Atlas of eastern Canadian seabirds.

Supplement III

Baffin Bay and adjacent sounds.

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1. Introduction

This manuscript supplement to the CWS 'Atlas of eastern Canadian seabirds' is intended to update the coverage in the 'Atlas' proper. It summarises CWS quantitative information on seabird distributions north of 65°N. It is intended to provide background information for offshore surveys in the Bay - specifically, for the work to be carried out during the summer of 1978 for PetroCanada off northeast Baffin Island, and by the Bedford Institute's investigation of the Scott Inlet natural oil seep. I need hardly emphasise the preliminary nature of this supplement. Coverage is better than in the main 'Atlas', but not by very much, and there is a very definite need for information on distributions between mid-October and mid-July.

2. Methods

The maps of murre chick sightings are non-quantitative, and merely show the total number of chicks seen in each ½°N x 1°W block for the period in question. The other pelagic maps show the average numbers of birds seen in each block, in the course of 10-minute watches from a ship moving at at least 4 knots. These averages are based only on very small samples - in most cases, less than 5 10-minute watches; bracketed figures are based on only a single watch. These pelagic maps show only where a species was relatively most abundant. No attempt has been made to translate these relative figures into absolute estimates of the size of the whole population. Any such translation would require a number of assumptions and correction factors which would go far beyond the intended scope of this manuscript.

The positions and sizes of the breeding colonies have been taken from the 'Atlas'. In several cases the CWS has re-surveyed colonies since then, but revised estimates of numbers are not yet available.

3. The seabirds of Baffin Bay

Once one is away from the coast the pelagic seabird community of Baffin Bay is a very limited one, and only four species are sufficiently abundant for it to be worth plotting their distributions on these maps: Northern Fulmar Fulmarus glacialis, Black-legged Kittiwake Rissa tridactyla, Thick-billed Murre Uria lomvia and Dovekie Alle alle - respectively, a larger and a smaller surface feeder and a larger and a smaller diver. In addition to these, the Glaucous Gull Larus hyperboreus, Arctic Tern Sterna paradisaea and Black Guillemot Cepphus grylle breed all around the Bay, the Great Black-backed Gull Larus marinus, Iceland Gull Larus glaucoides, Razorbill Alca torda and Atlantic Puffin Fratercula arctica along all or much of the Greenland side (and, in the case of the Iceland Gull, in southeast Baffin Island as well), and the Great Cormorant Phalacrocorax carbo in Greenland between 66°-73°N. (For more details of these and of the distributions of the rarer species, see the 'Atlas'). Two sea-ducks, the Common and King Eiders Somateria mollissima and S. spectabilis also breed on both sides of the Bay, and both species winter along the Greenland coast south of 72°N, where very large flocks are found from July onwards.

The distributions of the four main species in Baffin Bay may be summarised as follows:

Northern Fulmar and Black-legged Kittiwake are widely distributed through the Bay over most of the late summer and early fall. But Fulmar numbers seem to decline in the northern part of the Bay from mid-September onwards; note the scarcity of birds at that time close to the colony in northwest Devon Island.

Thick-billed Murres are concentrated close to their colonies in the early maps, though it should be noted that significant numbers forage some distance from the colonies at times; birds breeding on the south side of Lancaster Sound may fly as far as the Devon Island shore. They appear to leave the breeding areas very rapidly, during the first half of September. Banding returns show that birds from the northern Canadian Arctic (and also from the European Arctic) move down to southwest Greenland - an important post-breeding staging area whose counterpart farther south is the southeast coast of Labrador. Part of this migration is by swimming; the chicks leave the colonies before they can fly and swim, accompanied by a parent, down to the staging area. This swimming migration could put them at considerable risk to oil spills which, at the wrong place and at the wrong time, could conceivably wipe out an entire year-class of murres. Information on the timing and routeing of this migration has therefore been mapped separately. The first chicks to fledge are those from west and then northwest Greenland. The data are very sparse, but there is a suggestion that the northwest

Greenland birds may swim directly south, down the centre of Baffin Bay. The August 16-31 map shows three "waves" of chicks moving down or into the Canadian side of the Bay: birds from Prince Leopold Island still close to the colony in Lancaster Sound; birds off northeast Baffin Island presumably from the colonies on Bylot Island (and, perhaps, from Cobourg Island off northeast Devon Island); birds from southeast Baffin Island crossing more or less directly to Greenland. By September 1-16 there are a few stragglers still in Lancaster Sound but most sightings are in northern Baffin Bay where, although the highest numbers are off the Canadian coast, the birds are nonetheless fairly widely spread. It would appear that the migration route is not confined to areas of favourable currents - these flow southeast down the coast of Baffin Island but north along the Greenland side of the Bay. There are no records later than September 11 for this area, even off the Greenland coast. This seems at first paradoxical; however, the chicks are growing as they swim and by late September they may have become so large that they cannot safely be distinguished from adults. To judge from banding returns, birds from eastern Lancaster Sound reach Greenland in November. Dovekies remain abundant close to their very large colonies in northwest Greenland until late in August, but leave that area during the first half of September. Significant numbers (pre- or failed breeders?) seem to move into northern Baffin Bay in early August, and these have reached southeast Baffin Island by the end of the month. The migration is mainly down the central and western part of the

Bay, and the birds seem to be commonest close to the pack-ice which persists all summer in that area. The birds seem to leave all but the extreme southern end of the Bay by mid-October. This population is probably that which winters off Atlantic Canada; to judge from banding returns, the birds wintering off west Greenland seem to be from the European Arctic.

The waters off northwest Greenland are unusual in that they do not freeze over completely, and one wonders whether this zone (the "North Water") could be a wintering area for seabirds. The speed with which Thick-billed Murres and Dovekies leave Baffin Bay after the end of the breeding season indicates that they do not use it. However, there is no information on how long the Fulmars and Kittiwakes stay on up there. The winter darkness at these latitudes would seem to be an obstacle, yet Fulmars (but not Kittiwakes) occur in winter as far north as this off Spitsbergen. The Ivory Gull Pagophila eburnea, which migrates into northern Baffin Bay in September, and which also occurs in winter in Spitsbergen, might also use the North Water in winter. But perhaps its greatest significance may be in allowing an early plankton bloom in spring, which in turn would produce an abundance of zooplankton early enough for food for young seabirds. Dovekies feed on zooplankton, and so such an early food supply may explain the very large colonies in northwest Greenland.

