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ABERDEEN FISHERY STATISTICS,

WITH AN INTRODUCTION BY

PROFESSOR D'ARCY W. THOMPSON, C.B.

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ABERDEEN TRAWLING STATISTICS

FOR THE YEAR 1912.

INTRODUCTORY NOTE BY
D'ARCY WENTWORTH THOMPSON.

THERE are here presented, for the year 1912, the detailed returns of the Aberdeen trawling fleet, such as have hitherto been published, for the years 1902–1911, in the special Reports of the Board's North Sea Investigations. These returns are of two kinds.

In the first, and briefer, series of Tables is shown the catch of the entire trawling fleet, both British and foreign vessels, landing at Aberdeen. The British landings were 11,010 in number, the foreign 446, making a total of 11,456. For these voyages there are recorded the number of days that the vessel was absent from port, the gross earnings, and the quantity of fish landed of each kind and market class. These are further classified according to the place of fishing into the following regions:—

(1) Northern grounds, including areas VI.-XVI.
(2) East Coast grounds, including areas XVII., XXII., XXIII., XXVIII., XXIX.
(3) Middle grounds, including areas XVIII.-XXI., XXIV., XXV., XXX.
(4) South-eastern grounds, including areas XXVI., XXVII., XXXI.-XL.
(5) Various North Sea grounds, including catches made up from more than one of the above regions.
(6) Western grounds, off the north-west and west coasts of Scotland.
(7) Faeroe and Iceland.
(8) Mixed grounds, to include catches made partly in the North Sea and partly on the western or northern fishing-grounds.
(9) And lastly, the White Sea, Norwegian Coast (north of 62° N.), and other distant fishing-grounds.

Our first series of Tables, then, show (p. 26) for these larger areas:—

1. The total number of voyages during the year, the total catch of each kind and class of fish, and the gross earnings of the entire Aberdeen trawling fleet.
2. The average catch and average earnings per voyage.
3. The average catch and earnings per day's absence from port.
4. The percentage yielded, by each of the above fishing-grounds, of the entire catch, and of each class of fish.

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The second series of Tables (pp. 30-64) are based on a smaller number of voyages, in regard to which is received, by the kindness of the owners and captains, full information as to the place of fishing and the number of hours spent in actual trawling. It is on this information that the Board depends for its knowledge of the variations in the average catch on each particular area, from season to season and from year to year.

In the year 1912 the Board received such information from 9755 voyages, or over 85 per cent. of the whole, leaving 1701 voyages whose place of fishing is only approximately ascertained, and for which the time spent in fishing is unknown. But out of these 9755 voyages, in 1368 cases the vessel fished on more areas than one in the North Sea, and in 162 cases the vessel fished both within and without the North Sea. There are left, accordingly, 8225 voyages (or about 72 per cent. of all those included in the Board's general statistics) which yield us full information as to the catch per unit of time on some one particular ground. Accordingly, for these 8225 vessels the detailed Tables give the following information:—

5. For each area into which the North Sea and the waters adjacent to our western coasts are divided for statistical purposes (areas covering one degree of latitude and two degrees of longitude), there are shown (*a*) the total number of vessels known to have fished in that area, month by month; (*b*) the number of days during which they were absent from port; (*c*) the number of hours actually spent in trawling.
6. The total catch and total landings of these vessels have not been printed in full, as was done in former years; but, reducing these data to averages, there is shown, as formerly, for each month and for each area, (*a*) the average catch, per 100 hours' fishing, of each kind and class of fish, and (*b*) the average earnings for the same unit of time.
7. Lastly, there is shown for each area, the mean monthly percentage of cod in the total catch of cod and codling, and of small haddock and small plaice in the total catch of those fishes.

Dealing firstly with the main body of statistics, there is shown, briefly, in the following Table (I.), the total quantities of trawled fish landed in 1912 by Aberdeen trawlers from the principal fishing-grounds.

TABLE I.

Total Catch in cwts. landed by Aberdeen Trawlers from the Principal Fishing Grounds, 1912.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	%
Northern Grounds	38,549	56,959	51,780	35,895	54,404	31,219	29,487	27,044	12,913	21,141	23,770	27,977	411,138	21·0
East Coast Grounds	19,552	20,502	16,702	25,116	25,037	27,297	29,426	32,735	27,435	20,516	27,009	21,166	292,493	14·9
Middle Grounds	22,406	8,740	15,199	2,036	1,420	6,814	10,838	18,602	24,345	23,174	39,420	59,877	232,871	11·9
South East Grounds	166	181	39	230	91	676	906	1,069	13,451	19,558	4,148	580	41,095	2·1
Various North Sea	9,722	20,294	14,881	22,206	22,482	9,003	12,665	19,231	8,340	18,635	14,556	11,816	183,331	9·4
Total North Sea	90,395	106,676	98,601	85,483	103,434	75,009	83,322	98,681	86,484	103,024	108,903	121,416	1,161,428	59·3
Western Grounds	19,984	15,883	30,973	12,341	17,684	30,408	31,879	13,791	8,953	6,315	9,906	12,249	211,366	10·8
Faeroe and Iceland	26,048	31,783	79,700	136,265	122,996	44,951	34,626	20,614	11,316	7,420	4,137	25,846	545,702	27·9
Mixed Grounds	1,994	2,532	2,309	1,744	6,669	2,880	6,653	3,919	1,424	1,196	1,435	2,700	35,455	1·8
White Sea	—	—	—	—	—	—	275	1,090	—	—	—	3,601	4,366	·2
Norway	—	—	—	498	531	—	—	—	—	—	—	—	1,029	—
Baltic	—	—	—	—	—	—	—	—	—	93	—	—	93	—
TOTAL	138,421	156,874	211,583	236,331	251,314	153,248	156,755	138,095	108,177	118,048	124,381	165,212	1,958,439	100·0

It will be seen (fig. 1) that the monthly totals rise to a high maximum in the months of April and May, as a result of the more active fishing at Faeroe and Iceland at that season. On the other

hand, the quantity landed falls to a minimum about September and October. These broad facts are of purely commercial importance, and represent the summation of very different phenomena in the individual species of fish.

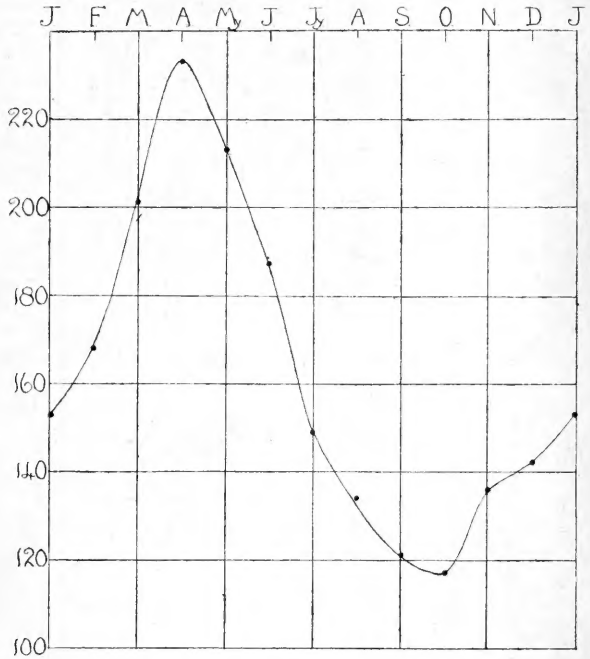

FIG. 1. Total monthly landings of trawled fish in Aberdeen, 1912. (Smoothed curve.)

In Table II. I show, in an abbreviated fashion, the average annual catch per voyage in cwts. of the whole Aberdeen fishing fleet, for the successive years 1905-1912; and in Table IIA. the same results are shown for the successive triennial periods, 1905-7 to 1910-12.

TABLE II.

Average Total Catch in cwts. per Voyage of Aberdeen Trawlers.

	1905	1906	1907	1908	1909	1910	1911	1912
Northern Grounds - -	229·4	200·3	210·2	211·7	206·8	193·3	202·1	222·1
East Coast Grounds - -	60·9	58·0	67·9	62·1	57·4	50·3	58·1	58·3
Middle Grounds - - -	168·5	136·7	146·6	145·9	156·4	117·6	137·5	168·1
South East Grounds - - -	163·2	149·4	180·3	199·8	111·8	141·4	245·2	203·4
Various North Sea - -	176·0	162·5	173·4	174·1	168·7	157·3	173·8	173·8
Total North Sea - -	135·4	125·0	132·9	126·5	121·8	114·7	124·2	122·1
Western Grounds - -	177·3	159·3	183·8	201·2	199·1	192·5	190·8	210·4
Faeroe and Iceland - -	518·9	678·9	569·6	717·4	692·6	666·8	801·0	733·4
Mixed Grounds - - -	—	—	—	177·4	—	158·6	175·2	188·6
GRAND TOTAL - -	153·6	154·9	169·2	161·0	149·0	148·8	164·5	170·9

TABLE IIa.

Average Total Catch per Voyage of Aberdeen Trawlers ('Smoothed.')

	1905-07	1906-08	1907-09	1908-10	1909-11	1910-12
Northern Grounds - -	213·3	207·4	209·6	203·9	200·7	205·8
East Coast Grounds - -	62·3	62·7	62·5	56·6	55·3	55·6
Middle Grounds - - -	150·6	143·1	149·7	140·0	137·2	141·1
South East Grounds - -	164·3	176·5	164·0	151·0	166·1	196·7
Various North Sea - -	170·6	170·0	172·1	166·7	166·6	168·3
Total North Sea - -	131·1	128·1	127·1	121·0	120·2	120·3
Western Grounds - -	173·1	181·4	194·7	197·6	194·2	197·9
Faeroe and Iceland - -	589·1	655·3	659·9	692·3	720·1	733·7
GRAND TOTAL - -	159·2	161·7	159·7	152·9	154·1	161·4

This last Table is the best I can offer as a succinct answer to the question of whether the available supply of fish shows signs of diminution, or, to put it more accurately, whether the average catch is diminishing. As has been frequently explained in the Board's Reports and elsewhere, this question is much too complicated to be properly answered in a word. It requires separate consideration for each species of fish, and for each separate locality, and it is only by the study of the Board's more detailed statistics that this can be done. Nevertheless, there is here an epitomised answer to the question, and it is well worth studying.

There may be omitted from consideration the Middle and South-Eastern grounds, as on these the amount of fishing by Aberdeen trawlers has been comparatively small; nor need the voyages that, from their irregular or unknown distribution, are grouped under the heading "Various North Sea" be considered. From all the other regions there is abundant information. Now, it will be seen at once (from Table IIa.) that there is no evidence of decrease in the catch per voyage from the Western grounds or from Faeroe and Iceland. On the contrary, there is a tendency to increase in the former case, and a very marked increase in the latter. This increase is, of course, no proof of actual increase in the abundance of fish, but is probably due in part to longer voyages, and in part to an increase in the size of the vessels and net. Turning to the Northern (or Shetland) grounds, and to the Near (or East Coast) grounds, there are to be seen in both cases indications of diminution. The diminution is not a steady one. In the case of the Northern grounds, the average catch was high in the triennial period 1907-09, and in the case of the East Coast grounds it was nearly steady in the three triennial periods, 1905-07, 1906-08, 1907-09; and the fluctuations to which it has been subject will be still better seen in Table II. However, the fact remains that the average catch per voyage has fallen, in the case of the Northern grounds, from 213 cwts. per voyage in 1905-7 to 206 cwts. in 1909-12; in the case of the East Coast grounds, from 62 cwts. to 56 cwts.; and for the whole North Sea (or rather that northern part of it frequented by Aberdeen trawlers), from 131 cwts. to 120 cwts.

These indications are by no means final. The period which the

Table covers is not very long, and, moreover, it is obvious that if (as may be) the average length of voyage has tended to alter, even a little, that would help, or might even suffice, to explain the apparent diminution in the yield. And this apparent diminution, such as it is, is not nearly so great as, a few years ago, we were told by many to anticipate. It lends no support to allegations of wholesale depletion of the general stock of fish, but at the same time it does furnish such evidence as prevents us from accepting the optimistic view, according to which no evidence of diminution has been yet demonstrated, or indicated, by the Board's statistics at all.

But as has been shown lately in another Report,* a different, and more truthful idea of the state of the case is got when the various kinds of fish are dealt with separately.

In the following Table there is shown the average catch of certain fishes on the Northern and East Coast grounds from 1905 to 1912:

TABLE III.

Average Catch of Certain Fish in cwts. per Voyage, 1905-12.

Northern Grounds.

	1905	1906	1907	1908	1909	1910	1911	1912
Cod	17·7	17·2	17·6	17·4	19·1	24·5	26·7	27·9
Codling	14·2	12·6	11·2	21·6	30·1	30·3	31·8	30·8
Ling	14·8	12·9	14·0	12·6	12·9	11·1	11·1	12·3
Large & Ex.-Lge. Haddock	43·0	46·0	45·3	39·6	40·4	36·2	36·9	34·2
Medium Haddock	23·1	18·7	20·5	20·9	20·2	14·2	16·7	15·9
Small & Ex.-Sm. Haddock	34·4	34·1	44·5	48·3	38·4	22·8	26·2	29·2
Turbot	·16	·21	·19	·21	·25	·13	·16	·13
Large Lemons	·74	·88	·93	·80	·91	·85	·94	·61
Small ,,	·07	·19	·27	·40	·85	·97	·69	·44
Large Plaice	·69	·73	·56	·24	·11	·04	.03	·03
Medium ,,	2·47	2·00	1·81	1·19	1·06	·73	·64	·72
Small ,,	·16	·13	·18	·15	·16	·06	·03	·10
Total	229·4	200·3	210·2	211·7	206·8	193·3	202·1	222·1

East Coast Grounds.

Cod	9·4	9·3	6·9	7·9	6·9	4·7	5·5	7·6
Codling	4·8	4·7	4·5	5·5	7·4	7·3	7·8	6·6
Ling	2·0	1·8	1·6	1·8	1·9	1·9	1·2	1·7
Large & Ex.-Lge. Haddock	6·4	4·3	5·7	5·5	4·5	3·7	2·6	2·8
Medium Haddock	4·1	3·2	6·9	5·4	4·2	2·6	3·2	3·5
Small & Ex.-Sm. Haddock	15·6	19·0	26·1	18·2	14·2	11·5	21·7	16·5
Turbot	·40	·42	·45	·43	·34	·24	·19	·18
Large Lemons	2·5	2·9	2·5	2·8	2·5	2·5	2·2	1·9
Small Lemons	·55	·66	·81	1·0	·9	1·3	1·5	1·5
Large Plaice	·14	·09	·07	·07	·07	·06	·04	·04
Medium ,,	1·21	1·80	·91	1·19	1·13	1·24	1·10	1·16
Small ,,	·17	·15	·12	·28	1·23	·49	·67	·64
TOTAL	60·9	58·0	67·9	62·1	57·4	50·3	58·1	58·3

and it is hereby seen, unmistakably, that the comparative steadiness of the total catch has been accompanied by very different conditions in the different constituent species.

The cod on the Northern grounds has shown an almost unbroken and of late rapid increase: on the East Coast grounds it has

* Fifth Report (Northern Area) on Fishery Investigations, &c., 1913. p. iii.

diminished, but in no very great degree. In both regions the catch of codling has increased. The ling has remained almost steady in both regions. Large haddock have decreased very perceptibly in both regions. Small haddock have fluctuated, and on the East Coast the catch appears to have increased. Large lemons have kept on the whole steady, and small lemons are landed in increasing quantities. Large plaice have greatly diminished in both regions, and medium plaice have very greatly diminished in the Northern region. From these facts the following conclusions would seem to be justified: That certain fishes, such as the cod and ling, show as yet no signs of diminution, their natural abundance, and probably also the wide extent of sea over which they breed and feed, enabling them so far to maintain their numbers unimpaired by the operations of man; that there are marked fluctuations in the abundance of many fishes, such as the cod, haddock, and others which we can only refer to natural causes that are as yet unexplained; that in certain fishes, such as the haddock, while it cannot be said that their total numbers have of late diminished, yet there has been a very perceptible diminution among the larger sizes; that the trawlers are landing increased quantities of the smaller sizes of several fish, including cod, haddock, lemon soles, and others; that certain fishes, and especially plaice, show of recent years a great diminution in abundance, which diminution is so regular and progressive that it cannot be ascribed to a natural fluctuation, but simply to the fact that the species is being over-fished.

Let me now turn from these general results to some of the other lessons that may be drawn from the statistics.

The following Table shows the number of voyages made to the several fishing-grounds in 1912 by the Aberdeen trawling fleet:—

TABLE IV.

Number of Voyages of Aberdeen Trawlers to the several Fishing-Grounds, 1912.

	Jan.	Feb.	Mar.	Apr.	May.	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	Per cent. of Voyages.	Gross Earnings.	Per cent. of Earnings.	Average Earnings per Voyage
															£		£
Northern Grounds	188	248	204	146	220	141	121	140	67	115	129	132	1,851	16·2	227,967	22·6	123
East Coast Grounds	371	382	254	428	385	411	446	500	446	417	504	473	5,017	43·8	194,060	19·2	39
Middle Grounds	141	53	80	25	20	33	63	142	163	160	203	302	1,385	12·1	140,003	13·9	101
South East Grounds	1	1	1	1	1	3	5	5	54	104	24	2	202	1·8	28,808	2·8	143
Various North Sea	60	101	79	119	116	49	79	110	58	118	95	74	1,058	9·2	103,954	10·2	97
Total North Sea	761	785	618	719	742	637	714	897	788	914	955	983	9,513	83·0	694,793	68·7	73
Western Grounds	103	79	96	59	83	139	150	76	53	31	56	75	1,000	8·7	118,909	11·8	119
Faeroe and Iceland	47	49	98	113	130	82	57	32	41	34	18	43	744	6·5	175,468	17·4	236
Mixed Grounds	9	12	11	8	29	13	34	24	11	9	9	19	188	1·6	19,466	1·9	104
White Sea	—	—	—	—	—	—	1	1	—	—	—	4	6	—	1,833	·2	306
Norway	—	—	—	1	3	—	—	—	—	—	—	—	4	—	697	—	174
Baltic	—	—	—	—	—	—	—	—	—	1	—	—	1	—	61	—	61
TOTAL	920	925	823	900	987	871	956	1,030	893	989	1,038	1,124	11,456	99·9	1,011,228	100·0	88

TABLE V.

Percentage of Total Number of Voyages of Aberdeen Trawlers to the various Grounds.

	1905	1906	1907	1908	1909	1910	1911	1912	Mean.
Northern Grounds	20·3	23·1	24·7	24·0	24·0	27·6	27·4	16·1	23·4
East Coast Grounds	39·2	35·6	37·6	39·9	42·6	38·2	41·2	43·8	39·7
Middle Grounds	15·2	13·4	10·5	9·4	10·6	10·2	8·9	12·1	11·3
South East Grounds	2·5	1·4	·7	·6	·6	·3	·7	1·8	1·1
Various North Sea	10·8	12·1	8·6	6·4	7·4	6·1	7·7	9·2	8·5
Total North Sea	88·0	85·6	82·2	80·2	85·1	82·5	85·9	83·0	84·1
Western Grounds	8·1	9·6	10·8	12·7	11·7	9·2	7·5	8·7	9·8
Faeroe and Iceland	3·9	4·8	7·0	4·0	3·2	4·6	5·1	6·5	4·9
Mixed Grounds	—	—	—	3·2	—	3·7	1·5	1·6	1·2

It will be seen from this Table that out of 11,456 voyages, 9,513, or 83 per cent., were made to some part or other of the North Sea, in addition to a small number included under "Mixed grounds." About 69 per cent. of the gross earnings also came from the North

Sea. Within the North Sea itself, 5,017 voyages (about 44 per cent. of the whole, and about 53 per cent. of the North Sea voyages) were made to the East Coast grounds, in the near neighbourhood of Aberdeen itself: but these are short trips, made by the smaller class of vessels, and the total earnings were, accordingly, comparatively small. While these voyages contributed 44 per cent. of the total voyages undertaken by the fleet, their gross earnings amounted to 19 per cent. of the whole.

Looking at the figures of the same Table from month to month, there are to be seen clear indications of the seasons at which the various grounds are more or less frequented. It is evident, for instance, that the fishing at Faeroe and Iceland is most active from about March to June; that the Northern grounds are most resorted to from January to May; and the grounds of the Middle North Sea from about August to January. The South-Eastern grounds are little fished by Aberdeen vessels except from September to November, and especially during the month of October.

As a supplement to Table IV. I have added a Table (V.), which shows the percentage of voyages reported from the various grounds in the last eight years.

It will be seen that about 40 per cent. of all the voyages reported from Aberdeen are short trips to the near grounds off our East Coast: and the number of voyages to these near grounds shows no signs of diminution, but rather of slight increase. The proportion of voyages to the Northern or Shetland grounds is about one-fourth of the whole, and this proportion tended to increase till 1911, but showed a sudden and marked falling off in 1912. The total number of voyages to some part or other of the North Sea amounts to about 84 per cent. of the whole, leaving only about 16 per cent. for the West Coast, Iceland and Faeroe, and other distant voyages. The proportion of voyages to the North Sea has kept remarkably steady, and if it is borne in mind that nearly all of the voyages reported under the heading of "Mixed grounds" have spent part of their time in the North Sea, that steadiness becomes still more conspicuous. The Western grounds appear to be less in favour than was the case four or five years ago; on the other hand, there is apparent an increase in the voyages to Faeroe and Iceland, but these last include, of late years, a very large proportion of landings by German trawlers.

Many interesting tables of a kind similar to Table IV. may be prepared, showing, for instance, the variation in average earnings from month to month of the vessels, the average number of days spent upon the voyage (Table VI.), or the variations in the average catch of each particular fish.

For instance, the following Table (Table VI.) shows that the

TABLE VI.

Average Number of Days Spent on Voyage, 1912.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Mean.
Northern Grounds	7·0	6·8	6·9	6·9	6·8	6·2	6·0	6·2	6·5	6·7	6·8	7·0	6·7
East Coast Grounds	2·5	2·5	2·6	2·8	2·9	2·9	2·8	2·6	2·4	2·4	2·5	2·5	2·4
Middle Grounds -	5·7	5·6	4·6	3·8	3·7	3·8	4·3	3·8	4·1	4·7	5·4	6·0	4·7
Western Grounds -	7·9	7·8	7·2	6·9	6·6	6·6	6·6	6·9	7·5	7·7	7·8	7·9	7·3
Faeroe and Iceland	15·3	14·3	13·0	12·7	12·0	12·1	11·6	11·1	10·6	11·2	13·2	15·0	12·7

average duration (for 1912) of a voyage to the West Coast grounds is about 8 days in mid-winter, and falls gradually to $6\frac{1}{2}$ days in May or June; in like manner, a voyage to the Northern grounds takes on an average 7 days in winter and 6 days in July, but here the curve is less regular, and there is little difference in the average length of voyage from December to May. In the case of the Iceland and Faeroe voyages, the difference is very striking; for the average falls from about 15 days in December or January to a minimum of about 11 days in August or September. In this case, however, I have not distinguished between the Iceland and the Faeroe voyages, and much of the apparent difference may be due to the varying proportions of these. The Board's more detailed statistics show that the average length of a voyage to Iceland is 13.1 days, and of a voyage to Faeroe 10.5 days.

In the case of the short trips to the East Coast grounds, which take about two and a half days, the maximum length of voyage is not in winter-time, but in early summer, about May and June. And here the greater length of voyage at this season cannot be due to the impediment of weather, but is probably due to a comparative scarcity of fish at this season, and to the slightly greater length of time spent in securing a catch.

The accompanying little chart shows, approximately, the time spent upon a voyage by the Aberdeen trawlers.

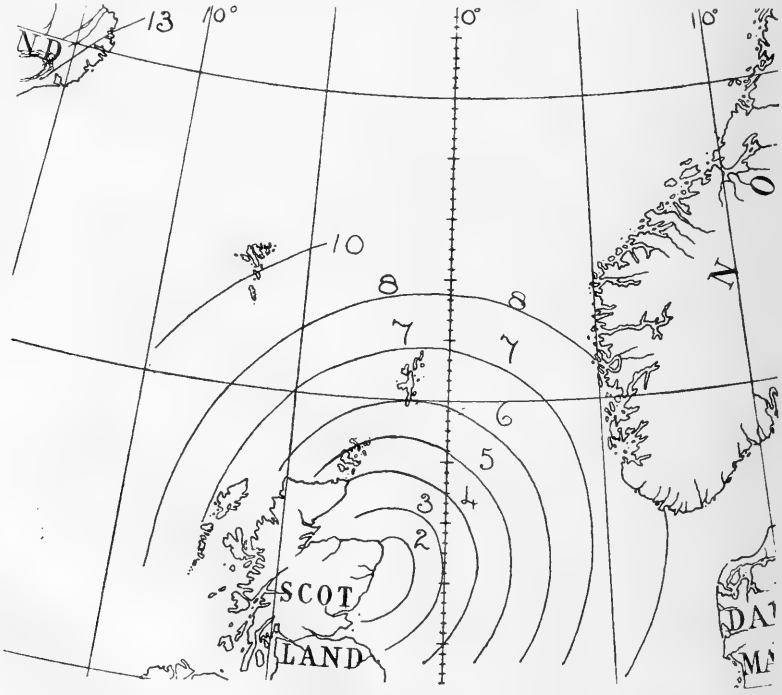

FIG. 2. Chart showing average number of days spent upon voyage by Aberdeen trawlers, 1912.

It is plain that in all such comparisons as these, while much may be learned from the statistics of a single year, yet it is on the averages derived from many years that the more fundamental conclusions must be based.

For example, let us trace by this means, in one or two instances, the changes throughout the year in the number of vessels which resort to some one particular fishing-ground. For it is part of the common knowledge of every fisherman that each ground has its particular seasons of abundance, and with great regularity the fleets resort to one or another at the appropriate times. In any single year we trace imperfectly the general regularity of these movements, for the movements of the fish are themselves subject to irregularity, and the fishermen who follow the fish do not go blindly according to habit and rule. But, summing together for a number of years the movements of the fleets, there is obtained, with an approach to mathematical regularity, an indication of the rule by which those movements are guided and governed.

Let me illustrate this by the case of the three adjacent areas, XV., XIX., and XIV. (Tables VII., VIII., IX.), that is to say, the areas which include Bressay Shoal, the Witch ground to the southward thereof, and the area south of Shetland, including Fair Isle Bank, to the westward of the Bressay area (fig. 3).

TABLE VII.

Number of Voyages to Area XV. (Bressay Shoal).

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1902	13	19	7	1	7	3	—	3	10	33	19	18	133
1903	18	3	9	11	1	—	—	—	—	8	9	10	69
1904	25	28	21	11	—	—	—	1	3	5	12	30	136
1905	38	28	35	8	5	9	3	4	2	8	27	30	197
1906	25	41	19	5	—	—	—	1	1	6	25	41	164
1907	25	9	7	5	—	—	—	—	1	—	12	31	90
1908	33	37	41	10	1	—	—	—	—	6	12	40	180
1909	41	60	66	10	1	—	1	—	1	1	22	53	256
1910	69	58	71	3	—	2	—	—	1	6	32	50	292
1911	104	39	97	8	4	—	—	—	2	—	23	25	302
1912	42	20	39	5	—	1	—	—	—	6	3	44	160
Mean	43·0	31·1	37·5	7·0	1·7	1·4	0·4	0·8	1·9	7·2	17·8	33·8	180·0
,, (Smoothed)	36·0	37·2	25·2	15·4	3·4	1·2	0·9	1·0	3·3	9·0	19·6	31·5	

TABLE VIII.

Number of Voyages to Area XIX. (Witch Ground).

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1902	5	19	5	2	4	8	6	1	1	4	5	34	94
1903	44	6	13	4	4	5	12	6	5	2	10	27	138
1904	60	22	34	25	18	16	13	13	4	6	20	80	311
1905	75	68	27	1	10	3	22	6	4	4	7	60	287
1906	84	33	37	1	14	32	17	9	6	3	4	14	256
1907	18	10	10	1	16	28	23	5	5	1	2	12	131
1908	58	30	5	8	30	20	8	—	—	—	8	43	210
1909	134	39	3	—	1	4	3	—	—	4	11	80	279
1910	36	1	1	—	10	8	2	—	1	3	7	101	170
1911	32	16	4	—	5	20	7	1	2	4	11	101	203
1912	87	9	17	1	—	15	2	4	—	5	52	111	303
Mean	57·7	23·0	14·2	3·9	10·2	14·5	10·5	4·1	2·5	3·3	12·5	60·3	216·5
,, (Smoothed)	47·0	31·6	13·7	9·4	9·5	11·7	9·7	5·7	3·3	6·1	25·4	43·5	

TABLE IX.

Number of Voyages to Area XIV. (Fair Isle, &c.).

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
1902 - -	3	12	5	1	3	—	—	2	6	15	11	6	70
1903 - -	14	2	16	3	—	—	—	—	15	37	18	16	121
1904 - -	19	18	20	—	1	—	—	8	50	35	80	46	277
1905 - -	20	37	35	1	4	11	12	33	40	89	15	12	309
1906 - -	17	41	31	4	—	2	22	121	81	161	107	109	696
1907 - -	89	71	89	6	—	36	80	34	58	52	59	70	644
1908 - -	71	80	32	8	16	35	17	75	41	31	83	46	535
1909 - -	20	48	6	1	17	38	34	50	34	20	77	12	357
1910 - -	52	31	2	1	28	41	49	77	49	66	136	35	567
1911 - -	23	30	7	2	12	37	117	67	159	139	71	14	678
1912 - -	31	73	27	—	10	10	20	10	16	29	31	23	280
Mean -	32·6	40·8	24·5	2·5	8·3	19·1	31·9	43·4	49·9	61·3	62·5	35·4	412·2
„ (Smoothed)	36·3	32·6	22·6	11·8	10·0	19·8	31·5	41·7	51·5	57·9	53·1	43·5	

Here it is seen that in both Areas XV. and XIX., that is to say, Bressay and the Witch ground, the fishing season is a short one, and is concentrated in the winter months, with a maximum in January and December. At Bressay the fishing falls in summer-time to nothing, but on the Witch ground there is a slight return of activity between May and July.

In both cases the curves which result from my 11-year averages are very smooth, and, if allowance be made for the shortness of the month of February, they have no perceptible irregularities.

In the Fair Isle area (XIV.) the conditions are obviously different. Here there is a minimum, or practically an absence of fishing in April; but thereafter the fishing steadily increases throughout the summer, culminates in October and November, and then falls rapidly until April.

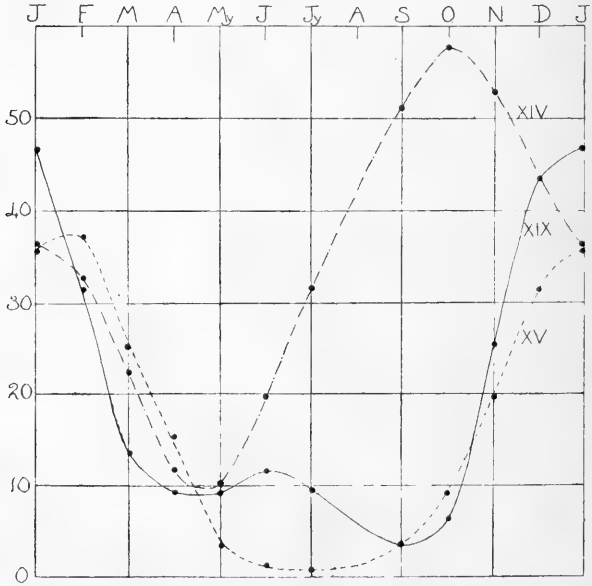

Fig. 3. Mean number of voyages in each month by Aberdeen trawlers to Areas XIV., XV., XIX., 1902-1912.

But by far the most important lessons of a practical kind that may be drawn from these statistics are such as come from a comparison, year by year, and month by month, of the results of the fishing on individual areas, that is to say, of the average catches of this or that particular fish. And so I shall proceed to consider the full Tables of Averages set forth on pp. 32-61, which (as has been said) are drawn from 8225 voyages during the year 1912. Herein lies the one sound and satisfactory method of approaching the problem of whether the available stock shows signs of diminution or not. As has been repeatedly set forth in former Reports, the problem is not a simple one, but has to be set and answered afresh for each species of fish, and considered in detail for various regions or areas. For its proper understanding, also, it requires more or less copious illustrations by means of diagrams or curves.

It is neither requisite that this question should be fully discussed at frequent intervals, nor is it possible that I should make use at any one moment of the whole mass of the Board's accumulating statistics. I propose, rather, to take each year one or two particular fishes, and to supplement the statistical tables with figures illustrating the fluctuations in abundance of these, during the whole period for which information is available. It will be necessary to limit these illustrations to a few of those areas for which the Board's information is most abundant and continuous.

Let us, then, on the present occasion, look briefly at the catch of cod and codling, of ling, and of the witch, during the past eleven or twelve years, on the important areas XXIII. (off the Aberdeen coast), XXIX., immediately to the southward thereof, X. (the Shetland area), XIV., to the southward of Shetland, and including Fair Isle Bank, and XVII., which includes the Pentland Firth and the sea to the westward of the closed waters of the Moray Firth. We may add to these the North-Western area C, whose principal fishing-grounds are in the neighbourhood of Rona and Sule Skerry.

The curves are so simple that a few words of explanation will suffice. On each is shown, month by month, the average number of cwts. landed per 100-hours' fishing by the vessels from which information has been received; and the points corresponding to these monthly catches are found to run together in a continuous and more or less simple curve. The points upon this curve, as has been repeatedly explained, have been subjected to a slight process of smoothing, which consists in replacing the actual observed average for each month by the mean between it and the adjacent averages for the month before and the month after. In short, each point represents the average catch during three months instead of during one. With no impairment of the statistical value of the data, this gives a smoother and simpler curve, by eliminating a number of minor and accidental fluctuations.

It may be observed, in the next place, that every one of these continuous curves represents, more or less clearly, a succession of waves, one in each year; and the nature of this annual periodic wave may be ascertained by adding together and averaging the monthly values for the whole term of years.

Thus, in the curves (figs. 5, 11) which illustrate the average catch of cod and codling in Area X. (Shetland), it is seen at once that the

tendency is to the annual repetition of a wave such as is shown in figure 4, which indicates an annual maximum about mid-summer, and a corresponding minimum in winter.

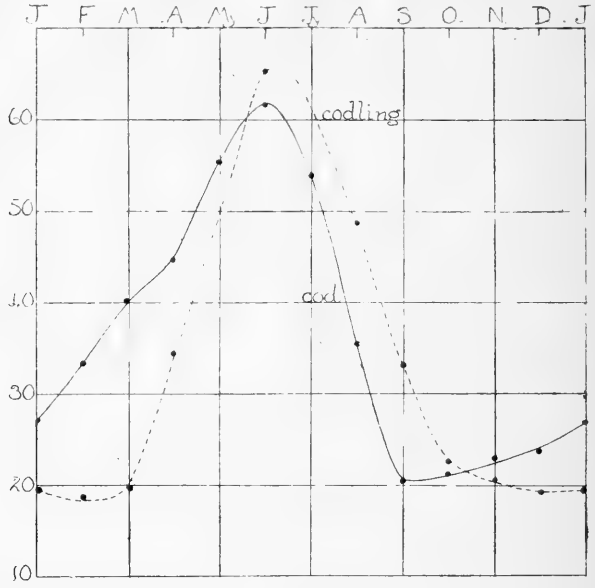

Fig. 4. Mean monthly catch of cod and codling, in cwts., per 100 hours' fishing, in Area X. (Shetland); mean of years 1902-1912.

Looking now at the same continuous curve for codling (fig. 5), it is seen that this annual wave, repeated from year to year, is subject to changes. It leaps up to a very unusual height in the year 1910; it is exceptionally low in 1907. But on the whole, and this is the main thing, it is impossible to say that there is any indication of a decline from year to year, during the whole period. This, unfortunately, would not be the case were we considering certain other fishes, such as plaice, as has been demonstrated in one of the Board's recently-published Reports.*

Passing to Area XIII. (fig. 6), it is seen that, so far from there being any evidence of steady diminution, some recent years, and especially 1908-1910, have shown an abundance of codling exceeding anything to be found for several years before. In Area XIV. (fig. 7) this is again emphatically the case, the catches being much higher from 1908 to 1912 than in any of the years from 1902-1907. In Area XVII. (fig. 8) 1910 again appears as the best year, but the tendency throughout is in the direction of improvement rather than the reverse. There is a similar and indisputable trend of improvement in Area C (Rona and Sule Skerry). Passing to the near grounds off Aberdeen, Area XXIII. (fig. 9) and XXIX. (fig. 10), the curves are on the whole remarkably continuous and regular, and, if anything, the tendency is again in the direction of improvement, even in these much frequented areas.

Neither these nor any other of the Board's statistics, so far as I

* Fifth Report, &c., 1913.

am aware, give any indication of a serious or even significant diminution in the catch of codling during the past twelve years.

But in the case of the smaller classes of fish, codling, small haddock, small plaice, and the like, one's statistical conclusions are always apt to be affected, and even invalidated, by the greater care which is taken nowadays than formerly of such fish, that is to say, by the smaller proportion that is wasted and thrown overboard for want of a market at home. It is, therefore, more important to look at the corresponding curves for the large cod.

In Area X. (fig. 11) it is seen that the catch of cod reaches a higher level in the summer of 1911 than ever before since the series of observations in this area began in the year 1903. In Area XIII. 1907 appears to have been the best year, and to have been followed by a period of comparative scarcity; but from 1908 to the present time the tendency has been one of steady improvement.

In Area XIV. recent years have undoubtedly been better than the former ones; and it is at least plain that 1908-11 have shown better catches than any year from 1901-1906.

In Area XXIII. (fig. 12) the curve is somewhat irregular, and 1910, for instance, was a bad year, and 1905 and 1906 were conspicuously good ones. But the inspection of the curve as a whole certainly does not convey any impression of gradual decrease. In the neighbouring area, XXIX., 1910 and 1911 are both bad years, and 1902 would seem to have been a specially good one. But, with these exceptions, the curve keeps remarkably steady. In Area C (fig. 13) 1905 and 1911 were the best years of the series, and from 1907 to 1909 the catches were distinctly low.

On the whole, then, while the statistics for cod do not point to anything of the nature of a steady increase, such as would appear to be shown in the case of codling, yet it is plain that nothing of the nature of a steady, still less of a rapid, decline is anywhere indicated.

A marked steadiness is, on the whole, characteristic of ling also, and this is particularly well shown even on the much-fished Aberdeen ground, XXIII. (fig. 14), though the catch of ling is never at any time very great in this locality. It will be seen that, save for an apparently bad year in 1902, the annual curves are wonderfully similar during the whole period represented.

On the Shetland area (X.), where the amount of ling caught is much greater, the same is on the whole true (fig. 15). The catch of 1910 and 1911 was not large, nor was that of 1904; but there is no sign whatever of a gradual decline throughout the period.

In Area XIV. the curves are just as steady as they have been shown to be on the Aberdeen ground. On Area XVIII. (fig. 16) there would seem to be a slight tendency to increase. And on Area C (where 1906 was a markedly bad year), 1911 showed the largest catches for the whole period.

I come, then, to the conclusion that in the case of these two fishes, cod and ling, there is either no decline in the annual yield of the fisheries, or at least no such marked decline as can be detected by the method now employed, and for the important areas which have been dealt with. I may add that in the case of saithe the same favourable state of things is amply borne out by the Board's statistics.

As has already been remarked, a very different state of matters is found to exist in the case of plaice, as has been fully demonstrated in a recently-published Report. Let me now take, as one final example, the case of the witch. In this fish, as in the plaice, though not quite to the same degree, the evidences of diminution are clear, and include both the large and small classes of this fish.

In the curve for the Shetland area (X.) there is no difficulty in seeing the evidence of this decrease (fig. 17).

In the case of the large witches, the catch at the best season of the year rose in the winter of 1902-03 to over 6 cwts. per 100-hours' fishing. A year later it was just over 5 cwts., and again a year later it barely touched 4 cwts. In the winter of 1907-08 it stood at about 2 cwts., and the curve has never since risen even so high as 1 cwt. An almost precisely similar decline is perceptible in the curve for small witches on the same area.

In Area XIV. (including the Fair Isle ground), the curve for large witches reached in 1901 to over 11 cwts. per 100-hours, at the best season of the year. In the five years from 1901 to 1905 it never failed to reach 7 cwts.; but it has almost steadily fallen, and now for the last four years it has never reached so high as 2 cwts. The fall has not been so steady, but is yet clearly marked for small witches upon this area (fig. 18).

In Area XVIII., where the witch is comparatively abundant, the fall has not been so great; but here also a decline in large witches (though not noticeably in small) has been in progress since the year 1905 (fig. 19).

These illustrations, which might be indefinitely multiplied, must suffice for the present.

They are amply sufficient to show that there are great differences between one fish and another in the evidence that they give of steadiness or of decline in the average quantities captured on the principal fishing-grounds. Of the fishes now or lately considered, it is found that a sharp contrast exists between the plaice and the witch on the one hand, which show grave signs of diminution, and the cod, the ling, and the saithe, of which no such signs of decrease can be alleged.

The reasons for such a difference are not definitely known. Two causes at first suggest themselves, one depending on the action of the trawl itself, and the other arising from the nature, habits, and distribution of the fish.

It might naturally be supposed that the shape of the flat fish led to its easy capture and destruction by the trawl, at a size when the round fish of corresponding length slipped through and escaped, and that for this reason the destruction of the immature flat fishes was disproportionately great. But in the case of the cod, ling, and saithe, the greater natural size of these fishes, and the comparatively large size to which they must grow before reaching maturity, are obvious facts which go against this simple theory.

It would seem meanwhile to be a better explanation, and more in accordance with the facts, to say that the decline is most obvious in those fishes which are by nature less abundant in our seas, and whose habitat and breeding-grounds are comparatively limited. It is the fish such as the cod, saithe, and ling, whose habitat is peculiarly

extensive, whose breeding-grounds are wide and for the most part remote from the areas where trawling is chiefly prevalent, and which at the same time are naturally extremely abundant in our seas, that are apparently best able to withstand, up to the present, all the inroads made by the trawler upon their numbers.

The last series of Statistical Tables (pp. 62-64) show, for the year 1912, the percentage proportion of cod, in the total catch of cod and codling and of small and extra small haddock and plaice, in the total catch of these fishes. In the following table (Table X.), the mean monthly percentages are set forth (for some of the principal areas) for the successive periods of 1904-7 and 1908-12.*

TABLE X.

Mean Monthly Percentage of 'Small' Cod, Haddock, and Plaice, in the total catch of those Fishes from certain Areas in the two periods 1904-1907, 1908-1912.

CODLING.

Area.		Jan.	Feb.	Mar.	Apl.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Mean.
X. ..	1904–7	31	37	28	34	43	43	42	66	39	35	36	45	39·9
	1908–12	50	48	35	36	51	50	59	71	71	64	55	59	54·1
XIII. ...	1904–7	15	13	29	40	33	38	37	2	58	53	50	62	39·2
	1908–12	56	51	44	52	54	54	58	73	81	71	47	57	58·2
XVII. ...	1904–7	25	20	13	10	26	19	18	30	64	52	49	55	31·7
	1908–12	25	31	20	23	37	43	56	67	82	79	66	49	48·2
XVIII. ...	1904–7	32	25	11	12	16	23	21	19	16	21	26	38	21·7
	1908–12	43	39	21	17	48	33	34	18	22	27	28	42	31·0
XXIII. ...	1904–7	51	43	37	24	31	47	26	34	38	50	63	52	41·3
	1908–12	58	47	38	41	46	48	47	43	55	67	72	66	52·3
XXVIII.	1904–7	75	60	68	23	51	37	69.	68	86	80	80	62	63·2
	1908–12	74	69	64	73	62	85	91	92	94	93	89	81	80·6
XXIX. ...	1904–7	57	54	38	24	28	41	34	49	50	66	72	43	46·3
	1908–12	67	61	43	51	62	67	72	81	75	83	83	74	68·2
C. ...	1904–7	44	38	44	38	30	27	28	33	36	44	59	33	37·8
	1908–12	44	44	41	38	42	46	50	59	63	60	59	49	49·6

HADDOCK. Small and Extra Small.

Area.		Jan.	Feb.	Mar.	Apl.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Mean.
X. ...	1904–7	33	28	30	31	16	15	16	19	27	31	34	33	26·1
	1908–12	31	27	23	26	23	24	23	23	24	24	28	24	25·0
XIII. ...	1904–7	35	65	54	50	29	24	32	16	16	21	25	22	32·4
	1908–12	35	49	68	54	43	39	32	31	32	41	43	36	41·9
XVII. ...	1904–7	60	66	64	61	50	50	53	44	63	34	41	52	53·2
	1908–12	66	66	69	72	69	64	59	52	59	55	63	69	63·6
XVIII. ...	1904–7	65	68	67	68	66	55	65	70	73	61	61	58	64·7
	1908–12	74	73	76	76	79	77	77	78	79	75	74	64	75·2
XXIII. ...	1904–7	70	72	67	72	71	64	64	63	60	56	55	62	64·7
	1908–12	73	63	71	75	77	72	70	68	66	71	76	72	71·1
XXVIII.	1904–7	70	61	61	64	65	41	74	58	45	47	53	52	•57·6
	1908–12	47	31	49	59	61	66	63	65	62	62	67	52	56·9
XXIX. ...	1904–7	68	65	66	74	69	56	51	54	54	56	55	58	60·5
	1908–12	65	55	66	73	70	66	62	65	66	67	67	67	65·7
C. ...	1904–7	10	13	15	20	15	19	19	13	14	16	21	15	15·8
	1908–12	16	27	23	28	23	19	21	28	25	26	27	27	24·2

* In Table X. it is the percentage of codling that is given, not of large cod.

TABLE X. (*continued*).

PLAICE. Small and Extra Small.

Area.		Jan.	Feb.	Mar.	Apl.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Mean.
X. ...	1904–7	10	8	8	7	6	4	5	5	1	2	3	6	5·4
	1908–12	5	11	11	10	9	7	3	1	8	2	7	3	6·4
XIII. ...	1904–7	6	3	13	20	16	10	21	24	26	12	1	4	13·0
	1908–12	15	5	15	17	15	5	5	10	20	21	6	13	12·3
XVII. ...	1904–7	1·75	5·5	5·0	2·5	6·75	2·75	6·25	2·3	7·75	4·25	3·3	12·5	5·0
	1908–12	4	7	10	7	6	8	6	11	8	5	7	7	7·2
XVIII. ...	1904–7	0	0	3	2	0	4	2	0	0	2	6	2	1·7
	1908–12	0	3	10	8	3	0	5	2	3	1	2	0	3·2
XXIII. ...	1904–7	15	14	11	6	8	5	5	7	6	11	18	16	10·2
	1908–12	43	39	23	14	7	6	4	13	25	50	65	64	29·4
XXVIII.	1904–7	22	22	15	46	23	0	3	9	1	22	20	24	17·2
	1908–12	20	25	23	22	17	12	17	19	28	41	49	22	24·6
XXIX. ...	1904–7	4	7	12	7	4	2	2	2	1	15	8	7	5·9
	1908–12	16	9	7	8	6	3	1	4	6	3	7	4	6·2
C. ...	1904–7	1	3	7	5	4	2	4	3	10	6	3	0	4·0
	1908–12	2	4	5	10	7	6	7	7	5	6	3	8	5·8

It will be seen that in all, or almost all, cases the monthly percentages form a regular series, showing definite seasons of maximal and minimal abundance of the small fish relatively to the large.

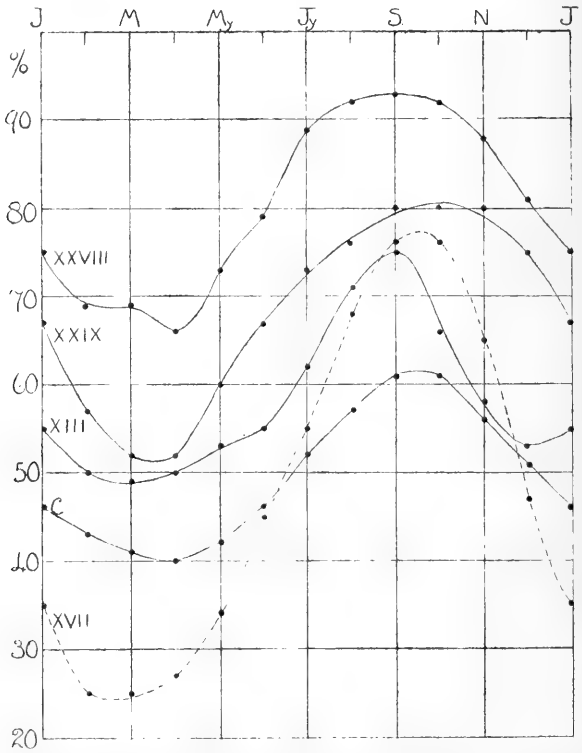

FIG. 20. Percentage proportion of codling (in total catch of cod and codling), in certain Areas, from month to month ; mean of the years 1908-1912. (Smoothed curves.)

Thus, as is partly shown in Fig. 20, codling are relatively scarce, and the larger cod are relatively plentiful, in spring on the great majority of our fishing areas. This is true for both our West and East Coasts, and is well shown at Faeroe also. Only towards the Norwegian coast, in Areas XV. and XVI., have we some indication that the larger cod attain their maximal abundance, relatively to the codling, in spring. The same diagram (Fig. 20) further illustrates the fact that the percentage of codling is especially high in the inshore areas, such as those at the mouth of the Firth of Forth (XXVIII.) and eastward thereof (XXIX.); they are less numerous, proportionately, on the Aberdeen grounds (XXIII.). On Area XVII., the Pentland Firth region, while the proportion of codling is high in the summer time, the spring minimum is particularly low.

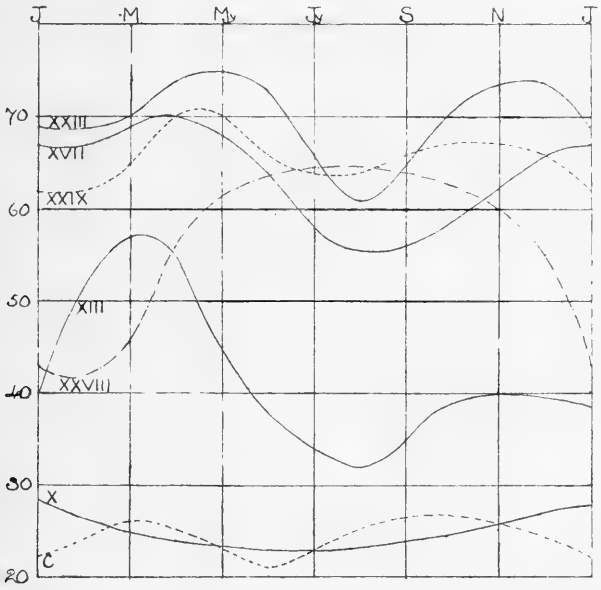

Fig. 21. Percentage proportion of small and extra small haddocks (in the total catch of that fish), in certain Areas, from month to month; mean of years 1908-1912. (Smoothed curves.)

In the case of haddock, it will be seen from Fig. 21 that certain differences exist between different areas. In most cases we have a double maximum of small haddock, relatively to the large ones, the small being especially abundant both in spring and autumn, but tending towards a minimum in August. In Area XXVIII., on the other hand, there is a well-marked minimum in early spring, and the maximum is reached in the month of August. We should find, were we to consider all the available evidence, on all our west coast areas, and round the north of Scotland to the Moray Firth, it is everywhere the case that the small haddock are relatively most abundant in spring, while further to the eastward and southward, in the North Sea areas to the east of Scotland, the maximum occurs during summer-time. There is also a distinct maximum of small haddock during the latter season at Faeroe.

In the case of plaice (Fig. 22), while there are in certain areas some indications of a double maximum, it is in the autumn months that small plaice are generally most abundant; and the difference is very great between their comparative abundance at this season, and their small abundance, relatively to the large and medium plaice, in spring and early summer.

