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Spanish Research Report for 1990

by

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**Subarea 3**

Status of the Fisheries

During 1990 the two traditional Spanish fleets of pair trawlers and freezers were fishing in NAFO Convention area, Division 3LMNO. In this year an experimental Greenland halibut fishery was carried out in Division 3LM.

Pair trawl fishery of cod

Reported cod catches and effort are presented in Table 1. Using exclusively these data catch-rate indices were calculated, as in previous years (Table 2). By-catches are presented in Table 3.

During 1990 there were three observers on board pair trawlers for periods of two months each. Sampling intensity of catch was:

	Div. 3L	Div. 3N
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Samples	29	13
Fish measured	10688	3428
Otoliths aged	927	194
Cod catches (t)	9747	4598
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Length and age frequency of the catch in those months with sampling are presented in Tables 4 and 5. In these tables SAMPLING CATCH means the catch of sets which samples were taken from; frequencies are referred to that amount instead of to reported nominal catches by months, as in previous reports. SAMPLING WEIGHT means the weight of all samples taken from the catch to make length measurements. Samples were not weighted on board and their weights were calculated with a length-weight relationship. SAMPLES means the number of samples taken, and MEAN WEIGHT is the quotient between Sampling Catch and Total (frequency). When frequencies were reduced by a factor of 10 this fact is indicated below the TOTAL figure (Tables 4 and 5, p.e.).

Mean weights at age in the catch were also calculated with the same length-weight relationship. Results are presented in Table 6. In Table 5 SOP means Sum Of Products and it is a later calculation of sampling catch using age frequencies and weight at age data (Table 6). Under the

headline "%" the quotient between SOP and Sampling catch is presented and expressed in percent. This figure means the proportion of Sampling catch covered by the sampling process. When the value is less than 100 it means that the same portion of the length range was not covered by otolith sampling.

Traditionally catch samples on board are classified into "total" or "catch" depending on when the sample was taken, either before or after the crew select the fish to be processed. Differences between results of these two groups have come down in last years and they reached a minimum during 1990. Samples classified on board as "catch", when no discard was recorded, were reclassified into "total" at the laboratory, so the group of "total" contained the bulk of sampling. Length and age frequencies presented in this report come from the "total" sampling group.

#### Groundfish fishery of freezers

Reported nominal catch and effort data are presented in Table 7. Catch sampling was made on board by four observers during 1990. American plaice length and age frequencies by months are presented in Tables 8 and 9. As in above-mentioned cod, both length and age frequencies are referred to the catch figure under SAMPLING CATCH in the table. Sampling catch was divided by sex using length frequencies and a length-weight relationship, and mean weight by sex was calculated after that. Under the headline "%" the quotient between SOP by sex and Catch sampling is presented and expressed in percent. So, this is a parcial value, and the global percent of transformation of length to age frequencies must be calculated by sum of values corresponding to Indetermined, Males and Females.

Another species caught by freezers and sampled on board were yellowtail flounder (Table 11), Greenland halibut (Table 12), witch flounder (Table 13), redfish (Table 14), skates (Table 15) and Cod (Table 16). Length frequencies as well as age frequencies for redfish correspond to "total" sampling group. As it was pointed out for pair trawlers, discards are so low that total and retained catch frequencies are equivalent. Samples from the retained portion of the catch in sets where there are discards consigned are the less frequent and they show a skew picture of the real fishery.

#### Greenland halibut fishery

Nine bottom trawl vessels made experimental fishing on Greenland halibut in a zone just around the line separating Divisions 3L and 3M. Fishing was conducted in 700-1,300 meters depth areas and Greenland halibut comprised 95% of the catch. Main species of by-catch were grenadiers. Greenland halibut total catch was 4,679 tons with a mean catch rate of 483 Kg/hour. Every vessel had an observer on board to sample the catch. Length frequencies of Greenland halibut are presented in Table 17.

#### Special Research Studies

A fishing survey of Flemish Cap was carried out in July 1990. The survey had a bottom trawl stratified random design and 113 valid tows were made up to a depth of 720 meters (400 f.). Results of the survey are presented in the report (SCR Doc. 91/ ) and it includes age composition for cod, American plaice and redfish (Sebastes spp and S. marinus) stocks.

An acoustic survey was carried out just after the bottom trawl survey was concluded to evaluate the pelagic component of cod and redfish, mainly. Cod biomass off the bottom, that is, the biomass of cod distributed in a layer three or more meters above the bottom, was observed to be negligible. The vertical opening of the bottom gear used was approximately three meters. Biomass estimated in the bottom trawl survey is considered to correspond to the total stock biomass.

Table 1 - Cod nominal catches (t) and fishing effort (hours) of pair trawlers in 1990.

Month	3L				3N			
	PTB-4		PTB-5		PTB-4		PTB-5	
	catch	f	catch	f	catch	f	catch	f
JAN -	11	133	425	493	1	27	20	167
FEB -	50	157	199	439	-	-	27	99
MAR -	65	81	743	460	-	-	114	161
APR -	170	229	774	510	31	58	142	252
MAY -	299	694	393	321	115	227	82	213
JUN -	873	2092	598	1013	207	452	386	383
JUL -	655	1938	658	594	143	243	488	498
AUG -	563	1249	295	460	267	1141	189	181
SEP -	218	566	120	340	395	1434	305	578
OCT -	264	470	57	277	443	1453	405	796
NOV -	140	389	371	477	209	787	405	588
DEC -	278	306	1528	813	17	36	207	96
Total	3586	8304	6161	6197	1828	5858	2770	4012

Table 2 - Catch rate indices for cod derived from pair trawl catches.

	Division		
	3L	3M	3N
1982 -			0.520
1983 -	1.680	0.789	0.698
1984 -	1.052	1.302	1.053
1985 -	1.049	1.169	0.576
1986 -	1.125	0.796	0.467
1987 -	0.831	0.413	0.510
1988 -	0.819		0.626
1989 -	0.628		0.480
1990 -	0.871		0.361

Table 3 - By-catches of the pair trawl cod fishery (tons).

	Div.:	3L	3NO	total
Haddock		-	-	-
Redfish		95	25	120
American plaice		86	60	146
Yellowtail flounder		-	-	-
Atlantic halibut		-	-	-
Greenland halibut		6	50	56
Wolffish		-	-	-
Skates		89	21	110
Cod catches		9747	4598	14345

Table 4 - Length composition of pair trawler cod catches.

