REMARKS ON THE RECOVERY OF TAGS FROM THE NORWEGIAN HERRING FISHERY OFF NORTH AND EAST ICELAND IN 1958 .

by

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Introduction.

During this summer, the Norwegian fleet started the herring fishery earlier than usual off north and east Iceland, utilising the fish for the purpose of reducing it into oil and meal. This fishery gave an opportunity for the recovery of tags from this area and enabled to make a comparison of recaptures, with those of the Norwegian winter herring fishery.

The materials.

The fleet started the fishing operations in the middle of June and from this time up to the 10th of July, the fleet was concentrated in the areas 53 and 54 represented in Figure 1, but during the second half of July, the fishing fleet moved over to area 59 (Figure 1).

All the herring caught in these areas were landed in Norway at 24 oil and meal factories, of which 15 possessed tested magnets for the recovery of the tags. The quantity of herring (p) in hectolitres thus reduced at these plants and the efficiency (e) of the magnets used are shown in Table 1. The number of tags recovered in 1958 from the different experiments carried out during the years 1948-1958, and their distribution in the various factories are also presented in Table 1.

A total number of 168 tags recovered from the factories during the above mentioned season and 207 tags obtained from the Norwegian herring season, form the material for the present report. The recaptures from the present years tagging experiments and the tags received from those factories which do not possess magnets have not been taken into consideration.

The observations.

The composition of these recaptured herring from the north and east coast herring season this summer is partcularly noteworthy. The striking point is that out of thèse 168 tags,8 were released as spring and large herring at the Norwegian coast, 155 as north and east coast herring, while 5 belong to those herring tagged off south west Iceland.

A comparison of these with those tags recovered during the Norwegian winter herring season in 1958 indicates that the relative proportion between the Norwegian and Icelandic tags is different. Out of the 207 tags from the winter herring season, 125 were Norwegian, whereas only 82 were Icelandic tags (Table 2). The o/oo return per million hectolitres of herring from the different experiments during the two seasons are shown in Table 2 (second part).

If we compare the data from the two seasons it will be seen that the Icelandic tags show higher o/oo return per million hectolitres off Iceland than the recovery during the Norwegian winter herring season. The recaptures off Iceland show a very high o/oo return of herring tagged in 1954 and the subsequent years compared with those tagged in 1953 and the previous years.

If the different age groups of the herring population, spawning at the Norwegian coast this winter, have migrated to the feeding grounds off north and east Iceland in the same proportion as to the other feeding grounds in the Norwegian Sea and without mixing up with the other herring tribes off north and east Iceland, we should expect to find the same proportion in Norwegian and Icelandic tags during the two seasons. However, this is not the case. The probable reason for this disproportion may be explained as follows:

If a relatively large number of Icelandic spring spawners were present during the tagging experiments off north Iceland then a fair number of the Icelandic spring spawners must have been tagged together with the Norwegian spring spawners.

According to Fridriksson (1956) the Icelandic spring spawners contributed only 4.2 - 17.1 per cent of the total catch during the period 1949-53, but the percentage of their contribution in 1954 and 1955 was 39.1 and 39.6 respectively.

This immigration of Icelandic spring spawners to the north coast herring grounds, may explain the relatively high o/oo return per million hectolitres of the taggings carried out in 1954 and the subsequent years and also partly explains the disproportion in the number of Norwegian and Icelandic tags recaptured at the Norwegian coast and off Iceland.

The other reason for this disproportion in number may be that the older age groups of the Norwegian herring population, spawning at the Norwegian coast, segregate to the areas north of Iceland, whereas the younger herring migrate to the feeding grounds farther north and east in the Norwegian Sea. The average age of the Norwegian spring spawners during the period 1948-55 off north Iceland was 14.1 for the northern type and 11.1 for the southern type (Fridriksson 1956). This is fairly higher than the mean age for the herring at the Norwegian coast during the winter herring fishery which was 9.38 for the northern and 6.30 for the southern type during the same period. Then the herring tagged off north Iceland therefore should be composed of relatively older herring. Since this herring return to the areas off Iceland without a contingent of young ones, it may also contribute to the relatively high o/oo return per million hectolitres during the north and east coast herring fishery off Iceland. The Norwegian spring spawners, however, tagged

off north and east Iceland mix with the younger herring in the spawning grounds at the Norwegian coast and the o/oo return per million hectolitres will therefore become lower during the Norwegian winter herring fishery than the north and east coast herring fishery off Iceland.

