Northwest Atlantic Fisheries Organization

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Scientific Council Response to the Fisheries Commission Request for Available Information for the Establishment of an Annual Scientific Program

by

J. S. Beckett

Chairman, Scientific Council

The Fisheries Commission requested (FC Doc. 87/13) that the Scientific Council prepare for the 1988 Annual Meeting documentation appropriate to the development of the First Annual Scientific Program. In particular, the Scientific Council was asked to "analyse the level of scientific information available on the stocks in the Regulatory Area, identifying the shortcomings in available data. This analysis should also include comments on how such information was collected for each fleet component and whether it meets the level required for the purposes of the assessment of the stocks. The report should furthermore review the means available for collecting the necessary data, including the implications involved in each approach".

The Scientific Council carried out this request at its June 1988 Meeting and response is provided in several parts of the Report of the Scientific Council (SCS Doc. 88/20) and in a supporting document (SCS Doc. 88/19). In order to facilitate presentation to the Fisheries Commission, this document collects the material into one, with the exception of the information on stock status which is presented in the usual format in the Scientific Council Report.

Information from Regulatory Area

With the exception of the three stocks in Division 3M, the other stocks that occur in the Regulatory Area also occur inside the Canadian 200-mile limit. Catches cannot be assigned clearly to the Regulatory Area because statistical information is recorded in the NAFO database by statistical division without a breakdown between catches inside or outside of the Regulatory Area. In recent years most of the fleets fishing in the NAFO Convention Area are restricted to specific zones and both reported catches and biological sampling data have a known area of application. It is known that Canadian catches are primarily from inside the 200-mile limit and all catches of the EEC in Subarea 3 occur in the Regulatory Area. Non-member countries fish only in the Regulatory Area. This information is not contained in NAFO database but it is often used by the Scientific Council and was used in preparing this document.

Biological sampling methods used in the Regulatory Area

There are essentially 3 methods which could be employed to collect new data: research vessel surveys, sampling of catches at sea on board commercial vessels and sampling of landings.

Table 1 contains information on the sampling methods used by different countries to collect scientific data on stocks and the current level of intensity in the Regulatory Area. Landings refers to sampling made at the time of landing. As a rule, this would mainly apply to coastal fleets landing fresh fish, i.e. Canada. Samplers refers to sampling made on board by specialized personnel (samplers). This is the most common system for sampling catches by long distant fleet. Catch is often further processed, and a few species (e.g. squid) are frozen without initial processing. Sampling on board allows the samples to be taken from the total catch, the discarded catch or the retained catch after the discarded portion was removed. All samplers are given, as a general rule, the instruction to take samples from the total catch but Spanish samples are mainly taken from the retained portion of the catch.

In Table 1, SOP refers to the Scientific Observer Program that was in operation from 1983, and Annual intensity is an estimate of the present scope of each action. Research surveys carried out by different countries (only Canada and USSR in recent years) are listed under surveys. Surveys are made on board research vessels and cover completely the statistical division indicated. All surveys listed are directed to study stocks occurring in the Regulatory Area although in some cases only a few sets are made inside this Area.

Statistical and scientific data available and deficiencies for stocks occurring in the Regulatory Area.

Table 2 presents a judgement of statistical reporting and sampling coverage for stocks occurring in the Regulatory Area.

The criterion used in evaluating statistical information and biological data was based on whether such information could be recognized as belonging to the Regulatory Area. But the criterion for judging R/V surveys and biological studies was based on whether the target species occur or not in the Regulatory Area.

An entry for non-member countries was inserted for those stocks for which a known fishery exists. The absence of an entry for non-member countries does not however preclude the existence of catches by those countries and this is a major deficiency in the database. Other major problems which persist in the statistical information are inadequate reporting of discards and submission of incomplete statistical reporting forms. Non-reporting of catches is a general feature for non-member countries in the Regulatory Area.

