

Northwest Atlantic



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Efficiency of Sampling the Major Fisheries of the Northwest Atlantic in 1978

by

NAFO Secretariat

Introduction

Quantitative analyses of sampling data reported to the ICNAF/NAFO Secretariat for the years 1973-77, in relation to nominal catches, were previously presented in ICNAF Sum. Doc. 75/11; 76/VI/33, 77/VI/31, 78/VI/11 and 79/VI/14. On the basis of the reported data, these analyses indicated that only about 60% of the stocks analyzed were adequately sampled for length frequencies. In 1977, this value dropped to 53% (34 of 64 stocks examined) (Sum. Doc. 79/VI/14), due largely to the fact that no sampling data had been reported for the stocks in Subareas 5 and 6. The present review utilizes sampling data and nominal catches reported to the Secretariat for 1978.

Materials and Methods

At the 1975 Annual Meeting of STACRES, the recommended minimum sampling requirements were that each country should sample its commercial fisheries at the rate of one length sample per 1,000 tons of a species caught in each quarter of the year, with a corresponding age sample being one fish for each centimeter length group in the length frequency sample for species which can be aged.

Taking one length sample per 1,000 tons of fish as the baseline, the present analysis utilizes the nominal catch statistics for 1978 and the commercial sampling data reported to the Secretariat for that year (SCS Doc. 80/VI/8). Pure research vessel data were not generally used, except in cases where it appeared obvious that the samples were taken with commercial-sized gear and seemed to be associated with significant commercial fishing activity.

All available data for 1978 are summarized in Table 1 by species, country, major gear category (as requested at the June 1979 Meeting), division, and quarter of the year. A summary of major deficiencies is given in SCS Doc. 80/VI/8.

The data for 19 species involving 62 stocks are reviewed in Table 2. The nominal catches (000 tons) are listed by quarter for all countries whose catches were considered large enough to warrant the collection of sampling data whether or not such data were reported to the Secretariat. The % value in parentheses represents the percentage of the total catch covered by the catches listed for each stock.

The "sampling efficiency" is defined as the ratio of the "number of length samples" (from Table 1) to the "nominal catch in 1000-ton units". When sampling data were reported for cases where the nominal catch was less than 500 tons, the sampling efficiency is simply the number of samples (in parentheses). Asterisks (**) under "sampling efficiency" in the right portion of Table 2 indicate the absence of sampling data. Efficiency values less than 1.0 indicate that sampling for length was below the minimum required level, whereas values greater than 1.0 indicate the extent by which the minimum level was exceeded. No attempt is made in this review to assess the adequacy of sampling for age-length keys, but a general impression may be gleaned from the data in Table 1.

Abbreviations for countries correspond with those generally used in ICNAF and NAFO statistical tabulations, except that "FAR" is now used to designate "Faroe Islands" instead of "DEN-F" used in previous reports. The 3-alpha species identifiers in the heading of Table 3 correspond to those recommended by the CWP as follows:

COD - Atlantic cod
HAD - Haddock
RED - Atlantic redfishes
HKS - Silver hake
HKR - Red hake

GHL - Greenland halibut
RNG - Roundnose grenadier
HER - Atlantic herring
MAC - Atlantic mackerel
BUT - Atlantic butterfish

HKW - White hake	ARG - Atlantic argentine
POK - Pollock	CAP - Capelin
PLA - American plaice	SQI - Squid- <i>Illex</i>
WIT - Witch flounder	SQI. - Squid- <i>Loligo</i>
YEL - Yellowtail flounder	PAN - Deepwater prawn (shrimp)

Results

Table 3 contains a summary of the information presented in Table 2 by stock area and country. Each entry in the table represents the nominal catch to the nearest 1,000 tons (on an annual basis) and the sampling efficiency as defined above. Asterisks (***) following an entry for nominal catch indicate that no sampling data were reported to the Secretariat. Nominal catches less than 1,000 tons are not generally listed, but, when sampling data were available, these small catches are denoted by "+".