According to the strong 1950 yearclass, which showed up in the catches during the Norwegian winter herring fishery in 1955, and also partly in 1954, it should be expected that a great decrease in o/oo return per million hectolitres both of Norwegian and Icelandic tags should take place, since the recruit spawners have not been tagged neither off Iceland nor at the Norwegian coast. This decrease in recaptures can be marked with regards to the Icelandic tags, whereas for the Norwegian tags it is not so significant. This can be studied from Figures 2 and 3 and the Table 3.

It can therefore be concluded that both the immigration of spring spawners to the north off Iceland, the segregation of the older age groups from the Atlanto-Scandian herring tribe to the feeding areas off north Iceland together with the strong 1950 yearclass, are the reasons for the decrease in o/oo return per million hectolitres of Icelandic tags in the winter herring fishery during the period 1955-1958. It also partly explains the difference in proportion between Icelandic and Norwegian tags recaptured in the Norwegian herring fishery and the herring fishery off Iceland.

Reference:

Fridriksson, A., 1956. "The Tribes in the North Coast Herring of Iceland with Special Reference to the Period 1948-1955." Rapp. et Proc.-Verb., 143 (2) : 36-44. Copenhagen.
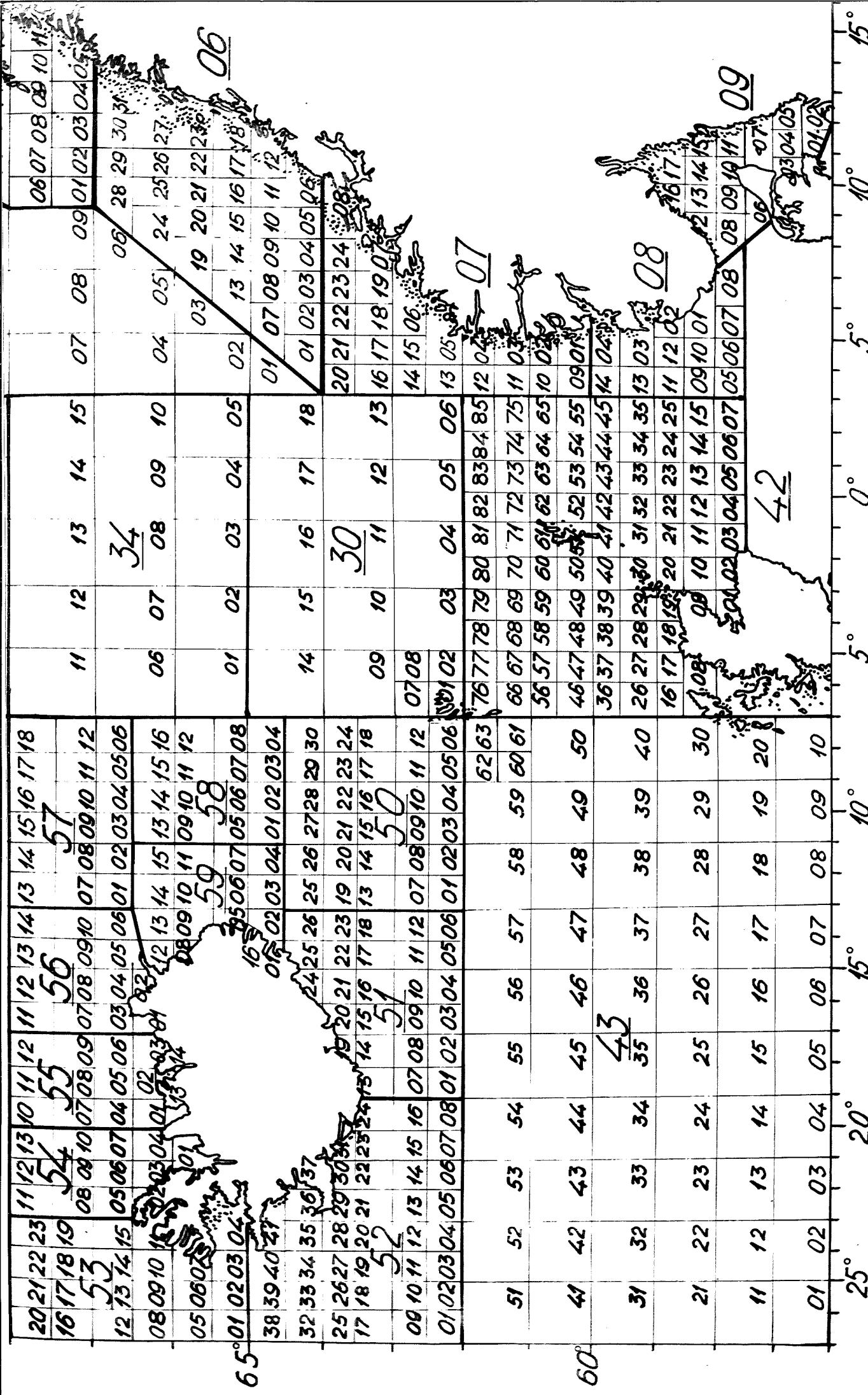
Figure 1