References

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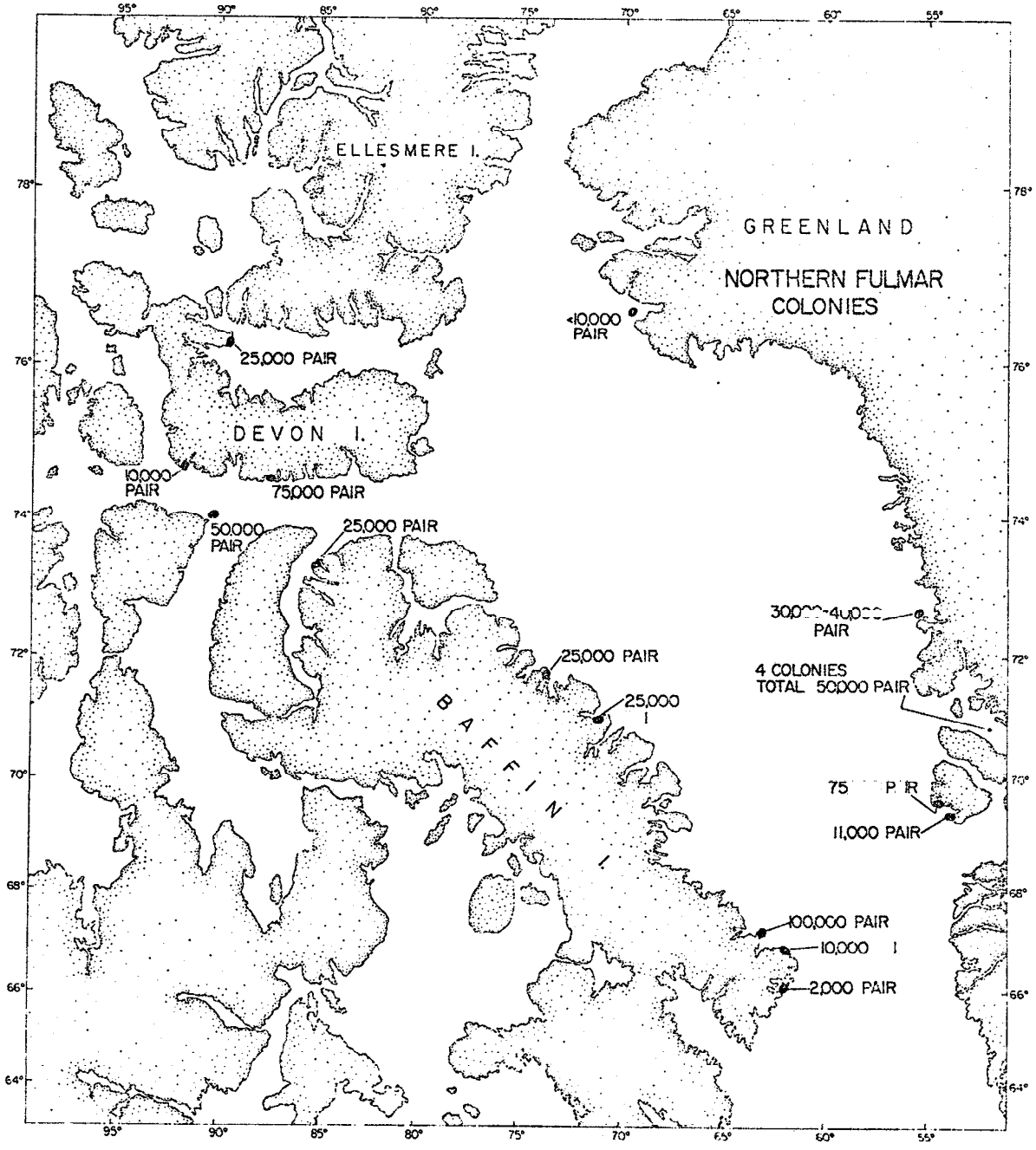
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NORTHERN FULMAR
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75,000 PAIR
50,000
PAIR
25,000 PAIR
25,000 PAIR
25,000
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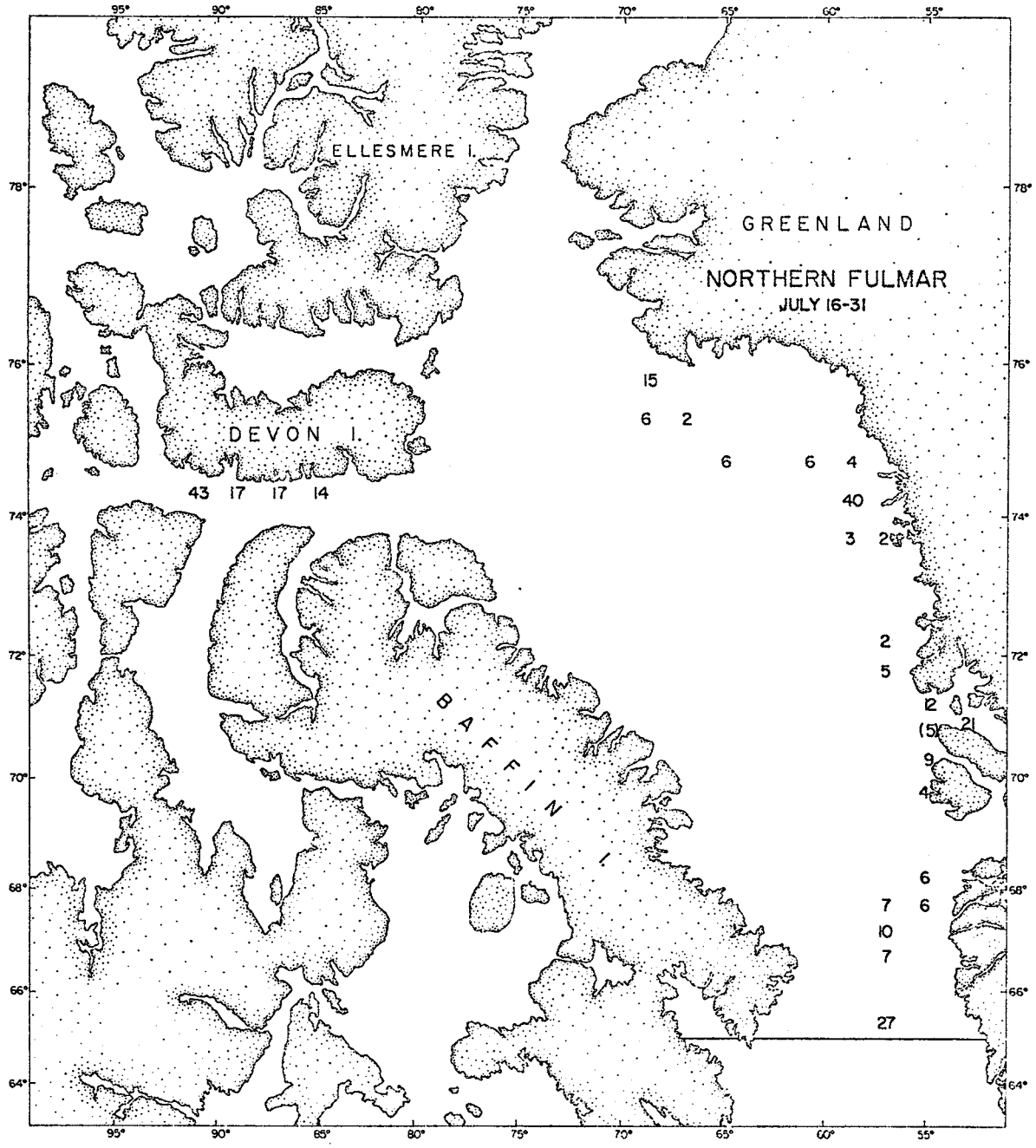
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ELLESMERE I.
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NORTHERN FULMAR
JULY 16-31
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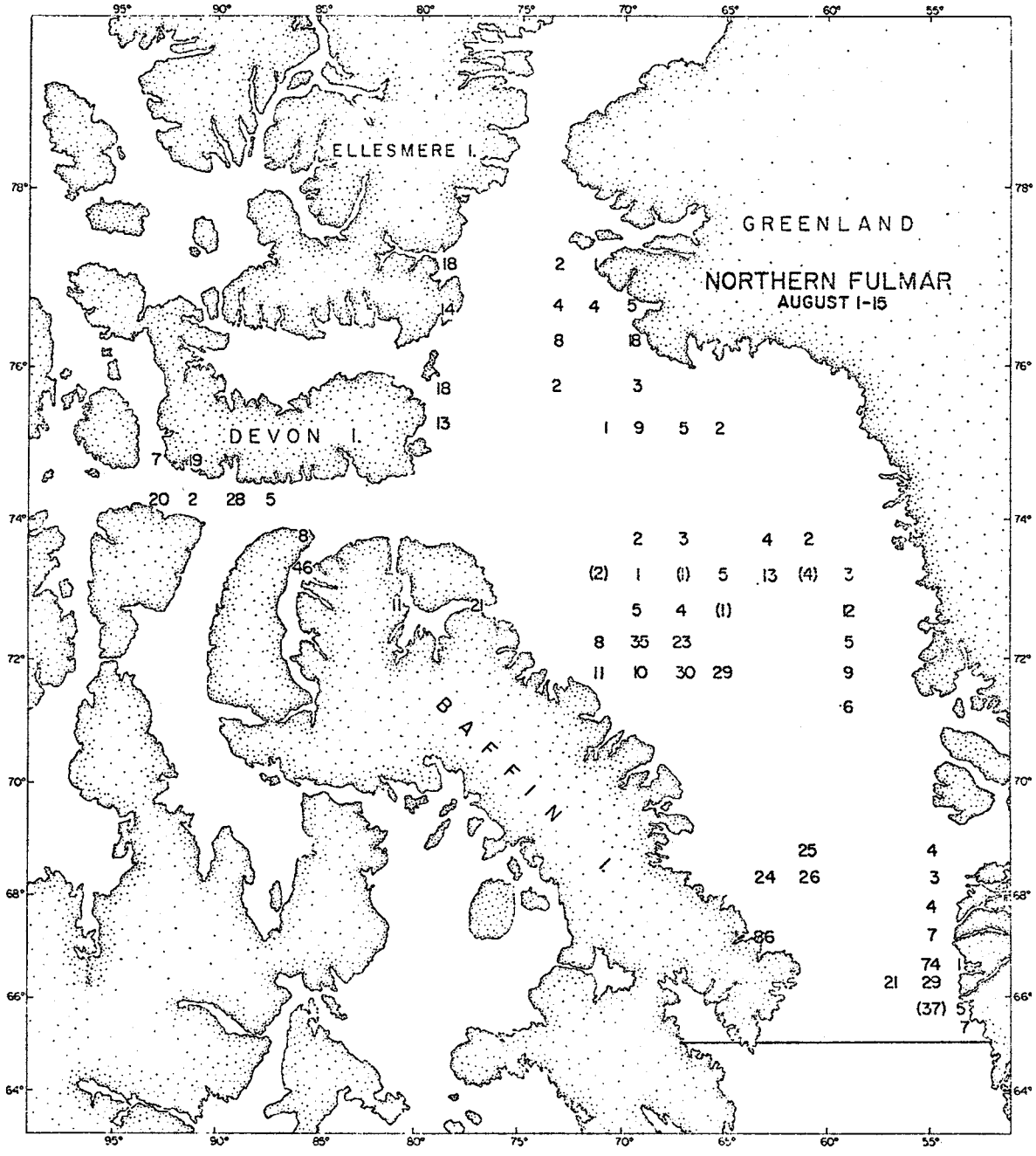
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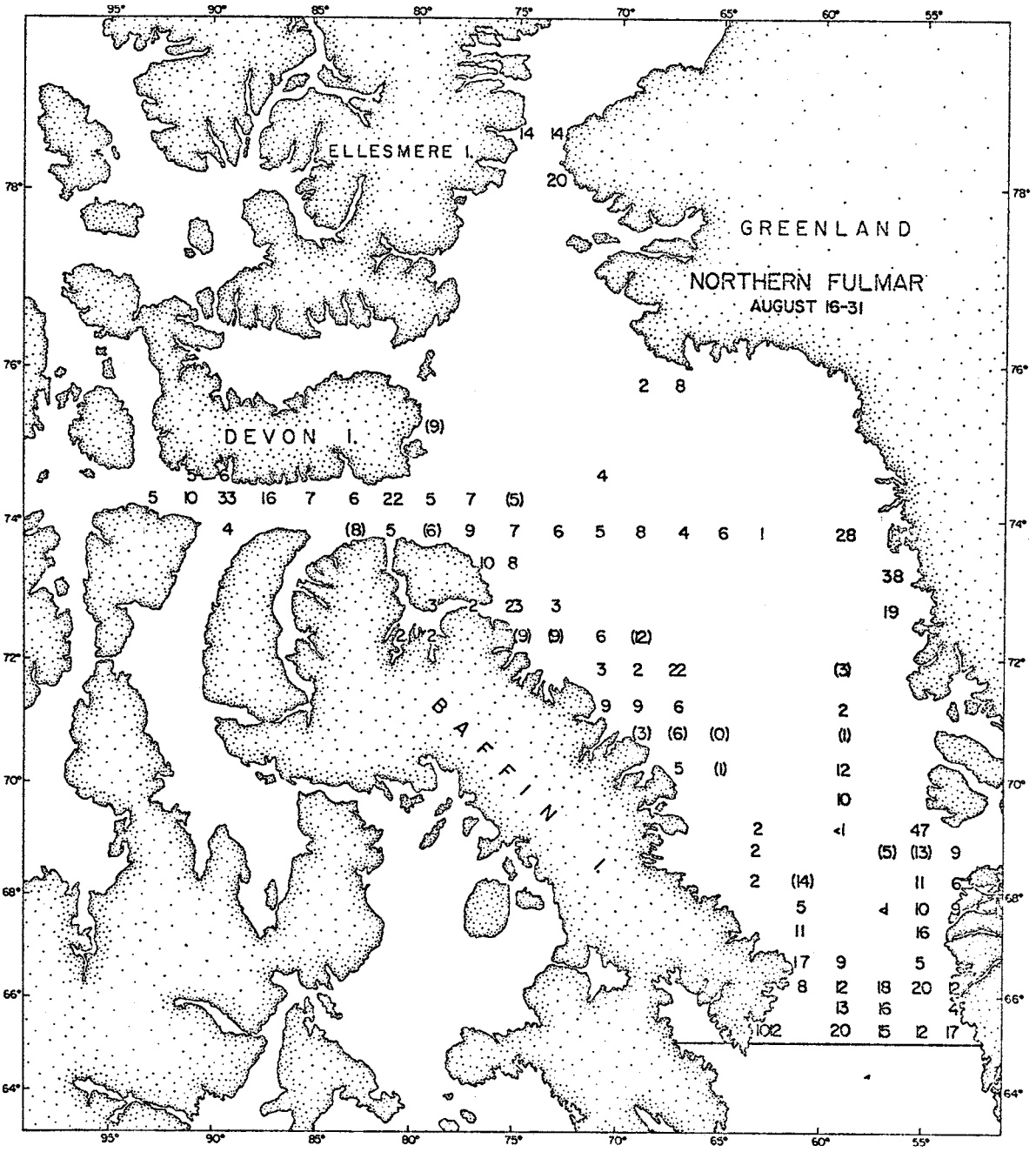
ELLESMERE I.
DEVON I.
BAFFIN I.
GREENLAND
NORTHERN FULMAR
AUGUST 16-31
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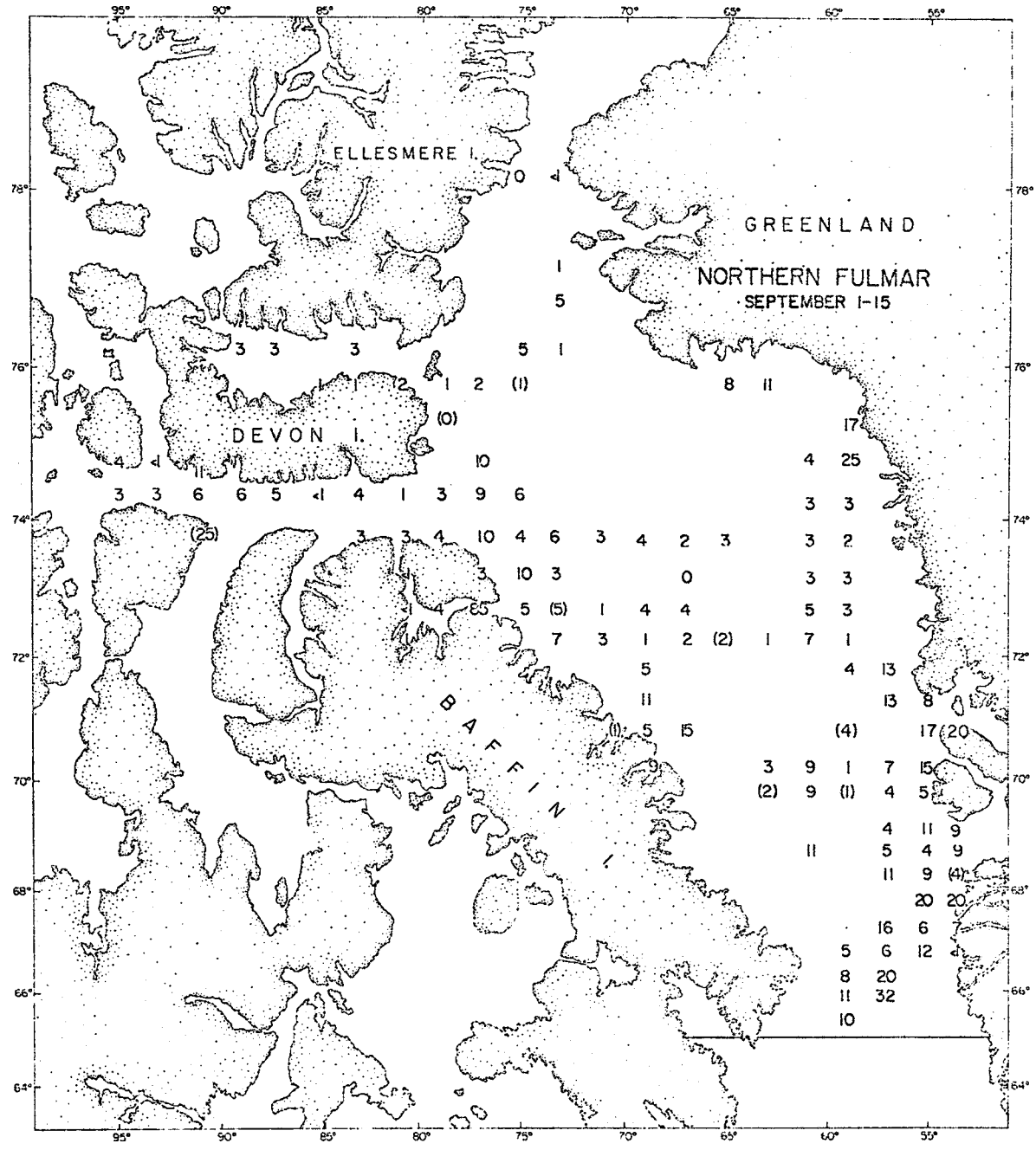
ELLESMERE I.
GREENLAND
NORTHERN FULMAR
