

On the Remarkable Quantities of Haddock in the Belt Sea during the Winter of 1925-26, and Causes leading to the same

by

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In the Belt Sea a haddock fishery of unique extent was carried on during the past winter¹⁾. In the autumn of 1925, several remarkably large catches were made in this water by Danish and German vessels, and by January of the present year, the fishery had attained considerable dimensions. As the news spread, a number of fishermen from other parts were attracted to the spot, and by the middle of February, when the fishery was at its height, over a hundred cutters, besides many smaller craft, were working there. Most of these cutters were from Esbjerg, some were from Skagen, Lemvig, and other parts of Denmark, a few being from Sweden. The quantity taken per cutter and per fishing day often amounted to 2000—4000 kilos of haddock, besides numbers of cod.

Most of the haddock were taken in the channel between the north-west point of Ærø and Als, and in the Little Belt outside Aabenraa Fjord; also in the waters between Als and Fehmarn. Haddock were likewise found in considerable quantities in other parts of the Belt Sea, as for instance in the northern part of the Little Belt, in the Great Belt, and in the Bay of Lübeck to within the neighbourhood of Warnemünde.

The Danish fishermen worked mainly with the haddock seine, the Germans chiefly with the Kurre (a small otter trawl made higher and longer than the type generally used for flatfish so as to be better suited for the capture of haddock).

Statistics for the yield of the haddock fishery in the Belt Sea during the past winter have not yet been procured, but the catch probably

¹⁾ The Belt Sea is here taken as including the waters around Samsø, the Great Belt and Little Belt, with the Western Baltic from the shores of South Jutland to the line Gedser—Darsserort (see Fig. 1).

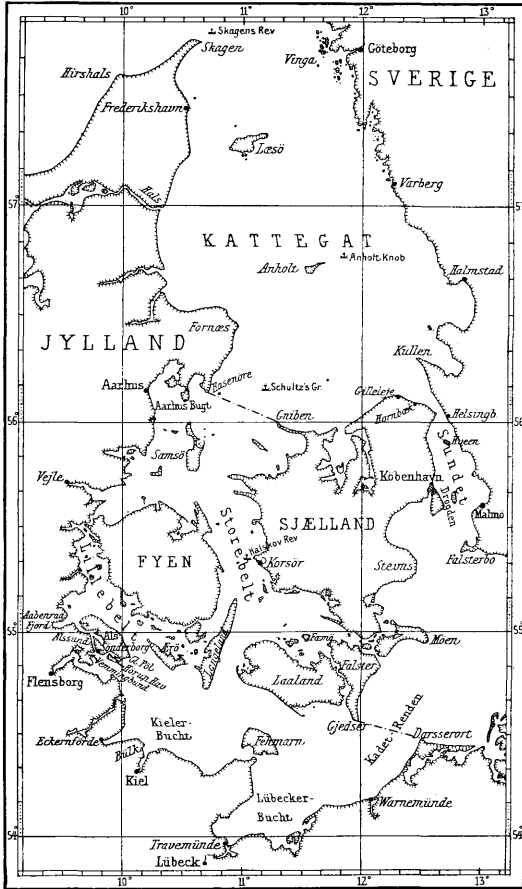


Fig. 1. Chart of the Kattegat and Belt Sea.

amounted to somewhere between $\frac{3}{4}$ and 1 million kilos. The value of the haddock landed in South Jutland in January and February 1926 has been roughly estimated by the Fishery authorities in Denmark at abt. 230,000 Kroner¹⁾. Reckoning the price as 50 Øre per kilo, this would give 460,000 Kilos. The yield of the German haddock fishery in the Belt Sea from October 1925 to February 1926 is estimated by Dr. HEIDRICH, of Hamburg, at 160,000 Kilos²⁾.

Comparing the yield of the Danish haddock fishery in the Belt Sea during the first two months of the present year, with the yield in previous years, as noted in the Fiskeri-Beretning, we find the following figures:

Table 1. Yield of the Danish Haddock Fishery in the Belt Sea. Kilogrammes.

