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NORWESTLANT II
National Report
Iceland - R/V ÆGIR - B63

Contents

I. The Cruise (Jakob Magnússon)
II. Oceanographic Observations (Svend - Aage Malmberg)
III. Zooplankton (Ingvar Hallgrímsson)
IV. Cod Eggs and Larvae with Notes on Some Other Species (Jutta Magnússon)
V. Redfish Larvae (Jakob Magnússon)

I. THE CRUISE

by Jakob Magnússon

A) Outline of the cruise

The Icelandic part in the ICNAF Environmental Survey in 1963 was a participation in NORWESTLANT II program with a survey in the Irminger Sea in May. It was carried out with R/V ÆGIR from the Icelandic Coast Guard Service. Captain: Haraldur Björnsson.

The survey started from Reykjavík at 22.15 hrs on April 30th and was finished at 22.00 hrs on May 31st. All times are G.M.T.

The survey was divided into two parts: Part I covering the Reykjanes area and the southern part of the Irminger Sea with the main emphasis laid on redfish larvae and zooplankton (see fig. 1). This part of the cruise was finished on May 16th at 14.35 hrs. The second part of the cruise which started on May 18th at 14.08 hrs (Part II) covered the waters west off Iceland and the East Greenland waters, south to 63° N (see fig. 1). The main emphasis was laid on cod eggs and larvae and hydrography. This part of the cruise was finished in Reykjavík on May 31st at 22.00 hrs.

Very soon after the beginning of the survey, the weather became very bad and remained so for almost the whole time of part I of the cruise. Only for a part of two days, the weather conditions were favourable. Most af the work was carried out in winds between 20 and 40 knots and only seldom below 15 knots. There were twice interruptions for storms, for one day each time, i.e. on May 4th - 5th and 12th - 13th when it had to be heaved to in violent storm both times. These very bad weather conditions slowed down the

speed of the vessel and therefore, the program had to be shortened somewhat. For that reason, only 81 of 94 planned stations (thereof 16 of 34 planned hydrographic stations) could be worked during this part of the cruise. The station grid did, however, cover the area in question fairly well. The heavy wind and the rough sea did not only cause great restrictions in the hydrographic work but excluded the use of the Hensen net at many stations as well. But the B.T. (down to 270 m) and the Icelandic High Speed Samplers (IHSS) with which sampling is not limited to good weather conditions, were used on all stations.

On Part II of the cruise (from May 18th to May 31st), the weather conditions maintained favourable for almost the whole time. Thus, instead of 107 planned stations in 15 days, 118 stations in 13 days were taken. There were planned 40 hydrographic stations in 6 sections but we succeeded in taking 74 stations in 9 sections, the last one being a repeatation of the Reykjanes section. The ice conditions at East Greenland limited the work to some extent but not as much as one could have expected at this time of the year. The work at East Greenland was finished at planned date, i.e. on May 29th. Staff from the Fishery Research Institute:

Jakob Magnússon (in charge)
Jutta Magnússon (fish eggs and larvae)
Ingvar Hallgrímsson (zooplankton)
Svend Aage Malmberg (hydrography)
Sigrún Sturlaugsdóttir)
Guðmundur Sv. Jónsson) Techn. ass.
Sigtryggur Guðmundsson)
Stefán M. Stefánsson)

B) Observations made

All stations on both parts of the cruise were biological ones, also the hydrographic stations.
Hydrography: see shapter II.
Plankton: Vertical and horizontal zooplankton samples were taken at the stations. The Hensen net was hauled from 100 - 0 meters when weather allowed. For horizontal sampling, the Icelandic High Speed Samplers (IHSS) were towed at depths of 3-5, 15-18 and 25-30 meters. The towing speed was 8 knots and the distance towed 1.5 n.m. so that each sampler filtered about 20 m^3 of sea water. On some stations at East Greenland, the IHSS were towed 2.5 n.m.

The zooplankton volume was measured by the wet displacement method. The fish eggs and larvae were sorted out of the samples, counted and measured as far as possible at sea. The Hensen net samples were worked up at sea by a short-cut method (see chapter III).
K.H. Depth Tubes were successfully used for depth control of

the IHSS.

Transparency: Observations were only carried out by means of Secchi disc at almost all stations taken during daylight. The transparency in meter for each station is given in table I.

Weather observations were made regularily at the synoptic hours and were passed to the Icelandic Meteorological Office via Reykjavík Radio.

Ice conditions were carefully noted and plotted on the charts provided by the Danish Meteorological Institute. Ice reports were passed together with the weather observations. The ice border was very uneven and somewhat unusual. The ice edge was, especially in the northern part of the area, split up and big bights were formed in the ice. Ice tongues and islands extended far into the warm water at some places.

Lines of deep sea soundings during the first part of the cruise were not reliable due to the very bad weather conditions and were therefore not plotted. During the second part of the cruise, the soundings were plotted on the plotting sheets provided by the British Admiralty.

Many whales and shoals of delphins were sighted mostly along the ice edge about 29^{o} - 30^{o} W and plotted on N.I.O. record forms. Further, sounds from delphin shoals were recorded by means of asdic and tape recorder.

Redfish angling: Angling for redfish was carried out at a number of stations with a nylon line of 1 mm diameter. 6 hooks with artificial bait and 3 spinners and 1 kg weight were fitted to the line. The line was marked at every 50 meters. Only at one station (reference station B) the fishing was successful. There, 9 adult redfish were caught but one escaped. All were S.mentella, 5 females and 3 males. The females had rather newly released the fry.

The redfish was caught with the following length of line out:

1 with 500 m
7 with 350 m
1 with 150 m

The length of the redfish caught varied from 32.7 cm to 39.5 cm. All specimen had the stomachs turned out except one which was caught with 150 m line out. The stomach of this one contained:

Amphipoda	2	specim.
Sagitta sp.	3	-
Thysanoessa longicaudata	2	-
Thysanoessa sp.	ca. 12	-
	Total 29	specim.

9 larvae were found in the ovaries of two females. They were of 6-7 mm length and all without tail melanophores.

Echo soundings and asdic registrations for fish detection were made and recorded during almost the whole survey. Very few fish shoals were recorded, only in the Icelandic shelf region (herring and cod) and in the East Greenland shelf region (most probably capelin). But echo-traces in 5-40 meters depth were observed almost in the whole survey area, mainly in oceanic and Icelandic coastal areas. A provisional estimation of the strength of these traces is given in figure 34. A comparison of this chart and the charts of distribution and abundance of cod and redfish larvae shows, that the areas of great abundance of these fish larvae coincide with the areas of dense echo-traces.

NORWESTLANT II

ICELAND - R/V ÆGIR - B 63

Table 1

STATION LIST

Station Number	Date	Position Lat °	'	Long °	'	Hydrogr. Stations	Transparency Secchidisc in m.	Means of Reckoning
1	1/5	63	46 5	22	00 7		4	Radar
2	"	63	31 8	22	00	x	14	"
3	"	63	17	22	00	x	20	"
4	2/5	63	01 8	22	00	x	-	DR
5	"	62	48 5	22	00	x	11	"
6	"	62	19	22	00		11	Loran
7	"	61	49	22	02		-	"
8	"	61	17	22	06		14	"
9	"	60	49	21	55		-	"
10	3/5	60	00	22	00		-	"
11	"	60	01	23	00		-	"
12	"	59	58	24	00		16	"
13	"	60	00	25	00		-	DR
14	5/5	60	00	27	00		-	Loran
15	"	60	01	28	00		20	"
16	"	60	00	29	00		14	"
17	"	60	00	30	00		-	"
18	"	60	00	31	00		19	"
19	"	60	00 2	32	00		-	"
20	6/5	60	01	33	01		-	"
21	"	60	00	34	00		-	"
22	"	59	59	34	58		17	"
23	"	60	00	36	00		9	DR
24	"	60	00	37	00		15	Loran
25	"	60	00	38	02		21	"
26	"	59	59	39	01		15	"
27	7/5	60	19	37	23		-	"
28	"	60	39	35	37		21	"
29	"	61	00	34	00	x	▶ 25	"
30	"	61	00	32	56		-	"
31	8/5	61	01	31	57		-	"
32	"	61	00	30	54		-	"
33	"	60	59	29	53		18	"
34	"	60	59	28	53		24	"
35	"	61	01	27	52 1		16	"
36	"	61	01	26	52		-	"
37	"	61	00	25	50		-	"
38	"	61	00	24	50		22	DR
39	9/5	61	05	24	00		-	"

Table 1 (con't.)

Station Number	Date	Position Lat	Position Long	Hydrogr. Stations	Transparency Secchidisc in m.	Means of Reckoning
40	9/5	61 30	23 55		-	Loran
41	"	62 00	24 00		-	DR
42	"	62 00	25 00		22	Loran
43	"	62 03	26 08		19	"
44	"	62 01	27 10		19	"
45	"	62 03	28 07		-	"
46	10/5	62 00	29 12		-	"
47	"	62 00	30 17		-	"
48	"	62 03	31 20		23	"
49	"	62 01.5	32 24		21	"
50	"	62 01	33 30		20	"
51	"	62 00	34 36.3		22	"
52	"	62 01	35 31.2		18	"
53	"	62 00	36 34		24	"
54	"	62 23	36 34		16	"
55	11/5	62 45	36 36		-	"
56	"	62 45	35 33		-	"
57	"	62 43.5	34 29		24	"
58	"	62 45	33 20		16	"
59	"	62 44.5	32 16	x	17	"
60	12/5	62 45	31 10		-	"
61	13/5	62 46	30 04	x	24	"
62	"	62 44.1	29 02	x	23	"
63	"	62 45	27 50		16	"
64	14/5	62 45	26 46		-	"
65	"	62 44	25 40		-	"
66	"	62 45	24 35		10	DR
67	"	62 45	24 00		-	"
68	"	63 03	25 24		15	Loran
69	"	63 24	26 56		26	"
70	"	63 40.5	28 24		-	"
71	15/5	64 00	30 00	x	▶27	"
72	"	64 00	28 53	x	20	"
73	"	64 00.5	27 43	x	22	"
74	"	63 58	26 43	x	-	"
75	"	63 58	26 07	x	-	"
76	16/5	63 58.1	25 36		-	"
77	"	64 00	25 01	x	-	"
78	"	64 00	24 29		-	DR
79	"	64 00	23 55	x	14	"
80	"	64 00.5	23 23	x	9	Radar
81	"	64 00	22 51	x	7	"
82	18/5	64 08.1	22 46.2	x	-	Sextant

Table 1 (con't.)

Station Number	Date	Position °Lat '	°Long '	Hydrogr. Stations	Transparency Secchidisc in m.	Means of Reckoning
83	18/5	64 16 7	22 59 5	x	-	Radar
84	"	64 23	23 14	x	14	DR
85	"	64 32 2	23 28 5	x	10	Radar
86	"	64 40	23 42	x	16	"
87	19/5	64 50	24 09 6	x	-	"
88	"	64 50	24 45	x	-	DR
89	"	64 50	25 50		15	"
90	"	64 50	25 54	x	14	"
91	"	64 48 5	26 36		17	Loran
92	"	64 50	27 03	x	> 27	"
93	"	64 50	27 41		23	"
94	"	64 50 8	28 15 9	x	14	"
95	"	64 51	28 48		-	"
96	"	64 49	29 23	x	-	"
97	"	64 51	30 04		-	"
98	20/5	64 49 5	30 33	x	-	"
99	"	65 22	30 02	x	-	"
100	"	65 32	29 48		-	"
101	"	65 29 2	28 58	x	25	"
102	"	65 30	28 23	x	19	"
103	"	65 31	27 47		18	"
104	"	65 30	27 12	x	20	"
105	"	65 30 1	26 35	x	19	"
106	21/5	65 30	26 00	x	-	DR
107	"	65 30	25 20	x	-	Radar
108	"	65 29	25 10		-	"
109	"	65 30	24 40	x	16	"
110	"	65 24 5	26 10	x	14	Loran
111	"	65 44	27 14	x	19	"
112	"	65 47 5	27 29	x	16	"
113	"	65 55	27 50	x	12	"
114	"	66 01 5	28 11	x	22	"
115	"	65 51	28 33 5		14	"
116	22/5	65 49	29 01		-	DR
117	"	65 40	29 00		-	"
118	"	65 25 5	29 05		-	Loran
119	"	65 15	29 06		-	"
120	"	65 13	29 52		9	"
121	"	65 11	30 29		17	"
122	"	65 22 5	30 29 5		14	"
123	"	65 37 8	30 29		-	"
124	"	65 50	30 28		26	"
125	"	65 35 2	31 00		17	"
126	"	65 26	31 21		16	"

Table 1 (con't.)

Station Number	Date	Position Lat	Position Long	Hydrogr. Stations	Transparency Secchidisc in m.	Means of Reckoning
127	22/5	65 17 5	31 30 5		17	Loran
128	"	65 31	31 49		-	"
129	23/5	65 40	31 57		-	"
130	"	65 38	32 48	x	-	"
131	"	65 28	32 39	x	24	"
132	"	65 30	32 21	x	27	"
133	"	65 25	31 50 5	x	25	"
134	"	65 24	32 25	x	19	"
135	"	65 14	32 09	x	22	"
136	"	65 00	31 39	x	19	"
137	"	64 48	31 09	x	-	"
138	24/5	64 32	30 42	x	12	"
139	"	64 33	32 00		17	"
140	"	64 47	32 33		22	"
141	"	65 02 3	33 03		22	"
142	"	65 10	33 20		21	"
143	"	65 10	33 50		-	"
144	"	65 15	34 13		12	"
145	"	65 18	34 48		-	"
146	"	65 03 5	34 29		10	"
147	25/5	64 53 8	34 09		-	"
148	"	64 43	33 49 5		-	"
149	"	64 22 2	33 18		-	"
150	"	64 06	32 54		15	"
151	"	64 05 8	33 50		22	"
152	"	64 26 5	34 26		22	"
153	"	64 41 3	34 52		15	"
154	"	64 54	35 17		20	"
155	"	65 01 5	35 29		16	"
156	"	65 01 5	36 04		> 25	"
157	"	65 02 5	36 31	x	17	Radar & Loran
158	"	64 54	36 12	x	16	Loran
159	26/5	64 38	35 48	x	-	"
160	"	64 25	35 29	x	17	"
161	"	64 20	35 17	x	16	"
162	"	64 18 5	35 20	x	21	"
163	"	64 06	34 52	x	14	"
164	"	63 51 1	34 25	x	13	"
165	"	63 37	34 04	x	14	"
166	27/5	63 52	34 56		-	"
167	"	64 02	35 28		-	"
168	"	64 14	36 05		-	"
169	"	64 22	36 35		5	"
170	"	64 29 5	37 02		10	"

Table 1 (con't.)

Station Number	Date	Position Lat	Position Long	Hydrogr. Stations	Transparency Secchidisc in m.	Means of Reckoning
171	27/5	64 23.5	37 28		17	Loran
172	"	64 29	37 48		32	"
173	"	64 18	37 30		5	"
174	"	64 10	37 15		6	"
175	"	64 01	36 58		7	"
176	"	63 51	36 47		9	"
177	"	63 43.3	36 28		15	"
178	"	63 29.5	35 58		18	"
179	"	63 16	35 28		16	"
180	28/5	63 07	36 29		-	"
181	"	63 28	37 35	x	12	"
182	"	63 33	37 50	x	11	"
183	"	63 44	38 15	x	6	"
184	"	63 54	38 42	x	6	"
185	"	64 00	5 39 00	x	6	"
186	"	63 51	39 22		7	Loran & Radar
187	"	63 41	39 40		5	Loran & Radar
188	"	63 34	39 21		6	Loran
189	"	63 26	5 39 04		6	"
190	29/5	63 11	38 29		-	"
191	"	62 59	37 53		-	"
192	"	63 16	5 34 40		14	"
193	"	63 22	33 31	x	8	"
194	"	63 22	32 17	x	12	"
195	30/5	63 24	31 06	x	-	"
196	"	63 22	4 29 57	x	-	"
197	"	63 59	5 30 51	x	7	"
198	"	64 00	29 41	x	11	"
199	"	64 00	28 28.5	x	8	"
200	"	64 01	27 46	x	13	"
201	31/5	64 00	27 17	x	-	"
202	"	63 59	26 42	x	9	"
203	"	63 59	26 08		6	"
204	"	64 00	25 35	x	8	"
205	"	64 00	25 02	x	12	"
206	"	64 00	24 29	x	12	"
207	"	64 01	23 55	x	11	"
208	"	64 00	23 22	x	16	DR
209	"	64 00	22 49	x	6	Radar

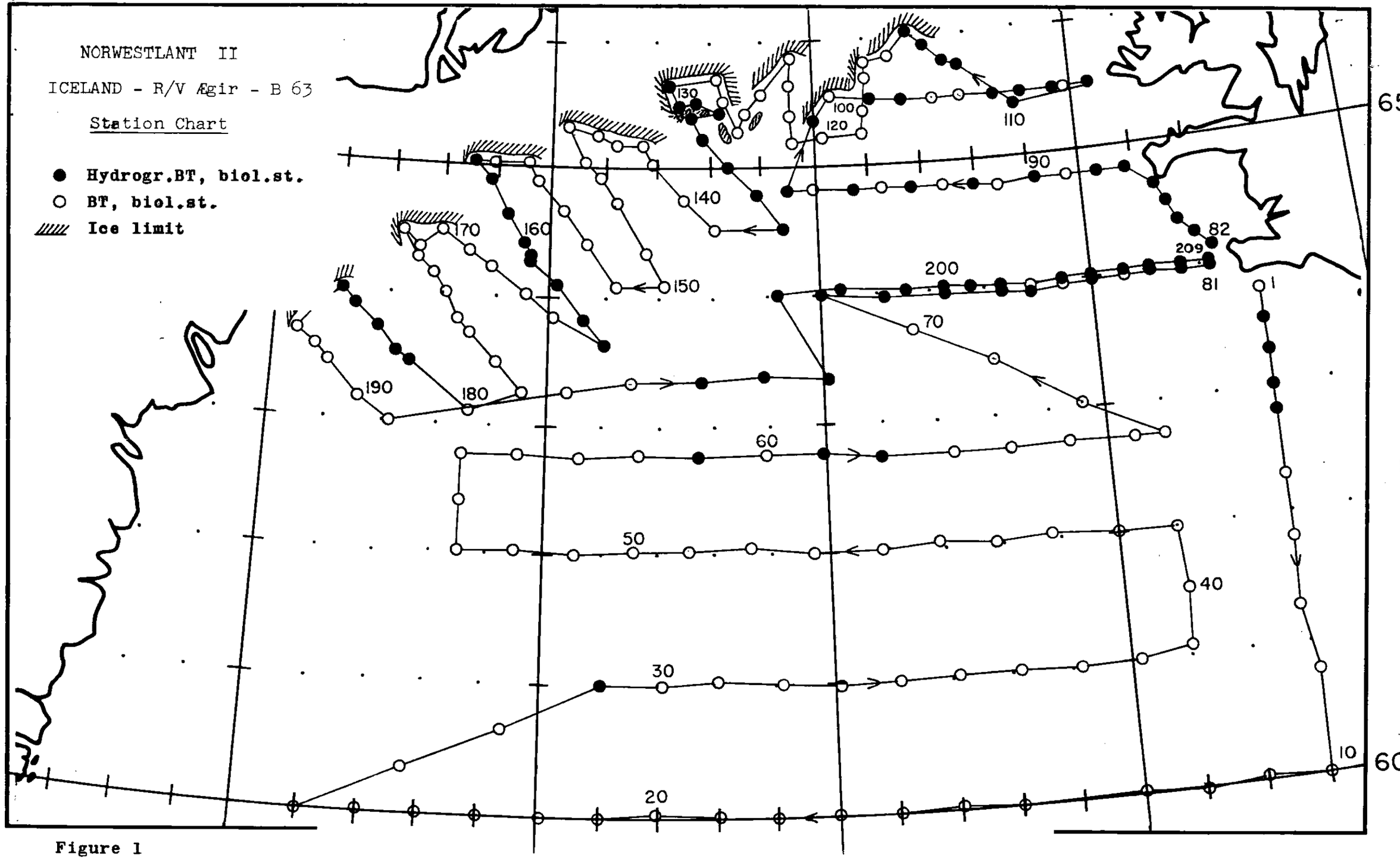
NORWESTLANT II
ICELAND - R/V Ægir - B 63
Station Chart
Hydrogr.BT, biol.st.
BT, biol.st.
Ice limit
65°
60°
130
100
120
110
140
190
170
160
150
82
209
200
81
1
70
190
180
60
50
40
30
10
20

Figure 1

II. OCEANOGRAPHIC OBSERVATIONS

by Svend-Aage Malmberg

A. Material and Methods

During the ICNAF environmental investigations in the Irminger Sea in May 1963 12 hydrographic sections (Table 2) and a number of bathythermograph observations were carried out from the Icelandic coastgard vessel "ÆGIR".

Table 2. Hydrographic Sections during NORWESTLANT 2 in May 1963 ("ÆGIR")

Section	Position	Date	Stat.No.	Fig.No.
I	Selvogsbanki	1. - 2.	2 - 5	5
II	Irminger Sea	11. - 13.	59,61,62	
III	Reykjanes	15. - 16.	71 - 81	6
IV	Faxaflói	18.	82 - 86	
V	Snæfellsnes	19. - 20.	87 - 98	7
VI	Látrabjarg	20. - 21.	99 -109	8
VII	Denmark Strait	21.	110 -114	9
VIII	East-Greenland	23. - 24.	130 -138	10
IX	East-Greenland	25. - 26.	157 -165	11
X	East-Greenland	28.	181 -185	12
XI	Irminger Sea	29. - 30.	193 -196	11
XII	Reykjanes	30. - 31.	197 -209	13

The data presented here include material from two observational series; viz.

a) May 1. - 16. (Stations B-63/ 1 - 81)

b) May 18. - 31. (Stations B-63/82 - 209)

A total number of 81 hydrographic stations and 199 batythermograph observations were worked, the last at all stations with few exceptions. The ship's track and stations positions are shown in Fig. 1 and Table 1.

At the hydrographic stations temperature and salinity observations were made at all standard depths from the surface down to 1500 m. At stations where overflow of water masses near the bottom was expected additional observations were made. Oxygen determinations were made at standard depths in the uppermost 100 m (except at the surface) and near the bottom at positions of supposed overflow. At the bathythermograph stations surface samples were taken for salinity determinations. A continous sea surface temperature

recorder was operated during the cruise. The methods used are outlined in Table 3.

Table 3. Methods used in obtaining Icelandic results during NORWESTLANT 2 in May 1963 ("ÆGIR")

	Sampling bottle	Standing time before analysis	Method	Average blank	Standard
Temp.	Knudsen bottle		Bathy-thermogr. Surface temp. recorder Rev. thermom.		
Salinity	"	about 2 months	Conductivety: Auto-Lab Salinom. x)		Copenhagen Water
Oxygen	"	< 60 Min.	Winkler	O	Bi-iodate O.O1N
Depth			Meter wheele and unprotected rev. thermom.		

x) Carried out at the Institut für Meereskunde at the University of Kiel, Germany.

Meteorological observations during the cruise included:

Wind direction and wind force,
Barometric pressure,
Air temperature,
Wet bulb temperature,
Cloud amount.

The state of the sea surface (wave direction and height) was also estimated.

The data are presented as

a) t - S relations (Figs. 2 - 4)
b) Vertical sections (Figs. 5 - 13)
c) Horizontal charts (Figs.14 - 20)
d) Dynamic topography (Fig. 21)

B. Observations and Results

a. Water masses

According to Dietrich (1957) and Stefánsson (1962) the following water masses occur in the area:

1) Atlantic Water $t^{o}C$ variable So/oo >35.00
2) Irminger Sea Water =4 =34.90
3) Arctic Bottom Water <0 =34.92

4) Polar Water	$\geq +1,8$	<34.50
5) Arctic Intermediate Water	$=0 - 2$	$=34.80 - 35.00$

All these water masses except the Arctic Bottom Water were observed in the study area. Typical t - S relations are shown in Figs. 2, 3 and 4.

b. Reference Station (Station 29)

The Reference Station B at 61°N and 34°W was worked on 7th May 1963 as a separate station, without any connection with a section. The temperature in the uppermost 150 m was about 5,6°C and from 1500 to 2400 m about 3,6°C. The salinity in the uppermost 500 m was about 35.00 o/oo and decreased to 34.92 o/oo in 1200 m, from where it again increased to 34.95 o/oo at 2400 m. The oxygen content in the uppermost 300 m was about 6,7 ml/L and from 400 m to 2400 m about 5,6 ml/L.

No direct comparision between two or more ships on a station was possible, since we were unable to get into contact with other research vessels during the cruise.

c. Ice limit

The position of the ice limit west of Iceland was similar to that found in 1961. West of Látrabjarg the ice boarder was thus situated 100 n.m. off the shore and at 64°N the ice boarder extended about 20 n.m. off the East-Greenland coast. The pack ice at position 65°30´N seemed to drift in a westerly direction with a relatively high speed, up to 30 n.m. in 48 hours, or about 0,6 n.m. per hour (30 cm/sec). At this time weak easterly winds were blowing (0 - 4 Beufort).

d. Vertical Sections (Table 2, Figs. 5-13)

Atlantic water masses prodominate off the west coast of Iceland. These water masses had temperatures up to 7°C at the surface and about 5 - 6°C over the shelf and the continental slope, decreasing northwards. On approaching the ice boarder, Polar Water was found in the surface layer. Beneath the Atlantic Water and the Polar Water the Irminger Sea Water and the Arctic Intermediate Water were found. In the 3 sections on the East-Greenland shelf a concentration of a relatively warm and saline water mass, with a temperature maximum of >6°C and a salinity maximum of $>35,05$ o/oo on Station 158 (see also St. 130 and St. 185), was found. This core appears to be a south-west flowing branch of the Atlantic Water, following the surface flow of the Polar Water of the East-Greenland Current (see later). At the bottom on

the shelf the temperature was about 3°C and the salinity 34.80 o/oo.

e. Horizontal charts (Figs. 14-20)

In general the temperature and the salinity decrease from southeast to northwest. Over the eastern part of the Mid Atlantic Ridge a temperature and salinity minimum is found. In general the temperature and salinity distribution is more irregular in the western part of the area than in the eastern part, especially at the boundary between the warm and saline water masses and the cold and less saline Polar Water. With a few exceptions the 0°C isotherm followed the ice boarder.