The following breakdown of the finfish, squid and shrimps stocks by sampling efficiency factors for 1978, together with the results for 1977, reflect in a very general way the adequacy (or inadequacy) of sampling for length, based on data reported to the Secretariat:

Species	1978			1977		
	No. of stocks	Sampling efficiency		No. of stocks	Sampling efficiency	
		<1.0	>1.0		<1.0	>1.0
Cod	12(10)	4 (2)	8	12(10)	4 (2)	8
Haddock	3 (2)	1 (0)	2	3 (2)	1 (0)	2
Redfish	9 (8)	2 (1)	7	9 (8)	3 (2)	6
Silver hake	3 (1)	2 (0)	1	4 (1)	3 (0)	1
Red hake	2 (0)	2 (0)	0	2 (0)	2 (0)	0
Pollock	2 (1)	1 (0)	1	2 (1)	1 (0)	1
American plaice	7 (6)	2 (1)	5	6 (5)	2 (1)	4
Witch flounder	5 (4)	1 (0)	4	5 (4)	2 (1)	3
Yellowtail flounder	3 (2)	1 (0)	2	2 (1)	1 (0)	1
Greenland halibut	2 (2)	1 (1)	1	2 (2)	0	2
Roundnose grenadier	2 (2)	1 (1)	1	2 (2)	2 (2)	0
Herring	2 (1)	2 (1)	0	5 (4)	3 (2)	2
Mackerel	2 (1)	1 (0)	1	2 (2)	1 (1)	1
Butterfish	1 (0)	1 (0)	0	1 (1)	1 (1)	0
Argentine	1 (1)	0	1	1 (1)	0	1
Capelin	2 (2)	0	2	2 (2)	1 (1)	1
Squid- <i>Illex</i>	2 (2)	0	2	2 (2)	1 (1)	1
Squid- <i>Loligo</i>	1 (1)	0	1	1 (1)	1 (1)	0
Shrimp (<i>Pandalus</i>)	1 (1)	1 (1)	0	1 (1)	1 (1)	0
TOTALS	62(47)	23 (8)	39	64(50)	30(16)	34

NOTE: Numbers in parentheses refer to stocks not affected by the absence of USA sampling data for 1978.

With reference to the sampling data indicated in Table 1 and the sampling efficiencies given in Tables 2 and 3, it should be noted that no sampling data for 1978 have yet been received from USA. Consequently the sampling efficiencies for many of the stocks in Subareas 5 and 6 would probably be greater than 1.0 if USA data were included. Therefore, to provide a more realistic comparison, the numbers of stocks in parentheses indicate those not affected by the absence of USA sampling data.

For some of the stocks with sampling efficiency factors greater than 1.0 (Table 3), sampling cannot be considered adequate when some countries with significant catches consistently report no commercial sampling data. It is also apparent from Table 3 that, although sampling data may have been collected by national laboratories, such data have not yet been reported to the Secretariat. Some significant deficiencies in the reporting of length data are as follows:

- Canada(MQ) - Herring and squid-*Illex* in Subarea 4
- Canada(N) - Herring, mackerel and squid-*Illex* in Subarea 3
- Denmark(G) - Greenland halibut and shrimp in Subarea 1
- Faroe Islands - Cod in Div. 3M and shrimp in Subarea 1

F. R. Germany	- Redfish, Greenland halibut and roundnose grenadier in Subarea 1
Norway	- Capelin in Div. 3LNO and shrimp in Subarea 1
Spain	- Cod and squid in all areas fished
USSR	- Redfish in Div. 30 and squid- <i>Illex</i> in Subareas 3 and 4
USA	- No sampling data received for any species.

Conclusions

The sampling data available in the Secretariat for the stocks noted in the foregoing table indicate that 39 of 62 stocks analyzed (63%) were adequately sampled for length composition in 1978, in contrast to 34 of 64 stocks (53%) in 1977. Taking into account only those stocks not affected by the absence of USA sampling data, the corresponding percentages are 83% in 1978 and 68% in 1977, indicating a significant improvement in 1978 sampling.

In the present analysis, only the quantitative aspect of length sampling has been considered. However, the occurrence of the symbol "... " in Table 1 indicates that age-length keys were often not reported with the length frequency data. This deficiency is particularly evident for redfish, Greenland halibut, roundnose grenadier, butterfish and capelin.