Table 1. The number of returns during the Norwegian north and east coast herring fishery off Iceland in 1958.

Factory No	p(hl)	e	p e(hl)	48 NH	49 SH	51 SH	51 NH	52 SH	52 NH	53 LH	53 NH	54 SH	54 NH	55 NH	56 NH	57 NH	58 SH	58 NH	Total
11	6253	0,87	5440,11											2		2	1		5
16	1145	0,96	1099,20												3				3
18	1281	0,94	1204,14													1			1
22	4791	0,70	3353,70								1			1	1	5	1		9
23	21463	0,81	17385,03				1		2		2		3	4	13		4		29
24	449	0,32	143,68																0
28	22886	—	—																0
29	13680	0,96	13132,80	1										2	1	2	1		7
31	42099	0,98	41257,02		1	1	1			1	2	1	1	5	9	7		1	30
32	8513	0,49	4171,37				1							1	1	3			6
33	8264	0,38	3140,32																0
35	31989	0,84	26870,76								3		4	4	9	6			26
38	18578	0,90	16720,20					1	1			1	1	1	1	2			8
41	2598	—	—												1	1			2
42	30692	0,97	29771,24			1			4		1		10	8	6	7			37
43	19371	0,86	16659,06						2				1	4	1				8
47	4260	—	—																0
56	500	—	—																0
62	1938	—	—																0
63	2872	—	—																0
64	3515	—	—																0
66	4572	—	—																0
77	974	—	—																0
80	18007	0,84	15125,88							1			2	2	1	1			7
Total.	270780		195474,51	1	1	2	3	1	9	2	9	2	22	34	47	37	7	1	178

Year of tagging

NH : North and east coast herring

SH : Spring herring

LH : Large herring

Table 2. Number of returns in 1958 from the different experiments.

Year of tagging and the number tagged.

Season	P.s (hl)	1948 7475 NH	1950 1321 NH	1951 3065 NH	1952 17308 NH	1953 10181 NH	1954 8783 NH	1955 11732 NH	1956 8443 NH	1957 7899 NH	Total
Winter herring	1.098.154	-	1	2	3	10	10	15	20	21	= 82
North and east coast herring	.195.474	1	-	3	9	6	22	33	46	35	= 155

Year of tagging and the number tagged.

Season	1948 6018 SH	1949 8261 SH	1950 9085 LH	1951 5998 LH	1951 9986 SH	1952 10763 SH	1953 10080 LH	1953 10046 SH	1954 10042 LH	1954 10291 SH	1954 14970 FH	1955 10045 LH	1955 9087 SH	1955 13586 FH	1955 4498 LH	1956 12799 FH	1957 9500 LH	1957 8450 SH	1957 3900 FH	Total
Winter herring	1	1	1	2	2	17	-	3	2	15	4	16	4	13	4	9	15	15	1	= 125
North and east coast herring	1	1	-	1	2	1	2	-	-	2	-	-	-	-	-	-	-	-	-	= 8

o/oo Returns per mill. hl.

