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Observed Catch/effort Data and Length Composition of Commercial Species by Month, Depth Strata and Division for the 1999-2000 Portuguese Fisheries on NAFO Regulatory Area

by

R. Alpoim , A. M. Ávila de Melo and J.Vargas
INSTITUTO DE INVESTIGAÇÃO DAS PESCAS E DO MAR
Av. BRASÍLIA 1400 LISBOA PORTUGAL

Abstract

Greenland halibut, redfish, American plaice, yellowtail flounder, skates and cod observed catch, effort and length data from the Portuguese fisheries on NAFO Regulatory Area in 1999 and 2000 were analysed on a tow by tow basis. The twelve months of two years (1999 and 2000), the four Divisions of Subarea3 and four depth intervals (<200 m, 200-500 m, 500-800 m and >800 m) were considered to allocate the observed tows into categories. Greenland halibut and redfish are the species with greater proportion in the overall sampled catch. In shallower waters less than 200 m in Div. 3N, American plaice and yellowtail flounder are the most abundant species in the catch during summer and fall, but the associated effort represents however less than 5% of the total observed effort in 1999 and 2000. Through winter and spring American plaice is also the main by-catch of the Greenland halibut fishery beyond 800 m in Div. 3N, with an average proportion of 19%. The average cod proportions in the catch are higher in Div. 3N and 3O at depths less than 500 m, but don't exceed 6%.

Greenland halibut lengths greater than 60 cm are scarce in the Portuguese catches regardless the year, month, Division and depth interval considered. For any of the species analysed no higher frequencies of lengths smaller than 30cm can be allocated to a particular Division and/or depth interval.

Introduction

The Portuguese database has been reframed in order to get catch and effort data, as well the correspondent length distributions, by depth strata on a tow-by-tow basis. Observed catch, effort and length data from two vessels in 1999 and one vessel in 2000 were revised with the new database. Species considered were Greenland halibut, redfish, American plaice, yellowtail flounder, skates and cod.

Materials and Methods

For each haul, catch by species has been recorded prior to any eventual rejection. The monthly catches and length frequencies from each Division of Subarea 3 were split by 4 depth intervals (<200 m, 200-500 m, 500-800 m and >800 m). Depth of each haul is given by the average of the depth at the beginning and end of bottom trawling, and used to allocate catches and length samplings in depth categories. A proportion of each species by Division, month and depth category in the whole 1999 and 2000 observed catch was calculated as an average of the proportion found in each year and category weighted by the respective fishing effort. Observed fishing effort is also presented by year, Division, month and depth category, in fishing hours as well as a proportion of the annual Portuguese nominal effort deployed in all Divisions.

The length samples of each year were split by depth intervals, originating new relative length frequency distributions representative of the observed catches taken in each year/Division/depth category and comparable between categories. The weight of each catch category in the observed annual catch is presented as well.

Results and Discussion

Proportion of commercial species in the catch

Table 1a shows the percentage of the total effort that was sampled. The observed effort in fishing hours by year, month, Division and depth strata is presented in Table 1b. A summary of the relative observed effort distribution by year, Division and depth strata is presented in Table 1c.

In Div. 3L and 3M the coverage is of 24% and 18% respectively for both 1999 and 2000. In Div. 3N and 3O there was 30% coverage during 1999 falling to 15% in 2000.

During 1999 most of the effort was spent in Div. 3L (38%), followed by Div. 3O and 3N (29% and 24% respectively), and only 9% deployed in Div. 3M. In 2000 Div. 3L continues to be the major fishing ground with 58% of the observed effort, but the rest of the fishing effort has been evenly spread between the three other Divisions (14% each).

In Div. 3L and 3M the effort is manly spend on depths beyond 800 m. This is also valid for Div. 3N but just for 1999. The percentage of observed trawling at shallower waters till 200m depth in Div. 3N increased from 2% in 1999 to 5% in 2000, forcing an equal amo unt of fishing effort above and bellow 800 m. In Div. 3O most of the fishing effort has been deployed between 200 and 500 m.

Tables 2 and Figures 1 show the percentage of each species by Division, month and depth interval for the last two years. In Div. 3L and 3M Greenland halibut is the main species in the catches at depths greater than 500 m. For depths between 200-500 m redfish is the most important species in Division 3M. Species other than Greenland halibut and redfish, represent less than 5% (each) of the catch in these northern Divisions.

On Div. 3N Greenland halibut and American plaice are the most important species of the Portuguese catches from depths greater than 800 m, representing on average 52% and 19% of the total catch taken in this depth interval and Division on 1999 and 2000. Most of these American plaice catches are taken till July each year. Redfish is most abundant between 200m and 800 m depth representing 60% to 65% of the catches from these two categories (Div. 3N, 200 m to 499 m and 500 m to 799m). American plaice is the second more important species in the 200 m to 499 m interval (11%) turning to Greenland halibut in the 500 m to 799 m interval (14%). American plaice and yellowtail flounder dominated with 49% and 24% of the catches taken at depths less than 200 m, followed by skates (12%). Most of these American plaice and yellowtail flounder catches on shallower waters are taken from July onwards, till the end of the year.

In Div. 3O Greenland halibut is the bulk of the catches from depths greater than 800 m (84%). Redfish dominates at a similar level catches between 200 m and 799 m depth (85%-89%) and is still the most abundant species in the catches taken from depths less than 200 m. On these shallower waters the percentage of American plaice increases to 22% and of yellowtail flounder to 8% (much lower average proportions than the correspondent ones for Div. 3N).

The percentages of catches of skates in the total catches are only relevant in Div. 3N (all depths but the 500 m-799 m interval) and in Div. 3O for depths less than 200m, with an average proportion at 10% in these categories. Higher cod proportions in the catch are recorded in Div. 3N at depths less than 200 m (6%) and in Div. 3O between 200 m and 499 m depth (5%).

Length compositions of commercial species

For each one of the species analysed, all comparisons between length frequencies from different depth intervals should be taken with caution, since most times they came from very different levels of sampled catches. This level, regarded as a proportion of the total sampled catch for one Division and year, is presented for each depth interval on the bottom line of each length frequency table.

Except for Div. 3O in 1999, Greenland halibut length frequencies by Division and depth interval (Tables 3 and Fig. 2) don't present major shifts towards larger lengths with depth. Actually in 1999 and in Div. 3L all lengths greater than 42 cm are better represented in the 500-799 m interval than deeper. Also for 1999, but in Div. 3N, two peaks are detected at 28 cm and 32 cm in the 200m-499 m Greenland halibut length frequency.

American plaice length compositions (Tables 4 and Fig. 3) present in Div. 3L higher frequencies of fish larger than 38 cm and 34 cm in the deeper strata, for 1999 and 2000. This pattern is not evident in both southern Div. 3N and 3O, where a large overlap between length frequencies from the several depth strata is observed. In Div. 3N, either for 1999 and 2000 length frequencies from shallower waters down to 199 m peak right to the correspondent length frequency for depths greater than 800 m.

In 2000 a wide overlap is also shown in Div 3N yellowtail flounder available length frequencies by depth strata (Tables 5 and Fig. 4), though in Div. 3O higher proportions of larger fish are present at shallower waters than in the next 200m-499m depth interval.

Cod length composition of sampled catches beyond 800 m in Div. 3N suggests a couple of marked modal lengths at 30 cm and 32 cm in 1999, but in 2000 most of the length frequencies overlap (Tables 6 and Fig. 5). The same level of overlap occurs in Div. 3O in 1999 and 2000.

Conclusions

Lengths greater than 60 cm are scarce in the Portuguese Greenland halibut catches, regardless the year, month, Division and depth interval considered.

For any of the species analysed no higher frequencies of lengths smaller than 30 cm can be allocated to a particular Division and/or depth interval.

For depths greater than 800 m, a consistent proportion near 20% is observed for American plaice in the catches taken during the first half of each year in Div. 3N.

Most of the American plaice and yellowtail flounder catches have been taken at shallower depths of Div. 3N during the second half of each year. The associated effort represents however less than 5% of the total observed effort in 1999 and 2000.

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Table 1a - Percentage of effort sampled by division and month during 1999 and 2000.

		3L			3M				
Year	Month	Total obs.	Total nominal	%	Total obs.	Total nominal	%	Month	Year
1999	JAN	133.2	572.6	23.3	90.8	151.3	60.0	JAN	1999
	FEB	144.4	827.1	17.5	42.0	336.0	12.5	FEB	
	MAR	406.6	1219.8	33.3	89.9	539.5	16.7	MAR	
	APR	379.6	2119.3	17.9	63.8	585.1	10.9	APR	
	MAY	133.4	908.4	14.7	32.0	404.4	7.9	MAY	
	JUN		229.7			41.0		JUN	
	JUL	102.2	191.6	53.3	85.2	170.3	50.0	JUL	
	AUG	497.5	669.5	74.3	59.4	133.7	44.4	AUG	
	SEP	172.6	258.9	66.7		14.9		SEP	
	OCT					22.3		OCT	
	NOV		284.7			37.1		NOV	
	DEC	34.2	261.9	13.0		37.1		DEC	
1999 Total		2003.6	7543.5	26.6	463.1	2472.8	18.7	1999 Total	
2000	JAN		372			78		JAN	2000
	FEB	140.9	1742	8.1	38.8	485	8.0	FEB	
	MAR	515.9	2213	23.3	50.1	558	9.0	MAR	
	APR	293.4	1251	23.5	38.8	199	19.4	APR	
	MAY		318			34		MAY	
	JUN	230.8	280	82.4	118.9	119	100.0	JUN	
	JUL	341.6	342	100.0	151.8	152	100.0	JUL	
	AUG	36.6	37	100.0		82		AUG	
	SEP	8.0	8	100.0				SEP	
	OCT	34.4	34	100.0		35		OCT	
	NOV		318			420		NOV	
	DEC		439			93		DEC	
2000 Total		1601.6	7353.7	21.8	398.4	2255.7	17.7	2000 Total	

		3N			3O				
Year	Month	Total obs.	Total nominal	%	Total obs.	Total nominal	%	Month	Year
1999	JAN	158.8	295.2	53.8		15.5		JAN	1999
	FEB	123.6	370.8	33.3	7.8	69.8	11.1	FEB	
	MAR	180.7	555.9	32.5	34.8	150.9	23.1	MAR	
	APR	270.0	390.2	69.2	58.2	199.4	29.2	APR	
	MAY	38.9	233.5	16.7	82.8	201.3	41.1	MAY	
	JUN	1.5	19.5	7.7	58.8	204.1	28.8	JUN	
	JUL	93.3	466.3	20.0	133.5	868.7	15.4	JUL	
	AUG	64.2	255.3	25.1	347.8	1123.8	31.0	AUG	
	SEP	109.3	333.8	32.7	354.1	1198.4	29.5	SEP	
	OCT	109.1	483.1	22.6	121.3	485.3	25.0	OCT	
	NOV	60.2	385.7	15.6	297.1	665.5	44.6	NOV	
	DEC	56.3	185.4	30.4	32.6	60.7	53.7	DEC	
1999 Total		1265.8	3974.7	31.8	1528.7	5243.3	29.2	1999 Total	
2000	JAN		20			22		JAN	2000
	FEB		40			29		FEB	
	MAR		259			453		MAR	
	APR	39.9	180	22.2	51.2	227	22.6	APR	
	MAY							MAY	
	JUN	8.6	189	4.5	37.4	150	25.0	JUN	
	JUL	31.4	189	16.7	8.2	65	12.5	JUL	
	AUG	34.0	34	100.0	91.2	108	84.6	AUG	
	SEP	36.1	179	20.1		219		SEP	
	OCT	165.7	414	40.0	105.3	442	23.8	OCT	
	NOV	66.5	507	13.1	104.5	571	18.3	NOV	
	DEC		449			233		DEC	
2000 Total		382.2	2459.5	15.5	397.7	2518.8	15.8	2000 Total	

Table 1b - Effort sampled in fishing hours by division, month and depth interval during 1999 and 2000.