The bathythermograph observations made in between the hydrographic sections across the East-Greenland shelf do not show a core of warm Atlantic Water which was a characteristic feature in the sections. Thus the distribution of water masses was more complex than would have been inferred from the hydrographic sections alone. It seems likely that this complex distribution is related to the irregular bottom topography on the shelf. Krauss (1958) mentions a transverse incursion of a warm water mass from the oceanic area based on topographic conditions on the shelf as a possible explanation of a similar temperature and salinity distribution in the Denmark Strait. The bottom topography in Store Fjord and in the surrounding area seems to favour such a distribution. Investigations carried out on two sections from the Icelandic coastgard vessel "ÆGIR" in September 1963 in the Denmark Strait, with the innermost stations only 10 miles from the East-Greenland coast, also revealed clearly the presence of Atlantic Water.

f. Dynamic Topography (Fig. 21)

The dynamic topography at the sea surface is referred to the 1000 dbar surface. The interpretation was very difficult at the East-Greenland continental slope because of uncertainty in contouring. The picture presented here is similar to that given by Dietrich (1957), especially in the western part of the area. In the middle of the area two circuits appeared, a southern on with a flow "cum sole" and a northern one with a flow "anti sole". If interpreted as current chart the northern circuit differs from the current chart given by Hermann and Thomsen (1946) and reproduced by Stefánsson (1962), who discusses the effect of the bottom topography.

How far the dynamic topography is significant for the circulation is difficult to say. In this mixing area the

currents cannot be taken as stationary and frictionless, and as Hermann and Thomsen (1946) and Stefánsson (1962) pointed out, a surface of "no motion" is quite uncertain. In Table 3a the ship drift on stations and the wind conditions are given. The agreement between the flow direction interpreted from the dynamic topography and ship drift is quite good with one exception, i.e. at Station B-63/127, where they were opposite. This was also in the area where the dynamic calculations were difficult as mentioned before and where we can expect great variations in the situation because of fluctuations of the water front.

Table 3a. Ship Drift Observations

	Drift		Wind	
Station	Speed	Direction	Force	Direction
B-63/ 61	1,6 n.m./hour	20°	6 - 7 Beauf.	315°
/127	0,8	257°	2 - 3	67°
/162	1,1	195°	3	45°
/165	1,0	95°	3 - 4	270°

Obviously more investigations will be needed before the details of the currents in the Irminger Sea are known with certainty. Direct current measurements will be of a great help. Some have already been made (September 1963 from the Norwegian research vessel "HELLAND-HANSEN", and more are planned in near future.

g. Oxygen

In the oceanic area the uppermost 100 m were very homogenous, with a oxygen content of about 6,7 ml/L. The Polar Water had an oxygen content as high as 7,2 - 8,0 ml/L and the bottom water at the East-Greenland shelf and continental slope had values between 5,6 and 6,0 ml/L.

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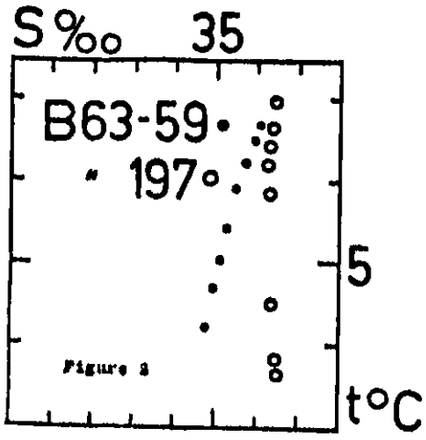


Figure 3

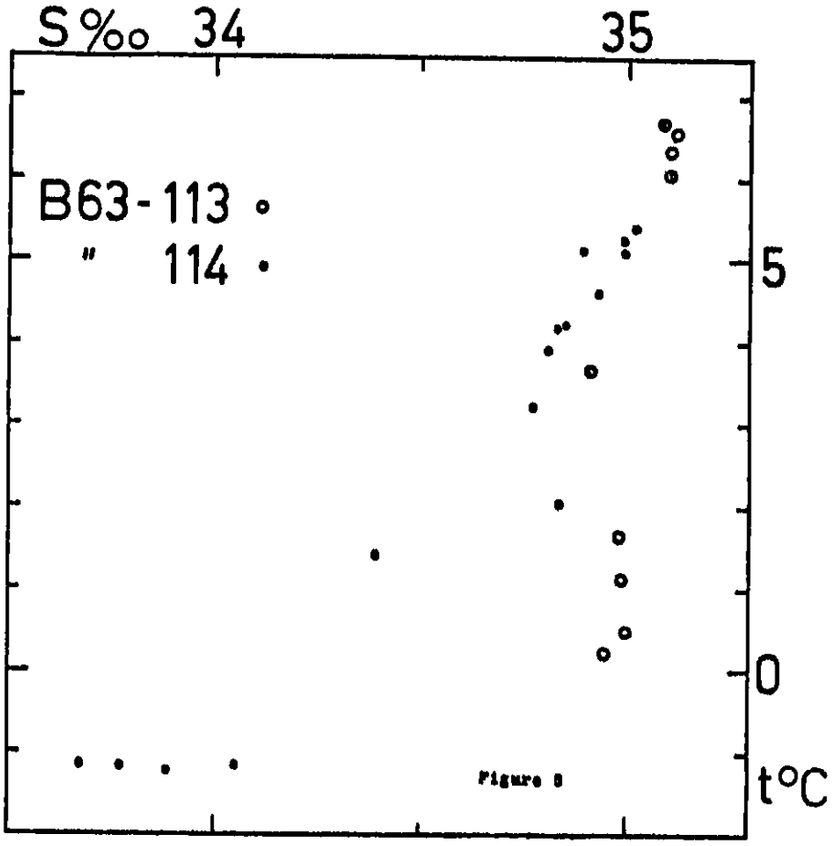
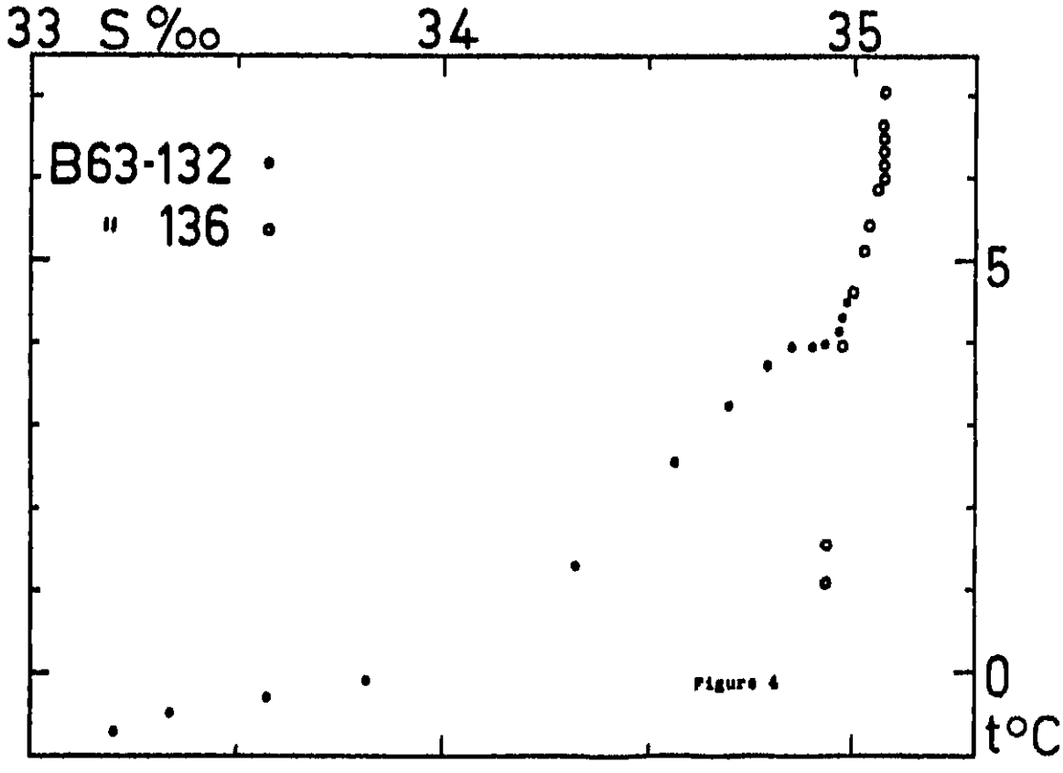


Figure 3



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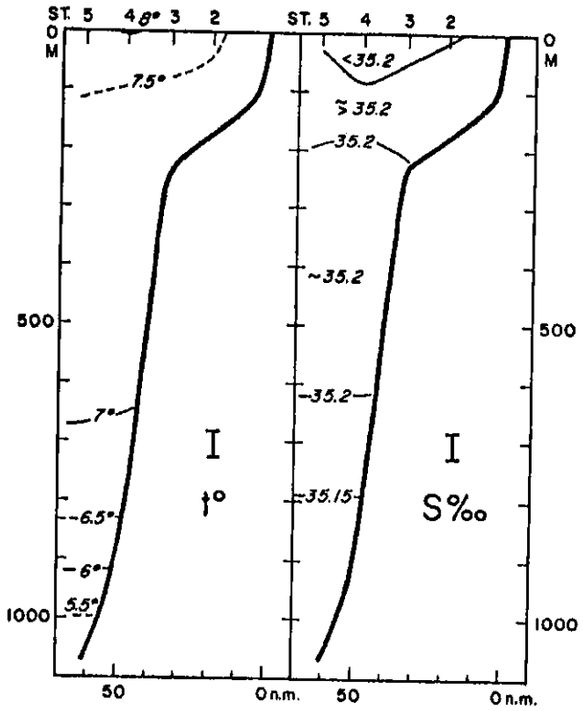

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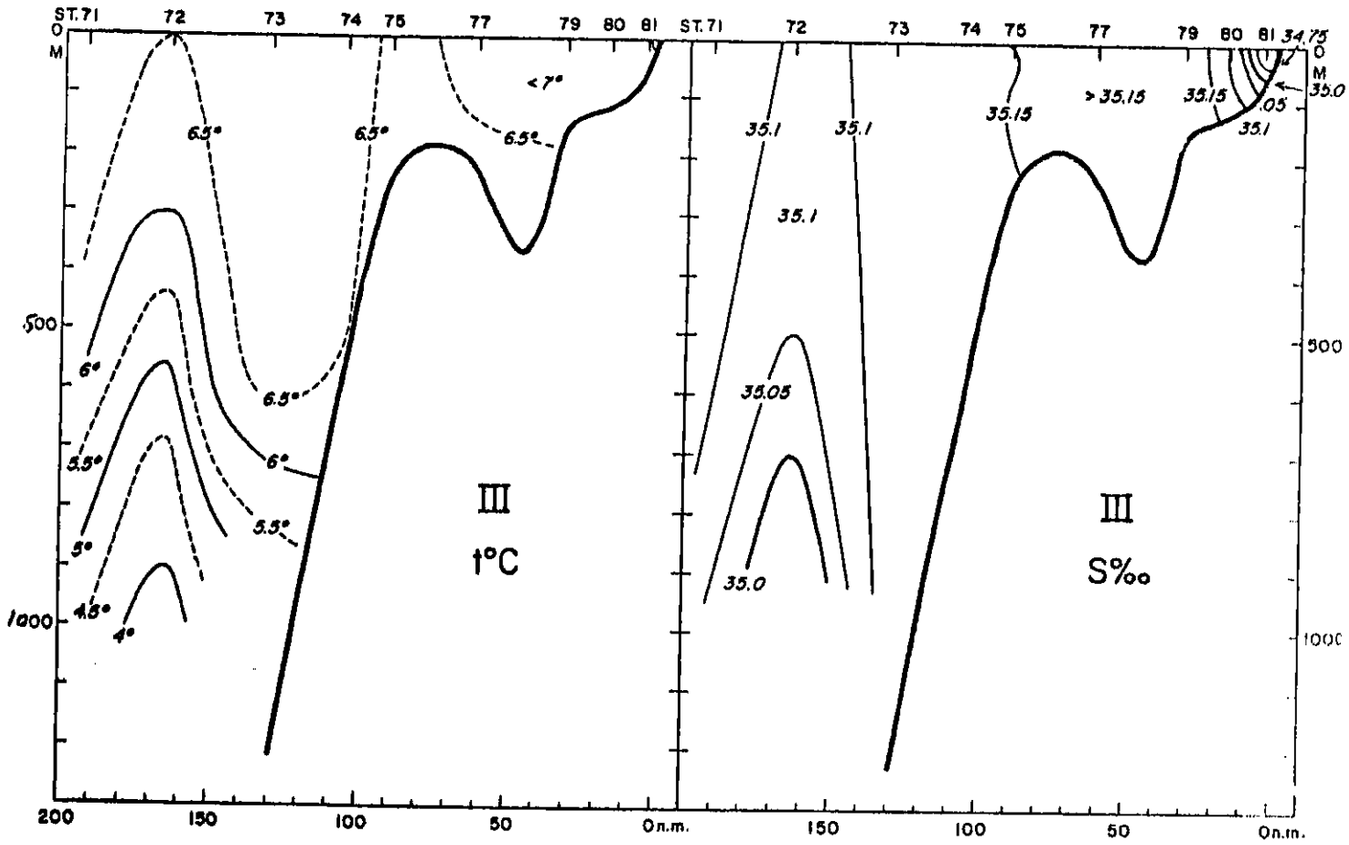

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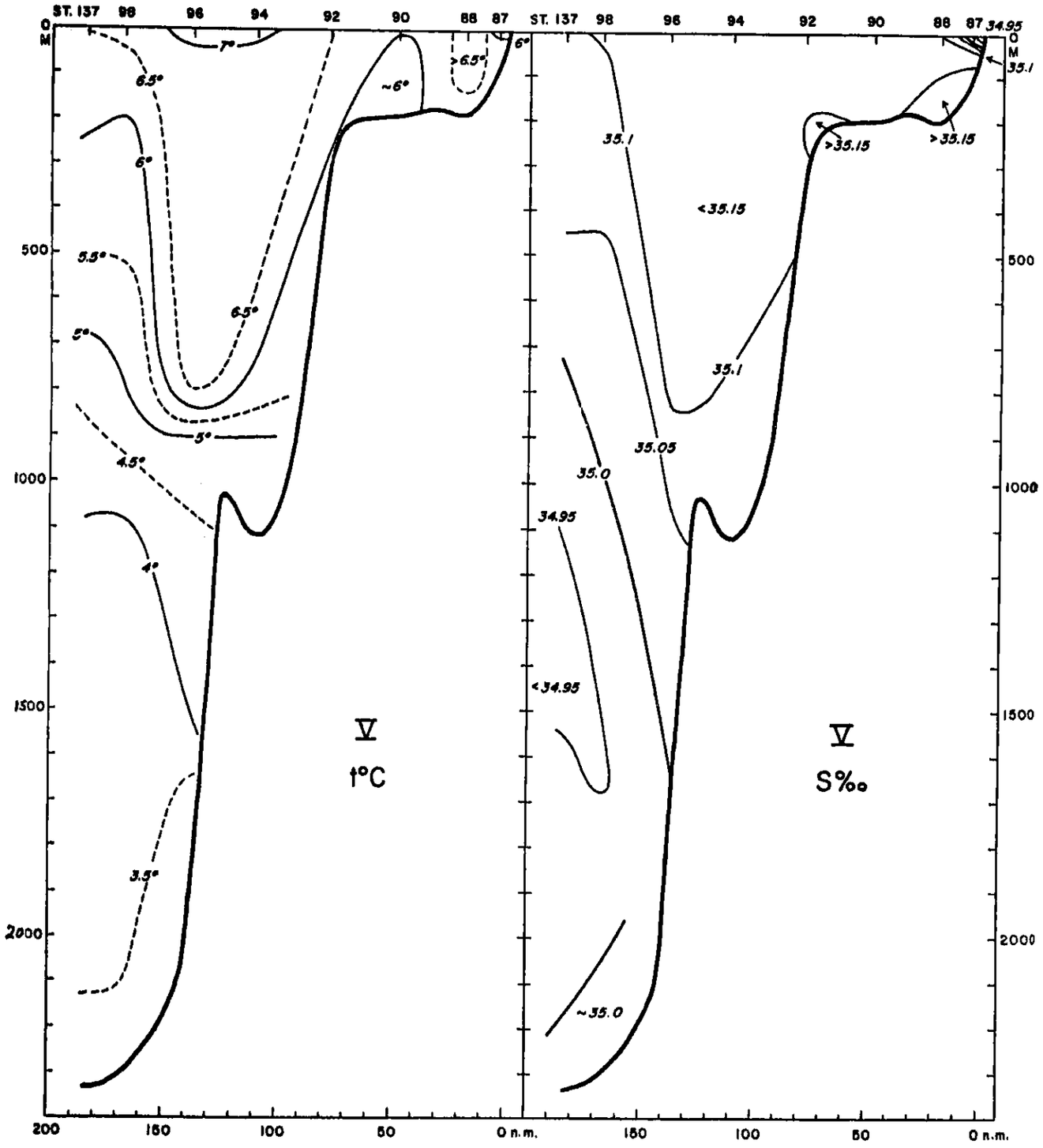
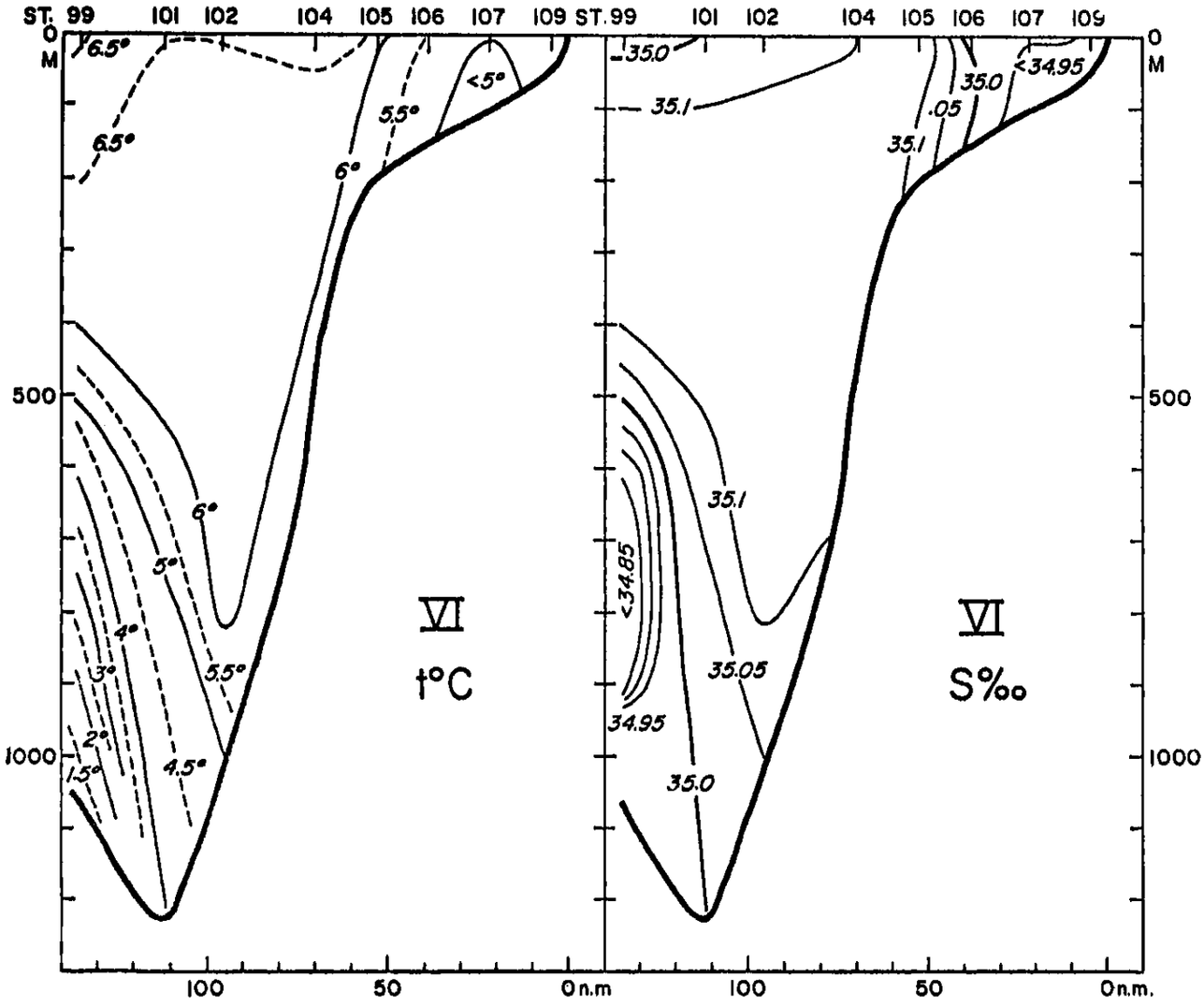

ST. 137
98
96
94
92
90
88
87
0 M
500
1000
1500
2000
200
150
100
50
0 n.m.
7°
6.5°
~6°
>6.5°
6°
5.5°
5°
4.5°
4°
3.5°
V
t°C
34.95
35.1
>35.15
<35.15
35.05
35.0
<34.95
~35.0
S‰

Figure 7



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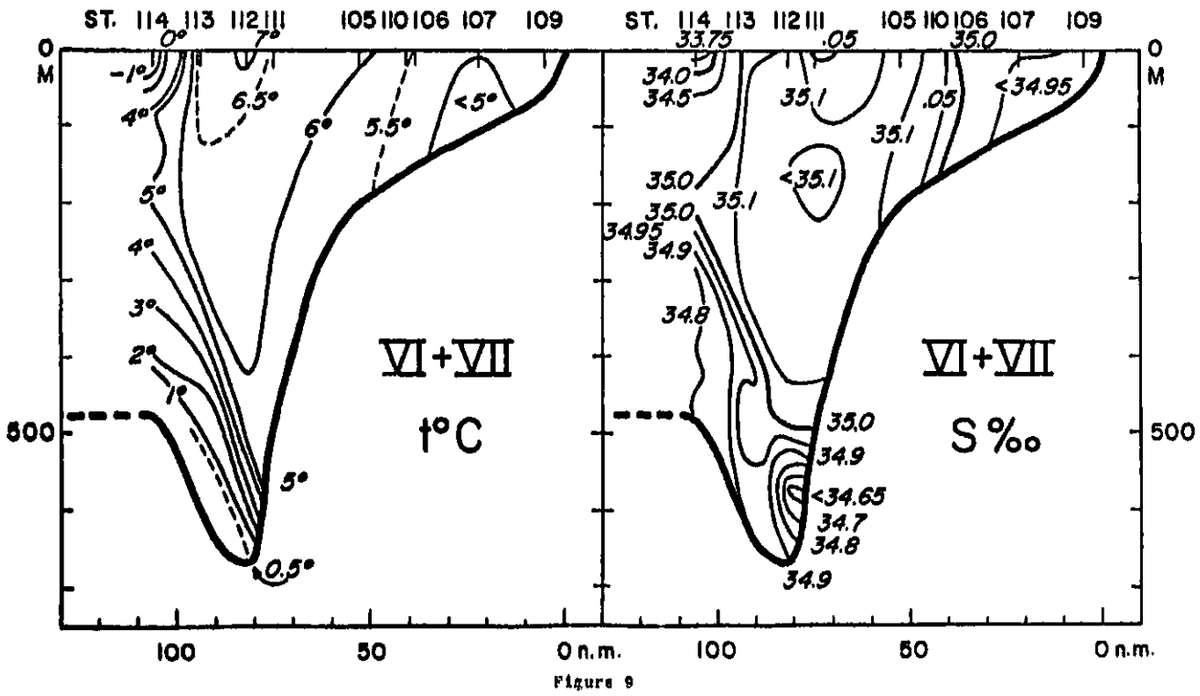

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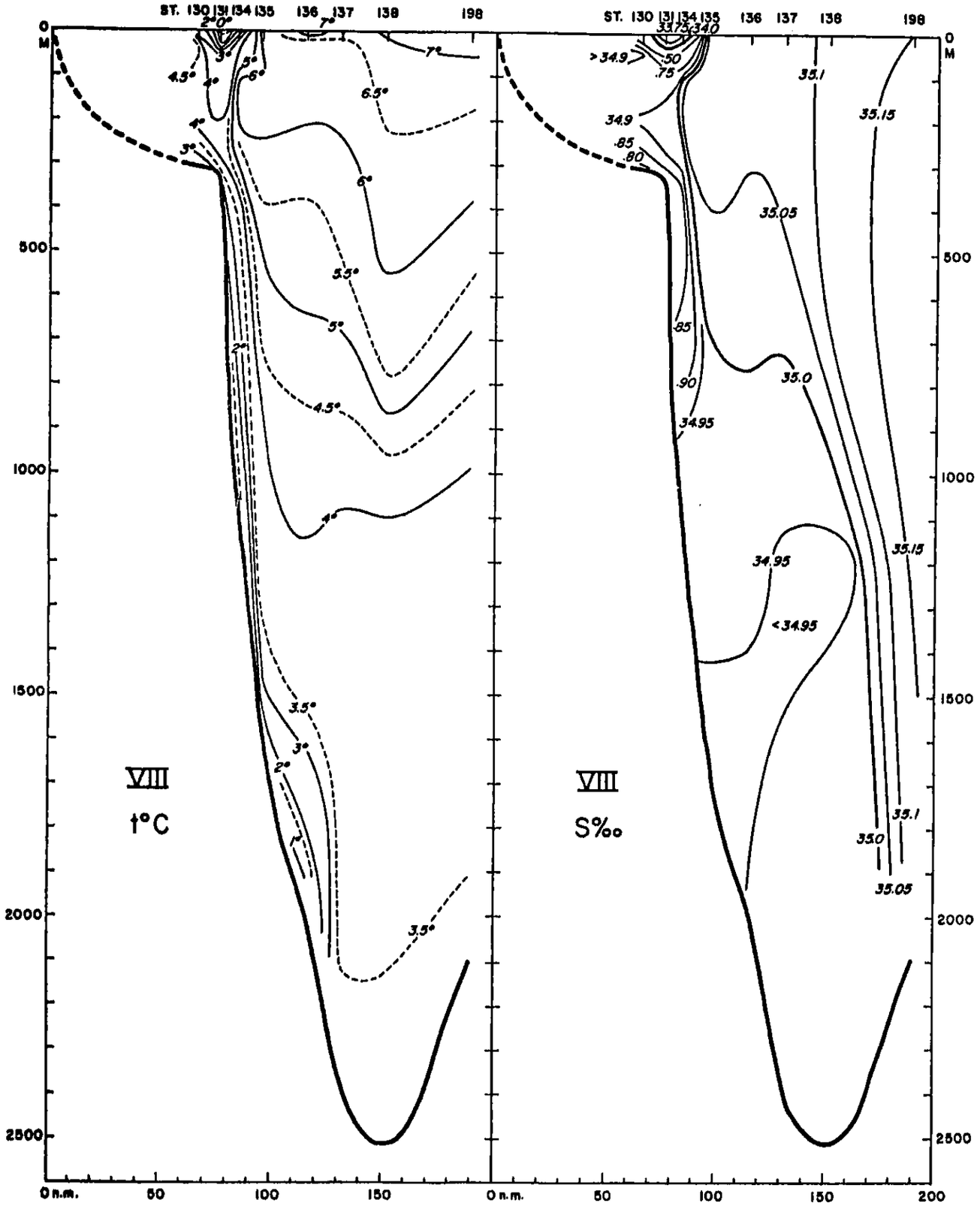