References

- | | |
|--------------------------|---|
| ICNAF Sum. Doc. 75/11 | Efficiency of sampling the major fisheries of the Northwest Atlantic in 1973 (Serial No. 3466). |
| ICNAF Sum. Doc. 76/VI/33 | Adequacy of sampling TAC stocks, 1974 (Serial No. 3918). |
| ICNAF Sum. Doc. 77/VI/31 | Efficiency of sampling the major fisheries of the Northwest Atlantic in 1975 (Serial No. 5097) |
| ICNAF Sum. Doc. 78/VI/11 | Efficiency of sampling the major fisheries of the Northwest Atlantic in 1976 (Serial No. 5213). |
| ICNAF Sum. Doc. 79/VI/14 | Efficiency of sampling the major fisheries of the Northwest Atlantic in 1977 (Serial No. 5433). |
| NAFO SCS Doc. 80/VI/8 | Provisional list of sampling data for 1978 (Serial No. N108). |

Table 1. Summary of sampling data by species, country and division, 1978.

ICNAF Div.	Gear	Quarter 1			Quarter 2			Quarter 3			Quarter 4				
		No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged		
<u>ATLANTIC COD</u>															
Can(M)	2J	OTB	1	365	50	-	-	-	-	-	-	-	-	-	
	3K	OTB	4	1240	212	1	352	58	-	-	-	-	-	-	
	30	OTB	-	-	-	4	1414	187	4	1441	238	1	300	30	
	3Ps	OTB	1	327	36	1	306	56	1	324	25	-	-	-	
	4R	OTB	8	2446	383	3	702	141	-	-	-	-	-	-	
	4S	OTB	6	2163	344	4	800	140	-	-	-	1	131	32	
	4T	OTB	-	-	-	12	2412	407	-	-	-	2	431	66	
		SN	-	-	-	7	1399	261	17	3410	582	-	-	-	
		GN	-	-	-	2	380	76	1	200	25	-	-	-	
		LL	-	-	-	6	1200	219	3	601	91	-	-	-	
		LHP	-	-	-	1	200	21	2	399	71	-	-	-	
	4Vn	OTB	12	3855	497	-	-	-	1	200	34	-	-	-	
		LL	-	-	-	3	603	153	7	2037	344	-	-	-	
	4Vs	OTB	6	2068	320	3	1030	153	2	505	85	3	952	139	
		4W	OTB	2	553	112	-	-	-	4	1294	182	3	1624	72
	4X	SN	-	-	-	-	-	-	2	516	58	-	-	-	
		LL	1	299	54	1	262	50	2	353	94	-	-	-	
		LHP	-	-	-	-	-	-	2	596	98	-	-	-	
		OTB	6	1885	326	-	-	-	3	919	129	-	-	-	
	5Ze	GN	-	-	-	-	-	-	1	238	46	-	-	-	
		LL	8	2231	437	1	232	53	-	-	-	-	-	-	
		OTB	7	2088	386	7	1909	340	8	2300	338	7	1730	350	
	Can(N)	2J	OTB	8	4941	426	-	-	-	-	-	-	-	-	-
GN			-	-	-	-	-	-	24	3327	-	-	-	-	
LL			-	-	-	-	-	-	3	243	959	-	-	-	
LHP			-	-	-	-	-	-	2	271	-	-	-	-	
FPN			-	-	-	-	-	-	21	4897	-	-	-	-	
3K		OTB	9	4584	355	9	2811	387	-	-	-	-	-	-	
		GN	-	-	-	-	-	-	22	3350	302	-	-	-	
		LHP	-	-	-	-	-	-	11	4026	322	-	-	-	
		FPN	-	-	-	3	799	76	24	8765	830	-	-	-	
3L		OTB	2	821	157	11	4186	520	7	3612	426	7	3763	440	
		GN	-	-	-	4	315	27	20	3197	289	-	-	-	
		LL	-	-	-	-	-	-	3	599	142	-	-	-	
		LHP	-	-	-	11	2811	238	10	1482	352	-	-	-	
		FPN	-	-	-	11	6440	544	6	2278	193	-	-	-	
3N		OTB	1	757	78	2	1157	100	1	264	110	3	1641	225	
30		OTB	1	309	66	7	1838	568	1	735	62	8	3905	430	
3Pn		OTB	1	234	82	-	-	-	-	-	-	-	-	-	
		LL	8	2694	411	-	-	-	-	-	-	-	-	-	
3Ps		OTB	4	1762	256	1	432	61	-	-	-	-	-	-	
		GN	-	-	-	8	1287	112	-	-	-	-	-	-	
		LL	5	3394	369	23	6408	629	18	5111	537	6	1782	259	
		LHP	-	-	-	-	-	-	1	137	11	-	-	-	
		FPN	-	-	-	9	3495	278	1	463	37	-	-	-	
4R		OTB	9	4473	389	6	3007	298	1	216	30	-	-	-	
		GN	-	-	-	16	6704	718	-	-	-	-	-	-	
		LL	-	-	-	-	-	-	1	360	77	-	-	-	
		FPN	-	-	-	-	-	-	3	1471	144	-	-	-	
Den(G)		1C	OTB	3	2738	398	1	922	295	-	-	-	-	-	-
			LHP	-	-	-	-	-	-	3	1845	516	-	-	-
	FPN		-	-	-	1	462	199	4	2964	655	-	-	-	

