show a rather uniform progression of the average date with latitude, ranging from 1 March near the Great Lakes region to 1 June in the Canadian Archipelago Islands. An exception in this progression occurs in the Lancaster-Baffin Bay region where the average date is earlier than in surrounding areas. Since there are fewer stations in the network in the western provinces of Canada the results in this area (Fig. 7) are less definite. The isolines in this region shift slightly to a southeast-northwest alignment rather than an east-west alignment (as in the eastern half), and the date of observed maximum ice in spring

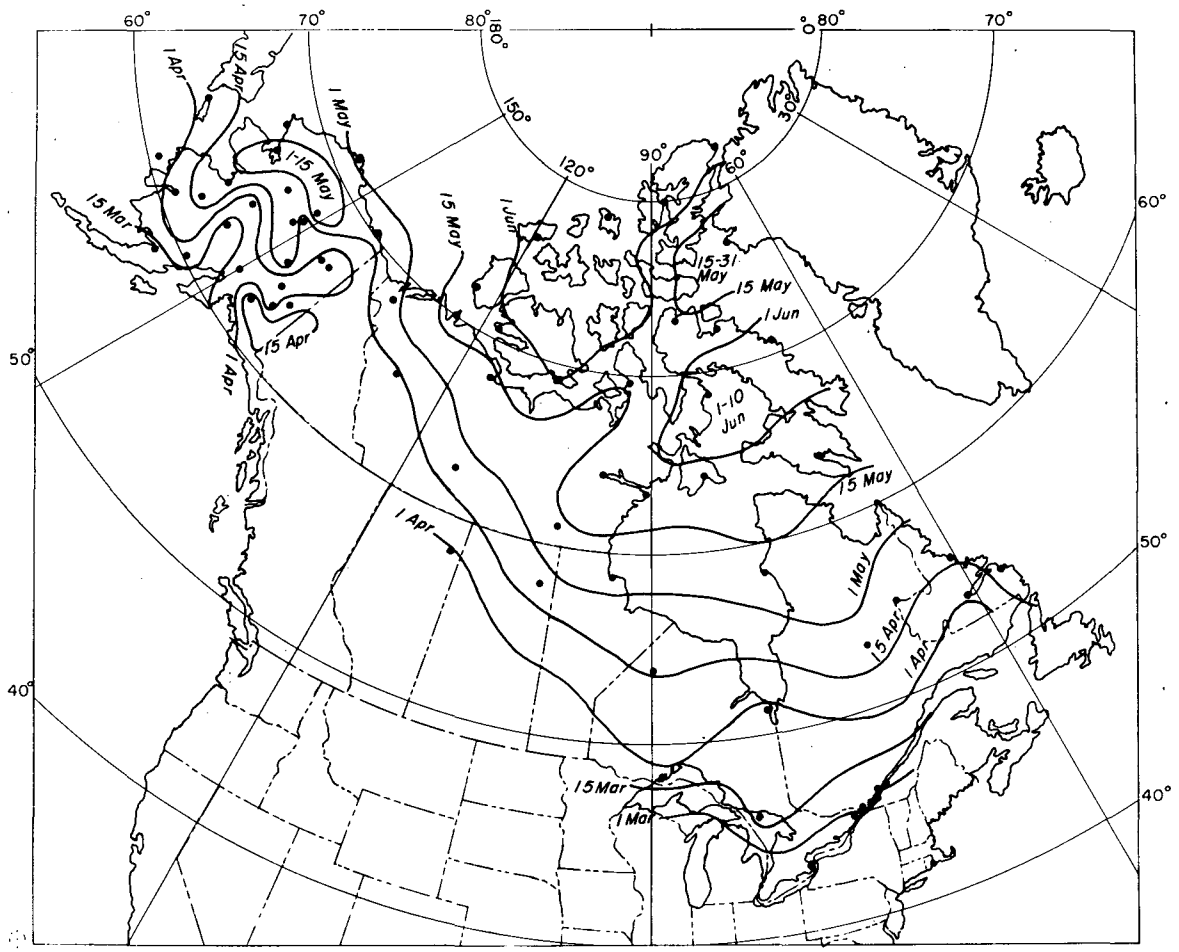


Figure 7. Average date of maximum ice thickness.

occurs progressively later in time with increasing latitude. A similar progression in time of event with latitude is evident in Alaska, although in this area the configuration of the isolines is more irregular. The latest date of observed maximum ice each year in Alaska appears to be centered in the northwest interior part of the state rather than along the north coast.

An analysis of the variations in ice thicknesses measured by the USGS across Alaskan rivers, similar to that given in Parts III, IV and V in this series,[2] is presented here for the data collected between 1965 and 1972 (Table VI, page 103). The analysis includes all the data received during these years, except when only one observation was made at a particular location. The computation to determine the variability of ice thickness across the rivers from the mean value remains the same as previous reports and is:

$$\frac{\text{difference between maximum and mean ice thickness}}{\text{mean ice thickness}}.$$

For example, if the observed maximum and minimum ice thicknesses across the river were 3.5 ft and 2.6 ft, the mean value would be 3.05 ft and the variation would be: (3.50 - 3.05)/3.05 = 0.45/3.05 or ± 15%. These computed percentages are given in Table VI (page 103).

Of the 208 observations surveyed, open water or variations of 50% or more were observed 82 times. When all calculations except the 24 cases of open water given in Table VI are considered, the average deviation is 41%. The deviations, however, range from 1% (i.e. almost uniform thickness) to 96% (i.e. large differences in thickness across the river). The computed average deviation is remarkably consistent with those obtained earlier: 40% (in Part III), 37% (in Part IV) and 40% (in Part V). The listed variations in ice thickness across the rivers (Table VI) indicate that major differences occurred at Caribou Creek at Sutton, Chena River at Fairbanks and the Nenana River at Windy; and that differences in ice thicknesses were least at Campbell Creek at Spenard, Koyukuk River at Hughes and the Kuskokwim River at Crooked Creek. Large differences in ice thickness are partly due to the configuration and width of the river, as well as the depth and motion of the water at the observation site. However, other factors such as meteorological influences, ice jamming and flooding and the particular time in the winter when the measurements were made should be considered. For example, the observations for three of the above stations (Sutton, Fairbanks and Spenard) were made during different months throughout the winter, whereas the observations for the other three stations were made only in March, when the ice sheet is perhaps most stable.

Literature cited

1. Bilello, M.A. (1961, 1964) Ice thickness observations, North American Arctic and Subarctic, 1958-59 through 1961-62. U.S. Army Cold Regions Research and Engineering Laboratory (USA CRREL) Special Report 43, Pt. I, II.

2. Bilello, M.A. and R.E. Bates (1966, 1968, 1971, 1972) Ice thickness observations, North American Arctic and Subarctic, 1962-63 through 1969-70. USA CRREL Special Report 43, Pt. III, IV, V and VI.

3. Department of the Environment Canada (1971) Ice thickness data for selected Canadian stations freeze-up 1970 – breakup 1971. Atmospheric Environment Service, Toronto, Ice 1 – 71.

4. Department of the Environment Canada (1972) Ice thickness data for selected Canadian stations freeze-up 1971 – breakup 1972. Atmospheric Environment Service, Toronto, Ice 1 – 72.

5. Department of the Environment Canada (1972) Ice summary and analysis 1970, Hudson Bay and approaches. Atmospheric Environment Service, Toronto.

6. Department of the Environment Canada (1972) Ice summary and analysis 1970, Eastern Canadian Seaboard. Atmospheric Environment Service, Toronto.

7. Department of the Environment Canada (1972) Ice summary and analysis 1970, Canadian Arctic. Atmospheric Environment Service, Toronto.

8. Leahey, D.M. (1967) An explanation for the observed ice growth at Port Harrison. Department of Transport, Canada, Meteorological Branch, TEC 649.

Selected bibliography

Arnborg, L., H.J. Walker and J. Peippo (1966) Water discharge in the Colville River, 1962. *Geografiska Annaler*, vol. 48A, no. 4.

Brazel, A.J. (1971) Winter climatology and ice characteristics: St. Mary's River – Whitefish Bay Waterway. U.S. National Oceanic and Atmospheric Administration (NOAA), Technical Memorandum NOS LSCR, no. 3.

Buzuev, A.IA. and N.P. Shesterikov (1969) Mean thickness of fast ice as a function of hummocking. *Problems of the Arctic and the Antarctic*, Issues 29-32. Israel Program for Scientific Translations, Technical Translation 70-50017, 1970.

Buzuev, A.IA. and V.F. Dubovtsev (1972) Statistical characteristics of some ice cover parameters in the Arctic. Arctic Ice Dynamics Joint Experiment, *AIDJEX Bulletin*, Dec, no. 17.

Herbert, W. (1970) First surface crossing of the Arctic Ocean. *Geographical Journal*, Dec.

Lunde, T. (1963) Sea ice in the Svalbard region 1957-1962. Oslo: Norsk Polarinstitutt, Arbok 1962.

Marine Observer (1972) Ice conditions in areas adjacent to the North Atlantic Ocean from October to December 1971. *Marine Observer*, April, vol. 42, no. 236.

Ministry of Transport, Canada (1973) Navigation season extension studies, Montreal-Lake Ontario section, St. Lawrence River, winter 1971-72. Prepared by Operations Branch, The St. Lawrence Seaway Authority and Operations Branch, Waterways Development, Marine Services. Issued by Ice Information Work Group (Canada).

McClain, E.P. (1971) Remote sensing of sea ice from earth satellites. International Workshop in Earth Resources Survey Systems, May 3-14, 1971. Proceedings vol. 2. U.S. National Aeronautics and Space Administration.

Potocsky, Gabriel J. and Peter A. Mitchell (1972) Frost degree day and related theoretical ice thickness curves for selected Russian Arctic stations. Naval Oceanographic Office, Technical Note 7700-8-72.

Sanderson, R.M. and G.P. Davis (1972) Ice conditions through the North-West Passage. *Marine Observer*, April, vol. 42, no. 236.

Snider, C.R. (1971) Manual of Great Lakes ice forecasting. NOAA Technical Memorandum NWS CR-48.

UNESCO/IAHS (1972) Guide to world inventory of sea, lake and river ice. Paris: UNESCO.

U.S. Naval Oceanographic Office (1970) Report on the Arctic ice observing and forecasting program – 1969. Special Publication SP-70(69).

Vinje, T.E. (1970) Sea ice observations in 1968. Oslo: Norsk Polarinstitutt, Arbok.

Wendler, G. (1973) Sea ice observation by means of satellite. *Journal of Geophysical Research*, vol. 78, no. 9.

TABLE I
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Alert* (N.W.T.): Measurements made on Parr Inlet of Dumbell Bay at approximately 100 yd ENE of the hydrographic bench mark.					
1971					
Feb 20					Surface smooth, no cracks from 25 Sep 1970 to 20 Feb 1971.
Apr 16	73.	185.	8.	20.	
30	75.5	192.	7.	18.	Surface smooth, few cracks from 26 Feb to 30 Apr. Ice thickness estimated, auger lost through ice on 23 Apr.
May 7	76.5	194.	10.	25.	
21	78.	198.	11.	28.	
28	79.	201.	15.	38.	
Jun 4	80.	203.	13.	33.	Maximum ice thickness observed.
Alert* (N.W.T.): Measurements made on Upper Dumbell Lake at approximately 100 yd offshore, SW of the pumping station.					
1971					
Feb 20					Surface smooth, no cracks from 25 Sep 1970 to 20 Feb 1971.
Apr 16	79.	201.	10.	25.	
30	82.	208.	10.	25.	Surface smooth, few cracks from 26 Feb to 30 Apr. Ice thickness estimated, auger lost through ice on 23 Apr.
May 7	82.5	210.	13.	33.	
21	84.	213.	14.	36.	
28	85.	216.	18.	46.	
Jun 4	86.	218.	17.	43.	Maximum ice thickness observed.
Allakaket (Alaska): Measurements made in front of St. John's in-the-Wilderness Church on the Koyukuk River.					
1970					
Sep 23					Ice flowing from bank to bank on Alatna River.
24					Ice flowing from bank to bank on Koyukuk River.
25					Fast ice extending 3 ft out from shore.
29					Fast ice, 2 in. thick, extending 5 ft out from shore.
Oct 1					Fast ice, extending 6 ft out from shore.
4					Fast ice, extending 9 ft out from shore.
10	4.	10.			
17	6.	15.	4.	10.	
24	10.	25.	4.	10.	
31	12.	30.	8.	20.	
Nov 7	14.	36.	10.	25.	
14	15.	38.	10.	25.	
21	17.	43.	18.	46.	
28	19.	48.	16.	41.	
Dec 5	21.	53.	16.	41.	
12	22.	56.	16.	41.	
19	24.	61.	20.	51.	
25					Strong surface winds from 20 Dec to 25 Dec.
26	26.	66.	18.	46.	
1971					
Jan 2	27.	69.	20.	51.	
9	28.	71.	20.	51.	
16	30.	76.	20.	51.	
23	31.	79.	20.	51.	
30	32.	81.	20.	51.	
Feb 6	33.	84.	20.	51.	
13	34.	86.	27.	69.	
20	35.	89.	29.	74.	
27	36.	91.	30.	76.	
Mar 6	38.	97.	30.	76.	
13	39.	99.	32.	81.	
20	39.	99.	32.	81.	
27	40.	102.	38.	97.	
Apr 3	41.	104.	37.	94.	
10	41.	104.	36.	91.	
17	41.	104.	33.	84.	
24	41.	104.	30.	76.	Maximum ice thickness observed from 3 to 24 Apr.
May 1	40.	102.	29.	74.	
8					12 in. (30 cm) of water overflow covering the ice.
15					Water up 3 ft on 14th and 15th.
16					Ice moved 100 yd downstream.
17					Ice running from bank to bank on Koyukuk River.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Arctic Village (Alaska): Measurements made due north of Arctic Village school, 10 to 15 ft out from shore on the East Fork of Chandalar River.					
1970					
Sep 14					First ice starting to form on river.
19					River frozen over. Lake also froze over on about this date.
Oct 3	10.	25.			
10	11.	28.	3.	8.	Avg snow density: 0.120 g/cm^3.
17	12.5	32.	4.	10.	Avg snow density: 0.120 g/cm^3.
25	13.	33.	6.5	17.	
31	13.	33.	8.	20.	Surface smooth, numerous cracks from 3 to 31 Oct. Avg snow density: 0.160 g/cm^3. Some water overflow moving from the creek to Chandalar River.
Nov 7	13.	33.	10.5	27.	Lake near village has 13 in. (33 cm) of ice; with 4 in. of snow cover, and 3 in. of slush over the ice. Some water overflow on the river and lake due to warm weather.
14	14.	36.	9.	23.	
21	15.	38.	9.	23.	
28	16.5	42.	11.5	29.	Avg snow density: 0.210 g/cm^3.
Dec 5	17.	43.	12.	30.	
12	18.	46.	12.	30.	
19	18.5	47.	14.	36.	Lake ice, 27 in. (69 cm) thick, snow cover 8 in. (20 cm). This lake is one of several lakes west of the village. The additional ice on lake is due to flooding conditions during Nov.
26	19.	48.	15.	38.	Surface smooth, few cracks from 7 Nov to 26 Dec.
1971					
Jan 2	24.	61.	14.	36.	
10	24.	61.	15.	38.	
17	24.	61.	15.5	39.	
23	24.	61.	16.	41.	
30	24.	61.	16.	41.	Surface snow covered, few cracks from 2 to 30 Jan. Avg snow density during Jan: 0.243 g/cm^3.
31					Average thickness of lake ice 27 in. (69 cm). Average snow depth 10 in. (25 cm). A few large cracks are starting to show at mouths of creeks that run into the river. They are probably caused by extreme cold and lowering of the water level under ice. The cracks are 1.5 to 2 in. wide at surface.
Feb 6	25.	64.	18.	46.	
13	25.	64.	20.	51.	
20	26.	66.	22.	56.	
28	27.	69.	23.	58.	No large cracks in ice; some small ones caused by decreased water level under the ice. Ice settling in center of river. Ice depth on lake near village is 31 in. (79 cm), and snow depth 19 in. (48 cm).
Mar 6	27.	69.	23.	58.	
13	27.	69.	24.	61.	
20	27.	69.	24.	61.	
27	27.	69.	24.	61.	Ice thickness on nearby lake 31 in. (79 cm), and snow depth 29 (in.) (74 cm).
Apr 3	27.	69.	22.	56.	
10	27.	69.	22.	56.	
17	27.	69.	20.	51.	
24	27.	69.	19.	48.	Considerable water overflow along shore of river causing difficulties in obtaining a true measurement of ice thickness. Ice on Old John Lake varies from 34 to 43 in. (86 to 109 cm). Water overflow on frozen surface varies from 4 to 10 in. deep. Snow depth on lake between 18-24 April varied from 18 to 22 in. (46 to 56 cm).
May 1	27.	69.	15.	38.	
8	27.	69.	12.	30.	Surface smooth, few cracks from 6 Feb to 8 May. Maximum ice thickness on river does not appear representative (see remarks on Apr 24).
13					Ice on the river broke free from shore, water rising.
15	26.	66.	2.	5.	Surface smooth, numerous cracks. River ice earlier had 4 to 18 in. of water flowing on it.
16					Ice has raised up and almost no water now running on it. Many large cracks in ice.
20					Ice detached from shore.
21					Ice started to move.
25					Last ice jam broke, river free of ice.
Baker Lake* (N.W.T.): Measurements made approximately 220 yd due south of rawinsonde building on Baker Lake.					
1970					
Oct 17					Ice considered unsafe to walk on. Ice thickness estimated to be 5 in. (13 cm), based on pan ice pushed on shore by southerly winds.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Baker Lake* (N.W.T.) (cont'd)					
1970					
Oct 23					Some water on ice surface due to prolonged spell of mild weather. Considerable rafted ice, now frozen solid, produced an extremely rough surface at old measurement site. New measurement site, with more representative surface conditions was selected.
Nov 6					Surface smooth, few cracks from 23 Oct to 6 Nov.
27					Measurements delayed due to severe weather conditions. Visibility zero in blowing snow. Cracks have formed in re-frozen areas of flooded surface.
1971					
Jan 15					Ice appears to be porous to depth of 1 ft; drilling of ice extremely difficult below this depth.
31					Measurement delayed until this date due to adverse weather conditions.
Feb 26					Ice measurement obtained with a 6 in. power ice auger because 1 in. hand auger was lost through the ice on 31 Jan. Extensive pressure ridging forming 1000 yd southeast of measurement site. Ridge extends for approximately 3/4 mile in NE/SW direction.
Mar 5					No ice measurement made this week. Pressure ridge reported last month lengthening in size and increasing in height (up to 6 feet in places). Ridge extends from close to shoreline to 4 miles out into Baker Lake.
Apr 10					Measurement delayed until this date due to severe weather conditions. Pressure ridge from shoreline east of station extends outward for about 8 miles.
30	87.5	222.	1.	3.	Surface smooth, no cracks from 13 Nov 1970 to 30 Apr 1971.
May 7	89.5	227.			
14	88.	224.			
21	89.5	227.	1.	3.	Maximum ice thickness observed on 7 and 21 May.
28	86.0	218.	1.	3.	
Jun 4	82.	208.	1.	3.	
11	75.	191.			
18	68.	173.			
26	30.	76.			
Jul 3	15.	38.			
Barrow (Alaska): Measurements made on Imikpuk Lake, adjacent to the U.S. Navy Arctic Research Laboratory.					
1970					
Oct 16	15.5	39.	1.	3.	
17	14.5	37.	1.5	4.	Avg snow depth: 2 in. (5 cm).
31	19.5	50.	3.	8.	Avg snow depth: 4 in. (10 cm).
Nov 7	23.0	58.	1.5	4.	Avg snow depth: 3 in. (8 cm).
21	26.5	67.	2.5	6.	Avg snow depth: 4.5 in. (11 cm). Snow cover very hard packed, and snow crystals are coarse.
27					Snow storm and wind has piled drifts up to 20 in. (51 cm) in height in some places. Surface very uneven.
28	27.	69.	4.	10.	Avg snow depth: 4.5 in. (11 cm). Some cracks in ice 1/4 to 1 in. wide extend in various directions.
Dec 5	34.5	88.	2.5	6.	Avg snow depth: 5 in. (13 cm). Fresh fluffy snow 0.5 in. (1 cm) deep over very hard packed, coarse snow crystals. Snow drifts up to 16 in. (41 cm) deep in places.
12	36.	91.	5.	13.	Avg snow depth: 4.5 in. (11 cm).
19	38.5	98.	5.5	14.	Avg snow depth: 5 in. (13 cm). No cracks in ice visible.
26	40.	102.	5.5	14.	Avg snow depth: 6 in. (15 cm). Snow surface rough, two new cracks 1/4 in. wide, 20 to 30 ft from measurement site.
1971					
Jan 2	40.5	103.	5.	13.	Avg snow depth: 6 in. (15 cm). Ice surface soft and smooth. One crack 1/4 in. wide, visible within 10 ft of site.
9	45.	114.	8.	20.	Avg snow depth: 7.5 in. (19 cm). Surface smooth, some cracks 1/2 to 1 1/2 in. in width.
16	45.	114.	6.	15.	Avg snow depth: 5 in. (13 cm). Surface smooth, no cracks. Surface features obscured by drifted snow.
23	47.	119.	8.	20.	Surface smooth, one ice crack 1/2 in. in width within 20 ft of site.
30	48.	122.	7.	18.	
Feb 6	50.5	128.	7.	18.	Avg snow depth: 7.5 in. (19 cm) from 23 Jan to 6 Feb.
13	50.	127.	10.	25.	Avg snow depth: 7 in. (18 cm). 2 in. wide cracks observed during past 3 weeks.
20	56.	142.	8.5	22.	Snow very hard, no ice cracks visible.
27	58.5	149.	7.	18.	Surface ice soft, no cracks.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Barrow (Alaska) (cont'd)					
1971					
Mar 6	59.5	151.	9.	23.	Few ice cracks observed, 1-1 1/2 in. in width.
13	59.	150.	10.	25.	Avg snow depth: 8 in. (20 cm) from 20 Feb to 13 Mar.
20	61.5	156.	10.	25.	Avg snow depth: 10 in. (25 cm).
27	65.5	166.	9.5	24.	Avg snow depth: 9 in. (23 cm).
Apr 3	66.	168.	8.5	22.	
10	68.	173.	9.	23.	
24	69.5	177.	8.	20.	Avg snow depth: 9 in. (23 cm) from 3 to 24 Apr.
May 1	71.	180.	8.	20.	Avg snow depth: 9.5 in. (24 cm).
8	64.5	164.	9.5	24.	Avg snow depth: 6.5 in. (17 cm). Surface moderately rough.
15	72.	183.	10.	25.	
22	73.	185.	11.	28.	Avg snow depth: 11 in. (28 cm) on 15 and 22 May. No cracks in ice visible between 13 March and 22 May 1971.
23	73.	185.	11.	28.	Few visible cracks in bare areas. Maximum ice thickness observed on 22 and 23 May.
29	69.	175.	8.	20.	Avg snow depth: 10.5 in. (27 cm). No cracks. 1/2 in. (1 cm) slush ice on surface of lake.
Barter Island (Alaska): Measurements made on Freshwater Lake, 200 to 300 ft offshore from the Water Haul Road.					
1970					
Sep 6					Open water. 1/2 in. (1 cm) of ice on shallow ponds in tundra area.
12					Open water. Trace of snow on tundra. All ice on tundra ponds melted.
18	1.	3.			Surface smooth, no cracks. 1 in. (3 cm) of ice on Freshwater Lake and fast ice forming on coast of Arctic Ocean. Slush ice extending 500 yd out to the pancake ice.
19					Two leads 5 yd wide, 200 yd long near center of lake.
26	6.	15.			Surface smooth, few cracks. 35 kt winds swept all snow from the ice on Freshwater Lake. 1/4 mile of land-fast ice observed on the Arctic Ocean, brash ice covering the open lead from the new ice out to the floe ice.
Oct 3	10.	25.			Surface smooth, few cracks. 35 kt winds blew all snow off ice surface.
10	12.5	32.	3.	8.	
17	13.	33.	6.	15.	
24	16.	41.	3.	8.	
31	19.	48.	4.	10.	
Nov 7	22.	56.	2.	5.	
14	24.	61.	2.	5.	
21	24.	61.	4.	10.	Surface smooth. Ice surface obscured from 10 Oct to 21 Nov.
30	28.	71.	2.	5.	Surface smooth, numerous cracks 1/5 of lake surface blown free of snow by 70 kt winds gusting to 85 kt on the 28th of Nov. 30 kt winds drifted considerable amounts of snow, but drifts were forming on the lake ice.
Dec 5	30.	76.			Avg snow depth: 2 in. (5 cm). Approximately 1/5 of surface area free of snow due to 85 and 45 kt wind storms.
12	36.	91.			Avg snow depth: 2 in. (5 cm).
19	42.	107.			Avg snow depth: 3 in. (8 cm). 2 in. of new snow fell on the 18th of Dec covering most of the ice. Some areas free of snow. 30 kt winds blew about one inch of snow off the lake ice.
26	45.	114.			Avg snow depth: 2 in. (5 cm). 45 kt winds blew 4 in. (10 cm) of new snow off the lake as well as some of the wind slab snow, so that 1/4 of the lake ice is clear of snow.
1971					
Jan 2	46.	117.			Avg snow depth: 2 in. (5 cm). 1/8 of ice surface snow free. High winds has piled considerable snow in areas. The measurement site had to be moved 100 ft further out on the lake because a new road for the water truck is being used at the old site.
9	51.	130.			Surface smooth, numerous cracks from 30 Nov 1970 to 9 Jan 1971. Avg snow depth: 3 in. (8 cm). A few areas free of snow.
16	52.	132.	3.	8.	Surface smooth, lake ice surface mostly covered with snow.
23	54.	137.			
30	59.5	151.			
Feb 6	63.	160.	0.5	1.	Previous snow free spots covered with 1/2 in. (1 cm) of new snow.
13	66.	168.			
20	71.	180.			
27	74.	188.			
Mar 6	75.	191.			Some new snowdrifts.
14	78.	198.			Drifts increasing in size.
20	78.	198.			Numerous new drifts.
28	79.	201.			Drifts increasing in size. Surface smooth, numerous cracks and less than 1/10 of ice surface free of snow from 23 Jan to 28 Mar.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Barter Island (Alaska) (cont'd)					
1971					
Apr 3	80.5	204.	4.	10.	Ice solid, no soft areas.
10	81.	206.	4.	10.	11 in. of water under ice at this part of the lake.
17	82.	208.	4.	10.	10 in. of water under ice.
24	80.	203.	4.	10.	Bottom of ice becoming soft and water rising in auger hole before reaching bottom.
May 1	85.	216.			Measurement made in a small area 40 ft square which has been clear of snow near normal measurement site. 7 in. of water under ice. Maximum ice thickness observed.
8	78.	198.	3.	8.	Avg snow depth: 4 in. (10 cm) from 16 Jan to 8 May. Ice becoming less brittle and soft 4 ft from top. Water rising in drill hole at 5 1/2 ft, and ice becoming slushy at 5 ft, from top.
15	73.	185.			Avg snow depth: 3 in. (8 cm).
22	76.	193.			Avg snow depth: 3 in. (8 cm). Two ice measurements made, both were 76 in. (193 cm). It appears that the 15 May measurement wasn't representative of the average thickness as the ice is warming up; some ice on top was candled and the lower four ft was water logged. Surface smooth, numerous cracks from 3 Apr to 22 May.
29	76.	193.			Surface candled.
Jun 5	71.	180.			Top 18 in. (46 cm) candled ice, remainder of ice rotten.
12	68.	173.	Trace		Top 18 in. (46 cm) candled ice, 10 to 20 ft of open water around edge of lake.
19	59.	150.			50 to 100 ft of open water around edge of lake. Melt ponds on ice with sections becoming quite rotten.
26					Ice observations terminated for season, too much open water surrounding ice sheet. Surface ice candled with many cracks from 5 to 19 June.
Beauharnois* (P.Q.): Measurements made at the following designated locations near Beauharnois.					
At Lock #3, near the end of Lower Approach Wall.					
1971					
Mar 18	40.	102.	3.	8.	Maximum ice thickness observed. Ice breaker traveled through area.
At Lock #3, near Lower Bull Nose.					
1971					
Mar 11	36.	91.	12.	30.	Maximum ice thickness observed.
18					Ice breaking up.
At Lock #4, near Upper Bull Nose.					
1971					
Mar 11	31.	79.	10.	25.	Maximum ice thickness observed.
18	29.	74.	4.	10.	
25	29.	74.	3.	8.	
Apr 1	28.	71.			No snow on ice surface.
At Lock #4, near the end of East Approach Wall.					
1971					
Mar 12	36.	91.	9.	23.	
18	34.	86.			No snow on ice surface.
25	36.	91.	1.	3.	Maximum ice thickness observed on 12 and 25 Mar.
Apr 1	34.	86.	1.	3.	
Bethel (Alaska): Measurements made on the south side of the Kuskokwim River opposite the Fisherman Cooperative store.					
1970					
Oct 1					Small amounts of ice moving out of the tributaries and flowing in the river.
17					Some ice running in river.
18					River frozen over and pressure ridges cover about 50% of the river. Ridges are less than 8 in. high. Some open water still observed.
19					River completely frozen over.
24					Two natives walked on river ice.
Nov 1					Ice safe for man to travel on.
4					Piper cub landed on the river ice.
8	13.5	34.			Surface lightly ridged, no cracks. Ice has a film of water on the surface.
15	14.	36.	0.5	1.	Surface lightly ridged, no cracks. Avg snow depth: 0.5 in. (1 cm). Ice too dangerous for aircraft to land on.
22	12.	30.	1.5	4.	Surface lightly ridged, no cracks. Avg snow depth: 1.5 in. (4 cm).
29	13.	33.			Surface smooth, no cracks. Avg snow depth: 0.5 in. (1 cm). About 50% of river free of snow. Snow machine went through the ice, approximately 15 miles up river.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Bethel (Alaska) (cont'd):					
1970					
Dec 4					River safe for cars to travel on.
6	19.	48.			A few cars driving on the river.
15	25.	64.			About 3 in. (8 cm) new snow.
17					It has rained during past 2 days.
20					Large amounts of water overflowing on ice.
27	28.5	72.			Avg snow depth: 0.5 in. (1 cm) from 6 to 20 Dec. Snow covers about 1/3 of the river, some drifts about 6 in. (15 cm) in depth.
1971					
Jan 3	31.5	80.			
10	34.5	88.	0.5	1.	
17	35.5	90.			
24	38.5	98.			
31	42.	107.			Avg snow depth: 2.5 in. (6 cm) from 3 to 31 Jan. It is difficult to obtain an average depth of snow cover because 1/4 of the river is blown clear of snow. Drifts up to 1 ft in depth cover the remainder of river. Surface smooth, few cracks from 6 Dec 1970 to 31 Jan 1971.
Feb 7	44.	112.			About 50% of river is covered with snow.
14	46.5	118.	0.5	1.	Drifts are 12 in. (30 cm) deep in spots and snow is hard packed. Cars can travel over most of the drifts.
21	48.5	123.	0.5	1.	Avg snow depth: 3 in. (8 cm) from 7 to 21 Feb. Some snow drifts are 18 in. (46 cm) deep.
28	51.	130.	0.5	1.	
Mar 7	53.5	136.	0.5	1.	Surface smooth, no cracks from 7 Feb to 7 Mar.
14	57.5	146.	0.5	1.	
21	57.5	146.	0.5	1.	Avg snow depth: 4 in. (10 cm) from 28 Feb to 21 Mar.
28	59.	150.	0.5	1.	Avg snow depth: 3.5 in. (9 cm). During the week of the 14th the water overflow in front of town was severe. Up stream about 3 miles the overflow covered the whole river up to 12 in. deep. This condition was also observed down stream about 2 miles where the river makes a bend. Also down stream, the snow is 12 in. (30 cm) deep in certain areas with drifts 2 to 3 ft deep. Ice remained very firm during all of March.
Apr 4	59.5	151.	0.5	1.	
11	60.	152.	0.5	1.	Avg snow depth: 3.5 in. (9 cm) on 4 and 11 Apr.
12					Water overflow started to cover some parts of the river.
13					Overflow covered the entire river in one small area in front of town including the measurement site.
18	60.	152.	0.5	1.	Avg snow depth: 4.5 in. (11 cm). Site had 1 1/2 in. of water overflow on ice.
25	60.	152.			Test site had 2 in. (5 cm) of slush and overflow water. Water was 5 in. deep over ice in areas on the river. Ice thickness at test site 100 ft across the river and to the north was 59 1/2 in. (151 cm) with 1 in. (3 cm) of slush, no overflow. Maximum ice thickness observed 11 to 25 Apr.
May 2	57.	145.			Other ice locations had thicknesses of 52 and 55 in. (133 and 140 cm). Ice cover soft and full of pot holes; end of vehicle traffic on river.
4					Water overflow is extensive.
5					Anchor ice breaking up on Bethel side of river.
9	55.	140.	0.5	1.	Avg snow depth: 0.5 in. (1 cm). Other ice sites were 43 to 53 in. (109 to 135 cm) thick with top 3 in. (8 cm) of ice firm, but the rest getting soft.
12					Water starting to rise.
16	53.5	136.	0.5	1.	Avg snow depth: 0.5 in. (1 cm). Top ice very crystallized and rotten. A few holes contain lots of water.
18					Planes were removed from the river; ice turning black.
19					Ice unsafe to travel on.
25					Ice moved a little.
26					No ice movement until evening.
27					Ice jammed.
29					Ice jam broke, peak high water, small amounts of ice observed in river by evening. River opened for shipping.
30					Last ice observed.
Bettles (Alaska): Measurements made about 100 ft offshore on Koyukuk River near Evansville.					
1970					
Nov 7	16.	41.	7.	18.	
14	18.	46.	7.	18.	
21	18.	46.	16.	41.	Surface smooth, no cracks from 7 to 21 Nov.
28	19.	48.	18.	46.	Surface rough, no cracks. Surface roughness due to drifting snow. Snow 16 to 20 in. (41 to 51 cm) in depth over the ice.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Bettles (Alaska) (cont'd)					
1970					
Dec 5	21.	53.	18.	46.	Snow depth varies between 16 and 20 in. (41 and 51 cm).
12	22.	56.	17.	43.	Snow depth varies between 15 and 19 in. (38 and 48 cm).
19	22.	56.	25.5	65.	
26	22.	56.	22.5	57.	Snow depth varies between 21 and 24 in. (53 and 61 cm). Wind making snow cover uneven, and also retarding ice growth.
1971					
Jan 2	23.	58.	29.5	75.	
9	24.	61.	27.5	70.	
16	26.	66.	25.5	65.	
23	28.	71.	24.5	62.	
30	30.	76.	22.	56.	A little water flowing up through hole drilled in ice.
Feb 6	33.	84.	28.	71.	Snow depth varies between 26 and 30 in. (66 and 76 cm).
13	34.	86.	29.5	75.	Snow depth varies between 28 and 31 in. (71 and 79 cm).
20	36.	91.	25.5	65.	
27	40.	102.	11.0	28.	Surface uneven, no cracks from 5 Dec 1970 to 20 Feb 1971. Snow depth varies between 9 and 13 in. (23 and 33 cm). The water overflow on ice is 8 in. deep with 1 in. (3 cm) ice on top. Wind had removed lots of snow from surface. The 40 in. (102 cm) of ice includes 8 in. of surface slush which froze. Maximum ice thickness observed.
Mar 3	31.	79.	10.5	27.	
10	38.	97.	10.5	27.	Snow depth varies between 9 and 12 in. (23 and 30 cm) on 3 and 10 Mar.
17	39.	99.	7.5	19.	
24	38.	97.	5.	13.	The ice thickness increased from 31 to 38 in. (79 to 97 cm) due to freezing of slush on top of ice. 1 1/2 in. of water between ice layers. Snow depth decreasing due to high winds.
Apr 1	38.	97.	2.	5.	Surface rough, no cracks from 3 May to 1 Apr. Snow depth varies between 1 and 3 in. (3 and 8 cm).
8	37.	94.			Surface uneven, small crack 25 ft out from shore.
15					Ice went out at 1011 LST. Water rose within 40 ft of upper post. Water stayed up for one hour and then receded.
Cambridge Bay* (N.W.T.): Measurements made approximately 100 yd SSE of townsite dock.					
1970					
Oct 16					Surface rough, no cracks.
31					Surface smooth, no cracks, from 23 to 31 Oct.
Nov 6					Surface smooth, few cracks.
1971					
Feb 12					Surface smooth, no cracks from 13 Nov 1970 to 12 Feb 1971.
19					Few cracks along shore but not at measurement site.
26					Surface smooth, no cracks.
Mar 5					Surface smooth, cracks observed along the shore.
26					No shore cracks visible on the 12, 19, and 26 Mar due to newly drifted snow.
Apr 23					Surface smooth, no cracks visible from 2 to 23 Apr.
30					Surface smooth, few cracks.
May 15	87.	221.	6.	15.	
21	87.	221.	6.	15.	
28	87.	221.	4.	10.	Maximum ice thickness observed from 15 to 28 May.
Jun 5	81.	206.			
12	84.	213.			
Cape Dorset* (N.W.T.): Measurements made on Cape Dorset Harbour adjacent to the proposed ice landing strip, approximately 2500 ft NNE of weather station.					
1970					
Nov 7					First ice observed.
Dec 26					Surface smooth, no cracks from 11 Dec to 26 Dec.
31					Surface lightly ridged, no cracks.
1971					
Mar 5					Surface moderately ridged, no cracks from 5 Feb to 5 Mar.
Apr 9					Surface moderately ridged, few cracks from 12 Mar to 9 Apr.
May 14	47.	119.	14.	36.	Maximum ice thickness observed.
24	45.	114.	12.	30.	
28	45.	114.	11.	28.	
31	43.	109.	11.	28.	

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Cape Dorset* (N.W.T.) (cont'd)					
1971					
Jun 4	45.	114.	11.	28.	
11	45.	114.	10.	25.	
19	45.	114.	1.	3.	
30	40.	102.			

Cape Parry* (N.W.T.): Measurements made on Gillet Bay (Amundsen Gulf), approximately 1 1/2 miles south of the meteorological observing station at about 300 yd out from shore.