ST. 130 131 134 135 136 137 138 198
0 M
500
1000
1500
2000
2500
2°
3°
4°
4.5°
5°
6°
6.5°
7°
3.5°
VIII
t°C
0 n.m.
50
100
150
ST. 130 131 134 135 136 137 138 198
33.75
34.0
> 34.9
.50
.75
34.9
.85
.80
35.1
35.15
35.05
.85
.90
34.95
35.0
< 34.95
35.05
VIII
S‰
0 n.m.
50
100
150
200

Figure 10

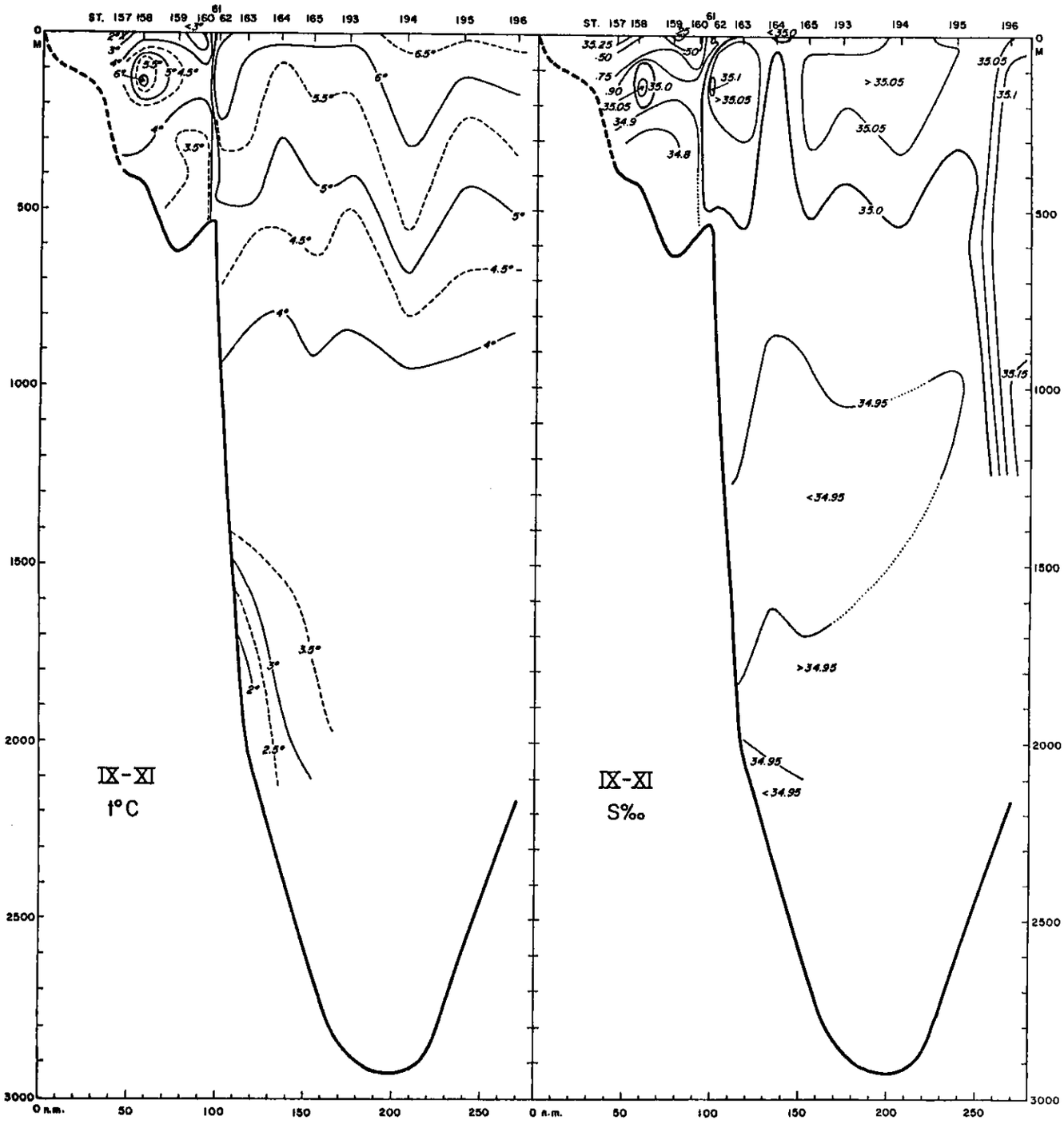

ST. 157 158 159 160 61 62 163 164 165 193 194 195 196
0 M
500
1000
1500
2000
2500
3000
0 n.m. 50 100 150 200 250
IX-XI
t°C
IX-XI
S‰
< 35.0
35.05
> 35.05
35.1
35.0
34.95
< 34.95
> 34.95
34.9
34.8

Figure 11

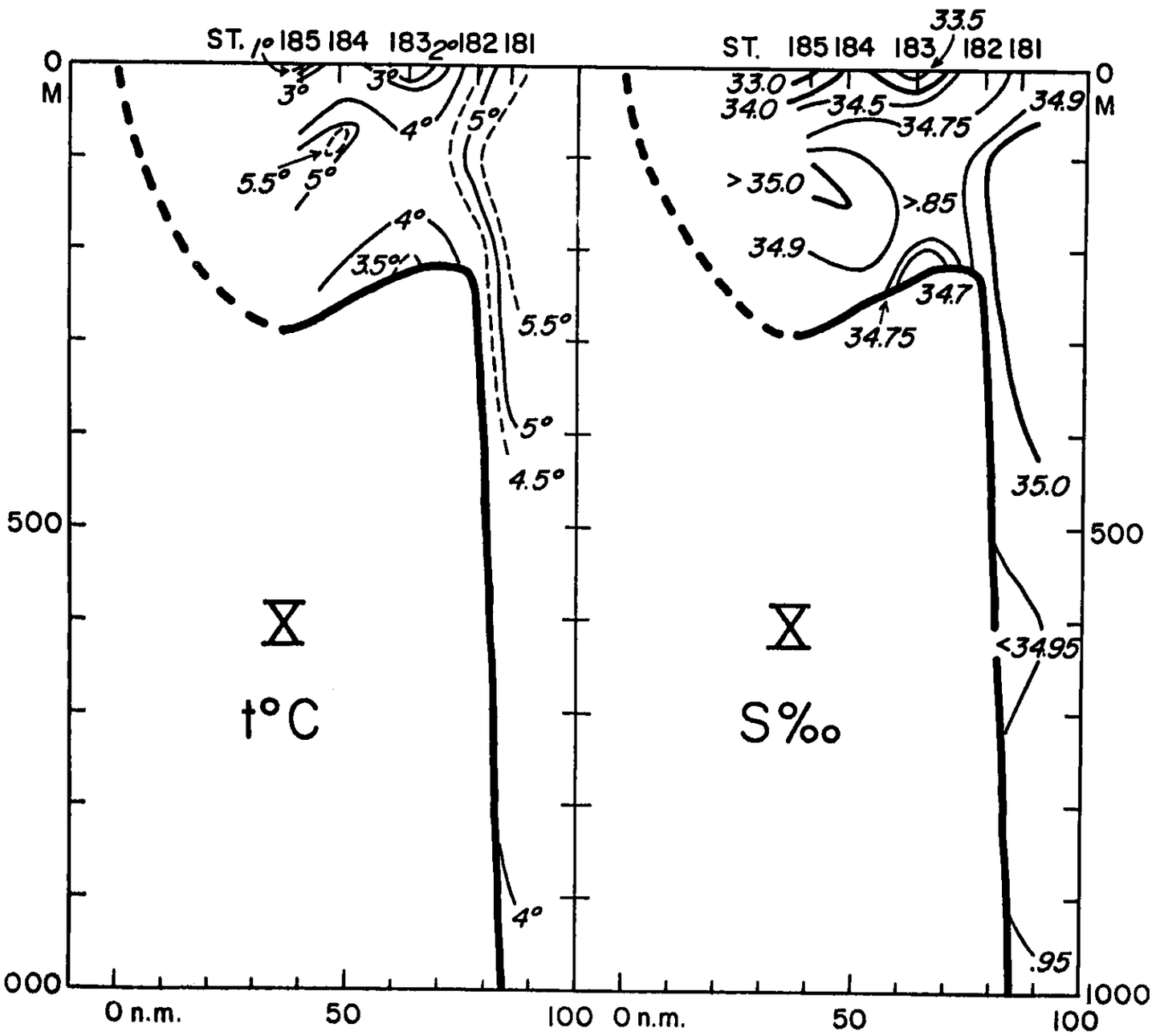

ST. 185 184 183 182 181
0 M
500
000
3°
4°
5°
5.5°
3.5°
4.5°
X
t°C
0 n.m.
50
100
ST. 185 184 183 182 181
33.5
33.0
34.0
34.5
34.75
34.9
> 35.0
>.85
34.7
35.0
<34.95
.95
X
S‰
0 n.m.
50
100
1000

Figure 12

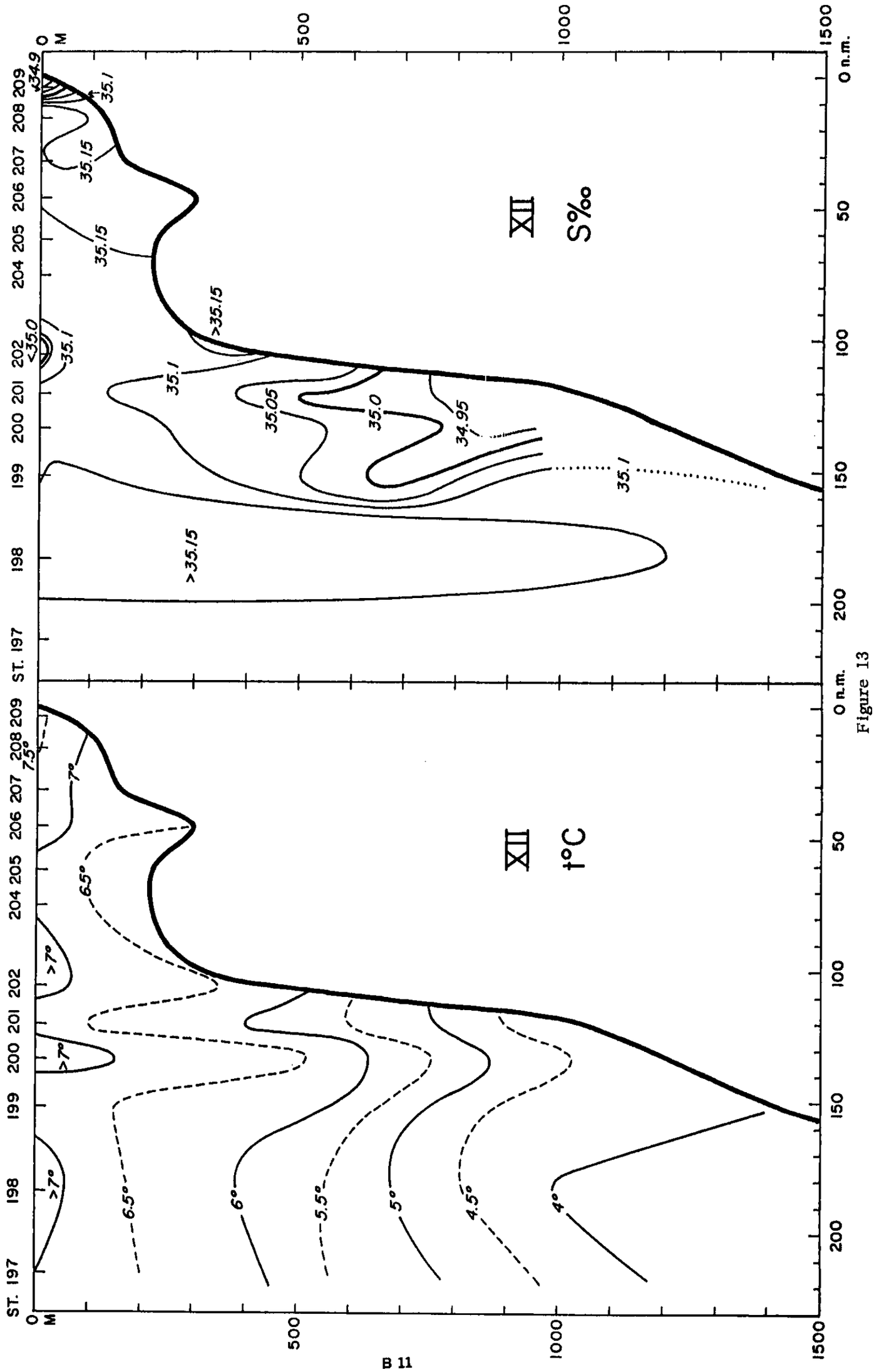
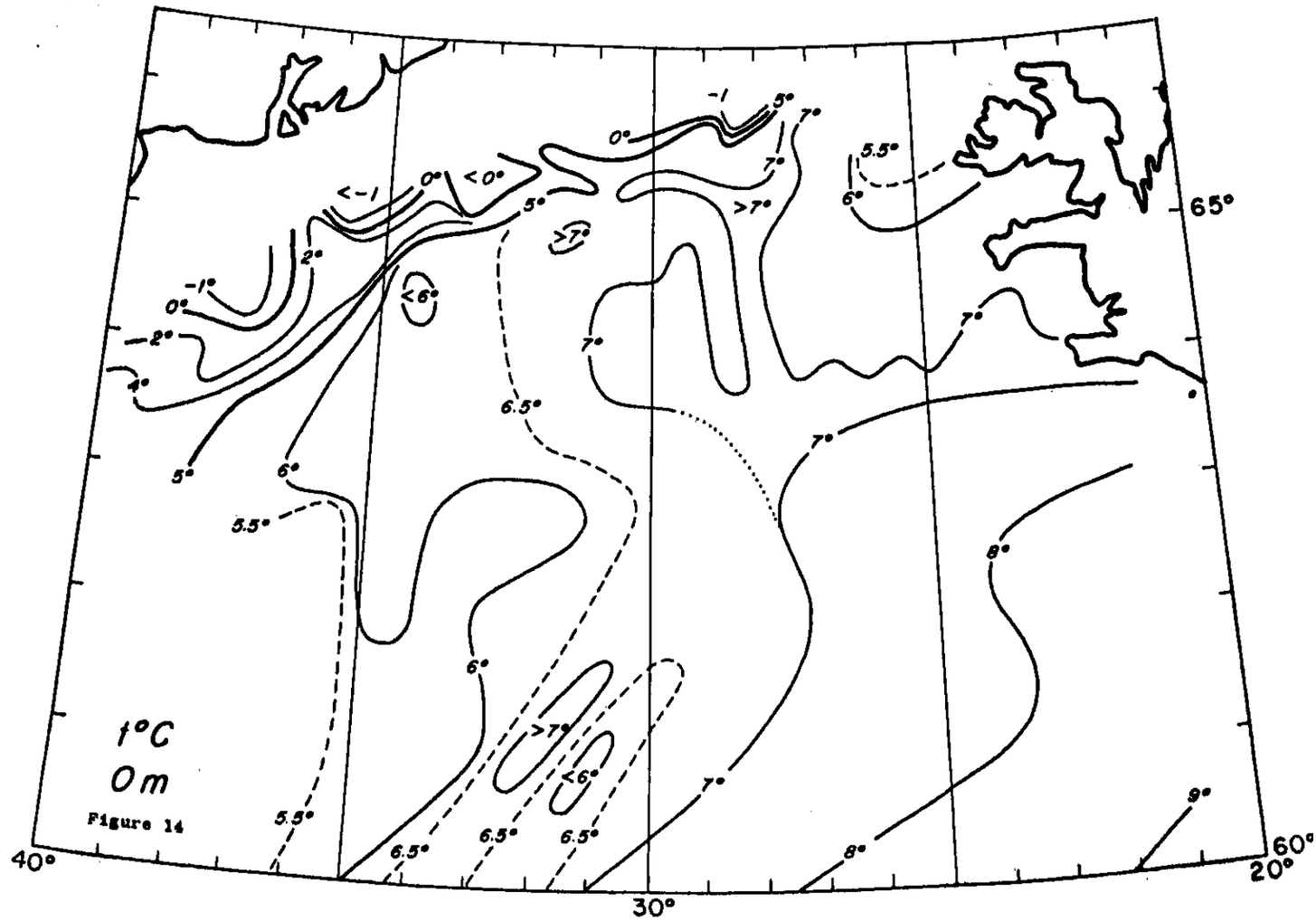

ST. 197
198
199
200
201
202
204 205
206 207
208 209
0 M
500
1000
1500
0 n.m.
50
100
150
200
XII
t°C
7.5°
7°
6.5°
6°
5.5°
5°
4.5°
4°
>7°
XII
S‰
<34.9
35.1
35.15
>35.15
35.0
35.05
34.95

Figure 13



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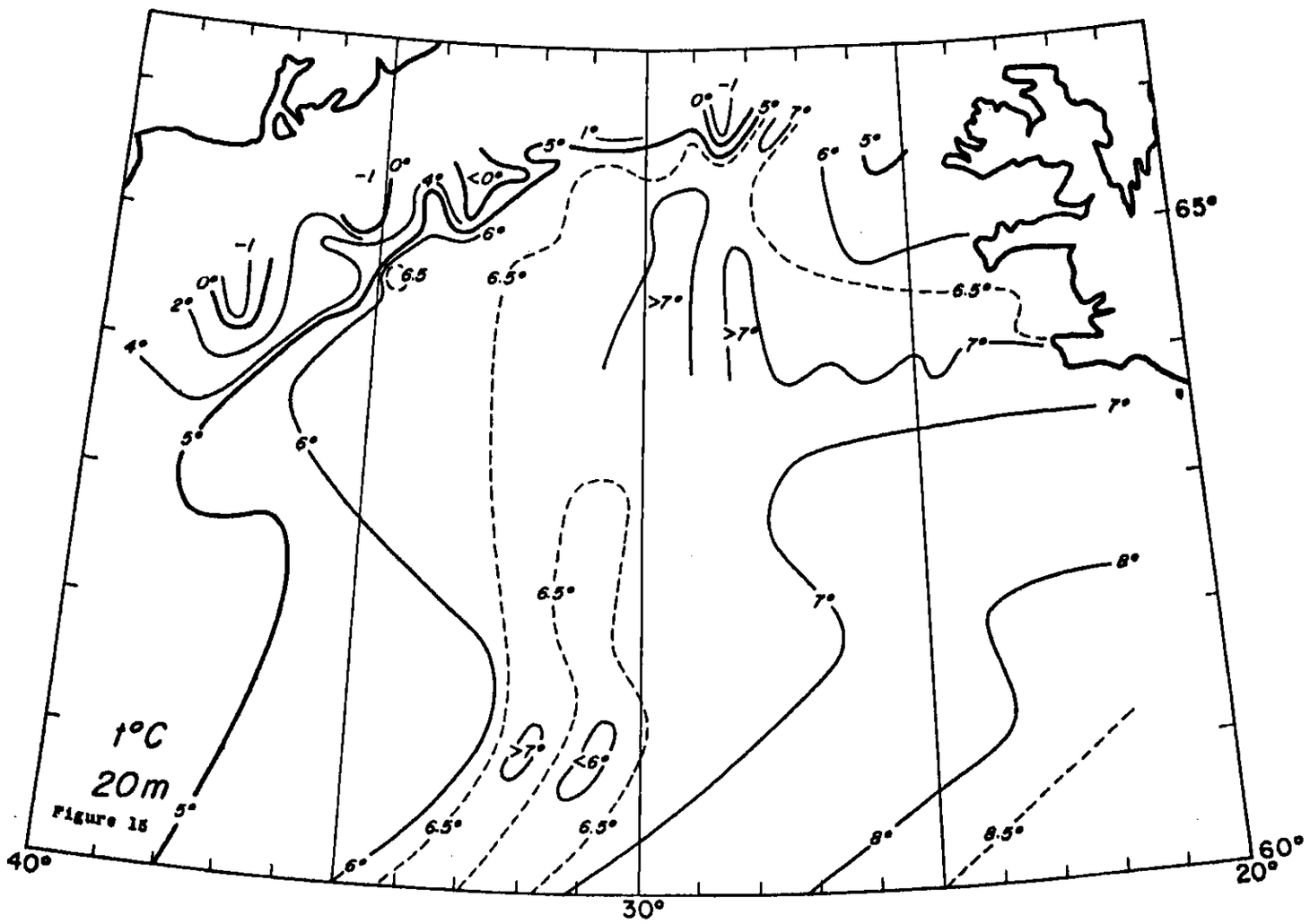

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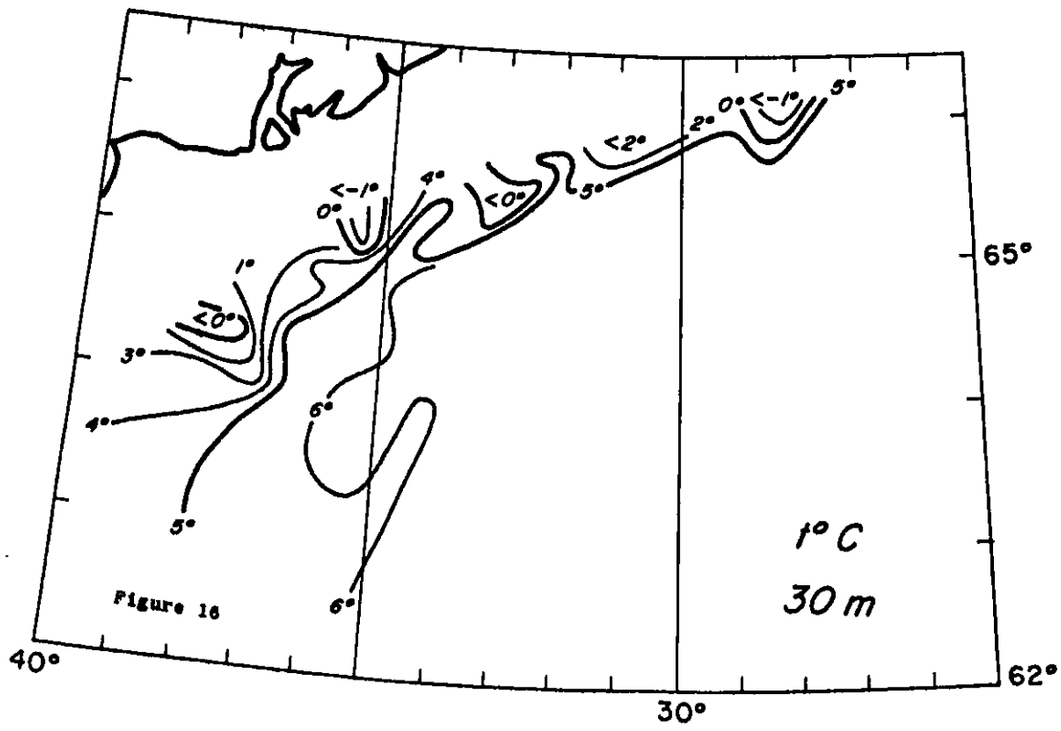

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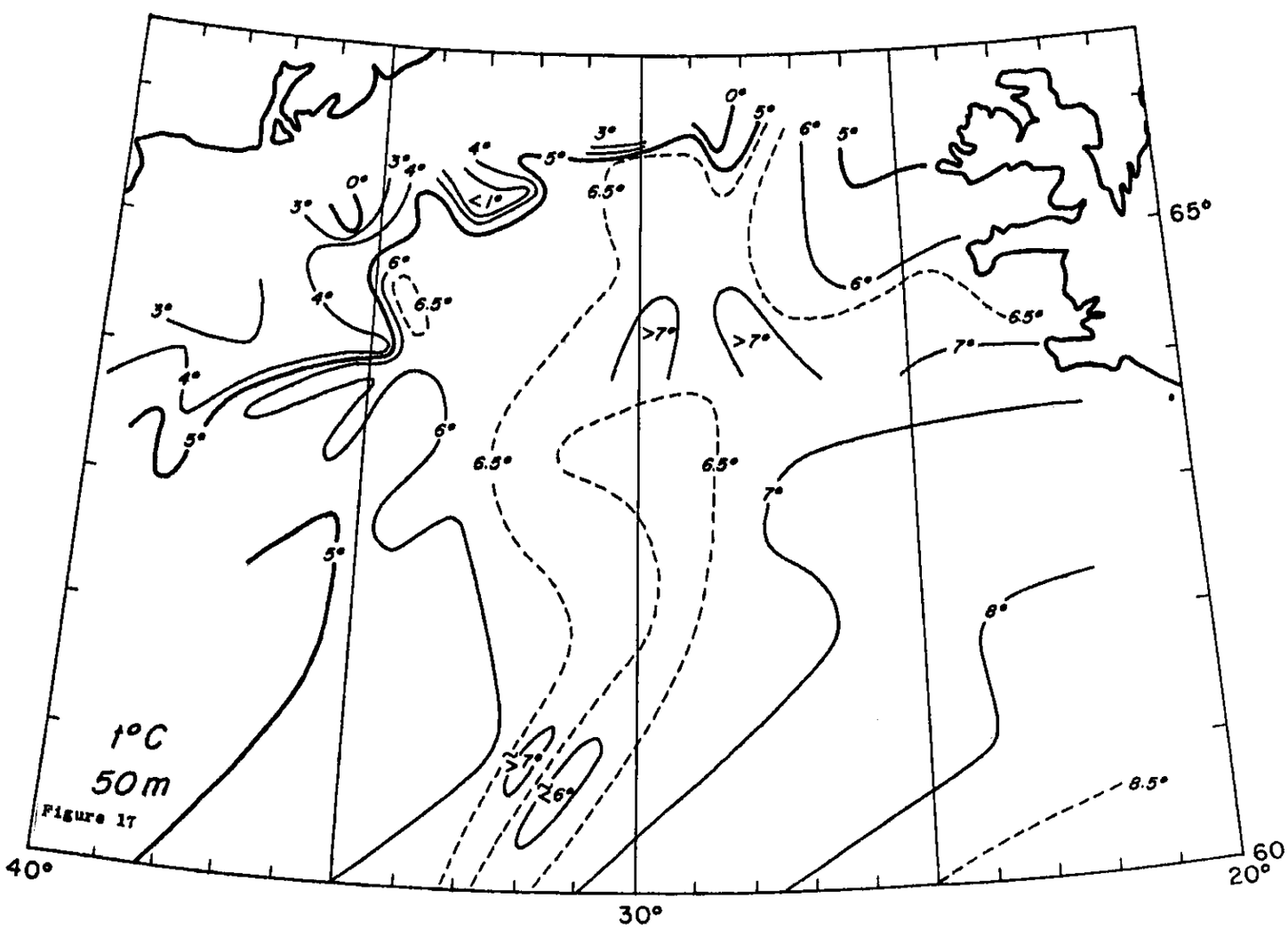

