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Total trawl survey of bottom fishes in the
Newfoundland area in 1975

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Abstract

The paper presents the data on the abundance and biomass of principal commercial species in the Newfoundland area. The tabulated results characterize the distribution of fishes by depths and the size composition of various species in 1975, estimate the changes which occurred in the abundance and biomass of the species in the 1971 - 1975 period.

The total trawl survey of bottom species was made in June - September 1975 by R/V " Perseus III ". The work was done according to a standard grid of stations with a bottom trawl whose bag was lined with a fine meshed capron net (knot to knot distance 8 mm) (Postolaky, 1972, Chekhova, 1975).

Investigations extended to 400 metres. Greenland halibut, witch and grenadiers who live chiefly below 400 m have not been included in our investigations. The data on the catches of these fishes at depths less than 400 m are to be found in tables 1 - 6.

The results of the survey are presented in tables 1 - 8. The supplement (tables 9 - 12) contains the data on the abundance and biomass of the principal commercial species by separate " strata " (Pinhorn and Pitt, 1972) in Divisions 3L, 3N, 3O, 3P. The present survey was made somewhat later than in the previous years - in July - September. In Division 3N the survey was carried out in two stages - in July and September - the interval between

the stages being 6 weeks (in tables pertaining to Division 3N the data for these two months are combined).

Discussion of results

The thorny skates. The indices of abundance and biomass of this species (catch in numbers and in kg per hour trawling) in all the years have been fluctuating insignificantly without any definite trend. A peak number of skates occurred at the depth of 100 - 200 m. In 1975 the young skates 12 - 20 cm long were reported from all Divisions. In Division 3P the thorny skates of 12 - 17 cm length made up 36% of the caught skates and in Division 3N they accounted for 33%.

The survey covered the areas of intensive fishing activities. One fact is of interest: in spite of the fact that the skates are the fishes living sedentary life, with a wide body and extremely low fecundity the removals during all the years have not in the slightest degree affected the abundance and size composition of the species.

The white hake. The white hake abundance and biomass for the last 5 years have been fluctuating.

From 1971 to 1973 in Divisions 3O and 3P was observed a marked decline in the abundance of white hake. A tendency toward an increase shown by the abundance and biomass first in 1974 continued in 1975. In 1975 in Division 3P most often were caught the fish of 42 - 50 cm length, in Division 3O - 21 - 26 cm long.

The haddock. The abundance and biomass of haddock on the southern slopes of the Grand Newfoundland Bank remains at a very low level. In Division 3N the haddock were caught only during two trawlings out of 40.41 specimens of 8 - 11 cm length were caught.

The cod. The soviet investigations have shown (Postolaky, 1962; Serebryakov, 1967) that in sub - area 2, Division 3K and the northern part of Division 3L there is a single cod stock.

The abundance and biomass of cod in Divisions 3K and 3L were fluctuating synchronously and these fluctuations were in a good agreement with the catches of the Soviet trawling fleet. The total trawl survey showed that the abundance and biomass of cod were at the highest level in 1972. Since 1973 the survey indices have sharply decreased and in 1975 were at a minimum level. A peak removal of cod was also in 1972 but from this year on it has been continuously decreasing.

In the catches taken in the course of the 1975 survey in Division 3K numerically prevailed the fish 24 - 29 cm long, in Division 3L - 27 - 38 cm long. The cod longer than 45 cm occurred in the catches in small numbers.

On the Flemish Cap Bank the abundance of cod began to increase in 1973 and the biomass - in 1974. In the last 2 years dominated the extremely strong 1973 year - class and the somewhat inferior in abundance but very strong 1974 year - class (USSR, Research Report, 1975). In 1975 the main cod concentrations kept at a depth 100 - 300 m. Most often were caught the fishes 21 - 35 cm long.

In Division 3N and 3O lives a single cod stock whose abundance and biomass have been declining from 1971 to 1973 but again have shown some increase from 1974 to 1975. In 1975 the cod kept at a depth 200 - 400 m.

On the St. Pierre Bank the abundance and biomass of cod have been decreasing since 1971 and in 1975 were at the lowest level. In 1975 the fish 12 - 17 cm long of the 1974 year - class at depths up to 100 m comprised 36% of the total number of specimens.

The golden redfish. The abundance of golden redfish in Divisions 3K, 3L, 3M in 1975 has decreased as compared with that of 1972 - 1974. In Division 3K the golden redfish of 6 - 13 cm length made up 48% of the total abundance.