Summary of sampling and statistical data

Summarized information on catch and sampling intensity by country and by stock is provided in Table 3. This information is contained in the NAFO database and it is published in various Scientific Council summary documents prepared by the Secretariat. Here the information is presented by quarter except for catch in 1986 because that information is not yet completed in the NAFO database. Catches, and quantities of length measurements and age data presented belong to the whole statistical divisions indicated in the heading of each section in the table. As is indicated above, this information is not available separately for outside and inside the Regulatory Area.

The information contained in Tables 1-3 has been combined (Table 4) into a stock by stock summary that indicate whether the information requirements are being met satisfactorily, are being met in part (i.e. deficiencies exist) or are not being met at all. This summary, being an overview, tends to suggest that there are fewer problems with respect to the scientific database than there in fact are. Assessment of the individual stocks is compromised frequently because one or more sources of information cannot be used for certain years for one or more of a wide variety of reasons.

Review of means available for collecting data

The methods for collecting data which have been described previously are essentially those which are most adequate for assessment purposes.

Requirements for additional scientific information

STACREC noted that there are many relevant matters for those stocks in the Regulatory Area which could be proposed as specific scientific objectives, such as the Flemish Cap Project. Nevertheless, it was agreed that such studies, other than those presently in progress, refer to species without present commercial interest.

All relevant data for stock assessments are currently provided by existing programs of sampling and research vessel surveys. However, not all such programs are complete and steps should be taken to improve them so that existing deficiencies in the databases (Table 3) can be resolved.

Co-operation between sampling-at-sea programs of different countries may allow the more complete coverage of fisheries in some areas and/or seasons. Further information may also be available from examination or reanalysis of logbook data.

Recommendations for the first Annual Scientific Program 1989

The most valuable scientific information that could be collected at this moment is that oriented toward covering deficiencies already pointed out. This implies improving the accuracy of statistical data reporting, collecting more information on discards and extending sampling coverage.

The Council noted that research vessel surveys are an additional source of valuable information for many stocks, providing most of the biological data available for these stocks. Furthermore, since the information from sources such as a survey series may not be useable in a particular year, expansion of existing initiatives such as biological sampling or research surveys is extremely important even for those stocks for which data coverage is categorized as "satisfactory". The Council therefore recommends *that existing surveys be continued, and that any new research efforts be addressed towards completing scientific objectives currently in place.*

Table 1. Biological sampling methods used and type of survey carried out in the Regulatory Area.

Biological Sampling

Country	Method	Species	Divisions	Annual Intensity
Canada	Landings	Groundfishes	3LNO	500 samples
	Samplers			800 days
	S.O.P.			25 days (1987)
Cuba	Samplers	Redfish	3LMNO	120 days
Portugal	Samplers	Groundfishes	3LMNO	150 days
Spain	Samplers	Groundfishes	3LMNO	380 days

Surveys

Country	Type of survey	Divisions	Months	No. Sets	Remarks
Canada	Groundfish	3L	Spring	140	from 1977
	Groundfish	3L	Autumn	150	from 1981
	Groundfish	3L	Winter	190	1985-1986
	Juvenile flatfish	3LNO	11	60	
	Groundfish	3NO	3,4,5	140	from 1977
	Capelin (acoustic)	3KL	5,6		
	Cod (acoustic)	3KL	6		
	Capelin (acoustic)	3KL	10,11,12		
	Capelin (acoustic)	3NO	6,7		
	Capelin	3NO	11	120	
USSR	Capelin (acoustic)	3KLNO	5,6	40	
	Groundfish and acoustic	3KLMNO	3,4,5,6,7	530	from 1977
	Capelin (hydroacoustic)	3KLNO	11, 12	60	
	Ichthyoplankton and hydrography	3M	4		from 1981

Table 2. Statistical and scientific data available and deficiencies for stocks occurring in the Regulatory Area: (* no information; ** = same information; and *** = complete information).

COD 3L (2J+3KL) - Advice based on: SPA.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	**	***	***	**				
EEC (Portugal)	***	**	*	**	**				
EEC (Spain)	***	**	***	**	*				
EEC (FRG)	***	*	***	**	*				
Non-members	*	*	*	*	*				
Collectively						***	***	***	***

COD 3M - Advice based on: General considerations (part on a SPA).

