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Trawl survey of demersal fishes in the Newfoundland area in 1974

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Abstract

The results of trawl survey of the demersal fishes carried out in the Newfoundland area in 1974 are given. Compared to 1973 an increase of abundance and biomass of the main commercial fishes in all Subareas, excluding the south-west slope of the Grand Bank is registered. An attempt to assess the total stock of American plaice on the Flemish Cap bank on the basis of data obtained in the trawl survey is made.

Introduction

In June-August 1974 the trawl survey of demersal fishes was undertaken aboard the fishing research vessel "Perseus III". As in previous years, the trawlings were carried out with a bottom trawl with kapron net inserted into the bag (8 mm knot-to-knot). The observations conducted on the standard grid of stations (Postolaky, 1972).

The survey in 1974 was carried out in the later periods compared to all the previous ones. The greatest time interval, even compared to 1973, (surveys in 1971-1972 conducted during much earlier periods), was registered in Subarea 3M (1 month 8 days) and 3N (1 month 12 days). The closest periods of survey were marked in Subareas 3K, 3L, 3N.

The results of the present survey are represented in Tables 1-8. In addition, due to the 24 ICNAF meeting recommendation, a more detailed analysis (Tables 9-12) of the demersal fishes distribution by separate sectors in Subareas 3L, 3N, 3O, 3P was carried out. The schemes of division of Subareas into the separate "layers" were adopted from the papers by Pinhorn and Pitt (1972) and Pinhorn (1972).

Results

H a d d o c k

In 1974 as in 1973 the haddock catches were taken at a 101-200 m depth only in Subareas 3O and 3P.

On the south-west slope of the Grand Bank the haddock catches were minimum for all the years of survey and consisted of the species of 16-57 cm long, mainly, of 18-27 cm.

Since 1972 the lowest abundance and biomass of haddock were also observed on the St. Pierre Bank. Compared to 1973 the abundance decreased by 21 times, biomass - by 10 times. The length of the fish varied from 14 to 77 cm. Haddock of 50-57 cm long were absolutely absent. The fish of 20-25 cm long compiled the main portion.

C o d

Cod catches in all the Subareas except the south-west slope of the Grand Bank were greater compared to those of 1973, but less than in 1971-1972.

On the North Newfoundland Bank the cod of 42-53 cm long predominated by number, but the cod of 42-62 cm long dominated by weight. There were absolutely no fry of up to 20 cm long. The extension depth of fish was 101-400 m.

Abundance and biomass of cod on the north-east slope of the Grand Bank remained to be low. The fishes of 30-44 cm long compiled the basis of catches. The were no any abundant year classes among the fry, up to 25 cm long.

On the Flemish Cap Bank the cod abundance was the highest for all the years observed, but compared to 1973 it was 3 times higher. However, biomass growth was not high, only 5 kg (per 1 hour trawling) in consequence of the fact that in 1974 the fry of 15-20 cm long were represented in catches in great numbers. The young kept the 101-300 m depth. Large cod (mean length - 56 cm) was in the catches taken at the 301-400 m depth.

On the south-east slope of the Grand Bank the abundance and biomass of cod, compared to those of 1972, 1973, increased by 1.4 and 1.5 times, respectively. The specimens of 27-38 cm long were of the main importance in the catches. Cod by length up to 20 cm constituted only 2.8%. The young did not occur even at a depth less than 100 m.

Abundance and biomass of cod on the south-west slope were the lowest for all the years investigated. The fish of length over 50 cm was presented in catches by single specimens (5%), and - up to 20 cm constituted 20%. The species of 24-35 cm long occurred mostly often.

The smallest cod was registered in the great range of depths on the St. Pierre Bank (mean length 24.6 cm). Fish of up to 20 cm long constituted 29%, that is the evidence of possible rich recruitment in the nearest years. The main part of catches (61%) consisted of the fish of 21-29 cm long. Compared to 1973, cod abundance on the bank increased almost by 3 times. The biomass growth caused by small fish size was lower, only 8 kg.