1909	0
1910	0
1911	250
1912	0
1913	15550
1914	2700
1915	0
1916	5100
1917	0
1918	0
1919	0
1920	0
1921	0
1922	0
1923	200
1924	270
1925	59000 ³⁾
1926	c. 500000 (January and February alone)

From this it will be seen that the yield of the haddock fishery in the Belt Sea during previous years was altogether insignificant in comparison with that of the past season. — True, it should be borne in mind that the haddock-seine has not previously been employed in the Belt Sea. But line fishery for cod has been carried on there from the very earliest times, and if there had been any great abundance of haddock

¹⁾ From information kindly furnished by Fiskeridirektor MORTENSEN.

²⁾ HERBERT HEIDRICH: "Der Schellfischfang in der westlichen Ostsee". Der Fischerbote 1. April 1926.

³⁾ of which 28000 kilos during the first months of the year and 31000 kilos in the last months of the year.

at any time, it would certainly have shown itself in the yield of the line fishery. Moreover, haddock are also taken in the ordinary seine as used for plaice, as well as in the otter trawl and gill nets. It was evidently the great abundance of haddock in the Belt Sea during the past season which led to the use of the haddock seine in those waters.

The above data clearly show that there was, in the winter of 1925—26, a remarkable abundance of haddock in the Belt Sea. And we naturally ask, what was the cause of this abundance, and what are the prospects for this fishery in the future?

The haddock is a pronounced salt water fish, not spawning to any great extent in water of less than 34 ‰ salinity. As a rule, this 34 ‰ water extends in to the boundary area between the Skagerak and Kattegat during the spawning season of the haddock, in early spring, and we find here also a rather sharply defined boundary for the spawning grounds of the haddock.

In certain years, however, the 34 ‰ water penetrates to a great extent into the Kattegat, and the boundary of the haddock spawning ground then shifts further southward, while the larvæ are also carried in with the salt bottom current from the Skagerak.

As I have previously pointed out¹⁾ there was, in the spring of 1923, an abnormally strong inflow, from the Skagerak to the Kattegat, of a mixture of North Sea and Atlantic water. This was shown by the marked rise in salinity of the lower water layers in these parts throughout a large portion of the spring and early summer, as for instance:

At Skagens Rev Lightship,	from early Feb. to abt. 1 May	(abt. 0—1 ‰ above normal)
- Læsø Trindel	— mid. Feb. to early May	(0.5—1 ‰ above normal)
- Anholt Knob	— early March—mid May	(1—2 ‰ above normal)
- Schultz' Grund	— abt. 9 March—19 June	(1.5—2 ‰ above norm.)
- Halskov Rev	— 13 March—29 June	(4—6 ‰ above normal)

The temperature of the inflowing saltier water was abt. 1—2° C. above normal.

In the western part of the Baltic also, observations made at the stations of the research vessel "Dana" on the 20th and 21st of April 1923 revealed a considerably higher salinity of the bottom water than normal, as will be seen from the following:

¹⁾ Fiskeri-Beretning for Aaret 1923, Copenhagen 1924 p. 108, and A. C. JOHANSEN: On the Influence of the Currents upon the Frequency of the Mackerel in the Kattegat and adjacent parts of the Skagerak. Medd. Komm. f. Havunders. Serie: Fiskeri Bd. VII No. 8 Copenhagen 1925.

	depth	salinity	normal sal.
S.W. of Langeland	30 m	25.46 ‰	22 ‰
S.E. —	23	27.74	21
N. of Fehmarn	28	25.35	21
E. —	22	22.50	19
Kadetrenden	25	20.55	16
S. of Møen	21	18.82	13

The marked inflow of salt and warm water was also evident from the composition of the plankton in the water. The plankton found in the Kattegat and the Belt Sea contained a series of organisms not generally found there, but belonging to the open sea. The siphonophores for instance, were represented by two species, *Physophora hydrostatica* and *Galeolaria truncata*, which belong to the warm Atlantic water, and with two other species belonging to the northern fauna. Larvæ of the coalfish (*Gadus virens*) also were found, both in the Kattegat and in the northern part of the Sound, while its larvæ are not normally met with farther towards the Baltic than the Skagerak. Other species, including larvæ of the haddock, were of far more frequent occurrence than normally, and were also found farther up in the Baltic waters than usual.

The catch of haddock larvæ from the "Dana" in the spring of 1923 is illustrated by the chart Fig. 2, showing the number taken per 30 minutes' haul with a ring trawl of 2 m. diameter. (In certain cases, the Petersen young-fish trawl of similar opening was used instead of the ring trawl).