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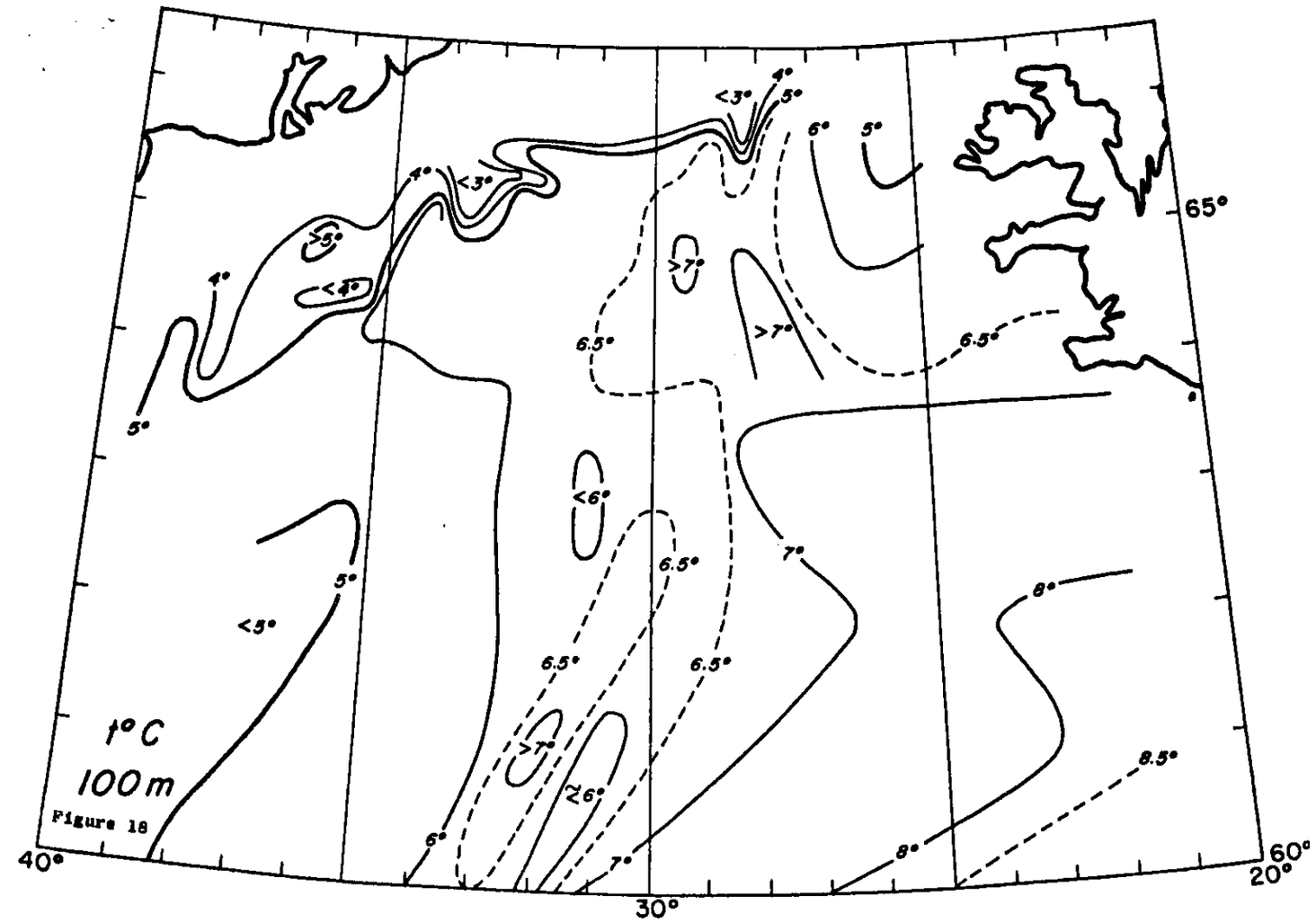
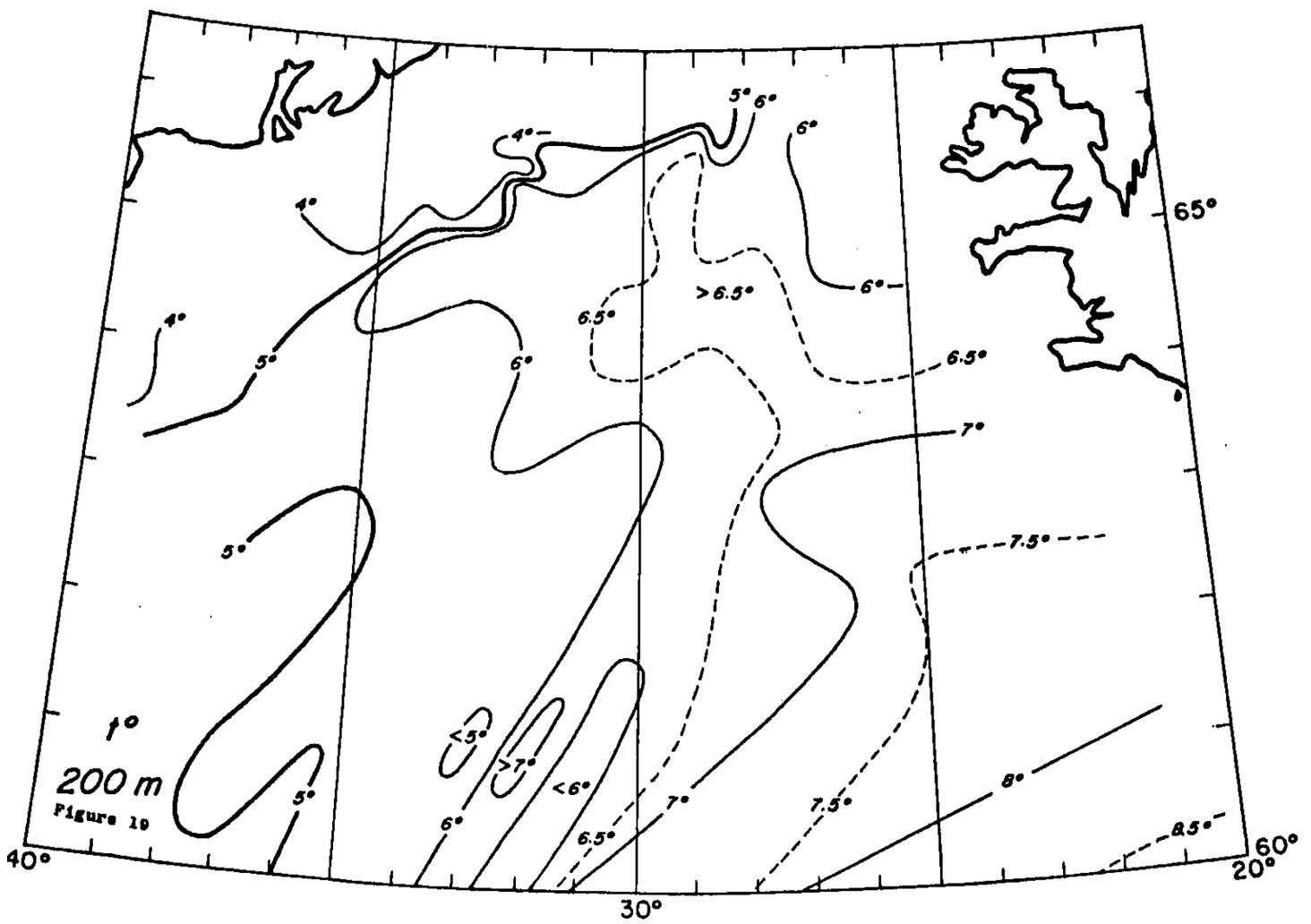


Figure 18



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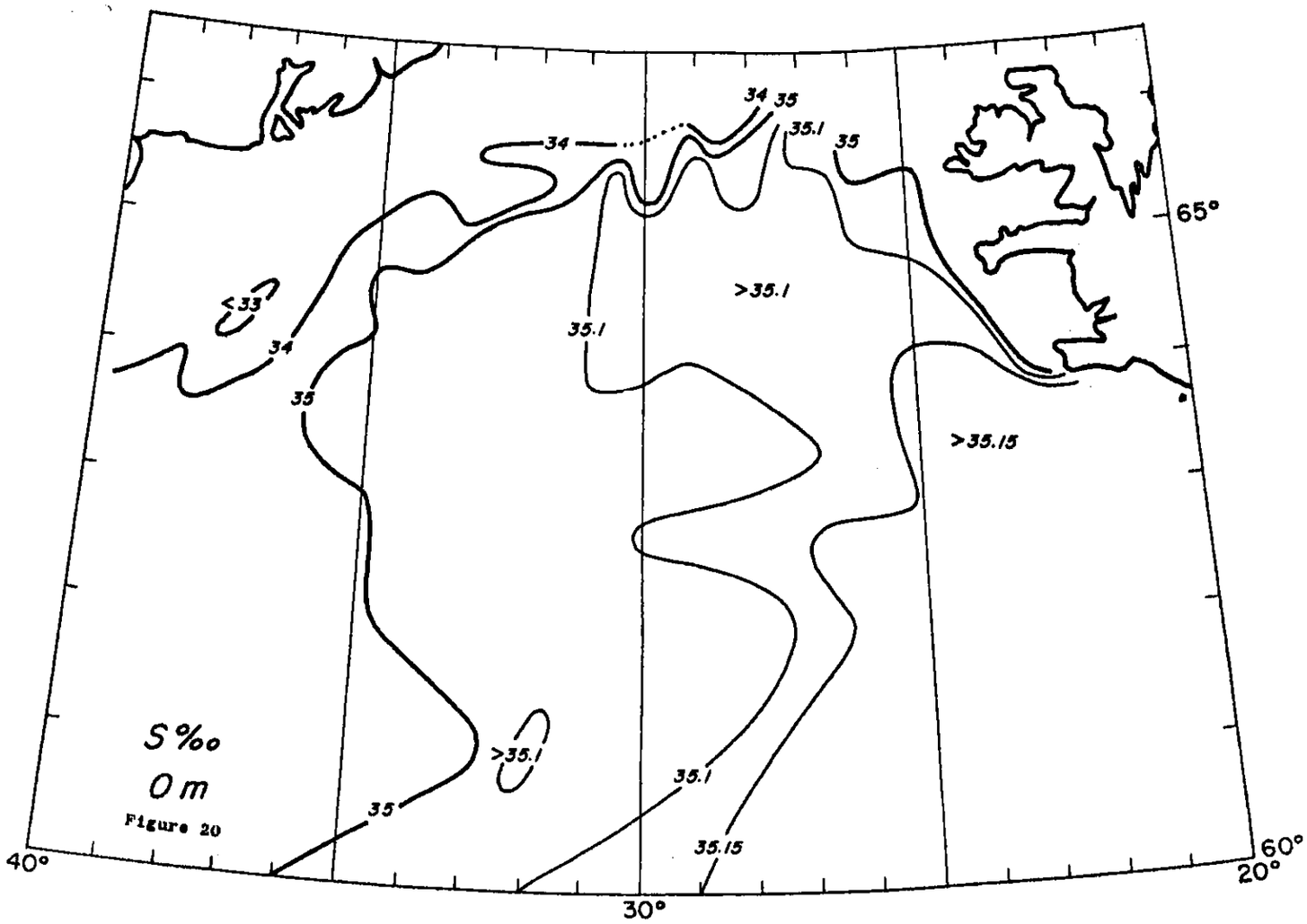

Figure 20

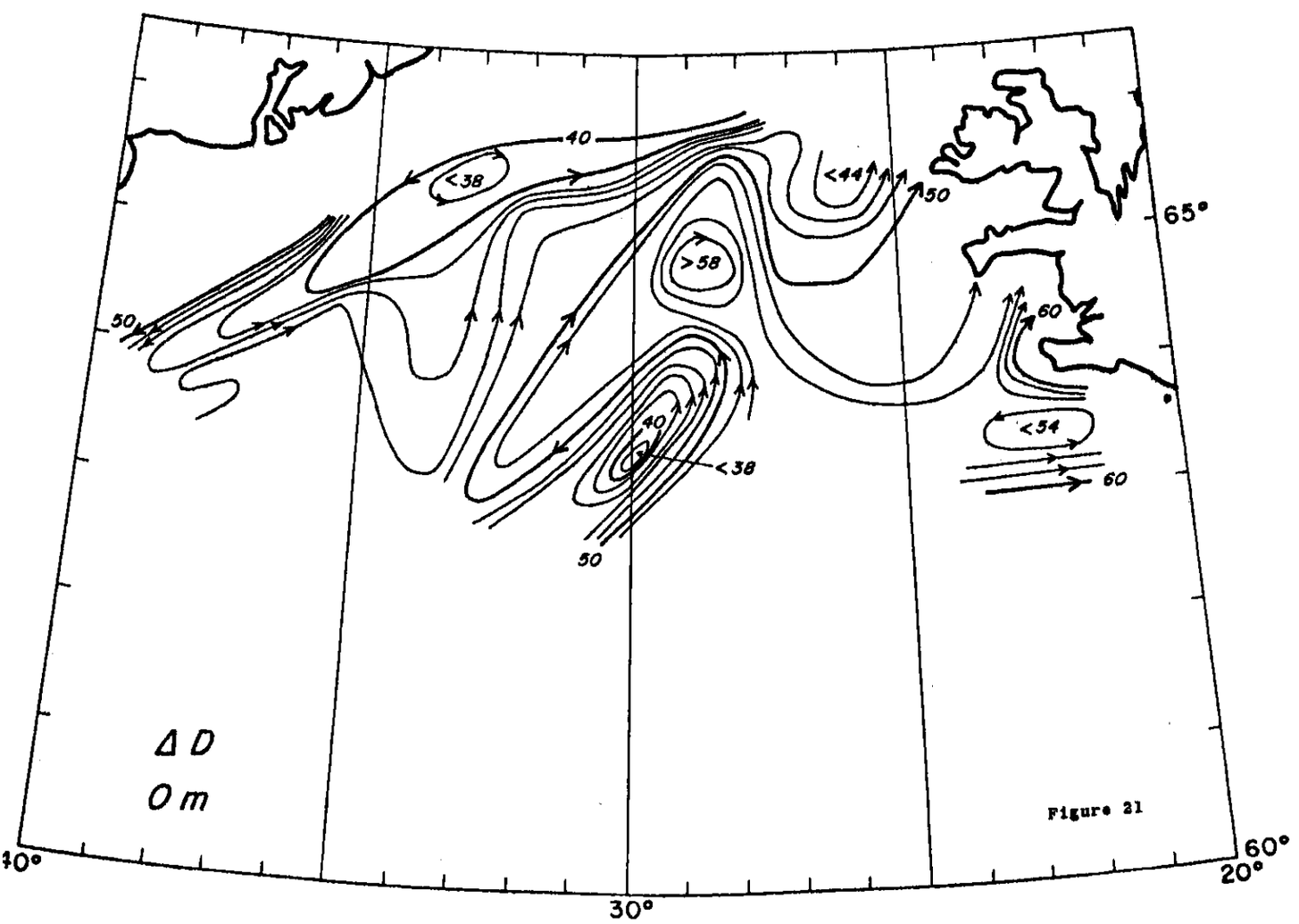

Figure 21

III. THE ZOOPLANKTON

by Ingvar Hallgrímsson

The zooplankton from this cruise - but the fish larvæ are dealt with separately in an other chapter - has been worked up in the following way:

1. The Hensen net collections (100-0 m, silk No. 3) were measured by the displacement method. The samples were then worked up by a short-cut method. By this method 100 animals are counted from each sample and the percentage frequencies of the various species recorded. When the zooplankton is relatively heterogeneous, up to 200 animals are counted from each sample. In most cases the 100 animals counted in each sample represent only a small portion of the total number of animals in the sample. However, observations and experience since 1955 have shown that this short-cut method illustrates fairly well the general features of the zooplankton composition. On the other hand, as a result of the relatively few animals counted, a high degree of accuracy for single species which may occur only in small numbers cannot be expected. This working-up of the Hensen net material was done at sea.

2. As to the zooplankton samples collected by horizontal towing (Icelandic High Speed Samplers) only the material from the No. 2 sampler, i.e. from the 15 to 18 m layer, has been worked up by the aforementioned short-cut method, after having been devided in Lea's plankton devider.

Compared with previous Icelandic spring investigations in the Irminger Sea, the zooplankton volume in 1963 was generally rather low. This is especially striking in the south and southeast part of the survey area, where tongues of high zooplankton density are usually found penetrating into Icelandic waters.

Preliminary calculations show that in the oceanic area south of 63° N, between 24° and 28° W, the mean volume per each IHSS was 6,5 ml in May 1961, 18,8 ml in May 1962 and only 3,8 ml in this cruise.

The highest zooplankton densities and highest mean number of animals were found in the area north off Reykjanes and off the East-Greenland shelf and thus illustrating the drift of zooplankton from Icelandic waters towards East-Greenland.

Generally the composition of the zooplankton is rather homogeneous in these waters, Calanus finmarchicus being the dominating species found at every station. In the oceanic area its percentage frequency in the IHSS's varied from 20 to 90, the mean percentage frequency being 74,3. Its lowest percentage frequency was found

in the middle part of the survey area outside the 2000 m contour.

The distribution of Spiratella retroversa showed contrary features as its highest percentage frequency was found outside the 2000 m contour.

The Euphausiids were distributed all over the area investigated, although their percentage frequency never exceeded 56, the mean being 15,9. Their frequencies were highest west of Reykjanes between 28 and 32° N Long. where the percentage frequency of Cal. finmarchicus was relatively low.

It can be seen from Table IV that the frequencies of species collected in Hensen net (HE) and in Icelandic High Speed Sampler (IHSS) at the same station often differs considerably. This may on one hand be due to slightly different mesh size of the silk in the HE and the wire netting used in the IHSS´s, and on the other hand due to different hauling and towing speeds. Fast swimming animals as the Euphausiids are for example more frequent in the High Speed Samplers.

Further, the limited accuracy of the short-cut method when dealing with few animals is surely one of the causes for this difference, but it must be kept in mind that in nature the composition of species from the 100 m vertical water column is quite different from the composition of species in the 15 to 18 m layer.

TABLE IV.

PERCENTAGE FREQUENCY OF SPECIES FROM THE HENSEN NET (100 - O M) AND THE ICELANDIC HIGH SPEED SAMPLER (IHSS) FROM THE 15 - 18 M LEVEL

Station number	Sampler	Calanus finmarchicus stages							Cal.hyperboreus	Pseudocal.minutus	Scolecithricella minor	Pareuchæta spp.juvenile	Pareuchæta norvegica	Oithona spin.	Metridia lucens	Metridia longa	Ætideus armatus	Rhincalanus nasutus	Centropages spp.	Crustacean eggs	Euphausiacea juvenile	Euphausiacea adult	Spiratella helicina	Spiratella ret.balea	Conchoecia obtusata	Amphipoda	Chætognatha	Temora longi.	Acartia spp.	Podon leuckarti	Evadne nordmanni	Verruca stroemia	Balanus spp.	Decapod larvæ	Echinoderm larvæ	Polychæt larvæ	Varia
		I	II	III	IV	V	♀	♂																												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
1	HE	1	2	2	2	1		4		53			1						1		3							23		1		3	1	1		1	
	IHSS	25	25	5	1		2	1		1				8							1							13	1		1	14		1		1	
2	HE	55	27	4	1		7			3										1															2		
	IHSS																																				
3	HE				3	4	50			1				1						38								2									1
	IHSS																																				
4	HE	1		7	6	3	37	1		14			16	1	4					8						1										1
	IHSS		8	1	1	6	60			5				1						6	8	4														
5	HE	1	1	4	6	4	11			12	1									60																
	IHSS		4	3	1	4	61			1										17	8													1		
6	HE																																				
	IHSS	3	8	12	3	5	48			5	1			2						1	10					1										
7	HE	16	26	14	2	2	15	1		3				7			1				13															
	IHSS	12	21	16	2	3	18	2		4	1			4				1		3	13															
8	HE	16	16	6	10	1	11	2		2	4		1	5						14	3						1										8
	IHSS	8	19	7	7	2	34	1						3						3	15								1							

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
9	HE	16	18	20	10	2	7			1	2		4	3	1					2	11				1	1	1										
	IHSS	3	23	24	1	2	31			1	2			1		1					8				1	1			1								
10	HE	7	20	32	12		3			1	1			12	1						4	1	1						2					1	1		1
	IHSS	1	3	16	19	5	17			1	1	1		12	7			1			5	3		1		1	2		2						1		2
11	HE																																				
	IHSS		11	36	17	2	9						1	3	1						8			2		1	7										2
12	HE																																				
	IHSS	1	7	13	9	7	33	4				4		16		1	1				1						2										1
13	HE																																				
	IHSS		13	31	13	3	6	1			1	5	4	10	2		1	1			6						1										2
14	HE																																				
	IHSS	1	18	19	6	5	4			1	2	7		25	1		1	2			6					1	1										
15	HE																																				
	IHSS	15	25	16	4		19			1		1		3						4	12																
16	HE	2	6	9	10	5	45				2		2	1	1					13	3					1										
	IHSS	13	15	9	4	6	24	1		2		1		5						4	15																1
17	HE	3	3	16	16	18	33	3			3									5																	
	IHSS		7	1	3	16	72								1																						
18	HE	1	6	16	9	11	35	1		4	3				1						10				1	1											1
	IHSS	2	6	8	10	11	42	2		1	2									1	3	6		5													1
19	HE		2	3	6	14	60	8		1	1		2									1		1	1											
	IHSS	2	2	2	3	8	75	1		1												1		1												
20	HE		1	2	5	10	68	8			1		1											2		2										
	IHSS				2	11	70	6		1											5			3			1										1
21	HE																																				
	IHSS		5	2	13	16	41	1		1	5	1		2								4		9												
22	HE																																				
	IHSS		6	4	15	46	19	2														1		6		1										
23	HE																																				
	IHSS	2	13	12	22	5	3			1	3			2							1	12	6	13		5										
24	HE																																				
	IHSS	3	9	17	26	9	7	2		1	2			3									3	15		3										

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
25	HE																																				
	IHSS		2		2	3	74																2	16		1											
26	HE			2	10	18	68																			1											1
	IHSS			7	7	11	52	5			1											3	5	8		1											
27	HE			3	9	17	59	4				1	2									23				2	1										
	IHSS			2	7	9	70	7														5															
28	HE		2		18	22	33	9			3	1		3										4													
	IHSS		8	8	13	11	19	1			1			2									1	35		1										
29	HE			1	2	15	72	6																1		1											2
	IHSS				7	4	9															52	28														
30	HE		2		7	9	73	6														1		2													
	IHSS		3	1	13	17	17															8		38		3										
31	HE			1	4	11	60	7			3		4	3	2						2				1		1										1
	IHSS		1		6	8	57	3		2	2	3		5		1					1	8			1	1											1
32	HE		2	5	11	10	48	13			2	1												5		1	2										
	IHSS	1	1	1	6	11	69		1		1											3		6													
33	HE		4	4	3	20	14	12		1	20	4	7								6			2												1
	IHSS	1	2	11	5	14	36	2		2	12			3							6		1	3		1										1
34	HE	3	5	3	4	22	23	20		1	3		6								3			1	1	3	1										
	IHSS	1	13	10	8	19	45				1			1							1					1											
35	HE	3	19	17	15	3	16	2			7	3	2	4				1		8																	
	IHSS	1	7	31	25	1	23			1	1			4						1	2			2			1										
36	HE	1	12	8	5	2	62			1	2										5	1				1											
	IHSS	1	6	9	10	2	58							1						3	9					1											
37	HE	3	17	16	6	2	12			1	1	1		3						23	11				2	2											
	IHSS	1	19	11	5	2	23			1	1			2							34					1											
38	HE	8	17	8	6	2	8			1	2									7	36				1	1	1		1		1						
	IHSS		6	9	3	4	6			1	2	1		1							64	3															
39	HE	5	30	19	15	3	2	1			2			6	1					5	11																
	IHSS	4	22	17	16	4	11	2			3		10	1	2			1		1	4	1				1											
40	HE																																				
	IHSS	6	25	25	3	3	12				1		4	3				1			17																

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
41	HE																																				
	IHSS		18	16	10	1	10	1		2				13			1	1		3	20					1												3
42	HE	8	9	10	4	5	30			2	1									23	6				1	1											
	IHSS	7	26	26	5		16			1	1			2						5	10						1										
43	HE	2	6	6	6	5	58			1	4		1							8	2																
	IHSS	5	25	18	6	4	32			2				1							7																1
44	HE		2		8	31	34	3		1	8	2	2							2	2			3		1											1
	IHSS		1	1	3	26	60	5													1			2													1
45	HE			2	4	18	67	3					3								2				1												
	IHSS	2	2	9	5	18	32														5			27													
46	HE		1			7	86	1																3		1											1
	IHSS			1	3	8	74	2					1								1	3		7													
47	HE		2			11	43	18			9		13														2										2
	IHSS	1	1	1	1	5	73	1		1	2										10	1		1	1												1
48	HE	4	10	6	9	10	41	3		1	3	2	1								3			1	4		1										1
	IHSS		2	3	6	15	50				1											16	1	6													
49	HE		2	2	4	16	38	6		2	5	6	10	1										2	3	1	2										
	IHSS	4	6	10	8	32	32				1										1			6													
50	HE		2	1	14	18	41	8			2		6								2			2	2	1	1										
	IHSS		2	4	9	22	46	2														10		5													
51	HE	5	4	3	8	7	56	3		1	2	1	2								3			1	2												2
	IHSS		4	7	15	20	19															1	3	31													
52	HE	1	2	2	9	14	47	4		1	2		10	1							1			1	4												1
	IHSS		2	1	5	15	67	1	1													1	1	6													
53	HE		1	2	6	7	53	14			1		2										1	1	7		2										3
	IHSS				4	8	74	5														8		1													
54	HE			2	8	4	45	10		1	3		6	1		1					3		2	1	11		1										1
	IHSS		2	1	7	7	64	5		2												3		4	4												1
55	HE		1	1	6	17	52	4		2	2		6								1	1		1	8		1										
	IHSS				3	13	65	1							1						1	10		5			1										
56	HE																																				
	IHSS		2	2	8	12	21	2														41		11													1

