



Serial No. 2832
(D.b.71)

ICNAF Res.Doc. 72/106

ANNUAL MEETING - JUNE 1972

Preliminary Results of a Quantitative Analysis
of Commercial Fish in Subarea 3 in 1971

by

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I N T R O D U C T I O N

Since 1961 the Polar Institute has been regularly carrying out a quantitative analysis of young cod and haddock in the Newfoundland area and on the Flemish Cape Bank. In summer 1971, there was also carried out a quantitative analysis of all species of adult fish. Investigations were conducted on board the R/V "Perseus III". During the cruise 239 experimental trawlings were made (Fig.1). The 1 hour trawlings were made by a bottom trawl, the speed of the vessel was 3.5 knots. An 10 mm mesh kapron liner of 19 m in length was inserted in the cod - end.

In the case a catch was not greater than 1 t, all the fish were measured and counted. When a catch was greater than 1 t, only a part of the catch was weighed and measured and on the basis of the data obtained a number of fish of the total catch was determined. So, a number of all commercial fish in the catch was given for every experimental trawling. The weight of some important commercial fish of different length was determined at random and then according to the length-weight keys there determined the weight of the total catch. Table I includes the quantitative distribution of commercial fish in catches taken at different depths.

Preliminary Results of a Quantitative Analysis of Fish

Adult cod. In the course of experimental trawlings adult cod (more than 35 cm in length) were found singly or in some tens in all the areas. The greatest catches (up to 0.4 t) were registered in Division 3 O and in the western parts of Division 3 K (up to 0.3 t).

Haddock (*Melanogrammus aeglefinus*). Over the whole area observed haddock were seldom found in a trawl in May-August. As in previous years the maximum number of haddock per 1 hour trawling (1890 specimens) was observed on the southern slopes of the St.Pierre Bank (Division 3 P). Only in one catch taken on the south-western slope of the Great Newfoundland Bank (Division 3 O) there were found 176 individuals.

Flounders. As to flounders, in catches taken in summer long rough dab (*Hippoglossoides platessoides*) and yellowtail flounder (*Limanda ferruginea*) are of great importance. The greatest catches of these fish were taken on the St.Pierre and Great Newfoundland banks.

Witch flounder (*Glyptocephalus cynoglossus*) and Greenland halibut (*Reinhardtius hippoglossoides*) were registered in small numbers on the North-Newfoundland Bank (Division 3 K) and north-eastern slope of the Great Newfoundland Bank (Division 3 L).

Wolffish. The three species of wolffish (common wolffish, *Anarhichas lupus*, spotted wolffish, *A.minor*, and northern wolffish, *A.latifrons*) were found in insignificant numbers in all the areas. The most abundant were common wolffish: the greatest catch (195 specimens) was taken per 1 hour trawling at depths of 235-280 m on the north-eastern slope of the Great Newfoundland Bank (3 L).

Beaked redfish (*Sebastes mentella*). In the Newfoundland areas at depths more than 150 m beaked redfish was the most abundant species. The greatest numbers of beaked redfish were found on the south-western and south-eastern slopes of the Great New-

foundland Bank (Divisions 3 O and 3 M) on the north-eastern slope

of the Great Newfoundland Bank (Division 3 L) *Sebastes mentella* were registered in catches in single specimens. In all the areas surveyed redfish were small, the prevailed length was 16-22 cm. Some specimens reached a length of 30-32 cm.

Golden redfish (*Sebastes marinus*). No considerable concentrations of this species were found in the course of experimental trawlings. Only in Division 3 K (on the Ritu Bank) there was registered a concentration of golden redfish and the catches per 1 hour trawling were more than 3 t. Fish were of 14-61 cm in length, the predominant length was 35-38 cm.

White hake (*Urophycis tenuis*). The species given was mainly found at depths of 150-320 m on the St. Pierre Bank (3 P) and on the south-western slope of Great Newfoundland Bank (3 O). The maximum catch per 1 hour trawling was 257 individuals. The length of fish ranged between 15 and 95 cm, the predominant length was 69-71 cm.

Conclusion

In May-July, beaked redfish, long rough dab and yellowtail flounder prevailed in catches taken on the Great Newfoundland, St. Pierre and Flemish Cape banks. On the North-Newfoundland Bank (at a depth more than 250 m) there dominated beaked and golden redfish. During this period in all the areas surveyed no commercial concentrations of adult cod and haddock were found.