G o l d e n r e d f i s h

Golden redfish occurred in commercial numbers in Sub-area 3K and on the Flemish Cap Bank. Their abundance and biomass on the North Newfoundland Bank were the highest for all the years investigated. The redfish mainly kept the 301-400 m depth. On the Flemish Cap Bank the abundance

increase compared to that of 1973 took place because of the young of 8-11 cm long, however, their biomass decreased for that period by 37 kg.

B e a k e d r e d f i s h

Since 1971 the abundance and biomass of the beaked redfish in all the Subareas excluding the Flemish Cap Bank and south-west slope of the Grand Bank were the highest. Compared to 1973 on the Flemish Cap Bank the abundance decreased by 1.5 times and the biomass - by 2. The year classes of redfish following after 1966 are referred to the average ones by abundance and do not compensate the removal of 1972-1974.

On the south-west slope of the Grand Bank the abundance and biomass of redfish decreased by 1.6 times compared to 1973, but these were higher than in 1971 and 1972.

F l o u n d e r s

The abundance and biomass of the American plaice and dab in all Subareas, excluding the south-west slope of the Grand Bank, increased compared to 1973.

Besides, data on the trawl survey were used to assess the absolute abundance of the American plaice taken from the Flemish Cap Bank. This Subarea was chosen by us as far as the fish stocks in it are isolated (Yanulov, 1962; Konstantinov, 1970). The bank square up to a 300 m isobath (in deeper waters the American plaice occurred by single specimens) amounted to $204 \cdot 10^8 \text{ m}^2$. During the survey the area examined with trawl per one hour was equal to $97 \cdot 230 \text{ m}^2$. In 1974 83 specimens were taken per one hour trawling (Table 7). As far as only 12.4% of all the American plaice fishes were taken with trawl (Serebrov, 1973), a total number of this fish caught per one hour trawling over the area examined (669.4 spec.) and then a number over the whole area of extension of American plaice ($140 \cdot 448 \cdot 010$ spec.)

were determined. The square was multiplied by mean weight of American plaice; there was get: $140\ 448\ 010 \times 600\text{ g} = 84\ 268\ 806\ 000\text{ g}$, i.e. 84.3 thou.t.

For the American plaice this figure can be accepted for the approximate assessment of the total stock.

Similar calculations of the total stock can be conducted and for other species also (cod, redfish) occurred on the Flemish Cap Bank. However, it can be taken into account that the distribution of the rest commercial fishes on the bank square is not so even as concerning the American plaice and, only the part of water strata, where the fish inhabited, was occupied with the bottom trawl by vertical. Therefore, the figure, indicated the total fish stock, has to be increased.

Data obtained in the process of annual trawl survey allow to assess the current changes in the fish resources state concerning the main commercial fishes. These surveys will be continued.

Conclusions

1. The main area of haddock occurrence is the St. Pierre Bank. The abundance and biomass of haddock varied by years in considerable limits. In 1974 the haddock abundance decreased by 21 times compared to that of 1973.

2. On the North Newfoundland Bank the cod abundance decreased by 20% compared to that of 1973, but on the south-west slope of the Grand Bank - by 44%. Cod abundance on the Flemish Cap Bank compared to that of 1973 increased by 3.5 times and on the St. Pierre Bank - by 3 times. In the rest Subareas no significant fluctuations in abundance and biomass of cod were observed.

3. The beaked redfish is the most popular species of commercial fishes in the Newfoundland area. Their abundance and biomass in all the Subareas, excluding the Flemish Cap Bank and the south-west slope of the Grand Bank, compared to those of 1973, have increased.

In Subareas 3M and 3O the abundance and biomass of beaked redfish decreased compared to 1973.

4.The abundance of the American plaice and dab varied in insignificant limits and without any definitely expressed tendency.

5.The total stock of the American plaice on the Flemish Cap Bank was equal to 84.3 thou.t.

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Table 1

Average number of the principal commercial fishes per trawling
hour in Division 3K
11/VIII-19/VIII-74.