		Division 3L					Division 3M						
Year	Month	Depth interval (m)				Total	Depth interval (m)				Total	Month	Year
		0-199	200-499	500-799	800-1999		0-199	200-499	500-799	800-1999			
	JAN				133.2	133.2				90.8	90.8	JAN	
	FEB			7.1	137.3	144.4				42.0	42.0	FEB	
	MAR			32.2	374.4	406.6				89.9	89.9	MAR	
	APR			8.9	370.7	379.6				63.8	63.8	APR	
	MAY			2.9	130.5	133.4				32.0	32.0	MAY	
1999	JUN											JUN	1999
	JUL				102.2	102.2		16.3	9.0	59.9	85.2	JUL	
	AUG			19.8	477.8	497.5			17.5	41.9	59.4	AUG	
	SEP			1.4	171.2	172.6						SEP	
	OCT											OCT	
	NOV											NOV	
	DEC				34.2	34.2						DEC	
1999 Total				72.3	1931.3	2003.6		16.3	26.5	420.3	463.1	1999 Total	
	JAN											JAN	
	FEB			5.0	135.9	140.9				38.8	38.8	FEB	
	MAR			8.9	507.0	515.9				50.1	50.1	MAR	
	APR				293.4	293.4		2.0		36.8	38.8	APR	
	MAY											MAY	
2000	JUN				230.8	230.8			26.9	92.0	118.9	JUN	2000
	JUL		0.8	5.4	335.4	341.6		29.3	8.3	114.3	151.8	JUL	
	AUG				36.6	36.6						AUG	
	SEP				8.0	8.0						SEP	
	OCT				34.4	34.4						OCT	
	NOV											NOV	
	DEC											DEC	
2000 Total			0.8	19.3	1581.5	1601.6		31.3	35.2	332.0	398.4	2000 Total	
Total			0.8	91.6	3512.8	3605.2		47.5	61.7	752.3	861.5	Total	

		Division 3N					Division 3O						
Year	Month	Depth interval (m)				Total	Depth interval (m)				Total	Month	Year
		0-199	200-499	500-799	800-1999		0-199	200-499	500-799	800-1999			
	JAN				158.8	158.8						JAN	
	FEB				123.6	123.6		7.8			7.8	FEB	
	MAR			8.8	171.9	180.7	7.8	27.0			34.8	MAR	
	APR	4.3		0.4	265.3	270.0		52.5		5.7	58.2	APR	
	MAY	5.9	4.6	7.8	20.7	38.9		81.3	1.5		82.8	MAY	
1999	JUN			1.5		1.5		56.8	2.0		58.8	JUN	1999
	JUL	10.0	10.9	3.8	68.6	93.3		113.4	20.1		133.5	JUL	
	AUG	17.6		41.8	4.8	64.2	50.0	281.6	16.3		347.8	AUG	
	SEP	39.4	11.7	42.2	16.0	109.3	84.8	234.8	17.1	17.5	354.1	SEP	
	OCT	16.0	22.7	35.8	34.6	109.1	8.0	98.8	14.6		121.3	OCT	
	NOV	7.2	3.0	23.3	26.7	60.2	134.1	160.5	2.5		297.1	NOV	
	DEC	7.1		28.8	20.4	56.3	12.5	20.1			32.6	DEC	
1999 Total		107.5	52.8	194.1	911.3	1265.8	297.2	1134.3	74.0	23.2	1528.7	1999 Total	
	JAN											JAN	
	FEB											FEB	
	MAR											MAR	
	APR	8.0	3.5	0.3	28.2	39.9		47.7	3.5		51.2	APR	
	MAY											MAY	
2000	JUN		1.7		6.9	8.6		24.8	12.7		37.4	JUN	2000
	JUL	5.2	1.5	9.3	15.4	31.4		8.2			8.2	JUL	
	AUG	15.8	6.4		11.8	34.0	5.8	85.5			91.2	AUG	
	SEP			2.5	33.6	36.1						SEP	
	OCT	52.4	16.5	10.1	86.7	165.7	19.3	82.9	3.1		105.3	OCT	
	NOV	50.0	9.5	3.0	4.0	66.5	47.0	55.9	1.6		104.5	NOV	
	DEC											DEC	
2000 Total		131.3	39.1	25.2	186.6	382.2	72.0	304.9	20.8		397.7	2000 Total	
Total		238.8	91.9	219.3	1097.9	1647.9	369.2	1439.2	94.8	23.2	1926.4	Total	

Table 1c - Percentage of total observed effort by year, division and depth interval.

YEAR	DIVISION	0-199	200-499	500-799	800-1999	TOTAL
1999	3L			1.4	36.7	38.1
	3M		0.3	0.5	8.0	8.8
	3N	2.0	1.0	3.7	17.3	24.1
	3O	5.6	21.6	1.4	0.4	29.1
	total	7.7	22.9	7.0	62.5	100.0
2000	3L		0.0	0.7	56.9	57.6
	3M		1.1	1.3	11.9	14.3
	3N	4.7	1.4	0.9	6.7	13.7
	3O	2.6	11.0	0.7		14.3
	total	7.3	13.5	3.6	75.5	100.0

Table 2a - **GREENLAND HALIBUT** average proportion in 1999 and 2000 observed catches by division and depth interval.

Division	Month	Depth interval (m)				Mean
		0-199	200-499	500-799	800-1999	
3L	JAN				91.8	91.8
3L	FEB			79.0	84.6	84.3
3L	MAR			81.9	89.3	88.9
3L	APR			51.6	84.1	83.7
3L	MAY			87.6	69.2	69.6
3L	JUN				91.6	91.6
3L	JUL		0.0	80.0	91.6	91.3
3L	AUG			96.1	93.9	94.0
3L	SEP			0.0	94.3	93.5
3L	OCT				84.2	84.2
3L	NOV					
3L	DEC				70.6	70.6
3L	Mean		0.0	80.4	88.4	88.2
3M	JAN				90.5	90.5
3M	FEB				93.9	93.9
3M	MAR				85.6	85.6
3M	APR		0.0		89.3	87.6
3M	MAY				76.5	76.5
3M	JUN			80.7	87.1	85.7
3M	JUL		9.4	89.3	89.8	74.3
3M	AUG			87.0	94.2	92.1
3M	SEP					
3M	OCT					
3M	NOV					
3M	DEC					
3M	Mean		9.0	84.9	88.8	84.1
3N	JAN				42.1	42.1
3N	FEB				49.0	49.0
3N	MAR			30.3	54.1	52.9
3N	APR	0.2	0.0	0.0	46.6	44.1
3N	MAY	0.0	12.3	0.0	58.5	32.5
3N	JUN		1.7	0.0	92.2	63.6
3N	JUL	1.1	11.8	40.0	79.4	59.0
3N	AUG	0.7	37.2	7.5	80.3	19.5
3N	SEP	0.0	2.9	15.2	69.8	28.7
3N	OCT	1.4	6.6	10.5	48.7	24.5
3N	NOV	3.2	7.3	7.6	16.3	7.7
3N	DEC	0.0		19.7	58.5	31.3
3N	Mean	1.3	9.0	13.8	51.6	36.9
3O	JAN					
3O	FEB		1.6			1.6
3O	MAR	0.0	0.0			0.0
3O	APR		0.1	0.0	84.4	4.4
3O	MAY		0.0	0.0		0.0
3O	JUN		0.9	1.0		0.9
3O	JUL		1.7	3.8		2.0
3O	AUG	0.7	7.6	3.7		6.5
3O	SEP	0.5	8.4	14.8	84.3	10.6
3O	OCT	0.0	1.9	14.0		2.6
3O	NOV	0.3	0.3	0.4		0.3
3O	DEC	0.0	0.0			0.0
3O	Mean	0.4	3.8	6.9	84.3	4.3

Table 2b - **REDFISH** average proportion in 1999 and 2000 observed catches by division and depth interval.

Division	Month	Depth interval (m)				Mean
		0-199	200-499	500-799	800-1999	
3L	JAN				0.5	0.5
3L	FEB			13.2	1.9	2.4
3L	MAR			13.0	3.4	3.8
3L	APR			2.2	2.8	2.8
3L	MAY			10.9	6.9	7.0
3L	JUN				0.7	0.7
3L	JUL		0.0	5.1	0.0	0.1
3L	AUG			0.0	0.0	0.0
3L	SEP			0.0	0.0	0.0
3L	OCT				0.0	0.0
3L	NOV					
3L	DEC				0.0	0.0
3L	Mean		0.0	8.5	1.8	2.0
3M	JAN				0.0	0.0
3M	FEB				0.8	0.8
3M	MAR				2.8	2.8
3M	APR		46.1		2.7	3.5
3M	MAY				0.2	0.2
3M	JUN			4.3	1.0	1.7
3M	JUL		77.2	0.0	0.2	14.9
3M	AUG			0.0	0.0	0.0
3M	SEP					
3M	OCT					
3M	NOV					
3M	DEC					
3M	Mean		75.9	1.9	1.1	5.3
3N	JAN				8.8	8.8
3N	FEB				0.2	0.2
3N	MAR			23.7	0.1	1.2
3N	APR	0.0	0.0	0.0	4.3	4.1
3N	MAY	65.4	32.4	56.3	0.4	25.2
3N	JUN		90.9	0.0	0.0	15.0
3N	JUL	1.2	84.4	20.1	0.0	10.7
3N	AUG	1.0	56.2	84.3	4.9	40.7
3N	SEP	19.7	84.4	80.6	16.2	42.4
3N	OCT	3.4	68.8	77.9	31.5	37.6
3N	NOV	1.3	4.9	37.2	19.6	13.6
3N	DEC	0.0		62.4	14.2	37.1
3N	Mean	6.4	59.3	65.6	7.6	18.0
3O	JAN					
3O	FEB		0.7			0.7
3O	MAR	28.9	9.6			13.9
3O	APR		82.9	95.0	0.0	79.0
3O	MAY		79.5	35.1		78.7
3O	JUN		94.9	96.0		95.1
3O	JUL		94.5	93.8		94.4
3O	AUG	10.2	87.9	95.1		78.3
3O	SEP	40.4	83.4	80.2	0.0	68.8
3O	OCT	32.4	92.2	82.9		84.3
3O	NOV	78.3	86.5	98.5		82.9
3O	DEC	66.9	39.6			50.1
3O	Mean	54.5	85.0	89.2	0.0	78.3

Table 2c - **AMERICAN PLAICE** average proportion in 1999 and 2000 observed catches by division and depth interval.