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
57	HE		1	3	22	26	30	8			6											1			1	2												
	IHSS	2	8	7	14	32	23				1											5	2	5		1												
58	HE		2	3	24	19	13	7	1				10										1	1	17		2											
	IHSS		1	4	13	52	18															1		11													
59	HE																																				
	IHSS		1	1	3	12	59	5			2										2		2	2	8	1	1										1
60	HE																																				
	IHSS		1	2	2	24	43	1			1										2	19		3	1												1
61	HE																																				
	IHSS				8	36	40			2	6	2		4							2																
62	HE																																				
	IHSS		1	6	11	33	10			1												1		37													
63	HE																																				
	IHSS	1	4	4	3	28	48	1														3		7	1												
64	HE																																				
	IHSS	1	4	7	10	5	45			1	2		2								8	15															
65	HE																																				
	IHSS	3	12	8	17	7	29				1		1	1							18	3															
66	No sample taken																																				
67	HE																																				
	IHSS	8	24	5	23	6	6							1							26	1															
68	HE	14	18	14	13	5	34														1																1
	IHSS	15	20	15	13	2	32	1													2																
69	HE	Very few animals not sorted out																																			
	IHSS	3	13	14	13	9	36	4		1											1			3		3											
70	HE		2		1	2	72	2			5	1	5		1	1					1			2			2										3
	IHSS		2	3	2	7	72														4	2		5	2	1											
71	HE		2		4	11	50	5		2	1		5								2	1		7	8												2
	IHSS		4		2	20	62					1										1		10													
72	HE	1	4	4	2	12	35	5			5	8	10								2		1	3	5	2	1										
	IHSS	3	6	3	1	27	42	1														7	2	8													

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
73	HE		3	3		8	73	3													3	3		3		I											
	IHSS		1	2	1	14	79	1																2													
74	HE																																				
	IHSS	1	10	3	1	3	78														1			2										1			
75	HE	7	7	7		1	4			1			1							70				1												1	
	IHSS	35	23	7	5	3	2			5										9	11																
76	HE																																				
	IHSS	19	22	7	9	2	14			4										12	6	2		1										1		1	
77	HE																																				
	IHSS	42	26	3	3		4			6										10	5								1								
78	HE																																				
	IHSS	24	27	13	13	1	19													1								1	1								
79	HE																																				
	IHSS	28	25	11	4	1				1										1	6							14	4	1		2				2	
80	HE																																				
	IHSS	3	5	9	6	7	1														8							36	5	7	1	7			3	1	1	
81	HE																																				
	IHSS		1		1	1	1														2								1	18	10	50		10		4	1	

88	HE																																				
	IHSS	4	8	4	4	10	2													1	1	2							6	1	1	54		2			
89	HE	7	9	6	11	3	2			1										39	3						1	3	4		11					
	IHSS	7	7	3	4	22	9	3											1	1							16	18			9					
90	HE	4	4	6	14	7	31	2		16										13							1				2					
	IHSS	5	30	15	14	8	22	2														1					1	1			1					
91	HE	11	7	7	8	1	10	1		2	1									50										1	1					
	IHSS	21	38	12	10	2	13	2														1		1												
92	HE	8	22	25	15	3	17	2		1										6				1												
	IHSS		5	13	32	3	44	2																1												

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
93	HE	1	1	4	13	21	52	1					2											1				1		1		2					
	IHSS			8	9	16	66																	1													
94	HE		1		5	12	66						1								4	2		7							1					1
	IHSS			2	1	5	90														1			1												
95	HE				1	6	57				1	28	1	2							2				1						1					
	IHSS	1	1	4	2	4	83	1													2			1								1				
96	HE	1	2	2	2	7	58				1	2								1	21				2						1					
	IHSS	2	9	6		4	57				4									1	14				1	1								1		
97	HE		6	4		2	47	4			4	9	11								4			1	8											
	IHSS		6	4	4	5	41				7										15	2		5	5	2	1				1				2
98	HE		1	6	4	5	30	3		4	3	5	6	2		1					7	1		2	13	1										6
	IHSS		1	2	1	21	52		1		1										2	2	1	3	12	1										
99	HE	2	9	7	20	29	19		2				1							4	5				1											
	IHSS		4	2	9	14	69														2														
100	HE	1	2	3	10	14	46		1	2	2									1	12			1	3	1										
	IHSS		3	2	9	17	68														1														
101	HE																																				
	IHSS	4	2	4	15	17	50		4												1		1			1										1
102	HE																																				
	IHSS	2	3	7	21	23	41	1		2																											
103	HE	2	5		7	31	46	2		1	1	1	2	2																						
	IHSS		1	3	16	34	44	1																1												
104	HE	2	4	2	15	18	53	1		1		2								1							1									
	IHSS	2	10	17	11	18	37													1				1					2							1
105	HE	7	8	13	11	3	10							1						46	1															
	IHSS	4	8	15	30	22	11	4		1										4									1							
106	HE	6	2	11	18	14	21	6		15	2		1							1	1						1		1							
	IHSS	1	5	13	38	21	9	1		1																			11							
107	HE	2	2	15	19	10	10			27																	1		9		1		4			
	IHSS																																				
108	HE																																				
	IHSS		1	13	13	18	24	6		12				2							1								6					2		2

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
109	HE		4	11	8	14	11	2		22										1	1								5			19		2			
	IHSS	1	4	7	16	21	8	1		31				5					1										1			3		1			
110	HE																																				
	IHSS	5	7	12	14	6	31	8		1										10	3								1			1		1			
111	HE	2	4	2	20	30	33	1		1	1									4	1					1											
	IHSS	2	1	12	12	19	52	1																										1			
112	HE	2	1	8	7	10	39	1		4	15	1		2							2				6	1	1										
	IHSS		2		4	14	75															3		2												
113	HE	2	7	3	2	1	10			34	7			4							4	1		11	9	1	1										
	IHSS		7	6	3	7	45			2											3	19	1	5		2											
114	HE																																				
	IHSS	7	16	15	15	7	8			31																											
115	HE	5	3	6	15	28	36	1	1	4											1																
	IHSS	13	12	3	17	29	15			10																											1
116	HE	1	3	2	1	5	46			6	7	5				1					2			1	19	1											
	IHSS	3	10	7	7	4	12	3		9	4										21		1	6	6	2									1		4
117	HE	2	6	7	3		9			5	3	13		3		1					16			18	7	3	1										3
	IHSS		8	1	2	1	14			7	32										15			8	2	7	1								1		1
118	HE	2	7	3	2	3	30	1		2	8	14	1								23				4												
	IHSS		2	5	2	4	76				4										4	1		1		1										
119	HE	1	5	3	12	13	47			2	1	2	4								5			3	1	1										
	IHSS		2	1	5	7	76				1										3	4		1												
120	HE	2	1	4		2	58	1		2	6	2	1							5	6			3	5							1				1
	IHSS	4	7	4		2	66			1										1	12			1		2										
121	HE	2	2	1	5	15	54	1		2	5	3		1							6						2									1
	IHSS	2		2	6	8	79	1		1														1												
122	HE	1	5	2	1	2	29	1		1	11	17		1						4	16	1		1	5	1									1		
	IHSS	3	4	2	3	3	70	2												1	10			1												
123	HE	1	4	3	8	10	52			3	2			1							12		1	1	1	1											
	IHSS	3	6	3	10	13	55	1		1													1	3					4								
124	HE																																				
	IHSS	1	1	1	16	17	62		1					1																							

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
125	HE	2	3	7	5	4	62			3		2		2						4	4					2												
	IHSS																																				
126	No sample taken																																				
127	HE				2	11	64	3		1	1	9	3								1				4	1											
	IHSS	2	5	5	9	12	49	1		3	2										3	1		2		1										4
128	HE	2	6	1	13	20	49			1	2	1	3			1								1													
	IHSS	25	22	5	8	7	5			13				1							6		1	1		1			1					1		3
129	HE	1		1	4	14	68	2		1	1	2	2	1	1									1	1											
	IHSS		1		1	23	60														6	3		5									1			
130	HE		7	7	32	20	25			5				2						2																
	IHSS	41	37	3	1	5	2			1																										4
131	HE	5	11	7	39	11	10	1		9				2						3						2										
	IHSS	28	37	5	2		4			7																										17
132	HE	3	16	7	34	9	9			13										3	4			2												
	IHSS	25	50	4	4		1			15																										11
133	HE	5	5	2	10	12	28	2		10	7	3	4	2	1					2	1			1	2	3										
	IHSS		2	2	17	27	49	1		1												1														
134	HE	13	21	6	3	2	3			13	1	1	1	8						17	3			1	2	1	2							1		
	IHSS	1	5	2	6	7	76			1																1			1							
135	HE	1	4	2		1	30	3	3	3	9	5		6						1	13		2	3	7		3							4		
	IHSS		2		2	2	74	5														10	1	1		3										
136	HE		1		1	6	51	1			8		1	2							12		1	1	12	1	1								1		
	IHSS	3	9	8	10	9	36															15	1	5		4										
137	HE		1		1	9	47	6	1		4	3	1	1							10		1	1	9	1	2								2		
	IHSS		1		1	3	57	2	1				1								13			5	16											
138	HE	5	3	2	2	2	56	1			5	4	4	5							3				6	1									1		
	IHSS	1	2	2	6	3	26	1	1		4										44	3		3		1										2
139	HE				2	6	56				8	1	1	2							8	1		1	9		4								1		
	IHSS		4	4	3	16	55		1		1										4	7		4			1									
140	HE		1	3	3	29					11	3	1								1		1		42											
	IHSS		1			13	84	1																1												

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
141	HE				1	1	7	59	1			1	2	8	7	3							2	1		1	3	2	1										
	IHSS	1				3	16	70	3	1																1		3	1										1
142	HE	Mostly phytoplankton. Not sorted out																																					
	IHSS	22	20	7	1	2	2					29											1								2								14
143	HE	Same as 142																																					
	IHSS	38					6	6				6														32									6				6
144	HE	Mostly phytoplankton																																					
	IHSS	35	16	5	2	1	3					5											11			6					1				2	1	3		9
145	HE	12	29	12	7	8	15					11				2						1				1	1	1											
	IHSS	24	28	10	7	8	15					3												1	1					1									2
146	HE	Same as 144																																					
	IHSS	7	40	10	3	1	5					10			1	3							3		1	1		1									3		1
147	HE	1			6	10	16	30	3			3	4	5	5		1	1					1				10	1	2										1
	IHSS	1	2			4	27	54	1			1											7				1	1									1		
148	HE	1			1	6	8	55				1			4	11							2			1	6	1											3
	IHSS		1	1	2	10	54					2				4		1					4	1		5	12	2							1				
149	HE		1		3	4	63	1				2	6		1	2							6				5	1	3										2
	IHSS	5	3	4	9	17	14					2											6	16		20	2		2										
150	HE	2				2	4	62	1				5	3	1								4		1		13												2
	IHSS	1	6	10		8	18	41															2			13	1												
151	HE			1	1	13	50	5				1	8	1		2							5			3	8	1	1										
	IHSS	1	5	3	5	18	61																2			3		2											
152	HE	Mostly Spir. ret. balea, 6 Aglantha digitale, 1 Clione limacina																																					
	IHSS	8				4	11	38				8	11													16	4												
153	HE	Mostly Spir. ret. balea, 1 Eukrohnia hamata, few Cal. finmarchicus																																					
	IHSS						6																			94													
154	HE	Few Cal. finmarchicus, Amphipods, and Spir. ret. balea, 1 Aglantha digitale																																					
	IHSS	23	13	5	7	9	18					13														1											4		7
155	HE	8	12	4	7	21	25					8		1		7		1				1					1	1	1										2
	IHSS	5	12		7	20	51					1																1										3
156	HE	Few Cal. finmarchicus and Amphipods																																					
	IHSS	12	21	14	4	11	7					21																			2				1				7

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
157	HE	Mostly phytoplankton																																					
	IHSS	37	25	3	1							8														2		1						1		1	1		20
158	HE	Same as 157, Clione limacina, Cal. finmarchicus, , Spir. ret. balea																																					
	IHSS	30	33	2			1	1				12											8			3		3									3		4
159	HE	Same as 157, few Cal. finmarchicus																																					
	IHSS	46	34	3								1														6										1	5		4
160	HE	Few Spir. ret. balea																																					
	IHSS	22	15		3		10					3											5			19					2				2	12		7
161	HE	Same as 157, 1 Medusa																																					
	IHSS							34																		33											33		
162	HE	Ca. 30 Spir. ret. balea and 4 Aglantha digitale																																					
	IHSS	15	15		5							10														15											40		
163	HE			1	3	1	8	36	1				5	5	3	9						13					4	4	1	4									2
	IHSS	2	5	1	12	11	46			1														11		11													
164	HE			2	1	9	17	40	5			1	7			7										1	5	1		2									2
	IHSS	1	7	3	5	16	15	2															2	20		29													
165	HE			1	2	5	10	21	3			1	4	3	2	3							12		5	8	14		5										1
	IHSS	4	7	4	12	18	11						1										7	6		23		2	3							1			1
166	HE	3		7		10	56	3				1	1	1	1								7		2	1	7												
	IHSS		3	2	2	8	55	2																7		7	13		1										
167	HE				7	12	35	1				1	4	5	8								7		2	8	8		1										1
	IHSS		6	1	1	3	70																2	1		4	11	1										
168	HE	Ca. 15 Spir. ret. balea, 2 Aglantha digitale, 1 Chætognath, few Cal. finmarchicus.																																					
	IHSS	22	11	1	1	3	52	1								1							1			2													4
169	HE	Mostly phytoplankton, few Cal. finmarchicus																																					
	IHSS		1				21																7			14									51			
170	HE	Same as 169																																					
	IHSS	3	25	15	8	16	31		1																	1													
171	HE	Same as 169																																					
	IHSS	8	13	5	6	17	44					4											1																2
172	HE	Same as 169 and few Spir. ret. balea																																					
	IHSS	4	4	3		11	77																																1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
173	HE	Same as 169																																			
	IHSS	26	7		7	7	26														7								7								13
174	HE	Same as 169																																			
175	HE	Same as 169																																			
	IHSS	35	31	16	3	1	3			1				3							2			2			1									2
176	HE	Same as 169																																			
	IHSS		17			8				4														50		8								13		
177	HE	Same as 169 and ca. 50 Spir. ret. balea, 2 Clione limacina																																			
	IHSS	34	14				5																	33											9		5
178	HE																																				
	IHSS	2	8	6	9	17	48														1	1		8												
179	HE																																				
	IHSS	1	6	4	6	14	49			1											10	1	1	3	2		2									
180	HE	1	1	1		3	66			1	7	1	4	1		1					5			2	5		1									
	IHSS	1		2	2	5	59	3	1												5			4	17	1										
181	HE																																				
	IHSS	28	14	6	1	1	25			3											5			8	2										6		1
182	HE	Same as 169																																			
	IHSS					6	54														17			17	6											
183	HE	Same as 169																																			
	IHSS	20																			40			20												20
184	IHSS	No animals																																			
185	IHSS	20	20							20														20													20
186	IHSS			12		13	63																		12											
187	IHSS	4					12														17			21		4						12	9	21		
188	IHSS	20	13	3		1															37			22								2	1	1		
189	IHSS	30	31	5			1			3											14			13										1		2
190	IHSS	16	17	23	2	3	11			5											7			7	6	1										2
191	IHSS		3	4	1	10	40	4		3	9		3								11	2		4	4											2
192	IHSS	2	5	10	13	21	25	1	2	1											11			8			1									

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
193	IHSS	1	3	10	10	25	30	1	1													2		7		5	5										
194	IHSS		1	5	2	4	56	1		1											22	2		4		1											1
195	IHSS	2		4	44	2					1			1							18	5		13	8												1
196	IHSS	3	4	7	1		36				1										43			2	2										1		
197	IHSS	4	14	11	2	2	18	1													47	7		3		1										
198	IHSS	3	8	7	7	7	11	1													56															
199	IHSS	1	2	4	2		59	2												2	15	6		4		2									1		
200	IHSS		1	10		2	60	1			3		2								18			1	2											
201	IHSS		1	2	4	2	43		1				1								21	12		1	8	28									1		1
202	IHSS	4	35	14	5		21			1				2						1	14	1			1										1		
203	IHSS	6	34	41	10	4	3	1		1																											
204	IHSS	7	15	39	14	3	4							3							15																
205	IHSS	12	27	30	3	7				1										1	18																1
206	IHSS	12	18	16	15	3														1	30							2	2		1						
207	IHSS	6	1	4	8	20	9													2	30							4	1		5						
208	IHSS	2	4	7	7	12	2	1													11							12	3	7	4	19				4		5
209	IHSS	1	2	1	6	1	5			4							2											14	1	41	10					1		11

TABLE V

ZOOPLANKTON

STATION NUMBER	PLANKTON VOLUME IN ML.		IHSS II; 15 - 18 M LEVEL
	HENSEN NET 100 - 0 M.	IHSS I - III MEAN VOLUME PER TOW; 1,5 NAUT. MILE	NUMBER OF ANIMALS PER 1 CUBICMETER
1	2	3	4
1	9	10,3	440
2	3	3,0	
3	2	< 1,0	
4	4	2,0	30
5	2	1,7	19
6	-	1,0	24
7	-	1,3	99
8	4	2,0	123
9	7	5,0	446
10	3	3,3	79
11	-	4,0	89
12	-	1,7	19
13	-	3,7	115
14	-	1,3	97
15	-	1,7	69
16	1	1,0	39
17	1	1,0	22
18	1	5,3	55
19	10	13,7	201
20	6	10,3	190
21	-	3,0	62
22	-	3,0	18
23	-	4,0	12
24	-	< 1,0	7
25	-	3,3	48
26	4	6,7	116
27	11	24,3	400
28	2	2,0	12
29	14	7,0	15
30	23	5,3	28
31	4	3,0	36
32	3	5,3	51
33	3	2,0	27
34	< 1	< 1,0	7

- = no observation

1	2	3	4
35	3	1,7	46
36	1	< 1,0	27
37	2	1,3	92
38	< 1	< 1,0	23
39	7	5,7	89
40	-	2,0	128
41	-	1,7	25
42	2	1,7	88
43	1	1,0	27
44	< 1	1,3	8
45	5	< 1,0	2
46	5	3,7	37
47	< 1	4,7	92
48	4	6,3	41
49	3	1,0	13
50	7	7,0	53
51	10	3,0	15
52	6	11,3	214
53	9	20,0	422
54	6	8,7	112
55	14	9,0	65
56	-	6,3	61
57	2	< 1,0	7
58	4	3,3	19
59	-	3,7	60
60	-	2,7	45
61	-	< 1,0	2
62	-	1,3	3
63	-	2,3	6
64	-	3,0	20
65	-	2,7	24
66	-	-	
67	-	3,3	93
68	1	< 1,0	16
69	< 1	< 1,0	5
70	11	7,7	141
71	1	3,3	17
72	2	2,7	23
73	1	1,3	14
74	-	< 1,0	14
75	1	2,0	335
76	9	3,0	88
77	9	2,3	200
78	-	2,0	233
79	1	3,7	103

1	2	3	4
80	29	2,0	231
81	15	8,0	348
82	7	7,3	1010
83	11	11,7	
84	5	16,0	
85	22	12,7	
86	18	32,7	
87	5	17,3	
88	25	14,0	1050
89	2	2,0	102
90	2	4,0	199
91	3	4,7	125
92	1	3,0	118
93	3	1,7	88
94	2	2,0	67
95	1	2,3	46
96	1	1,3	6
97	4	3,3	60
98	6	6,7	83
99	2	8,7	239
100	3	3,7	170
101	4	< 1,0	41
102	1	< 1,0	46
103	5	5,0	119
104	6	3,3	154
105	5	17,7	533
106	2	8,0	126
107	2	-	
108	-	7,7	377
109	2	6,0	313
110	5	5,0	527
111	6	5,0	317
112	2	6,7	113
113	1	< 1,0	7
114	3	2,7	103
115	62	8,7	537
116	1	< 1,0	13
117	1	< 1,0	4
118	2	1,7	18
119	3	3,3	51
120	4	3,0	60
121	6	3,7	90
122	3	2,7	86
123	2	2,0	45

1	2	3	4
124	2	3,0	65
125	3	5,5	
126	1	1,0	
127	13	5,0	45
128	18	6,0	133
129	10	14,0	317
130	< 1	1,0	140
131	< 1	2,3	370
132	< 1	2,0	350
133	6	11,0	500
134	< 1	< 1,0	8
135	5	7,0	104
136	9	8,3	58
137	14	12,0	210
138	7	4,0	58
139	7	7,7	66
140	8	6,7	178
141	18	4,7	152
142	1	< 1,0	333
143	< 1	< 1,0	< 1
144	2	-	23
145	6	4,7	90
146	3	1,3	39
147	7	10,3	207
148	15	12,7	275
149	9	4,7	83
150	17	9,3	75
151	5	4,0	52
152	2	< 1,0	1
153	3	1,2	< 1
154	1	< 1,0	40
155	8	3,6	173
156	4	1,6	27
157	3	< 1,0	7
158	7	< 1,0	18
159	45	1,4	28
160	2	< 1,0	3
161	1	< 1,0	< 1
162	1	< 1,0	< 1
163	4	8,3	58
164	5	5,0	60
165	7	10,0	105
166	15	12,0	225
167	2	14,0	242
168	1	< 1,0	48

1	2	3	4
169	45	< 1,0	< 1
170	23	3,2	172
171	16	2,7	105
172	8	5,6	203
173	30	< 1,0	< 1
174	90	< 1,0	
175	110	1,0	21
176	12	< 1,0	< 1
177	4	< 1,0	1
178	10	2,1	152
179	13	10,3	136
180	11	18,7	330
181	4	1,0	25
182	22	< 1,0	< 1
183	108	< 1,0	< 1
184	30	< 1,0	
185	54	< 1,0	< 1
186	22	< 1,0	< 1
187	90	< 1,0	< 1
188	20	< 1,0	5
189	34	1,4	25
190	11	4,7	172
191	45	9,7	180
192	5	4,0	42
193	11	3,7	50
194	9	4,0	103
195	8	17,7	155
196	4	7,0	118
197	10	10,0	142
198	17	7,0	232
199	8	6,3	114
200	12	3,7	123
201	35	4,0	57
202	13	3,0	38
203	42	1,3	161
204	56	2,3	167
205	46	7,7	198
206	15	6,0	131
207	55	1,0	36
208	22	9,3	417
209	11	15,0	115

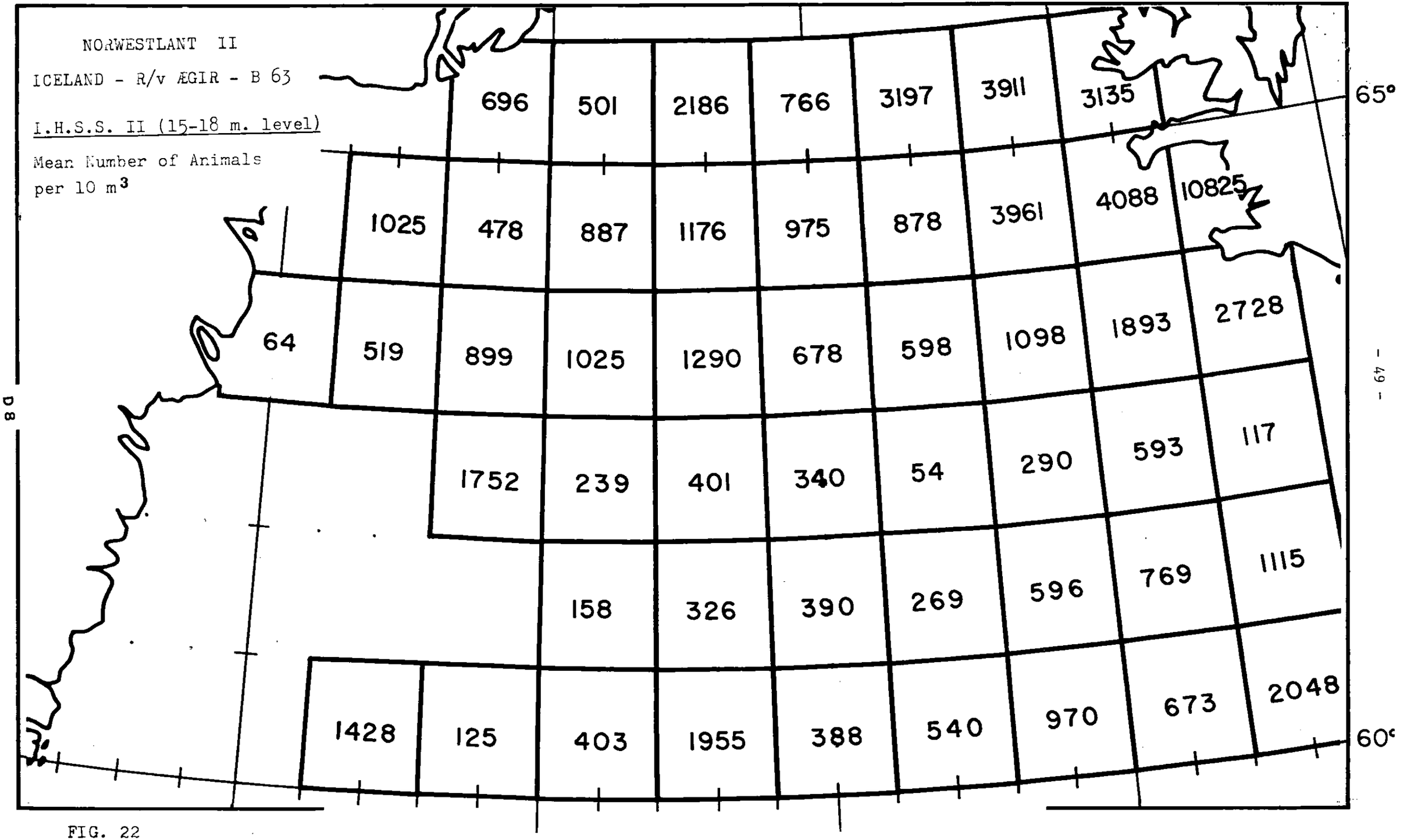
NORWESTLANT II
ICELAND - R/v ÆGIR - B 63
I.H.S.S. II (15-18 m. level)
Mean Number of Animals per 10 m3
696
501
2186
766
3197
3911
3135
1025
478
887
1176
975
878
3961
4088
10825
64
519
899
1025
1290
678
598
1098
1893
2728
1752
239
401
340
54
290
593
117
158
326
390
269
596
769
1115
1428
125
403
1955
388
540
970
673
2048
65°
60°
D 8

