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LIMITS IN THE SEAS

No. 72

CONTINENTAL SHELF BOUNDARY:

CANADA - GREENLAND

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Office of the Geographer
Bureau of Intelligence and Research

The Governments of Canada and Denmark have concluded an agreement for the delimitation of a continental shelf boundary between the eastern Arctic islands of Canada and Greenland. The Agreement, signed on December 17, 1973, came into force with an exchange of ratifications on March 13, 1974. The text of the Agreement is as follows:

The Government of the Kingdom of Denmark and the Government of Canada,

Having decided to establish in the area between Greenland and the Canadian Arctic Islands a dividing line beyond which neither Party in exercising its rights under the Convention on the Continental Shelf of April 29, 1958 will extend its sovereign rights for the purpose of exploration and exploitation of the natural resources of the continental shelf,

Have agreed as follows:

Article I

The dividing line in the area between Greenland and the Canadian Arctic Islands, established for the purpose of each Party's exploration and exploitation of the natural resources of that part of the continental shelf which in accordance with international law appertains to Denmark and to Canada respectively, is a median line which has been determined and adjusted by mutual agreement.

Article II

1. In implementation of the principle set forth in Article I, the dividing line in the area between latitude 61°00' N and latitude 75°00' N (Davis Strait and Baffin Bay) shall be a series of geodesic lines joining the following points:

Point No.	Latitude	Longitude	Point No.	Latitude	Longitude
1	61°00'0	57°13'1	17	65°06'0	57°44'1
2	62°00'5	57°21'1	18	65°08'9	57°43'9
3	62°02'3	57°21'8	19	65°11'6	57°44'4
4	62°03'5	57°22'2	20	65°14'5	57°45'1
5	62°11'5	57°25'4	21	65°18'1	57°45'8
6	62°47'2	57°41'0	22	65°23'3	57°44'9
7	63°22'8	57°57'4	23	65°34'8	57°42'3
8	63°28'6	57°59'7	24	65°37'7	57°41'9
9	63°35'0	58°02'0	25	65°50'9	57°40'7
10	63°37'2	58°01'2	26	65°51'7	57°40'6
11	63°44'1	57°58'8	27	65°57'6	57°40'1
12	63°50'1	57°57'2	28	66°03'5	57°39'6
13	63°52'6	57°56'6	29	66°12'9	57°38'2
14	63°57'4	57°53'5	30	66°18'8	57°37'8
15	64°04'3	57°49'1	31	66°24'6	57°37'8
16	64°12'2	57°48'2	32	66°30'3	57°38'3

Point No.	Latitude	Longitude
33	66°36'1	57°39'2
34	66°37'9	57°39'6
35	66°41'8	57°40'6
36	66°49'5	57°43'0
37	67°21'6	57°52'7
38	67°27'3	57°54'9
39	67°28'3	57°55'3
40	67°29'1	57°56'1
41	67°30'7	57°57'8
42	67°35'3	58°02'2
43	67°39'7	58°06'2
44	67°44'2	58°09'9
45	67°56'9	58°19'8
46	68°01'8	58°23'3
47	68°04'3	58°25'0
48	68°06'8	58°26'7
49	68°07'5	58°27'2
50	68°16'1	58°34'1
51	68°21'7	58°39'0
52	68°25'3	58°42'4
53	68°32'9	59°01'8
54	68°34'0	59°04'6
55	68°37'9	59°14'3
56	68°38'0	59°14'6
57	68°56'8	60°02'4
58	69°00'8	60°09'0
59	69°06'8	60°18'5
60	69°10'3	60°23'8
61	69°12'8	60°27'5
62	69°29'4	60°51'6
63	69°49'8	60°58'2
64	69°55'3	60°59'6
65	69°55'8	61°00'0
66	70°01'6	61°04'2
67	70°07'5	61°08'1
68	70°08'8	61°08'8
69	70°13'4	61°10'6
70	70°33'1	61°17'4
71	70°35'6	61°20'6
72	70°48'2	61°37'9
73	70°51'8	61°42'7