Div. Month	3L			3N				
	MAR	APR	JUL	SEP	DEC	OCT	NOV	DEC
<u>length</u>								
12-14:	.	.	.	.	.	5	.	.
15-17:	.	.	.	.	.	5	.	.
18-20:	.	.	.	.	3	15	24	.
21-23:	5	.	.	.	.	180	71	.
24-26:	16	11	.	.	18	162	100	.
27-29:	87	143	.	.	89	419	131	.
30-32:	260	361	18	2	341	515	84	.
33-35:	629	757	60	52	587	483	161	.
36-38:	1078	1149	173	131	818	451	88	33
39-41:	1431	1899	434	187	1630	1173	149	68
42-44:	1751	2871	586	153	2399	3400	372	253
45-47:	1504	2980	485	131	2961	4818	452	524
48-50:	1073	3599	257	106	2380	4534	529	901
51-53:	1120	3507	178	35	1855	2727	301	1085
54-56:	922	2436	50	23	1372	2455	178	1119
57-59:	663	1707	31	11	782	1395	97	725
60-62:	1365	1808	15	5	689	648	69	572
63-65:	1372	1944	8	5	440	489	53	540
66-68:	2080	2639	11	8	303	512	53	515
69-71:	1415	2680	11	11	318	144	5	384
72-74:	1488	2130	22	.	281	36	16	439
75-77:	1064	1481	13	3	230	41	16	228
78-80:	473	1288	2	6	115	109	9	121
81-83:	484	917	7	10	29	100	55	32
84-86:	167	588	2	8	34	100	9	21
87-89:	190	319	9	.	19	181	58	.
90-92:	132	159	2	16	3	10	37	.
93-95:	60	63	2	10	3	28	58	.
96-98:	39	135	.	.	7	.	92	.
99-01:	29	74	.	3	1	21	145	.
102-04:	34	14	.	.	1	15	116	.
105-07:	3	14	.	.	.	18	83	.
108-10:	.	17	.	2	.	5	87	.
111-13:	31	19	.	3	.	.	83	.
114-16:	.	5	.	2	.	5	78	.
117-19:	5	.	.	3	.	5	41	.
120+ :	.	.	.	2	.	20	41	.
<b>Total</b>	<b>20973</b>	<b>37710</b>	<b>2375</b>	<b>929</b>	<b>17707</b>	<b>25226</b>	<b>3941</b>	<b>7560</b>
					<b>x10</b>			<b>x10</b>
<b>Sampling</b>								
catch (t):	47	83	2.3	1.3	226	33	14	151
samples	6	8	2	2	11	8	3	2
fish meas.	2268	2776	940	312	4392	2066	673	689
<b>sampling</b>								
weight(Kg)	4237	5681	960	468	5552	2758	2992	1373
mean weight	2.229	2.201	0.972	1.378	1.274	1.289	3.489	1.991



Table 7 - Catches (t) and fishing effort of freezers in 1990.

	Div.:	3L	3M	3NO	total
Cod		35	87	80	202
Redfish		823	1776	395	2994
American plaice		52	96	106	254
Yellowtail flounder		-	-	119	119
Atlantic halibut		118	197	245	560
Witch flounder		31	74	271	376
Skates		2744	1974	4572	9290
Silver hake		87	57	721	865
White hake		7	12	228	247
Haddock		2	55	98	155
Squid (Illex)		1	18	187	206
Angler		46	8	138	192
hours fishing		9660	21263	24025	54948

Table 8 - American plaice length frequency of freezer catch.

Div. Month	3L											
	APR			JUL			AUG			SEP		
Sex	I	M	F	I	M	F	I	M	F	I	M	F
<u>length</u>												
10-11:	.	.	.	3	.	.	.	.	.	.	.	8
12-13:	.	.	.	4	.	.	14	.	.	48	.	.
14-15:	.	.	.	19	.	19	21	6	42	36	18	65
16-17:	.	11	15	113	17	58	14	48	69	32	.	75
18-19:	.	63	37	32	14	101	7	90	135	16	72	107
20-21:	.	188	169	17	72	143	.	226	208	.	145	113
22-23:	.	655	640	21	126	158	.	367	344	.	185	288
24-25:	.	1306	1006	.	108	159	.	522	360	.	239	288
26-27:	.	1281	1080	.	140	228	.	365	338	.	221	331
28-29:	.	1238	1287	.	93	295	.	306	246	.	325	479
30-31:	.	1275	1202	.	136	297	.	269	183	.	262	420
32-33:	.	921	882	.	144	370	.	282	223	.	401	604
34-35:	.	507	846	.	84	323	.	219	182	.	151	657
36-37:	.	334	689	.	84	391	.	154	223	.	196	558
38-39:	.	285	570	.	56	316	.	77	174	.	279	274
40-41:	.	130	323	.	28	221	.	155	155	.	153	366
42-43:	.	83	444	.	3	197	.	132	232	.	49	327
44-45:	.	.	282	.	9	191	.	48	293	.	31	380
46-47:	.	8	157	.	.	97	.	29	213	.	31	253
48-49:	.	.	113	.	.	121	.	23	328	.	5	390
50-51:	.	.	52	.	.	106	.	.	248	.	10	235
52-53:	.	.	35	.	.	64	.	.	277	.	.	166
54-55:	.	.	35	.	.	84	.	.	295	.	.	75
56-57:	.	.	39	.	.	24	.	.	245	.	.	49
58-59:	.	.	.	.	.	10	.	.	144	.	.	35
60-61:	.	.	8	.	.	7	.	.	97	.	.	28
62-63:	.	.	.	.	.	.	.	.	44	.	.	28
64-65:	.	.	.	.	.	3	.	.	45	.	.	.
66-67:	.	.	.	.	.	9	.	.	3	.	.	.
68-69:	.	.	.	.	.	3	.	.	7	.	.	5
Total	8285	9910	209	1116	3994	55	3318	5353	133	2773	6604	
Sampling												
catch(Kg)		5935			2495			5524			4936	
Catch by sex:	2136	3799	10	304	2181	2	968	4555	4	934	3998	
Samples		19			3			5			4	
Fish meas.		2807			988			1089			1003	
Sampling												
weight(Kg)		910			461			628			525	
Mean weight	.258	.383	.049	.272	.546	.030	.292	.851	.029	.337	.605	

Table 8.b - American plaice length frequency of freezer catch.