Species	Depth, m					
	101-200		201-300		301-400	
	num- ber spec.	m, cm	num- ber spec.	m, cm	num- ber spec.	m, cm
<i>Raja radiata</i>	-	-	12,0	25,3	2,9	30,6
<i>Gadus morhua</i>	27,0	52,4	39,7	46,0	25,6	49,2
<i>Macrurus berglax</i>	-	-	0,8	57,1	1,4	47,8
<i>Anarhichas lupus</i>	-	-	19,3	39,0	9,8	41,1
<i>Lycodes sp.</i>	-	-	20,6	30,8	14,3	31,5
<i>Sebastes marinus</i>	-	-	21,0	36,2	108,2	40,3
<i>Sebastes mentella</i>	-	-	302,0	24,4	1283,0	29,2
<i>Reinhardtius hippoglossoides</i>	-	-	54,8	32,9	100,2	31,1
<i>Hippoglossoides platessoides</i>	673,0	32,2	243,4	25,9	96,9	25,7
<i>Glyptocephalus cynoglossus</i>	-	-	0,8	43,6	5,1	42,9
Number of trawlings		1		23		25

Table 2

Average number of the principal commercial fishes per trawling hour in Division 3L

21 /VII-29/VII-1/VIII-7/VIII-74.

Species	Depth, m							
	up to 100		101-200		201-300		301-400	
	num- ber spec.	m, cm.	num- ber spec.	m, cm.	num- ber spec.	m, cm.	num- ber spec.	m, cm.
<i>Raja radiata</i>	12,3	28,3	22,2	29,8	49,0	28,5	18,6	59,9
<i>Gadus morhua</i>	22,4	33,7	9,5	41,4	81,5	41,2	32,2	42,2
<i>Macrurus berglax</i>	-	-	-	-	6,5	38,5	11,8	51,4
<i>Anarhichas lupus</i>	-	-	-	-	13,9	38,5	4,6	-
<i>Anarhichas minor</i>	-	-	0,6	-	0,7	-	2,0	-
<i>Lycodes sp.</i>	0,3	-	13,7	40,0	16,9	38,8	8,6	42,3
<i>Sebastes mentella</i>	-	-	-	-	141,4	24,7	2891,1	29,5
<i>Reinhardtius hippoglossoides</i>	-	-	7,4	14,8	32,0	24,8	30,2	32,1
<i>Hippoglossoides platessoides</i>	515,9	30,0	1032,1	24,2	579,5	28,3	11,4	31,4
<i>Limanda ferruginea</i>	84,2	36,6	-	-	-	-	-	-
<i>Glyptocephalus cynoglossus</i>	1,2	50,6	0,8	50,0	0,9	49,6	17,6	43,2
Number of trawlings	11		19		20		5	

Table 3

Average number of the principal commercial fishes per trawling
hour in Division 3M
22/VIII-26/VIII-74.

Species	Depth, m					
	101-200		201-300		301-400	
	num-	m,	num-	m,	num-	m,
	ber	cm.	ber	cm.	ber	cm.
	spec.		spec.		spec.	
Gadus morhua	249,2	19,3	617,3	19,6	21,1	56,0
Nezumia bairdii	-	-	-	-	3,1	26,7
Anarhichas lupus	48,4	27,5	16,1	31,7	9,0	35,4
Anarhichas minor	0,4	-	1,3	-	1,5	-
Lycodes sp.	-	-	0,1	-	4,0	27,2
Sebastes marinus	80,0	14,7	541,2	26,5	3,1	-
Sebastes mentella	-	-	219,0	14,4	718,7	29,5
Hippoglossoides platessoides	91,4	41,6	130,3	41,6	4,5	38,0
Number of trawlings	5		9		6	

Table 4

Average number of the principal commercial fishes per trawling
hour in Division 3N
15/VI-27/VI-74.