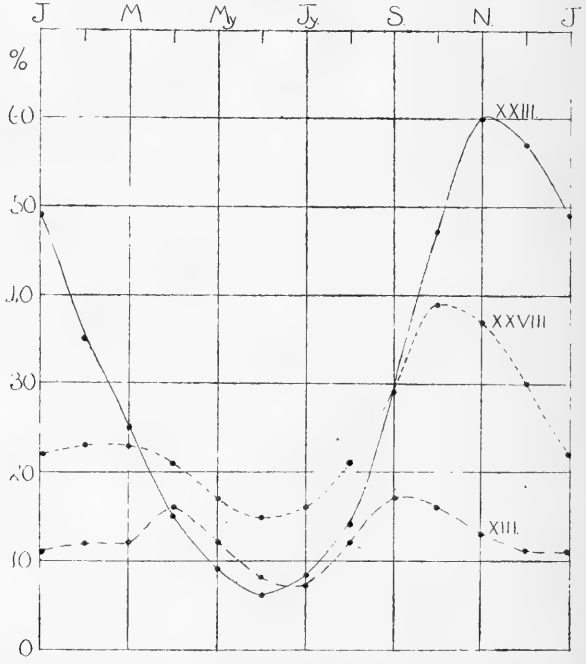

Fig. 22. Percentage proportion of small and extra small plaice (in the total catch of that fish), in certain Areas, from month to month; mean of the years 1908-1912. (Smoothed curves.)

The same table (Table X.) shows us, in a very striking way, the greater percentage proportion of the small classes of these three fish that have been landed during the years 1908-12, as compared with the earlier period, 1904-7. The shape of the curve is very similar in the two periods; that is to say, the seasons of relative maximum and minimum are indicated in both periods alike; but (as is illustrated in a single instance in Fig. 23) the curve for the latter period stands high above the level at which it stood in the former years.

In a small supplementary table (Table Xa), I have briefly summarised the comparison between the proportion of small fish landed in the two periods, 1904-7 and 1908-12. Here we show the percentage increase or decrease in the latter, as compared with the former, period, of the proportion of small cod or codling, small haddock and small plaice, occurring in the total catch of those fishes.

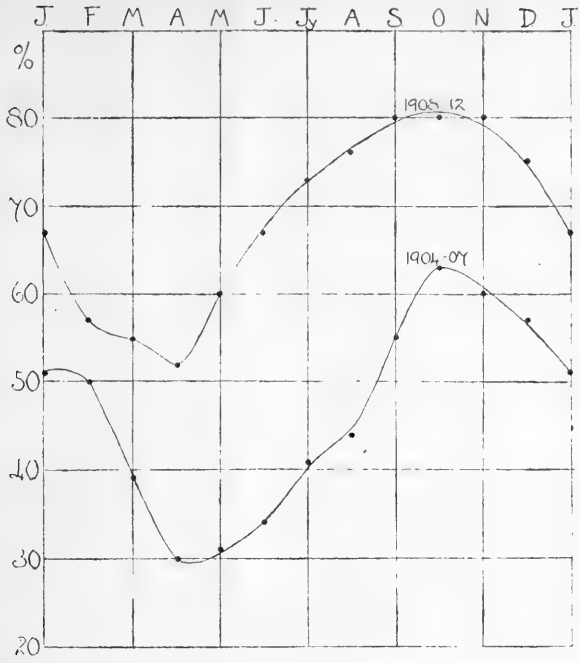

Fig. 23. Percentage proportion of codling (in the total catch of cod and codling), from month to month, in Area XXIX., eastward of Firth of Forth. Upper curve, mean of years 1908-1912 ; lower curve, mean of years 1904-1907. (Smoothed curves.)

TABLE Xa.

Proportion of Small Cod (Codling), Haddock, and Plaice landed in 1908-12, compared in each case with the proportion landed in 1904-7 ; the latter proportion being in each case reckoned as 100.

Area.	Codling.	Small Haddock.	Small Plaice.
X	135·6	95·8	118·5
XIII.	148·5	129·3	94·6
XVII.	152·1	119·5	144·0
XVIII.	142·9	116·2	188·2
XXIII.	126·6	107·3	288·2
XXVIII.	127·5	98·8	143·0
XXIX.	147·3	109·6	105·1
C.	131·2	153·2	145·0
Mean	139·0	116·0	153·3

It will be seen that an increased proportion of "small" is visible throughout the table, except in three instances. It is greatest in the case of plaice, and least in that of haddock. In the case of the last-named, the comparatively small increase in the proportion of small fish may be accounted for if we remember that certain years within the earlier period, namely, 1906 and 1907, were remarkable for the phenomenal abundance of small haddock.

FIGURES.

Fig. 1. Total monthly landings of trawled fish in Aberdeen, 1912. (Smoothed curve.)
,, 2. Chart showing average number of days spent upon voyage by Aberdeen trawlers, 1912.
,, 3. Mean number of voyages in each month by Aberdeen trawlers to Areas XIV., XV., XIX., 1902-1912.
,, 4. Mean monthly catch of cod and codling, in cwts., per 100 hours' fishing, in Area X. (Shetland); mean of years 1902-1912.
,, 5. Mean monthly catch of codling, in cwts., per 100 hours' trawling, in Area X., 1903-1911. (Smoothed curve.)
,, 6. Mean monthly catch of codling, in cwts., per 100 hours' trawling, in Area XIII., 1903-1911. (Smoothed curve.)
,, 7. Mean monthly catch of codling, in cwts., per 100 hours' trawling, in Area XIV., 1904-1911. (Smoothed curve.)
,, 8. Mean monthly catch of codling, in cwts., per 100 hours' trawling, in Area XVII., 1903-1911. (Smoothed curve.)
,, 9. Mean monthly catch of codling, in cwts., per 100 hours' trawling, in Area XXIII., 1901-1911. Smoothed curve.)
,, 10. Mean monthly catch of codling, in cwts., per 100 hours' trawling, in Area XXIX., 1901-1911. (Smoothed curve.)
,, 11. Mean monthly catch of cod, in cwts., per 100 hours' trawling, in Area X., 1901-1911. (Smoothed curve.)
,, 12. Mean monthly catch of cod, in cwts., per 100 hours' trawling, in Area XXIII., 1909-11. (Smoothed curve.)
,, 13. Mean monthly catch of cod, in cwts., per 100 hours' trawling, in Area C., 1904-1911. (Smoothed curve.)
,, 14. Mean monthly catch of ling, in cwts., per 100 hours' trawling, in Area XXIII. (Smoothed curve.)
,, 15. Mean monthly catch of ling, in cwts., per 100 hours' trawling, in Area X. (Smoothed curve.)
,, 16. Mean monthly catch of ling, in cwts., per 100 hours' trawling, in Area XVIII. (Smoothed curve.)
,, 17. Mean monthly catch of large and small witches, in cwts., per 100 hours' trawling in Area X. (Smoothed curve.) Thick line, large witches; broken line, small witches.
,, 18. Mean monthly catch of large and small witches, in cwts., per 100 hours' trawling, in Area XIV. (Smoothed curve.)
,, 19. Mean monthly catch of large and small witches, in cwts., per 100 hours' trawling, in Area XVIII. (Smoothed curve.)
,, 20. Percentage proportion of codling (in total catch of cod and codling), in certain Areas, from month to month; mean of the years 1908-1912.
,, 21. Percentage proportion of small and extra small haddocks (in the total catch of that fish), in certain Areas, from month to month; mean of years 1908-1912.
,, 22. Percentage proportion of small and extra small plaice (in the total catch of that fish), in certain Areas, from month to month; mean of the years 1908-1912.
,, 23. Percentage proportion of codling (in the total catch of cod and codling), from month to month, in Area XXIX., eastward of Firth of Forth. Upper curve, mean of years 1908-1912; lower curve, mean of years 1904-1907.

CHARTS.

Chart I. Number of recorded Voyages of Aberdeen Trawlers to the several areas (1912).
,, II. Relative time spent in fishing on the several areas (1912).
,, III. Total quantity of fish landed from the several areas by Aberdeen Trawlers (1912).
,, IV. Quantity of Cod and Codling landed from the several areas by Aberdeen Trawlers (1912).
,, V. Quantity of Haddocks landed from the several areas by Aberdeen Trawlers (1912).
,, VI. Quantity of Hake landed from the several areas by Aberdeen Trawlers (1912).
,, VII. Quantity of Plaice landed from the several areas by Aberdeen Trawlers (1912).

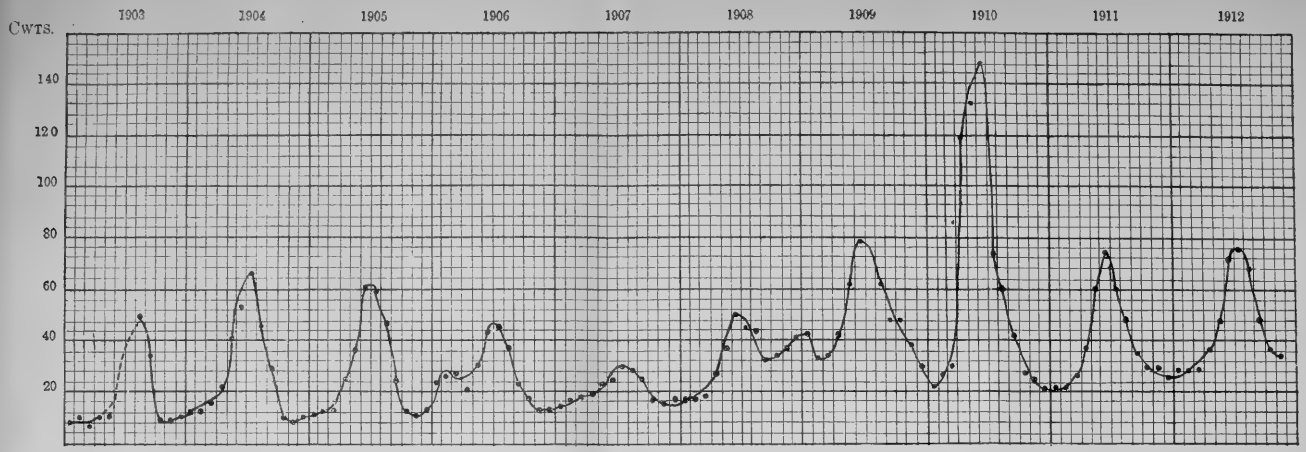

Fig. 5

Mean Monthly Catch of Codling in Cwts. per 100 Hours' Trawling in Area X. 1903-1911 (Smoothed Curve)

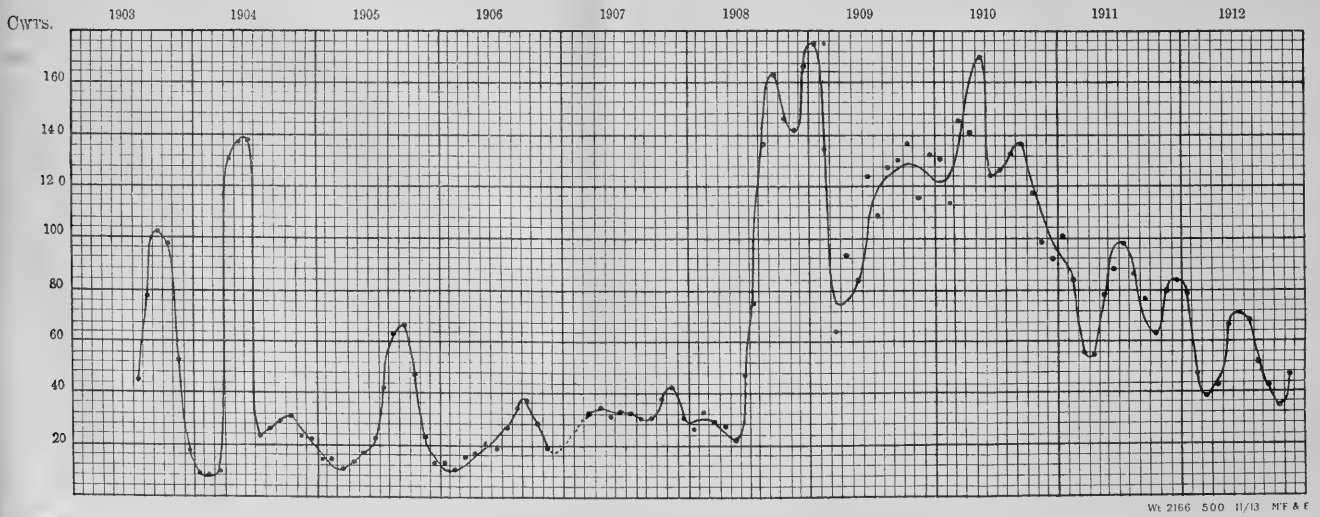

Fig. 6

Mean Monthly Catch of Codling in Cwts. per 100 Hours' Trawling in Area XIII. 1903-1911 (Smoothed Curve)

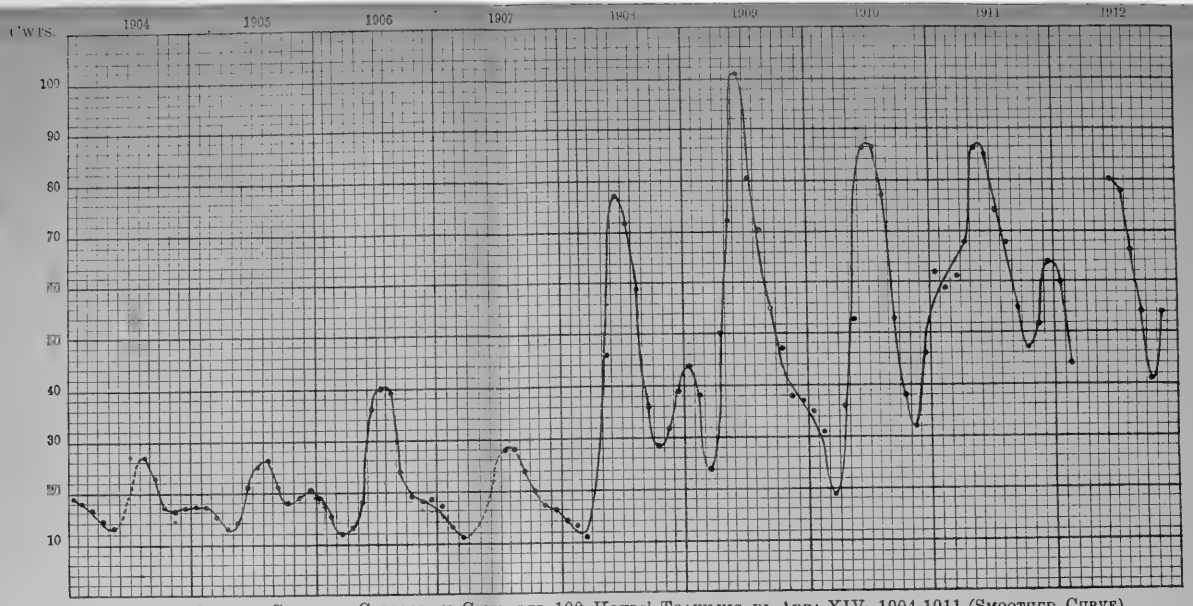

Fig. 7

Mean Monthly Catch of Codling in Cwts. per 100 Hours' Trawling in Area XIV. 1904-1911 (Smoothed Curve)

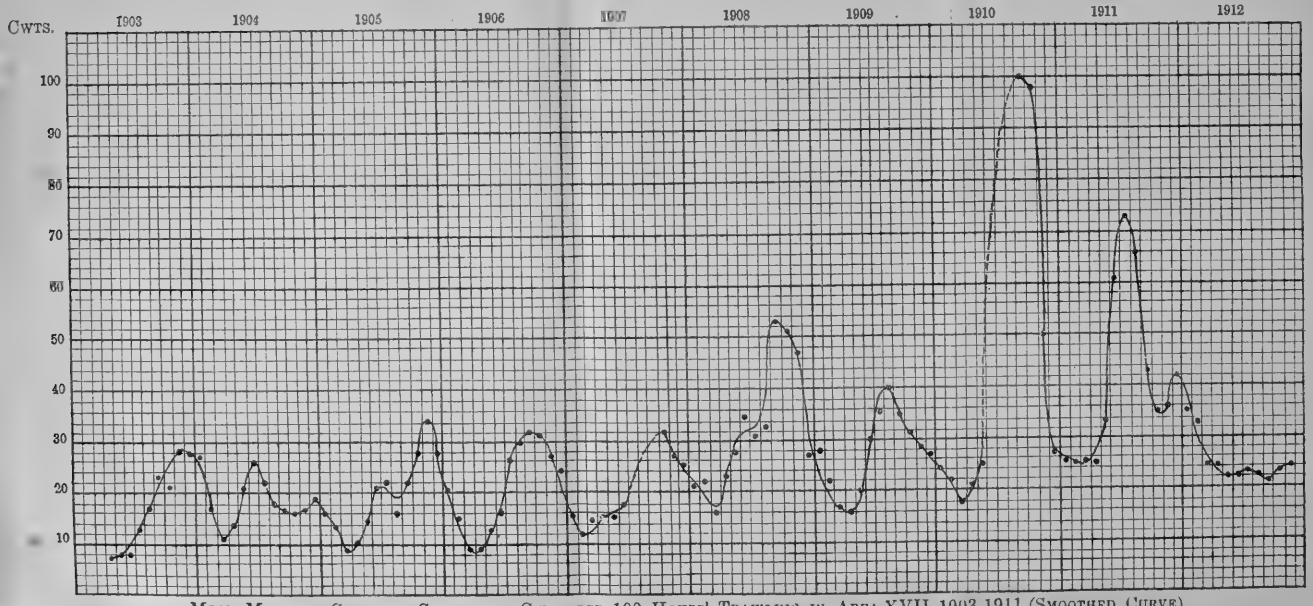

Fig. 8

Mean Monthly Catch of Codling in Cwts. per 100 Hours' Trawling in Area XVII. 1903-1911 (Smoothed Curve)

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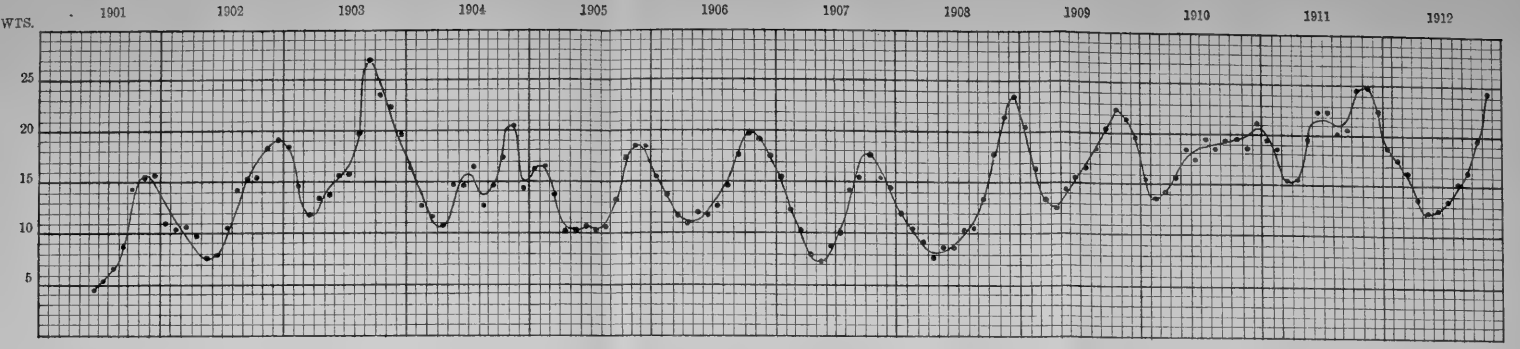
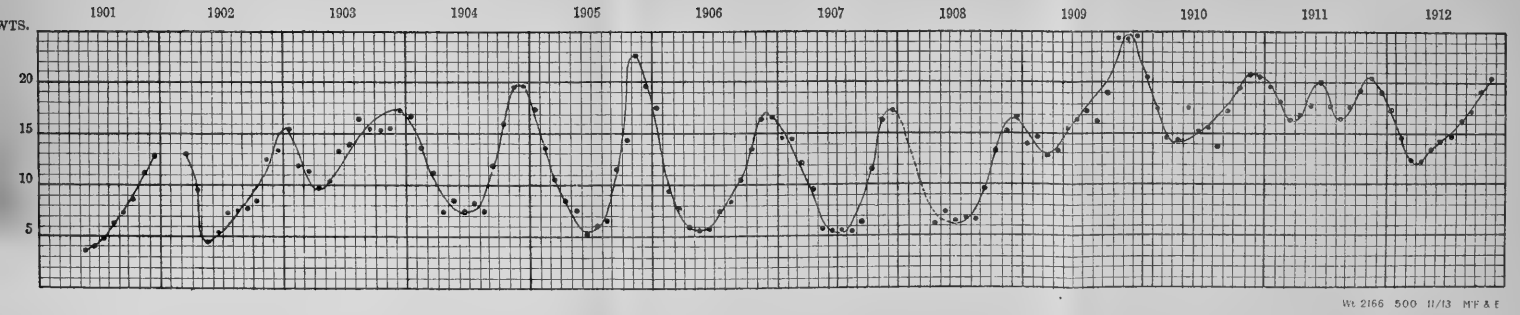
FIG. 9



MEAN MONTHLY CATCH OF CODLING IN CWTS. PER 100 HOURS' TRAWLING IN AREA XXIII. 1901-1911 (SMOOTHED CURVE)

FIG. 10



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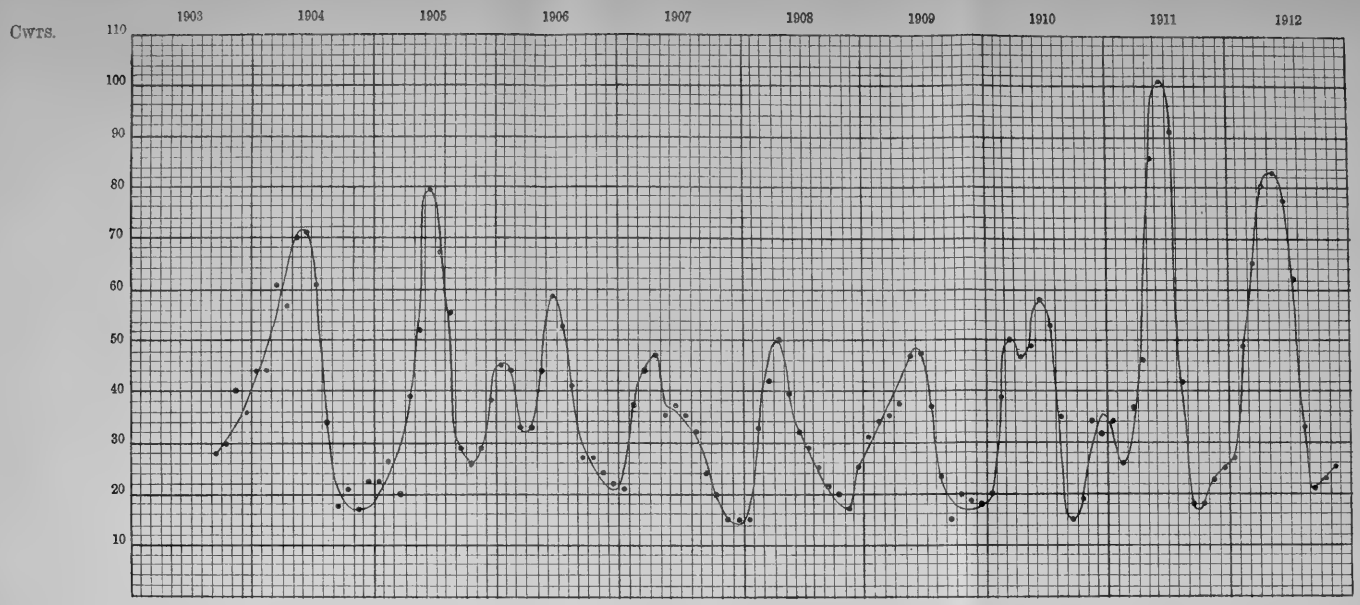
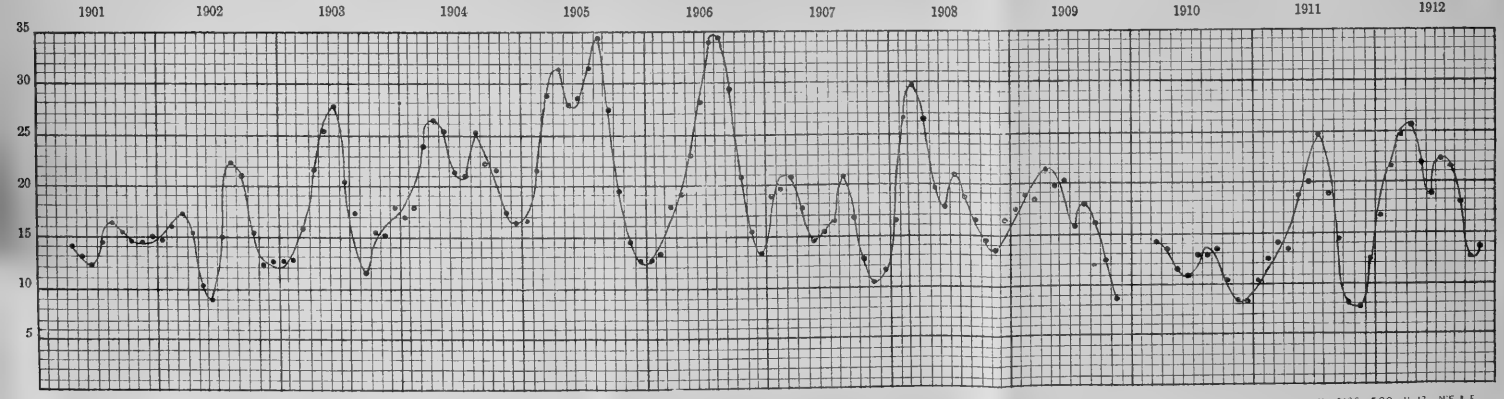
MEAN MONTHLY CATCH OF CODLING IN CWTS. PER 100 HOURS' TRAWLING IN AREA XXIX. 1901-1911 (SMOOTHED CURVE)

Fig. 11



Mean Monthly Catch of Cod in Cwts. per 100 Hours' Trawling in Area X. 1901-1911 (Smoothed Curve)

Fig. 12



Mean Monthly Catch of Cod in Cwts. per 100 Hours' Trawling in Area XXIII.1907-1911 (Smoothed Curve)

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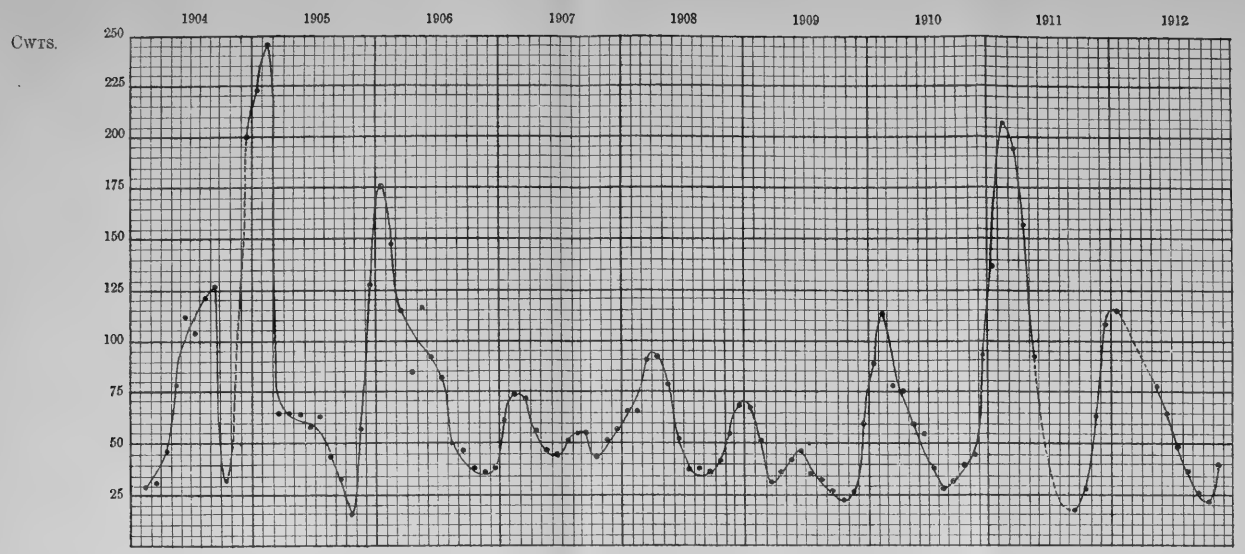
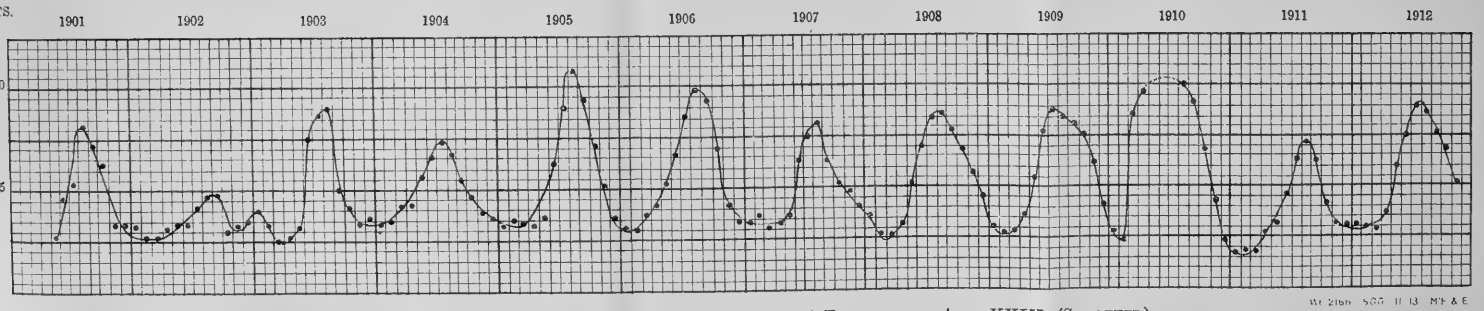
FIG. 13



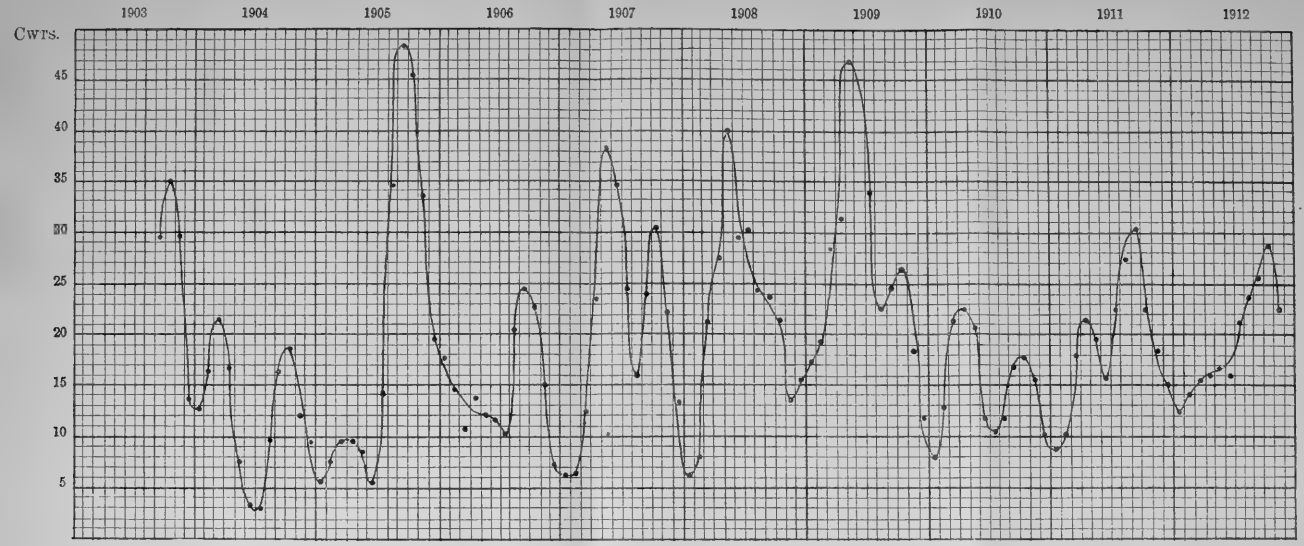
MEAN MONTHLY CATCH OF COD IN CWTS. PER 100 HOURS' TRAWLING IN AREA C. 1904-1911 (SMOOTHED CURVE)

FIG. 14



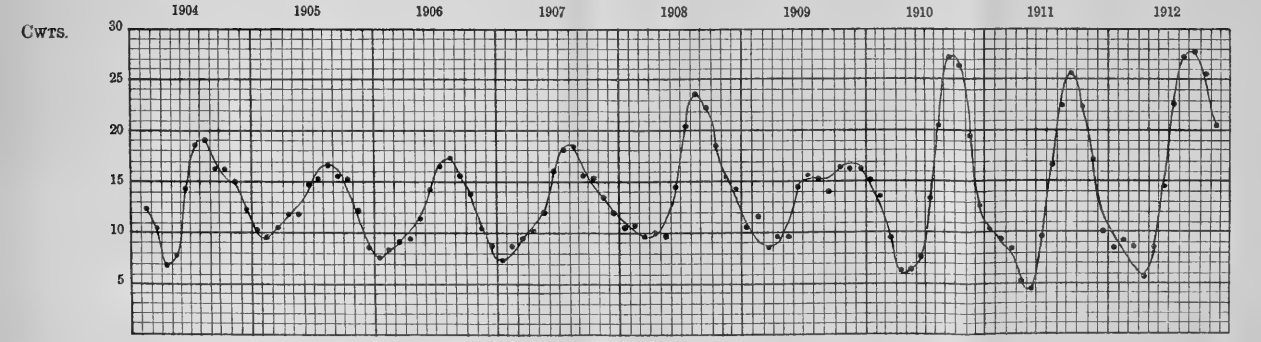
MEAN MONTHLY CATCH OF LING IN CWTS. PER 100 HOURS' TRAWLING IN AREA XXIII. (SMOOTHED)

Fig. 15



Mean Monthly Catch of Ling in Cwts. per 100 Hours' Trawling in Area X. (Smoothed)

Fig. 16



Mean Monthly Catch of Ling in Cwts. per 100 Hours' Trawling in Area XVIII. (Smoothed)

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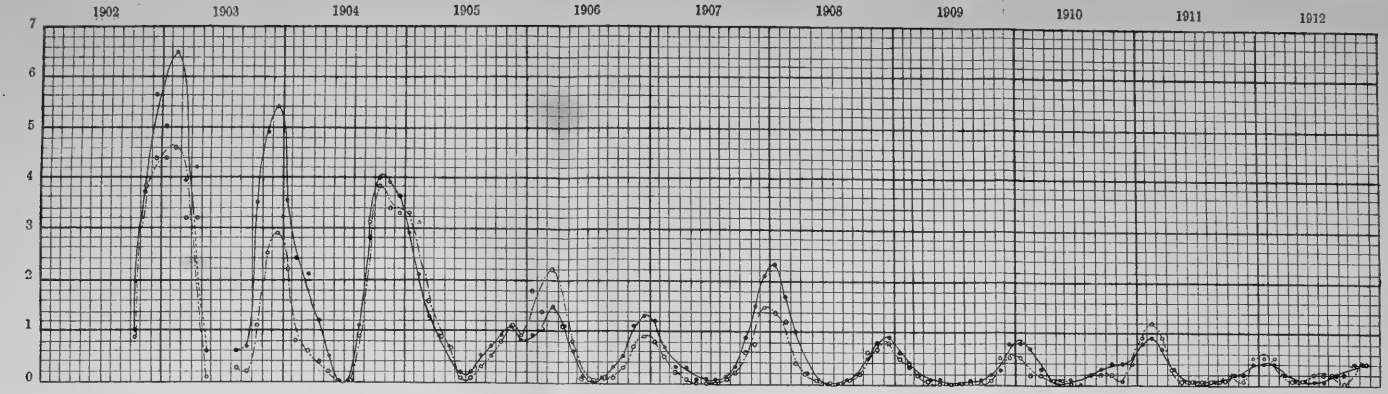
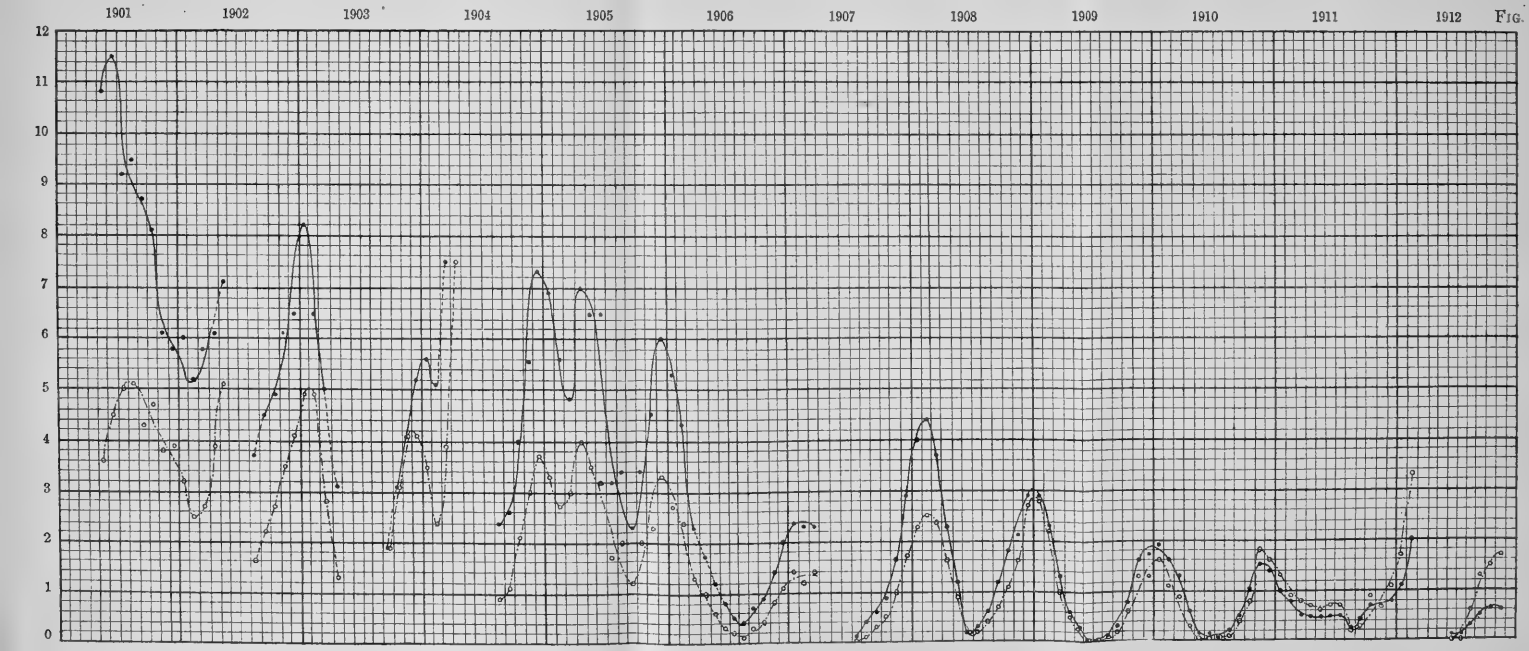
Cwts. Fig. 17



Mean Monthly Catch of Large and Small Whitches in Cwts. per 100 Hours' Trawling in Area X. (Smoothed)

(Black line, Large Whitches; broken line, Small Whitches.)

Cwts. Fig. 18



Mean Monthly Catch of Large and Small Whitches in Cwts. per 100 Hours' Trawling in Area XIV. (Smoothed)

(Black line, Large Whitches; broken line, Small Whitches.)

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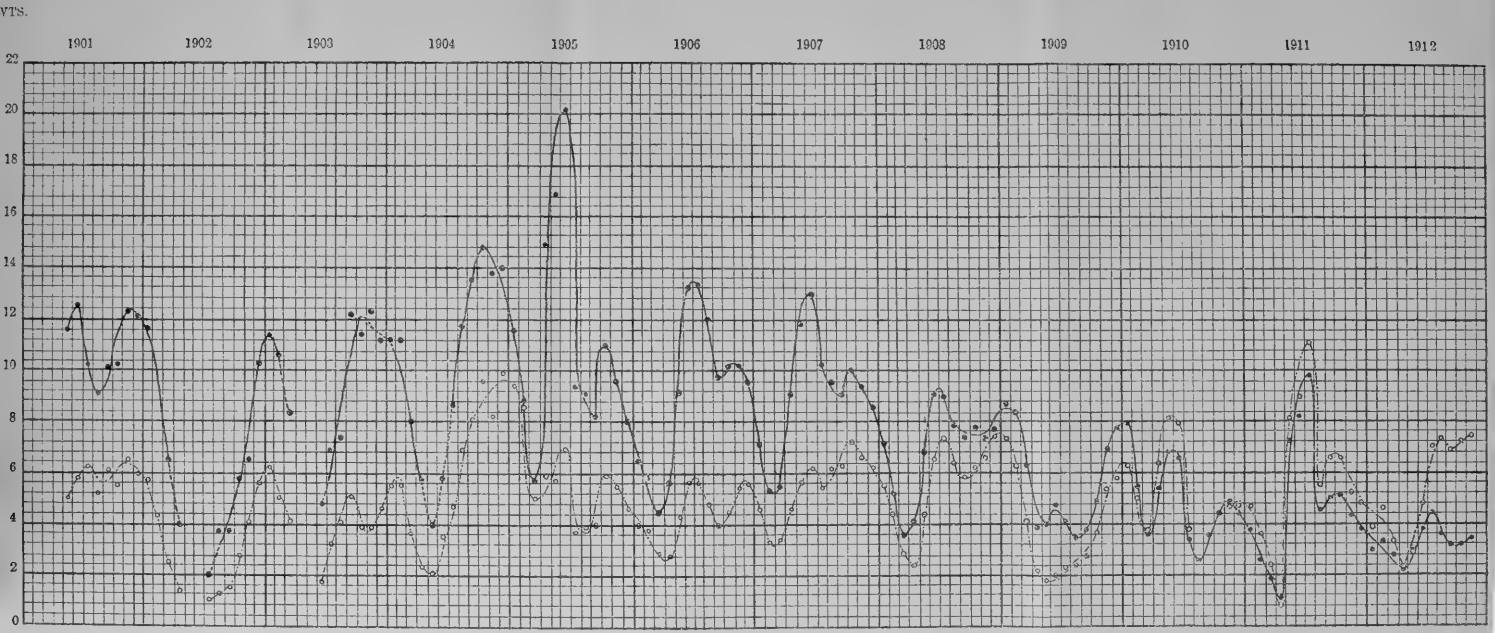

Mean Monthly Catch of Large and Small Whitches in Cwts. per 100 Hours' Trawling in Area XVIII. (Smoothed)

(Black line, Large Whitches; broken line, Small Whitches.)

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STATISTICAL TABLES.

I. *Epitomised Tables of the Catch landed at Aberdeen, in 1912, by British and Foreign Steam Trawlers.*

Note.—The figures here given are not identical with the official returns for the Port of Aberdeen, set forth in the Board's Annual Report for 1912, pp. 83, 84. The greater part of the Scottish landings by Foreign Vessels (pp. 118, 119) also refer to the port of Aberdeen, and these foreign landings are here included. Secondly, as has been explained in our Fifth Report on North Sea Investigations (1913, p. 207) the method of estimating the weight of certain fish has, since 1909, been altered, in the direction of greater accuracy, in the Official Report; but here, for the sake of uniformity and comparison, the method in use in earlier years is still retained. It must be carefully understood that the weights given in these Tables are based on estimate and not on actual weighings. Strictly speaking, these statistics are based on a unit of *measurement*, viz., the so-called hundredweight box, and not upon a unit of *weight*.

In the total quantities dealt with, the discrepancy between these figures and those of the official returns amounts, after taking the foreign landings into account, to about 1·82 per cent. After further taking account of the difference of estimated weight, the discrepancy practically disappears, being reduced to about 0·05 per cent.

A.—Total Catch in Cwts. of Trawled Fish landed at ABERDEEN during the Year 1912.

Area.	No. of Trips.	No. of Days.	Cod.	Codling.	Ling.	Tusk.	Saithe.	Hake.	Haddocks. E. Large.	Haddocks. Large.	Haddocks. Medium	Haddocks. Small.	Haddocks. E. Small.	Whiting.	Turbot.	Halibut.	Brill.	Lemons. Large.	Lemons. Small.
Northern Grounds,	1,851	12,333	51,725	57,053	22,823	776	55,671	9,085	5,125	58,122	29,424	48,311	5,725	33,152	239	2,235	25	1,128	817
East Coast Grounds,	5,017	13,204	38,150	32,851	8,600	14	7,478	1,487	153	13,869	17,767	57,297	25,363	26,423	918	575	91	9,734	7,643
Middle Grounds,	1,385	7,029	24,909	14,896	11,398	327	26,228	1,836	134	25,440	18,324	44,799	14,081	25,761	122	1,042	6	1,476	316
South East Grounds,	202	1,372	4,185	4,721	832	2	3,007	152	634	8,257	3,979	5,498	864	2,485	28	141	3	175	20
North Sea, Various,	1,058	7,111	23,587	23,785	9,508	315	23,128	3,237	1,709	19,765	11,556	24,534	6,048	14,718	160	983	24	1,249	770
Total North Sea,	9,513	41,049	142,556	134,306	53,162	1,435	115,513	15,797	7,755	125,454	81,051	180,440	52,081	102,540	1,467	4,978	149	13,763	9,566
Western Grounds,	1,000	7,111	57,341	32,628	7,924	70	15,532	1,747	3,207	27,845	16,627	23,386	1,115	3,963	156	930	39	893	609
Faeroe and Iceland,	744	9,418	261,217	86,956	14,349	84	69,242	35	50,639	24,715	4,631	7,192	349	2,462	3	3,152	0	2,494	448
Mixed Grounds,	188	1,554	6,227	6,584	1,489	25	3,541	365	643	4,399	2,574	4,149	327	1,084	41	194	8	229	158
White Sea	6	136	428	3,430	0	0	5	0	269	14	0	0	0	0	0	3	0	0	0
Norway,	4	32	9	91	15	0	108	0	11	596	116	28	0	12	1	10	0	1	0
Baltic,	1	5	3	66	0	0	4	0	0	1	3	6	0	2	0	0	0	0	0
Grand Total,	11,456	59,305	467,782	264,061	76,939	1,614	203,945	17,945	62,524	183,025	105,002	215,202	53,871	110,064	1,670	9,268	198	17,381	10,782

Area.	Plaice. Large.	Plaice. Medium.	Plaice. Small.	Dabs.	Witches. Large.	Witches. Small.	Megrims. Large.	Megrims. Small.	Eel.	Skate.	Gurnard.	Catfish.	Monk.	Squid.	Mackerel.	Herrings.	Other Kinds.	Grand Total. Cwts.	Gross Earnings. £
Northern Grounds,	52	1,328	184	67	1,033	1,586	3,570	2,273	105	9,859	320	2,373	5,164	46	612	34	1,094	411,140	227,967
East Coast Grounds,	191	3,822	3,222	1,480	967	1,061	1,347	231	227	14,762	2,241	5,442	6,557	27	147	236	122	292,492	194,060
Middle Grounds,	40	436	17	87	2,905	4,595	2,079	783	18	4,240	193	1,084	3,498	60	1,169	393	173	232,869	140,003
South East Grounds,	63	370	66	6	172	47	10	0	0	308	2	228	97	0	376	4,325	38	41,094	28,808
North Sea, Various,	50	1,096	163	73	706	944	1,752	1,068	66	5,963	367	1,443	2,802	12	482	384	380	183,830	103,954
Total North Sea,	397	9,053	3,653	1,714	5,784	8,234	8,758	4,355	406	35,132	3,124	10,570	18,120	145	2,787	5,372	1,807	1,161,426	694,793
Western Grounds,	270	2,853	822	127	88	120	501	240	230	8,105	653	452	1,132	19	648	6	82	210,365	118,909
Faeroe and Iceland,	316	1,956	146	97	1,055	51	666	13	2	1,573	26	6,750	500	0	2	15	4,565	545,703	175,468
Mixed Grounds,	27	440	206	34	26	31	157	74	32	1,551	69	333	315	0	69	29	26	35,455	19,466
White Sea,	22	55	1	4	0	0	0	0	0	0	0	123	0	0	0	0	12	4,367	1,833
Norway,	1	8	0	0	0	0	3	0	0	9	0	3	1	0	0	0	0	1,029	697
Baltic,	0	1	0	0	8	0	0	0	0	2	0	1	0	0	0	0	0	93	61
Grand Total,	1,034	14,366	4,829	1,976	6,954	8,436	10,086	4,683	670	46,373	3,872	18,234	20,068	165	3,507	5,421	6,493	1,958,439	1,011,228

Area.	Cod.	Cod-ling.	Ling.	Tusk.	Saithe.	Hake.	HADDOCKS.					Whit-ings.	Tur-bot.	Hali-but.	Brill.	LEMONS.		PLAICE.		
							E. Large.	Large.	Med-ium.	Small.	E. Small.					Large.	Small.	Large.	Med-ium.	Small.
Northern Grounds,	27·94	30·82	12.33	·42	30·07	4·91	2·77	31·40	15·89	26·10	3·09	17·91	·13	1·21	·01	·61	·44	·03	·72	·10
East Coast Grounds,	7·60	6·55	1·71	·00	1·49	·30	·03	2·76	3·54	11·42	5·05	5·27	·18	·11	·02	1·94	1·52	·04	1·16	·64
Middle Grounds,	17·98	10·75	8·23	·24	18·94	1·33	·10	18·37	13·23	32·34	10·17	18·60	·09	·75	0·00	1·07	·23	·03	·31	·01
South East Grounds,	20·72	23·37	4·12	·01	14·89	·75	3·14	40·87	19·70	27·22	4·28	12·30	·14	·70	·01	·87	·10	·31	1·83	·33
North Sea, Various,	22·29	23·43	8·99	·30	21·86	3·06	1·61	18·68	10·92	23·19	5·72	13·91	·15	·93	·02	1·18	·73	·05	1·04	·15
Total North Sea.	14·98	14·11	5·59	·15	12·14	1·66	·82	13·19	8·52	18·96	5·47	10·78	·15	·52	·02	1 45	1·00	·04	·95	·38
Western Grounds,	57·34	32·63	7·92	·07	15·53	1·75	3·21	27·84	16·63	23·39	1·11	3·96	·16	·92	·04	·89	·61	·27	2·85	·82
Faeroe and Iceland,	351·08	116·87	19·29	·11	93·06	·05	68·06	33·22	6·22	9·67	·47	3·31	0·00	4·24	0·00	3·35	·60	·42	2·63	·20
Mixed Grounds,	33·12	35·02	7·92	·13	18·83	1·94	3·42	23·40	13·69	22·07	1·74	5 77	·22	1·03	·04	1·22	·84	·14	2·34	1·09
White Sea,	71·41	571·86	0·00	0·00	·83	0·00	44·81	2·35	0·00	0·00	0·00	0·00	0·00	·50	0·00	0·00	·00	3·63	9·15	·17
Norway,	2·34	22·81	3·75	0·00	27·00	·02	2·75	149·12	28·94	7·13	0·00	3·00	·34	2·63	·13	·31	·00	·31	1·94	·00
Baltic,	2·80	65·80	0·00	0·00	4·50	·10	0·00	1·30	3·00	5·80	0·00	2·30	·50	·10	·30	·50	·00	·00	1·30	·50
Grand Total,	40·82	23·04	6·71	·14	17·80	1·57	5·46	15·97	9·16	18·78	4·70	9·60	·15	·81	·02	1·52	·94	·09	1·25	·42

Area.	Dabs.	WITCHES.		MEGRIMS.		Eel.	Skate.	Gurnard	Cattish.	Monk.	Squid.	Mack-erel.	Herrings	Other Kinds.	Grand Total. Cwts.	Gross Earnings. £	Value per Cwt. in Shillings.
		Large.	Small.	Large.	Small.												
Northern Grounds,	·04	·56	·86	1·93	1·23	·06	5·33	·17	1·28	2·79	·02	·33	·02	·59	222·10	123·15	11.1
East Coast Grounds,	·31	·19	·21	·27	·05	·04	2·94	·45	1·08	1·31	·01	·03	·05	·02	58·29	38·68	13·3
Middle Grounds,	·06	2·10	3·32	1·50	·57	·01	3·06	·14	·78	2·53	·04	·84	·28	·12	168·13	101·08	12·0
South East Grounds,	·03	·85	·23	·05	·00	·00	1·52	·01	1·13	·48	·00	1·86	21·41	·19	203·42	142·60	14·0
North Sea, Various,	·07	·67	·89	1·66	1·01	·06	5·64	·35	1·36	2·65	·01	·46	·36	·36	173·76	98·26	11·3
Total North Sea.	·18	·61	·86	·92	·46	·04	3·69	·33	1·11	1·90	·02	·29	·56	·19	122·06	73·02	12·0
Western Grounds,	·13	·09	·12	·50	·24	·23	8·11	·65	·45	1·13	·02	·65	·01	·08	210·36	118·91	11·3
Faeroe and Iceland,	·13	1·42	·07	·89	·02	·00	2·11	·03	9·07	·67	·00	·00	·02	6·14	733·43	235·83	6·4
Mixed Grounds,	·18	·14	·16	·83	·39	·17	8·25	·36	1·77	1·68	·00	·36	·15	·14	188·59	103·54	11·0
White Sea,	·67	·00	·00	·00	·00	·00	·00	·00	20·55	·00	·00	·00	·00	2·08	728·03	305·63	8·4
Norway,	·00	·13	·00	·87	·13	·00	2·31	·00	·87	·37	·00	·00	·00	·00	257·21	174·23	13·5
Baltic,	·10	·30	·00	·00	·00	·00	2·00	·00	1·00	·00	·00	·00	·00	50	92·70	61·35	13·2
Grand Total,	·17	·61	·74	·88	·41	·06	4·05	·34	1·59	1·75	·01	·31	·47	·57	170·89	88·24	10·3

C.—Percentage of Total Catch yielded by the Different Areas. ABERDEEN TRAWLERS, 1912.