Table 1. (continued)

	ICNAF Div.	Gear	Quarter 1			Quarter 2			Quarter 3			Quarter 4			
			No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	
ATLANTIC COD (Cont'd)															
Den(G)	1E	OTB	-	-	-	1	917	255	-	-	-	-	-	-	
		FPN	-	-	-	-	-	-	2	1665	275	-	-	-	
	1F	OTB	-	-	-	-	-	-	2	2322	330	-	-	-	
Fra(M)	2J	OTB	1	116	...	-	-	-	-	-	-	-	-	-	
	3K	OTB	2	400	...	-	-	-	-	-	-	-	-	-	
	3L	OTB	7	1369	...	-	-	-	-	-	-	-	-	-	
	3M	OTB	-	-	-	-	-	-	-	-	-	24	5072	...	
	3Pn	OTB	1	200	...	-	-	-	-	-	-	-	-	-	
	3Ps	OTB	1	201	...	-	-	-	-	-	-	-	-	-	
	4R	OTB	17	3230	...	-	-	-	-	-	-	-	-	-	
	4Vn	OTB	12	1532	...	-	-	-	-	-	-	-	-	-	
Fra(SP)	3L	OTB	-	-	-	1	331	...	-	-	-	2	496	...	
	3Ps	OTB	1	362	(660)	1	244	...	-	-	-	1	304	...	
	4R	OTB	9	2448	(945)	-	-	-	-	-	-	-	-	-	
	4Vn	OTB	2	750	...	-	-	-	-	-	-	-	-	-	
FRG	1C	OTB	4	997	491	-	-	-	-	-	-	-	-	-	
	1D	OTB	7	1655		-	-	-	-	-	-	-	-	-	-
	1E	OTB	7	503		-	-	-	-	-	-	-	-	-	-
	1F	OTB	1	267	1102	-	-	-	-	-	-	-	-	-	-
	2H	OTB	5	1412		193	-	-	-	-	-	-	-	-	-
	2J	OTB	24	6853		-	-	-	-	-	-	-	-	-	-
	3K	OTB	2	561		-	-	-	-	-	-	-	-	-	-
GDR	2J	OTB	26	5374	440	-	-	-	-	-	-	-	-	-	
	3K	OTB	2	307	80	-	-	-	-	-	-	-	-	-	
Pol	2J	OTB	2	2297	...	-	-	-	-	-	-	-	-	-	
	3K	OTB	3	985	...	-	-	-	-	-	-	-	-	-	
Por	2J	OTB	3	300	160	4	400	126	-	-	-	-	-	-	
	3K	OTB	8	781	189	6	600	139	-	-	-	-	-	-	
	3L	OTB	-	-	-	6	600	119	-	-	-	1	100	95	
	3M	OTB	-	-	-	11	1100	130	-	-	-	42	4147	224	
USSR	2J	OTB	12	3529	...	3	979	...	-	-	-	-	-	-	
	3K	OTB	-	-	-	2	741	...	-	-	-	-	-	-	
	3M	OTB	30	10637	698	-	-	-	4	809	...	-	-	-	
	3N	OTB	7	2349	...	2	675	...	-	-	-	-	-	-	
UK	2J	OTB	-	-	-	1	285	31	-	-	-	-	-	-	
	3K	OTB	1	360	35	-	-	-	-	-	-	-	-	-	
	3M	OTB	-	-	-	1	243	37	-	-	-	-	-	-	