During the months of April, May and June, there were, as shown in Fig. 2, numerous haddock larvæ found in all parts of the Kattegat, some of the larvæ being so small that they must be presumed to have developed in the Kattegat itself. But a great number of the haddock larvæ found in the Kattegat must plainly have been carried in from the Skagerak with the salt bottom current, which carried many of them farther on again into the Belt Sea. The Kattegat and Belt Sea were thus stocked to an unusual degree with haddock larvæ. According to the investigations of HAROLD THOMPSON,¹⁾ the year 1923 was a favourable one for development of the haddock fry in the North Sea, and the same was evidently the case as regards the Skagerak. It is not surprising then, that the strong current from the North Sea and Skagerak should carry numbers of haddock larvæ into the Kattegat and Belt Sea; probably also, a number of adolescent haddock entered these waters at the same time. At the close of May and beginning of June 1923 I was able to show, by fishing experiments with the ring trawl from the research vessel "Dana", that the haddock larvæ had passed down right through

¹⁾ HAROLD THOMPSON: Problems in Haddock Biology. I. Fisheries, Scotland. Sci. Invest. 1922. 2, V. (May 1923).

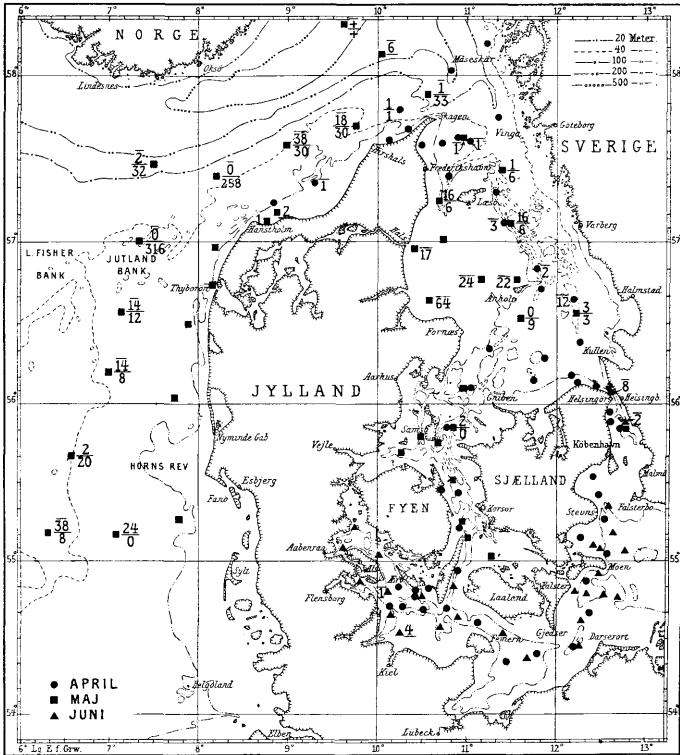


Fig. 2. Catch of Haddock larvae per 30 minutes' haul with ring trawl and young fish trawl from the "Dana" in April, May and June of 1923. The figures above and below the lines state the number of larvae caught in the upper layers (down to 12 metres) and in the lower layers, respectively. For the North Sea and Skagerak a line above the upper figure indicates that the hauls are taken at depths between 16 and 28 metres.

the Great Belt into the western part of the Baltic¹). These haddock larvæ were of the following lengths:

¹) Fiskeri-Beretning for Aaret 1923 p. 108.