Div. Month	3L			3M								
	OCT			NOV			FEB			MAR		
Sex	I	M	F	I	M	F	I	M	F	I	M	F
<u>length</u>												
10-11:	.	.	.	.	.	.	.	.	.	.	.	.
12-13:	7	.	.	.	.	.	.	.	.	.	.	.
14-15:	15	.	7	.	.	.	.	.	.	.	.	.
16-17:	7	7	36	.	3	7	.	.	.	.	.	.
18-19:	.	80	109	.	3	11	.	.	.	.	.	.
20-21:	.	58	73	.	10	.	.	.	.	.	2	5
22-23:	.	80	73	.	49	45	.	.	.	.	11	7
24-25:	.	22	65	.	167	96	.	.	.	.	9	5
26-27:	.	29	94	.	324	308	.	.	.	.	27	12
28-29:	.	36	58	.	326	315	.	.	.	.	41	36
30-31:	.	36	65	.	295	383	.	.	.	.	42	46
32-33:	.	22	102	.	306	403	.	1	.	.	19	8
34-35:	.	15	94	.	217	494	.	4	.	.	13	3
36-37:	.	22	51	.	285	336	.	10	11	.	15	9
38-39:	.	15	102	.	267	334	.	15	15	.	15	16
40-41:	.	7	36	.	133	236	.	3	1	.	4	7
42-43:	.	.	36	.	43	252	.	.	.	.	2	9
44-45:	.	7	44	.	4	118	.	.	1	.	.	2
46-47:	.	.	22	.	51	177	.	1	.	.	.	14
48-49:	.	.	44	.	5	91	.	.	3	.	.	11
50-51:	.	.	36	.	.	124	.	.	.	.	.	.
52-53:	.	.	7	.	.	71	.	.	1	.	.	.
54-55:	.	.	7	.	.	54	.	.	.	.	.	.
56-57:	.	.	15	.	.	30	.	.	.	.	.	2
58-59:	.	.	.	.	.	12	.	.	.	.	.	.
60-61:	.	.	.	.	.	22	.	.	.	.	.	.
62-63:	.	.	7	.	.	.	.	.	.	.	.	.
64-65:	.	.	.	.	.	8	.	.	.	.	.	.
66-67:	.	.	.	.	.	4	.	.	.	.	.	.
68-69:	.	.	.	.	.	4	.	.	.	.	.	.
<b>Total</b>	<b>29</b>	<b>436</b>	<b>1183</b>	<b>2488</b>	<b>3935</b>		<b>34</b>	<b>32</b>		<b>200</b>	<b>192</b>	
<b>Sampling</b>												
catch(Kg)			622		3249			41			150	
Cat. by sex:	1	88	533	920	2329		19	22		61	90	
Samples			1		6			1			4	
Fish meas.			227		1116			49			170	
<b>Sampling</b>												
weight(Kg)			86		538			30			66	
Mean weigh	.025	.203	.450	.370	.592		.553	.694		.303	.466	

Table 8.c - American plaice length frequency of freezer catch.

Div. Month	3M											
	JUL			AUG			SEP			OCT		
Sex	I	M	F	I	M	F	I	M	F	I	M	F
<u>length</u>												
10-11:	.	.	.	.	.	.	.	.	.	.	.	.
12-13:	.	.	.	.	.	.	.	.	.	.	.	.
14-15:	.	.	.	.	.	.	.	.	.	.	.	.
16-17:	9	.	.	.	.	.	1	2	.	.	.	.
18-19:	31	.	8	1	4	3	.	2	1	.	10	.
20-21:	.	9	4	.	2	3	.	1	1	.	1	1
22-23:	17	18	49	.	3	3	.	6	.	.	9	3
24-25:	13	47	56	.	7	3	.	2	4	.	12	1
26-27:	23	88	58	.	13	5	.	9	17	.	49	9
28-29:	17	194	202	.	11	17	.	26	21	.	44	41
30-31:	23	333	412	.	25	33	.	91	52	.	161	94
32-33:	25	262	351	.	36	44	.	136	117	.	527	249
34-35:	.	85	166	.	3	23	.	96	129	.	356	340
36-37:	.	71	81	.	5	6	.	48	63	.	310	173
38-39:	.	60	77	.	18	2	.	51	10	.	236	125
40-41:	.	58	173	.	3	5	.	27	16	.	116	127
42-43:	.	60	261	.	1	11	.	8	27	.	27	149
44-45:	.	10	342	.	1	19	.	1	74	.	8	295
46-47:	.	12	435	.	.	23	.	.	77	.	20	211
48-49:	.	4	384	.	1	22	.	.	63	.	.	107
50-51:	.	.	161	.	.	16	.	.	24	.	.	21
52-53:	.	.	66	.	.	7	.	.	9	.	.	10
54-55:	.	.	43	.	.	2	.	.	3	.	.	14
56-57:	.	.	44	.	.	.	.	.	4	.	.	2
58-59:	.	.	9	.	.	.	.	.	.	.	.	3
60-61:	.	.	.	.	.	.	.	.	.	.	.	.
62-63:	.	.	2	.	.	.	.	.	.	.	.	.
64-65:	.	.	.	.	.	.	.	.	.	.	.	.
66-67:	.	.	.	.	.	.	.	.	.	.	.	.
68-69:	.	.	.	.	.	.	.	.	.	.	.	.
<b>Total</b>	<b>158</b>	<b>1310</b>	<b>3385</b>	<b>1</b>	<b>132</b>	<b>248</b>	<b>1</b>	<b>505</b>	<b>711</b>	<b>1885</b>	<b>1975</b>	
<b>Sampling</b>												
catch(Kg)		3090			209			679			2170	
Cat. by sex:	28	471	2591	0	44	164	0	199	480	817	1354	
Samples		6			2			5			11	
Fish meas.		1197			460			1070			1736	
<b>Sampling</b>												
weight(Kg)		756			253			635			967	
Mean weight	.180	.359	.765	.050	.336	.662	.042	.393	.675	.433	.685	



Table 8.d - American plaice length frequency of freezer catch.