FIG. 22

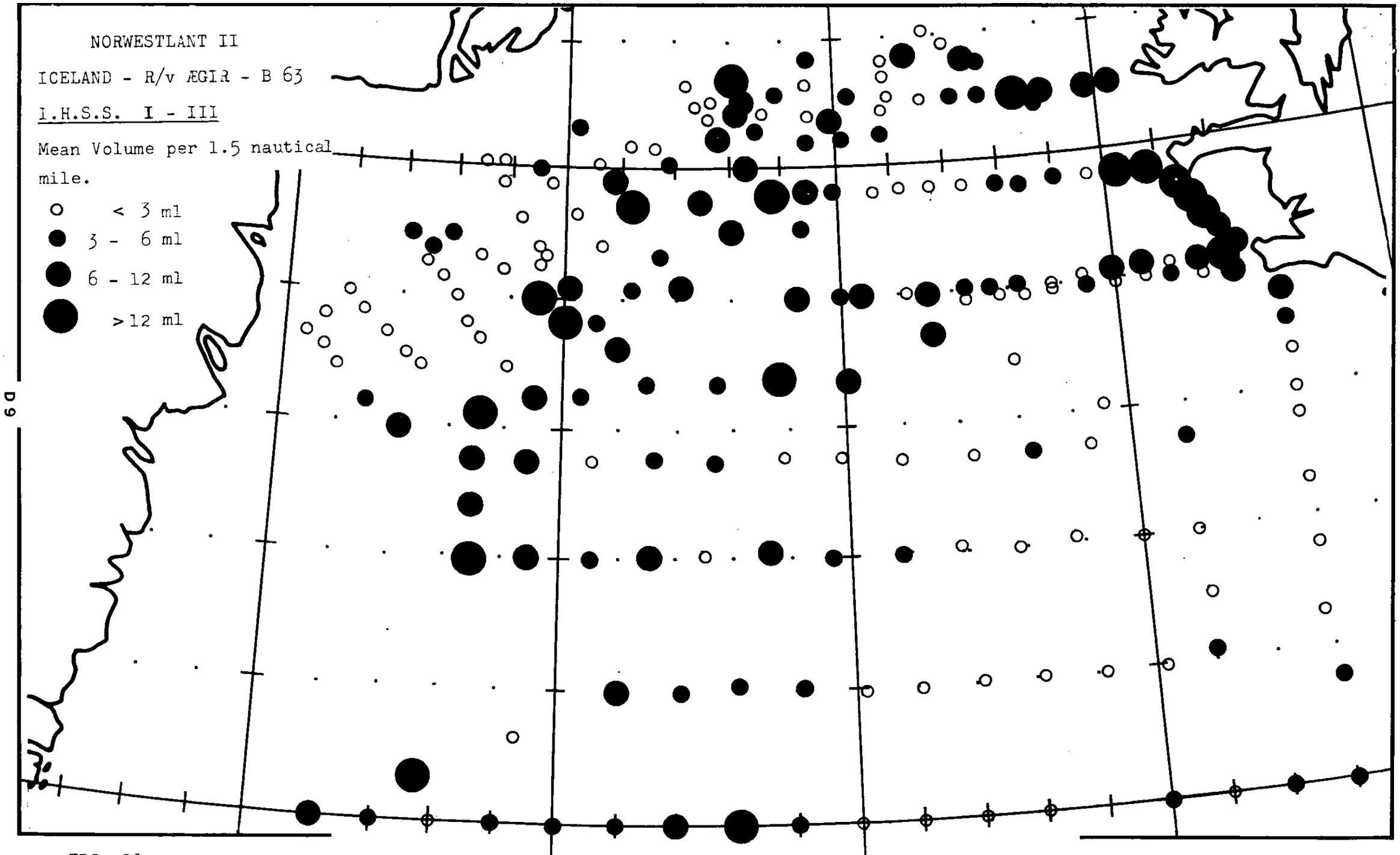
NORWESTLANT II
ICELAND - R/v ÆGIR - B 63
I.H.S.S. I - III
Mean Volume per 1.5 nautical mile.
< 3 ml
3 - 6 ml
6 - 12 ml
>12 ml
65°
60°
D9

FIG. 23

IV. COD EGGS AND LARVAE

WITH NOTES ON SOME OTHER SPECIES

by Jutta Magnússon

God eggs were found in great numbers in the Icelandic shelf area on both parts of the cruise with the main concentration in the Faxa Bay region, where 52% of the total number of cod eggs were taken (stat.nos 81-86, see also table 6 and figures 24 to 25). However, cod eggs were also found in the East Greenland shelf area. Here, the number of cod eggs was on the whole very low but increased slightly towards the ice border on some sections. The highest number of cod eggs in the East Greenland shelf area was obtained at stations 170 and 171 with a total number af 94 and 32 respectively and at stations 175 and 176 with 113 and 40 eggs respectively.

A comparison of this material with cod egg material from the same area and month (late May) in 1961 shows that the average number per m^3 was the same for both years, i.e. in 1961 with 9 positive stations 0.13 per m^3 and in 1963 with 34 positive stations also 0.13 per m^3. This comparison was made for the IHSS only and only for the area north of 63^oN, since our survey in 1963 did not cover the area south of 63^oN. But it is worth noticing that in 1961, the average number of cod eggs in the area south of 63^oN was 1.04 per m^3, i.e. eight times more than in the area north of 63^oN.

Table 7 shows that the majority of cod eggs were on the developmental stages I-II and III. The cod eggs of the East Greenland shelf area were almost exclusively on stages I-III. Only 4 eggs (of a total number of 442) were on stages IV-V. This corresponds also very well with the developmental stages of the cod egg material from the same area and month in 1961 and too with the fact that in both years only very few cod larvae were obtained at East Greenland.

God larvae were almost exclusively found in the Icelandic shelf area (see also table 8 and figures 26 and 27). There, the cod larvae occurred in great quantities, the main concentration being in Faxa Bay, where 80% of the total number of cod larvae were obtained. At East Greenland, cod larvae were found only at two stations (nos 171 and 175, one larva each), i.e. at stations where relatively many eggs were found.

Most of the larvae were of a small size, the majority

being 7 mm and smaller (93%), with the peak at 4-5 mm (58%), though the size range was from 3-19 mm. But the 11-15 mm and 19 mm were only represented with one specimen each. Table 9 shows the length distribution of the cod larvae. As can be seen from the table, the bigger larvae were obtained at the end of the cruise.

There was a great difference in the abundance of eggs and larvae at the same place within half a month. This is demonstrated by a comparison of stations 80 and 81 (Part I of the cruise) and 208 and 209 (Part II of the cruise) as these stations were taken at the same positions:

Station:	80	81	208	209
Date:	16/5	16/5	31/5	31/5
Tot.no.egg:	158	4536	3	105
Tot.no.larvae:	233	2122	152	425
Av. length:	4.11	4.19	8.32	6.34

God larvae from the same places in 1961 also taken on May 31st were much less abundant (o.60 av.per m^3) than in 1963 (3.18 av.per m^3). The average length was also lower in 1961 (4.86 mm) than in 1963 (7.33mm).

Other species: Beside cod and redfish, fish eggs and/or larvae of 34 species were obtained on this cruise.

In table 10, the abundance of eggs and larvae of some common species is given. Generally it can be said that most of the eggs and larvae were obtained in the Icelandic shelf region. However, there are some exeptions e.g. tusk: though the majority of larvae and eggs was obtained within the shelf region, some eggs were caught outside the shelf, e.g. in the Reykjanes Ridge area. The long rough dab eggs and larvae were by far most abundant in the Icelandic shelf region, especially in Faxa Bay, but the eggs occurred also in small numbers at many stations on the East Greenland shelf. Two halibut larvae were obtained at two stations in the open ocean (stat.nos. 97 and 137) rather close together though they were taken with a 4 days interval. Sand-eel larvae were obtained in considerable numbers on the Icelandic shelf but in low numbers also on some stations near the ice border north of 65°N. Capelin larvae were caught in great quantities along the Icelandic coast but also at some stations along the ice border on the East Greenland shelf. Beside the larvae, we got 8 young capelins at East Greenland on four stations (Nos. 173,186,187,188) with the size range of 52-78 mm. Capelin larvae were by far best represented of all larvae caught on this cruise.

It should be mentioned that there was a clear difference in the fishing effectivity of both gears used (Hensen net and IHSS), especially for eggs. This can be seen from the tables 6 and 8 and figures 24 and 25.

Table 6

NORWESTLANT II

ICELAND - R/v ÆGIR - B 63

Cod Eggs

- No sample

Stat. no.	Date	Hensen net no	Hensen net no/m^2	IHSS no	IHSS I-III no/m^3	Total
1	1/5	-	-	4905	81.75	4905
2	"	133	316.54	633	15.83	766
3	"			23	0.38	23
4	2/5			12	0.20	12
5	"			5	0.08	5
79	16/5	1	2.38	7	0.12	8
80	"	21	49.98	137	2.28	158
81	"	640	1523.20	3896	64.93	4536
82	18/5	48	114.24	984	16.40	1032
83	"	13	30.94	699	11.65	712
84	"	7	16.66	125	2.08	132
85	"	26	61.88	585	9.75	611
86	"	82	195.16	1774	29.57	1856
87	19/5	13	30.94	164	2.73	177
88	"	20	47.60	68	1.13	88
89	"			9	0.23	9
90	"	2	4.76	102	1.70	104
91	"			5	0.08	5
92	"			3	0.05	3
93	"	1	2.38			1
94	"			3	0.05	3
95	"			1	0.02	1
97	"	1	2.38			1
104	20/5			1	0.02	1
106	21/5	8	19.04	99	1.65	107
107	"	7	16.66	-	-	7
108	"	-	-	462	7.70	462
109	"	75	178.50	572	9.53	647
110	"			7	0.12	7
113	"			1	0.02	1
124	22/5			1	0.02	1
128	"	1	2.38	1	0.02	2
129	23/5			1	0.02	1
130	"	1	2.38	1	0.02	2
131	"			3	0.05	3
132	"	1	2.38	2	0.03	3
133	"			1	0.02	1
142	24/5			9	0.09	9
143	"			3	0.03	3
145	"	4	9.52	18	0.30	22
146	"	2	4.76	2	0.03	4
154	25/5	3	7.14	13	0.13	16
155	"	8	19.04	12	0.12	20
156	"	3	7.14	18	0.18	21
157	"	3	7.14	4	0.04	7
158	"	3	7.14	2	0.02	5
159	26/5			1	0.01	1
160	"			2	0.02	2
169	27/5			2	0.02	2
170	"	9	21.42	85	0.85	94
171	"			32	0.53	32
172	"	1	2.38	6	0.06	7
173	"			2	0.02	2
174	"			4	0.06	4
175	"	8	19.04	105	1.05	113
176	"	2	4.76	38	0.38	40
177	"			5	0.08	5
182	28/5			9	0.09	9
183	"			1	0.01	1
184	"			2	0.02	2
185	"			2	0.02	2
188	"	1	2.38	2	0.02	3
189	"	1	2.38	1	0.01	2
208	31/5			3	0.05	3
209	"	-	-	105	1.75	105
Total		1149		15780		16929

Table 7 NORWESTLANT II

ICELAND - R/v ÆGIR - B 63

Cod Eggs - Developmental Stages

\- No sample

Stat.	Date	Hensen net				IHSS I-III				Total				
		I-II	III	IV	V	I-II	III	IV	V	I-II	III	IV	V	Total
1	1/5	-	-	-	-	3445	1043	252	165	3445	1043	252	165	4905
2	"	72	59	2		580	43	9	1	652	102	11	1	766
3	"					22		1		22		1		23
4	2/5					12				12				12
5	"					5				5				5
79	16/5				1	7				7			1	8
80	"	5	13	2	1	89	24	12	12	94	37	14	13	158
81	"	44	375	137	84	946	1849	756	345	990	2224	893	429	4536
82	18/5	10	26	11	1	554	223	133	74	564	249	144	75	1032
83	"	3	9		1	522	147	12	18	525	156	12	19	712
84	"		5	1	1	33	45	33	14	33	50	34	15	132
85	"	2	13	9	2	125	226	182	52	127	239	191	54	611
86	"	15	53	9	5	865	659	168	82	880	712	177	87	1856
87	19/5	2	8	3		95	47	14	8	97	55	17	8	177
88	"	9	11			50	13	3	2	59	24	3	2	88
89	"					6	2	1		6	2	1		9
90	"	2				55	31	7	9	57	31	7	9	104
91	"					5				5				5
93	"					2		1		2		1		3
93	"	1								1				1
94	"					3				3				3
95	"					1				1				1
97	"	1								1				1
104	20/5						1				1			1
106	21/5	6	1		1	97	2			103	3		1	107
107	"	2	4	1		-	-	-	-	2	4	1		7
108	"	-	-	-	-	277	157	23	5	277	157	23	5	462
109	"	12	40	15	8	270	186	84	32	282	226	99	40	647
110	"					7				7				7
113	"					1				1				1
124	22/5					1				1				1
128	"		1			1				1	1			2
129	23/5					1				1				1
130	"	1				1				2				2
131	"					2	1			2	1			3
132	"	1				2				3				3
133	"						1				1			1
142	24/5					9				9				9
143	"					3				3				3
145	"	3	1			18				21	1			22
146	"	1	1			2				3	1			4
154	25/5	3				11	2			14	2			16
155	"	7		1		11	1			18	1	1		20
156	"	3				17	1			20	1			21
157	"	1	2			4				5	2			7
158	"	1	2			2				3	2			5
159	26/5								1				1	1
160	"					2				2				2
169	27/5					2				2				2
170	"	9				80	5			89	5			94
171	"					32				32				32
172	"				1	6				6			1	7
173	"					2				2				2
174	"					4				4				4
175	"	4	4			100	4	1		104	8	1		113
176	"	2				38				40				40
177	"					4	1			4	1			5
182	28/5					8	1			8	1			9
183	"					1				1				1
184	"					2				2				2
185	"					2				2				2
188	"	1				2				3				3
189	"	1				1				2				2
208	31/5					1	2			1	2			3
209	"					90	11	4		90	11	4		105
Total		224	628	191	106	8536	4728	1696	820	8760	5356	1887	926	16929

Table 8 NORWESTLANT II

ICELAND - R/v ÆGIR - B 63

Cod Larvae

- No sample

Stat. no.	Date	Hensen net no	Hensen net no/m^2	IHSS I-III no	IHSS I-III no/m^3	Total
1	1/5	56	133.28	241	4.02	297
80	16/5	92	218.96	141	2.35	233
81	"	118	280.84	2004	33.40	2122
82	18/5	135	321.30	1418	23.63	1553
83	"	23	54.74	219	3.65	242
84	"	7	16.66	222	3.70	229
85	"	19	45.22	325	5.42	344
86	"	36	85.68	650	10.83	686
87	19/5	7	16.66	129	2.15	136
88	"	5	11.90	30	0.50	35
108	21/5	-	-	1	0.02	1
109	"	5	11.90	4	0.07	9
171	27/5	1	2.38			1
175	27/5	1	2. 38			1
207	31/5			1	0.02	1
208	"			152	2.53	152
209	"	4	9.52	421	7.02	425
Total		509		5958		6467

Table 9 NORWESTLANT II

ICELAND - R/v ÆGIR - B 63

Cod Larvae. Length Distribution

Stat. No. / mm / Date	1 1/5	80 16/5	81	82 18/5	83	84	85	86	87 19/5	88
3	71	34	37	67	25	4	10	24	16	4
4	57	74	163	41	43	27	33	94	30	2
5	15	37	71	34	21	51	60	65	13	4
6	3	4	8	15	9	32	36	23	9	10
7		2	1	3	3	10	6	8	1	7
8				1	1	3		2	1	4
9						1	1			1
10						2				1
Tot.Meas.	146	151	280	161	102	130	146	216	70	33
Total	297	233	2122	1533	242	229	344	686	136	35
Av.Length	3.66	4.11	4.19	4.06	4.26	5.31	4.99	4.55	4.31	6.06

Stat. No / mm / Date	108 21/5	109	171 27/5	175	207 31/5	208	209	Total	%
3		5					1	298	17.58
4	1	4	1	1			10	581	34.28
5							29	400	23.60
6						10	43	202	11.92
7						17	45	103	6.07
8						28	19	59	3.48
9						24	6	33	1.95
10						9	1	13	0.76
11						1		1	0.06
12						1		1	0.06
13						1		1	0.06
14						1		1	0.06
15						1		1	0.06
19					1			1	0.06
Tot.Meas.	1	9	1	1	1	93	154	1695	100.00
Total						152	425	6467	
Av.Length		3.44				8.32	6.34	4.80	

Table 10 NORWESTLANT 11

ICELAND - R/v ÆGIR - B 63

Fish Eggs and Larvae of Some Common Species

Species	Eggs No.pos.st.	Eggs No	Larvae No.pos.st.	Larvae No
Gadus æglefinus	15	1623	12	759
Gadus esmarki	17	1271	14	1019
Gadus virens	13	211	11	127
Molva molva	10	88		
Brosmius brosme	21	466	7	9
Drepanopsetta platessoides	23	179	15	241
Pleuronectes limanda	13	729	12	598
Pleuronectes platessa	10	47	4	10
Pleuronectes microcephalus	14	1726	6	27
Pleuronectes cynoglossus	10	235	5	26
Hippoglossus hippoglossus			2	2
Clupea harengus			6	13
Ammodytes sp.			29	661
Mallotus villosus			29	11046

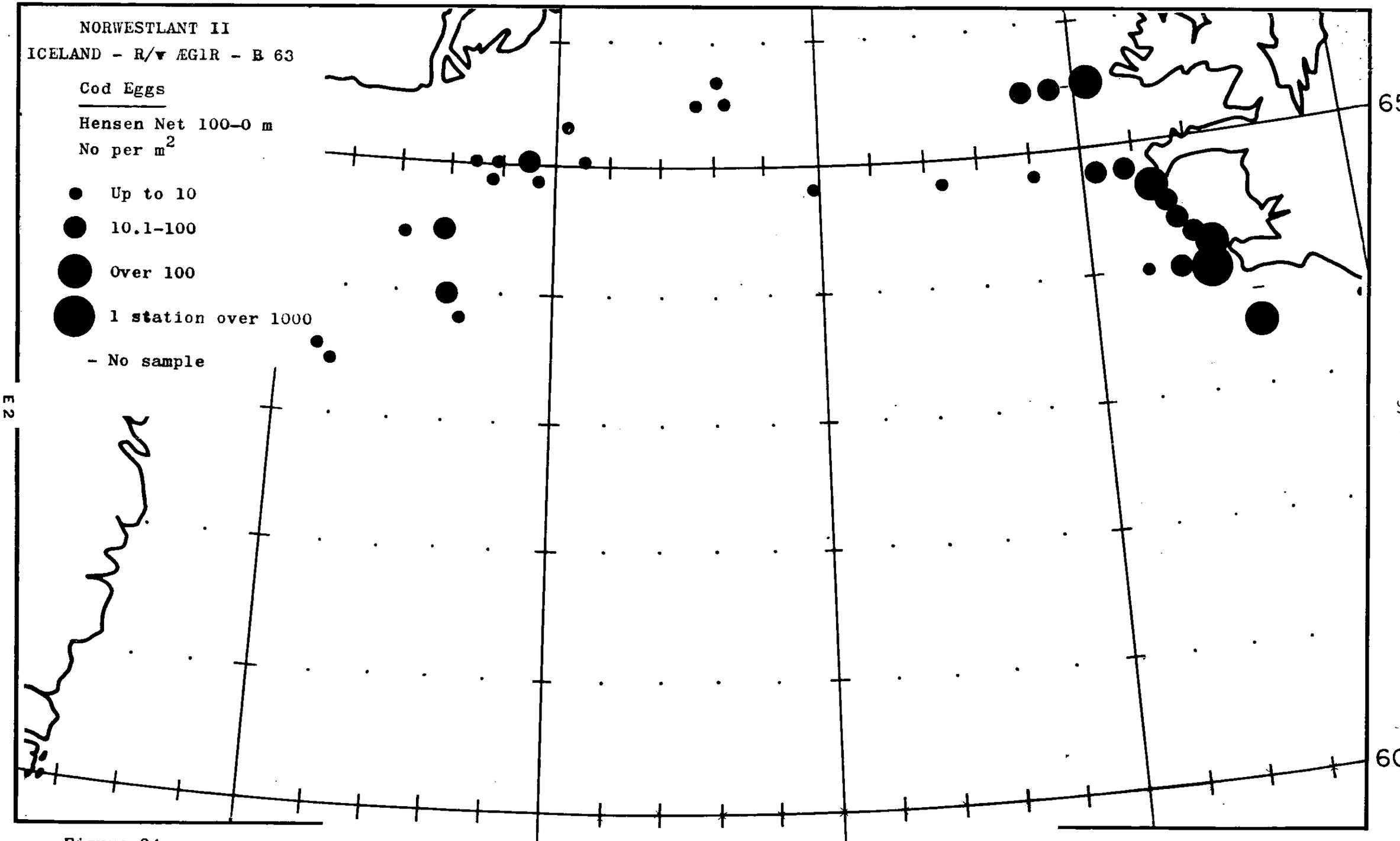
NORWESTLANT II
ICELAND - R/v ÆGIR - B 63
Cod Eggs
Hensen Net 100-0 m
No per m2
Up to 10
10.1-100
Over 100
1 station over 1000
- No sample
65°
60°
E2

Figure 24

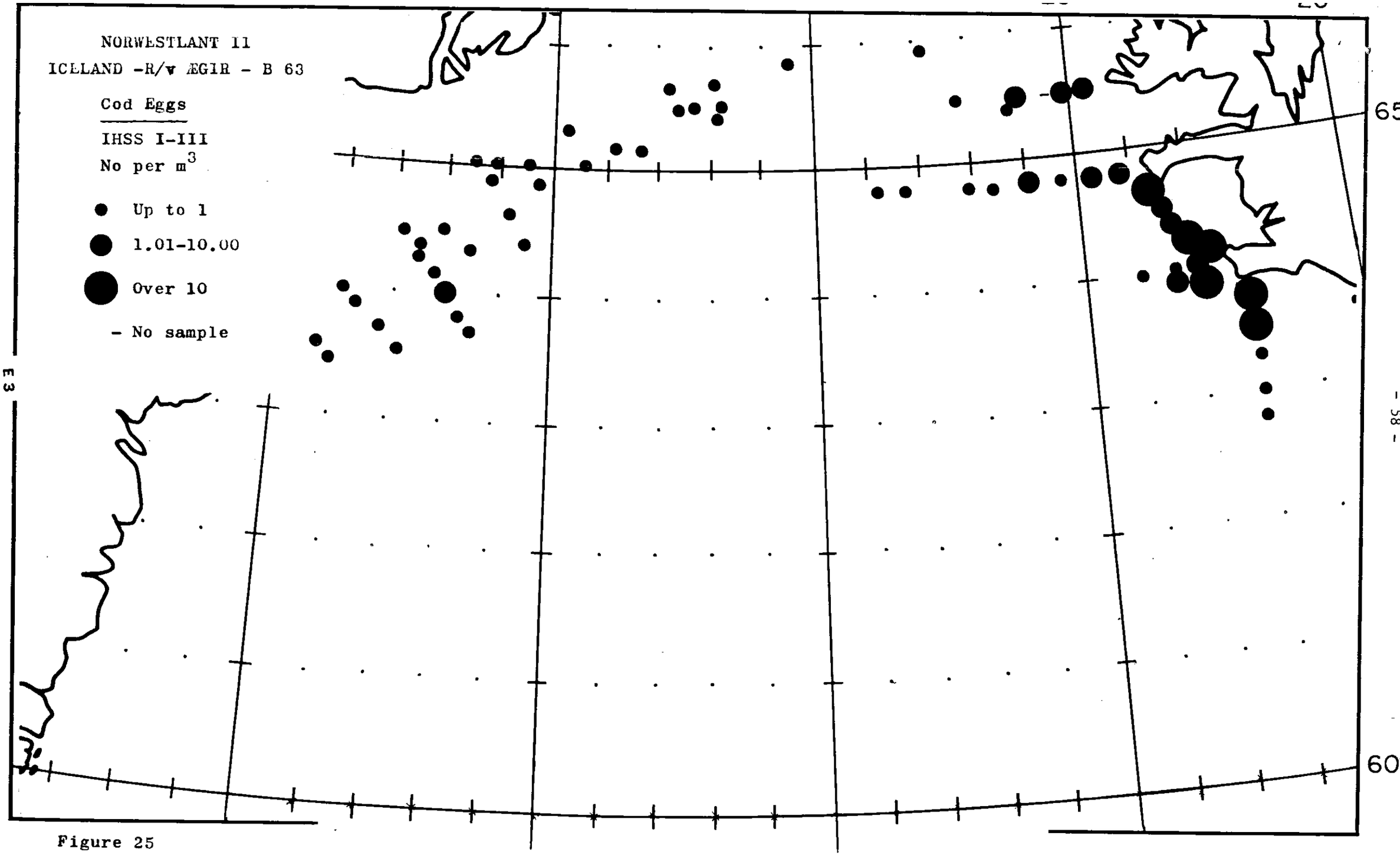
NORWESTLANT 11
ICELAND -R/v ÆGIR - B 63
Cod Eggs
IHSS I-III
No per m3
Up to 1
1.01-10.00
Over 10
- No sample
65°
60°
E3

Figure 25

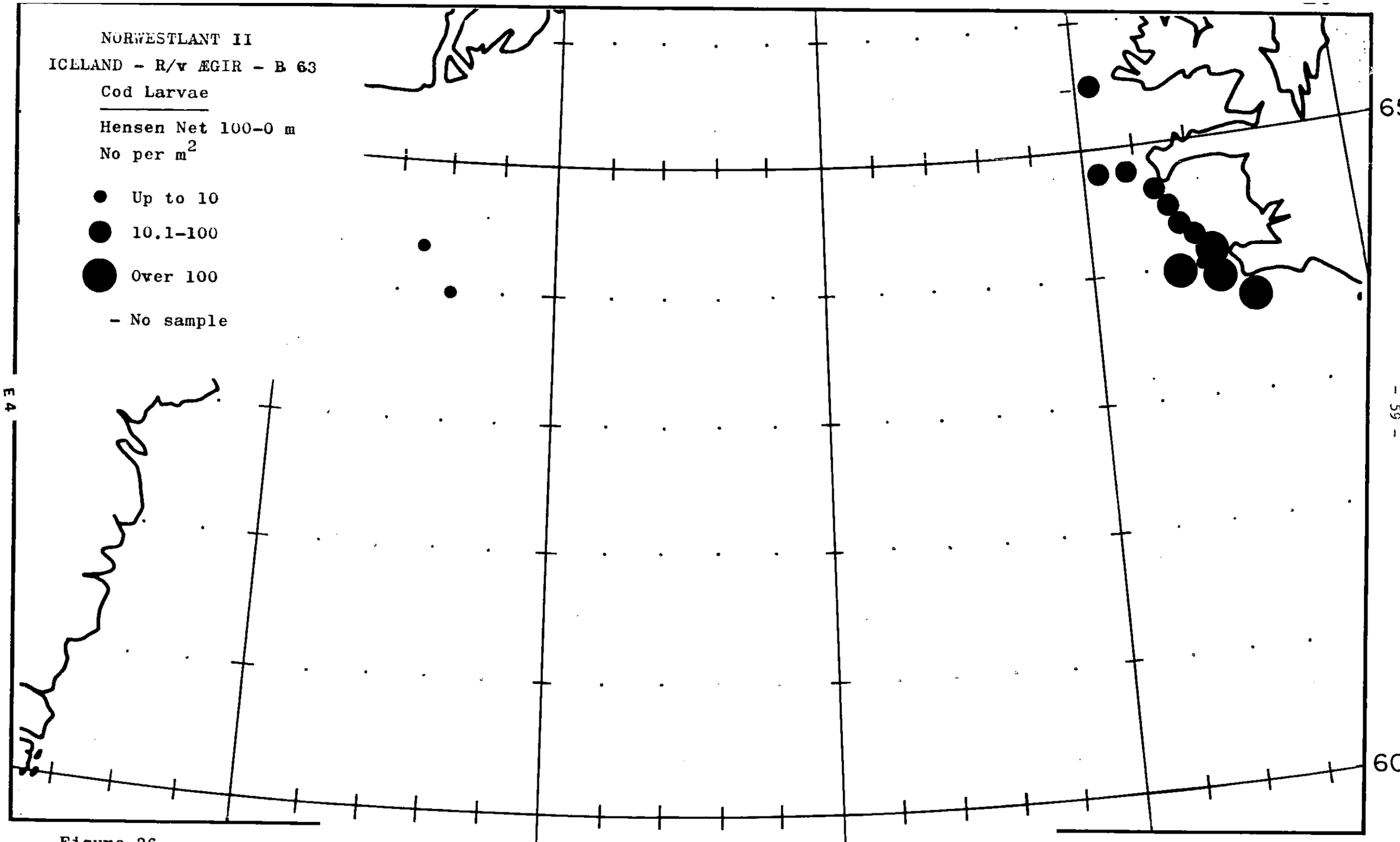
NORWESTLANT II
ICELAND - R/v ÆGIR - B 63
Cod Larvae
Hensen Net 100-0 m
No per m2
Up to 10
10.1-100
Over 100
- No sample
65°
60°
E4