The beaked redfish. In the period covered by the records of fish abundance and biomass the beaked redfish was the most abundant species in all ICNAF Divisions.

In Division 3E since 1971 the abundance and biomass of beaked redfish have not experienced significant changes. The fluctuations do not show any definite trend but one may say that in 1974 - 1975 the stocks of beaked redfish were at a rather high level.

Since 1972 due to the appearance of a number of strong year-classes (1963 - 1966 ,1967 - 1969) the abundance and biomass of the beaked redfish on the Flemish Cap have increased. In 1975 numerically and by weight small immature fish prevailed. The fish shorter than 30 cm comprised 68% of the stock.

The beaked redfish is most abundant on the southern slopes of the Grand Newfoundland Bank and on the St. Pierre Bank. The peaks of abundance were recorded in 1975. The fish longer than 30 cm accounted in Division 3N. for only 1.4%, in Division 3O - 0.3%, in Division 3P - 0.0%.

The flat fishes. The abundance and biomass of the American plaice remain approximately at a stable level. In 1975 the abundance and biomass of the yellow tail flounder have shown a slight tendency toward a decline. Especially low in 1975 were the indices in Divisions 3L and 3P.

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Table 1. Average number of specimens of bottom fishes caught per hour trawling in div. 3K August 19-24 and 30 1975.

Species	Depth, m					
	101-200		201-300		301-400	
	Number of specimens	average length, cm	Number of specimens	average length, cm	Number of specimens	average length, cm
Raja radiata	-	-	4	31,2	10	35,6
Gadus morhua	-	-	36	36,3	25	43,8
Nezumia berglax	-	-	1	55,4	1	52,1
Anarhichas lupus	-	-	23	41,6	12	41,5
Anarhichas latifrons	-	-	1	65,9	1	65,5
Lycodes sp.	-	-	22	31,5	24	29,8
Sebastes marinus	-	-	16	17,8	6	44,8
Sebastes mentella	-	-	212	22,6	1065	30,5
Reinhardtius hippoglossoides	27	38,1	134	25,7	135	30,0
Hippoglossoides platessoides	828	37,7	413	25,0	106	25,7
Clyptocephalus eynoglossus	-	-	-	-	7	36,4
Number of trawlings	1		21		24	

Table 2. Average number of specimens of bottom fishes caught per hour trawling in div. 3L August 30-31 and September 1-14 1975.

Species	Depth, m							
	< 100		101-200		201-300		301-400	
	Number of specimens	Average length, cm	Number of specimens	Average length, cm	Number of specimens	Average length, cm	Number of specimens	Average length, cm
Raja radiata	15	32,8	68	26,3	36	37,6	26	46,0
Gadus morhua	18	37,5	5	30,5	48	38,8	10	44,9
Macrurus berglax	-	-	-	-	14	48,8	13	45,0
Anarhichas lupus	-	-	1	-	23	41,7	12	40,7
Anarhichas minor	-	-	1	-	6	55,3	-	-
Lycodes sp.	1	-	10	43,3	65	36,4	52	34,1
Sebastes marinus	-	-	-	-	7	24,2	-	-
Sebastes mentella	-	-	2	-	80	27,4	453	29,9
Reinhardtius hippoglossoides	-	-	29	22,9	61	28,6	124	30,6
Hippoglossoides platessoides	578	29,2	710	26,1	831	30,2	38	27,3
Limanda ferrugines	16	34,8	-	-	-	-	-	-
Number of trawlings	13		21		23		6	

Table 3. Average number of specimens of bottom fishes caught per hour trawling in div. 3M June 21-24 1975.

Species	101-200		201-300		301-400	
	Number of specimens	Average length, cm	Number of specimens	Average length, cm	Number of specimens	Average length, cm
Gadus morhua	747	23,0	609	27,3	27	39,6
Anarhichas lupus	100	29,8	22	39,1	12	47,9
Sebastes marinus	32	18,6	214	21,2	57	23,4
Sebastes mentella	68	17,7	361	27,3	1779	27,8
Hippoglossoides platessoides	116	39,8	95	30,6	47	32,0
Number of trawlings	5		10		3	

Table 4. Average number of specimens of fishes caught per hour trawling in div. 3N July 27-31 and September 14-23 1975.