SEPTEMBER 1-15
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BAFFIN I.
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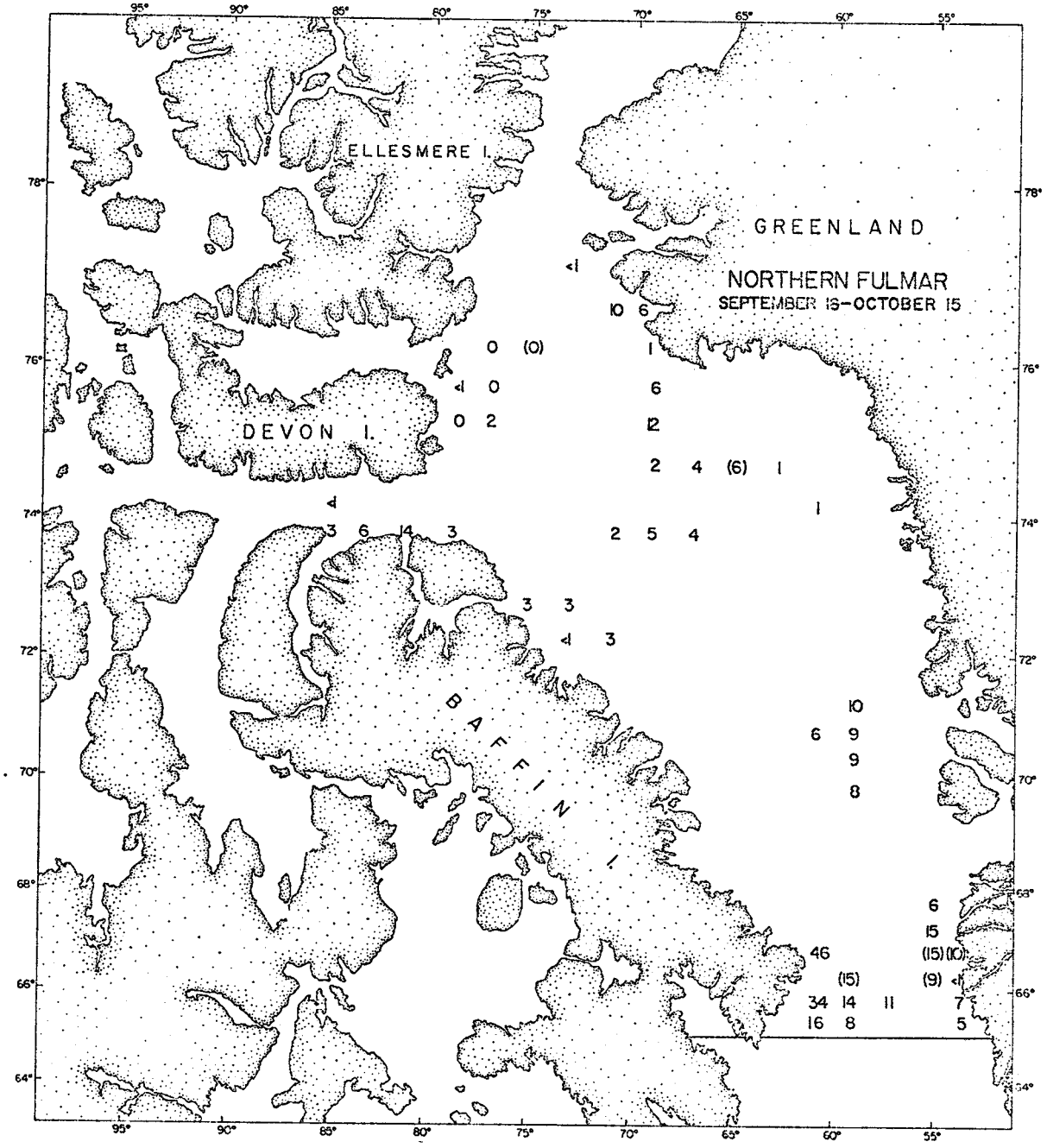
ELLESMERE I.
GREENLAND
NORTHERN FULMAR
SEPTEMBER 16–OCTOBER 15
DEVON I.
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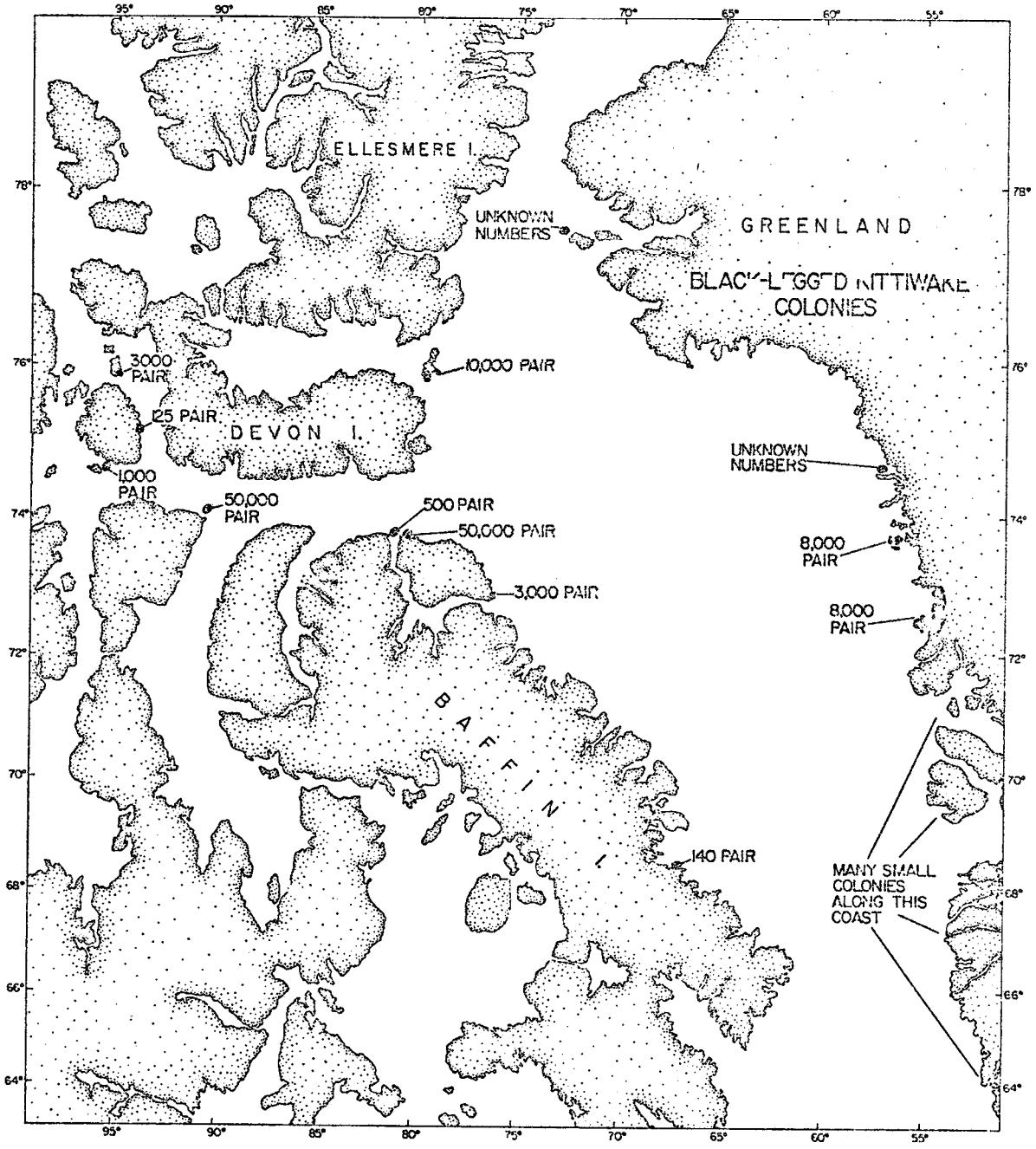
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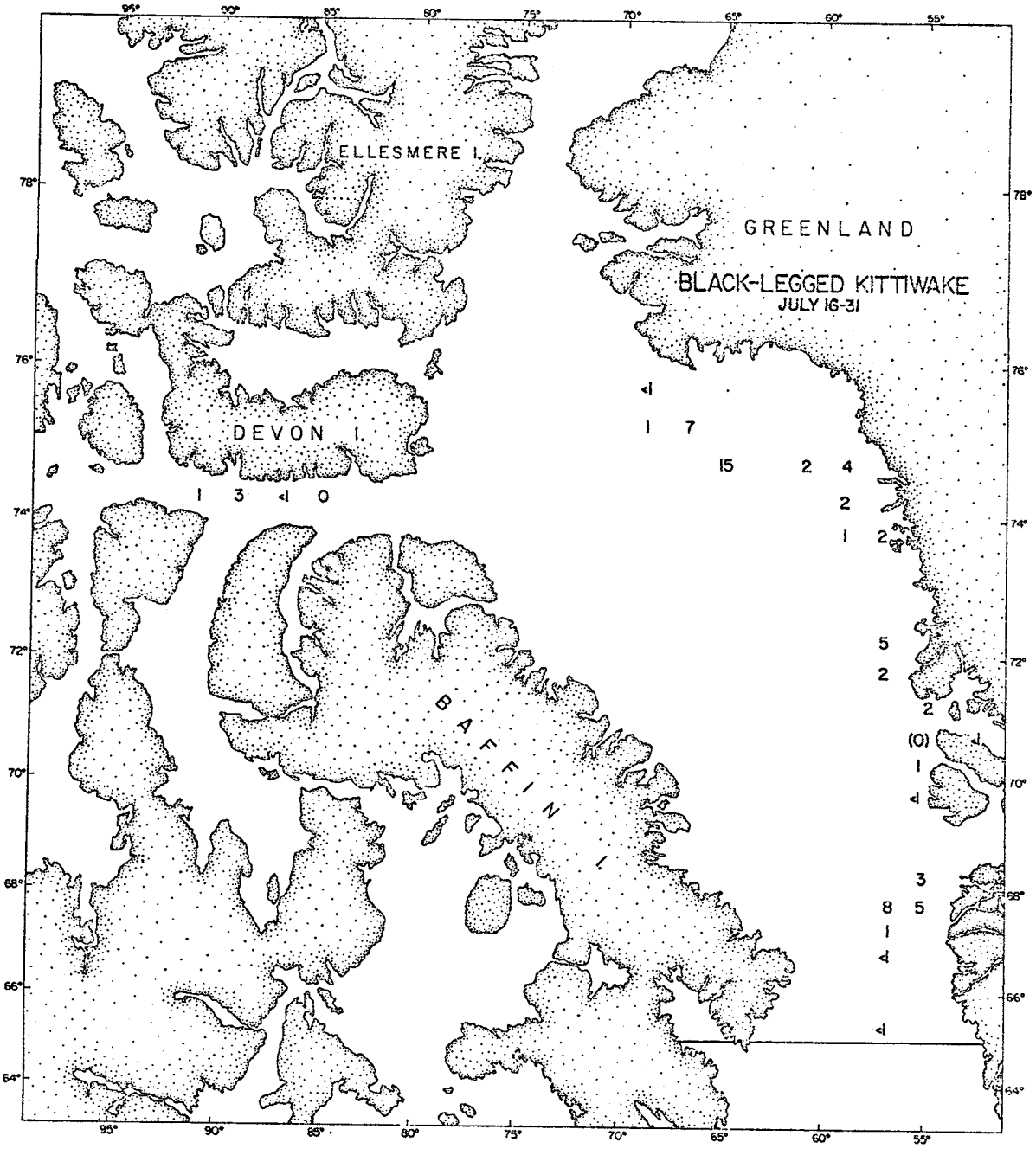
ELLESMERE I.
GREENLAND
UNKNOWN NUMBERS
BLACK-LEGGED KITTIWAKE COLONIES
3000 PAIR
10,000 PAIR
25 PAIR
DEVON I.
1000 PAIR
50,000 PAIR
500 PAIR
50,000 PAIR
3,000 PAIR
UNKNOWN NUMBERS
8,000 PAIR
8,000 PAIR
BAFFIN I.
140 PAIR
MANY SMALL COLONIES ALONG THIS COAST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GREENLAND
BLACK-LEGGED KITTIWAKE
JULY 16-31
DEVON I.
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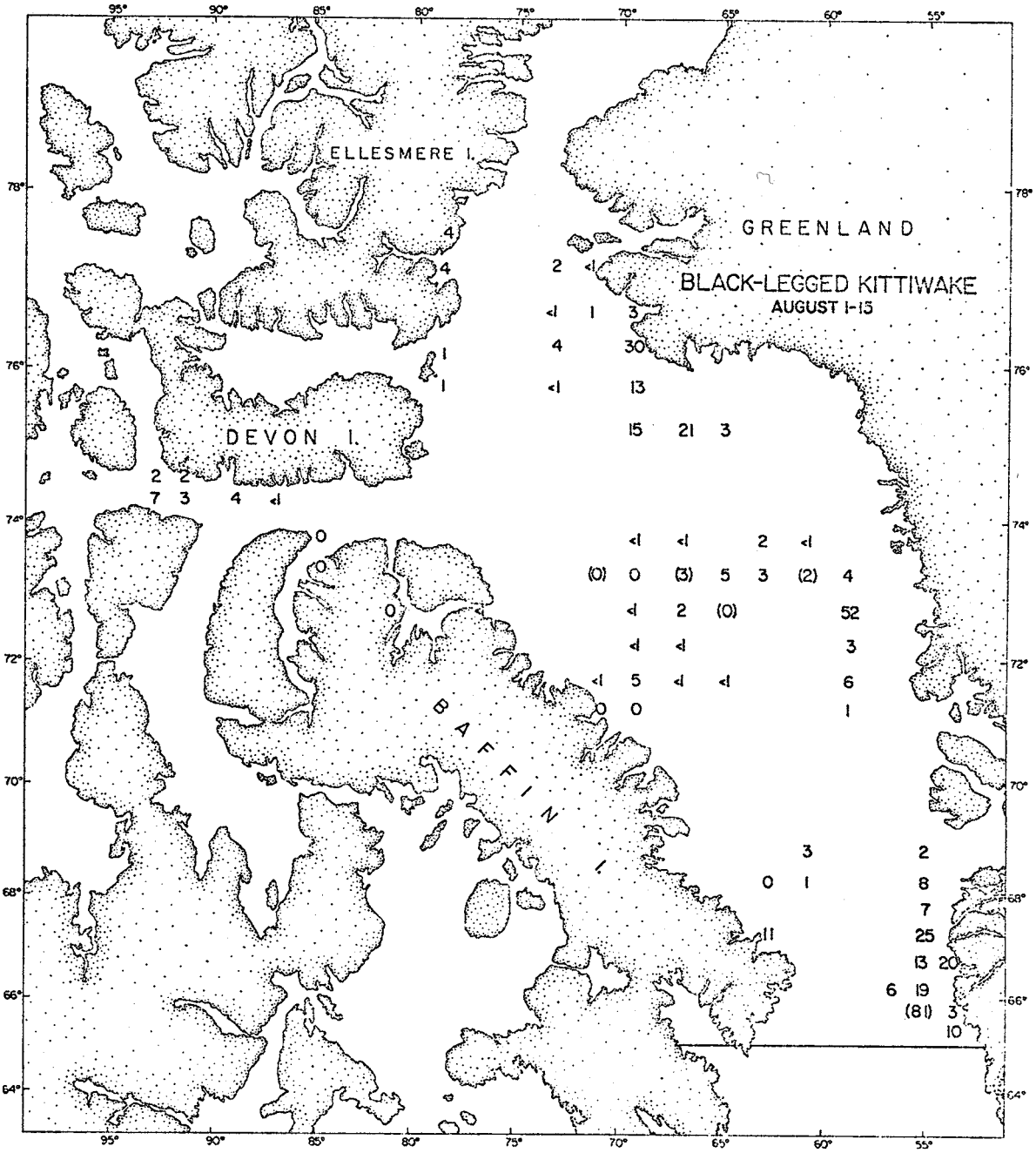
ELLESMERE I.
GREENLAND
BLACK-LEGGED KITTIWAKE