The results of a quantitative analysis of main commercial fish classified according to ICNAF Divisions are given in Table 2.

Table 1

Average number of important commercial fish taken
per 1 hour trawling in Division 3 M (11.5-13.5-1971)

Species	Depth, in m						Total mean length, in cm
	10I-200		20I-300		30I-400		
	No.	m	No.	m	No.	m	
Gadus morhua (L.)	59,0	35,34	97,6	38,14	56,5	55,09	39,72
Melanogrammus aeglefinus (L.)	-	-	-	-	-	-	-
Urophycis tenuis (Mitch)	-	-	-	-	-	-	-
Anarhichas lupus (L.)	20,5	-	6,7	-	3,5	-	37,85
Anarhichas minor (Ol.)	0,5	-	5,5	-	20,5	-	54,35
Anarhichas latifrons (Steinstr.)	0,5	83,30	-	-	-	-	83,30
Sebastes mentella Travin	-	-	171,6	32,78	198,0	30,12	30,98
Sebastes marinus (L.)	7,0	-	132,1	36,90	63,0	44,40	36,97
Reinhardtius hippoglossoides (Walb.)	-	-	0,12	37,00	-	-	37,00
Hippoglossoides platessoides (Fab.)	147,5	-	32,9	-	1,0	-	37,06
Limanda ferruginea (Storer)	-	-	-	-	-	-	-
Glyptocephalus cynoglossus (L.)	1,0	-	0,25	-	-	-	47,2
Number of trawlings	2		8		2		12

Table 1a

Average number of important commercial fish taken
per 1 hour trawling in Division 3 F (25.5-31.5-1971)

Species	Depth, in m						Total mean length, in cm
	up to 100		101-200		201-300		
	No.	m	No.	m	No.	m	
Gadus morhua	38	33,33	287	27,97	35	30,59	29,33
Melanogrammus aeglefinus	4,1	-	86,6	-	49,0	-	25,32
Urophycis tenuis	-	-	5,1	39,31	0,22	68,8	56,71
Anarhichas lupus	-	-	1	62,5	-	-	62,05
Anarhichas minor	-	-	-	-	-	-	-
Anarhichas latifrons	1,5	-	0,25	-	-	-	83,30
Sebastes mentella	58,1	-	416,9	30,69	6679,2	23,14	23,39
Sebastes marinus	-	-	3,9	-	3,0	-	43,52
Reinhardtius hippoglossoides	-	-	0,3	26,5	0,5	26,5	26,5
Hippoglossoides platessoides	234,3	33,85	344,9	27,66	0,8	26,65	29,10
Limanda ferruginea	155	36,33	0,55	-	-	-	35,33
Glyptocephalus cynoglossus	5,1	43,04	29,0	38,02	39,8	34,56	37,96
Number of trawlings	12		20		4		36

Table 1b

Average number of important commercial fish taken
per 1 hour trawling in Division 30 (31.5-15.6-1971)

Species	Depth, in m								Total mean length, in cm
	to 100		101-200		201-300		301-400		
	No.	m	No.	m	No.	m	No.	m	
Gadus morhua	43,5	38,88	62,6	36,76	17,0	41,65	-	-	38,05
Melanogrammus aeglefinus	1,0	-	5,3	-	2,4	-	-	-	37,61
Urophycis tenuis	-	-	26,5	62,57	83,8	72,87	-	-	62,41
Anarhichas lupus	0,64	-	0,3	-	1,0	-	-	-	63,65
Anarhichas minor	0,14	-	0,1	-	0,2	-	2,0	-	84,90
Anarhichas latifrons	0,05	-	0,05	-	0,2	-	1,5	-	80,5
Sebastes mentella	35,4	-	1273,7	29,71	478,8	22,73	1530,0	23,82	23,12
Sebastes marinus	-	-	-	-	-	-	-	-	-
Reinhardtius hippoglossoides	-	-	0,14	-	0,2	36,40	2,5	-	-
Hippoglossoides platessoides	220,2	33,03	240,9	28,82	4,6	34,15	11,0	31,64	30,48
Limanda ferruginea	56,7	35,28	3,6	37,87	1,2	-	0,5	-	35,32
Glyptocephalus cynoglossus	10,9	43,97	21,7	39,94	3,6	-	2,5	-	40,75
Number of trawlings	22		21		5		2		50