Species	Depth, m							
	0-100		101-200		201-300		300-400	
	Number	Avg	Number	Avg	Number	Avg	Number	Avg
	of specimens	length, cm	of specimens	length, cm	of specimens	length, cm	of specimens	length, cm
Raja radiata	21	53,7	147	26,9	89	49,5	68	67,5
Gadus morhua	170	34,6	25	46,7	351	50,3	326	42,7
Melanogrammus aeglefinus I	-	-	-	-	-	-	-	-
Macrurus berglax	-	-	2	-	23	55,0	18	-
Anarhichas lupus	-	-	2	-	2	-	-	-
Lycodes sp.	-	-	5	-	6	34,2	20	-
Sebastes mentella	-	-	68	17,6	5902	20,7	1727	25,2
Myoxocephalus aeneus	56	25,4	-	-	-	-	-	-
Reinhardtius hippoglo-	-	-	8	25,6	58	28,0	-	-
Hippoglossoides platessoides	322	31,3	717	32,9	190	34,8	40	47,4
Limanda ferruginea	227	34,0	-	-	-	-	-	-
Clyptocephalus eynoglossus	1	-	1	-	12	42,0	8	-
Number of trawlings	40		12		14		2	

Table 5. Average number of specimens of fishes caught per hour trawling in div. 3C July 1-3,15,17,20,27 1975.

Species	Depth, m							
	<100		101-200		201-300		301-400	
	Number of specimens	Avg length, cm	Number of specimens	Avg length, cm	Number of specimens	Avg length, cm	Number of specimens	Avg length, cm
Raja radiata	II	45,4	32	48,2	2	-	-	-
Raja senta	-	-	I	-	-	-	-	-
Gadus morhua	4I	36,0	20	34,2	6	49,0	-	-
Melanogrammus aeglefinus	I	-	7	26,2	5	-	-	-
Urophycis tenuis	-	-	8	52,4	72	40,0	15	-
Urophycis chestery	-	-	-	-	96	19,3	70	26,6
Sebastes marinus	-	-	103	21,8	-	-	-	-
Sebastes mentella	4	13,0	2226	10,4	6770	23,5	2824	24,8
Myoxocephalus aeneus	II	26,5	-	-	-	-	-	-
Reinhardtius hippoglossoides	-	-	I	22,1	6	20,1	15	19,2
Hippoglossus hippoglossus	-	-	9	-	2	-	-	-
Hippoglossoides platessoides	36I	27,8	355	25,8	25	34,5	7	-
Limanda ferruginea	199	33,9	2	31,1	-	-	-	-
Clyptocephalus cynoglossus	-	-	4	-	2	-	II	-
Number of trawlings	32		21		10		I	

Table 6. Average number of specimens of bottom fishes caught per hour trawling in div. 3P July 3-9 and 14 1975.

Species	Depth, m							
	<100		101-200		201-300		301-400	
	Number	Avg	Number	Avg	Number	Avg	Number	Avg
	of spe-	lgth,	of spe-	lgth,	of spe-	lgth,	of spe-	lgth,
	cimens	cm	cimens	cm	cimens	cm	cimens	cm
Raja radiata	22	30,5	32	42,5	-	-	-	-
Gadus morhua	II	27,8	19	38,9	21	39,2	-	-
Melanogrammus aegle-	-	-	7	40,6	32	42,8	-	-
^{finus} Urophycis tenuis	-	-	9	58,6	55	48,3	-	-
Anarhichas lupus	-	-	2	-	-	-	-	-
Sebastes mentella	26	9,3	3852	11,2	40569	22,3	-	-
Myoxocephalus aeneus	I6	26,1	-	-	-	-	-	-
Hemitripterus ameri-	I	-	-	-	-	-	-	-
^{canus} Hippoglossus hippoglo-	--	-	3	-	-	-	-	-
^{ssus} Hippoglossoides pla-	396	27,7	364	23,8	-	-	-	-
^{tessoides} Limanda ferruginea	33	35,0	-	-	-	-	-	-
Clyptocephalus cyno-	-	-	30	39,3	-	-	-	-
^{glossus}								
Number of trawlings	I4		I8		5			

Table 7. Average catches (in numbers) taken per hour trawling in ICNAF divisions in 1971-1975.