1970	
Sep 25	Line of ice floes first sighted along the N-NE horizon on Amundsen Gulf.
Oct 6	0.5 in. (1 cm) ice rind covering entire Gillet Bay.
7	1 1/2 in. (4 cm) ice rind on Gillet Bay. Amundsen Gulf: 3 to 4 in. (8-10 cm) young ice 50 yd wide along shore. Ice rind extended out to 2 miles.
9	Surface smooth, no cracks.
13	6 in. (15 cm) ice on Gillet Bay.
22	Easterly winds broke up all ice including fast ice on Amundsen Gulf. Gillet Bay ice unaffected by winds.
31	Amundsen Gulf open. Very few ice floes. Area between Parry Peninsula and Booth Islands covered by ice.
Nov 6	1 in. (3 cm) layer of slush between ice and snow and 2 in. snow on top of the slush.
17	Amundsen Gulf completely frozen over.
Dec 2	Narrow lead (50 ft wide) along shore, north of station, one mile out. Large lead 3 to 4 miles out oriented in an east-west direction.
3	Leads froze over, large body of open water 3 miles NE from shore.
4	Narrow lead approximately 75 yd in width from Fiji Island to northern tip of Parry Peninsula. Wide lead visible 3 miles out oriented in a east-west direction.
7	Leads frozen over.
11	150 yd wide lead from Canoe Island running east-west, 2 miles north from shore.
13	Leads frozen over.
23	Sighted 100-150 yd wide lead, from Canoe Island running east-west for 5 miles at about 3 miles from shore. Several other leads visible further out.
26	All leads frozen over.
1971	
Jan 4	200 yd wide lead 3 miles north from shore running eastward for 9 miles from Canoe Island.
5	Lead opened up to 1/2 mile in width and running east to the horizon. Pilot reports ice coating on leads appears thin. Numerous leads east of Cape Parry on Amundsen Gulf also observed.
8	Leads completely frozen over.
17	Strong winds beginning on the afternoon of the 16th opened up a large lead 4 miles out running east-west. Width of lead undetermined due to blowing snow and fog bank.
19	Blowing snow all day.
20	New ice formed on all leads out to 6 miles. Open water with sea fog beyond.
21	No open water or sea fog visible.
28	The 100-150 yd wide lead re-opened, running in an east-west direction from Canoe Island to north tip of Cape Parry Peninsula.
29	Lead widened to 400 yd and is covered with thin ice.
30	All leads frozen. Few tidal cracks observed. Ice on Gillet Bay is smooth and unbroken.
Feb 18	Pilot reports few open leads 10 to 15 miles NW and NE of station.
28	Pilot enroute Cambridge Bay to Cape Parry reports few narrow leads on Dolphin and Union Straits. The ice on Gillet Bay is smooth and intact, except for a few tidal cracks. Extensive snow drifting on Gillet Bay, many drifts are two ft deep.
Mar 9	Strong easterly winds yesterday and today have opened a lead 5 to 6 miles in width oriented in a E to W direction. Another lead observed 3 miles north of Police Point.
10	Lead narrowed to 2 miles in width. Several small fractures north of lead. Pilot reports several large leads between Cape Parry and Clinton Point. Very wide lead, approximately 4-5 miles, visible from east of Parry Peninsula running in a NNW direction.
11	E-W lead closed from west end to Canoe Island. Some pack ice observed in this lead. Other large lead is still visible.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Cape Parry* (N.W.T.) (cont'd)					
1971					
Mar 13					E-W lead now frozen over. Large lead not visible due to precipitation and ice fog patches.
15					Large open lead visible on NE horizon.
16					All leads frozen.
30					Pilot reports narrow lead 5-6 miles long 45 miles west of Cape Parry. Except for a few tidal cracks, the ice on Gillet Bay is smooth and intact. Snow 9 in. (23 cm) in depth covers the Bay, some drifts are 2 1/2 ft high.
Apr 20					Pilot reports lead 1 mile wide, 10 miles long, running in an E-W direction, approximately 10 miles north of Cape Parry.
23					Narrow (50 yd wide) lead opened, running E-W direction from 2 miles west of Canoe Island to tip of Cape Parry. Second lead approximately 4-5 miles north of nearest lead. Leads later widened to 2 1/2 miles. Large area of open water is in northern quadrant. Scattered ice floes visible on horizon. Franklin and Darnley Bays frozen with 2 miles wide fast ice along north shore of Parry Peninsula.
26					Strong NW winds in afternoon began moving pack ice towards mainland.
27					Except for a few polynya, compact ice now covers all open water.
28					Polynya frozen over.
30					Surface smooth, few cracks from 16 Oct 70 to 30 Apr 71. Except for a few tidal cracks, ice on Gillet Bay is smooth and unbroken. Drifted, hard packed snow 8 in. (20 cm) in depth, covers the Bay.
May 21	76.	193.	8.	20.	
28	75.	191.	7.	18.	
Jun 4	77.	196.	6.	15.	Maximum ice thickness observed.
11	68.	173.	2.	5.	
18	60.	152.	2.	5.	
25	44.	112.			
Jul 2					Ice unsafe.
Cartwright* (NFLD): Measurements made in center of Cartwright Harbour mid-way between USAF dock and Mission dock.					
1970					
Dec 20					The ship Cabot Strait made a special trip to Cartwright with machinery.
25					The lead made by the Cabot Strait quickly refroze and became useable for snowmobiles and light traffic.
1971					
Apr 2					Ice in area between Cartwright village and Earl Island began to open.
3	27.	69.	33.	84.	
9	24.	61.	36.	91.	
16	28.	71.	28.	71.	Surface smooth, few cracks from 25 Dec 70 to 16 Apr 71.
23	48.	122.	2.	5.	Surface smooth, few cracks. Maximum ice thickness observed. However, authors feel this measurement is not representative, because total ice may include recently formed snow-ice.
30	35.	89.	13.	33.	Surface smooth, few cracks. There was enough open water between Earl Island and Cartwright for a Beaver aircraft to land on floats.
May 7	24.	61.	21.	53.	
14	25.	64.	8.	20.	
21	23.	58.			
28					Ice unsafe.
Chalkyitsik (Alaska): Measurements made approximately 100 yd NE of Episcopal Church, about 100 ft out from shore on Black River.					
1970					
Oct 4	6.	15.			
11	8.	20.			Surface smooth, numerous cracks and no snow on ice on 4 and 11 Oct.
18	9.	23.	2.	5.	
25	10.	25.	3.	8.	Surface rough, numerous cracks on 18 and 25 Oct. Rain caused snow depths on ice to vary.
Nov 1					Ice measurements discontinued until Oct 1971.
Chesterfield Inlet* (N.W.T.): Measurements made on Spurrel Inlet of Hudson Bay, approximately 2,000 ft east of Ministry of Transport (M.O.T.) operations building.					
1970					
Nov 6					First appearance of ice on Spurrel Inlet. Ice forming in sheltered areas along shore and gradually extending outward.
15					Inlet ice covered.
28					Surface smooth, no cracks from 20 to 28 Nov.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Chesterfield Inlet* (N.W.T.) (cont'd)					
1971					
Jan 2					Surface smooth, few cracks from 4 Dec 1970 to 2 Jan 1971.
29					Eskimo hunters were advised that ice edge is located about 5 to 6 miles from shore.
Apr 23	70.	178.	2.	5.	Surface smooth, no cracks from 9 Jan to 23 Apr.
27					Landing strip built on Spurrel Inlet.
28					Landing strip used by a DC3 aircraft.
May 1	70.	178.	2.	5.	
8	70.	178.	1.	3.	
14	70.	178.	1.	3.	
21	70.	178.	1.	3.	
28	70.	178.			Maximum ice observed from 23 Apr to 28 May.
Jun 4	69.5	176.			
11	65.5	166.			
18	56.	142.			
25.	49.	124.			
Jul 2	49.	124.			
Churchill* (MAN): Measurements made in harbour, near mouth of Churchill River, 400 to 600 ft west of south end of Hudson Bay Company wharf.					
1970					
Nov 13					Tidal cracks frozen over on about this date.
Dec 31					Surface lightly ridged, no cracks from 8 to 31 Dec.
1971					
May 14	71.	180.			Maximum ice thickness observed.
21	69.	175.			
28	67.	170.			
Jun 4	64.	163.			
11	63.	160.			
12					Ice starting to move.
Clyde River* (N.W.T.): Measurements made on Patricia Bay at approximately 500 ft west of Ministry of Transport buildings.					
1971					
Feb 13					Surface lightly rafted, few cracks from 5 to 13 Feb.
26					Surface lightly hummocked, few cracks from 19 to 26 Feb.
Mar 26					Surface lightly rafted, few cracks from 6 to 26 Mar.
Apr 24	69.	175.	19.	48.	Maximum ice thickness observed.
30	68.5	174.	18.	46.	
May 8	54.	137.	16.	41.	
14	53.	135.	24.	61.	
21	52.5	133.	25.	64.	
28	51.	130.	25.	64.	
Jun 4	52.5	133.	25.	64.	
11	50.	127.	21.	53.	
20	48.5	123.	3.	8.	
25	38.	97.			
Coppermine* (N.W.T.): Measurements made on Coronation Gulf near mouth of Coppermine River 100 yd north of Ministry of Transport dock.					
1970					
Oct 1					Ice started to form.
13					Visible bodies of water became completely covered with ice.
22					Ice partially broke up on 17 Oct and refroze on this date.
Nov 7					Surface lightly rafted, few cracks from 24 Oct to 7 Nov.
28					Surface smooth, few cracks from 14 to 28 Nov.
1971					
Jan 3					Surface lightly rafted, few cracks from 6 Dec 70 to 3 Jan 71.
10					No measurement taken due to severe weather conditions.
17					Surface smooth, few cracks.
31					Unable to conduct further observations until new ice kit parts are received.
Feb 27					Surface lightly rafted, few cracks from 24 Jan to 27 Feb.
Mar 6					Surface moderately rafted, few cracks.
Apr 11	83.	211.	10.	25.	
18	81.	206.	10.	25.	
25	81.	206.	8.	20.	Surface lightly rafted, few cracks from 13 Mar to 25 Apr.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Coppermine* (N.W.T.) (cont'd)					
1971					
May 1	80.	203.	5.	13.	
8	81.	206.	6.	15.	
15	84.	213.	5.	13.	Maximum ice thickness observed.
22	67.	170.	3.	8.	
Coral Harbour* (N.W.T.): Measurements made on Munn Bay approximately 3/4 mile south of Snafu Beacon.					
1970					
Nov 13					Munn Bay completely covered with shallow ice.
27					Surface smooth, few cracks. During this measurement, the observer fell through slush near shore.
1971					
Mar 26					Several residents report inability to reach ice edge due to large cracks.
Apr 30					Surface smooth, no cracks from 8 Dec 70 to 30 Apr 71.
May 16	58.5	149.	12.	30.	
21	62.5	159.	11.	28.	
28	62.0	157.	8.	20.	
Jun 4	65.5	166.	7.	18.	Maximum ice thickness observed.
11	63.0	160.	3.	8.	
18	65.	165.	2.	5.	
25	46.	117.			
Jul 2	30.	76.			
Cornwall Canal* (ONT): Measurements made on the canal, near Lower Lock # 15.					
1971					
Feb 17	13.	33.	3.	8.	
25					Ice unsafe, no measurement taken.
Mar 3	17.	43.			Maximum ice thickness observed. No snow cover on ice.
Cree Lake* (SASK): Measurements made on Cable Bay which is part of Cree Lake, 100 yd due south of station jetty.					
1970					
Nov 18					Cable Bay frozen over.
25					Cree Lake frozen over.
1971					
Apr 2	33.	84.	14.	36.	
9	33.	84.	7.	18.	Surface smooth, no cracks from 29 Jan to 9 Apr.
16	33.	84.	4.	10.	Maximum ice thickness observed from 2 to 16 Apr.
23	31.	79.			
30	26.5	67.			
May 7	24.	61.			Surface smooth, few cracks from 16 Apr to 7 May.
Ennadai Lake* (N.W.T.): Measurements made on Ennadai Lake, 270° true from station approximately 100 yd from shore.					
1970					
Oct 10					Freeze over.
1971					
Mar 26					Surface smooth, few cracks from 23 Oct 70 to 26 Mar 71. About 5-10% of lake free of snow on this date.
Apr 23	76.	193.			Maximum ice thickness observed.
30	74.5	189.			
May 7	72.5	184.			
14	68.5	174.			
21	67.	170.			
28	56.	142.			
Jun 4	41.5	105.			
11	36.	91.			
Eureka* (N.W.T.): Measurements made on Slidre Fiord, approximately 1/4 mile SSW of station.					
1970					
Sep 8					Freeze over occurred.
1971					
May 14	94.5	240.	12.	30.	Maximum ice thickness observed.
21	91.	231.	15.	38.	
28	93.5	237.	10.	25.	Surface smooth, no cracks from 18 Sep 70 to 28 May 71.
Jun 4	93.5	237.	10.	25.	
11	93.	236.			
18	72.	183.			

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Fairbanks (Alaska) (University Experiment Station): Measurements made on Smith Lake, approximately 4000 ft WNW of station's weather observing site at College, Alaska.					
1970					
Oct 5					Lake completely frozen over.
16					Ice not strong enough to safely bear a man's weight.
23					Ice still not safe for travel.
Nov 6	9.	23.	2.	5.	Surface smooth, no cracks. Lake water temperatures (°F): 2 in. below ice sfc: 32.5°; 3 ft below ice sfc: 34°; 6 ft below ice sfc: 35°; 84 in. (bottom): 37°.
13	10.	25.	2.	5.	Surface pitted, no cracks. Lake water temperatures (°F): 2 in. below ice surface: 32°; 3 ft below ice surface: 33.5°; 6 ft below ice surface: 35°; 86 in. (bottom): 36°.
20	11.5	29.	11.	28.	Surface pitted, no cracks. Lake water temperatures (°F): 2 in. below ice surface: 32.5°; 3 ft below ice surface: 34°; 6 ft below ice surface: 36°; 88 in. (bottom): 38°.
27	12.	30.	26.	66.	Surface pitted, no cracks. Lake water temperatures (°F): 2 in. below ice surface: 32°; 3 ft below ice surface: 34°; 6 ft below ice surface: 36°; 87 in. (bottom): 37.5°.
28					Considerable amounts of snow fell between 17 and 28 Nov.
Dec 4					Impossible to reach measurement site, water overflow on ice surface.
11	29.	74.	1.5	4.	Surface rough and crusty, no cracks. Cold weather converted slush and surface water to snow-ice on lake. Lake water temperatures (°F): 2 in. below ice surface: 32°; 3 ft below ice surface: 33°; 6 ft below ice surface: 34°; 96 in. (bottom): 35°.
18	29.	74.	6.	18.	Lake water temperatures (°F): 2 in. below surface: 32°; 3 ft below ice surface: 33.5°; 6 ft below ice surface: 34.5°; 92 in. (bottom): 36°.
1971					
Jan 8	30.	76.	16.5	42.	Lake water temperatures (°F): 2 in. below ice surface: 32°; 3 ft below ice surface: 32°; 6 ft below ice surface: 33°; 96 in. (bottom): 34°.
15	31.	79.	16.5	42.	Lake water temperatures (°F): 2 in. below ice surface: 32°; 3 ft below ice surface: 32.5°; 6 ft below ice surface: 34°; 84 in. (bottom): 34°.
22	33.	84.	16.5	42.	Surface rough, no cracks from 18 Dec 1970 to 22 Jan 1971. Lake water temperatures (°F): 2 in. below ice surface; 32°; 3 ft below ice surface: 32°; 6 ft below ice surface: 33°; 94 in. (bottom): 34°.
Feb 5	33.	84.	17.	43.	Surface pitted, no cracks. Lake water temperatures (°F): 2 in. below ice surface: 32°; 3 ft below ice surface: 32°; 6 ft below ice surface: 34°; 92 in. (bottom): 34.5°.
12	33.	84.	21.	53.	Surface rough, no cracks. Lake water temperatures (°F): 2 in. below ice surface: 32°; 3 ft below ice surface: 32°; 6 ft below ice surface: 34°; 88 in. (bottom): 34°.
19					Ice measurements discontinued until Nov 1971.
Fort Chipewyan* (ALTA): Measurements made on Lake Athabasca approximately 1000 ft south of the government dock.					
1971					
Jan 22					Measurement site moved further south due to lack of water underneath original location.
Feb 6	56.	142.	6.	15.	Ice probably rafted – Authors.
12					No measurements made this week as ice auger froze in ice during a period of severe cold and high winds. Auger was extracted later when weather moderated.
20	47.	119.	3.	8.	Surface moderately ridged, few cracks from 5 Dec 70 to 20 Feb 71. Ice measurements made further out on main channel because of lack of water under ice at previous location, see Mar 26 for maximum ice. Heavy ridge formed on edge of main channel.
26	46.	117.	8.	20.	
Mar 5	44.5	113.	8.	20.	Surface heavily ridged, few cracks from 26 Feb to 5 Mar.
13	44.	112.	12.	30.	
19.	43.	109.	12.	30.	
26	46.	117.	12.	30.	Maximum ice thickness observed on 26 Feb and 26 Mar.
Apr 3	45.5	116.	12.	30.	Surface moderately ridged, few cracks from 13 to 26 Mar.
11	41.	104.	12.	30.	
Fort Greely (Alaska): Measurements made on Bolio Lake at 4 sites starting at 50 ft from shore and then at 100 ft intervals across the lake. Site #1 – 50 ft from shore					
1970					
Nov 17	8.5	22.	7.5	19.	In areas free of snow the ice is 12 in. (30 cm) thick.
Dec 14	19.5	50.			

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Fort Greely (Alaska) (cont'd)					
1971					
Feb 1	27.5	70.			
Mar 2	34.	86.			
30	36.	91.			Maximum ice thickness observed at site #1.
May 3	30.5	77.			Ice thicknesses were less than last winter although temperatures were cold during most of winter. Maximum ice thickness last winter 48 in. (122 cm).
Site #2 – 150 ft from shore					
1970					
Nov 17	8.5	22.			
Dec 14	20.	51.			
1971					
Feb 1	27.	69.			
Mar 2	32.	81.			
30	36.	91.			Maximum ice thickness observed at site #2.
May 3	28.5	72.			
Site #3 – 250 ft from shore					
1970					
Nov 17	12.	30.			
Dec 14	18.5	47.			
1971					
Feb 1	23.	58.			
Mar 2	29.	74.			
30	36.	91.			Maximum ice thickness observed at site #3.
May 3	29.	74.			
Site #4 – 350 ft from shore					
1970					
Nov 17	9.	23.			
1971					
Feb 1	27.	69.			
Mar 2	29.	74.			
30	37.	94.			Maximum ice thickness observed at site #4.
May 3	29.	74.			
Fort Yukon (Alaska): Measurements made on Hospital Lake, near the Fort Yukon Airport.					
1970					
Nov 1	9.5	24.	2.	5.	
8	11.	28.	4.	10.	Avg snow depth: 3 in. (8 cm).
15	13.	33.	5.	13.	Avg snow depth: 8 in. (20 cm).
22	16.	41.	8.	20.	Surface smooth from 1 to 22 Nov. Avg snow depth: 10 in. (25 cm).
29	15.	38.	8.	20.	Surface drifted. Avg snow depth: 10 in. (25 cm). Pressure under ice, water flows up through drill hole onto ice.
Dec 6	16.	41.	7.	18.	
13	17.	43.	9.	23.	
27	19.	48.	10.	25.	Surface drifted and smooth from 6 to 27 Dec. Avg snow depth: 11 in. (28 cm). Lake water flowed up through drill hole.
1971					
Jan 10	26.	66.	5.	13.	
17	30.	76.	4.	10.	Surface smooth. Water overflow observed on 10 and 17 Jan.
24	35.	89.	3.	8.	
31	36.	91.	3.	8.	Surface smooth. Water overflow frozen on 24 and 31 Jan.
Feb 7	36.	91.	8.	20.	
14	38.	97.	11.	28.	8 in. (20 cm) water overflow on ice under the snow cover. Snowmobile got stuck in snow, ice and water at edge of lake.
21	38.	97.	10.	25.	
28	39.	99.	12.	30.	
Mar 15	45.	114.	10.	25.	Surface smooth.
21	46.	117.	5.	13.	
28.	47.	119.	2.	5.	
Apr 4	50.	127.	2.	5.	
11	50.	127.	2.	5.	
18	52.	132.			Maximum ice thickness observed.
25	47.	119.			6 in. of water on ice.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Frobisher Bay* (N.W.T.): Measurements made on Koojesse Inlet 200 yd out from Ministry of Transport (M.O.T.) causeway.					
1970					
Nov 16					Freeze over.
1971					
Apr 10					Extensive tidal ridging along shoreline from 22 Jan to 10 Apr.
30	65.	165.	3.	8.	Surface smooth, few cracks from 8 Dec 70 to 30 Apr 71.
May 7	65.	165.	1.	3.	Maximum ice thickness observed on 30 Apr and 7 May.
14	60.	152.	3.	8.	
21	60.	152.	3.	8.	
28	63.	160.	2.	5.	
Jun 4	61.	155.	1.	3.	
11	59.	150.			
18	48.5	123.			
25	39.	99.			
Jul 3	25.5	65.			
10					Ice free.
Galena (Alaska): Measurements made in front of town on opposite side of the Yukon River.					
1970					
Oct 31	4.5	11.	8.	20.	
Nov 7	7.	18.	10.	25.	Avg snow depth: 12 in. (30 cm).
14	12.	30.	14.	36.	Surface smooth, no cracks from 31 Oct to 14 Nov. Avg snow depth on shore: approximately 20 in. (51 cm).
21	16.	41.	6.	15.	Water overflow observed. Avg snow depth on shore: 24 in. (61 cm).
30	20.	51.	10.	25.	Avg snow depth on shore: 44 in. (112 cm).
Dec 5	21.	53.	23.	58.	Avg snow depth on ice: 22 in. (56 cm).
12	22.	56.	25.	64.	Avg snow depth on ice: 28 in. (71 cm).
19	22.	56.	26.	66.	Avg snow depth on ice: 29 in. (74 cm). Snow cover loosely packed on 12 and 19 Dec.
26	23.	58.	25.5	65.	Ice not growing very rapidly, possibly due to heavy snow cover. Ice may be thicker in water overflow areas.
1971					
Jan 2	22.	56.	26.	66.	Snow cover more packed on 26 Dec 1970 and 2 Jan 1971.
9	23.5	59.	26.	66.	
16	25.	64.	25.	64.	Avg snow depth on shore: 40 in. (102 cm).
23	26.	66.	24.	61.	Avg snow depth on ice: 26 in. (66 cm).
30	27.	69.	26.	66.	January extremely cold. Snow cover on river is hard packed.
Feb 6	28.	71.	30.	76.	
13	28.5	72.	33.	84.	
20	29.	74.	31.	79.	
27	30.5	77.	30.	76.	Avg snow depth: 41 in. (104 cm).
Mar 6	30.5	77.	30.	76.	
13	31.	79.	30.	76.	
20	31.	79.	28.	71.	
27	31.5	80.	28.	71.	Snow cover on ice settling gradually.
Apr 3	31.5	80.	27.	69.	Maximum ice thickness observed on 27 Mar and 3 Apr.
10	30.	76.	29.	74.	
17	29.	74.	24.	61.	
22	28.	71.	21.	53.	Approximately 1 in. water on ice.
24	28.	71.	20.	51.	Approximately 4 in. water on ice.
May 1	26.	66.	14.	36.	Surface smooth no cracks from 30 Nov 1970 to 1 May 1971. Approximately 12 in. water on ice. Water observed along edge of river. Light rain and warm weather during last two days has caused the river to rise and water run off to increase. Last observation of season.
Goose Bay* (NFLD): Measurements made on Terrington Basin.					
1970					
Nov 16					2-3 in. (5-8 cm) of ice on basin. Measurement estimated by marine personnel.
24					5 in. (13 cm) of ice on basin. Measurement estimated by marine personnel.
30					8 in. (20 cm) of ice on basin. Measurement estimated from boats operating on basin. Unable to safely get on ice, due to ships and an ice breaker working in area.
Dec 9					First date ice safe for measurement. Rafted ice observed in area where ships were operating.
1971					
Jan 8					Surface smooth, few cracks from 9 Dec 70 to 8 Jan 71.
29					Surface smooth, no cracks from 15 to 29 Jan.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Goose Bay* (NFLD) (cont'd)					
1971					
Feb 8					Surface smooth, few cracks.
26					Layer includes 1 in. (3 cm) of ice at top, then 3 in. (8 cm) of water all over 30 in. (76 cm) of ice.
Mar 19					11 in. (28 cm) of mixed water and snow covering ice, plus 14 in. (36 cm) snow.
26					12 in. (30 cm) mixed water and snow plus 8 in. (20 cm) of snow covering ice surface.
Apr 2					Slush, 4 to 11 in. (10-28 cm) covering ice underneath an average of 21 in. (53 cm) of snow.
16	30.5	77.	6.	15.	Maximum ice thickness observed. Surface smooth, no cracks from 19 Feb to 16 Apr. Top 6 in. (15 cm) of snow covers a 2 in. (5 cm) ice layer which is over 13 in. (33 cm) of slush. All this is over solid ice.
30	21.	53.	2.	5.	Top 2 in. (5 cm) snow, on 7 in. (18 cm) slush all over the solid ice cover.
May 7	21.5	55.	2.	5.	Surface smooth, few cracks. 5 to 13 in. (13 to 33 cm) slush on ice.
13					Numerous cracks and open pools of water. Ice thickness estimated to be between 15 and 20 in. (38-51 cm) thick.
Hall Beach* (N.W.T.): Measurements made on Foxe Basin approximately 100 yd east of an east-west aligned dock jetty.					
1970					
Nov 13					Open water approximately one mile out. First ice observed at beginning of the month. Ice appeared to form when drifting snow blew into basin.
28					Surface lightly ridged, few cracks from 13 to 28 Nov.
Dec 26					Surface lightly rafted, few cracks from 5 to 26 Dec.
1971					
Mar 26					Surface lightly ridged, few cracks from 1 Jan to 26 Mar. Measurement site was moved about 50 ft due to the erratic readings during Mar.
Apr 30	77.	196.	4.	10.	
May 7	75.	191.	10.	25.	
14	72.	183.	6.	15.	
21	74.	188.	10.	25.	
29	70.5	179.	5.	13.	
Jun 6	79.	201.	5.	13.	
12	80.	203.	6.	15.	
18.	82.	208.	1.	3.	
25	86.	218.	1.	3.	
Jul 2	87.	221.			Maximum ice thickness observed.
Holy Cross (Alaska): Measurement made on Walker Slough of the Yukon River about 2000 ft east of the State School Building and about 3000 ft NE of the weather station.					
1971					
Feb 13	40.	102.	7.5	19.	First observation of the season.
21	40.	102.	10.	25.	
28	42.	107.	11.	28.	Extremely cold weather during past week.
Mar 7	42.	107.	10.5	27.	
14	43.	109.	10.	25.	
21	43.	109.	9.	23.	
28	43.	109.	10.	25.	
Apr 4	43.5	110.	8.5	22.	Surface smooth, no cracks from 13 Feb to 4 Apr. Maximum ice thickness observed.
Hopedale* (NFLD): Measurements made in Hopedale Harbour approximately on a line from USAF dock to Ellen Island.					
1970					
Dec 12					1 in. (3 cm) of slush over the ice.
26					Surface smooth, no cracks from 12 to 26 Dec.
1971					
Jan 21					Surface lightly ridged, no cracks from 2 to 21 Jan.
Feb 27					Surface moderately ridged, no cracks from 29 Jan to 27 Feb.
Mar 8					Surface heavily ridged, no cracks.
12					Surface moderately ridged, no cracks.
20	36.	91.	12.	30.	Surface lightly ridged, no cracks.
26	33.5	85.	11.	28.	Surface smooth, no cracks.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Hopedale* (NFLD) (cont'd)					
1971					
Apr 2	36.	91.	14.	36.	Surface smooth, no cracks.
9	32.	81.	13.	33.	Surface lightly ridged, no cracks.
17	33.	84.	12.	30.	Surface smooth, no cracks. 2 in. (5 cm) slush on ice.
25	36.	91.	2.	5.	Maximum ice thickness observed on 20 Mar and 2, 25 Apr. 4 in. (10 cm) slush on ice.
Inoucdjouac* (P Q) (Formerly Port Harrison): Measurements made on Innuksuak River, NE of Hudson Bay Company dock, 600 ft from west shore of river, 1/2 mile from mouth of river.					
1970					
Dec 11					Open water near the measuring site delayed start of measurements.
1971					
Mar 12	96.	244.			Maximum ice thickness observed.
19	93.5	237.	1.	3.	
26	86.5	220.			
Apr 2	90.5	230.	1.	3.	
9	89.5	227.	2.	5.	
16	91.5	232.			
23	86.	218.			
30	77.5	197.			Surface smooth, no cracks from 11 Dec 70 to 30 Apr 71. First flowing water appeared on river on 18 Apr. River completely covered with water on 23 Apr. By 27 Apr water level subsided and top layer of river ice remained candled.
May 7	84.	213.			
14	84.	213.			
21	73.	185.			
28	66.	168.			
Jun 4	74.	188.			
11	49.	124.			
Inuvik* (N.W.T.): Measurements made on the Mackenzie River (east channel) at town site of Inuvik, about 80 yd offshore, adjacent to ice landing strip.					
1970					
Nov 27					Surface smooth, few cracks from 6 to 27 Nov.
1971					
Apr 2	55.5	141.	8.	20.	Maximum ice thickness observed.
9	53.	135.	12.	30.	
16	46.	117.	12.	30.	
23	53.	135.	8.	20.	
30	49.	124.	6.	15.	Surface smooth, no cracks from 4 Dec 70 to 30 Apr 71.
May 7	49.	124.	6.	15.	
14					Ice unsafe to make measurement.
Iroquois* (ONT): Measurements made at the following designated locations near the Iroquois Lock.					
At lower end of the east wall.					
1971					
Mar 10	40.	102.	10.	25.	Maximum ice thickness observed.
17	29.	74.			
24	22.	56.	4.	10.	
At lower Bull Nose.					
1971					
Mar 10	35.	89.	8.	20.	Maximum ice thickness observed.
17	19.	48.			
At upper Bull Nose.					
1971					
Mar 10	34.	86.	8.	20.	Maximum ice thickness observed.
17	24.	61.			
At upper east wall, opposite navigation light.					
1971					
Mar 10	37.	94.	10.	25.	Maximum ice thickness observed.
17	31.	79.			
24	25.	64.	3.	8.	
31	9.	23.			
Isachsen* (N.W.T.): Measurements made on Louise Bay, 1/4 mile SSE of station.					
1970					
Sep 11					New ice is now 1.5 in. (4 cm) thick.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Isachsen* (N.W.T.) (cont'd)					
1971					
Jan 10					Ice auger damaged, no more measurements during January.
Feb 13					New drill arrived, ice program reactivated.
19					Surface lightly ridged, no cracks from 11 Sep 1970 to 19 Feb 1971.
Apr 17					Surface moderately ridged, few cracks from 26 Feb to 17 Apr.
30					Measurement taken about 30 yd further out in the bay, which accounts for increase in thickness.
May 28	99.5	253.	20.	51.	
Jun 4	100.5	255.	17.	43.	Surface lightly ridged, few cracks from 23 Apr to 4 Jun. Maximum ice thickness observed.
9					First open lead observed, 9 June considered breakup date.
10					Many large patches of open water observed on far side of bay.
11					Lead 50 yd wide extended around 30% of shoreline, impossible to make ice measurement. Ice in bay flooded with run-off water.
18					Bay completely covered with ice, except for a shore lead approximately 30 yd wide.
Island Lake* (MAN): Measurements made 1000 yd east of operations building, adjacent to ice landing strip.					
1971					
Feb 26					Surface smooth, no cracks from 15 Jan to 26 Feb.
Mar 12					Surface smooth, few cracks from 5 to 12 Mar.
Apr 2					Surface smooth, no cracks from 19 Mar to 2 Apr.
9					3 in. (8 cm) slush on top of ice.
16	30.	76.	1.	3.	Maximum ice thickness observed. 6 in. (15 cm) slush on top of ice.
23	28.5	72.			8 in. (20 cm) slush on top of ice has refrozen. Surface smooth, few cracks from 9 to 23 Apr.
30	22.	56.			Surface smooth, numerous cracks. 3 in. (8 cm) of slush on top of ice. Lead 50 ft long and 20 ft wide on western tip of Stevenson Island. Lead approximately 18 ft wide and 3 miles long extends from Stevenson Island to the SSW.
King Salmon (Alaska): Measurements made on Naknek River at USAF boat dock. This measurement site is between Grassy Point upstream and Melokoshar Point downstream.					
1970					
Oct 17					First shore ice formed. Air temperatures ranged between 15 and 29°F during the week.
22					Large chunks of ice flowing in the river, perhaps broken loose by strong winds.
24					Ice jammed upstream starting at FAA boat dock near Grassy Point during the evening. No ice at measuring site.
26					No ice jams, slush ice running in river. Very thin shore ice observed, especially on southern river bank.
31					Shore ice extends out to the main channel. Strong surface winds occurring with snowfall.
Nov 1					Snow melting rapidly due to warm weather. Ice running bank to bank during tidal action.
7					No shore ice observed.
14					No shore ice observed. Some ice running during tides.
15					Ice in nearby pond strong enough to support skaters.
21					Ice in river during high tide.
29					Large ice floes running with the tides from 24-29 Nov.
30					Large amounts of ice piling up on shore; but little shore ice forming.
Dec 2					Very rough ice jam just below measurement site extends to Grassy Point. River clear of ice above Grassy Point and around Melokoshar Point. Measurement site ice free by afternoon.
5	12.	30.			Surface rough, no cracks. Ice measurement made in rough ice jam. Smooth leads in area, very clear ice.
12	11.	28.			Surface rough, few cracks. Numerous holes were drilled from FAA boat dock up to Grassy Point (in a smooth frozen lead) to check on landing possibilities for a ski plane.
19	14.	36.			Surface slushy, no cracks. Rain and warm winds making ice surface slushy. About 1/4 in. ice over water overflow, then solid ice beneath. FAA boat dock, has 2 in. (5 cm) of ice over 2 in. of water overflow over the main ice sheet.
26	21.	53.			Surface smooth, numerous cracks. Many cracks on river from 1/8 to 3/4 in. in width. Some slight pressure ridging. Ice surface smoothing out due to rain and wind. Trucks, jeeps and snow machines out on ice with the fishermen.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
King Salmon (Alaska) (cont'd)					
1971					
Jan 2					No cracks visible due to warm weather, rain, and water overflow. Warm wind, over 60 kts, twisted the planes wing.
9	26	66.	0.5	1.	Surface smooth, few cracks. Ice formed from water overflow is very smooth. 1/4 to 1 in. ice over 1-4 in. layer of water over ice crystals then solid ice. Ice still clear of snow in the water overflow areas
16	30.	76.			Cracks 1/8 - 1 in. in width covers ice surface.
23	35.	89.	0.5	1.	Cracks up to 1 1/2 in. in width.
29	37.	94.			Surface lightly ridged, numerous cracks from 16 to 29 Jan. Cracks up to 2 in. wide. Avg snow depth 1 in. (3 cm).
Feb 6	38.	97.			Warm air temperatures. Meltwater on ice estimated 10 in. deep. Cracks filled with water and refroze
13	46.	117.			Ice thickness probably not representative. Measurement made in overflow pressure ridge near shore. Ice ridges collapse when stepped on. Layer contains 1/2 in. ice, 6-10 in. air or water and then ice crystals beneath.
20	39.	99.			Avg snow depth: 2 in. (5 cm). Three other measurements were taken about every 50 or 60 yd across the river. Ice thickness ranged from 33 to 42 in. (84 to 107 cm) and snow depth from 1 to 3 in. (3-8 cm). Snow slightly drifted.
27	39.5	100.	7.	18.	Avg snow depth: 8 in. (20 cm).
Mar 6	40.5	103.	8.	20.	Snow cover is crusty.
13					Lead open at Officers Camp. Record low of -42°F. Flight to Anchorage gave excellent view of extreme pressure ridging on Lake Illiamna and Lake Clark and observed a few open leads at the confluence of the lake and river.
14	41.	104.	6.	15.	Hard crust on snow. Far side of river rough with shallow snow drifts.
20	42.	107.	5.	13.	Avg snow depth: 7 in. (18 cm). Lead open from Naknek Lake to Rapids Camp. Snow crusty; ice very dry, and hard to drill.
27	44.	112.	1.	3.	
Apr 3	46.	117.	trace		Surface smooth, no cracks from 6 Feb to 3 Apr. Water overflow near shore refrozen and very slick. Some areas slushy. Maximum ice thickness observed.
10	45.	114.	1.	3.	Surface smooth, numerous cracks. Cracks up to 2 in. in width run parallel to shore and extend across the river. Lot of refrozen water overflow areas near docks, some patches of water on surface.
14					Open water near shore from FAA dock to site, partially due to water runoff from the aircraft runway. Patches of open water near Melokoshar Point.
16					Ducks and geese using the only open water observed for miles.
17					No observations taken, gulls fishing between shore and measurement site.
18					Open channel from Naknek Lake to Grassy Point.
20					Open channel to just below measurement site. It appears also that the channel of the river may have changed because it is much closer to the King Salmon side of the river.
21					Open channel to Melokoshar Point. Ice moving with tides.
22					Rented a Cessna 150, and flew over the channel, from Naknek Lake to downstream. Open water out into the lake to around Melokoshar Point. No flowing ice in river observed. Hundreds of ducks, geese, and swans in open water area. None of the smaller lakes and ponds are open and the birds are congregating only in open water.
25					Flying aircraft again. Channel open to just below Pauls Creek and up to just beyond Red Salmon Cannery at Naknek. Tidal action evident in Pauls Creek. Smelt Creek has a pressure ridge in the middle of channel. King Salmon Creek melting, but no tidal action observed. Warm weather lately but few lakes open. Big Creek mostly open. Ice moving out of the lake during the tides. Small pleasure boats on lake.
28					Large amounts of ice flowing with the tide. Ice jam below Melokoshar Point. Channel open from Pauls Creek to around the river bend. Open lead near north shore to Leader Creek, observed a huge section of ice separate and move out to the bay. Water from Eskimo Creek, King Salmon Creek, and Pauls Creek flowing over river ice.
30					Naknek people claim that the huge mass of ice we observed from the air is the largest solid mass to move out into the channel in 12 years.
May 4					Ice solid from Horseshoe Bend, almost to Telephone Point. Postmistress at Naknek confirmed rumors that when the huge section of ice broke off it sheared off part of the dock and pilings at the cannery and broke about 120 windows.
8					Channel mostly open, but it is narrow where the ice has piled up on the sandbars. Still not many open ponds or lakes. Naknek Lake, Brooks Lake, and the big lakes are open only near the river mouths. Large torrents of water flowing into Pike Lake causing soil erosion.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Kobuk (Alaska): Measurements made on the Kobuk River in front of the village.					
1970					
Sep 23					Ice started to run.
30					River frozen over.
Oct 3	5.5	14.			
10	10.	25.	0.5	1.	Surface smooth, no cracks between 3 and 10 Oct. Ice thickness increased, due to freezing of overflow water.
17	12.	30.	4.	10.	
24	13.	33.	3.5	9.	
31	14.	36.	4.5	11.	
Nov 7	14.	36.	7.5	19.	Water overflow on ice in some areas.
14	15.5	39.	5.	13.	Avg snow depth: 6 in. (15 cm).
21	16.5	42.	10.	25.	Avg snow depth: 12 in. (30 cm). Many snow drifts on the ice.
28	18.5	47.	2.	5.	
Dec 5	23.	58.	2.	5.	
12	28.	71.	2.	5.	
19	31.5	80.	2.	5.	
26	32.	81.	13.	33.	0.5 in. of water overflow on ice. Snow fell during 20, 21, and 22 Dec.
1971					
Jan 2	31.	79.	13.	33.	
9	32.	81.	13.	33.	
16	33.	84.	5.	13.	
23	36.	91.	5.	13.	
30	38.	97.	5.	13.	
Feb 6	40.5	103.	7.	18.	
13	41.	104.	7.5	19.	
20	42.5	108.	10.	25.	
28	44.	112.	8.	20.	
Mar 6	45.5	116.	8.	20.	
13	47.	119.	8.	20.	
20	48.	122.	8.	20.	
27	49.	124.	8.	20.	
Apr 3	49.	124.	8.	20.	
10	51.	130.	8.	20.	
17	51.	130.	8.	20.	
24	51.	130.	8.	20.	Snow drifts on ice from 28 Nov 1970 to 24 Apr 1971. Maximum ice thickness observed from 10 to 24 Apr.
May 1	50.	127.	7.5	19.	50 in. (127 cm) of ice plus 3 in. of water overflow on ice.
8	49.	124.	6.	15.	Surface snow covered and smooth from 17 Oct 1970 to 8 May 1971. 49 in. (124 cm) of ice plus 4 in. of water overflow on ice. Water in places on ice.
15	48.	122.			Surface smooth, no cracks. Some snow drifts, but many puddles of water on ice.
21					Ice moved from 1515 to 1545 L.S.T. then stopped.
23					Ice moved out of river 2015 L.S.T.
Kotzebue (Alaska): Measurements made offshore from the village on Kotzebue Sound.					
1970					
Oct 24	9.	23.			
31	14.	36.	1.	3.	
Nov 7	15.	38.	2.	5.	
14	16.	41.	2.	5.	Avg snow depth: 3 in. (8 cm).
21	17.	43.	3.	8.	Surface smooth, no cracks from 24 Oct to 21 Nov. Avg snow depth: 4 in. (10 cm).
23					Small lead opened from south of town to Sheshalik, but refroze immediately.
27					Strong west wind caused high water and considerable ridging in Kotzebue Sound. Water was at least 6 ft higher than normal forcing most of ice to rise.
28	18.5	47.	4.5	11.	Surface rough, many cracks. Avg snow depth: 10 in. (25 cm).
Dec 5	20.	51.	6.	15.	
12	21.	53.	10.	25.	Surface smooth, few cracks from 5 to 12 Dec.
19	21.5	55.	12.	30.	Avg snow depth: 11 in. (28 cm).
26	22.	56.	14.	36.	Surface rough, few cracks from 19 to 26 Dec. Avg snow depth: 11 in. (28 cm).
1971					
Jan 2	24.5	62.	13.	33.	Avg snow depth: 12 in. (30 cm).
9	25.	64.	15.	38.	
16	25.5	65.	15.	38.	
23	28.	71.	15.	38.	
30	29.	74.	15.	38.	Surface smooth, few cracks from 2 to 30 Jan. A new ice measuring tape has been ordered. Average snow depth from 9 to 30 Jan: 14 in. (36 cm).