Table 1c

Average number of important commercial fish taken
per 1 hour trawling in Division 3 N (16.6-2.7-1971)

Species	Depth, in m						Total mean length, in cm
	to 100		101-200		201-300		
	No.	m	No.	m	No.	m	
<i>Gadus morhua</i>	51,9	32,85	28,1	37,15	420,7	40,44	38,51
<i>Melanogrammus aeglefinus</i>	0,1	-	0,5	-	0,6	-	29,40
<i>Urophycis tenuis</i>	0,04	-	-	-	-	-	-
<i>Anarhichas lupus</i>	-	-	5,5	-	1,0	-	54,55
<i>Anarhichas minor</i>	-	-	0,14	-	0,3	-	-
<i>Anarhichas latifrons</i>	-	-	0,14	-	1,4	-	74,15
<i>Sebastes mentella</i>	-	-	912,8	24,02	3084,6	24,53	22,95
<i>Sebastes marinus</i>	-	-	0,1	-	0,5	-	-
<i>Reinhardtius hippoglossoides</i>	0,1	31,56	5,1	51,90	2,6	30,43	50,89
<i>Hippoglossoides platessoides</i>	473,8	33,9	241,6	33,14	101,5	42,64	34,06
<i>Limanda ferruginea</i>	457,3	33,28	0,3	38,17	0,1	-	33,40
<i>Glyptocephalus cynoglossus</i>	1,4	44,63	2,6	42,66	10,6	40,78	40,90
Number of trawlings	23		24		10		47

Table 1c

Average number of important commercial fish taken
per 1 hour trawling in Division 3 L (2.7-25.7-1971)

Species	Depth, in m								Total mean length, in cm
	to 100		101-200		201-300		301-400		
	No.	m	No.	m	No.	m	No.	m	
Gadus morhua	52,7	32,65	144,7	38,43	408,2	40,67	28,4	46,62	40,02
Melanogrammus aeglefinus	2,1	-	0,1	-	0,4	-	-	-	30,67
Urophycis tenuis	-	-	-	-	-	-	-	-	-
Anarhichas lupus	-	-	1,7	-	33,3	-	2,0	-	37,20
Anarhichas minor	-	-	3,5	-	6,3	-	1,0	-	67,70
Anarhichas latifrons	-	-	0,5	-	1,9	-	1,2	-	78,85
Sebastes mentella	0,08	-	0,3	-	454,6	32,82	266,4	32,44	26,22
Sebastes marinus	-	-	-	-	3,6	-	4,0	-	-
Reinhardtius hippoglossoides	-	-	3,8	42,48	9,3	44,23	15,6	47,90	44,98
Hippoglossoides platessoides	278,8	-	1486,1	-	534,0	-	8,6	-	30,16
Limanda ferruginea	356,0	35,91	6,2	30,67	-	-	0,6	-	35,97
Glyptocephalus cynoglossus	1,2	-	7,5	50,54	1,5	47,85	15,8	42,58	46,36
Number of trawlings	13		21		16		5		55

Table 1c

Average number of important commercial fish taken
per 1 hour trawling in Division 3 K (26.7-15.8-1971)

Species	Depth, in m						Total mean length, in cm
	101-200		201-300		301-400		
	No.	m	No.	m	No.	m	
Gadus morhua	97,0	49,94	179,5	42,55	94,3	44,51	43,22
Melanogrammus aeglefinus	-	-	-	-	-	-	-
Urophycis tenuis	-	-	-	-	-	-	-
Anarhichas lupus	7,0	-	20,6	-	10,1	-	39,30
Anarhichas minor	-	-	0,9	-	1,5	-	60,55
Anarhichas latifrons	1,0	-	1,0	-	0,8	-	79,95
Sebastes mentella	-	-	282,9	29,97	685,0	29,64	28,97
Sebastes marinus	-	-	30,7	39,79	39,5	41,24	37,29
Reinhardtius hippoglossoides	43,0	54,47	35,1	39,15	48,3	39,61	39,82
Hippoglossoides platessoides	96,0	-	124,8	-	35,6	-	28,72
Limanda ferruginea	-	-	-	-	-	-	-
Glyptocephalus cynoglossus	2,0	-	3,5	53,83	5,8	47,37	50,10
Number of trawlings	1		24		14		39

Table 2

Results of a quantitative analysis of main commercial fish (May and July 1977)^{x)}