Table 1. (Cont'd)

ICNAF Div.	Gear	Quarter 1			Quarter 2			Quarter 3			Quarter 4			
		No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	
<u>HADDOCK</u>														
Can(M)	30	OTB	-	-	-	1	204	33	-	-	-	-	-	-
	3Ps	OTB	-	-	-	-	-	-	2	717	47	-	-	-
	4Vs	OTB	-	-	-	1	206	29	-	-	-	-	-	-
	4W	OTB	12	3701	386	6	2085	202	1	254	28	1	253	27
		LL	1	291	42	4	777	122	-	-	-	-	-	-
	4X	OTB	18	4678	534	17	3944	561	13	2800	340	1	193	31
		SN	-	-	-	1	250	34	-	-	-	-	-	-
		GN	-	-	-	-	-	-	1	200	23	-	-	-
		LL	5	1003	174	3	647	111	1	200	34	1	200	24
		LHP	-	-	-	-	-	-	2	438	66	-	-	-
	5Ze	OTB	10	2246	326	-	-	-	1	200	19	16	6205	255
Can(N)	3N	OTB	-	-	-	-	-	-	1	528	...	-	-	-
	30	OTB	1	322	...	4	3752	...	-	-	-	1	425	...
	3Ps	OTB	-	-	-	-	-	-	-	-	-	2	971	...
	4W	OTB	2	1046	...	1	595	...	-	-	-	-	-	-
<u>ATLANTIC REDFISH</u>														
Can(M)	2J	OTB	-	-	-	-	-	-	7	1481	...	1	202	...
		OTM	-	-	-	-	-	-	3	600	...	-	-	-
	3K	OTB	6	1223	...	1	200	...	1	200	...	-	-	-
	30	OTB	-	-	-	-	-	-	3	568	...	-	-	-
	3Pn	OTB	1	200	...	-	-	-	2	400	...	-	-	-
	3Ps	OTB	-	-	-	1	200	...	6	1208	...	-	-	-
	4R	OTB	3	923	...	-	-	-	6	1200	...	-	-	-
	4S	OTB	-	-	-	3	600	...	13	2700	...	-	-	-
		OTM	-	-	-	-	-	-	5	1000	...	-	-	-
	4T	OTB	-	-	-	8	1595	...	2	400	...	1	200	...
		OTM	-	-	-	5	1000	...	2	400	...	-	-	-
	4Vn	OTB	1	169	...	6	1212	...	8	1588	...	-	-	-
		OTM	-	-	-	-	-	-	1	199	...	-	-	-
	4Vs	OTB	3	641	...	7	1322	...	12	2336	...	1	250	...
	4W	OTB	-	-	-	2	431	...	4	762	...	-	-	-
	4X	OTB	1	208	...	1	215	...	1	205	...	1	268	...
Can(N)	2J	OTB	1	447	...	-	-	-	2	1457	...	-	-	-
	3K	OTB	9	2980	...	11	4184	...	2	1044	...	1	427	...
		OTM	-	-	-	-	-	-	1	627	...	-	-	-
	3L	OTB	-	-	-	2	779	...	-	-	-	4	1945	...
		OTM	-	-	-	-	-	-	-	-	-	1	555	...
	3M	OTB	-	-	-	-	-	-	1	678	...	-	-	-
		OTM	-	-	-	-	-	-	2	2650	...	2	920	...
	30	OTB	-	-	-	2	2746	...	3	2170	...	-	-	-
	3Ps	OTB	2	3741 (1393)		3	3435 (1393)		3	2423 (1393)		4	2498 (1393)	
	4R	OTB	4	1630	910	-	-	-	-	-	-	-	-	-
	4Vs	OTB	-	-	-	4	2121	...	-	-	-	-	-	-