Area	No. of Trips.	Cod.	Cod. ling	Total.	Ling.	Tusk.	Saithe.	Hake.	HADDOCKS.						Whiting.	Turbot.	Halibut.	Brill.	LEMONS.		
									E. Large.	Large.	Medium.	Small.	E. Small.	Total.					Large.	Small.	Total.
Northern Grounds,	16·1	11·1	21·6	14·9	29·7	48·1	27·3	50·6	8·2	31·8	28·1	22·5	10·6	23·7	30·1	14·4	24·2	12·5	6·5	7·6	6·9
East Coast Grounds,	43·8	8·2	12·4	9·7	11·2	·9	3·7	8·3	·2	7·6	16·9	26·7	47·1	18·5	24·0	55·1	6·2	46·4	56·0	71·0	61·8
Middle Grounds,	12·1	5·3	5·6	5·4	14·8	20·3	12·9	10·2	·2	13·9	17·5	20·8	26·1	16·6	23·4	7·3	11·3	3·1	8·5	2·9	6·4
South East Grounds,	1·8	·9	1·8	1·2	1·1	·1	1·5	·8	1·0	4·5	3·8	2·6	1·6	3·1	2·3	1·7	1·5	1·5	1·0	·2	·7
North Sea, Various,	9·2	5·0	9·4	6·6	12·4	19·5	11·3	18·0	2·7	10·8	11·0	11·4	11·2	10·3	13·4	9·6	10·6	12·1	7·2	7·1	7·2
Total North Sea,	83·0	30·5	50·8	37·8	69·2	88·9	56·6	88·1	12·4	68·7	77·3	84·0	96·7	72·1	93·2	88·1	53·8	75·6	79·2	88·8	82·9
Western Grounds,	8·7	12·3	12·4	12·3	10·3	4·3	7·6	9·7	5·1	15·2	15·9	10·9	2·1	11·6	3·6	9·4	10·1	20·0	5·1	5·6	5·3
Faeroe and Iceland,	6·5	55·8	32·9	47·6	18·7	5·2	34·0	·2	81·0	13·5	4·4	3·3	·6	14·1	2·2	·2	34·1	·1	14·4	4·2	10·5
Mixed Grounds,	1·6	1·3	2·5	1·8	1·9	1·5	1·7	2·0	1·0	2·4	2·5	1·9	·6	2·0	1·0	2·5	2·1	4·3	1·3	1·5	1·3
White Sea,	·1	·1	1·3	·5	0·0	0·0	0·0	0·0	·4	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0

Area.	PLAICE.				Dabs	WITCHES.			MEGRIMS.			Eel.	Skate.	Gurnard.	Catfish.	Monk.	Squid.	Mackerel.	Herrings.	Other Kinds.	Grand Total. Cwts.	Gross Earnings. £
	Large.	Medium.	Small.	Total		Large.	Small.	Total	Large.	Small.	Total											
Northern Grounds,	5·0	9·3	3·8	7·8	3·4	14·8	18·8	17·0	35·4	48·6	39·6	15·7	21·3	8·3	13·0	25·8	27·7	17·5	·6	16·8	21·0	22·6
East Coast Grounds,	18·5	40·6	66·8	45·7	74·9	13·9	12·6	13·2	13·4	4·9	10·7	32·4	31·9	58·0	29·9	32·7	16·4	4·2	4·3	1·9	14·9	19·2
Middle Grounds,	3·9	3·0	·4	2·4	4·4	41·8	54·4	48·8	20·6	16·7	19·4	2·6	9·2	5·0	6·0	17·4	36·5	33·3	7·3	2·7	11·9	13·9
South East Grounds,	6·1	2·6	1·4	2·5	·3	2·5	·6	1·4	·1	0·0	·1	·1	·7	·1	1·3	·5	0·0	10·7	79·8	·6	2·1	2·8
North Sea, Various,	4·9	7·6	3·4	6·5	3·7	10·2	11·2	10·7	17·4	22·8	19·1	9·8	12·9	9·5	7·9	14·0	7·2	13·7	7·1	5·8	9·4	10·2
Total North Sea,	38·4	63·2	75·8	64·9	86·7	83·2	97·6	91·1	86·9	93·1	88·8	60·6	76·0	80·8	58·1	90·4	87·7	79·4	99·1	27·8	59·3	68·7
Western Grounds,	26·1	19·9	17·1	19·5	6·4	1·3	1·4	1·3	5·0	5·1	5·0	34·4	17·5	16·9	2·5	5·6	11·8	18·5	·1	1·3	10·7	11·8
Faeroe and Iceland,	30·6	13·6	3·0	12·0	4·9	15·1	·6	7·2	6·6	·3	4·6	·3	3·4	·7	37·1	2·5	·3	·1	·3	70·3	27·9	17·4
Mixed Grounds,	2·6	3·1	4·3	3·3	1·7	·4	·4	·4	1·6	1·6	1·6	4·8	3·3	1·8	1·8	1·6	·1	2·0	·5	·4	1·8	1·9
White Sea,	2·1	·4	0·0	·4	·2	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	·7	0·0	0·0	0·0	0·0	·2	·2	·2

D.—Average Catch, in Cwts., per Day's Absence. ABERDEEN TRAWLERS, 1912.

Area.	Aver'ge Days per Trip.	Cod.	Codling.	Ling.	Tusk.	Saithe.	Hake.	HADDOCKS.					Whitings.	Turbot.	Halibut.	Brill.	LEMONS.	
								E. Large.	Large.	Medium.	Small.	E. Small.					Large.	Small.
Northern Grounds,	6·7	4·2	4·6	1·9	·1	4·5	·7	·4	4·7	2·4	3·9	·5	2·7	·0	·2	·0	·1	·1
East Coast Grounds,	2·6	2·9	2·5	·7	·0	·6	·1	·0	1·1	1·3	4·3	1·9	2·0	·1	·0	·0	·7	·6
Middle Grounds,	5·1	3·5	2·1	1·6	·0	3·7	·3	·0	3·6	2·6	6·4	2·0	3·7	·0	·1	·0	·2	·0
South East Grounds,	6·8	3·1	3·4	·6	·0	2·2	·1	·5	6·0	2·9	4·0	·6	1·8	·0	·1	·0	·1	·0
North Sea, Various,	6·7	3·3	3·5	1·3	·0	3·3	·5	·2	2·8	1·6	3·4	·8	2·1	·0	·1	·0	·2	·1
Total North Sea,	4·3	3·5	3·3	1·3	·0	2·8	·4	·2	3·1	2·0	4·4	1·3	2·5	·0	·1	·0	·3	·2
Western Grounds,	7·1	8·1	4·6	1·1	·1	2·2	·2	·5	3·9	2·3	3·3	·2	·6	·0	·1	·0	·1	·1
Faeroe and Iceland,	12·7	27·7	9·2	1·5	·0	7·3	·0	5·4	2·6	·5	·8	·0	·3	·0	3	·0	·3	·0
Mixed Grounds,	8·3	4·0	4·4	1·0	·0	2·3	·2	·4	2·8	1·7	2·7	·2	·7	·0	·1	·0	·1	·1
White Sea,	22·7	3·1	25·2	·0	·0	·0	·0	2·0	·1	·0	·0	·0	·0	·0	·0	·0	·0	·0
Total,	5·2	7·9	4·5	1·3	·0	3·4	·3	1·1	3·1	1·8	3·6	·9	1·9	·0	·2	·0	·3	·2

Area.	PLAICE.			Dabs.	WITCHES.		MEGRIMS.		Eel.	Skate.	Gurnard.	Catfish.	Monk.	Mackerel.	Herrings.	Other Kinds.	Grand Total. Cwts.	Gross Earnings. £
	Large.	Medium.	Small.		Large.	Small.	Large.	Small.										
Northern Grounds,	·0	·1	·0	·0	·1	·1	·3	·2	·0	·8	·0	·2	·4	·0	·0	·1	33·3	18·5
East Coast Grounds,	·0	·4	·2	·1	·1	·1	·1	·0	·0	1·1	·2	·4	·5	·0	·0	·0	22·2	14·7
Middle Grounds,	·0	·1	·0	·0	·4	·7	·3	·1	·0	·6	·0	·2	·5	·2	·1	·0	33·1	19·9
South East Grounds,	·0	·3	·0	·0	·1	·0	·0	·0	·0	·2	·0	·2	·1	·3	3·1	·0	29·9	21·0
North Sea, Various,	·0	·1	·0	·0	·1	·1	·2	·1	·0	·8	·1	·2	·4	·1	·1	·1	25·8	14·6
Total North Sea,	·0	·2	·1	·0	·1	·2	·2	·1	·0	·9	·1	·3	·4	·1	·1	·0	28·3	16·9
Western Grounds,	·0	·4	·1	·0	·0	·0	·1	·0	·0	1·1	·1	·1	·2	·1	·0	·0	29·6	16·7
Faeroe and Iceland,	·0	·2	·0	·0	·1	·0	·1	·0	·0	·2	·0	·7	·1	·0	·0	·5	57·9	18·6
Mixed Grounds,	·0	·3	·1	·0	·0	·0	·1	·0	·0	1·0	·0	·2	·2	·0	·0	·0	22·8	11·9
White Sea,	·2	·4	·0	·0	·0	·0	·0	·0	·0	·0	·0	·9	·0	·0	·0	·1	32·1	13·5
Total,	·0	·2	·1	·0	·1	·1	·2	·1	·0	·8	·1	·3	·3	·1	·1	·1	33·0	17·0

II. *Returns of Place of Fishing, and of Fish landed by Steam Trawlers at Aberdeen Market, in 1912. Based on returns from 8225 trawling voyages.*

NUMBER OF **Voyages** OF ABERDEEN TRAWLERS furnishing Detailed Returns of Place of Fishing and Hours of Trawling—1912 (excluding voyages during which the vessel fished on more areas than one).

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	Av. No. of days spent on voyage.
VI., ...	4	3	3	54	5	–	–	3	–	–	–	2	74	7·6
VII., ...	–	–	–	–	1	–	–	–	–	–	–	–	1	9·0
VIII., ...	–	–	–	–	–	2	–	–	–	–	–	–	2	7·5
IX., ...	–	–	–	–	6	3	12	2	1	–	–	–	24	6·3
X., ...	16	35	50	12	110	30	18	42	22	39	10	9	393	7·3
XI., ...	–	3	20	16	1	–	–	–	–	–	–	–	40	7·1
XII., ...	1	1	2	8	1	–	–	1	–	–	–	–	14	7·1
XIII., ...	36	28	2	3	30	39	37	30	11	17	32	18	283	5·9
XIV., ...	31	73	27	–	10	10	20	10	16	29	31	23	280	6·2
XV., ...	42	20	39	5	–	1	–	–	1	6	3	44	161	7·0
XVI., ...	12	1	6	6	–	–	–	–	–	–	2	9	36	7·6
XVII., ...	27	49	45	57	106	77	72	4	11	28	37	33	546	4·3
XVIII., ...	13	27	38	9	8	10	45	94	124	61	27	30	486	3·9
XIX., ...	87	9	17	1	–	15	2	4	–	5	52	111	303	6·1
XX., ...	2	4	4	–	–	–	–	–	–	–	27	80	117	6·2
XXI., ...	–	1	–	–	–	–	–	–	–	–	–	–	1	4·0
XXII., ...	2	1	1	–	–	1	–	–	–	–	–	5	10	3·7
XXIII., ...	216	198	165	269	152	155	272	383	342	279	283	292	3006	2·2
XXIV., ...	–	1	–	–	–	4	5	26	16	7	25	4	88	4·8
XXV., ...	–	–	–	–	–	3	3	–	1	10	15	–	32	6·6
XXVI., ...	–	–	–	1	–	–	2	1	–	8	2	–	14	7·7
XXVII., ...	–	–	–	–	–	1	1	2	11	2	–	–	17	7·4
XXVIII., ...	2	26	2	5	16	4	12	20	11	6	6	1	144	1·8
XXIX., ...	50	22	1	10	20	104	33	31	39	56	90	44	500	2·4
XXX., ...	–	–	–	–	–	–	–	–	6	49	12	–	67	5·6
XXXI., ...	1	–	–	–	–	2	1	1	4	23	7	–	39	6·8
XXXII., ...	–	–	–	–	1	–	–	–	1	13	2	–	17	7·0
XXXIII., ...	–	–	–	–	–	–	–	–	8	–	–	–	8	8·0
XXXIV., ...	–	–	–	–	–	–	–	–	–	–	–	1	1	10·0
XXXV.,.. ..	–	–	–	–	–	–	1	1	12	9	3	–	26	6·3
XXXVI., ...	–	1	–	–	–	–	–	–	3	1	–	–	5	5.2
XXXVII., ...	–	–	–	–	–	–	–	–	–	1	–	–	1	5·0
XXXVIII., ...	–	–	–	–	–	–	–	–	–	–	–	1	1	8·0
XXXIX., ...	–	–	1	–	–	–	–	–	–	–	–	–	1	2·0
XL., ...	–	–	–	–	–	–	–	–	1	–	–	–	1	6·0
C., ...	16	4	–	3	26	52	68	34	14	11	19	12	259	5·1
D., ...	17	13	44	13	9	12	6	4	14	7	9	9	157	7·5
J., ...	–	–	–	–	–	7	8	3	1	2	1	1	23	6·7
K., ...	4	2	5	2	3	4	1	–	1	–	1	–	23	7·0
M., ...	–	–	–	1	–	1	–	1	2	1	2	–	7	8·1
C.D. Minch, ...	49	37	29	22	23	33	44	6	9	3	13	42	310	7·1
Western Grounds (various)	9	7	8	7	1	2	10	12	5	1	5	2	69	8·6
Faroe, ...	11	19	34	27	23	35	17	10	35	26	10	11	258	10·5
Iceland, ...	30	27	55	76	84	32	31	22	3	4	7	28	399	13·9
Norway, ...	–	–	–	1	3	–	–	–	–	–	–	–	4	8·0
White Sea, ...	–	–	–	–	–	–	1	1	–	–	–	4	6	22·7
Baltic, ...	–	–	–	–	–	–	–	–	–	1	–	–	1	5·0
	678	612	598	608	639	639	722	748	725	705	736	816	8225	4·8

NUMBER OF **Hours** OF ACTUAL TRAWLING BY ABERDEEN TRAWLERS, on which are based the Tables of Average Catch per 100 hours—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total.	Av. No. of hours per trip.
VI., ...	228	248	362	4,424	497	–	–	241	–	–	–	200	6,200	83·8
VII., ...	–	–	–	–	54	–	–	–	–	–	–	–	54	54·0
VIII., ...	–	–	–	–	–	111	–	–	–	–	–	–	111	55·5
IX., ...	–	–	–	–	345	174	958	95	60	–	–	–	1,632	68·0
X., ...	943	2,607	3,260	807	7,334	2,100	1,111	2,789	1,633	2,797	569	739	26,687	67·9
XI., ...	–	284	1,490	1,501	115	–	–	–	–	–	–	–	3,390	84·8
XII., ...	45	142	136	768	90	–	–	112	–	–	–	–	1,293	92·4
XIII., ...	2,052	2,001	84	172	1,790	2,550	2,541	1,712	633	1,087	1,863	1,070	17,555	62·0
XIV., ...	1,719	5,714	2,512	–	798	634	1,456	730	1,075	2,078	2,268	1,481	20,465	73·1
XV., ...	3,120	1,591	3,382	438	–	113	–	–	80	508	241	3,759	13,232	82·2
XVI., ...	1,031	96	579	467	–	–	–	–	–	–	180	901	3,254	90·4
XVII., ...	1,268	2,160	2,342	2,869	5,191	3,881	3,254	226	579	1,316	1,760	1,544	26,190	48·0
XVIII., ...	672	1,530	2,649	376	333	653	2,644	5,405	7,025	3,478	1,675	1,882	28,322	58·3
XIX., ...	7,115	791	1,535	112	–	1,405	140	248	–	359	3,751	8,774	24,320	80·0
XX., ...	200	351	292	–	–	–	–	–	–	–	2,185	6,995	10,023	85·7
XXI., ...	–	32	–	–	–	–	–	–	–	–	–	–	32	32·0
XXII., ...	90	27	80	–	–	34	–	–	–	–	–	246	477	47·7
XXIII., ...	5,692	5,484	5,098	8,054	4,816	5,089	9,667	13,903	11,310	7,414½	8,550	7,779	92,856	30·9
XXIV., ...	–	100	–	–	–	257	440	1,579	996	454	2,001	329	6,156	70·0
XXV., ...	–	–	–	–	–	245	264	–	72	918	1,262	–	2,761	86·3
XXVI., ...	–	–	–	117	–	–	150	140	–	677	192	–	1,276	91·1
XXVII., ...	–	–	–	–	–	100	70	125	742	180	–	–	1,217	71·6
XXVIII., ...	57	647	45	138	492	158	222	616	317	174	292	6	3,164	27·8
XXIX., ...	1,079	721	21	376	657	3,877	1,149	955	1,456	1,859	2,814	1,218	16,182	32·4
XXX., ...	–	–	–	–	–	–	–	–	397	4,493	923	–	5,813	86·8
XXXI., ...	88	–	–	–	–	152	98	117	425	2,271	699	–	3,850	98·7
XXXII., ...	–	–	–	–	76	–	–	–	75	1,016	196	–	1,363	80·2
XXXIII., ...	–	–	–	–	–	–	–	–	558	–	–	–	558	69·8
XXXIV., ...	–	–	–	–	–	–	–	–	–	–	–	120	120	120·0
XXXV., ...	–	–	–	–	–	–	115	80	888	780	224	–	2,087	80·3
XXXVI., ...	–	96	–	–	–	–	–	–	168	42	–	–	306	61·2
XXXVII., ...	–	–	–	–	–	–	–	–	–	60	–	–	60	60·0
XXXVIII., ...	–	–	–	–	–	–	–	–	–	–	–	70	70	70·0
XXXIX., ...	–	–	11	–	–	–	–	–	–	–	–	–	11	11·0
XL., ...	–	–	–	–	–	–	–	–	68	–	–	–	68	68·0
C., ...	704	295	–	180	1,604	3,211	4,012	2,157	989	682	968	566	15,368	59·3
D., ...	941	898	2,857	759	636	896	318	255	619	319	457	454	9,409	59·9
J., ...	–	–	–	–	–	426	468	225	75	100	42	29	1,365	59·3
K., ...	92	156	264	50	164	149	90	–	40	–	24	–	1,029	44·7
M., ...	–	–	–	60	–	60	–	64	88	36	6	–	314	44·9
C.D. Minch, ...	2,375	2,393	1,951	1,539	1,560	1,915	2,847	437	536	183	726	2,108	18,570	59·9
Western Grounds (various)	614	424	713	382	45	153	702	785	309	72	378	105	4,682	67·9
Faroe, ...	730	1,226	2,487	1,671	1,577	2,776	1,604	611	2,704	1,958	707	922	18,973	73·5
Iceland, ...	2,512	2,557	2,931	3,555	7,629	3,961	4,625	3,146	605	494	386	2,814	35,215	88·3
Norway, ...	–	–	–	50	165	–	–	–	–	–	–	–	215	53·8
White Sea, ...	–	–	–	–	–	–	123	60	–	–	–	508	691	115·2
Baltic, ...	–	–	–	–	–	–	–	–	–	20	–	–	20	20·0
Total, ...	33,367	32,571	35,081	28,865	35,968	35,080	39,068	36,813	34,522	35,825	35,339	44,619	427,118	51·9

AVERAGE CATCH OF **Cod**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	7·0	23·8	14·8	7·8	18·2	—	—	21·4	—	—	—	30·7
IX.	—	—	—	—	200·0	60·5	21·6	32·6*	23·3*	—	—	—
X.	23·6	30·7	92·5	70·4	77·6	102·0	52·0	30·5	16·4	16·5	35·6	21·3
XII.	16·7*	11·4	13·8	7·2	9·7*	—	—	11·6	—	—	—	—
XIII.	104·8	64·6	79·4*	19·2	42·5	53·7	45·8	25·9	10·7	62·6	76·1	82·5
XIV.	69·9	25·2	10·4	—	70·3	80·1	37·7	32·3	25·5	34·8	26·3	53·7
XV.	12·7	10·7	10·6	7·6	—	12·4	—	—	46·3*	36·4	43·6	21·5
XVI.	9·8	4·7*	17·2	9·7	—	—	—	—	—	—	8·2	13·6
XVII.	54·8	37·3	76·8	68·	30·1	27·9	13·2	10·3	7·8	10·4	18·7	42·6
XVIII. ...	16·5	26·3	56·5	46·3	5·9	29·3	45·1	45·1	51·8	42·4	43·5	35·0
XIX.	11·5	10·2	8·1	5·4	—	29·4	19·9	53·3	—	57·9	19·4	19·5
XX.	9·3	12·8	8·4	—	—	—	—	—	—	—	16·9	14·0
XXII.	12·2*	38·9*	19·1*	—	—	14·1*	—	—	—	—	—	18·9
XXIII. ...	19·5	18·9	27·3	28·4	21·5	16·1	18·8	32·0	14·6	7·2	15·6	18·0
XXIV. ...	—	14·8	—	—	—	23·1	23·7	21·3	13·6	20·7	21·9	28·7
XXV.	—	—	—	—	—	8·0	14·1	—	57·6*	17·0	18·5	—
XXVI. ...	—	—	—	19·1	—	—	29·3	4·6	—	18·7	10·7	—
XXVII. ...	—	—	—	—	—	90·5*	27·1*	25·6	23·5	19·4	—	—
XXVIII. ...	40·3*	16·5	21·7*	10·5	11·0	2·7	7·8	2·9	·6	4·9	6·0	16·7*
XXIX. ...	10·5	13·5	9·5*	14·6	8·7	11·9	2·6	2·2	7·0	3·9	5·9	11·4
XXXI. ...	20·4*	—	—	—	—	7·8	12·8*	4·3	30·1	24·4	20·0	—
XXXV. ...	—	—	—	—	—	—	13·9	46·9*	13·8	28·6	29·5	—
Var. N. Sea ...	36·0	30·0	34·7	26·4	47·3	44·7	31·6	27·8	22·0	23·2	28·2	28·6
C.	156·3	69·0	—	84·1	82·7	63·6	48·2	35·9	23·6	17·5	25·3	78·1
D.	87·4	135·2	363·4	133·6	46·3	48·8	73·4	12·1	32·6	27·8	27·8	51·9
J.	—	—	—	—	—	142·3	64·8	13·8	18·4*	10·0*	17·9*	106·9*
K.	620·1*	174·2	809·1	416·0*	234·8	260·1	239·7*	—	48 3*	—	33·3*	—
M.	—	—	—	17·5*	—	4·2*	—	5·5*	19·3*	18·9*	46·7*	—
Minch	—	69·4*	81·	11· *	—	67·1*	—	—	—	—	—	—
C.D. Minch ...	156·8	117·9	165·9	64·6	62·3	70·5	34·4	51·0	22·2	75·4	47·6	108·0
Western Grounds.	115·6	81·5	272·9	195·4	70·5*	86·9	71·2	25·9	17·8	1·1*	44·0	95·0
Faroe	62·6	71·7	152·2	286·9	119·9	25·3	20·7	18·3	11·4	7·9	8·6	14·1
Iceland ...	468·0	674·1	1590·4	2145·6	601·3	172·2	94·6	61·4	40·3	16·9	104·9	239·3
Mixed Grounds	77·5	59·4	88·3	143·6	55·0	47·4	28·4	27·3	17·5	23·8	25· 5	61·4

Area VII., May 16·7* ; VIII., June 0·9 ; XI., Feb. 11·3, Mar. 9·2, Apr. 9·5, May 5·2 ; XXI., Feb. 9·4* ; XXX., Sept. 43·1, Oct. 22·9, Nov. 22·7 ; XXXII., May 3·3*, Sept. 13·1*, Oct. 18·5, Nov. 10·7 ; XXXIII., Sept. 28·0 ; XXXIV., Dec. 22·1 ; XXXVI., Feb. 42·7*, Sept. 34·7, Oct. 2·4* ; XXXVII., Oct. 7·5* ; XXXVIII., Dec. 165·0* ; XXXIX., Mar. 318·2* ; XL., Sept. 8·8 ; N., Nov. 170·8* ; White Sea, July 15·8 ; Aug. 666·8*, Dec. 1·8 ; Baltic, Oct. 14·0*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Codling**, IN CWTS, PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	4·0	27·8	15·6	9·1	45·8	–	–	63·6	–	–	–	26·7
IX.	–	–	–	–	90·4	76·4	29·4	133·2	77·5*	–	–	–
X.	23·7	30·9	30·3	23·6	53·0	68·1	93·4	67·5*	41·8	35·6	31·4	39·3
XII.	20·0*	2·8	18·0	14·5	10·6*	–	–	14·3	–	–	–	–
XIII.	75·6	53·6	13·1*	48·7	67·6	84·2	60·5	62·7	32·1	35·4	35·1	76·0
XIV.	75·6	34·8	20·0	–	78·5	93·7	68·7	72·9	55·3	32·7	36·0	94·3
XV.	19·7	22·5	18·0	12·4	–	11·5	–	–	5·6*	13·9	17·6	21·9
XVI.	15·2	7·3*	13·9	15·7	–	–	–	–	–	–	13·2	13·4
XVII.	49·3	20·8	27·3	23·4	21·3	22·0	23·0	23·2	20·2	18·4	29·9	25·9
XVIII. ...	17·5	15·6	13·2	7·1	8·0	8·5	15·0	9·8	12·8	13·3	18·3	23·0
XIX.	17·0	21·0	20·8	9·8	–	17·9	11·8	7·9	–	20·0	13·5	19·8
XX.	19·6	11·3	15·3	–	–	–	–	–	–	–	18·6	13·9
XXII.	15·0*	31·5*	4·1*	–	–	30·3*	–	–	–	–	–	17·8
XXIII. ...	18·9	17·6	16·2	14·7	10·4	11·8	15·7	13·1	16·6	19·5	23·3	30·8
XXIV. ...	–	9·5*	–	–	–	9·6	5·1	5·8	6·8	23·0	16·7	11·3
XXV.	–	–	–	–	–	8·6	8·9	–	27·8*	27·6	16·0	–
XXVI. ...	–	–	–	33·3	–	–	28·0	19·6	–	24·1	13·2	–
XXVII. ...	–	–	–	–	–	72·0*	81·2*	74·8	43·2	117·0	–	–
XXVIII. ...	91·6*	62·8	141·1*	30·8	26·3	14·7	51·8	29·0	29·2	35·0	38·1	63·3*
XXIX. ...	19·1	15·4	9·5*	12·2	14·9	12·3	15·0	17·0	16·6	17·6	22·9	20·6
XXXI. ..	35·2*	–	–	–	–	3·9	27·3*	33·8	23·2	21·7	15·5	–
XXXV. ...	–	–	–	–	–	–	6·5	59·4*	17·1	27·7	23·3	–
Var. N. Sea ...	30·4	25·8	22·3	18·6	45·6	60·8	46·0	49·9	24·6	24·8	25·1	27·5
C.	128·2	46·8	–	54·7	52·7	39·2	45·7	37·8	38·6	30·8	41·1	122·1
D.	133·4	81·4	72·5	66·9	34·9	55·0	81·1	27·4	54·5	55·3	90·1	109·2
J.	–	–	–	–	–	42·5	43·9	25·1	44·4*	39·8*	23·8*	94·1*
K.	38·0*	12·2	21·2	79· *	55·5	37·4	80·9*	–	107·5*	–	9·6*	–
M.	–	–	–	7·9*	–	16·7*	–	26·6*	83·3*	27·8*	50·0*	–
Minch	–	65·5*	53·9	20· *	–	34·1*	–	–	–	–	–	–
C.D. Minch ...	71·5	56·2	55·7	46·7	41·9	58·8	49·6	43·2	24·8	74·9	38·3	46·3
Western Grounds.	68·7	34·4	49·1	80·1	75·5*	29·4	76·6	27·3	22·9	3·2*	69·1	61·9
Faroe	193·8	204·5	242·1	342·0	151·2	145·6	86·6	236·9	124·7	127·0	125·6	199·4
Iceland ...	92·0	65·2	158·3	229·2	201·8	134·8	50·8	53·8	9·7	57·5	36·9	22·5
Mixed Grounds	88·9	49·5	21·3	46·4	57·2	61·0	55·2	45·2	51·8	34·6	53·4	58·2

Area VII., May 89·4* ; VIII., June 41·3 ; XI., Feb. 15·4, Mar. 19·1, Apr. 12·2, May 14·3 ; XXI., Feb. 15·6* ; XXX., Sept., 32·4, Oct. 22·8, Nov. 15·6 ; XXXII., May 23·7*, Sept. 30·4*, Oct. 23·0, Nov. 7·6 ; XXXIII., Sept. 56·3 ; XXXIV., Dec. 9·4 ; XXXVI., Feb. 21·4*, Sept. 13·3, Oct. 7·1* ; XXXVII., Oct. 34·7* ; XXXVIII., Dec. 236·5* ; XXXIX., Mar. 11·4* ; XL., Sept. 25·7* ; N., Nov. 225·0* ; White Sea, July 148·8, Aug. 1066·9*, Dec. 513·4 ; Baltic, Oct. 329·0*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Ling**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS—1912).

Area.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	7·6	78·6	59·9	56·1	19·5	–	–	59·7	–	–	–	66·4
IX.	–	–	–	–	2·7	3·0	82·8	6·3	17·5*	–	–	–
X.	18·5	7·5	16·0	23·1	8·5	18·2	21·3	24·8*	25·5	27·3	33·9	6·1
XII. ...	39·2*	·7	55·0	27·1	16·3*	–	–	26·8	–	–	–	–
XIII. ...	20·6	17·3	1·4*	·9	6·1	11·1	18·3	12·4	4·6	17·1	19·3	11·4
XIV. ...	9·0	13·0	11·6	–	6·6	4·8	12·5	17·3	14·5	22·6	15·7	6·0
XV.... ...	10·0	44·4	13·7	20·4	–	3·3	–	–	16·3*	19·2	12·9	9·5
XVI. ...	17·7	9·4*	10·2	13·6	–	–	–	–	–	–	6·3	6·7
XVII. ...	4·0	2·7	2·3	1·8	1·5	4·0	3·6	3·8	3·8	4·1	3·0	3·3
XVIII. ...	6·3	12·0	9·1	5·0	3·0	17·4	22·9	28·0	31·3	24·0	21·3	16·7
XIX. ...	4·3	12·7	9·4	5·8	–	5·9	11·6	24·3	–	17·9	3·3	6·3
XX.... ...	2·0	7·3	14·2	–	–	–		–	–	–	4·4	7·2
XXII. ...	5·2*	19·1*	3·8*	–	–	27·9*	–	–	–	–	–	6·3
XXIII. ...	3·7	2·8	2·5	3·4	5·0	9·5	7·9	9·2	9·4	4·4	7·0	4·1
XXIV. ...	–	11·3*	–	–	–	5·1	8·2	13·0	4·5	7·0	5·2	5·5
XXV. ...	–	–	–	–	–	2·0	2·8	–	5·6*	2·5	3·4	–
XXVI. ...	–	–	–	9·4	–	–	7·5	3·6	–	5·1	3·1	–
XXVII. ...	–	–	–	–	–	35·0*	2·1*	2·6	4·3	5·4	–	–
XXVIII. ...	4·1*	3·1	4·4	3·0	1·2	·7	2·3	2·1	1·1	6·5	1·1	3·3*
XXIX. ...	2·2	2·1	·0*	1·9	2·7	2·9	5·9	2·5	4·4	2·2	2·2	1·9
XXXI. ...	11·5	–	–	–	–	1·0	3·1*	2·1	2·8	3·4	4·3	–
XXXV. ...	–	–	–	–	–	–	3·2	14·4*	4·1	5·3	9·5	–
Var. N. Sea.	6·5	8·8	10·9	22·2	7·9	7·1	15·8	18·2	14·4	11·4	10·7	7·8
C.	3·6	7·1	–	15·2	49·1	36·3	23·0	19·7	11·3	9·5	5·1	1·7
D.	2·3	1·7	3·0	2·6	1·8	8·5	5·9	3·1	4·1	3·8	2·9	1·0
J.	–	–	–	–	–	9·4	6·5	6·6	19·3*	·7*	1·2*	39·7*
K.	5·6*	12 8	24·9	9·0*	14·1	23·8	49·2*	–	18·2*	–	20·8*	–
M.	–	–	–	5·0*	–	11·2*	–	·5*	5·7*	1·4*	50·0*	–
Minch ...	–	0·0*	3·0	1·6*	–	9·1*	–	–	–	–	–	–
C.D. Minch ...	4·4	4·8	1·5	6·9	12·8	13·6	11·8	5·5	13·6	2·6	11·1	4·0
Western Grounds	11·2	7·3	8·4	9·5	22·9*	·8	16·2	4 6	47·7	8·3*	5·7	5·7
Faroe ...	5·0	2·8	4·4	2·7	6·2	2·5	4·9	3·9	2·0	·6	2·2	·2
Iceland ...	61·5	57·2	31·8	100·9	28·2	3·5	13·8	22 3	12·0	7·0	25·7	44·1
Mixed Grounds	10·0	12·1	4·2	10·5	13·4	23·1	19·8	12·1	11·4	10·2	7·4	2·3

Area VII., May 46·3*; VIII., June 25·9; XI., Feb. 8·4, Mar. 32·2, Apr. 34·3, May 26·4; XXI., Feb. 20·8*; XXX., Sept. 9·2, Oct. 5·9, Nov. 4·3; XXXII., May 3·9*, Sept. 2·0*, Oct. 3·8, Nov. 1·0; XXXIII., Sept. 4·3; XXXIV., Dec. 10·6; XXXVI., Feb. 1·6*, Sept. 10·6, Oct. 0·0; XXXVII., Oct. 1·2; XXXVIII., Dec. 1·0; XXXIX., Mar. 4·5*; XL., Sept., 0·4*; N., Nov. 50·0*; White Sea, July 0·0, Aug. 0·0*, Dec. 0·0; Baltic, Oct. 0·0*.

* These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Tusk**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·7	4·6	1·1	3·0	·5	–	–	·0	–	–	–	2·5
IX.	–	–	–	–	1·2	·0	2·4	·0*	·0*	–	–	–
X.	·7	·2	·8	1·0	·1	·0	·1	·4	·7	1·0	1·7	·2
XII.	2·8*	·0	1·1	1·2	1·1*	–	–	1·8	–	–	–	–
XIII.... ...	·3	·3	·0*	·0	·1	·0	·2	·0	·0	·4	·3	·2
XIV.... ...	·3	·8	1·0	–	·0	·0	·0	·1	·3	·8	·3	·3
XV.	·5	·7	·7	·6	–	·0	–	–	·6*	1·3	·2	·8
XVI.... ...	·3	·5*	·6	·9	–	–	–	–	–	–	·6	·4
XVIII. ...	·6	·4	·3	·0	·0	·2	·4	·2	·5	·6	·5	·7
XIX.... ..	·3	·5	·5	·2	–	1·5	·0	·0	–	·4	·1	·6
XX.	·2	·4	·7	–	–	–	–	–	–	–	·2	·5
XXIV. ...	–	1·0*	–	–	–	·0	·0	·0	·0	·0	·0	·2
XXV. ...	–	–	–	–	–	·0	·0	–	·0*	·0	·1	–
XXXV. ...	–	–	–	–	–	–	·0	·0*	·0	·0	·1	–
Var. N. Sea...	·2	·4	·5	1·2	·2	·2	·2	·2	·3	·3	·3	·5
C.	·1	·0	–	·0	·3	·3	·2	·3	·1	·1	·0	·0
D.	·0	·0	·0	·0	·1	·0	·0	·0	·0	·0	·0	·0
J.	–	–	–	–	–	·1	·0	·2	·0*	·0*	·0*	·0*
K.	·0*	·0	·0	·0*	·0	·7	·0*	–	·0*	–	·0*	–
C.D. Minch ...	·1	·1	·0	·0	·3	·1	·2	·0	·2	·0	·0	·1
Western Grounds	·0	·0	·0	·3	·5*	·0	·1	·1	·3	·0*	·0	·0
Faroe ...	·2	·4	·5	·3	·6	·1	·3	·1	·3	·1	·6	·1
Iceland ...	·1	·0	·1	·0	·0	·0	·0	·0	·0	·0	·2	·1
Mixed Grounds	·2	·2	·1	·1	·0	·2	·6	·1	·2	·1	·2	·1

Area XI., Feb. 0·3, Mar. 1·2, Apr. 1·2, May 0·9. No Tusk were landed from Areas VII., VIII., XVII., XXI., XXII., XXIII., XXVI., XXXIV., XXXVI., XL., M., N.

* These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Saithe**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	8·6	160·5	129·8	41·1	62·2	–	–	31·9	–	–	–	178·5
IX.	–	–	–	–	112·5	19·5	346·4	4·7*	5·0	–	–	–
X.	34·4	44·9	40·9	28·7	101·4	91·7	34·0	28·4	26·0	28·3	25·7	33·6
XII.	68·9*	2·8	34·6	38·9	5·6*	–	–	30·3	–	–	–	–
XIII.	25·3	19·2	1·8*	53·8	36·5	42·4	19·5	6·2	3·4	28·8	74·1	79·0
XIV. ...	37·3	30·5	28·6	–	126·7	44·9	37·6	36·6	19·5	35·7	30·6	18·3
XV.	30·6	37·4	24·3	21·0	–	19·2	–	–	10·0*	39·4	38·8	24·5
XVI.	24·5	54·2*	21·8	18·3	–	–	–	–	–	–	11·1	17·8
XVII. ...	4·1	·9	2·7	3·2	10·0	8·9	3·2	1·1	·7	1·2	2·6	3·0
XVIII. ...	8·8	5·5	7·1	3·1	1·7	58·6	119·8	38·7	42·5	28·5	65·0	54·7
XIX.	12·0	16·1	26·6	3·6	–	126·4	38·6	47·5	–	36·9	22·1	32·1
XX.	6·5	24·9	13·4	–	–	–	–	–	–	–	20·3	12·3
XXII. ...	·0*	·0*	·0*	–	–	1·5*	–	–	–	–	–	1·3
XXIII. ...	6	·4	·7	2·9	2·9	3·3	9·4	11·5	5·5	1·9	4·5	3·0
XXIV. ...	–	6·0*	–	–	–	5·7	14·7	18·2	7·5	6·4	8·1	23·9
XXV. ...	–	–	–	–	–	2·9	32·2	–	41·7*	11·7	10·4	–
XXVI. ...	–	–	–	42·7	–	–	2·7	7·1	–	11·6	12·0	–
XXVII. ...	–	–	–	–	–	40·0*	·0*	53·6	32·8	19·4	–	–
XXVIII. ...	1·9*	·3	·0*	1·1	1·3	1·4	·7	·5	·0	·1	1·1	·0*
XXIX. ...	1·0	·2	·0*	1·2	1·3	·9	1·0	·7	1·2	·5	·6	1·7
XXXI. ...	3·4*	–	–	–	–	13·2	6·1*	2·6	10·1	19·6	6·9	–
XXXV. ...	–	–	–	–	–	–	8·7	18·7	7·2	25·3	32·1	–
Var. N. Sea ...	20·5	29·3	25·0	34·1	52·4	39·3	25·6	29·5	21·9	19·3	24·4	31·6
C.	18·2	10·8	–	21·7	6·3	41·7	23·2	12·2	9·8	12·6	12·3	13·6
D.	10·8	13·6	30·0	51·6	42·7	48·8	17·0	3·6	5·3	3·2	3·6	7·2
J.	–	–	–	–	–	107·0	49·5	14·4	4·0*	2·0*	8·3*	3·4*
K.	109·3*	49·4	129·5	48· *	158·5	12·8	8·9*	–	10·0*	–	16·7*	–
M.	–	–	–	23·3	–	6·7*	–	·6*	8·0*	·0*	8·3*	–
Minch ...	–	4·4*	15·7	5·3*	–	54·5	–	–	–	–	–	–
C.D. Minch ...	17·9	25·9	10·8	35·6	35·5	31·6	18·0	18·4	11·1	3·4	22·5	18·7
Western Grounds	59·1	28·1	57·2	35·3	200·0*	22·9	28·1	5·6	35·7	8·3*	5·3	3·8
Faroe ...	15·0	161·4	44·8	61·3	22·4	22·5	11·2	9·7	6·8	7·7	3·6	2·8
Iceland ...	64·6	24·6	126·5	353·0	90·0	63·6	215·2	295·9	86·6	9·1	41·8	364·9
Mixed Grounds	13·6	20·1	13·0	57·8	62·7	57·3	30·2	10·1	9·2	30·4	14·8	7·6

Area VII., May 111·1* ; VIII., June 5·4 ; XI., Feb. 55·6, Mar. 59·8, Apr. 23·8, May 43·5 ; XXI., Feb. 18·8* ; XXX., Sept. 10·5, Oct. 13·6, Nov. 6·9 ; XXXII., May 1·3*, Sept. 6·0*, Oct. 14·8, Nov. ·1 ; XXXIII., Sept. 21·5 ; XXXIV., Dec. 0·0 ; XXXVI., Feb. 0·5*, Sept. 16·1, Oct. 0·7* ; XXXVII., Oct. 0·0* ; XXXVIII., Dec. 1·4* ; XXXIX., Mar. 1·8* ; XL., Sept. 2·9* ; N., Nov. 33·3* ; White Sea, July 4·1, Aug. 6·0*, Dec. 0·0 ; Baltic, Oct. 22·5*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Hake,** IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	2·2	5·2	1·5	3·1	1·2	–	–	2·7	–	–	–	55·6
IX.	–	–	–	–	·1	1·8	155·5	2·6*	·0*	–	–	–
X.	3·4	·3	·1	·3	·3	1·0	4·9	7·1	33·8	30·0	16·5	4·0
XII.	·4*	·0	·0	1·8	3·1*	–	–	2·4	–	–	–	–
XIII.	·3	·4	·0*	·0	·6	15·0	14·2	7·2	6·0	58·4	54·5	8·8
XIV.	·5	·6	·7	–	·7	5·5	7·2	1·9	4·9	8·3	6·5	3·3
XV.	·7	·3	·4	2·4	–	·4	–	–	·5*	2·0	1·3	·8
XVI.	·3	·0*	·0	1·2	–	–	–	–	–	–	3·9	1·0
XVII.	·0	·0	·0	·1	·6	9·5	12·6	1·2	2·9	1·2	·2	·0
XVIII. ...	·1	·1	·3	·0	·7	1·2	·9	3·8	10·3	5·8	7·1	3·8
XIX.	·3	·3	·4	·0	–	1·9	·1	·1	–	1·8	·3	·7
XX.	·0	·0	·0	–	–	–	–	–	–	–	·8	·5
XXII.	·0*	·0*	·0*	–	–	·3*	–	–	–	–	–	·0
XXIII. ...	·0	·0	·0	·0	·1	·6	·7	·5	·9	·6	·2	·0
XXIV. ...	–	1·0	–	–	–	·3	·0	·2	·1	·1	·4	·2
XXV.	–	–	–	–	–	·1	·3	–	·0*	·2	1·4	–
XXVI. ...	–	–	–	·0	–	–	2·1	·0	–	·3	·2	–
XXVII. ..	–	–	–	–	–	1·2*	1·6*	2·0	5·3	1·0	–	–
XXVIII. ...	·0*	·0	·0*	–	·0	·2	·2	1·4	·1	·1	·1	·0*
XXIX. ...	·0	·0	·0*	·0	·0	·1	·3	·4	·3	·1	·0	·0
XXXI. ...	·0*	–	–	–	–	·0	·0	3·0	1·6	·1	·0	–
XXXV. ...	–	–	–	–	–	–	·0	·0*	·0	·1	·7	–
Var. N. Sea ...	·8	·6	·2	1·1	1·0	3·4	14·14	6·3	4·7	7·9	9·7	2·7
C.	·1	·1	–	·0	·0	·6	2·0	·3	·6	20·8	11·5	·4
D.	·2	·0	·0	·0	14·7	1·0	·5	1·4	·5	1·4	5·7	·2
J.	–	–	–	–	–	·0	·5	·3	·4*	2·0*	·9*	·0*
K.	·1*	·4	·0	·0*	·0	·4	1·3*	–	·0*	–	4·2*	–
M.	–	–	–	135·0*	–	260·0*	–	·9*	80·1	6·1*	3·3*	–
Minch	–	4·4*	·0	·0*	–	·4*	–	–	–	–	–	–
C.D. Minch ...	2·6	3·9	·2	·0	·3	1·4	2·4	1·1	14·0	6·4	7·7	3·4
Western Grounds	·3	7·3	·0	10·2	·2*	·4	4·1	1·7	20·0	29·2*	4·6	·5
Faroe	·0	·0	·0	·0	·0	·0	·5	·2	·3	·1	·4	·0
Iceland ...	·0	·0	·0	·0	·0	·0	·1	·0	·0	1·0	·0	·0
Mixed Grounds	·3	·1	·1	·0	·7	1·1	6·3	3·1	2·6	14·7	7·3	·8

Area VII., May 0·0*; VIII., June 0·0; XI., Feb. 0·2, Mar. 1·2, Apr. 3·0, May 3·5; XXI., Feb. 0·0*; XXX., 0·1, Oct. 1·0, Nov. 0·1; XXXII., May 0·0*, Sept. 9·1*, Oct. 2·0, Nov. 1·2; XXXIII., Sept. 7·4; XXXIV., Dec. 0·3; XXXVI., Feb. 0·0*; Sept. 0·0, Oct. 0·2*; XXXVII., Oct. 15·0*; XXXVIII., Dec. 0·0*; XXXIX., Mar. 0·0*; XL., Sept. 5·4*; N., Nov. 0·0*; White Sea, none; Baltic, Oct. 0·5*.

* These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Extra Large Haddocks,** IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·4	4·4	6·6	7·5	3·8	–	–	3·9	–	–	–	2·9
IX.	–	–	–	–	6·7	2·0	1·8	11·1*	8·3*	–	–	–
X.	5·9	8·7	15·8	9·6	7·3	4·6	6·4	9·5	9·5	6·3	3·2	4·5
XII.	·0*	·0	1·5	·8	·0	–	–	·0	–	–	–	–
XIII.	1·0	1·4	·0*	·0	2·4	2·0	1·5	2·4	·7	·5	·5	1·2
XIV.	5·3	1·9	·3	–	6·0	7·2	2·6	2·3	1·4	1·0	1·8	4·5
XV.	·0	·6	4·2	·4	–	·0	–	–	·0*	·0	·0	·1
XVI.	·1	4·2	4·3	1·9	–	–	–	–	–	–	·0	·1
XVII.	·5	·1	·2	·1	·1	·3	·1	·7	·3	·0	·2	·0
XVIII. ...	·1	·0	·0	·0	·0	.0	·1	·0	·0	·1	·0	·0
XIX.	·0	·2	·2	·0	–	·0	·0	·0	–	1·1	·1	·1
XX.	·0	4·9	3·9	–	–	–	–	–	–	–	·2	·2
XXII.	·0*	·0*	·0*	–	·1	·0*	–	–	–	–	–	·6
XXIII. ...	·0	·0	·0	·0	–	·0	·0	·0	·0	·0	·0	·1
XXIV. ...	–	·0*	–	–	–	·0	·2	·0	·0	·0	·0	·3
XXV.	–	–	–	–	–	·0	·0	–	·0*	·0	·1	–
XXVI. ...	–	–	–	·0	–	–	4·3	9·3	–	4·0	·8	–
XXVII. ...	–	–	–	–	·0	3·0*	48·6*	26·8	14·1	11·1	–	–
XXVIII. ...	·0*	·0	·0*	·0	·0	·0	·0	·0	1·9	·0	·0	·0*
XXIX. ...	·0	·0	·0*	·0	–	·0	·0	·0	·0	·0	·0	·0
XXXI. ...	·6*	–	–	–	–	·0	·0*	6·8	·0	·4	·0	–
XXXV. ...	–	–	–	–	2·4	–	·0	·0*	·2	·5	·2	–
Var. N. Sea ...	1·5	3·0	3·7	2·9	8·3	2·5	1·5	3·8	1·4	1·3	·9	1·3
C.	9·4	1·8	–	4·3	7·9	7·5	6·9	8·4	6·1	8·5	5·6	10·7
D.	8·8	3·5	1·6	4·7	–	10·6	11·1	3·7	8·7	5·5	2·9	6·1
J.	–	–	–	–	6·7	5·3	8·8	5·5	5·1*	2·8*	2·4*	13·8*
K.	3·3*	·6	3·2	8·0*	–	2·3	3·3*	–	7·5*	–	2·1*	–
M.	–	–	–	·0*	–	6·7*	–	3·6*	1·5*	2·8*	8·3*	–
Minch	–	3·3*	3·4	2·7*	5·7	2·0	–	–	–	–	–	–
C.D. Minch ...	3·8	2·7	1·9	3·3	–	5·2	4·2	2·4	2·5	9·2	4·1	2·1
Western Grounds	4·2	2·8	3·1	8·1	4·4*	3·1	5·3	5·7	4·0	1·1*	4·9	4·0
Faroe	22·4	24·0	24·9	25·8	56·9	42·4	18·6	28·4	15·4	7·6	9·8	7·5
Iceland ...	39·1	31·7	146·8	238·0	171·7	119·8	61·8	51·0	23·9	27·0	82·4	32·7
Mixed Grounds	10·8	9·8	2·1	4·4	5·2	4·5	6·1	4·9	7·0	2·4	4·1	3·0

Area VII., May 18·1*; VIII., June 4·0; XI., Feb. 1·1, Mar. 2·0, Apr. 0·3, May 1·3; XXI., Feb. 0·0; XXX., Sept. 0·0, Oct. 0·0, Nov. 0·0; XXXII., May 0·0*, Sept. 17·3*, Oct. 8·7, Nov. 4·7; XXXIII., Sept. 23·1; XXXIV., Dec. 0·0; XXXVI., Feb. 14·1*, Sept. 0·5*, Oct. 0·0* XXXVII., Oct. 6·3*; XXXVIII., Dec. 1·4*; XXXIX., Mar. 0·0*; XL., Sept. 7·3*; N., Nov. 91·7; White Sea, July 0·0, Aug. 16·3, Dec. 51·0; Baltic, Oct. 0·0*.