Species	3M		3P		3O		3N		3L		3K	
	n	p	n	p	n	p	n	p	n	p	n	p
Sebastes mentella	107	19	2324	231	2264	206	3632	693	255	102	605	260
Sebastes marinus	120	114	-	-	-	-	-	-	-	-	175	188
Mirroglossoides platesoides	64	43	334	125	360	140	333	214	778	304	94	29
Limanda ferruginea	-	-	218	102	457	188	550	145	211	100	-	-
Urophycis tenuis	-	-	61	120	130	347	-	-	-	-	-	-

x) n - is an average catch taken per 1 hour trawling (in spec.)

p - is an average catch taken per 1 hour trawling (in kg)

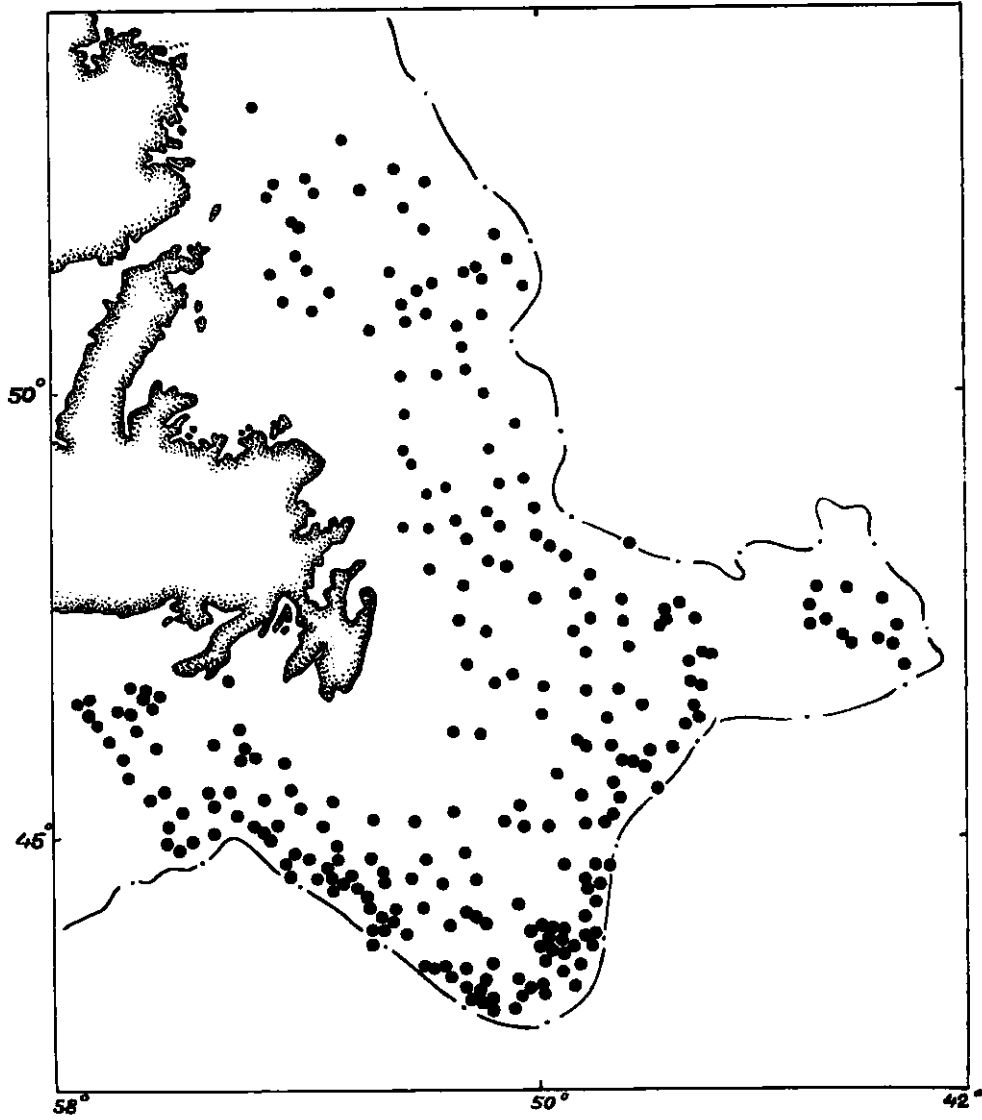


Fig. 1. Positions of experimental trawlings.