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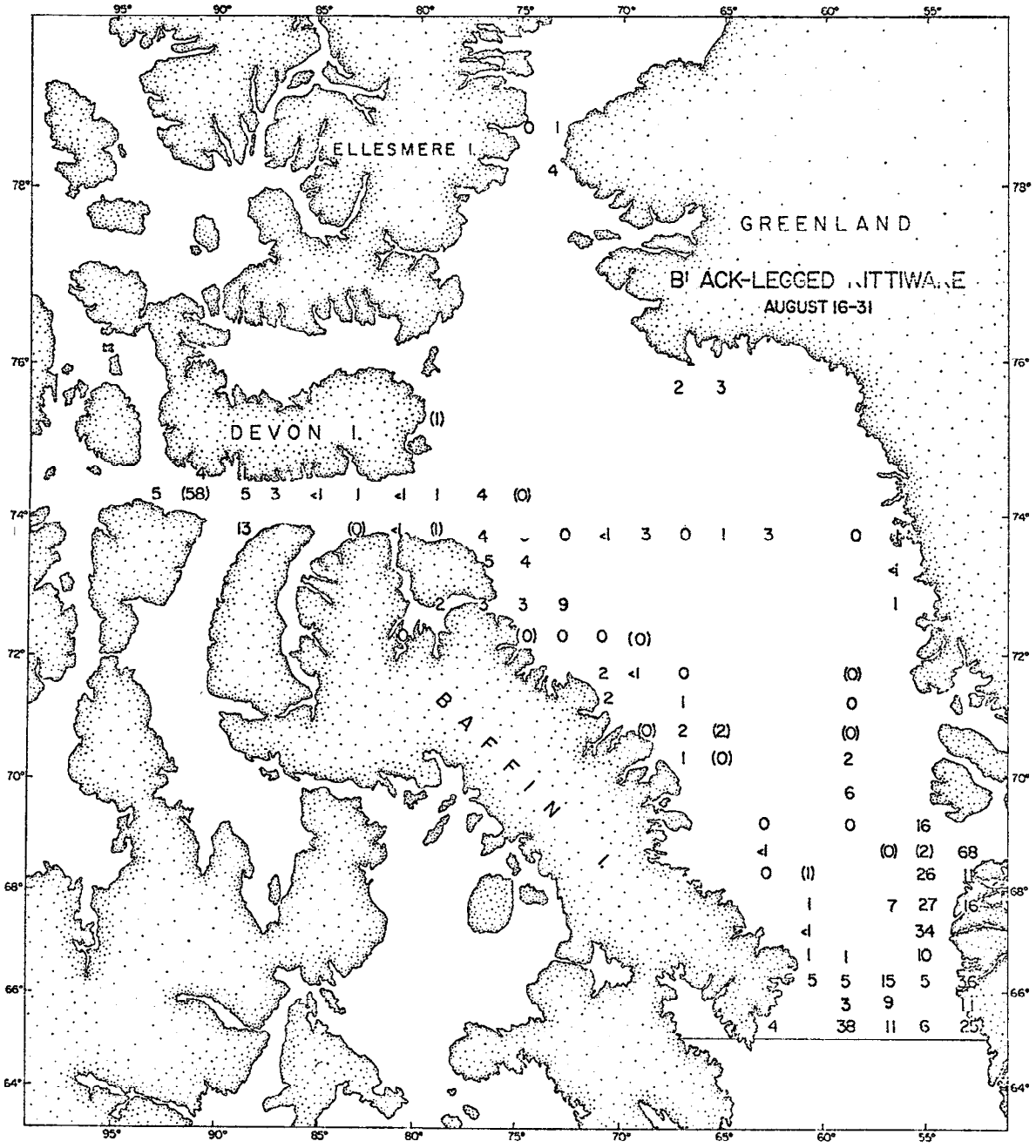
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GREENLAND
BLACK-LEGGED KITTIWAKE
AUGUST 16-31
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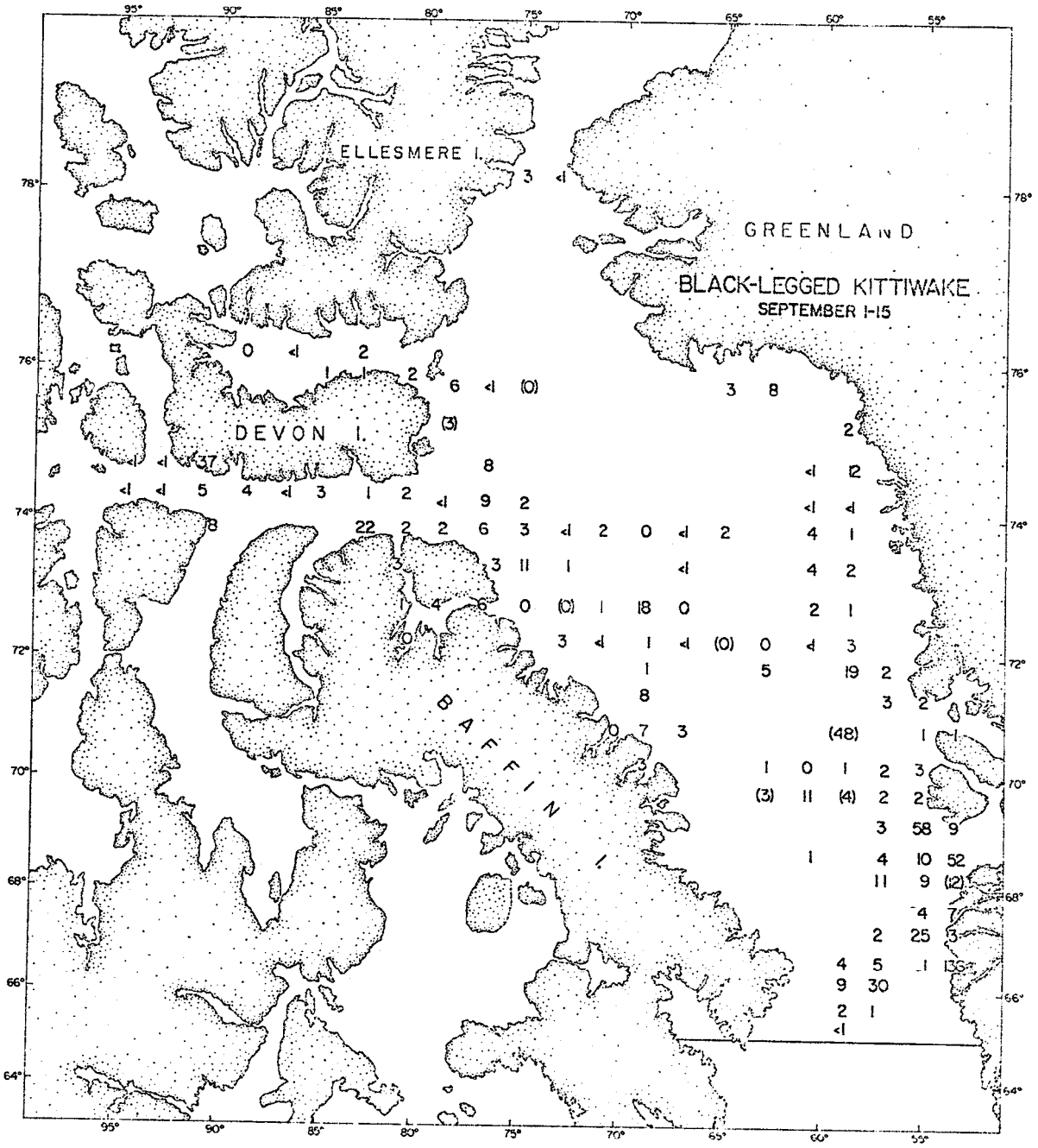
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GREENLAND
BLACK-LEGGED KITTIWAKE
SEPTEMBER 1-15
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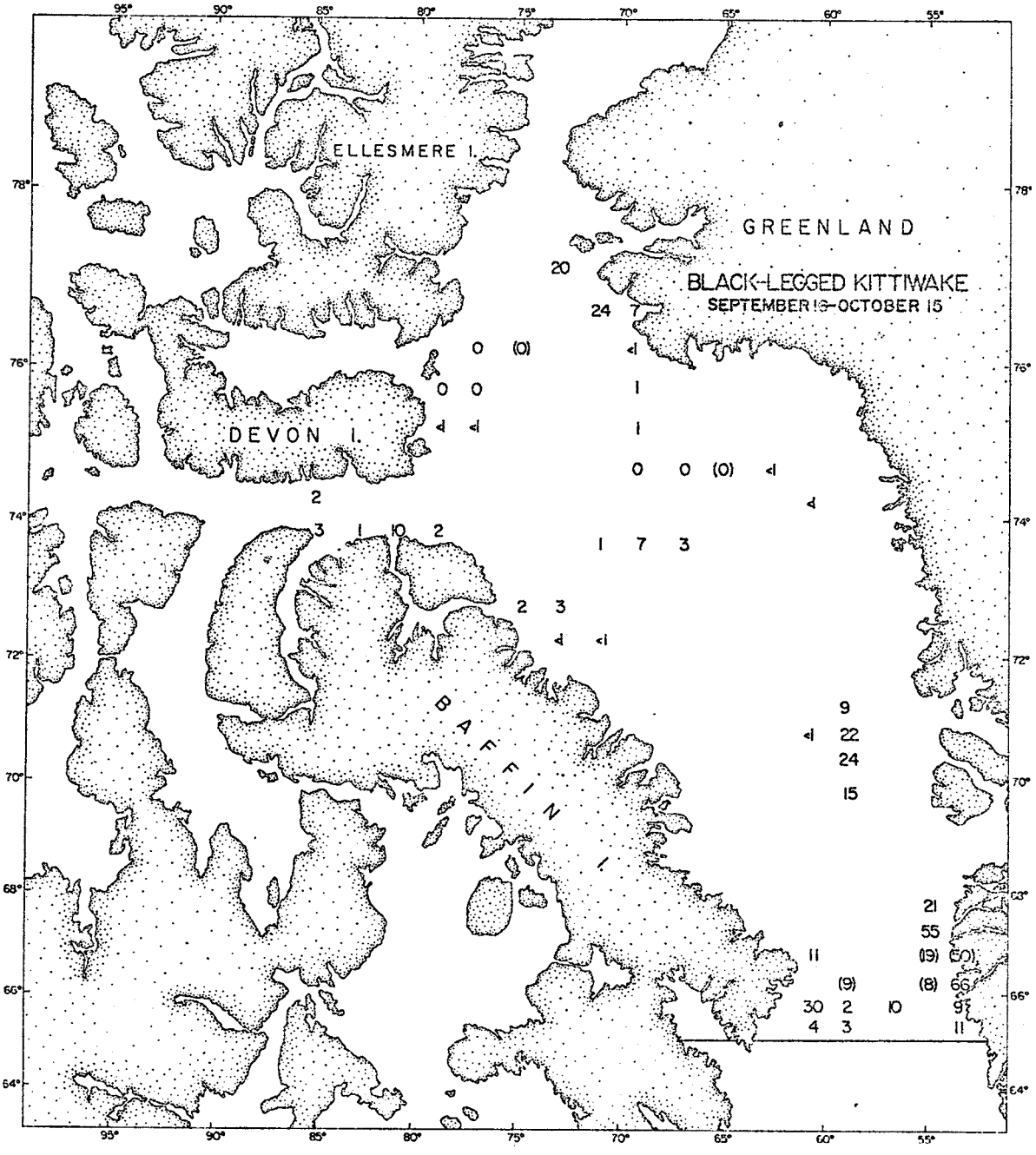
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GREENLAND
BLACK-LEGGED KITTIWAKE
SEPTEMBER 15–OCTOBER 15
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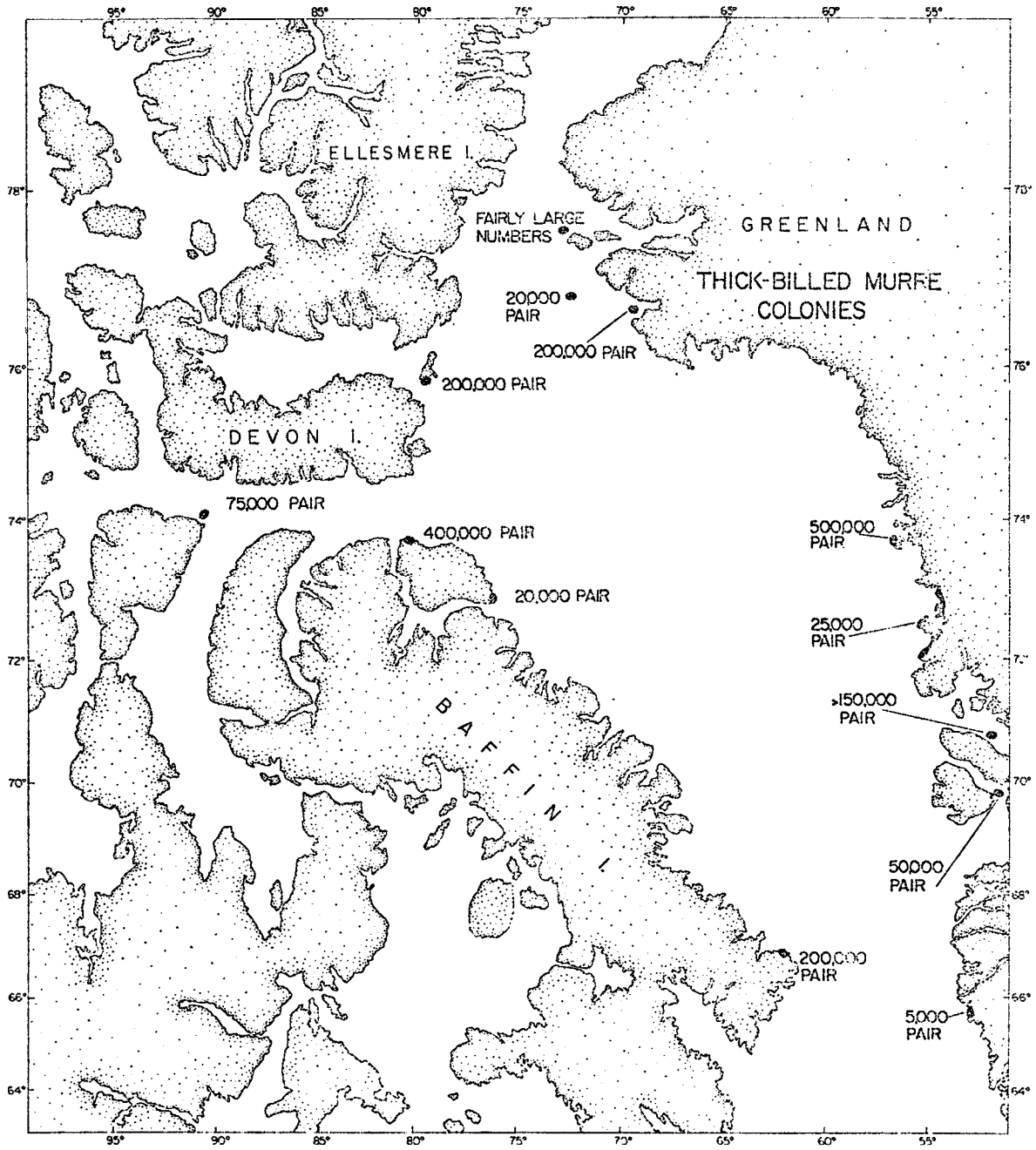
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GREENLAND
FAIRLY LARGE NUMBERS
THICK-BILLED MURRE COLONIES
20000 PAIR
200,000 PAIR
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DEVON I.
75,000 PAIR