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Faroes	**	*	*	*	*				
USSR	***	*	*	**	*				
EEC (Spain)	***	**	***	**	*				
EEC (Portugal)	***	**	*	**	**				
EEC (FRG)	***	*	*	*	*				
Non-members	*	*	*	*	*				
Collectively						***	***	***	**

TABLE 2. (CONTINUED).

COD 3NO - Advice based on: SPA.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	**	***	***	**				
Cuba	***	*	*	*	*				
USSR	***	*	*	*	*				
USA	***	*	*	*	*				
EEC (Spain)	***	**	***	***	**				
EEC (Portugal)	***	*	**	**	**				
EEC (France)	***	*	*	*	*				
Non-members	*	*	*	*	*				
Collectively						***	***	**	**

REDFISH 3M - Advice based on: General Production Analysis.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
USSR	***	*	***	**	*				
EEC (Spain)	***	*	***	**	*				
EEC (Portugal)	***	*	***	**	*				
Non-member	*	*	*	*	*				
Collectively						**	**	**	**

Table 2. (Continued).

REDFISH 3LN - Advice based on: General Production Analysis.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	*	***	**	*				
GDR	***	*	***	*	*				
Japan	***	*	***	**	*				
USSR	***	*	***	**	*				
Cuba	***	*	***	*	*				
EEC (FRG)	***	*	***	*	*				
EEC (Portugal)	***	*	***	**	*				
EEC (Spain)	***	*	***	**	*				
Non-members	*	*	*	*	*				
Collectively						**	**	*	**

REDFISH 30.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	*	***	*	*				
Cuba	***	*	***	*	*				
Japan	***	*	***	*	*				
USSR	***	*	***	*	*				
Collectively						*	*	**	*

Table 2. (Continued).

AMERICAN PLAICE 3M - Advice based on: General considerations.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
USSR	***	*	***	**	*				
EEC (Spain)	***	*	*	**	*				
EEC (Portugal)	***	*	*	**	*				
EEC (FRG)	***	*	*	*	*				
Non-members	*	*	*	*	*				
Collectively						***	**	1	**

[1] not an issue for this stock

AMERICAN PLAICE 3LNO - Advice based on: SPA.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	**	***	***	**				
USA	***	*	*	**	*				
South Korea	**	*	*	*	*				
EEC (Spain)	***	**	*	**	**				
EEC (Portugal)	***	*	*	**	*				
Non-members	*[1]	*	*	*	*				
Collectively						***	**	**[2]	**

[1] Surveillance estimates only
[2] No recent information

Table 2. (Continued).

YELLOWTAIL FLOUNDER 3LNO - Advice based on: General considerations

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	**	***	***	**				
USA	***	*	*	**	*				
South Korea	**	*	*	*	*				
EEC (Spain)	***	**	*	**	**				
EEC (Portugal)	***	*	*	*	*				
Non-members	*[1]	*	*	*	*				
Collectively						***	***	[2]	**

[1] Surveillance estimates only
[2] Stock ID not considered an issue for this stock

WITCH 3L (2J+3KL) - Advice based on: General considerations.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	Not applicable	NA	***	Not applicable				
Poland	***	Not applicable	NA	***	Not applicable				
EEC	***	Not applicable	*	**	Not applicable				
Non-members	*	*	*	*	*				
Collectively						**	*	**	**

Table 2. (Continued).

WITCH 3NO - Advice based on: No change due to lack of data.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	Not applicable	***	**	Not applicable				
USSR	***		*	*					
EEC	***		*	**					
Non-members	*		*	*					
Collectively						**	*	**	**

GREENLAND HALIBUT 3L (2+3KL) - Advice based on: General considerations.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	N/A	**	***	N/A				
Poland	***	N/A	**	***	N/A				
USSR	***	N/A	**	***	N/A				
Japan	***	N/A	**	***	N/A				
GDR	***	N/A	**	***	N/A				
Denmark (Faroes)	***	N/A	**	***	N/A				
EEC	***	N/A	*	*	N/A				
Collectively						**	*	***	**

Table 2. (Continued).