Division	Month	Depth interval (m)				Mean
		0-199	200-499	500-799	800-1999	
3L	JAN				2.1	2.1
3L	FEB			6.0	4.6	4.6
3L	MAR			3.3	2.9	2.9
3L	APR			18.0	4.7	4.9
3L	MAY			1.5	1.7	1.7
3L	JUN				0.0	0.0
3L	JUL		0.0	0.0	0.0	0.0
3L	AUG			0.0	0.0	0.0
3L	SEP			0.0	0.0	0.0
3L	OCT				0.0	0.0
3L	NOV					
3L	DEC				15.3	15.3
3L	Mean		0.0	4.1	2.3	2.3
3M	JAN				0.0	0.0
3M	FEB				0.8	0.8
3M	MAR				0.8	0.8
3M	APR		3.0		1.1	1.2
3M	MAY				0.0	0.0
3M	JUN			0.0	0.0	0.0
3M	JUL		0.0	0.0	0.0	0.0
3M	AUG			0.0	0.0	0.0
3M	SEP					
3M	OCT					
3M	NOV					
3M	DEC					
3M	Mean		0.1	0.0	0.4	0.3
3N	JAN				21.0	21.0
3N	FEB				13.9	13.9
3N	MAR			35.7	21.2	21.9
3N	APR	46.2	0.0	0.0	35.5	35.4
3N	MAY	12.2	55.4	30.8	17.8	24.0
3N	JUN		0.0	0.0	0.0	0.0
3N	JUL	66.0	0.0	0.0	10.7	15.2
3N	AUG	53.6	1.0	0.0	0.4	18.3
3N	SEP	60.1	7.0	0.0	0.0	16.9
3N	OCT	47.7	0.4	2.3	3.8	14.0
3N	NOV	38.7	50.7	6.5	2.2	24.4
3N	DEC	60.9		7.7	0.6	11.8
3N	Mean	49.0	10.8	4.8	19.0	21.0
3O	JAN					
3O	FEB		6.5			6.5
3O	MAR	39.6	10.0			16.6
3O	APR		2.7	2.7	0.0	2.6
3O	MAY		3.6	64.9		4.7
3O	JUN		0.0	0.0		0.0
3O	JUL		0.4	0.0		0.4
3O	AUG	30.8	0.4	0.0		4.3
3O	SEP	26.2	1.4	0.6	0.0	7.3
3O	OCT	47.7	0.7	0.3		6.3
3O	NOV	12.2	5.9	0.0		8.7
3O	DEC	30.2	52.9			44.2
3O	Mean	22.0	2.7	1.3	0.0	6.3

Table 2d - **YELLOWTAIL FLOUNDER** average proportion in 1999 and 2000 observed catches by division and depth interval.

Division	Month	Depth interval (m)				Mean
		0-199	200-499	500-799	800-1999	
3L	JAN				0.0	0.0
3L	FEB			0.0	0.0	0.0
3L	MAR			0.0	0.0	0.0
3L	APR			0.0	0.0	0.0
3L	MAY			0.0	0.0	0.0
3L	JUN				0.0	0.0
3L	JUL		0.0	0.0	0.0	0.0
3L	AUG			0.0	0.0	0.0
3L	SEP			0.0	0.0	0.0
3L	OCT				0.0	0.0
3L	NOV					
3L	DEC				0.0	0.0
3L	Mean		0.0	0.0	0.0	0.0
3M	JAN				0.0	0.0
3M	FEB				0.0	0.0
3M	MAR				0.0	0.0
3M	APR		0.0		0.0	0.0
3M	MAY				0.0	0.0
3M	JUN			0.0	0.0	0.0
3M	JUL		0.0	0.0	0.0	0.0
3M	AUG			0.0	0.0	0.0
3M	SEP					
3M	OCT					
3M	NOV					
3M	DEC					
3M	Mean		0.0	0.0	0.0	0.0
3N	JAN				0.0	0.0
3N	FEB				0.0	0.0
3N	MAR			0.0	0.0	0.0
3N	APR	53.6	0.0	0.0	0.0	2.1
3N	MAY	0.0	0.0	0.0	0.0	0.0
3N	JUN		0.0	0.0	0.0	0.0
3N	JUL	28.5	0.0	0.0	0.0	3.5
3N	AUG	40.5	0.0	0.0	0.0	13.8
3N	SEP	6.6	0.0	0.0	0.0	1.8
3N	OCT	13.9	0.0	0.7	0.0	3.6
3N	NOV	33.8	6.9	16.9	0.0	19.4
3N	DEC	39.1		0.0	0.0	4.9
3N	Mean	24.5	0.9	2.2	0.0	3.9
3O	JAN					
3O	FEB		0.0			0.0
3O	MAR	0.0	0.0			0.0
3O	APR		0.0	0.0	0.0	0.0
3O	MAY		0.0	0.0		0.0
3O	JUN		0.0	0.0		0.0
3O	JUL		0.0	0.0		0.0
3O	AUG	38.1	0.0	0.0		4.8
3O	SEP	7.6	0.0	0.0	0.0	1.8
3O	OCT	0.0	0.9	0.0		0.7
3O	NOV	0.9	0.0	0.0		0.4
3O	DEC	0.0	2.7			1.6
3O	Mean	7.9	0.2	0.0	0.0	1.6

Table 2e - **SKATES** average proportion in 1999 and 2000 observed catches by division and depth interval.

Division	Month	Depth interval (m)				Mean
		0-199	200-499	500-799	800-1999	
3L	JAN				0.6	0.6
3L	FEB			1.0	1.8	1.7
3L	MAR			0.5	0.7	0.7
3L	APR			20.8	2.3	2.5
3L	MAY			0.0	3.7	3.6
3L	JUN				1.1	1.1
3L	JUL		0.0	0.0	1.7	1.7
3L	AUG			0.0	1.6	1.6
3L	SEP			0.0	1.7	1.7
3L	OCT				0.0	0.0
3L	NOV					
3L	DEC				1.9	1.9
3L	Mean		0.0	2.4	1.5	1.6
3M	JAN				1.8	1.8
3M	FEB				0.2	0.2
3M	MAR				1.4	1.4
3M	APR		0.0		2.5	2.4
3M	MAY				3.6	3.6
3M	JUN			2.6	2.4	2.4
3M	JUL		2.9	0.0	2.6	2.5
3M	AUG			4.7	1.9	2.8
3M	SEP					
3M	OCT					
3M	NOV					
3M	DEC					
3M	Mean		2.8	2.5	2.0	2.1
3N	JAN				11.6	11.6
3N	FEB				18.5	18.5
3N	MAR			5.3	15.0	14.5
3N	APR	0.0	0.0	0.0	5.6	5.3
3N	MAY	0.0	0.0	0.0	6.0	3.2
3N	JUN		4.8	0.0	3.6	3.3
3N	JUL	2.2	3.0	0.0	0.5	0.9
3N	AUG	2.9	0.0	5.6	0.0	3.3
3N	SEP	0.9	0.0	0.7	0.7	0.7
3N	OCT	28.4	17.6	3.3	5.2	12.4
3N	NOV	12.4	14.1	14.7	34.7	18.5
3N	DEC	0.0		0.6	4.0	1.7
3N	Mean	11.8	9.9	3.9	9.4	9.1
3O	JAN					
3O	FEB		1.5			1.5
3O	MAR	25.6	0.9			6.5
3O	APR		0.2	0.0	0.0	0.2
3O	MAY		0.2	0.0		0.2
3O	JUN		0.2	0.0		0.1
3O	JUL		1.1	1.2		1.1
3O	AUG	17.6	0.6	0.0		2.7
3O	SEP	18.9	1.4	1.7	0.0	5.5
3O	OCT	11.6	0.8	0.9		2.1
3O	NOV	4.6	2.9	0.0		3.6
3O	DEC	0.9	4.2			3.0
3O	Mean	10.7	1.1	0.7	0.0	2.9

Table 2f - **COD** average proportion in 1999 and 2000 observed catches catches by division and depth interval.

Division	Month	Depth interval (m)				Mean
		0-199	200-499	500-799	800-1999	
3L	JAN				0.0	0.0
3L	FEB			0.0	0.0	0.0
3L	MAR			0.0	0.0	0.0
3L	APR			0.0	0.0	0.0
3L	MAY			0.0	0.0	0.0
3L	JUN				0.0	0.0
3L	JUL		0.0	9.7	0.0	0.1
3L	AUG			0.0	0.0	0.0
3L	SEP			0.0	0.0	0.0
3L	OCT				0.0	0.0
3L	NOV					
3L	DEC				0.0	0.0
3L	Mean		0.0	0.6	0.0	0.0
3M	JAN				0.0	0.0
3M	FEB				0.0	0.0
3M	MAR				0.0	0.0
3M	APR		50.9		0.0	1.0
3M	MAY				0.0	0.0
3M	JUN			0.0	0.0	0.0
3M	JUL		2.7	1.1	0.0	0.6
3M	AUG			0.0	0.0	0.0
3M	SEP					
3M	OCT					
3M	NOV					
3M	DEC					
3M	Mean		4.8	0.3	0.0	0.3
3N	JAN				0.0	0.0
3N	FEB				0.2	0.2
3N	MAR			0.0	0.0	0.0
3N	APR	0.0	0.0	0.0	0.1	0.1
3N	MAY	18.3	0.0	13.0	0.0	5.4
3N	JUN		0.0	0.0	0.0	0.0
3N	JUL	1.0	0.0	0.0	0.0	0.1
3N	AUG	1.0	0.0	0.0	0.0	0.3
3N	SEP	12.1	5.5	0.0	0.0	3.7
3N	OCT	4.4	1.6	0.5	0.6	1.7
3N	NOV	7.7	4.9	7.4	9.6	7.8
3N	DEC	0.0		0.0	0.0	0.0
3N	Mean	5.8	2.1	1.4	0.4	1.4
3O	JAN					
3O	FEB		89.7			89.7
3O	MAR	0.0	76.2			59.0
3O	APR		13.1	0.5	0.0	12.0
3O	MAY		15.8	0.0		15.5
3O	JUN		2.7	1.4		2.5
3O	JUL		1.1	0.2		1.0
3O	AUG	1.7	2.1	0.0		1.9
3O	SEP	1.3	0.8	0.0	0.0	0.9
3O	OCT	2.2	1.1	0.0		1.1
3O	NOV	1.3	2.3	0.7		1.8
3O	DEC	1.7	0.0			0.6
3O	Mean	1.4	5.1	0.3	0.0	4.1

Fig. 1a: Catch composition(%) of the observed Portuguese fishing effort, Div. 3L and 3M, 1999-2000.