* These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Large Haddocks**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	3·3	26·1	44·6	76·3	42·5	–	–	32·8	–	–	–	18·4
IX.	–	–	–	–	57·2	36·4	14·6	89·3*	105·0*	–	–	–
X.	38·7	51·0	89·8	78·6	59·9	45·8	45·2	70·2	55·8	50·2	58·4	35·1
XII.	49·4*	27·6	100·6	46·2	7·2*	–	–	22·6	–	–	–	–
XIII.	24·0	15·9	3·6*	3·3	19·5	18·6	21·6	47·8	49·0	13·8	17·2	20·0
XIV.	38·5	29·4	19·7	–	36·7	33·1	39·3	38·4	52·9	31·6	41·2	48·9
XV.	44·3	31·4	60·3	82·6	–	·9	–	–	1·6*	5·7	55·6	43·0
XVI.	43·4	45·8*	69·5	53·2	–	–	–	–	–	–	54·2	59·1
XVII.	15·5	18·5	15·7	7·6	5·6	7·3	9·5	24·7	19·0	17·0	18·8	9·3
XVIII. ...	13·9	15·7	16·0	4·3	2·8	1·7	2·8	1·6*	2·0	3·4	4·0	10·1
XIX.	31·2	25·4	24·6	5·8	–	2·7	1·8	·9	–	14·8	45·6	36·3
XX.	84·0	65·2	44·0	–	–	–	–	–	–	–	79·4	63·2
XXII.	20·5*	40·7*	12·5*	–	–	14·7*	–	–	–	–	–	5·1
XXIII. ...	11·2	13·3	10·4	5·5	2·4	3·3	6·1	5·3	9·4	6·5	6·4	8·9
XXIV. ...	–	14·3*	–	–	–	2·3	3·3	2·2	6·2	25·3	30·4	6·8
XXV.	–	–	–	–	–	30·6	55·7	–	34·4*	35·2	48·9	–
XXVI. ...	–	–	–	29·3	–	–	60·0	39·5	–	75·4	49·9	–
XXVII. ...	–	–	–	–	–	19·0*	160·8*	119·6	90·6	75·4	–	–
XXVIII. ...	6·6*	11·1	1·1*	5·1	4·8	4·0	11·6	7·0	8·0	8·0	4·2	5·0
XXIX. ...	9·4	10·0	15·5*	4·1	2·9	3·6	4·7	5·4	10·0	10·0	11·2	11·5
XXXI. ...	46·3*	–	–	–	–	50·5	30·9*	36·2	23·5	47·5	28·7	–
XXXV. ...	–	–	–	–	–	–	4·2	22·5	20·5	36·0	31·8	–
Var. N. Sea ...	23·7	26·1	32·1	30·2	25·7	21·9	19·5	29·0	21·0	27·0	23·1	29·4
C.	44·8	25·5	–	64·4	56·3	72·8	82·1	77·6	72·5	116·6	80·0	75·2
D.	50·1	28·6	13·7	57·8	48·1	45·2	63·3	25·2	106·2	54·9	86·7	53·9
J.	–	–	–	–	–	62·6	109·7	84·9	37·7*	139·0*	116·7*	61·4
K.	15·5*	3·0	14·0	72·0*	72·4	44·1	33·9*	–	106·2*	–	30·4*	–
M.	–	–	–	1·7*	–	2·5*	–	7·5*	23·3*	18·9*	63·3*	–
Minch	–	12·2*	11·9	13·5*	–	78·0*	–	–	–	–	–	–
C.D. Minch ...	23·5	18·0	13·6	15·4	29·1	38·9	33·6	46·6	38·9	90·7	58·1	19·8
Western Grounds	19·6	29·4	21·3	30·2	51·1*	35·8	61·8	60·3	66·3	15·0*	67·3	28·4
Faroe	22·1	20·7	26·0	30·0	39·9	64·9	41·3	59·0	45·1	60·9	68·4	76·3
Iceland ..	14·2	4·3	6·1	48·0	66·6	67·1	42·7	33·5	9·2	11·6	10·0	·9
Mixed Grounds	26·7	26·4	19·7	21·4	36·9	42·7	50·1	47·9	32·3	21·3	36·5	25·9

Area VII., May 42·1*; VIII., June 207·2; XI., Feb. 45·4, Mar. 84·6, Apr. 61·4, May 31·3; XXI., Feb. 40·6*; XXX., Sept. 38·7, Oct. 29·0. Nov. 23·1; XXXII., May 42·8, Sept. 87·3*, Oct. 86·5, Nov. 53·0; XXXIII., Sept. 95·1; XXXIV., Dec. 52·3; XXXVI., Feb. 64·6*, Sept. 7·3, Oct. 17·4* XXXVII., Oct. 74·2*; XXXVIII., Dec. 5·4*; XXXIX., Mar. 0·0*; XL., Sept. 116·2*; N., Nov. 91·7*; White Sea, July 0·0, Aug. 18·0, Dec. 0·6; Baltic, Oct. 6·5*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Medium Haddocks**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·8	8·5	16·2	31·0	19·0	–	–	15·1	-	–	–	7·4
IX.	–	–	–	–	25·4	8·6	9·0	22·1*	54·7*	–	–	–
X.	22·2	24·4	30·4	33·8	25·2	21·0	25·8	27·8	19·7	18·8	18·0	11·3
XII.	20·0*	·0	56·1	20·5	6·1*	–	-	9·8	–	–	–	–
XIII.	19·7	13·3	5·4*	6·4	14·5	13·3	14·3	38·6	40·9	7·2	9·9	13·2
XIV.	24·9	20·6	16·8	–	16·7	12·0	17·6	14·8	26·0	12·3	14·2	12·3
XV.	27·4	22·5	32·0	36·9	–	4·4	–	–	2·5*	7·7	50·4	31·0
XVI.	31·9	26·8*	26·3	24·5	–	–	–	–	–	–	33·8	29·5
XVII.	18·6	19·9	15·7	9·4	10·8	11·8	19·7	20·9	20·3	32·8	28·4	18·6
XVIII. ...	13·4	15·8	16·3	6·9	4·9	2·4	2·3	1·5	2·0	4·4	5·1	12·8
XIX.	22·9	22·9	22·0	7·1	–	5·0	3·8	·2	–	8·0	33·6	26·4
XX.	31·3	39·9	28·5	–	–	–	-	-	–	–	42·2	31·5
XXII.	23·9*	48·2*	12·5*	–	–	4.4*	–	–	–	–	–	13·4
XXIII. ...	12·3	10·3	8·9	6·8	4·6	6·2	10·1	8·1	12·1	10·4	7·9	7·7
XXIV. ...	–	11·5*	–	–	–	3·8	3·4	3·8	13·2	23·5	29·8	13·5
XXV.	–	–	–	–	–	25·4	24·5	–	31·9*	26·6	30·5	–
XXVI. ...	–	–	–	14·3	–	–	24·2	10·7	–	26·4	26·3	–
XXVII. ...	–	–	–	–	–	10·5*	45·0*	42·2	27·2	21·0	–	–
XXVIII. ...	3·9*	4·7	1·7*	5·8	7·6	5·3	9·9	68·6	6·4	8·3	5·1	·0*
XXIX. ...	11·3	6·8	7·1*	6·3	6·2	6·5	7·8	8·3	14·0	13·2	12·2	9·8
XXXI. ...	17·0*	–	–	–	–	46·6	26·5*	14·5	19·6	24·2	23·8	–
XXXV. ...	–	–	–	–	–	–	8·5	13·7*	46·0	24·6	15·5	–
Var. N. Sea ...	14·8	16·8	17·7	16·3	13·8	14·5	14·1	13·7	12·2	15·2	15·8	18·4
C.	17·7	20·9	–	20·6	30·4	45·6	56·0	43·3	45·9	64·9	65·2	35·7
D.	20·2	14·6	7·0	26·9	23·6	20·3	37·3	24·8	53·9	36·4	28·6	21·1
J.	–	–	-	–	–	40·1	69·3	38·7	48·6*	77·0*	52·4*	25·2
K.	2·4*	·6	4·7	22·5*	36·3	34·8	22·0*	-	62·0*	–	16·7*	–
M.	–	–	–	·0*	–	5·0*	–	6·3*	6·0*	8·3*	16·7*	–
Minch ...	-	9·4*	7·0	8·0*	–	19·7*	–	–	–	–	–	–
C.D. Minch ...	12·4	11·0	9·3	10·0	17·1	21·7	23·7	37·5	26·9	52·2	40·6	15·1
Western Grounds	12·1	15·6	8·6	12·8	17·8*	19·0	40·8	33·6	35·0	10·8*	25·6	34·1
Faroe	3·5	3·0	2·4	1·5	6·3	14·9	19·4	39·5	33·2	28·9	30·8	19·7
Iceland ...	·0	·0	·0	·0	4·4	6·9	9·0	·5	·0	·0	·0	·0
Mixed Grounds	8·5	9·7	12·1	10·6	20·1	28·8	20·1	29·3	25·0	16·2	27·3	15·0

Area VII., May 14·8* ; VIII., June 48·9 ; XI., Feb. 19·6, Mar. 42·7, Apr. 31·9, May 20·9 ; XXI., Feb. 35·2* ; XXX., Sept. 34·8, Oct. 25·8, Nov. 20·3 ; XXXII., May 17·1*, Sept. 17·3*, Oct. 29·4, Nov. 17·6 ; XXXIII., Sept. 36·5 ; XXXIV., Dec. 43·2 ; XXXVI., Feb. 13·5*, Sept. 4·9, Oct. 21·4* ; XXXVII., Oct. 20·5* ; XXXVIII., Dec. 0·0* ; XXXIX., Mar. 2·3* ; XL., Sept. 22·1* ; N. Nov. 31·7* ; White Sea, none ; Baltic, Oct. 15·0*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Small Haddocks**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	1·8	7·6	24·2	42·5	24·7	–	–	12·0	–	–	–	10·1
IX.	–	–	–	–	42·5	8·3	9·9	18·9*	43·3*	–	–	–
X.	28·6	32·8	29·9	41·6	27·4	17·3	29·4	28·8	17·5	16·6	25·5	9·6
XII.	33·3*	48·4	66·5	25·5	21·1*	–	–	15·2	–	–	–	–
XIII.	52·5	53·2	31·5*	36·6	43·5	36·4	27·2	47·2	45·2	13·4	20·2	19·7
XIV.	50·2	64·2	62·7	–	18·6	16·4	21·8	20·9	26·9	19·9	22·5	15·3
XV.	52·3	51·3	57·6	42·6	–	14·2	–	–	26·3*	28·2	86·5	56·7
XVI.	61·7	37·0*	45·7	35·4	–	–	–	–	–	–	39·9	41·1
XVII.	86·3	108·8	91·0	72·7	58·9	52·7	50·3	31·8	41·7	60·6	66·1	41·5
XVIII. ...	72·4	80·7	69·9	43·8	45·9	40·6	32·2	29·6	28·2	27·3	28·7	33·5
XIX.	63·8	62·8	78·1	30·8	–	20·3	23·9	32·1	–	15·4	67·8	53·8
XX.	56·8	70·0	63·6	–	–	–	–	–	–	–	58·9	50·7
XXII.	120·8*	190·8*	39·1*	–	–	26·5*	–	–	–	–	–	41·6
XXIII. ...	33·4	24·2	25·2	26·4	24·1	28·7	27·6	26·6	31·8	26·3	25·6	16·2
XXIV. ...	–	40·0*	–	-	–	20·2	18·9	28·3	27·7	35·2	49·6	63·5
XXV.	–	–	–	–	–	30·8	20·1	–	61·1*	37·6	46·9	–
XXVI. ...	–	–	–	16·2	–	–	16·5	11·8	–	28·0	28·1	–
XXVII. ...	–	–	–	–	–	3·0*	36·9*	52·8	37·0	18·1	–	–
XXVIII. ...	7·5*	4·9	·6*	10·0	44·7	10·4	17·5	13·3	9·5	22·3	6·2	1·7*
XXIX. ...	38·5	14·4	16·7*	26·7	22·0	20·5	18·8	15·3	32·8	28·0	24·7	21·2
XXXI. ...	19·3*	–	–	–	–	50·7	57·6*	19·7	17·5	32·6	42·0	–
XXXV. ...	–	–	–	–	–	–	20·4	19·4*	23·9	35·3	32·6	–
Var. N. Sea ...	37·9	44·8	49·	33·8	28·9	29·9	26·1	23·6	24·6	27·3	28·2	34·9
C.	28·8	63·4	–	81·1	41·3	55·3	69·6	44·4	36·9	46·8	49·2	30·9
D.	25·7	29·2	29·7	47·3	28·4	39·1	49·2	24·4	36·4	33·1	30·1	18·7
J.	–	–	–	–	–	72·1	67·1	33·8	44·0*	52·5*	38·1*	15·5*
K.	6·2*	9·3	19·8	76· *	67·1	55·4	32·8*	–	51·3*	–	22·9	–
M.	–	–	–	·0*	–	35·0*	–	7·8*	4·5*	10·6*	·0*	–
Minch	–	35·6*	25·4	20·0*	–	27·3*	–	–	–	–	–	–
C.D. Minch ...	31·3	38·8	37·9	31·9	35·8	37·9	34·4	37·4	39·3	36·9	40·1	22·6
Western Grounds	27·8	69·0	29·0	31·7	40·0*	33·0	45·4	43·2	35·6	19·4*	25·1	37·1
Faroe	13·4	17·9	14·2	9·0	23·0	47·9	47·7	102·2	43·2	23·8	31·4	24·8
Iceland ...	·0	·0	·0	·0	1·5	1·1	·9	1·9	·0	·2	·0	·0
Mixed Grounds	23·1	35·8	52·3	22·2	30·0	48·5	40·7	36·7	27·2	17·4	31·9	20·0

Area VII., May 2·3* ; VIII., June 13·1 ; XI., Feb. 42·3, Mar. 58·1, Apr. 44·1, May 17·4 ; XXI., Feb. 46·9* ; XXX., Sept. 32·6, Oct. 32·4, Nov. 37·2 ; XXXII., May 16·4*, Sept. 29·7*, Oct. 31·5, Nov. 30·1 ; XXXIII., Sept. 59·0 ; XXXIV., Dec. 67·1 ; XXXVI., Feb. 19·3*, Sept. 12·2, Oct. 28·6* ; XXXVII., Oct. 55·0* ; XXXVIII., Dec. 0·0* ; XXXIX., Mar. 0·0* ; XL., Sept. 60·4* ; N., Nov. 8·3* ; White Sea, none ; Baltic, Oct. 29·0*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Extra Small Haddocks**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·3	·0	·0	2·0	·0	–	–	·0	–	–	–	2·0
IX.	–	–	–	–	·0	·0	·4	·0	·0*	–	–	–
X.	·8	1·4	1·9	1·4	·5	·2	·8	·6	1·6	1·2	5·2	1·5
XII.	·0*	·0	·0	1·9	·0*	–	–	2·7	–	–	–	–
XIII.	7·3	3·4	·0*	8·7	2·2	1·5	4·2	2·6	12·0	2·9	·8	2·7
XIV.	12·7	10·8	4·7	–	·9	·0	1·4	2·1	3·3	6·2	4·6	3·9
XV.	8·7	15·4	8·5	3·7	–	8·8	–	–	·0*	8·3	15·1	13·5
XVI.	4·9	4·2*	5·9	5·2	–	–	–	–	–	–	29·9	17·5
XVII.	4·4	29·9	20·7	18·1	15·7	13·3	10·9	2·4	13·4	21·5	15·3	9·7
XVIII. ...	12·6	20·8	38·9	36·6	28·4	6·9	5·5	17·7	16·2	19·5	16·1	12·9
XIX.	8·4	16·2	13·4	1·8	–	5·3	5·0	1·2	–	9·6	20·1	16·8
XX.	3·2	17·5	9·8	–	–	–	–	–	–	–	17·9	16·5
XXII.	3·9*	79·6*	119·4*	–	–	·0*	–	–	–	–	–	9·3
XXIII. ...	13·7	11·8	13·7	14·4	18·7	18·3	14·2	15·9	22·2	22·1	15·8	10·1
XXIV. ...	–	1·5*	-	–	–	8·8	9·2	6·5	14·0	10·2	27·2	22·2
XXV.	–	–	–	–	–	4·7	3·0	–	·0*	13·6	15·4	–
XXVI. ...	–	–	–	·0	–	–	1·2	·0	–	2·0	15·6	–
XXVII. ...	–	–	–	–	–	·0*	·0*	5·8	4·8	·0	–	–
XXVIII. ...	·0*	1·7	·0*	3·3	5·3	9·2	5·3	15·5	10·4	11·5	7·4	·0*
XXIX. ...	17·0	9·9	19·0*	9·2	10·7	10·4	9·4	18·4	21·4	26·1	17·2	11·9
XXXI. ...	·0*	–	–	–	–	·0	10·2*	·0	12·2	6·4	5·1	–
XXXV. ...	–	–	–	–	–	–	·0	1·9*	7·1	7·1	16·0	–
Var. N. Sea ...	3·0	11·8	14·2	6·3	5·6	3·5	3·9	5·0	10·7	10·5	8·2	10·9
C.	1·5	4·3	–	2·2	·8	·8	1·3	2·0	·9	1·5	2·1	1·7
D.	·0	·1	1·2	4·5	·0	1·8	·6	·0	2·1	·0	1·2	2·2
J.	–	–	–	–	–	1·8	1·3	1·8	·0*	·0*	8·3*	·0*
K.	·0*	·0	2·3	·0*	·0	·0	·0*	–	·0*	–	·0*	–
M.	-	–	–	·0*	–	·0*	–	·0*	·0*	·0*	·0*	–
Minch	–	·0*	·0	·0*	–	8·3*	–	–	–	–	–	–
C.D. Minch ...	2·8	3·6	5·1	6·8	5·8	1·6	1·1	·0	·0	·0	7·3	2·7
Western Grounds	1·6	·3	4·8	2·1	5·6*	1·0	1·7	·0	·0	·0*	·0	·0
Faroe	2·1	·4	·3	·2	·7	·1	·5	·0	4·4	4·1	10·3	·0
Iceland ...	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0
Mixed Grounds	4·2	·8	4·5	4·8	2·5	1·9	2·2	·5	3·8	3·8	8·2	1·6

Area VII., May 0·0*; VIII., June 0·0; XI., Feb 5·1, Mar. 9·1, Apr. 5·1, May 0·0; XXI., Feb. 0·0*; XXX., Sept. 14·0, Oct. 10·7, Nov. 4·5; XXXII., May 0·0*, Sept. 0·0*, Oct. 2·3, Nov. 0·0; XXXIII., Sept. 4·7; XXXIV., Dec. 0·0; XXXVI., Feb. 0·0*, Sept. 1·5, Oct. 0·0*; XXXVII., Oct. 0·0*; XXXVIII., Dec. 0·0*; XXXIX., Mar. 0·0*; XL., Sept. 0·0*; N., Nov. 0·0*; White Sea, none; Baltic, Oct. 0·0*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Whiting**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	2·2	1·1	10·4	12·6	11·9	–	–	6·8	–	–	–	16·2
IX.	–	–	–	–	10·6	4·0	5·2	8·9*	·0*	–	–	–
X.	35·6	28·0	10·4	20·2	16·7	7·7	14·5	25·2	29·3	12·3	22·1	15·3
XII.	24·4*	11·3	58·8	58·5	16·7*	–	–	1·3	–	–	–	–
XIII	43·7	29·8	1·2	6·3	10·9	13·8	13·2	7·7	6·8	1·8	2·2	6·2
XIV.	33·4	67·8	66·9	–	8·8	4·6	5·4	10·3	11·8	18·7	11·0	13·3
XV.	34·1	60 7	44·0	70·3	–	20·8	–	–	21·9*	25·7	28·0	30·1
XVI.	28·7	21·1*	23·2	28·3	–	–	–	–	–	–	21·8	27·4
XVII. ...	5·0	2·9	7·3	10·2	26·6	45·8	30·9	7·3	9·2	11·7	9·9	6·8
XVIII. ...	26·1	38·0	37·6	22·4	18·7	18·8	23·7	32·7	29·8	23·8	28·8	38·5
XIX.	30·8	55·1	66·1	18·1	–	29·2	25·9	22·8	–	12·7	28·8	29·1
XX.	13·5	27·8	37·4	–	–	–	–	–	–	–	27·4	21·1
XXII.	7·2*	5·6*	4·7*	–	–	22·1*	–	–	–	–	–	17·6
XXIII. ...	5·4	4·1	5·4	7·3	13·5	20·2	22·3	25·1	20·8	16·2	19·7	14·5
XXIV. ...	–	34·5*	–	–	–	1·2	4·8	13·8	11·7	11·4	22·3	21·2
XXV.	–	–	–	–	–	7·5	3·3	–	19·4*	14·5	19·9	–
XXVI. ...	–	–	–	6·4	–	–	2·2	3·6	–	8·6	19·7	–
XXVII. ...	–	–	–	–	–	·0*	·0*	4·0	10·4	9·1	–	–
XXVIII. ...	·0*	1·1	·0*	·5	8·9	10·1	9·1	12·4	7·3	20·3	20·1	1·7
XXIX. ...	6·8	3·8	2·4*	6·1	4·2	6·6	15·8	15·2	10·3	8·8	11·6	13·8
XXXI. ...	15·9*	–	–	–	–	15·8	21·2*	6·0	22·2	15·8	15·9	–
XXXV. ...	–	–	–	–	–		1·1	2·5*	13·8	16·9	23·9	–
Var. N. Sea ...	24·4	31·1	26·7	16·9	17·1	22·7	16·0	18·5	19·0	14·8	12·6	21·5
C.	7·1	24·9	–	3·1	1·5	9·1	7·3	9·2	4·1	18·7	17·8	11·8
D.	5·6	·9	·6	1·3	1·5	3·4	2·1	1·3	2·8	1·3	7·4	4·9
J.	–	–	–	–	–	6·6	3·2	5·1	·0*	9·3*	8·3*	3·4*
K.	·0*	·0	·7	5·0*	·5	7·0	·0*	–	2·0*	–	43·8*	–
M.	–	–	–	·0*	–	15·0*	–	14·1*	5·5*	2·2*	·0*	–
Minch	–	·0*	·0	·0*	–	2·3*	–	–	–	–	–	–
C.D. Minch ...	6·6	4·4	3·8	3·8	7·2	10·2	11·4	6·4	3·4	4·8	22·4	8·5
Western Grounds	9·8	12·8	·8	1·6	·6*	12·9	5·1	5·9	3·7	6·7*	2·5	6·5
Faroe	·3	·2	·7	·1	1·1	20·4	11·5	20·5	16·1	5·1	2·2	·3
Iceland ...	1·2	·3	·5	·2	4·8	1·0	2·4	2·5	2·6	·2	·5	·0
Mixed Grounds	13·1	16·5	14·5	3·0	4·9	12·0	8·4	7·0	6·8	6·0	6·6	9·6

Area VII., May 0·0*; VIII., June 0·0; XI., Feb. 25·9, Mar. 72·8, Apr. 76·9, May 54·3; XXI., Feb. 3·1*; XXX., Sept. 11·7, Oct. 13·6, Nov. 20·5; XXXII., May 0·3*, Sept. 5·3*, Oct., 14·0, Nov. 12·8; XXXIII., Sept. 13·6; XXXIV., Dec. 19·8; XXXVI., Feb. 4·2*, Sept. 12·4, Oct. 41·2*; XXXVII., Oct. 30·8*; XXXVIII., Dec. 2·9*; XXXIX., Mar. 0·0*; XL., Sept. 16·9*; N., Nov. 0·0*; White Sea, none; Baltic, Oct. 11·5*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Turbot**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·1	·0	·0	·2	–	–	·0	–	–	–	–
IX.	–	–	–	–	·0	·0	·0	·4*	·2*	–	–	–
X.	·2	·1	·1	·1	·1	·1	·2	·1	·1	·1	·2	·1
XII.	·0*	0	·0	·0	·5*	–	–	·3	–	–	–	–
XIII.	·4	·3	·0*	·9	·9	·3	·4	1·3	2·0	·1	·2	·2
XIV.	·2	·1	·0	–	·5	·3	·4	·3	·2	·1	·1	·2
XV.	·0	·0	·0	·0	–	·1	·	–	·0*	·0	·0	·0
XVI.	·0	·0*	·0	·1	–	–	–	–	–	–	·0	·0
XVII.	·2	·2	·2	·2	·1	·1	·2	1·8	·3	·2	·2	·2
XVIII. ...	·0	·1	·1	·1	·1	·3	·3	·2	·1	·1	·1	·1
XIX.	·0	·1	·1	·0	–	·1	·3	·1	–	·0	·0	·0
XX.	·0	·0	·1	–	–	–	–	–	–	–	·0	·0
XXII.	·0*	·0*	·2*	–	–	·3*	–	–	–	–	–	·0
XXIII. ...	·3	·7	1·2	1·5	·5	·3	·4	·5	·5	·5	·5	·6
XXIV. ...	–	·3*	–	–	–	1·8	1·6	1·2	·9	·4	·1	·0
XXV.	–	–	–	–	–	2·4	2·4	–	·0*	·0	·0	–
XXVI. ...	–	–	–	1·3	–	–	2·6	·1	–	·2	·2	–
XXVII. ...	–	–	–	–	–	·0*	·0*	·1	·6	·3	–	–
XXVIII. ...	·0*	·2	·0*	1·2	·4	·2	·1	·2	·7	2·0	1·2	·0*
XXIX. ...	1·2	2·0	·0*	1·2	·8	·6	·4	·4	1·0	·8	·9	·9
XXXI. ...	·0*	–	–	–	–	2·0	·3*	·7	·0	·0	·0	–
XXXV ...	–	–	–	.	–	–	·3	·5*	·0	·0	·0	–
Var. N. Sea ...	·1	·1	·1	·2	·3	·3	·3	·3	·2	·1	·2	·2
C.	·3	·2	–	·0	·2	·1	·1	·1	·1	·1	·1	·2
D.	·2	·1	·1	·2	·1	·4	·3	·2	·2	·2	·3	·4
J.	–	–	–	–	–	·1	·0	·0	·0*	2·8*	·0*	8·6*
K.	·3*	·4	·5	·0*	·1	·0	·0*	–	·2*	–	·0*	–
M.	–	–	-	·0*	–	·7*	–	1·2*	7·4*	12·5*	21·7*	–
Minch	–	·0*	·2	·2*	–	·0*	–	–	–	. –	–	–
C.D. Minch ...	·3	·2	·1	·2	·3	·1	·1	·3	·2	·7	·1	·2
Western Grounds	1·0	·3	·1	·8	·6*	·0	·1	·1	·6	1·8*	·5	·5
Faroe	·0	·0	·0	·0	·0	·0	·1	·0	·0	·0	·0	·0
Iceland ...	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0
Mixed Grounds	·1	·1	·1	·2	·4	·5	·2	·5	·2	·1	·1	·6

Area VII., May 0·2* ; VIII., June 0·9 ; XI., Feb. 0·2, Mar. 0·0, Apr. 0·0, May 0·0 ; XXI., Feb. 0·0 ; XXX., Sept. 0·0, Oct. 0·0, Nov. 0·0 ; XXXII., May 0·0*, Sept. 0·4*, Oct. 0·0, Nov. 0·0 ; XXXIII., Sept. 0·7 ; XXXIV., Dec. 0·0 ; XXXVI., Feb. 0·4*, Sept. 0·1, Oct. 0·0* ; XXXVII., Oct. 0·5* ; XXXVIII., Dec. 0·4* ; XXXIX., Mar. 1·1* ; XL., Sept. 0·6* ; N., Nov. 20·8* ; White Sea, none ; Baltic, Oct. 2·5*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Halibut**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·1	1·5	1·5	1·2	2·0	–	–	2·5	–	–	–	·4
IX.	–	–	–	–	1·7	·9	1·1	2·0*	1·7*	–	–	–
X.	1·8	2·1	1·8	1·6	2·3	3·1	2·8	4·4	2·1	2·2	2·5	1·8
XII.	2·5*	·2	2·9	2·7	·6*	–	–	·9	–	–	–	–
XIII.	1·1	·8	·0*	·9	1·6	1·3	·9	1·0	·3	3·2	2·9	1·9
XIV.	1·2	1·3	1·3	–	1·9	2·2	1·5	1·1	·9	1·5	1·1	1·6
XV.	1·5	1·6	1·5	2·3	–	1·8	–	–	1·0*	1·5	·6	1·4
XVI.	1·2	1·0*	1·9	1·8	–	–	–	–	–	–	1·3	·8
XVII.	·5	·5	·4	·4	·5	·6	·3	·2	·4	·3	·4	·4
XVIII. ...	·6	·6	·6	·4	·6	·7	1·7	1·4	1·1	1·2	1·5	1·3
XIX.	1·2	1·2	1·0	1·1	–	1·9	1·1	2·3	–	2·0	·8	1·1
XX.	1·9	1·1	·9	–	–	–	–	–	–	–	·8	·9
XXII.	·1*	·5*	·0*	–	–	·0*	–	–	–	–	–	·4
XXIII. ...	·3	·3	·3	·5	·4	·4	·4	·5	·3	·1	·2	·2
XXIV. ...	–	1·0*	–	–	–	1·0	1·0	1·0	1·6	1·0	·8	·6
XXV.	–	–	–	–	–	2·6	2·8	–	·6*	1·9	1·1	–
XXVI. ...	–	–	–	3·0	–	–	1·2	·7	–	·7	·7	–
XXVII. ...	–	–	–	–	–	·1*	·4*	1·8	·9	·4	–	–
XXVIII. ...	·0*	·4	·0*	·7	·4	·1	·3	·1	·0	·0	·2	·0*
XXIX. ...	·2	·3	·6*	·3	·2	·2	·2	·1	·1	·0	·1	·1
XXXI. ...	·7*	–	–	–	–	3·0	1·5*	·4	·5	·8	·9	–
XXXV. ...	–	–	–	–	–	–	1·1	1·6*	·4	·7	1·1	–
Var. N. Sea ...	1·2	1·1	1·3	1·2	1·6	1·7	1·0	1·8	1·0	1·0	1·2	1·3
C.	1·9	·9	–	·8	1·8	2·8	1·9	1·4	1·0	·5	2·2	2·1
D.	1·6	1·0	·9	1·0	1·3	1·4	2·1	1·7	·7	·9	·8	1·5
J.	–	–	–	–	–	3·7	1·7	·9	1·1*	·4*	2·1*	4·5*
K.	2·2*	·7	2·0	5·0*	2·4	2·8	2·2*	–	3·3*	–	·0*	–
M.	–	–	–	·0*	–	·0*	–	·2*	·0*	·0*	·0*	–
Minch... ...	–	·6*	1·9	·7*	–	1·4*	–	–	–	–	–	–
C.D. Minch ...	1·4	1·4	·9	1·6	1·8	2·3	1·1	1·4	·8	1·1	1·2	1·4
Western Grounds ...	1·4	1·4	1·4	2·8	2·2*	1·6	1·8	2·0	1·5	·7*	1·0	2·2
Faroe	5·5	6·8	3·9	3·4	3·4	3·9	3·8	3·3	3·3	2·1	3·5	4·4
Iceland ...	5·7	4·4	2·2	4·1	8·3	8·1	5·7	4·9	4·5	8·1	11·4	6·3
Mixed Grounds	1·0	1·7	·9	1·5	2·2	2·2	1·4	1·5	1·0	1·6	1·4	2·0

Area VII., May 6·5*; VIII., June 5·4; XI., Feb. 1·6, Mar. 2·3, Apr. 2·8, May 2·8; XXI., Feb. 0·8*; XXX., Sept. 1·1, Oct. 0·9, Nov. 0·7; XXXII., May 0·5*, Sept. 1·3*, Oct. 0·7, Nov. 0·5; XXXIII., Sept. 1·3; XXXIV., Dec. 1·5; XXXVI., Feb. 0·4, Sept. 0·2, Oct. 0·2*; XXVII., Oct. 0·0*; XXXVIII., Dec. 0·0*; XXXIX. Mar. 0·0*; XL., Sept. 0·6*; N., Nov. 2·5*; White Sea, July 0·3, Aug. 0·5*, Dec. 0·5; Baltic, Oct. 0·5*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Brill**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
XIII.	·0	·1	·0*	·3	·1	·1	·1	·1	·3	·0	·0	·0
XVII.	·1	·1	·1	·2	·1	·2	·1	·2	·0	·1	·1	·2
XVIII. ...	·0	·0	·0	·0	·1	·0	·0	·0	·0	·0	·0	·0
XIX.	·0	·0	·0	·0	–	·0	·1	·0	–	·0	·0	·0
XXII.	·1*	·5*	·0*	–	–	·0*	–	–	–	–	–	·0
XXIII. ...	·1	·1	·1	·0	·0	·0	·0	·0	·0	·0	·0	·0
XXV.	–	–	–	–	–	·2	·4	–	·0*	·0	·0	–
XXVI. ...	–	–	–	·0	–	–	·5	·0	–	·0	·0	–
XXVII. ...	–	–	–	–	–	·0*	·0*	·0	·0	·2	–	–
XXVIII. ...	·2*	·1	·0*	·3	·1	·1	·0	·0	·0	·1	·3	·0*
XXIX. ...	·0	·1	·0*	·0	·0	·0	·0	·0	·0	·0	·0	·0
XXXI. ...	·0*	–	–	–	–	·2	·0*	·3	·0	·0	·0	–
XXXV. ...	–	–	–	–	–	–	·1	·0*	·0	·0	·0	–
Var. N. Sea ...	·0	·0	·0	·0	·0	·1	·1	·0	·0	·0	·0	·0
C.	·0	·0	–	·1	·0	·0	·1	·0	·0	·0	·0	·1
D.	·1	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·1
J.	–	–	–	–	–	·0	·0	·0	·0*	1·0*	·0*	4·5*
M.	–	–	–	·0*	–	·5*	–	·0*	·9*	2·8*	6·7*	–
Minch	–	·0*	·0	·2*	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·1	·1	·0	·0	·0	·0	·1	·2	·0	·2	·1	·2
Western Grounds	·3	·0	·0	·0	·0*	·0	·0	·0	·0	·0*	·0	·3

Area XXXIII., Sept. 0·1; XXXVIII., Dec. 0·4*; N., Nov. 12·5*; Baltic, Oct. 1·5*.
No Brill were landed from Areas VI.–XII., XIV.–XVI., XX., XXI., XXIV., XXX., XXXII.-XXXIV., XXXVI., XXXVII., XXXIX., XL., K, Faroe, Iceland, or White Sea.
*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Large Lemons**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·0	·1	·1	·3	–	–	·2	–	–	–	·0
IX.	–	–	–	–	·7	·9	·4	·9*	·8*	–	–	–
X.	·4	·5	·3	·4	·4	·7	2·9	1·0	·8	·4	·5	·2
XII.	·3*	·0	·0	·2	·6*	–	–	·9	–	–	–	–
XIII.	1·3	1·0	2·1*	3·3	2·0	3·0	2·2	2·2	2·3	·6	·4	·3
XIV.	·8	·5	·3	–	1·1	1·8	1·9	2·6	1·6	2·3	1·1	·7
XV.	·3	·4	·2	·0	–	·0	–	–	·4*	·4	·4	·3
XVI.	·3	·0*	·3	·3	–	–	–	–	–	–	·2	·3
XVII.	3·1	3·2	3·5	6·1	8·5	8·0	7·8	5·9	13·8	3·0	2·7	2·7
XVIII. ...	2·1	1·3	1·5	2·6	5·4	2·2	2·0	2·1	2·9	1·4	1·1	1·1
XIX.	·2	·6	·5	·9	–	·0	·7	1·8	–	·5	·3	·2
XX.	·2	·1	·1	–	–	–	–	–	–	–	·6	·2
XXII.	8·9*	6·5*	1·3*	–	–	5·3*	–	–	–	–	–	2·1
XXIII. ...	6·5	4·1	4·3	5·7	5·4	7·8	7·1	7·4	5·5	4·0	2·8	3·3
XXIV. ...	–	·3*	–	–	–	17·3	13·3	11·8	14·2	7·0	1·4	·1
XXV.	–	–	–	–	–	4·4	2·8	–	·7*	1·0	1·3	–
XXVI. ...	–	–	–	1·7	–	–	4·7	·6	–	1·0	·5	–
XXVII. ...	–	–	–	–	–	1·0*	·1*	·8	·9	2·4	–	–
XXVIII. ...	3·5*	3·8	2·8*	4·9	4·5	5·4	5·4	6·8	4·6	5·1	3·8	1·7*
XXIX. ...	9·9	6·1	4·8*	6·1	7·7	9·9	9·2	7·8	9·2	7·8	7·4	6·0
XXXI. ...	·5*	–	–	–	–	3·6	·8*	·9	·1	1·5	·7	–
XXXV. ...	–	–	–	–	–	–	1·3	3·1*	·6	1·3	1·1	–
Var. N. Sea ...	·8	·9	1·3	1·3	1·8	3·4	3·0	2·4	2·6	1·5	1·0	·9
C.	1·4	·6	–	1·4	·7	·7	·7	·5	·6	·4	·4	·9
D.	1·7	2·4	4·0	2·5	1·0	1·6	1·0	·9	1·0	·7	1·7	1·1
J.	–	–	–	–	–	·8	·4	·8	·7*	·5*	1·9*	·3*
K.	·5*	·6	1·1	4·5*	·8	1·9	·9*	–	1·0*	–	·0*	–
M.	–	–	–	·0*	–	2·5*	–	·8*	1·0*	1·1*	·0*	–
Minch	–	3·3*	2·6	1·0*	–	·4*	–	–	–	–	–	–
C.D. Minch ...	1·4	2·1	3·1	3·3	2·7	1·7	1·2	1·8	2·1	·9	·8	1·0
Western Grounds	1·6	1·8	1·5	1·2	1·1*	·8	·5	1·6	·2	·7*	1·0	·8
Faroe	5·9	7·6	8·7	6·6	12·7	10·2	7·0	6·1	7·1	4·1	7·3	4·9
Iceland ...	·6	·5	·7	3·3	4·0	1·8	1·6	·8	1·2	2·0	1·0	·3
Mixed Grounds	1·0	1·7	1·4	2·1	1·5	1·2	1·9	2·4	1·9	2·3	2·1	·8

Area VII., May 0·9*; VIII., June 0·9; XI., Feb. 0·3, Mar. 0·1, Apr. 0·1, May 0·0; XXI., Feb. 0·0*; XXX., Sept. 3·5, Oct. 1·5, Nov. 0·9; XXXII., May 3·0*, Sept. 0·7*, Oct. 1·3, Nov. 0·7; XXXIII., Sept. 0·9; XXXIV., Dec. 0·1; XXXVI., Feb. 0·5*, Sept. 0·9, Oct. 0·0*; XXXVII., Oct. 0·2*; XXXVIII., Dec. 0·0*; XXXIX., Mar. 0·0*; XL., Sept. 0·4*; N., Nov. 4·2*; White Sea, none; Baltic, Oct. 2·5*.
*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Small Lemons**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·0	·0	·0	·1	–	–	·3	–	–	–	·0
IX.	–	–	–	–	1·9	·6	·2	2·1*	1·3*	–	–	–
X.	·0	·4	·2	·2	·5	·7	1·8	·7	·5	·3	·4	·1
XII.	·0*	·0	·0	·0	·5*	–	–	·1	–	–	–	–
XIII.	·9	1·0	1·8*	2·6	1·5	1·6	1·4	1·8	1·5	·2	·3	·1
XIV.	·8	·5	·0	–	1·0	1·3	1·3	1·5	2·5	·7	·7	·8
XV.	·0	·6	·0	·0	–	·0	–	–	·0*	·0	·0	·3
XVI.	·0	·0*	·0	·2	–	–	–	–	–	–	·3	·0
XVII.	3·1	2·7	2·6	3·3	5·3	4·6	4·9	4·3	5·5	3·6	4·1	2·8
XVIII.	1·6	·6	·5	1·3	2·6	1·0	·8	·6	·6	·4	·6	·4
XIX.	·0	·1	·0	·2	–	·0	·4	·1	–	·0	·1	·0
XX.	·0	·0	·0	–	–	–	–	–	–	–	·1	·0
XXII.	3·6*	4·6*	·3*	–	–	13·2*	–	–	–	–	–	1·8
XXIII. ...	4·0	2·7	3·5	4·5	4·8	5·6	9·0	5·6	5·7	6·6	3·6	2·6
XXIV. ...	–	·0*	–	–	–	2·8	2·0	1·7	1·8	1·2	·4	·0
XXV.	–	–	–	–	–	·3	·6	–	·1*	·1	·1	–
XXVI. ...	–	–	–	·5	–	–	·3	·0	–	·0	·1	–
XXVII. ...	–	–	–	–	–	·3*	·0*	·0	·1	·3	–	–
XXVIII. ...	3·5*	2·6	1·9*	4·2	4·6	4·4	4·7	7·9	4·6	6·6	6·7	1·7*
XXIX. ...	3·1	2·4	4·8*	2·3	3·8	4·0	7·4	8·7	5·0	4·0	4·1	2·7
XXXI. ...	·0*	–	–	–	–	·4	·0*	·4	·1	·1	·1	–
XXXV. ...	–	–	–	–	–	–	·0	1·6*	·1	·2	·1	–
Var. N. Sea ...	·4	·6	·7	·7	1·2	2·2	2·0	1·5	1·3	·7	·9	·5
C.	·8	·0	–	·8	·4	·5	·5	·6	·5	·3	·3	·8
D.	1·1	1·9	1·9	1·8	·6	1·7	·9	·8	1·0	·8	2·1	·9
J.	–	–	–	–	–	·4	·3	·7	·7*	·5*	1·2*	·0*
K.	·1*	·5	·5	2·5*	·5	1·3	·9*	–	1·3*	–	·0*	–
M.	–	–	–	·0*	–	1·3*	–	1·6*	·0*	·3*	·0*	–
Minch	–	2·2*	1·1	1·3*	–	·4*	–	–	–	–	–	–
C.D. Minch ...	·9	1·4	2·1	1·6	1·6	1·2	1·0	1·7	1·1	1·0	·4	·7
Western Grounds	·5	·5	·7	·8	·6*	·8	·3	2·1	·5	·4*	1·3	2·2
Faroe	1·0	·9	1·7	1·6	2·7	2·8	1·6*	2·3	2·0	1·1	2·9	·8
Iceland ...	·0	·0	·0	·0	·0	·0	·1	·0	·0	·4	·3	·0
Mixed Grounds	·4	1·1	1·2	1·4	·8	1·8	1·1	1·4	1·6	2·5	·9	·6

Area VII., May 8·0*; VIII., June 0·0; XI., Feb. 0·0, Mar. 0·1, Apr. 0·0, May 0·0; XXI., Feb. 0·0*; XXX., Sept. 0·3, Oct. 0·2, Nov. 0·0; XXXII., May 0·0*, Sept. 0·0*, Oct. 0·1, Nov. 0·0; XXXIII., Sept. 0·1; XXXIV., Dec. 0·0; XXXVI., Feb. 0·0*, Sept. 0·3, Oct. 0·0*; XXXVII., Oct. 0·0*; XXXVIII., Dec. 0·0*; XXXIX., Mar. 0·0*; XL., Sept. 0·0*; N., Nov. 0·0*; White Sea, none; Baltic, Oct. 0·0*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Large Plaice**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·0	·0	·0	·1	–	–	·0	–	–	–	·0
IX.	–	–	–	–	·1	·0	·0	·0*	·0*	–	–	–
X.	·0	·1	·1	·0	·0	·0	·0	·0	·0	·0	·0	·0
XII.	·0*	·0	·0	·0	·0*	–	–	·0	–	–	–	–
XIII. ...	·1	·0	·1*	·4	·2	·2	·0	·1	·2	·1	·1	·0
XIV. ...	·0	·0	·0	–	·1	·0	·1	·0	·1	·1	·0	·0
XV.	·0	·0	·0	·0	–	·0	–	-	·0*	·0	·0	·0
XVI. ...	·0	·0*	·0	·0	–	–	–	–	–	–	·2	·0
XVII. ...	·3	·2	·3	·2	·2	·2	·1	·2	·0	·2	·2	·3
XVIII. ...	·1	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0
XIX.	·0	·0	·0	·0	–	·0	·0	·0	–	·1	·0	·0
XX.	·0	·0	·0	–	–	–	–	–	–	–	·0	·0
XXII. ...	·1*	·0*	·0*	–	–	·0*	–	–	–	–	–	·0
XXIII. ...	·0	·1	·3	·1	·0	·1	·0	·0	·0	·1	·1	·0
XXIV. ...		·0*	–	–	–	·6	·0	·1	·0	·1	·1	·0
XXV. ...	–	–	–	–	–	1·2	3·6	–	·0*	·0	·2	–
XXVI. ...	–	–	–	·2	–	–	1·4	·1	–	1·3	·5	–
XXVII. ...	–	·2	–	–	–	2·5*	·0*	4·6	1·1	1·4	–	–
XXVIII. ...	·0*	·3	·0*	·2	·1	·0	·2	·1	·2	·3	·0	·0*
XXIX. ...	·1	–	·0*	·0	·1	·1	·0	·0	·1	·1	·0	·0
XXXI. ...	·0*	–	–	–	–	2·8	1·0*	·9	·0	·1	·0	–
XXXV. ...	–	–	–	–	–	–	·1	·0*	·0	·1	·0	–
Var. N. Sea	·1	·1	·1	·0	·1	·2	·1	·0	·0	·1	·1	·1
C.	·5	·0	–	·0	·1	·2	·1	·0	·0	·1	·1	·4
D.	·6	1·6	·6	·8	·4	·5	·2	·0	·5	·6	·4	·2
J.	–	–	–	–	–	·1	·0	·0	·0*	1·0*	·0*	·0*
K.	·0*	·0	·6	·0*	·5	·0	·0*	-	·0*	–	·0*	–
M.	–	–	–	·0*	–	·0*	-	1·2*	·0*	·8*	·0*	–
Minch ...	–	4·4*	5·9	1·3*	–	·1*	–	–	–	–	–	–
C.D. Minch...	·4	1·4	·7	·9	1·1	·5	·1	·3	·1	·5	·3	·3
Western Grounds	·1	·6	·7	·4	·0*	·1	·0	·0	·0	·0*	·5	·3
Faroe ...	·3	1·3	1·2	1·2	·4	·0	·1	·0	·1	·1	·4	·8
Iceland ...	·4	·8	1·0	1·6	·3	·0	·1	·1	·0	2·7	2·5	·9
Mixed Grounds	·1	·2	·5	·1	·1	·0	·0	·0	·0	·1	·0	·6

Area VII., May 0·0*; VIII., June 0·1; XI., Feb. 0·2, Mar. 0·0, Apr. 0·0, May 0·0; XXI., Feb. 0·0*; XXX., Sept. 0·2, Oct. 0·0, Nov. 0·0; XXXII., May 0·6*, Sept. 0·7*, Oct. 0·6; Nov. 0·2; Sept. 0·4; XXXIII., XXXIV., Dec. 0·1; XXXVI., Feb. 0·0*, Sept. 0·0, Oct. 0·7*; XXXVII., Oct. 0·0*; XXXVIII., Dec. 0·0*; XXXIX., Mar. 0·0*; XL., Sept. 0·0*; N., Nov. 6·7*; White Sea, July 16·3, Aug. 0·0*, Dec. 0·3; Baltic, Oct. 0·0*.