Point No.	Latitude	Longitude
74	71°12'1	62°09'1
75	71°18'9	62°17'5
76	71°25'9	62°25'5
77	71°29'4	62°29'3
78	71°31'8	62°32'0
79	71°32'9	62°33'5
80	71°44'7	62°49'6
81	71°47'3	62°53'1
82	71°52'9	63°03'9
83	72°01'7	63°21'1
84	72°06'4	63°30'9
85	72°11'0	63°41'0
86	72°24'8	64°13'2
87	72°30'5	64°26'1
88	72°36'3	64°38'8
89	72°43'7	64°54'3
90	72°45'7	64°58'4
91	72°47'7	65°00'9
92	72°50'8	65°07'6
93	73°18'5	66°08'3
94	73°25'9	66°25'3
95	73°31'1	67°15'1
96	73°36'5	68°05'5
97	73°37'9	68°12'3
98	73°41'7	68°29'4
99	73°46'1	68°48'5
100	73°46'7	68°51'1
101	73°52'3	69°11'3
102	73°57'6	69°31'5
103	74°02'2	69°50'3
104	74°02'6	69°52'0
105	74°06'1	70°06'6
106	74°07'5	70°12'5
107	74°10'0	70°23'1
108	74°12'5	70°33'7
109	74°24'0	71°25'7
110	74°28'6	71°45'8
111	74°44'2	72°53'0
112	74°50'6	73°02'8
113	75°00'0	73°16'3

The positions of the above mentioned points have been computed from straight baselines along the coast of the Canadian Arctic Islands and of Greenland.

This part of the dividing line is illustrated on the chart attached to this Agreement as Annex 1.

2. In Nares Strait the dividing line shall be two series of geodesic lines joining the following points:

	Point No.	Latitude	Longitude
Series A:	114	76°41'4	75°00'0
	115	77°30'0	74°46'0
	116	78°25'0	73°46'0
	117	78°48'5	73°00'0
	118	79°39'0	69°20'0
	119	80°00'0	69°00'0
	120	80°25'0	68°20'0
	121	80°45'0	67°07'0
	122	80°49'2	66°29'0
Series B:	123	80°49'8	66°26'3
	124	80°50'5	66°16'0
	125	81°18'2	64°11'0
	126	81°52'0	62°10'0
	127	82°13'0	60°00'0

The positions of the above-mentioned points are defined by latitude and longitude on Canadian Hydrographic Service Charts 7071 of July 31, 1964 and 7072 of April 30, 1971.

This part of the dividing line has been drawn on the charts attached to this Agreement as Annexes 2 and 3.

3. That portion of the dividing line joining point 113 to point 114 is a geodesic line.

4. For the time being the Parties have not deemed it necessary to draw the dividing line further north than point No. 127 or further south than point No. 1. The dividing line is illustrated on the plan attached to this Agreement as Annex 4.

Article III

In view of the inadequacies of existing hydrographic charts for certain areas and failing a precise determination of the low-water line in all sectors along the coast of Greenland and the eastern coasts of the Canadian Arctic Islands, neither Party shall issue licenses for exploitation of mineral resources in areas bordering the dividing line without the prior agreement of the other Party as to the exact determination of the geographic co-ordinates

of points of that part of the dividing line bordering upon the areas in question.

Article IV

1. The Parties undertake to co-operate and to exchange all relevant data and measurements with a view to obtaining and improving the hydrographic and geodetic knowledge necessary for more precise charting and mapping of the region covered by this Agreement. When knowledge is obtained enabling the Parties to estimate the datum shift between the 1927 North American Datum and the Qornoq Datum, the geographic coordinates of points listed in Article II shall be adjusted and relisted in relation to both the 1927 North American Datum and the Qornoq Datum.

2. If new surveys or resulting charts or maps should indicate that the dividing line requires adjustment, the Parties agree that an adjustment will be carried out on the basis of the same principles as those used in determining the dividing line, and such adjustment shall be provided for in a Protocol to this Agreement.

Article V

If any single geological petroleum structure or field, or any single geological structure or field of any other mineral deposit, including sand and gravel, extends across the dividing line and the part of such structure or field which is situated on one side of the dividing line is exploitable, wholly or in part, from the other side of the dividing line, the Parties shall seek to reach an agreement as to the exploitation of such structure or field.

Article VI

Should international law concerning the delimitation of national jurisdiction over the continental shelf be altered in a manner acceptable to both Parties which could have an effect upon the dividing line in the area between 67° and 69° North latitude, each of the Parties shall waive jurisdiction over any part of the continental shelf which appertains to the other Party on the basis of the new agreed rules of international law concerning the delimitation of national jurisdiction over the continental shelf.

Article VII

1. This Agreement is subject to ratification. Instruments of ratification shall be exchanged at Copenhagen as soon as possible.