Div. Month	3M NOV			JAN			3N FEB			MAR		
	I	M	F	I	M	F	I	M	F	I	M	F
<u>length</u>												
10-11:	.	.	.	.	.	.	.	.	.	.	.	.
12-13:	.	.	.	.	31	21	.	2094	2633	.	.	.
14-15:	.	.	.	.	271	87	.	5811	3681	.	.	.
16-17:	.	.	.	.	503	472	.	9589	8507	.	12	42
18-19:	.	.	.	.	1213	1278	.	9025	10041	.	12	12
20-21:	.	.	1	.	2083	1970	.	11142	15881	.	196	47
22-23:	.	.	.	.	2607	2964	.	11123	18325	.	410	214
24-25:	.	.	1	.	1474	1835	.	3938	5676	.	1213	1015
26-27:	.	.	1	.	776	1126	.	1184	1461	.	1895	1473
28-29:	.	.	1	.	972	664	.	670	861	.	1958	1642
30-31:	.	1	2	.	792	968	.	513	550	.	1778	1558
32-33:	.	4	4	.	1153	1273	.	627	590	.	1268	1114
34-35:	.	5	2	.	659	865	.	149	463	.	854	945
36-37:	.	4	1	.	464	784	.	127	317	.	501	567
38-39:	.	6	.	.	452	364	.	37	183	.	507	414
40-41:	.	3	1	.	200	330	.	14	126	.	289	209
42-43:	.	1	2	.	88	391	.	29	70	.	184	233
44-45:	.	.	4	.	112	176	.	19	70	.	161	184
46-47:	.	.	3	.	19	144	.	1	49	.	28	99
48-49:	.	.	.	.	19	92	.	2	1	.	1	42
50-51:	.	.	.	.	4	129	.	.	2	.	17	91
52-53:	.	.	.	.	80	1	.	.	1	.	.	77
54-55:	.	.	.	.	.	29	.	.	1	.	.	44
56-57:	.	.	.	.	.	.	.	.	2	.	.	22
58-59:	.	.	.	.	.	.	.	.	1	.	.	16
60-61:	.	.	.	.	.	.	.	.	1	.	.	37
62-63:	.	.	.	.	.	.	.	.	.	.	.	7
64-65:	.	.	.	.	.	.	.	.	.	.	.	.
66-67:	.	.	.	.	.	.	.	.	.	.	.	.
68-69:	.	.	.	.	.	.	.	.	.	.	.	.
<b>Total</b>		<b>25</b>	<b>21</b>		<b>13971</b>	<b>15963</b>		<b>56487</b>	<b>69491</b>		<b>11285</b>	<b>10104</b>
Sampling catch(Kg)			26			6964			10894			7076
Cat. by sex:		12	14		2935			4530			3370	
Samples			1			10			9			29
Fish meas.			146			1867			1646			2949
Sampling weight(Kg)			26			437			323			1032
Mean weight		.495	.638		0.210	.252		0.080	0.092		0.299	0.367

Table 8.e - American plaice length frequency of freezer catch.

Div. Month	3N											
	APR			AUG			SEP			NOV		
Sex	I	M	F	I	M	F	I	M	F	I	M	F
<u>length</u>												
10-11:	.	.	.	.	.	.	.	.	.	.	.	.
12-13:	.	.	3	4	.	.	.	.	.	.	.	.
14-15:	.	1	5	3	.	12	.	.	.	.	.	.
16-17:	.	66	42	8	27	52	3	5	5	.	.	.
18-19:	.	206	185	12	37	61	3	10	36	.	3	.
20-21:	.	494	463	4	100	86	3	23	23	.	3	9
22-23:	.	996	957	.	90	161	.	18	41	.	23	17
24-25:	.	1444	1475	.	173	198	.	23	31	.	28	23
26-27:	.	978	1026	.	193	295	.	28	28	.	40	34
28-29:	.	693	841	.	134	191	.	23	26	.	57	43
30-31:	.	664	706	.	128	173	.	26	13	.	54	43
32-33:	.	613	746	.	73	100	.	13	18	.	31	37
34-35:	.	539	659	.	75	76	.	8	10	.	11	23
36-37:	.	310	557	.	32	83	.	16	8	.	25	11
38-39:	.	208	312	.	53	81	.	18	8	.	8	5
40-41:	.	131	441	.	30	49	.	13	3	.	19	3
42-43:	.	40	305	.	15	71	.	5	18	.	14	16
44-45:	.	31	296	.	20	83	.	3	10	.	5	14
46-47:	.	38	191	.	.	77	.	3	5	.	19	14
48-49:	.	.	98	.	4	61	.	3	5	.	.	11
50-51:	.	.	79	.	3	29	.	.	10	.	.	8
52-53:	.	4	57	.	.	38	.	.	5	.	.	8
54-55:	.	.	83	.	8	25	.	.	.	.	.	16
56-57:	.	.	24	.	.	16	.	.	8	.	.	16
58-59:	.	.	16	.	.	14	.	.	3	.	.	11
60-61:	.	.	26	.	.	15	.	.	.	.	.	.
62-63:	.	.	28	.	.	18	.	.	.	.	.	3
64-65:	.	.	3	.	.	.	.	.	3	.	.	.
66-67:	.	.	3	.	.	.	.	.	.	.	.	.
68-69:	.	.	.	.	.	.	.	.	.	.	.	.
<b>Total</b>	<b>7456</b>	<b>9628</b>	<b>31</b>	<b>1195</b>	<b>2065</b>	<b>9</b>	<b>238</b>	<b>317</b>	<b>340</b>	<b>365</b>		
Sampling catch(Kg)		5428		1305				209			365	
Cat. by sex:	1763	3664	1	321	983		0	73	135		124	241
Samples		26		4				1			2	
Fish meas.		4142		1023				218			251	
Sampling weight(Kg)		1305		414				81			132	
Mean weight	.237	.381	.041	.268	.476		.047	.306	.427		.365	.661



Table 9.b - American plaice catch at age frequency.

