Tagging of haddock *(Gadus aeglefinus)* in Icelandic waters 1953-1965

1. Introduction

Already in the second decade of this century, the Icelandic stock of haddock showed clear signs of overfishing. The stock had a valuable respite during World War I, but the story of over-exploitation was, however, repeated in the 1920s and the 1930s. As an example, the daily catch of haddock by English trawlers fell from 22 cwts in 1919 to 5 cwts in 1937 (Graham 1939 (In Tåning 1948)).

The bay Faxaflói on the SW coast (see Fig. 2.1, opposite p. 9), which in the past was heavily fished by foreign as well as by Icelandic trawlers, is also a very important nursery ground for haddock. The question of reduction of the fisheries in Faxaflói, was first raised by Icelandic fishermen in 1867 and has been many times since. The Icelandic delegation to the 1937 London conference on mesh sizes in commercial trawls and minimum sizes of landed fish, proposed a closure of the Faxaflói bay to all commercial trawling, pending an advice from the International Council for the Exploration of the Sea (ICES) to that effect. In 1946, ICES recommended a cessation of all trawling in the Faxaflói for a period of 15 years (Tåning *et al.* 1948), but this proposal was not accepted by one of the countries most concerned. As an answer to this, Iceland extended her fishing limit from three to four naut. miles in 1952. In this way some of the important nursery grounds were closed to all trawling, Faxaflói being the foremost one.

In the early 1950s a research programme was initiated to study the effect of this and conceivable further extensions of the fishery limits. (Tåning *et al.* 1948; Jónsson 1956, 1957, 1966).

2. Tags, tagging method and returns

A total of 29,106 haddock were tagged in 182 experiments in the years 1953-1965, from which 1706 tags (5.9%) were returned (Table 2.1). The fish were all caught in a commercial trawl with about 50 feet headline, mostly at depths between 30 and 90 meters. They were then kept in a tank with running seawater and examined for loss of scales and other injuries before being tagged and released.

The main tag type used was the Alcathene tag, a plate of oval shape with an identification number stamped on the surface. It was fastened to the fish in front of the first dorsal fin with a soft braided nylon twine. Another type of tag used was the Lea hydrostatic tag. Inside the hollow celluloid tube was a slip of paper with printed instructions to the finder and an identification number. The Lea tag was fastened to the fish in the same way as the Alcathene tag, either with a bridle of stainless steel or with a soft braided nylon twine. The Petersen disc was used in a few experiments. It consists of two black ebonite plates, connected through the operculum with a wire of

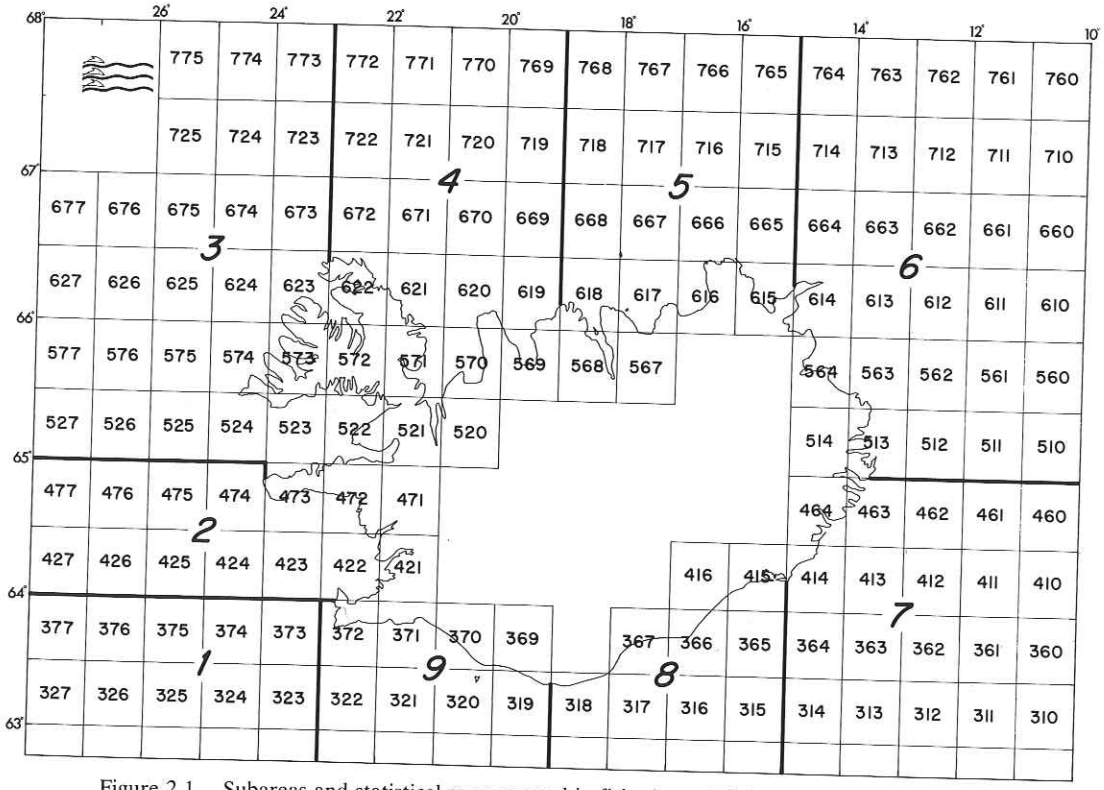

Figure 2.1. Subareas and statistical squares used in fisheries and fishery research at Iceland.

Table 2.1. Number of haddock tagged and returned at Iceland in 1953-1965.

Year	*Tagged* *N*	*Returned* *N*	*%*
1953	326	19	5.8
1954	1543	81	5.3
1955	1990	100	5.0
1956	2760	116	4.2
1957	3529	198	5.6
1958	2055	74	3.6
1959	1981	99	5.0
1960	2716	146	5.4
1961	2843	181	6.4
1962	2725	171	6.3
1963	3054	266	8.7
1964	1017	65	6.4
1965	2567	190	7.4
Total	29106	1706	5.9

silver or stainless steel. For further details of these types of tags see Jónsson (1996, Fig. 3.1, p. 12 this volume).

The red Alcathene and Lea tags were used alternately in 16 tagging experiments during 1958-1960. For comparison, a total of 3052 haddock were marked with these two types of tags. A total of 1,676 Lea tags, fastened with a steel wire, gave a return rate of 5.1%, whereas 1,376 red Alcathene tags, fastened with spun nylon twine, yielded 3.0% returns.

The tagging operation seems to have been quite successful. This is indicated by the total number of returns in each year after as shown below.

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*Total*
Number	767	408	195	47	13	5	1	3	1439

The longest time at liberty, seven years and nine months, was that of a 64 cm long haddock tagged in Bakkaflói (square 614) on 22 July 1955, with a blue Alcathene tag and recovered in a gillnet at the same locality on 27 May 1963, having grown by 27 cm.

The area around Iceland has, for statistical purposes, been divided into a number of squares and subareas (Fig. 2.1). For further details see Jónsson 1996 (Fig. 3.2, p. 14 this volume).

3. Migrations

3.1 Tagging in Faxaflói (Subarea 2)

The tagging of haddock in Faxaflói (Fig. 3.1) was part of a groundfish survey, i.a. to study annual and seasonal variations in fish abundance and the interrelation between various fishing areas around Iceland. The age distribution and rate of growth were also analyzed.

In the period 1953-1965 a total of 14,184 haddock were tagged in Faxaflói in 65 different experiments. Table 3.1 gives the number of fish tagged in each month together with recaptures in each subarea. The greatest number of fish were released in the months of March, May, August and November. The number of recaptures in each square is shown in Figure 3.1.

Of the 716 returns from the Faxaflói tagging experiments 84, or 11.7% could not be located; 72.9% of the remaining 632 were taken within the Faxaflói proper, 9.0% in Subarea 1 and 10.9% in Subarea 9 (see Table 3.1).

The average length of the fish tagged in all of these experiments was 50.6 cm and the average length of the recaptured fish at tagging was 48.7 cm, indicating a slightly higher recapture rate of the smaller fish. Table 3.2 gives the length distribution and average length of the fish at tagging in all experiments discussed below. The average length of the recaptured fish at tagging is also given, but only discussed in the text in case of a substantial difference.

Otoliths are available from 420 of the returned fish, or from 59% of the total returns. The age distribution of these fish at tagging is given in Table 3.3. Most of the tagged fish were three to five years of age with an average of 4.3 years.

The monthly distribution of returns from Subarea 9 of haddock tagged in Faxaflói was as follows:

Months	*Jan*	*Feb*	*Mar*	*Apr*	*May*	*Jun*	*Jul*	*Aug*	*Sep*	*Oct*	*Nov*	*Dec*
Returns	3	18	20	28	8	3	0	2	0	1	0	2

These results indicate that the haddock in Faxaflói mainly entered Subarea 9 in February. The greatest number of recaptures were from March-April during the main spawning season of haddock. The age distribution of the fish returned from Subarea 9 was as follows:

Age	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Number	12	11	15	11	6	3	3

The average age was 6.1 year and no fish younger than four years were returned. The depth at recapture is known for 22 returns which were distributed as follows:

Depth	*45-70 m*	*71-100 m*	*101-150 m*	*150-200 m*
Recaptures	2	6	10	4

The reults are in accordance with the distribution of haddock in the commercial fishery, which shows that the main spawning takes place at depths between 50 and 150 meters.