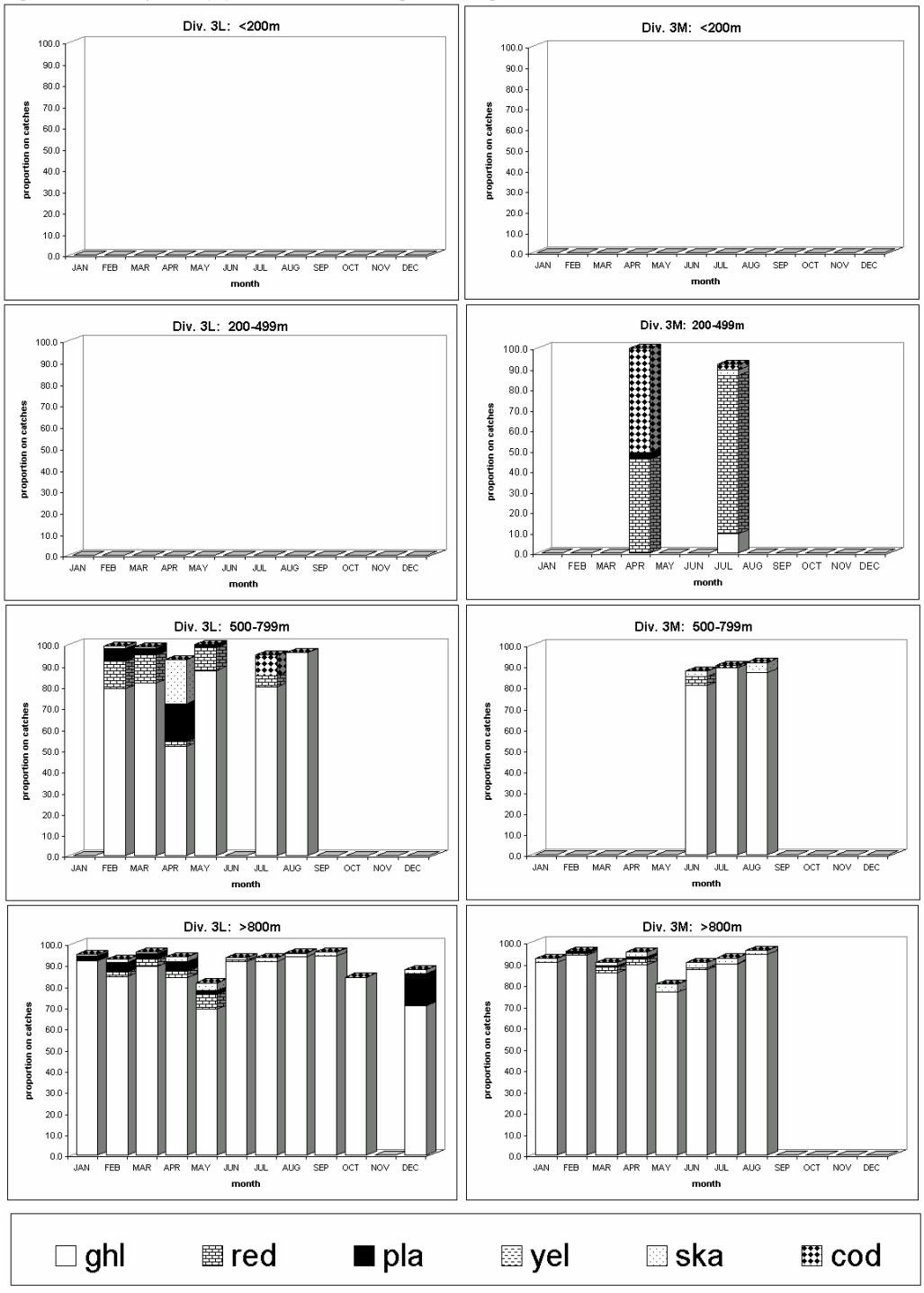


Fig. 1b: Catch composition(%) of the observed Portuguese fishing effort, Div. 3N and 3O, 1999-2000.

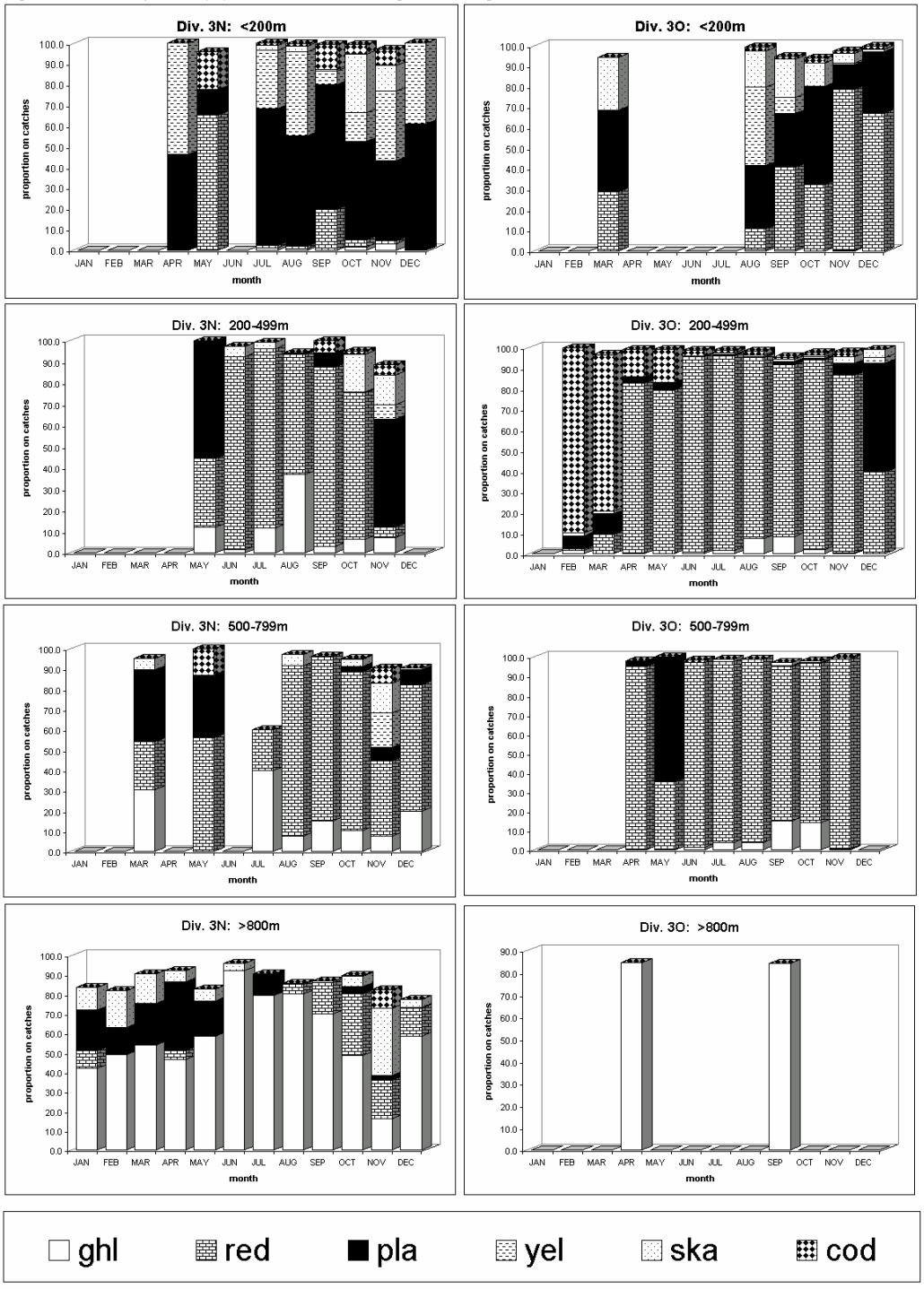
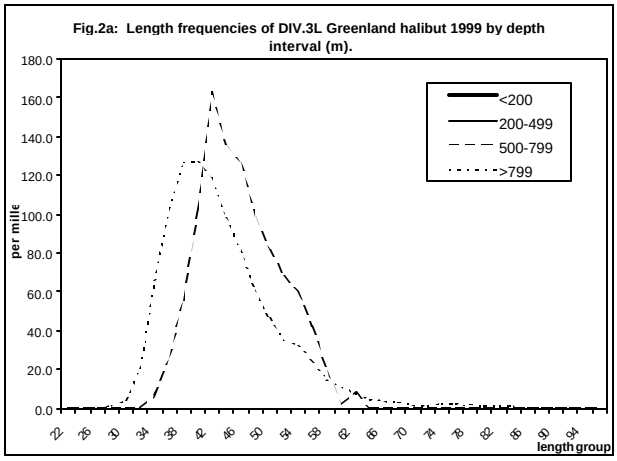