Div. Month	3M			JAN			FEB			MAR			3N		
	NOV			JAN			FEB			MAR			APR		
	I	M	F	I	M	F	I	M	F	I	M	F	I	M	F
age															
1															
2															
3															
4	12	8		2537	2268		15367	17098		276	150		984	1100	
5	7			4893	5774		18147	26287		3122	3017		3158	3151	
6	5	1		2835	3409		4389	9600		3749	3182		1346	2129	
7	1	1		1702	2166		862	1102		2585	2144		1065	771	
8		3		613	789		153	333		857	685		298	969	
9		2		397	632		48	189		440	479		264	645	
10		1		97	160		12	32		128	123		13	315	
11				91	97		15	16		116	76		13	162	
12					40			9			74			50	
13					21			1			31				
14					13						21				
15					13			1			31				
16+					5			2			32				
Total	25	18		13165	15387		38993	54670		11273	10046		7141	9292	
Otoliths	49	75		248	334		248	334		248	334		131	184	
Sampling															
catch(Kg)				6964			10894			7076			5428	5428	
SOP	13	13		2919	4003		3973	5957		3370	3672		1706	3398	
%	49	52		42	57		36	55		48	52		31	63	

Table 10 - American plaice mean weight (gr) at age.

Div. Month	APR			JUL			AUG			SEP			JUL			AUG			SEP			OCT			
	I	M	F	I	M	F	I	M	F	I	M	F	I	M	F	I	M	F	I	M	F	I	M	F	
AGE																									
1				38	38																				
2				45	66	72																			
3				71	123	124																			
4	129	142		52	205	179																			
5	265	256		103	274	238																			
6	329	333			409	362																			
7	412	437			407	440																			
8	457	751			464	487																			
9	602	878			499	589																			
10	1086	904			811	1016																			
11		1286				1162																			
12		1173				1238																			
13		1245				1689																			
14																									
15																									
16+																									

Table 10.b - American plaice mean weight (gr) at age.

Div. Month	3M		JAN		3N		MAR		3N		APR	
	I	F	I	F	I	F	I	F	I	F	I	F
age												
1												
2												
3		293										
4	394	349	74	74	68	70	109	120	108	92	108	92
5	579	732	121	131	103	108	170	184	150	164	150	164
6	642	852	253	232	152	117	270	284	288	305	288	305
7	562	885	364	407	300	381	338	388	366	468	366	468
8		984	521	607	437	539	503	566	622	579	622	579
9		1039	797	800	667	727	682	805	546	813	546	813
10		1126	1057	1162	826	997	892	1217	694	1105	694	1105
11		2042	726	1188	655	917	697	1264	811	1540	811	1540
12				1258		1109		1654		1716		1716
13				1505		1625		1903				
14				1524		1619		1599				
15				1524		2034		2050				
16+				1245		2048		2104				

Table 11 - Yellowtail flounder length frequency in freezer catch.

Div. Month	JAN			FEB			MAR			APR			NOV			DEC			
	I	M	F	I	M	F	I	M	F	I	M	F	I	M	F	I	M	F	
length																			
10-11:	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
12-13:	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
14-15:	21	105				8		54							641	674		126	454
16-17:	259	105			18	26		151	339						415	295		355	685
18-19:	491	555			36	93		1087	615						2454	1721		1072	646
20-21:	990	641			193	144		2380	2338						3670	4108		2902	1356
22-23:	1856	2077			561	517		5038	5500						6583	6053		4399	3618
24-25:	2357	3203			530	782		6554	6951						7804	8883		5568	5073
26-27:	1751	2904			566	712		5851	7686						7390	10456		7230	7089
28-29:	1248	1659			252	393		2716	3815						7215	8486		8590	6883
30-31:	459	916			75	195		1387	1597						3534	8437		5299	7170
32-33:	465	607			8	77		682	959						2585	4684		1355	5008
34-35:	128	400			8	49		131	862						1413	3668		379	2262
36-37:	42	113						162	137						515	1814		81	1006
38-39:	56	56						139	179						312	871			317
40-41:	56							102	141						309	457			156
42-43:		21						26	49						111	349			38
44-45:								41	32							123			
46-47:		21																	
48-49:									6										
Total	10179	13383			2247	2996		26503	31206						44952	61151		37394	41761
Sampling catch(Kg)	3806				780			9216							20789			15530	
Cat. by sex:	1560	2246			314	466		4042	5174						7878	12910		6520	9010
Samples	5				2			17							10			9	
Fish meas.	997				406			2281							1809			1672	
Sampling weight(Kg)	166				61			436							383			329	
Mean weight	.153	.168			.140	.156		.153	.166						0.175	0.211		0.174	0.216

Table 12 - Greenland halibut length frequency in freezers catch.

Div. Month	3L			3M			3N					
	JUL			SEP			AUG					
Sex	I	M	F	I	M	F	I	M	F			
<u>length</u>												
14-15:	.	.	.	.	.	.	.	.	1			
16-17:	.	.	.	.	.	.	1	1	.			
18-19:	1	.	1	.	.	.	.	1	.			
20-21:	.	.	1	.	.	1	.	1	1			
22-23:	.	.	.	.	.	.	.	.	10			
24-25:	.	1	.	.	2	.	.	.	5			
26-27:	.	6	3	.	1	1	.	.	10			
28-29:	.	2	5	.	1	3	.	1	10			
30-31:	.	14	11	.	4	3	.	.	13			
32-33:	.	17	12	.	5	5	.	.	16			
34-35:	.	15	22	.	5	7	.	1	2			
36-37:	.	15	20	.	6	10	.	1	.			
38-39:	.	11	25	.	8	9	.	1	1			
40-41:	.	4	14	.	4	10	.	.	3			
42-43:	.	13	12	.	5	3	.	1	1			
44-45:	.	5	4	.	3	4	.	1	4			
46-47:	.	3	3	.	2	3	.	.	6			
48-49:	.	2	5	.	1	3	.	2	1			
50-51:	.	.	2	.	.	2	.	.	3			
52-53:	.	.	.	.	.	1	.	.	1			
54-55:	.	.	1	.	.	1	.	.	1			
56-57:	.	.	.	.	.	.	.	.	1			
58-59:	.	.	.	.	.	1	.	.	1			
<b>Total</b>	<b>1</b>	<b>108</b>	<b>141</b>	<b>47</b>	<b>67</b>	<b>1</b>	<b>11</b>	<b>27</b>	<b>7</b>	<b>155</b>	<b>287</b>	
Sampling catch(Kg)			112			56			28		167	
Cat.by sex:	0	46	66	21	35		0	4	23	0	55	112
Samples			2			1			1			3
Fish meas.			455			205			52			591
Sampling weight(Kg)			211			103			38			221
Mean weight	.052	.423	.467	.450	.517		.029	.405	.867	.035	.353	.392



Table 13 - Witch flounder length frequency in freezers catch.