Recaptures in other subareas show that some of the haddock can move quite fast. A 69 cm fish, tagged in Faxaflói on 21 May 1965 was taken in square 574 after 27 days. The second recapture, 60 cm and 5 years old, was tagged on the last day of February 1954 and recaptured in square 671 after 43 days. The third one, 58 cm long and tagged three days later, was caught in square 674 after 72 days. Most of the remaining recaptures outside Subareas 2 and 9 were taken within one or two years,

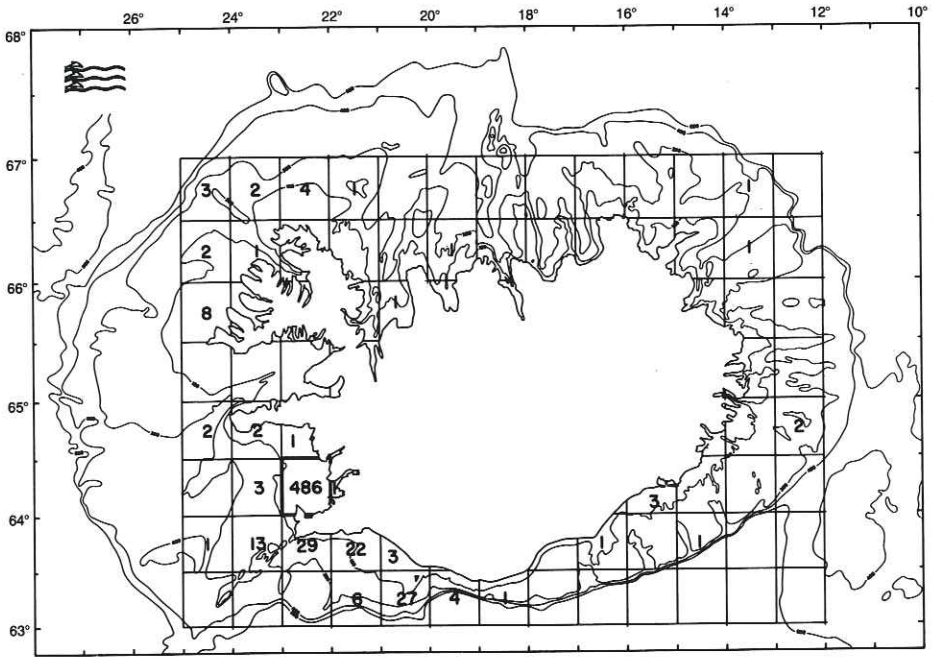

Figure 3.1. Returns from all experiments in Faxaflói 1953-1965. Localities: Bollasvið, square 422, position 64°08′N, 22°23′W; and Garðsjór, square 422, position 64°04′N, 22°35′W. Depth 30-40 m. Tagged 14,184, returned 741.

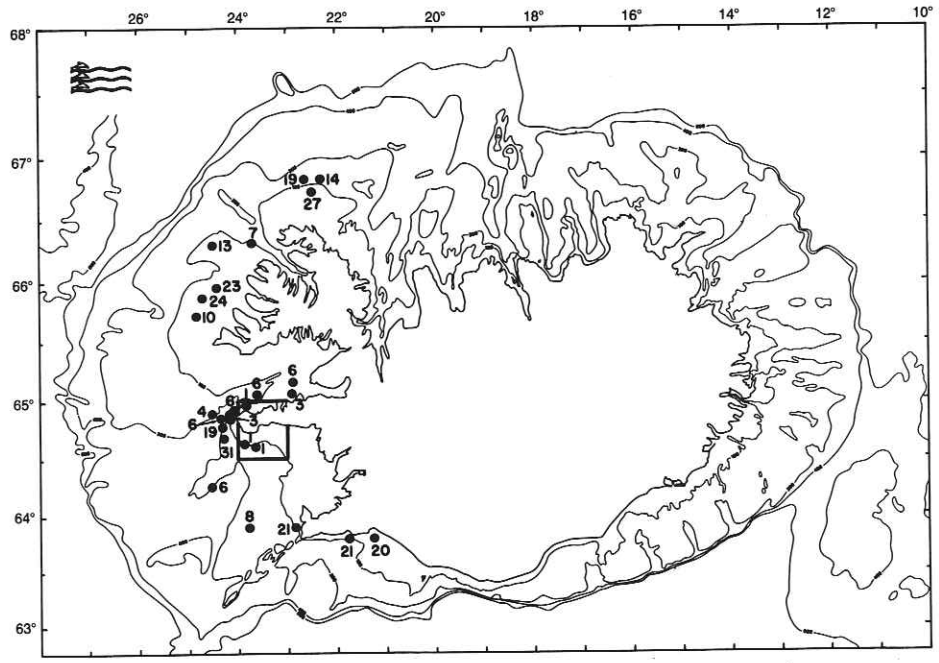

Figure 3.2. Returns from tagging experiment No. 150, 24 July 1963. Locality: Ólafsvík, square 437, position 64°58′N, 23°49′W. Depth 48-135 m. Type of tag: Alcathene red, tagged 336, returned 27 (8.0%).

but one fish survived for 43 months and 19 days. It was tagged on 1 April 1962 when 45 cm and caught by a British trawler in square 613, but the age and size at recapture are not known.

3.2. Tagging in Subarea 3

3.2.1 Ólafsvík (Breiðafjörður)

The returns from a tagging off Ólafsvík in late July 1963 (northernmost part of square 473, just north of the Snæfellsnes peninsula) are shown in Figure 3.2. The average length of the recaptured fish at tagging was 55.3 cm and was somewhat larger than the 53.4 cm average of all the tagged fish (Table 3.2). The age at tagging was mainly 3,5 and 6 years. There was a cluster of recaptures along the tip of the Snæfellsnes peninsula, from 1 to 31 months after tagging. The returns from Jökuldjúp (square 424) in the beginning of February 1964 and on Eldeyjarbanki (square 373) two months later, are due to spawning migrations. The first one, caught by an Icelandic longliner, was 58 cm at tagging and the second one was six years old and 66 cm when taken by

Table 3.1. Tagging in Faxaflói in 1953-1965. Number of fish tagged and recaptured by month and subarea.

	Tagged	*Returned*	*Returned*	*Subareas*									
	N	*N*	*%*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*?*
February	652	22	3.4	–	15	–	1	–	–	–	1	1	4
March	1197	51	4.3	5	35	1	2	–	–	–	–	1	7
May	3254	218	6.7	20	145	9	–	–	–	2	–	24	18
July	309	22	7.1	–	18	1	–	–	–	–	–	–	3
August	3689	157	4.3	2	111	14	1	–	–	–	2	14	13
September	771	30	3.9	2	22	–	–	–	–	–	–	3	3
November	3408	206	6.0	27	110	5	1	–	1	1	2	24	35
December	357	10	2.8	1	5	–	–	–	–	–	–	3	1
Total	13636	716	5.3	57	461	30	5		1	3	5	69	84

Table 3.2. Length distribution of tagged haddock. Average length of all tagged fish and average length of recaptured fish at tagging.

Length-group (cm)	*Faxaflói (all experiments)*	*Tagging experiments (No.)*												
		150	*94*	*174*	*151*	*54*	*39*	*140*	*153*	*59*	*128*	*175*	*36,61,76 113,129 142,176*	*157 158 159*
21-30	147	–	1	–	2	–	–	1	1	–	–	–	–	7
31-40	1471	5	23	27	308	13	13	7	131	5	15	54	160	182
41-50	5434	118	152	102	84	74	92	105	108	43	264	96	377	192
51-60	4844	156	36	168	24	102	92	216	50	210	73	10	644	216
61-70	1653	54	4	20	8	11	1	67	5	22	7	–	358	134
71-80	191	2	1	2	1	–	–	4	1	–	1	–	86	18
81-90	14	–	–	–	–	–	–	–	–	–	–	–	38	–
91-100	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Av. length of all fish at tagging	50.6	53.4	46.7	51.3	40.2	51.1	49.0	54.4	43.1	54.1	48.2	42.5	55.3	50.0
Av. length of recaptured fish at tagging	48.7	55.3	47.9	51.4	40.2	50.6	52.3	54.2	42.4	54.9	48.3	43.1	54.3	52.8

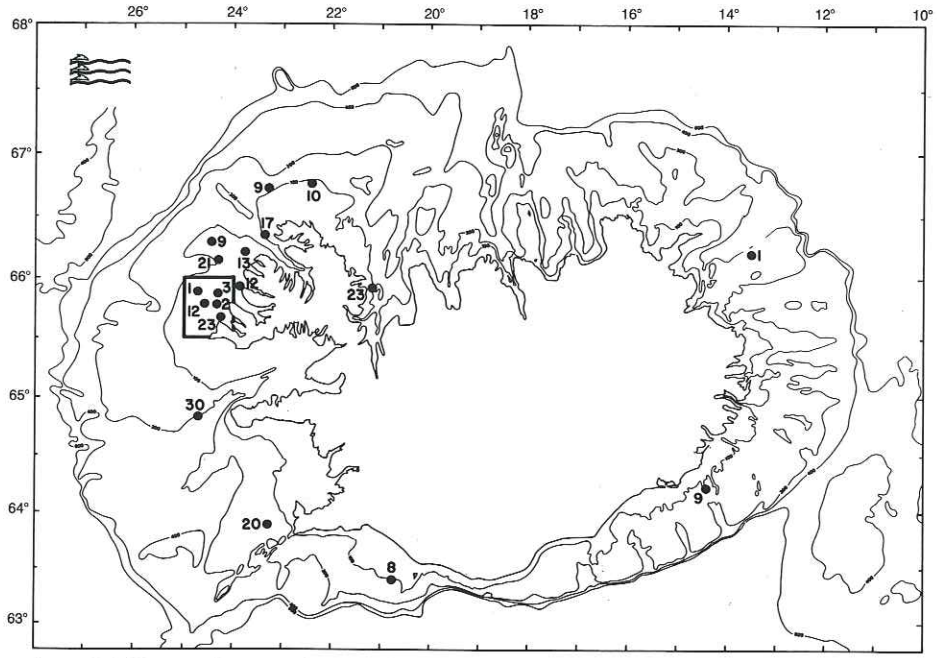

Figure 3.3. Returns from tagging experiment No. 94, September 1, 1959. Locality: Arnarfjörður, square 574, position 65°52′N, 24°03′W. Depth 48-86 m. Types of tags: Alcathene (red), 120 tagged, 5 returned (4.2%). Lea hydrostatic, 97 tagged, 16 returned (16.5%).