* These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Medium Plaice,** IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·0	·2	·1	·3	–	–	·0	–	–	–	·0
IX.	–	–	–	–	1·8	·9	·2	1·1*	·8*	–	–	–
X.	·8	·9	·9	·8	1·1	·8	1·0	·5	·3	·4	·7	·3
XII.	·0*	·1	·3	·0	·8*	–	–	·0	4·5	–	–	–
XIII.... ...	1·0	1·4	2·4*	6·5	5·4	4·5	3·3	1·0	2·4	6·0	·7	·4
XIV. ...	·4	·2	·1	–	1·7	2·8	3·2	1·2	·0*	1·0	·6	·3
XV.	·1	·1	·1	·0	–	·0	–	–	–	·0	·0	·0
XVI.... ...	·0	·0*	·4	·3	–	–	–	–	2·9	–	·3	·0
XVII. ...	2·6	3·1	3·7	6·3	4·5	6·0	4·7	1·9	·4	3·7	4·5	5·0
XVIII. ...	·9	1·0	·8	·8	1·3	·8	·7	·3	–	·6	·3	·5
XIX.... ...	·0	·0	·2	·0	–	·1	·0	·0	–	·4	·1	·0
XX.	·2	·1	·0	–	–	–	–	–	–	–	·0	·1
XXII. ...	2·2*	1·4*	·6*	–	–	1·5*	–	–	–	–	–	2·0
XXIII. ...	4·7	4·5	6·1	3·9	2·4	2·4	1·9	1·9	2·7	4·1	3·3	2·6
XXIV. ...	–	·1*	–	–	–	4·7	1·7	1·2	1·6	1·4	·8	·0
XXV. ...	–	–	–	–	–	12·4	8·8	–	·7*	·9	1·0	–
XXVI. ...	–	–	–	7·9	–	–	13·9	1·8	–	4·5	1·2	–
XXVII. ...	–	–	–	–	–	3·8*	·4*	11·6	6·4	5·3	–	–
XXVIII. ..	4·8*	1·8	·0*	5·5	4·3	4·1	3·6	3·8	5·4	6·3	4·5	1·7*
XXIX. ...	3·6	8·0	1·2*	3·8	2·8	3·7	1·9	1·6	3·2	3·2	2·9	2·8
XXXI. ...	·1*	–	–	·	–	13·2	2·0*	4·3	·3	·7	·5	–
XXXV. ...	–	–	–	–	–	–	1·3	3·5*	·3	·9	·1	–
Var. N. Sea...	·8	1·0	1·2	1·4	2·0	2·3	2·6	·9	1·6	1·5	1·5	·9
C.	3·8	1·6	–	2·2	1·2	1·9	2·3	·9	1·1	·5	1·2	2·5
D.	5·0	8·7	6·3	3·9	5·1	6·3	3·3	·8	6·1	9·2	3·2	3·3
J.	–	–	–	–	–	2·3	2·1	·6	·4*	10·0*	1·9*	20·0*
K.	·3*	1·0	2·7	7·0*	3·0	2·0	·6*	–	·0*	–	·0*	–
M.	–	-	–	·0*	–	9·2*	–	30·5*	6·2*	13·3*	21·7*	–
Minch ...		26·1*	58·2	23·3*	–	2·0	–	–	–	–	–	–
C.D. Minch ...	3·1	7·3	8·9	8·7	7·4	5·7	1·9	1·9	1·6	3·4	3·8	2·4
Western Grounds	3·2	6·1	6·3	13·5	2·8*	3·0	·9	1·0	·5	·4*	3·6	6·2
Faroe ...	·7	1·4	1·5	2·2	·8	·2	·2	·3	·3	·3	·2	·8
Iceland ...	5·1	3·1	4·6	9·7	4·3	1·7	1·8	1·8	3·9	20·5	21·2	5·7
Mixed Grounds	·8	1·3	3·4	3·5	2·6	2·5	2·0	1·3	·8	2·0	1·5	2·9

Area VII., May 1·9* ; VIII., June 5·8 ; XI., Feb. 0·7, Mar. 0·0, Apr. 0·0, May 0·0 ; XXI., Sept. 1·7, Oct. 0·4, Nov. 0·2 ; XXXII., May 2·0*, Sept. 2·0*, Oct. 2·6, Nov. 1·4 ; XXXIII., Sept. 10·3 ; XXXIV., Dec. 0·0 ; XXXVI., Feb. 1·0*, Sept. 0·9, Oct. 1·2* ; XXXVII., Oct. 0·8* ; XXXVIII., Dec. 0·1* ; XXXIX., Mar. 4·5* ; XL., Sept. 2·6* ; N., Nov. 70·8* ; White Sea, July 32·8, Aug. 42·0*, Dec. 2·4 ; Baltic, Oct. 6·5*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Small Plaice**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·0	·1	·0	·3	–	–	·0	–	–	–	·0
IX.	–	–	–	–	·0	·0	·0	·0*	·0*	–	–	–
X.	·0	·1	·1	·0	·1	·1	·0	·0	·0	·0	·1	·0
XII.	·0*	·0	·0	·0	·0*	–	–	·0	–	–	–	–
XIII.... ...	·0	·0	1·5*	1 5	1·0	·4	·1	·1	4·5	6·0	·0	·0
XIV. ...	·0	·0	·0	–	·0	·1	·0	·0	·2	·0	·1	·0
XV.	·0	·0	·0	·0	–	0	–	–	·0*	·0	·0	·0
XVI. ...	·0	·0*	·0	·0	–	–	–	–	–	–	·0	·0
XVII. ...	·0	·3	·6	·7	·4	·4	·1	·4	·5	·3	·4	·7
XVIII. ...	·0	·1	·2	·0	·1	·0	·1	·0	·0	·0	·0	·0
XIX. ...	·0	·0	·0	·0	–	·0	·0	·0	–	·0	·0	·0
XX.	·0	·0	·0	–	–	–	–	–	–	–	·0	·0
XXII. ...	·4*	·0*	·0*	–*	–	·0*	–	–	–	–	–	·2
XXIII. ...	6·3	4·1	1·6	·5	·2	·5	·1	·4	1·1	10·6	5·9	4·0
XXIV. ...	–	·0*	–	–	–	·2	·0	·0	·0	·0	·0	·0
XXV. ...	–	–	–	–	–	·2	·1	–	·0*	·0	·0	–
XXVI. ...	–	–	–	1·7	–	–	1·3	·0	–	·2	·0	–
XXVII. ...	–	–	–	–	–	·1·0*	·0*	2·4	2·3	·8	–	–
XXVIII. ...	2·4*	1·6	·0*	2·2	4·1	6·0	12·8	4·7	8·2	8·3	6·4	1·7*
XXIX. ...	·2	1·5	·0*	·5	·5	·3	·0	·3	·2	·0	·3	·2
XXXI. ...	·0*	–	–	–	–	·5	·0*	4·5	·0	·0	·0	–
XXXV. ...	–	–	–	–	–	–	·0	·0*	·0	·0	·0	–
Var. N. Sea...	·1	·2	·2	·2	·2	·3	·2	·0	·4	·3	·3	·1
C.	·0	·1	–	·3	·0	·1	·4	·0	·1	·2	·0	·3
D.	12·1	1·2	·9	1·1	·7	·3	·8	·0	·9	1·5	3·9	·3
J.	–	–	–	–	–	·1	·1	·0	·0*	5·5*	·0*	4·5*
K.	·0*	·0	·5	1·5*	·9	·3	·0*	–	·0*	-	·0*	-
M.	–	–	–	·0*	–	1·3*	–	3·1*	2·3*	19·4*	·0*	-
Minch ...	–	4·4*	3·0	2·7*	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·3	·9	1·1	·7	·6	·3	·1	·1	·6	·3	1·0	·4
Western Grounds	1·5	·6	·8	1·5	·0*	·0	·0	·0	·0	·0*	·3	·9
Faroe ...	·1	·0	·0	·0	·2	·0	·0	·0	·0	·0	·0	·0
Iceland ...	1·2	·0	·3	·2	·1	·3	·2	·0	·3	3·1	8·0	·4
Mixed Grounds	·2	·0	·5	·6	·4	·1	·2	·5	·3	·2	·0	2·7

Area VII., May 0·0* ; VIII., June 0·0 ; XI., Feb. 0·1, Mar. 0·0, Apr. 0·0, May 0·0 ; XXI., Feb. 0·0* ; XXX., Sept. 0·0, Oct. 0·0, Nov. 0·0 ; XXXII., May 0·0*, Sept. 1·3*, Oct. 0·3, Nov. 0·0 ; XXXIII., Sept. 2·7 ; XXXIV., Dec. 0·0 ; XXXVI., Feb. 0·0*, Sept. 0·3, Oct. 0·7* ; XXXVII., Oct. 4·2* ; XXXVIII., Dec. 1·1* ; XXXIX., Mar. 0·0* ; XL., Sept. 1·9* ; N., Nov. 8·3* ; White Sea, July 0·0, Aug. 0·0*, Dec. 0·2 ; Baltic, Oct. 2·5*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Dabs,** in CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
IX.	–	–	–	–	·1	·0	·0	·0*	·0*	–	–	–
X.	·0	·0	·0	·0	·0	·0	·0	·0	·1	·0	·0	·1
XIII.	·0	·0	·0*	·0	·1	·0	·0	·1	1·7	1·8	·0	·0
XIV.	·0	·0	·0	–	·0	·0	·0	·2	·0	·0	·0	·0
XVII.	·2	·4	·3	·1	·3	·2	·2	·9	·3	·8	·7	·9
XVIII. ...	·1	·2	·1	·4	·1	·0	·0	·0	·0	·0	·1	·1
XXII.	·6*	·0*	·9*	–	·0	·0*	–	–	–	–	–	·0
XXIII. ...	·9	·7	·6	·4	·2	·2	·2	·3	1·6	3·4	2·4	1·0
XXIV. ...	–	·0*	–	–	–	·2	·0	·0	·1	·0	·0	·0
XXV.	–	–	–	–	–	·4	·0	–	·0*	·0	·0	–
XXVII. ...	–	–	–	·2	–	·0*	·0*	·0	·2	·2	–	–
XXVIII. ...	.9*	·1	·0*	·2	2·0	4·0	2·6	·8	3·5	8·6	3·7	·0*
XXIX. ...	1·3	·5	·0*	–	·0	·2	·3	·4	·3	·7	1·6	1·5
XXXI. ...	1·1*	–	–	–	–	·0	·0*	·0	·0	·0	·0	–
XXXV. ...	–	–	–	·0	–	–	·7	·0*	·0	·0	·0	–
Var. N. Sea ...	·1	·0	·0	·0	·1	·0	·1	·1	·2	·2	·2	·1
C.	·1	·0	–	·0	·0	·1	·0	·0	·1	·0	·0	·4
D.	1·4	·0	·0	·0*	·1	·1	·0	·0	1·0	1·4	·8	·6
K.	·0*	·0	·3	·0*	·0	·0	·0*	–	·0*	–	·0*	–
M.	–	–	–	–	–	·0*	–	4·7*	·0*	1·4*	·0*	–
Minch	–	1·1*	·0	2·0*	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·2	·1	·1	·1	·3	·3	·1	·0	·4	·4	·9	·2
Western Grounds	·1	·3	·0	·1	·0*	·0	·0	·0	·0	·0*	1·0	·0
Faroe	·6	1·1	·5	·1	·1	·2	·1	·1	·2	·1	·3	1·3
Iceland ...	·3	·0	·0	·0	·1	·0	·0	·2	·0	·0	·2	·1
Mixed Grounds	·0	·0	·1	·0	·0	·0	·0	·1	·2	·5	·0	·1

Area XXXIII., Sept 0·4; N., Nov. 4·2*; White Sea, July 0·0, Aug. 0·0*, Dec. 0·8; Baltic, Oct. 0·5*. No Dabs were landed from Areas VI., VII., VIII., XI., XII., XV., XVI., XIX., XX., XXI., XXVI., XXX., XXXII., XXXIV., XXXVI., XXXVII., XL., J.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Large Witches**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·0	·0	·0	·1	–	–	·0	–	–	–	·3
IX.	–	–	–	–	·0	·0	·1	·0*	·0*	–	–	–
X.	·7	·3	·1	·2	·0	·0	·3	·1	·3	·2	·8	·2
XII.	1·4*	·9	·5	·6	·6*	–	–	1.2	–	–	–	–
XIII.	·4	·7	·0*	·0	·0	·1	0	·1	·3	1·0	1·2	·4
XIV.	·9	2·1	3·1	–	·1	·0	·1	·1	·7	·8	·4	·7
XV.	2·1	2·8	1·9	1·2	–	15·3	–	–	1·3*	3·6	2·0	2·9
XVI.	2·3	1·0*	·9	·7	–	–	–	–	–	–	1·8	1·1
XVII.	·3	1·1	4	·2	·1	·1	·1	·0	·3	·4	·4	·7
XVIII. ...	3·8	3·0	3·1	2·2	1·4	5·4	4·6	3·3	3·0	2·9	3·5	3·7
XIX.	3·1	4·0	3·2	2·7	–	19·0	6·3	5·0	–	2·8	2·0	3·0
XX.	·9	3·3	2·8	–	–	–	–	–	–	–	1·5	1·7
XXII.	2·1*	2·8*	1·3*	–	–	·0*	–	–	–	–	–	4·4
XXIII. ...	·4	·3	·2	2	1·0	1·0	·4	·9	1·2	·6	1·0	·7
XXIV. ...	–	1·8*	–	–	–	·0	·4	1.3	1·0	1·8	2·8	3·7
XXV. ...	–	–	–	–	–	·8	·4	–	1·1*	5·4	2·5	–
XXVI. ...	–	–	–	–	–	–	·0	·1	–	·6	·9	–
XXVII. ...	–	–	–	–	–	·0*	·0*	·0	·3	·2	–	–
XXVIII. ...	·0*	·0	·0*	·2	·0	·3	·0	·1	·1	·0	·0	0
XXIX. ...	·0	·0	·0*	·0	·0	0	·1	·2	·0	·1	·0	·2
XXXI. ...	2·5*	–	–	–	–	·1	2·0*	·3	·5	1·5	2·3	–
XXXV. ...	–	–	–	–	–	–	·3	·0*	·3	1·1	1·6	–
Var. N. Sea ...	1·3	1·2	1·4	·1	·8	·3	·3	·6	1·3	1·1	1·1	1·5
C.	·0	·0	–	·5	·0	·0	·0	·1	·1	·1	·0	·2
D.	·2	·0	·1	·0	1·6	·0	·0	·0	·1	·2	·2	·0
J.	–	–	–	–	–	·0	·0	·1	·0*	·0*	·0*	·0
K.	·0*	·1	·0	·0*	·0	·0	·0*	–	·0*	–	·0*	–
M.	–	–	–	·0*	–	·0*	–	·0*	6·2*	1·4*	·0*	–
Minch	–	·0*	·0	17·9*	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·2	·3	·1	·0	·1	·0	·1	·5	·0	·5	·2	·2
Western Grounds	·1	·2	·0	·2	·0*	·0	·4	·1	·3	·4*	·0	·0
Faroe	·0	·0	·0	·0	·0	·2	·0	·0	·0	·0	·0	·8
Iceland ...	3·0	3·0	1·6	2·1	5·6	1·2	2·0	1·8	3·7	1·9	5·7	·7
Mixed Grounds	·8	·2	·9	·0	·0	·0	·1	·1	·1	·5	·1	·5

Area VII., May 0·0* ; VIII., June 0·0 ; XI., Feb. 1·2, Mar. 1·1, Apr. 0·8, May 0·0 ; XXI., Feb. 0·4* ; XXX., Sept. 1·5, Oct. 1·7, Nov. 1·9 ; XXXII., May 0·2*, Sept. 0·0*, Oct. 0·4, Nov. 0·2 ; XXXIII., Sept. 0·1 ; XXXIV., Dec. 5·7 ; XXXVI., Feb. 0·5*, Sept. 0·0, Oct. 0·7* ; XXXVII., Oct. 0·0* ; XXXVIII., Dec. 0·0* ; XXXIX., Mar. 0·0* ; XL., Sept. 0·0* ; N., Nov. 0·0* ; White Sea, none ; Baltic, Oct. 1·5*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Small Witches**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·0	·0	·1	·0	–	–	·0	–	–	–	·0
IX.	–	–	–	–	·0	·0	·0	·0*	·0*	–	–	–
X.	1·1	·3	·1	·3	·0	·0	·7	·0	·0	·0	1·1	·2
XII.	·8*	1·8	·6	·8	·8*	–	–	·0	–	–	–	–
XIII.	·2	·7	·0*	·0	·0	·0	·0	·1	·2	1·2	1·9	1·0
XIV.	1·7	3·2	4·9	–	·0	·0	·0	·0	1·9	1·9	·7	2·4
XV.	2·8	3·5	3·2	2·4	–	30·3	–	–	1·6*	12·2	3·7	5·0
XVI.	2·0	2·6*	1·2	1·3	–	–	–	–	–	–	2·1	1·7
XVII.	·4	·8	·5	·1	·1	·1	·0	·0	·0	·6	·4	1·2
XVIII. ...	5·5	3·6	4·6	1·8	·5	6·3	7·6	7·0	7·4	6·4	7·8	7·9
XIX.	3·6	6·4	5·8	2·7	–	38·6	10·2	9·7	–	8·1	5·2	5·8
XX.	1·2	2·8	3·9	–	–	–	–	–	–	–	2·1	1·9
XXII.	3·9*	4·6*	1·3*	–	–	·0*	–	–	–	–	–	13·0
XXIII. ...	·6	·3	·2	·0	·6	·8	·4	1·2	1·8	1·0	1·8	1·1
XXIV. ...	–	4·5	–	–	–	·0	·6	1·9	·9	·1	1·2	11·2
XXV.	–	–	–	–	–	·0	·1	–	·0*	·4	·8	–
XXVI. ...	–	–	–	·0	–	–	·0	·0	–	·3	2·3	–
XXVII. ...	–	–	–	–	–	·0*	·0*	·0	·1	·0	–	–
XXVIII. ...	·0*	·0	·0*	·0	·0	·0	·0	·0	·0	·0	·0	·0*
XXIX. ...	·0	·0	·0*	·0	·0	·0	·0	·1	·0	·0	·0	·2
XXXI. ...	·3*	–	–	–	–	·0	·0*	·0	·0	·1	·5	–
XXXV. ...	–	–	–	–	–	–	·0	·0*	·0	·0	·9	–
Var. N. Sea ...	1·5	1·5	2·0	·3	·8	·6	·4	·7	2·1	1·0	2·1	3·0
C.	·0	·0	–	·0	·0	·0	·0	·0	·0	·0	·0	·2
D.	·0	·0	·1	·0	1·2	·0	·0	·0	·0	·0	·8	·0
J.	–	–	–	–	–	·0	·0	·0	·0*	·0*	·0*	·0*
K.	·0*	·0	·0	·0*	·0	·0	·0*	–	·0*	–	·0*	–
M. ...	–	–	–	23·3*	–	·0*	–	·0*	43·2*	·0*	·0*	–
Minch ...	–	·0*	·0	·0*	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·6	·2	·1	·0	·0	·0	·1	·0	·0	·4	·4	·4
Western Grounds	·1	·4	·0	·0	·0*	·0	·1	·3	·3	·0*	·3	·0
Faroe	·0	·0	·0	·0	·0	·2	·1	·0	·0	·0	·0	·0
Iceland ...	·1	·5	·0	·0	·0	·1	·0	·2	1·2	·1	·6	·0
Mixed Grounds	1·0	·0	1·5	·0	·0	·0	·0	·1	·1	·4	·0	1·1

Area VII., May 0·0* ; VIII., June 0·0 ; XI., Feb. 0·6 ; Mar. 2·2, Apr. 1·0, May 0·0 ; XXI., Feb. 5·5* ; XXX., Sept. 0·1, Oct. 0·2, Nov. 0·4 ; XXXII., May 0·0*, Sept. 0·0*, Oct. 0·4, Nov. 0·0 ; XXXIII., Sept. 0·0 ; XXXIV., Dec. 6·5 ; XXXVI., Feb. 0·0*, Sept. 0·0, Oct. 0·0* ; XXXVII., Oct. 0·0* ; XXVIII., Dec. 0·0* ; XXXIX., Mar. 0·0* ; XL., Sept. 0·0* ; N. Nov. 0·0* : White Sea, none ; Baltic, Oct. 0·0*.

*These averages have been derived from catches got in 100 hours' or in less than 10[illegible] hours fishing.

AVERAGE CATCH OF **Large Megrims,** IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	1·4	18·0	15·1	11·5	7·0	–	–	1·9	–	–	-	11·5
IX.	–	–	–	–	·4	·6	20·3	·3*	·2*	–	–	–
X.	5·8	2·7	2·7	4·2	1·3	·9	1·9	1·8	3·0	2·7	2·7	1·7*
XII.	·6*	·4	1·1	2·0	1·9*	–	–	5·2	–	–	–	–
XIII.	5·4	5·5	·4*	1·7	·7	1·0	1·3	1·0	1·4	8·4	12·1	7·4
XIV.	1·4	1·4	1·3	–	1·0	·6	1·3	1·8	2·0	2·8	1·7	·7
XV.	·9	1·1	1·1	1·2	–	1·6	–	–	1·9*	1·3	·4	·4
XVI.	1·6	1·6*	·6	2·0	–	–	–	–	–	–	·3	·6
XVII.	·9	1·0	·9	·4	·2	·3	·4	·8	·8	·6	·6	·9
XVIII. ...	2·6	5·3	3·4	5·5	1·4	3·9	3·8	6·6	8·3	5·7	3·5	2·1
XIX.	·5	1·6	1·3	·9	–	1·5	1·8	3·7	–	1·1	·3	·5
XX.	·1	·5	1·0	–	–	–	–	–	–	–	·2	·3
XXII.	·8*	1·4*	1·3*	–	–	·9*	–	–	–	–	–	1·1
XXIII. ...	·9	·8	·5	·4	1·3	1·3	·8	1·1	1·1	·9	1·1	·6
XXIV. ...	–	·8*	–	–	–	·0	·7	1·1	·3	·0	·1	·8
XXV.	–	–	–	–	–	·0	·2	–	·0*	·0	·5	–
XXVI. ...	–	–	–	·0	–	–	·0	·1	–	·1	·2	–
XXVII. ...	–	–	–	–	–	·1*	·0*	·0	·0	·0	–	–
XXVIII. ...	·2*	·0	·0*	·0	·0	·5	·5	·4	·1	·2	·2	·0*
XXIX. ...	·4	·5	·0*	·0	·6	·3	1·8	1·7	·4	·4	·3	·4
XXXI. ...	·0*	–	–	–	–	·0	·0*	·0	·0	·1	·0	–
XXXV. ...	–	–	–	–	–	–	·0	·0*	·1	·0	·4	–
Var. N. Sea ...	1·4	2·4	2·4	4·7	1·9	·6	2·0	2·4	2·6	1·8	2·3	1·2
C.	1·3	2·5	–	1·3	·7	·9	·7	·5	·7	1·2	·4	·3
D.	·9	·6	·8	·5	·4	·4	·6	·2	·4	·6	·6	·5
J.	–	–	–	–	–	·2	·2	·3	·4*	·0*	·0*	·0*
K.	1·1*	1·3	1·5	2·5*	·7	·7	·6*	–	·2*	–	·0*	–
M.	–	–	–	1·7*	–	·0*	–	·0*	1·2*	·0*	·0*	–
Minch	–	·6*	·0	·2*	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·9	1·7	·6	·5	·9	·5	·5	1·7	·5	·6	2·6	2·2
Western Grounds	1·3	2·2	·8	1·3	1·1*	·2	1·0	·6	1·0	·7*	·3	·0
Faroe	·3	·0	·5	·1	·1	·0	·2	·2	·1	·0	·1	·0
Iceland ...	1·3	2·2	1·1	·0	2·5	·9	2·6	2·0	5·0	·9	4·2	·4
Mixed Grounds	2·2	1·4	1·7	1·2	·9	·5	1·1	1·5	·7	3·5	2·0	1·1

Area VII., May 3·7* ; VIII., June 1·8 ; XI., Feb. 2·6, Mar. 1·1, Apr. 1·7, May 1·1 ; XXI., Feb. 2·3* ; XXX., Sept. 0·0, Oct. 0·0, Nov. 0·0 ; XXXII., May 0·0*, Sept. 0·0*, Oct. 0·0, Nov. 0·1 ; XXXIII., Sept. 0·0 ; XXXIV., Dec. 0·1 ; XXXVI., Feb. 0·0*, Sept. 0·1, Oct. 0·0* ; XXXVII., Oct. 0·0* ; XXXVIII., Dec. 0·0* ; XXXIX., Mar. 0·0* ; XL., Sept. 0·0* ; N., Nov. 0·8* ; White Sea, none ; Baltic, Oct. 0·0*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Small Megrims,** IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·3	5·2	6·7	8·4	6·1*	–	–	2·1	–	–	–	3·0
IX.	–	–	–	–	·3*	·2	13·6	·0*	·0*	–	–	–
X.	4·6	2·0	1·9	3·9	1·2	·4	·5	1·2	2·1	2·2	2·5	1·2
XII.	·0*	·0	·6	1·3	2·2*	–	–	·7	–	–	–	–
XIII.	4·6	3·6	·0*	·6	·3	·1	·2	·3	·7	5·3	8·0	6·7
XIV.	·4	·7	·5	–	·5	·1	·2	·5	·7	1·4	1·0	·3
XV.	·2	·7	·5	2·1	–	·0	–	–	·0*	·6	·0	·0
XVI.	·6	1·0*	·3	1·2	.	–	–	–	–	–	·0	·1
XVII.	·1	·1	·1	·0	·0	·0	·2	·0	·1	·2	·2	·3
XVIII. ...	·2	2·1	1·5	4·9	·7	1·5	1·2	2·1	3·4	3·7	1·6	·4
XIX.	·1	·4	·4	·0	–	·4	·7	1·2	–	·6	·0	·0
XX.	·0	·1	·4	–	–	–	–	–	–	–	·1	·1
XXII.	·0*	·0*	1·3*	–	–	·0*	–	–	–	–	–	·0
XXIII. ...	·0	·1	·1	·0	·3	·2	·2	·3	·2	·1	·1	·0
XXIV. ...	–	·0*	–	–	–	·0	·0	·4	·1	·0	·0	·1
XXV.	–	–	–	–	–	·0	·0	–	·0*	·0	·3	–
XXVII. ...	–	–	–	–	–	·0*	·0*	·0	·0	·0	–	–
XXVIII. ...	·0*	·0	·0*	·0	·0	·0	·0	·1	·0	·0	·0	·0*
XXIX. ...	·0	·3	·0*	·0	·0	·0	·3	·2	·0	·0	·0	·0
Var. N. Sea ...	·7	1·6	1·4	3·6	1·0	·1	·8	1·3	1·4	1·2	1·3	·7
C.	·3	2·3	–	1·1	·2	·5	·3	·2	·1	·7	·3	·3
D.	·1	·1	·1	·3	·6	·2	·2	·4	·2	·3	·3	·1
J.	–	–	–	–	–	·1	·0	·0	·0*	·0*	·0*	·0*
K.	·1*	·3	·1	·0*	·6	·2	·6*	–	2·0*	–	·0*	–
Minch	–	·0*	·0	·0*	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·2	1·0	·0	·3	·8	·2	·1	1·3	·5	·0	1·3	1·5
Western Grounds	·4	·7	·4	1·3	·0*	·0	·2	·4	2·8	3·2*	·2	1·9
Faroe	·0	·0	·2	·2	·0	·0	·0	·0	·0	·0	·0	·0
Iceland ...	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0
Mixed Grounds	1·2	·9	·9	·7	·4	·4	·2	·5	·3	1·6	1·9	·5

Area VII., May 3·2*; VIII., June 0·1; XI., Feb. 0·7, Mar. 0·9, Apr. 2·0, May 0·4.
No Small Megrims were landed from Areas XXI., XXVI., XXX., XL., M., N., White Sea, or Baltic.

AVERAGE CATCH OF **Eels,** IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·0	·1	·0	·0	–	–	·0	–	–	–	·0
IX.	–	–	–	–	·0	·0	·0	·0*	·8*	–	–	–
X.	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·2	·0
XIII.	·4	·3	·1*	·1	·0	·1	·0	·2	·3	·5	·9	·5
XIV.	·1	·0	·0	–	·0	·0	·1	·0	·0	·1	·1	·1
XVII.	·6	·2	·0	·3	·2	·5	·7	·7	·1	·4	·6	·3
XVIII. ...	·1	·1	·1	·0	·2	·0	·0	·0	·0	·1	·0	·0
XXII.	·3*	·0*	·2*	–	–	·0*	–	–	–	–	–	·2
XXIII. ...	·2	·1	·0	·0	·0	·0	·1	·1	·1	·1	·1	·2
XXVIII. ...	·0*	·4	·0*	·2	·0	·2	·0	·1	·0	·0	·0	·0*
XXIX. ...	·1	·1	·0*	·0	·0	·0	·0	·1	·0	·0	·1	·1
Var. N. Sea ...	·1	·1	·0	·0	·0	·2	·1	·1	·1	·1	·3	·1
C.	·4	·1	–	·0	·1	·1	·1	·2	·1	·1	·4	·7
D.	·5	·4	·3	·2	·1	·4	·1	·6	·6	·8	1·5	·5
J.	–	–	–	–	–	·1	·1	·4	·1*	1·1*	·0*	10·3*
K.	1·8*	1·1	·7	1·0*	·3	·0	·6*	–	1·2*	–	·0*	–
M.	–	–	–	6·7	–	1·7	–	1·6*	18·7*	11·1*	·0*	–
Minch	–	1·1*	·3	·2	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·6	·3	·3	·1	·1	·1	·2	·5	·3	·7	·5	·6
Western Grounds	·3	·6	·5	·2	.0*	·0	·4	·6	1·7	3·5*	1·4	·8
Faroe	·1	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0
Iceland ...	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0	·0
Mixed Grounds	·3	·2	·2	·2	·1	·1	·1	·1	·0	1·6	·4	·3

Area XXXII., May 0·0*, Sept. 0·0*, Oct. 0·0, Nov. 0·2; N., Nov. 16·7.
No Conger Eels were landed from Areas VII., VIII., XI., XII., XV., XVI., XIX., XX., XXI. XXIV., XXV., XXVI., XXVII., XXX., XL., White Sea, or Baltic.

AVERAGE CATCH OF **Skate**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	2·3	29·0	28·7	13·4	8·0	–	–	4·6	–	–	–	23·5
IX.	–	–	–	–	2·9	2·3	14·4	9·5*	5·0*	–	–	–
X.	16·2	7·1	5·0	6·9	3·6	5·0	14·8	8·2*	15·0*	13 0	17·6	15·4
XII.	11·1*	2·1	2·2	6·2	3·3*	–	–	14·3	–	–	–	–
XIII.... ...	9·2	8·9	2·7*	7·6	6·8	7·0	7·0	19·7	19·8	15·5	13·1	17·9
XIV.	8·5	3·7	2·3	–	4·3	4·7	4·8	8·2	11·8	8·2	7·0	7·0
XV.	4·3	2·7	1·8	2·2	–	·0	–	–	1·2*	6·9	2·5	3·5
XVI.	5·7	2·1*	2·2	5·4	–	–	–	–	–	–	3·9	3·0
XVII. ...	7·6	7·1	4·4	6·4	5·1	6·7	7·4	22·6	13·5	15·9	11·2	10·9
XVIII. ...	5·9	6·1	4·4	6·4	6·2	5·1	4·1	7·3	8·2	7·4	6·4	5·1
XIX.	2·1	2·9	1·7	·0	–	2·2	2·9	3·4	–	9 9	3·1	2·6
XX.	2·5	2·0	1·5	–	–	–	–	–	–	-	3·8	2·8
XXII. ...	8·9*	11·1*	2·5*	–	–	8·8*	–	–	–	–	–	11·0
XXIII. ...	9·0	9·4	8·3	9·4	7·5	8·5	8·1	10·1	10·6	8·6	9·5	10·7
XXIV. ...	–	5·0*	–	–	–	12·3	5·8	6·8	13·9	8·8	3·3	3·1
XXV. ...	–	–	–	–	–	1·6	3·8	–	1·4*	3·3	5·7	–
XXVI. ...	–	–	–	·4	–		2·0	1·4	–	2·3	4·2	–
XXVII. ...	–	–	–	–	–	2·0*	·0*	4·4	2·3	3·3	–	–
XXVIII. ...	5·3*	9·8	1·1*	10·5	6·8	9·5	4·4	6·0	9·1	31·0	15·5	16·7*
XXIX. ...	10·8	10·2	4·8*	5·7	6·8	7·3	8·4	9·6	11·6	8·4	4·4	11·9
XXXI. ...	9·1*	–	–	–	–	1·3	7·1*	·4	·8	1·8	1·9	–
XXXV. ...	–	–	–	–	–	–	·9	·0*	·8	1·5	2·7	–
Var. N. Sea...	6·0	6·2	5·3	7·7	5·5	6·7	9·5	8·9	11·2	8·3	10·4	8·9
C.	13·3	3·1	–	10·0	6·3	7·6	5·3	5·2	10·0	12·7	21·3	18·3
D.	16·9	10·4	4·2	5·2	5·7	9·2	5·8	8·8	17·8	18·2	41·1	24·9
J.	–	–	–	–	–	3·1	3·0	4·4	6·7*	248·0*	14·3*	734·4*
K.	8·4*	4·5	9·7	20·0*	7·3	8·1	16·7*	–	12·5*	–	8·3*	–
M.	–	–	–	36·7*	–	26·7*	–	6·3*	163·6*	402·8*	250·1*	–
Minch ...	–	8·9*	8·1	5·3*	–	5·3*	–	–	–	–	–	–
C.D. Minch ...	12·2	10·3	6·2	7·3	10·1	10·7	4·6	13·5	11·9	45·4	15·4	20·0
Western Grounds	32·7	8·0	5·6	9·2	4·4*	5·2	1·5	10·6	16·2	75·0*	32·8	29·5
Faroe ...	·9	1·0	·8	·6	·9	·9	2·9	1·4	1·2	1·6	1·1	·3
Iceland ...	6·1	3·5	2·6	3·7	3·0	2·7	3·1	1·8	2·8	1·8	8·9	2·5
Mixed Grounds	8·6	5·7	4·4	5·1	10·7	9·1	5·6	16·5	5·3	15·3	11·2	60·6

Area VII., May 5·6* ; VIII., June 2·3 ; XI., Feb. 4·8, Mar. 3·6, Apr. 4·6, May 3·5 ; XXI., Feb. 3·1* ; XXX., Sept. 2·5, Oct. 1·8, Nov. 2·1 ; XXXII., May 1·3*, Sept. 0·0, Oct. 1·7*, Nov. 1·5 ; XXXIII., Sept. 4·3 ; XXXIV., Dec. 0·0 ; XXXVI., Feb. 2·1*, Oct. 0·7* ; XXXVII., Oct. 0·8 ; XXXVIII., Dec. 2·9* ; XXXIX., Mar. 1·1* ; XL., Sept. 0·1* ; N., Nov. 1833·3* ; White Sea, none ; Baltic, Oct. 10·0*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing

AVERAGE CATCH OF **Gurnards,** IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·0	1·1	·2	·0	–	–	·0	–	–	–	·0
IX.	–	–	–	–	·0	·0	·0	·0*	5·0*	–	–	–
X.	·1	·0	·5	·0	·1	·0	·0	·1	·0	·3	·7	·0
XII.	·0*	1·4	·0	·4	·0*	–	–	·0	–	–	–	–
XIII.	·0	·0	4·8*	1·7	·6	·0	·9	·0	·6	·8	2·7	·6
XIV.	·0	·0	·0	–	·0	·0	·0	·1	·0	1·0	·3	·0
XV.	·1	·0	·0	·0	–	·0	–	–	·0*	·0	·0	·1
XVI.	1·2	·0*	·0	·0	–	–	–	–	–	–	·0	·0
XVII. ...	·1	·1	·4	1·0	·8	·9	2·9	3·5	·4	1·5	1·3	·2
XVIII. ...	·0	·8	·7	1·7	·0	·0	·0	·3	·4	1·0	·5	·4
XX.	·0	·3	·0	–	–	–	–	–	–	–	·0	·0
XXII. ...	·0*	·0*	1·3*	–	–	·0*	–	–	–	–	–	·8
XXIII. ...	·2	·1	·2	·4	·2	·1	·9	2·3	3·0	3·3	1·6	·2
XXIV. ...	–	·0*	–	–	–	·0	·0	·9	1·1	·4	·1	·2
XXVI. ...	–	–	–	·0	–	–	·0	·0	–	·3	·0	–
XXVIII. ...	·4*	·0	·0*	1·4	·5	·2	·0	3·5	3·6	9·2	2·7	·0*
XXIX. ...	2·5	·2	·0*	·3	·2	·3	1·6	2·7	7·3	5·4	2·6	1·8
Var. N. Sea...	·3	·3	·3	·5	·4	·5	·1	·5	1·1	·5	·7	1·2
C.	·0	·0	–	3·3	·0	·0	·8	·4	·0	·3	2·3	1·4
D.	·5	·0	1·9	·0	·0	·0	·0	5·9	11·5	·0	2·8	·0
J.	–	–	–	–	–	·0	·2	·0	20·0*	·0*	·0*	·0
K.	·0*	·0	·0	16·0*	·0	·0	·0*	–	55·0*	–	·0*	–
Minch ...	–	·0*	·0	·7	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·0	·0	·8	·7	·3	·0	·3	8·2	3·8	·0	·0	·1
Western Grounds	·3	8·3	·0	1·0	·0*	·0	·3	4·8	6·6	12·5*	·8	·0
Faroe ...	2·7	·0	·0	·0	·0	·0	·0	·0	·0	·0	·3	·0
Mixed Grounds	1·7	2·3	·1	3·7	·4	·0	·0	·2	·3	·9	·0	·0

Area VII., May 1·9*.

No Gurnards were landed from Areas VIII., XI., XIX., XXI., XXV., XXVII., XXX.-XXXVIII., XL., M., N., Iceland, White Sea, or Baltic.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Catfish**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apirl.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·0	·2	·3	·6	1·0	–	–	·4	–	–	–	·0
IX.	–	–	–	–	1·9	3·4	·2	·5*	·0*	–	–	–
X.	·1	·5	·4	·9	1·4	2·9	3·0	1·0	·4	·4	·2	·0
XII.	2·2*	·0	·0	2·6	5·6*	–	–	1·8	–	–	–	–
XIII.... ...	·1	·5	1·8*	5·8	4·0	6·4	5·7	1·2	·4	·1	·1	·0
XIV. ...	1·3	1·8	2·3	–	7·8	10·0	8·3	3·4	1·1	·7	·4	·2
XV.	·6	1·1	2·8	1·8	–	·0	–	–	·6*	·6	·0	·6
XVI. ...	·3	1·0*	1·3	3·7	–	–	–	–	–	–	·0	·5
XVII. ...	1·4	4·6	5·0	5·6	4·3	4·4	3·2	1·0	·5	·7	·5	·4
XVIII. ...	·7	2·4	2·8	3·3	5·4	3·0	2·5	1·9	1·4	·9	·3	·4
XIX. ...	·2	1·1	1·7	·4	–	1·7	2·5	2·4	–	·2	·1	·3
XX.	·0	1·3	1·4	–	–	–	–	–	–	–	·1	·2
XXII. ...	2·2*	3·7*	1·2*	–	–	2·9*	–	–	–	–	–	·6
XXIII. ...	1·7	2·8	3·5	4·8	4·0	4·8	3·9	2·2	1·6	1·3	·6	·8
XXIV. ...	–	1·5*	–	–	–	10·8	6·0	1·7	1·2	1·9	1·2	·0
XXV. ...	–	–	–	–	–	18·2	11·7	–	·4*	2·1	·7	–
XXVI. ...	–	–	–	8·5	–	–	9·3	1·4	–	1·0	·3	–
XXVII. ...	–	–	–	–	–	25·0*	·0*	2·0	1·1	7·2	–	–
XXVIII. ...	7·0*	20·2	88·9*	40·6	13·6	7·9	12·2	5·9	3·3	2·8	2·4	5·0*
XXIX. ...	3·0	4·1	3·6*	7·3	8·2	8·5	8·0	6·3	2·3	1·8	1·6	1·4
XXXI. ...	1·1*	–	–	–	–	23·7	2·6*	·4	·1	·8	·6	–
XXXV. ...	–	–	–	–	–	–	2·6	1·3*	·7	1·0	·7	–
Var. N. Sea...	·4	1·1	2·2	2·3	3·9	5·8	3·9	1·6	1·1	·6	·3	·4
C.	·0	·2	–	·3	·7	·6	·2	·1	·5	·3	·0	·1
D.	·3	1·1	·8	1·2	1·1	2·8	·4	·2	·2	·1	·3	·0
J.	–	–	–	–	–	·2	·5	·4	·4*	·3*	·0*	·0*
K.	·0*	·0	·2	·0*	·3	·3	1·1*	–	·0*	–	·0*	–
M. ...	–	–	–	·0*	–	2·5*	–	·0*	·0*	·0*	·0*	–
Minch ...	–	·0*	·3	·7*	–	·0*	–	–	–	–	–	–
C.D. Minch ...	·2	·6	1·5	2·5	2·5	1·6	1·2	·3	·0	·0	·0	·2
Western Grounds	·1	·2	·2	·2	1·1*	·7	·0	1·2	·0	·0*	·1	·3
Faroe ...	4·6	10·5	15·1	12·6	23·2	28·3	16·0	3·3	·7	·7	·2	1·1
Iceland ...	3·2	3·9	12·6	15·0	14·3	15·4	11·5	5·7	2·9	29·3	14·8	1·9
Mixed Grounds	·1	1·1	1·6	1·6	5·4	6·6	5·3	1·3	·4	·1	·2	·1

Area VII., May 5·6* ; VIII., June 5·4 ; XI., Feb. 0·9, Mar. 2·0, Apr. 1·7, May 3·5 ; XXI., Feb. 1·6* ; XXX., Sept. 1·0, Oct. 0·9, Nov. 0·4 ; XXXII., May 2·6*, Sept. 0·4*, Oct. 0·6, Nov. 0·3 ; XXXIII., Sept. 0·7 ; XXXIV., Dec. 0·0 ; XXXVI., Feb. 0·5*, Sept. 0·9, Oct. 0·0* ; XXXVIII., Dec. 0·0* ; XXXIX., Mar. 2·3* ; XL., Sept. 0·1* ; N., Nov. 0·0* ; White Sea, July 5·7, Aug. 25·0*, Dec. 19·9, Baltic, Oct. 5·0*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE CATCH OF **Monks**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	·7	11·7	7·2	4·0	3·4	–	–	2·5	–	–	–	12·0
IX.	–	–	–	–	1·2	1·4	5·4	2·1*	1·7	–	–	–
X.	5·7	3·5	2·5	3·7	2·3	2·8	5·2	4·9	6·5	5·6	6·9	2·5
XII.	4·4*	1·4	2·9	2·7	3·3*	–	–	2·7	–	–	–	–
XIII.	5·1	5·1	·0*	1·2	2·1	2·6	2·8	3·8	3·6	5·5	9·9	10·0
XIV.	4·0	5·0	6·2	–	2·7	2·9	3·6	4·9	4·4	4·4	3·6	2·4
XV.	3·6	5·2	4·3	4·8	–	7·1	–	–	·0*	9·1	3·0	2·7
XVI.	3·3	·0*	1·7	1·7	–	–	–	–	–	–	1·1	1·6
XVII. ...	2·3	1·8	1·4	1·2	1·6	2·5	2·2	3·5	2·8	3·8	3·9	3·1
XVIII. ...	8·3	6·7	5·2	5·6	2·5	4·4	4·7	5·3	6·8	6·7	6·9	5·9
XIX.	3·5	6·3	4·6	3·6	–	8·6	4·3	2·4	–	9·2	1·6	2·8
XX.	2·0	2·3	2·4	..	–	–	–	–	–	–	1·1	1·5
XXII.	2·2*	3·7*	1·3*	–	..	2·9*	–	–	–	–	–	10·4
XXIII. ...	3·6	2·6	2·1	2·5	3·5	4·6	6·0	5·7	6·7	4·6	4·7	4·9
XXIV. ...	–	4·0*	–	–	–	9·7	1·8	3·8	2·8	2·2	1·2	7·0
XXV.	–	–	–	–	–	·8	·6	–	·0*	1·3	1·3	–
XXVI. ...	–	–	–	·0	–	–	2·0	·0	–	1·8	1·0	–
XXVII. ...	–	–	–	–	–	1·0*	·0*	1·6	·4	·0	–	–
XXVIII. ...	2·2*	·7	·0*	1·1	2·2	3·2	2·0	2·2	2·9	4·0	3·3	·0*
XXIX. ...	3·9	3·7	4·8*	1·3	3·5	4·6	4·9	4·0	4·7	4·5	5·4	4·4
XXXI. ...	3·4*	–	–	–	–	·0	·5*	·0	·2	·4	·6	–
XXXV. ...	–	–	–	–	–	–	·4	1·3*	·0	·3	1·8	–
Var. N. Sea ...	3·0	4·1	4·0	3·3	2·4	3·1	3·2	4·4	4·7	3·8	4·7	3·4
C.	2·2	2·7	–	2·8	2·3	1·9	1·3	2·0	1·7	1·7	2·0	1·2
D.	1·6	3·2	2·0	·9	·6	1·3	1·1	·2	·6	1·4	2·4	·9
J.	–	–	–	–	–	·9	·6	1·8	2·7*	·5*	2·4*	·0*
K.	2·2*	·6	1·5	2·0*	1·8	2·7	6·7*	–	5·0*	–	4·2*	–
M.	–	–	–	6·7*	–	·0*	–	3·1*	3·4*	·0*	8·3*	–
Minch	–	1·1*	·0	·7*	.	·0*	–	–	–	–	–	–
C.D. Minch ...	2·4	2·6	2·0	1·6	1·8	2·0	1·0	2·7	2·5	1·1	2·8	3·2
Western Grounds	3·4	1·2	1·2	2·6	4·4*	1·3	·7	1·5	4·8	3·5*	2·4	2·8
Faroe	1·0	1·3	·7	·3	·7	1·3	1·2	1·6	2·0	2·1	4·7	1·9
Iceland ...	·8	·0	·0	·0	·4	·3	·9	1·0	1·1	·9	2·7	·5
Mixed Grounds	2·2	2·4	3·2	2·0	2·0	2·7	2·4	3·5	2·4	3·6	4·0	2·1

Area VII., May 0·0*; VIII., June 0·0; XI., Feb. 3·2, Mar. 3·9, Apr. 3·1, May 0·9; XXI., Feb. 6·2*; XXX., Sept. 0·6, Oct. 0·7, Nov. 0·5; XXXII., May 0·0*, Sept. 0·0*, Oct. 0·6, Nov. 0·3; XXXIII., Sept. 1·4; XXXIV., Dec. 0·0; XXXVI., Feb 1·0*, Sept. 0·0, Oct. 0·0*; XXXVII., Oct. 0·0*; XXXVIII., Dec. 0·0*; XXXIX., Mar. 0·0*; XL., Sept. 0·0*; N., Nov. 0·0*; White Sea, none; Baltic, none.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

AVERAGE **Total Catch**, IN CWTS., PER 100 HOURS' FISHING (ABERDEEN TRAWLERS)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	43·9	414·	385·7	332·1	278·8	–	–	264·9	–	–	–	474·0
IX.	–	–	–	–	562·8	232·0	763·4	348·7*	353·9*	–	–	–
X.	274·2	281·3	375·8	355·6	392·5	395·1	363·8	348·5	315·1	275·4	316·4	205·8
XII.	299·1*	115·4	420·6	266·9	118·3*	–	–	166·8	–	–	–	–
XIII.	405·5	302·3	155·0*	219·1	273·7	320·9	267·1	296·3	256·4	304·0	367·8	370·5
XIV.	379·9	321·0	268·2	–	393·2	329·2	278·9	277·9	275·9	256·5	231·1	292·0
XV.	258·9	288·2	292·8	320·1	–	152·6	–	–	143·3*	224·3	365·3	271·6
XVI.	259·9	225·6*	249·7	224·6	–	–	–	–	–	–	234·6	239·2
XVII.	266·4	269·4	284·6	244·3	214·0	239·3	212·5	179·4	183·3	214·9	225·7	192·0
XVIII. ...	221·9	264·8	268·8	214·4	148·6	220·3	304·9	248·2	274·0	233·0	276·4	273·1
XIX.	218·8	269·8	292·5	102·7	–	319·7	174·7	224·1	–	233·0	271·6	259·6
XX.	235·9	096·7	253·7	–	–	–	–	–	–	–	301·8	243·0
XXII. ...	245·3*	495·5*	229·7*	–	–	177·6*	–	–	–	–	–	179·9
XXIII. ...	157·4	137·1	143·3	145·2	135·6	156·1	173·3	189·2	187·9	165·2	165·6	147·1
XXIV. ...	–	164·5*	–	–	–	148·5	126·6	148·8	147·6	189·7	226·7	225·2
XXV. ...	–	–	–	–	–	166·2	205·5	–	295·7*	202·9	228·6	–
XXVI. ...	–	–	–	196·7	–	–	217·4	120·7	–	218·4	192·7	–
XXVII. ...	–	–	–	–	–	311·0*	404·3*	442·4	315·4	319·8	–	–
XXVIII. ...	189·8*	148·8	065·3*	143·0	125·0	104·9	165·2	134·1	120·8	201·7	140·4	120·0*
XXIX. ...	156·2	116·6	104·2*	111·3	108·9	116·0	126·0	129·5	163·9	147·9	145·6	138·8
XXXI. ...	188·9*	–	–	–	–	240·1	214·2*	149·2	273·2	209·1	171·4	–
XXXV. ...	–	–	–	–	–	–	75·6	216·0*	332·6	230·2	227·3	–
Var. N. Sea ...	219·4	251·6	262·0	238·7	272·3	278·9	245·6	254·8	212·3	212·7	216·8	241·6
C.	442·6	289·1	–	377·9	344·5	391·2	381·4	313·5	276·4	372·8	349·3	414·1
D.	389·5	341·3	547·8	416·8	270·6	309·3	361·4	147·8	356·2	261·3	351·0	310·8
J.	–	–	–	–	–	503·7	434·5	247·7	339·6*	608·5*	302·1*	1157·5*
K.	818·2*	274·7	1051·2	897·5*	665·1	499·1	502·7*	–	497·3*	–	212·9*	–
M.	–	–	–	284·2*	–	409·2*	–	127·5*	492·2*	563·9*	551·1*	–
Minch ...	–	258·3*	282·7	122·2*	–	363·3*	–	–	–	–	–	–
C.D. Minch ...	359·4	319·2	334·8	255·5	286·3	318·8	234·3	288·9	236·1	415·1	333·6	287·4
Western Grounds	379·8	321·9	476·1	454·6	507·5*	259·0	325·7	245·5	329·8	208·1*	302·9	334 9
Faroe	364·1	539·1	547·3	788·9	473·3	434·9	296·4	537·5	319·9	286·1	314·9	361·6
Iceland ...	804·4	900·0	2099·1	3159·3	1219·4	610·9	531·9	551·0	240·5	217·9	419·3	733·6
Mixed Grounds	298·8	260·7	258·0	350·2	316·6	356·3	299·2	256·8	212·1	226·5	250·2	282·7

Area VII., May 370·2* ; VIII., June 369·4 ; XI., Feb. 251·2, Mar. 410·2, Apr. 321·8, May 231·2 ; XXI., Feb. 210·9* ; XXX., Sept. 244·0, Oct. 188·8, Nov. 165·5 ; XXXII., May 119·1*, Sept. 226·6*, Oct. 245·1, Nov. 151·0 ; XXXIII., Sept. 384·6 ; XXXIV., Dec. 239·2 ; XXXVI., Feb. 188·3*, Sept. 324·7, Oct. 726·2* ; XXXVII., Oct. 251·7* ; XXXVIII., Dec. 418·7* ; XXXIX., Mar. 351·8* ; XL., Sept, 284·0* ; N., Nov. 2683·2* ; White Sea, July 223·7, Aug. 1818·5*, Dec. 590·9 ; Baltic, Oct. 463·5*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

Average Value of Catch, in Pounds Sterling, per 100 hours' fishing (Aberdeen Trawlers)—1912.

Area.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	22·0	161·7	158·7	234·4	115·6	–	–	126·4	–	–	–	211·1
IX.	–	–	–	–	192·7	103·6	150·2	199·1*	350·9*	–	–	–
X.	179·0	180·4	245·5	293·3	137·9	151·9	172·8	205·9	199·1	198·0	225·8	127·7
XII.	170·4*	76·8	281·4	171.4	39·3*	–	–	72·0	–	–	–	–
XIII. ...	211·2	157·3	80·1*	92·0	106·4	139·6	114·7	193·2	218·5	249·3	255·2	220·9
XIV.	211·6	156·3	125·0	–	127·3	150·1	117·4	146·3	198·6	177·6	161·2	216·4
XV.	158·4	156·2	176·2	244·2	–	59·2	–	–	93·4*	141·9	268·7	176·1
XVI.	138·4	155·5	164·5	151·4	–	–	–	–	–	–	155·7	149·4
XVII.... ...	178·9	165·6*	159·6	193·3	107·5	109·3	99·3	128·5	163·5	144·8	168 3	163·1
XVIII. ...	145·5	126·2	133·3	158·2	66·5	70·0	99·8	112·1	154·6	151·7	165·5	167·2
XIX.	142·7	134·9	147·1	80·1	–	101·7	58·0	115·3	–	169·1	169·0	162·5
XX.	170·3	172·9	169·5	–	–	–	–	–	–	–	204·7	163·2
XXII. ...	119·0*	337·1*	74·8*	–	–	97·0*	–	–	–	–	–	107·0
XXIII. ...	134·2	103·7	119·5	119·8	73·8	77·8	89·7	110·6	127·3	114·9	114·6	119·2
XXIV. ...	–	71·7*	–	–	–	93·5	95·9	99·0	132·6	178·7	157·8	111·6
XXV. ...	–	–	–	–	–	108·8	104·1	–	173·6*	141·6	174·7	–
XXVI. ...	–	–	–	100·5	–	–	167·9	102·8	–	186·5	115·0	–
XXVII. ...	–	–	–	–	–	81·6*	188·6*	295·8	247·0	254·3	–	–
XXVIII. ...	108·4*	101·8	186·6*	157·2	73·8	52·2	95·5	84·4	95·8	135·7	122·3	118·4*
XXIX. ..	143·6	111·6	77·6*	98·3	71·3	72·3	67·0	80·6	114·8	110·3	113·4	106·4
XXXI. ...	149·9*	–	–	–	–	150·5	56·4*	124·3	128·4	148·2	146·7	–
XXXV. ...	–	–	–	–	–	–	31·6	167·7*	170·1	165·9	170·0	–
Var. N. Sea ...	145·3	137·5	142·7	152·6	98·8	120·7	100·6	136·3	146·4	149·2	153·1	157·4
C.	305·4	144·2	–	286·1	158·7	176·8	165·4	209·6	239·0	287·6	299·8	328·4
D.	305·9	198·0	260 7	244·0	27·9	143·6	169·5	88·2	276·7	223·4	279·1	224·9
J.	–	–	–	–	–	206·8	180·2	156·3	173·3*	441·2*	359·8*	721·5*
K.	569·8*	107·2	376·1	614·2*	285·7	252·5	176·0*	–	631·0*	–	191·9*	–
M.	–	–	–	155·0*	–	132·2*	–	132·7*	261·2*	419·7	350·1*	–
Minch... ...	–	161·1*	261·4	128·5*	–	185·1	–	–	–	–	–	–
C.D. Minch ...	274·1	185·5	186·2	153·4	127·1	154·0	95·9	185·1	168·1	354·3	260·2	195·3
Western Grounds	214·4	201·3	222·5	320·3	109·8*	143·1	124·6	179·1	255·2	123·3*	246·6	266·5
Faroe	255·1	246·3	270·6	378·1	152·4	162·7	122·4	305·7	235·0	222·8	270·5	268·2
Iceland ...	316·7	269·7	613·4	916·9	249·3	159·4	141·5	170·1	112·7	150·7	277·6	310·7
Mixed Grounds	182·3	139·7	148·4	201·4	119·3	156·7	116·2	173·8	178·8	159·2	200·9	200·7

Area VII., May 287·4*; VIII., June 198·4; XI., Feb. 141·1, Mar. 234·1, Apr. 233·7, May 113·0; XXI., Feb. 154·7*; XXX., Sept. 165·4, Oct. 137·5, Nov. 137·6; XXXII., May 66·7*, Sept. 175·6*, Oct. 204·6, Nov. 166·5; XXXIII., Sept. 300·7; XXXIV., Dec. 143·2; XXXVI., Feb. 169·8*, Sept. 169·9, Oct. 94·2*; XXXVII., Oct. 194·2*; XXXVIII., Dec. 244·7; XXXIX., Mar. 158·2*; XL., Sept. 190·9*; N., Nov. 1746·6*; White Sea, July 79·9, Aug. 562·6*, Dec. 275·2; Baltic, Oct. 306·7*.