Season	P.s (hl)	1948 NH	1950 NH	1951 NH	1952 NH	1953 NH	1954 NH	1955 NH	1956 NH	1957 NH
Winter herring	1.098.154	-	0.69	0.59	0.15	0.89	1.04	1.16	2.15	2.63
North and east coast herring	.195.474	0.68	-	5.01	2.66	3.01	12.82	14.39	27.88	22.67

Season	1948 SH	1949 SH	1950 LH	1951 LH	1951 SH	1952 SH	1953 LH	1953 SH	1954 LH	1954 SH	1954 FH	1955 LH	1955 SH	1955 FH	1955 LH	1956 FH	1957 LH	1957 SH	1957 FH
Winter herring	0.15	0.11	0.10	0.30	0.18	1.44	-	2.71	0.18	1.33	0.24	1.45	0.40	0.87	0.73	0.64	1.44	1.61	0.23
North and east coast herring	-	0.62	-	-	1.02	0.48	1.02	-	-	0.99	-	-	-	-	-	-	-	-	-

(handwritten "0.27" above the 2.71 value)

NH = North and east coast herring

SH = Spring herring

LH = Large herring

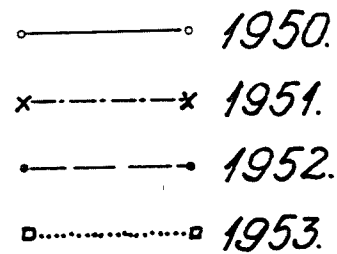FH = Fat herring and "Forfangstsild"

Figure 2

Norwegian Large Herring.

%oo returns per mill. hl.

Year of liberation:

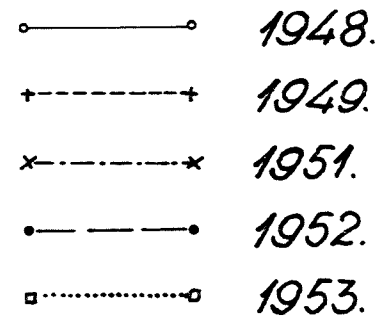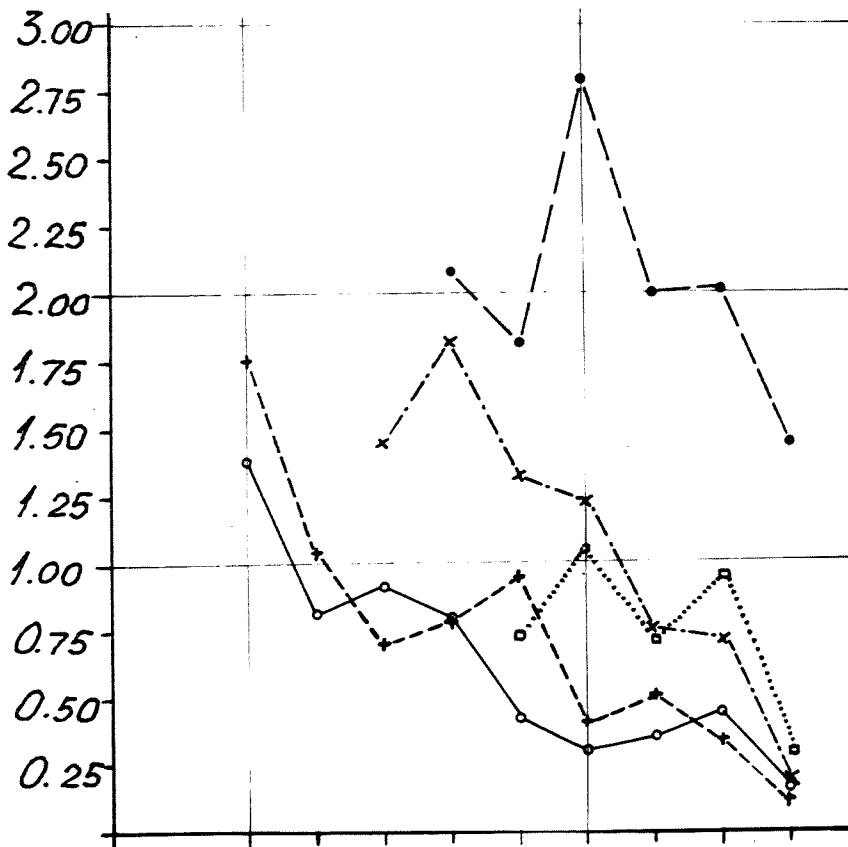|	
○——————○	1950.
×—·—·—·—×	1951.
•———————•	1952.
□·············□	1953.