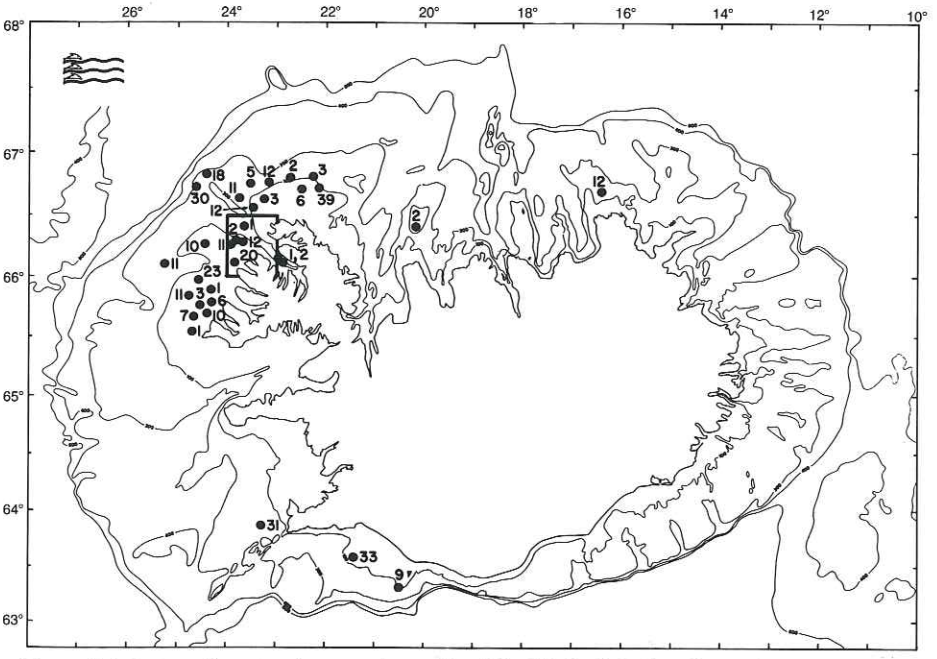

Figure 3.4. Returns from tagging experiment No. 174, 25 July 1965. Locality: Bolungarvík, square 623, position 66°12′N, 23°12′W. Depth 64-117 m. Types of tags: Alcathene red, 172 tagged, 22 returned (12.8%). Plastic flag, 150 tagged, 18 returned (12.0%).

Table 3.3. Age at tagging of haddock returned from experiments in Faxaflói 1953-1965.

Age	*Number*	*%*	*Age*	*Number*	*%*
1	7	1.7	6	46	11.0
2	30	7.1	7	27	6.4
3	87	20.7	8	7	1.7
4	111	26.4	9	1	0.2
5	104	24.8			

an English trawler. Furthermore, there were three Icelandic nearshore recaptures in Subareas 1 and 9 in 1965. The first one in Miðnessjór (northwestern part of square 372) at the end of April, seven years, while the other two were taken in Eyrarbakkabugur (square 371) at the end of March and April, seven and eight years old respectively.

The returns from the northern part of Subarea 3 were fairly evenly distributed north to Strandagrunn (square 672), most of them taken in the first or second year after tagging in June-October and all by English trawlers. The recapture dates indicate a northward movement. Results from further taggings at Ólafsvík are shown in Appendix Table I.

3.2.2 Arnarfjörður

The fish tagged in Arnarfjörður (square 574) on 1 September 1959 (Fig.3.3) were mostly three years old, the average length at tagging was 46.7 cm, ranging from 37 to 79 cm (Table 3.2). The returns were mainly from the northern part of Subarea 3, extending along the 100 m isobath from Patreksfjörður (square 574) in the south to Strandagrunn (square 672) in the north. Of the twelve returns from this area, eight came from English trawlers. The single return from the north coast was from an Icelandic vessel fishing in the western part of Húnaflói (square 571) at the beginning of August 1961. The fish was 55 cm when recaptured.

One fish was caught west of Vestmannaeyjar (square 320) in the beginning of May 1960 and another, five years old and 56 cm long, one month later on Papagrunn (square 414), suggesting an eastward migration from the spawning grounds. Further evidence of spawning migrations are the Icelandic return of a five years old fish in late April 1961 on Eldeyjarbanki (square 373) and finally the return of five year old fish by an English trawler in Kolluáll (square 474) in mid-February 1962.

3.2.3 Bolungarvík (Ísafjarðardjúp)

The returns from a tagging off Bolungarvík (square 623) in late July 1965 are shown in Figure 3.4. The age of the recaptured fish at tagging was 2-6 years. However, most of them were 5 years old and the average length of all the fish at tagging was 51.3 cm.

The returns are spread from Bjargtangar (square 524) in the south to Strandagrunn (square 672) in the north, in a similar manner as previously described. Thus, these fish moved both southwards and northwards from the tagging locality. There were several returns from Strandagrunn after 2 to 6 months. One recapture of a five year old fish farther to the east from Skagagrunn (square 620) after two months, showed an eastward movement along the north coast. This was further borne out by the recapture on Sléttugrunn (square 666) about one year after tagging, also by an English trawler.

The recaptures of two fish from the well known fishing ground Hali (square 674) were from February 1967 and January 1968. One of these was eight years old and both were caught by English trawlers. All the recaptured fish from square 623 were 3-6 years old, taken by Icelandic fishing vessels in July-September, whereas the returns from square 574 all came from English trawlers fishing in February-April and June-October. The age of the fish from square 574 was 5-6 years.

There were no recoveries whatsoever in the southern part of Subareas 3 and 2. One Icelandic recapture near Vestmannaeyjar (square 320) in mid-April of a 6 years old fish was clearly from a spawning migration. In addition, one fish was taken in gillnet by an Icelandic fishing vessel on Eldeyjarbanki (square 373) in early March 1968 and finally, a six year old fish was caught on Selvogsgrunn (square 371) in mid-April of the same year.

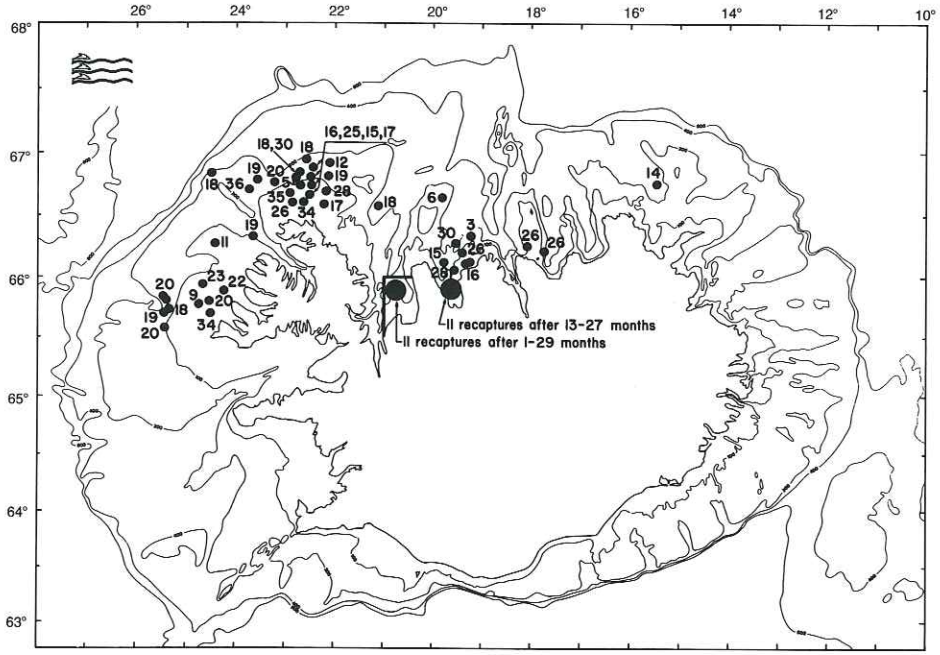

Figure 3.5. Returns from tagging experiment No. 151, 28 July 1963. Locality: Skagaströnd, square 570, position 65°48′5 N, 20°26′W. Depth 62-110 m. Type of tag: Alcathene red, 427 tagged, 73 returned (17.1%).

Results from further taggings at Bolungarvík are given in Appendix Table I.

3.3 Tagging in Subareas 4 and 5

3.3.1 Skagaströnd (Húnaflói)

The tagging off Skagaströnd (square 570) at the end of July 1963 gave the exceptionally high recovery rate of 17.1%. The tagged fish were mainly 35-45 cm, with an average length of 40.2 cm. The age at tagging of the returned fish was 2-6 years, most of them (80%) being three years old.

It is seen in Figure 3.5, that 11 fish were recaptured within the square of tagging in the period 24 days to 29 months after tagging. The last fish recaptured was 5 years old and had grown by 15 cm. In 1964, five fish were recaptured, but none of them until after late August. In 1965 the only two returns were from November and December, the last one being five years old.

Another 11 fish were taken in the neighboring Skagafjörður (square 569), the first of them on the last day of August 1964, 12 months after tagging. A rather remarkable result was that 4 fish from the Húnaflói tagging were caught on the same day and on same spot in Skagafjörður after 14 months and 24 days. They were all 4 years of age and of a similar size (45-48 cm). There were no further recaptures in the fjord until mid-July 1965 and the last of the five recaptures was taken in October of that year.