*These averages have been derived from catches got in 100 hours' or in less than 100 hours' fishing.

PERCENTAGE (BY WEIGHT) OF **Cod** IN TOTAL CATCH OF COD AND CODLING (ABERDEEN TRAWLERS)—1912.

Areas.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	63	46	49	46	28	–	–	25	–	–	–	54
IX.	–	–	–	–	69	44	42	20	23	–	–	–
X.	50	50	75	75	59	60	36	31	28	32	53	35
XII.	45	80	43	33	48	–	–	45	–	–	–	–
XIII.	58	55	86	28	39	39	43	29	25	65	68	52
XIV.	48	42	34	–	47	46	35	31	32	52	42	36
XV.	39	32	37	38	–	52	–	–	89	72	71	50
XVI.	39	39	55	38	–	–	–	–	–	–	38	50
XVII. ...	53	64	74	74	59	56	36	31	28	36	38	62
XVIII. ...	48	63	67	87	42	78	75	82	80	76	70	60
XIX.	40	33	28	35	–	62	63	87	–	74	59	50
XX.	32	53	35	–	–	–	–	–	–	–	48	50
XXII. ...	45	55	82	–	–	32	–	–	–	–	–	51
XXIII. ...	51	52	63	66	67	58	55	71	47	27	40	37
XXIV. ...	–	61	–	–	–	71	82	78	67	47	57	72
XXV. ...	–	–	–	–	–	48	61	–	67	38	53	–
XXVI. ...	–	–	–	36	–	–	51	19	–	44	45	–
XXVII. ...	–	–	–	–	–	56	25	25	35	14	–	–
XXVIII. ...	31	21	13	25	30	16	13	9	2	12	14	21
XXIX. ...	36	47	50	54	37	49	15	12	30	18	20	36
XXXI. ...	37	–	–	–	–	66	31	11	56	53	56	–
XXXV. ...	–	–	–	–	–	–	68	44	45	51	56	–
C.	55	60	–	61	61	62	51	49	38	37	38	39
D.	40	62	83	67	57	47	47	31	37	33	24	32
J.	–	–	–	–	–	77	60	35	29	20	43	53
K.	94	93	97	84	81	87	75	–	31	–	78	–
M.	–	–	–	69	–	20	–	17	19	40	48	–
Minch ...	–	52	60	35	–	44	–	–	–	–	–	–
C. D. Minch ...	69	68	75	58	60	55	41	54	47	50	55	70
Western Grounds	63	70	85	71	48	75	66	49	44	26	39	61
Faroe	24	26	39	46	44	15	19	7	8	6	6	7
Iceland ...	84	91	91	90	89	56	65	53	81	23	74	91

Area VII., May 16; VIII., June 2; XI., Feb. 42, Mar. 32, Apr. 44, May 27; XXI., Feb. 38 XXX., Sept. 57, Oct. 50, Nov. 59; XXXII., May 12, Sept. 30, Oct. 45, Nov. 59; XXXIII., Sept. 33; XXXIV., Dec. 70; XXXVI., Feb. 67, Sept. 72, Oct. 25; XXXVII., Oct. 18; XXXVIII., Dec. 41; XXXIX., Mar. 97; XL., Sept. 26; N. Nov. 43.

PERCENTAGE (BY WEIGHT) OF **Small and Extra Small Haddocks**, IN TOTAL CATCH OF HADDOCKS (ABERDEEN TRAWLERS)—1912.

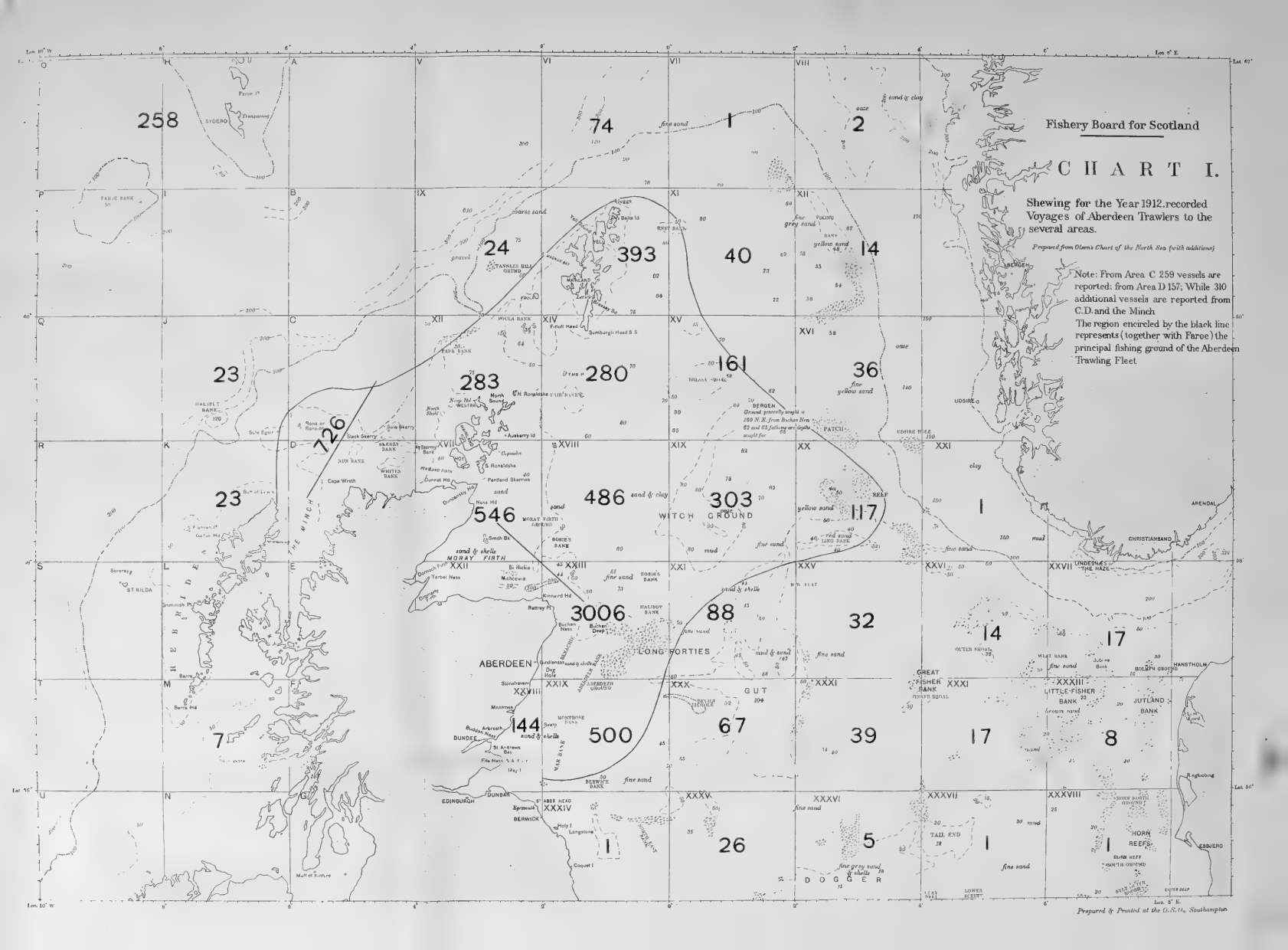
Areas.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	32	16	26	28	27	–	–	19	–	–	–	30
IX.	–	–	–	–	32	15	29	13	20	–	–	–
X.	31	29	19	26	23	20	28	21	18	19	28	18
XII.	32	64	30	28	61	–	–	36	–	–	–	–
XIII.	57	65	78	82	56	53	46	36	39	43	43	39
XIV.	48	59	65	–	25	24	28	29	27	37	32	23
XV.	46	55	41	28	–	81	–	–	86	73	49	49
XVI.	47	35	34	34	–	–	–	–	–	–	44	40
XVII. ...	72	78	78	84	82	77	68	42	58	62	54	65
XVIII. ...	76	76	77	88	91	92	88	94	92	86	83	67
XIX.	57	62	66	71	–	77	84	97	–	51	53	53
XX.	34	44	49	–	–	–	–	–	–	–	39	41
XXII. ...	74	75	86	–	–	58	–	–	–	–	–	73
XXIII. ...	68	60	67	77	86	83	72	76	71	74	74	61
XXIV. ...	–	62	–	–	–	82	80	85	68	48	56	81
XXV. ...	–	–	–	–	–	39	22	–	48	45	44	–
XXVI. ...	–	–	–	27	–	–	17	17	–	33	36	–
XXVII. ...	–	–	–	–	–	8	13	24	24	14	–	–
XXVIII. ...	41	30	17	55	62	68	52	68	55	67	59	25
XXIX. ...	73	59	61	78	78	75	69	71	69	70	64	61
XXXI. ...	23	–	–	–	–	34	54	25	41	35	47	–
XXXV. ...	–	–	–	–	–	–	62	37	46	41	51	–
C.	30	58	–	48	31	31	33	26	23	20	25	21
D.	25	39	58	37	26	35	30	31	19	25	21	20
J.	–	–	–	–	–	41	27	22	32	19	21	13
K.	23	68	50	43	37	40	36	–	23	–	32	–
M.	–	–	–	0	–	71	–	31	13	26	0	–
Minch ...	–	59	53	45	–	26	–	–	–	–	–	–
C.D. Minch ...	46	57	63	57	45	38	37	30	37	19	31	41
Western Grounds	45	59	51	40	38	37	30	30	25	42	20	36
Faroe... ...	24	28	21	14	19	28	38	45	34	22	28	19
Iceland ...	0	0	0	0	1	0	1	2	0	1	0	0

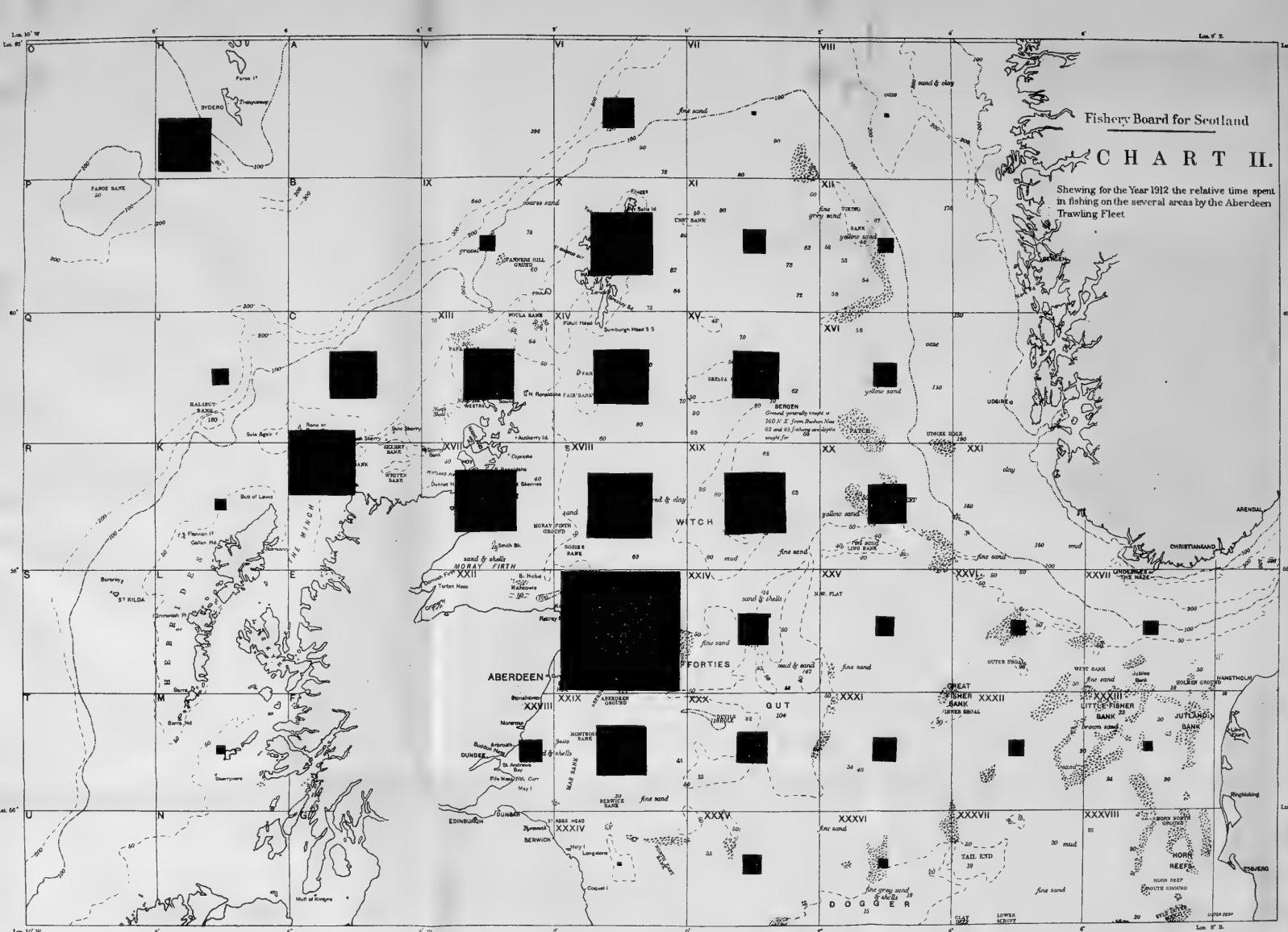
Area VII., May 3; VIII., June 5; XI., Feb. 42, Mar. 34, Apr. 34, May 25; XXI., Feb. 38; XXX., Sept. 39, Oct. 44, Nov. 49; XXXII., May 22, Sept. 20, Oct. 21, Nov. 29; XXXIII., Sept. 29; XXXIV., Dec. 41; XXXVI., Feb. 17, Sept. 52, Oct. 42; XXXVII., Oct. 35; XXXVIII., Dec. 0; XXXIX., Mar. 0; XL., Sept. 32; N., Nov. 4.

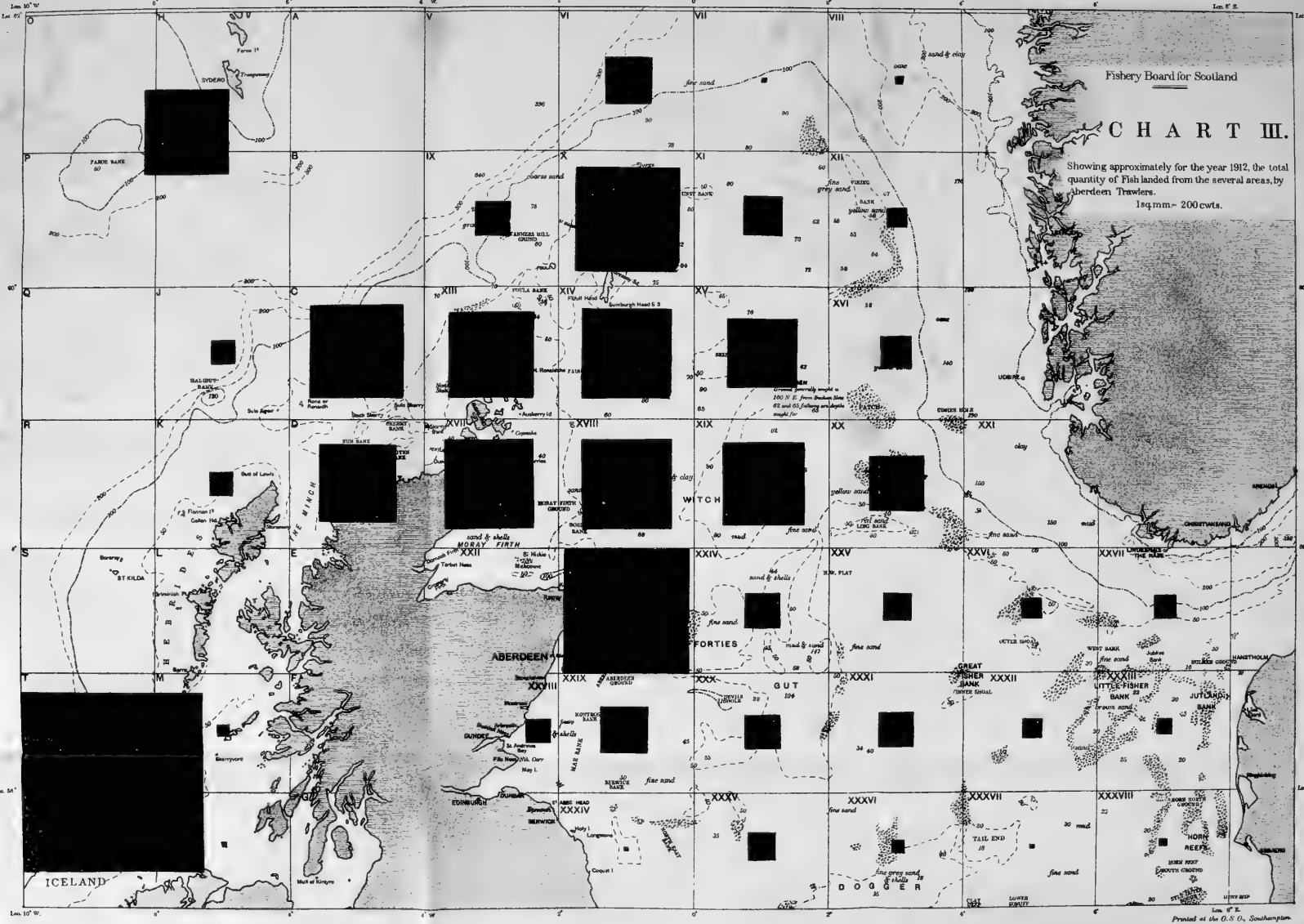
PERCENTAGE (BY WEIGHT) OF **Small Plaice**, IN TOTAL CATCH OF PLAICE (ABERDEEN TRAWLERS)—1912.

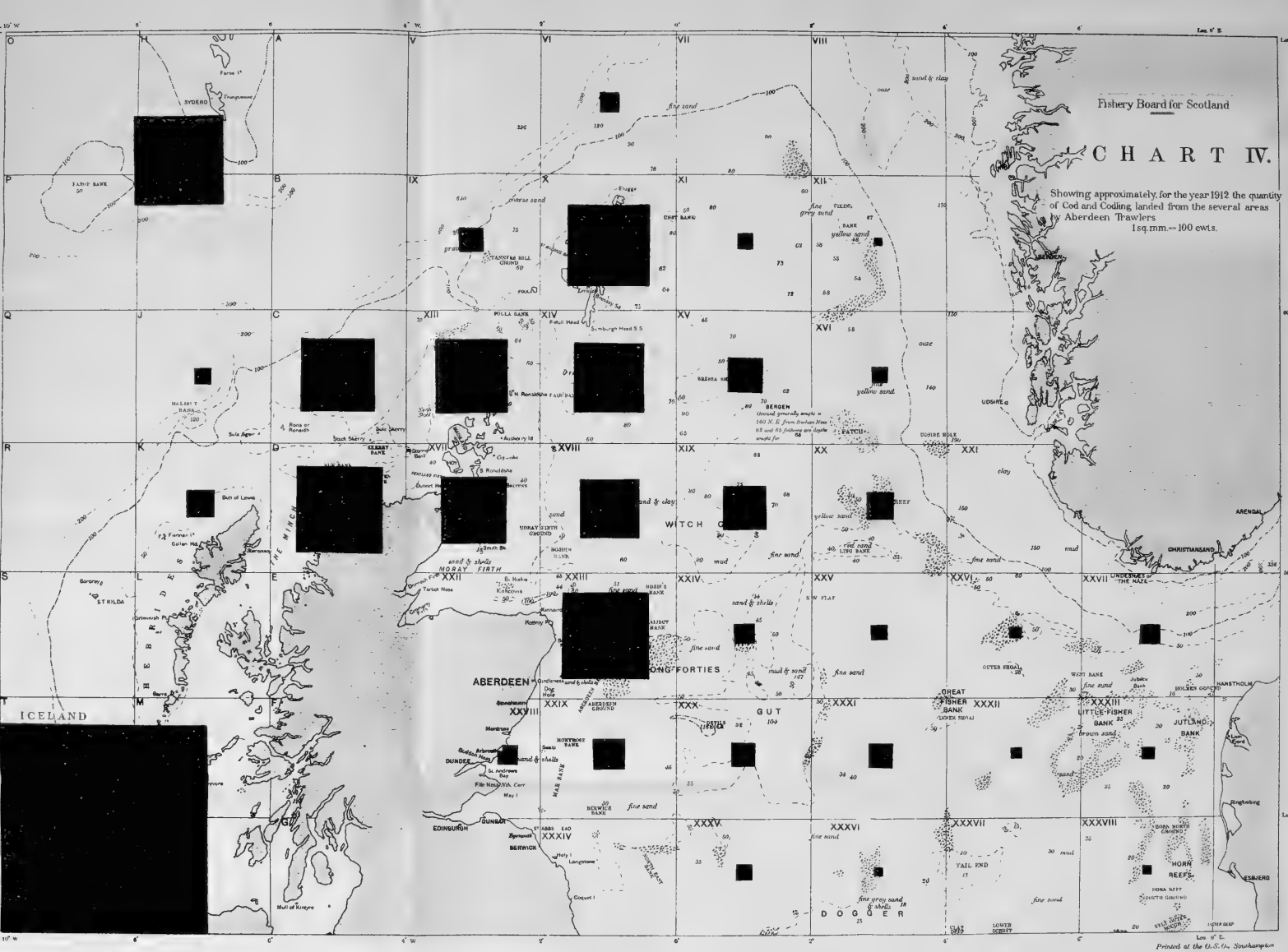
Areas.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
VI.	–	–	40	31	50	–	–	–	–	–	–	–
IX.	–	–	–	–	0	0	0	0	–	–	–	–
X.	0	10	8	2	4	9	1	2	16	0	16	4
XII.	–	0	0	0	0	–	–	–	–	–	–	–
XIII.	0	3	37	17	15	8	1	9	49	50	5	0
XIV.	0	11	0	–	0	4	0	0	8	0	9	0
XV.	0	0	0	–	–	–	–	–	–	–	0	0
XVI.	0	–	0	0	–	–	–	–	–	–	0	0
XVII.	1	8	12	11	8	6	2	18	15	8	8	11
XVIII. ...	0	8	18	0	5	0	8	0	0	5	10	0
XIX.	0	0	0	–	–	28	–	–	–	0	0	0
XX.	0	0	–	–	–	–	–	–	–	–	0	0
XXII. ...	15	0	0	–	–	0	–	–	–	–	–	9
XXIII. ...	57	47	20	11	8	16	17	19	29	72	63	61
XXIV. ...	–	0	–	–	–	4	0	0	0	0	4	–
XXV. ...	–	–	–	–	–	1	7	–	0	0	0	–
XXVI. ...	–	–	–	17	–	–	8	0	–	4	0	–
XXVII. ...	–	–	–	–	–	14	0	13	23	11	–	–
XXVIII. ...	33	44	–	28	48	60	77	55	60	56	59	50
XXIX. ...	5	15	0	11	14	6	0	13	6	1	8	8
XXXI. ...	0	–	–	–	–	3	0	47	0	0	0	–
XXXV. ...	–	–	–	–	–	–	0	0	0	4	0	–
C.	0	5	–	11	1	6	13	1	4	25	0	10
D.	68	11	12	19	12	4	18	0	11	13	52	9
J.	–	–	–	–	–	4	3	0	0	33	0	18
K.	0	0	13	18	21	14	0	–	–	–	–	–
M.	–	–	–	–	–	13	–	9	27	58	0	–
Minch ...	–	13	4	10	–	0	–	–	–	–	–	–
C.D. Minch ...	9	9	10	7	7	4	4	5	28	6	20	13
Western Grounds	32	8	11	10	0	0	4	0	0	0	6	13
Faroe	9	1	0	0	13	17	0	0	0	4	0	0
Iceland ...	18	0	4	1	2	17	8	3	7	12	25	6

Area VII., May 0; VIII. June 0; XI., Feb. 13, Mar. 0, Apr. 0, May —; XXI., Feb. —; XXX., Sept. 0, Oct. 0, Nov. 0; XXXII., May 0, Sept. 33, Oct, 8, Nov. 0; XXXIII., Sept. 20; XXXIV., Dec. 0; XXXVI., Feb. 0, Sept. 25, Oct. 0; XXXVII., Oct. 83; XXXVIII., Dec. 89; XXXIX., Mar. 0; XL., Sept. 42; N., Nov. 10.


Fishery Board for Scotland
CHART I.
Shewing for the Year 1912. recorded Voyages of Aberdeen Trawlers to the several areas.
Prepared from Olsen's Chart of the North Sea (with additions)
Note: From Area C 259 vessels are reported: from Area D 157; While 310 additional vessels are reported from C.D. and the Minch
The region encircled by the black line represents (together with Faroe) the principal fishing ground of the Aberdeen Trawling Fleet
258
74
1
2
24
393
40
14
23
283
280
161
36
726
23
546
486
303
117
1
3006
88
32
14
17
144
500
67
39
17
8
7
1
26
5
1
ABERDEEN
LONG FORTIES
WITCH GROUND
DOGGER
MORAY FIRTH
THE MINCH
THE HEBRIDES
Prepared & Printed at the O.S.O., Southampton


Fishery Board for Scotland
CHART II.
Shewing for the Year 1912 the relative time spent in fishing on the several areas by the Aberdeen Trawling Fleet
ABERDEEN
FORTIES
GUT
WITCH
DOGGER
MORAY FIRTH
BERGEN
PATCH
UDSIRE
ARENDAL
CHRISTIANSAND
HANSTHOLM
HORN REEFS
ESBJERG
GREAT FISHER BANK
LITTLE FISHER BANK
JUTLAND BANK
TAIL END
DUNDEE
EDINBURGH
BERWICK
ST KILDA
Printed at the O.S.O., Southampton


Fishery Board for Scotland
CHART III.
Showing approximately for the year 1912, the total quantity of Fish landed from the several areas, by Aberdeen Trawlers.
1 sq.mm.= 200 cwts.
ICELAND
ABERDEEN
WITCH
FORTIES
GUT
DOGGER
MORAY FIRTH
THE MINCH
HEBRIDES
ST KILDA
FAROE BANK
SYDERO
FOULA BANK
FUN BANK
MORAY FIRTH GROUND
BOSS BANK
ABERDEEN GROUND
MONTROSE BANK
BERWICK BANK
MAR BANK
GREAT FISHER BANK
LITTLE FISHER BANK
JUTLAND BANK
HORN REEFS
HORN NORTH GROUND
HORN SOUTH GROUND
TAIL END
UDSIRE
CHRISTIANSAND
HANSTHOLM
UNDERFALLS THE RAZE
OUTER SHOAL
WEST BANK
HOLMES GROUND
LONG BANK
UNST BANK
VIKING BANK
FINNERS HILL GROUND
HALIBUT BANK
Sumburgh Head S S
Auskerry Id
Copinsha
Tarbet Ness
St Hickie
Mackcowe
Rona or Ronaldh
Sule Sgeir
Butt of Lewis
Flannan Is
Gallan Hd
Barra
Sherryvore
Mull of Kintyre
Coquet I
Holy I
Longstone
Farne Is
Trangisvaag
Lon. 10° W.
Lon. 8° E.
Lat. 62°
Lat. 56°
Printed at the O.S.O., Southampton.


Fishery Board for Scotland
CHART IV.
Showing approximately, for the year 1912 the quantity of Cod and Codling landed from the several areas by Aberdeen Trawlers
1 sq. mm. = 100 cwts.
ICELAND
ABERDEEN
WITCH
GUT
DOGGER
HORN REEFS
GREAT FISHER BANK
LITTLE FISHER BANK
JUTLAND BANK
MORAY FIRTH
DUNDEE
EDINBURGH
BERWICK
ST KILDA
ARENDAL
CHRISTIANSAND
ESBJERG
HANSTHOLM
UDSIRE
BERGEN
PATCH
YAIL END
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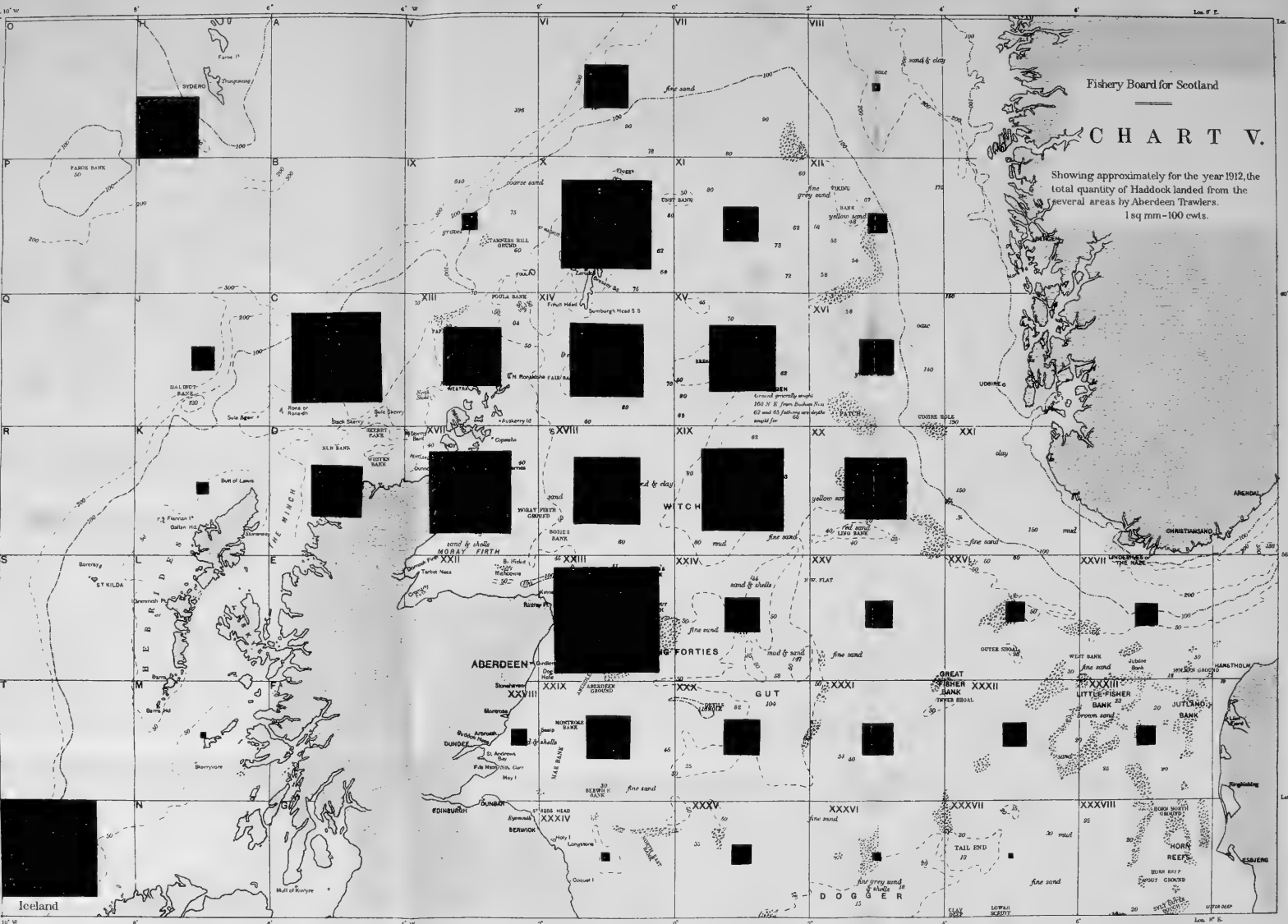
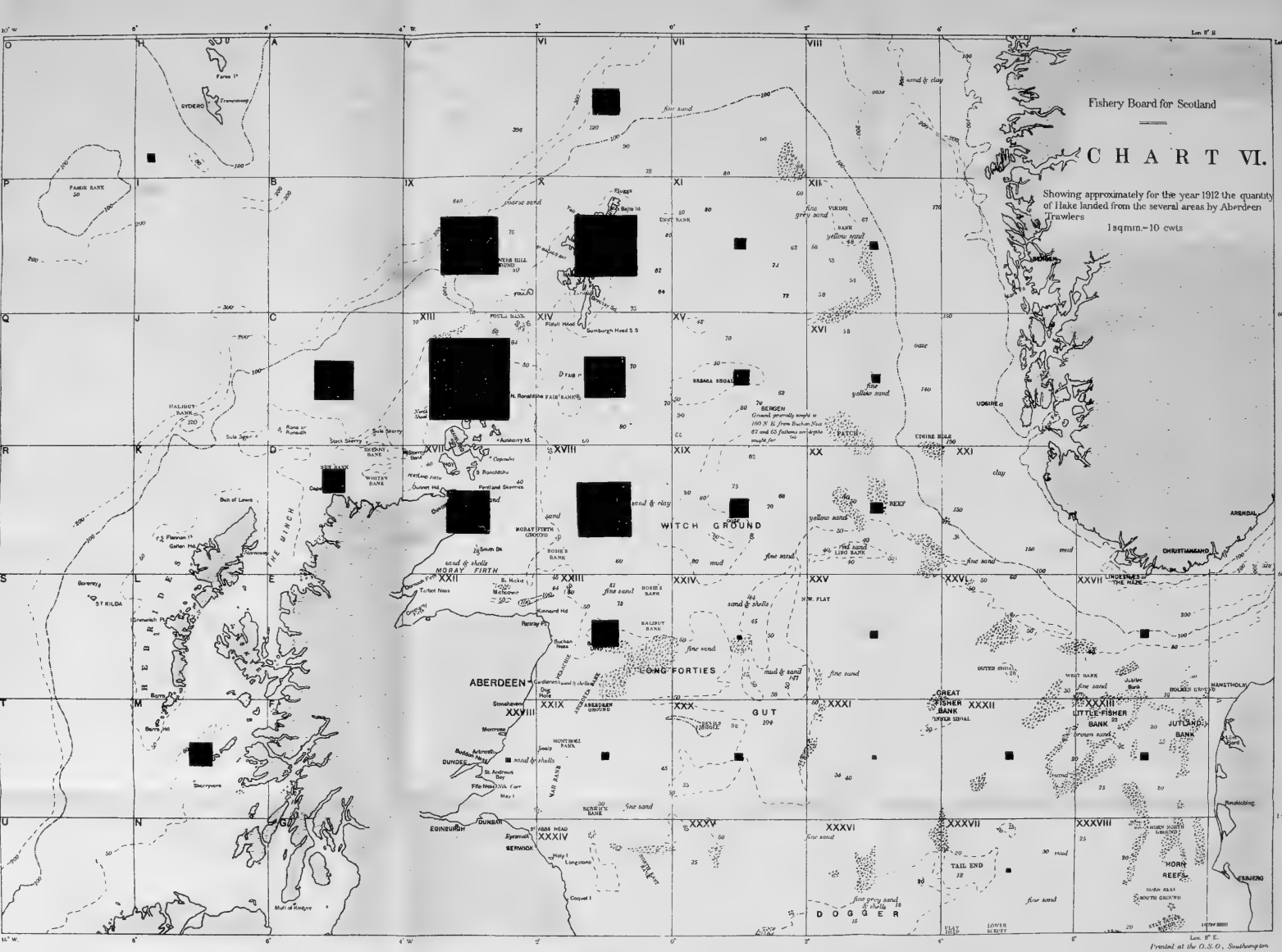

Fishery Board for Scotland
CHART V.
Showing approximately for the year 1912, the total quantity of Haddock landed from the several areas by Aberdeen Trawlers.
1 sq mm = 100 cwts.
Iceland
ABERDEEN
MORAY FIRTH
WITCH
GUT
DOGGER
GREAT FISHER BANK
LITTLE FISHER BANK
JUTLAND BANK
HORN REEFS
HORN NORTH GROUND
HORN SOUTH GROUND
HORN REEF FOUT GROUND
TAIL END
DUNDEE
EDINBURGH
BERWICK
MONTROSE BANK
BERWICK BANK
ST KILDA
Mull of Kintyre
Stornoway
Barra Hd
Skerryvore
Bull of Lewis
Flannan Is
Gallan Hd
Sule Skerry
Rona or Ronaldh
Stack Skerry
Sule Sgeir
Copeshe
Auskerry Id
Fitfull Head
Sumburgh Head S S
Fair Ba
Foula Bank
Tamners Hill Ground
Unst Bank
Fine sand
Coarse sand
Gravel
Sand & shells
Mud & sand
Yellow sand
Grey sand
Fine grey sand & shells
Ground generally sought 160 N E from Buchan Ness 62 and 65 fathoms are depths sought for
Ling Bank
Outer Shoal
West Bank
Jubilee Bank
Hollen Ground
Hamstholm
Ringkiobing
Esbjerg
Lower Scroby
Clay Deep
Lat. 62°
Lat. 56°
Lon. 8° E.
Printed at the O.S.O., Southampton


Fishery Board for Scotland
CHART VI.
Showing approximately for the year 1912 the quantity of Hake landed from the several areas by Aberdeen Trawlers
1 sq mm.=10 cwts
WITCH GROUND
LONG FORTIES
GUT
DOGGER
ABERDEEN
MORAY FIRTH
THE MINCH
HEBRIDES
BERGEN
UDGIRE
CHRISTIANSAND
ARENDAL
GREAT FISHER BANK
LITTLE FISHER BANK
JUTLAND BANK
HORN REEFS
TAIL END
DUNDEE
EDINBURGH
DUNBAR
BERWICK
ST KILDA
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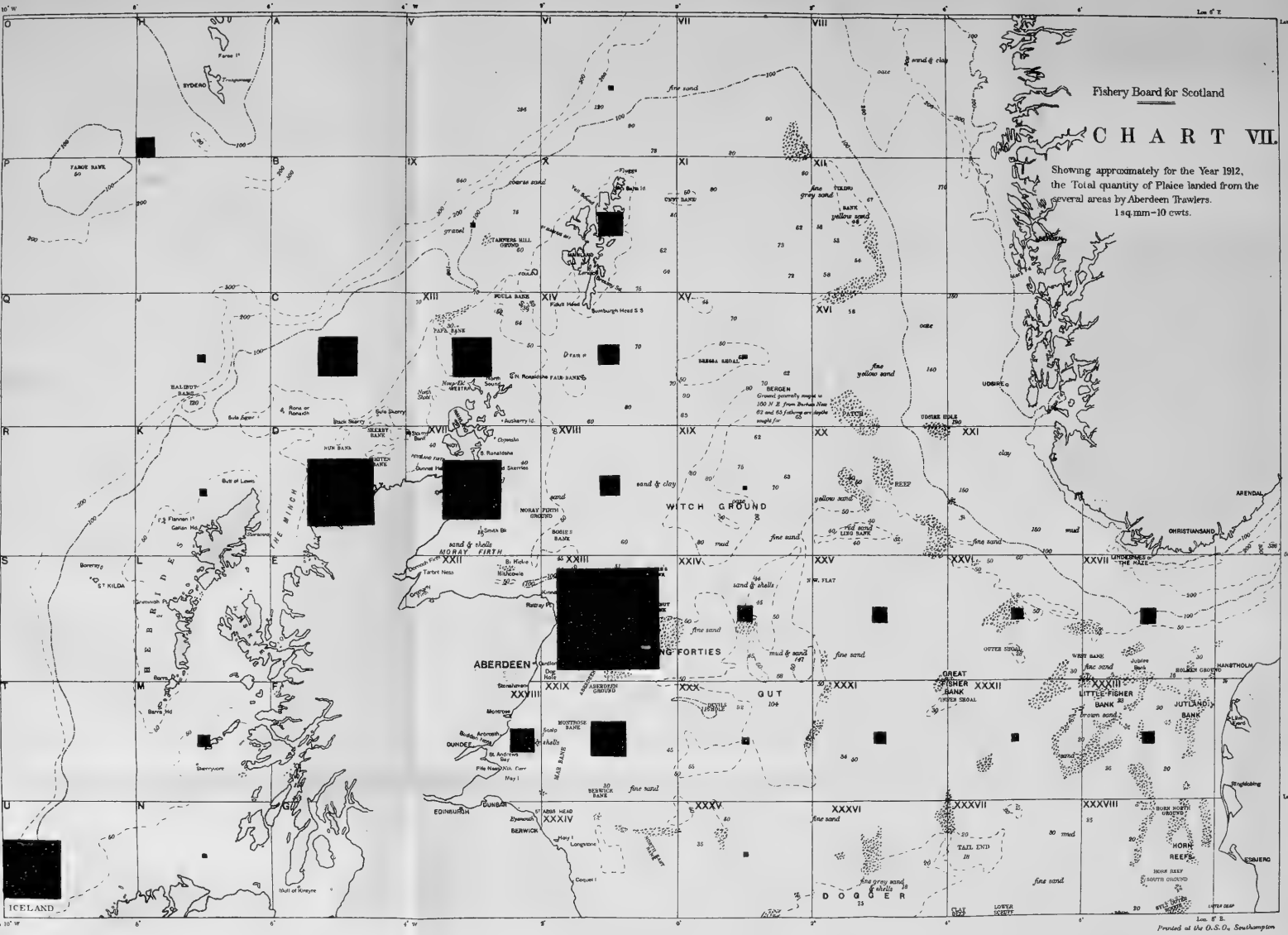
Fishery Board for Scotland
CHART VII.
Showing approximately for the Year 1912, the Total quantity of Plaice landed from the several areas by Aberdeen Trawlers.
1 sq. mm = 10 cwts.
ABERDEEN
WITCH GROUND
GUT
DOGGER
GREAT FISHER BANK
LITTLE FISHER BANK
JUTLAND BANK
HORN REEFS
ICELAND
MORAY FIRTH
THE MINCH
HEBRIDES
ST KILDA
DUNDEE
EDINBURGH
BERWICK
ARENDAL
CHRISTIANSAND
HANSTHOLM
ESBJERG
UDSIRE
BERGEN
Printed at the O.S.O. Southampton

FISHERY BOARD FOR SCOTLAND.

SCIENTIFIC INVESTIGATIONS.

1913.

No. II.

SECOND REPORT ON THE DEEP CURRENTS OF THE NORTH SEA AS ASCERTAINED BY MEANS OF DRIFT BOTTLES

(WITH 3 CHARTS).

BY

CAPTAIN C. H. BROWN

(Of the School of Navigation), Royal Technical College, Glasgow.

This Paper may be referred to as:

"*Fisheries, Scotland, Sci. Invest., 1913*, II. (*August 1914*)."

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(*With Three Charts.*)

The results of our first experiment with drift bottles for the purpose of determining the direction and velocity of the deep currents were published in 1909, in the Fourth Report (Northern Area).

During the period between June, 1906, and September, 1907, 1012 bottles were put away at different times and positions in the North Sea, from the "Goldseeker," and at the time of closing the Report in January, 1909, 20 per cent. of them had been found and returned to us. Since then 116 additional bottles have come to hand, so that 312 in all have now (October, 1913) been accounted for.

These additional bottom drifts were treated in the same way as the others, namely, a note was made of the area or areas through which each trawled bottle had apparently drifted by drawing a straight line between the position where it was put away and the position where it was picked up. Then all the drifts through each area were tabulated, the mileage reduced to a common term of 100 days (100 being selected for convenience), and the resultant direction and velocity through each area calculated. The several local resultants thus obtained having been projected on a chart, a few curved resultants grouped them together and gave an indication of the general trend of the bottom currents.

On Additional Bottles recovered from the First Experiment.

In Table II. under subhead (A) is given a summary of the results previously obtained from the trawled bottles, and for comparative purposes under subhead (B) is given a summary of the results obtained from the trawled bottles recovered since the last Report was completed. It will be observed that on the whole the several directions are in fair agreement, and that wherever there is a big difference in direction between (A) and (B) it is accompanied by a very short drift. But the mean rate of drift deduced from all the

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additional bottles is much less than was got from our earlier returns, and this is mainly due to the long period of time they have been submerged, the history of their migrations being unknown for periods ranging from $2\frac{1}{2}$ to 7 years. Exactly what these long-lost messengers may have been doing is a matter for conjecture; some of them may have been delayed by getting entangled with seaweed or a rocky bottom, others may have drifted to and fro, or some may have even completed a circuit, but so far we have got no evidence of a closed curve.

In consideration, then, of the very small rate of drift of these additional bottles, we have not here presented a chart showing the resultants obtained therefrom, and, indeed, after incorporating them with the first lot of bottles, the bottom curves originally obtained were scarcely affected, the modification being so very slight that the curves already given may stand.

Table IV.(A) contains a record of the additional bottles washed up on the Scottish coasts, and Table V.(A) of those found on distant coasts.

The Second Experiment.

The results of the first experiment proved so clear and interesting that another series of bottles were put away at intervals between August, 1910, and July, 1911.

The same pattern of bottle was used, but instead of throwing overboard a single bottle at half-hourly intervals during the cruises of the "Goldseeker," as was done with the first lot, groups of five bottles were usually cast overboard at each position, although ten at a time were sometimes put away at the less frequented places. The percentage of bottles recovered from the second series is greater than the returns from the first series, namely, 26 per cent., compared with 20 per cent., the period under review being three years for the former and $2\frac{1}{2}$ years for the latter; but it has to be borne in mind that a good many bottles of the second series, some 200 in all, were put overboard in the regions lying to the west of the Orkney Islands, very few of which have so far been returned.

Analysis of Drift Bottles Recovered.

Recovered.	1st Series (1,012).				2nd Series (790).	
	Received to date of last Report.	Refer in last Report to	Additional Bottles received.	Refer in present Report to	Received to date October, 1913.	Refer in present Report to
(a) By Trawler, .	153	Table I.	73	Table I.(a)	140	Table I.(b)
(b) On Scotch Coast,	20	,, IV.	11	,, IV.(a)	31	,, IV.(b)
(c) On Distant Coasts,	14	,, V.	28	,, V.(a)	14	,, V.(b)
(d) Less than 30 days Adrift,	13	,, III.	—	—	19	,, III.(b)
Totals, . .	200	—	112	—	204	—
Percentage, .	20%	—	11%	—	26%	—
Period under review,	$2\frac{1}{2}$ years	—	7 years	—	3 years	—

The bottom curves of the present series are shewn on Chart I., and are based on the returns obtained from the trawled bottles only. The resultants are projected in their respective areas, the direction of the general trend being shewn by arrows, while the length of the arrow indicates the average drift in miles per 100 days. This mileage is also printed in figures and is represented by the lower of the two numbers in the area, the top figure being the number of observations from which the resultant is obtained, for, of course, the value of the result increases with an increased number of returns.

The curved resultants connect up the series, and again we find the result is clear and convincing. The bottom waters appear to flow into the North Sea through the Shetland-Orkney channel, and while part eddies round Sumburgh Head and apparently continues flowing in a north-east direction, the main stream flows to the southward into the Moray Firth, and along the east coast of Scotland, an indraught into the Firth of Forth being well marked.

In the vicinity of the Long Forties a branch from this southerly flow trends to the eastward, and while this east-going stream apparently sweeps right across to the Skagerak, the main stream bends sharply to the northward and flows with increased velocity along the Norwegian coast.

The cyclonic system of deep currents which by our first investigation resolved itself into a more or less circular shape, with a small central axis situated somewhat to the south of the Bressay Shoal, appears now to be considerably elongated, the major axis, or lane of apparently still water, extending along the meridian of Greenwich for about 60 miles. To the westward of the Prime Meridian the flow is to the southward, and in the east longitude there is a relatively rapid flow to the northward, these two opposite streams being separated by only some 30 miles.

The number of observations obtained on each side of this neutral line is fairly numerous, which adds considerably to the reliability of the curve. It would seem from the resultant of Area 51, obtained, however, from a single observation, as if the curve closed at the Bressay Shoal, but I would hesitate at this stage to make this suggestion more emphatic. Two bottles, Nos. 28 (A) and (B), were put away at the same time and place near the north-east corner of Area 60; one travelled to the north-west into Area 51, while the other was carried eastward into Area 61, so that the degree of dependence to be placed on the resultant of Area 51 is somewhat doubtful.

The Western Areas.

No information regarding the bottom currents in the western areas was derived from the first experiment, as no bottles were put away in this region, but it was hoped that some interesting information of these less frequented waters would be obtained from the present series of experiments. Consequently, 100 bottles were put away from 13 different positions lying to the westward of the Orkney Islands, but only 16 of them were recovered. The probable route followed by these bottles is shewn on Chart II., which also exhibits the probable track of those found on distant coasts.

Groups 7, 8, 9, 10, 11, 12, and 13 each consisted of 10 bottles, the remaining six groups being each composed of five bottles, the usual number put away at one time. Of Group 7, three drifted to the eastward, and were washed up on the west coast of Shetland,

while the only bottle recovered of Group 8, which was put away some ten miles to the north-west of Group 7, was found near Wick.

None of Group 9 or 10 were returned, but the two bottles recovered from Group 11 got widely separated, one being found at Burra Island, Shetland, and the other on the coast of Stradland, Norway.

The two returned from Group 12 were almost similarly located, one being picked up by a trawl in 79 fathoms of water off Noup Head, the other on the beach near Christiansand, South.

Four from Group 13 were recovered, one having stranded on Burra Island, two on the northern shores of Norway at Vandoe Islands, and the fourth was trawled up from 34 fathoms close to Sule Skerry Island, 30 miles from the position where it was put away.

Of Group 14, put away in the Minch, one was found on Rowsa Island, Orkney, and another on the north coast of Norway. The single bottle recovered from Group 19 was also found at the Orkney Islands, while one from Group 16, put away close to the island of St. Kilda, was picked up at the Vandoe Islands, 1000 miles distant.

One bottle of a group of five, which was put away ten miles north-east of St. Kilda, was recovered by a trawler in 58 fathoms, having been carried four miles to the north-west.

The return from the western areas is meagre and rather disappointing. The nine bottles found on our home coasts, however, indicate that the bottom current sets eastward from the Atlantic, and passes through the channel between the Shetland and Orkney Islands. The route followed by the several bottles found on the Norwegian coasts is very problematical. I have assumed that Nos. 14 and 16 have passed northward off the west side of the Shetlands.

Some or all of them may have floated on the surface, and this is highly probable, as the average velocity of the bottles of Groups 11, 12, 13, 14, and 16 found on distant coasts is, 1, 0.5, 1.6, 0.9, and 1.7 miles per day respectively.

As shewing the paucity of returns from the western areas, it may be recorded that 70 bottles were put away from the "Goldseeker" in May, 1911, between the Shetland and Faeroe Islands, but none so far have been recovered.

Long Distance Drifts.

Chart III. also shews the probable track followed by the eight other messengers which were found on the coasts of Denmark and Norway. In drawing these tracks we have been guided by the bottom curves as calculated from the data derived from the trawled bottles, and on the whole we find it is quite a simple matter to lay off a track for each bottle between their initial and terminal positions, which is easy to reconcile with the apparent general trend of the bottom currents.

For instance, there were ten bottles put away from position six, and four of them were brought up by trawls at various points lying to the southward of this position, in fact, just on the track we have laid down of the bottle of the same group which was picked up on the coast of Denmark.

Likewise, No. 62 has been carried first to the southward. then to the eastward, and eventually got washed up on the coast near Christiansand.

Sixty-seven was a group of ten bottles, seven of which were recovered; four on the Scottish coast, one by a trawler, and the

remaining two as shewn on the chart, near Christiansand. By a curious coincidence, these two bottles were found on the same day 30 miles apart from each other, having covered respective distances of 350 and 380 miles in 294 days.