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Kotzebue (Alaska) (cont'd)					
1971					
Feb 6	29.5	75.	15.5	39.	
13	30.5	77.	16.	41.	
20	31.5	80.	17.	43.	
27	33.5	85.	17.5	44.	Surface rough, few cracks from 5 Dec 1970 to 27 Feb 1971. Avg snow depth during Feb: 15 in. (38 cm).
Mar 6	35.	89.	17.5	44.	
13	38.5	98.	17.5	44.	
20	39.5	100.	17.5	44.	
27	41.	104.	17.5	44.	Surface rough, no cracks from 6 to 27 Mar. Avg snow depth during the month: 14 in. (36 cm).
Apr 3	42.5	108.	17.5	44.	
10	46.	117.	17.	43.	
17	45.5	116.	18.	46.	
24	47.	119.	18.	46.	Surface smooth, no cracks from 3 to 24 Apr.
May 1	47.	119.	19.	48.	
8	48.	122.	12.	30.	
15	48.	122.	12.	30.	Maximum ice thickness observed 8 and 15 May.
22	47.	119.	5.	13.	Ice surface wet.
29	40.	102.	2.	5.	Ice surface wet, few cracks in channel 70-150 ft off shore. Lead runs NE-SW from station to 2 miles offshore.
Jun 5	27.5	70.			Ice moving out of Noatak River. Last report for the year.
Lachine Canal* (P.Q.): Measurements made approximately 400 ft above Lock #5.					
1971					
Mar 3	36.	91.	4.	10.	
11	36.	91.	11.	28.	
18	35.	89.	8.	20.	
25	36.	91.	5.	13.	Maximum ice thickness observed on 3, 11, and 25 Mar.
Apr 1					Ice unsafe to make ice measurement.
Lake St. Francis* (P.Q. and ONT): Measurements made at the following designated locations on Lake St. Francis.					
Near St. Zotique, opposite Buoy 37F.					
1971					
Mar 25	40.	102.	5.	13.	Maximum ice thickness observed.
Apr 1	37.	94.	2.	5.	
Between Hay and Beaunet, opposite Buoy 44F.					
1971					
Mar 18	32.	81.	4.	10.	Maximum ice thickness observed.
25	30.	76.	4.	10.	
Apr 1	28.	71.	1.	3.	
East of St. Anicet Shoal, and just east of Buoy 54F.					
1971					
Apr 1	36.	91.	4.	10.	Maximum ice thickness observed.
Near Lancaster sand bar, opposite Light 79F.					
1971					
Mar 18	39.	99.	10.	25.	Maximum ice thickness observed.
25	37.	94.	6.	15.	
Apr 1	38.	97.	6.	15.	
At Butternut Island, opposite Buoy 91F.					
1971					
Mar 12	35.	89.	10.	25.	Maximum ice thickness observed.
18	32.	81.	4.	10.	
25	33.	84.	3.	8.	
Apr 1	30.	76.	1.	3.	
At Stanley Island, opposite Light 111F.					
1971					
Mar 12	32.	81.	10.	25.	Maximum ice thickness observed.
18	28.	71.	3.	8.	
25	26.	66.	3.	8.	
Apr 1					Ice unsafe to make measurement.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE 1 (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Lake St. Francis* (P.Q. and ONT) (cont'd)					
At Regis Island, opposite Buoy 133F.					
1971					
Mar 18	38.	97.	6.	15.	Maximum ice thickness observed.
25	36.	91.	3.	8.	
Apr 1	35.	89.	3.	8.	
Lake St. Lawrence* (ONT): Measurements made on Lake St. Lawrence at Ogden Island.					
1971					
Mar 10	34.	86.	12.	30.	Maximum ice thickness observed.
17	22.	56.			No snow reported on ice.
24	18.	46.	4.	10.	
Lake St. Louis* (P.Q.): Measurements made at the following designated locations in Lake St. Louis.					
At St. Bernard Island, opposite Buoy 9A.					
1971					
Mar 12	35.	89.	12.	30.	Maximum ice thickness observed.
18					Icebreaker traveled through the area.
At intersection of two sets of ranges from Buoys 18A and 17A.					
1971					
Mar 12	35.	89.	15.	38.	Maximum ice thickness observed.
18					Icebreaker traveled through the area.
At Ile Perrot, near Buoy 47A.					
1971					
Feb 26	31.	79.	15.	38.	Maximum ice thickness observed.
Mar 12	29.	74.	23.	58.	
18	29.	74.	6.	15.	Icebreaker traveled through the area.
At head of lake in Cascade Frazil – Pte Fortier area near Buoy 58A.					
1971					
Mar 25	45.	114.	5.	13.	Maximum ice thickness observed.
Apr 1	43.	109.	2.	5.	
At head of lake in Cascade – Melocheville area near Cener Line Ranges.					
1971					
Apr 1	38.	97.	5.	13.	Maximum ice thickness observed.
Mankomen Lake (Alaska): Measurements made on Mankomen Lake.					
1970					
Oct 17	1.5	4.			Ice sheet solid over entire lake, except at upper end and near the inlet.
24	12.	30.			No new snow, but considerable wind and cold weather.
31	14.5	37.			
Nov 1					Strong winds and some rain caused creeks to overflow onto lake.
7	16.	41.			Fairly warm weather and no snow during past week.
14	18.	46.			Weather colder, but still no snow.
21	21.	53.	9.	23.	Several days of cold weather increased ice thickness. Fluffy snow covers ice surface.
28	22.	56.	10.	25.	Surface smooth, no cracks from 17 Oct to 28 Nov.
Dec 5	24.	61.			Winds blew all snow away. Some snow drifts on lake surface.
12	28.	71.			Cold and windy weather. Lake surface is free of snow.
19	32.	81.	2.	5.	Clear, cold and some snow fell.
26	33.	84.	13.	33.	Lots of new snow over lake. Cold weather and strong winds.
1971					
Jan 2	34.	86.	2.	5.	2 in. (5 cm) of new snow on ice. Ridges of drifted snow over entire lake.
8					Lake outlet is frozen to bottom. Water inflow causes lake to dam up. Lake ice cracking and water flowing on ice. Shore cracks refreeze and the process is repeated increasing the ice thickness at the outlet.
9	34.5	88.	2.	5.	Some snow blown onto lake.
16	36.	91.	2.	5.	Snow on ice is drifted and ridged up.
23	41.5	105.			Clear, cold, and windy weather.
30	44.	112.			Snow on ice is drifted.
Feb 6	44.	112.	3.	8.	Surface rough, no cracks from 5 Dec 1970 to 6 Feb 1971.
13	50.	127.	6.	15.	
20	52.	132.	6.	15.	
27	53.	135.	12.	30.	Surface smooth, no cracks from 13 to 27 Feb.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE 1 (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Mankomen Lake (Alaska) (cont'd)					
1971					
Mar 6	54.	137.	6.	15.	Avg snow depth: 4 in. (10 cm). Strong winds removed some snow cover.
13	54.	137.	4.	10.	Water level rising in lake.
20	56.	142.	3.	8.	Maximum ice thickness observed.
27	51.	130.	2.	5.	Lake surface rough.
Apr 3	51.	130.			Snow melting off lake.
10	51.	130.	4.	10.	Lake has crowned in center and some water overflow on north side. Snow cover slightly slushy.
17	54.	137.	2.	5.	
24	52.	132.			Cold winds refroze some areas of lake.
May 1	52.	132.	3.	8.	Snow very wet and creek is starting to open up.
8	52.	132.	5.	13.	Wet snow on surface and creek is open.
15	50.	127.	1.	3.	Snow slowly melting, some water on top of ice.
22	49.	124.			Weather colder, no run off observed.
29	48.	122.			Ice still thick on lake, but creek is open. Snow on surface melted and ice thickness decreasing.
Jun 5	46.	117.			Surface rough, no cracks from 6 Mar to 5 June. Cold winds and little melting last week very warm today.
12	36.	91.			Surface rough, few cracks. Much warmer entire week, but much ice still remains. Water on surface of ice seeps into lake at night.
19	20.	51.			Surface rough, open water holes on ice sheet. Ice is rotten and candled along edges.
30					Ice went out. Water level high due to considerable rain.
McGrath (Alaska): Measurements made on Kuskokwim River.					
1970					
Oct 9					First ice formed.
21					Heavy run of ice floes decreased after 4-days. Heavy run around 13 Oct, cakes of slush and ice as large as 22 to 23 ft wide jammed at measurement site. On 18 Oct ice moved but jammed again and water rose 10 ft. Ice moved out, but some ice floes in channel running in river all night. Water dropped 5 ft and left a frozen shelf of ice floes extending 6 to 10 ft out into stream. River froze over on 19 Oct at 2:15 pm. River safe to cross on foot on 21 Oct.
24	8.5	22.			
31	10.5	27.	3.	8.	Small open lead at mouth of Takotna River, otherwise freeze over complete. Freezing temperatures jammed the ice floes together around the measurement site and area now completely froze over. Water overflow still evident by 31 Oct. Safe to cross river with snow-mobiles. Snow about 18 to 24 in. (46 to 61 cm) in woods and 6 to 10 in. (15 to 25 cm) on shore.
Nov 7	13.5	34.	3.	8.	Small lead observed at mouth of Takotna River.
14	15.5	39.	6.5	17.	
21	19.	48.	13.5	34.	2 in. water overflow.
28	17.	43.	5.5	14.	8 in. water overflow.
30					Numerous large cracks formed along shoreline; main ice sheet has lifted. Very mild weather for Nov and heavy snowfall occurred from the 16 to 30 Nov.
Dec 5	22.	56.	9.	23.	8 in. water overflow has frozen, 0.5 in. overflow water remains.
12	24.	61.	10.	25.	9.5 in. water overflow has frozen; 1.5 in. water overflow remains.
19	27.	69.	14.	36.	1 in. water overflow and 9 in. (23 cm) water overflow has frozen.
26	26.5	67.	6.5	17.	11 in. water overflow on ice. All leads and cracks frozen over by 12 Dec. Heavy snowfall and warm weather persisted most of Dec and rain also observed during past week.
1971					
Jan 2	36.	91.	7.	18.	8 in. water overflow.
9	35.5	90.	11.	28.	
16	35.5	90.	7.5	19.	
23	35.	89.	9.	23.	
30	37.	94.	11.	28.	Surface moderately ridged, numerous cracks from 24 Oct 1970 to 30 Jan 1971.
31					All leads frozen over. Large crack along shoreline, as water level dropped. Cold temperatures prevailed 11 to 31 Jan with extreme cold, –30° to –59°F observed.
Feb 6	36.	91.	12.	30.	
13	36.	91.	15.	38.	
14					Deep snow drifts in hills and mountainous regions causing moose to migrate.
16					No leads but large cracks along shoreline. A 2 in. drop in water level observed in ice auger holes.
20	36.	91.	16.	41.	
27	37.5	95.	18.5	47.	Surface lightly ridged, numerous cracks from 6 to 27 Feb.
28					Deep snow cover retarding ice growth.

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
McGrath (Alaska) (cont'd)					
1971					
Mar 6	38.	97.	20.	51.	
10					Water rose and flowed out of holes in ice causing water to overflow.
13	38.	97.	21.	53.	Maximum ice thickness observed on 6 and 13 Mar.
20	36.	91.	29.	74.	
21					Water continues to flow out of holes in the ice. Warmer temperatures started thawing the snow.
27	34.	86.	11.	28.	
Apr 3	34.	86.	14.	36.	
10	35.	89.	15.	38.	
17	35.	89.	10.	25.	
24	36.	91.	11.	28.	Surface moderately ridged, numerous cracks from 6 Mar to 24 Apr.
30					New long cracks observed 8 to 9 ft out from the land fast shore ice. 4 to 5 in. (10 to 13 cm) frozen overflow ice, and 7 to 9 in. water overflow during Apr.
May 1	30.	76.	2.5	6.	
8	27.	69.			Surface lightly ridged, numerous cracks from 1 to 8 May. Leads and cracks along shoreline. Ice deteriorated fast between 25 Apr and 1 May. Overflow water started flowing downstream on 3 May.
13					Ice first moved at 5:10 pm and jammed in front of town. Water rose 20 to 21 ft above normal which is about average for spring flood stage.
Moosonee* (ONT): Measurements made on the Moose River, 100 ft from shore in front of O.I.C. House.					
1970					
Nov 28					River completely frozen over. Some hummock ice on shoals.
1971					
Feb 21					Measurement site flooded by tidal action.
27					Measurement site clear of snow due to tidal flooding.
Mar 26	29.	74.	3.	8.	Surface smooth, few tidal cracks from 4 Dec 70 to 26 Mar 71.
Apr 3	32.	81.	2.	5.	Maximum ice thickness observed.
9	31.5	80.	2.	5.	
Mould Bay* (N.W.T.): Measurements made on Mould Bay, one mile west of station.					
1970					
Aug 31					First ice.
Sep 16					Bay completely frozen over.
Oct 30					No measurement taken due to polar bears in vicinity of measurement site.
Dec 25					No observations taken on 18 and 25 Dec due to bears in vicinity and station snowmobile not operating properly.
1971					
Jan 14					No observations on 7 and 14 Jan due to inoperative Bombardier and polar bear and wolves in vicinity of station.
Feb 12					No observation due to inoperative Bombardier and unfavorable weather.
Mar 26					Surface smooth, no cracks from 25 Sep 70 to 26 Mar 71.
May 21	79.5	201.	10.	25.	Maximum ice thickness observed.
28	75.5	191.	10.	25.	
Jun 4	78.	198.	8.	20.	
Nitchequon* (P.Q.): Measurements made approximately 250 ft SW of the dock, site is about mid-way between the dock and a small island on Lake Nichicun.					
1970					
Oct 30					Ice conditions unsafe, no attempt for an ice measurement at normal location was made. Bay froze over by the end of Oct, but melted again.
Nov 6					Ice has permanently covered the entire bay.
13					First ice thickness measurement taken today. Reading made just off the end of dock. The first two weeks of the month were very mild for Nov.
1971					
Jan 29					Surface smooth, no cracks from 13 Nov 70 and 29 Jan 71.
Mar 11					DC-3 fully loaded, landed on ice.
26					Surface smooth, few cracks from 5 Feb to 26 Mar.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Nitchequon* (P.Q.) (cont'd)					
1971					
Apr 16	36.	91.	17.	43.	
23	31.	79.	5.	13.	
30	39.5	100.			Maximum ice thickness observed.
May 7	26.	66.			
14	21.	53.			
21	13.	33.	2.	5.	
28	6.	15.			
Norman Wells* (N.W.T.): Measurements made on Mackenzie River approximately 120 yd from shore, SW of rawinsonde building.					
1971					
Mar 26					Surface heavily ridged, numerous cracks from 5 Feb to 26 Mar.
Apr 9	71.5	182.	9.	23.	Maximum ice thickness observed.
16	71.	180.	16.	41.	Surface lightly ridged, numerous cracks from 2 to 16 Apr.
23	69.5	177.	7.	18.	
30	65.	165.			Surface moderately ridged, numerous cracks from 23 to 30 Apr. Pools of water on surface of river and 3 to 4 in. of water on surface of ice road. Water from melting snow on river. 2 in. (5 cm) of ice formed on water lying on surface of river ice.
Norway House (Forestry)* (MAN): Measurements made on the Nelson River adjacent to dock on east side of Forestry Island.					
1970					
Nov 10					Freeze-over observed.
27					Surface smooth, numerous cracks from 15 to 27 Nov.
28					Extreme amounts of surface slush.
Dec 7					Slush has frozen. Ice strong enough to support light planes, and is about 12 in. (30 cm) thick.
1971					
Jan 22					Surface lightly ridged, no cracks from 4 dec 70 to 22 Jan 71.
31					Blizzard conditions 28 to 31 Jan drifted the snow cover into hard drifts. Landing conditions for wheel ski aircraft are hazardous.
Feb 4					Surface heavily ridged, no cracks from 29 Jan to 4 Feb.
26	45.	114.	8.	20.	Surface lightly ridged, no cracks from 12 to 26 Feb.
28					Very cold weather first part of month increased thickness of ice. Warmer weather during balance of month caused shrinkage and settlement of snow drifts.
Mar 5	44.	112.	8.	20	
13	45.	114.	9.	23.	Maximum ice thickness observed on 26 Feb and 13 Mar.
26	35.	89.	6.	15.	Surface smooth, no cracks from 5 to 26 Mar. Measurements on 5 and 13 Mar were taken on a traveled winter road, therefore ice thickness is greater than in undisturbed areas.
Apr 3	36.	91.	9.	23.	
9	36.	91.	2.	5.	
16	36.	91.	1.	3.	
24	30.	76.			
30	28.	71.			
Nunivak (Alaska): Measurements made on Mekoryuk Bay.					
1970					
Oct 10					Bay ice free, slush formed up river.
17					Bay remains ice free but slush forming along shore lines and up river.
24					Bay ice free, slush up river froze but unsafe for man to travel on.
31					Small ice cakes and ice has formed along shoreline. Up-river frozen solid and safe for man. Bay area still open with a few small floating ice cakes.
Nov 7					Small amounts of ice flowing in and out of bay with tidal action.
21					Small ice cakes and slush flowing with the tides.
28					More small ice cakes flowing with the tide. The river bank has a small coat of ice from freezing slush.
Dec 5					Bay partially frozen, small ice cakes and slush flowing with tidal action.
12	13.5	34.			Surface rough, many cracks.
19					Bay frozen for 1 week, but has opened again with strong SE winds. Ice cakes and slush flowing with the tide.
26					Bay still open, small amounts of new ice observed. River frozen over entire period. Shoal Bay and the ocean clear of ice.
1971					
Jan 2	21.5	55.	6.	15.	
9	22.	56.	6.5	17.	

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Nunivak (Alaska) (cont'd)					
1971					
Jan 16	23.	58.	7.	18.	
23	24.	61.	9.	23.	
30	26.5	67.	5.5	14.	
Feb 6	27.5	70.	10.	25.	
13	28.5	72.	15.5	39.	
20	29.	74.	7.	18.	
27	27.	69.	8.	20.	
Mar 6	27.	69.	9.5	24.	
13	29.5	75.	10.	25.	
20	29.5	75.	10.5	27.	
27	30.	76.	11.	28.	
Apr 3	29.	74.	11.	28.	
10	34.	86.	11.5	29.	Maximum ice thickness observed.
17	25.	64.	15.5	39.	Surface rough, many cracks from 2 Jan to 17 Apr.
24	24.5	62.	14.	36.	Surface lightly ridged, many cracks.
May 1	27.	69.	16.5	42.	
8	17.	43.	11.	28.	
15	16.	41.	6.	15.	
22	15.5	39.	4.	10.	
29	13.	33.	2.	5.	Surface smooth, many cracks from 1 to 29 May.
Jun 5					Ice cakes flowing in and out of channel with the tide.
12					More ice cakes flowing in and out of channel with the tides.
19					Few ice cakes flowing downstream with the tide.
26					No ice observed.
Point Hope (Alaska): Measurements made a 1/4 mile NW of Point Hope on Chukchi Sea.					
1971					
Jan 2	31.	79.			
9	33.	84.			
16	35.	89.	2.	5.	
23	38.	97.	3.	8.	
30	40.	102.	3.	8.	Open lead about 1 mile off shore on south side of beach. Ice measurement site safe for travel, some ridging on north shore.
Feb 6	43.	109.	1.	3.	
13	45.	114.	2.	5.	
20	48.	122.	2.	5.	
27	50.	127.	4.	10.	No open leads visible.
Mar 6	51.	130.	3.	8.	
13	52.	132.	3.	8.	
20	54.	137.	2.	5.	
27	55.	140.	2.	5.	Open lead on south side of station approximately 3 miles out.
Apr 3	56.	142.	3.	8.	Avg snow depth: 4 in. (10 cm).
10	57.5	146.	1.	3.	
17	58.	147.	1.	3.	Avg snow depth: 2 in. (5 cm) on 10 and 17 Apr.
24	58.5	149.	4.	10.	Surface smooth, few cracks from 2 Jan to 24 Apr. Avg snow depth: 6 in. (15 cm). No open leads. Maximum ice thickness observed.
Port Alfred* (P.Q.): Measurements made on Ha Ha Bay, 300 yd off landing pier at Bagotville at 48°20' N lat. and 70°52' W long.					
1970					
Dec 14					Ice began to form on bay.
18					Surface smooth, no cracks.
31					Surface smooth, few cracks from 24 to 31 Dec.
1971					
Mar 12	37.5	95.	18.	46.	Maximum ice thickness observed.
19	36.	91.	16.	41.	
26	36.	91.	14.	36.	Surface smooth, no cracks from 8 Jan to 26 Mar. Ice measurement site now free of ice.
27					Saguenay River ice broken up. Ice breaking work by CCGS D'Iberville completed.
Port Alsworth (Alaska): Measurements made on Hardenbourg Bay.					
1970					
Oct 19					Bay completely frozen over.
24	7.	18.			Surface rough.
31	8.5	22.	2.	5.	2 in. (5 cm) slush on ice.
Nov 7	8.5	22.			
14	6.5	17.	Trace		Surface smooth on 31 Oct and 7, 14 Nov.
21	7.5	19.	2.	5.	Surface rough. Compacted snow drifts up to 4 in. (10 cm) in depth.
28	10.	25.			

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE 1 (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Port Alsworth (Alaska) (cont'd)					
1970					
Dec 5	11.5	29.			Surface smooth on 28 Nov and 5 Dec.
12	13.	33.			Surface rough. Snow drifts range from 1 to 6 in. (3 to 15 cm) in depth.
19	14.	36.			
26	16.5	42.	2.	5.	Snow cover on ice is light and fluffy.
1971					
Jan 2	21.	53.			Surface smooth on 19, 26 Dec and 2 Jan.
9	22.	56.	2.	5.	Surface rough, with some drifted snow.
16	26.5	67.	0.5	1.	Snow on ice is granular.
23	31.	79.	2.	5.	Snow drifts range from 2 to 6 in. (5 to 15 cm) in height.
30	34.	86.			Snow on ice is hard packed and drifted.
Feb 6	38.	97.			
13	37.	94.			
20	38.	97.	9.	23.	Surface smooth from 6 to 20 Feb.
27	40.	102.	9.	23.	Snow cover on 20 and 22 Feb is granular.
Mar 6	40.	102.	20.	51.	
13	41.	104.	14.	36.	
20	42.	107.	18.	46.	
27	42.	107.	17.	43.	Snow cover on ice during Mar was granular and drifts ranged from 11 to 24 in. (28 to 61 cm) in depth.
Apr 3	43.	109.	13.	33.	
10	43.	109.	16.	41.	Snow cover on ice on 3 and 10 Apr was compact with drifts 13 to 20 in. (33 to 51 cm) in depth.
17	42.	107.	17.	43.	Surface rough from 6 Mar to 17 Apr. Water on surface of ice.
24	44.	112.	12.	30.	Surface smooth. Few cracks on Bay ice from 24 Oct 1970 to 17 Apr 1971. Leads and cracks appearing NE of station and along north shore. Snow cover very wet and compacted with 5 in. (13 cm) slush on ice. Maximum ice thickness observed.
May 1	40.	102.			Top 4 in. of surface is wet and honey-combed, numerous cracks.
8	41.	104.			
15	36.	91.			Surface wet and granular (coarse), numerous cracks from 8 to 15 May. Holes in ice observed along NW shore.
22	30.	76.			Top 5 in. (13 cm) of ice honey-combed, numerous cracks. Bay open in narrows and along shore edges NW, S, E and W of station.
29	15.	38.			Surface honey-combed, numerous cracks. Bay 3/4 ice covered, but open all around the shoreline.
Resolute* (N.W.T.): Measurements made approximately in the center of Resolute Bay.					
1970					
Sep 4					Ice formed in a smooth continuous sheet on the surface of nearby lake during the night.
6					Ice sheet broken up by high winds.
13					Strong winds decreased and the air temperature fell to the low 20's during the night.
14					Ice sheet formed again and lake remained frozen. Lake seldom used for any kind of vehicular traffic except for the occasional pedestrians and snow machine.
25					Numerous leads left by ships entering and leaving bay. Thickness of ice estimated. Several pieces of old winter ice frozen in bay along shore. Surface smooth, numerous cracks.
1971					
Feb 28					Aerial measurements were taken of ice area by representative from CRC.
Apr 30					No ice reports on 16 and 30 Apr due to severe weather.
May 14					Surface smooth, no cracks from 7 Nov 70 to 14 May 71.
29	74.5	189.	23.	58.	Surface smooth, few cracks from 21 to 29 May. Maximum ice thickness observed.
Jun 4	71.	180.	24.	61.	
11	69.	175.	24.	61.	
18	66.	168.	12.	30.	
25	71.	180.			
Jul 2	59.5	151.			
9	45.	114.			
16	34.5	88.			
Sachs Harbour* (N.W.T.): Measurements made 100 yd from shore on Amundsen Gulf, due south of RCMP detachment buildings.					
1970					
Oct 1					Slush formed.
6					Ice formed 6 in. (15 cm) thick out to 10 ft from shore.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE 1 (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Sachs Harbour* (N.W.T.) (cont'd)					
1970					
Oct 11					Ice broken up by strong SE winds.
13					Strong northerly winds cleared bay of ice chunks.
14					Bay refrozen.
16					Ice now 4 in. (10 cm) thick and extends out to 10 ft from shore.
1971					
Mar 26					Surface smooth, few cracks from 23 Oct 70 to 26 Mar 71.
May 7	72.	183.	5.	13.	Maximum ice thickness observed.
14	68.5	173.	4.	10.	
28	68.	173.	3.	8.	
Jun 5	70.	178.	3.	8.	
12	68.5	174.	3.	8.	
19	61.	155.	3.	5.	
Sault Ste. Marie* (ONT): Measurements made at 300 and 600 ft east and 1700 and 2000 ft west of lock on Canal.					
1700 ft west					
1971					
Jan 25					6 in. (15 cm) slush and water over the ice.
Feb 22					2 in. (5 cm) slush on ice surface on 15 and 22 Feb.
Mar 1					4 in. (10 cm) slush on surface of ice.
15	24.	61.			0.5 in. of water on surface.
22	24.	61.	0.5	1.	Maximum ice thickness observed on 15 and 22 Mar.
2000 ft west					
1971					
Jan 25					6 in. (15 cm) slush and water over the ice.
Feb 22					2 in. (5 cm) slush on ice surface on 15 and 22 Feb.
Mar 15	25.	64.			0.5 in. of water on surface. Maximum ice thickness observed.
22	21.	53.	0.5	1.	
300 ft east					
1971					
Jan 25					5 in. (13 cm) of slush and water over the ice.
Feb 22					2 in. (5 cm) slush on ice surface on 15 and 22 Feb.
Mar 1					6 in. (15 cm) slush on ice surface.
15					0.5 in. water on surface.
29	23.	58.	3.	8.	Maximum ice thickness observed.
600 ft east					
1971					
Jan 25					2 in. (5 cm) slush and water over the ice.
Mar 1					6 in. (15 cm) slush on ice surface.
8	22.	56.	0.5	1.	Maximum ice thickness observed.
15	19.	48.			0.5 in. water on surface.
22	21.	53.			
29	20.	51.	3.	8.	
Schefferville* (P.Q.): Measurements made on Knob Lake.					
1971					
Apr 24	36.	91.	8.	20.	Surface smooth, no cracks from 4 Dec 70 to 24 Apr 71. Maximum ice thickness observed. Approximately 3 in. of water between the ice and the snow cover.
May 7	33.5	85.	6.	15.	
14	31.	79.	2.	5.	
21	29.	74.			
31	23.	58.			
Snowshoe Lake (Alaska): Measurements made approximately 200 yd W of aircraft facilities on east side of Snowshoe Lake.					
1970					
Sep 9					First ice appeared at SW end of lake.
11					Lake free of ice.
23					Ice forming again in SW area.
Oct 4					Ice extends out from south shore approximately 300 yd and runs along shoreline.
5					Ice retreated a few yd.
8					Ice cut back to approximately 150 yd from shore due to northerly winds.
10					Ice again out to 300 yd, along shore and is also thicker.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE 1 (Cont'd)
ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Snowshoe Lake (Alaska) (cont'd)					
1970					
Oct 12					Considerable "pan ice" over entire lake.
14					Ice solid over approximately 1/3 of lake extending from shallow south end.
16					Entire lake frozen, except for a few small open holes on western side.
17	2.	5.	1.5	4.	Avg snow depth: 1 in. (3 cm). Ice unsafe to walk on. Several open holes and water overflow near measurement site.
19					Several caribou attempting to cross lake, broke through ice near observation site but were able to get back out onto solid ice.
24	5.	13.	1.	3.	
31	8.	20.	2.5	6.	
Nov 7	8.5	22.	4.	10.	Surface smooth, few cracks from 17 Oct to 7 Nov.
14	9.	23.	4.	10.	Surface smooth, several cracks. Dark water overflow areas observed over much of lake.
21	12.	30.	4.	10.	Water overflow appears to be well frozen, this might account for marked increase in ice thickness at the observation site.
28	13.5	34.	4.	10.	
Dec 5	16.	41.	4.	10.	Cold temperatures during first part of month (–50°F) on lake.
12	18.	46.	5.5	14.	Avg snow depth: 5.5 in. (11 cm).
19	18.	46.	6.	15.	
26	19.	48.	9.	23.	Surface moderately ridged, several cracks from 21 Nov to 26 Dec.
1971					
Jan 2	20.	51.	9.5	24.	
9	21.	53.	11.	28.	
16	22.	56.	9.	23.	
23	23.5	60.	9.5	24.	
31	24.	61.	10.	25.	Air temperatures as low as –60°F observed on lake during month. More cracks in ice evident during cold weather period.
Feb 6	25.	64.	10.	25.	
13	25.5	65.	10.5	27.	
20	26.	66.	11.5	29.	Surface moderately ridged, several cracks from 2 Jan to 20 Feb.
27	26.5	67.	12.	30.	
Mar 6	27.	69.	13.	33.	
13	27.5	70.	13.	33.	
20	28.	71.	13.	33.	
27	28.	71.	13.	33.	
Apr 3	28.	71.	13.	33.	
10	28.	71.	13.5	34.	
17	28.5	72.	11.5	29.	
24	28.5	72.	11.	28.	Increase in ice thickness during last two weeks probably due to surface melt water freezing on top of old ice. However, maximum ice thickness observed on 17 and 24 Apr.
May 1	28.	71.	7.5	19.	
8	28.	71.	4.	10.	
12					Melt water appeared at outlet in SW corner of lake with some open water.
15	27.	69.	Trace		Surface heavily ridged, few cracks from 27 Feb to 15 May. Ice very wet making drilling difficult. Meltwater area about 15-20 ft wide along edges of lake on ice surface.
17					Open water along edges and around entire lake.
21					SW end of lake free of ice.
22	23.	58.			Ice very mushy. Boat was used to get from shore out onto solid ice – approximately 30 ft of open water along shoreline. Top portion of ice crumbled beneath feet.
24					Ice free from shore. Ice has not had a chance to break up into separate pieces due to fairly steady southerly winds which pushes ice toward shore.
31					Wind gradually eroding ice away and lake is approximately 1/3 ice free. Ice very dark and rotten looking. It is estimated that lake will be free of ice in 2 or 3 days.
South Baymouth* (ONT): Measurements made on South Bay 100 yd from end of station wharf.					
1970					
Dec 22					South Bay apparently froze over about this date.
1971					
Jan 29					Location of measurement site is in broken, drift ice. No suitable measurement place on smooth ice can be found.
Mar 12	32.	81.	2.	5.	
19	31.5	80.	1.	3.	
26	32.	81.	4.	10.	Surface smooth, no cracks from 6 Jan to 26 Mar.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
South Baymouth* (ONT) (cont'd)					
1971					
Apr 2	32.	81.			
8	32.	81.			Maximum ice thickness observed on 12, 26 Mar and 2, 8 Apr.
15	26.	66.			
May 1					Bay is ice free.
South Shore Canal* (P.Q.): Measurements made at the following designated locations along the Canal.					
Near Seaway Entrance.					
1971					
Feb 3	28.	71.	9.	23.	
11	28.	71.	12.	30.	
18	28.	71.	15.	38.	Maximum ice thickness observed from 3 to 18 Feb 1971.
25					Icebreaker traveled through the area.
Near the Jacques Cartier Bridge.					
1971					
Feb 18	27.	69.	1.	3.	Maximum ice thickness observed.
25					Icebreaker traveled through the area.
At the end of the Lower Approach Wall.					
1971					
Feb 18	26.	66.	4.	10.	
24	26.	66.	15.	38.	Maximum ice thickness observed on 18 and 24 Feb.
Mar 3					Icebreaker traveled through the area.
At Lock #1, Lower Bull Nose.					
1971					
Feb 18	31.	79.	1.	3.	
24	31.	79.	14.	36.	Maximum ice thickness observed on 18 and 24 Feb.
Mar 3					Icebreaker traveled through the area.
Above Lock #2, at Bull Nose.					
1971					
Feb 25	32.	81.	11.	28.	Maximum ice thickness observed.
Mar 3					Ice broken up.
Above Lock #2, at end of Approach Wall.					
1971					
Mar 3	36.	71.	5.	13.	
10	36.	71.	10.	25.	Maximum ice thickness observed on 3 and 10 Mar.
18					Icebreaker traveled through the area.
Off Cote Ste. Catherine Wharf.					
1971					
Mar 3	37.	94.	4.	10.	
11	37.	94.	8.	20.	Maximum ice thickness observed on 3 and 11 Mar.
18					Icebreaker traveled through the area.
Below Mercier Bridge.					
1971					
Mar 3	34.	86.	5.	13.	
10	34.	86.	8.	20.	Maximum ice thickness observed on 3 and 10 Mar.
18					Icebreaker traveled through the area.
Near Caughnawaga Village.					
1971					
Mar 3	32.	81.	4.	10.	
11	32.	81.	8.	20.	Maximum ice thickness observed on 3 and 11 Mar.
18					Icebreaker traveled through the area.
At Lake St. Louis entrance, opposite Buoy #1/2A-M20.					
1971					
Mar 12	35.	89.	7.	18.	Maximum ice thickness observed.
18					Icebreaker traveled through the area.
Tanacross (Alaska): Measurements made on Tanana River in front of village, near eastern bank.					
1970					
Oct 24	8.	20.			Surface uneven, few cracks. Avg depth of snow 1 in. (3 cm).
31	14.	36.			Surface uneven, numerous cracks. 2 in. of water on ice in places due to unseasonably high temperatures (30 to 40°F) during last 3 days.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Tanacross (Alaska) (cont'd)					
1970					
Nov 7	14.	36.	0.5	1.	Surface moderately ridged, few cracks.
14	16.	41.	0.5	1.	
21	18.	46.	1.	3.	
28	20.	51.	6.	15.	Surface moderately ridged, no cracks from 14 to 28 Nov.
Dec 5	20.	51.	5.	13.	
12	24.	61.	5.	13.	
19	27.	69.	6.	15.	
26	27.	69.	3.	8.	
1971					
Jan 2	27.	69.	4.	10.	
9	28.	71.	8.	20.	
16	30.	76.	8.	20.	
23	30.	76.	6.	15.	
30	32.	81.	6.	15.	Surface smooth, no cracks from 5 Dec 1970 to 30 Jan 1971.
Feb 6	32.	81.	7.	18.	
13	34.	86.	8.	20.	
20	36.	91.	8.	20.	
27	36.	91.	8.	20.	Surface smooth, few cracks from 6 to 27 Feb.
Mar 6	37.	94.	5.	13.	Strong winds on 1-2 Mar caused considerable drifting, snow on ice is uneven.
13	38.	97.	5.	13.	
20	39.	99.	5.	13.	
27	40.	102.	5.	13.	
Apr 3	41.	104.	4.	10.	
10	43.	109.	5.	13.	Surface smooth, no cracks from 6 Mar to 10 Apr. Maximum ice thickness observed.
17	41.	104.	4.	10.	
24	40.	102.			Surface porous, few cracks on 17 and 24 Apr.
May 1	36.	91.			Surface very porous, numerous cracks. Bulk of ice went out on 14 May. River level rose approximately 5 ft.
Thunder Bay* (formerly Port Arthur) (ONT): Measurements made approximately 250 ft from SW corner of Canadian National and railroad dock ruins in Thunder Bay Harbour.					
1970					
Dec 21					Bay froze over on this date.
1971					
Feb 3					Some ridging noted at all breakwater entrances.
24	21.	53.	8.	20.	Surface smooth from 6 Jan to 24 Feb.
Trappers Creek (Alaska): Measurements made in Susitna River across from Talkeetna Village.					
1970					
Nov 7					Ice jam broke and river channels reopened.
14					Ice flowing in channels again. Ice forming along edges.
21					Ice flows are jamming.
28	2.	5.			Ice on channels, open water in a few areas.
Dec 5	5.	13.	1.	3.	Avg depth of snow on shore 9 in. (23 cm).
12	9.	23.	6.	15.	Avg depth of snow on shore 10 in. (25 cm).
19	12.	30.	6.	15.	Avg depth of snow on shore 14 in. (36 cm).
26	16.	41.	36.	91.	Surface smooth, no cracks throughout Dec.
1971					
Jan 2	17.	43.	24.	61.	Avg depth of snow on shore 36 in. (91 cm).
9	14.	36.	26.	66.	Avg depth of snow on shore 40 in. (102 cm). 5 in. of water under the snow at measurement site, ice collapsing in some places.
16	24.	61.	23.	58.	Avg depth of snow on shore 38 in. (97 cm).
23	28.	71.	23.	58.	Avg depth of snow on shore 36 in. (91 cm).
30	30.	76.	21.	53.	Avg depth of snow on shore 36 in. (91 cm). Surface smooth, few cracks along shore of some channels throughout Jan.
Feb 6	29.	74.	14.	36.	Avg depth of snow on shore 46 in. (117 cm).
13	29.	74.	13.	33.	Avg depth of snow on shore 50 in. (127 cm).
20	28.	71.	18.	46.	Avg depth of snow on shore 52 in. (132 cm). Surface lightly ridged, few cracks between 6 and 20 Feb.
27	30.	76.	16.	41.	Surface moderately ridged. Avg snow depth on shore 50 in. (127 cm). Land fast ice cracking, ice level dropped as much as 4 ft along shore. Ice heaving in main channels.
Mar 6	32.	81.	12.	30.	Avg depth of snow on shore 56 in. (142 cm).
13	32.	81.	14.	36.	Avg depth of snow on shore 56 in. (142 cm).
20	36.	91.	10.	25.	Avg depth of snow on shore 53 in. (135 cm). Maximum ice thickness observed. 8 in. of water overflow, ice becoming soft.
27	32.	81.	9.	23.	Avg depth of snow on shore 51 in. (130 cm). Ice wet and very soft. 6 in. water overflow. Ice breaking away from shore and dropped as much as 4 ft along shoreline. Ice heaving in main channel. Surface lightly ridged, few cracks throughout Mar.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Trout Lake* (ONT): Measurements made on Trout Lake 100 yd south of landing dock.					
1970					
Nov 13					Surface smooth, few cracks.
1971					
Jan 1					Surface smooth, no cracks from 20 Nov 1970 to 1 Jan 1971.
8					Heavy slush conditions on most areas of the lake.
15					Surface smooth, no cracks.
Feb 19					Surface smooth, few cracks from 22 Jan to 19 Feb.
Mar 26					Surface smooth, numerous cracks from 26 Feb to 26 Mar.
Apr 2	36.5	93.	17.	43.	
9	37.5	95.	12.	30.	
16	38.	97.	10.	25.	Maximum ice thickness observed.
23	37.5	95.			
30	31.	79.			
May 7	27.	69.			
14					Ice unsafe.
Unalakleet (Alaska): Measurements made on Kouwegak River slough, 100 ft directly east of the post office.					
1970					
Oct 3	2.5	6.	2.5	6.	Surface smooth. Snow on ice is light and fluffy.
10					River ice and snow melted due to heavy rain and high tides.
17	2.	5.			Surface very rough with numerous cracks. Roughness due to river ice flowing into area.
24	7.	18.			Surface very rough with numerous cracks.
31	10.5	27.	4.	10.	Surface rough, numerous cracks. Snow on ice is hard packed.
Nov 7	12.5	32.			Surface moderately ridged, few cracks.
14	14.5	37.	3.	8.	Surface smooth, few cracks.
21	17.	43.	11.	28.	Surface smooth. Top layer of snow is hard. Bottom layers are wet due to high tides.
28					Unable to take measurement at usual place due to extreme high tide and water overflow last night. Some areas of river have broken ice. Tide approximately 9 ft higher than normal. An open area, 1/4 mile in length and 150 ft in width, observed in river.
Dec 5	15.	38.			Surface smooth, no cracks. Ice solid with no snow cover.
12	20.5	52.	4.	10.	Surface smooth, no cracks. Snow on ice is crusty.
19	31.5	80.	15.5	39.	Surface rough, some open water at mouth of river due to tidal flows.
26	35.	89.	7.	18.	Surface smooth. Cracks 1/2 in. wide in some areas due to wave action during high winds and tides. Decrease in snow depth due to warm air temperatures and rains. Broken ice 50 yd from observation site.
1971					
Jan 2	43.	109.	6.	15.	
9	45.	114.	7.	18.	
16	49.	124.	8.	20.	
23	54.	137.	8.	20.	
30	59.	150.	9.	23.	Snow on ice during Jan was hard and crusty.
Feb 6	53.	135.	9.	23.	Ice thickness variations due to random distributions of freezing slush ice.
13	63.	160.	19.	48.	Snow cover hard packed.
20	58.	147.	17.	43.	Snow surface smooth from 2 Jan to 20 Feb. Top 2 in. (5 cm) snow is light and fluffy.
27	58.	147.	16.	41.	Ice surface rough, top 4 in. (10 cm) snow is light and fluffy.
Mar 6	58.	147.	16.	41.	Ice surface rough.
13	72.	183.	16.	41.	Snow surface smooth. Ice measurements between 13 Mar and 22 May probably made in area of rafted ice – Authors.
20	74.	188.	14.	36.	
27	74.	188.	14.	36.	
Apr 3	74.	188.	14.	36.	
10	74.	188.	14.	36.	
17	72.	183.	16.5	42.	2 in. (5 cm) of bottom slush ice has melted.
24	71.	181.	19.	48.	
May 1	72.	183.	17.	43.	Snow cover over ice from 6 Mar to 1 May hard packed.
8	74.	188.	12.	30.	Snow cover has become soft.
15	74.	188.	4.	10.	Snow cover soft and wet due to overflows. Maximum ice, 74 in. (188 cm), observed during Mar, Apr, and May.
22	67.	170.	1.5	4.	Surface rough from 20 Mar to 22 May.
29					Ice not measured due to open water and broken ice. Ice went out over night.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE I (Cont'd)

ICE THICKNESSES (1970-1971)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Welland Canal* (ONT): Measurements made at the following designated locations along the Canal.					
At Bridge # 19.					
1971					
Feb 22	17.5	44.	0.5	1.	Maximum ice thickness observed.
Mar 1	12.5	32.			Few cracks on surface of ice from 1 Feb to 1 Mar.
8	14.	36.			Top inch of surface is shell ice.
15	12.	30.			0.5 in. melt water on surface of ice.
22	12.	30.	1.	3.	
Port Colborne Harbour, above Lock # 8.					
1971					
Feb 8	18.	46.	1.5	4.	
15	18.	46.	2.	5.	Maximum ice thickness observed on 8 and 15 Feb.
22	17.	43.	0.5	1.	Few surface cracks close to wall.
Mar 1	14.5	37.			Few cracks on surface of ice from 1 Feb and 1 Mar.
8	15.	38.			
15	13.5	34.			0.5 in. water on ice.
22	13.5	34.	2.	5.	
Port Weller Harbour, below Lock # 1.					
1971					
Jan 18	7.	18.	Trace		Maximum ice thickness observed. Light powder snow on surface.
25	6.	15.	2.	5.	Ice is drifting.
Feb 1	5.	13.			Ice broken up and drifting.
8	2.	5.			
15	3.	8.			Surface ice slushy.
22	4.	10.			Ice drifting around.
Mar 1					Open water.
Above Guard Gate					
1971					
Jan 18					Light snow cover on surface.
Feb 1					Light drifting snow on surface.
15	17.	43.			
22	17.	43.			Maximum ice thickness observed on 15 and 22 Feb.
Mar 1	10.	25.			
8	10.	25.			
15	11.	28.			Water covers surface of the ice.
22	2.	5.			
At Bridge # 10.					
1971					
Feb 1					Drifting snow on ice surface.
22	16.	41.			Maximum ice thickness observed.
Mar 1	10.	25.			Surface ice has 6 in. of water overflow.
8	12.	30.			
15	10.	25.			Surface water covered.
22	14.	36.			
At Bridge # 18.					
1971					
Feb 1	8.	20.	1.	3.	Surface smooth, few cracks. Maximum ice thickness observed.
8	7.5	19.	1.	3.	Surface smooth, few cracks.
15	7.	18.	1.	3.	
22					Canal free of ice.
Yellowknife* (N.W.T.): Measurements taken approximately 175 yd NW of Northward Aviation float base, on Back Bay.					
1970					
Nov 26					Surface smooth, few cracks.
1971					
Jan 1					Surface smooth, no cracks from 4 Dec 1970 to 1 Jan 1971.
Feb 19					Surface smooth, few cracks from 8 Jan to 19 Feb.
Mar 12					Surface smooth, no cracks from 26 Feb to 12 Mar.
19	52.	132.	7.	18.	Maximum ice thickness observed on 19 Mar and 16-23 Apr.
26	50.	127.	9.	23.	
Apr 2	50.	127.	11.	28.	
9	49.5	126.	9.	23.	
16	52	132.	7.	18.	
23	52.	132.	3.	8.	3 ft open shore lead. Snow cover slushy. Surface smooth, few cracks from 19 Mar to 23 Apr.
30					Ice not accessible due to water around shoreline.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1971.