Div. Month	3M						3N											
	FEB		AUG		SEP		OCT		FEB		MAR		AUG					
Sex	I	M	F	I	M	F	I	M	F	I	M	F	I	M	F			
length																		
22-23:	8	3		4														
24-25:	3	5			1													
26-27:	5	10		2	4		2	2										
28-29:	8	23		7	9		3	5		2	26							
30-31:	5			2	2		7	8										
32-33:	3	3		4	5		6	4		13	7							
34-35:	5			2			7	1		13	11							
36-37:	5			5	4		9	7		24	15							
38-39:	5	3		9	4		13	16		2				7				
40-41:	3	8		5	9		6	24		13	2			13				
42-43:	3	5			5		11			10	46			20				
44-45:		10						5		5	15			21				
46-47:		3		2	4		4	7		3	8			15				
48-49:					2		1	3		6	3			4				
50-51:					4		4	6		5	2			10				
52-53:								4		5	5			3				
54-55:								2		2	6			3				
56-57:					2			4			8			1				
58-59:					4			4			6			4				
60-61:					2			2			2			2				
Total	53	73		6	42	73	68	116		95	127		29	39	111	107	92	24
Sampling catch(Kg)	36			70		94				117			73		122		94	
Cat. by sex:	13	24		17	52	28	66			42	75		24	49	59	64	66	28
Samples	1			1		2				1			1		2		1	
Fish meas.	48			66		231				135			42		47		82	
Sampling weight(Kg)	14			38		126				72			47		31		66	
Mean weight	.240	.324		.413	.718	.405	.569			.437	.594		0.818	1.258	0.530	0.595	0.715	1.158

Table 14 - Redfish length frequency in freezers catch.

Div. Month	3M											
	FEB			AUG			SEP			OCT		
Sex	I	M	F	I	M	F	I	M	F	I	M	F
<u>length</u>												
10:	.	.	.	.	.	.	124	.	.	.	.	.
11:	.	.	.	.	.	.	.	.	.	.	.	.
12:	.	.	.	1	.	.	57	.	.	.	.	.
13:	.	.	.	1	.	.	9	.	.	.	.	.
14:	.	.	.	30	.	23	98	.	.	.	.	.
15:	.	.	.	102	4	15	31	21	26	15	.	.
16:	.	.	.	94	26	62	109	56	80	19	.	25
17:	.	.	.	162	175	264	128	245	468	3	26	15
18:	.	.	.	159	602	442	84	582	748	.	38	30
19:	.	.	.	74	589	599	26	932	906	11	63	32
20:	.	.	.	.	340	310	.	530	557	.	40	26
21:	.	.	.	.	51	46	.	263	189	.	15	14
22:	.	.	.	.	17	11	.	81	149	.	6	17
23:	.	3	.	.	1	56	.	98	88	.	21	31
24:	.	3	6	.	58	34	.	56	98	.	48	32
25:	.	.	3	.	207	101	.	263	176	.	72	45
26:	.	.	3	.	263	56	.	669	220	.	122	51
27:	.	.	.	.	397	225	.	1077	397	.	205	73
28:	.	9	9	.	362	255	.	1110	835	.	301	119
29:	.	3	6	.	525	312	.	898	1325	.	153	177
30:	.	9	3	.	187	276	.	493	813	.	111	135
31:	.	3	6	.	79	106	.	710	523	.	103	112
32:	.	9	6	.	282	8	.	657	665	.	60	103
33:	.	9	11	.	163	62	.	946	366	.	54	42
34:	.	11	23	.	246	79	.	567	1118	.	34	75
35:	.	6	9	.	133	277	.	627	1205	.	24	83
36:	.	11	14	.	161	245	.	624	1191	.	14	81
37:	.	6	11	.	91	253	.	279	1072	.	15	68
38:	.	9	9	.	77	229	.	272	584	.	14	14
39:	.	3	3	.	.	106	.	128	950	.	14	40
40:	.	9	6	.	15	54	.	172	616	.	10	49
41:	.	9	.	.	.	46	.	17	549	.	.	3
42:	.	3	6	.	15	15	.	10	539	.	.	10
43:	.	3	3	.	.	15	.	129	219	.	.	19
44:	.	.	.	.	23	.	.	.	94	.	.	.
45:	.	.	9	.	.	15	.	55	354	.	3	.
46:	.	.	14	.	.	.	.	17	101	.	.	.
47:	.	.	3	.	.	.	.	.	218	.	.	3
48:	.	.	3	.	.	.	.	.	134	.	.	.
49:	.	.	.	.	.	22	.	.	118	.	.	.
50:	.	.	3	.	.	.	.	.	.	.	.	.
51:	.	.	.	.	.	.	.	.	.	.	.	3
52:	.	.	3	.	.	8	.	.	17	.	.	.
53:	.	.	.	.	.	23	.	.	6	.	.	.
54:	.	.	.	.	.	23	.	.	17	.	.	.
55:	.	.	.	.	.	.	.	.	17	.	.	.
<b>Total</b>	<b>118</b>	<b>172</b>	<b>623</b>	<b>5089</b>	<b>4673</b>	<b>666</b>	<b>12584</b>	<b>17748</b>	<b>48</b>	<b>1566</b>	<b>1527</b>	
<b>Sampling catch(Kg)</b>		<b>193</b>		<b>3328</b>			<b>14475</b>			<b>1181</b>		
<b>Cat.by sex:</b>	<b>69</b>	<b>124</b>	<b>48</b>	<b>1531</b>	<b>1749</b>		<b>37</b>	<b>4781</b>	<b>9657</b>	<b>3</b>	<b>517</b>	<b>660</b>
<b>Samples</b>		<b>1</b>		<b>4</b>				<b>8</b>			<b>3</b>	
<b>Fish meas.</b>		<b>99</b>		<b>784</b>				<b>1761</b>			<b>565</b>	
<b>Sampling weight(Kg)</b>		<b>67</b>		<b>239</b>				<b>678</b>			<b>221</b>	
<b>Mean weight</b>	<b>.585</b>	<b>.721</b>		<b>.301</b>	<b>.374</b>		<b>.380</b>	<b>.544</b>		<b>.330</b>	<b>.432</b>	

Table 14.b - Redfish length frequency in freezers catch.