Species	Depth, m							
	up to 100		: 101-200		: 201-300		: 301-400	
	num- ber	m, cm.	num- ber	m, cm.	num- ber	m, cm.	num- ber	m, cm.
	spec.		spec.		spec.		spec.	
<i>Raja radiata</i>	23,5	47,7	108,2	20,9	37,7	27,8	-	-
<i>Gadus morhua</i>	37,3	40,4	185,3	32,8	316,3	35,6	37,0	42,7
<i>Macrurus berglax</i>	-	-	0,5	-	12,6	57,6	-	-
<i>Anarhichas latifrons</i>	singly							
<i>Anarhichas lupus</i>	0,2	-	1,8	-	5,6	43,3	--	-
<i>Anarhichas minor</i>	-	-	0,1	-	0,8	-	-	-
<i>Lycodes</i> sp.	0,1	-	0,1	-	2,5	-	-	-
<i>Sebastes mentella</i>	-	-	190,5	14,9	1706,4	22,7	14127,0	21,6
<i>M. aeneus</i>	18,9	25,7	singly	-	-	-	-	-
<i>Hemitripterus americanus</i>	1,6	47,6	-	-	-	-	-	-
<i>Reinhardtius hippoglossoides</i>	-	-	8,9	34,5	10,4	27,7	-	-
<i>Hippoglossoides platessoides</i>	394,3	31,7	418,4	30,7	256,1	37,1	1,0	-
<i>Limanda ferruginea</i>	394,6	31,9	-	-	-	-	-	-
<i>Glyptocephalus cynoglossus</i>	0,4	-	5,2	42,7	3,5	43,3	-	-
Number of trawlings	28		12		14		1	

Table 5

Average number of the principal commercial fishes per trawling
hour in Division 30
3/VII-13/VII-74.

Species	Depth, m							
	: up to 100 : 101-200 : 201-300 : 301-400							
	: num- : m, :		: num- : m, :		: num- : m, :		: num- : m, :	
	ber :	cm. :	ber :	cm. :	ber :	cm. :	ber :	cm. :
	spec.		spec.		spec.		spec.	
<i>Raja radiata</i>	16,9	38,4	9,3	53,1	0,4	-	-	-
<i>Urophycis chestery</i>	-	-	-	-	98,0	18,8	37,0	23,4
<i>Urophycis tenuis</i>	0,2	-	10,4	54,4	18,0	65,8	-	-
<i>Melanogrammus aeglefinus</i>	0,2	-	7,0	23,3	-	-	-	-
<i>Gadus morhua</i>	20,6	29,1	53,1	29,5	0,6	40,7	-	-
<i>Nezumia bairdii</i>	-	-	-	-	18,3	22,6	-	-
<i>Macrurus berglax</i>	-	-	-	-	-	-	59,0	24,5
<i>Sebastes mentella</i>	-	-	859,0	17,4	1391,0	21,2	1085,0	22,8
<i>Reinhardtius hippoglossoides</i>	-	-	1,9	19,2	-	-	-	-
<i>Hippoglossoides platessoides</i>	221,5	28,7	143,6	26,4	20,8	32,8	-	-
<i>Limanda ferruginea</i>	223,3	35,7	0,2	-	-	-	-	-
<i>Glyptocephalus cynoglossus</i>	8,1	44,6	6,0	37,8	4,1	36,9	-	-
Number of trawlings	22		20		7		1	

Table 6

Average number of the principal commercial fishes in Division 3P
per trawling hour
13/VII-1 9/VII-74.

Species	Depth, m							
	up to 100		101-200		201-300		301-400	
	num- ber	m, cm.	num- ber	m, cm.	num- ber	m, cm.	num- ber	m, cm.
	spec.		spec.		spec.		spec.	
<i>Raja radiata</i>	27,3	30,9	19,8	49,3	8,3	-	-	-
<i>Urophycis tenuis</i>	0,5	-	8,9	53,0	64,7	46,1	-	-
<i>Melanogrammus aeglefinus</i>	-	-	26,4	26,3	2,5	-	-	-
<i>Gadus morhua</i>	39,0	23,6	115,7	24,8	141,7	24,7	-	-
<i>Sebastes mentella</i>	-	-	3182,9	15,4	3135,0	21,3	3941,0	23,1
<i>Myoxocephalus aeneus</i>	73,2	28,2	-	-	-	-	-	-
<i>Hemitripterus americanus</i>	2,5	-	0,05	-	-	-	-	-
<i>Hippoglossoides platessoides</i>	364,3	31,3	343,9	27,1	5,7	30,1	-	-
<i>Limanda ferruginea</i>	93,0	36,2	-	-	-	-	-	-
<i>Glyptocephalus cynoglossus</i>	7,1	38,4	38,9	36,0	59,8	35,5	-	-
Number of trawlings	11		18		6		1	

Table 7

Average fish catches(in spec)per trawling hour in the ICNAF areas
in 1971-1974.