TABLE 3a :GREENLAND HALIBUT, DIV.3L,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH GROUP	<200		200-499		500-799		>799		TOTAL		LENGTH GROUP
	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	
22							0.1	0.1	0.1	0.1	22
24							0.1		0.1		24
26							0.0		0.0		26
28							0.9	0.3	0.9	0.3	28
30						6.2	4.2	2.5	4.2	2.5	30
32						15.5	20.7	7.1	20.4	7.1	32
34					6.7	31.1	65.7	24.0	65.1	23.9	34
36					25.4	77.6	102.4	76.4	101.4	76.2	36
38					56.1	164.6	126.5	147.1	125.4	147.0	38
40					102.8	217.4	127.0	210.1	126.7	210.1	40
42					163.3	223.6	118.4	207.4	119.0	207.5	42
44					135.7	114.9	98.2	130.9	98.6	131.0	44
46					126.8	65.2	81.5	82.0	82.5	81.9	46
48					99.0	55.9	60.7	35.7	61.4	36.1	48
50					82.0	9.3	46.1	20.4	46.6	20.4	50
52					68.6	3.1	35.4	14.1	36.1	14.1	52
54					60.5		32.4	9.9	32.9	9.9	54
56					42.4	3.1	23.9	7.9	24.2	7.9	56
58					20.3		14.7	6.6	14.5	6.5	58
60					2.2	3.1	10.9	4.6	10.6	4.6	60
62					8.2	6.2	7.5	3.9	7.4	3.9	62
64							4.3	2.2	4.1	2.2	64
66							3.7	1.7	3.6	1.7	66
68							2.8	1.2	2.7	1.2	68
70						3.1	1.5	0.7	1.5	0.7	70
72							1.2	0.7	1.2	0.7	72
74							2.2	0.8	2.0	0.8	74
76							2.0	0.3	1.9	0.3	76
78							1.5	0.4	1.5	0.4	78
80							1.4	0.3	1.3	0.3	80
82							0.8	0.2	0.8	0.2	82
84							0.8	0.1	0.7	0.1	84
86							0.2	0.1	0.2	0.1	86
88							0.3	0.1	0.3	0.1	88
90							0.0	0.0	0.0	0.0	90
92								0.1		0.1	92
94							0.0	0.0	0.0	0.0	94
96							0.0		0.0		96
TOTAL					1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	
No. SAMPLES					3	1	126	103	129	104	
SAMPLING WEIGHT(kg)					498	220	15721	22183	16218	22403	
No. F.MEASURED					547	322	16409	28579	16956	28901	
MEAN LENGTH(cm)					46.9	42.2	44.4	43.1	44.4	43.1	
MEAN WEIGHT (g)					902	628	808	687	807	687	
% OF TOTAL ABSOLUTE FREQUENCY					3.0	0.6	97.0	99.4			



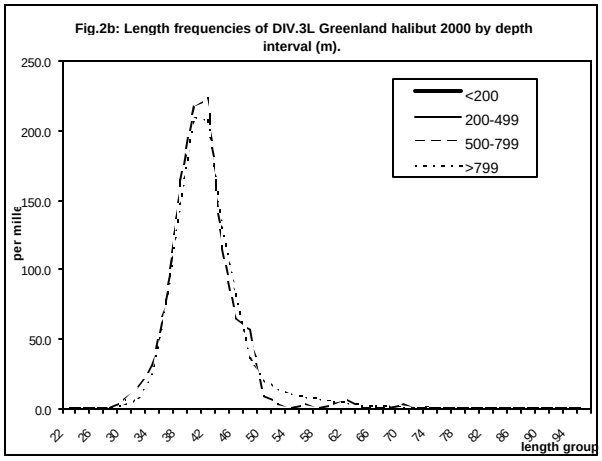
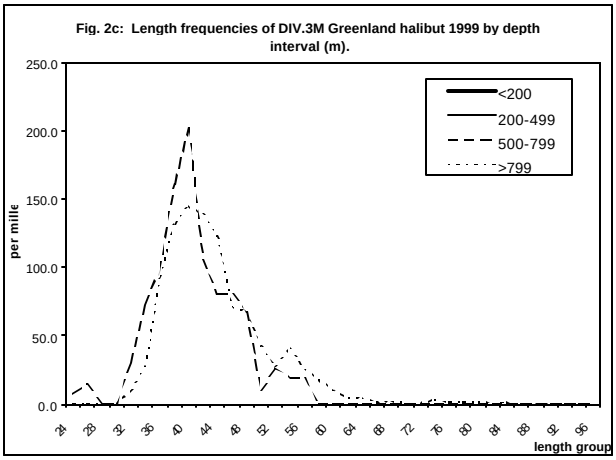


TABLE 3b :GREENLAND HALIBUT, DIV.3M.1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH GROUP	<200		200-499		500-799		>799		TOTAL		LENGTH GROUP
	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	
24					7.7				0.4		24
26					15.4				0.8		26
28							0.1	0.1	0.1	0.1	28
30							0.5	0.6	0.4	0.6	30
32					30.7		9.9	6.9	10.6	6.4	32
34					73.1	12.1	27.3	19.9	30.3	19.3	34
36				25.9	98.1	25.1	92.7	64.2	92.6	62.4	36
38				25.9	161.6	77.6	132.4	143.8	133.0	139.9	38
40				103.4	202.2	160.3	144.8	197.4	148.9	195.0	40
42				215.5	106.1	153.4	139.6	211.8	137.3	207.8	42
44				224.1	81.0	174.6	123.0	137.5	120.6	140.3	44
46				293.1	81.0	135.9	71.2	84.6	72.0	88.4	46
48				69.0	67.7	89.7	67.7	38.4	69.3	41.0	48
50				34.5	9.7	48.8	42.8	20.3	40.1	21.8	50
52				8.6	27.0	32.9	27.9	16.3	28.2	17.4	52
54					19.3	11.6	41.4	11.9	40.1	12.0	54
56					19.3	27.5	25.9	8.2	26.3	9.2	56
58						2.5	17.8	9.2	16.5	9.0	58
60						25.1	10.9	5.7	10.2	6.7	60
62						8.4	4.5	4.7	4.1	4.9	62
64						12.1	4.2	2.8	3.8	3.2	64
66						0.8	1.6	4.1	1.4	4.1	66
68						0.8	2.3	2.1	2.1	1.9	68
70						0.8	0.7	1.4	0.7	1.4	70
72							0.6	1.4	0.5	1.3	72
74							3.3	1.4	3.1	1.3	74
76							1.6	1.2	1.5	1.1	76
78							1.2	0.8	1.1	0.7	78
80							2.1	0.9	2.0	0.8	80
82							0.4	0.6	0.4	0.6	82
84							1.1	0.2	1.0	0.2	84
86							0.1	0.3	0.1	0.2	86
88							0.5	0.2	0.5	0.2	88
90								0.6		0.6	90
92							0.1	0.1	0.1	0.1	92
94											94
96								0.0		0.0	96
TOTAL				1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	
No. SAMPLES				1	2	2	33	33	35	36	
SAMPLING WEIGHT(kg)				92	75	369	3275	6995	3350	7455	
No. F.MEASURED				116	117	415	3378	8464	3495	8995	
MEAN LENGTH(cm)				44.9	41.8	45.8	44.9	43.7	44.7	43.8	
MEAN WEIGHT (g)				750	625	840	824	737	812	742	
% OF TOTAL ABSOLUTE FREQUENCY				0.6	7.6	6.0	92.4	93.5			



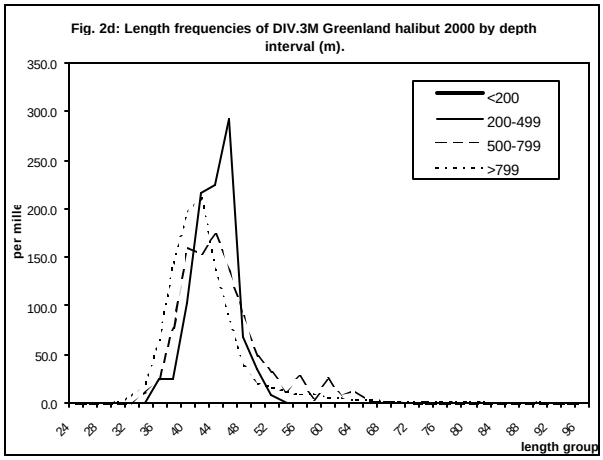
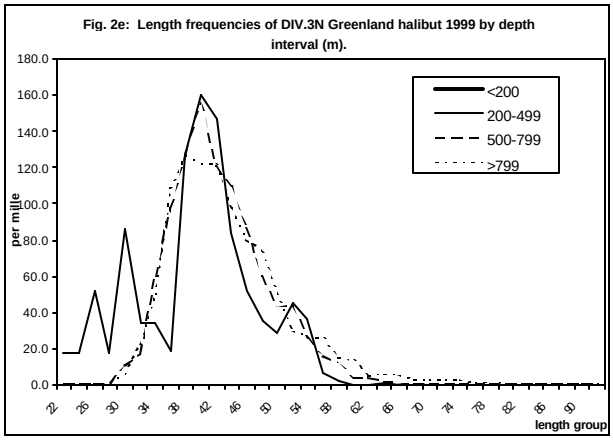


TABLE 3c :GREENLAND HALIBUT, DIV.3N,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH GROUP	<200		200-499		500-799		>799		TOTAL		LENGTH GROUP
	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	
22			17.2						0.1		22
24			17.2						0.1		24
26			51.5						0.2		26
28			17.2		0.8		1.0	0.4	1.2	0.3	28
30			85.9		10.3	1.5	5.6	2.8	6.5	2.8	30
32		3.2	34.4	6.3	17.1	3.1	22.6	8.0	22.6	8.4	32
34		27.2	34.4	25.2	60.2	18.4	49.6	23.4	50.9	24.5	34
36		42.7	18.2	48.3	97.4	55.2	108.3	60.6	107.5	60.1	36
38		122.5	127.2	115.4	128.2	104.5	127.2	103.7	128.6	105.4	38
40		175.3	160.3	209.8	156.6	191.5	122.4	180.5	126.9	181.6	40
42		214.9	147.1	203.3	120.4	185.5	122.4	192.8	122.7	197.5	42
44		165.2	83.6	136.2	110.4	148.6	97.5	139.6	99.0	140.2	44
46		101.0	52.3	87.9	87.1	96.0	80.2	98.8	79.2	98.0	46
48		52.7	35.1	50.3	59.6	56.4	73.8	49.0	71.4	48.4	48
50		40.9	28.1	46.0	43.1	44.8	51.0	37.6	48.4	37.8	50
52		16.3	45.3	10.5	43.8	20.5	29.7	26.1	30.9	24.0	52
54		12.7	36.3	6.3	25.4	14.5	26.6	18.0	26.3	16.9	54
56		10.6	6.0	12.6	16.4	11.2	25.8	14.3	24.4	13.2	56
58		9.6	2.0	23.0	11.8	16.7	15.0	14.9	15.0	14.3	58
60		2.0		6.3	3.4	6.2	13.4	6.6	12.4	6.0	60
62		1.0		2.1	3.4	4.6	5.0	4.7	4.8	4.2	62
64			1.0	2.1	2.0	9.6	5.2	4.5	4.9	4.4	64
66		1.1		4.2	0.9	3.1	5.2	4.5	4.6	3.9	66
68					0.6	1.5	2.6	1.6	2.4	1.4	68
70		1.1		4.2		1.5	2.2	2.7	2.0	2.4	70
72					0.6	3.4	2.4	1.8	2.2	1.7	72
74						1.5	2.3	1.1	2.1	1.0	74
76							1.0		0.9		76
78					0.6		0.7	0.8	0.7	0.6	78
80							0.8	0.1	0.7	0.1	80
82							0.1	0.7	0.1	0.6	82
84							0.3	0.1	0.2	0.1	84
86								0.1		0.1	86
88							0.1	0.2	0.1	0.2	88
90											90
92							0.1		0.1		92
TOTAL		1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	
No. SAMPLES		4	2	2	17	3	73	19	92	27	
SAMPLING WEIGHT(kg)		719	144	290	1447	561	7553	4034	9144	5472	
No. F.MEASURED		971	192	382	1889	630	8320	4872	10401	6665	
MEAN LENGTH(cm)		43.8	40.5	44.0	43.5	44.6	44.4	44.4	44.3	44.3	
MEAN WEIGHT (g)		709	597	737	718	779	801	776	790	764	
% OF TOTAL ABSOLUTE FREQUENCY		5.6	0.4	2.1	7.7	7.1	91.9	85.2			