1951 52 53 54 55 56 57 58   year of recapture.

Norwegian Spring Herring.

%oo returns per mill. hl.

Year of liberation:

○——————○	1948.
+—————+	1949.
×—·—·—·—×	1951.
•———————•	1952.
□·············□	1953.

1950 51 52 53 54 55 56 57 58   year of recapture.

North-and East Coast Herring.

‰ returns per mill. hl.

Year of liberation:

○——————○ 1948.
+––––––+ 1950.
✕–·–·–·–✕ 1951.
●– – – –● 1952.
□·········□ 1953.
■–··–··–■ 1954.
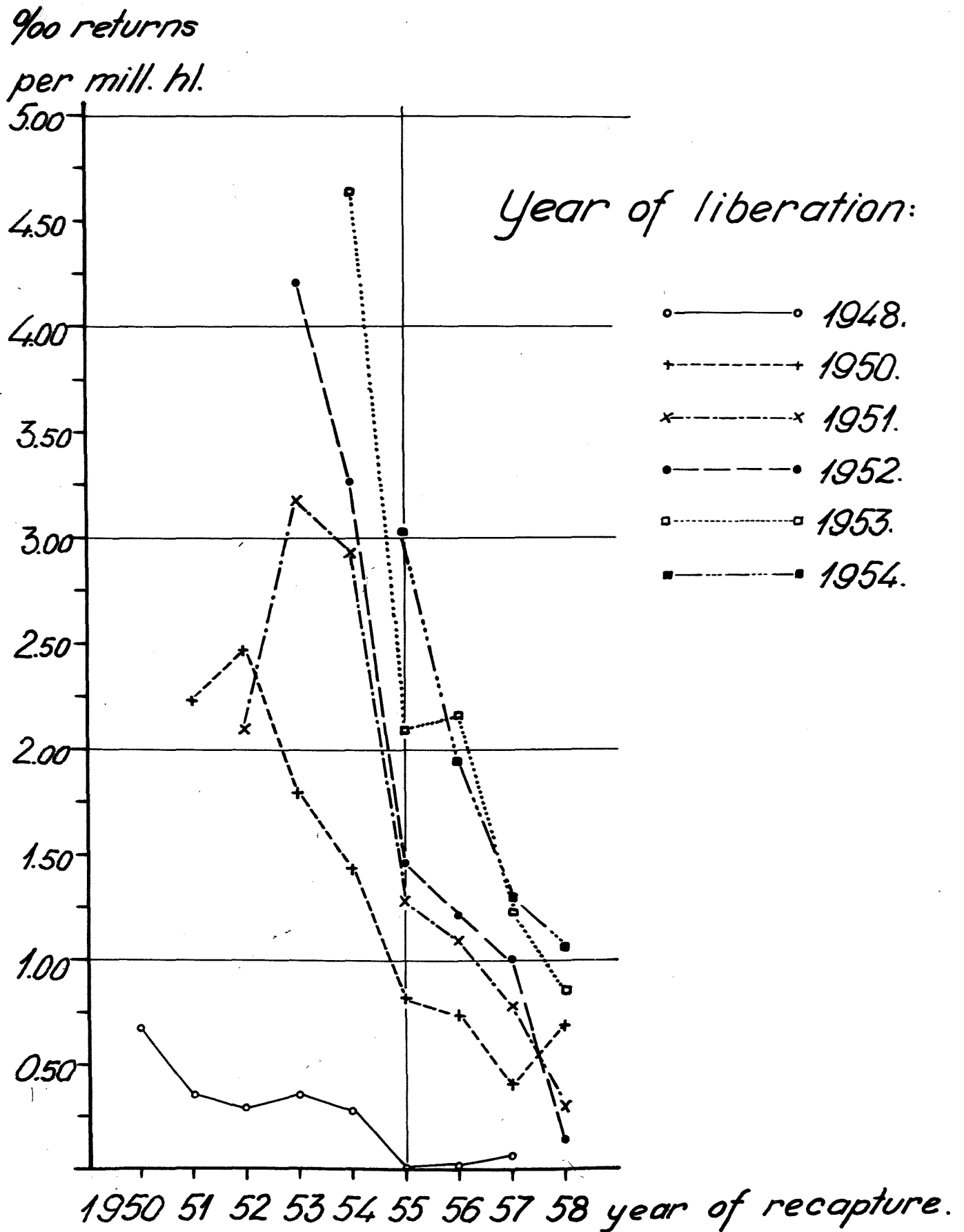
year of recapture.