Table 1. (Cont'd)

ICNAF Div.	Gear	Quarter 1			Quarter 2			Quarter 3			Quarter 4			
		No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	
<u>ATLANTIC REDFISH (Cont'd)</u>														
Fra(SP)	3Ps	OTB	-	-	-	1	187	...	-	-	-	-	-	-
	4R	OTB	2	263	...	1	238	...	-	-	-	-	-	-
USSR	2J	OTB	1	256	...	-	-	-	-	-	-	-	-	-
	3K	OTB	13	3705	...	8	2727	...	-	-	-	-	-	-
	3L	OTB	5	1431	...	-	-	-	-	-	-	-	-	-
	3M	OTB	21	7955	296	-	-	-	-	-	-	-	-	-
	3N	OTB	9	2925	...	-	-	-	-	-	-	-	-	-
	4W	OTB	-	-	-	-	-	-	2	415	...	-	-	-
UK	2J	OTB	-	-	-	1	83	...	-	-	-	-	-	-
	3M	OTB	-	-	-	1	74	...	-	-	-	-	-	-
<u>SILVER HAKE</u>														
Bul	4W	OTM	-	-	-	-	-	-	1	193	...	-	-	-
Cuba	4VWX	OTB	-	-	-	?	21161	...	?	13807	...	-	-	-
Jap	4W	OTB	-	-	-	-	-	-	1	100	...	-	-	-
	5Ze	OTB	-	-	-	-	-	-	-	-	-	1	136	...
	6C	OTB	-	-	-	-	-	-	-	-	-	2	400	...
Rom	6B	OTM	-	-	-	-	-	-	-	-	-	1	200	...
USSR	4Vs	OTB	-	-	-	-	-	-	4	800	...	-	-	-
	4W	OTB	-	-	-	258	51820	737	136	28037	650	-	-	-
	5Ze	OTB	-	-	-	50	9917	219	-	-	-	-	-	-
	5Zw	OTB	67	13465	186	-	-	-	-	-	-	-	-	-
	6A	OTB	99	19878	182	-	-	-	-	-	-	-	-	-
<u>RED HAKE</u>														
USSR	5Ze	OTB	-	-	-	37	7427	262	-	-	-	-	-	-
	5Zw	OTB	19	3846	176	-	-	-	-	-	-	-	-	-
	6A	OTB	50	10098	155	-	-	-	-	-	-	-	-	-
<u>POLLOCK</u>														
Can(M)	3Ps	OTB	-	-	-	-	-	-	-	-	-	1	113	21
	4Vs	OTB	1	1226	41	3	931	104	1	314	81	1	300	35
	4W	OTB	8	2105	300	5	1442	192	1	261		-	-	-
		FPN	-	-	-	5	1059	46	-	-	-	-	-	-
	4X	OTB	14	4265	503	7	1818	250	6	1477	195	1	245	27
		GN	-	-	-	2	323	55	2	378	53	1	61	25
5Ze	OTB	6	2005	236	4	1108	118	1	393	23	1	266	22	
<u>AMERICAN PLAICE</u>														
Can(M)	2J	OTB	1	200	40	-	-	-	-	-	-	-	-	-
	3K	OTB	3	605	113	1	188	44	-	-	-	-	-	-
	3O	OTB	-	-	-	-	-	-	1	200	36	-	-	-
	3Ps	OTB	-	-	-	-	-	-	-	-	-	1	139	35

Table 1. (Cont'd)