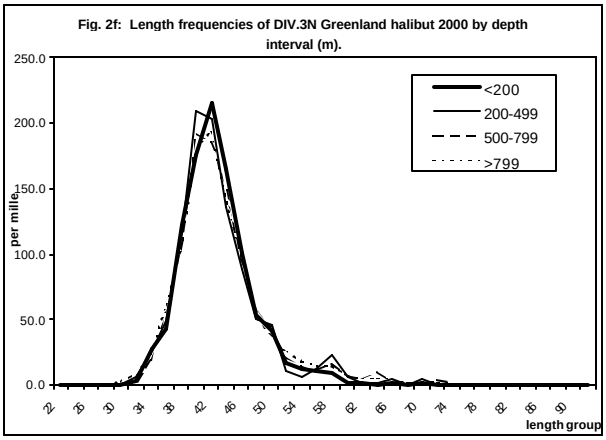


TABLE 3d :GREENLAND HALIBUT, DIV.3O,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH GROUP	<200 1999	<200 2000	200-499 1999	200-499 2000	500-799 1999	500-799 2000	>799 1999	>799 2000	TOTAL 1999	TOTAL 2000	LENGTH GROUP
26			0.2						0.3		26
28			0.2		13.5				2.3		28
30			9.4		32.3				12.1		30
32			10.3		46.4		7.7		12.2		32
34			39.6		71.1		5.5		39.7		34
36			111.9		134.5		27.3		109.1		36
38			102.2		74.6		31.2		94.4		38
40			135.4		109.5		92.4		123.8		40
42			120.7		97.6		80.5		113.1		42
44			122.4		92.3		79.9		114.7		44
46			98.6		94.0		182.9		106.4		46
48			69.4		67.7		109.8		73.7		48
50			59.8		32.0		71.8		58.7		50
52			46.6		67.6		126.8		58.3		52
54			40.5		30.4		89.8		44.3		54
56			19.5		24.4		42.6		21.0		56
58			6.3		8.2		13.9		6.4		58
60			2.8				7.7		3.0		60
62			1.7				12.4		2.8		62
64			0.8		4.0		7.7		1.9		64
66			0.5				8.5		1.0		66
68							1.6		0.1		68
70			0.4						0.3		70
72			0.5						0.4		72
74											74
76											76
78											78
80			0.0						0.0		80
TOTAL			1000.0		1000.0		1000.0		1000.0		
No. SAMPLES			30		4		3		37		
SAMPLING WEIGHT(kg)			2887		291		338		3516		
No. F.MEASURED			3528		385		348		4261		
MEAN LENGTH(cm)			44.1		42.9		48.5		44.4		
MEAN WEIGHT (g)			747		699		1016		767		
% OF TOTAL ABSOLUTE FREQUENCY			80.7		11.6		7.7				

Fig. 2g: Length frequencies of DIV.3O Greenland halibut 1999 by depth interval (m).

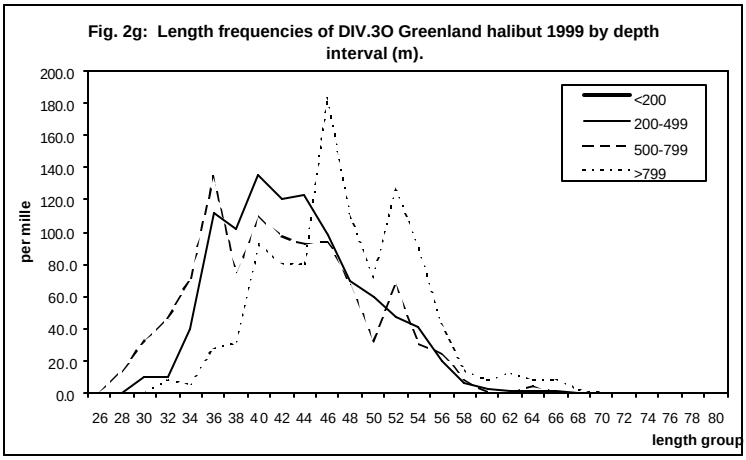
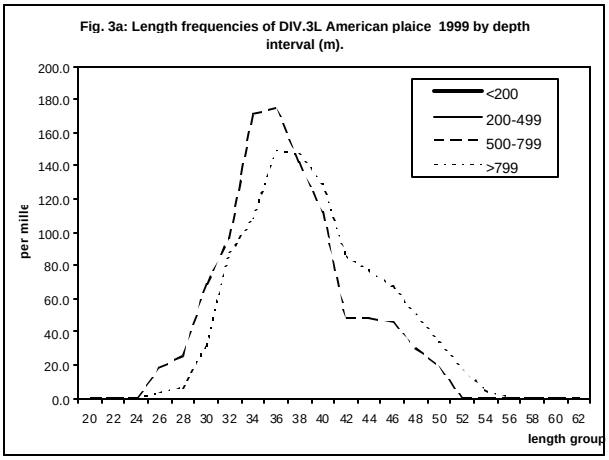


TABLE 4a :AMERICAN PLAICE, DIV.3L,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH	<200		200-499		500-799		>799		TOTAL		LENGTH
GROUP	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	GROUP
20						4.5		0.4		0.6	20
22											22
24							0.4	0.7	0.4	0.7	24
26					18.4	31.8	3.2	5.9	4.6	6.6	26
28					25.9	90.9	6.7	29.0	8.3	30.8	28
30					68.6	113.6	31.4	69.5	34.6	71.0	30
32					96.1	168.2	87.7	112.5	88.7	114.4	32
34					170.9	122.7	108.0	124.9	114.2	125.0	34
36					174.4	95.5	148.9	125.1	152.5	124.4	36
38					142.0	90.9	146.9	102.5	147.7	102.1	38
40					112.0	81.8	129.3	127.0	128.6	125.8	40
42					48.3	100.0	85.4	104.9	81.3	104.9	42
44					48.5	27.3	77.1	66.6	73.7	65.3	44
46					45.8	31.8	67.1	47.5	64.7	46.7	46
48					30.2	13.6	50.8	35.0	48.0	34.2	48
50					18.9	13.6	33.9	28.2	31.9	27.5	50
52						13.6	17.7	12.1	16.0	12.0	52
54							4.7	5.1	4.2	5.0	54
56							0.7	2.3	0.6	2.2	56
58							0.1	0.5	0.1	0.4	58
60											60
62								0.3		0.3	62
TOTAL					1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	
No. SAMPLES					2	1	33	34	35	35	
SAMPLING WEIGHT(kg)					184	100	2587	3112	2770	3212	
No. F.MEASURED					315	220	3625	4905	3940	5125	
MEAN LENGTH(cm)					38.0	36.5	40.2	39.1	40.0	39.0	
MEAN WEIGHT (g)					560	509	669	619	657	615	
% OF TOTAL ABSOLUTE FREQUENCY					7.3	1.9	92.7	98.1			



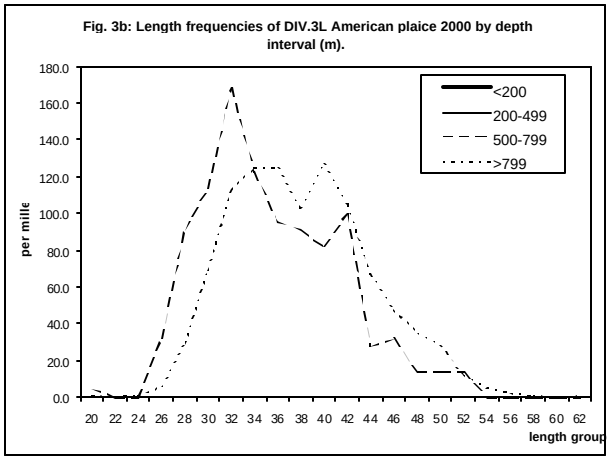
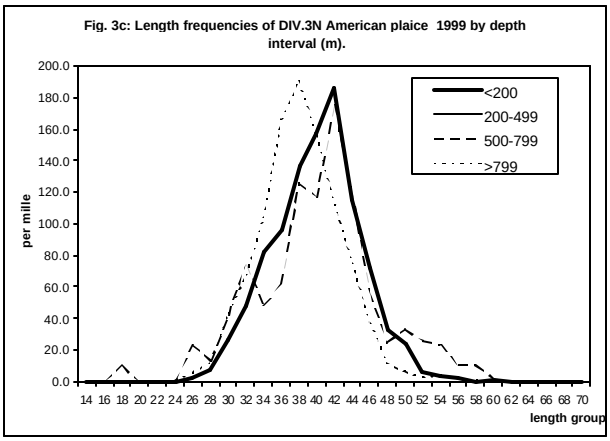