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BAFFIN I.
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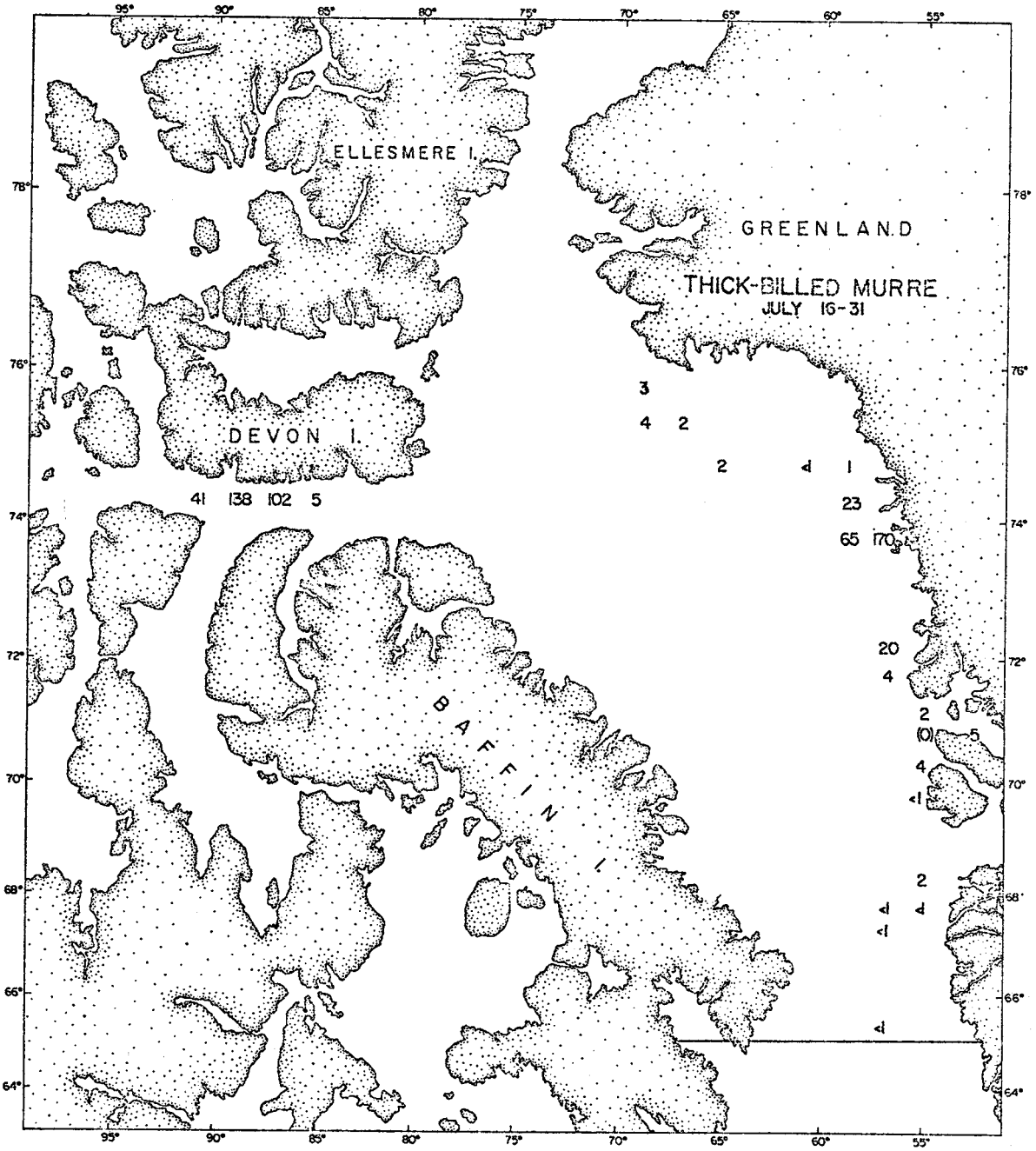
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GREENLAND
THICK-BILLED MURRE
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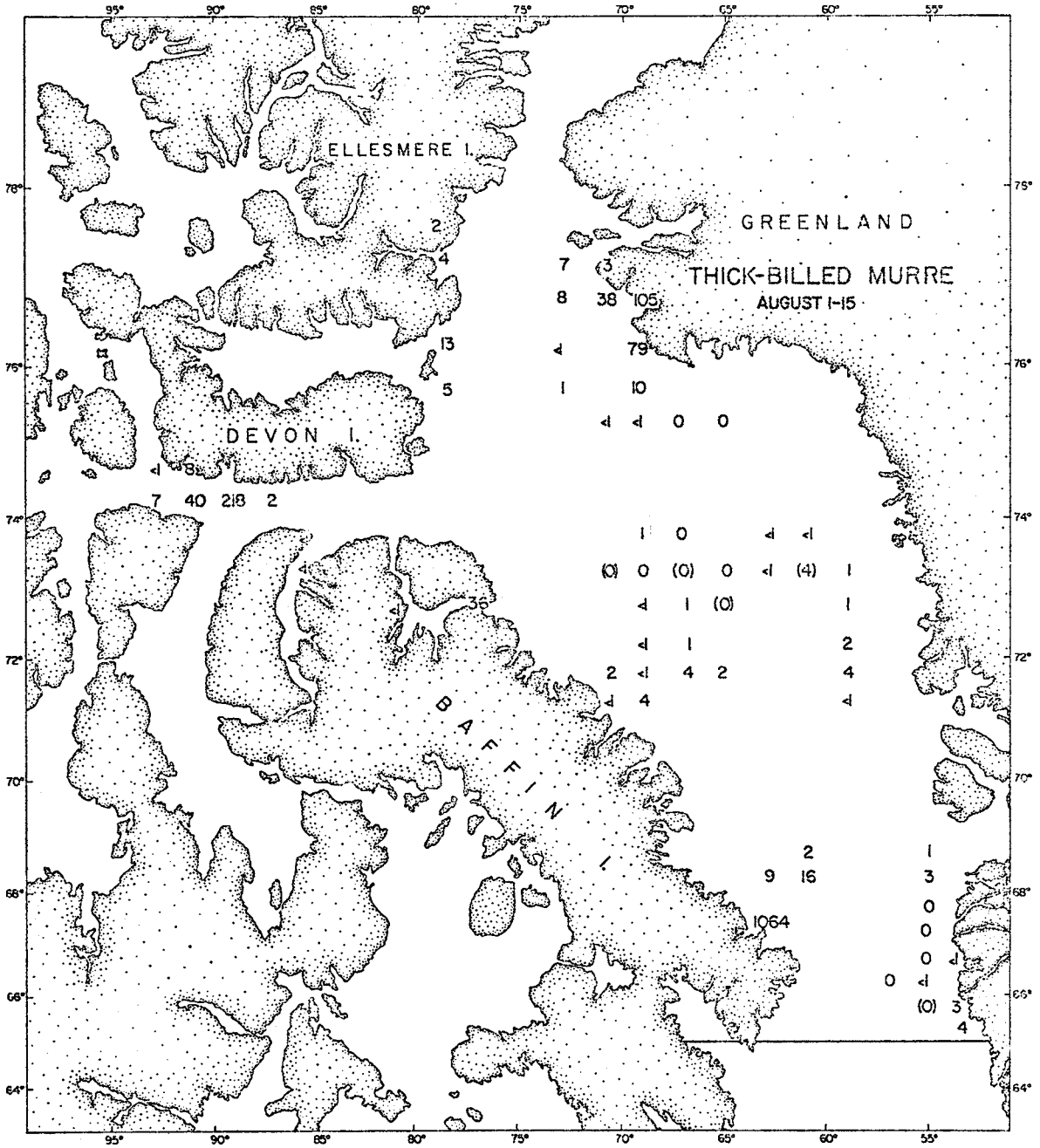
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THICK-BILLED MURRE
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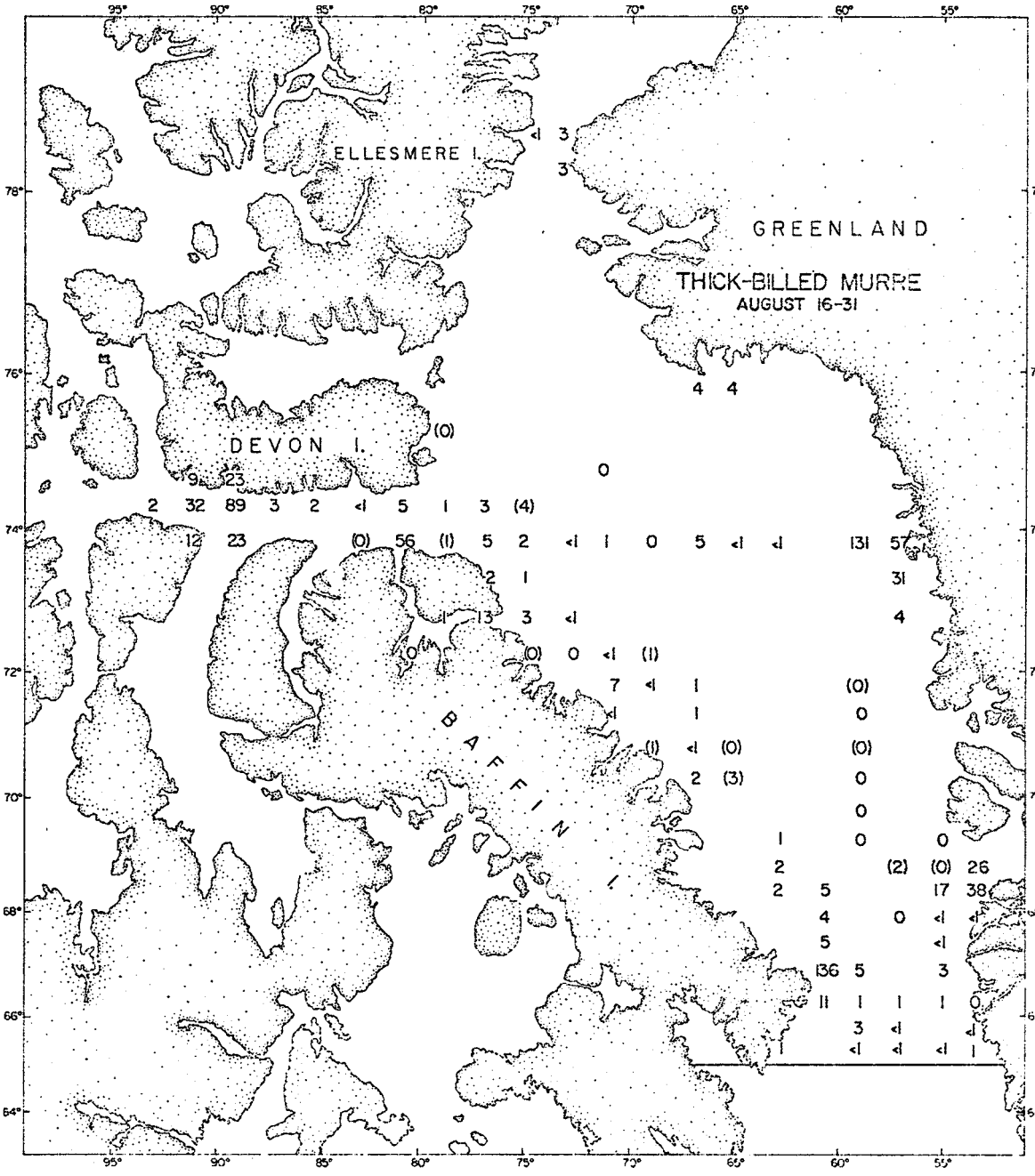
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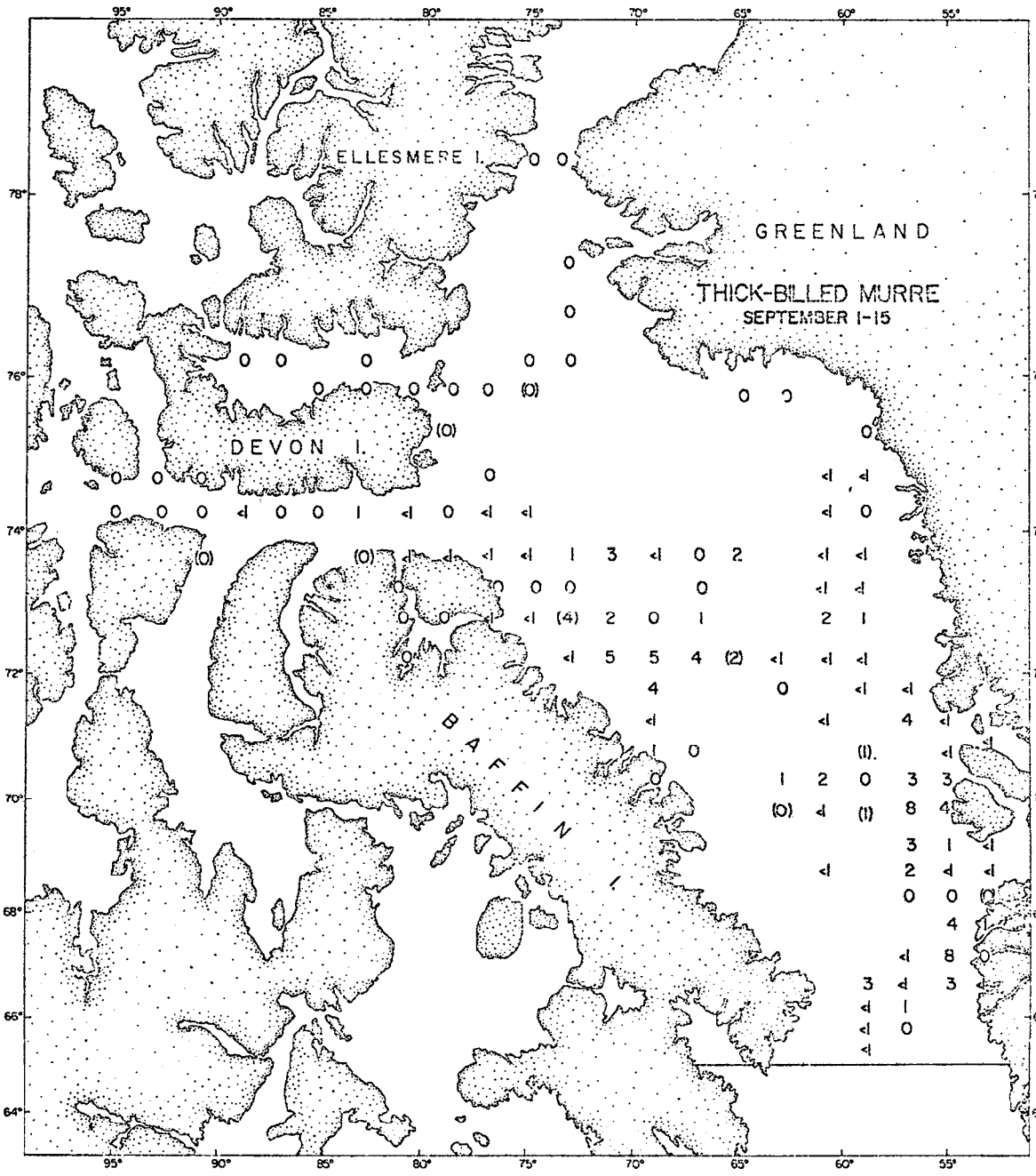
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THICK-BILLED MURRE
SEPTEMBER 1-15
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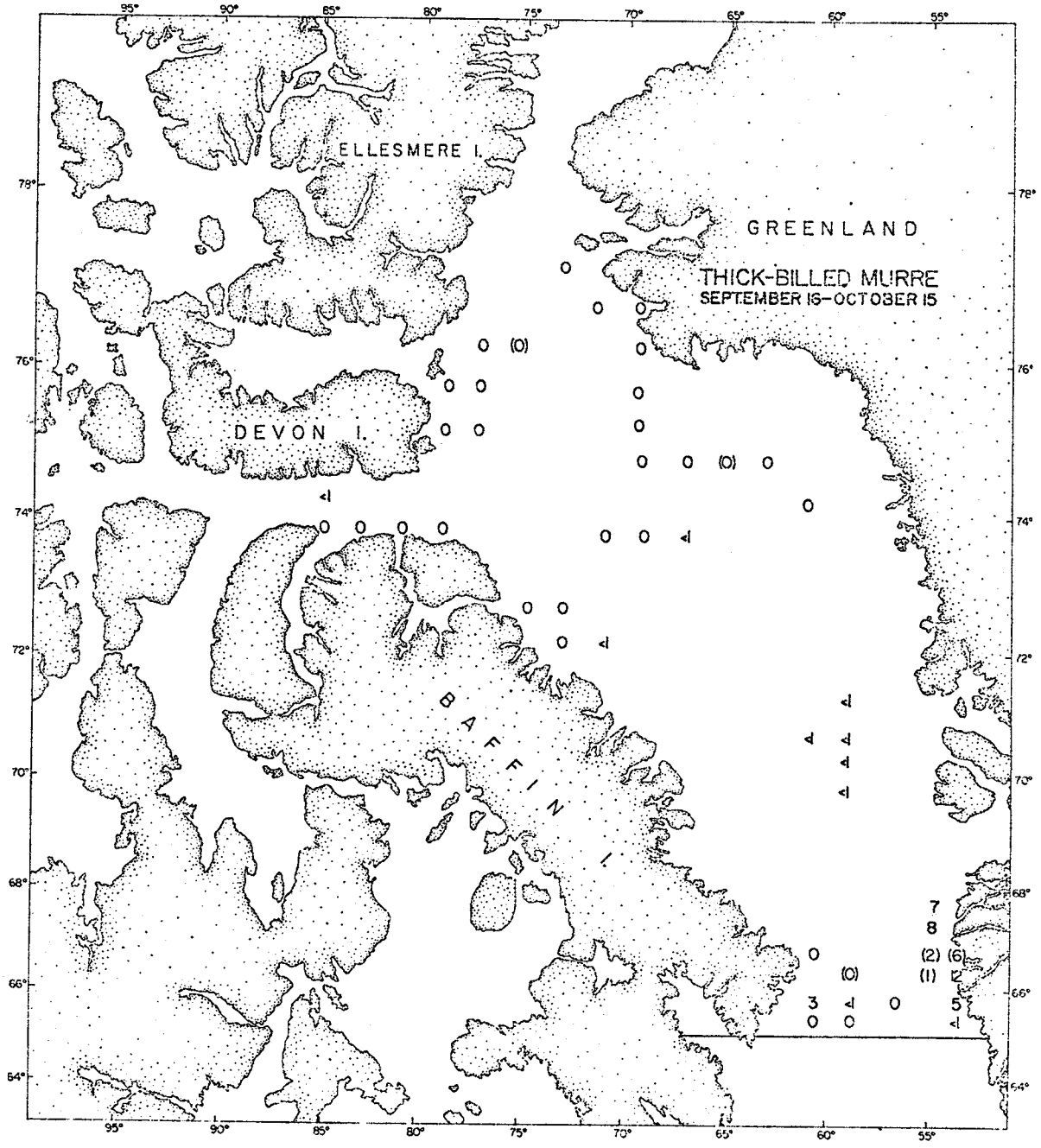
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GREENLAND
THICK-BILLED MURRE
SEPTEMBER 16–OCTOBER 15
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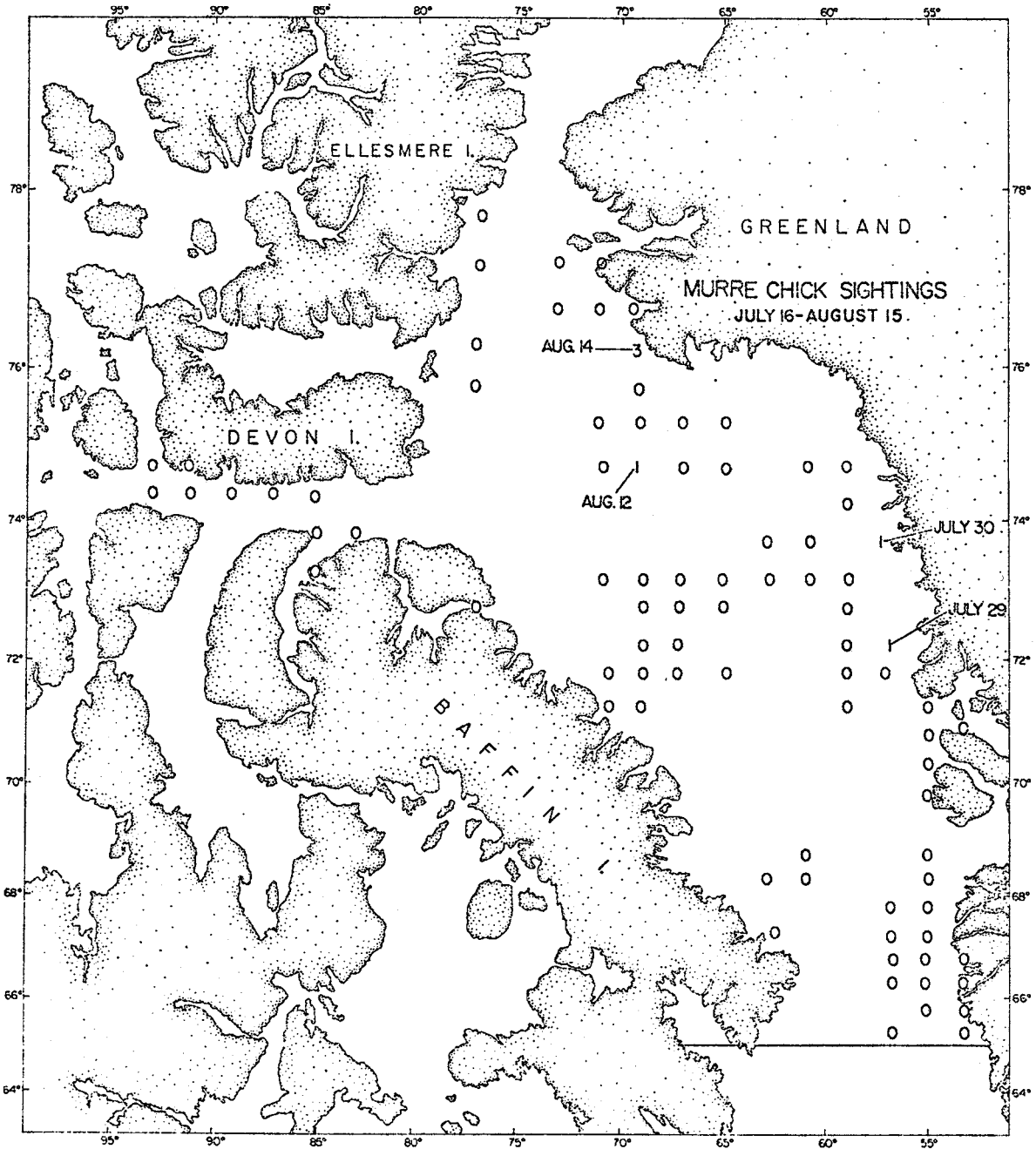