ROUNDNOSE GRENADIER 2+3 - Advice based on: No change due to lack of data.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	*	***	*	*				
GDR	***	*	***	**	*				
Poland	***	*	***	*	*				
USSR	***	*	***	**	*				
Japan	***	*	***	*	*				
EEC (FRG)	***	*	***	*	*				
EEC (Portugal)	***	*	***	**	*				
Non-members	*	*	*	*	*				
Collectively						*	*	*	*

CAPELIN 3LNO - Advice based on: General considerations.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	**	***	***	*				
USSR	***	*	***	**	*				
Collectively						***	***	**	**

Table 2. (Continued).

SQUID 3+4 - Advice based on: No changes due to lack of data.

Country	Statistical Information On			Biological Sampling		R/V Abundance Surveys for		Biological Studies	
	Nominal Catch	Discarded Catch	Directed Fishing Effort	Catches	Discards	Stock	Recruits	Stock Identif.	Others
Canada	***	*	**	**	*				
USSR	***	*	**	**	*				
Cuba	***	*	**	*	*				
Japan	***	*	**	**	*				
EEC (Spain)	***	*	*	**	*				
Collectively						**	**	**	**

Table 3. Sampling data available and reported catch for stocks in the Regulatory Area, 1983-86. Quarterly summary. [(*) Canadian Scientific Observer Program.]

Year	Country	Catch (t) 1	2	3	4	Length (no. meas.) 1	2	3	4	No. aged 1	2	3	4
						COD DIV. 3L							
1983	CAN	11,995	28,436	39,465	14,228	13,758	38,980	38,153	9,960	330	7,963	-	-
	DDR	-	-	14	-								
	FRO	46	24	-	-								
	NOR	-	427	466	347								
	POL	1	-	-	-								
	SUN	6	4	-	-								
	E/ESP	172	2,972	603	1,315								
	E/PRT	-	622	1,632	2,267								
1984	CAN	22,774	28,241	38,053	7,951	41,645	30,368	26,817	3,749	531	752	1,996	379
	DDR	-	-	55	-								
	JPN	-	1	-	316								
	NOR	186	76	392	-								
	SUN	-	18	5	-								
	E/DEU	82	-	-	-								
	E/FRA	213	100	-	-								
	E/GBR	-	-	31	-								
	E/PRT	768	990	1,389	3,192								
1985	CAN	1,753	14,254	40,511	19,651	1,248	36,735	28,983	19,841	159	1,408	1,675	1,451
	DDR	2	-	-	21	-	-	-	259*	-	-	-	47*
	JPN	-	1	-	-								
	SUN	4	9	-	-	-	203	-	-	-	203	-	-
	E/DEU	9,600	5,866	-	-								
	E/ESP	2,060	4,448	708	3,422	-	1,375	-	-	-	112	-	-
	E/PRT	-	2,375	1,624	1,032	2,243	-	-	-	-	-	-	-
	E/FRA-M	-	-	-	-	-	-	-	273*	-	-	-	-
1986	CAN			(88,303)		4,465	17,110	9,060	25,059	346	1,853	363	471
	DDR			(7)									
	JPN			(1)									
	NOR			(1,184)									
	E/ESP			(21,849)		-	3,944	-	-	-	393	-	-
	E/PRT			(30,463)									
	E/FRA (2J3KL)			(1,539)									
						COD DIV. 3M							
1983	DDR	3	-	-	-								
	FRO	339	236	751	163								
	JPN	-	1	14	-								
	NOR	96	1	14	-								
	E/ESP	99	925	1,296	2,087								
	E/PRT	847	634	578	871								
1984	CUB	-	-	5	-								
	FRO		(3,058)										
	JPN	-	1	3	5								
	NOR	-	-	47	-								
	SUN	230	601	79	-								
	E/DEU	270	184	-	-								
	E/ESP	188	2,295	943	1,319								
	E/PRT	566	1,091	775	1,042								
1985	CUB	-	-	9	-								
	FRO	572	874	747	73	-	-	2,171*	-	-	-	38*	-
	JPN	-	1	-	4								
	NOR	-	-	162	243								
	SUN	145	72	155	899	-	447	-	-	-	447	-	-
	E/DEU	351	78	-	-								
	E/ESP	668	2,027	662	1,557	-	2,644	-	-	-	567	-	-
	E/PRT	1,928	145	755	1,548	335	-	-	-	127	-	-	-

Table 3. (Continued).