There were several recaptures outside the Skagafjörður proper, i.e. Skagafjarðardjúp and Fljótagrunn (square 619), during the first 3 months and the last 30 months after tagging when the fish were 3-5 years old. All of these were caught in November-January except one fish which was caught in September. Two recaptures from Grímseyjarsund (square 618) and Skjálfandadjúp (square 617) confirm an eastward migration. The same is true for the

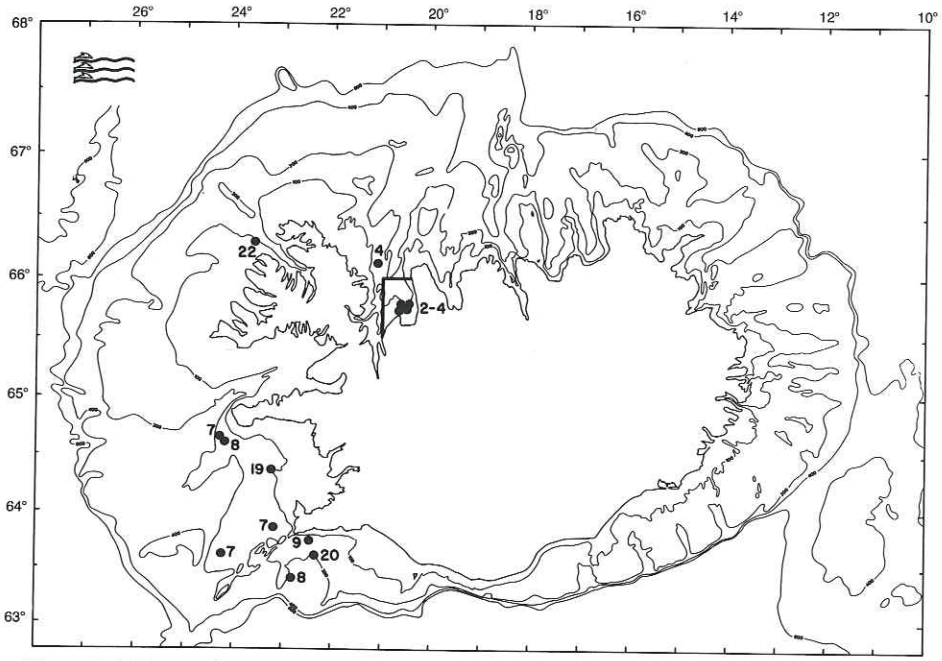

Figure 3.6. Returns from tagging experiment No. 54, 31 July 1957. Locality: Skagaströnd, square 570, position 65°49′N, 20°30′W. Depth 100-118 m. Type of tag: Alcathene red, 200 tagged, 19 returned (9.5%).

easternmost recapture from Þistilfjarðardjúp (square 665) after 14 months at liberty.

The recaptures on Strandagrunn (square 672) were dispersed throughout the year. Most of them were taken in November-January. The returns spread westward over Kögurgrunn (square 673) and Hali (square 674). The dates of recapture in February and March, about one and a half year after tagging, indicate a spawning migration, which is further verified by a group of returns from Kópanesgrunn (square 574) and Víkuráll (square 575) in the same months. This is the farthest the fish seem to have migrated, since there were no returns at all farther to the south.

All the returns from squares 674-671 and 575-574 were taken by English trawlers, except one in square 672 which came from an Icelandic trawler. The recaptures in Húnaflói, Skagafjörður and vicinity were all inside the fishing limit of that time and of Icelandic origin.

The returns from another tagging experiment in Húnaflói at the end of July 1957 (Fig. 3.6) were far less numerous, but they clearly indicated a migration to the spawning areas at the southwest coast.

Most of the recaptured fish were 4 years old at tagging. The average length of all the tagged fish was 51.1 cm. There were 4 returns from the tagging area after 2-4 months. The fish caught on Kolkugrunn (square 621) in the beginning of December could well have been on its way to spawn. A continuation of this, are the two returns on Jökulbanki (square 474) in late February and March of 1958, both five years old and 56 cm in length. Furthermore, there were two returns on Eldeyjarbanki (squares 374 and 373), one in Grindavíkurdjúp (square 322) and, finally, one closer to the coast in square 372. All of these fish were 5-6 years old and taken in the period 21 February-24 April. They clearly show the migration route of the fish, and the dates of

recapture suggest two groups of migrations with an interval of about one month.

The two recaptures in Faxaflói and on Selvogsbanki in the 1959 spawning season further clarify the picture. The fish caught in mid-Faxaflói after 19 months was 7 years old and the one caught off Ísafjarðardjúp in early June after 22 months at liberty was 6 years old and might well have been on its way back from spawning.

Appendix Table I shows the results of further taggings in Húnaflói.

3.3.2 Skjálfandi

The returns from a tagging in Skjálfandi (square 617) at the beginning of August 1956 are shown in Figure 3.7. The average length of the tagged fish was 49.0 cm, whereas the average length at tagging of the returned fish was somewhat greater, or 52.3 cm (see Table 3.2). The age at tagging was 3-5 years.

The time sequence of the recaptures, few as they are, clearly indicates the west- and southward movement of the fish. The first return, after 7 months, was of a 5 year old, caught by an English trawler on Barðagrunn (square 624) March 1957. Then a 6 year old was caught on Eldeyjarbanki (square 374) 17 days later by an Icelandic trawler and finally two 6 years old fish were taken by German trawlers in Grindavíkurdjúp (square 372) on 17 and 28 April of the same year.

The returns in 1958 showed a similar picture. There was a return by an English trawler on Strandagrunn (square 672) at the end of January of a 6 year old; there were no returns, however, from Subareas 3 and 2, but two from Eldeyjarbanki (square 373), one 5 year old taken by an English trawler on 11 April and another, 6 year old, by a German trawler five days later. Finally, one 7 year old was caught by an Icelandic fishing vessel on Reykjanesgrunn (square 372) on 16 April and another 7 year old two days later on Selvogsbanki (square 321) by an Icelandic vessel. A recap-

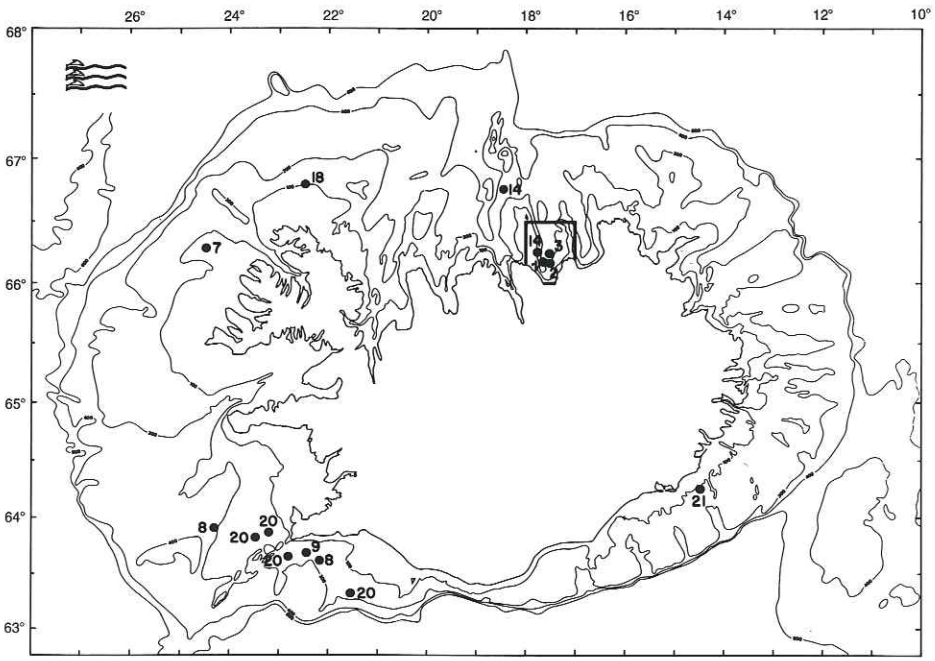

Figure 3.7. Returns from tagging experiment No.39, 5 August 1956. Locality: Skjálfandi (square 617), position 66°01′N -17°31′W. Depth 25-55 m. Types of tags: Alcathene red, 80 tagged, 4 returned (5.0%). Alcathene yellow, 120 tagged, 11 returned (9.2%).

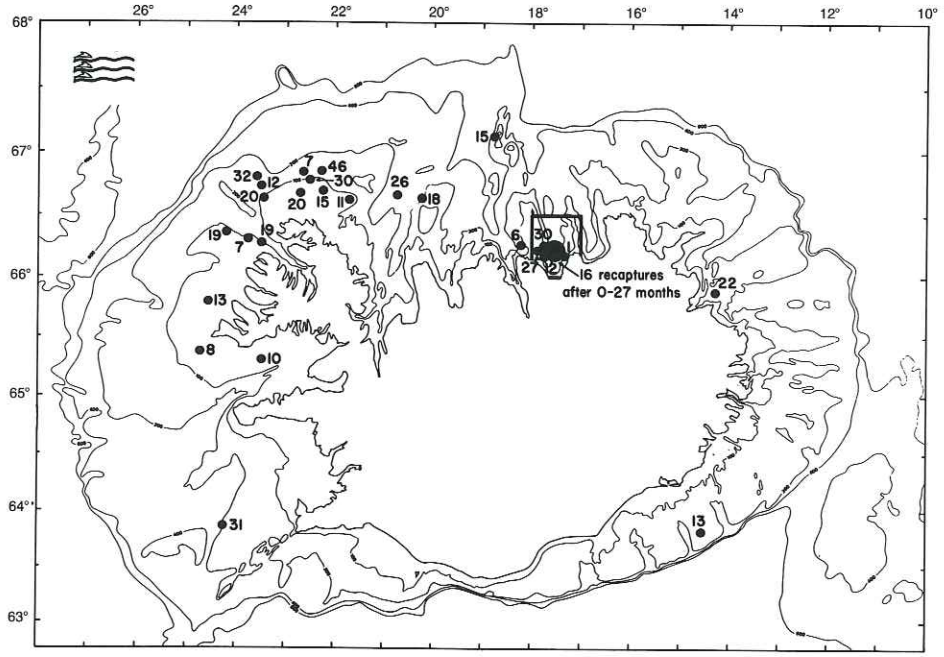

Figure 3.8. Returns from tagging experiment No. 140, 23-25 July 1962. Locality: Skjálfandi (square 617), position 66°05′N, 17°33′W. Depth 56-150 m. Type of tag: Alcathene red, 400 tagged, 45 returned (11.3%).

ture on Papagrunn (square 414) of a 6 year old by an English trawler at the end of April, indicates an eastward return migration from the spawning grounds.