TABLE II
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Alert* (N.W.T.): Measurements made on Parr Inlet of Dumbell Bay at approximately 100 yd east of the hydrographic bench mark.					
1971					
Aug 20					First ice observed on inlet.
29					Complete freeze over occurred on inlet.
Oct 15					Surface smooth, no cracks from 17 Sep to 15 Oct.
1972					
Jun 16	94.	239.	6.	15.	
23	94.	239.	3.	8.	Surface 10% covered with melt water.
30	94.	239.	1.	3.	Surface 30% covered with melt water. Surface smooth, few cracks from 22 Oct 71 to 30 Jun 72. Maximum ice thickness observed from 16 to 30 Jun.
Alert* (N.W.T.): Measurements made on Upper Dumbell Lake at approximately 100 yd offshore, SW of the pumping station.					
1971					
Sep 1					Ice is 1 1/2 in. (4 cm) thick over 50% of lake surface.
7					Lake is 6/10 covered with ice.
12					Lake froze over on about this date.
Oct 15					Surface smooth, no cracks from 17 Sep to 15 Oct.
1972					
May 12	92.5	235.	12.	30.	Maximum ice thickness observed.
19	90.	229.	12.	30.	
26	91.	231.	12.	30.	Surface smooth, few cracks from 22 Oct 71 to 26 May 72.
Jun 16	91.5	232.	15.	38.	
23	92.	234.	10.	25.	Surface 10 to 15% covered with meltwater.
30	91.	231.	4.	10.	Surface smooth, numerous cracks all month. Surface 20 to 25% covered with meltwater.
Allakaket (Alaska): Measurements made in front of St. John's in-the-Wilderness Church on the Koyukuk River.					
1971					
Oct 3					Small amounts of ice flowing in river, no ice along shore.
4					Amount of ice flowing in river increasing. Ice along shore is 12 in. (30 cm) thick in some areas.
5					Ice extends 4 ft out from shore.
6					Water rising in river, considerable ice in area.
7					Ice jam caused water level to rise 5 ft.
8					River water 2 ft above normal.
9					Unable to walk on ice due to high water.
16	7.	18.	5.	13.	
23	8.	20.	10.	25.	
30	9.	23.	12.	30.	
Nov 6	12.	30.	14.	36.	
13	13.	33.	14.	36.	
20	14.	36.	17.	43.	
27	15.	38.	18.	46.	
Dec 4	16.	41.	18.	46.	
11	17.	43.	20.	51.	
18	18.	46.	23.	58.	
25	18.	46.	23.	58.	
1972					
Jan 2	19.	48.	23.	58.	
8	20.	51.	23.	58.	
15	22.	56.	20.	51.	3 in. of water overflow on ice.
22	22.	56.	15.	38.	8 in. of water overflow on ice.
29	30.	76.	24.	61.	Surface lightly ridged from 6 Nov 71 to 29 Jan 72. Increase in ice thickness probably due to snow-ice formation – Authors.
Feb 5	31.	79.	22.	56.	
12	32.	81.	22.	56.	
19	33.	84.	17.	43.	5 in. of water overflow on ice.
26	33.	84.	19.	48.	
Mar 4	33.	84.	14.	36.	
11	34.	86.	14.	36.	
18	35.	89.	14.	36.	
25	36.	91.	17.	43.	
Apr 1	36.	91.	17.	43.	
8	36.	91.	18.	46.	
15	36.	91.	18.	46.	
22	36.	91.	17.	43.	
29	36.	91.	15.	38.	

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Allakaket (Alaska) (cont'd)					
1972					
May 6	36.	91.	17.	43.	12 in. of water overflow on ice. Maximum ice thickness observed from 25 Mar to 6 May.
7					24 in. of water overflow on ice.
Arctic Village (Alaska): Measurements taken due north of Arctic Village school, 10 to 15 ft out from shore on the East Fork of Chandalar River.					
1971					
Sep 29					River froze over 1/2 mile upstream of village.
30					River frozen over above and below village. Ice 1/2 in. (1 cm) thick. Still some open water in river.
Oct 2	2.	5.			
9	3.	8.			Ice surface smooth on 2 and 9 Oct.
12					River completely frozen over.
16					Avg snow depth 1 in. (3 cm), no ice measurement made.
23	8.	20.	1.	3.	
30	12.5	32.	1.	3.	Few large ice cracks across river, 1/4 to 1/2 in. wide, formed through temperature changes.
Nov 6	16.	41.	3.	8.	
10					Flowing ice building up at Fish Creek at entrance to Chandalar River near Arctic Village.
13	20.5	52.	4.	10.	
20	23.	58.	6.	15.	
27	20.	51.	8.	20.	Snow depth and ice thickness vary due to changing currents and water overflow. 50 yd upstream the ice is 23 in. (58 cm) thick. Cracks in ice are as much as 3/4 in. in width.
Dec 4	23.	58.	8.	20.	
11	24.	61.	8.	20.	
18	23.	58.	9.	23.	Avg snow depth 10 in. (25 cm).
25	23.	58.	11.	28.	Avg snow depth 12 in. (30 cm). Ice thickness on river varies from 22 to 25 in. (56 to 64 cm). Variations are due to the river current and water overflow. Ice is slightly thicker in areas where snowmobiles pack the snow cover down.
1972					
Jan 1	24.	61.	11.	28.	
8	24.	61.	11.	28.	
15	26.	66.	11.	28.	
22	28.	71.	11.	28.	
29	30.	76.	12.	30.	Ice thickness on a nearby lake measured 28 in. (71 cm) and depth of snow on lake was 12 in. (30 cm).
Feb 5	30.	76.	12.	30.	
12	30.	76.	12.	30.	
19	30.5	77.	11.	28.	
26	31.	79.	12.	30.	Cracks formed when water depth in river became shallow and ice sheet collapsed slightly. Ice thickness on a lake 5 miles east of village varies between 30 and 31.5 in. (76 to 80 cm) and the snow cover varies between 9 and 16 in. (23 to 41 cm) in depth.
Mar 4	31.5	80.	17.	43.	
11	32.5	83.	17.	43.	
16					Ice observation made by USGS at Galbraith Lake (68°28' N, 149°25' W) near the Endicott Mts. on this date showed the ice on lake to be 63 in. (160 cm) thick.
18	34.	86.	13.	33.	Avg snow depth 17 in. (43 cm).
25	35.	89.	21.	53.	Avg snow depth 20 in. (51 cm). Water level in river dropped approximately 12 in. (30 cm). Ice thickness on river varies some this year, avg thickness on nearby lake is 35 in. (89 cm).
Apr 1	38.	97.	15.	38.	
8	38.	97.	15.	38.	
15	38.5	98.	17.	43.	
22	38.5	98.	19.	48.	Maximum ice thickness observed on 15 and 22 Apr.
29	37.	94.	25.	64.	Avg snow depth 20 in. (51 cm) from 8 to 29 Apr. Snow on river slightly packed by snowmobiles and aircraft. Ice on river frozen to the bottom in many places. Ice in main channel varies from 31 to 47 in. (79 to 119 cm). Ice thickness on nearby lake is about 46 in. (117 cm).
May 6	37.	94.	23.	58.	Surface smooth, few cracks from 16 Oct 71 to 6 May 72.
11					Water in river rose in some places. Some ice lifted but some remained frozen to the ground underneath 2 to 3 ft of water.
13	35.	89.			River ice breaking up, numerous surface cracks. Ice that was frozen to the river bottom raised to the surface.
20	33.	84.			River ice continuing to break up, numerous surface cracks.
26					Ice flowing past village, river clear of ice by evening.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Baker Lake* (N.W.T.): Measurements made on Baker Lake approximately 100 yd south of pump house.					
1971					
Oct 16					First ice formed during night of 16 Oct.
18					Wind broke up existing shore ice.
22					Ice formed on south shore around sand bars.
24					Ice formed in sheltered area, main part of lake still open.
26					South wind drifted shore ice out into lake.
29					Ice cover in sheltered area is rough. Baker Lake commencing to freeze over.
Nov 1					Ice formed out to horizon.
5					Pilot reports an open channel extends across lake and into Chesterfield Inlet.
8					Pilot reports that freeze-over of lake is complete.
17					1/2 ton snowmobile traveling safely on ice. Ice is 24 in. (61 cm) thick.
1972					
Jan 4					First aircraft landed on ice. Ice on 1 Jan was 48 in. (122 cm). This was followed by a DC 3 on the 9th, and a 748 on the 10th of Jan. Ice thickness on 14 Jan was 54.5 in. (138 cm) thick.
May 5	93.	236.	2.	5.	
12	91.	231.	2.	5.	
19	91.5	232.	4.	10.	
26	93.	236.	3.	8.	Maximum ice thickness observed on 5 and 26 May. Some pools of shallow water observed on ice runway. Ice surface smooth, no cracks from 29 Oct 71 to 26 May 72.
Jun 2	91.5	232.	2.	5.	
9	91.5	232.	1.	3.	Last plane landed on ice.
12					Ice sheet lifted overnight due to rising water.
16	87.	221.			
23	90.	229.			Ice surface smooth, few cracks from 2 to 23 Jun.
24					Shore lead open out to 10 yd from shore.
27					Shore lead is wider and a few other small leads have formed.
29					Ice jam and some water overflow at mouth of Thelon River.
30	50.	127.			Unable to cross shore lead, ice thickness was estimated.
Barrow (Alaska): Measurements made on Imikpuk Lake (fresh water), adjacent to U.S. Navy Arctic Research Laboratory. Measurements taken approximately 390 ft toward center of lake ESE from water intake.					
1971					
Sep 29					Lake completely frozen over.
Oct 16	11.	28.			Ice surface smooth, 1 crack observed, about 3 in. wide running in a NNW direction.
23	14.	36.			Few cracks 1/8 in. wide observed in all directions. Avg snow depth 1.5 in. (4 cm) on 16 and 23 Oct.
30	17.5	44.	4.	10.	Snow surface smooth, ice surface obscured. Avg snow depth 4.5 in. (11 cm).
Nov 6	19.	48.	0.5	1.	
13	24.	61.	1.5	4.	
20	25.	64.	1.	3.	
27	28.	71.	1.	3.	Few to several cracks, 1/4 to 1 in. wide all month. Avg snow depth 2 to 3 1/2 in. (5 to 9 cm) all month.
Dec 4	32.	81.	1.	3.	
11	36.	91.	1.5	4.	
18	40.5	103.	1.	3.	
25	42.	107.	1.5	4.	
1972					
Jan 1	42.	107.	2.	5.	Drifting snow observed between 25 Dec 1971 and 1 Jan 1972.
8	41.5	105.	3.	8.	
15	47.	119.	2.	5.	
22	49.	124.	4.	10.	Snow cover hard packed on 15 and 22 Jan.
29	53.5	136.	2.5	6.	Few cracks 1/4 to 3 in. wide during Dec and Jan.
Feb 5	57.5	146.	4.	10.	
12	59.5	151.	7.	18.	
19	57.	145.	6.5	17.	
26	58.	147.	4.	10.	Avg snow depth varies from 3 to 6 in. (8 to 15 cm) from 4 Dec 71 to 26 Feb 72.
Mar 4	58.	147.	5.	13.	
11	63.	160.	5.	13.	
18	63.5	161.	5.	13.	
25	65.5	166.	5.	13.	
31	73.	185.	5.	13.	Few cracks visible. Few areas blown free of snow.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Barrow (Alaska) (cont'd)					
1972					
Apr 8	74.	188.	5.	13.	
15	72.5	184.	6.5	17.	
22	71.5	181.	7.	18.	One inch of new snow fell.
29	72.5	184.	5.	13.	Surface smooth, few cracks from 23 Oct 71 to 29 Apr 72. Avg snow depth 6 in. (15 cm) during Apr.
May 6	71.5	181.	9.	23.	Surface smooth, cracks covered with 4.5 in. (11 cm) hard packed snow. Ice surface obscured from 29 Jan to 6 May.
13	71.	180.	8.5	22.	
20	74.	188.	5.5	14.	Surface smooth, cracks covered with 5 in. (13 cm) hard packed snow during May. Maximum ice thickness observed on 8 Apr and 20 May.
Barter Island (Alaska): Measurements made on Freshwater Lake, 150 ft offshore from the Water Haul Road.					
1971					
Oct 28	14.	36.	6.	15.	Snow surface smooth.
Nov 5	15.	38.	4.	10.	
12	17.	43.	6.	15.	Avg snow depth 8 in. (20 cm) on 5 and 12 Nov.
19	19.	48.	4.	10.	Avg snow depth 6 in. (15 cm). Ice measured at 3 locations showed: 16 in. (41 cm) ice under 9 in. (23 cm) of snow; 19 in. (48 cm) ice under 4 in. (10 cm) snow, and 24 in. (61 cm) ice where free of snow. About 1/3 of ice cover is snow free.
26	26.5	67.			Strong winds removed most of snow cover on ice. Ice measured 26.5 in. (67 cm) in snow free areas. Thickness of ice is slightly less and uniform under 4 in. (10 cm) of snow. About 1/5 of surface is covered with snow. Few cracks observed in ice.
Dec 3	26.5	67.	4.	10.	33 in. (84 cm) of ice in snow free area.
10	32.	81.	4.	10.	Ice is 38.5 in. (98 cm) thick in snow free areas. About 7/8 of ice is covered with snow.
17	37.	94.	4.	10.	Surface smooth, few cracks. Ice is 42 in. (107 cm) thick in snow free areas.
24	45.	114.			About 8/10 of lake surface is free of snow due to strong winds.
31	45.	114.	1.	3.	Avg snow depth 2 in. (5 cm).
1972					
Jan 7	51.	130.			Strong winds blew some snow off the lake, about 7/10 of lake is snow free. Avg snow depth 0.5 in. (1 cm).
14	54.5	138.			Strong winds continued, only about 1/10 of ice is snow covered. Avg snow depth 0.5 in. (1 cm).
21	57.	145.			New snowfall has drifted onto lake surface. Ice 90% snow covered and avg depth is 1 in. (3 cm).
28	60.5	154.	2.	5.	Avg of 3 in. (8 cm) of new snow over the lake.
Feb 4	60.	152.	3.	8.	About 9/10 of the lake is snow covered.
11	62.	157.	2.	5.	Avg snow depth 3 in. (8 cm).
18	65.	165.			Avg snow depth 1 in. (3 cm). Strong winds blew 2/3 of the snow cover from lake. Measured 8 ft of water beneath ice at measurement site.
29	71.	180.			
Mar 11	73.5	187.	1.	3.	
19	74.	188.	2.	5.	
24	78.	198.	3.	8.	
31	78.5	199.	4.	10.	Ice surface smooth, few cracks from 19 Nov 71 to 24 Mar 72. Numerous cracks observed on 31 Mar.
Apr 7	80.5	204.	0.5	1.	
14	80.	203.			
22	80.	203.			Bottom of lake ice becoming porous.
28	83.	211.			Avg snow depth 4 in. (10 cm) during Apr. Ice cover solid on this date. Maximum ice thickness observed on 28 Apr.
May 5	82.5	210.			More old cracks observed. Bottom layer of ice becoming soft again.
12	82.	208.			Lowest 3 ft of ice sheet is soft.
19	82.	208.	3.	8.	Top 2 ft ice is hard, mid 2 ft soft and lowest 3 ft of ice is wet.
26	82.5	210.	4.	10.	Ice surface smooth, numerous cracks from 7 Apr to 26 May. First stages of ice candling observed on 12 May. Top 2 ft ice is hard, rest is soft. Avg depth of snow 4 to 7 in. (10 to 18 cm).
Jun 16	63.	160.			1 ft of candled ice over softer ice. Rapid deterioration of ice with numerous melt ponds on surface.
24	54.	137.			
30	56.	142.			1 ft of candled ice at top. Ice surface has been candled all month with some cracks observed.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Beauharnois* (P.Q.): Measurements made at Lock #4, near end of Upper Approach Wall.					
1972					
Mar 17	27.	69.	3.	8.	
27	27.	69.			Maximum ice thickness observed on 17 and 27 Mar.
Apr 3					Icebreaker operating in area.
4	25.	64.			
Bethel (Alaska): Measurements made 200 yd out from sea wall on the Kuskokwim River south of the Fisherman Cooperative store.					
1971					
Oct 10					Last day of shipping, light ice flowing in river.
12					Heavy ice flow on 11 and 12 Oct.
14					Ice flow on river has decreased.
16					River clear of ice and reopened for shipping.
22					River remains clear of ice.
23					Heavy ice flow in river.
24					Large ice flows running in river.
25					Ice flows bank to bank.
26					River frozen over.
27					Ice flowing again.
28					River 75% full of running ice.
30					Ice running in channel, rest of river frozen solid.
31					Main river channel free of ice.
Nov 2					River completely frozen over.
9					Ice safe for foot travel. Pressure ridges 18 in. (46 cm) high covers 3/4 of ice surface. Rafted ice is 2 in. (5 cm) thick.
14	9.	23.	1.	3.	River frozen over for the winter. Avg snow cover on shore 2 in. (5 cm).
21	9.5	24.	4.	10.	Some pressure ridges up to 18 in. (46 cm) high.
28	10.	25.	5.	13.	Surface lightly ridged from 14 to 28 Nov. Snowmobiles have started to travel on river ice.
Dec 5	13.	33.	5.	13.	Avg depth of snow varies from 4 to 12 in. (10 to 30 cm).
7					Light planes have started to land on river ice.
12	13.	33.	21.	53.	Major snowfalls and drifting snow observed during the past week. Snow is 24 in. (61 cm) deep in spots. Water spouted out of drilled hole.
19	16.	41.	3.	8.	Water overflow saturated the snow cover and slush refroze as snow-ice. Detailed measurement showed 3 in. (8 cm) of snow over 1 in. (3 cm) of shell ice, over 8 in. (20 cm) of slush, all over solid ice on river.
26	13.	33.			Ice surface smooth from 5 to 26 Dec. Measurement site has 10 in. (25 cm) of slush, another location showed 11 in. (28 cm) of ice beneath 7 in. (18 cm) of slush.
1972					
Jan 2	15.	38.	1.	3.	Ice surface smooth. Avg snow depth 1 in. (3 cm). Drilled through 27 in. (69 cm) of alternating ice and slush layers. Layers consisted of 3 in. (8 cm) of shell ice, over 9 in. (23 cm) of slush, over 15 in. (38 cm) of solid ice.
4					Cars now travelling on river ice.
9	26.5	67.	1.	3.	The 12 in. (30 cm) of slush and shell ice observed the previous week has solidified to form the present 26.5 in. (67 cm) of solid ice. Dry snow cover on ice varies from 0 to 4 in. (0 to 10 cm) in depth.
16	32.5	83.	1.	3.	
23	25.	89.	1.	3.	
30	24.	86.			
Feb 6	35.	89.			
13	37.5	95.			
20	41.5	105.			
27	44.5	113.			About 1/2 of the ice cover is clear of snow, rest is drifted with 8 in. (20 cm) depth in places.
Mar 5	45.	114.			
12	48.	122.			
19	51.	130.			Avg depth of snow 1 in. (3 cm) from 23 Jan to 19 Mar.
24					Major snowstorm stopped all traffic on river ice, except for 4-wheel drive vehicles. Prior to 24 Mar all types of vehicles were travelling as far as Akiak upstream, to Johnson River downstream.
26	51.	130.			Surface smooth, few cracks from 9 Jan to 26 Mar. Avg depth of snow 3 in. (8 cm).
Apr 2	51.	130.	3.5	9.	Avg depth of snow varying from 0 to 12 in. (0 to 30 cm).
9	53.	135.	9.	20.	Avg depth of snow 8 in. (20 cm), some drifts are 24 in. (61 cm) deep.
16	55.5	141.	12.	30.	Maximum ice thickness observed. Ice becoming soft.
23	52.5	133.	12.	30.	Surface smooth no cracks from 2 to 23 Apr. Avg depth of snow 9 in. (23 cm). Measurement made 150 ft from test site showed 58 in. (147 cm) of ice.
30	55.	140.	10.	25.	Avg snow depth 9 in. (23 cm). Ice soft at test site. About 2 ft down from surface, the ice is discolored for about 1 ft, ice is then clear below this point.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Bettles (Alaska): Measurements made on Koyukuk River at Evansville.					
1971					
Oct 2					Open water in middle of river.
9					River frozen over. Ice too thin to walk on.
16	4.	10.	5.	13.	Avg depth of snow 4.5 in. (11 cm).
23	5.	13.	6.	15.	
30	9.	23.	11.	28.	Surface rough from 16 to 30 Oct. Some water overflow.
Nov 6	10.	25.	6.	15.	2 in. water overflow on ice.
13	11.	28.	7.	18.	
20	12.	30.	11.	28.	Drifting snow.
27	13.	33.	12.	30.	Surface smooth all month. 1 in. water overflow on top of ice.
Dec 4	15.	38.	12.	30.	
11	16.	41.	10.	25.	
18	17.	43.	16.	41.	
25	18.	46.	19.	48.	Surface uneven all month.
1972					
Jan 1	19.	48.	18.	46.	Surface smooth.
8	20.	51.	17.	43.	
15	21.	53.	10.	25.	5 in. water overflow.
22	26.	66.	9.	23.	4 in. water overflow.
29	26.	66.	18.	46.	Avg snow depth during Dec and Jan varied between 10 and 19 in. (25 to 48 cm). Depths variable due to water overflow. 2 in. water overflow on this date.
Feb 5	27.	69.	15.	38.	
12	31.	79.	15.	38.	Avg snow depth 16 in. (41 cm) on 5 and 12 Feb.
19	33.	84.	15.	38.	
26	34.	86.	15.	38.	Water overflow observed between ice surface and snow cover. Water flows up through drilled hole after each measurement.
Mar 4	34.	86.	14.	36.	
11	32.	81.	14.	36.	
18	33.	84.	14.	36.	Ice thicknesses between 4-18 Mar vary due to differences in growth of snow-ice.
25	34.	86.	15.	38.	Avg snow depth 18 in. (46 cm).
Apr 1	34.	86.	17.	43.	
8	35.	89.	16.	41.	Surface smooth from 1 Jan to 8 Apr. Avg snow depth 17 in. (43 cm). Maximum ice thickness observed.
15	33.	84.	18.	46.	
22	32.	81.	16.	41.	
29	33.	84.	14.	36.	Surface uneven from 15 to 29 Apr due to strong winds and drifted snow.
Brochet* (MAN): Measurements made approximately 1000 ft off shore on Brochet Bay of Reindeer Lake during Nov and Dec and 2000 ft from Mission wharf from Jan to May.					
1971					
Oct 31					Freeze over observed.
1972					
Mar 31	39.	99.	12.	30.	
Apr 7	37.	94.	12.	30.	
14	39.	99.	13.	33.	Maximum ice thickness observed on 31 Mar and 14 Apr.
21	38.	97.	12.	30.	
28	38.	97.	3.	8.	
May 5	38.	97.	2.5	6.	
12	30.	89.			Surface smooth to lightly ridged and no cracks visible from 5 Nov to 12 May.
19	23.5	60.			Ice surface smooth, few cracks.
Cambridge Bay* (N.W.T.): Measurements made approximately 100 yd SSE of townsite dock.					
1971					
Oct 29	11.	28.	1.	3.	First observation of the season.
1972					
Mar 31					Surface smooth, no cracks from 29 Oct 71 to 31 Mar 72.
May 26	85.5	217.	7.	18.	
Jun 2	89.	226.	4.	10.	Maximum ice thickness observed.
9	88.5	225.	2.	5.	
16	84.	213.	1.	3.	
23	71.	180.			
30	72.	183.			
Jul 7	67.	170.			

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE 11 (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Cape Dorset* (N.W.T.): Measurements made on Cape Dorset Harbour adjacent to proposed ice landing strip, approximately 2,500 ft NNE of weather station.					
1971					
Nov 12					Entire harbour froze over.
13	9.	23.	1.	3.	
29	17.	43.	1.	3.	Surface soft, no cracks on 13 and 29 Nov.
Dec 17					Surface smooth, no cracks from 3 to 17 Dec.
31					Surface lightly ridged, no cracks from 24 to 31 Dec.
1972					
Mar 31					Avg snow depth during Jan, Feb and Mar varied from 2 to 19 in. (5 to 48 cm).
Apr 28	63.	160.	6.	15.	Surface moderately ridged, no cracks from 7 Jan to 28 Apr.
May 5	63.	160.	6.	15.	Maximum ice thickness observed on 28 Apr and 5 May.
12	61.5	156.	12.	30.	
19	61.	155.	24.	61.	
26	61.	155.	10.5	27.	
31	61.	155.	10.5	27.	
Jun 2	60.	152.	11.	28.	
9	60.	152.	13.	33.	
16	60.	152.	13.5	34.	
30	58.	147.	1.	3.	
Jul 7	33.	135.	2.	5.	
21	33.	135.			
Cape Parry* (N.W.T.): Measurements made on Gillet Bay (Amundsen Gulf), approximately 1.5 miles south of the meteorological observing station at about 300 yd from north shore.					
1971					
Oct 22					First ice observed in bay.
25					Gillet Bay completely frozen over.
Nov 1					Amundsen Gulf frozen over.
28					Surface smooth, no cracks from 5 to 28 Nov.
Dec 3					Surface smooth, hard packed, no cracks.
1972					
Jan 28					Surface smooth, hard packed, few cracks from 11 Dec 71 to 28 Jan 72.
May 26					Snow depth from Nov 71 through May 72 varied from 2 to 7 in. (5 to 18 cm).
Jun 2	68.	173.	7.	18.	
9	80.	203.	1.	3.	Maximum ice thickness observed. It is possible that this ice measurement was made in an area of rafted ice-authors.
17	65.5	166.			Puddles of water forming on surface.
23	59.	175.			
30	44.5	113.			Trace of snow on surface from 17 to 30 June. Surface smooth, numerous cracks from 17 to 30 Jun. Large open cracks in vicinity of measurement site.
Jul 7	39.5	100.			
Cartwright* (NFLD): Measurements made in center of Cartwright Harbour mid-way between USAF and IGA docks.					
1971					
Dec 25					Last ship visited Cartwright Harbour.
1972					
Apr 22	38.	97.	5.	13.	Maximum ice thickness observed.
28	31.5	80.	2.	5.	Ice solid. Air temperatures rarely went above freezing during month.
May 5	36.	91.	2.	5.	
14	36.	91.	8.	20.	New snowfall observed.
20	36.	91.			
26	30.	76.			Surface smooth, no cracks from 17 Dec 71 to 26 May 72.
Jun 3	18.	46.			
8.					Harbour ice broke up into pan ice and drifted out into channel.
Chalkyitsik (Alaska): Measurements made 100 yd NE of Episcopal Church approximately 100 ft out from shore on Black River.					
1971					
Oct 2					River still open, no ice has formed yet.
5					Freeze over observed, ice is too thin for a measurement.
9	0.5	1.	0.5	1.	
16	3.	8.	1.	3.	
23	5.	13.	1.	3.	
31	8.	20.	1.5	4.	Some open water in river below village.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Chalkyitsik (Alaska) (cont'd)					
1971					
Nov 6	8.5	22.	2.	5.	Snow covers entire ice surface.
13	12.	30.	6.	15.	Avg depth snow 6.5 in. (17 cm).
20	13.	33.	8.	20.	Avg depth snow 8.5 in. (22 cm).
27	16.	41.	10.	25.	
Dec 4	18.	46.	2.5	6.	Measurement site moved 200 yd north of Chalkyitsik village.
11	12.	30.	2.5	6.	
18	18.	46.	3.	8.	Ice measurements made on 11 and 18 Dec appear unrepresentative.
25	42.	107.	3.5	9.	Snow drifted along edge of river to about 2 and 3 ft in depth. Short periods of strong winds throughout the month.
1972					
Jan 8	44.	112.	3.	8.	
15	52.	132.	3.5	9.	
22	54.	137.	3.	8.	
29	55.	140.	3.	8.	Alaska FAI River District representative visited station and suggested measurement site be moved to the original location. Ice thickness at old site on this date was 24 in. (61 cm).
Feb 6	46.	117.	3.	8.	
13	54.	137.	2.5	6.	
20	57.	145.	2.5	6.	Maximum ice thickness observed at this location. Measurements on 13 and 20 Feb made about 200 yd north of the Community Hall. See maximum ice on Apr 1, 8 and 15 for measurements made at an alternate site.
24	24.	61.			
27	24.	61.	2.5	6.	Ice measurements on 24 and 27 Feb were made about 100 ft from Episcopal Church, values do not appear representative. Considerable amounts of drifting snow observed along edge of river. Strong winds occurred during part of Feb.
Mar 4	36.	91.	3.	8.	
11	36.	91.	2.5	6.	
18	30.	76.	2.5	6.	
25	24.	61.	2.	5.	Melting has not yet begun, ice thickness measurements appear unrepresentative on 18 and 25 Mar.
Apr 1	43.	109.	36.	91.	
8	43.	109.	42.	107.	
15	43.	109.	28.	71.	See remarks on 20 Feb for maximum ice.
22	33.	84.	12.5	32.	
26					Surface smooth, some cracks in ice observed throughout the winter. Considerable melting of snow, about 1 ft of snow on the ice now with slush and water observed between the snow layer and ice surface.
29	34.	86.	1.	3.	Water from melted snow covers the ground. Little snow in village, but lots of snow still outside of village.
Chesterfield Inlet* (N.W.T.): Measurements made on Spurrel Inlet of Hudson Bay, approximately 3,000 ft east of Ministry of Transport (M.O.T.) operations building.					
1971					
Nov 4					First ice observed in sheltered areas along shoreline of Spurrel Inlet.
9					Inlet completely ice covered.
26	13.	33.			No snow on ice.
1972					
Apr 28	75.	190.	5.	13.	Snow depths from Dec through Apr ranged from 1 to 5 in. (3 to 13 cm).
May 5	75.5	192.	5.	13.	
12	76.	193.	4.	10.	
20	76.5	194.	6.	15.	
27	76.5	194.	4.	10.	
Jun 2	77.	196.	4.	10.	
9	77.	196.	3.	8.	Ice deteriorating.
16	77.	196.			Maximum ice thickness observed from 2 to 16 June.
23	76.	193.			
30	66.	168.			Surface smooth, no cracks noted all winter.
Jul 7	51.	130.			
Churchill* (MAN): Measurements made near mouth of Churchill River, 400 ft off face of dock in line with southerly wall of elevator annex #1.					
1972					
Apr 21	77.	196.			Maximum ice thickness observed. Ice sheet free of snow during most of winter.
28	75.	191.			
May 5	76.	193.			
12	75.	191.			

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Clyde River* (N.W.T.): Measurements made on Patricia Bay at approximately 500 ft from west shore in line with Ministry of Transport garage.					
1971					
Nov 12	7.5	19.	4.	10.	Surface smooth, few cracks.
28	13.	33.	10.	25.	Surface smooth, no cracks on 21 and 28 Nov.
1972					
Jan 28	34.	86.	11.	28.	Surface smooth, few cracks from 4 Dec 71 to 28 Jan 72.
Apr 30	38.	97.	22.	56.	Surface lightly rafted, no cracks from 5 Feb to 30 Apr. Strong winds occurred during past week.
May 13	50.5	128.	26.	66.	
19	51.	130.	31.	79.	Surface smooth, no cracks from 5 to 19 May.
26	50.	127.	23.	58.	Surface slightly rafted, few cracks.
Jun 2	48.	122.	29.	74.	
9	46.5	118.	23.	58.	
18	46.5	118.	26.	66.	
23	48.5	123.	25.	64.	Snow depth on ice from 30 Apr through 23 June ranged from 22 to 31 in. (56 to 79 cm).
30	55.	140.	13.	33.	Maximum ice thickness observed. It is possible that some of this week's new ice was caused by the formation of snow ice-authors.
Jul 7	52.	132.	12.	30.	
14	49.	124.	2.	5.	
21	43.5	110.			
28	37.	94.			
Aug 4	32.5	83.			
Coppermine* (N.W.T.): Measurements made on Coronation Gulf near mouth of Coppermine River 100 yd north of Ministry of Transport dock.					
1972					
May 21	82.	208.	10.	25.	Maximum ice thickness observed.
28	76.	193.	10.	25.	Surface smooth, few cracks from 5 Dec 71 to 28 May 72.
Jun 4	75.	191.	9.	23.	
Coral Harbour* (N.W.T.): Measurements made on Munn Bay approximately 3/4 mile south of Snafu Beacon.					
1972					
May 19	76.	193.	10.	25.	Maximum ice thickness observed, however, measurement was made at a slightly different location due to the weather conditions (white-out).
26	66.	168.	8.	20.	Ice measurement on this date was made further south than the normal site.
Jun 2	75.	191.	8.	20.	
9	70.	178.	6.	15.	
16	70.	178.	4.	10.	
23	74.	188.	1.	3.	About 1/10 of ice surface is covered with puddles of water.
30	72.	183.			Surface smooth, few cracks from 5 Nov 71 to 30 Jun 72. About 6/10 of ice surface is covered with puddles of water.
Jul 7	56.	142.			
14	48.	123.			
Cornwall Canal* (ONT): Measurements made on the canal, near Lower Lock #15.					
1972					
Feb 25	10.5	27.	2.	5.	Maximum ice thickness observed.
Cree Lake* (SASK): Measurements made on Cable Bay which is part of Cree Lake, 100 yd due south of station jetty.					
1971					
Nov 12	4.	10.	2.	5.	Surface smooth, numerous cracks.
20					Ice unsafe to walk on. Surface is slushy.
26	5.	13.	11.	28.	
Dec 3	9.	23.	2.	5.	Surface smooth, few cracks on 26 Nov and 3 Dec. Ice cover (top to bottom) consisted of: 2 in. ice, 1 in. water and 6 in. (15 cm) ice.
10	12.5	32.	2.	5.	Same as 3 Dec except bottom ice is 9.5 in. (24 cm) thick.
17	14.5	37.	4.	10.	Ice solid.
1972					
Apr 21	32.	81.	12.	30.	Surface smooth, no cracks, from 10 Dec 71 to 21 Apr 72. Maximum ice thickness observed.
28	29.5	75.	3.	8.	Surface smooth, few cracks. 1 to 7 in. water on ice surface.
May 5	25.	64.			Surface smooth, numerous cracks. Ice melting out from shore. Some open water observed near shore, 10 ft wide in places. Slush observed on ice that is near shore.
12					Ice unsafe for measurement.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Ennadai Lake* (N.W.T.): Measurements made on Ennadai Lake, approximately 100 yd from shore.					
1971					
Nov 26					No leads observed during month.
1972					
Apr 21	77.	196.	5.	13.	Maximum ice thickness observed.
28	75.	191.	2.	5.	
May 5	75.	191.	4.	10.	
12	76.	193.			Surface smooth, few cracks from 5 Nov 71 to 12 May 72.
19	68.5	174.			
26	63.	160.			Surface smooth, numerous cracks on 19 and 26 May.
Jun 2	52.5	133.			
9	47.5	121.			
16	43.	109.			
23	36.	91.			Ice thicknesses during June were estimated.
Eureka* (N.W.T.): Measurements made on Slidre Fiord, approximately 50 yd offshore, south of the operations building.					
1971					
Sep 21					Slidre Fiord completely covered with ice.
24	4.	10.			No snow on ice yet. Ice measurement made as far off shore as possible without going on previous years ice floes.
1972					
Mar 10	78.	198.	6.	15.	Snow depths on ice from 1 Oct 71 to 10 Mar 72 ranged from only 1 to 6 in. (3 to 15 cm).
May 26	93.5	237.	11.	28.	
Jun 2	95.	240.	12.	30.	
9	95.	240.	8.	20.	
16	97.	246.	2.	5.	Maximum ice thickness observed.
23	96.	244.	1.	3.	Shore lead has formed. Surface smooth, few cracks from 24 Sep 71 to 23 Jun 72.
30					Unsafe ice conditions.
Fairbanks (Alaska) (University Experiment Station), (previously known as College Experiment Station): Measurements made on Smith Lake at College, Alaska.					
1971					
Nov 6	5.	13.	4.	10.	1 in. (3 cm) ice over 3 in. (8 cm) of water overflow, over 5 in. (13 cm) of solid ice in some areas.
13	9.5	24.	2.	5.	Water overflow frozen. Small 1/2 in. wide cracks are covered with snow.
20	10.5	27.	2.	5.	
28	10.5	27.	7.	18.	New snowfalls occurred.
Dec 4	12.	30.	9.	23.	Surface smooth, no cracks from 6 Nov to 4 Dec.
11	13.	33.	7.	18.	
19	15.	38.	16.	41.	Water overflow beginning in places, but has not reached measuring site.
26	15.	38.	16.	41.	7 in. (18 cm) slush ice observed over the main ice cover.
1972					
Jan 1	22.	56.	7.	18.	7 in. (18 cm) snow over 3 in. (8 cm) ice (two layers), over 4 in. water all over 15 in. (38 cm) of solid ice.
15	21.5	55.	8.5	22.	Air temp -38 C. Water overflow frozen solid.
22	21.5	55.	8.5	22.	
29	25.	64.	15.	38.	New snowfall on ice, no new water overflow observed.
Feb 5	25.	64.	15.	38.	
12	25.	64.	14.	36.	
19	25.	64.	12.	30.	
26	25.5	65.	11.	28.	No new water overflow during Feb. Snow fall was minimal during last half of month.
Mar 4	26.5	68.	10.	25.	
11	27.	69.	12.	30.	Wind drifted the snow during past week.
18	27.	69.	13.5	34.	
25	27.	69.	13.	33.	New snowfall with some drifting observed on 18 and 25 Mar.
Apr 1	27.5	70.	13.	33.	
8	28.	71.	14.	36.	
15	28.	71.	13.	33.	
22	28.	71.	13.	33.	No water overflows observed during Mar and Apr.
29	28.	71.	11.5	29.	Snow is melting and wet throughout. Maximum ice thickness observed from 8 to 29 Apr.
May 6	27.	69.	10.	25.	Surface smooth, few cracks from 11 Dec 71 to 6 May 72. Avg snow depth 8 in. (20 cm). Snow cover is very slushy and ice is soft and wet.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Fort Chipewyan* (ALTA): Measurements made on Lake Athabasca approximately 800 ft south of the government dock.					
1971					
Nov 12					Surface lightly ridged, open lead observed 1/4 mile south of measurement site.
14					Open lead 500 ft in length observed 1 mile east of site.
20					Both leads closed on this date.
26					Surface lightly ridged few cracks on 20 and 26 Nov.
Dec 6					Reported date of "freeze-up." However, this report was given on a November data sheet. It is possible therefore, that a partial freeze occurred by 6 Nov, and by "freeze-up" it is meant that the entire lake had frozen over by this date-authors.
1972					
Jan 7					Surface lightly rafted, no cracks from 3 Dec 71 to 7 Jan 72.
Feb 4					Surface smooth, no cracks from 14 Jan to 4 Feb. Ice ridging observed at the channel.
Apr 7	44.	112.	18.	46.	Maximum ice thickness observed.
14	43.	109.	15.	38.	
21	42.	107.	14.	36.	Surface moderately ridged, no cracks from 11 Feb to 21 Apr.
28	34.	86.			Large amounts of water on ice, ice thickness estimated.
May 5	20.	51.			Surface lightly rafted, numerous cracks. Wide shore leads have developed and ice in channel is candled.
10					Ice breakup occurred.
Fort Greely (Alaska): Measurements made on Bolio Lake at 4 sites starting at 50 ft from shore and then at 100 ft intervals across the lake.					
Site #1 – 50 ft from shore					
1971					
Nov 15	8.	20.	2.5	6.	
Dec 14	15.	38.	3.5	9.	
1972					
Jan 26	26.	66.	6.	15.	
Feb 28	32.5	83.	10.	25.	
Mar 27	33.	84.	6.	15.	
Apr 24	38.	97.	4.	10.	Maximum ice thickness observed at Site #1.
Site #2 – 150 ft from shore					
1971					
Nov 15	11.5	29.	1.	3.	
Dec 14	20.	51.	2.	5.	
1972					
Jan 26	26.	66.	3.	8.	
Feb 28	33.	84.	10.	25.	
Mar 27	35.	89.	6.	15.	
Apr 24	39.	99.			Trace of snow on ice. Maximum ice thickness observed at Site #2. This is also the maximum value observed for the winter for all sites.
Site #3 – 250 ft from shore					
1971					
Nov 15	8.5	22.	2.5	6.	
Dec 14	15.	38.	3.5	9.	
1972					
Jan 26	25.	64.	4.	10.	
Feb 28	30.	76.	8.	20.	
Mar 27	33.	84.	6.	15.	
Apr 24	37.	94.			Trace of snow on ice. Maximum ice thickness observed at Site #3.
Site #4 – 350 ft from shore					
1971					
Nov 15	7.	18.	2.5	6.	
Dec 14	13.5	34.	6.5	17.	
1972					
Jan 26	25.	64.	10.	25.	
Feb 28	30.	76.	8.	20.	
Mar 27	33.	84.	7.	18.	
Apr 24	37.	94.			Trace of snow on ice. Maximum ice thickness observed at Site #4.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Fort Yukon (Alaska): Measurements made on Hospital Lake near the Fort Yukon Airport.					
1972					
Jan 2	24.	61.	6.	15.	First observation of season. Surface smooth.
9	26.	66.	8.	20.	
16	27.	69.	8.	20.	
23	29.	74.	10.	25.	
30	32.	81.	5.	13.	Water overflow has frozen.
Feb 6	32.	81.	8.	20.	
13	33.	84.	6.	15.	
27	36.	91.	5.	13.	
Mar 5	37.	94.	6.	15.	Avg snow depth 12 in. (30 cm) from 6 Feb to 5 Mar.
12	39.	99.	4.	10.	Avg snow depth 10 in. (25 cm), snow cover wind blown.
19	38.	97.	3.	8.	Avg snow depth 8 in. (20 cm), surface smooth.
26	39.	99.	3.	8.	Avg snow depth 12 in. (30 cm). Maximum ice thickness observed on 12 and 26 Mar. Snow drifts observed from 9 Jan to 26 Mar.
Frobisher Bay* (N.W.T.): Measurements made on Koojesse Inlet 200 yd out from Ministry of Transport (M.O.T.) causeway.					
1971					
Nov 8					River frozen over. Surface smooth, no cracks.
12					Shore leads observed, ice conditions unsafe for thickness measurement.
14					Inlet frozen over.
20					Surface smooth, few cracks.
Dec 24					Heavy ridging and numerous hummocks along shoreline from tidal action.
1972					
Apr 7	79.5	202.	3.	8.	Maximum ice thickness observed. Ice probably rafted – Authors.
14	76.5	194.	6.	15.	
21	77.	196.	5.	13.	
28	76.	193.	3.	8.	
May 5	78.	198.	3.	8.	Slush ice encountered at 3 ft depth from 14 Apr to 5 May.
12	78.	198.	3.	8.	
19	78.	198.	3.	8.	
26	77.5	197.	2.	5.	Surface lightly ridged, few cracks from 3 Dec 71 to 26 May 72. Slush ice observed from approximately 1/2 ft to 3 ft below the ice surface.
Jun 2	77.	196.	2.	5.	
9	77.	196.	2.	5.	
15	78.5	199.	1.	3.	
23	75.5	192.	1.	3.	
30	78.5	199.	1.	3.	
Jul 8	73.	185.	1.	3.	
14	61.5	156.	1.	3.	
Galena (Alaska): Measurements made in front of town on Yukon River.					
1971					
Oct 10					River running ice. Considerable snow has fallen.
14					River water ran very slow for about 10 hours.
16					River froze over, very rough. Avg depth of snow 14 in. (36 cm). Small to large pressure ridges observed.
23	1.5	4.			Measurement site is smooth, area was originally an open lead.
30	2.5	6.	1.	3.	
Nov 2	4.5	11.	1.	3.	
13	9.	23.	5.	13.	Avg snow depth 14 to 16 in. (36 to 41 cm) from 30 Oct to 13 Nov.
20	12.	30.	13.	33.	
27	14.	36.	12.	30.	Considerable water overflow along edges of river.
Dec 2	14.5	37.	13.	35.	Avg snow depth 20 to 22 in. (51 to 56 cm) from 20 Nov to 2 Dec.
10	16.5	42.	18.	46.	
17	18.5	47.	26.	66.	
24	20.	51.	22.	56.	Avg snow depth 28 to 31 in. (71 to 79 cm) from 10-24 Dec.
31	21.	53.	22.	56.	Avg snow depth 43 in. (109 cm).
1972					
Jan 8	16.	41.	17.	43.	Surface rough, no cracks from 23 Oct 71 to 8 Jan 72. Mild weather observed during past few weeks. Avg depth of snow 18 in. (46 cm).
15	17.5	44.	17.	43.	Avg snow depth 24 in. (61 cm).
22	21.	53.	19.	48.	
29	25.	64.	20.	51.	Surface rough, few cracks formed due to extreme cold from 15 to 29 Jan.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Galena (Alaska) (cont'd)					
1972					
Feb 5	26.	66.	20.	51.	
11	27.	69.	20.	51.	
18	27.5	70.	20.	51.	
25	28.	71.	19.	48.	Avg snow depth 27 to 33 in. (61 to 84 cm) from 22 Jan to 25 Feb.
Mar 3	30.	76.	22.	56.	
10	31.5	80.	22.	56.	
17	33.	84.	26.	66.	
24	35.	90.	27.	69.	Avg snow depth 37 to 43 in. (94 to 109 cm) from 3 to 24 Mar.
Apr 1	35.	89.	28.	71.	
8	36.	91.	30.	76.	
15	36.	91.	28.	71.	Avg snow depth 46 to 50 in. (117 to 127 cm) from 1 to 15 Apr. Maximum ice thickness observed on 8 and 15 Apr.
22	35.	89.	25.	64.	Avg snow depth 40 in. (102 cm).
29	34.5	86.	22.	56.	Avg snow depth 33 in. (84 cm). Surface rough, no cracks in ice visible from 5 Feb to 29 Apr.
Gambell (Alaska): Measurements made on Troutman Lake.					
1971					
Oct 22					Lake froze over.
30					Rain and drizzle during past week. Ice unsafe for measurement.
Nov 6	5.5	14.			Surface smooth, few small but closed cracks in ice.
13	9.5	24.			Cracks 0.5 in. in width, some water seeping through one crack. Avg snow depth 2 in. (5 cm).
20	12.	30.			Avg snow depth 5 in. (13 cm). No water seeping through 0.5 in. cracks.
27	14.5	37.			Surface smooth, few cracks from 13 to 27 Nov. Cracks along edge of lake widened to 3 in. (8 cm). Avg snow depth 6 in. (15 cm).
Dec 4	18.	46.			Surface smooth, numerous cracks. Avg snow depth 8 in. (20 cm).
11	22.	56.			Avg snow depth 10 in. (25 cm).
18	24.5	62.			Avg snow depth 15 in. (38 cm). Surface lightly ridged, numerous cracks from 11 to 18 Dec.
25	26.	66.			Surface moderately ridged, numerous cracks. Avg snow depth 16 in. (41 cm). Drizzle and rain past week filled cracks with water and refroze.
31					No further ice reports received for 1971-72 season.
Gimli* (MAN): Measurement made on Lake Winnipeg approximately SE of the weather station and 200 yd out from the shoreline.					
1971					
Dec 7					Freeze over.
24					Surface hard packed, smooth, few cracks.
1972					
Mar 31					Some light ridging in the center and near edge of lake from Jan through Mar.
Apr 7	42.	107.	5.	13.	Surface hard packed, smooth, no cracks from 31 Dec 71 to 7 Apr 72. Maximum ice thickness observed.
14	40.	102.	2.	5.	Surface pock marked, 1 to 3 in. (3 to 8 cm) wide cracks in area. One inch of water on ice extending from shore to 50 ft out from shore. Snow cover is slushy.
21					Ice observations terminated for season, shore ice unsafe for measurement.
Goose Bay* (NFLD): Measurements made on Terrington Basin.					
1971					
Nov 26					Ice thickness measurements during Nov were estimated. Ice conditions were unsafe due to an ice breaker and other ships operating in the basin.
Dec 31					Surface smooth, few cracks 15 Nov to 31 Dec.
1972					
Feb 4					Ice covered with one in. of overflow water.
18					Major snowstorm blocked road to the basin.
Mar 9					Surface smooth, no cracks 7 Jan to 9 Mar.
24	41.	104.	3.	8.	Maximum ice thickness observed.
30	39.5	100.	2.	5.	
Apr 9	39.5	100.	8.	20.	
14	37.5	95.	5.	13.	
21	37.	94.	5.	13.	
28	35.	89.	10.	25.	