Div. Month	3M NOV			3N JAN			FEB		
	I	M	F	I	M	F	I	M	F
<u>length</u>									
10:	.	.	.	.	.	.	.	.	.
11:	.	.	.	.	.	.	.	.	.
12:	.	.	.	.	.	.	.	.	.
13:	.	.	.	.	.	.	.	.	.
14:	.	.	.	.	.	.	.	.	.
15:	.	.	.	.	.	.	.	.	.
16:	.	.	.	.	.	.	.	17	.
17:	.	.	.	.	.	.	.	50	.
18:	.	.	.	.	.	.	.	50	.
19:	.	.	.	.	.	.	.	50	.
20:	.	.	.	.	6	3	.	33	.
21:	.	.	.	.	6	.	.	66	.
22:	.	.	.	.	37	3	.	116	83
23:	.	.	.	.	34	9	.	199	50
24:	.	8	6	.	37	12	.	199	50
25:	.	12	6	.	49	15	.	199	33
26:	.	49	21	.	52	9	.	116	83
27:	.	39	56	.	34	9	.	50	66
28:	.	35	33	.	18	15	.	33	.
29:	.	4	16	.	9	24	.	.	33
30:	.	.	8	.	.	9	.	.	33
31:	.	2	6	.	.	6	.	.	33
32:	.	.	2	.	.	15	.	.	.
33:	.	.	.	.	.	3	.	.	.
34:	.	.	.	.	.	6	.	.	.
35:	.	.	.	.	.	.	.	.	33
36:	.	.	.	.	.	3	.	.	.
37:	.	.	.	.	.	.	.	.	.
38:	.	.	.	.	.	.	.	.	.
39:	.	.	.	.	.	.	.	.	.
40:	.	.	.	.	.	.	.	.	.
41:	.	.	.	.	.	.	.	.	.
42:	.	.	.	.	.	.	.	.	.
43:	.	.	.	.	.	.	.	.	.
44:	.	.	.	.	.	.	.	.	.
45:	.	.	.	.	.	.	.	.	.
46:	.	.	.	.	.	.	.	.	.
47:	.	.	.	.	.	.	.	.	.
48:	.	.	.	.	.	.	.	.	.
49:	.	.	.	.	.	.	.	.	.
50:	.	.	.	.	.	.	.	.	.
51:	.	.	.	.	.	.	.	.	.
52:	.	.	.	.	.	.	.	.	.
53:	.	.	.	.	.	.	.	.	.
54:	.	.	.	.	.	.	.	.	.
55:	.	.	.	.	.	.	.	.	.
<b>Total</b>	<b>149</b>	<b>154</b>		<b>282</b>	<b>141</b>		<b>1178</b>	<b>497</b>	
Sampling catch(Kg)		88			111			361	
Cat.by sex:	42	47		64	47		223	138	
Samples		1			1			1	
Fish meas.		148			139			101	
Sampling weight(Kg)		43			36			22	
Mean weight	.280	.303		.227	.332		.189	.278	

Div. Month	JUL	AUG	3L SEP	OCT	NOV	JAN	3N FEB	AUG
<u>length</u>								
13:	2	.	.	.	.	.	.	.
14:	8	.	3	13	.	.	.	7
15:	14	2	18	7	1	2	1	25
16:	15	.	24	12	1	.	1	50
17:	10	4	15	1	1	2	.	27
18:	10	6	19	1	.	22	3	33
19:	9	12	20	3	7	11	1	44
20:	12	10	36	.	9	11	1	61
21:	8	18	26	.	7	15	1	54
22:	10	20	20	.	7	14	5	62
23:	6	12	19	.	8	3	5	34
24:	3	12	19	.	8	2	9	37
25:	4	8	8	.	7	6	14	28
26:	2	4	5	.	5	26	25	17
27:	2	6	5	.	6	8	16	7
28:	2	6	2	.	1	39	26	4
29:	2	4	2	.	3	30	19	4
30:	2	.	5	.	5	16	18	6
31:	.	2	.	.	2	30	24	7
32:	.	2	.	.	7	22	17	1
33:	.	.	1	1	5	9	25	1
34:	.	.	2	.	.	7	24	2
35:	.	.	.	.	1	6	14	4
36:	.	.	.	.	2	6	23	4
37:	.	.	.	.	.	9	52	6
38:	1	2	1	.	2	11	15	5
39:	.	4	.	.	.	28	37	3
40:	.	.	.	.	1	26	47	.
41:	.	2	.	1	1	21	23	4
42:	.	.	2	.	.	14	63	6
43:	.	.	3	.	.	24	47	6
44:	1	4	.	1	2	15	44	11
45:	1	.	3	1	.	25	28	7
46:	.	.	2	1	5	30	61	7
47:	.	2	8	1	5	63	22	4
48:	1	.	3	3	1	17	31	3
49:	.	.	2	4	.	38	52	4
50:	.	2	2	4	3	31	55	4
51:	.	.	2	4	3	8	39	7
52:	.	.	2	1	2	9	69	7
53:	.	.	2	1	3	14	43	9
54:	1	.	3	3	3	13	53	16
55:	1	4	7	4	7	13	33	5
56:	1	8	1	3	7	12	67	12
57:	.	2	4	1	3	14	55	5
58:	.	2	1	1	3	13	40	8
59:	.	2	1	4	5	13	44	3
60:	1	2	7	3	1	23	65	4
61:	1	4	2	.	2	16	48	4
62:	.	.	6	3	3	17	60	4
63:	.	.	6	.	3	17	33	5
64:	.	.	2	4	5	11	35	5
65:	.	4	2	1	3	7	26	.
66:	2	2	4	1	7	9	36	4
67:	.	.	4	3	5	13	41	4
68:	1	2	2	4	2	14	23	4
69:	.	4	5	3	8	7	26	4
70:	1	8	3	3	7	17	19	1
71:	.	2	8	8	1	11	12	.
72:	.	.	6	1	6	14	19	4
73:	1	4	5	1	5	15	29	3
74:	.	4	9	8	5	12	27	6
75:	1	.	11	1	3	12	21	4
76:	.	2	2	7	9	11	28	3
77:	2	2	8	4	2	9	18	3
78:	.	2	1	5	5	12	24	1
79:	.	4	11	4	6	5	20	3
80:	.	.	.	1	1	12	20	3
81:	2	4	1	3	1	3	13	6
82:	2	.	3	.	1	8	16	3
83:	.	.	1	1	.	6	16	1
84:	.	2	2	1	2	4	15	1
85:	.	2	.	.	.	3	5	4
86:	1	.	2	.	.	5	15	4
87:	.	.	2	.	.	3	15	.
88:	.	.	1	.	.	1	6	.
89:	.	.	.	.	1	.	.	.
90:	.	.	.	.	.	5	5	.
91:	.	.	.	1	.	2	3	.
92:	.	.	.	.	.	3	5	.
93:	.	.	.	.	.	.	.	.
94:	.	.	.	.	.	2	.	.
<b>Total</b>	<b>147</b>	<b>212</b>	<b>409</b>	<b>151</b>	<b>249</b>	<b>1055</b>	<b>2042</b>	<b>743</b>
Sampling catch(Kg)	90	270	540	360	470	1740	4110	540
Samples	1	1	2	1	1	5	6	2
Fish meas.	354	108	311	113	215	546	704	442
Sampling weight(Kg)	216	138	490	270	406	1073	1394	331
Mean weight	0.611	1.273	1.321	2.390	1.887	1.650	2.013	0.727