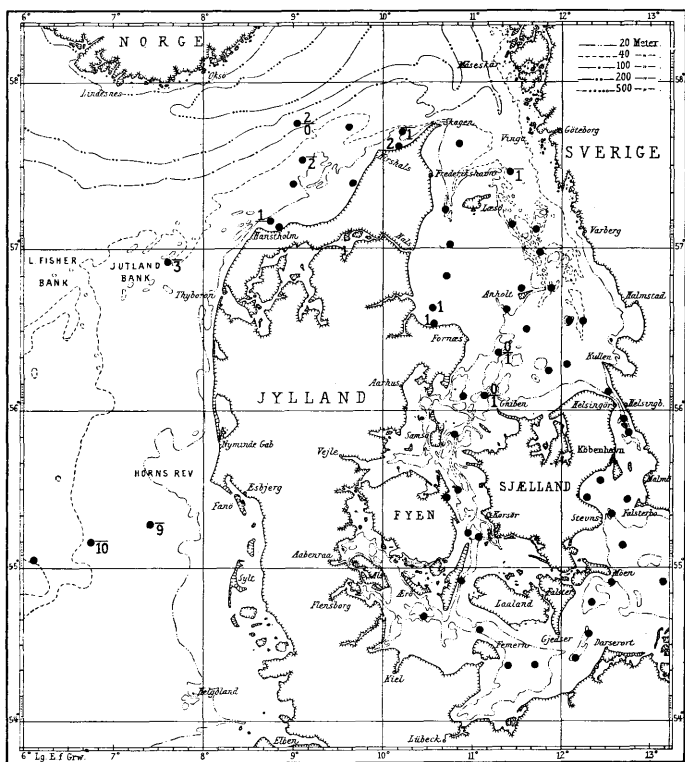


Fig. 3. Catch of Haddock larvae per 30 minutes' haul with ring trawl and young fish trawl from the "Dana" in April of 1925. For further explanation see Fig. 2.

- St. 3060 30-5-25 E. of Samsö 2 spec. 9,19 mm.
 - 3070 1-6-23 N.N.E. of Bülk Light 4 spec. 15, 16, 18, 20 mm.
 - 3076 4-6-23 S.E. of Gl. Pöl Light 1 spec. 18 mm.

At the two first-mentioned stations, the larvæ were taken in the upper water layers, where the salinity was 15—18 ‰.

It will be seen then, that none of these haddock larvæ could have been recently hatched (the length of the newly hatched stages is abt. 4 mm). Most of them must presumably have been abt. 2 months old.

At the end of April, we made fishing experiments with the ring trawl at 17 different stations in the Belt Sea, and no haddock larvæ were then taken, though there were at that time numerous tiny haddock larvæ in the North Sea, Skagerak and eastern Kattegat. It seems evident then, that we have here to deal with larvæ not spawned in the Belt Sea itself, but carried in with the salt bottom current.

Most of the larvæ taken in the Kattegat in April—May 1923 were found, at any rate during the day, in the lower water layers, where the general trend of the current is inwards (or directed towards the Baltic), and it must be presumed that a great part of the larvæ from the Kattegat drifted down into the Belts and the western Baltic after the ring trawl fishery there was at an end.

Under ordinary circumstances, only very few haddock larvæ are found in the Kattegat. Fig. 3 shows the catch from the "Dana" with the ring trawl in the spring of 1925, when the salinity of the lower water layers was normal. The enormous difference in the catch of haddock larvæ in the two years is here conspicuously evident.

The abnormal occurrence of haddock larvæ in the Belt Sea was thus noted in the investigations made from the "Dana" at the end of May and beginning of June 1923, and in the late summer and autumn of 1923, young bottom stages of haddock, evidently spawned the same year, were observed at several places in the Belt Sea¹⁾. Dr. PETERSEN for instance, found, in the late summer, quite a number of haddock of about two inches length at certain places in the Belt Sea, e. g. in the Smaaland Bay down to Fæmø and in the Belts down as far as Als, while Professor STEYER, of Lübeck, informed me that German fishermen had been surprised to find, in October 1923, numerous small haddock of abt. 15 cm. length in Eckernförde Fjord. According to STEYER, also, some haddock, length not stated, were caught in the Bay of Lübeck, where haddock are not generally found.

In the winter of 1924—25, when the haddock in the Belt Sea had grown somewhat, they became the object of increased attention on the part of the fishermen, and in the Bay of Aarhus, a special fishery was carried on for these fish, with a fine-meshed snurrevaad. In several of the South Jutland fjords, they were captured in considerable numbers in seines, and at some places also in pound nets together with the her-ring. With regard to their size, we have *inter alia* the following data:

¹⁾ as early as the 24th of June 1923 I found, in the deep channel of the Sound off Landskrona, some few haddock of 4—4.5 cm. length, at the transition between pelagic and bottom stage.

In the Bay of Aarhus, the haddock taken in snurrevaad in January 1925 were 25—38 cm long, most of them, 30—35 cm.

In the South Jutland waters, Aabenraa Fjord, Alssund, Vemmingbund etc. most of the haddock captured were, according to information from the fishery authorities, between 30—35 cm long, and several smaller were observed, down to abt. 25 cm. Magister A. STRUBBERG examined a sample of such haddock taken by purse seine in Vemmingbund, on the 18. April 1925, and found the length varied from 25 to 37 cm, with an average of 29 cm.