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GREENLAND
MURRE CHICK SIGHTINGS
JULY 16-AUGUST 15.
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JULY 29
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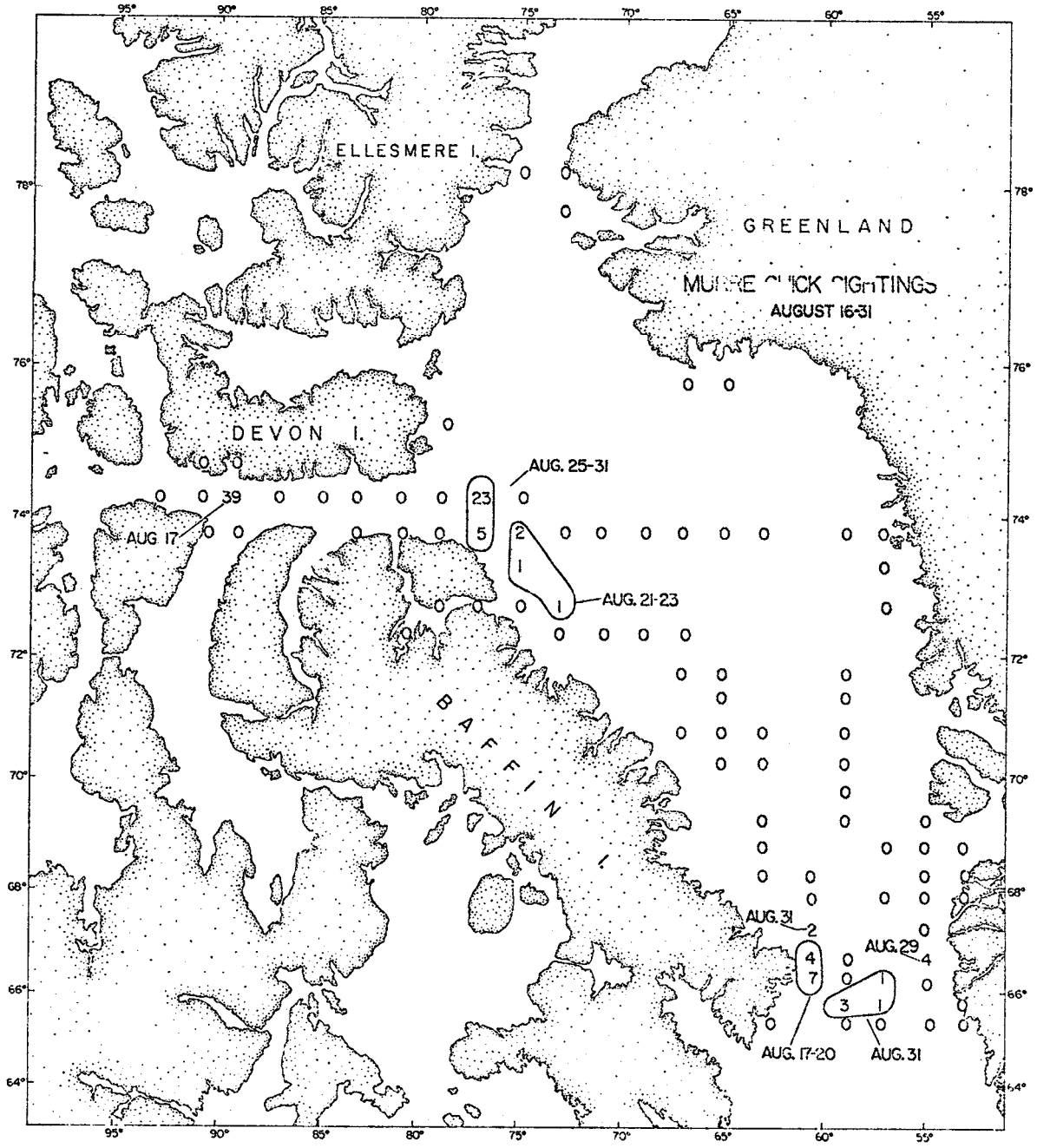
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GREENLAND
DEVON I.
BAFFIN I.
AUGUST 16-31
AUG. 25-31
AUG. 21-23
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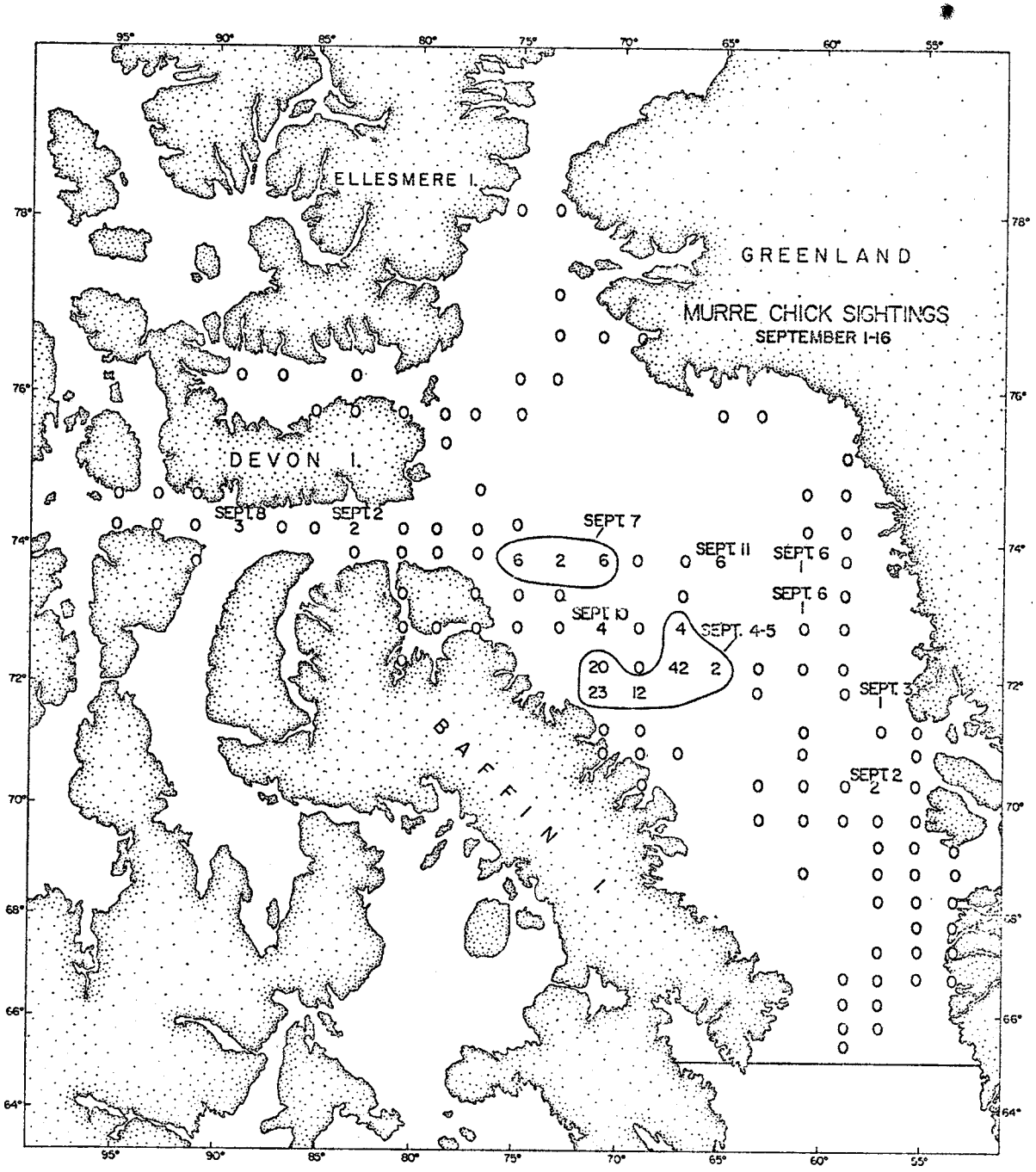
AUG. 31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MURRE CHICK SIGHTINGS
SEPTEMBER 1-16
DEVON I.
BAFFIN I.
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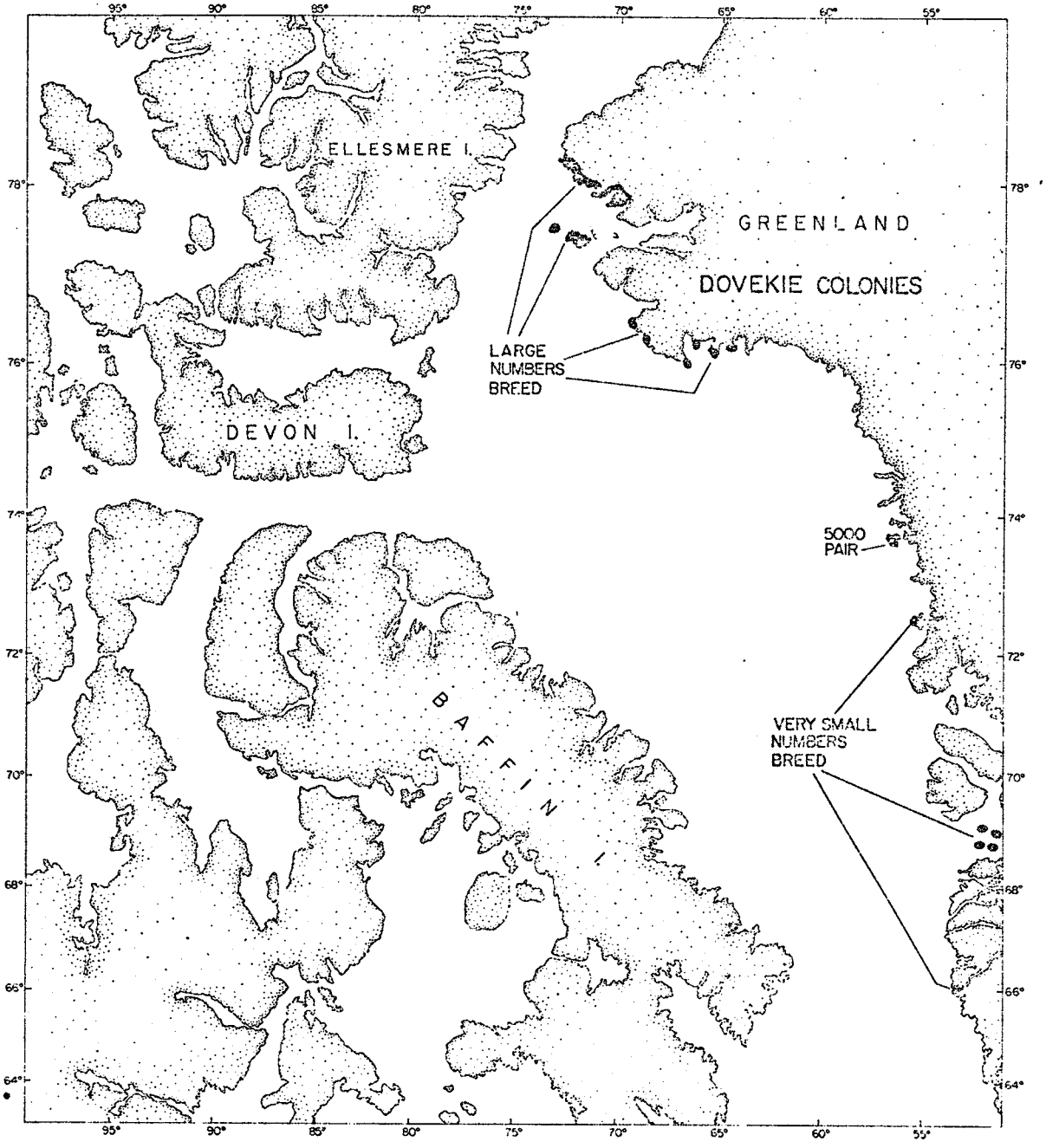
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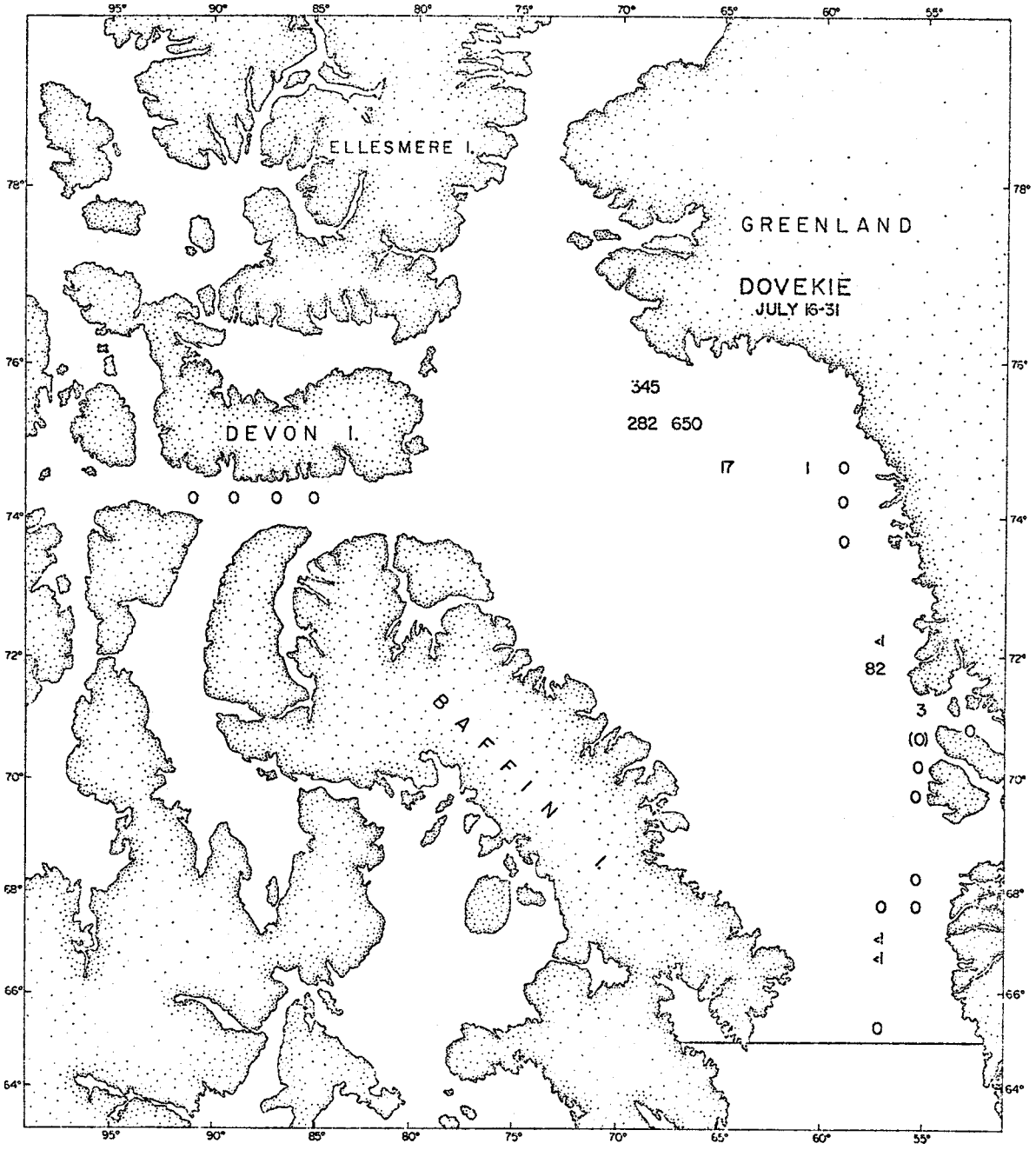
ELLESMERE I.
GREENLAND
DOVEKIE COLONIES
LARGE
NUMBERS
BREED
DEVON I.
5000
PAIR
VERY SMALL
NUMBERS
BREED
BAFFIN I.