Contrary to the experiment just described, there were numerous returns from Subareas 4 and 3 from the tagging in Skjálfandi in late July 1962 (Fig. 3.8). The length of these fish at tagging was 54.2 cm. The 4 year old, taken by an English trawler on Strandagrunn (square 672) in late February 1963 after 7 months, could have been on its way to the south. This is supported by the recapture of a 6 year old by an Icelandic longliner on Deildargrunn (square 624) ten days earlier. The last but one return in this season, 59 cm at tagging, was taken by an English trawler at about mid-March on Látragrunn (square 524). The last recapture, a 5 year old, came from an Icelandic vessel fishing in Breiðafjörður proper (square 523) on 7 June. A 6 year old was recaptured by an English trawler in the outer Ísafjarðardjúp (square 623) on 10 February 1964 and another fish of the same age was taken somewhat farther offshore on Deildargrunn (square 624) by an Icelandic vessel eleven days later. The return on Strandagrunn (square 672) on 26 March 1964 and of a 7 year old on Kögurgrunn (square 673) two weeks earlier, both by English trawlers, seem to be a part of a southbound spawning migration. The same can also be seen in 1965 with respect to a recapture of an 8 year old on Strandagrunn (square 672) by an English trawler at the end of January and another on Kögurgrunn (square 673) two months later. Farthest to the south is the recapture by an Icelandic trawler in mid-February on Eldeyjarbanki (square 374). The last return from Strandagrunn was obtained from an English trawler at the end of June 1966 after 46 months at liberty.

The fish which were returned from the tagging locality and vicinity were 3-6 years old. Most of them were caught within the year of tagging and in January of the following year.

The returns from Papagrunn (square 364)

by an English trawler on 20 August 1963 and of a 7 year old off Vopnafjörður (square 564) by another English trawler on 25 May 1964 show a further dispersion of the tagged fish.

The fish tagged in Skjálfandi at the beginning of August 1963 were 35-58 cm in length with an average of 42.4 cm. The age was mainly 3 and 4 years. The recaptures in the westernmost part of Subarea 4 and in Subarea 3 show the usual distribution (Fig. 3.9). The first return, a 5 year old and 60 cm in length, came from an English trawler fishing off Patreksfjörður (square 574) in the beginning of June 1964, 10 months after being released. The second one was also taken by an English trawler about two months later off Ísafjarðardjúp (square 623) and a third return was from Strandagrunn (square 672) in November 1964, by an English trawler 16 months after tagging. There was another return, 5 years old, from the same area, taken by an English trawler nearby, two months later. Furthermore, there were two returns in 1965 in the northern part of Subarea 3: one by an English trawler off Straumnes (square 623) in mid-March after 19 months at liberty and another five years old, caught by an English trawler in Víkuráll (square 575) one day earlier. A return of a 5 year old fish from an English trawler off Snæfellsnes (square 474) at the end of February after 19 months and another fish of the same age, caught by an English trawler on Eldeyjarbanki (square 373) in early April, complete the series. Moreover, there was a return on Strandagrunn (square 672) in late November 1965 by an English trawler and another from the same area at the beginning of March 1966. A 6 year old was also caught by an English trawler on Hali (square 674) on 7 January 1966. Another fish of the same age was taken on Deildargrunn (square 623) one month later by an Icelandic longliner and, finally, the third one seven years of age by an English trawler in Nesdjúp (square 574) at the end of April 1966.

There was a remarkable return in

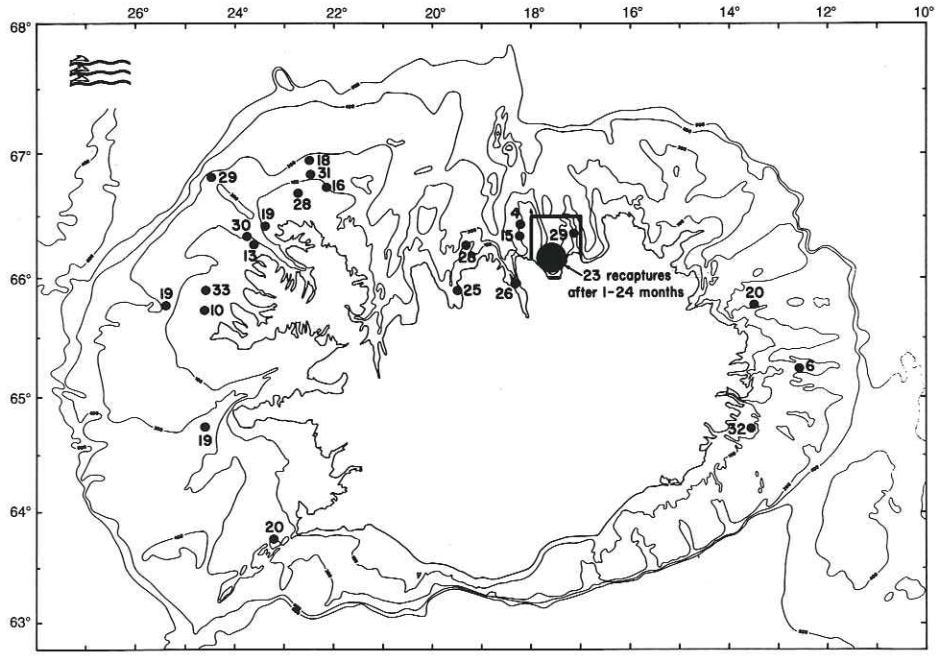

Figure 3.9. Returns from tagging experiment No. 153, 1-2 August 1963. Locality: Skjálfandi (square 617), position 66°00'N, 17°33'W. Depth 6-51 m. Type of tag: Alcathene red, 296 tagged, 51 returned (17.2%).

Seyðisfjarðardjúp (square 512) in the beginning of February 1964, six months after tagging. The fish was five years old and 56 cm at taggging and thus may have been migrating south for spawning. Another fish, 42 cm when tagged, was caught in Héraðsdjúp (square 563) in mid-March 1965 after 20 months. The last recapture was of a 6 year old on Skrúðsgrunn (square 463) in early April 1966. All of these fish were taken by English trawlers.

There were 24 returns from the locality of tagging after 22 to 880 days. If we exclude the year of tagging, most of the returns in 1964-1965 were obtained in January-April and August-November. There were few recaptures in May and June respectivly and none in July and December. All of these returns were from Icelandic vessels as were all the other ones taken off the central north coast.

Appendix Table I lists the results from further tagging experiments in Skjálfandi.

3.4 Tagging in Subarea 6

3.4.1 Digranes (Bakkaflói)

The returns from tagging at Digranes (Bakkaflói, square 614) in early August 1957 are shown in Figure 3.10. The length at tagging ranged from 42 to 60 cm with an average of 54.1 cm. The age at tagging was 2-6 years.

Only one fish was returned from the tagging area, one month after tagging. Two more recaptures were reported from Subarea 6, one 5 year old caught by an English trawler on Vopnafjarðargrunn (square 613) at the beginning of December 1958 and another, 10 year old, off Gerpir (square 513) by an Icelandic vessel in mid-February 1961, 3 1/2 years after tagging.

The recaptures in Subareas 5, 4 and 3 indicate an irregular westward movement of the fish. Some travelled faster than others. One was e.g. caught on Sléttugrunn (square 666)

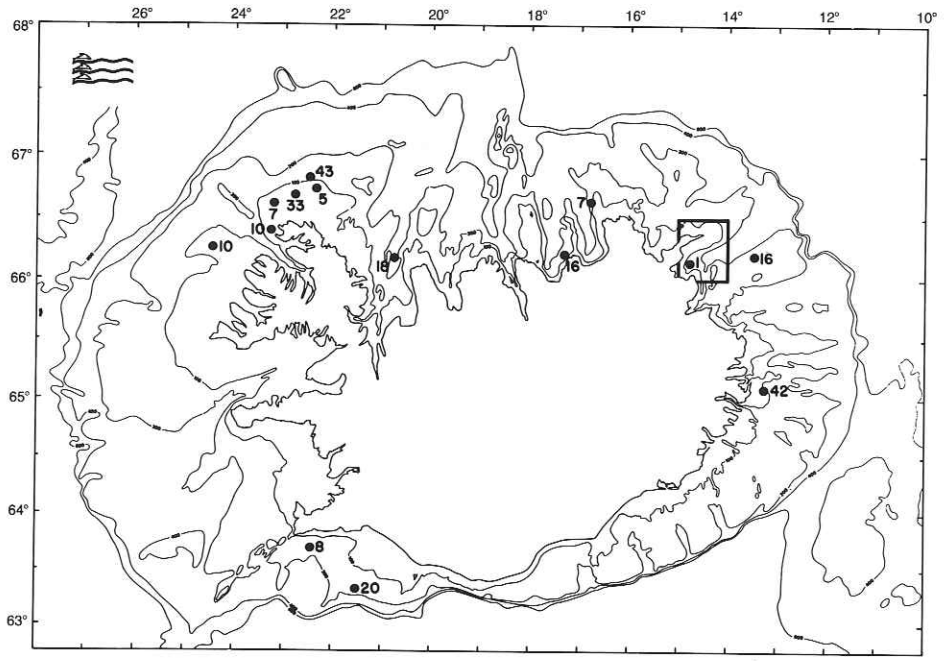

Figure 3.10. Returns from tagging experiment No. 59, 9 August 1957. Locality: Digranes (square 614), position 66°03′N, 14°50′W. Depth 55-115 m. Type of tag: Alcathene red, 280 tagged, 17 returned (6.1%).