Seventy-three was also a group of ten, one of them being trawled up three days after it was put away, the only others recovered being the two plotted on the chart, which were found on the Norwegian coast.

Bottles 43 and 51 were put away at the same place, the former in December, 1910, the latter in May, 1911, and both have been carried to the eastward in opposition to the very decided inset of the bottom currents towards the Firth of Forth. So, again, it is highly probable that these long voyagers may have drifted on the surface, and a glance at the daily average velocity attained by each tends to confirm this view.

Reference No. of Bottle, . .	6	62	67	67	73	73	43	51
Average Velocity per day, . .	1·1	0·4	1·2	1·3	1·5	1·2	0·5	1·0

These velocities are, of course, based on the assumption that the bottles have been found on the day they were washed up on the shore, but the time they may have lain on the beach before being discovered must for ever remain unknown, so the actual speed at which these bottles have been carried along will be somewhat greater, in a more or less degree depending on the period elapsed between the time of their stranding and the discovery of the bottle.

A record of these long-distance drifts is given in Table V.(B). Table IV.(B) contains a record of the bottles found on the Scottish coasts, all of which shew that the bottom curves calculated from the trawled bottles may be continued right into the coast line.

Summary.

A summary of the results obtained from the present experiment is given in Table II. under subhead (C), and in order to obtain curves from the maximum number of observations available we have combined the resultants of subheads (A) and (C) and shewn the result in the same Table under subhead (D). These results are also shewn diagrammatically on Chart III., and, as might be expected from the greater number of observations extending over a longer period of time, the local resultants are found to arrange themselves with greater uniformity, and the curved resultants appear more symmetrical; nevertheless, the combination demonstrates a modification in the shape of the cyclonic system discovered from our last experiment. The system is more elongated than was shewn by the result of our first investigation, the longer axis lying in a north and south direction along the meridian of Greenwich, and forms a neutral lane about 30 miles broad between a southerly and a northerly going stream. With this exception, however, the present investigation confirms the deductions that were made in 1909 regarding the direction and velocity of the deep currents, while the information obtained from the western areas, though scanty, is of much value in affording evidence of the easterly trend of the deep Atlantic water towards and through the channel lying between the Shetland and Orkney Islands into the North Sea

TABLE Ia.—First Experiment.—Additional Drift Bottles Recovered by Trawlers.

Ref. No.	Position. Cast Out.	Position. Recovered.	Depth Fms.	Date. Cast Out.	Date. Recovered.	Number of days Adrift.	Distance in miles between Positions.	Mean Drift in miles per 100 days.	Direction. True.	Areas.
206	·28 N. 1·8 E.	59·0 N. 1·20 E.	—	Dec. 19, 1906	Feb. 7, 1909	781	92	12	N.-4 E.	79, 69, 60
208	57·15 N. 1·11 E.	56·22 N. 1·38 E.	54	Oct. 12, 1906	Feb. 15, 1909	857	55	6	S.-16 E.	89, 100, 111
209	58·36 N. 1·10 E.	58·18 N. 1·5 E.	80	July 23, 1907	Feb. 26, 1909	584	18	3	S.-8 W.	60, 69
211	58·8 N. 0·36 W.	58·34 N. 1·15 E.	74	July 28, 1906	March 13, 1909	959	64	7	N.-24 E.	60, 67, 68
216	58·35 N. 0·32 E.	58·50 N. 1·00 E.	78	July 27, 1906	April 5, 1909	983	21	2	N.-45 E.	59
217	60·34 N. 2·0 E.	60·34 N. 1·15 E.	68	July 26, 1906	April 12, 1909	992	22	2	West	24
218	58·19 N. 0·46 W.	57·44 N. 0·0.	70	Oct. 12, 1906	Mar. 17, 1909	887	43	5	S.-34 E.	67, 77
219	58·51 N. 1·37 W.	58·30 N. 1·39 W.	57	July 4, 1907	April 24, 1909	660	21	3	S.-1 W.	57
220	59·20 N. 1·27 E.	57·36 N. 1·14 E.	68	July 27, 1906	March 6, 1909	953	17	2	N.-23 W.	42, 51
223	57·37 N. 1·5 E.	58·00 N. 1·0 E.	77	Dec. 19, 1906	June 12, 1909	905	23	3	N. 6 W.	79
224	58·6 N. 2·8 W.	57·48 N. 2·35 W.	47	Oct. 18, 1906	April 11, 1909	1,007	23	2	S.-36 W.	65, 75
225	57·35 N. 1·3 W.	57·27 N. 1·32 W.	38	Sept. 2, 1907	July 18, 1909	685	18	3	S.-63 W.	76, 86
226	59·33 N. 1·38 E.	58·50 N. 2·13 E.	62	July 27, 1906	March 21, 1909	968	47	5	S.-23 E.	42, 51, 52
227	58·4 N. 0·38 W.	57·52 N. 0·25 E.	57	Nov. 26, 1906	Aug. 24, 1909	1,002	35	3	S.-70 E.	67, 77, 28
228	56·30 N. 0·46 W.	56·1 N. 1·32 W.	35	Aug. 13, 1906	Aug. 26, 1909	1,109	39	4	S.-42 W.	108, 109
230	56·20 N. 1·50 W.	56·10 N. 2·24 W.	27	April 5, 1907	Sept. 24, 1909	903	21	2	S.-62 W.	107, 108
231	57·47 N. 0·52 W.	58·32 N. 1·00 E.	78	Feb. 25, 1907	Sept. 20, 1909	938	74	2	N.-53 E.	69, 77
232	59·0 N. 1·37 W.	58·2 N. 1·21 W.	57	June 12, 1906	Oct. 1, 1909	1,207	59	5	S.-8 E.	66, 87
234	57·59 N. 0·57 E.	58·12 N. 1·7 E.	70	April 10, 1907	Nov. 9, 1909	944	14	1	N.-22 E.	68, 69
235	59·27 N. 0·47 W.	58·47 N. 0·18 W.	70	Sept. 7, 1906	Nov. 8, 1909	1,158	43	4	S.-21 E.	49, 58
273	58·15 N. 1·45 W.	57·45 N. 1·15 W.	53	July 4, 1907	Sept. 2, 1910	1,156	34	3	S.-27 E.	66, 76
274	56·28 N. 0·44 W.	56·21 N. 2·5 W.	27	July 24, 1907	Sept. 26, 1910	1,160	45	4	S.-81 W.	107, 108, 109
275	58·50 N. 0·0	59·28 N. 0·18 W.	72	May 27, 1907	Oct. 16, 1910	1,238	39	3	N.-13 W.	50, 59
277	58·29 N. 0·15 E.	58·35 W. 0·50 E.	78	Dec. 19, 1906	Dec. 25, 1910	1,467	19	1	N.-72 E.	59, 68
278	57·30 N. 1·12 W.	58·25 W. 1·25 E.	61	June 21, 1906	Jan. 1, 1911	1,655	108	6	N.-56 E.	68, 69, 76, 77
279	58·30 N. 0·39 E.	58·07 N. 0·5 E.	75	July 27, 1906	Jan. 9, 1911	1,627	29	2	S.-38 W.	68
280	56·24 N. 1·41 W.	56·6 N. 2·15 W.	30	Aug. 9, 1906	Jan. 31, 1911	1,636	27	2	S.-47 W.	107, 108
281	59·31 N. 0·37 E.	59·43 N. 0·7 W.	67	June 20, 1906	March 1, 1911	1,715	25	1	N.-61 W.	41
283	59·39 N. 0·35 E.	59·39 N. 0·19 E.	69	Sept. 5, 1906	March 13, 1911	1,650	8	·5	West	41
288	56·36 N. 0·53 W.	56·36 N. 0·57 W.	35	July 26, 1907	July 29, 1911	1,464	2	·2	West	98
289	58·10 N. 0·22 W.	57·42 N. 0·5 E.	65	July 28, 1906	Aug. 16, 1911	1,845	31	2	S.-27 E.	67, 77, 78
291	57·47 N. 1·3 W.	57·40 N. 0·15 E.	64	Sept. 2, 1907	Aug. 23, 1911	1,470	43	3	S.-81 E.	76, 77, 78

293	57·37 N.	3·20 W.	57·56 N.	2·53 W.	45	July 22, 1907	Oct. 27, 1911	1,558	14	·9	S.-86 E.	74, 75
296	56·20 N.	1·30 W.	55·0 N.	0·5 W.	37	Aug. 10, 1906	March 9, 1911	1,672	81	5	S.-10 E.	118, 119, 129
297	58·36 N.	1·46 W.	58·17 N.	1·40 W.	45	Aug. 21, 1906	Feb. 22, 1912	2,010	19	·9	S.-10 E.	57, 66
298	58·5 N.	2·18 W.	57·51 N.	2·15 W.	55	Dec. 18, 1906	March 4, 1912	1,903	14	·7	S.-6 E.	65, 75
299	59·48 N.	0·33 E.	59·17 N.	0·5 E.	75	Sept. 5, 1906	March 2, 1912	2,005	34	2	S.-25 W.	41, 50
300	58·9 N.	1·50 W.	58·12 N.	1·38 W.	—	Aug. 21, 1906	March 13, 1912	2,029	7	·3	N.-65 E.	66
237	58·17 N.	1·4 W.	57·44 N.	0·45 W.	60	Oct. 11, 1906	Dec. 8, 1909	1,154	34	3	S.-17 E.	66, 67, 77
241	57·51 N.	1·0 E.	58·47 .	1·25 E.	70	Dec. 19, 1906	Dec. 27, 1909	1,104	57	5	N.-13 E.	60, 69, 76
242	58·32 N.	0·47 E.	58·35 N.	0·8 E.	75	July 23, 1907	Dec. 12, 1909	873	21	2	N.-82 W.	59
245	58·11 N.	0·51 E.	58·13 N.	0·18 E.	85	Feb. 6, 1907	Jan. 16, 1910	1,075	18	2	N.-78 W.	68
247	60·23 N.	2·10 E.	60·2 N	2·18 E.	62	July 27, 1806	Jan. 29, 1910	1,282	23	2	S.-12 E.	34
250	57·12 N.	1·12 E.	58·20 N.	1·15 E.	78	April 10, 1907	Feb. 9, 1910	1,036	68	7	N.-2 E.	65, 79, 89
251	59·33 N.	1·23 W.	58·28 N.	1·35 W.	60	Nov. 20, 1906	March 13, 1910	1,209	65	5	S.-5 W.	48, 49, 57
252	59·34 N.	1·30 W.	58·38 N.	0·36 W.	70	July 4, 1907	Feb. 22, 1910	964	63	7	S.-27 E.	39, 48, 58
253	58·8 N.	2·40 W.	58·4 N.	2·50 W.	40	Sept. 15, 1906	March 9, 1910	1,271	6	·5	S.-53 W.	65
255	59·5 N.	1·33 W.	58·28 N.	2·3 W.	42	July 4, 1907	March 26, 1910	998	40	4	S.-23 W.	57, 58, 66
256	59·34 N.	1·12 W.	58·34 N.	1·42 W.	—	July 4, 1907	April 3, 1910	1,004	62	6	S.-14 W.	39, 48, 57
258	60·33 N.	1·20 E.	60·37 N.	1·44 E.	74	Sept. 4, 1906	April 8, 1910	1,312	13	1	N.-71 E.	24
259	57·58 N.	1·4 E.	58·45 N.	0·45 E.	78	Dec. 19, 1906	April 12, 1910	1,210	48	4	N.-12 W.	59, 68, 78
261	59·13 N.	1·22 E.	58·59 N.	1·9 W.	50	May 10, 1907	April 14, 1910	1,070	15	1	S.-25 E.	48
265	58·2 N.	2·48 W.	59·11 N.	0·3 W.	79	April 8, 1907	May 1, 1910	1,119	110	9	N.-51 E.	49,57,58,65,66
267	58·2 N.	2·22 W.	57·50 N.	1·55 W.	65	July 16, 1907	July 3, 1910	1,083	19	2	S.-40 E.	75, 76
269	56·17 N.	2·0 W.	56·5 N.	2·10 W.	30	Oct. 13, 1906	Aug. 1, 1910	1,388	12	·9	S.-26 W.	107
270	58·57 N.	1·32 W.	58·18 N.	1·40 W.	56	July 4, 1907	Aug. 21, 1910	1,146	39	3	S.-6 W.	57, 66
271	56·20 N.	1·50 W.	56·0 N.	2·15 W.	32	Feb. 5, 1907	Aug. 22, 1910	1,294	24	2	S.-35 W.	107, 108
272	58·48 N.	1·39 W.	57·53 N.	1·33 W.	60	June 12, 1906	Aug. 31, 1910	1,541	55	4	S.-4 E.	57, 66, 76
301	59·40 N.	1·14 W.	58·27 N.	1·40 W.	64	July 4, 1907	April 15, 1912	1,747	74	4	S.-10 W.	39, 48, 57
302	61·4 N.	0·52 W.	61·10 N.	2·20 E.	75	Aug. 26, 1907	April 1, 1912	1,680	93	5·5	N.-86 E.	13, 14, 15, 16
304	59·0 N.	0·4 W.	58·49 N.	0·21 E.	78	Sept. 1, 1907	May 29, 1912	1,732	17	1	S.-50 E.	58, 59
306	56·42 N.	0·35 E.	57·7 N.	0·30 E.	45	April 10, 1907	Sept. 16, 1912	1,986	25	1·3	N.-6 W.	88, 99
307	58·18 N.	0·24	—	—	70	Sept. 2, 1907	Sept. 28, 1912	1,854	—	—	—	—
309	59·20 N.	1·18 W.	57·45 N.	0·48 W.	62	Feb. 13, 1907	Nov. 6, 1912	2,093	96	4·5	S.-10 E.	48, 57, 67, 77
310	59·38 N.	1·00 W.	58·42 N.	0·20 W.	70	Aug. 22, 1906	Nov. 30, 1912	2,292	60	2·6	S.-20 E.	40, 49, 58
311	57·10 N.	1·55 W.	58·30 N.	0·25 E.	80	Aug. 16, 1906	Dec. 22, 1912	2,320	109	4·7	N.-43 E.	77, 86
312	58·50 N.	0.0	58·35 N.	0·25 W.	74	June 20, 1906	Feb. 1, 1912	2,414	20	0·8	S.-41 W.	57
313	59·35 N.	0·47 E.	59·43 N.	1·0 E.	64	May 26, 1907	March 4, 1913	2,101	11	·5	N.-41 E.	41
314	58·13 N.	1·25 W.	58·18 N.	1·40 W.	57	Feb. 7, 1907	March 1, 1913	2,217	10	·5	N.-57 W.	66
315	60·35 N.	1·35 E.	60·46 N.	1·50 E.	68	Sept. 4, 1906	March 26, 1913	2,397	12	·5	N.-34 E.	24
316	60·40 N.	2·25 E.	60·12 N.	2·0 E.	—	July 27, 1906	March 14, 1913	2,420	30	1·2	S.-23 W.	25, 34
318	58·26 N.	0·8 W.	58·50 N.	1·25 W.	72	Feb. 7, 1907	July 3, 1913	2,341	26	1·1	N.-21 W.	58, 67
319	59·37 N.	1·12 W.	57·51 N.	0·30 W.	60	Aug. 22, 1906	Aug. 31, 1913	2,565	108	4·2	S.-12 E.	39,49,58,67,77

TABLE Ib.—Second Experiment.—Drift Bottles Recovered by Trawlers.

Ref. No.	Position. Cast Out.	Position. Recovered.	Depth Fms.	Date. Cast Out.	Date. Recovered.	Number of days Adrift.	Distance in miles between Positions.	Mean Drift in miles per 100 days.	Direction. True.	Areas.
1	58·9 N. 1·50 W.	57·35 N. 1·17 W.	52	Aug. 7, 1910	Aug. 19, 1913	1,109	33	3·0	S.-27 E.	66, 76
2	58·36 N. 1·46 W.	58·45 N. 1·42 W.	60	,,	Feb. 27, 1911	204	9	4·4	N.-12 E.	57
3A	59·10 N. 1·27 W.	58·43 N. 1·00 W.	62	Aug. 8, 1910	Sept. 27, 1910	50	30	60·0	S.-26 E.	48, 57
3B	,, ,,	58·50 N. 1·34 W.	63	,,	April 14, 1912	615	20	3·0	S.-10 W.	48, 57
5A	59·40 N. 1·14 W.	59·45 N. 1·20 W.	56	,,	Oct. 21, 1910	74	5	7·0	N.-30 W.	39
5C	,, ,,	59·27 N. 1·25 W.	55	,,	Oct. 18, 1910	71	14	20·0	S.-24 W.	39, 48
5E	,, ,,	59·39 N. 1·20 W.	58	,,	Sept. 7, 1910	30	3	—	S.-72 W.	39
6A	59·46 N. 2·21 W.	59·33 N. 1.45 W.	50	,,	Sept. 11, 1910	34	22	65·0	S.-54 E.	38, 39
6F	,, ,,	58·26 N. 1·38 W.	67	,,	Sept. 2, 1912	756	83	11·0	S.-15 E.	56, 66
10	60·40 N. 1·27 W.	60·46 N. 1·16 W.	55	Aug. 15, 1910	Nov. 26, 1910	103	8	8·0	N.-43 E.	21
12	59·26 N. 4·7 W.	59·17 N. 3·47 W.	79	Aug. 19, 1910	Nov. 27, 1911	465	14	3·0	S.-41 E.	46
13	59·14 N. 4·57 W.	59·1 N. 4·27 W.	34	,,	Feb. 5, 1911	170	30	18·0	S.-49 E.	C4 & D2
17	57·57 N. 8·11 W.	58·0 N. 8·15 W.	58	Aug. 25, 1910	June 14, 1911	293	3·7	1·3	N.-35 W.	St. Kilda Is. S2
20A	56·20 N. 1·49 W.	56·0 N. 2·0 W.	35	Sept. 6, 1910	Dec. 19, 1910	104	21·0	20·0	S.-17 W.	108
20B	,, ,,	56·10 N. 2·5 W.	—	,,	Dec. 29, 1910	114	13·0	11·0	S.-42 W.	108, 107
20E	,, ,,	56·0 N. 4·0 E.	31	,,	Oct. 27, 1912	782	196	25·0	S.-84 E.	108, 109, 110, 111, 112, 113
21	56·24 N. 1·21 W.	56·0 N. 1·55 W.	35	Sept. 7, 1920	Dec. 22, 1910	106	31	29·0	S.-38 W.	108
22A	56·28 N. 0·53 W.	56·12 N. 2·12 W.	28	,,	Aug. 17, 1911	324	47	15·0	S.-70 W.	107, 108, 109
22B	,, ,,	56·17 N. 1·45 W.	—	,,	April 26, 1911	231	34	15·0	S.-71 W.	108, 109
25	56·48 N. 1·19 E.	56·34 N. 1·52 E.	54	Sept. 9, 1910	Nov. 20, 1910	72	23	32·0	S.-53 E.	100
26A	57·24 N. 1·07 E.	58·40 N. 2·20 E.	60	,,	Dec. 1, 1910	83	85	102·0	N.-27 E.	61 70, 79, 89
26B	,, ,,	58·33 N. 1·40 E.	64	,,	Nov. 20, 1910	72	61	85·0	N.-16 E.	69, 79, 89
27A	57·59 N. 0·57 E.	58·32 N. 1·10 E.	72	,,	Dec. 19, 1910	101	34	34·0	N.-12 E.	60, 69
27B	,, ,,	58·20 N. 1·15 E.	70	,,	April 25, 1913	959	23	2·4	N.-24 E.	69, 78
27C	,, ,,	58·20 N. 0·30 E.	82	,,	July 10, 1913	1,035	25	2·4	N.-34 W.	68
27D	,, ,,	58·47 N. 1·52 E.	69	,,	Jan. 19, 1911	132	56	42·0	N.-31 E.	60, 69
28A	58·42 N. 1·44 E.	59·15 N. 1·3 E.	65	,,	Jan. 8, 1911	121	39	32·0	N.-32 W.	57, 60
28B	,, ,,	58·45 N. 2·25 E.	62	,,	Feb. 15, 1911	159	21	13·0	N.-82 E.	60, 61

29	58·34 N.	0·47 E.	58·55 N.	1·00 E.	74	Sept. 10, 1910	April 25, 1911	227	22	10·0	N.-17 E.	59
30A	58·26 N.	0·8 W.	58·10 N.	0·30 W.	68	,,	May 30, 1912	628	20	3·2	S.-36 W.	67
30B	,,	,,	58·20 N.	0·20 E.	82	,,	Sept. 24, 1911	379	16	4·0	S.-68 E.	67, 68
32A	58·8 N.	2·0 W.	57·2 N.	1·55 W.	—	,,	Dec. 26, 1910	107	46	62·0	S.-2 E.	66, 76, 86
32B	,,	,,	57·26 N.	1·30 W.	44	,,	May 10, 1911	242	38	16·0	S.-25 E.	76, 86
33A	58·0 N.	2·54 W.	57·50 N.	2·50 W.	50	,,	March 20, 1911	191	10	5·0	S.-11 E.	65, 74
33B	,,	,,	57·55 N.	3·5 W.	35	,,	April 20, 1912	588	8	1·0	S.-49 W.	74, 75
34	59·6 N.	1·9 W.	59·4 N.	1·10 W.	62	Sept. 15, 1910	Oct. 25, 1910	40	2	5·0	S.-14 W.	48
35A	59·18 N.	1·5 W.	57·44 N.	0·30 W.	62	,,	Aug. 23, 1913	1,073	96	8·9	S.-11 E.	48, 58, 67, 77
35B	,,	,,	59·32 N.	0·55 W.	65	,,	Oct. 27, 1910	42	15	36·0	N.-20 E.	48, 49
36	59·30 N.	1·00 W.	59·30 N.	0·50 W.	72	,,	Oct. 14, 1910	29	5	17·0	East	40, 49
38A	59·35 N.	0·38 W.	59·49 N.	0·41 W.	71	Sept. 16, 1910	Oct. 24, 1910	38	14	37·0	N.-6 W.	40
38B	,,	,,	59·42 N.	0·30 W.	75	,,	Oct. 26, 1010	40	8	20·0	N.-31 E.	40
38C	,,	,,	57·51 N.	0·4 E.	72	,,	Nov. 2, 1912	779	106	13·6	S.-12 E.	40, 49, 58, 67
39	58·12 N.	0·13 E.	58·25 N.	0·45 E.	60	Sept. 27, 1910	Jan. 11, 1911	106	22	21·0	N.-52 E.	69
42	56·16 N.	2·17 W.	56·7 N.	1·10 W.	34	Dec. 7, 1910	Aug. 13, 1911	249	38	15·2	S.-76 E.	107, 108
43	56·20 N.	1·49 W.	56·25 N.	2·35 W.	7	,,	Nov. 14, 1911	342	26	8·8	N.-79 W.	107, 108
44A	56·24 N.	1·21 W.	56·8 N.	1·48 W.	28	,,	Dec. 13, 1911	371	31	8·0	S.-29 W.	108
44B	,,	,,	56·18 N.	1·26 W.	35	,,	June 27, 1911	202	7	3·0	S.-24 W.	108
45A	56·28 N.	0·53 W.	56·30 N.	2·5 W.	30	,,	Oct. 15, 1911	312	40	13·0	N. 87 W.	107, 108, 109
45B	,,	,,	56·8 N.	1·15 W.	31	,,	May 10, 1912	520	23	4·4	S.-31 W.	108, 109
49A	57·24 N.	1·7 E.	58·10 N.	0·50 E.	85	Dec. 8, 1910	Dec. 23, 1911	380	17	4·0	N.-12 W.	68, 78, 89
49B	,,	,,	58·42 N.	2·0 E.	65	,,	June 30, 1911	204	83	41·0	N.-20 E.	60, 69, 79, 89
49C	,,	,,	58·34 N.	1·25 E.	70	,,	April 26, 1913	504	70	13·9	N.-8 E.	69, 79, 89
50A	56·16 N.	2·17 W.	56·20 N.	2·40 W.	9	Feb. 10, 1911	Nov. 26, 1911	289	14	5·0	N.-73 W.	107
50B	,,	,,	56·19 N.	2·17 W.	31	,,	June 27, 1911	137	3	2·6	North	107
51A	56·20 N.	1·49 W.	56·22 N.	1·53 W.	27	,,	May 25, 1911	104	3	3·0	N.-45 W.	108
51B	,,	,,	56·25 N.	2·10 W.	28	,,	March 30, 1911	48	13	27·0	N.-65 W.	107, 108
51C	,,	,,	56·8 N.	2·15 W.	32	,,	May 30, 1911	109	19	17·0	S.-50 W.	107, 108
51D	,,	,,	56·25 N.	2·35 W.	7	,,	Nov. 25, 1911	288	26	9·0	N.-79 W.	107, 108
52A	56·24 N.	1·21 W.	56·22 N.	1·35 W.	31	,,	June 6, 1911	116	8	7·0	S.-76 W.	108
52B	,,	,,	56·13 N.	1·48 W.	30	,,	May 10, 1911	89	19	21·0	S.-37 W.	108
52C	,,	,,	55·50 N.	1·45 W.	35	,,	Oct. 14, 1913	977	37	4·0	S.-23 W.	108, 118
53A	56·28 N.	0·53 W.	56·19 N.	1·15 W.	44	Feb. 11, 1911	July 18, 1911	157	15	9·0	S.-54 W.	108, 109
53B	,,	,,	,,	,,	40	,,	July 14, 1911	153	15	10·0	S.-54 W.	108, 109
55	56·42 N.	0·35 E.	56·50 N.	1·0 E.	57	,,	July 27, 2912	532	16	3·0	N.-60 E.	99
57A	57·24 N.	1·7 E.	58·30 N.	1·30 E.	65	,,	March 19, 1915	767	67	8·7	N.-10 E.	69, 79, 89
57B	,,	,,	58·28 N.	1·10 E.	75	,,	July 17, 1911	156	64	41·0	N.-1 E.	69, 79, 89
57C	,,	,,	58·50 N.	2·0 E.	65	,,	Jan. 20, 1915	709	91	12·8	N.-18 E.	60, 69, 79, 89
58	57·59 N.	0·57 E.	58·18 N.	1·25 E.	67	Feb. 12, 1911	April 7, 1911	54	24	44·0	N.-38 E.	68, 69.

TABLE Ib.—*continued.*

Ref. No.	Position. Cast Out.	Position. Recovered.	Depth Fms.	Date. Cast Out.	Date. Recovered.	Number of days Adrift.	Distance in miles between Positions.	Mean Drift in miles per 100 days.	Direction. True.	Areas.
59A	58·42 N. 1·44 E.	58·24 N. 0·53 E.	84	Feb. 12, 1911	Dec. 8, 1912	665	33	4·9	S.-57 W.	60, 68
59B	,, ,,	58·52 N. 2·00 E.	60	,,	Dec. 21, 1911	320	13	4·0	N.-39 E.	60
59C	,, ,,	58·38 N. 2·10 E.	57	,,	April 17, 1912	430	14	3·4	S.-16 E.	60, 61
59D	,, ,,	58·42 N. 1·44 E.	84	,,	Jan. 5, 1913	693	30	5·5	N.-80 W.	59, 60
59E	,, ,,	58·7 N. 1·13 E.	65	,,	March 21, 1912	403	39	10·0	S.-25 W.	60, 69
61A	58·26 N. 0·8 W.	58·39 N. 0·52 E.	67	,,	July 2, 1911	140	27	19·0	N.-61 W.	57, 67
61B	,, ,,	58·20 N. 0·35 W.	70	,,	March 11, 1912	393	15	4·0	S.-67 W.	67
62	58·27 N. 1·3 W.	58·28 N. 0·3 E.	73	,,	March 12, 1912	394	37	9·0	N.-72 E.	67
63	58·8 N. 2·0 W.	58·0 N. 0·47 W.	60	Feb. 13, 1911	Aug. 25, 1911	193	10	5·0	S.-41 E.	66
64	58·0 N. 2·54 W.	57·55 N. 2·55 W.	43	,,	March 18, 1911	33	5	15·0	S.-6 W.	75
65	58·10 N. 2·55 W.	58·12 N. 3·0 W.	31	Feb. 18, 1911	April 18, 1911	59	3	6	N.-51 W.	66
66A	57·56 N. 2·27 W.	5 ·48 N. 2·29 W.	48	,,	Sept. 20, 1911	213	8	4	S.-5 W.	75
66B	,, ,,	57·45 N. 2·33 W.	52	,,	Oct. 27, 1911	250	12	5	S.-12 W.	75
66C	,, ,,	57·48 N. 2·29 W.	4	,,	Sept. 21, 1911	214	8	4	S.-5 W.	75
68A	58·10 N. 2·55 W.	57·50 N. 3·00 W.	49	March 14, 1911	Feb. 10, 1912	333	20	6·0	S.-83 W.	65, 75
8B	,, ,,	58·8 N. 3·16 W.	29	,,	Feb. 21, 1912	344	11	3·0	S.-80 W.	64, 65
69A	56·19 N. 1·55 W.	56·17 N. 1·45 W.	—	March 21, 1911	April 26, 1911	36	6	17·0	S.-71 E.	108
69B	,, ,,	56·11 N. 1·45 W.	30	,,	May 12, 1911	50	10	19·0	S.-34 E.	108
69C	,, ,,	56·12 N. 2·10 W.	30	,,	July 5, 1911	106	11	10·0	S.-49 W.	107, 108
69D	,, ,,	56·20 N. 2·15 W.	—	,,	July 10, 1912	386	11	2·8	N.-85 W.	107, 108
69E	,, ,,	56·16 N. 1·53 W.	—	,,	April 30, 1911	40	3	8·0	S.-20 E.	108
70A	56·22 N. 1·33 W.	56·24 N. 1·25 W.	30	March 28, 1911	April 28, 1911	31	5	16·0	N.-67 E.	108
70B	,, ,,	55·50 N. 1·45 W.	32	,,	Aug. 13, 1912	504	33	6·5	S.-12 W.	108, 118
70C	,, ,,	56·17 N. 1·28 W.	33	,,	May 20, 1911	53	6	11·0	S.-29 E.	108
70D	,, ,,	56·16 N. 1·36 W.	32	,,	Sept. 4, 1911	160	6	4·0	S.-17 W.	108
70E	,, ,,	56·16 N. 1·30 W.	34	,,	Sept. 10, 1911	166	6	4·0	S.-17 E.	108
70F	,, ,,	56·17 N. 1·23 W.	35	,,	May 25, 1911	58	7	13·0	S.-48 E.	108
71A	56·40 N. 1·20 W.	56·5 N. 1·47 W.	35	,,	Nov. 29, 1911	246	38	15·0	S.-23 W.	97, 108
71B	,, ,,	56·17 N. 2·15 W.	—	,,	Dec. 13, 1911	260	23	9·0	S.-7 E.	97, 107, 108
74A	56·46 N. 1·38 W.	56·50 N. 2·7 W.	30	March 29, 1911	June 6, 1911	69	16	24·0	N.-76 W.	97

74B	,,	,,	56·21 N.	2·0 W.	28	,,	Aug. 10, 1911	134	28	21·0	S.-26 W.	97, 108
74C	,,	,,	57·0 N.	1·50 W.	55	,,	Dec. 11, 1911	257	15	6·0	N.-25 W.	97
74D	,,	,,	57·16 N.	1·48 W.	33	,,	Nov. 14, 1911	230	30	13·0	N.-10 W.	86, 97
75A	57·0 N.	1·10 W.	56·47 N.	1·29 W.	30	,,	May 14, 1911	46	17	37·0	S.-39 W.	97
75B	,,	,,	55·51 N.	2·7 W.	40	,,	April 20, 1912	387	71	18·0	S.-27 W.	7, 107, 108
76A	58·9 N.	1·50 W.	58·10 N.	1.30 W.	54	April 8, 1911	Jan. 3, 1912	270	10	3·7	East	66
76B	,,	,,	58·0 N.	2·8 W.	45	,,	Feb. 10, 1913	674	13	2·0	S.-45 W.	65, 66
77A	58·24 N.	2·0 W.	58·0 N.	1·45 W.	57	,,	Aug. 22, 1911	136	25	18·0	S.-18 E.	66
77B	,,	,,	57·55 N.	3·0 W.	40	,,	Feb. 9, 1913	673	36	5·3	S.-37 W.	65, 75
77C	,,	,,	58·10 N.	1·17 W.	54	,,	May 11, 1911	33	27	82·0	S.-58 E.	66
77D	,,	,,	57·54 N.	1·40 W.	50	,,	Aug 20, 1911	134	32	24·0	S.-20 E.	66, 76
77E	,,	,,	57·42 N.	1·35 W.	54	,,	May 27, 1913	780	44	5·6	S.-17 E.	66, 76
77F	,,	,,	58·4 N.	1·43 W.	57	,,	Feb. 17, 1913	681	22	3·2	S.-25 E.	66
78A	,,	2·19 W.	57·50 N.	3·0 W.	—	,,	Sept. 24, 1913	900	41	4·5	S.-31 W.	65
78B	,,	,,	57·46 N.	3·30 W.	18	,,	Feb. 14, 1913	678	54	7·9	S.-45 W.	65, 74
79A	,,	2·39 W.	57·50 N.	3·15 W.	32	April 9, 1911	April 10, 1912	367	39	11·0	S.-29 W.	15, 74
79B	,,	,,	58·20 N.	2·39 W.	29	,,	Aug. 6, 1911	119	4	3·0	South	65
80	,,	,,	58·20 N.	2·35 W.	30	,,	July 10, 1912	458	4	0·9	S.-28 E.	65
81	,,	3·0 W.	58·10 N.	3·10 W.	35	,,	March 7, 1913	697	15	2·1	S.-20 W.	64
82	58·31 N.	2·48 W.	58·32 N.	2·37 W.	37	,,	May 28, 1913	780	6	0·8	N.-80 E.	56
86A	59·20 N.	1·3 W.	59·17 N.	0·42 W.	70	April, 11, 1911	Oct. 10, 1912	548	11	2·0	S.-74 E.	48, 49
86B	,,	,,	59·41 N.	1·18 W.	53	,,	May 12, 1911	31	22	73·0	N.-21 W.	39, 48
93A	58·17 N.	2·0 W.	56·14 N.	2·7 W.	—	April 25, 1911	Sept. 29, 1911	159	5	3·0	S.-53 W.	107
93B	,,	,,	56·19 N.	1·42 W.	27	,,	Feb. 3, 1912	284	10	4·0	N.-78 E.	108
93C	,,	,,	56·13 N.	2·00 W.	22	,,	Aug. 19, 1913	847	4	0·5	South	107, 108
93D	,,	,,	56·20 N.	1·50 W.	25	,,	Sept. 2, 1913	860	6	0·7	N.-62 E.	108
113	58·6 N.	2·30 W.	58·21 W.	1·54 W.	45	May 23, 1911	Dec. 19, 1911	210	24	11·0	N.-52 E.	65, 66
115	58·34 N.	0·47 E.	58·20 N.	0·40 E.	82	May 24, 1911	March 15, 1912	295	14	4·9	S.-15 W.	59, 68
116	58·42 N.	·144 E.	58·40 N.	1·25 E.	71	,,	Feb. 24, 1912	276	10	4·0	S.-79 W.	60
117A	57·59 N.	0·57 E.	57·45 N.	0·50 E.	58	,,	Dec. 29, 1911	219	14	7·0	S.-15 W.	78
117B	,,	,,	57·53 N.	1·5 E.	60	,,	March 3, 1913	649	7	1·1	S.-34 E.	78, 79
122	56·28 N.	0·53 W.	56·18 N.	0·55 W.	45	May 25, 1911	July 28, 1912	430	10	2·3	S.-6 W.	109
124A	56·16 N.	2·17 W.	56·20 N.	1·58 W.	30	,,	June 29, 1911	35	23	66·0	N.-80 E.	107
124B	,,	,,	56·14 N.	2·7 W.	26	,,	Sept. 25, 1911	123	6	5·0	S.-70 E.	107
125A	58·26 N.	0·8 W.	58·48 N.	0·25 W.	74	June 1, 1911	March 14, 1912	287	24	8·0	N.-22 W.	58, 67
125B	,,	,,	58·43 N.	0·35 W.	68	,,	May 31, 1913	730	22	3·0	N.-40 W.	57, 67
127	,,	0·6 W.	58·26 N.	0·44 W.	70	June 10, 1911	Jan. 4, 1912	208	20	10·0	West	67
130A	59·26 N.	1·20 W.	59·15 N.	1·42 W.	53	July 6, 1911	Oct. 1, 1911	87	16	18·0	S.-44 W.	48
130B	,,	,,	59·21 N.	1·18 W.	55	,,	Feb. 7, 1912	216	5	2·0	S.-12 E.	48
131	59·40 N.	1·14 W.	59·25 N.	1·7 W.	64	,,	Feb. 21, 1913	596	15	2·5	S.-13 E.	39, 48

TABLE II.—Trawled Drift Bottles.—Summary of Results.

Area.	1st Experiment. A. June 1906 to January 1909. See 4th Report, Northern Area. Resultant. Direction.	Mean drift in miles per 100 days.	Number of Observations from which resultant has been obtained.	1st Experiment. B. Additional Bottles Recovered, January 1909 to October 1913. Resultant. Direction.	Mean drift in miles per 100 days.	Number of Observations from which resultant has been obtained.	2nd Experiment. C. August 1910 to October 1913. Resultant. Direction.	Mean drift in miles per 100 days.	Number of Observations from which resultant has been obtained.	*See also Chart III.* D. A. & C. Combined. Resultant. Direction.	Mean drift in miles per 100 days.	Number of Observations from which resultant has been obtained.
16	S.-51 W.	58·6	1	—	—	—	—	—	—	—	—	—
17	S.-51 W.	58·6	1	—	—	—	—	—	—	—	—	—
21	—	—	—	—	—	—	N.-43 E.	8	1	—	—	—
24	S.-51 W.	58·6	1	—	—	—	—	—	—	—	—	—
25	N.-20 E.	28·0	1	—	—	—	—	—	—	—	—	—
28	—	—	—	—	—	—	East.	12·4	1	—	—	—
31	S.-5 E.	33·3	3	—	—	—	—	—	—	—	—	—
32	S.-52 W.	24·3	3	—	—	—	—	—	—	—	—	—
34	N.-36 E.	47·3	1	S.-2 W.	3	2	—	—	—	—	—	—
38	—	—	—	—	—	—	S.-60 E.	37	2	—	—	—
39	S.-22 W.	10·4	7	S.-4 E.	5	4	S.-38 E.	12	6	S.-10 E.	9·5	13
40	S.-22 W.	11·3	8	—	—	—	N.-44 E.	11	5	S.-54 E.	2·0	13
41	S.-30 E.	10·3	6	S.-59 W.	0·5	4	—	—	—	—	—	—
42	S.-20 E.	5·8	2	S.-23 E.	1·5	2	—	—	—	—	—	—
C4	—	—	—	—	—	—	S.-49 E.	18·0	1	—	—	—
46	—	—	—	—	—	—	S.-41 E.	3·0	1	—	—	—
48	S.-22 W.	11·7	17	S.-3 E.	4·3	6	S.-16 E.	7·6	11	S.-7 W.	9·1	28
49	S.-74 W.	17·0	5	S.-44 E.	2·7	5	N.-60 E.	10·0	4	S.-88 W.	3·5	9
50	N.-89 W.	9·7	4	N.-54 W.	1·9	2	—	—	—	—	—	—
51	—	—	—	S.-23 E.	3·1	2	N.-32 W.	32·0	1	—	—	—
D2	—	—	—	—	—	—	S.-49 E.	18·0	1	—	—	—
56	—	—	—	—	—	—	S.-19 E.	5·5	2	—	—	—

57	S.-26 E.	11·5	26	S.-7 E.	3·0	12	S.-11 E.	8·4	5	S.-20 E.	9·8	31
58	S.-63 E.	10·0	7	S.-41 E.	2·4	8	S.-6 E.	4·9	3	S.-45 E.	6·6	10
59	S.-86 E.	2·1	6	N.-3 W.	1·3	6	N.-33 W.	2·3	3	N.-45 W.	0·5	9
60	N.-66 E.	11·0	3	N.-11 E.	5·2	4	N.-12 E.	11·7	12	N.-38 E.	10·0	15
61	—	—	—	—	—	—	N.-34 E.	36·0	3	—	—	—
64	S.-7 W.	7·0	1	—	—	—	S.-57 W.	2·2	2	S.-18 W.	4·3	3
65	S.-35 W.	6·3	4	N.-62 E.	1·6	4	S.-30 W.	3·0	11	S.-33 W.	4·6	15
66	S.-32 E.	14·0	21	S.-28 E.	1·8	10	S.-33 E.	15·0	12	S.-32 E.	14·4	33
67	S.-26 E.	10·3	17	S.-43 E.	2·0	8	S.-73 W.	2·1	10	S.-19 E.	6·0	29
68	N.-54 E.	12·3	7	N.-32 E.	2·8	8	N.-40 E.	6·5	6	N.-49 E.	9·3	13
69	N.-34 E.	11·3	6	N.-16 E.	4·3	6	N.-21 E.	27·0	12	N.-25 E.	19·1	18
70	N.-37 E.	30·7	1	—	—	—	N.-27 E.	102·0	1	N.-29 E.	66·0	2
74	S.-62 W.	12·1	5	S.-86 E.	0·9	1	S.-27 W.	5·7	4	S.-51 W.	8·5	9
75	S.-60 W.	10·3	6	S.-4 E.	1·2	4	S.-22 W.	5·0	7	S.-48 W.	7·3	13
76	S.-18 E.	18·7	8	S.-79 E.	1·3	7	S.-11 E.	22·0	5	S.-15 E.	20·4	13
77	S.-40 E.	13·6	15	S.-75 E.	2·8	10	S.-11 E.	8·9	1	S.-28 E.	10·8	16
78	N.-58 E.	21·7	3	N.-84 E.	1·5	4	N.-81 W.	0·3	4	N.-58 E.	10·7	7
79	N.-32 E.	22·0	4	N.-2 E.	7·0	3	N.-18 E.	38·0	8	N.-23 E.	30·0	12
80	N.-55 E.	25·0	1	—	—	—	—	—	—	—	—	—
81	N.-55 E.	25·0	1	—	—	—	—	—	—	—	—	—
86	S.-28 W.	23·3	6	N.-15 E.	1	2	S.-6 E.	21·0	3	S.-12 W.	21·2	9
87	S.-57 E.	2·2	7	—	—	—	—	—	—	—	—	—
88	N.-28 E.	11·0	6	—	—	—	—	—	—	—	—	—
89	N.-42 E.	16·0	4	N.-57 E.	1·1	2	N.-18 E.	38·0	8	S.-43 E.	16·5	12
97	S.-76 W.	9·5	8	—	—	—	S.-49 W.	12·0	8	S.-73 W.	9·6	16
96	—	—	—	—	—	—	N.-76 W.	24·0	1	—	—	—
98	S.-65 W.	8·6	12	West	0·2	1	—	—	—	—	—	—
99	S.-43 W.	7·0	5	—	—	—	N.-60 E.	3·0	1	S.-31 W.	2·1	6
100	N.-14 E.	1·8	4	S.-16 E.	6·0	1	S.-53 E.	32 0	1	S.-56 E.	15·7	5
107	S.-63 W.	12·3	13	S.-58 W.	2·1	5	S.-79 W.	9·0	18	S.-70 W.	10·5	31
108	S.-58 W.	13·6	24	S.-28 W.	0·7	6	S.-41 W.	4·0	38	S.-54 W.	8·7	62
109	S.-61 W.	12·1	8	S.-41 W.	2·4	2	S.-49 W.	5·6	8	S.-57 W.	8·8	16
110	—	—	—	—		—	S.-84 E.	25·0	1		—	—
111	S.-3 W.	28·3	1	S.-16 E.	6·0	1	S.-84 E.	25·0	1		—	—
119		—	—	S.-10 E.	5·0	1	S.-84 E.	25·0	1			
118	—	—	—	—		—	S.-12 W.	6·5	1			
129		-		S.-10 E.	5·0	1						

TABLE IIIB.—SECOND EXPERIMENT.—DRIFTS OF LESS THAN THIRTY DAYS DURATION.

Ref. No.	Where put Away.		Where Recovered.		Depth of Water	When put away.	When Recovered.	No of Days Adrift.	Distance between Positions.	Direction.
	Lat.	Long.	Lat.	Long.						
75A	57·0 N.	1·10 W.	57·6 N.	1·17 W.	33	March 29, 1911	April 13, 1911	15	7	N.-31 W.
75B	,,	,,	57·2 N.	1·20 W.	33	,,	,,	15	6	N.-70 W.
112	57·31 W.	1·12 W.	56·48 N.	1·00 W.	40	May 20, 1911	May 22, 1911	2	43	S.-9 E.
68A	58·10 N.	2·55 W.	58·10 N.	2·50 W.	24	March 14, 1911	April 2, 1911	19	22	East.
68B	,,	,,	58·6 N.	3·10 W.	32	,,	March 29, 1911	15	9	S.-63 W.
64	58·0 N.	2·54 W.	58·0 N.	2·50 W.	35	Feb. 13, 1911	Feb. 14, 1911	1	2	East·
78	58·24 N.	2·19 W.	58·19 N.	2·35 W.	36	April 8, 1911	April 13, 1911	5	10	S.-60 W.
22	56·40 N.	1·20 W.	56·37 N.	1·34 W.	30	March 28, 1911	April 18, 1911	21	8	S.-69 W.
71A	,,	,,	56·46 N.	1·30 W.	—	,,	April 25, 1911	28	8	N.-42 W.
71B	,,	,,	56·37 N.	1·22 W.	38	,,	April 26, 1911	29	3	S.-70 W.
42A	56·16 N.	2·17 W.	56·20 N.	2·15 W.	26	Dec. 7, 1910	Dec. 30, 1910	23	4	N.-14 E.
42B	,,	,,	56·19 N.	2·18 W.	28	,,	,,	23	3	N.-11 W.
47A	56·42 N.	0·35 E.	56·46 N.	0·30 E.	—	Dec. 8, 1910	Dec. 8, 1910	0	5	N.-24 W.
47B	,,	,,	,,	,,	—	,,	,,	0	5	N.-24 W.
69	56·19 N.	1·55 W.	56·13 N.	2·00 W.	25	March 21, 1911	March 29, 1911	8	6	S.-25 W.
69	,,	,,	56·33 N.	2·3 W.	27	,,	March 2, 1911	12	14	N.-18 W.
44	56·24 N.	1·21 W.	56·37 N.	1·34 W.	40	Dec. 7, 1910	Dec. 12, 1910	5	15	N.-29 W.
73	56·53 N.	2·2 W.	57·0 N.	1·32 W.	40	March 29, 1911	March 1, 1911	3	18	N.-66 E.
22	56·28 N.	0·53 W.	56·30 N.	1·3 W.	38	Sept. 7, 1910	Sept. 16, 1910	9	6	N.-10 W.

TABLE IVa.—First Experiment.—Additional Bottles Stranded on Scottish Coast.

Ref. No.	Position.				Date.		Number of Days.	Distance between Positions.	Drift per 100 days.	Direction.
	Where put Away.		Where Recovered.		When put Away.	When Recovered.				
	Lat.	Long.	Lat.	Long.						
222	60·05 N.	0·48 W.	60·38 N. Shetland	1·22 W. Islands.	Aug. 7, 1907	May 9, 1909	641	77	12	—
213	60·37 N.	0·30 E.	60·12 N. Shetland	1·10 W. Islands.	May 25, 1907	March 26, 1909	670	56	8	—
221	58·22 N.	2·42 W.	57·41 N. Lossie	3·12 W. mouth.	July 16, 1907	May 2, 1909	656	44	7	S.-21 W
210	57·42 N.	1·2 W.	57·23 N. Cruden	1·52 W. Bay.	Sept. 2, 1907	March 8, 1909	553	33	6	S.-55 W.
214	59·39 N.	1·13 W.	57·39 N. Rattray	1·46 W. Head.	Aug. 22, 1906	March 31, 1909	951	124	13	—
317	59·26 N.	1·20 W.	57·17 N. River	2·00 W. Ythan.	June 12, 1906	May 17, 1913	2,525	130	5	S.-10 W.
215	59·4 N.	1·36 W.	56·19 N. Fife	2·37 W. ness.	Nov. 20, 1906	April 3, 1909	865	179	21	Southerly
268	58·32 N.	1·37 W.	56·18 N. Fife	5·37 W. ness.	Feb. 12, 1907	July 15, 1910	1,249	125	10	Southerly
276	56·20 N.	2·48 W.	St. Andrews.		July 25, 1907	Oct. 24, 1910	1,187	31	3	N.-89 W.
286	58·2 N.	2·45 W.	56·17 N. Fife	2·35 W. ness.	July 22, 1907	March 28, 1911	1,313	135	10	Southerly
308	56·28	0·53 W.	56·22 N. River	2·47 W. Eden, Fife	April 5, 1907	Oct. 6, 1912	2,011	64	3	S.-85 W.

TABLE IVB.—Second Experiment.—Bottles Stranded on Scottish Coast.

Ref. No.	Position. Cast Out.	Position. Recovered.	Date. Cast Out.	Date. Recovered.	Days Adrift.	Distance between Positions.	Direction. True.	Areas.
7B	60·2 N. 3·10 W.	Cunningsburgh, Shetland.	August 8, 1910	Sept. 16, 1913	1,134	86	East	Group I., Scottish Coasts.
7K	,, ,,	Hillswick Ness, Shetland.	,,	Oct. 26, 1912	810	56	N.-63 E.	
—	,, ,,	Unst, Shetland.	,,	July 7, 1912	718	89	East	
8	60·10 N. 3·35 W.	Sinclair Bay, Wick.	,,	Nov. 24, 1911	473	120	Southerly	
19	58·24 N. 7·13 W.	Veira Island, Orkney Isles.	August 26, 1910	Dec. 28, 1912	855	138	N.-71 E.	
14	8 mls. S.E. from Tiumpan Hd. (Minch)	Rowsa Island, Orkney Isles.	August 20, 1910	May 27, 1912	646	100	Easterly	
11	59·40 W. 3·3 W.	Tarasta, Skeld Voe, Shetland.	August 19, 1910	June 5, 1913	1,021	60	N.-60 E.	
13	59·14 N. 4·57 W.	Burra Isle, Shetland.	,,	Feb. 6, 1911	171	120	N.-64 E.	
6	59·46 N. 2·21 W.	River Ythan, Aberdeen.	August 8, 1910	March 20, 1911	224	148	S.-4 E.	
63	58·8 N. 2·0 W.	,,	Feb. 13, 1911	Dec. 12, 1911	302	51	South	Group II.
65	58·10 N. 2·55 W.	Nairn.	Feb. 18, 1911	Dec. 26, 1911	321	45	S.-51 W.	
76	58·9 N. 1·50 W.	River Tyne.	April 8, 1911	June 28, 1911	81	190	S.-4 E.	
79A	58·24 N. 2·39 W.	Grimness Hd., Orkney.	April 9, 1911	Jan. 13, 1912	279	22	N.-22 W.	
79C	,, ,,	Lybster, Caithness.	,,	,,	313	22	S.-74 W.	
67A	57·41 N. 2·00 W.	Rattray Bay.	Feb. 19, 1911	March 16, 1911	25	7	S.-47 E.	
67B	,, ,,	Rattray Head.	,,	Oct. 17, 1911	240	9	S.-50 E.	
67C	,, ,,	Peterhead.	,,	March 17, 1911	26	10	S.-56 E.	
67D	,, ,,	,,	,,	March 15, 1911	24	10	,,	
67E	,, ,,	North Berwick.	,,	April 8, 1911	48	101	S.-14 W.	
42C	56·16 N. 2·17 W.	Tentsmuir (Fife).	Dec. 7, 1910	March 5, 1911	88	19	N.-63 W.	Group III.