TABLE 4b :AMERICAN PLAICE, DIV.3N,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH	<200		200-499		500-799		>799		TOTAL		LENGTH
GROUP	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	GROUP
14		0.2								0.1	14
16		1.1		6.1						1.7	16
18		1.1		15.3	10.5				0.0	2.7	18
20		1.3		39.7						6.3	20
22		2.2		18.3				0.4		4.1	22
24	0.0	5.9		3.2			1.0	6.4	0.6	5.5	24
26	2.8	6.3		4.3	23.8		5.7	7.2	4.5	6.2	26
28	7.9	16.5		19.0	13.2		12.5	21.8	10.5	17.3	28
30	26.0	50.1		49.6	41.8	44.3	42.7	45.0	35.2	48.8	30
32	48.2	96.8		80.7	74.3	64.0	67.2	87.4	58.5	94.0	32
34	81.9	108.7		79.5	48.6	54.2	103.9	127.6	96.9	104.8	34
36	96.8	126.8		100.4	62.1	103.4	166.0	164.1	134.6	128.2	36
38	136.6	121.1		80.5	125.9	93.6	190.3	118.9	165.6	115.9	38
40	157.3	158.4		122.8	116.5	152.7	156.3	142.0	154.3	152.6	40
42	185.6	115.1		97.9	175.0	162.6	112.5	98.2	146.1	110.6	42
44	115.7	65.6		112.8	120.7	113.3	75.8	69.6	93.8	71.9	44
46	71.5	44.2		76.6	56.4	88.7	37.6	60.9	52.4	50.3	46
48	33.1	29.6		44.8	24.8	78.8	12.1	22.8	21.2	32.1	48
50	23.8	18.5		17.7	34.0	4.9	6.5	20.0	14.2	18.6	50
52	6.4	8.5		13.6	25.8	9.9	2.5	1.3	4.3	8.6	52
54	3.6	7.8		4.6	23.4	9.9	4.3	1.9	4.1	6.9	54
56	1.9	5.1		4.2	10.5		1.3	0.5	1.5	4.5	56
58	0.0	2.8		4.2	10.5	19.7	1.1	0.6	0.7	2.9	58
60	0.6	2.9			2.4		0.7	3.1	0.7	2.5	60
62	0.0	2.0		3.1					0.0	1.9	62
64	0.1	1.0		1.1					0.0	0.8	64
66	0.0	0.1							0.0	0.1	66
68		0.1								0.1	68
70	0.0	0.1							0.0	0.1	70
TOTAL	1000.0	1000.0		1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	
No. SAMPLES	20	25		3	3	1	38	4	61	33	
SAMPLING WEIGHT(kg)	1655	3864		412	171	153	2790	658	4617	5088	
No. F.MEASURED	2205	5835		638	225	203	4512	1046	6942	7722	
MEAN LENGTH(cm)	41.0	39.5		39.0	41.2	41.7	39.2	39.1	40.0	39.4	
MEAN WEIGHT (g)	698	641		646	739	746	608	612	648	640	
% OF TOTAL ABSOLUTE FREQUENCY	40.3	82.1		7.2	0.5	1.2	59.1	9.5			



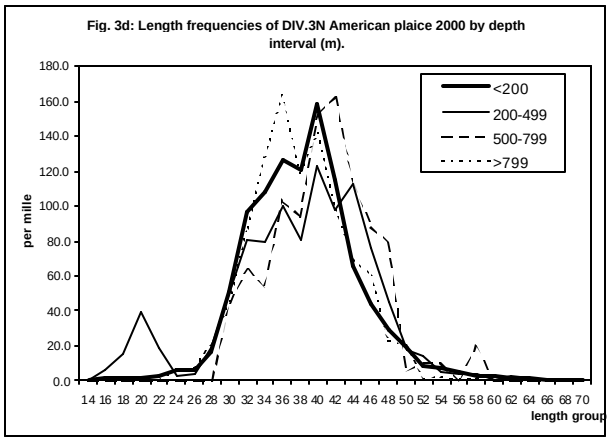
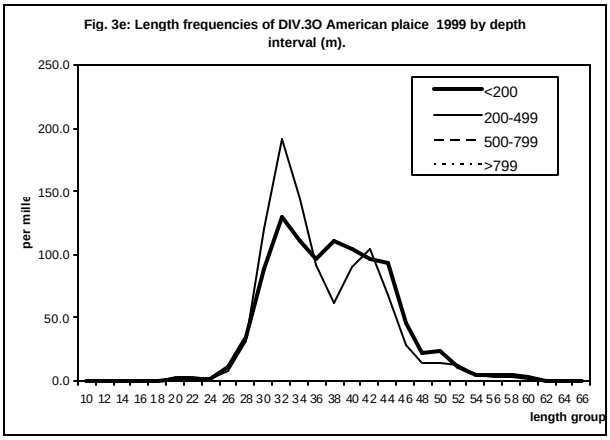


TABLE 4c :AMERICAN PLAICE, DIV.3O,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH	<200		200-499		500-799		>799		TOTAL		LENGTH
GROUP	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	GROUP
10	0.2								0.1		10
12	0.1								0.0		12
14	0.2								0.1		14
16	0.1	0.8	0.4	1.5					0.1	1.1	16
18	0.4	1.6	0.7	3.5					0.4	2.5	18
20	1.2	3.4	2.6	5.9					1.4	4.2	20
22	0.8	8.1	2.6	7.7	7.0				1.1	7.9	22
24	0.8	7.3	2.2	9.3	10.6				1.3	8.3	24
26	11.4	10.0	7.8	6.4	42.3				11.3	9.4	26
28	35.6	23.7	30.9	24.9	66.9				35.5	25.2	28
30	88.0	54.2	119.9	58.7	73.9				102.1	57.1	30
32	130.0	80.8	191.4	87.3	98.6				154.7	85.1	32
34	110.9	94.8	144.4	114.5	84.5				124.7	102.7	34
36	96.3	133.1	91.2	152.4	169.0				97.6	141.1	36
38	110.6	141.8	61.6	110.5	91.5				90.5	129.2	38
40	104.7	144.4	90.0	149.4	165.5				96.7	144.4	40
42	97.2	113.3	105.3	84.8	84.5				94.9	102.0	42
44	92.6	59.5	67.7	68.4	49.3				83.5	62.6	44
46	46.1	27.0	28.8	44.5	10.6				39.5	33.6	46
48	21.8	30.5	14.3	26.9	17.6				18.8	28.2	48
50	23.5	21.4	14.9	18.6	7.0				19.9	19.7	50
52	11.7	13.4	11.9	8.8	14.1				11.7	11.7	52
54	4.6	8.9	4.5	3.5	7.0				4.5	6.6	54
56	4.5	6.1	2.4	6.1					3.7	5.6	56
58	4.2	2.4	3.8	1.9					4.0	2.1	58
60	2.6	3.2	0.9	1.5					1.9	2.5	60
62	0.1	3.2		3.0					0.1	2.8	62
64	0.0	7.0							0.0	4.1	64
66	0.1	0.2							0.0	0.1	66
TOTAL	1000.0	1000.0	1000.0	1000.0	1000.0				1000.0	1000.0	
No. SAMPLES	32	10	15	11	1				47	22	
SAMPLING WEIGHT(kg)	2996	1368	1165	1353	155				4161	2875	
No. F.MEASURED	4606	2115	1819	2249	284				6425	4648	
MEAN LENGTH(cm)	38.8	39.4	37.5	38.8	37.3				38.2	39.1	
MEAN WEIGHT (g)	613	650	554	612	542				587	630	
% OF TOTAL ABSOLUTE FREQUENCY	59.6	59.5	40.4	39.8	0.7						



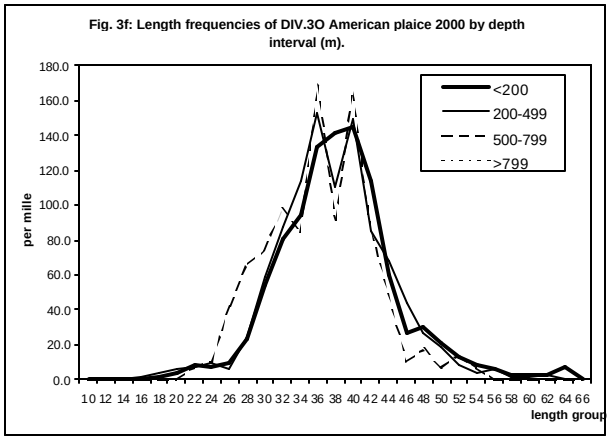


TABLE 5a :YELLOWTAIL FLOUNDER, DIV.3N,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH	<200		200-499		500-799		>799		TOTAL		LENGTH
GROUP	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	GROUP
10		0.9								0.9	10
12		3.6								3.4	12
14		7.8								7.4	14
16	1.3	7.5							1.5	7.1	16
18	1.3	10.6	13.6						1.5	10.8	18
20	1.3	18.5	27.2						1.5	18.9	20
22	2.6	29.8	27.2		22.4				3.1	29.4	22
24	9.3	55.3	23.8		37.3				10.7	52.8	24
26	38.5	69.9	40.8		52.2				42.6	66.8	26
28	69.3	125.0	113.6		119.4				75.5	123.6	28
30	180.5	149.5	84.4		126.9				183.9	144.3	30
32	171.2	148.6	114.4		186.6				169.8	147.2	32
34	166.4	113.7	224.1		97.0				161.7	121.7	34
36	157.8	85.7	136.7		149.3				152.3	91.2	36
38	84.6	47.0	53.8		29.9				81.0	47.1	38
40	61.7	53.2	66.4		59.7				60.0	54.5	40
42	28.0	34.4	36.8		44.8				27.4	34.4	42
44	16.8	18.6	9.2		67.2				17.1	17.8	44
46	4.6	10.3	16.0						4.7	10.7	46
48	3.9	4.8	8.7		7.5				4.3	5.1	48
50	0.3	3.2	3.4						0.4	3.0	50
52	0.3	1.4							0.4	1.4	52
54	0.3	0.5							0.4	0.4	54
56											56
58	0.2								0.2		58
TOTAL	1000.0	1000.0	1000.0		1000.0				1000.0	1000.0	
No. SAMPLES	8	17	2		1				8	20	
SAMPLING WEIGHT(kg)	433	1359	134		55				433	1548	
No. F.MEASURED	966	3571	349		134				966	4054	
MEAN LENGTH(cm)	34.6	32.5	33.9		34.3				34.4	32.6	
MEAN WEIGHT (g)	784	685	769		789				775	692	
% OF TOTAL ABSOLUTE FREQUENCY	100.0	97.1	2.0		0.9						

Fig. 4a: Length frequencies of DIV.3N yellowtail flounder 2000 by depth interval (m).