Species	Year	Division					
		3K	3L	3M	3N	3O	3P
Raja radiata	1972		29		43	15	17
	1973	9	25		86	16	21
	1974	7	30		45	11	18
	1975	3	41		58	16	24
	1971						
Urophycis tenuis	1972				I	14	16
	1973					20	6
	1974					5	4
	1975					7	16
	1971					14	12
Melanogrammus aeglefinus	1972				10	10	16
	1973					4	296
	1974					3	14
	1975				I	3	8
	1971	97	184	77	208	44	183
Gadus morhua	1972	158	205	66	139	56	145
	1973	41	29	108	134	53	34
	1974	32	40	346	185	30	93
	1975	27	24	550	186	28	16
	1971	30		93			
Sebastes marinus	1972	15	11	409			
	1973	45		214			
	1974	65		264			
	1975	9	7	137			
	1971	337	82	66	911	957	1185
Sebastes mentella	1972	612	37	449	366	498	654
	1973	475	113	484	645	884	884
	1974	796	314	314	733	560	2223
	1975	692	73	516	1278	1834	7366
	1972		2		3	5	9
Myoxocephalus aeneus	1973				9		12
	1974				10		73
	1975				56	11	16
	1971	57	703	38	194	185	317
	1972	74	516	41	387	187	213
Hippoglossoides platessoides	1973	142	569	55	277	278	316
	1974	177	671	83	357	158	284
	1975	238	663	93	356	301	327
	1971		71		282	16	53
	1972		126		326	128	44
Limanda ferruginea	1973		31		206	122	52
	1974		84		395	98	93
	1975		16		227	100	33
	1971	Jul-Aug	July	May	Jun-Jul	May-Jun	May
	1972	Jun-Jul	June	April	April	Apr-May	May
Period	1973	Jul-Aug	July	July	Jun-Jul	June	June
	1974	August	Jul-Aug	August	June	July	July
	1975	August	Aug-Sep	June	Jul-Sep	July	July

Table 8. Average catches (in kg) taken per hour trawling in ICNAF divisions in 1971-1975.

Species	Year	Divisions					
		3K	3L	3M	3N	3O	3P
Raja radiata	1972	-	19	-	55	34	23
	1973	4	27	-	53	47	47
	1974	2	23	-	30	17	29
	1975	2	33	-	82	31	36
Urophycis tenuis	1971	-	-	-	-	34	34
	1972	-	-	-	4	33	11
	1973	-	-	-	-	7	4
	1974	-	-	-	-	9	18
Melanogrammus aeglefinus	1975	-	-	-	-	14	15
	1972	-	-	-	1	3	8
	1973	-	-	-	-	1	40
	1974	-	-	-	-	0.4	4
Gadus morhua	1975	-	-	-	-	1	7
	1971	77	138	69	135	34	65
	1972	134	163	75	72	67	76
	1973	33	19	46	47	18	10
Sebastes marinus	1974	36	33	51	72	10	18
	1975	19	20	121	155	16	9
	1971	27	-	85	-	-	-
	1972	21	11	334	-	-	-
Sebastes mentella	1973	24	-	141	-	-	-
	1974	69	-	104	-	-	-
	1975	5	2	37	-	21	-
	1971	144	33	13	221	80	130
Myoxocephalus aeneus	1972	266	16	194	43	62	77
	1973	150	38	117	161	114	148
	1974	308	110	89	145	66	240
	1975	282	29	163	241	166	1037
Hippoglossoides platessoides	1972	-	0.2	-	1	1	2
	1973	-	-	-	2	-	6
	1974	-	-	-	2	-	18
	1975	-	-	-	11	2	3
Limanda ferruginea	1971	16	250	26	142	57	109
	1972	9	132	22	117	42	29
	1973	56	111	37	107	77	660
	1974	43	166	74	186	53	101
Period	1975	66	202	53	171	90	72
	1971	-	31	-	110	8	26
	1972	-	57	-	140	46	19
	1973	-	12	-	76	50	19
Period	1974	-	40	-	137	46	43
	1975	-	7	-	88	41	14
	1971	Jul-Aug	July	May	Jun-Jul	May-Jun	May
	1972	Jun-Jul	June	April	April	Apr-May	May
1973	Jul-Aug	July	July	Jun-Jul	June	June	
1974	August	Jul-Aug	August	June	July	July	
1975	August	Aug-Sep	July	Jul-Sep	July	July	