Figure 26

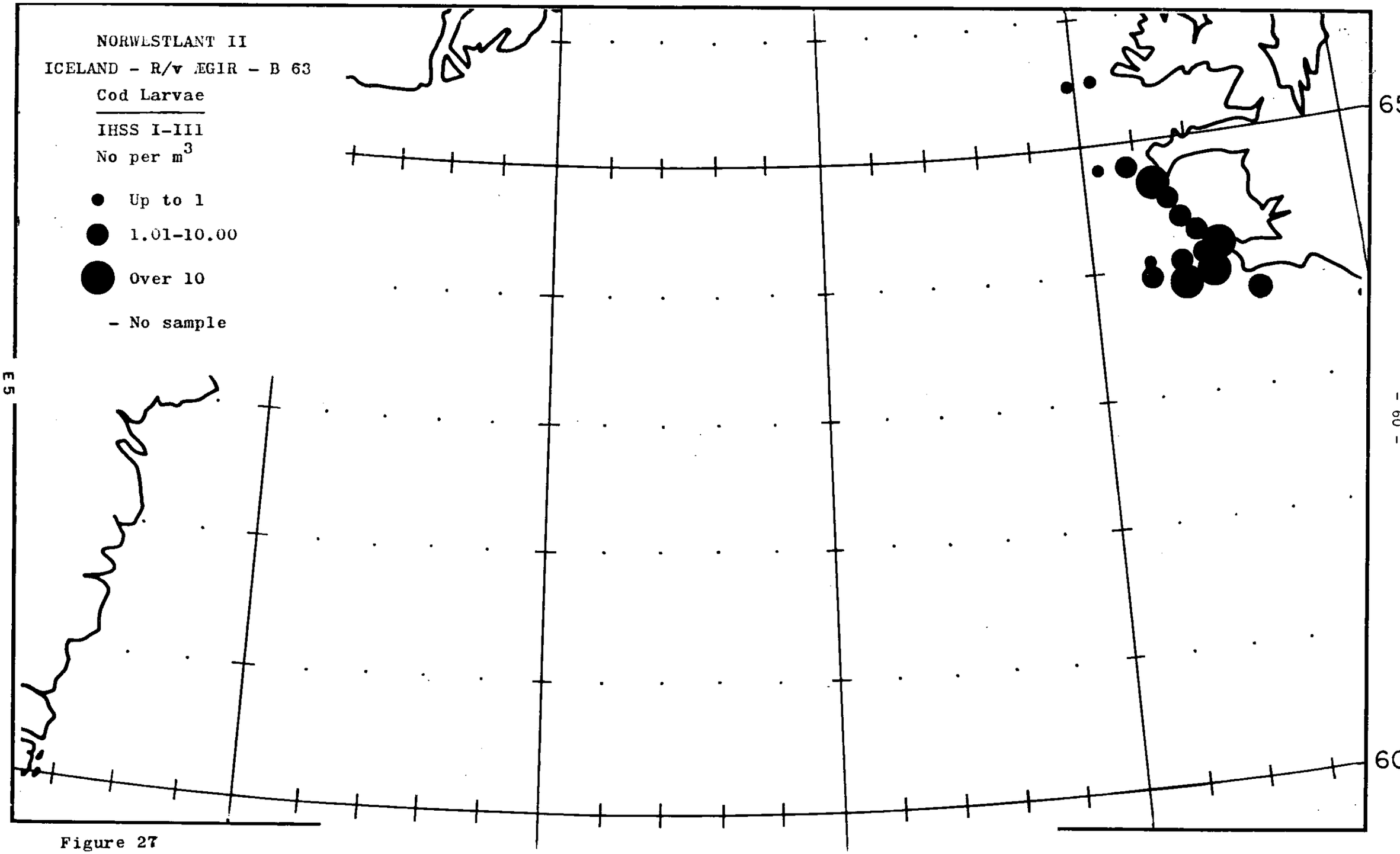
NORWESTLANT II
ICELAND - R/v ÆGIR - B 63
Cod Larvae
IHSS I-III
No per m3
Up to 1
1.01-10.00
Over 10
- No sample
65°
60°
E5
- 60 -

Figure 27

V. REDFISH LARVAE

by Jakob Magnússon

Redfish larvae were obtained in almost the whole oceanic region of the survey area. Only very few larvae were found on the Icelandic shelf but a considerable number of redfish larvae were obtained on the East Greenland shelf north of 65°N. The main concentrations were found to be in a broad zone between 28°W and 39°W from 60°N in south to the ice border in the north (see fig. 32).

134 stations were positive for redfish larvae and the total number of larvae caught was 3462 specimen.

It is worth to mention that a considerable number of redfish larvae was obtained in the northernmost part of the survey area close to the ice. The greatest density of larvae obtained was found to be at stations 19, 46 and 48 with 2.33 - 3.13 per m^3 for the IHSS I-III, as shown in table 11.

In figure 28, the average number per m^2 (Hensen net) for redfish larvae is given. The figures 29 - 31 demonstrate the vertical distribution and abundance of redfish larvae which corresponds to the three levels of the IHSS. In fig. 32, the number per m^3 and in figure 33 A, the number per 10 m^3 in statistical rectangles is given for all three IHSS together.

A comparison of the figures 29 - 31 shows that the greates numbers of larvae were obtained with IHSS III, i.d. in a depth of 25 - 30 m. Further, the uppermost level (IHSS I, 3-5 m) gave the smallest number of larvae.

As to the density of redfish larvae in the Irminger Sea during this cruise, it was rather small compared with the results from a cruise in May 1961 covering the same area. As mentoined before, the total number of larvae caught in 1963 was 3462, thereof 3098 were caught with the IHSS (132 positive stations). In 1961, 5213 redfish larvae were caught with the IHSS at 116 stations. That gives a mean number of 45.6 larvae per station in 1961 and 23.5 larvae per station in 1963. As can be seen, the density of larvae in 1961 was about twice as much as in 1963.

A comparison of the vertical distribution and abundance of redfish larvae in both years shows also a notable difference, since level II (15 - 18 m) gave the best results in 1961 but level III (25 - 30 m) in 1963.

Also the geographical distribution differed somewhat

in 1961 and 1963: although the main density was similar in both years, the redfish larvae were more northerly and westerly distributed in 1963 than in 1961.

Table 12 gives the length distribution of the redfish larvae for each station. The size range was from 5 - 12 mm with the peak at 7 mm (44%) which were by far best represented. Most of the larvae were within the 6 - 8 mm range (85.1%). The average length on part I of the cruise was 6.83 mm and on part II 8.01 mm. The distribution and abundance of redfish larvae of 7 mm and smaller (62% of the total) which are supposed to be newly extruded, was in general similar to that in 1961. However, the concentration varied to some extent. Thus, there seemed to be more newly extruded larvae in the northernmost part of the survey area in 1963 than in 1961.

During the working up of the redfish larvae material, attention was paid to the presence of tail melanophores. Only at three stations (nos 97,98 and 122), 5 larvae with tail melanophores were observed. On the other hand, an abnormality in the pigmentation was observed on 17 larvae at several stations. These larvae were characterized by the absence of the dorsal body pigmentation. The larvae were found in two areas, one south of the Reykjanes Ridge (stat.nos. 8, 37 - 42) and the other one along the East Greenland slope south of 65^{o}N (stat.nos 148,178,190).

On the whole, the redfish larvae seemed to be in a good condition. A great number of larvae was observed with stomach content. The analysis of stomach contents will be done later.

Table 11 NORWESTLANT 11

ICELAND - R/v ÆGIR - B 63

Redfish Larvae

- No sample

Stat. no.	Date	Hensen net no	Hensen net no/m^2	IHSS I no	IHSS I no/m^3	IHSS II no	IHSS II no/m^3	IHSS III no	IHSS III no/m^3	IHSS I-III no	IHSS I-III no/m^3	Total
5	2/5							1	0.05	1	0.02	1
6	"	-	-			2	0.10	5	0.25	7	0.12	7
7	"	-	-					4	0.20	4	0.07	4
8	"	1	2.38			4	0.20	17	0.85	21	0.35	22
9	"	2	4.76	6	0.30	2	0.10	1	0.05	9	0.15	11
10	3/5					2	0.10	1	0.05	3	0.05	3
11	"	-	-			1	0.05			1	0.02	1
13	"	-	-					2	0.10	2	0.03	2
15	5/5	-	-					1	0.05	1	0.02	1
16	"	-	-					1	0.05	1	0.02	1
18	"			2	0.10	7	0.35	14	0.70	23	0.38	23
19	5/5	76	180.88	51	2.55	47	2.35	42	2.10	140	2.33	216
20	6/5	26	61.88	24	1.20	19	0.95	24	1.20	67	1.12	93
21	"	-	-	6	0.30	12	0.60	15	0.75	33	0.55	33
22	"	-	-	1	0.05	12	0.60	14	0.70	27	0.45	27
23	"	-	-	1	0.05	5	0.25	2	0.10	8	0.13	8
24	"	-	-			4	0.20	1	0.05	5	0.08	5
25	"	-	-	1	0.05	2	0.10	8	0.40	11	0.18	11
26	"	1	2.38	2	0.10	5	0.25	5	0.25	12	0.20	13
27	7/5	9	21.42	14	0.70	20	1.00	18	0.90	52	0.87	61
28	"	10	23.80			1	0.05	8	0.40	9	0.15	19
29	"	5	11.90			8	0.40	30	1.50	38	0.63	43
30	"	9	21.42	6	0.30	26	1.30	31	1.55	63	1.05	72
31	8/5	9	21.42	12	0.60	21	1.05	19	0.95	52	0.87	61
32	"	2	4.76	7	0.35	7	0.35	21	1.05	35	0.58	37
33	"	16	38.08	2	0.10	15	0.75	30	1.50	47	0.78	63
34	"	3	7.14					5	0.25	5	0.08	8
36	"	7	16.66					3	0.15	3	0.05	10
37	"			1	0.05	5	0.25	25	1.25	31	0.52	31
38	"			4	0.20	7	0.35	3	0.15	14	0.23	14
39	9/5	6	14.28	1	0.05	3	0.15	5	0.25	9	0.15	15
40	"	-	-			6	0.30	5	0.25	11	0.18	11
41	"	-	-	1	0.05	1	0.05	5	0.25	7	0.12	7
42	"	1	2.38					3	0.15	3	0.05	4
43	"							9	0.45	9	0.15	9
44	"							3	0.15	3	0.05	3
45	"	4	9.52	3	0.15	14	0.70	17	0.85	34	0.57	38
46	10/5	27	64.26	54	2.70	52	2.60	39	1.95	145	2.42	172
47	"			2	0.10	7	0.35	8	0.40	17	0.28	17
48	"	3	7.14			65	3.25	123	6.15	188	3.13	191
49	"	3	7.14			3	0.15	39	1.95	42	0.70	45
50	"	11	26.18			6	0.30	96	4.80	102	1.70	113
51	"	4	9.52			1	0.05	24	1.20	25	0.42	29
52	"	1	2.38			1	0.05	4	0.20	5	0.08	6
53	"	1	2.38					4	0.20	4	0.07	5
54	"			1	0.05	4	0.20	3	0.15	8	0.13	8
55	11/5	1	2.38	1	0.05	1	0.05			2	0.03	3
56	"	-	-	3	0.15	2	0.10	6	0.30	11	0.18	11
57	"	4	9.52			4	0.20	18	0.90	22	0.36	26
58	"	5	11.90	1	0.05	5	0.25	5	0.25	11	0.18	16
59	"	-	-	2	0.10	19	0.95	19	0.95	40	0.67	40
60	12/5	-	-	6	0.30	20	1.00	18	0.90	44	0.73	44
61	13/5	-	-	1	0.05	10	0.50	12	0.60	23	0.38	23
62	"	-	-	1	0.05	8	0.40	12	0.60	21	0.35	21
63	"	-	-	3	0.15	2	0.10	7	0.35	12	0.20	12
65	14/5	-	-	1	0.05			2	0.10	3	0.05	3
67	"	-	-	1	0.05	1	0.05	8	0.40	10	0.17	10
70	"	2	4.76	15	0.75	33	1.65	5	0.25	53	0.88	55
71	15/5	3	7.14			30	1.50	35	1.75	65	1.08	68
72	"	1	2.38			40	2.00	52	2.60	92	1.53	93
73	"					2	0.20			2	0.03	2
74	"	-	-					2	0.10	2	0.03	2
75	"			1	0.05					1	0.02	1
77	16/5			1	0.05			1	0.05	2	0.03	2
89	19/5			1	0.05			-	-	1	0.03	1
93	"							1	0.05	1	0.02	1
94	"	7	16.66									7
95	"							3	0.15	3	0.05	3

Table 11 (Cont.)

Stat. no.	Date	Hensen net no	Hensen net no/m^2	IHSS I no	IHSS I no/m^3	IHSS II no	IHSS II no/m^3	IHSS III no	IHSS III no/m^3	IHSS I-III no	IHSS I-III no/m^3	Total
96	19/5	1	2.38	1	0.05	2	0.10	3	0.15	6	0.10	7
97	"			4	0.20	11	0.55	9	0.45	24	0.40	24
98	20/5	19	45.22	18	0.90	33	1.65	26	1.30	77	1.28	96
99	"					6	0.30	45	2.25	51	0.85	51
100	"							8	0.40	8	0.13	8
102	"							4	0.20	4	0.07	4
103	"							1	0.05	1	0.02	1
104	"					1	0.05			1	0.02	1
105	"	1	2.38			1	0.05			1	0.02	2
111	21/5			2	0.10					2	0.03	2
112	"					5	0.25	31	1.55	36	0.60	36
113	"	2	4.76			7	0.35	8	0.40	15	0.25	17
114	"			1	0.05					1	0.02	1
116	22/5			2	0.10	2	0.10	1	0.05	5	0.08	5
117	"	2	4.76					1	0.05	1	0.02	3
118	"			1	0.05	4	0.20	3	0.15	8	0.13	8
119	"	1	2.38					2	0.10	2	0.03	3
120	"	3	7.14			5	0.25	22	1.10	27	0.45	30
121	"	6	14.28					9	0.45	9	0.15	15
122	"	6	14.28					8	0.40	8	0.13	14
123	"	4	9.52			3	0.15	5	0.25	8	0.13	12
125	"					-	-	7	0.35	7	0.12	7
126	"			2	0.10	-	-	-	-	2	0.10	2
127	"					14	0.70	3	0.15	17	0.28	17
128	"	1	2.38	6	0.30	1	0.05	3	0.15	10	0.17	11
129	23/5	2	4.76	26	1.30	34	1.70	20	1.00	80	1.33	82
130	"							1	0.05	1	0.02	1
132	"					1	0.05			1	0.02	1
133	"							22	1.10	22	0.36	22
135	"					48	2.40	20	1.00	68	1.13	68
136	"			16	0.80	23	1.15	14	0.70	53	0.88	53
137	"	9	21.42	54	2.70	8	0.40	5	0.25	67	1.12	76
138	24/5	2	4.76			5	0.25	2	0.10	7	0.12	9
139	"	3	7.14			41	2.05	10	0.05	51	0.85	54
140	"	1	2.38			3	0.15	13	0.65	16	0.27	17
141	"					1	0.05	12	0.60	13	0.22	13
146	"			1	0.05	1	0.05			2	0.03	2
147	25/5	2	4.76	7	0.35	7	0.35	12	0.60	26	0.43	28
148	"			1	0.05	5	0.25	9	0.45	15	0.25	15
149	"					5	0.25	2	0.10	7	0.12	7
150	"	1	2.38	1	0.05	1	0.05	12	0.60	14	0.23	15
151	"							24	1.20	24	0.40	24
153	"	1	2.38									1
163	26/5							17	0.85	17	0.28	17
164	"					10	0.50	24	1.20	34	0.57	34
165	"	4	9.52	5	0.25	12	0.60	1	0.05	18	0.30	22
166	27/5			11	0.55	15	0.75	15	0.75	41	0.68	41
167	"			1	0.05	4	0.20	2	0.10	7	0.12	7
178	"	1	2.38			39	1.95	10	0.50	49	0.82	50
179	"			3	0.15	6	0.30	1	0.05	10	0.17	10
180	28/5					4	0.20	5	0.25	9	0.15	9
181	"					1	0.05			1	0.02	1
190	29/5					1	0.05	1	0.05	2	0.03	2
191	"	1	2.38	1	0.05	2	0.10			3	0.05	4
192	"	5	11.90			11	0.55	21	1.05	32	0.53	37
193	"	2	4.76			14	0.70	13	0.65	27	0.45	29
194	"	4	9.52	9	0.45	9	0.45	8	0.40	26	0.43	30
195	30/5	5	11.90	4	0.20	8	0.40	14	0.70	26	0.43	31
196	"	2	4.76	13	0.65	39	1.95	22	1.10	74	1.23	76
197	"					28	1.40	2	0.10	30	0.50	30
198	"					18	0.90	2	0.10	20	0.33	20
199	"			3	0.15	34	1.70	5	0.25	42	0.70	42
200	"	12	28.56	20	1.00	11	0.55	14	0.70	45	0.75	57
201	31/5	1	2.38	4	0.20	5	0.25	13	0.65	22	0.36	23
202	"			2	0.10			4	0.20	6	0.10	6
203	"			1	0.05					1	0.02	1
Total		364		460		1123		1515		3098		3462

Table 12 NORWESTLANT II

ICELAND - R/v ÆGIR - B 63

Redfish Larvae - Length Distribution

Stat.No	5	6	7	8	9	10	11	13	15	16	18	19	20
mm Date	2/5					3/5			5/5				6/5
5	1			3	1							2	
6		3	3	17	4	1					14	74	24
7		4		2	4				1	1	8	95	64
8						2		1				4	2
9							1	1					1
Tot.Meas.	1	7	3	22	9	3	1	2	1	1	22	175	91
Total			4		11						23	216	93
Av.Length		6.57	6.00	5.95	6.33	7.33		8.50			6.36	6.58	6.78

Stat.No	21	22	23	24	25	26	27	28	29	30	31	32	33
mm Date	6/5						7/5				8/5		
5										1			1
6	2	3			4	3	11	2	24	25	20	10	15
7	17	14	7	5	4	7	40	13	17	29	35	17	32
8	2	6	1			3	5	3	1	5	2	5	9
9	1							1					1
Tot.Meas.	22	23	8	5	8	13	56	19	42	60	57	32	58
Total	33	27			11		61		43	72	61	37	63
Av.Length	7.09	7.13	7.13	7.00	6.50	7.00	6.89	7.16	6.45	6.63	6.68	6.84	6.90

Stat.No	34	36	37	38	39	40	41	42	43	44	45	46	47
mm Date	8/5				9/5							10/5	
5		4	8		1	2	2	2				1	
6	1	2	14	5	6	5	3	1	5	3	10	39	3
7	3	3	8	6	6	2	2	1	4		21	65	9
8	2	1			2	2					2	8	2
Tot.Meas.	6	10	30	11	15	11	7	4	9	3	33	113	14
Total	8		31	14							38	172	17
Av.Length	7.17	6.10	6.00	6.55	6.60	6.36	6.00	5.75	6.44	6.00	6.76	6.71	6.93

Stat.No	48	49	50	51	52	53	54	55	56	57	58	59	60
mm Date	10/5							11/5					12/5
5				1						1			
6	7	11	21	5		1			2	5	1	4	7
7	40	24	63	13	5	3	4		7	12	11	29	25
8	15	6	16	5	1	1	2	3		6	3	6	7
9	1		3				1		1		1	1	
Tot.Meas.	63	41	103	24	6	5	7	3	10	24	16	40	39
Total	191	45	113	29			8		11	26			44
Av.Length	7.16	6.88	7.01	6.92	7.17	7.00	7.57	8.00	7.00	6.96	7.25	7.10	7.00

Stat.No	61	62	63	65	67	70	71	72	73	74	75	77
mm Date	13/5			14/5		15/5						16/5
5												
6	1	2	3	2	8	9	12	11	1		1	
7	12	11	6	1		34	45	43	1			1
8	7	8	1		1	11	7	27		1		
9	1					1		1				
11					1							
Tot.Meas.	21	21	10	3	10	55	64	82	2	1	1	1
Total	23		12				68	93		2		2
Av.Length	7.38	7.29	6.80	6.33	6.70	7.07	6.92	7.22	6.50			

Table 12 (Cont.)

StatNo mm Date	89 19/5	93	94	95	96	97	98 20/5	99	100	102	103	104	105
6	1		2		1	6	13	4					
7		1	4		4	13	51	28	3	1	1		
8			1	1	2	2	28	18	5	3		1	2
9				1			3						
Tot.Meas.	1	1	7	2	7	21	95	50	8	4	1	1	2
Total				3		24	96	51					
Av.Length			6.86	8.50	7.14	6.81	7.22	7.28	7.63	7.75			8.00

Stat.No mm Date	111 21/5	112	113	114	116 22/5	117	118	119	120	121	122	123	125
6		1											1
7	1	14	4		1	3	4		8	6	6	3	1
8	1	16	10	1	2		3	3	15	7	7	7	2
9		2	2		2		1		7	2		2	2
Tot.Meas.	2	33	16	1	5	3	8	3	30	15	13	12	6
Total		36	17								14		7
Av.Length	7.50	7.58	7.88		8.20	7.00	7.63	8.00	7.97	7.73	7.54	7.92	7.83

Stat.No mm Date	126 22/5	127	128	129 23/5	130	132	133	135	136	137	138 24/5	139	140
6							3	3	1	3	1	2	
7		5	3	8		1	11	28	15	35	1	33	2
8	2	8	3	44			7	29	28	31	3	11	7
9		4	4	27	1		1	6	7	5	4	4	7
10				1						2			
Tot.Meas.	2	17	10	80	1	1	22	66	51	76	9	50	16
Total			11	82				68	53			54	17
Av.Length	8.00	7.94	8.10	8.26			7.27	7.58	7.80	7.58	8.11	7.34	8.31

Stat.No mm Date	141 24/5	146	147 25/5	148	149	150	151	153	163 26/5	164	165	166 27/5	167
6			1	2	1	1				1	2		
7	4		3	6	3	3	7		6	11	7	4	3
8	6	1	17	4	2	4	14		7	17	2	10	1
9	3	1	6	2		5	2	1	4	5	4	15	2
10					1	1					7	11	1
11						1						1	
Tot.Meas.	13	2	27	14	7	15	23	1	17	34	22	41	7
Total			28	15			24						
Av.Length	7.92	8.50	8.04	7.43	7.57	8.33	7.78		7.88	7.76	8.32	8.89	8.14

Stat.No mm Date	178 27/5	179	180 28/5	181	190 29/5	191	192	193	194	195 30/5	196	197	198
5	1												
6					1		1		1		2		2
7	4	2	4				7	3	9	3	19	3	
8	8	3	2	1		1	11	7	9	16	32	15	4
9	14	4	2		1	1	13	10	6	6	21	8	6
10	20	1	1			1	4	8	3	5		4	6
11	3					1	1				1		1
Tot.Meas.	50	10	9	1	2	4	37	28	28	30	75	30	19
Total								29	30	31	76		20
Av.Length	9.12	8.40	8.00		7.50	9.50	8.41	8.82	8.04	8.43	8.01	8.43	8.95

Stat.No. mm Date	199 30/5	200	201 31/5	202	203	Total	%
5						32	1.04
6	1		1	1		530	17.21
7	1	1	1	3		1352	43.89
8	14	7	10	1		740	24.03
9	20	19	5	1		298	9.68
10	6	25	4		1	113	3.67
11		4				14	0.45
12		1				1	0.03
Tot.Meas.	42	57	21	6	1	3080	100.00
Total			23			3462	
Av.Length	8.69	9.47	8.48	7.33		7.37	