ELLESMERE I.
GREENLAND
DOVEKIE
JULY 16-31
DEVON I.
BAFFIN I.
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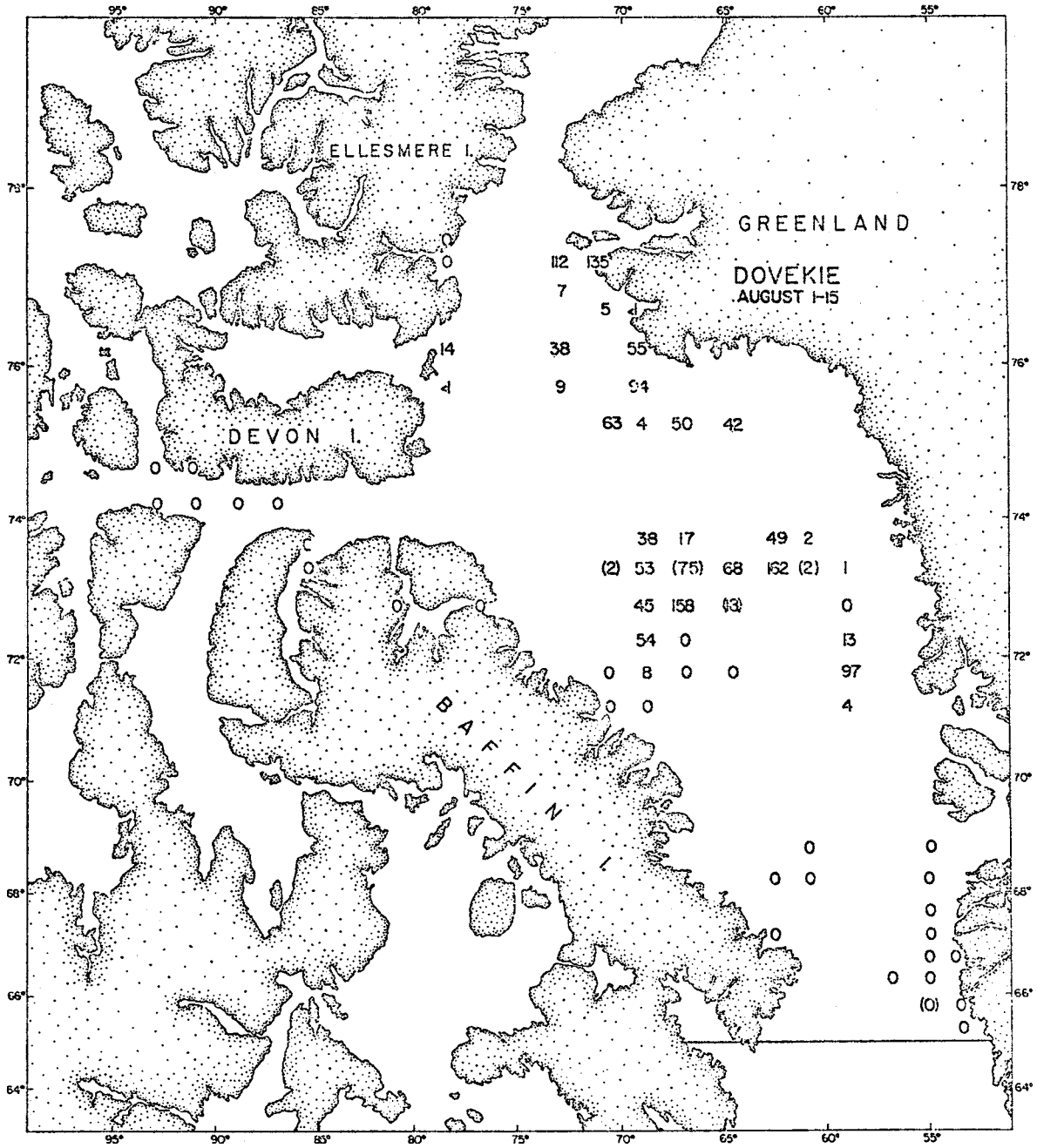
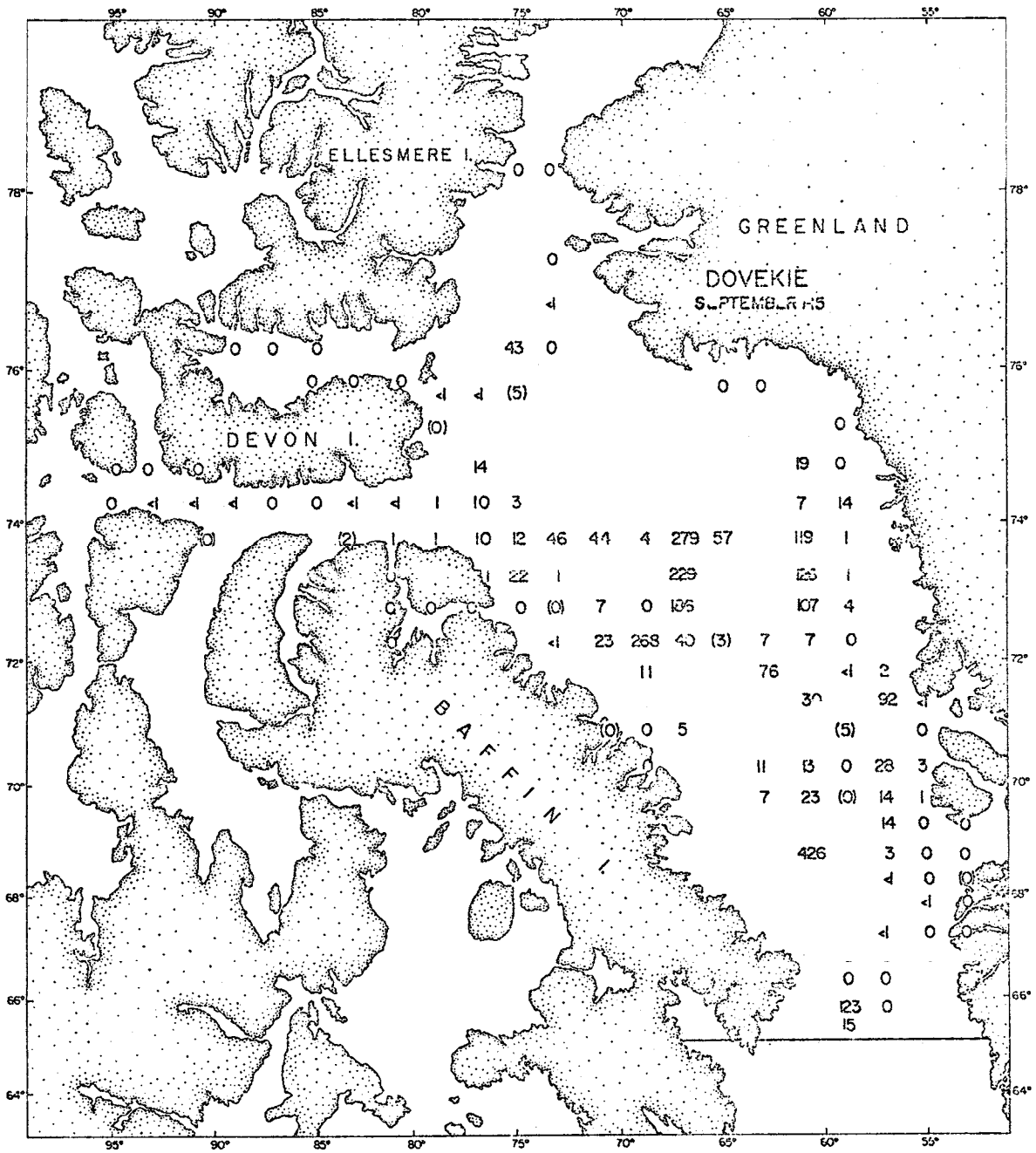
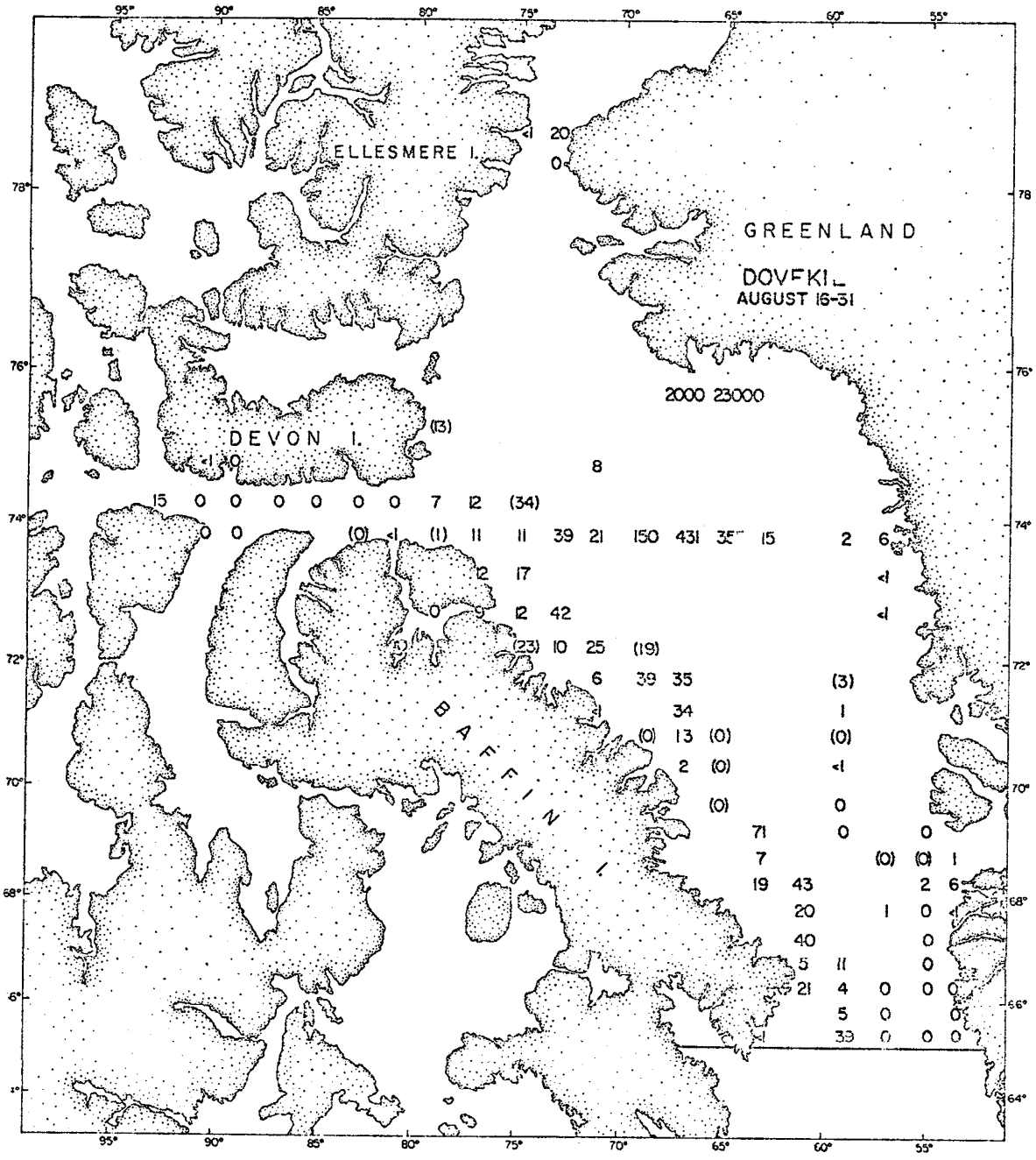
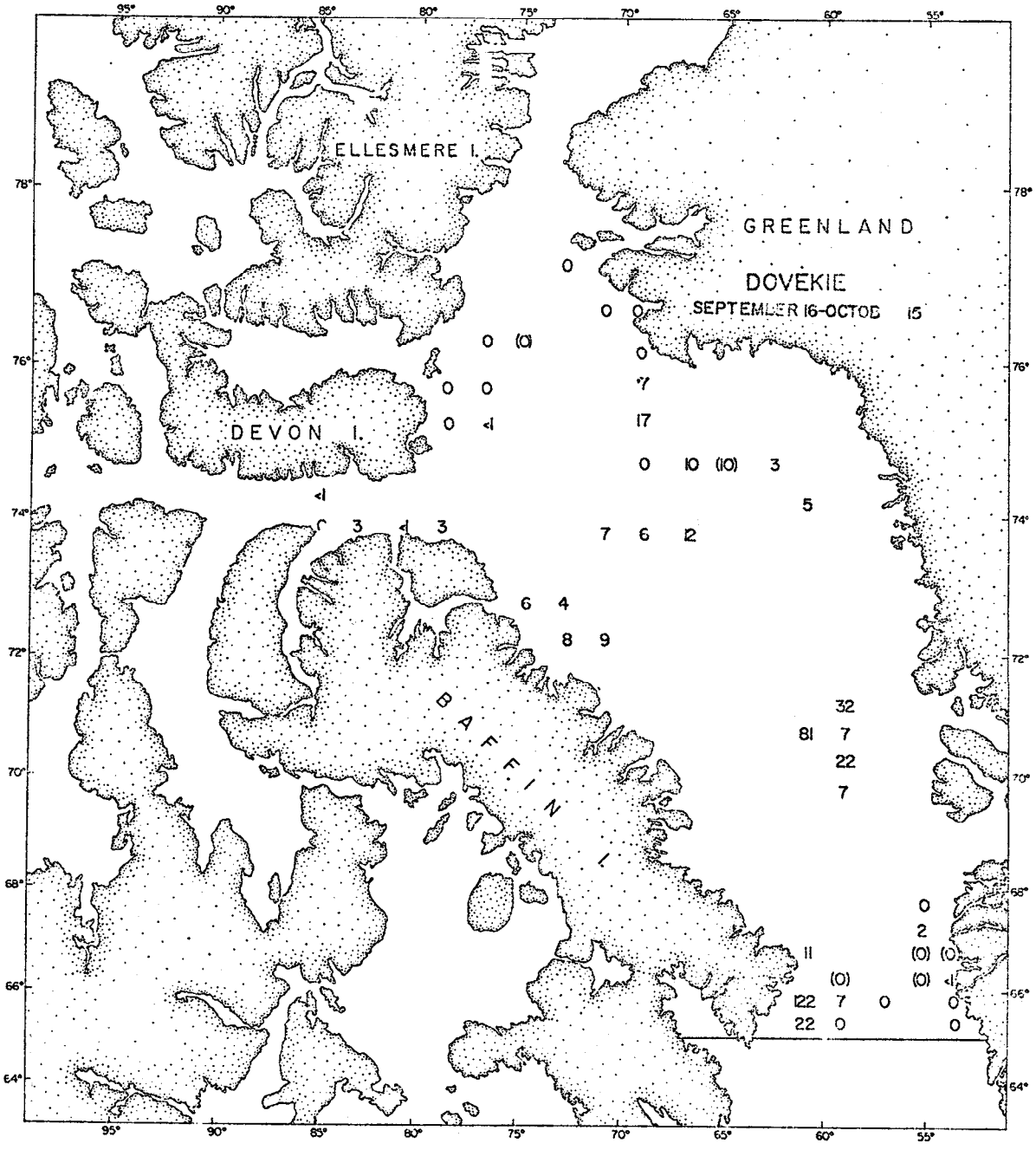