Species	Year	Area					
		3K	3L	3M	3N	3O	3P
<i>Raja radiata</i>	1972	-	29	-	43	15	17
	1973	9	25	-	36	16	21
	1974	7	30	-	45	11	18
	1971	-	-	-	-	130	61
	1972	-	-	-	1	20	6
<i>Urophycis tenuis</i>	1973	-	-	-	-	5	4
	1974	-	-	-	-	7	16
	1972	-	-	-	10	10	16
<i>Melanogrammus aeglefinus</i>	1973	-	-	-	-	4	296
	1974	-	-	-	-	3	14
	1971	249	411	77	226	44	186
<i>Gadus morhua</i>	1972	158	205	66	139	56	145
	1973	41	29	108	134	53	34
	1974	32	40	346	185	30	93
	1971	34	-	93	-	-	-
	1972	15	11	40	-	-	-
<i>Sebastes marinus</i>	1973	45	-	214	-	-	-
	1974	65	-	264	-	-	-
	1971	292	82	66	1298	214	1459
	1972	612	37	449	366	498	654
<i>Sebastes mentella</i>	1973	475	113	484	645	884	884
	1974	796	314	314	733	560	2223
	1972	-	2	-	3	5	9
	1973	-	-	-	9	-	12
<i>Myoxocephalus aeneus</i>	1974	-	-	-	10	-	73
	1971	77	17	-	5	-	-
	1972	94	778	64	333	360	334
<i>Hippoglossoides platessoides</i>	1972	74	516	41	387	167	213
	1973	142	569	55	277	278	316
	1974	177	671	83	357	158	284
	1971	-	211	-	550	547	218
<i>Limanda ferruginea</i>	1972	-	126	-	326	128	44
	1973	-	31	-	206	122	52
	1974	-	84	-	395	98	93
<i>Glyptocephalus cynoglossus</i>	1974	3	-	-	-	7	32
Period of fishing	1971	July-August	July	May	June-July	May-June	May
	1972	June-July	June	April	April	April-May	May
	1973	July-August	July	July	June-July	June	June
	1974	August	July-August	August	June	July	July

Table 8

Average fish catches(in kg) per trawling hour in the ICNAF areas
in 1971-1974.

Species	Year	Area					
		3K	3 L	3M	3 N	3O	3P
<i>Raja radiata</i>	1972	-	19	-	55	34	23
	1973	4	27	-	53	47	47
	1974	2	23	-	30	17	29
<i>Urophycis tenuis</i>	1971	-	-	-	-	347	-
	1972	-	-	-	4	33	11
	1973	-	-	-	-	7	4
	1974	-	-	-	-	9	18
<i>Melanogrammus aeglefinus</i>	1972	-	-	-	1	3	8
	1973	-	-	-	-	1	40
	1974	-	-	-	-	0,4	4
<i>Gadus morhua</i>	1971	216	337	68	150	34	67
	1972	134	163	75	72	67	76
	1973	33	19	46	47	18	10
	1974	36	33	51	72	10	18
<i>Sebastes marinus</i>	1971	31	-	85	-	-	-
	1972	21	11	334	-	-	-
	1973	24	-	141	-	-	-
	1974	69	-	104	-	-	-
<i>Sebastes mentella</i>	1971	125	33	12	246	24	139
	1972	266	16	194	43	62	77
	1973	150	33	117	161	114	148
	1974	308	110	89	145	66	240
<i>Myoxocephalus aeneus</i>	1972	-	0,3	-	1	1	2
	1973	-	-	-	2	-	6
	1974	-	-	-	2	-	18
<i>Reinhardtius hippoglossoides</i>	1974	35	5	-	2	-	-
	1971	29	304	43	214	140	125
	1972	9	132	22	117	42	29
<i>Hippoglossoides platessoides</i>	1973	56	111	37	107	77	60
	1974	43	166	74	186	53	101
<i>Limanda ferruginea</i>	1971	-	100	-	145	188	102
	1972	-	57	-	140	46	19
	1973	-	12	-	76	50	19
	1974	-	40	-	137	46	43
<i>Glyptocephalus cynoglossus</i>	1974	2	-	-	-	3	10
Period of fishing	1971	July-August	July	May	June-July	May-June	May
	1972	June-July	June	April	April	April-May	May
	1973	July-August	July	July	June-July	June	June
	1974	August	July-August	August	June	July	July