Year	Country	Catch (t) 1	2	3	4	Length (no. meas.) 1	2	3	4	No. aged 1	2	3	4
1986	CUB		(3)										
	FRO		(2,192)										
	JPN		(6)										
	SUN		(1,231)										
	E/DEU		(345)										
	E/ESP		(4,384)			-	8,835	6,300	1,263	-	1,195	797	1,001
	E/PRT		(6,350)			-	1,687	964	-	-	263	255	-
						COD DIV. 3NO							
1983	CAN	2,368	2,206	1,841	4,959	1,810	-	721	5,071	436	-	204	-
	CUB	-	1	-	-								
	FRO	207	97	-	-								
	SUN	739	217	311	1,971								
	KOR-S	-	3	26	3								
	E/FRA	-	144	47	250								
	E/ESP	335	5,972	2,089	3,924								
	E/PRT	-	349	361	398								
1984	CAN	2,418	2,669	1,374	2,244	3,249	1,053	-	1,971	514	378	-	239
	CUB	-	-	11	-								
	JPN	-	-	-	1	-	-	-	20*	-	-	-	-
	SUN	694	1,719	47	846								
	KOR-S		(46)										
	E/FRA	-	364	9	-	-	234	-	-	-	-	-	-
	E/ESP	256	3,773	4,683	4,878								
	E/PRT	-	328	217	526	126*	-	-	-	-	-	-	-
1985	CAN	2,765	7,957	3,910	4,602	701	260	159	2,410	197	-	24	-
	CUB	101	25	-	-								
	FRO	46	128	75	-								
	SUN	3,410	537	-	21	102*	797	-	-	55*	797	-	-
	USA	1	19	31	28								
	KOR-S	3	-	-	-								
	E/ESP	1,530	4,791	4,010	3,351	-	4,515	1,072	-	-	693	-	-
	E/PRT	-	397	209	2	897	95	-	-	-	-	-	-
	E/FRA-M	-	-	-	-	-	-	-	2,079*	-	-	-	-
1986	CAN		(17,558)			3,284	-	947	7,033	403	-	499	649
	CUB		(46)										
	FRO		(106)										
	JPN		(1)			-	-	-	25*	-	-	-	-
	NOR		(113)										
	SUN		(1,181)										
	USA		(432)			64	138	-	99	28	63	-	26
	E/ESP		(23,395)										
	E/PRT		(6,890)			-	210	3,112	-	-	-	-	-
	E/FRA		(185)			-	1,585*	-	-	-	167*	-	-
						REDFISH DIV. 3M							
1983	CUB	-	823	1,501	-								
	DDR	40	-	-	-								
	JPN	17	125	228	20								
	SUN	3,975	6,157	3,837	548								
	E/ESP	-	117	215	257								
	E/PRT	503	532	632	-								
1984	CUB	-	-	1,483	79								
	DDR	-	-	-	98								
	JPN	5	25	49	310								
	SUN	3,446	10,613	946	-								
	E/DEU	540	229	-	-								
	E/ESP	18	177	48	39								
	E/PRT	340	691	434	658								

Table 3. (Continued)