ICNAF Div.	Gear	Quarter 1			Quarter 2			Quarter 3			Quarter 4			
		No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	
<u>AMERICAN PLAICE (Cont'd)</u>														
Can(M)	4R	OTB	2	382	92	-	-	-	-	-	-	-	-	-
	4S	OTB	-	-	-	1	200	45	-	-	-	-	-	-
	4T	OTB	-	-	-	-	-	-	1	200	46	1	207	33
		SN	-	-	-	4	800	115	6	1196	159	-	-	-
	4Vn	SN	-	-	-	2	401	77	7	1383	236	-	-	-
	4Vs	OTB	9	1751	366	4	889	168	2	400	91	-	-	-
		SN	-	-	-	1	164	40	1	200	46	-	-	-
	4X	OTB	1	100	42	-	-	-	-	-	-	-	-	-
Can(N)	3K	OTB	6	1729	323	-	-	-	-	-	-	-	-	-
		GN	-	-	-	-	-	-	6	2431	480	-	-	-
	3L	OTB	1	370	48	12	5296	665	15	7430	819	10	5721	513
		GN	-	-	-	-	-	-	7	2475	511	-	-	-
	3N	OTB	6	3054	584	6	2239	551	6	2315	426	10	3990	533
	3O	OTB	4	2145	351	9	3099	559	4	1837	249	7	3170	697
	3Ps	OTB	2	691	190	3	1014	186	2	1651	301	-	-	-
4R	OTB	-	-	-	1	284	87	-	-	-	-	-	-	
Den(G)	1A	LL	-	-	-	2	80	...	-	-	-	-	-	-
	1D	LL	-	-	-	2	73	...	-	-	-	-	-	-
Fra(SP)	3O	OTB	-	-	-	1	188	...	-	-	-	-	-	-
USSR	2J	OTB	1	306	...	-	-	-	-	-	-	-	-	-
	3K	OTB	1	361	...	-	-	-	-	-	-	-	-	-
	3N	OTB	6	1935	...	2	1641	...	-	-	-	-	-	-
<u>WITCH FLOUNDER</u>														
Can(M)	3K	OTB	-	-	-	1	230	...	-	-	-	-	-	-
	3Ps	OTB	1	202	33	-	-	-	-	-	-	-	-	-
	4R	OTB	3	613	92	-	-	-	-	-	-	-	-	-
	4S	OTB	2	406	75	-	-	-	-	-	-	-	-	-
	4Vn	OTB	2	402	53	1	395	32	-	-	-	-	-	-
		SN	-	-	-	6	1276	153	6	1273	154	-	-	-
	4Vs	OTB	7	1379	216	-	-	-	-	-	-	-	-	-
	4W	OTB	2	519	80	1	339	35	-	-	-	-	-	-
	4X	OTB	1	218	35	-	-	-	-	-	-	-	-	-
Can(N)	3K	OTB	2	1334	243	3	1279	298	-	-	-	-	-	-
		GN	-	-	-	-	-	-	6	1796	578	-	-	-
	3L	OTB	-	-	-	1	541	96	2	834	149	2	618	230
	3N	OTB	3	1136	196	1	492	76	1	426	142	3	1419	312
	3O	OTB	3	1442	302	2	689	123	-	-	-	1	359	117
	3Ps	OTB	-	-	-	1	292	55	-	-	-	-	-	-
	4R	OTB	6	3424	457	-	-	-	-	-	-	-	-	-
Pol	2J	OTB	1	670	...	-	-	-	-	-	-	-	-	-
	3K	OTB	4	2844	...	2	965	...	-	-	-	-	-	-

Table 1. (Cont'd)