Table 9
Average catch per trawling hour in different parts of Division 3L

Layer	Number of trawlings	Catch per trawling hour		Average length
		number of specimens	kg	
Cod				
364	3	I7	9,7	33,3
365	2	II	-	-
366	3	8	-	41,4
367	3	35	16,2	35,9
369	3	86	58,3	36,I
370	3	38	19,0	32,4
37I	I	52	17,8	3I,4
372	4	22	14,0	36,8
384	3	0,3	-	-
385	3	3	-	-
386	2	I7	-	48,2
387	2	II	-	-
389	5	200	I73,4	42,8
390	4	4	-	-
39I	3	96	55,7	38,0
Redfish				
346	I	I63	I25,8	36,6
367	3	2II	I8,3	I9,I
369	3	I30	22,I	22,8
386	2	5263	I9II,9	29,9
387	2	282	I23,6	29,7
388	I	2606	949,4	28,7
389	5	256	63,I	25,2
39I	3	373	I25,8	27,9
American plaice				
344	I	429	I20,I	28,6
347	I	205	5I,6	27,9
348	5	969	I75,I	23,8
349	I	660	I84,9	28,2
350	I	I27	63,8	34,7
363	I	554	I95,2	29,9
364	3	2033	409,8	25,4

continued

Table 9

Layer	Number of : trawlings	Catch per trawling hour		Average : length
		number of specimens	kg	
365	2	2074	443,4	25,7
366	3	465	113,5	26,8
367	3	285	105,2	31,3
369	3	316	124,4	32,1
370	3	656	143,8	25,2
371	1	443	140,0	26,9
372	4	744	268,1	29,7
384	3	395	171,0	31,8
385	3	741	133,8	23,5
386	2	797	177,0	25,5
387	2	241	102,2	32,2
389	5	473	144,9	29,2
390	4	318	113,9	29,9
391	3	713	211,0	29,2
Thorny skate				
348	5	47	8,1	22,1
366	3	5	-	-
367	3	4	-	-
369	3	37	68,4	49,7
370	3	48	18,8	25,2
371	1	67	19,5	26,9
372	4	10	-	-
384	3	13	-	-
385	3	73	69,2	32,8
386	2	164	33,8	20,3
387	2	8	-	-
388	1	53	139,5	64,9
389	5	38	27,4	28,8
390	4	24	14,1	24,5
391	3	22	65,7	58,7

Table 10

Average catch per trawling hour in different parts of Division 3N

Layer	Number of trawlings	Catch per trawling hour number of specimens	kg.	Average length
Cod				
354	8	10	4,1	23,2
359	7	66	26,5	33,6
360	9	63	73,2	46,2
361	5	79	43,1	34,2
362	4	11	-	-
374	6	106	38,9	31,8
376	6	31	28,6	37,4
380	5	55	17,8	32,4
381	3	90	19,7	27,1
382	1	348	130,8	34,6
Redfish				
358	1	3690	770,5	22,8
359	7	520	65,4	17,2
360	9	2414	472,2	21,9
374	6	6	-	-
376	6	160	38,3	23,4
378	1	8160	1655,0	22,5
379	1	990	274,3	25,0
380	5	215	55,3	24,2
381	3	5	-	-
American plaice				
354	8	155	43,1	26,1
357	1	449	175,1	29,3
359	7	224	156,3	32,4
360	9	550	122,6	24,6
361	5	99	93,0	42,6
362	4	155	95,9	36,2
373	4	726	639,2	39,0
374	6	165	107,5	36,9
376	6	213	96,6	31,7
378	1	77	46,4	37,2
379	1	264	172,6	37,7
380	5	496	336,2	37,9
381	3	737	282,7	31,5
382	1	55	34,9	37,6
383	1	60	64,6	44,4