Year	Country	Catch (t) 1	2	3	4	Length (no. meas.) 1	2	3	4	No. aged 1	2	3	4
1985	CUB	-	-	1,831	-								
	JPN	-	46	-	267								
	SUN	631	2,091	9,215	3,766	-	-	14,024	-	-	-	763	-
	E/DEU	236	612	-	-								
	E/ESP	43	88	80	70								
	E/PRT	224	70	363	649	141	266	-	-	-	-	-	-
1986	CUB		(1,684)										
	DDR		(88)										
	JPN		(400)										
	SUN		(15,045)										
	E/DEU		(145)										
	E/ESP		(643)										
	E/PRT		(10,783)										
						REDFISH DIV. 3LN							
1983	CAN	1,584	2,251	826	1,803	1,268	-	-	1,488	-	-	-	-
	CUB	-	57	2,313	-								
	DDR	-	-	586	-								
	POL	2	-	-	-								
	SUN	4,371	3,592	352	694								
	E/ESP	22	903	85	212								
	E/PRT	-	3	6	82								
1984	CAN	411	262	275	348	1,468	1,251	375	260	480	310	-	109
	CUB	18	24	2,278	-								
	DDR	-	-	829	20								
	JPN	-	100	81	5								
	POL	1	-	-	-								
	SUN	7,759	994	384	140								
	E/DEU	71	18	-	-								
	E/ESP	67	16	125	122								
	E/PRT	365	-	-	48	134*	-	-	-	-	-	-	-
1985	CAN	173	479	845	954	831	-	966	674	-	-	-	-
	CUB	258	26	1,771	-								
	DDR	311	-	-	361								
	JPN	-	129	-	-								
	POL	4	-	-	-								
	SUN	4,527	4,935	2	1,421	-	6,695	-	-	-	2,253	-	-
	USA	-	79	5	-								
	E/DEU	265	44	-	-								
	E/ESP	640	568	975	890	-	2,181	-	-				
	E/PRT	60	751	-	83	808	531	-	-	-	-	-	-
1986	CAN		(4,838)			182	968	9,584	2,232	-	-	-	-
	CUB		(2,429)										
	DDR		(485)										
	JPN		(147)										
	SUN		(10,885)										
	USA		(4)			-	100	-	-	-	22	-	-
	E/DEU		(53)										
	E/ESP		(1,592)			-	-	-	1,017	-	-	-	-
	E/PRT		(21,742)			-	1,344	6,793	-	-	-	-	-
E/FRA (2J3KL)			(5)										
						REDFISH DIV. 30							
1983	CAN	2	5	-	-								
	CUB	52	326	1,082	-								
	JPN	-	-	1	-								
	SUN	3,459	1,123	750	338	-	-	303	-	-	-	-	-
	E/FRA	-	-	-	2								
1984	CAN	21	105	34	7	493	843	223	-	-	-	-	-
	CUB	-	32	1,284	-								
	JPN	-	-	246	1,012	-	-	-	6,738*	-	-	-	-
	SUN	7,759	785	4,891	1,779								
	E/ESP	-	-	-	25								
	E/PRT	-	-	-	-	138*	-	-	-	-	-	-	-

Table 3. (Continued).