2. This Agreement shall enter into force on the date of the exchange of instruments of ratification.

ANALYSIS

The Canada-Greenland continental shelf boundary measures approximately 1,449.4

nautical miles in length, making it the longest shelf boundary negotiated to date. In the south, the boundary has been developed on the basis of the equidistance principle from straight baselines created along the coastlines of Greenland and of Canada. These lines, drawn to be of comparable lengths, were constructed by Canada, for the most part, for the delimitation. Denmark utilized existing straight baselines established, by decree, on June 1, 1963. In the north, in Nares Strait and Robeson Channel, the boundary has been negotiated on principles other than equidistance, probably with the concept of equity predominating. A major factor, however, may have involved problems of inadequate coastal positioning which could make equidistance relatively inappropriate for delimitation.

The line starts in the south at the entrance to Davis Strait and proceeds northwestward, northward, and finally north-northeastward through Baffin Bay, Nares Strait, and Robeson Channel before terminating in the Lincoln Sea of the Arctic Ocean. The boundary has 127 terminal or turning points, an approximate average of one every 11.5 nautical miles of the boundary. The longest line between turning points is 104.99 nautical miles, southwest of Thule, Greenland; the shortest is .149 nautical miles.

To our knowledge, the equidistant portion of the boundary is the first continental shelf boundary developed by a computer program.

The first point on the boundary is approximately 200 nautical miles from the respective baselines of the two areas. This initial point is situated in about 1,500 meters water depth (approximately 5,000 feet). Very few of the points along the continental shelf boundary traverse waters less than 200 meters in depth; the line, as a result, divides, for the major part, the outer continental shelf.

True equidistance prevails along the Canada-Greenland continental shelf, with omission of one turning point, from Point No. 1 through Point 109. From this latter point to Point No. 113, modifications have been made by the negotiators from the principle of true equidistance; these departures, however, do not involve significant changes in positions. Northward to the final point, No. 127, a negotiated boundary prevails. The terminal point, situated on the 60th meridian of west longitude, lies approximately 8.25 nautical miles from Greenland.

For the southern equidistant section, the distances between the turning points and the respective national baselines for the determination of the boundary slowly decrease from the 200 nautical miles to a minimum of approximately 85.29 nautical miles at Point No. 36. The distances increase northeastward to a maximum of 149.14 nautical miles at Point No. 94. For the remainder of this equidistant section, the distances between the turning points and the baseline again decrease. The average length of the boundary segments between turning points for this southern section is slightly more than 8 nautical miles. The total equidistant part of the boundary measures approximately 919.94 nautical miles.

The negotiated section extends through the narrows between Greenland and Ellesmere and adjacent islands northward to the Lincoln Sea. This part of the boundary measures

approximately 529.46 nautical miles. The average length of the segments is approximately 31 nautical miles.