Dr. E. FISCHER, of Berlin, measured a sample of 121 haddock taken at Travemünde in April 1925. The length varied from 25—38 cm, average abt. 31 cm¹⁾.

Thus the size of the haddock was rather uniform in the various places of the Belt Sea in the first months of the year 1925, and according to their size and the previous observations regarding the occurrence of the haddock larvæ in the Belt Sea in May—June 1923 and the occurrence of young bottom stages in late summer and autumn 1923 it would seem probable that the first in question were the larger specimens of the year class of 1923, which as larvæ were transported into the Belt Sea with the great inflow of salt water in the spring of 1923. In order to obtain information as to the growth of the haddock in the Belt Sea during their two first years of life, we calculated the length at the close of the first and second year of life from observation of the breadth of the growth rings in the scales of 78 three-year-old haddock taken in Aabenraa Fjord on the 30th of January 1926; see Table 2.

The two-year-old haddock in the sample from Aabenraa were then, it is true, according to this calculation, somewhat smaller than the majority of the fish taken by the fishery in the Belt Sea during the winter of 1925—26. Still, bearing in mind the fact that fishery for small haddock practically speaking always yields a disproportionately high percentage of the larger sizes, we can hardly doubt but that the great majority of the haddock taken during the winter of 1925—26 belonged to the 1923 year-class.

The great catches of haddock in the Belt Sea in the winter of 1925—26 were thus not altogether unannounced, and as the fish were somewhat larger than those of the winter 1924—25, it would seem natural to suppose that they were still from the 1923 year-class.

¹⁾ E. FISCHER: Das Auftreten von Schellfischen in der Ostsee. Mitteilungen des deutschen Seefischerei-Vereins. Jan.-Febr. 1926.

Table 2. Length of 78 haddock taken in Aabenraa Fjord
30th January 1926 at the close of their:

cm	First year	Second year	Third year
11	2	..	..
12	1	..	..
13	6	..	..
14	8	..	..
15	4	..	..
16	12	..	..
17	12	..	..
18	15	..	..
19	7	..	..
20	5	1	..
21	4	2	..
22	1	1	..
23	1	4	..
24	..	5	..
25	..	5	..
26	..	13	..
27	..	10	..
28	..	9	..
29	..	6	1
30	..	11	..
31	..	2	..
32	..	1	4
33	..	2	6
34	..	5	10
35	..	..	6
36	..	1	7
37	..	..	10
38	..	..	6
39	..	..	9
40	..	..	6
41	..	..	2
42	..	..	4
43	..	..	..
44	..	..	2
45	..	..	2
46	..	..	2
47	..	..	..
48	..	..	1
No.	78	78	78
Average length in cm.	16.8 + 0.2	27.6 + 0.4	37.4 + 0.5

Measurements of samples of haddock taken at different places gave the following result:

Table 3. Total length of haddock from waters east of S. Jutland. January—February 1926.

Locality:	Aabenraa Fjord	Between Als and Ærø	Landed at Sønderborg	Landed at Sønderborg	Total
Date	30. Jan.	abt. 8. Febr.	abt. 13. Febr.	abt. 15. Febr.	
cm	No.	No.	No.	No.	
18. . . . .	..	..	..	1	1
..
..
28. . . . .	..	..	..	1	1
29.	1	..	..	..	1
30. . . . .	..	1	..	..	1
31. . . . .	..	1	..	..	1
32.	4	2	..	1	7
33.	6	3	..	3	12
34.	10	10	1	8	29
35.	6	13	..	9	28
36.	7	26	3	8	44
37.	11	16	2	8	37
38.	6	21	2	2	31
39.	10	12	2	3	27
40.	6	16	4	2	28
41.	2	13	3	3	21
42.	4	4	4	..	12
43. . . . .	..	3	3	2	8
44.	2	2	3	..	7
45.	2	1	2	..	5
46.	2	..	..	..	2
47. . . . .	..	..	..	..	..
48.	1	1	..	..	2
No.	80	145	29	51	305

Age analyses of the 305 specimens noted in Table 3 gave the following result¹⁾:

	year class 1925	year class 1923	year class 1922	year class 1921
No. of specimens . .	1	301	2	1
Length in cm. . . .	18	28—48 ²⁾	43—44 ³⁾	48 ³⁾

Examination at the Danish Biological Station of 44 haddock measuring 33—48 cm, taken outside Hørup Hav, Als, abt. 8 Feb. showed that all belonged to the 1923 year-class⁴⁾. Age analyses made by HEIDRICH with

¹⁾ Most of the age analyses were made by Magister ERIK M. POULSEN.