Year	Country	Catch (t) 1	2	3	4	Length (no. meas.) 1	2	3	4	No. aged 1	2	3	4
1985	CAN	1	-	69	32	139	-	522	1,279	34	-	-	-
	CUB	453	195	158	-								
	JPN	-	-	197	464	-	-	-	2,725*	-	-	-	-
	SUN	1,369	113	2,868	1,555	-	438	213	-	-	438	-	-
	USA	-	88	15	-								
	E/ESP	152	213	114	151								
	E/PRT	-	-	-	-	646	2,004	-	-	-	-	-	-
1986	CAN		(143)			79	-	-	107	-	-	-	-
	CUB		(3,006)										
	JPN		(1,162)			1,698*	-	4,010*	2,096*	-	-	-	-
	SUN		(6,099)										
	USA		(2)			101	103	-	-	23	23	-	-
	E/ESP		(45)										
						AMERICAN PLAICE DIV. 3M							
1983	JPN	-	-	9	-								
	SUN	43	9	674	512								
	E/ESP	13	94	115	212								
	E/PRT	67	125	-	16								
1984	JPN	-	-	-	1								
	SUN	377	334	-	-								
	E/DEU	190	-	-	-								
	E/ESP	12	90	64	38								
	E/PRT	75	-	121	-								
1985	JPN	-	-	-	2								
	SUN	57	428	-	486								
	E/DEU	318	-	-	-								
	E/ESP	5	38	21	99								
	E/PRT	23	53	120	70								
1986	JPN		(3)										
	SUN		(962)										
	E/ESP		(1,048)										
	E/PRT		(1,741)										
						AMERICAN PLAICE DIV. 3LNO							
1983	CAN	2,897	13,063	10,586	9,361	7,971	15,509	11,166	10,219	1,352	3,630	1,384	2,065
	CUB	-	3	-	-								
	SUN	32	18	764	38								
	E/FRA	-	40	1	-								
	E/ESP	49	909	157	484								
1984	CAN	7,032	13,736	10,310	2,678	21,327	21,708	10,435	7,289	2,419	2,137	1,420	1,109
	CUB	3	4	4	-								
	JPN	-	1	-	5								
	NOR	-	4	5	-								
	POL	1	-	-	-								
	SUN	102	69	189	-								
	E/DEU	35	-	-	-								
	E/FRA	-	122	18	-								
	E/ESP	30	383	479	805								
	E/PRT	-	-	-	34								
1985	CAN	5,051	10,893	12,010	11,136	-	-	629	6,037	-	-	-	-
	CUB	18	12	-	-								
	DDR	-	-	-	1								
	JPN	-	-	-	2								
	POL	4	-	-	-								
	SUN	3	65	-	13								
	USA	-	168	840	301								
	KOR-S	9	163	525	344								
	E/DEU	63	-	-	-								
	E/ESP	303	1,973	1,634	1,374	3,016	9,218	3,739	6,194	-	-	-	-
	E/PRT	-	15	-	12	-	575	-	-	-	-	-	-

Table 3. (Continued).

Year	Country	Catch (t) 1	2	3	4	Length (no. meas.) 1	2	3	4	No. aged 1	2	3	4
1986	CAN		(33,369)			12,281	2,687	7,788	15,777	3,765	1,747	751	695
	CUB		(7)										
	JPN		(4)			-	-	-	113	-	-	-	-
	SUN		(188)										
	USA		(1,606)			107	336	352	669	25	60	84	75
	E/ESP		(11,882)			-	-	20,556	7,373	-	-	-	-
	E/PRT		(9,240)										
	E/FRA		(39)										
						YELLOWTAIL FLOUNDER DIV. 3LNO							
1983	CAN	719	2,300	3,848	2,175	-	2,502	3,228	3,188	-	3,146	449	743
	E/FRA	-	128	37	-								
1984	CAN	901	8,816	2,458	250	3,614	11,620	3,199	2,579	465	844	317	238
	CUB	-	-	11	-								
	E/FRA	-	89	-	-	-	205	-	-	-	-	-	-
	E/ESP	-	-	-	25								
1985	CAN	2,334	634	3,755	2,508	1,834	-	-	1,287	-	-	-	-
	CUB	12	-	-	-								
	USA	-	489	1,518	1,789								
	KOR-S	24	369	635	776								
	E/ESP	252	918	641	614	3,897	7,172	2,635	7,760	-	-	-	-
1986	CAN		(14,167)			1,067	6,458	8,128	8,201	144	552	513	715
	CUB		(1)										
	NOR		(1)										
	USA		(2,562)			-	297	582	202	-	140	258	100
	E/ESP		(366)			-	-	-	1,042	-	-	-	-
	E/PRT		(5,521)										
	E/FRA		(65)			-	516*	-	-	-	-	-	-
						WITCH FLOUNDER DIV. 3NO							
1983	CAN	962	596	22	94	2,755	733	311	-	495	-	86	-
	SUN	1,714	18	197	13								
	E/FRA	-	5	-	-								
1984	CAN	644	20	95	75	3,691	-	871	-	577	-	-	-
	JPN	-	-	-	13	-	-	-	772*	-	-	-	-
	SUN	824	294	751	86								
	E/FRA	-	7	-	-								
1985	CAN	962	1,550	83	74	3,644	-	123	-	25	-	-	-
	CUB	23	8	-	-								
	JPN	-	-	-	16	-	-	-	315*	-	-	-	-
	SUN	1,277	563	41	27								
	USA	-	67	148	39								
	KOR-S	-	10	58	3								
	E/ESP	-	1,067	1,413	1,264	309	767	-	4,642	-	-	-	-
1986	CAN		(3,010)			12,202	1,662	849	226	642	435	159	147
	CUB		(46)										
	JPN		(1)										
	SUN		(1,724)										
	USA		(539)			-	763	670	-	-	168	178	-
	E/ESP		(2,033)			-	-	-	772	-	-	-	-
	E/PRT		(1,755)										
						GREENLAND HALIBUT DIV. 3L							
1983	CAN	25	1,264	3,000	329								
	DDR	-	-	32	-								
	POL	2	-	-	-								
	SUN	-	-	-	3								