ELLESMERE I.
GREENLAND
DOVEKIE
AUGUST 1-15
DEVON I.
BAFFIN I.
95°
90°
85°
80°
75°
70°
65°
60°
55°
78°
76°
74°
72°
70°
68°
66°
64°
112 135
7
5
38 55
14
9 94
63 4 50 42
38 17 49 2
(2) 53 (75) 68 162 (2) 1
45 158 (13) 0
54 0 13
0 8 0 0 97
0 4
0 0
0 0
0 0
0 0
0 0
0 0
0 0
0 0
0 0
(0)
0


ELLESMERE I.
GREENLAND
DOVEKIE
SEPTEMBER 65
DEVON I.
BAFFIN I.
95°
90°
85°
80°
75°
70°
65°
60°
55°
78°
76°
74°
72°
70°
68°
66°
64°


ELLESMERE I.
GREENLAND
DOVEKIE
AUGUST 16-31
2000 23000
DEVON I.
(13)
BAFFIN I.
95°
90°
85°
80°
75°
70°
65°
60°
55°
78°
76°
74°
72°
70°
68°
66°
64°


ELLESMERE I.
DEVON I.
GREENLAND
DOVEKIE
SEPTEMBER 16-OCTOBER 15
BAFFIN I.
95°
90°
85°
80°
75°
70°
65°
60°
55°
78°
76°
74°
72°
70°
68°
66°
64°