²⁾ Average length 37.6 + 0.5 cm.

³⁾ Taken between Als and Ærø.

⁴⁾ C. G. JOH. PETERSEN: Om det nye Kullerfiskeri i vore sydlige Farvande. Fiskeri-bladet 1. Marts 1926.

88 haddock taken in the western Baltic on the 26 Febr. and 2 March 1926 showed that 87 specimens of 27—51 cm length were of the 1923 year class, while a single individual of 56 cm belonged to the 1921 year class.

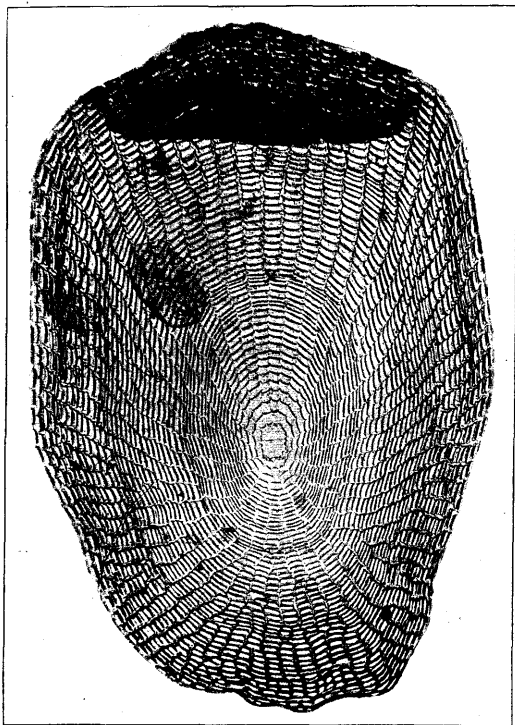


Fig. 4. Scale of Haddock of the II-Gr. (nearly 3 years old) male of 45 cm. length caught in Aabenraa Fjord, 30 January 1926. The crosses are placed where the edge of the scale occurred at the end of the first and the second growth year.

According to information procured by the Danish Fishery Authorities, and kindly communicated by Fiskeridirektør MORTENSEN, there were, in addition to the "small" haddock of abt. 30—40 cm and the "medium" fish of abt. 40—50 cm, also a number of "large" haddock,

abt. 50—66 cm, in the catches; these however, never amounted to 10 % of the total weight of the yield, even during that part of the season when they were most numerous. It is beyond question that at any rate the largest of these must have been more than 3 years old. In the North Sea, according to HAROLD THOMPSON, haddock of 60—66 cm are between 5 and 10 years old or thereabout.

In the reports sent into the Danish Fishery Board there is no mention of any captures of specimens about 22—27 cm. total length; it is stated however, that some few specimens about 20 cm total length were caught, and these last evidently belonged to the 1925 year-class.

We can then, from the analyses made, safely conclude that abt. 99 % of the haddock landed from the Belt Sea during the winter of 1925—26 belonged to the 1923 year-class.

The one peculiar feature about the stock of haddock in the Belt Sea in the winter of 1925—26 was then, the fact that nearly all the fish belonged to a single year-class, viz. 1923, the 1924 year-class being practically speaking absent altogether. This argues most decidedly against the suggestion that the abundance of haddock in the Belt Sea should be due to an unusual invasion from the Skagerak and northern Kattegat in the winter of 1925—26, as the stock of haddock there was of entirely different composition. True, the 1923 year-class was richly represented in the catches from these waters, but the 1924 year-class was also very well represented among the "small" market fish. A single example will suffice to show this very plainly. Analysis of a sample of 104 selected small haddock of 24—37 cm length taken at Læsø Trindel 21 Febr. 1925 showed the following figures:

	1925 year class	1924 year class	1923 year class
No. of specimens	1	97	6
Length in cm.	24	25—35	32—37

The "small haddock" from which the above sample was taken amounted to about half the catch at the locality in question. The analysis quoted thus gives an instance of the degree to which the 1924 year-class was represented in the catches from the northern Kattegat in the early part of 1926, in contrast to what we find in the Belt Sea.