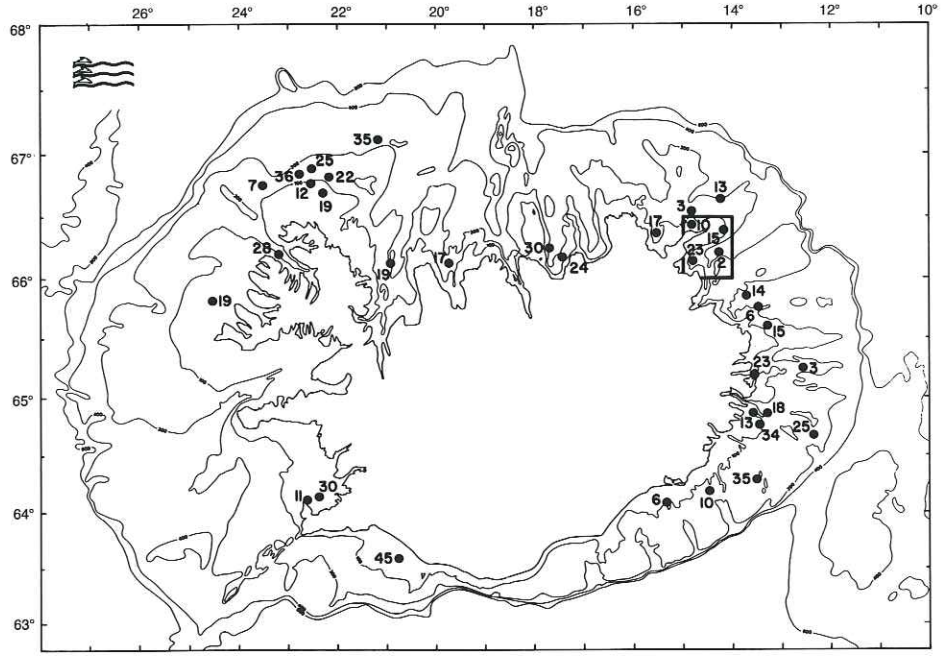

Figure 3.11. Returns from tagging experiment No. 128, 31 July 1961. Locality: Digranes (square 614), position 66°04'N, 14°51'W. Depth 60-100 m. Type of tag: Alcathene red, 361 tagged, 42 returned (11.4%).

on 1 March 1958, wheras another was taken on the same day on Kögurgrunn (square 673) at a distance of about 310 naut. miles. Unfortunatly, otoliths are not available, but the faster migrating fish was 60 cm at tagging, while the other one was 54 cm. However, the fish taken on Strandagrunn (square 672) on 7 January 1958, finished the journey in 5 months. It was 53 cm at tagging, or of the same size as the slower migrating one. Some of the fish seem to have moved together, like the two taken after 10 months in square 623 and 624 by English trawlers on 6 and 8 June 6 1958.

The two returns from Subarea 9 were both taken around mid-May of 1958 and 1959. The first, caught by an English trawler, was 6 years old at recapture and the second one, taken by an Icelandic trawler, was 7 years. Both of these fish were 5 years old when tagged.

Figure 3.11 shows the returns from a second tagging experiment in Bakkaflói at the end of July 1961. The length of the fish at tagging was 39-57 cm with an average of 48.3 cm. Most of these fish were 4 years old when tagged.

Compared to the previous experiment, there were numerous recaptures along the northeast, east and southeast coasts. The returns from Subareas 6 to 9 clearly show a southward movement of the tagged fish. The time sequence is not obvious, but becomes clearer if we look at the month of the year when the fish were recaptured. One 6 year old was taken in late January in square 463 and another in mid-February in square 415. Then there was one recapture from Faxaflói (square 422) at the end of January and finally one of an 8 year old fish near Vestmannaeyjar (square 370) in May. If we look at those which could have been migrating northward, one fish was caught in square 414 in May and another in June in the neighboring square 413. Farther north, there was a recapture from May in square 463 and others taken in August from the same square and the neigboring square 462. Finally, we can follow the recap-

tures in October 1961, 1962 and 1963 northwards from square 512 through squares 562, 563, 614 and 664.

The distribution of returns from Subareas 5, 4 and 3 is similar to that of the 1957 experiment. The nearshore recaptures in Subarea 5 and 4 were all but one from Icelandic vessels in December-February. The offshore returns on Strandagrunn (square 672) and Kögurgrunn (square 673) were all from English trawlers fishing in February and June-August. Those returns were all after 12 to 35 months at liberty, with the exception of the fish taken by an English trawler on Kögurgrunn (square 673) on 22 February 1962, 6 months and 22 days after tagging. This is the same locality of recapture and time at liberty as that of the fish which was tagged in Bakkaflói on 9 August 1957 and previously described.

The results of further tagging experiments in Bakkaflói are given in Appendix Table I.

3.5 Tagging in Subarea 8

3.5.1 Skinneyjarhöfði

The age at tagging of the fish recaptured from the experiment off Skinneyjarhöfði (square 415) in early August 1965 (Fig. 3.12) was mainly 3 years and the length 37-50 cm with an average of 43.1 cm. Two fish were recaptured by Icelandic trawlers on the Selvogsbanki (squares 320 and 371) in the last week of April 1968, 5 and 6 years old. One month later, the third one, aged 6 years, was also caught by an Icelandic trawler near Dyrhólaey (Portland, square 319). Farther to the west, a 4 year old fish was recaptured in a Danish seine in Faxaflói in early August 1966. One 4 year old fish was taken by an English trawler on Kópanesgrunn (square 574) in mid-July 1966 and, finally, one was returned by an English trawler fishing on Strandagrunn (square 672) in the beginning of October 1968. One four

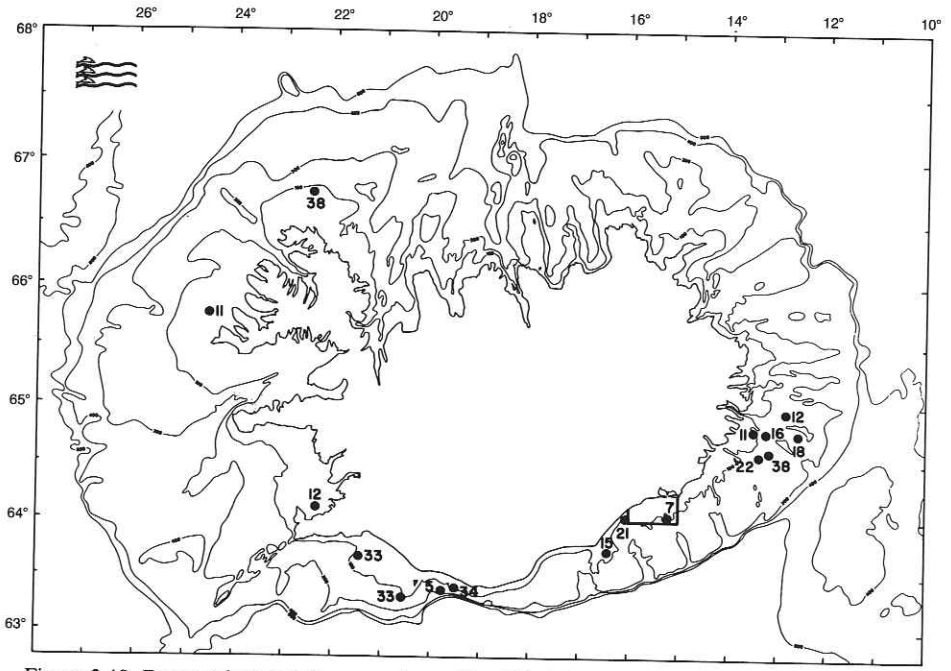

Figure 3.12. Returns from tagging experiment No. 175, 6 August 1965. Locality: Skinneyjarhöfði (square 415), position 64°11'N, 15°27'W. Depth 35-41 m. Types of tags: Alcathene red, 61 tagged, 7 returned (11.5%). Plastic flag, 100 tagged, 6 returned (6%).

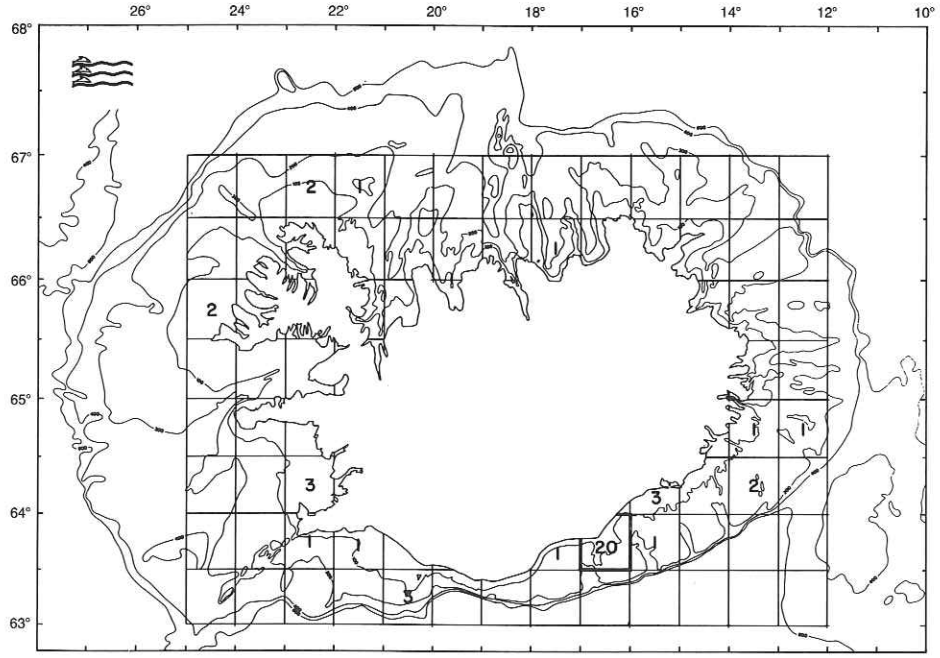

Figure 3.13. Returns from tagging experiments No. 36, 61, 76, 113, 129, 142, 176, 27 July-13 August 1956-1958, 1960-1962, 1965. Locality: Ingólfshöfði (square 366), position 63°48′N, 16°30′W. Depth 22-70 m. Types of tags: Petersen disc (steel wire), 111 tagged, 3 returned (2.7%). Lea hydrostatic, 342 tagged, 10 returned (2.9%). Alcathene red, 1116 tagged, 44 returned (3,9%). Plastic flag, 45 tagged, 1 returned (2.2%).

year old was taken in the square of tagging by an Icelandic longliner in late February 1966, and two immediately to the west of the tagging square. The first of these, a four year old, was caught by an Icelandic trawler in the beginning of November 1966 and the second, a five year old, by an Icelandic gillnetter in the first week of May 1967. Finally, there was a group of returns from squares 426 and 463 (Skrúðsgrunn, Breiðdalsgrunn) 11-38 months after tagging. These fish were 4-6 years old, and all but one taken by English trawlers, mainly in the second half of the year.

Further tagging at Skinneyjarhöfði are listed in Appendix Table I.

3.5.2 Ingólfshöfði

Returns from taggings off Ingólfshöfði (square 366) in 1956-58, 1960-62 and 1965 are shown in Figure 3.13. These tagging experiments were all made within the period 27 July to 13 August in the years mentioned, but have been combined here because of the few returns (3.3%). The length of the returned fish at tagging was 35-79 cm with an average of 54.3 cm. The age at tagging was mainly 3-6 years with a range from one to nine years. The one year old fish was 35 cm at tagging. It was 4 years old when taken by an English trawler off Hvalbakur in late May 1967 (square 463).