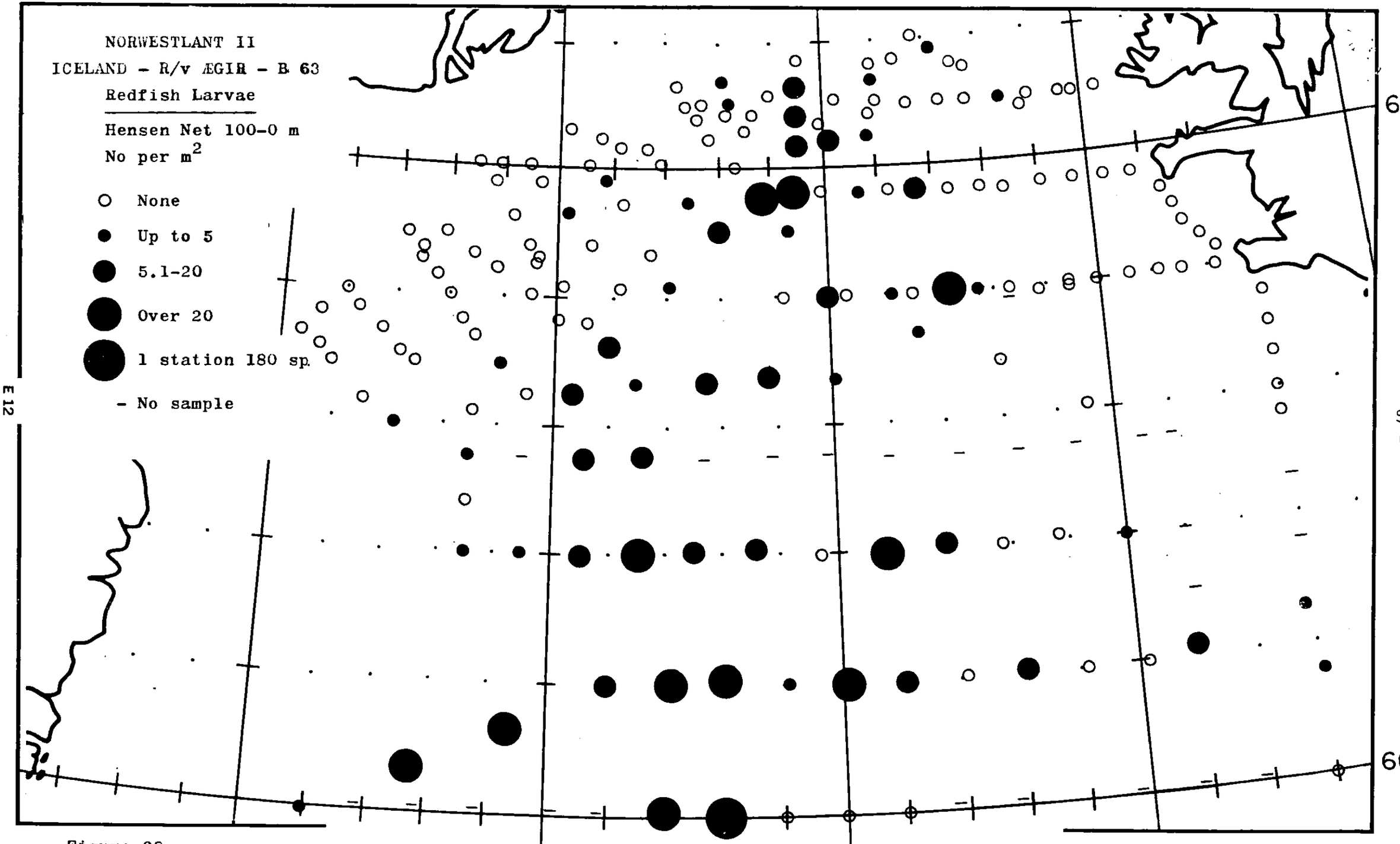
NORWESTLANT II
ICELAND - R/v ÆGIR - B 63
Redfish Larvae
Hensen Net 100-0 m
No per m2
None
Up to 5
5.1-20
Over 20
1 station 180 sp.
- No sample
65°
60°
E12
- 67 -

Figure 28

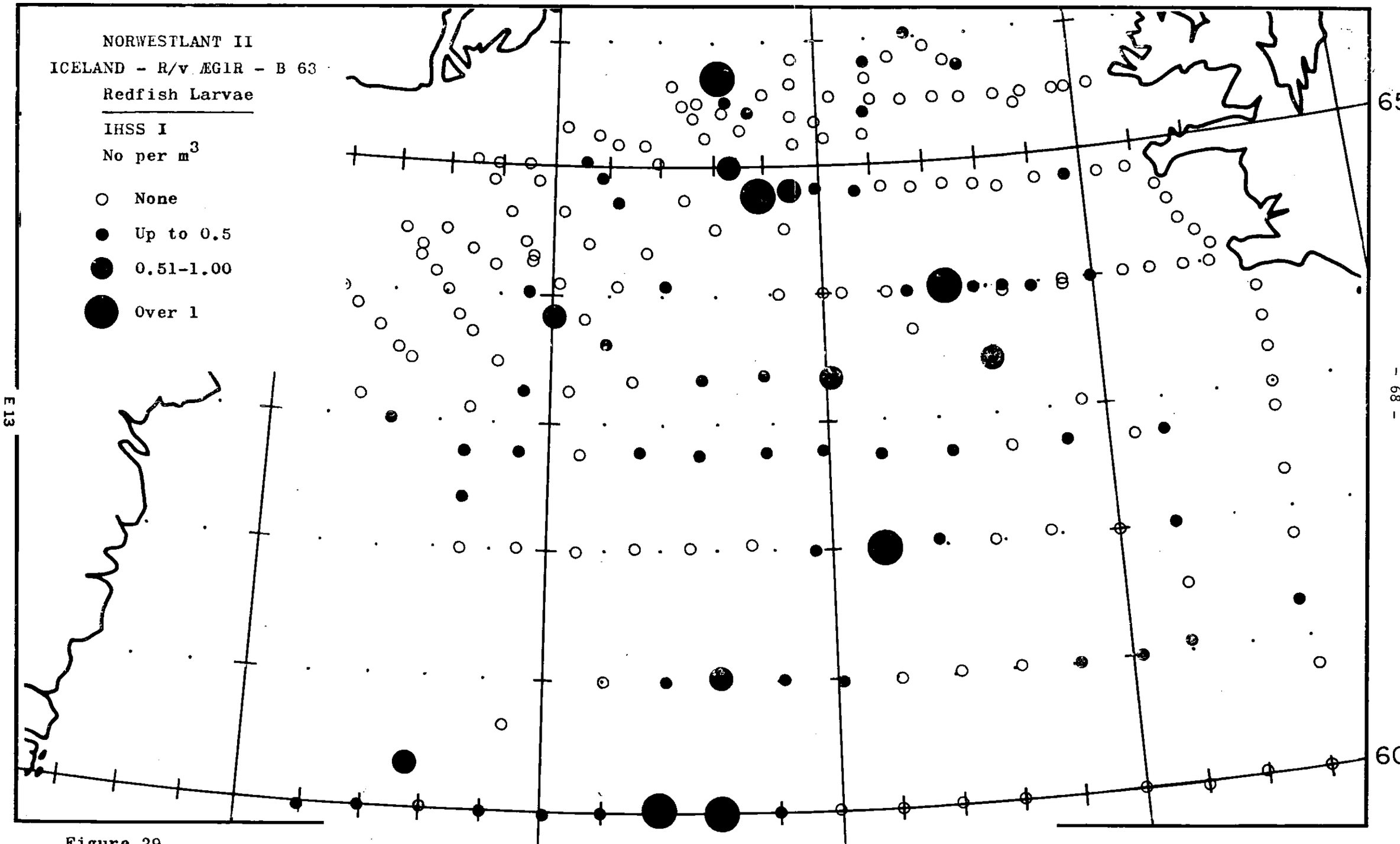
NORWESTLANT II
ICELAND - R/v ÆGIR - B 63
Redfish Larvae
IHSS I
No per m3
None
Up to 0.5
0.51-1.00
Over 1
65°
60°
E13

Figure 29

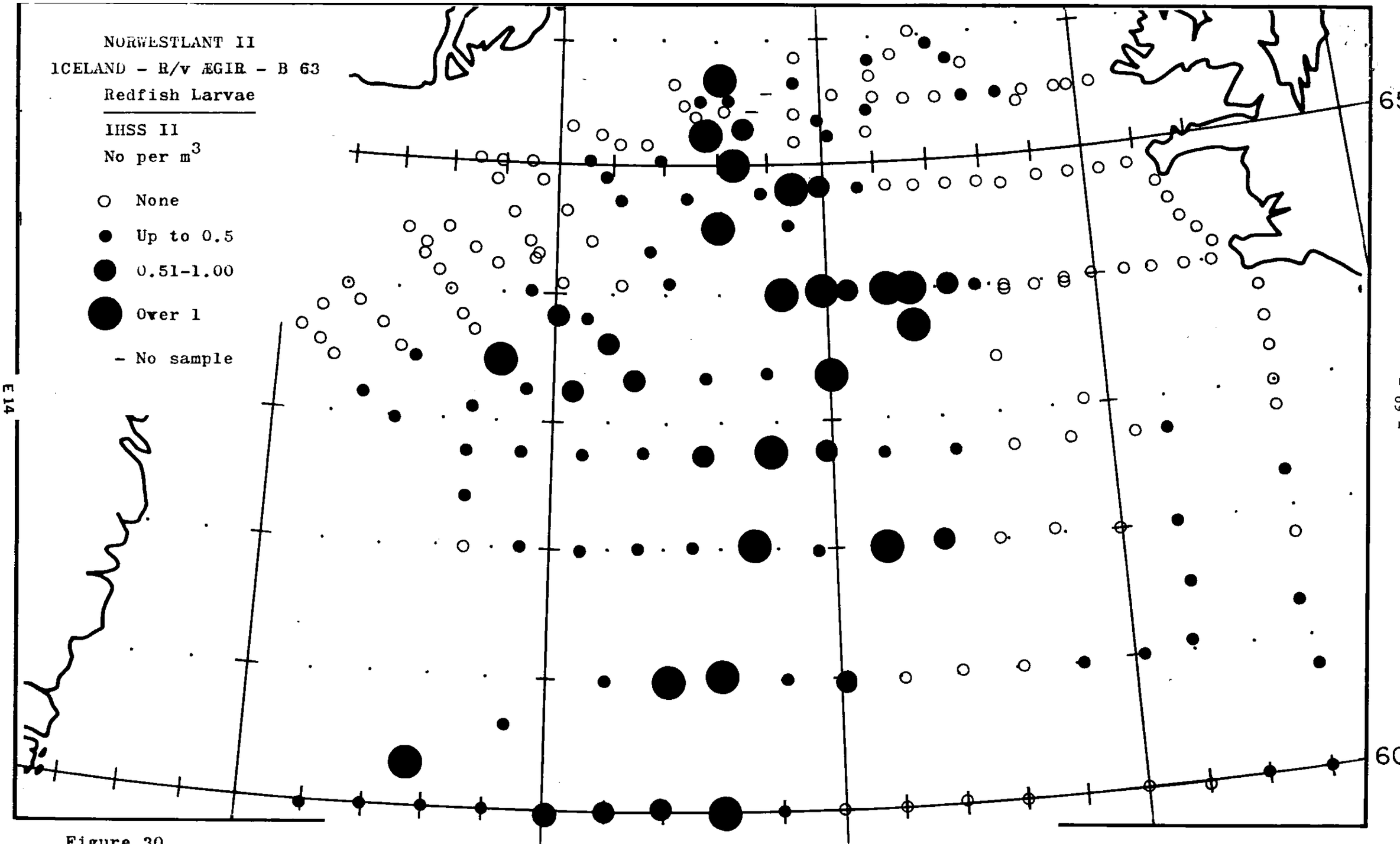
NORWESTLANT II
ICELAND - R/v ÆGIR - B 63
Redfish Larvae
IHSS II
No per m3
None
Up to 0.5
0.51-1.00
Over 1
- No sample
65°
60°
E14
- 69 -

Figure 30

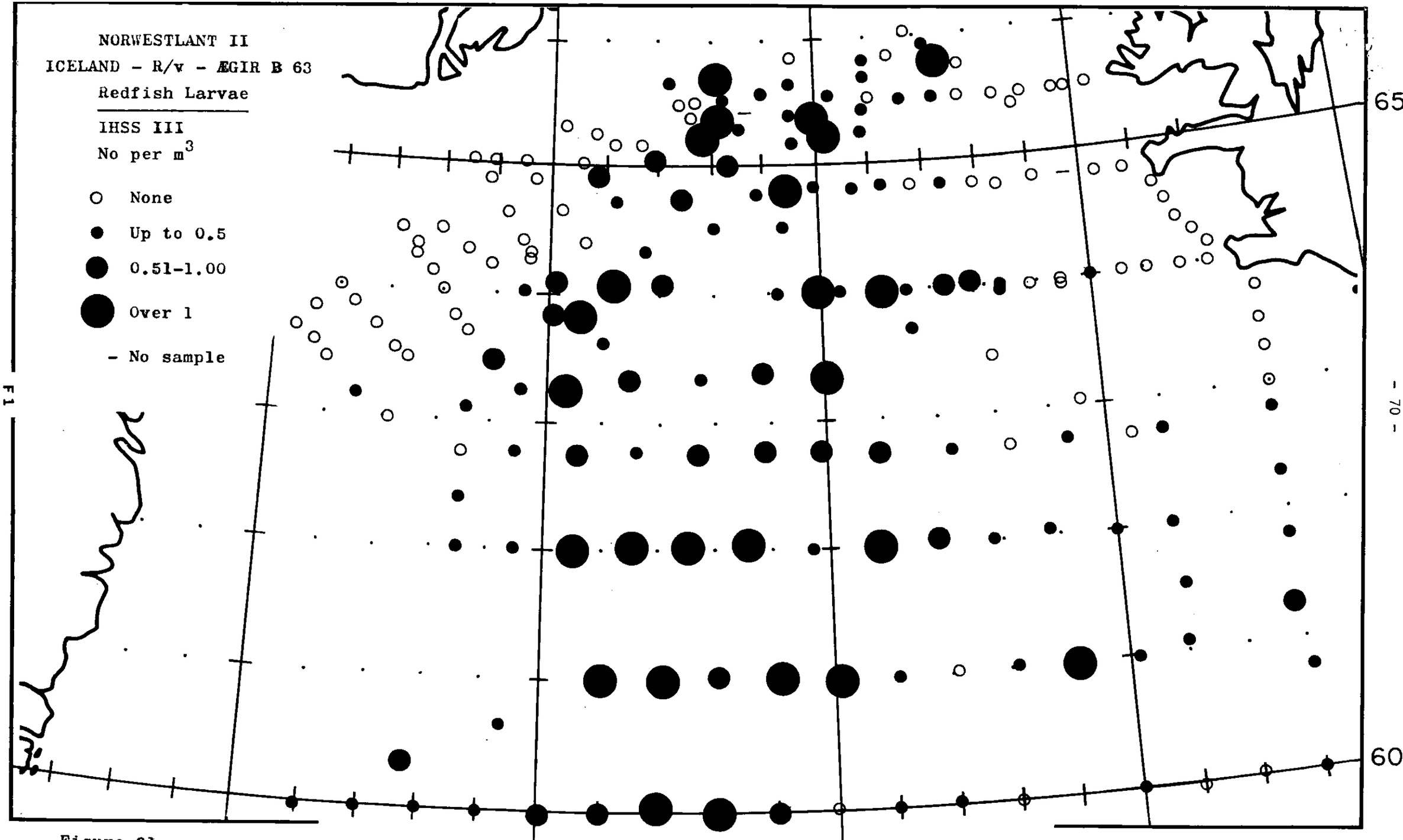
NORWESTLANT II
ICELAND - R/v - ÆGIR B 63
Redfish Larvae
IHSS III
No per m3
None
Up to 0.5
0.51-1.00
Over 1
- No sample
65°
60°
F1
- 70 -

Figure 31

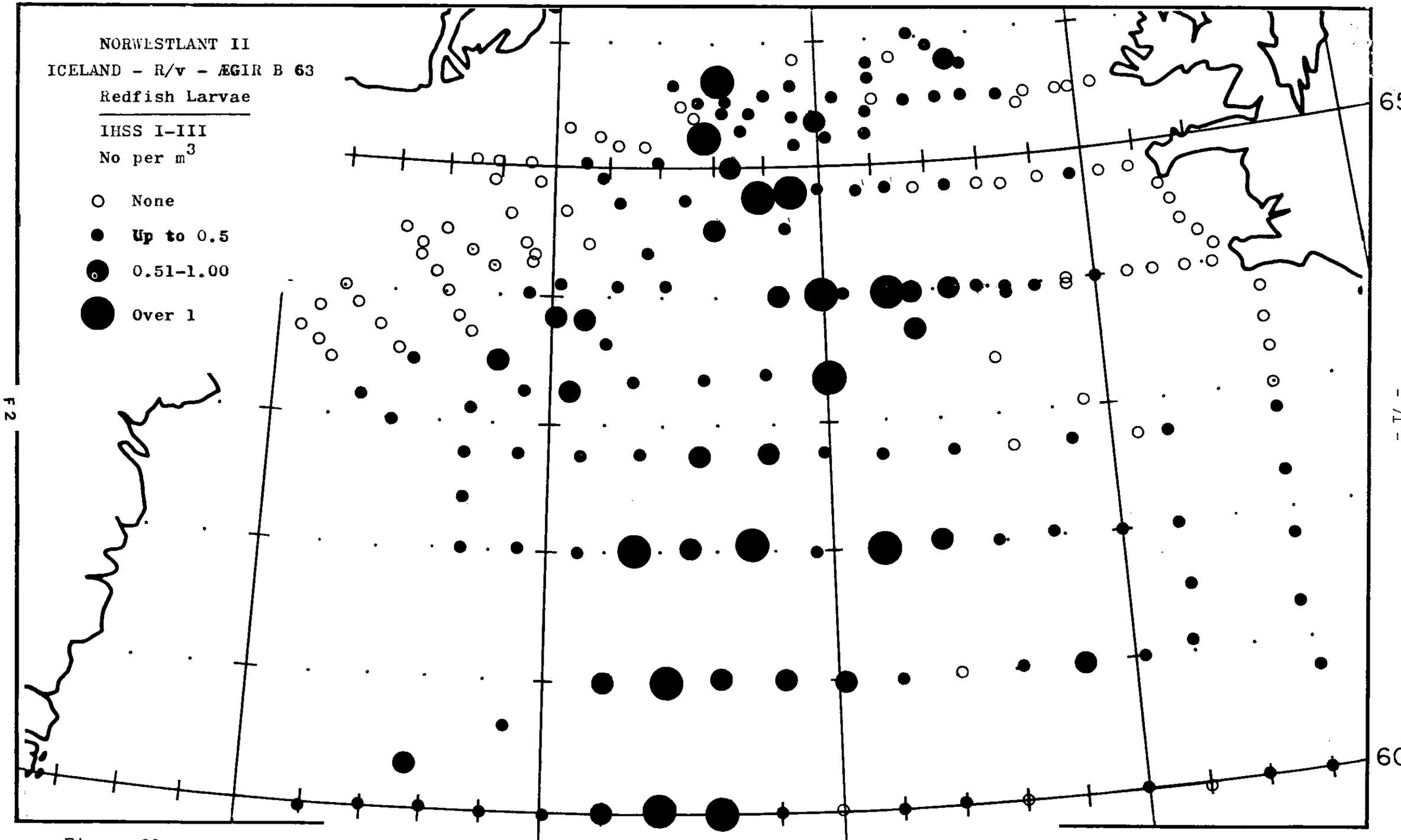
NORWESTLANT II
ICELAND - R/v - ÆGIR B 63
Redfish Larvae
IHSS I-III
No per m3
None
Up to 0.5
0.51-1.00
Over 1
65°
60°
F2

Figure 32

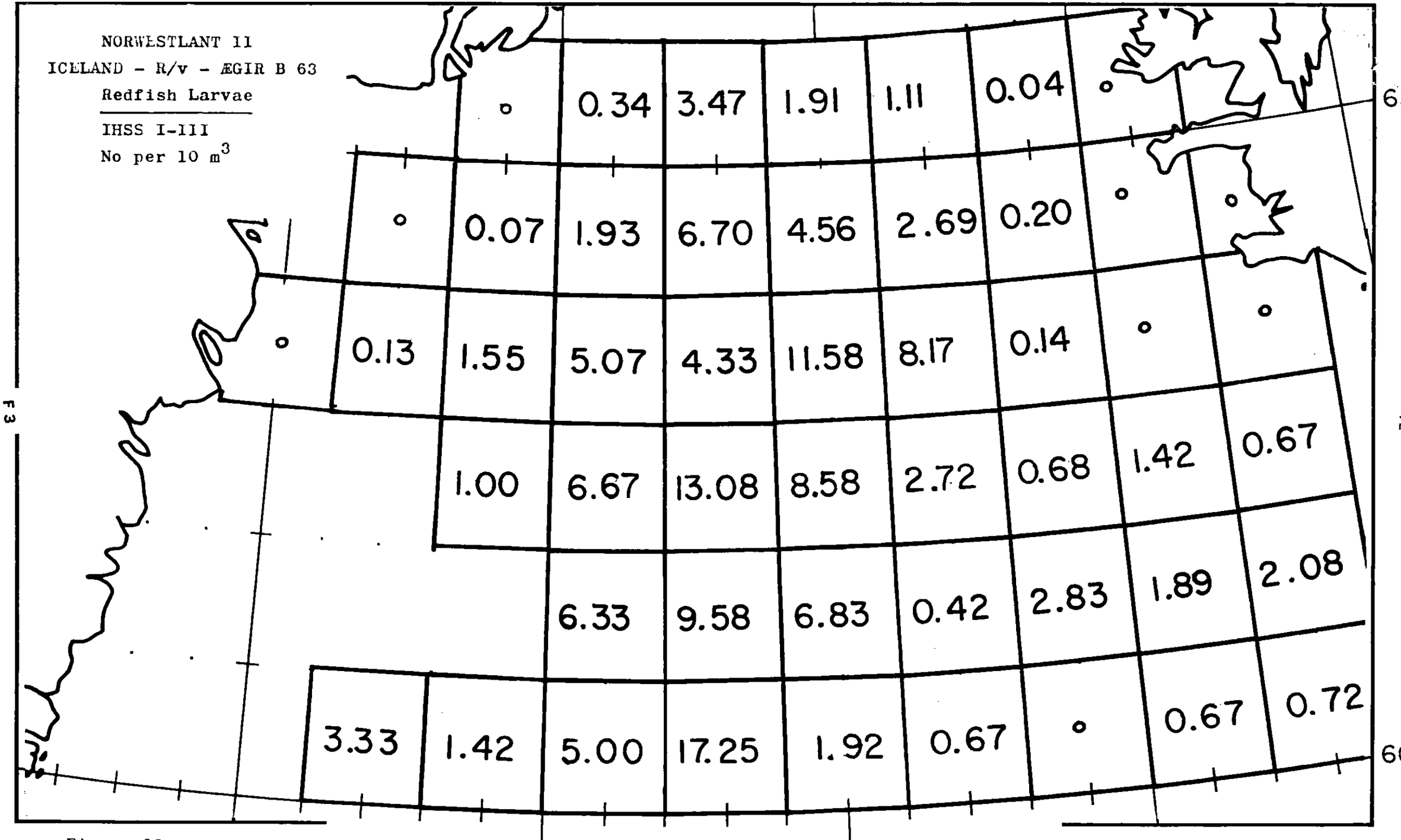
NORWESTLANT II
ICELAND - R/v - ÆGIR B 63
Redfish Larvae
IHSS I-III
No per 10 m3
0
0.34
3.47
1.91
1.11
0.04
0
0.07
1.93
6.70
4.56
2.69
0.20
0
0
0
0.13
1.55
5.07
4.33
11.58
8.17
0.14
0
0
1.00
6.67
13.08
8.58
2.72
0.68
1.42
0.67
6.33
9.58
6.83
0.42
2.83
1.89
2.08
3.33
1.42
5.00
17.25
1.92
0.67
0
0.67
0.72
65°
60°
F3

Figure 33

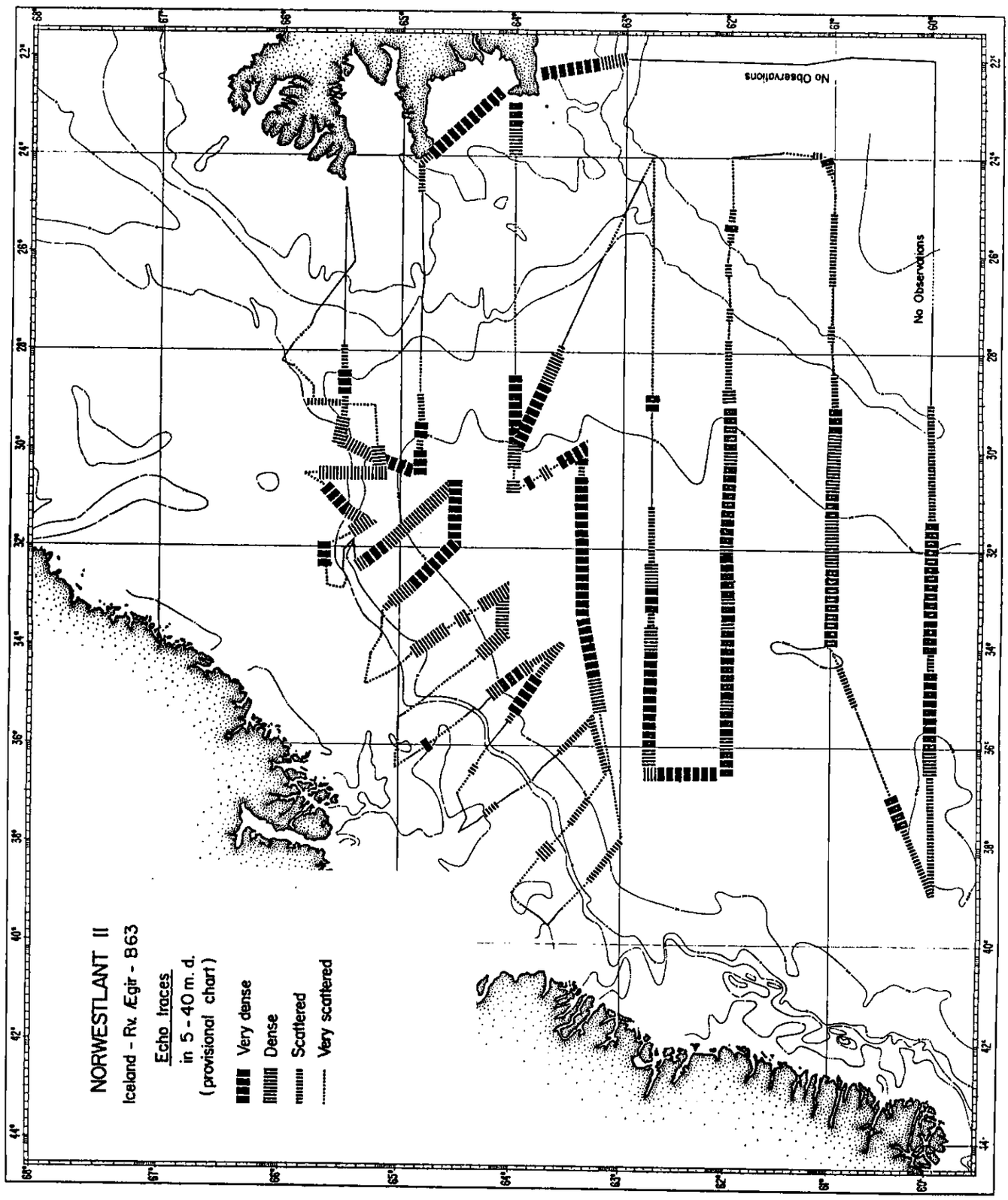
NORWESTLANT II
Iceland - Rv Ægir - B63
Echo traces
in 5 - 40 m. d.
(provisional chart)
Very dense
Dense
Scattered
Very scattered
No Observations
No Observations

Figure 34