Table 3. (Continued).

Year	Country	Catch (t) 1	2	3	4	Length (no. meas.) 1	2	3	4	No. aged 1	2	3	4
1984	CAN	16	1,011	3,914	137	-	3,487	5,371	52	-	387	1,409	-
	DDR	-	-	40	-								
	JPN	-	-	-	2								
	E/DEU	6	-	-	-								
	E/PRT	-	-	-	6								
1985	CAN	8	376	2,333	306	-	3,111	7,567	-	-	189	1,889	-
	DDR	10	-	-	25								
	POL	1	-	-	-								
	SUN	-	2	-	-								
	E/DEU	20	461	-	-								
	E/PRT	-	18	-	-								
1986	CAN		(2,765)			-	-	34	1,239	-	-	-	457
	DDR		(17)										
	JPN		(1)										
	SUN		(7)										
	E/DEU		(5)										
					ROUNDNOSE GRENADIER SUBAREA 3								
1983	DDR	2	-	1,259	45	-	-	5,401	276	-	-	919	106
	POL	19	4	1	1								
	SUN	-	-	-	672								
1984	DDR	-	-	357	3,029								
	POL	37	14	-	-								
	SUN	-	-	14	-								
	E/DEU	13	10	-	-								
1985	DDR	11	-	2,411	1,232								
	POL	3	8	-	1								
	SUN	21	-	377	613								
	E/DEU	17	161	-	-								
1986	CAN		(9)										
	DDR		(4,486)										
	JPN		(3)										
	POL		(8)										
	SUN		(2,725)										
	E/DEU		(13)										
					CAPELIN DIV. 3LNO								
1983	CAN	-	22,973	2,101	-								
1984	CAN	-	20,264	12,997	-								
1985	CAN	-	6,980	18,471	-								
	CUB	-	3	-	-								
1986	CAN		(47,946)										
					SQUID SUBAREA 3								
1983	CAN	-	-	-	-	-	-	-	5	-	-	-	-
1984	CAN	-	-	324	72	5	-	-	1	-	-	-	-
	JPN	-	-	-	1	-	-	-	9	-	-	-	-
1985	CAN	-	-	248	149	-	-	-	5	-	-	-	-
	SUN	5	-	-	-	-							
1986	CAN		(1)										

Table 4. Summary of scientific information on stocks occurring in the Regulatory Area.

	Statistical Information on		Directed Fishing Effort	Biological Sampling of:		R/V abundance surveys for:		Biological Studies	
	Nominal Catch	Discarded Catch		Catches	Discards	Stock	Recruits	Stock ID	Other
Cod 3L (2J+3KL)									
Cod 3M								NA	
Cod 3NO									
Redfish 3M									
Redfish 3LN									
Redfish 3O									
A. plaice 3M								NA	
A. plaice 3LNO									
Yellowtail 3LNO									
Witch 3L (2J+3KL)		NA	NA		NA				
Witch 3NO		NA			NA				
*G. halibut 3L (2+3KL)		NA			NA				
R. Gren. 2+3									
Capelin 3LNO									
Squid 3+4									

NA
Not applicable

No data

Deficiencies in data

Data satisfactory