Most of the returns came from the square of tagging, fourteen out of twenty within 12 months after being released, and the rest within 24 months. Two were taken by Belgian trawlers, one by an English trawler and one by a German trawler; the remaining ones were taken by Icelandic fishing vessels. The offshore recaptures east of the tagging locality were all taken by English trawlers.

The returns to the west of the tagging area were mainly of Icelandic origin and those

from Subarea 9 in March and April are from spawning migrations. Of the three returns from Faxaflói, two were tagged on 7 August 1965 and all caught in Danish seine within a period of 3 days at the end of July 1966, one of them five years old. The returns from square 574 are a further confirmation of a northward movement. One was taken by an Icelandic vessel working with a Danish seine (date unknown) and another recovery, of English origin, was obtained 27 months after tagging. English trawlers were responsible for the three returns from square 672 and 671 in June-August, 10-24 months after tagging. Finally, one fish, five years old, was caught by an Icelandic vessel in Skjálfandi (square 617) twelve months after release.

Returns from the various tagging experiments are listed in Appendix Table I.

3.6 Tagging in Subarea 9

3.6.1 Vestmannaeyjar

A total of 518 haddock were tagged in squares 320 and 370 (Subarea 9) at the end of March 1960. The length of the returned fish at tagging ranged from 48 to 67 cm with an average of 52.8 cm The average length of the fish at tagging was 50.0 cm (Table 3.2).

As shown in Figure 3.14, six fish were caught in the squares of tagging after 8-48 days, four and five years old. There were six additional returns of the same age from Subarea 9, in August, September and October respectively, in the year of tagging. In the following year, three fish were caught in that subarea in March, April and December respectively. Finally, one fish was caught in April 1962 and the last one in March 1964, 47 months after liberation.

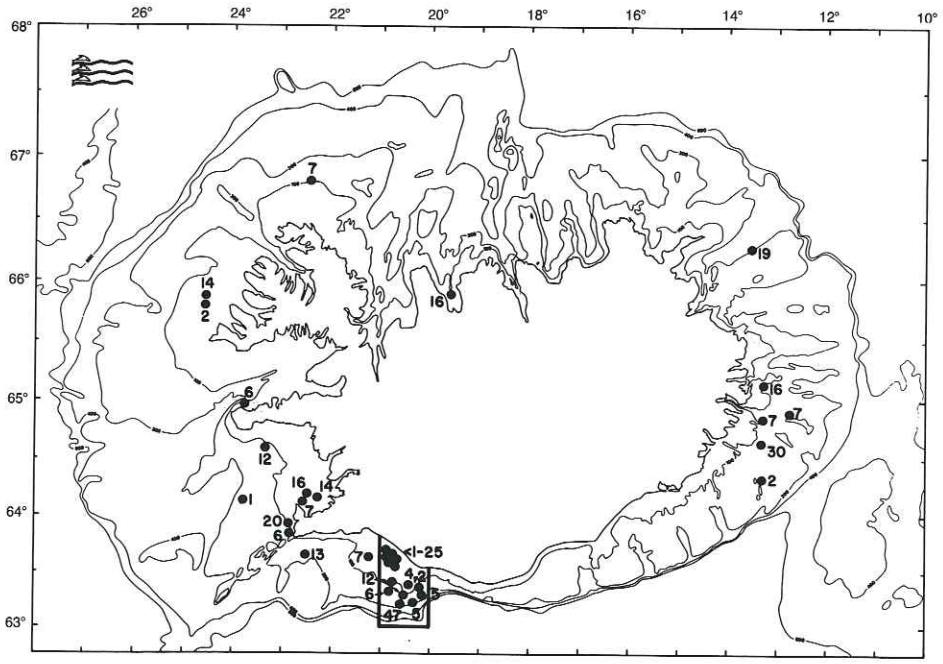

Figure 3.14. Returns from tagging experiments No. 98, 99 and 101, 28-31 March 1960. Locality: Vestmannaeyjar (squares 320 and 370), position 63°26′N, 20°54′W. Depth 90-92 m, position 63°30′N, 20°05′W. Depth 25-50 m, position 63°35′N, 20°25′W. Depth 10-40 m. Type of tag: Lea hydrostatic (steel bridle), 518 tagged, 38 returned (7.3%).

The tagged fish seem to have left Subarea 9 migrating both westwards and eastwards. On the western route, one fish was taken in gillnet, 39 days after tagging, in the outer part of Faxaflói (square 423) at the depth of 165 m. It was 60 cm at tagging and five years old. Another fish was caught in square 422 in mid-October 1960 after 7 months at liberty. There were two more returns from the same square in 1961: the first in June and the second one month later. Finally, there was one return after 12 months in the northern part of the bay (square 473) in March 1961. That fish was four years old and 55 cm. The fish, recaptured in the southernmost part of Breiðafjörður (square 473) after 6 months at liberty, was 51 cm and 4 years old. A fish caught in square 574 two months after tagging, showed a fairly fast northward movement. It was five years old and 56 cm. There was another recapture in the same square one year later, 14 months after tagging. That fish was 51 cm at tagging and may have been on its second trip north after spawning. Furthermore, there was a return of 69 cm and five years old fish in square 672 seven months after tagging. And finally, a six year old 60 cm haddock was caught in Skagafjörður (square 569) at the beginning of August 1961, sixteen months after tagging.

The returns from Subareas 7 and 6 indicated an eastward migration after the spawning. A four year old fish was taken by an English trawler in square 413 two months after tagging. Another fish, 65 cm and five years old, was caught by an Icelandic longliner in square 463 in the middle of October, six months and 16 days after tagging. And yet another, 64 cm fish, was taken ten days later by an Icelandic fishing vessel in the neighboring square 462 at a depth of 165 m. A return of a 70 cm haddock by an English trawler in square 463 after 30 months, indicated that some of the fish had remained in this area. The same applies to the recovery by an Icelandic fishing vessel of a 5 year old and 68 cm long fish in square 513 after 16 months at liberty. Farthest to the north a fish, 64 cm at tagging, was caught after 19 months in square 613 by an English trawler.

4. Discussion and conclusions

The landings of haddock from Icelandic waters amounted to 1,066 thous. tonnes in the period 1953-1965 or 25.6% of the total catch in the ICES statistical area. This area comprises all the fishing grounds in the Northeast Atlantic from East-Greenland in the west, Spitzbergen - Barents Sea in the north, to the coasts of Norway and the North Sea in the east, and Portugal in the south.

The haddock at Iceland was a classical example of overfishing, already apparent in the second decade of this century. Repeated Icelandic effort to close one of the most important nursery grounds, the bay of Faxaflói on the southwest coast, failed. This led to the first extension of the Icelandic fishing limit to 4 naut. miles in 1952 and a further extension to 12 miles in 1958. The tagging experiments, discussed in this paper, were part of a research programme, initiated in the early 1950s, to study the effect of these protective measures.

Tagging of haddock caught by trawl was always considered to be more difficult than the tagging of cod from the same gear. The flesh of haddock is softer than that of cod and, therefore, the haddock are more liable to loss of scales and other damage in the cod-end of otter trawls which leads to higher tagging mortality. Thus, the return rate of 29,106 haddock, tagged in the years 1953-1965, was 5.9% compared to 13,4% returned of 28,375 cod tagged on the same fishing grounds in that period. The total landings of haddock increased from 53 thous. tonnes in 1953 to 99 thous. tonnes in 1965 with a peak of 120 thous. tonnes in 1962. Therefore, the lower return rate of tagged haddock is not the result of a lower fishing effort than generated on the cod stock in this period.

The number of tags per 1000 tonnes of haddock, landed from Icelandic waters, was highest by far in the Icelandic fishery, i.e. 2.5 compared to the average of 1.5 for that of other nations (Table 4.1). The higher Icelandic returns are mainly due to the fact that most of the tagging was done in shallow waters, inside the fishing limit. Table 4.2 shows that, within the first year after tagging, 75% of the returns came from Icelandic fishing vessels, whereas only 20% were taken by British trawlers. The few tagging experiments, carried out in the area fished by Belgian trawlers, might well be the reason for the few Belgian returns.

The tagging experiments, discussed in section 3, show that the haddock in Faxaflói (Subarea 2) remain in the bay proper, until maturity is reached, and then migrate to the spawning grounds in Subarea 9 (Selvogsbanki) in February. The greatest number of returns from that area was obtained in March-April and most of them were taken at a depth of 50-150 m. This is in accordance with variations of the commercial fishery.

Except for these spawning migrations, there were few returns from other areas. Most of these were taken in the northwestern part of Subarea 3 and a few in Subareas 8 and 7.

Table 4.1. Total landings of haddock from Icelandic waters in 1953-1965. Number of tags pr. 1000 tonnes landed.

	Thous. tonnes	*No. of tags*	*No. of tags/ 1000 tonnes*
Iceland	476.1	1174	2.5
United Kingdom .	455.8	360	0.8
Germany	63.4	47	0.7
Faroes	12.5	12	1.0
Belgium	55.1	16	0.3
Total	1062.9	1609	1.5

These could well have been haddock tagged in Faxaflói on their way to or from the spawning grounds in the same way as the cod, which enter Faxaflói on their way north after spawning. As shown in Table 3.1, only 7,5% of the total returns of haddock tagged in Faxaflói, were taken outside Subareas 2, 1 and 9.

After the taggings in Faxaflói, those carried out in Subareas 4 and 5 were the most extensive. The migration route of the fish, along the north and west coasts to the spawning grounds in the southwest, is quite clear and most of the fish seem to have returned along the same way. A few, however, appear to have made a

Table 4.2. Number of returns by fishing fleets in each year after tagging.

	Year after tagging								
Country	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*Total*
Iceland	566	254	116	35	11	2	1	3	988
United Kingdom . .	149	125	66	6	–	1	–	–	349
Germany	23	12	8	2	1	–	–	–	46
Belgium	11	3	1	1	–	–	–	–	16
Faroe Islands	4	6	1	–	–	1	–	–	12
Total	753	400	192	44	12	4	1	3	1411

Table 4.3. Haddock tagged in 1953-1965. Number of returns by subareas of tagging.