continued

Table 10

Layer	Number of trawlings	Catch per trawling hour		Average length
		number of specimens	kg	
Dab				
357	I	491	139,4	29,7
359	7	217	43,6	26,4
360	9	102	51,0	36,9
361	5	511	183,2	32,3
362	4	1186	420,3	32,5
373	4	25	14,3	38,9
374	6	14	6,4	36,4
375	1	13	-	-
376	6	104	35,9	31,7
Thorny skate				
354	8	1	-	-
357	1	71	97,2	45,7
359	7	5	-	-
360	9	33	25,3	38,0
361	5	17	53,5	66,3
362	4	10	-	-
373	4	10	-	-
374	6	56	28,3	23,4
376	6	18	44,0	57,1
380	5	76	38,9	25,4
381	3	336	49,4	19,0

Table 11

Average catch per trawling hour in different parts of Division 30

Layer	Number of trawlings	Catch per trawling hour		Average length
		number of spec.	kg.	
Cod				
330	3	3	-	-
331	3	62	16,9	28,0
332	9	39	14,7	32,3
337	7	17	6,3	33,0
338	3	2	-	-
351	2	7	-	-
352	7	44	10,4	25,3
353	2	3	-	-
354	8	30	8,2	27,8
Redfish				
332	9	994	162,3	21,8
337	7	777	96,5	19,5
354	8	1431	134,1	17,3
American plaice				
330	3	192	93,3	30,8
331	3	203	49,1	25,4
332	9	66	22,5	29,4
337	9	77	24,9	28,5
338	3	231	77,8	25,7
339	1	618	74,6	21,0
351	2	213	171,8	39,6
352	7	118	46,7	29,5
353	2	745	193,3	25,8
354	8	119	37,7	28,9
Dab				
330	3	11	-	-
331	3	36	17,9	36,2
332	9	4	-	-
338	3	112	54,0	36,4
351	2	348	146,1	34,2
352	7	359	155,5	35,1

Table 12

Average catch per trawling hour in different parts of Division 3P

Layer	Number of trawlings	Catch per trawling hour		Average length
		Number of spec.	kg.	
Cod				
313	4	104	18,2	25,1
314	3	34	7,0	22,2
315	6	12	2,5	23,5
316	3	304	53,6	25,6
318	3	66	26,2	30,7
319	4	24	5,0	22,1
320	7	220	30,4	22,9
321	2	12	-	-
Haddock				
313	4	9	-	-
314	3	29	5,6	27,1
315	6	45	42,0	21,6
316	3	8	-	-
318	3	18	17,8	40,7
Redfish				
313	4	2308	280,0	17,4
314	3	10	-	-
315	6	2150	162,4	15,4
316	3	2678	511,1	21,8
317	1	2504	355,9	19,6
318	3	9607	934,5	16,5
319	4	38	23,8	36,7
320	7	2035	127,7	14,3
American plaice				
313	4	98	14,1	22,9
314	3	78	18,4	25,7
315	6	335	57,0	23,6
316	3	7	-	-
317	1	138	13,0	14,9
318	3	104	37,5	29,7
319	4	585	285,0	33,2
320	7	300	87,2	26,5
321	2	588	532,7	44,0
322	1	471	59,0	23,6
323	1	1082	164,9	24,2
Dab				
314	3	100	49,1	37,2
315	6	4	-	-
320	7	96	42,7	35,6
321	2	14	-	-