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Goose Bay* (NFLD) (cont'd)					
1972					
May 5	34.5	88.	7.	18.	
18	35.	89.	2.	5.	3 in. (8 cm) slush on ice.
25	31.	79.	1.	3.	Surface smooth, few cracks from 17 to 25 May. 4 in. (10 cm) slush on ice.
Jun 3	24.5	62.	1.	3.	
Hall Beach* (N.W.T.): Measurements made on Foxe Basin approximately 100 yd beyond the end of the station dock.					
1971					
Nov 1					Water at measurement site is deep and generally calm.
6					Surface lightly ridged, few cracks. Number of cracks decreased as the air temperature decreased.
1972					
Feb 25					Surface lightly ridged, no cracks from 12 Nov 71 to 25 Feb 72.
Mar 24					Some leads observed 1/4 to 1/2 mile out from shore. Leads are about 2 miles long and vary from a few yards to 1/4 mile in width. Avg width is about 10 yards.
Apr 28					Surface lightly ridged, few cracks from 3 Mar to 28 Apr.
30					Large lead between the land fast ice and the main ice sheet observed during most of Apr. Winds caused main ice sheet to move a few miles out into Foxe Basin. Ice started to move back by end of month.
May 26					Surface lightly ridged, open lead in area from 5 to 26 May. Remaining ice in Foxe Basin extends 1/2 mile out from shore. Few bergy bits visible further out in basin.
Jun 2	89.5	227.	6.	15.	
9	92.	234.	7.	18.	Maximum ice thickness observed.
16	84.	213.	6.	15.	
23	86.	218.	6.	15.	
30	86.5	220.	4.	10.	Surface lightly ridged, open lead observed in area all month. Ice still extends 1/2 mile out from shore.
Jul 7	82.	208.	2.	5.	
14					Ice unsafe.
Holy Cross (Alaska): Measurements made on Walker Slough of the Yukon River about 3000 ft NE of weather station and 2000 ft SE of State School building.					
1972					
Feb 20	39.	99.	1.5	4.	
Mar 19	46.	117.	1.5	4.	Surface moderately ridged, no cracks on 20 Feb and 19 Mar.
25	49.	124.	10.	25.	
Apr 2	49.	124.	9.	23.	
9	50.5	128.	11.	28.	
16	50.5	128.	10.	25.	
23	51.	129.	15.5	39.	
30	51.5	131.	8.	20.	Surface smooth, no cracks from 25 Mar to 30 Apr. Maximum ice thickness observed. Ice growth slow during Apr due to warm weather. Alaska Regional office reports Holy Cross region experienced flooding problems during May.
Hopedale* (NFLD): Measurements made in Hopedale Harbour approximately on a line from the USAF dock and Ellen Island.					
1971					
Dec 9					Hopedale Harbour completely frozen over except for a few small holes. Area near measurement site is used as a runway for small aircraft.
20					First aircraft landed on ice.
1972					
Jan 14					Surface smooth, no cracks from 18 Dec 71 to 14 Jan 72.
Feb 11					Surface lightly ridged, no cracks 22 Jan to 11 Feb.
Apr 25					Poor weather and strong winds between 20-24 Apr.
28	50.5	128.	12.	30.	Surface moderately ridged, no cracks from 18 Feb to 28 Apr. Maximum ice thickness observed.
May 5	47.5	121.	10.	25.	
13	48.	122.	8.	20.	
21	47.	119.	4.	10.	Surface lightly ridged, no cracks from 5 to 21 May.
26	48.	122.	2.	5.	

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE 11 (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Inoucdjouac* (P.Q.) (formerly Port Harrison): Measurements made on Innuksuak River, NE of Hudson Bay Company dock at about 1/2 mile upstream from mouth of river and 600 ft from west shore.					
1971					
Dec 3					Observations started late due to open water near measurement site. Surface smooth, no cracks.
1972					
Feb 6					Major storm occurred on 4-5 Feb.
May 5	108.5	276.	4.	10.	
12	112.	284.	4.	10.	Maximum ice thickness observed. Ice probably rafted – Authors.
19	111.5	283.	4.	10.	Surface smooth, no cracks from 10 Dec 71 to 19 May 72.
26	109.	277.	4.	10.	
Jun 3	102.	259.	1.	3.	
9	108.	274.			
16	101.	256.			Surface smooth, few cracks from 26 May to 16 Jun.
23	92.	234.			Surface smooth, numerous cracks. Ice measurement site difficult to reach, considerable open water extending out a few feet along the shore.
30					Observations stopped due to unsafe ice conditions.
Inuvik* (N.W.T.): Measurements made on east branch of Mackenzie River about 80 yd offshore from the dock at Inuvik.					
1972					
Jan 14					Surface smooth, no cracks from 29 Oct 71 to 14 Jan 72.
Apr 28	67.	170.	9.	23.	Maximum ice thickness observed. No ice observations taken between 3 Mar and 21 Apr.
May 5	50.	127.	9.	23.	Surface snow drifted, no cracks visible from 21 Jan to 28 May.
14					No ice observation due to several feet of water overflow along shore covering the ice surface. Air temperature 50°F.
30					Water level on ice continued to rise between 15 and 30 May.
Jun 5					Ice break-up observed.
Iroquois* (ONT): Measurements made at the following designated locations near Iroquois Lock.					
Opposite southeast wall of Lower Lock.					
1972					
Mar 8	16.	41.	2.	5.	Maximum ice thickness observed.
15	15.5	39.	3.	8.	
20	15.	38.			
27	15.	38.	1.	3.	
Apr 4					Icebreaker operating in area.
Opposite light 111 near upper wall.					
1972					
Mar 15	24.	61.	3.	8.	Maximum ice thickness observed.
20	23.	58.			
27	23.	58.	2.	5.	Icebreaker operating in area.
Isachsen* (N.W.T.): Measurements made on Louise Bay approximately 1/4 mile SSE of station and about 50 yd out from shoreline.					
1972					
Jun 2	89.	226.	13.	33.	
9	92.5	235.	5.	13.	
16	88.	224.	11.	28.	
23	88.	224.	8.	20.	
30	95.5	243.	8.	20.	Surface smooth, no cracks from 17 Sep 71 to 30 Jun 72. Maximum ice thickness observed.
Jul 7	86.	218.	1.	3.	
Island Lake* (MAN): Measurements made on Island Lake approximately 2000 yd NNW of meteorological station, adjacent to proposed ice landing strip.					
1971					
Nov 26					Lake has a few open areas. Slush ice observed in all areas. Surface smooth, few cracks.
Dec 3					Slushy areas on ice with about 1 1/2 in. (4 cm) of crust.
10					Slush frozen and snow ice is 2 in. (5 cm) thick. Solid (blue ice) is 8.5 in. (22 cm) thick.
17					Extensive amount of slush in all areas. Slush with thin crust layer is 4 in. (10 cm) thick.
24					Extensive amount of slush west of observation site.
31					8 in. (20 cm) frozen slush layer. 1 in. water overflow and 7 in. (18 cm) solid ice. Some unfrozen slush NNW of observation site.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Island Lake* (MAN) (cont'd)					
1972					
Jan 31					Frozen slush layer 8 to 10 in. (20 to 25 cm) thick over the solid ice all month.
Feb 25					Frozen slush layer 4 to 8 in. (10 to 20 cm) thick over the solid blue ice all month. Surface smooth, no cracks from 3 Dec 71 to 25 Feb 72.
Mar 17					Surface smooth, few cracks from 3 to 17 Mar. About 3 in. (8 cm) frozen slush 3 to 17 Mar.
24					Surface smooth, no cracks with a few patches of unfrozen slush SE of site.
31					3 in. (8 cm) frozen slush over solid ice.
Apr 7					Surface smooth few cracks from 31 Mar to 7 Apr.
14	34.	86.	5.	13.	Maximum ice thickness observed. Numerous patches of slush 5 in. (13 cm) thick.
21	29.5	75.	2.	5.	Water seeping through cracks in ice. Open water on east side of Wass Island.
28	24.5	62.	1.	3.	4 in. (10 cm) slush on surface. Open water WNW of Stevenson Island. Many small open holes in ice.
May 5	20.	51.	1.	3.	Surface smooth numerous cracks from 14 Apr to 5 May. Open water 800 yd SSW of measurement site.
12					Ice unsafe.
King Salmon (Alaska): Measurements made on Naknek River approximately 150 yd from USAF boat dock and about half way across river.					
1971					
Oct 5					Ice chunks flowing in Pauls Creek.
21					Ice forming in creeks. Shore ice about 1 in. (3 cm) thick extends out 10-15 ft but is breaking up due to tidal action.
24					Ice floes observed in river during morning hours.
Nov 2					Some shore ice breaking up with tides.
6					No shore ice observed.
8					Large pieces of ice running in river during mornings.
9					Lakes in area appear covered with ice when observed by airplane.
16					Naknek River full with brash ice; Big Creek still open.
22					Considerable shore ice along river.
27					Ice frozen across river at measurement site. Some open leads nearby.
30					Ice solid except for 3 or 4 leads, one lead near ice runway is 300 yd in length.
Dec 4	11.	28.			Surface lightly ridged, few cracks. Most cracks are near shore and run parallel to shore. Pressure ridge about 10 ft upstream from site, extends across width of the river. Caravan of snowmobiles traveled 37 miles on Big Creek, from King Salmon to Tent Frames.
11	13.5	34.	2.	5.	Surface smooth, no cracks. Some overflow along edges, ice in places rough for ski-plane landings.
18	18.	46.			18 in. (46 cm) ice thickness includes; 0.5 in. (1 cm) ice and 2 in. water over 15.5 in. (39 cm) solid ice. Surface smooth, few cracks.
21					River smooth, ice surface is slick due to rain.
24	18.	46.			Most of cracks covered with water and frozen over. River good for ice skating, except in pools of water. Ice fishing and snowmobiling good. Walking and driving dangerous due to slippery conditions.
28					Considerable amount of water on ice either from water overflow from leads or from surface water due to the rains during the past week. King Salmon creek appears open, but very clear ice observed beneath the surface water appears to be moving.
1972					
Jan 1	17.5	44.	3.	8.	River ice safe for landing of ski planes.
8	20.	51.	3.	8.	Surface smooth, no cracks from 24 Dec 71 to 8 Jan 72. Avg depth snow 4 in. (10 cm).
15	22.	56.			Surface drifted, few cracks 1/2 to 1 in. wide and 12-15 in. deep. Snow depth varies from 0 to 14 in. (0 to 36 cm).
22	27.	69.			Surface drifted, few cracks. Snow hard pack and drifted, depths vary from 0 to 14 in. (0 to 36 cm). Cracks 1/4 in. thick run in all directions.
29					Water on surface, no ice observation taken. Several storms and strong winds observed during past week.
Feb 5	26.	66.	3.	8.	Cracks 1/4 in. in width. Avg depth snow 2 in. (5 cm).
12	28.5	72.	2.5	6.	Surface smooth, numerous cracks on 5 and 12 Feb. Ice cracks under snow cover are 3 in. in width.
19	30.	76.	2.	5.	Snow hard and crusty. Avg depth snow 4 in. (10 cm).
26	32.	81.	2.	5.	Surface is becoming somewhat rougher. Cracks remain small but are all over the surface. Avg depth snow 4 in. (10 cm).

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
King Salmon (Alaska) (cont'd)					
1972					
Mar 4	34.	86.			Surface lightly ridged, numerous cracks from 19 Feb to 4 Mar. Spider cracks running across river, although some are 1 in. in width. Avg depth snow 3 in. (8 cm).
10					The following ice conditions were observed on a flight from King Salmon-Naknek-Dillingham-Togiak; Bay open with pack ice to about 1/2 mile below Nakeen, no open water in the Nushagak, fast running streams were open between Dillingham and Togiak. Togiak Bay appeared solid with ice.
18	38.	96.5			Surface lightly ridged, numerous cracks. Avg depth of snow on shore, 3 in. (8 cm). Ice pressure mounds on river appear higher.
24					Water overflow extends from Eskimo Creek to FAA dock.
25	39.5	100.	0.5	1.	Water overflow within 75 ft of measurement site. Ice rough due to refreezing of water overflow. Two new pressure ridges running perpendicular to shore. Surface smooth, no cracks visible due to water overflow. Avg depth snow 2 in. (5 cm).
31					River at Naknek has huge blocks of ice 10 to 30 ft thick piled up on the banks and sand bars. Open water extends to Telephone Point (above the Cannery). Ice rough to Iniam Point. Pauls Creek has a pressure ridge down the center and shows evidence of tidal action and water overflow. King Salmon Creek has some patches of clear, smooth ice from water overflow or melt.
Apr 1					Ice surface smooth pressure mounds not as high as last month. Warm temperatures and rain melted most of old snow.
7					The following ice and snow conditions were observed on a cross country flight from King Salmon-Levelock-Illiamna-Igiugig; Kvichak River is open from Lake Illiamna downstream to about 2 miles. Open water with some ice in channel from Naknek Lake to near Rapids Camp.
8	40.	102.			Measurement made in a refrozen water overflow area showed 45 in. (114 cm) of ice. Maximum ice thickness observed. Few pressure mounds and considerable water overflow.
15					Landing areas becoming difficult for ski-planes. Water overflow 5 in. deep on ice in places. Lakes appear to be solid ice from the air. Pressure mounds almost all melted, it appears that these mounds form over large boulders or piles of rock.
22					Open water upriver from measurement site. River open from Naknek Lake to Rapids. Lakes appear mushy and green in color from the air. Few open areas of running water in the creeks. Few soft spots in ice on the southern edge of Naknek Lake.
29					Majority of snow has melted. River at Naknek almost completely free of ice up above Leader Creek out to the bay. Tidal action evident in Pauls Creek; but none in King Salmon Creek. Eskimo Creek water is running high. Aircraft activity on ice has ended. Birds in area also make flying hazardous.
Koartak* (P.Q.): Measurements made on Diana Bay, 200 ft west of ice landing strip and about 550 yd NNW of water survey shed.					
1972					
Jan 20					First ice landing by aircraft (Beech and DC-3).
30	35.	77.	1.	3.	Small tidal leads near shore open up during very high tides and freeze with receding tides. Leads are short and narrow and run in an east/west direction. Extensive tidal ridging all along shoreline.
Mar 17					Water seeping through tidal cracks and overflowing along shoreline.
May 19	58.	147.	2.	5.	Maximum ice thickness observed from 7 Apr to 19 May.
26	56.	142.	2.	5.	Surface smooth, few cracks from 30 Jan to 26 May.
Jun 2	51.	130.	1.	3.	
9	49.	124.	1.	3.	
16	47.	119.	1.	3.	
23	45.	114.			
30	45.	114.			
Jul 7	51.	130.	1.	3.	
14	48.	122.	1.	3.	
Koartak* (P.Q.): Measurements made in center of an unnamed lake, located 1/2 mile SSW of Station Lake. Lake is very small, about 800 ft in diameter.					
1972					
Jan 30					Few ice cracks, but no leads. Cracks are very narrow, 1/2 in. in width and running in all directions. Cracks range from 100 to 200 ft in length. Lake is used by Koartak community as a water reservoir during the winter months. Local name for the lake is "Graveyard Lake."

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Koartak* (P.Q.) (cont'd)					
1972					
May 26	68.	173.	2.	5.	Maximum ice thickness observed from 7 Apr to 26 May. Surface smooth, few cracks from 30 Jan to 26 May.
Jun 2	66.	168.	1.	3.	
9	65.	165.	1.	3.	
16	64.	163.	1.	3.	
23	63.	160.	1.	3.	
30	63.	160.			
Jul 7	61.	155.	1.	3.	
14	58.	147.	1.	3.	
Kobuk (Alaska): Measurements made on Kobuk River in front of the village.					
1971					
Oct 16	3.5	9.	1.	3.	Some open water areas observed in river. 9 in. water overflow with some slush ice under main ice. River froze over very rough in front of village.
23	5.	13.	1.	3.	
25					Very little slush ice 50 ft out from shore.
30	7.	18.	3.	8.	
Nov 6	10.	25.	2.	5.	
13	14.	36.	2.	5.	
20	15.	38.	4.	10.	
27	18.	46.	2.	5.	
Dec 4	23.	58.	2.	5.	
11	26.	66.	1.	3.	
18	29.	74.	2.	5.	
25	30.5	76.	3.	8.	Surface smooth, no cracks from 16 Oct to 25 Dec.
1972					
Jan 1	31.	79.	2.	5.	
8	32.5	81.	2.	5.	
15	36.	91.	1.	3.	
22	39.5	99.	1.	3.	
29	44.	112.	19.	48.	Heavy snowfall during past week.
Feb 5	44.5	113.	15.	38.	
12	46.	117.	17.	43.	
19	48.	122.	14.	36.	
26	49.	124.	12.	30.	
Mar 4	49.5	126.	12.	30.	
11	51.5	131.	12.	30.	
18	53.	135.	12.	30.	
25	54.5	138.	12.	30.	
Apr 1	56.	142.	11.	28.	
8	56.5	144.	11.	28.	
15	57.5	146.	15.	38.	
22	57.5	146.	12.	30.	
29	57.5	146.	10.	25.	Maximum ice thickness observed from 15 to 29 Apr.
May 6	56.	142.			Water puddles on ice from rain.
13	42.	105.			Water running and open leads along shore.
20	34.	86.			Surface smooth, cracks snow covered from 1 Jan to 20 May. Ice rotten, thickness estimated, and first ice movement noted.
23					Outboard motor boats operating on river.
Kotzebue (Alaska): Measurements made on inner section of Kotzebue Sound.					
1971					
Oct 23	7.	18.	2.	5.	Kotzebue Sound ice covered from Sheshalik to 3 miles south of station (near Sady Creek). Remainder of Kotzebue Sound is ice free.
30	10.	25.	2.5	6.	
Nov 6	12.	30.	3.	8.	
13	15.	38.	3.5	9.	
20	15.5	39.	3.5	9.	
27	17.	43.	4.	10.	
Dec 4	21.	53.	4.	10.	
11	24.	61.	4.5	11.	
18	27.	69.	5.5	14.	
25	27.5	70.	9.	23.	Surface smooth, no cracks from 6 Nov to 25 Dec.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Kotzebue (Alaska) (cont'd)					
1972					
Jan 1	27.5	70.	9.	23.	
8	29.	74.	8.	20.	
15	31.	79.	8.	20.	
22	33.	84.	8.5	22.	
29	34.5	88.	10.	25.	
Feb 5	36.	91.	10.	25.	
12	37.	94.	10.	25.	
19	39.	99.	10.	25.	
26	40.5	103.	12.	30.	
Mar 4	42.	107.	12.	30.	
11	44.	112.	12.	30.	
18	47.5	121.	12.	30.	
25	49.	124.	12.	30.	
Apr 1	51.	130.	13.	33.	
8	51.	130.	17.	43.	
15	52.	132.	18.	46.	
22	53.	135.	18.	46.	
29	54.	137.	18.	46.	
May 6	54.	137.	11.	28.	Maximum ice thickness observed on 29 Apr and 6 May.
13	53.	135.	6.	15.	
20	52.	132.	4.	10.	
27	36.	91.			
Lake Louise,(Alaska): Measurements made on south end of Lake Louise, approximately 75 yd out from the beach.					
1972					
Apr 14	45.	114.	2.	5.	
21	46.	117.	2.	5.	
28	46.	117.	2.	5.	Surface lightly ridged, no cracks from 14 to 28 Apr. Surface hard packed all month. Maximum ice thickness observed on 21 and 28 April.
May 5	45.	114.			Surface ridged. Avg snow depth 24 in. (61 cm).
12	45.	114.			Surface mushy. Avg snow depth 12 in. (30 cm).
19					Snow over ice at measurement site was watery. Ice surface mostly mushy, few cracks. Average depth of snow cover 12 in. (30 cm).
26					Surface ridged, numerous cracks. No ice measurement made as ice eroded rapidly when the creeks on the south end of the lake became clear of ice.
Lake Ontario* (ONT): Measurements made at entrance to St. Lawrence River.					
1972					
Feb 28	24.	61.	3.	8.	Maximum ice thickness observed.
Mar 8	22.	56.	1.	3.	
15	22.	56.	2.	5.	
20	22.	56.			
Lake St. Francis* (P.Q. and ONT): Measurements made at the following designated locations on Lake St. Francis.					
Near St. Zotique, opposite Buoy 37F.					
1972					
Mar 20	27.	69.	1.	3.	Maximum ice thickness observed.
28	23.	58.	3.	8.	
Apr 4					Ice unsafe.
East of St. Anicet Shoal, opposite Buoy 53F.					
1972					
Mar 20	25.	64.			Maximum ice thickness observed.
Near Lancaster sand bar, opposite Buoy 79F.					
1972					
Mar 20	26.	66.			Maximum ice thickness observed.
At Stanley Island, opposite Buoy 111F.					
1972					
Mar 9	24.	61.	3.	8.	
20	24.	61.			Maximum ice thickness observed on 9 and 20 Mar.
At St. Regis Island, opposite Buoy 133F.					
1972					
Mar 9	21.	53.	5.	13.	Maximum ice thickness observed.
20	18.	46.	7.	18.	

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Lake St. Louis* (P.Q.): Measurements made at the following designated locations in Lake St. Louis.					
At intersection of two sets of ranges out from Buoy 18A.					
1972					
Mar 3	26.	66.	10.	25.	
9	26.	66.	16.	41.	Maximum ice thickness observed on 3 and 9 Mar.
19					Icebreaker operating in area.
At Ile Perrot, near Buoy 38A.					
1972					
Mar 9	17.	43.	12.	30.	Maximum ice thickness observed.
20					Icebreaker operating in area.
At Pte Fortier, near Buoy 52A.					
1972					
Mar 9	20.	51.	9.	23.	Maximum ice thickness observed.
20					Icebreaker operating in area.
At end of Lower Approach Wall, near Lock No. 3.					
1972					
Mar 9	26.	66.	10.	25.	
17	26.	66.	5.	13.	Maximum ice thickness observed on 9 and 17 Mar.
27					Icebreaker operating in area.
Mankomen Lake (Alaska): Measurements made on Mankomen Lake.					
1971					
Oct 4					First ice observed along shoreline.
13					Eastern half of lake frozen over.
14	1.	3.			Surface smooth, no cracks. Entire lake appears to be frozen over.
16					Strong winds broke up ice.
18					Complete freeze over.
21	3.	8.			Surface smooth, few cracks.
29	4.	10.	4.	10.	
Nov 5	10.	25.	1.	3.	
12	14.	36.	1.	3.	
19	15.	38.	3.	8.	
26	18.5	47.	1.	3.	Strong winds drifted most of snow off the lake.
Dec 3	21.	53.	2.	5.	
10	27.5	70.	1.	3.	
17	30.	76.	2.	5.	
24	30.5	77.	11.	28.	
31	31.	79.	13.	33.	
1972					
Jan 7	32.	81.	13.	33.	Surface smooth, no cracks from 29 Oct 71 to 7 Jan 72.
14	34.5	88.	3.	8.	Surface drifted, no cracks.
21	40.	102.	3.	8.	Two measurements were made to confirm the 5.5 in. (14 cm) increase in ice thickness.
28	42.	107.	3.	8.	
Feb 4	42.5	108.	8.	20.	Surface drifted, few cracks. Few cracks from 21 Jan to 4 Feb.
11	42.	107.	10.	25.	
18	42.	107.	10.	25.	
21	42.5	108.	10.	25.	Surface hard packed, few cracks from 11 to 21 Feb.
Mar 11	47.	119.	8.	20.	
18	47.	119.	8.	20.	Maximum ice thickness observed on 11 and 18 Mar.
25	45.5	116.	8.	20.	
29	44.	112.	5.	13.	Surface hard packed.
30					Ice auger froze in ice, no measurements made until 28 Apr.
Apr 28	45.	114.	3.	8.	
May 4	45.	114.	6.	15.	Surface drifted, few cracks from 11 Mar to 4 May. Avg depth of snow cover 5 in. (13 cm).
11	46.	117.	3.	8.	
18	43.	109.	3.	8.	
25	40.	102.	1.	3.	Some water overflow on ice during 11 to 25 May.
29	38.	97.	1.	3.	Approximately 6 to 8 in. water overflow on ice.
McGrath (Alaska): Measurements made on Kuskokwim River.					
1971					
Oct 5					First ice formed.
9					Kuskokwim River started running ice on 6 Oct. Ice flowing in river until 9 Oct.
18					River started running ice again.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
McGrath (Alaska) (cont'd)					
1971					
Nov 2					River froze over at 1948 LST. Freeze over occurred quickly due to cold weather and congealing ice floes.
6	9.	23.	5.	13.	Rapid ice growth due to severe cold.
13	13.	33.	7.	18.	
20	14.	35.	13.5	34.	
27	16.	41.	15.	38.	Surface lightly ridged, numerous cracks from 9 Oct to 27 Nov.
Dec 4	17.	43.	14.5	37.	Surface moderately ridged, numerous cracks.
11	21.	53.	19.	48.	
18	19.	48.	28.	71.	6 in. of water overflow.
25	18.5	47.	29.	74.	9 in. of water overflow. Cracks along shoreline where shore ice broke away from main ice sheet. No open leads visible near measurement site. Surface lightly ridged, numerous cracks from 11 to 25 Dec.
1972					
Jan 1	19.	46.	15.	38.	
8	28.	71.	11.	28.	
15	30.	76.	11.	28.	
21					Some water overflow on ice during month, highest stages occurred before 2 Jan and after 20 Jan. Very cold between 7 and 21 Jan.
22	29.	73.	13.	33.	
29	28.	71.	10.	25.	
31					Large cracks along shoreline. Shore ice broken off from main ice sheet. No open leads visible from measurement site.
Feb 5	30.	76.	10.	25.	
12	30.5	77.	10.5	27.	
19	32.	81.	10.	25.	
26	33.	84.	10.	25.	Surface moderately ridged, numerous cracks from 1 Jan to 26 Feb.
Mar 4	32.5	81.	11.	28.	
11	33.	84.	10.	25.	
18	34.	86.	11.	28.	
25	34.5	88.	13.5	34.	Surface lightly ridged, numerous cracks from 4 to 25 Mar. A few large cracks observed along shoreline.
Apr 1	37.	94.	13.	33.	
8	37.	94.	15.	38.	Maximum ice thickness observed on 1 and 8 Apr.
15	36.	91.	20.	51.	
22	35.	89.	24.	61.	
29	34.	86.	13.	33.	Surface moderately ridged, numerous cracks from 1 to 29 Apr.
Moosonee* (ONT): Measurements made on the Moose River, 100 ft from shore in front of Hudson Bay Company.					
1971					
Dec 31					Surface smooth, few tidal cracks on 24 and 31 Dec.
1972					
Mar 31	35.	89.	4.	10.	Surface 30% covered with water. Top 15 in. (38 cm) of ice cover is candled.
Apr 7	40.	102.	5.	13.	Some water observed between two layers of ice. Maximum ice thickness observed.
14	33.	84.	2.	5.	2 in. layer of water observed between ice layers of 18 in. (46 cm) and 13 in. (33 cm).
21	28.	71.	2.	5.	Surface smooth, but 6 in. water on ice at observation site on 14 and 21 Apr. Numerous tidal cracks observed from 7 to 21 Apr.
28	10.5	27.			1 in. (3 cm) ice over 1 in. water over 8.5 in. (22 cm) ice. Ice is candled with several cracks and a few open leads. Open water observed next to drilling site along sides of sand bar. Lead at observation site estimated to be 12-15 ft wide and 40 ft long.
Mould Bay* (N.W.T.): Measurements made on Mould Bay, one mile off the end of airstrip.					
1971					
Nov 5	30.	76.	2.	5.	
12	25.	64.	3.	8.	Ice thickness showed a decrease because the 5 Nov drilling site was taken at a slightly different location.
19	31.	79.	1.	3.	Surface smooth, no cracks from 1 Oct to 19 Nov.
26	35.0	89.	3.	8.	
Dec 5					Surface lightly hummocked, few cracks on 26 Nov and 5 Dec.
17					Surface smooth, few cracks on 10 and 17 Dec.
1972					
Jan 21					Surface lightly ridged, few cracks from 24 Dec 71 to 21 Jan 72.
Feb 18					Surface smooth, few cracks on 11 and 18 Feb.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Mould Bay* (N.W.T.) (cont'd)					
1972					
Mar 3					Surface lightly rafted, no cracks.
9					Measurement on nearby unnamed lake showed 63 in. (160 cm) of ice with 7 in. (18 cm) cover of snow.
May 26					Surface lightly ridged, few cracks from 10 Mar to 26 May.
29					Jet pilot reported an open lead 30 miles wide and 60 miles long oriented N-S, 80 miles west of Mould Bay. Numerous leads also reported running E-W approximately 120 miles west of Mould Bay.
Jun 2	78.	198.	22.	56.	
9	78.	198.	16.	41.	Surface smooth, numerous cracks on 2 and 9 Jun.
18	81.	205.	8.	20.	Surface lightly ridged, numerous cracks. Maximum ice thickness observed.
23	79.	201.	5.	13.	Surface smooth, numerous cracks. Extensive areas of open water appearing along shore.
30					Ice 60% covered with melt water.
Nitchequon* (P.Q.): Measurements made approximately 250 ft SW of dock on Lake Nichicun.					
1971					
Nov 4					Lake starting to freeze over.
9					Lake completely frozen over.
19					First date ice considered safe for measurement.
1972					
Feb 25					Water level in lake appears to be decreasing, causing ice to settle in some areas. A significant layer of slush-ice was observed.
Apr 14	43.	109.	8.	20.	Surface smooth, no cracks from 19 Oct 71 to 14 Apr 72. Maximum ice thickness observed.
21	30.	76.	13.	33.	Ice thickness value appears unrepresentative – Authors.
28	39.5	100.	13.	33.	
May 5	41.	104.	10.	25.	
12	39.	99.	9.	23.	
13					Outlet of Lake Nichicun is open.
19	36.	91.	1.	3.	
26	35.5	90.	1.	3.	
Jun 2	27.	69.	2.	5.	Surface smooth, few cracks from 21 Apr to 2 Jun.
9	17.	43.			Surface smooth, numerous cracks.
16	7.	18.			Surface smooth, numerous leads. Shore lead is 50 ft in width. Ice thickness measurement was estimated .
18					Lead 1000 ft out from shore is 200 ft in width.
21					Lake completely free of ice.
Norman Wells* (N.W.T.): Measurements made on Mackenzie River approximately 100 to 200 yd from shore, SW of rawinsonde station.					
1971					
Nov 5					Ice formed on river, but unsafe for measurement.
1972					
Jan 23					Severe blizzard conditions on the 21 and 22 Jan.
Mar 24	64.	163.	16.	41.	
31	64.	163.	16.	41.	Bottom 12 in. (30 cm) of ice appears to be candled and rotten. Maximum ice thickness observed on 24 and 31 Mar.
Apr 7	62.	157.	14.	36.	Surface lightly ridged, few cracks from 12 Nov 71 to 7 Apr 72.
14	58.5	149.	14.	36.	
21	63.	160.	14.	36.	
28	61.	155.	14.	36.	Bottom 12 to 15 in. (30 to 38 cm) of ice candled and rotten all month. Thickness of candled ice varied slightly from day to day.
May 5	57.	145.	14.	36.	Surface lightly ridged, numerous cracks from 14 Apr to 5 May.
12					Shore lead 150 ft wide along shore made it impossible to measure ice.
Norway House (Forestry)* (MAN): Measurement made on the Nelson River adjacent to dock on east side of Forestry Island.					
1971					
Nov 4					Freeze over.
6					Portions of river open due to strong winds.
7					Open areas frozen over.
19					Surface smooth, no cracks from 5 to 19 Nov.
26					Surface lightly ridged, few cracks. Extreme slush conditions on river.
Dec 21					First aircraft (Beaver) landed on ice.
31					Surface smooth, lightly drifted, no cracks from 3 to 31 Dec.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Norway House (Forestry)* (MAN) (cont'd)					
1972					
Jan 8					Surface lightly ridged, no cracks.
29					Lake surface extremely rough for ski equipped aircraft due to drifting snow and strong winds. Surface heavily ridged, no cracks from 15 to 29 Jan.
Feb 25	41.	104.	10.	25.	Surface mostly covered with hard and drifted snow. No cracks in ice visible all month. Maximum ice thickness observed.
Mar 3	32.	81.	10.	25.	
10	32.	81.	10.	25.	
17	31.	79.	8.	20.	
24	31.	79.	5.	13.	
31	31.	79.	5.	13.	Snow cover settled due to warm daytime air temperatures. Surface lightly ridged, no cracks from 3 to 31 March.
Apr 7	31.	79.	5.	13.	
14	31.	79.	5.	13.	
21	30.	76.			Surface smooth, no cracks from 7 to 21 Apr. Patches of snow observed on ice.
26					Small open water patches in areas where river current is strong.
27					High water lifted ice cover in river.
28	28.	71.			Surface smooth, some cracks in ice along shoreline.
Nunivak (Alaska): Measurements made on Mekoryuk Bay.					
1971					
Oct 16					Very light slush flowing in and out of bay with tidal action.
23					Very thin ice and slush forming up river.
30					Warm weather melted all slush and ice.
Nov 6					Slush and small ice cakes flowing into bay from the river.
13					Larger ice cakes and more slush observed in bay.
20					Heavy slush and ice floes flowing out to sea.
27					River ice upstream is safe for snowmobile traffic. Channel in bay still open, but contains ice cakes and slush which flow in and out with the tides.
Dec 4	5.	13.			
11	8.	20.	3.	8.	
18	14.5	37.	6.	15.	
25	19.	48.	8.	20.	
1972					
Jan 1					Major movement in ice cover. Channel has opened in river and contains small ice floes.
8	12.	30.			
15	12.5	32.			
22	13.5	34.	1.	3.	
29	18.5	47.	4.	10.	
Feb 5	18.5	47.	4.	10.	
12	20.	51.	6.	15.	
19	24.5	62.	6.	15.	
26	29.	74.	6.	15.	
Mar 4	33.	84.	2.	5.	
11	33.5	85.	4.	10.	Surface rough, many cracks from 4 Dec 71 to 11 Mar 72.
18	33.5	85.	4.	10.	Surface rough, few cracks.
25	32.	81.	6.	15.	Surface lightly ridged, few cracks. Surface cracks and roughness covered by new snow.
Apr 1	34.	86.	6.	15.	Maximum ice thickness observed.
8	33.5	85.	6.	15.	
15	28.	71.	4.	10.	
22	28.	71.	3.	8.	
29	24.	61.	3.	8.	Surface smooth, few cracks all month.
May 6	25.5	65.	2.	5.	
13	24.	61.			
20	19.5	50.			Surface rough, many cracks from 6 to 20 May.
27					Ice in river channel is rotten with many open holes. Ice unsafe for travel to lower river. Bay still solid, ice extends 1/2 mile out into ocean.
Ogdensburg* (N.Y.): Measurements made on St. Lawrence River, one mile above Ogdensburg, N.Y. and Prescott, Ont. Ice Boom.					
1972					
Mar 15	16.	41.	1.	3.	
20	16.	41.	1.	3.	Maximum ice thickness observed on 15 and 20 Mar.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Point Hope (Alaska): Measurements made NW of village on Chukchi Sea.					
1971					
Oct 21					First slush-ice observed.
23					Slush ice formed.
30					Slush-ice continued to form from 23 to 30 Oct.
Nov 6					Slush ice and small ice chunks extending 500 ft out from shore.
13	6.	15.			
20	12.	30.			
27	18.	46.			
Dec 4	24.	61.			Surface rough, numerous cracks from 13 Nov to 4 Dec.
11	28.	71.			
18	32.	81.			
25	36.	91.			
31					Ice growing rapidly due to extremely cold weather. Surface moderately ridged, numerous cracks from 11 to 25 Dec. No snow on ice during Nov and Dec.
1972					
Jan 1	40.	102.	1.	3.	
8	42.	107.			
15	44.	112.			
22	49.	124.			
29	53.	135.			Strong southerly winds of long duration caused heavy ridging on South Beach. Wind blew all snow off ice between 8-29 Jan.
Feb 5	58.	147.	1.	3.	
12	64.	163.	2.	5.	
19	72.	183.	2.	5.	
26	78.	198.	2.	5.	Ice near measurement site is ridged, no open water observed.
Apr 1	83.	211.	2.	5.	
8	89.	226.	2.	5.	
15	92.	234.	4.	10.	
22	95.	241.	3.	8.	
29	96.	244.	2.	5.	Open water on south side of South Beach, small water puddles on ice. Maximum ice thickness observed. Surface rough, numerous cracks from 1 Jan to 29 Apr.
Port Alfred* (P.Q.): Measurements made on Ha Ha Bay, 300 yd off Ministry of Transport wharf at Bagotville at 48°20' 08" N lat. 70°52' 02" W long.					
1972					
Feb 25	37.	94.	16.	41.	
Mar 3	35.	89.	19.5	50.	Surface moderately ridged, numerous cracks 25 Feb and 3 Mar.
10	37.	94.	15.5	39.	Surface heavily ridged, few cracks.
17	34.	86.	10.5	27.	Surface lightly ridged, few cracks. Ice-breaker commenced operating at mouth of bay.
24	40.	102.	11.5	29.	Surface smooth, few cracks. Maximum ice thickness observed.
Port Alsworth (Alaska): Measurements made on Hardenbourg Bay.					
1971					
Nov 6	4.	10.			Surface smooth, no cracks.
13	7.	18.	5.	13.	Surface rough, no cracks. Snow cover is in drifts of 5 to 7 in. (13 to 18 cm).
20	7.	18.			
27	10.5	27.	0.5	1.	Surface smooth, few cracks on 20 and 27 Nov. Ice safe for light aircraft. 0.5 in. cover of snow is fluffy.
Dec 4	15.	38.	1.	3.	1 in. cover of snow is fluffy.
11	17.	43.	5.	13.	5 in. cover of snow is compact.
18	17.5	44.	11.	28.	Some slush included with 11 in. of snow cover.
25	25.	64.			Surface smooth, no cracks in ice all month.
1972					
Jan 1	25.	64.	4.	10.	4 in. cover of snow is fluffy.
8	25.	64.	5.	13.	
15	25.	64.	6.	15.	Snow cover on 8 and 15 Jan is compact.
22	29.	74.			
29	31.	79.			Surface of bay very rough, drifts vary from 0 to 11 in. (0 to 28 cm) in depth. Snow drifts are very hard and compact. No cracks visible in ice all month.
Feb 5	32.	81.	6.	15.	
12	32.	81.	4.	10.	
19	33.	84.	4.	10.	
26	36.	91.			Snow drifts hard and compact and varied from 4 to 24 in. (10 to 61 cm) in depth all month. Surface rough, few cracks all month.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Port Alsworth (Alaska) (cont'd)					
1972					
Mar 4	40.	102.			
11	42.	107.			
18	43.5	110.			Compacted snow drifts on bay varied up to 24 in. (61cm) in depth between 4-18 Mar.
25	44.	112.	10.	25.	Surface of bay area is very rough. 10 in. (25 cm) loose fluffy snow over 0 to 24 in. (0 to 61 cm) compacted snow drifts on 25 Mar. Surface rough, numerous cracks all month.
Apr 1	44.	112.	12.	30.	
8	44.	112.	8.	20.	
15	44.	112.	8.	20.	
22	47.	119.	8.	20.	
29	47.	119.	4.	10.	Snow drifts on bay were hard and compact all month. Depths varied from 4 to 21 in. (10 to 61 cm). Maximum ice thickness observed on 22 and 29 Apr. Surface rough, few cracks all month.
May 6	42.	107.			Surface rough, numerous cracks.
13	36.	91.			Bay open in narrows.
20	29.	74.			Surface rough, and candled on 13 and 20 May.
27	17.	43.			Bay open all around edges of shore, ice starting to move.
Resolute* (N.W.T.): Measurements made approximately 200 yd out from tidal crack towards center of Resolute Bay.					
1971					
Oct 15	16.	41.	2.	5.	
22	17.5	44.	10.	25.	
29	24.	61.	8.	20.	Ice observation indicates that overflow of water on the ice took place during the previous week. Flooding caused lower part of snow cover to turn to slush and then freeze, accounting for the large increase in ice thickness (observer's comment).
Nov 19					Surface lightly ridged, numerous cracks from 8 Oct to 19 Nov.
1972					
Jan 15					Surface lightly ridged, few cracks from 26 Nov 71 to 15 Jan 72.
May 6	68.5	174.	22.	56.	
12	66.	168.	28.	71.	
19	72.	183.	24.	61.	
26	70.	178.	24.	61.	
Jun 2	68.	173.	25.	64.	
9	71.	180.	24.	61.	
16	68.	173.	26.	66.	Surface lightly ridged, no cracks from 21 Jan to 16 Jun.
23	74.	188.	23.	58.	Maximum ice thickness observed.
30	65.	165.	12.	30.	Surface lightly ridged, few cracks on 23 and 30 Jun.
Jul 7	61.	155.			
Sachs Harbour* (N.W.T.): Measurements made 100 yd from shore on Amundsen Gulf, due south of RCMP detachment buildings.					
1971					
Nov 12	19.	48.	1.	3.	Ice considered safe for travel on this date.
19	23.	58.	1.	3.	Surface smooth, no cracks from 5 Oct to 19 Nov.
26	27.	69.	2.	5.	Surface smooth, few cracks.
1972					
May 5	75.	191.	2.	5.	
13	75.	191.	2.	5.	Maximum ice thickness observed on 5 and 13 May. Surface smooth, no cracks from 5 Dec 71 to 13 May 72.
19	74.5	189.	2.	5.	Surface smooth, few cracks.
20					A large section of sea ice broke away from land fast sea ice forming a lead. Lead is approximately 5 miles out from Sachs Harbour.
28	72.	183.	2.	5.	Surface lightly ridged, few cracks. Slush forming on surface of sea ice and some small ice cracks appear to be wider than on previous observations.
Jun 2	69.	175.	2.	5.	
9	69.	175.	1.	3.	
18	67.	170.	1.	3.	
28					Ice unsafe for travel.
Sault Ste. Marie* (ONT): Measurements made at 300 and 600 ft east and 1700 and 2000 ft west of lock on canal.					
	1700 ft west				
1972					
Jan 17					1 in. (3 cm) slush on surface.
Feb 21					2 in. (5 cm) slush and water on surface.
28					5 in. (13 cm) slush on surface.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Sault Ste. Marie* (ONT) (cont'd)					
	1700 ft west (cont'd)				
1972					
Mar 6	20.	51.	7.	18.	10 in. (25 cm) slush and 6 in. (15 cm) water over the ice surface.
13	32.	81.			Maximum ice thickness observed.
20	26.	66.			
27	29.	74.			1 in. (3 cm) shell ice on surface.
Apr 3	26.	66.			
10	18.	46.			
	2000 ft west				
1972					
Feb 21	15.	38.	6.	15.	5 in. (13 cm) slush and 1.5 in. (4 cm) water over the ice surface.
28	15.	38.	6.	15.	7 in. (18 cm) slush and 6 in. (15 cm) water over the ice surface.
Mar 6	19.	48.	5.	13.	5 in. (13 cm) slush and 4 in. (10 cm) water over the ice.
13	26.	66.			
20	25.	64.	0.5	1.	
27	26.	66.			Maximum ice thickness observed on 13 and 27 Mar.
Apr 3	24.	61.			
10	22.	56.			
	300 ft east				
1972					
Jan 24					Ice unsafe for measurement on 17 and 24 Jan.
31	12.	30.	8.	20.	
Feb 7					2 in. (5 cm) slush and 1 in. (3 cm) water over the ice.
21					2 in. (5 cm) slush on surface.
28					4 in. (10 cm) slush and 2 in. (5 cm) water over the ice.
Mar 6	16.	41.	4.	10.	6 in. (15 cm) slush and 5 in. (13 cm) water over the ice.
13	25.	64.			
20	25.	64.			1 in. (3 cm) of slush on surface. Maximum ice thickness observed on 13 and 20 Mar.
27	22.	56.			
Apr 3	20.	51.			
10					Ice went out.
	600 ft east				
1972					
Jan 29					Ice unsafe for measurement on 17 and 29 Jan.
31	7.	18.	8.	20.	
Feb 7					1 in. (3 cm) slush and 2 in. (5 cm) water over the ice.
21					4 in. (10 cm) slush on surface.
Mar 6	19.	48.	7.	18.	2 in. (5 cm) slush and 0.5 in. (1 cm) water over the ice.
13	20.	51.			
20	25.	64.			Maximum ice thickness observed.
27	17.	43.			1 in. (3 cm) shell ice on surface.
Apr 3	16.	41.			
10					Ice went out.
Schefferville* (P.Q.): Measurements made on Knob Lake.					
1971					
Nov 19	10.	25.	5.	13.	Ice cover consists of 3 in. (8 cm) white ice and 7 in. (18 cm) clear ice.
26	14.	36.	9.	23.	Ice cover consists of 5.5 in. (14 cm) white ice and 8.5 in. (22 cm) clear ice.
Dec 17.	15.	43.	11.5	29.	Ice cover consists of 9 in. (23 cm) white ice and 6 in. (15 cm) clear ice. Considerable slush in center of lake.
1972					
Mar 24	40.	102.	17.	43.	Surface smooth, with none or few cracks from 19 Nov 71 to 24 Mar 72.
31	42.5	108.	14.5	37.	Surface soft, no cracks.
Apr 7	52.5	133.	26.5	67.	Surface smooth, no cracks.
14	53.5	136.	18.0	46.	
21	55.	140.	9.5	24.	
28	47.5	121.	9.0	23.	Surface slushy, no cracks from 14 to 28 Apr.
May 5	58.5	147.	9.0	23.	Maximum ice thickness observed.
12	47.5	121.	6.5	16.	
19	43.5	110.	1.	3.	
26	43.5	110.	0.5	1.	Surface was slushy and ice cover consists of mostly white ice all month.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Snowshoe Lake (Alaska): Measurements made approximately 200 yd W of aircraft facilities on east shore of Snowshoe Lake.					
1971					
Oct 5					First ice formed in SW corner of lake, however, ice was gone by evening.
12					Ice formed out to 300 yd from south end of lake in shallow area.
13					Ice retreated with a north wind.
14					Ice formed along eastern shore of lake, approximately 1/4 of lake frozen over.
16	1.5	4.			Surface smooth, few cracks.
19					Lake completely frozen over in morning.
20					Few open areas appeared in lake.
21					Lake completely refrozen.
23	5.	13.	5.5	14.	Surface smooth, numerous cracks. Avg snow cover density: 0.116 g/cm^3.
24					Heavy snow cover starting to weigh the ice cover down.
25					Water overflow with snow and slush over most of lake.
26					Water overflow and slush partially frozen.
28					New snowfall and more water overflow observed due to weight of snow.
30	8.5	22.	2.5	6.	Avg snow cover density: 0.130 g/cm^3. Ice cover includes 1.5 in. (4 cm) very wet slushy ice over 2.5 in. (6 cm) slightly harder ice, over 4.5 in. (11 cm) solid ice. Observer notes that freeze up this year was considerably different than usual.
Nov 6	7.	18.	6.5	17.	Observer notes that the measurement for 30 Oct was probably made in an area of frozen overflow, which accounts for the decrease in ice recorded on this date. Avg snow cover density 0.184 g/cm^3.
13	12.	30.	3.	8.	Ice thickness includes 2 in. (5 cm) mushy ice, over 2 in. water, over 8 in. (20 cm) solid ice. Avg snow cover density: 0.118 g/cm^3.
20	12.	30.	4.	10.	Water overflow gradually freezing. Ice thickness includes 3 in. (8 cm) soft ice, over 1 in. water, over 8 in. (20 cm) solid ice. Avg snow cover density: 0.126 g/cm^3.
27	13.	33.	4.5	11.	Surface moderately ridged, few to numerous cracks from 30 Oct to 27 Nov. Ice cover all solid. Avg snow cover density: 0.138 g/cm^3.
Dec 4	13.	33.	6.	15.	Avg snow cover density: 0.144 g/cm^3.
11	15.	38.	7.5	19.	Avg snow cover density: 0.188 g/cm^3.
18	16.	41.	10.	25.	Surface lightly ridged, few cracks from 4 to 18 Dec.
25	17.	43.	13.	33.	Surface lightly ridged, several cracks. Avg snow cover density: 0.165 g/cm^3 on 18 and 25 Dec.
1972					
Jan 1	17.	43.	14.	36.	5 in. water overflow between lake ice and dry layer of snow. Avg snow cover density: 0.223 g/cm^3.
8	23.5	60.	7.	18.	Ice thickness includes 2 in. (5 cm) ice over 4 in. water, over 17.5 in. (44 cm) solid ice. Avg snow cover density: 0.226 g/cm^3.
15	23.5	60.	7.5	19.	Ice thickness includes 4.5 in. (11 cm) ice over 1.5 in. (4 cm) water, over 17.5 in. (45 cm) solid ice. Avg snow cover density 0.164 g/cm^3.
22	23.5	60.	7.5	19.	Ice thickness includes 7 in. (18 cm) ice over 1.5 in. (4 cm) water, over 15 in. (38 cm) solid ice. Avg snow cover density: 0.178 g/cm^3.
29	24.	61.	7.5	19.	Entire ice layer is solid. Avg snow cover density: 0.208 g/cm^3.
Feb 5	24.	61.	9.5	24.	Avg snow cover density: 0.212 g/cm^3.
12	24.5	62.	11.	28.	Avg snow cover density: 0.170 g/cm^3.
14					Ice observation made by USGS at Pippin Lake (61°42'N, 142°, 10'W) near Tonsina on this date showed the ice on lake to be 36 in. (91 cm) thick.
19	25.5	65.	11.	28.	Avg snow cover density: 0.180 g/cm^3.
26	26.5	67.	11.	28.	Surface moderately ridged, few cracks from 1 Jan to 26 Feb. Avg snow cover density: 0.192 g/cm^3.
Mar 4	27.	69.	11.	28.	Avg snow cover density: 0.191 g/cm^3.
11	28.	71.	11.5	29.	Avg snow cover density: 0.204 g/cm^3.
18	28.5	72.	15.	38.	Avg snow cover density: 0.175 g/cm^3.
25	29.	74.	13.5	34.	Surface lightly ridged, few cracks from 4 to 25 Mar. Avg snow cover density: 0.194 g/cm^3.
Apr 1	29.	74.	14.	36.	Avg snow cover density: 0.190 g/cm^3.
8	29.	74.	13.5	34.	Avg snow cover density: 0.198 g/cm^3.
15	29.5	75.	13.	33.	Avg snow cover density: 0.190 g/cm^3.
22	29.5	75.	12.	30.	Avg snow cover density: 0.231 g/cm^3.
27					First signs of breakup, water on top of ice observed where Cache Creek enters the lake.
29	29.5	75.	10.	25.	Surface moderately ridged, few cracks from 1 to 29 Apr. Maximum ice thickness observed from 15 to 29 Apr. Avg snow cover density: 0.212 g/cm^3.
May 6	28.	71.			Surface heavily ridged, few cracks. Cover consists of about 3 in. (8 cm) of wet snow and water (slush) over 8 in. (20 cm) of very soft ice. Bottom layer of ice more solid. Snow melt water on ice is flowing into lake through openings in the ice.