Subarea of recapture	*Subarea of tagging*								
	1	*2*	*3*	*4*	*5*	*6*	*8*	*9*	*Total*
1	9	25	6	4	11	1	–	6	62
2	18	470	19	10	15	2	2	12	548
3	1	11	74	28	51	16	3	7	191
4	2	5	16	76	46	18	2	3	168
5	–	–	2	6	119	13	1	–	141
6	–	2	2	2	6	27	–	4	43
7	–	3	3	–	4	12	9	6	37
8	1	6	–	–	2	2	31	16	58
9	14	72	8	6	10	3	8	76	197
Total	45	594	130	132	264	94	56	130	1445

The haddock tagged in Subarea 3 were fairly stationary until maturity had been reached. There were returns in the tagging area up to 30 months after tagging. After spawning in Subarea 9, most of the tagged fish followed the same route back along the west coast, but there are a few indications of circumnavigation. It is seen in Table 4.3 that 57% of the returns came from the subarea of tagging and 12% from the neighboring Subarea 4. Very few fish were returned from Subareas 5, 6 and 7 and none from Subarea 8. On the other hand, a quarter of the returns were taken in Subareas 2, 1 and 9.

round trip. As shown in Table 4.3 as much as 58% of the returns from taggings in Subarea 4 came from that area, compared to 45% of those tagged in Subarea 5. It is also demonstrated in Table 4.3 how the returns gradually become fewer, as the fish proceed west- and southwards on their way to the spawning grounds in Subarea 9.

As far as the fish tagged in Subarea 6 are concerned, they mainly move in two directions, *viz.* west along the north coast, with a certain concentration in the northernmost part of Subarea 3, and from there into Subarea 9. Others took the more direct route

Table 4.4. Age distibution by number of returns from various subareas.

Subareas	Age											Total	Average age
	3	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*14*		
1	1	3	7	12	2	3	–	–	–	–	–	28	5.7
2	29	61	85	48	47	15	7	4	1	–	–	297	5.4
3	8	19	58	36	7	6	–	–	–	–	–	134	5.2
4	6	32	41	21	3	4	1	–	–	–	–	108	5.0
5	15	27	27	12	1	1	–	1	–	–	–	84	4.7
6	–	3	6	7	3	–	–	–	–	–	–	19	5.5
7	–	4	3	3	3	–	–	–	–	–	–	13	5.4
8	4	9	9	10	3	1	2	1	–	–	–	39	5.4
9	3	16	35	24	31	15	6	3	2	2	1	138	6.3
Total	66	174	271	173	100	45	16	9	3	2	1	860	

Table 4.5. Monthly returns from each subarea in 1953-1965.

Month	Subareas									Total
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	
January	4	60	10	25	19	1	2	6	3	130
February	5	36	23	20	7	6	1	6	28	135
March	16	13	27	7	2	1	–	5	35	106
April	17	12	9	1	3	1	2	3	68	118
May	–	30	9	5	1	3	4	5	12	69
June	2	21	25	11	2	3	7	8	5	84
July	2	76	19	9	7	1	4	5	6	129
August	2	90	16	19	21	4	9	6	10	177
September	5	49	9	16	23	4	1	4	10	121
October	–	36	14	19	20	13	6	6	10	124
November	3	44	15	20	21	4	–	2	3	112
December	5	27	9	16	6	1	1	1	2	68
Total	61	494	185	168	132	42	37	57	197	1373

south and west along the east and south coasts and then back along the same way (see Table 4.3).

The concentration of the oldest fish in Subarea 9 is obvious (see Table 4.4). The average age of the returned fish increased as we proceed anti-clockwise around Iceland, and ranged from 4.7 years in Subarea 5 to 5.2 years in Subarea 3. The average age was 5.7 years in Subarea 1 and, finally, 6.3 years in Subarea 9, where the age distribution of the recaptures was 3-14 years. According to Table 4.3, about 58% of the returns from Subarea 9 had been tagged in that area.

Finally, Table 4.5 shows that two-thirds of the retcaptures in Subarea 9 were obtained in the months of February-April and one-third in April alone. The same applies to Subarea 1. In Subarea 2 there were two maxima, one in January and the other in August. In Subarea 3 there was a maximum in February-March and another in June-July. Most of the returns in Subarea 4 and 5 were from the period August-February, whereas the greatest number of returns in Subarea 6 were taken in October, as compared to June-August in Subarea 7. The returns from Subarea 8 were fairly evenly distributed throughout the year.

5. Acknowledgements

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The late Edda Guðnadóttir computerized all of the haddock tagging data and Kristín Jóhannsdóttir typed the text and tables. Furthermore, I owe my thanks to Prentsmiðja Hafnarfjarðar h.f., and especially to Albert Þorsteinsson and Guðrún Guðmundsdóttir for their efficiency and a printing work of high quality.

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Appendix

Table I. Tagging of haddock at Iceland. Returns in various subareas.

Experim. number	*Locality*	*Square*	*Date*	*Tagged N*	*Returned N*	*Recaptured %*	*Number recaptured in each subarea*									
							1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*?*
2-182	Faxaflói	422	1953-1965	13636	716	5.3	57	461	30	5	–	1	3	5	69	84
43	Ólafsvík	473	14/8-1956	100	13	13.0	–	2	7	–	–	–	1	–	–	3
52	Ólafsvík	473	25/7-1957	133	2	1.5	1	–	–	–	–	–	–	–	1	–
71	Ólafsvík	473	22/7-1958	100	4	4.0	–	1	1	–	–	–	–	–	–	2
105	Ólafsvík	473	14/7-1960	8	2	25.0	1	–	1	–	–	–	–	–	–	–
123	Ólafsvík	473	21/7-1961	63	3	4.8	–	–	3	–	–	–	–	–	–	–
144	Ólafsvík	473	15/8-1962	260	20	7.7	1	2	10	1	–	–	–	–	1	4
150	Ólafsvík	473	24/7-1963	336	27	8.0	2	9	9	3	–	–	–	–	2	2
179	Ólafsvík	473	15/8-1965	239	16	6.7	–	1	7	2	–	–	–	–	2	4
94	Arnarfjörður	574	1/9-1959	217	21	9.7	–	2	11	2	–	1	1	–	1	3
53	Bolungarvík	623	30/7-1957	169	14	8.3	1	2	5	3	1	–	–	1	1	1
107	Bolungarvík	623	16/7-1960	41	1	2.4	–	–	–	1	–	–	–	–	–	–
174	Bolungarvík	623	25/7-1965	316	40	12.7	1	–	27	5	1	–	–	–	2	4
42	Húnaflói	570	10/8-1956	100	4	4.0	–	–	–	1	1	–	–	–	1	1
54	Húnaflói	570	31/7-1957	200	19	9.5	3	3	3	5	–	–	–	–	2	3
93	Húnaflói	570	30/8-1959	84	4	4.8	–	–	–	3	–	–	–	–	–	1
108	Húnaflói	570	18/7-1960	162	7	4.3	–	2	–	2	1	–	–	–	1	1
124	Húnaflói	570	24/7-1961	302	23	7.6	–	3	5	10	–	2	–	–	–	3
151	Húnaflói	570	28/7-1963	427	73	17.1	–	–	16	46	3	–	–	–	–	8
19	Skjálfandi	617	17/5-1955	196	23	11.2	–	2	10	3	3	1	–	–	–	4
39	Skjálfandi	617	5/8-1956	200	15	7.5	3	–	1	1	5	–	1	–	4	–
58	Skjálfandi	617	6/8-1957	233	23	9.9	–	1	4	4	10	–	1	3	–	–
89	Skjálfandi	617	26/8-1959	166	19	11.4	1	1	1	3	8	–	–	–	–	5
110,111	Skjálfandi	617	23-24/7 1960	254	35	13.8	–	1	6	7	14	–	1	1	1	4
126,127	Skjálfandi	617	28-29/7-1961	170	10	5.9	–	–	1	2	5	1	–	–	–	1
140	Skjálfandi	617	23/7-1962	400	45	11.3	1	–	11	8	22	1	1	–	–	1
153	Skjálfandi	617	1/8-1963	296	51	17.2	1	2	7	6	27	3	1	–	–	4
59	Bakkaflói	614	9/8-1957	280	17	6.1	–	–	3	4	2	3	–	–	2	3
74	Bakkaflói	614	1/8-1958	76	3	3.9	–	–	–	1	–	–	1	–	–	1
88	Bakkaflói	614	24/8-1959	74	6	8.1	–	–	1	–	2	1	1	1	–	–
128	Bakkaflói	614	31/7-1961	361	42	11.6	–	2	3	8	3	12	8	1	1	4
141	Bakkaflói	614	2/8-1962	150	14	9.3	–	–	4	2	2	4	1	–	–	1
154	Bakkaflói	614	3/8-1963	247	29	11.7	–	–	5	3	3	5	1	–	–	12
75	Skinneyjarhöfði	415	4/8-1958	72	3	4.2	–	–	–	–	–	–	–	3	–	–
86	Skinneyjarhöfði	415	21/8-1959	200	6	3.0	–	–	–	–	–	–	2	1	1	2
175	Skinneyjarhöfði	415	6/8-1965	161	19	11.8	–	1	1	1	–	–	7	3	3	3
36	Ingólfshöfði	366	30/7-1956	105	2	1.9	–	–	–	–	–	–	–	1	1	–
61	Ingólfshöfði	366	13/8-1957	370	14	3.8	–	–	–	–	–	–	2	5	1	6
76	Ingólfshöfði	366	4/8-1958	220	7	3.2	–	–	–	1	–	–	1	4	–	1
113	Ingólfshöfði	366	27/7-1960	242	7	2.9	–	–	1	–	–	–	1	3	2	–
129	Ingólfshöfði	366	2/8-1961	300	7	2.1	–	–	1	–	1	–	1	2	–	2
142	Ingólfshöfði	366	6/8-1962	285	6	2.1	–	–	–	1	–	–	–	3	2	–
176	Ingólfshöfði	366	7/8-1965	153	13	8.5	–	2	–	1	–	–	–	8	–	2