Table 15 - Skates length frequency in freezers catch.

Table 16 - Cod length frequency in freezers catch.

Div. Month	3L		3M						3N		
	APR	JUL	FEB	MAR	AUG	SEP	OCT	NOV	MAR	APR	AUG
<u>length</u>											
15-17:	.	.	.	.	6	.	.	.	.	17	.
18-20:	6	5	.	2	9	9	.	.	.	24	.
21-23:	44	8	8	2	9	9	2	.	.	38	1
24-26:	86	27	15	2	181	56	15	.	4	99	35
27-29:	105	65	40	.	578	202	42	.	6	38	161
30-32:	107	68	114	.	352	279	70	3	6	10	461
33-35:	63	74	156	4	157	118	24	2	12	.	555
36-38:	38	140	53	15	162	134	35	5	8	.	871
39-41:	19	140	9	7	194	262	23	5	13	.	733
42-44:	6	185	2	2	445	461	81	66	46	.	527
45-47:	.	154	2	4	503	733	196	159	22	.	407
48-50:	.	140	2	7	726	1026	323	325	67	.	139
51-53:	.	104	.	3	614	1102	465	512	54	.	56
54-56:	2	55	.	1	485	805	420	473	23	.	30
57-59:	4	29	2	6	315	643	304	423	133	.	7
60-62:	.	17	2	2	222	412	213	277	86	.	8
63-65:	9	11	.	2	123	257	133	162	155	.	16
66-68:	20	14	.	.	46	164	53	86	69	.	.
69-71:	13	16	.	.	25	84	25	23	110	.	.
72-74:	11	7	.	.	6	45	12	3	154	.	.
75-77:	16	6	.	2	7	20	2	.	109	.	.
78-80:	4	4	.	.	7	8	6	2	101	.	2
81-83:	2	1	.	1	11	15	9	.	107	.	.
84-86:	9	3	.	1	16	8	9	.	92	.	.
87-89:	.	.	.	.	11	4	6	.	62	.	.
90-92:	.	1	.	.	9	.	.	.	38	.	.
93-95:	.	1	.	.	6	12	.	.	40	.	.
96-98:	.	.	.	.	.	.	.	.	6	.	.
99-01:	.	.	.	.	6	.	.	.	1	.	.
102-04:	.	.	.	.	.	.	.	.	.	.	.
105-07:	.	.	.	1	.	.	.	.	.	.	.
108-10:	.	.	.	.	.	.	.	.	1	.	.
111-13:	.	.	.	.	6	.	.	.	.	.	.
114-16:	.	.	.	.	.	.	.	.	.	.	.
117-19:	.	.	.	.	.	.	.	.	.	.	.
120-22:	.	.	.	.	.	.	.	.	.	.	.
123-25:	.	.	.	.	3	.	.	.	.	.	.
<b>Total</b>	<b>567</b>	<b>1275</b>	<b>404</b>	<b>64</b>	<b>5241</b>	<b>6867</b>	<b>2469</b>	<b>2526</b>	<b>1526</b>	<b>226</b>	<b>4009</b>
Cat. (Kg)	454	1188	143	83	5881	9296	3758	4128	5369	30	2337
Samples	2	3	1	2	6	8	4	5	7	1	3
Fish m.	191	676	213	49	1297	1743	828	932	298	132	1022
Sampling											
w. (Kg)	186	675	75	65	1453	2432	1251	1505	1007	18	572
M.w.	0.802	0.932	0.354	1.293	1.122	1.354	1.522	1.634	3.519	0.133	0.583

Table 17. Greenland halibut length frequency from second half of year, when the fishery took place.

Length	Depth range (m)			Total
	700-900	900-1100	>1100	
<22	0	52	33	84
22-23	198	0	0	198
24-25	77	127	0	204
26-27	198	60	0	258
28-29	1122	872	49	2043
30-31	1173	1547	176	2897
32-33	7625	2821	485	10931
34-35	15744	8757	858	25359
36-37	35892	15888	2004	53784
38-39	42836	20258	4052	67147
40-41	50351	21336	5102	76789
42-43	60346	28404	9373	98123
44-45	71448	38596	14196	124239
46-47	66254	40600	17712	124566
48-49	63694	41551	21186	126431
50-51	59297	39728	22913	121938
52-53	44291	39712	24541	108544
54-55	35419	40870	28701	104991
56-57	29566	43656	31763	104985
58-59	21891	37219	3795	89905
60-61	19743	35318	31395	86456
62-63	11481	26674	27803	65958
64-65	9074	23090	24019	56182
66-67	5746	19145	20237	45129
68-69	4411	14324	18896	37630
70-71	2264	10740	15436	28440
72-73	1867	9582	14042	25491
74-75	653	8320	12827	21800
76-77	917	6574	10421	17912
78-79	1687	4263	8668	14617
80-81	424	2994	6308	9726
82-83	313	2549	4852	7714
84-85	256	1600	3964	5820
86-87	42	841	2599	3482
88-89	22	626	1537	2185
90-91	76	357	1173	1605
92-93	12	530	871	1413
94-95	24	203	453	679
96-97	32	77	124	233
98-99	0	52	220	272
>100	0	102	88	190