TABLE 11 (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Snowshoe Lake (Alaska) (cont'd)					
1972					
May 13	28.	71.			Open water around edge of lake, a boat was used to get out onto solid ice. Ice still anchored to shore, runoff water accumulating on ice and around edges of lake. Scattered patches of dry snow on ice. Cover consists of 2 in. (5 cm) ice over 4 in. (10 cm) water with rest of bottom ice soft and easy to drill.
20	27.	69.			Surface moderately ridged, few to numerous cracks on 13 and 20 May. Cover consists of 2.5 in. (6 cm) ice, over 4 in. water, with rest of ice mushy. Auger broke through remaining ice during drilling.
27					Ice broke free from shore and drifts as a solid sheet with the wind.
28					Ice too dangerous for a measurement. Ice getting dark and soggy. Open holes and leads in ice, remaining ice appears very rotten.
Jun 2					Ice went out of lake.
South Baymouth* (ONT): Measurements made on South Bay 100 yd from end of station wharf.					
1971					
Dec 31					Outer basin of South Bay froze over.
1972					
Jan 6	5.	13.			No snow cover on ice.
Mar 3					Observed 8 in. (20 cm) of slush and water on ice.
10					Entire cover consists of 2 in. (5 cm) dry snow over 11 in. (28 cm) of frozen slush, over 1 in. of water, over 15 in. (38 cm) solid ice.
30	30.	76.	1.	3.	
Apr 7	30.	76.	2.	5.	Maximum ice thickness observed on 30 Mar and 7 Apr.
14	26.	66.			3 in. (8 cm) slush on surface.
21	22.	56.			Surface smooth, no cracks from 6 Jan to 21 Apr.
28					Open water along the shore, ice unsafe for measurement.
South Shore Canal* (P.Q.): Measurements made at the following designated locations along the canal.					
At Longueuil, P.Q. near Seaway entrance.					
1972					
Mar 10	35.	89.	3.	8.	Maximum ice thickness observed.
14					Icebreaker operating in area.
At Lock #1, near end of Lower Approach Wall.					
1972					
Mar 10	29.	74.	4.	10.	Maximum ice thickness observed.
15					Icebreaker operating in area.
At Lock #1, near end of Upper Wall.					
1972					
Feb 23	24.	61.	8.	20.	
Mar 2	24.	61.	11.	28.	Maximum ice thickness observed on 23 Feb and 2 Mar.
16					Icebreaker operating in area.
Above Canadian Pacific Railroad Bridge at Mile 4.					
1972					
Mar 10	27.	69.	6.	15.	
15	27.	69.	5.	13.	Maximum ice thickness observed on 10 and 15 Mar.
17					Icebreaker operating in area.
At Canal entrance to Lake St. Louis.					
1972					
Mar 15	29.	74.	4.	10.	Maximum ice thickness observed.
18					Icebreaker operating in area.
Tanacross (Alaska): Measurements made on Tanana River in front of village, near eastern bank.					
1971					
Oct 5					First ice formed.
25					Ice safe for foot travel.
Nov 1					First vehicle travelled on ice today.
6	6.	15.	5.	13.	Surface smooth, numerous cracks. River still in the process of freezing over.
13	8.	20.	5.	13.	Surface smooth, few cracks.
20	12.	30.	6.	15.	
27	12.	30.	9.	23.	Surface smooth, no cracks on 20 and 27 Nov.
Dec 3	21.	53.	10.	25.	Observer noted the thicker than expected ice measured on this date, but couldn't explain the reason.

Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Tanacross (Alaska) (cont'd)					
1971					
Dec 11	15.	38.	10.	25.	
18	18.	46.	12.	30.	
25	20.	51.	9.	23.	
1972					
Jan 1	22.	56.	10.	25.	
8	22.	56.	11.	28.	
15	24.	61.	4.	10.	
22	27.	69.	2.	5.	Strong winds on 15 and 22 Jan blew most of snow off the river.
29	29.	74.	2.	5.	
Feb 5	29.	74.	9.	23.	
12	33.	84.	8.	20.	
19	32.	81.	6.	15.	
26	35.	89.	9.	23.	
Mar 4	34.	86.	10.	25.	
11	37.	94.	6.	15.	
18	38.	97.	8.	20.	
25	37.	94.	10.	25.	Surface rough; no cracks from 3 Dec 71 to 25 Mar 72.
Apr 1	33.	84.	10.	25.	
8	37.	94.	9.	23.	
15	40.	102.	9.	23.	Maximum ice thickness observed.
22	37.	94.	8.	20.	Surface rough, few cracks from 1 to 22 Apr.
29	37.	94.	6.	15.	Surface rough, numerous cracks. Ice becoming porous but not eroding as yet.
May 6	30.	76.			Surface slushy, numerous cracks.
9					Last day ice safe for travelling on foot.
10					First movement of ice.
Tanana (Alaska): Measurements made on Yukon River, south of airline buildings and 50 ft offshore.					
1971					
Dec 4	31.	79.	8.	20.	
11	31.5	80.	12.	30.	
18	24.	61.	20.	51.	
24	20.	51.	26.	66.	Two large open areas observed in river west of measurement site. One crack which is approximately 4 miles long and 5 to 10 ft in width extends from Bull Island to Bear Creek.
1972					
Jan 1	20.	51.	24.	61.	Large open water area still observed in river west of measurement site.
15	40.	102.	16.	41.	
22	39.	99.	23.	58.	
29	36.	91.	28.	71.	
Feb 5	38.5	98.	27.	69.	
12	40.	102.	27.	69.	
19	41.	104.	26.	66.	Maximum ice thickness observed.
26	40.	102.	26.	66.	
Mar 4	38.	97.	24.	61.	
11	37.	94.	18.	46.	
18	39.	99.	20.	51.	
25	38.	97.	21.	53.	Surface lightly ridged, no cracks from 4 Dec 71 to 25 Mar 72.
Thunder Bay* (formerly Port Arthur) (ONT): Measurements made approximately 250 ft from SW corner of Canadian National railroad dock ruins in Thunder Bay Harbour at lat. 48°26' 50'' N and long. 89°12' 57'' W.					
1971					
Dec 17					Harbour frozen over.
31					Icebreaker and ship movement kept main channel open until 29 Dec.
1972					
Feb 23	33.	84.	5.	13.	
Mar 6	36.	91.	12.	30.	
10	36.5	93.	12.	30.	
17	37.	94.	8.	20.	
23	37.5	95.	7.	18.	
30	37.5	95.	7.	18.	Maximum ice thickness observed on 23 and 30 Mar.
Trappers Creek (Alaska): Measurements made on the Susitna River near Talkeetna.					
1971					
Oct 13					First ice flowing in river.
16					Thin ice floes moving freely.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Trappers Creek (Alaska) (cont'd)					
1971					
Oct 23					Ice floes still moving. New ice forming along edges of river.
30					Fairly small ice floes jamming in narrow parts of river.
Nov 6					Larger ice floes running in river.
13					River mostly covered with ice, little open water visible. Avg depth of snow on shore 18 in. (46 cm).
20					Ice still too thin to travel on. Avg depth of snow on shore 36 in. (91 cm).
27	4.	10.	20.	51.	Surface fairly smooth, no cracks. Avg depth of snow on shore 26 in. (66 cm).
Dec 4	5.	13.	20.	51.	Avg depth of snow on shore 26 in. (66 cm).
11	6.	15.	24.	61.	Avg depth of snow on shore 32 in. (81 cm).
18	6.	15.	28.	71.	Avg depth of snow on shore 44 in. (112 cm). Considerable overflow on 11 and 18 Dec, ice is soft and not clear.
25					Considerable water overflow at drilling site, unable to measure thickness. Avg depth of snow on shore 42 in. (107 cm).
1972					
Jan 1	18.	46.	20.	51.	Major increase in ice thickness may be due to freezing of slush (authors). Avg depth of snow on shore 52 in. (132 cm).
8	20.	51.	16.	41.	Avg depth of snow on shore 46 in. (117 cm).
15	21.	53.	12.	30.	Avg depth of snow on shore 46 in. (117 cm). Channel has 2 in. water overflow under snow. Surface smooth, no cracks from 4 Dec 1971 to 15 Jan 1972.
22					Avg depth of snow on shore 42 in. (107 cm). Cover consisted of 4 in. (10 cm) ice, over approximately 12 in. water all over 14 in. (36 cm) ice.
29					Avg depth of snow on shore 46 in. (117 cm). Too much water overflow on river for crossing.
Feb 5	28.	71.	4.	10.	Avg depth of snow cover on shore 63 in. (160 cm).
12	28.	71.	6.	15.	Avg depth of snow cover on shore 58 in. (147 cm).
19	30.	76.	5.	13.	Some settling of ice, and snow drifts formed by winds has made surface very rough for travel. Avg depth of snow cover on shore 55 in. (140 cm).
26	30.	76.	7.	18.	Avg depth of snow cover on shore 53 in. (135 cm). No further ice reports received this winter.
Trout Lake* (ONT): Measurements made on Trout Lake 100 yd south of landing dock.					
1971					
Nov 7					Front and back bays of Trout Lake are frozen over.
13					3/4 of lake is ice covered.
17					Lake completely frozen over.
Dec 17	12.5	32.	10.	25.	2 in. (5 cm) of slush between snow cover and ice surface.
1972					
Jan 28					Snow surface smooth but hard packed by strong winds all month.
Mar 4					Ice fisherman estimated ice thickness of 52 in. (132 cm) at approximately 2 miles west of station. Site was about 600 yd from shore, over water 30 ft deep.
10	45.5	116.	6.	15.	
Apr 7	52.5	133.	4.	10.	
14	52.5	133.	2.	5.	Maximum ice observed on 7 and 14 Apr.
21	49.5	125.	1.	3.	1 in. (3 cm) of snow on top of 0.5 in. (1 cm) of water and slush.
28	43.5	110.			
May 5	42.	107.			
12	36.5	93.			Surface smooth, no cracks from 12 Nov 71 to 12 May 72.
19					Narrow shore leads. Ice badly candled and considered unsafe for travel by foot.
Tuktoyaktuk* (N.W.T.): Measurements made on Kugmallit Bay off landing dock in 30 feet of water.					
1972					
Mar 25	71.	180.			
Apr 1	71.	180.			
8	71.	180.			
15	72.5	184.			
22	74.	188.			
29	75.	191.			
May 6	77.	196.			
13	77.	196.			Maximum ice thickness observed on 6 and 13 May. No snow depth measurements taken all winter.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)
ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Unalakleet (Alaska): Measurements made at different locations (see Remarks).					
1971					
Nov 6	5.	13.			Measurements in Nov and Dec were made on Kouwegak River slough, 100 yd east of village.
13	13.	33.			
20	14.	36.	2.	5.	
27	18.	46.	3.	8.	
Dec 4	25.	64.	2.	5.	
13	22.	56.	2.	5.	Major storm delayed measurement 2 days. Observations taken in an area not affected by high water.
18					No ice measurement was made due to high overflow. Water in slough and Unalakleet River is very high.
25	31.	79.			
1972					
Jan 1	32.	81.			Measurements in Jan and Feb were made 150 yd SSE of cold storage building.
8	34.5	88.			
15	39.	99.			
22	46.	117.			Measurement made in area clear of snow; but in some surrounding places as much as 24 in. (61 cm) of snow was observed.
Feb 5	36.	91.			
12	44.	112.			Surface rough in some places smooth in others and few to no ice cracks observed from 6 Nov 71 to 12 Feb 72.
19	47.	119.			About 6 in. (15 cm) of salt water ice has formed on surface due to high tides, new cracks observed.
26	52.	132.			Surface rough, few to numerous cracks on 19 and 26 Feb. High tides and high water has removed all snow from surface.
28					Considerable ice growth during month due to high tide water flowing to the surface through cracks in ice and refreezing.
Mar 4	55.	140.	1.5	4.	Measurements during Mar and Apr were made near mouth of Kouwegak River slough, about 150 yd south of Peninsula Fisheries building. First snow in 4 weeks has covered most cracks in ice.
11	60.	152.	1.	3.	
18	64.	163.			Surface smooth, few cracks from 4 to 18 Mar. Strong winds blew away the snow cover.
25	64.	163.	3.	8.	Surface smooth, no visible cracks. Maximum ice thickness observed on 18 and 25 Mar.
Apr 1	57.	145.	2.	5.	No cracks visible due to snow cover.
8	59.	150.	3.	8.	
15	59.	150.	9.	23.	Several inches of new wet snow has fallen. Densities range between .30 and .40 g/cm^3.
22	59.	150.	10.	25.	Surface rough, no cracks from 1 to 22 Apr.
29	58.	147.	11.	28.	Surface smooth, no cracks.
May 6	55.	140.	6.	15.	Measurements during May were made near mouth of Kouwegak River slough about 150 yd south of Cannery building.
13	48.	122.	4.	10.	River water high due to melting snow.
20	41.	104.			Surface rough, few to numerous cracks from 6 to 20 May. Cracks opening up to approximately 1 ft in width. River rapidly clearing of ice, open water observed 1 mile upstream.
24					Measurement areas almost clear of ice; a small amount still observed in Koo-loo-ruk slough.
Welland Canal* (ONT): Measurements made at the following designated locations along the canal.					
At Bridge #19.					
1972					
Jan 17	4.	10.			No snow and some cracks observed on surface.
31	7.5	19.			No snow and no cracks observed on surface.
Mar 6	14.	36.			1 to 4 in. (3 to 10 cm) snow observed on ice from 3 Feb to 6 Mar.
9	14.	36.			No snow and no cracks observed on surface.
13	14.	36.			
16	12.	30.			
20	14.	36.			
23	14.	36.	3.	8.	Maximum ice thickness observed on 6, 9, 13, 20 and 23 Mar.
27					Open water observed.
Port Colborne Harbour, above Lock #8.					
1972					
Jan 24					No snow and few cracks observed on surface on 17 and 24 Jan.
Feb 14					0.5 to 3 in. (1 to 8 cm) snow observed on surface from 3 to 14 Feb.
21					No snow observed on surface.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Welland Canal* (ONT) (cont'd)					
Port Colborne Harbour, above Lock #8 (cont'd)					
1972					
Mar 6					0.5 to 3.5 in. (1 to 9 cm) snow observed on surface from 24 Feb to 6 Mar.
9					No snow and no cracks observed on surface.
13	16.	41.			Maximum ice thickness observed.
16	15.	38.			
20	13.	33.			
23	14.	36.	2.	5.	
27	13.	33.			
Port Weller Harbour, below Lock #1.					
1972					
Jan 24					Open water observed from 17 to 24 Jan.
31					Ice cover 2 to 4 in. (5 to 10 cm) thick on 27 and 31 Jan.
Feb 3					Open water observed again.
10					Ice cover 5 to 6 in. (13 to 15 cm) thick on 7 and 10 Feb.
14	8.	20.			2 in. (5 cm) slush on ice. Few cracks. Maximum ice thickness observed.
17	6.5	17.			Surface lightly rafted, few surface cracks.
21	3.	8.			
24	5.	13.			Surface moderately ridged on 21 and 24 Feb.
28	4.	10.			Surface rafted, few cracks. Trace of snow on ice.
Mar 6	6.5	17.			6 to 12 in. wide cracks in ice.
9	4.	10.			6 in. cracks in ice.
13	5.	13.			Cracks up to 12 in. in width.
16	5.	13.			
20	3.	8.			Cracks observed up to 2 ft in width. Ice cover from 21 Feb to 20 Mar consisted mostly of pancake ice. Ice sheet broke frequently between 9 and 20 Mar.
27					Open water observed from 23 to 27 Mar.
Above Guard Gate.					
1972					
Jan 27	3.	8.			Few cracks observed.
Feb 14					2 to 3 in. (5 to 8 cm) snow observed on surface.
24					Surface lightly ridged, few cracks on 21 and 24 Feb.
28					Trace of snow observed on surface from 17 to 28 Feb.
Mar 6	15.5	39.			Maximum ice thickness observed.
9	14.5	37.			Trace of snow observed on surface.
13	14.5	37.			
16	15.	38.			Few surface cracks observed from 9 to 16 Mar.
20	11.	28.			Some snow observed on surface.
23	6.5	17.			Cover consists of mostly slush ice. Cracks 1 ft in width observed.
27	4.	10.			Some refreezing of slush observed during past week.
At Bridge #10.					
1972					
Jan 31	9.	23.			Some snow and few cracks observed on surface.
Feb 3	6.	15.			2 in. (5 cm) slush observed on surface.
21	14.	36.			0.5 to 2 in. (1 to 5 cm) snow observed on surface from 3 to 21 Feb.
28					Surface cracks on 24 and 28 Feb.
Mar 6	17.5	44.			Maximum ice thickness observed. Trace of snow on surface.
9	16.	41.	1.	3.	
13	16.	41.			
16	16.	41.			
20	15.	38.			
23	14.	36.			
27	14.	36.			Some snow observed on surface on 23 and 27 Mar.
At Bridge #18.					
1972					
Jan 17	2.5	6.			No snow and some cracks observed on surface.
24					Open water observed.
27	3.	8.			No snow and no cracks observed on surface.
31	5.	13.			No snow and a few cracks observed on surface.
Feb 3	5.	13.	3.5	9.	0.5 in. (1 cm) slush observed on surface.
7	6.	15.	3.5	9.	
10	10.	25.	1.5	4.	Open water observed at mid-stream. Maximum ice thickness observed.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE II (Cont'd)

ICE THICKNESSES (1971-1972)

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Welland Canal* (ONT) (cont'd)					
At Bridge #18 (cont'd)					
1972					
Feb 14	9.	23.	2.	5.	
17	6.	15.			No snow observed on surface.
21	6.5	17.			Open water observed at mid-stream.
24	8.	20.	2.5	6.	
28	8.	20.			
Mar 6	8.5	22.			
9	8.	20.			
13	6.	15.			Open water observed at mid-stream on 9 and 13 Mar.
16					Open water from shore to shore, no more ice observed after this date.
Yellowknife* (N.W.T.): Measurements made approximately 175 yd NW of Northward Aviation float base, on Back Bay.					
1972					
Apr 28	56.	142.	9.	23.	Maximum ice thickness observed. Surface smooth, no cracks from 6 Nov 71 to 28 Apr 72.
May 12	51.5	131.			No snow observed on ice surface.
19	37.	94.			Surface smooth, numerous cracks on 12 and 19 May. Open water around the shore made access to ice difficult. Ice quite rotten throughout.

*Additional ice thickness data available in: CANADIAN DEPT of the ENVIRONMENT ICE 1 Dec 1972.

TABLE III

SUPPLEMENTARY ICE THICKNESS OBSERVATIONS FROM THE ALASKA NATIONAL GUARD STATIONS

Table IIIa. 1970-1971.

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Emmonak (Emongak) Measurements made on the Kwiguk River.					
1970					
Oct 1					No ice on river.
15	0.5	1.			Snow depth over land 2 in. (5 cm). Ice first formed this week. Most of the surface is smooth, some large holes in places.
26					Freeze over occurred.
Nov 2	6.	15.	0.5	1.	Some snow dirfts in area about 4 in. (10 cm) deep. Snow depth over land 1 in. (3 cm). Surface smooth with some snow drifts. Ice measurement taken near shore of river.
Dec 15	24.	61.			Snow depth over ice varies from 6 to 8 in. (15 to 20 cm). Snow depth over land varies considerably. Surface smooth, except in snow drift areas.
Kasigluk: Measurements made on Welowdoluk River near Yukon-Kuskokwim Delta.					
1970					
Oct 1					No ice on river but 10 in. (25 cm) of ice on sides of nearby lake. No snow has accumulated on the ground as yet.
17					First ice formed.
18					River froze over.
Dec 1	14.5	37.			Shallow lake frozen to bottom.
15	16.5	42.			Still no snow on the ground.
1971					
Jan 1	20.	51.	5.	13.	Snow on the lake is 6 in. (15 cm) deep. Snow depth on shore is 10 in. (25 cm).
Kwigillingok: Measurements made off bank of river which empties into Kuskokwim Bay.					
1970					
Oct 15					First ice formed.
20					Freeze-over observed.
Nov 1					Ice thickness on river varies from 4 to 8 in. (10 to 20 cm). Ice surface rough, with some cracks.
Dec 1	5.	13.			Alternating periods of freezing and thawing weather. Ice in river currently jammed and some freezing taking place.
31	30.	76.	3.	10.	Snow depth over land is 4 to 12 in. (10 to 30 cm).
Mountain Village: Measurements made on Yukon River.					
1970					
Oct 14					Yukon River ice free. Snow depth over land 4.5 in. (11 cm).
15					First ice formed.
25					Freeze-over observed.
27	4.	10.	1.	3.	Snow depth over land 3 in. (8 cm). Surface smooth.
Nightmute: Measurements made on Toksook River in front of village.					
1970					
Oct 17					First ice formed.
19					Freeze-over observed.
22	4.	10.			Snow on land melting as it falls. Ice smooth with small cracks.
Nov 1	8.5	22.			Snow depth over land 0.5 in. (1 cm). New snowfall still melting away. Ice surface smooth, small cracks.
Dec 1	9.	23.	1.	3.	Snow depth over land is 3 in. (8 cm). Ice surface smooth, small cracks. Ice measurement made up stream at a bend in the river.
Scammon Bay: Measurements made on the Kun River up river from village.					
1970					
Nov 1					No ice observed. Avg depth of snow cover on land 4 in. (10 cm). Open water on river about 2-3 miles up stream from village.
31					First ice formed during last week of month.
Dec 2	6.	15.			Ice thickness uniform at about 6 in. at first, but unusual high tides have broken the ice up. Approximately 2 miles up river, ice thickness is 6 to 8 in. (15 to 20 cm). No snow has accumulated on shore as yet.
1971					
Mar 11	39.	99.	13.	33.	Maximum ice thickness observed. Some of the river ice is covered with approximately 15 in. (38 cm) of hard snow. Snow depth over land is 12-26 in. (30 to 66 cm). Surface smooth with hard packed snow on river.

TABLE III (Cont'd)

SUPPLEMENTARY ICE THICKNESS OBSERVATIONS FROM THE ALASKA NATIONAL GUARD STATIONS

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Togiak: Measurements made in front of village on Togiak River.					
1970					
Dec 3					Ice first formed.
6	0.5	1.			Ice surface rough. No snow has accumulated on ground as yet.
Tuntutuliak: Measurements made on the Kinak River in front of the village.					
1970					
Oct 6					First ice formed.
13	8.5	22.			Ice surface smooth.
24					Freeze-over occurred.
30	6.	15.			Snow depth over land varies from 0 to 2 in. (0 to 5 cm). Ice surface rough. Ice observation taken in middle of river.
Nov 28	8.5	22.			
Dec 14	20.5	52.			Ice surface smooth during Nov and Dec.

Table IIIb. 1971-1972.

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Emmonak (Emongak): Measurements made on Kwiguk River up and down stream from the village.					
1971					
Oct 21					First ice observed.
24					Freeze over occurred.
Nov 27	16.	41.	7.	18.	Snow depth over land 8 in. (20 cm). Ice measurement made near the shore. Ice surface smooth.
Dec 15	24.	61.			Snow depth over ice varies from 12 to 36 in. (30 to 91 cm) and over land from 2 to 30 in. (5 to 76 cm). Snow drifts. Ice measurement made near the shore. Ice surface smooth, no cracks.
1972					
Jan 16	36.	91.	12.	30.	Snow depth over land varies from 36 to 42 in. (91 to 107 cm). Ice measurement made in middle of river. Ice surface smooth, some snow drifts.
Feb 1	45.	114.	24.	61.	Snow depth over ice varies from 24 to 30 in. (61 to 76 cm) and over land from 48 to 50 in. (122 to 127 cm). Ice surface smooth, some snow drifts. Ice measurement made in middle of river.
Mar 1	48.	122.	30.	76.	Snow depth over land 60 in. (152 cm). Ice surface smooth, some snow drifts. Ice measurement made in middle of river.
Goodnews Bay: Measurements made at mouth of Goodnews River.					
1971					
Dec 15	11.	28.	1.	3.	
1972					
Jan 2	25.	64.	5.	13.	Snow depth over land 5 in. (13 cm).
15	32.	81.	7.	18.	Snow depth over land 12 in. (30 cm).
Feb 3	32.	81.			Snow depth over land 3 in. (8 cm).
Kasigluk: Measurements made on Welowdoluk River near Yukon-Kuskokwim Delta.					
1971					
Oct 20					Ice first formed.
1972					
Mar 29	54.	137.	36.	91.	Lake frozen to bottom. Snow depth over land 48 in. (122 cm).
Mountain Village: Measurements made on Yukon River below Armory.					
1971					
Oct 19					First ice formed.
29	3.	8.			Snow depth over land 0.5 in. (1 cm). Ice measurement made 50 feet out from shore.
Dec 14	30.	76.	17.	43.	Snow depth over land 17 in. (43 cm). Ice measurement made 50 feet out from shore.
1972					
Mar 14	48.	122.	53.	135.	Snow depth over land varies 36 to 60 in. (91 to 152 cm). Ice surface rough, and heavily drifted.
29	60.	152.			Snow depth over ice varies from 60 to 72 in. (152 to 183 cm), over land depth is 72 in. (183 cm) and heavily drifted.

TABLE III (Cont'd)

SUPPLEMENTARY ICE THICKNESS OBSERVATIONS FROM THE ALASKA NATIONAL GUARD STATIONS

Date	Ice Thickness (in.)	Ice Thickness (cm)	Snow Depth (in.)	Snow Depth (cm)	Remarks
Nightmute: Measurements made on Toksook River in front of village.					
1971					
Oct 6	0.5	1.			First ice formed and was very smooth, thin and with no cracks.
10					Freeze over occurred.
Nov 15	7.	18.	1.	3.	Snow depth over land 5 in. (13 cm). Ice very smooth, no cracks. Ice melts and refreezes overnight.
1972					
Jan 19	30.	76.	4.5	11.	Snow depth over land 25 in. (64 cm). Ice smooth, cracks about 1 in. in width.
Noatak: Measurements made in front of village on Noatak River.					
1971					
Oct 19					Freeze over occurred.
1972					
Jan 19	24.	61.	4.	10.	Snow depth over land 48 in. (122 cm). Ice surface rough.
Feb 29	30.	76.	5.	13.	Snow depth over land 36 in. (91 cm). Ice surface smooth.
Scammon Bay: Measurements made on Kun River in front of village.					
1971					
Nov 10			5.	13.	First ice formed.
1972					
Jan 3	34.	86.	5.	13.	Snow depth over land 16 in. (41 cm), but deeper in some areas. Ice surface smooth. Ice measurement made in middle and near edge of river.
Teller: Measurements made on Grantley Harbor.					
1971					
Nov 5	1.	3.			First ice formed this week. Surface smooth, no cracks.
Dec 5	12.	30.	2.	5.	Surface smooth, no cracks.
1972					
Jan 5	38.	97.	6.	15.	Surface rough, no cracks.
Feb 1	40.	102.	8.	20.	Surface rough, no cracks.
Tuntutuliak: Measurements made in middle of Kinak River.					
1971					
Oct 9					First ice formed.
20					Freeze over occurred.
Nov 1					Earlier ice melted. River currently clear of ice.
13	5.	13.	2.	5.	Snow depth over land 2 to 4 in. (5 to 10 cm). Ice surface rough.
30	12.	30.	2.	5.	Snow depth over land 2 to 4 in. (5 to 10 cm). Ice surface smooth.
Dec 11	20.	51.	2.	5.	Snow depth over land varies from 4 to 12 in. (10 to 30 cm). Ice surface smooth, snow depth over ice varies from 0 to 2 in. (0 to 5 cm).
29	24.5	62.	2.	5.	Snow depth over land varies from 2 to 24 in. (5 to 61 cm). Ice surface smooth.
1972					
Feb 29	46.	117.	1.	3.	Snow depth over land varies from 2 to 24 in. (5 to 61 cm).
Mar 13	60.	152.	1.	3.	Snow depth over land varies from 2 to 24 in. (5 to 61 cm). Snow depth over ice varies from 0 to 2 in. (0 to 5 cm).
30	62.	157.	2.	5.	Avg snow depth over land is 39 in. (99 cm). Surface rough, with ridges and cracks during Feb and Mar.
Wainwright: Measurements made on a lagoon in back of village.					
1971					
Oct 1					First ice occurred.
3					Freeze over.
Dec 12	34.5	88.	2.	5.	Snow depth over land 5 in. (13 cm). Surface smooth, some cracks.
1972					
Jan 16	45.	114.	2.5	6.	Snow depth over land 6 in. (15 cm). Surface smooth, some snow drifts.