There are however, also other features which militate against the suggestion that the three-year-old haddock predominating in the Belts in the winter of 1925—26 recent arrivals. We find for instance, that the genital organs in these three-year-old fish were, in January and February, far less developed than is normally the case at the season in question, among adult haddock in the North Sea and Skagerak. Out of a sample

of 80 specimens from Aabenraa Fjord from the end of January, 71 were due to spawn in the spring of 1926, but the eggs were quite small, only abt. 0.2—0.3 mm diameter, and the testes as yet but slightly swollen. It looked then, as if these fish would not spawn before April or May, whereas the haddock of the Skagerak have their main spawning season in March. It seems likely then, that these haddock had remained so long in the Belt Sea that the development of their genital organs had been distinctly affected by their stay there.

We find then, that the great haddock fishery in the Belt Sea during the winter of 1925—26 was due to exceptional circumstances. In the first place, an abnormally powerful inflow of water from the Skagerak to the Kattegat led to some degree of spawning there by the haddock, whereas normally, the Kattegat haddock migrate to the Skagerak or the North Sea to spawn. Furthermore, the strong bottom current carried haddock larvæ from the Skagerak to the Kattegat and from the Kattegat to the Belt Sea, this transport of larvæ being the more extensive because the year 1923 was a favourable survival year for the young haddock in the North Sea and the Skagerak. Then again, the winter movement of the haddock from the Skagerak to the Kattegat was doubtless in excess of the normal owing to the abnormally high salinity of the lower water layers in the Kattegat during November—December 1924. Possibly also, a not altogether inconsiderable number of small haddock of the 1923 year-class may at the same time have advanced from the Kattegat to the Belt Sea.

In view of the facts thus set forth, it must be admitted that future prospects for the haddock fishery in the Belt Sea are not bright. The extensive fishery was due to a combination of fortunate circumstances which will not often be repeated. But we are still without sufficient experience to judge how the great stock of haddock in the Belt Sea will behave¹⁾. Some small percentage of the haddock will not attain maturity in the present spring, and it is not unlikely that these may remain in the inner Danish waters until next spring. The main bulk of the three-year-old haddock in the Belt Sea however, attain maturity in the present spring, and it now becomes a question, whether these will emigrate to the Skagerak or North Sea to spawn, or remain in the Belt Sea throughout the summer. It is probable that the majority will emigrate, and the great decrease in the fishery which has been observed since the end of February suggests that this migration has already been

¹⁾ A considerable portion of the stock of haddock in the Belt Sea was probably caught during the winter of 1925—26, but hardly the main part.

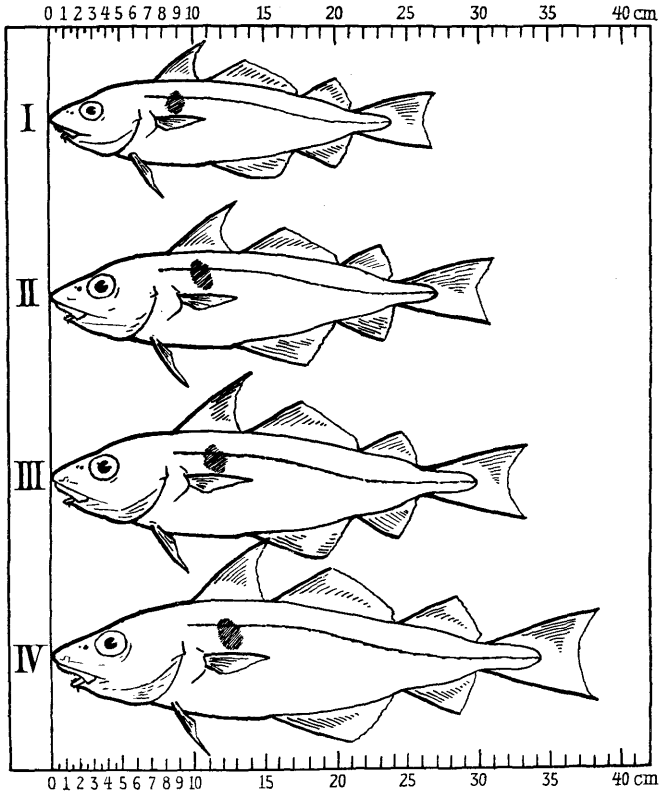


Fig. 5. Length of Haddock from various localities at the end of their third year:

- I. Fladen after HAROLD THOMPSON.
 II. Dogger Bank — — —
 III. Jutland Bank — — —
 IV. The Belt Sea

going on for some time past. But it is possible that not all the mature haddock will manage to find their way out from the numerous bays and creeks of the Belt Sea in the present spring, and we may now ask whether such relicts will be able to propagate in this water.