Figure 3

Table 3. Number of returns from reduction plants with tested magnets for the different experiments and returns per million hectolitres in o/oo (in brackets)

Year of tagging	Category	Number tagged	Year of recapture								
			1950	1951	1952	1953	1954	1955	1956	1957	1958
1948	SH	6.018	15 (1.38)	13 (0.80)	24 (0.92)	16 (0.78)	15 (0.43)	8 (0.29)	11 (0.36)	10 (0.44)	1 (0.15)
1948	NH	7.475	9 (0.67)	7 (0.35)	9 (0.28)	9 (0.36)	12 (0.28)	0 (0.00)	1 (0.03)	2 (0.07)	-
1949	SH	8.261	26 (1.75)	23 (1.03)	25 (0.70)	17 (0.80)	45 (0.94)	16 (0.42)	21 (0.50)	10 (0.32)	1 (0.11)
1950	LH	9.085		14 (0.57)	15 (0.38)	10 (0.32)	17 (0.32)	9 (0.22)	11 (0.24)	4 (0.12)	1 (0.10)
1950	SH	11.215		9 (0.30)	9 (0.18)	8 (0.21)	12 (0.19)	5 (0.10)	4 (0.07)	1 (0.02)	-
1950	NH	1.321		8 (2.23)	14 (2.44)	8 (1.79)	11 (1.44)	5 (0.82)	5 (0.74)	2 (0.40)	1 (0.69)
1951	LH	5.998			20 (0.77)	20 (0.98)	29 (0.94)	18 (0.65)	11 (0.35)	2 (0.88)	2 (0.30)
1951	SH	9.986			63 (1.45)	61 (1.80)	75 (1.30)	57 (1.24)	38 (0.75)	27 (0.72)	2 (0.18)
1951	NH	3.065			28 (2.10)	33 (3.18)	52 (2.94)	18 (1.28)	17 (1.09)	9 (0.78)	1 (0.30)
1952	LH	10.295				18 (0.52)	26 (0.44)	14 (0.30)	13 (0.25)	7 (0.18)	-
1952	SH	10.763				76 (2.08)	112 (1.80)	137 (2.77)	110 (2.00)	82 (2.02)	17 (1.44)
1952	NH	17.308				247 (4.21)	327 (3.27)	116 (1.46)	108 (1.22)	66 (1.01)	3 (0.15)
1953	LH	10.080					18 (0.31)	8 (0.17)	10 (0.19)	10 (0.26)	-
1953	SH	10.046					43 (0.74)	47 (1.02)	37 (0.72)	36 (0.95)	3 (0.27)
1953	NH	10.181					283 (4.81)	102 (2.18)	117 (2.28)	49 (1.28)	10 (0.89)
1954	LH	10.042						24 (0.52)	18 (0.35)	15 (0.40)	2 (0.18)
1954	SH	10.291						86 (1.82)	80 (1.52)	61 (1.57)	15 (1.33)
1954	NH	8.783						122 (3.02)	87 (1.94)	43 (1.30)	10 (1.04)
1955	LH	10.045							87 (1.70)	55 (1.45)	16 (1.45)
1955	SH	9.087							28 (0.60)	31 (0.90)	4 (0.40)
1955	NH	11.732							161 (2.69)	82 (1.85)	15 (1.16)
1956	LH	4.998								29 (1.54)	4 (0.73)
1956	NH	8.443								89 (2.80)	20 (2.15)
1957	LH	9.500									15 (1.44)
1957	SH	8.450									15 (1.61)
1957	NH	7.899									21 (2.63)

LH = Large herring

SH = Spring herring

NH = North and east coast herring