42D		,,	Carnoustie Bay.	,,	Feb. 24, 1911	79	19	N.-43 W.
50A	,,	,,	Crail (Fife).	Feb. 10, 1911	Oct. 5, 1911	237	11	West
50B	,,	,,	Fifeness (Fife).	,,	April 9, 1911	58	11	S.-22 W.
50C	,,	,,	,,	,,	March 18, 1911	36	11	,,
21A	56·24 N.	1·21 W.	Newton Beach, Northumberland.	Sept. 7, 1910	Jan. 5, 1911	120	60	Southerly
21B	,,	,,	Holy Island, Northumberland.	,,	March 1, 1911	175	48	,,
72A	56·32 N.	2·22 W.	Lunan Bay, near Montrose.	March 29, 1911	April 20, 1911	22	13	North
72B	,,	,,	,,	,,	April 23, 1911	25	13	,,
72C	,,	,,	Fifeness.	,,	April 20, 1911	22	18	S.-20 W.
20	56·20 N.	1·49 W.	,,	Sept. 6, 1910	March 5, 1911	180	26	S.-7 W.
53	56·28 N.	0·53 W.	Lunan Bay.	Feb. 11, 1911	Jan. 16, 1913	705	55	N.-77 W.
74	56·26 N.	1·38 W.	7 mls. North of Aberdeen.	March 29, 1911	July 7, 1911	101	32	N.-23 W.

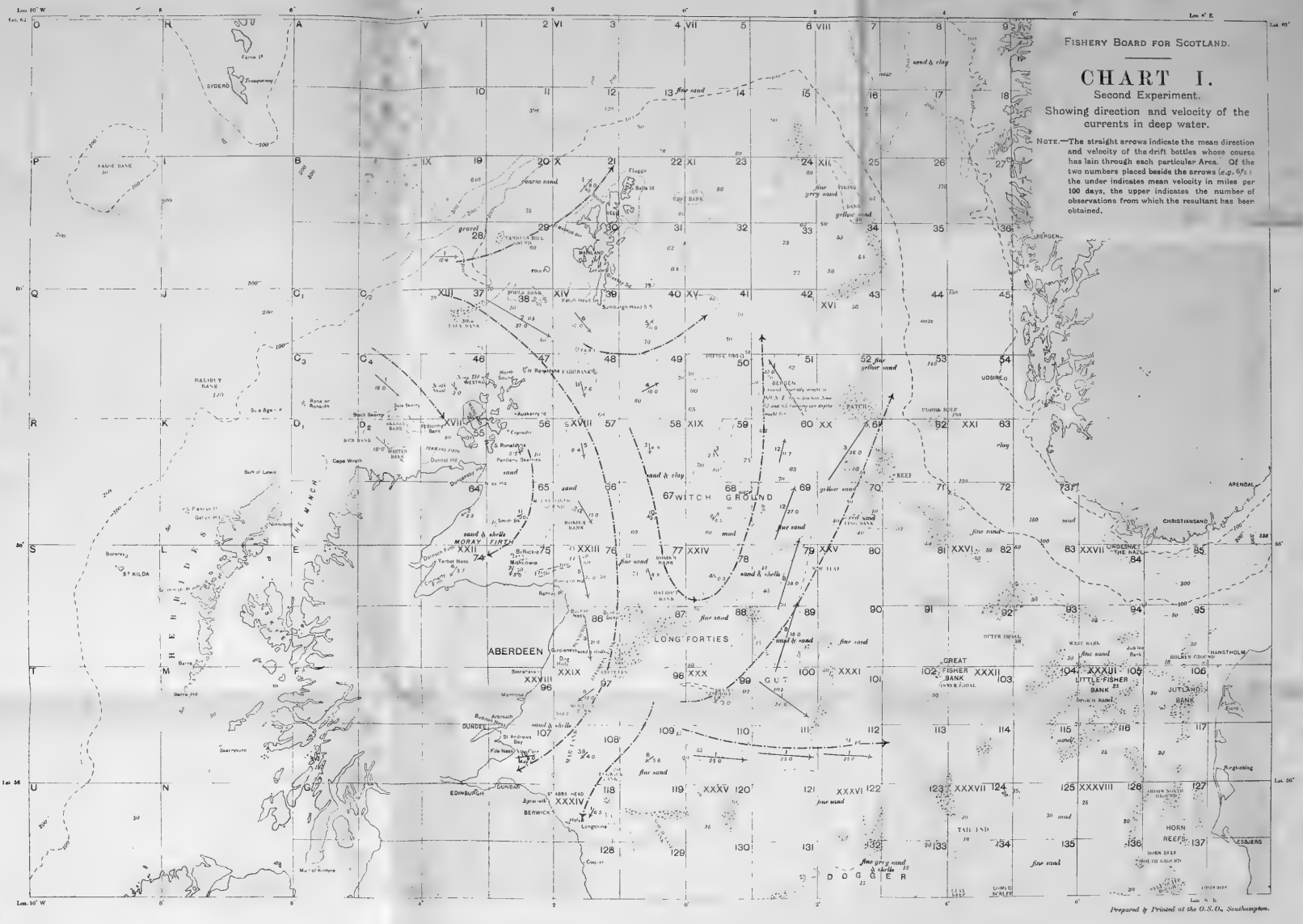
TABLE Va.—First Experiment.—Additional Long Distance Drift Bottles.

Ref. No.	Position.			Date.		Number of Days.	Distance between Positions.	Drift in 100 Days.
	Where put Away.		Where Recovered.	When put Away.	When Recovered.			
212	60·52 N.	0·54 W.	Teistvik, Norway.	July 6, 1907	Feb. 17, 1907	592	—	—
236	60·6 N.	0·55 W.	64·0 N. 9·0 E. Froöerne.	August 16, 1907	Nov. 24, 1909	831	364	44
305	61·20 N.	0·50 W.	Hjellsando, Vesteraalen.	August 27, 1907	August 30, 1912	1,830	500	—
294	61·0 N.	0·53 W.	63 10 N. 7·45 E. Edó, Nr. Kristiansand, N.	,,	Oct. 18, 1911	1,513	400	26
284	60·57 N.	0·40 W.	Aosundfjorden.	Sept. 3, 1906	March 27, 1911	1,636	300	18
257	60·20 N.	0·40 W.	64·0 N. 9·0 E. Nr. Trondhjem.	Nov. 21, 1906	March 25, 1910	1,220	350	29
233	61·1 N.	2·5 E.	20·43 N. 23·40 E. Hammerfest.	August 28. 1907	Oct. 8, 1909	772	782	—
292	60·35 N.	2·30 E.	68·0 N. 14·0 E. Aai Lofoten Is.	May 16, 1907	Oct. 8, 1911	1,596	550	34
321	60·35 N.	1·50 E.	69·0 N. 14·0 E. Lofoten Is.	May 26, 1907	Oct. 4, 1913	2,318	589	—
207	59·37 N.	1·40 E.	Hegholmen, Nr. Bergen.	July 27, 1906	Jan. 11, 1910	1,264	110	9
249	59·15 N.	1·23 W.	66·29 N. 12·58 E. Helgiland.	Nov. 20, 1906	Jan. 28, 1910	1,165	600	52
254	58·4 N.	0·40 W.	63·25 N. 8·00 E.	May 27, 1907	March 17, 1910	1,025	410	40
248	58·1 N.	0·45 W.	65·10 N. 11·45 E. Namdalen.	Sept. 2, 1907	Jan. 15, 1910	866	560	65
243	58·18 N.	0·26 W.	61·1 N. 4·41 E. Out Sulen Is.	May 27, 1907	Jan. 3, 1910	952	250	60
320	58·30 N.	0·30 W.	Nr. Trondjeim.	April 9, 1907	Sept. 8, 1913	2,340	400	—
285	58·5 N.	1·0 E.	Trommesund, Norway.	Dec. 19, 1906	March 25, 1911	1,557	250	16

238	58·24 N.	1·45 W.	Christiania Fiord.	June 12, 1906	Nov. 29, 1909	1,266	450	36
246	58·55 N.	1·38 W.	58·29 N. 11·32 E.	May 10, 1707	Jan. 20, 1910	996	408	41
287	58·13 N.	2·50 W.	55·30 N. 8·30 E.	Sept. 15, 1906	May 7, 1911	1,695	450	27
295	58·18 N.	2·42 W.	59·10 N. 11·30 E.	July 16, 1907	Nov. 5, 1911	1,573	500	32
303	58·13 N.	2·27 W.	Ramsaa.	,,	April 7, 1912	1,728	350	—
282	58·55 N.	0·6 E.	Utvaer Light.	Sept. 1, 1907	March 11, 1911	1,297	250	19
263	57·56 N.	0·50 W.	63·35 N. 12·0 E.	May 27, 1907	April 15, 1910	1,054	580	55
260	56·27 N.	1·00 W.	Bergen, Norway.	Feb. 5, 1907	April 3, 1910	1,153	320	28
264	56·38 N.	0·22 E.	57·35 N. 9·58 E.	Feb. 6, 1907	May 10, 1910	1,192	320	27
			Hirtshals Lighthouse.					
262	56·42 N.	0·35 E.	60·27 N. 5·00 E.	August 3, 1906	April 18, 1910	1,354	265	20
			Stömo Sound, Bergen.					
240	56·17 N.	2·00 W.	55·0 N. 7·0 E.	July 25, 1907	Dec. 15, 1909	874	320	37
			Heligoland.					
239	56·28 N.	0·53 W.	58·10 N. 6·30 E.	August 13, 1906	Dec. 11, 1909	1,215	250	21
			Lister Fiord.					

TABLE Vb.—Second Experiment.—Long Distance Drifts.

Ref. No.	Position.			Depth. Fathoms	Date.		Days Adrift.	Distance between Positions.
	Cast Out.		Recovered.		Cast Out.	Recovered.		
16	Si. Kilda Is.		Vandoe Is., Norway. 70·10 N. 20·0 E.	—	Aug. 25, 1910	April 26, 1913	600	1,040
13	59·14 N.	4·57 W.	Stene, Leka. 65·0 N. 12·0 E.	—	Aug. 19, 1910	Aug. 19, 1911	366	600
13	,,	,,	Thorsó. 59·7 N. 11·5 E.	—	,,	March 31, 1911	224	550
12	59·26 N.	4·7 W.	Christiansand. 58·0 N. 8·0 E.	—	,,	Jan. 24, 1913	889	430
11	58·40 N.	3·3 W.	Stadtland. 62·15 N. 5·00 E.	—	,,	June 21, 1911	306	300
6	59·46 N.	2·21 W.	Bovbierg, Denmark,	—	Aug. 8, 1910	April 17, 1911	405	450
14	58·15 N.	5·55 W.	Sor Fuglo Salter. 67·0 N. 14·0 E.	—	Aug. 20. 1910	Feb. 19, 1913	914	800
62	58·17 N.	1·3 W.	Aashavn. 58·10 N. 8·0 E.	—	Feb. 12, 1911	Jan. 18, 1913	706	288
67A	57·41 N.	2·0 W.	Kristiansands. 58·8 N. 8·19 E.	—	Feb. 19, 1911	Dec. 10, 1911	294	350
67B	,,	,,	Near Lillesand. 58·15 N. 8·25 E.	—	,,	,,	294	380
73A	56·53 N.	2·2 W.	Fillingsnes, Froya. 63·30 N. 11·0 E.	—	March 29, 1911	Feb. 10, 1912	318	480
73B	,,	,,	Namdalen. 64·20 N. 7·0 E.	—	,,	May 15, 1912	413	520
51	56·20 N.	1·49 W.	Hunnebostrand. 58·16 N. 11·25 E.	—	May 25, 1911	Aug. 28, 1912	461	450
43	,,	,,	Denmark. 55·40 N. 8·10 E.	—	Dec. 7, 1910	Sept. 17, 1912	650	340


FISHERY BOARD FOR SCOTLAND.
CHART I.
Second Experiment.
Showing direction and velocity of the currents in deep water.
NOTE.—The straight arrows indicate the mean direction and velocity of the drift bottles whose course has lain through each particular Area. Of the two numbers placed beside the arrows (e.g. 6/5) the under indicates mean velocity in miles per 100 days, the upper indicates the number of observations from which the resultant has been obtained.
Prepared & Printed at the O.S.O., Southampton.
Lon. 10° W
Lon. 0°
Lon. 10° E
Lat. 62
Lat. 56
Lat. 50
ABERDEEN
LONG FORTIES
MORAY FIRTH
WITCH GROUND
DOGGER
GUT
GREAT FISHER BANK
LITTLE FISHER BANK
JUTLAND BANK
HORN REEFS
DUNBAR
EDINBURGH
BERWICK
DUNDEE
BERGEN
ARENDAL
CHRISTIANSAND
HANSTHOLM
ESBJERG
ST KILDA
SYDERO
FAIR ISLE
Cape Wrath
Buchan Ness
Barra Hd
Flugga
Bressay Sound
Udsire
Utsira Rolf
Lerwick
Scalloway
Aith
Sumburgh Head
Fetlar
Unst
Yell
Foula
Papa Stour
Out Stack
Muckle Flugga
Out Skerries
Whalsay
Skerry Bank
Ronas or Ronaldsa
Stack Skerry
Sule Skerry
Auskerry Id
Calf of Eday
Rousay
Westray
Papa Westray
North Ronaldsa Bank
Sule Skerry Bank
Noup Head
Start Point
Duncansby Head
Dunnet Hd
Tarbet Ness
Pentland Skerries
Stroma
Swona
Hoy
Longstone
Fair Isle
Shetland Islands
Orkney Islands
Hebrides
Minch
Halibut Bank
Whiten Bank
Smith Bank
Bishop's Bank
Holburn Bank
Hatton Bank
Rockall Bank
Faroe Is
Faroe Bank
Bank
Ground
Reef
Flat
Deep
Hole
Patch
Shoal
Rock
Sand
Mud
Clay
Gravel
Shell
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Coarse sand
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Fine yellow sand
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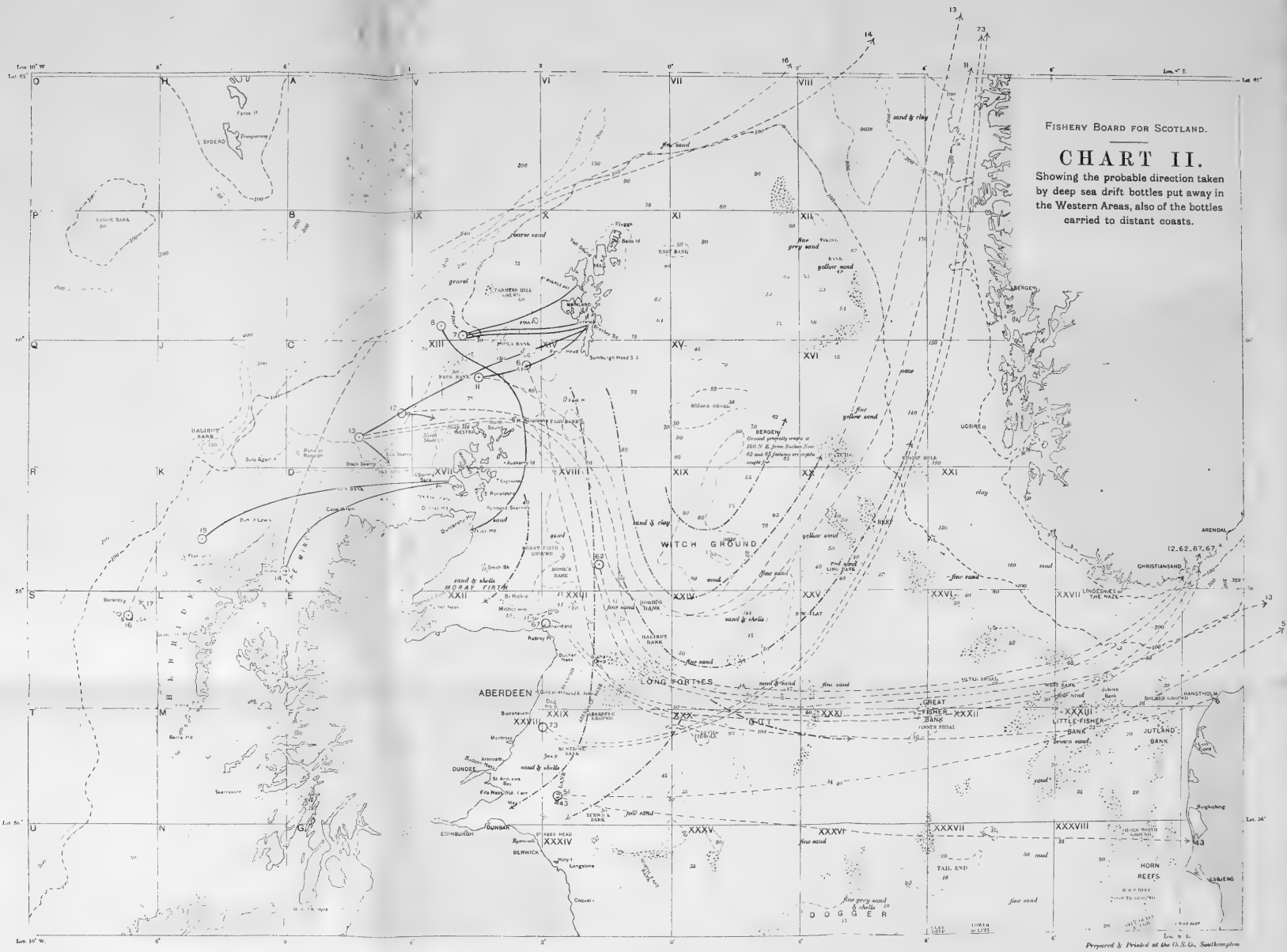
FISHERY BOARD FOR SCOTLAND.
CHART II.
Showing the probable direction taken by deep sea drift bottles put away in the Western Areas, also of the bottles carried to distant coasts.
WITCH GROUND
LONG FORTIES
ABERDEEN
MORAY FIRTH
DOGGER
GREAT FISHER BANK
LITTLE FISHER BANK
JUTLAND BANK
HORN REEFS
BERGEN
ARENDAL
CHRISTIANSAND
HANSTHOLM
ESBJERG
DUNDEE
EDINBURGH
DUNBAR
BERWICK
TAIL END
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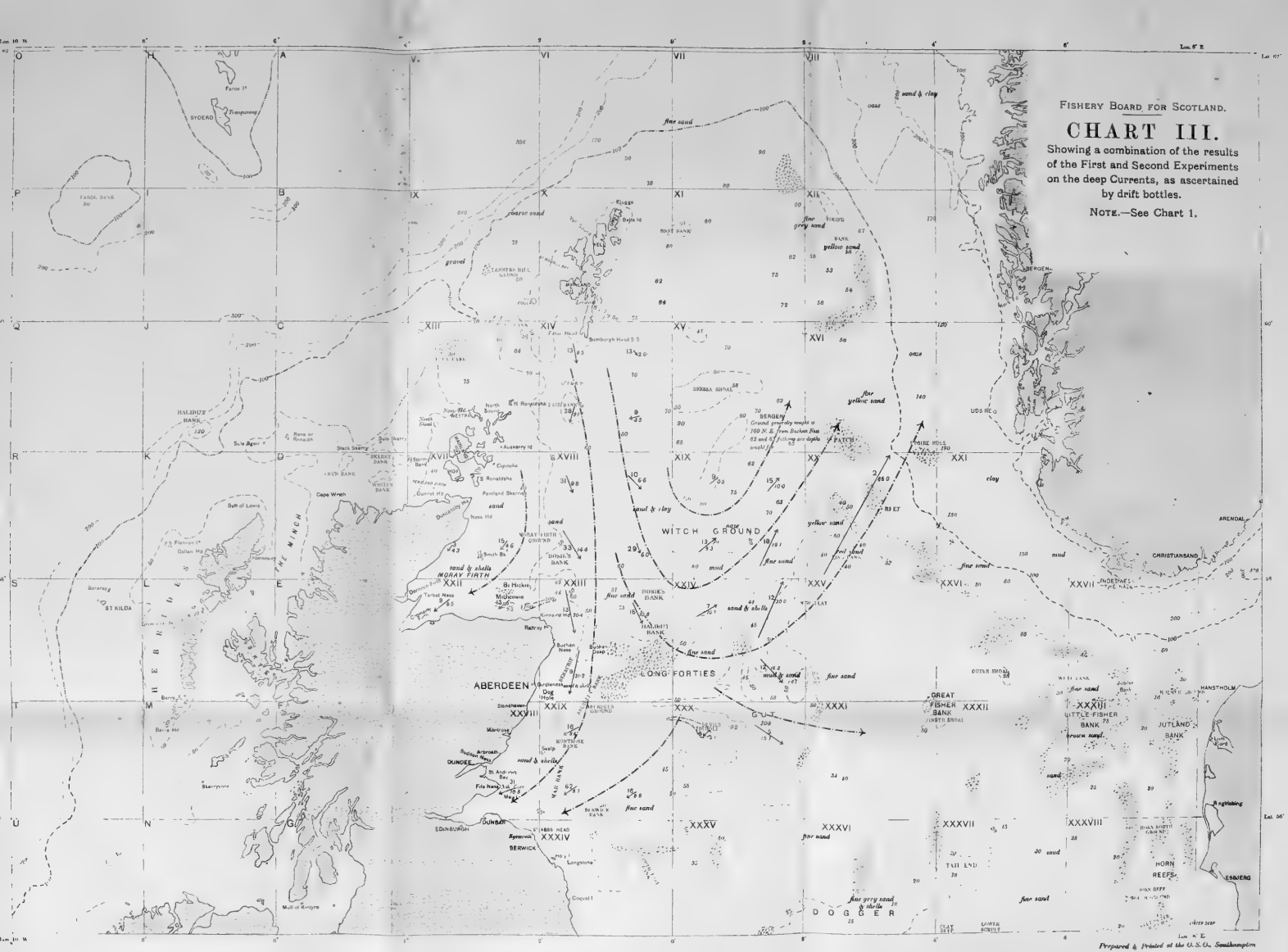
FISHERY BOARD FOR SCOTLAND.
CHART III.
Showing a combination of the results of the First and Second Experiments on the deep Currents, as ascertained by drift bottles.
NOTE.—See Chart 1.
WITCH GROUND
LONG FORTIES
ABERDEEN
MORAY FIRTH
DOGGER
GREAT FISHER BANK
LITTLE FISHER BANK
JUTLAND BANK
HORN REEFS
ESBJERG
HANSTHOLM
CHRISTIANSAND
ARENDAL
BERGEN
PATCH
REEF
DUNDEE
EDINBURGH
BERWICK
ST KILDA
HALIBUT BANK
SYDERO
FAROE BANK
Cape Wrath
Mull of Kintyre
Sumburgh Head S S
Longstone
Coquet I
Bull of Lewis
Flannan Is
Gallan Hd
Barra Hd
Skerryvore
Tarbet Ness
Buchan Ness
Dog Hole
Stonehaven
Montrose
Arbroath
Buddon Ness
St Andrews Bay
Fife Ness
Bamburgh
Eyemouth
Ness Hd
Pentland Skerries
Auskerry Id
Copinsha
Stack Skerry
Sule Skerry
Rona or Ronaldsha
Sumburgh Head
Fair Head
Flugga
Bella Id
Fitzroy Bank
Bosies Bank
Halibut Bank
Mar Bank
Bernard's Bank
Fife Bank
Montrose Bank
Sealp
Bosies Bank
Hoy I
Kinnaird Hd
Ratray Pt
Buchan Deep
Mid Bank
Sand & shells
Fine sand
Mud
Yellow sand
Fine grey sand
Fine grey sand & shells
Gravel
Coarse sand
Sand & clay
Oaze
Clay
Lat. 60°
Lat. 56°
Lon. 10° W
Lon. 8° E
Prepared & Printed at the O.S.O., Southampton

FISHERY BOARD FOR SCOTLAND.

SCIENTIFIC INVESTIGATIONS, 1913.

No. III.

THE SPAWNING AREAS OF SAND-EELS IN THE NORTH SEA

(WITH 1 CHART).

BY

ALEXANDER BOWMAN, D.Sc.

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THE SPAWNING AREAS OF SAND-EELS IN THE NORTH SEA.

From the Records of the
SCOTTISH FISHERY RESEARCH STEAMER
"GOLDSEEKER."

By ALEXANDER BOWMAN, D.Sc., Aberdeen.

In the North Sea and adjacent waters there are two species of sand-eels—*Ammodytes tobianus* and *Ammodytes lanceolatus*. In the adult stages these are easily identified, and they are readily distinguished from each other by certain well-known characteristics. For example, the mouth of *A. lanceolatus* is non-protrusible, whilst the mouth of *A. tobianus*, owing to the elongation of the nasal processes, is markedly protrusible. But the larval and earlier post-larval stages of these two species apparently present no very obvious specific characters, though they can always be recognised as young sand-eels by the position of the anus and the distribution of pigment. *A. tobianus*, the lesser sand-eel (average length of adult about 18 cm.), has a very wide area of distribution, extending from Spain in the South to the White Sea in the North. *A. lanceolatus*, the greater sand-eel (average length of adult about 25 cm.), has practically the same distribution, except that it may not extend so far north. Probably throughout the whole of the region indicated, and certainly within the Scottish area, the lesser sand-eel is met with much more frequently than the other.

Sand-eels are of little or no commercial importance, although it is true that they are sometimes used for bait and that they were in former times, and to some extent still are, used for food purposes. While the direct economic value of sand-eels is thus almost negligible, they nevertheless occupy a most important place in the economy of the sea, for they are an essential part of the food supply of certain of the more important marketable fishes. At all periods of their existence, larvæ or adult, they are preyed upon. They never reach a size at which they are immune from attack; and, occurring as they do in such countless numbers, they are a permanent source of food for many species, and in particular for cod, haddock, whiting, herring. Herring are often rendered less valuable for curing purposes merely because they have fed voraciously on sand-eels, and it is no uncommon thing to find cod, haddock, and whiting gorged with sand-eels: as many as 120 adults of *A. tobianus* were on one occasion (23-1-'08) taken from the stomach of a large cod caught by the "Goldseeker," at Burghead

(2953) Wt. 4016/84—500—1/1914.

Bay. In August, 1909, the plaice in Broad Bay (Minch) were found to be feeding almost exclusively on large *A. tobianus.* Even the stomachs of the adult sand-eels are sometimes found filled with post-larval forms.

The spawning habits of the sand-eels remained for a very long time unknown. Through the brilliant researches of M'Intosh and Prince (1889-1890) it was first definitely ascertained that the eggs are demersal and are laid singly. Possessed of an adhesive membrane, these eggs attach themselves to the sand grains amongst which they are deposited by the female. They are irregularly oval, have a thick membrane, and an oil-globule lies within the dark yolk. Attached as they are to sand grains, they are detained in one locality until the small larvæ hatch out. A few, however, owing to the action of strong currents, may temporarily be carried into the upper layers, where they are occasionally captured in the tow-nets. The newly-hatched larva still retains a portion of the yolk, with its contained oil-globule, and the capture of such newly-hatched larvæ in a tow-net is proof that the eggs were spawned in the neighbourhood. No such inference could legitimately be drawn where pelagic eggs are concerned. The occurrence of these larvæ in the tow-nets is therefore of exceptional interest as making it possible to map out with considerable accuracy the spawning areas of the sand-eel.

Observations made by the " Goldseeker " during the last ten years (1904-1913 inclusive) indicate that while a few larval sand-eels are found in the plankton as early as February, they first appear in numbers during the month of March. An examination of the collections made during those months shows that the prevailing length of these forms is from 6 to 8 mm., and that in no case do they exceed 10 mm. (Thus not even in the largest specimens captured are there any traces of the first formation of the fin-rays.) These larvæ, which have still a considerable portion of the yolk attached, are mostly between 5 and 6 mm. long—slightly larger, it might seem, than those measured by Masterman (1895), but this apparent difference is in all probability due to the method of preservation, alcohol specimens generally showing greater shrinkage than those preserved in weak formalin.

While it is admitted that the length of the hatching period is directly dependent on the temperature of the water, there can be no doubt that all the specimens captured during these two months are the product of one spawning time. For, in spite of the fact that the observations have been so prolonged and so extensive, only ten individuals exceeding 10 mm. in length have been captured during these months in the plankton nets, and each of these individuals clearly belonged to the brood of a previous year. The temporary absence of larger forms in the tow-nets is not to be attributed to the small capacity of the nets, for not even with such an efficient apparatus as the Petersen young fish trawl have larger forms been taken; moreover, these same nets capture the larger forms in later months. The conditions in the Northern North Sea are thus similar to those found in the Southern portion, but are entirely different from those in the Baltic. Ehrenbaum and Strodtmann (1904) observed in the Baltic, in addition to the youngest stages, numerous more advanced forms. All developmental stages were represented

up to the largest in which the larval stages may be looked upon as closed.

The "Goldseeker" collections also confirm the remarkable fact, which has been commented upon by M'Intosh and Prince, that on the first appearance of the larvæ in the plankton very few are found with the remnants of the yolk sac attached. The young forms just after the absorption of the yolk appear in sudden profusion. Hitherto the larva still retained sufficient yolk of high specific gravity to keep it for a time in or on the sand, or at least in its immediate vicinity. Larvæ in this situation are not readily captured, for there are obvious practical difficulties in catching such delicate organisms in a tow-net working in close proximity to the bottom. As the larvæ grow they are able to seek the upper layers of water, and may afterwards be found at different depths in all stages of development. As there are considerable vertical movements of both larvæ and adults, the numbers captured in one locality at different depths vary greatly. This variability is further accentuated in the sand-eel because of its well-known burrowing propensity. The fact already mentioned concerning the non-appearance of the larger but not fully-grown forms in the collections from the Northern North Sea in the first quarter of the year, is not to be accounted for by these vertical movements. The observations have been carried out at all depths under very various physical conditions both during the day and at night.

According to Ehrenbaum (1909) the lesser sand-eel is the earlier spawner. In the southern part of the North Sea some of its larvæ may first appear in the plankton in the autumn months, although it is known that the period of maximum hatching lies between January and March. The larvæ of the greater sand-eel do not appear in the plankton until very much later, rarely indeed before the beginning of May, whilst its maximum hatching period is July and August. In the Northern North Sea, on the other hand, as has already been stated, few or no larval sand-eels appear in the plankton before the month of March. Thus, the hatching period of the sand-eel in the Northern North Sea is considerably later than in the southern portion. According to M'Intosh and Masterman (1897) there are considerable divergences of opinion in regard to the time of spawning of the two species. M'Intosh states, however, that the eggs of *A. lanceolatus* are probably deposited in June and July, and that at St. Andrews the end of December and January appear to be the chief months for oviposition of *A. tobianus*, although ripe adults may be found in later months. (In the Baltic the larvæ of *A. tobianus* have been found in the plankton in November; and Ehrenbaum has succeeded in artificially fertilising the ripe eggs of the same species at Heligoland as early as September.) From the known facts concerning the relative abundance and the time of spawning of the two species on the East Coast of Scotland, it may be asserted with confidence that all the larvæ captured in northern waters during the first quarter of the year belong to *A. tobianus*. An examination of the records for the earlier months of the year is therefore of prime importance. Those records are in themselves sufficient to enable us to map out with precision the real spawning areas of *A. tobianus*, for all uncertainty as to the identi t of the two species has been eliminated, and many additional complex problems of distribution have incidentally been greatly simplified.

The area over which investigations have been conducted extends from the Firth of Forth to the vicinity of the 100-fathom line north of Shetland. It also includes the Minch. The positions at which tow-net collections were made within the first quarter of the year are shown in a general way on the accompanying chart. It must be definitely stated, however, that while in each of the past ten years records were obtained in the months of January, February, and March, it was not always possible to visit the different localities with the same frequency. In all, 381 stations were visited within the period named, and 1387 separate observations were made. The total number of "*Ammodytes*" larvæ captured exceeds 175,000.

Although the first hatching out of the sand-eels in the northern area of the North Sea is much later than in the south, it is reasonable to suppose that their first appearance may vary considerably with the localities within such an extended area. This time element is a dominant factor in the various spawning areas, for it determines not only the first occurrence but also the frequency of the larvæ in the plankton on a given date.

No larval sand-eels were found anywhere by the "Goldseeker" in the month of January.

Observations made at stations in the neighbourhood of the East Coast of Scotland are highly interesting in that they show in some cases a few larvæ captured even in February in the Firth of Forth and as far as 30 miles east of May Island. In no other localities were sand-eel larvæ found as early as the month of February. So far as the observations go, the following are the earliest dates of the appearance of the larvæ of the sand-eel in Scottish waters:—

Date.	Station.	No. of Individuals.	Average Length.
1909, Feb. 12.	Stn. 44 (Lat. 56° 20′ N., Long. 1° 49′ W.).	8	6 mm.
1909, Feb. 12.	Stn. 43 (Lat. 56° 24′ N., Long. 1° 21′ W.).	2	6 mm.
1910, Feb. 23.	Stn. 44 (Lat. 56° 20′ N., Long. 1° 49′ W.).	52	6·5–7·5 mm.
1912, Feb. 28.	West of May Island.	4	6 mm.
1912, Feb. 29.	Fife Coast (Firth of Forth).	4	Newly hatched.

In March the larval forms are found distributed throughout all the areas under review of less than 50 fathoms in depth, and the records conclusively prove that here the lesser sand-eel finds conditions suitable for its spawning. As the bulk of the material collected in the first quarter of the year belongs to the month of March, comparison of the frequency of the occurrence of the larvæ for the different localities is therefore the more simple. The localities at which they occur in greatest numbers provide a convenient starting point for a general consideration of their distribution. An examination of the records made by the "Goldseeker" shows that this locality lies on the north-west border

of the North Sea, between the Pentland Firth and Sumburgh Head. In this area the larvæ are present in the plankton in countless thousands in the month of March—in fact, they are the predominant young fish captured. Yet not a single example of this species was found in this area in any of the January or February collections, although numerous observations were made during these months throughout a series of years in the vicinity of the Fair Isle. In this area of greatest density, on the average over 100 examples were got in vertical hauls with a cheese-cloth net having a mouth of one metre diameter; and horizontal hauls of one half-hour duration with a similar net gave an average of 173, 3683, and 5523 respectively for surface, middle, and bottom layers. On one occasion as many as 19,860 individuals were captured near the bottom in a single horizontal haul of half an hour's duration. These are figures which are not approached by any of the numerous observations made in other parts of the Northern North Sea, and at this time of year. Although there is, of course, considerable variation in the numbers captured in different localities in this neighbourhood, yet taken in the aggregate the figures go to prove that without doubt there is here an area with a very great abundance of sand-eels. The localities referred to, so far as the observations go at present, include the Fair Isle grounds, the east of Orkney, and the Pentland Skerries, as well as the Pentland Firth from beyond Dunnet Head to Noss Head and Sinclair Bay. At the most westerly of these localities even as early as the 8th of the month, the frequency was found to be high, for over 2000 newly-hatched sand-eels (none exceeding 7.5 mm.) were obtained in one half-hour in a bottom tow-net, whilst 558 were got near the surface. Now experience gained in the capture of these larvæ in March proves that they are without doubt more numerous in the deeper layers, for the surface hauls, as in the example just quoted, are invariably the least productive. The frequency in the Pentland Firth itself may be estimated from the fact that on the average 2360 examples were taken in a series of surface hauls. Similarly, to the east of Orkney 7310, 6024, and 30 are the respective numbers for bottom, mid-water, and surface hauls, while the corresponding figures for Noss Head are 4256, 13,360, and 186, and for Sinclair Bay 3024, 3191, and 8. These figures are typical of the results obtained in this area.

An examination of figures got from hauls taken in the Moray Firth is highly instructive, as a glance at the following table will prove:—

Position.	Vertical Haul.	Horizontal Hauls for half-hour with 1 mm. ch. cl. net at		
		Surface.	Mid-water.	Bottom.
Off Lybster, ...	108	2	955	784
Off Helmsdale, . . .	33	12	611	466
South of Smith's Bank, less than 50 fms., . . .	30	86	213	296
Dornoch Firth, . . .	14	63	251	102
E. of Tarbet Ness, . . .	43	16	146	47
Off Burghead, ...	17	18	73	189
Off Lossiemouth, . . .	9	17	180	464
Off Portknockie, . . .	11	72	220	688
Off Troup Head, . . .	16	47	235	219
Kinnaid Deep, . . .	0	13	40	58
58° 00′ N. to 58° 10′ N., 1° 50′ W. to 2° 10′ W., .	2 4	3 23	32 50	21 150

These figures are in marked contrast to those of the area already considered. As in the previous case, they are the averaged results of the hauls taken, and the observations were all made on the same plan. The numbers in the different columns clearly indicate a significant decrease in the frequency from the one area to the other. Further, the number in the largest individual haul taken towards the end of the month do not even approach those (already quoted) for a single haul near Dunnet Head in the early part of the month. The evidence is conclusive that the larvæ of sand-eels at this time of the year in the Moray Firth are much less numerous than in the adjacent area to the north.

Depth and character of the bottom are two factors which have a powerful influence in determining the spawning areas of a species with demersal eggs, such as the sand-eel. Now, about half the area of the Moray Firth has a depth of less than 30 fathoms, and the 30 fathom contour line runs throughout its whole length almost parallel to the coast. The area between the coast and this line is largely composed of sand, and on the whole it does not show any striking want of uniformity in the frequency of occurrence of larval sand-eel, as may be seen from a consideration of the table of figures and the accompanying chart. On the south side of the Moray Firth beyond a depth of 30 fathoms there runs eastwards a gradually deepening valley, where the bottom deposits are of a different character. Here mud prevails. In the centre of this valley, from Burghead eastwards, the percentage of mud increases, and towards its eastern limit mud is predominant. These conditions are continued even beyond this area, and culminate at the Fladen grounds, where at a depth of over 80 fathoms the bottom is of very fine mud. To the north of the Moray Firth valley the deposits grade into the sandy grounds which stretch from the east of Caithness to beyond Fair Isle. Over this valley there is a marked decrease in the number of sand-eels, and the decrease is even more marked when we contrast a haul in this area with one at a corresponding

depth in the neighbourhood of Orkney. Strodtmann (1906) found that similar conditions prevail in the Eastern Baltic. The small larvæ are fewest in the vicinity of the Bornholm Deep, where the condition of the bottom is not favourable for the deposition of the eggs. The tables show that the area of greatest frequency in the Moray Firth lies off the coast of Caithness. Here the 30 fathom line lies very close to the coast, and beyond it the bottom deposits are very similar to those in the immediately adjacent area to the north. But the depth gradually decreases southwards along this coast, and it is significant that there is a corresponding decrease in the frequency of the larvæ. It would appear that the conditions in the very shallow coastal waters are similar to those found by M'Intosh in St. Andrews Bay in the spring months of the year. At Burghead and Nairn, in depths of less than seven fathoms no larval sand-eels were found, although the bottom deposits in these bays are composed of very fine sand. So, too, within the Cromarty Firth and in the shallow waters just outside, no young sand-eels were found in the plankton. In short, therefore, young sand-eels are found in the March plankton all over the Moray Firth area, with the exception of the very shallow zone close to the shore and over those places where there is excess of mud in the bottom deposits. Further, the frequency increases greatly in the north along the Caithness coast.

Over the area to the east of Scotland within the 40 fathom contour line the frequency of occurrence of larval sand-eels in the plankton in the month of March is very uniform. Variations in frequency do undoubtedly occur, but in no case is the difference notable. The following figures are typical of this area:—

Position.		Vertical Hauls.	Horizontal Hauls, Half-hour duration.		
Lat.	Long.	1m. cheese cl.	Surface.	Mid-water.	Bottom.
56° 27′ N.,	1° 35′ W.,	5	2	82	80
57° 2′ N.,	1° 2′ W.,	21	144	324	426
56° 4′ N.,	2° 10′ W.,	26	76	466	606

whilst the general average for the East Coast of Scotland is given by

9	53	624	326

The frequencies for the East Coast of Scotland show, on the whole, a slight increase on those of the coastal areas of the Moray Firth, but at no station do they approach those of the area of greatest density.

The Firth of Forth area, including the locality just outside the estuary or east of May Island, has now to be considered. The observations within the Firth itself did not extend beyond the island of Inchkeith. In this neighbourhood the frequency is generally very low, as is shown by the following averages:—

Vertical Haul.	Horizontal Hauls, half-hour duration. 1 metre cheese cloth net.		
1 metre ch. cl.	Surface.	Mid-water.	Bottom.
1	19	69	96

but the numbers obtained on the 27th of March, 1909, viz.,

1	80	204	234

are the largest for this locality. Observations made at the outer limits of the estuary show that the larval sand-eels are present in the plankton in March in considerable number, and the following average results would seem to show that the Fife coast is the most favoured locality:—

Locality.	Vertical Haul.	Horizontal Hauls, half-hour duration.		
		Surface.	Mid-water.	Bottom.
Fife Coast, . .	11	23	2,731	840
W. of May Island,	34	550	850	372

The frequencies found at those localities within the Firth of Forth between the May Island and Inchkeith have always been low, and the conditions for spawning are more like those found at the inner than at the outer limits of the estuary. Indeed, the greatest number obtained on any particular occasion within this area was caught in Kirkcaldy Bay on the 25th of March, 1909, when six specimens were got in the vertical net, 14, 170, and 200 in the surface, mid-water, and bottom tow-nets respectively, for hauls of one half-hour's duration.

In the area just outside the estuary of the Forth the following average results have been obtained:—

Vertical Haul.	Horizontal Hauls, half-hour duration.		
	Surface.	Mid-water.	Bottom.
16	112	870	117

The larvæ was found in greatest abundance on March 26th, 1909, when the following record was obtained:—

30	610	1,738	534

It may therefore be stated generally that the estuary of the Firth of Forth is a spawning area for the sand-eel and that the conditions for spawning are less favourable from the mouth inwards, and the frequency is very low in the neighbourhood of Inchkeith. In the vicinity of the May Island and the Fife coast, where the frequency is greatest, larvæ may sometimes be found in the plankton as early as February. Even although this area is an early one for the hatching of sand-eels, the frequencies fall very far short of those found in the Orkney area.

The sounds and voes of the Shetland Islands may be dismissed very briefly. Observations were made at Bressay Light, Lerwick Harbour, Tofts Voe, Dales Voe, and Sullom Voe, and Yell Sound, and at all these places larvæ were found in the month of March. The numbers were always very small, and seldom or never were any obtained in hauls with a vertical net. The average numbers for hauls of one half-hour's duration with a metre cheese-cloth net at surface, mid-water, and bottom are 5, 11, and 12 respectively. In the shallow and sheltered localities of the Shetlands, therefore, larval sand-eels are very rare in the first quarter of the year.

Lastly, the somewhat outlying region of the Minch. The observations made in this area tally with those made in the North Sea. No larval sand-eels were found in February, but with the advent of March they appear in numbers at various localities. The

observations which have been made within the northern portion of this area show that the larvæ are but sparingly represented over the shallow coastal grounds of the Lewis; but over the somewhat deeper grounds off the Sutherland coast the conditions must be much more favourable, as the larvæ are found in the plankton in large numbers. The averages obtained here are as follows:—

Locality.	Vertical Haul.	Horizontal Hauls, half-hour duration.		
		Surface.	Mid-water.	Bottom.
Lewis, . . .	1	2	20	2
Sutherland, . .	39	809	769	812

Attention has, so far, been mainly directed to the various localities where the larval sand-eels have been found during the first quarter of the year. These areas are by no means co-extensive with the total area investigated. As a glance at the chart shows, there are certain regions to the north and east of Shetland and in the centre of the North Sea where larval sand-eels are very poorly represented or are entirely absent.

Owing to the outlying position of the area north of the 100-fathom line this locality has not been regularly examined throughout the first quarter of the year, but the fact that no larval sand-eels were found there even in the month of March, taken in conjunction with their absence at intermediate localities, Station 12A (Lat. 61° 18′ N., Long. 1° 35′ W.) and Station 12 (Lat. 61° 03′ N., Long. 0° 34′ W.), in the month of February is strongly presumptive evidence that they do not occur in the plankton of the deeper waters in the earlier months of the year. Larval sand-eels were found, however, in March in small numbers at Station 12, which lies immediately over the steep gradient beyond the 50-fathom line towards the deep Norwegian Sea. Here we probably approach the northern limit of the spawning area.

That large area under 100 fathoms in depth which lies north of Scotland and west of the Orkney and Shetland Islands has still to be adequately explored. We have no positive evidence that there is here a spawning area for sand-eels. The facts already stated (1) that larval sand-eels are found in numbers in the Minch, (2) that they occur in very large numbers at Dunnet Head and the Fair Isle, and (3) that beyond the northern entrance to Yell Sound, in Shetland, there is a considerable rise in the frequency of the larval forms, strongly suggest that the shallower portions at least of this vast region constitute an important spawning area. The role which this area may play in the ultimate distribution of the sand-eel can be appreciated when it is stated that in the later months of the year larger larval forms of sand-eels are often found in the upper water layers of the depths of the Faeroe-Shetland Channel and the deep area to the north of Shetland.

The northern region of the North Sea which lies to the east of Shetland is very poorly populated with larval sand-eels in the first quarter of the year. This region of somewhat uniform conditions of depth and character of bottom is of considerable extent; towards the north the depth gradually increases from an average of about 70 fathoms, and finally ends on the edge of the Continental plateau in a depth of over 100 fathoms, whilst to the east it ends abruptly

in the Norwegian Deep. The western border of this area is formed by the Shetland plateau, and it is only in this neighbourhood that the larval sand-eels are found in any appreciable numbers. The frequency is distinctly greater on the southern part of the slope towards the area of greatest density, as is seen in the averaged results:—

Locality. Shetland.	Vertical Haul. 1m. ch. cl.	Horizontal Hauls, one half-hour. 1 metre cheese cloth net.		
		Surface.	Mid-water.	Bottom.
E. of Outskerry Light,	9	15	72	33
E. of Mousa Island, .	6	78	128	176

Again, larval sand-eels are absent from the deeper central area of the North Sea, but they appear in the plankton in gradually increasing numbers towards the coastal regions. As has already been seen, there is in the early months of the year an entire absence of sand-eels where the muddy bottom conditions culminate in the depth of the Fladen grounds. The figures:—

Position.	Vertical Haul.	Horizontal Hauls, one half-hour.		
		Surface.	Mid-water.	Bottom.
Station 2 (Lat. 58° 36′ N., Long 1° 46′ W.), .	4	23	50	150
Station 22 (Lat. 59° 36′ N., Long. 0° 41′ W.), .	1	62	214	640

show how the numbers increase as we pass in a north-west direction towards the area of high frequency.

In general it may be said that there is almost complete absence of sand-eels from the plankton of the deeper waters up till the end of March, and these negative observations are important as helping to define the limits of distribution of the young forms at that period of the year. It may be argued that their non-appearance is due to lateness of spawning rather than to unsuitability of locality. The determination of the limits of distribution of the larvæ at a time when none of them exceeds 10 mm. affords real information; and if at a later period of the year any of these stations yield positive results, the size of the larvæ will be a sure index as to whether they were spawned there or were carried thither.

Such, then, is a general survey of the distribution of the larvæ of the lesser sand-eel in the northern part of the North Sea for the first quarter of the year, as deduced from the records of the "Goldseeker." The way is now clear for a study of the wider problems of the ultimate distribution of the growing forms.

SUMMARY.

1. This communication deals with the spawning areas and the distribution of sand-eels in the northern North Sea during the first quarter of the year.

2. It is shown that, with the exception of a comparatively few examples in the neighbourhood of the Firth of Forth, no larval sand-eels are found in the plankton in the northern portion of the North Sea in the first two months of the year.

3. They suddenly appear in countless numbers in the month of March.

4. This sudden appearance is explained.

5. These early-hatched larvæ are proved indirectly to belong almost exclusively to *Ammodytes tobianus*.

6. These larvæ are shown to be widely, but irregularly, distributed, and the localities where they are found in greatest numbers are indicated.

7. Comparative figures are given proving that the area of greatest frequency is in the vicinity of the Orkney Islands and the Pentland Firth.

8. The larvæ occur with fair uniformity along the East Coast of Scotland from the Moray Firth to the Firth of Forth.

9. Spawning areas depend on depth and bottom deposit.

10. The frequency is low inshore and in the deeper parts of the central North Sea.

11. The localisation of the spawning areas is a necessary preliminary to further investigations.

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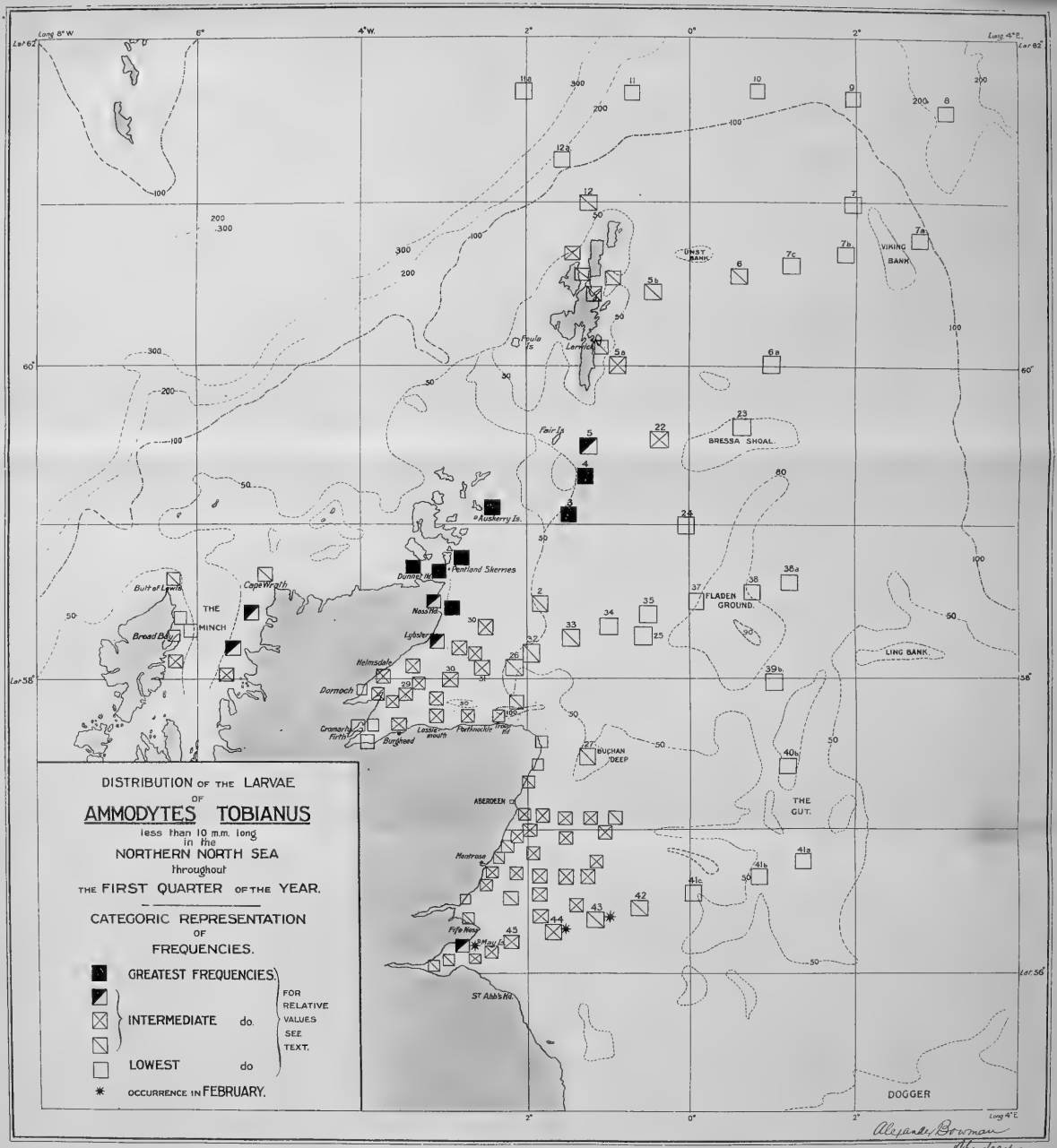

DISTRIBUTION OF THE LARVAE OF

AMMODYTES TOBIANUS

less than 10 m.m. long in the NORTHERN NORTH SEA throughout THE FIRST QUARTER OF THE YEAR.

CATEGORIC REPRESENTATION OF FREQUENCIES.

- GREATEST FREQUENCIES
- INTERMEDIATE do.
- LOWEST do

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