Table 9. Average catch per hour trawling at various strata in div. 3L

Deaked redfish				
Stratum	Number of trawlings	Catch per hour trawling		Average length
		in numbers	in kg	
I	2	3	4	5
344	2	99	87,7	38,3
346	1	275	198,2	35,5
366	5	40	2,6	14,3
367	3	98	16,1	22,5
369	2	67	13,7	23,3
386	2	7	-	-
387	3	429	174	30,0
388	1	488	264,3	32,4
389	6	227	73,0	27,6
390	4	39	14,1	28,4
391	3	63	32,1	31,4
Greenland halibut				
344	2	189	73,0	28,4
346	1	138	39,2	24,0
348	3	101	25,4	22,5
365	2	4	-	-
366	5	79	38,6	28,7
367	3	64	68,1	40,4
368	1	44	-	-
369	2	213	87,0	28,7
370	4	4	-	-
385	3	7	-	-
386	2	12	-	-
387	3	56	29,5	29,0
388	1	87	-	-
389	6	38	17,3	27,8
390	4	47	11,9	22,3
391	3	45	16,2	25,7
344	2	1837	825,1	33,2
346	1	12	-	-
347	2	1064	284,7	27,4
348	3	836	144,4	24,2
349	2	288	104,0	30,5
350	1	65	-	-
363	2	1069	260,7	26,8
364	3	682	157,1	26,7
365	2	859	149,5	24,3
366	5	1072	355,8	29,8
367	3	184	71,7	31,9

Table 9 continued.

Beaked redfish				
Stratum	Number of trawlings	Catch per hour trawling		Average length
		in numbers	in kg	
I	2	3	4	5
368	I	49	-	-
369	2	567	187,5	31,6
370	4	765	173,4	25,8
371	I	910	266,1	28,0
372	4	574	245,0	31,5
384	3	429	135,3	27,9
385	3	613	141,3	26,0
386	2	700	152,6	26,3
387	3	429	168,4	31,3
388	I	31	-	-
389	6	1019	322,1	30,1
390	4	369	108,1	28,4
391	3	429	168,4	31,3
Yellow tail flounder				
363	2	361	147,1	34,6
371	I	18	-	-
372	4	67	30,2	35,2
Thorny skate				
344	2	15	-	-
346	I	29	-	-
348	3	5	-	-
349	2	29	-	-
363	2	8	-	-
364	3	12	-	-
365	2	9	-	-
366	5	28	48,7	34,1
367	3	28	-	-
368	I	24	-	-
369	2	35	-	-
370	4	111	51,8	28,1
371	I	38	-	-
372	4	5	-	-
384	3	15	-	-
385	3	72	47,1	28,8
386	2	149	71,8	22,8
387	3	18	-	-
389	6	35	39,6	34,7
390	4	67	35,6	28,8
391	3	128	97,8	29,3

Table 10. Average catch per hour trawling at various strata in div. 3N

Cod				
Stratum	Number of trawlings	Catch per hour trawling		Average length
		in numbers	in kg	
1	2	3	4	5
357	2	760	355,7	37,5
359	7	10	16,5	-
360	II	314	530,6	55,8
361	II	585	260,9	34,5
362	8	28	13,2	31,8
373	4	4	-	-
374	5	41	37,3	46,1
375	4	4	-	-
376	6	31	39,1	45,4
380	I	192	126,1	41,9
381	4	26	10,4	35,2
382	2	16	-	-
383	I	5	-	-

Beaked redfish				
1	2	3	4	5
357	2	1074	336,3	24,7
359	7	4565	661,1	19,2
360	II	3312	647,6	22,1
374	5	120	34,3	24,7
376	6	1835	421,5	23,6
380	I	2788	845,1	25,8
381	4	82	27,0	26,3
382	2	II	-	-
359	7	3	-	-
374	5	55	24,4	31,5
376	6	9	-	-
380	I	81	-	-
381	4	63	20,0	23,4
382	2	14	-	-
383	I	10	-	-

Table 10 continued.

Stratum	Number of trawlings	Catch per hour trawling		Average length
		in numbers	in kg	
I	2	3	4	5

American plaice

357	2	8	-	-
359	7	382	149,6	29,4
360	II	517	153,3	29,6
36I	II	168	175,5	43,8
362	8	373	132,5	29,8
373	4	467	238,6	32,8
374	5	695	377,4	34,9
375	4	106	95,8	40,5
376	6	225	138,2	35,8
380	I	79	-	-
38I	4	486	149,5	30,6
382	2	811	360,6	33,5
383	I	76	-	-

Yellow tail flounder

360	II	128	64,0	36,6
36I	II	877	337,9	33,2
382	8	310	128,0	34,4
373	4	214	78,6	32,9
375	4	44	26,6	39,4
376	6	105	45,9	34,3

Thorny skate

357	2	7	-	-
359	7	47	29,7	27,0
360	II	6	-	-
36I	II	36	110,2	64,2
362	8	9	-	-
373	4	30	22,2	32,3
374	5	227	140,4	27,0
375	4	16	-	-
376	6	24	40,7	47,9
380	II	6	-	-
38I	4	86	108,1	42,3
382	2	178	88,4	25,2
383	I	11	-	-