TABLE IV

SUPPLEMENTARY U.S. GEOLOGICAL SURVEY ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS(1)

Ambler: Measurements made on Kobuk River

Mar 9, 1969

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
20 to 40	3.7
60	3.2
80	3.3
100	3.1
120	2.8
140	3.2
160	3.0
180	3.3
200	2.0
220 to 240	3.1
260	2.9
280 to 300	3.3
320	3.2
340 to 360	3.8
380 to 400	3.5
420	REW

Mar 9, 1970

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
20	2.9
40 to 60	2.7
80 to 100	2.6
120	2.8
140	2.7
160	2.7
180	2.8
200 to 220	2.7
240	2.6
260	2.8
280 to 320	2.6
340 to 380	2.7
400 to 420	2.8
460	2.9
50	3.0
520	REW

Mar 21, 1971

Distance Across River (ft)	Ice Thickness (ft)
0	REW
30	3.4
60	3.8
80 to 120	3.3
140	3.1
160 to 220	3.3
240	3.2
260 to 280	3.0
300	3.2
320 to 380	3.0
400 to 420	3.2
440 to 460	3.0
480	3.4
500	3.0
540	2.9
560	LEW

Kobuk River (cont'd)

Mar 26, 1972

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
30 to 75	2.9
90 to 140	-
150	2.9
180 to 225	3.3
240 to 285	2.9
300	3.0
330	3.1
360	3.3
390	3.4
420	3.6
450	3.3
480	3.6
510	3.4
540	3.1
570	3.7
600	3.5
630	3.3
660	2.8
700	3.4
740	REW

Anchorage: Measurements made on Chester Creek

Jan 31, 1969

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
1 to 2	0.5
3	0.4
4 to 5	0.6
6 to 7	0.7
8	0.8
9	0.7
10	0.5
11	0.2

Dec 15, 1969

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
2	0.2
3 to 6	0.3
7	0.4
8 to 10	0.5
11 to 14	0.6
15	0.5
16 to 17	0.2
18	0.3
19	0.2

Mar 2 1970

Distance Across River (ft)	Ice Thickness (ft)
1	LEW
2 to 3	0.4
4 to 5	0.5
6 to 7	0.6

Chester Creek (cont'd)

Mar 2, 1970

Distance Across River (ft)	Ice Thickness (ft)
8 to 14	0.5
15 to 16	0.6
17 to 18	0.7
19	0.6
20	0.4
23	open water
24	REW

Feb 3, 1971

Distance Across River (ft)	Ice Thickness (ft)
1	REW
2 to 3	2.2
4 to 5	2.5
6 to 10	2.4

Dec 29, 1971

Distance Across River (ft)	Ice Thickness (ft)
2	LEW
3 to 4	0.4
5 to 6	0.5
7 to 9	0.6
10	0.7
11 to 12	0.8
13 to 14	0.7

Anchor Point: Measurements made on Anchor River

Jan 13, 1969

Distance Across River (ft)	Ice Thickness (ft)
6	REW
8	2.6
10	2.4
12 to 16	2.2
18 to 22	2.3
24	2.2
26	2.1
28	2.3
30 to 35	2.8
37	2.9

Mar 21, 1969

Distance Across River (ft)	Ice Thickness (ft)
16	LEW
17	0.6
19	0.4
21	open water
22 to 25	0.2
27	0.1
29	0.3
30	0.4
32	open water

Jan 13, 1970

Distance Across River (ft)	Ice Thickness (ft)
20	open water
24	0.6
28 to 36	0.7

(1) See figure A-1 for Location of measurement site.

(2) REW and LEW mean Right and Left Edge of Water facing Downstream and the (-) means no observation.

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Anchor River (cont'd)	
Jan 13, 1970	
40 to 44	1.0
49	0.9
54	0.8
58	0.6
63 to 65	open water
Dec 21, 1970	
5	open water
12	0.9
19	1.5
26 to 32	1.6
38	2.0
47	1.8
54	1.5
60	1.2
Mar 21, 1971	
3	0.8
10	1.1
13	1.4
16	1.2
19	1.5
23	2.0
26 to 29	1.9
32	1.6
34	1.2
36	1.1
38	1.3
41	1.7
44	1.5
48	1.2
52	1.0
56	open water
Feb 17, 1972	
0	REW
3	2.4
5 to 9	2.2
11 to 13	2.1
15	2.2
17	2.1
19	1.5
21	1.9
23 to 29	2.0
31	LEW
Apr 1, 1972	
6	open water
7	0.7
11	1.3
15	2.1
18 to 20	2.2
24	2.1
26	2.2
28	2.1
30 to 34	2.0
36	1.9
Apr 1, 1972	
38	1.8
40	1.6
44	1.7
Bettles: Measurements made on Jim River	
Nov 13, 1970	
9	LEW
12 to 18	2.0
22	1.7
26	1.4
28 to 36	1.2
38	1.3
40	1.2
42	1.0
44 to 48	1.1
50 to 53	1.3
55	1.4
58	REW
Cantwell: Measurements made on Susitna River	
Mar 23, 1970	
70	REW
80	4.2
100	3.8
110	3.4
120	3.3
130	3.4
140	3.1
150	3.5
160	3.7
170	3.5
180	3.8
190	3.9
200	3.5
210	4.1
212	LEW
220	dry hole
240	dry hole
Chitina: Measurements made on Copper River	
Dec 17, 1968	
107	2.0
102	2.1
93	2.4
Apr 9, 1970	
11	REW
23	0.5
37	2.5
50	2.0
60	1.5
Apr 9, 1970	
68	1.1
80	1.5
94	2.5
104	2.7
480	2.8
500	1.8
520	1.9
540	2.7
560	3.1
580	3.9
594	3.0
Mar 14, 1971	
10	-
20 to 28	4.5
34	4.6
40	4.5
46	4.2
52	4.4
58	4.5
64	4.4
70	3.7
76	3.3
82	3.0
90	3.1
100 to 110	3.3
120	4.3
130	4.8
140	5.0
155	-
Crooked Creek: Measurements made on Kuskokwim River	
Mar 11, 1969	
0	REW
100	-
150	3.0
200	3.5
250	2.5
300	4.0
350	2.5
400	3.0
450 to 600	3.5
650 to 850	4.0
950	LEW
Mar 13, 1970	
0	REW
10 to 90	2.9
130	2.7
170	3.8
210 to 290	3.2
330	3.3
370 to 410	3.4
450	3.1
490	3.2
530	3.4

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Kuskokwim River (cont'd)

Mar 13, 1970

Distance Across River (ft)	Ice Thickness (ft)
570	3.6
610	3.8
650	3.6
690	3.3
730	3.7
770	3.3
810	3.4
850	2.8
860	LEW

Mar 23, 1971

Distance Across River (ft)	Ice Thickness (ft)
0	REW
50	4.0
100	4.3
150	3.7
190	3.8
230	3.1
270 to 310	3.5
350	3.4
390	3.5
430	3.2
470	3.3
510	3.6
550 to 590	3.2
630	4.5
670	3.3
750	3.9
790	3.5
830	LEW

Mar 28, 1972

Distance Across River (ft)	Ice Thickness (ft)
50	REW
100	-
150	4.0
220 to 300	3.8
350	3.7
400	3.3
450	3.0
500	3.2
550	3.3
600	3.4
650	3.5
700	3.4
750	3.8
800	3.6
850	3.0
900	LEW

Dot Lake: Measurements made on Berry Creek

Dec 16, 1971
right channel

Distance Across River (ft)	Ice Thickness (ft)
0	REW

Berry Creek (cont'd)

Dec 16, 1971
right channel

Distance Across River (ft)	Ice Thickness (ft)
0.2	1.8
1	0.1
2	0.7
3	1.8
0	LEW

left channel

Distance Across River (ft)	Ice Thickness (ft)
0	REW
11	1.2
12	0.2
13 to 14	0.8
15	0.5
16	0.7
17 to 19	0.5
20	0.6
21 to 23	0.5
24	0.9
25	1.1
26	LEW

Eagle: Measurements made on Yukon River

Mar 26, 1970

Distance Across River (ft)	Ice Thickness (ft)
20	LEW
100	2.7
140	2.6
180	2.8
220	4.0
260	3.0
300	2.5
340	3.1
380	2.9
420 to 480	3.0
510	3.8
540	3.2
560	3.0
600	3.3
630	3.1
660	2.6
690	3.5
720	2.9
750	3.1
780	3.5
810	3.1
840	4.0
865	4.5
890	2.6
920	3.0
950	4.1
980	3.3
990	REW

Eagle River: Measurements made on Eagle River

Nov 27, 1968

Distance Across River (ft)	Ice Thickness (ft)
	REW
8	0.2
10	0.7
12	1.0
14	1.2
16 to 23	1.3
24	1.4
26	1.2
28 to 32	1.0
34	0.8
36	0.5
38	0.8
40	0.7
42 to 46	1.0
48 to 50	0.9
52	1.1
56 to 65	1.2
70	1.3
75	1.0
78	LEW

Jan 30, 1969

Distance Across River (ft)	Ice Thickness (ft)
0	REW
1	0.6
6	0.8
9 to 13	1.0
14 to 17	1.1
18	1.2
19 to 20	1.3
21 to 23	1.4
24 to 30	1.5
32 to 38	1.6
40	1.5
42	LEW

Mar 26, 1969

Distance Across River (ft)	Ice Thickness (ft)
8	LEW
10	1.4
12	1.2
14	1.1
15	1.0
16	1.2
17 to 18	1.1
19 to 21	1.0
22	0.9
23	0.8
24	0.7
25	0.8

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Eagle River (cont'd)	
Mar 26, 1969	
26	0.9
27	1.0
28	0.9
30 to 32	0.8
34	REW
Dec 16, 1969	
0	REW
4 to 8	1.7
12	1.6
18	2.8
20	2.7
22	2.6
24	2.1
26	2.0
28	2.1
30	2.4
32	2.6
34	2.7
36	2.8
38	2.9
40	2.7
42 to 46	2.8
50	2.7
54	2.6
56	LEW
Mar 3, 1970	
36	REW
39	1.2
41	1.3
43 to 45	1.1
47	1.3
48	1.4
51	1.7
54	2.1
55	0.1
58	2.5
59	2.2
61 to 63	2.0
65	1.9
67	1.7
69	1.5
71	-
74	LEW
Dec 8, 1970	
10	REW
14	2.2
16	2.1
18	1.8
20	2.7
22	1.7
24 to 28	1.5
30 to 32	1.4
34	1.5
36 to 42	1.6
44 to 48	1.5

Distance Across River (ft)	Ice Thickness (ft)
Eagle River (cont'd)	
Dec 8, 1970	
50 to 61	1.6
67 to 78	1.5
88	1.7
90	LEW
Mar 10, 1971	
22	REW
26	1.7
30	2.2
34	2.6
36	2.8
38	3.1
42	3.0
44	3.7
46	4.1
50	4.3
54	4.7
56	LEW
Dec 28, 1971	
0	REW
3	0.8
5	0.7
8	1.0
10 to 16	1.2
18 to 24	1.4
25 to 27	1.5
29	1.6
31	1.5
33 to 36	1.3
38	1.2
40	LEW
Feb 25, 1972	
7	LEW
10	1.9
12	1.8
14	1.9
16 to 20	1.8
22 to 24	1.7
26	1.6
28	1.5
30	1.4
32	1.3
34	1.2
36	1.1
38	0.9
40	REW
Mar 30, 1972	
1	LEW
6	0.3
8	0.5
open water	
34	0.8
35	0.9
36	REW

Distance Across River (ft)	Ice Thickness (ft)
Fairbanks: Measurements made on Chena River	
Nov 1, 1965	
120	REW
115	2.0
110	1.3
105 to 100	1.2
95 to 90	1.1
85 to 80	4.5
75	5.0
70	6.0
65	7.0
60	8.0
55	8.8
50	9.2
45	6.5
40	7.0
35	5.5
30	4.5
25	5.3
20 to 5	3.6
0	LEW
Feb 5, 1966	
0	REW
10	1.6
20	2.0
30	1.8
40	2.1
50	2.0
60 to 70	1.8
80	2.0
85	1.8
90	1.7
100	1.3
105	LEW
Mar 20, 1966	
150	REW
145	0.3
140	0.6
135	1.2
130	1.0
125	0.3
120 to 95	0.4
90 to 85	0.3
80	0.4
75	0.5
70 to 65	0.4
60	0.5
55	0.4
50	0.1
45	0.3
30	0.4
20 to 5	frozen to bottom
0	LEW
Dec 27, 1967	
2	REW
6	1.4
12	1.0

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Chena River (cont'd)	
Dec 27, 1967	
18 to 24	0.8
30	1.0
36	0.8
42	0.9
48	0.7
52	0.6
58	0.7
64 to 68	0.6
160	0.4
168 to 172	0.5
176	LEW
Feb 12, 1968	
6	REW
16	0.4
20	1.0
24 to 32	1.6
36	1.0
40	0.5
44	0.7
48	0.4
50 to 53	0.5
55 to 60	0.6
65	0.3
80	0.4
85	0.3
115 to 128	0.2
133 to 138	0.4
145	0.2
160	1.3
165	LEW
Dec 20, 1968	
2	REW
7	1.2
13	1.0
20	0.7
25	0.8
30	0.9
35	0.8
40	0.6
45	0.7
50	0.6
115	0.5
120 to 125	0.7
130	0.8
135	0.6
140	0.9
145	1.1
150	LEW
Dec 12, 1969	
10	REW
15	1.0
20	0.3
25	0.5
30	0.8
35	0.9
40 to 45	1.3

Distance Across River (ft)	Ice Thickness (ft)
Chena River (cont'd)	
Dec 12, 1969	
50	1.1
55	1.4
60	0.3
65	0.6
70 to 75	0.4
80	0.2
180	LEW
Dec 28, 1971	
174	REW
170 to 150	1.3
145	1.1
140	1.2
135	1.9
130	1.6
125 to 120	1.0
115	0.9
110	1.0
105	0.9
100	0.8
95	0.5
55	0.3
50	0.8
45 to 40	0.5
35	0.6
30	0.9
25	0.5
20	0.9
15	1.0
0	LEW
Jan 21, 1972	
110	REW
105 to 100	1.1
95	0.9
90	0.8
85 to 80	1.0
75	0.8
70	0.6
65	0.8
60	0.7
55	0.3
50	0.5
46	1.0
42	0.8
38 to 30	1.1
26	1.0
22	1.2
14	0.1
10	open water
6	LEW
Feb 22, 1972	
100	REW
95	1.1
90	1.3
85	1.8
80	1.7
75	1.6

Distance Across River (ft)	Ice Thickness (ft)
Chena River (cont'd)	
Feb 22, 1972	
70	0.9
65	0.2
60 to 55	0.8
50	0.2
45	0.8
40 to 30	0.9
25	1.0
20	1.3
15	1.1
10	1.4
5	1.5
0	1.3
-5	0.2
-10	LEW

Fairbanks: Measurements made on Little Chena River

Dec 8, 1968	
0	LEW
2 to 5	1.7
8	1.6
10	1.5
12 to 14	1.6
16	1.4
18	1.3
20 to 22	1.2
24	1.0
26 to 28	2.0
34	1.3
38	1.2
42 to 46	1.3
50	1.5
54	REW
Feb 23, 1969	
5	REW
10	1.3
14	0.8
20	1.0
28	4.1
34	2.4
40	4.0
45	4.3
50	0.6
55	LEW
Feb 2, 1971	
8	LEW
10	slush to bottom
12	2.1
14	2.2
16	2.3
18	2.6
20	2.5
22 to 26	2.6
28 to 32	2.4
34	2.2
36	2.0

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Little Chena (cont'd)	
Feb 2, 1971	
38	1.9
40	1.8
42	2.0
44	2.1
46	2.6
49	REW
Dec 6, 1971	
-3	LEW
0	1.3
3	1.4
6	1.6
9 to 21	1.5
30	1.3
33	REW
Apr 28, 1972	
10	REW
20	5.4
25	5.7
30	5.4
36	5.2
39	4.8
44	4.5
50	LEW
Fairbanks: Measurements made on Wood River	
Apr 9, 1967	
2	REW
4	3.3
6	3.0
8 to 16	3.4
18	3.3
20 to 26	3.2
30	3.4
34	3.3
38	3.2
42 to 55	3.0
60	3.1
65 to 70	3.0
75	3.4
80	2.8
90	2.4
105	1.7
110 to 115	1.5
120 to 125	1.6
128	LEW
Mar 25, 1972	
5	REW
10	3.2
15	2.9
20 to 30	2.8
35 to 40	2.9

Distance Across River (ft)	Ice Thickness (ft)
Wood River (cont'd)	
Mar 25, 1972	
50	3.3
60	3.4
70	3.3
75 to 85	sand bar
90 to 95	2.0
100 to 105	1.8
110	1.7
115	1.9
120	1.4
125	2.1
130	LEW
Apr 23, 1971	
2	REW
5	1.7
8	1.9
12	2.0
15	2.3
18	2.5
22	2.7
26	2.8
30 to 35	2.5
40	2.4
45 to 55	2.6
60	2.3
65	2.2
70	2.0
75	1.5
80	1.9
85	2.0
90	1.9
95	1.8
100	1.4
105	1.5
110	1.3
115	1.8
120	1.9
125	1.1
130	1.3
Jan 6, 1972	
6	REW
10	1.3
14	1.2
18	1.3
22 to 30	1.6
35 to 55	1.7
60	1.8
65 to 70	1.7
75	1.6
80 to 85	1.5
90	1.3
95	0.9
100	1.3
105	1.4
110	1.5
115	LEW
Apr 22, 1972	
0	LEW

Distance Across River (ft)	Ice Thickness (ft)
Wood River (cont'd)	
Apr 22, 1972	
4	1.7
10	0.3
15	0.7
20	0.9
25	1.5
33	1.8
41	1.7
50 to 55	2.0
60 to 65	2.1
70	2.0
75 to 80	2.2
85	2.1
90 to 95	2.3
100	2.1
105 to 110	1.9
115	2.2
120	2.1
125 to 130	1.5
135	REW
Fort Yukon: Measurements made on Porcupine River	
Nov 23, 1965	
0	LEW
50	2.7
100	2.5
150	6.0 slush
200 to 300	2.5
325	7.0 slush
350 to 375	8.0 slush
400	7.2
425 to 450	7.5
475	6.0
500	5.0
525 to 550	2.5
600	2.3
650	2.0
700	REW
Mar 1, 1966	
25	REW
50	3.7
100	3.6
150	3.4
200	3.0
225	3.5
250	frozen to bottom
275	2.7
300	LEW
Nov 29, 1966	
0	REW
10	2.0
60	1.9
110	1.3
160	1.4
210 to 260	1.8
285	1.7
310	1.6
335	1.4

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Porcupine River (cont'd)	
Nov 29, 1966	
360	1.3
385 to 435	1.5
460	1.6
500	LEW
Apr 28, 1969	
-10	REW
-5	0.8
0	0.9
10	1.2
20	1.0
30	1.1
40	1.2
50	1.1
90	0.5
100	2.2
150	2.4
200	3.7
250 to 300	2.2
350	2.4
400	2.6
440	2.7
495 to 550	2.9
610	3.1
650	3.0
705	3.1
760	1.6
810	1.5
850	0.9
885	0.7
925	0.5
930	LEW
Mar 7, 1970	
0	REW
20	2.6
30	2.7
40	2.8
50	3.0
60	2.9
70	2.7
80	2.5
90	3.2
100	3.4
110	4.0
120	LEW
Apr 12, 1972	
0	REW
10	3.8
40	3.1
70	2.9
90	3.4
110	3.3
130 to 370	3.4
190	3.8
210 to 230	3.4
250	3.6
270	3.5

Distance Across River (ft)	Ice Thickness (ft)
Porcupine River (cont'd)	
Apr 12, 1972	
290 to 310	3.3
330 to 350	3.4
370 to 430	3.5
470	3.4
510	3.2
550 to 590	3.4
630	3.1
670	3.4
710 to 790	3.1
830	LEW

Glennallen: Measurements made on Tazlina River

Distance Across River (ft)	Ice Thickness (ft)
Dec 19, 1968	
165	LEW
160	1.5
150	1.9
140	2.2
130	2.2
120	2.3
115	2.1
110	2.3
105	2.5
100	2.6
95	2.5
90	2.6
85	2.5
80	2.4
75 to 70	2.3
65	1.8
60	1.0
50 to 40	0.4
30	0.3
20	0.6
10	1.2
4	LEW
Mar 16, 1971	
6	-
10	REW
16	2.8
20	2.7
23	2.4
27	2.5
30	2.8
34	3.0
37	3.0
40	2.9
44	2.6
47	2.4
50	2.3
53	2.4
57	2.5
62	3.1
77	2.3
87	slush
96 to 98	slush
118	LEW

Distance Across River (ft)	Ice Thickness (ft)
Tazlina River (cont'd)	
Dec 16, 1971	
9	3.2
13	2.9
16	2.6
19	2.1
22	1.5
25	1.2
28	1.1
31	1.3
33	1.8
35	1.9
38	2.2
41	1.5

Gold Creek: Measurements made on Susitna River

Distance Across River (ft)	Ice Thickness (ft)
Dec 22, 1968	
-158	open water
-60	-
-24	-
2	-
14	1.4
22	2.3
27	2.1
32	2.4
37	2.2
42	4.2
47 to 55	2.2
65	2.4
80	1.8
90	2.0
100	2.3
110	1.9
115	1.8
120	1.9
125	2.0
133	0.8
165 to 207	-
218	0.3
233	0.2
244	LEW
Apr 15, 1969	
20	dry hole
25	REW
30	3.1
35 to 40	1.6
45	2.3
50	2.6
55 to 65	3.0
70	3.1
78	3.3
83	3.8
88 to 102	3.9
110	3.5
120	3.4
135	3.2
150 to 180	3.4
230	4.2
260 to 300	3.9
337	4.0
400	3.4

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Susitna River (cont'd)

Distance Across River (ft)	Ice Thickness (ft)
Apr 15, 1969	
460	2.8
492	3.3
520	3.7
541	4.0
552	3.8
572	3.0
582	REW
Apr 1, 1970	
0	LEW
10 to 20	3.8
30	3.6
41	3.3
52	2.7
63	2.9
72	3.6
83	3.5
93	3.6
104	3.3
115	3.6
128 to 152	2.6
164	2.5
174	2.7
188	2.9
200	3.0
210	3.2
222	3.5
232	3.2
244	3.4
258	2.8
270	3.8
284	2.7
290	REW
Jan 20, 1972	
10	
20	2.2
40	3.0
70	slush
100	4.6
120	slush
150	7.0
180 to 400	slush
420	2.5
435 to 450	1.6
455	2.4
480	2.1
495	1.8
510	2.0
525	2.5
540	-

Harding Lake: Measurements made on Tanana River

Distance Across River (ft)	Ice Thickness (ft)
Feb 22, 1970	
0	6.0
10	REW

Tanana River (cont'd)

Distance Across River (ft)	Ice Thickness (ft)
Feb 22, 1970	
20	5.9
50	5.1
80 to 120	5.5
130 to 140	5.0
160	5.5
180	5.7
200 to 220	5.0
240	4.8
260	5.0
280	4.2
300	3.9
320	3.4
340	3.7
360	3.5
370	3.6
385	3.7
395	LEW

Healy: Measurements made on Nenana River

Distance Across River (ft)	Ice Thickness (ft)
Feb 2, 1969	
98	REW
95	4.2
85	4.0
75	4.7
65	4.5
60	4.8
55	4.6
50	4.5
45	4.0
40	3.6
35	3.2
30	3.3
25	3.4
20	3.7
15	3.8
10	4.0
5	4.5
2	LEW
Mar 20, 1970	
0	LEW
5	5.5
10	4.3
15	3.6
20	3.5
25	3.4
30 to 35	3.3
40	3.4
45	3.7
50	4.1
55	4.5
60 to 190	bottom ice
210	REW
Apr 27, 1971	
90	REW

Nenana River (cont'd)

Distance Across River (ft)	Ice Thickness (ft)
Apr 27, 1971	
85 to 80	4.2
75	4.1
70	3.6
65 to 60	3.1
55	2.9
50 to 46	1.8
42	1.9
38	3.3
34	2.4
30	2.6
26	2.7
22	3.0
18	3.2
14 to 10	3.4
5	LEW
Apr 4, 1972	
5	LEW
20	4.5
30	3.9
40 to 50	4.5
60	4.3
70	4.0
80	3.3
90 to 110	3.0

Homer: Measurements made on Twitter Creek

Distance Across River (ft)	Ice Thickness (ft)
Apr 1, 1972	
4	LEW
5	0.3
6 to 7	0.1
8	open water
9	REW

Hope: Measurements made on Resurrection Creek

Distance Across River (ft)	Ice Thickness (ft)
Jan 23, 1969	
1	REW
3 to 11	-
13	0.3
15	0.6
17	0.7
19	0.9
21	0.8
23	1.0
25	0.9
27	0.5
29 to 31	open water
33 to 35	0.2
37	0.4
39	-
40	LEW

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Resurrection Creek (cont'd)	
Feb 3, 1972	
0	REW
2 to 4	-
6	0.2
8	0.5
10	0.7
11 to 12	0.8
14 to 16	0.5
17	0.8
18	0.9
20 to 22	0.7
24	0.6
26	0.4
27 to 29	0.3
31 to 33	0.2
35 to 39	0.4
42	LEW
Mar 31, 1972	
4	REW
6	0.9
8	0.6
10 to 45	open water
48	0.8
50	0.6
53	1.3
56	LEW

Hughes: Measurements made on Koyukuk River

Mar 9, 1969	
0	LEW
20	3.9
40	4.0
60	4.2
80	3.8
100 to 120	4.3
140 to 160	4.4
180	4.6
200 to 220	4.4
240	4.5
260	4.6
280	4.2
300	4.1
320	REW
Mar 9, 1970	
0	LEW
10	2.8
20	2.7
30 to 50	2.9
60	2.7
70 to 80	3.0
90 to 100	2.6
110 to 120	3.0
130	2.9
140	3.0
160	3.6
180	2.8

Distance Across River (ft)	Ice Thickness (ft)
Koyukuk River (cont'd)	
Mar 9, 1970	
200	2.2
220	REW
Mar 20, 1971	
0	REW
20	2.3
30 to 40	2.8
50 to 60	2.7
70	2.8
80 to 90	2.7
100	2.8
110	2.7
120	2.6
130 to 140	2.7
150 to 160	2.8
170 to 200	2.7
210	2.8
220 to 230	2.7
240	2.8
250	3.0
270	2.7
290	2.5
300	LEW
Mar 23, 1972	
0	REW
10	-
20	2.9
40	2.7
50 to 60	2.8
70	2.7
80	3.0
90	3.0
100	2.7
110	2.6
120	2.4
130	2.8
140	2.6
150	2.6
160	2.6
170	2.7
180	2.7
190	2.9
200	2.8
220 to 240	2.8
260 to 280	3.0
300	2.5
320	LEW

Kenai: Measurements made on Beaver Creek

Mar 20, 1971	
4	REW
4	open water
5 to 13	bridged
13	open water
14 to 16	0.1
18	0.2

Distance Across River (ft)	Ice Thickness (ft)
Beaver Creek (cont'd)	
Mar 20, 1971	
19	open water
21	LEW
Feb 16, 1972	
0	LEW
1	0.2
3	0.6
4 to 5	0.5
6	1.0
7	1.3
8	1.3
9	1.0
10	0.8
11	0.7
12	0.4
13	0.2
14 to 16	open water
17	REW

Lignite: Measurements made on Teklanika River

Feb 18, 1969	
0	LEW
5	3.3
10 to 15	2.8
20	2.5
25 to 32	2.6
35	2.8
40	2.4
45	2.6
50	2.0
55	2.2
60	2.0
65	1.9
70	2.4
75	2.6
77	REW
Mar 19, 1970	
0	LEW
5 to 28	6.0
32 to 63	5.5
68	REW
Dec 8, 1971	
1	LEW
4	2.1
7	2.3
10	2.0
15	1.6
20	1.7
25	2.1
30 to 35	1.3
40	1.4
45	1.7
50	1.5

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Teklanika River (cont'd)	
Dec 8, 1971	
55	1.2
60	1.5
65	1.9
70	1.5
75	1.1
80 to 83	1.5
88	1.1
90	REW
Apr 5, 1972	
0	LEW
5	1.8
10 to 15	1.7
20	1.8
25	2.0
30	2.2
35	2.1
40	2.3
45 to 50	2.6
53 to 60	dry
65	2.8
70	2.0
75	1.2
80	1.4
85	1.5
90	REW
Livengood: Measurements made on Hess Creek	
Nov 17, 1970	
-1	LEW
0	0.7
2 to 8	0.9
10 to 20	1.1
22	1.0
24 to 28	0.9
29	REW
McGrath: Measurements made on Kuskokwim River	
Mar 7, 1969	
0	LEW
40	2.6
80	3.1
120	2.2
160	2.3
180	2.1
200 to 220	2.4
240 to 320	2.1
340	3.0
370	2.0
400	2.4
420 to 440	2.2
460 to 480	2.0
500	2.5
520 to 540	2.3
550	REW

Distance Across River (ft)	Ice Thickness (ft)
Kuskokwim River (cont'd)	
Mar 12, 1970	
0	REW
10	1.9
25	2.1
55	2.2
70 to 85	2.3
100	2.1
120	1.9
135 to 155	2.1
170	2.3
185	2.1
215	1.8
245	2.3
275	2.0
305	2.4
335	3.3
365	3.1
380	3.2
390	LEW
Mar 19, 1971	
0	LEW
20	3.2
40	2.7
60	3.1
80	2.8
100 to 160	2.7
180	2.6
200 to 220	2.5
220	2.4
240	2.7
260	2.6
280	2.7
300	2.8
320	2.7
340	3.3
360	2.9
400	2.0
440	1.7
480	2.1
500	2.3
560	1.8
600	REW
Mar 22, 1972	
0	LEW
-10	-
0	3.1
20	2.8
50 to 80	3.1
110	3.2
140	3.3
170	3.2
200	2.9
230	3.1
260	2.8
290	3.0
320 to 350	2.8
380	3.0
440	2.6
500	3.0

Distance Across River (ft)	Ice Thickness (ft)
Kuskokwim River (cont'd)	
Mar 22, 1972	
510	REW
Nenana: Measurements made on Tanana River	
Dec 13, 1969	
0	LEW
30	1.8
70	1.5
100	1.1
130	1.2
160 to 220	1.8
250	1.5
280	1.8
310 to 340	1.7
370	1.9
400 to 460	1.6
490 to 520	1.9
550	2.0
580	1.7
610 to 640	1.6
670 to 730	1.9
760	2.0
790	1.9
820	1.7
850	REW
Feb 26, 1970	
18	REW
20 to 40	4.0
60 to 100	2.5
120	3.0
140 to 200	4.0
220 to 240	3.0
260 to 280	3.5
320 to 380	4.0
390	LEW
Feb 11, 1971	
-4	REW
0	1.6
10	3.9
20	3.1
40	3.4
60	3.6
80	2.6
100	2.7
120	2.6
140 to 160	2.7
180 to 220	3.0
240	2.8
260 to 280	2.7
300	2.8
320	3.1
340	3.0
360	2.6
380 to 400	2.8
420	2.7
440	2.8

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Tanana River (cont'd)

Feb 11, 1971

Distance Across River (ft)	Ice Thickness (ft)
460	2.9
480 to 500	2.6
520	2.5
540	2.8
560	2.7
580 to 600	2.6
620	2.9
640 to 680	2.8
700	3.0
710	LEW

Dec 14, 1971

0	REW
30 to 110	1.8
150	1.2
180 to 210	1.3
240	1.7
270	1.4
300 to 340	1.5
360 to 490	1.3
520	1.4
550 to 610	1.3
650	1.8
690	1.9
730	2.2
770	LEW

Apr 21, 1972

0	LEW
50	3.1
75	3.3
100	2.9
125	2.6
150	3.8
175	2.4
200	2.5
225	2.3
250	2.7
275 to 325	2.6
350	2.5
375	2.6
400	2.7
425	3.1
450	2.8
475 to 500	2.6
525	2.7
550	3.2
575 to 600	3.0
625	2.9
650	3.1
675	2.9
700	3.3
725	3.2
750	3.5
775	REW

Ninilchik: Measurements made on Ninilchik River

Jan 13, 1969

7	REW
9	0.6
11	0.7
13	0.6
15 to 18	0.5
20	0.6
23	1.1
25	0.7
27	0.6
28	0.5
30	0.3
31	0.4
32 to 34	0.2
36 to 40	open water
42	LEW

Mar 21, 1969

9	LEW
10	1.0
12	0.2
14	open water
16	0.2
18	1.1
20	1.0
22	0.7
24	0.5
26	0.4
28	0.5
30	0.8
32	REW

Mar 4, 1970

42	LEW
41	2.3
39	1.2
36	1.7
34 to 32	1.3
29	1.2
26	2.4
24	-
21	2.5
18 to 15	2.4
13	2.7
10	3.0
8	REW

Dec 21, 1970

5	REW
10	0.9
14	1.1
20	1.5
25	1.4
31	1.0
35	0.7
39	0.3
44	LEW

Ninilchik River (cont'd)

Mar 23, 1971

1	REW
2	-
4	0.6
5 to 31	bridged

Feb 17, 1972

-1	REW
0	1.2
1	0.4
2	0.5
3	0.4
4	1.0
5	1.1
7	1.4
8	1.1
9	1.0
10 to 12	0.9
13	1.0
15	1.1
17	1.5
19	LEW

Apr 1, 1972

0	REW
5	0.9
6	0.7
8 to 12	0.9
14	0.6
16	0.7
19	1.0
21	-
23	-
26	LEW

Noatak: Measurements made on Noatak River

Mar 9, 1970

0	LEW
300 to 400	4.3
500	4.2
700	REW

Nome: Measurements made on Kuzitrin River

Mar 10, 1970

0	LEW
2	3.0
5	2.4
8	2.8
10	3.0
12	3.2
15	3.6
17	3.8

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Kuzitrin River (cont'd)	
Mar 10, 1970	
20	1.0
22	3.8
25 to 27	3.2
30	3.7
32	3.8
35 to 37	4.0
40	REW
Nome: Measurements made on Snake River	
Mar 10, 1969	
0	LEW
1	1.0
2	0.3
3 to 8	open water
9	0.1
10	0.3
11	0.4
12	0.5
13	0.7
14	1.0
15	REW
Mar 12, 1970	
0	REW
2	2.3
3	1.8
4	1.6
5	1.5
6	1.6
7	1.5
8	1.6
9	1.7
10 to 11	1.8
12	1.8
13	2.1
14	2.2
15	2.3
16	LEW
Mar 26, 1972	
0	LEW
1	1.7
2 to 3	1.8
4 to 6	1.9
7 to 11	2.0
12	2.1
13	2.0
14 to 18	2.1
20	2.3
24	REW
Northway Junction: Measurements made on Chisana River	
Mar 17, 1970	
0	REW
7 to 14	1.9

Distance Across River (ft)	Ice Thickness (ft)
Chisana River (cont'd)	
Mar 17, 1970	
21	1.8
28 to 42	1.9
49	2.0
56	2.1
63	2.5
70	2.0
77 to 84	1.9
91	2.0
98 to 145	1.9
155	2.0
165	2.9
175	LEW
Dec 15, 1970	
35	LEW
40	2.7
50	2.8
60	2.9
70	2.9
80	3.2
90	3.3
100	3.1
110	3.0
120	2.9
130	2.8
140	2.9
150	2.8
160	2.9
170	3.0
180	2.8
183	REW
Palmer: Measurements made on Knik River	
Nov 26, 1968 Channel #2	
0	LEW
5	-
10	0.8
20	0.9
30	0.8
42	0.7
50	0.8
60	0.9
70 to 80	0.7
90	0.6
100	0.8
115 to 130	0.7
145	0.8
160	0.6
175	0.8
190 to 210	0.9
220 to 230	1.0
240	0.8
247	0.6
251	REW
channel #1	
0	LEW
3 to 10	0.8
20 to 41	0.9
55	0.6

Distance Across River (ft)	Ice Thickness (ft)
Knik River (cont'd)	
Mar 26, 1968 channel #1	
65 to 85	0.9
93	REW
Jan 24, 1969 channel #2	
0	LEW
5	1.8
10	2.3
20	2.5
30	2.3
40	2.2
50	2.0
60	1.8
70	1.7
80	1.6
90	1.7
100	2.0
110	2.2
120	2.3
130	2.0
140 to 160	-
170	2.5
180	2.5
190	2.4
200	2.2
210	2.3
220	2.2
230	2.1
240	0.4
245	REW
channel #1	
0	2.0
5	2.5
10	3.2
20	3.3
30 to 40	3.2
50 to 60	3.0
70	2.9
72	-
Mar 27, 1969 channel #2	
0	LEW
10	2.0
20	1.8
30	1.9
40	1.8
50	1.6
60	1.7
70	1.8
80	2.0
90 to 100	2.2
110	2.5
120	2.1
130	1.6
140 to 150	-
160	2.5
170	1.9
180	1.6
190 to 210	1.5
220	1.6
230	0.6

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Knik River (cont'd)	
Mar 27, 1969	
channel #2	
235	REW
channel #1	
0	LEW
5	3.0
10	3.2
20	2.9
30	2.8
40	3.0
50	3.2
60	3.4
65	REW
Jan 30, 1970	
15	LEW
18	1.9
27	1.3
37	1.6
50	1.9
60	2.4
70	3.0
80 to 90	3.4
100	2.9
110	2.2
120	1.6
130	1.3
140	1.5
150	1.7
160	2.0
165	REW
Dec 11, 1970	
0	LEW
80	1.4
110	1.5
160 to 180	1.4
195	1.3
220	-
260	1.8
300	1.6
320	1.4
340	1.7
350 to 360	1.4
370	1.5
380	1.6
390 to 420	1.4
430	1.3
440 to 450	1.2
460	1.6
470	1.1
480	1.0
490	1.2
500	0.9
510	1.2
520	1.0
540	REW
Mar 9, 1971	
10	LEW
16	3.5
26 to 45	3.0
55 to 65	2.9
75 to 95	2.8
105	2.7
115	2.8
125	2.7
135	2.8
145	2.9
156	2.8
167	2.7
178	2.5
188	2.4
197	2.3
205	2.2
221	2.5
230	3.8
240	REW
Dec 2, 1971	
channel #2	
20	LEW
25 to 30	0.7
35 to 45	0.6
50	0.5
55	0.4
60 to 65	0.5
70 to 110	1.0
120 to 140	0.9
145 to 160	1.0
170	1.2
180	1.3
190 to 210	1.4
220	1.3
230 to 240	1.4
250 to 300	1.5
310	REW
channel #1	
85 to 70	0.1
50	0.5
30	4.5
10	1.9
0	LEW
Feb 24, 1972	
7	-
13 to 21	0.5
29	1.5
37	1.8
45 to 53	1.9
65	1.6
71 to 77	1.8
83	2.0
89 to 95	1.9
101 to 131	2.0
137 to 143	2.1
149	2.3
155	REW
Palmer: Measurements made on Little Susitna River	
Dec 28, 1965	
0	REW
2	0.2
5	0.3
6	0.4
8	0.5
10 to 12	0.4
13 to 20	0.3
22	0.4
24	0.5
25 to 28	0.4
30	0.2
35	LEW
Jan 30, 1966	
0	LEW
-2	-
0 to 2	0.4
4	0.6
5	0.9
6 to 7	0.8
8	0.9
9 to 12	0.8
13	0.6
14	0.7
15	0.5
16 to 20	0.4
22	REW
Feb 24, 1966	
33	REW
31	0.7
29	0.6
27 to 25	0.8
23 to 19	0.5
17 to 13	0.6
12	LEW
13	REW
10 to 6	0.6
4	0.5
3	0.6
0	0.7
-3	LEW
Dec 27, 1967	
0	LEW
-10	-
10 to 5	0.4
7 to 11	0.3
12 to 14	0.4
16 to 20	0.3
22	0.5
24	0.3
25	0.2
26	REW
Nov 25, 1968	
0	LEW
26	0.2
24	0.4
22	0.7

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Little Susitna River (cont'd)

Distance Across River (ft)	Ice Thickness (ft)
Nov 25, 1968	
20	0.7
18 to 16	1.1
14	1.9
12	0.8
10 to 8	0.7
6	0.6
0	REW
Dec 27, 1968	
0	LEW
6	-
8 to 11	0.6
12 to 13	0.7
14	0.8
15 to 17	0.9
18	0.8
19 to 20	0.7
21 to 22	0.6
23	0.5
24 to 25	0.4
26 to 32	0.3
34	REW
Jan 27, 1969	
7 to 9	0.8
10 to 12	0.9
13 to 18	1.0
19 to 20	0.9
21	0.8
22	0.7
23	0.6
24	0.7
25 to 26	0.6
27	0.5
28	0.4
29	0.5
30	REW
Mar 25, 1969	
0	REW
15 to 18	-
20	0.3
22	0.5
23	0.6
24	0.8
25	0.9
26	0.8
27	0.9
28	1.0
29	0.9
30	0.8
31	1.0
32 to 33	1.1
34	1.3
35	1.2
36	1.0
37 to 38	0.9
39	0.5
40	0.4
41	0.2

Little Susitna River (cont'd)

Distance Across River (ft)	Ice Thickness (ft)
Jan 27, 1970	
13	-
15	0.7
16	0.8
17	0.5
18	0.4
19 to 20	0.3
21	0.2
22	0.3
23	0.5
24	0.6
25	0.7
26 to 27	0.6
28	0.7
29 to 30	0.9
31	0.5
33	0.7
34	0.5
36	0.3
37	open water
41	-
45	LEW
Mar 23, 1970	
18	LEW
20	0.5
22 to 24	0.8
26 to 28	0.9
30	0.8
32 to 36	0.7
38	0.8
40	0.7
42	0.6
44	0.5
46 to 48	0.6
50 to 54	0.8
56	0.7
58	0.5
40	REW
Dec 28, 1970	
3	LEW
7	0.4
9 to 11	0.6
13 to 15	0.8
17 to 23	0.7
24	0.3
25	0.4
27 to 29	1.0
30	1.2
32	0.9
33	0.7
35	0.6
36	0.5
38 to 41	0.4
44	-
46	REW
Jan 25, 1971	
0	REW
-10	-

Little Susitna River (cont'd)

Distance Across River (ft)	Ice Thickness (ft)
Jan 25, 1971	
1	1.1
3	1.8
5	2.1
7	2.0
9	1.8
11 to 14	1.5
16	1.6
18 to 20	1.8
22 to 24	2.0
26	1.6
28	-
29	LEW
Mar 26, 1971	
2	LEW
6 to 14	0.5
16 to 18	0.4
20	0.3
22	0.2
24	0.3
26	0.4
28 to 30	0.5
32	0.1
34	-
32	REW
Dec 22, 1971	
-3	-
0	1.1
2 to 6	1.0
8 to 20	0.5
22	1.0
26	-
29	-
Jan 26, 1972	
-4	-
0	0.9
2 to 4	0.8
6	0.9
8	0.7
10 to 12	0.6
14 to 16	0.7
18	0.8
20	0.9
22	1.0
24	1.1
30 to 38	-
Feb 24, 1972	
7	LEW
8	0.7
10	0.9
12	1.0
14 to 16	0.9
18 to 24	0.8
26 to 28	0.7
30	0.5
32 to 41	-