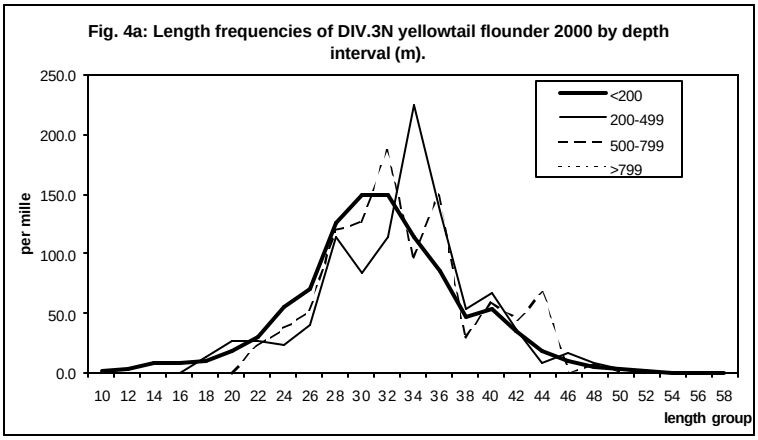


TABLE 5b:YELLOWTAIL FLOUNDER, DIV.3O,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH	<200		200-499		500-799		>799		TOTAL		LENGTH
GROUP	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	GROUP
16				13.3						11.2	16
18				23.3						19.7	18
20		7.7		23.3						20.9	20
22		4.8		39.9						34.5	22
24	1.7	22.0		43.2					1.7	39.9	24
26	3.0	35.9		93.0					3.0	84.2	26
28	28.4	70.6		93.0					28.4	89.6	28
30	41.8	77.3		192.7					41.8	174.9	30
32	73.6	86.8		159.5					73.6	148.3	32
34	92.2	96.1		103.0					92.2	101.9	34
36	134.5	151.6		36.5					134.5	54.3	36
38	137.3	112.3		43.2					137.3	53.8	38
40	151.3	106.5		103.0					151.3	103.5	40
42	145.2	106.4		13.3					145.2	27.6	42
44	102.5	58.6		3.3					102.5	11.8	44
46	52.5	43.4		6.6					52.5	12.3	46
48	24.9	20.1		6.6					24.9	8.7	48
50	7.5			3.3					7.5	2.8	50
52	3.8								3.8		52
TOTAL	1000.0	1000.0		1000.0					1000.0	1000.0	
No. SAMPLES	12	2		1					12	3	
SAMPLING WEIGHT(kg)	842	209		96					842	305	
No. F.MEASURED	1383	414		301					1383	715	
MEAN LENGTH(cm)	39.6	37.1		32.0					39.6	32.8	
MEAN WEIGHT (g)	1239	1028		647					1239	706	
% OF TOTAL ABSOLUTE FREQUENCY	100.0	15.4		84.6							

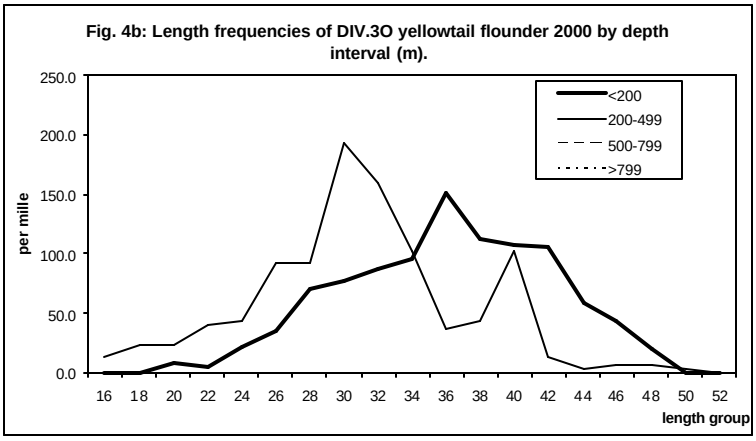
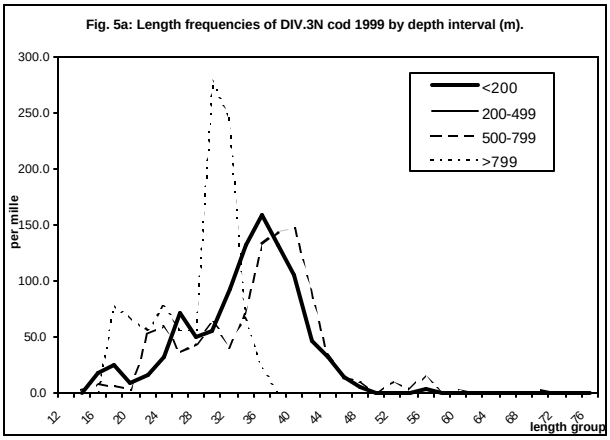


TABLE 6a :COD, DIV.3N,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH	<200		200-499		500-799		>799		TOTAL		LENGTH
GROUP	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	GROUP
12											12
14	0.2				3.1				0.5		14
16	17.6				7.8				14.7		16
18	24.8	2.3			6.2		77.8		23.2	1.6	18
20	9.3	12.0			3.1	65.2	66.7		10.7	10.4	20
22	16.0	19.7	20.2		52.6	217.4	55.6	10.8	23.6	23.6	22
24	33.0	59.0	80.8		59.8	152.2	77.8	150.5	39.2	73.1	24
26	70.8	143.1	161.7		37.3	260.9	55.6	279.6	65.1	162.0	26
28	49.7	265.3	178.5		43.4	65.2	55.6	301.1	48.0	252.3	28
30	55.2	142.7	74.1		63.5	65.2	277.8	172.0	63.8	140.5	30
32	92.0	39.0	57.2		40.5		244.4	21.5	89.0	38.1	32
34	132.2	39.9	16.8		69.8		66.7	32.3	121.2	34.1	34
36	159.3	25.9	60.5		132.3	65.2	22.2		150.2	25.4	36
38	131.4	20.7	80.7		144.2			10.8	130.1	25.4	38
40	104.9	29.5	90.9		147.7	21.7		10.8	109.8	34.5	40
42	46.7	31.3	53.9		92.7			10.8	50.9	31.1	42
44	32.5	35.0	50.5		35.2	43.5			32.2	34.3	44
46	13.8	33.4	40.4		13.7	21.7			13.7	31.8	46
48	5.5	23.8	20.2		10.2	21.7			6.1	21.4	48
50	0.2	12.0							0.2	8.9	50
52	1.2	26.0	6.7		10.7				1.8	20.4	52
54		16.3			3.7				0.3	12.3	54
56	3.7	6.3	6.7		15.7				4.8	6.0	56
58		6.7								5.2	58
60		2.5			3.7				0.3	2.1	60
62		3.5								2.6	62
64		1.0								0.9	64
66		0.3								0.2	66
68		0.9								0.8	68
70		0.8			3.4				0.3	0.5	70
72		0.8								0.5	72
74											74
76		0.4								0.3	76
TOTAL	1000.0	1000.0	1000.0		1000.0	1000.0	1000.0	1000.0	1000.0	1000.0	
No. SAMPLES	6	17	2		5	1	1	1	12	21	
SAMPLING WEIGHT(kg)	853	2552	265		471	49	84	82	1408	2948	
No. F.MEASURED	505	1195	141		224	46	90	93	819	1475	
MEAN LENGTH(cm)	52.3	50.7	51.2		54.7	42.7	43.6	43.2	52.4	49.9	
MEAN WEIGHT (g)	1376	1415	1345		1639	808	764	713	1390	1327	
% OF TOTAL ABSOLUTE FREQUENCY	83.5	86.3	8.7		12.4	1.8	4.1	3.2			



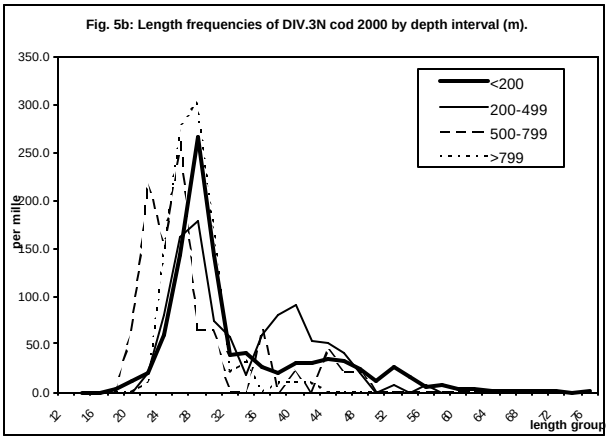


TABLE 6b :COD, DIV.3O,1999-2000: length frequencies of the trawl catches by depth intervals (m).

LENGTH	<200		200-499		500-799		>799		TOTAL		LENGTH
GROUP	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	GROUP
14	1.3		1.0						1.0		14
16			3.6						3.4		16
18	11.9		5.2	3.3					5.4	2.7	18
20	32.4	7.2	8.5	11.6	14.3				9.4	11.9	20
22	93.6	19.0	10.2	39.3	42.9				13.5	39.2	22
24	95.7	112.8	14.6	138.8	53.1				17.9	137.2	24
26	29.5	190.0	21.4	178.3	112.3				21.7	179.5	26
28	27.1	222.8	37.4	191.1	147.0				36.9	192.5	28
30	33.8	106.9	56.9	99.7	113.3				56.0	98.3	30
32	15.5	42.3	80.3	55.2	80.6				77.7	54.7	32
34	49.2	39.0	99.7	34.7	79.6				97.5	36.6	34
36	112.6	17.8	105.8	27.2	46.9				106.6	26.3	36
38	99.2	45.6	194.9	43.6	70.4				191.2	44.8	38
40	162.2	37.7	158.0	41.0	56.1				159.1	40.8	40
42	92.4	45.9	99.0	31.9	37.7				98.1	32.8	42
44	50.0	27.2	46.1	35.3	84.7				45.9	35.6	44
46	56.5	30.5	27.3	31.2	61.2				28.7	31.5	46
48	12.4	6.9	11.4	15.1					11.3	12.7	48
50	9.3	16.9	9.1	6.7					9.0	7.0	50
52	7.0	21.7	5.2	6.1					5.3	7.1	52
54	7.6	7.2	2.1	4.2					2.2	4.1	54
56		2.4	0.7	3.2					0.6	2.9	56
58	0.8		1.1						1.1		58
60			0.5	0.4					0.4	0.4	60
62											62
64				0.8						0.6	64
66				0.6						0.4	66
68											68
70											70
72											72
74				0.6						0.4	74
TOTAL	1000.0	1000.0	1000.0	1000.0	1000.0				1000.0	1000.0	
No. SAMPLES	9	8	33	21	3				42	32	
SAMPLING WEIGHT(kg)	999	645	6025	2247	210				7024	3103	
No. F.MEASURED	491	433	3111	1564	144				3602	2141	
MEAN LENGTH(cm)	53.7	48.9	56.5	47.9	50.9				56.4	47.9	
MEAN WEIGHT (g)	1579	1202	1693	1134	1301				1687	1129	
% OF TOTAL ABSOLUTE FREQUENCY	4.0	8.6	96.0	87.8	3.6