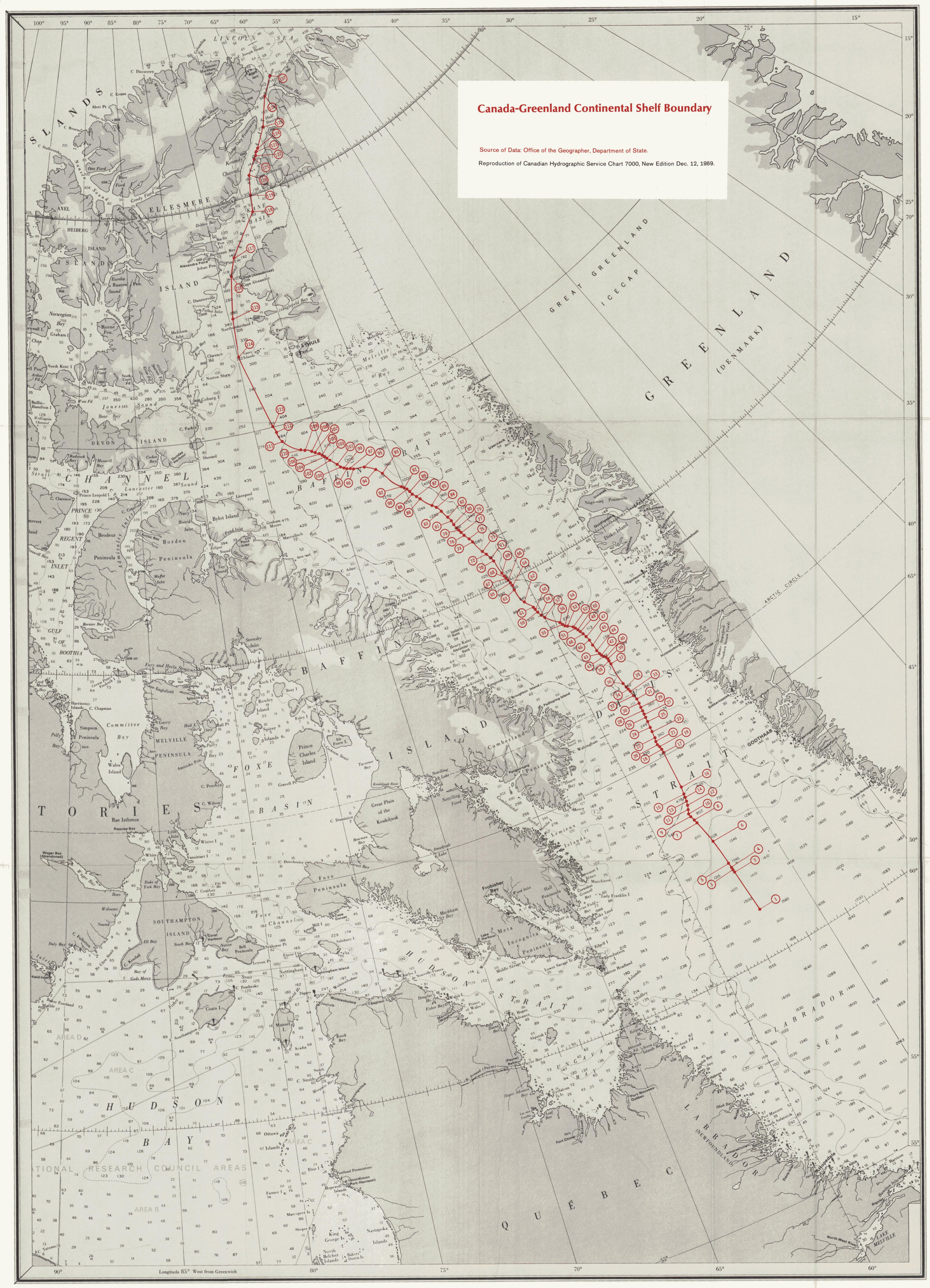
No boundary exists between Point Nos. 122 and 123. These two points are situated on the north and south coasts, respectively, of Hans Island. This island lies in the midchannel, about 8 nautical miles north-northeast of Franklin. Problems of sovereignty and effect of the island on a maritime boundary led to its being discounted in the delimitation.

The agreement contains a number of interesting features. The turning points are connected by geodesic lines, these being mathematically determined, and represent the shortest distances between two points on a spheroid. The parties to the agreement recognized the inadequacies of existing charts for certain areas affected, as well as the difficulties of establishing similar tidal datum planes. For these reasons it was agreed that neither party would issue exploitation licenses in areas bordering the dividing line without the prior agreement of the other party.

In Article VI of the agreement, it is further stipulated that should international law on shelf boundary delimitation be altered in the future in a form acceptable to both parties, each party will waive the jurisdiction it currently has over shelf areas between 67° and 69° North Latitude on the basis of change in the law itself. This provision refers to a more precise definition of the outer edge of the continental margin which might be negotiated in the U.N. Law of the Sea Conference.

The two parties also agreed, that should adjustment in the equidistant line be necessary as a result of new surveys or resulting charts or maps, an adjustment would be carried out in the boundary delimitation on the basis of the equidistance principle. Also they agreed, in Article V, if a single petroleum structure or field or any other mineral deposit extends across the dividing line, the parties shall seek to reach agreement as to exploitation of such structure or field.

Both Canada and Denmark are parties to the Convention on the Continental Shelf of 1958.


Canada-Greenland Continental Shelf Boundary
Source of Data: Office of the Geographer, Department of State.
Reproduction of Canadian Hydrographic Service Chart 7000, New Edition Dec. 12, 1969.
LINCOLN SEA
ELLESMERE ISLAND
AXEL HEIBERG ISLAND
EUREKA SOUND
DEVON ISLAND
PRINCE REGENT INLET
BOOTHIA PENINSULA
MELVILLE PENINSULA
SOUTHAMPTON ISLAND
BAFFIN ISLAND
BAFFIN BAY
GREENLAND ICECAP
GREENLAND (DENMARK)
DAVIS STRAIT
HUDSON STRAIT
HUDSON BAY
FOXE BASIN
FOXE CHANNEL
LANCASTER SOUND
QUÉBEC
LABRADOR (NEWFOUNDLAND)
LABRADOR SEA
ARCTIC CIRCLE
GODTHAAB
THULE
Longitude 85° West from Greenwich
AREA A
AREA B
AREA C
AREA D
NATIONAL RESEARCH COUNCIL AREAS