It seems likely that if any larvæ are developed at all, it will only be very few, and not sufficient to renew the large stock. We do not find, among haddock, special brackish water races, such as are known to exist among many other species of our fishes, like the herring, cod, plaice, flounder, turbot etc.

The haddock of the Belt Sea have, during their two first years of life, about the same growth as those of the North Sea but in their third year, they have grown much faster. The average length of the haddock in the Belt Sea at the close of their first year was as above noted, abt. 17 cm; at the close of the second year abt. 28 cm, and at the close of the third year abt. 38 cm. For purposes of comparison, the following figures are given (after HAROLD THOMPSON) for length of haddock from various localities in the North Sea at the close of their:

	first year	second year	third year of life
Fladen	17.5	23.5	27.0 cm
Dogger Bank	17.5	26.0	31.0
South-west Norway	17.0	26.0	31.5
Jutland Bank	17.5	28.0	33.0

The rapid growth of the haddock in the Belt Sea shows that they have found here particularly favourable conditions of nourishment, and it might be imagined that haddock which have grown up in the Belt Sea would return to those waters after their spawning and possibly bring with them shoals of other haddock. This however again seems rather an optimistic view.

At certain periods in earlier times, a regular haddock fishery was carried on in the inner Danish waters. In the Sound, for instance, the line fishery for haddock north of Hveen did not cease until about 1886, dating back as far as tradition can reach among the fishermen of the Sound¹). In the excellent work: "Danmarckis oc Norgis Fructbar-Herlighed" dating from 1665, the writer, ARENNT BERNTSEN, mentions the haddock as one of the important species in the Sealand fishery, together with herring, cod, flounder, eel and whiting. It is likely that in those periods when the haddock penetrated comparatively far into the inner Danish waters, there was also a relatively marked inflow of salt water from the Skagerak either during the spring or autumn.

It will be seen from Table 1 that in 1913, more haddock were taken in the Belt Sea than in any year between 1909—1924, but the yield

¹) This fishery was carried on mainly during the months of May and June.

was still inconsiderable in comparison with that of the present year. We naturally ask then, whether there was, three years before, i. e. in 1910, also an unusually marked inflow of water from the Skagerak to the Kattegat. This was not the case, but going one year farther back, i. e. to 1909, we do find such a marked inflow of water. The size of the fish taken in 1913 is not known, but they were undoubtedly taken by line fishery, and it is likely then that they would on the average have been somewhat larger than those taken in the Belt Sea during the present year; it is not unreasonable, therefore, to suppose that they may have been four-year-old fish.

On the northern coasts of Sealand, and especially at the northern entrance to the Sound, there was, as in the Belt Sea, an unusually heavy haddock fishery in the winter of 1925—26, and some few haddock even penetrated right in as far as Drogden, which is an altogether unusual phenomenon. From October to December 1925, the yield of the haddock fishery from the fishing villages of the Sound amounted to abt. 114,000 kilos. During the first months of 1926, the fishery was continued, and the fishermen from Gilleleje, Hornbæk etc. brought in daily catches of 2—3000 kilos per boat. During the period 1909—24, the total yield of the haddock fishery in the Sound for all years together amounted to only 56,000 kilos.

We have thus witnessed an experiment made by Nature itself on a grand scale, showing that the haddock can thrive in the Belt Sea from the larval stage right up to the adult fish; and that the inner Danish waters offer, indeed, particularly favourable conditions for growth. It seems natural then to consider whether artificial fertilisation and hatching of haddock eggs, with subsequent liberation of the young fish in the Belt Sea might not prove a profitable undertaking. It is by no means impossible that it might. Preliminary experiments in regard to the hatching of haddock eggs, and the ability of the larvæ to survive transport etc. would perhaps yield information of importance in this respect.