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Palmer: Measurements made on Matanuska River

Nov 26, 1968

Distance Across River (ft)	Ice Thickness (ft)
135	REW
130	0.6
125	0.5
120 to 115	0.3
110	0.2
105 to 95	0.6
90 to 80	0.9
75	0.8
70	0.9
65	0.8
60	0.9
55 to 45	1.0
40	1.1
35	1.0
30	0.9
25	1.1
20	1.2
15	0.9
10	-
5	-
1	LEW

Jan 28, 1969

11	LEW
16	3.4
22	2.7
30	4.1
35	3.6
40	3.7
45 to 50	-
55 to 60	3.6
65	3.5
70	3.2
75 to 80	3.0
85	3.1
90 to 95	3.2
100	3.3
105 to 115	3.2
120 to 125	3.0
130 to 135	2.8
140	3.3
145	3.7
150	REW

Jan 30, 1970

	LEW
155	1.4
150	1.5
145 to 140	1.4
135 to 125	1.0
120	1.1
115	1.3
110	1.5
105	1.6
100 to 90	1.7
85 to 50	1.8
45	1.7
40	1.6
30	1.8
25	1.1
20	REW

Matanuska River (cont'd)

Dec 14, 1970

	LEW
0	2.5
12	1.6
16	3.2
20	0.8
24 to 28	0.5
32	0.4
36	0.3
40	0.4
44 to 48	0.3
52	2.3
56	1.8
64	1.6
75	2.2
85	1.8
95	2.0
105	1.9
120	2.0
130 to 140	1.9
150	1.5
160	1.6
170 to 200	1.1
210	1.2
220	1.0
230	1.0
280	REW

Feb 4, 1971

	LEW
-50	-
0 to 10	2.5
20	2.1
30	1.6
40	1.3
45	1.6
50	2.0
55	2.1
60	1.9
65 to 70	2.0
75	2.1
80 to 85	2.2
90	2.3
95 to 100	2.4
110	2.6
120	3.0
125	3.1
130	3.2
135	3.0
140	3.1
150	2.8
160	-
165	REW

Jan 13, 1972

0	-
10 to 15	1.1
20 to 25	0.9
30	0.7
35 to 40	0.6
44	0.5
48	0.2

Matanuska River (cont'd)

Jan 13, 1972

52	0.6
56	0.8
60	0.9
65	0.8
70	0.8
75	0.5
80	0.7
85	1.0
95	1.2
105	1.6

Mar 28, 1972

0	REW
4	2.2
10 to 16	2.0
20	1.9
24 to 28	1.8
32	1.7
36	1.8
40 to 44	1.9
48	1.7
51	1.5
55	1.6
59 to 68	1.7
72	1.5
75	1.4
80 to 85	1.2
90	1.3
95	2.0
100	LEW

Paxson: Measurements made on Maclaren River

Mar 27, 1968

5	REW
10	3.0
15	2.5
20	2.4
25	3.0
30	3.4
35	3.3
40	3.0
45 to 50	2.4
55 to 75	-
80 to 90	2.9
95	2.7
100	2.8
105	3.2
108	LEW

Apr 16, 1969

12	LEW
15	4.9
20 to 25	4.7
30	5.0
35	5.1
40 to 50	5.2
60	5.0

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Maclaren River (cont'd)

Apr 16, 1969

Distance Across River (ft)	Ice Thickness (ft)
66	REW

Rex: Measurements made on Nenana River

Dec 15, 1966

Distance Across River (ft)	Ice Thickness (ft)
2 to 12	2.0
18	2.2
23 to 41	2.4
44 to 47	2.2
50 to 53	2.1
56	2.2
59	-
62 to 68	2.2
71	2.3
74	2.4
85	3.0
95 to 105	3.2
125 to 350	slush

Dec 15, 1967

Distance Across River (ft)	Ice Thickness (ft)
16	4.5
20	4.2
23	4.0
26 to 29	3.3
32	3.1
35	3.4
37 to 40	3.5
43	3.2
46	3.1
49	3.2
52	3.1
55 to 58	2.8
61	2.5
64	2.9
67	3.4
71	3.8
77	4.7
95 to 110	slush

Ruby: Measurements made on Melozitna River

Mar 20, 1971

Distance Across River (ft)	Ice Thickness (ft)
0	REW
6 to 13	-
15	1.2
17	1.1
20 to 21	0.8
24 to 26	0.6
28 to 30	0.5
31 to 41	0.4
44	0.3
48	LEW

Melozitna River (cont'd)

Mar 23, 1972

Distance Across River (ft)	Ice Thickness (ft)
0	REW
1	-
2	1.4
3 to 6	1.3
7 to 12	1.4
14	-
15	1.4
16 to 24	1.5
26	1.4
28 to 32	1.3
34	1.4
36	1.5
38	1.8
40	LEW

Ruby: Measurements made on Yukon River

Mar 3, 1969

Distance Across River (ft)	Ice Thickness (ft)
0	REW
100	-
200	3.0
300	5.0
400 to 500	4.0
600 to 800	3.0
900 to 1100	2.7
1200	2.6
1200 to 1350	2.7
1400 to 1450	3.0
1500	3.3
1550	3.0
1600	2.8
1650	2.6
1700	2.5
1800	1.8
1900	LEW

Mar 8, 1970

Distance Across River (ft)	Ice Thickness (ft)
0	REW
100	5.5
200	4.0
300	3.5
400	4.0
500	3.5
600 to 900	4.0
1000	3.5
1100	3.3
1150 to 1200	3.5
1300	4.0
1450	3.0
1500	2.0
1600	LEW

Mar 19, 1971

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
100	4.5
200	2.9
400	3.5
500	3.0
600	2.7

Yukon River (cont'd)

Mar 19, 1971

Distance Across River (ft)	Ice Thickness (ft)
700	2.8
800	7.5
900	3.2
1000	4.5
1200	2.0
1400 to 1500	2.5
1600	6.0
1700	REW

Mar 22, 1972

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
50 to 100	4.0
200	3.5
300	3.2
400	3.5
500	3.8
600	3.5
700 to 800	3.6
900	3.3
1000	3.4
1100	3.0
1200 to 1300	3.1
1400	4.0
1500	3.6
1600 to 1700	3.7
1800	REW

Sagwon: Measurements made on Sagavanirktok River

Nov 15, 1970

Distance Across River (ft)	Ice Thickness (ft)
0	REW
5	2.2
10 to 15	2.4
20 to 25	2.3
30	2.4
35 to 55	2.5
75	2.2
95	2.0
115	2.1
135	2.5
155 to 175	2.0
195	2.1
215	2.2
235	2.8
245	2.7
255	2.2

Mar 17, 1971

Distance Across River (ft)	Ice Thickness (ft)
6	LEW
7	3.0
11	2.7
14	2.8
17	2.7
19	2.8
23	3.0
26	2.9
29	3.1
32	3.2
35	3.0
38	REW

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Salchaket: Measurements made on Salcha River

Apr 17, 1969

Distance Across River (ft)	Ice Thickness (ft)
10	REW
16	2.3
22	1.9
28	2.0
34	2.6
40	1.6
45	2.1
50	1.1
55	1.4
60	1.5
65 to 70	1.7
75	1.8
80	2.0
90	2.7
100	2.1
110	2.2
120	2.2
130	2.3
140 to 160	2.5
165	LEW

Dec 11, 1969

Distance Across River (ft)	Ice Thickness (ft)
0	REW
2	0.8
4	1.0
6 to 15	0.4
18	0.6
21	0.8
24	0.7
27	0.9
30	1.0
33 to 39	1.2
42 to 51	1.1
54	1.2
57 to 69	1.1
74 to 79	1.2
84 to 99	1.1
104	1.0

Dec 7 1970

Distance Across River (ft)	Ice Thickness (ft)
7	LEW
10	2.9
15 to 20	2.5
24	2.6
28	2.7
32 to 41	2.6
45	2.5
49	2.2
53	1.4
57	0.5
62	REW

Apr 25. 1972

Distance Across River (ft)	Ice Thickness (ft)
4	LEW
8	2.6
12	2.2
16	1.7
20	1.5

Salcha River (cont'd)

Apr 25, 1972

Distance Across River (ft)	Ice Thickness (ft)
24	1.7
28 to 32	2.2
37	2.1
42	2.5
47	2.5
52	2.3
57	2.1
62	2.3
67 to 72	2.1
77	1.1
82	0.5
86	REW

Skwentna: Measurements made on Skwentna River

Apr 1, 1969

Distance Across River (ft)	Ice Thickness (ft)
15	2.6
20	2.4
25	2.5
30	2.4
35	2.9
40	3.0
45	2.9
50 to 55	2.6
60	2.6
68	2.5
78	2.4
88 to 94	2.5
102	2.6
110	2.3
118	1.9

Mar 31. 1971

Distance Across River (ft)	Ice Thickness (ft)
44	REW
50	3.4
60	3.5
70	3.2
75	3.2
80 to 90	3.1
95	3.2
100	3.4
105 to 115	3.3
120	3.4
125	3.5
130	3.9
140 to 160	slush
170 to 180	5.0
200	4.2
220	4.4
240	4.1
255	-

Jan 19 1972

Distance Across River (ft)	Ice Thickness (ft)
5	2.1
15	1.7

Skwentna River (cont'd)

Jan 19. 1972

Distance Across River (ft)	Ice Thickness (ft)
25 to 35	2.1
40	2.3
45	2.0
50	2.3
55	1.9
60	2.4
65	2.6
70	1.7
75	2.1
85 to 95	2.0
105	4.5
115	slush
145	3.0
165	2.1

Soldotna: Measurements made on Kenai River

Jan 15 1969

Distance Across River (ft)	Ice Thickness (ft)
10	REW
20	1.6
30	2.1
40	2.5
50	2.0
60	2.1
70	2.6
80	2.5
90	2.4
100	1.7
110	1.6
120	1.7
130	1.9
140	2.0
150	1.7
160	1.5
170 to 190	1.4
200	1.7
205	2.5
210 to 215	2.7
220	3.0
225	2.3
230	1.6
235	LEW

Feb 27. 1969

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
10	0.3
20	1.8
30	1.8
40	1.6
50	1.5
60	1.4
70	1.5
80	7.0
220	REW

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Kenai River (cont'd)	
Mar 19, 1969	
0	LEW
10	1.5
20	1.7
26 to 40	1.8
50	1.2
60	1.0
70	1.4
80	1.5
90	2.0
100	1.8
116	1.5
126 to 146	1.0
156 to 176	1.8
186	1.0
	REW
Jan 29, 1971	
	REW
30	2.7
50	3.9
60	1.9
70	2.2
80 to 90	2.1
100 to 110	2.0
120	1.7
130	2.1
190	3.4
200	3.5
210	4.0
220	LEW
Mar 24, 1971	
0	REW
11 to 50	-
100	3.8
122 to 125	-
150	3.5
170	4.1
200	4.0
240	LEW
Mar 23, 1972	
0	REW
79	-
83	0.1
90	1.6
100	2.3
110	2.1
120	1.9
130 to 140	1.8
150 to 160	1.9
170 to 180	1.8
190	2.0
200	2.1
210	2.3
220 to 230	2.0
250	1.9
270	1.8
290 to 320	1.6
330	1.9
340	1.8

Distance Across River (ft)	Ice Thickness (ft)
Kenai River (cont'd)	
Mar 23, 1972	
350	1.7
360	1.8
370 to 380	1.6
390	1.7
400	2.0
410	2.5
420	2.2
430	1.8
440	2.1
450	1.4
460	2.3
470 to 480	1.7
500	2.2
510	1.4
520	-
524	LEW
Feb 16, 1972	
0	REW
10	1.1
20	1.8
30	1.9
40	1.6
50	1.6
60 to 90	1.5
100	1.6
110	1.8
120	3.5
130 to 140	-
150	5.0
160	3.3
180	3.5
190 to 210	5.0
220	3.9
230	2.7
240	2.1
250 to 260	1.9
270	4.0
290	5.4
3 0	4.5
330	LEW
Spenard: Measurements made on Campbell Creek	
Mar 28, 1969	
17	LEW
18	3.0
19	2.5
20	2.1
21	2.2
23	2.3
24	2.5
25 to 28	2.4
29	2.5
30	2.9
31	REW
Jan 29, 1969	
37	LEW

Distance Across River (ft)	Ice Thickness (ft)
Campbell Creek (cont'd)	
Jan 29, 1969	
36 to 35	3.6
34 to 17	3.7
16	REW
Feb 4, 1969	
5	REW
6	3.8
7 to 15	3.7
16	3.8
17 to 18	3.9
20	LEW
Dec 16, 1969	
2	LEW
3	1.7
4	1.8
5	1.9
6	1.9
7	1.8
8	1.8
9	1.8
10	1.8
11	1.8
12 to 13	1.9
14	1.8
15 to 21	1.9
22	2.0
Mar 3, 1970	
5	REW
7	3.0
9 to 11	3.1
13	3.0
15 to 19	3.1
21	3.0
23 to 25	2.9
27	2.7
30	LEW
Nov 30, 1970	
2	REW
3	0.8
4	0.7
6	0.9
7	1.0
9	1.1
10	1.3
12 to 13	1.4
15 to 16	1.3
18	1.1
19	0.9
21	0.7
Feb 5, 1971	
0	LEW
1	3.9
2	4.1
4	4.3

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Campbell Creek (cont'd)

Feb 5, 1971

Distance Across River (ft)	Ice Thickness (ft)
5	4.4
7 to 12	4.6

Jan 3, 1972

	REW
10	1.5
12	1.7
14 to 16	1.6
18 to 22	1.8
24	1.7
26	1.6
28	1.5
30 to 32	1.6
35	1.5
38	LEW

Feb 24, 1972

3	REW
6	3.2
9	3.1
11 to 15	3.0
17	2.9
19	3.1
21 to 22	2.8
24	3.0
27	LEW

Sutton: Measurements made on Caribou Creek

Dec 16, 1968

1	REW
2	bridge
3	0.1
6 to 7	bridge
9	0.3
10	0.4
12	0.5
15 to 18	0.7
21	1.0
24	1.1
27	1.0
30	0.7
33	0.6
36	0.5
37	LEW

Mar 10, 1969

	REW
46	0.8
44	1.2
43	0.9
42	1.1
41	1.3
40	1.5
39	1.3
38	2.2
37	2.3

Caribou Creek (cont'd)

Mar 10, 1969

35	2.4
34	LEW

Dec 13, 1970

0	
1	0.1
3 to 5	0.3
6 to 7	0.7
8	0.8
9 to 13	0.5
15	1.1
18	0.2
21 to 25	0.4

Jan 19, 1970

20	LEW
21	2.1
23	0.7
25	0.3
26	0.4
27	0.5
28	0.6
29	0.5
30	0.5
31 to 32	0.4
33 to 34	0.3
35 to 37	0.1
38 to 39	open water

Apr 8, 1970

8	LEW
10 to 11	0.7
12 to 13	0.8
14	0.9
15 to 16	1.0
17	1.1
18	1.0
19	0.9
20 to 22	0.8
24	0.9
26	0.8
28	0.5
31	0.1
33 to 41	open water

Dec 13, 1971

-1 to 1	0.8
3	0.7
5	0.6
6	0.7
8	1.0
9	0.9
11	0.8
13	0.6
14 to 18	bridged
19	0.3
20	0.6
21	0.8
22	1.0

Caribou Creek (cont'd)

Feb 18, 1972

67 to 66	0.5
65 to 64	0.8
62	0.6
60 to 58	0.5
55	0.8
48 to 30	open water

Apr 28, 1972

0 to 7	bridged
9	0.5
10 to 11	0.2
12 to 25	open water
26	bridged
27 to 29	0.1
31	-

Talkeetna: Measurements made on Chulitna River

Dec 23, 1968

45	LEW
55 to 90	2.2
105	1.9
120	1.5
135	1.7
150 to 160	1.8
170 to 190	1.9
200	1.8
210 to 220	1.9
230	1.7
240	1.8
268	2.0
278	open water

Apr 4, 1969

5	REW
10	2.6
15	2.9
25 to 30	2.1
35	2.5
40	2.4
45	2.6
50	2.8
55 to 60	2.4
65	2.3
70	2.5
75	2.6
80	2.5
90	2.3
100	2.5
110	3.0
120	2.6
135	0.2
145	0.8
150	1.0
157	0.3
165	LEW

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Distance Across River (ft)	Ice Thickness (ft)
Chulitna River (cont'd)	
Mar 31, 1970	
10	REW
-2	1.8
10	3.1
23	3.5
40	3.4
50	2.4
65	2.3
75	2.2
90	2.9
100	2.4
115	2.5
125	2.7
140	2.8
150	2.0
160	1.7
180	2.0
185	0.9
190	LEW
Jan 7, 1971	
-10	REW
0	1.8
10	2.5
20	2.3
26 to 32	2.5
38	2.4
44	2.2
50	2.4
55 to 60	2.2
66	2.1
72	2.3
79	2.5
85	4.0
95	4.6
105	6.0
115	5.8
125	3.2
135	4.0
145	6.0
155	2.6
165	2.0
Apr 1, 1971	
35	REW
40	3.0
45	2.8
50	2.5
55	2.8
60 to 75	2.9
80	2.6
85	2.4
90 to 95	2.2
100	2.3
105 to 110	2.6
115	2.7
120	2.6
125	2.7
130	2.8
140	5.3
156	2.7
165	2.3

Distance Across River (ft)	Ice Thickness (ft)
Chulitna River (cont'd)	
Apr 1, 1971	
180	2.7
200	LEW
Jan 18, 1972	
0	REW
10	2.3
20	2.0
30	2.1
40	1.9
50	2.4
55	1.6
60	1.3
65	0.8
70 to 75	1.5
80	2.2
85	1.2
165	0.5
180	1.3
195	LEW
Apr 17, 1972	
-7	REW
-1	2.7
5	2.8
10 to 25	3.3
30 to 40	3.0
45 to 50	3.3
55	2.7
60	4.6
65	4.8
70	5.0
80	4.0
95	3.0
110	2.9
125	2.8
140	2.2
145	LEW
Talkeetna: Measurements made on Talkeetna River	
Dec 21, 1968	
8	LEW
10	1.7
15	1.8
20	2.0
25	1.7
30	1.5
35 to 40	1.7
45	1.8
50 to 55	1.7
60 to 65	1.6
70	1.8
75 to 80	2.0
90	2.1
100	1.8
115 to 130	1.6
145	1.4
170	1.7
185 to 197	1.8

Distance Across River (ft)	Ice Thickness (ft)
Talkeetna River (cont'd)	
Dec 21, 1968	
201	1.6
207	REW
Apr 3, 1969	
8	LEW
13	2.5
20	1.8
30	2.5
40	2.4
50 to 60	2.3
70	2.6
80	2.9
90 to 100	3.3
110 to 120	2.9
130	2.7
140	2.6
150 to 160	2.0
170	1.6
180	1.4
190	0.5
200	open water
210	REW
Apr 1, 1970	
8	LEW
10	1.9
20	1.8
30 to 50	2.2
60	2.0
70	2.3
80	2.1
90 to 100	1.7
110	1.6
120	1.5
130 to 160	1.6
165	1.7
170	1.9
175	2.0
180	2.1
185	2.0
190	2.2
195	2.1
200	1.3
206	-
218	REW
Jan 6, 1971	
345	LEW
333	0.4
330	0.7
325	1.2
320 to 315	1.5
310 to 300	1.6
295	1.7
288	1.6
282 to 270	1.7
265 to 250	1.8
240	1.7
230	1.6
220	1.4

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Talkeetna River (cont'd)

Mar 31, 1971

Distance Across River (ft)	Ice Thickness (ft)
2	LEW
17	1.1
20	2.1
24 to 28	2.6
32	2.7
36	2.6
40	2.7
55 to 75	2.6
85	2.7
90 to 110	2.8
120	2.5
130	2.0
140 to 150	1.7
160	1.8
170	1.9
185	2.0
235	2.1
285	REW

Tanacross: Measurements made on Tanana River

Jan 14, 1966

Distance Across River (ft)	Ice Thickness (ft)
0	REW
15	2.0
25	2.5
35 to 55	2.1
65	2.2
75	2.3
85	2.0
95 to 105	2.2
115 to 125	2.4
135	2.3
145	2.2
155	2.3
165	2.4
175	2.5
185	1.2
191	1.1
197	LEW

Dec 21, 1966

Distance Across River (ft)	Ice Thickness (ft)
42	LEW
45	1.4
50	1.3
60 to 70	1.0
80	0.8
90	0.7
100	1.0
110	1.2
120	1.4
130	1.1
140 to 150	0.7
160	1.1
170	1.2
180	1.4
190	0.8
200	0.9
210	1.3
220	1.5

Tanana River (cont'd)

Dec 21, 1966

Distance Across River (ft)	Ice Thickness (ft)
230	1.6
240	1.7
245	1.5
248	REW

Feb 7, 1967

Distance Across River (ft)	Ice Thickness (ft)
42	LEW
45	2.0
50	1.5
60 to 70	1.3
80	1.1
90 to 100	0.9
110 to 120	1.3
130	1.2
140	0.9
150	1.0
160	1.3
170	1.4
180	1.6
190	1.2
200	1.3
210	1.5
220 to 230	1.9
240 to 245	2.1
247	REW

Dec 12, 1967

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
10	2.1
20	1.9
30	1.7
40 to 60	1.5
70	1.6
80	1.4
90	1.2
100 to 120	1.1
130 to 140	1.0
150	1.2
160 to 170	1.5
180	1.2
190 to 210	1.6
220	1.8
230	2.0
234	REW

Dec 12, 1968

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
10	0.3
20	0.8
30	1.2
40	1.3
50	1.1
60 to 70	1.4
80	1.0
90	1.0
100	6.0 slush
110	7.0 "
120	4.0 "
130	1.1

Tanana River (cont'd)

Dec 12, 1968

Distance Across River (ft)	Ice Thickness (ft)
140	1.0
150 to 160	1.1
170	0.9
180	REW

Mar 17, 1970

Distance Across River (ft)	Ice Thickness (ft)
5	LEW
10	2.3
20	3.0
30	2.0
40	2.2
50	2.0
60	1.4
70	1.5
80	1.0
90	2.1
100 to 110	2.2
120	2.1
130	2.0
140	2.1
150 to 170	2.2
180	1.8
190	1.6
200	2.3
210 to 230	1.9
235	REW

Dec 16, 1970

Distance Across River (ft)	Ice Thickness (ft)
5	LEW
10	1.9
20	1.5
30 to 40	1.0
50 to 60	0.8
70	0.7
80 to 90	0.8
100	1.2
110	1.5
120 to 130	1.3
140	1.2
150 to 170	1.3
180	1.1
190	1.3
200	1.5
210	1.8
215	3.0

Feb 17, 1971

Distance Across River (ft)	Ice Thickness (ft)
	LEW
30	1.6
40	1.3
50	1.5
70	1.1
90 to 100	1.3
110	1.0
120 to 130	1.3
140	1.2
150	1.3
160	1.2
170	1.3

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Tanana River (cont'd)

Feb 17, 1971

Distance Across River (ft)	Ice Thickness (ft)
180 to 190	1.4
200	1.2
210	1.4
220	1.9
230	REW

Dec 17, 1971

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
10	1.6
20	1.4
30	1.5
40	1.6
50	1.4
60	1.0
70	0.8
80	1.3
90	0.9
100	0.7
110 to 120	1.0
130	0.8
140	0.9
150	1.0
160 to 170	1.3
180	1.8
190	1.7
200	3.0
210	REW

Tonsina: Measurements made on Squirrel Creek

Dec 19, 1971

Distance Across River (ft)	Ice Thickness (ft)
19	REW
17	0.3
15	0.2
14	0.3
13 to 10	0.2
9 to 7	0.1
6	0.4
5	0.6
4 to 3	0.7
1	0.6
-1	0.3
-3	LEW

Tonsina: Measurements made on Tonsina River

Dec 18, 1968

Distance Across River (ft)	Ice Thickness (ft)
69	LEW
68	0.7
66	1.3
64	1.2
62	1.4
60	1.6
58	1.8
56 to 50	1.9
48	1.7
46	1.5

Tonsina River (cont'd)

Dec 18, 1968

Distance Across River (ft)	Ice Thickness (ft)
43 to 30	1.3
20	1.4
18	1.3
15	1.5
10	1.4
7	1.2
4	1.3
0	REW

Apr 9, 1969

Distance Across River (ft)	Ice Thickness (ft)
8	LEW
10	1.4
12	1.5
14	1.6
16	1.9
18	2.2
20	2.3
22	2.4
24	2.3
26	2.5
28 to 30	2.6
32	2.5
36	2.4
40	2.3
43	REW

Dec 2, 1970

Distance Across River (ft)	Ice Thickness (ft)
14	-
20	2.1
28	0.9
33	0.8
36	1.1
38 to 41	0.9
43	1.0
46	0.8
48	0.5
50	0.6
52	0.5
54	0.8
58	0.6
61 to 66	0.9
72	2.5
79	0.9
89	0.6
97	0.9
102	-

Mar 15, 1971

Distance Across River (ft)	Ice Thickness (ft)
11	REW
13 to 14	0.6
15	0.5
17 to 18	0.3
19	0.4
20	0.5
22	0.7
23	0.9
25 to 26	0.2
27 to 41	bridged
42	LEW

Tonsina River (cont'd)

Dec 14, 1971

Distance Across River (ft)	Ice Thickness (ft)
58	LEW
55	1.0
53	1.1
51 to 50	1.3
48	1.8
45	1.9
41	1.3
38 to 36	1.4
33 to 30	1.5
27 to 21	1.4
16	1.3
12 to 8	0.9
4	1.1
0	REW

Two Rivers: Measurements made on Chena River

Apr 6, 1968

Distance Across River (ft)	Ice Thickness (ft)
0	REW
4	2.1
8	1.7
11	1.4
14	1.2
17	1.0
20	1.1
22	1.4
26	1.9
29	2.5
32	2.7
35	2.2
38 to 41	1.6
44	2.5
47	1.7
50	1.8
51	LEW

Venetie: Measurements made on Chandalar River

Mar 7, 1970

Distance Across River (ft)	Ice Thickness (ft)
0	REW
10	6.4
20	7.4
30	5.1
40 to 50	5.0
60	5.1
85	5.0
95	6.5
120	5.1
130	5.5
140	LEW

Windy: Measurements made on Nenana River

Mar 27, 1968

Distance Across River (ft)	Ice Thickness (ft)
3	LEW
6	0.6

TABLE IV (Cont'd)

ICE THICKNESS OBSERVATIONS ACROSS ALASKAN RIVERS

Nenana River (cont'd)

Mar 27, 1968

Distance Across River (ft)	Ice Thickness (ft)
10	0.3
14 to 18	0.5
22	0.6
26	0.8
30 to 34	1.0
38	1.5
42	2.6
46 to 50	2.8
55	2.7
60	2.8
70	3.1
80	3.0
90	2.0
100	2.3
110	1.5
120	-

Apr 2, 1970

Distance Across River (ft)	Ice Thickness (ft)
10	LEW
18 to 45	-
54	edge of ice
57	0.2
60	0.9
65	0.7
70	0.8
74	1.5
76 to 84	1.8
90	2.0
95	2.4
102	1.8
108	1.7
116	1.4
124 to 132	1.5
150	0.7
158	1.1
	REW

Dec 7, 1971

Distance Across River (ft)	Ice Thickness (ft)
0	REW
10	3.1
20 to 30	3.0
40	3.2
50	3.0
60	2.7
65	2.8
70	2.7
75	2.5
80	2.4
85	2.3
90	2.0
95	1.9
100	2.0
105 to 125	1.8
130 to 135	2.0
140	2.2
145	2.0
150	LEW

Nenana River (cont'd)

Apr 18, 1972

Distance Across River (ft)	Ice Thickness (ft)
52	REW
48 to 42	3.4
36	3.5
32 to 28	3.6
24	3.1
22	2.7
20	2.2
18	2.0
16	1.6
14	1.0
12	0.8
10 to 4	0.4
1	-
-2	LEW

Wiseman: Measurements made on Middle Fork of Koyukuk River

Nov 13, 1970

right channel

Distance Across River (ft)	Ice Thickness (ft)
0	REW
10 to 20	2.0
30	1.7
45	1.9
60	2.0
75 to 90	1.9
100	2.2
110	LEW

left channel

Distance Across River (ft)	Ice Thickness (ft)
0	LEW
5	2.7
9	2.6
13	2.4
20	REW

TABLE V

DATE OF MAXIMUM ICE THICKNESS

Station	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	Avg date
Canada													
Alert	Jun 9	May 26	Jun 7	Jun 5	Jun 4	Jun 17	May 21	May 31	Jun 13	Jun 12	Jun 4	Jun 30	Jun 7
Arctic Bay	Jun 2	May 25	May 24	Apr 24	Apr 30	May 21	INC*						May 16
Baker Lake	Jun 2	Jun 1	May 17	May 29	May 28	May 20	May 12	May 10	May 23	May 8	May 21	May 26	May 22
Beauharnois					Mar 1	Mar 7	Mar 6	Mar 5	Mar 3	Feb 23	Mar 18	Mar 27	Mar 8
Brochet	Apr 21	May 11	May 18	Apr 25	Mar 27	May 7	May 27	May 4	Apr 18	Mar 27		Apr 14	Apr 26
Cambridge Bay	May 26	Jun 7	Jun 7	Jun 19	Jun 11	May 13	May 19	Jun 7	Jun 6	May 22	May 28	Jun 2	Jun 1
Cape Parry	Apr 20	Apr 20	May 31	Jun 12	Jun 5	May 13	Jun 9	May 24	May 30	May 22	Jun 4	Jun 9	May 25
Caughnawaga					Mar 1	Feb 21	Mar 6	Feb 26					Feb 28
Cartwright	Apr 21	May 11			May 7	Apr 2	Apr 28	Apr 5	Apr 4	Apr 17	Apr 30	Apr 22	Apr 21
Chesterfield Inlet	May 19	Jun 15	Jun 7	May 29	May 21	May 6	Jun 3	May 17	May 31	May 17	May 28	Jun 16	May 28
Churchill	Apr 24	INC	May 31	May 1	Apr 30	Apr 15	May 12		May 16		May 14	Apr 21	May 5
Clyde River	May 12	Jun 22	Jun 21	Jun 12	Jun 11	Jun 4	Jun 24	Jun 28	May 9	Jun 19	Apr 24	Jun 30	Jun 8
Coppermine	Apr 30	May 31	May 7	Jun 5	May 28	Apr 8	May 27	May 24	Mar 28	May 9	May 15	May 21	May 12
Coral Harbour	Jun 16	Jun 1	Apr 27	Apr 25	May 8	Jun 4	Jun 9	May 31	Jun 13	Jun 8	Jun 4	May 19	May 26
Cornwall				Feb 24	Mar 1	Feb 21	Mar 20	Mar 18	Mar 17	Feb 23	Mar 3	Feb 25	Mar 4
Ennadai Lake	Jun 2	Jun 1	May 10	May 1	May 21	May 20	May 19	May 17	May 30	May 8	Apr 23	Apr 21	May 14
Eureka	Jun 2	Jun 1	May 31	Jun 5	Jun 11	Jun 18	May 20	Jun 7	Jun 13	Jun 12	May 14	Jun 16	Jun 5
Fort Chipewyan		Mar 16	Apr 5	Apr 17	Mar 5	Mar 11	Apr 21	Apr 12	Mar 7	Mar 20	Mar 26	Apr 7	Mar 27
Frobisher Bay	May 26	Jun 5	May 17	May 6	May 21	Jun 3	May 19	Jun 7	May 31	May 15	May 7	Apr 7	May 19
Goose Bay	Apr 7	Mar 23	INC	Apr 10	Apr 17	Mar 11	Mar 31	Apr 12	Mar 21	Apr 10	Apr 16	Mar 24	Apr 2
Hall Beach	Jun 9	Jun 1	May 17	May 1	Jun 25	Jun 24	Jun 23	Jun 28	Jun 13	May 15	Jul 2	Jun 9	Jun 9
Holman Island	May 26	Jun 1	May 17	May 22	Jun 4	May 13	Jun 9	INC	INC		INC		May 26
Hopedale	Mar 31		INC			Apr 10	Mar 31	Apr 19	May 9	Apr 17	Apr 25	Apr 28	Apr 17
Inoucdjouac	Apr 14	May 11	Jun 14	INC	Jun 4	May 13	May 20	May 10	Jun 6	Apr 17	Mar 12	May 12	May 10
Inuvik	May 20	May 4	Apr 26	May 1	Apr 16	May 6	Apr 7	May 3	Apr 11	Apr 24	Apr 2	Apr 28	Apr 25
Iroquois					Mar 1	Feb 7	Mar 6	Feb 26	Feb 24	Feb 23	Mar 10	Mar 15	Feb 28
Isachsen	May 13	Jun 1	Jun 2	May 29	INC	Jun 3	May 26	May 31	May 30	Jun 12	Jun 4	Jun 30	Jun 2
Lachine					Mar 1	Feb 21	Mar 20				Mar 25		Mar 10
Moosonee	Mar 17	Mar 31	Mar 22		Mar 18	Apr 8	Mar 17	Feb 23	Apr 6	Mar 13	Apr 3	Apr 7	Mar 24
Mould Bay	Jun 2	May 4	Jun 14	Jun 26	Jun 11	Jun 3		May 31	Jun 13	Jun 12	May 21	Jun 18	Jun 6
Nicolet	Feb 24	Mar 23	Feb 18	Feb 28	Apr 8	Feb 28	Mar 16	INC	Mar 12	Feb 27			Mar 8
Nitchequon	Apr 7	May 4	Apr 19	Apr 24	May 7	Apr 1	May 12	May 10	May 2	Apr 24	Apr 30	Apr 14	Apr 25
Norman Wells	Apr 28	Apr 13	Apr 19	May 1	Mar 20	Apr 8	Apr 28	May 5		Mar 20	Apr 9	Mar 31	Apr 14
Pond Inlet					May 8	Jun 4		May 31	INC	May 18			May 23
Resolute	Jun 16	Apr 27	Jun 21	Jun 26	Jun 11	Jun 24	Jun 23	Jul 5	Jun 27	Jun 19	May 29	Jun 23	Jun 14
Sachs Harbour	May 19	Jun 1	May 24	Jun 19	May 28	May 13	May 19	May 24	Apr 25	May 15	May 7	May 13	May 20
Sault Ste. Marie					Feb 11	Feb 28	Mar 20	Feb 12	Mar 11	Mar 9	Mar 15	Mar 13	Mar 4
Schefferville	Mar 31	Apr 20	May 10	Apr 17	Apr 23	Apr 22	Apr 28	Apr 12	Apr 25	Mar 14	Apr 24	May 5	Apr 20
South Baymouth		Mar 30	Mar 29	Mar 26	Apr 9	Mar 18	Mar 31	Mar 16	Mar 21	Apr 3	Apr 8	Apr 7	Mar 29
Spence Bay	May 26	INC	INC	Apr 17	May 7	May 20	May 19	May 31					May 16
Thunder Bay			Mar 20	Mar 11	Mar 31	Mar 10	Mar 29	Mar 13	Mar 26	Mar 25	INC	Mar 30	Mar 27
Trout Lake	Apr 14	Apr 13	Apr 5	Apr 24	Apr 23	Apr 8	May 12	Apr 5	Apr 12	Apr 17	Apr 16	Apr 14	Apr 16
Welland Canal					Mar 1	Feb 7	Feb 27	Mar 11	Feb 17	Feb 16	Feb 15	Mar 6	Feb 23
Yellowknife	May 12	Apr 27	Apr 26	May 8	Apr 16	Apr 29	Apr 28	May 10	May 9	Apr 2	Apr 23	Apr 28	Apr 28
Greenland													
Cape Atholl	May 27	May 4		May 20	Apr 29								May 12
Alaska													
Allakaket		Apr 30	Apr 22	May 11	May 15	Apr 9	Apr 29	May 4	Apr 19	May 2	Apr 24	May 6	Apr 29
Barrow		Apr 21			INC	Apr 18	Apr 29	INC	INC	INC	May 23	May 20	May 4
Barter Island		Apr 28	Mar 30		INC	May 7	Apr 3	Apr 13	Apr 5	Apr 25	May 1	Apr 28	Apr 19
Bethel		Mar 26	Apr 21	May 3	Mar 14	Apr 17	Apr 16	Apr 7	Mar 30	Feb 8	Apr 25	Apr 16	Apr 6
Bettles								May 4	Apr 12	Apr 25	Feb 27	Apr 8	Apr 9
Chalkyitsik								Mar 23	Mar 1	Apr 11	INC	Feb 20	Mar 15
Fairbanks						Mar 27	Apr 28	Apr 1	Apr 25	Apr 17	INC	Apr 29	Apr 16
Fort Greely							Mar 24		INC	Feb 26	Mar 30	Apr 24	Mar 27
Fort Yukon		Feb 4		Apr 19	INC		INC	Apr 27	Feb 10	Mar 29	Apr 18	Mar 26	Mar 24
Galena						Mar 19	Mar 25	Mar 3			Apr 3	Apr 15	Mar 25
Gambell		May 5	Apr 13	Mar 28	Mar 27	Apr 2	Apr 22	Apr 13	INC	INC			Apr 11
Holy Cross		Apr 30	Apr 14	May 2	Mar 27	Apr 15	INC	INC	Apr 27	Apr 26	Apr 4	Apr 30	Apr 19
King Salmon			Feb 15	Feb 29	Feb 27	Apr 9	Feb 25	Feb 17	Mar 29	Feb 7	Apr 3	Apr 8	Mar 9
Kobuk					May 15	Apr 23	Apr 15	May 4	Apr 5	Apr 18	Apr 24	Apr 29	Apr 24
Kotzebue		May 4	May 11	May 16	May 15	May 28	Apr 29	Apr 27	Apr 19	May 2	May 15	May 6	May 7
Mankomen Lake						Mar 19	Mar 18	Mar 31	Apr 19	Mar 28	Mar 20	Mar 18	Mar 26
McGrath		Mar 10	Apr 20	Mar 14	Feb 6	Mar 19	Feb 18	Feb 10	Feb 8	Apr 25	Mar 13	Apr 8	Mar 12
Nunivak		Mar 8	May 1	Feb 25	Mar 27	May 7	Mar 11	Feb 24	Mar 1	Mar 7	Apr 10	Apr 1	Mar 23
Point Hope		May 27	May 4	May 16	Mar 27	Mar 26	Apr 29	INC	Mar 29		Apr 24	Apr 29	Apr 23
Port Alsworth		Feb 24	Apr 13	Apr 18	Mar 6	Apr 2	Mar 25	Feb 24	Apr 5	Feb 7	Apr 24	Apr 29	Mar 25
Snowshoe Lake				May 3	Apr 18	Apr 23	Apr 9	Mar 30	Apr 20	Apr 19	Apr 24	Apr 29	Apr 19
Tanacross		Apr 30	INC	Mar 24		INC		Apr 21	Mar 22	Apr 25	Apr 10	Apr 15	Apr 12
Trappers Creek†		Mar 10	Apr 26	Mar 14	INC	Apr 2	Apr 1	INC	Feb 22	Mar 21	Mar 20	INC	Mar 23
Unalakleet		May 5	Apr 27	May 30	May 1	Apr 16	Apr 22	May 4	Apr 12	Apr 25	May 15	Mar 25	Apr 27
Wild Lake				May 29	May 17	Apr 29	May 2	May 15	INC				May 12

* INC – Incomplete

† Station was located at Talkeetna between 1962 and 1967.

TABLE VI

DEVIATIONS (%) FROM MEAN ICE THICKNESS ACROSS ALASKAN RIVERS (USGS DATA).

Site	Year winter season ended							
	1965	*1966*	*1967*	*1968*	*1969*	*1970*	*1971*	*1972*
Ambler (Kobuk River)					31	7	13	14
Anchorage (Chester Creek)					60	OW*	6	
					50		33	
Anchor Point (Anchor River)					16	OW	OW	23
					OW	OW		OW
Chitina (Copper River)				9		77	25	
Crooked Creek (Kuskokwim River)					23	17	18	14
Eagle (Eagle River)				75	45	92	47	36
					33	32	39	OW
					29			
Fairbanks (Chena River)	79	29	56	78	75		73	OW
		85		41				80
Fairbanks (Little Chena River)				33	76		18	12
							10	
Fairbanks (Wood River)			39				44	42
								33
								77
Fort Yukon (Porcupine River)	60	16			76	23		13
		21						
Glennallen (Tazlina River)				79			15	
							49	
Gold Creek (Susitna River)				OW	45	21		63
Healy (Nenana River)					20	25	40	20
Hope (Resurrection Creek)					OW			64
								OW
Hughes (Koyukuk River)					10	24	13	11
Kenai (Beaver Creek)							OW	OW
Lignite (Teklanika River)					27	4	35	40
McGrath (Kuskokwim River)					19	29	32	12
Nenana (Tanana River)					29	23	42	21
							29	
Ninilchik (Ninilchik River)					OW	43	OW	58
					OW	67		25
Nome (Snake River)					OW	21		15
Northway Jct. (Chisana River)						23		
						10		
Palmer (Knik River)				25	78	45	27	64
					70	33	96	
Palmer (Little Susitna River)	43	38	43	81	43	OW	31	29
		23		50	73	29	67	33
						60	38	
Palmer (Matanuska River)				71	21	29	42	78
						83		29
Paxson (Maclaren River)				17	5			
Rex (Nenana River)		23	31					
Ruby (Melozitna River)							60	16
Ruby (Yukon River)					47	47	58	14
Sagwon (Sagavanirktok River)						17	8	
Salchaket (Salcha River)					42	71		68
					50			
Skwentna (Skwentna River)					22		23	45
Soldotna (Kenai River)					36		40	79
					92		8	66
					33			
Spenard (Campbell Creek)					18	7	8	9
					1	33		7
					3			
					8			
Sutton (Caribou Creek)				83	50	83	54	OW
						OW		OW
						OW		
Talkeetna (Chulitna River)				OW	88	59	54	38
							41	39
Talkeetna (Talkeetna River)				20	OW	28	64	
							44	
Tanacross (Tanana River)		39	40	92		50	31	
		42	35			62	62	
Tonsina (Tonsina River)				46	30	67	64	
							36	
Windy (Nenana River)				82		85	25	80

* OW – Open Water