Table 11. Average catch per hour trawling
at various strata in div. 30

Cod				
Stratum	Number of trawlings	Catch per hour trawling		Average length
		in numbers	in kg	
I	2	3	4	5
330	3	2	-	-
331	2	4	-	-
332	7	10	-	-
333	I	25	-	-
336	I	45	-	-
337	7	I	-	-
338	4	26	15,0	30,7
340	2	4	-	-
351	6	81	35,6	34,6
352	6	112	69,4	38,3
354	7	13	15,2	45,2
355	I	35	-	-
340	2	4	-	-

Beaked redfish				
320	7	2459	310,8	18,7
330	I	1476	60,7	11,9
334	I	3276	270,7	16,0
336	I	14970	451,4	10,7
337	7	2112	229,6	17,2
353	I	125	6,9	13,1
354	7	6447	728,0	17,0
355	I	1908	57,4	9,3
326	I	104	61,6	35,2
330	3	630	191,6	28,5
331	2	844	139,7	21,7
332	7	209	48,9	25,6
333	I	97	-	-
334	I	42	-	-
336	I	180	81,8	33,0
337	7	107	29,0	26,4
338	4	293	74,9	25,0
339	I	1756	286,7	23,7
340	2	1188	232,8	24,5
350	I	179	50,9	27,8
351	6	405	233,7	34,8
352	6	108	69,4	35,5
353	I	315	81,2	25,6
354	7	265	87,0	27,7
355	I	180	77,7	26,0

Table 11 continued

Stratum	Number of trawlings	Catch per hour trawling		Average
		in numbers	in kg	length
1	2	3	4	5
Yellow tail flounder				
330	3	77	39,7	36,8
331	2	91	34,6	31,4
338	4	187	90,9	36,2
339	1	8	-	-
340	2	170	75,8	35,2
350	1	73	-	-
351	6	329	135,5	33,8
352	6	459	176,6	32,7
Thorny skate				
326	1	6	-	-
330	3	5	-	-
331	2	46	9,1	20,0
332	7	22	18,5	31,1
333	1	11	-	-
336	1	70	-	-
337	7	39	61,3	46,5
351	6	7	-	-
352	6	23	41,8	50,6
354	7	6	-	-
355	1	20	-	-
White hake				
332	7	14	21,2	55,6
334	1	43	-	-
336	1	4	-	-
337	7	61	29,7	31,5
354	7	22	26,0	45,8

Table 12. Average catch per hour trawling at various strata in div. 3P

Stratum	Number of trawlings	Cod		Average length
		Catch per hour trawling in numbers	in kg	
1	2	3	4	5
311	2	6	-	-
312	3	36	21,5	40,3
314	1	35	-	-
315	6	1	-	-
319	5	55	37,1	39,5
320	5	18	-	-
321	2	6	-	-
Beaked redfish				
311	2	30816	7061,8	22,1
315	6	9314	1434,7	19,8
316	2	12111	1173,2	14,6
317	2	1340	43,8	9,9
318	2	2560	213,5	14,4
319	5	5823	341,0	11,4
320	5	18707	352,7	21,9
American plaice				
312	3	239	24,5	20,9
314	1	64	-	-
315	6	332	55,0	23,5
316	2	46	-	-
317	2	145	37,4	26,8
318	2	270	53,8	27,0
319	5	386	110,2	26,0
320	5	218	35,2	21,3
321	2	165	86,2	33,4
322	3	794	184,1	26,5
323	2	896	173,3	25,6
325	2	416	73,4	24,7
Yellow tail flounder				
314	1	762	292,1	33,9
315	6	3	-	-
320	5	59	25,9	35,4
321	2	70	41,3	39,4
322	3	2	-	-

Table 12 continued

Stratum	Number of trawlings	Catch per hour trawling		Average length
		in numbers	in kg	
1	2	3	4	5
Thorny skate				
3I1	2	6	-	-
3I2	3	2	-	-
3I4	1	30	-	-
3I5	6	25	8,5	24,3
3I7	2	26	-	-
3I8	2	51	109,1	43,8
3I9	5	44	162,6	68,8
320	5	30	-	-
321	2	3	-	-
322	3	20	-	-
323	2	49	-	-
White hake				
3I1	2	40	-	-
3I2	3	58	47,4	46,6
3I5	6	16	-	-
3I8	2	38	-	-