	ICNAF Div.	Gear	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
			No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged
<u>WITCH FLOUNDER (Cont'd)</u>														
USSR	2J	OTB	3	900	...	-	-	-	-	-	-	-	-	-
	3K	OTB	24	6651	...	13	3993	...	-	-	-	-	-	-
	3L	OTB	2	682	...	-	-	-	-	-	-	-	-	-
<u>YELLOWTAIL FLOUNDER</u>														
Can(M)	3L	OTB	-	-	-	1	193	26	-	-	-	-	-	-
	3O	OTB	-	-	-	-	-	-	1	200	29	-	-	-
	4Vs	OTB	-	-	-	4	782	102	3	535	78	-	-	-
		SN	-	-	-	-	-	-	3	572	75	-	-	-
	5Ze	OTB	1	74	21	-	-	-	-	-	-	-	-	-
Can(N)	3L	OTB	-	-	-	7	4720	402	4	1819	220	-	-	-
	3N	OTB	1	446	87	8	3006	372	6	3074	398	10	3709	541
	3O	OTB	-	-	-	8	3520	360	1	638	73	1	772	149
	3Ps	OTB	-	-	-	8	4459	410	-	-	-	-	-	-
Fra(SP)	3O	OTB	-	-	-	1	192	...	-	-	-	1	424	...
<u>GREENLAND HALIBUT</u>														
Can(N)	3K	OTB	7	2109	388	4	1244	250	-	-	-	-	-	-
		GN	-	-	-	-	-	-	10	4248	888	-	-	-
	3L	OTB	1	307	100	-	-	-	-	-	-	-	-	-
		GN	-	-	-	4	1122	255	6	1383	334	-	-	-
	4R	OTB	1	315	95	1	79	76	-	-	-	-	-	-
GDR	2J	OTB	14	1404	178	-	-	-	-	-	-	-	-	-
	3K	OTB	5	523	...	-	-	-	-	-	-	-	-	-
Pol	2J	OTB	7	4140	...	-	-	-	-	-	-	-	-	-
UK	2J	OTB	-	-	-	1	70	...	-	-	-	-	-	-
USSR	2J	OTB	13	3651	...	1	315	...	-	-	-	-	-	-
	3K	OTB	2	460	...	-	-	-	-	-	-	-	-	-
<u>CUSK</u>														
Can(M)	4X	LL	1	319	...	2	346	...	-	-	-	-	-	-
<u>GREENLAND COD</u>														
Den(G)	1D	FPN	-	-	-	-	-	-	3	150	163	-	-	-
<u>ROUNDNOSE GRENADE</u>														
Rom	3K	OTM	-	-	-	-	-	-	5	1057	...	-	-	-
USSR	2G	OTB	-	-	-	-	-	-	4	996	...	-	-	-
		OTM	-	-	-	-	-	-	9	2963	...	-	-	-
	3K	OTB	-	-	-	-	-	-	5	1500	...	5	946	...
		OTM	-	-	-	-	-	-	3	1087	...	-	-	-
	3M	OTB	8	3560	...	-	-	-	-	-	-	-	-	-
<u>WHITE HAKE</u>														
Can(M)	4S	OTB	-	-	-	1	190	...	-	-	-	-	-	-
	4X	LL	-	-	-	1	317	...	-	-	-	-	-	-

Table 1. (Cont'd)

ICNAF Div.	Gear	Quarter 1			Quarter 2			Quarter 3			Quarter 4			
		No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	
<u>ATLANTIC MACKEREL</u>														
Can(M)	4T	PS	-	-	-	-	-	-	12	1355	203	1	142	27
		GN	-	-	-	13	1479	313	7	754	147	-	-	-
		LHP	-	-	-	-	-	-	4	382	55	-	-	-
	4Vn	LHP	-	-	-	-	-	-	5	652	18	-	-	-
		FPN	-	-	-	8	925	74	2	233	26	-	-	-
	4W	GN	-	-	-	4	505	47	3	404	28	-	-	-
		LHP	-	-	-	-	-	-	9	972	114	-	-	-
	4X	GN	-	-	-	8	874	155	1	101	61	-	-	-
		FPN	-	-	-	15	1646	267	6	734	217	-	-	-
FWR		-	-	-	-	-	-	1	100	132	-	-	-	
Rom	4W	OTM	-	-	-	-	-	-	1	202	75	-	-	-
	6B	OTM	-	-	-	-	-	-	-	-	-	4	400	48
USSR	4W	OTB	-	-	-	-	-	-	8	1584	...	-	-	-
<u>ATLANTIC BUTTERFISH</u>														
Jap	5Zw	OTB	-	-	-	-	-	-	-	-	-	4	796	...
	6A	OTB	-	-	-	-	-	-	-	-	-	1	200	...
	6C	OTB	-	-	-	-	-	-	-	-	-	1	200	...
Rom	5Zw	OTM	-	-	-	-	-	-	-	-	-	7	1390	124
	6A	OTM	-	-	-	-	-	-	-	-	-	4	800	43
<u>ATLANTIC ARGENTINE</u>														
Jap	4Vs	OTM	-	-	-	-	-	-	1	200	...	-	-	-
	4X	OTB	-	-	-	-	-	-	9	1601	...	-	-	-
USSR	4Vs	OTB	-	-	-	4	761	85	-	-	-	-	-	-
	4W	OTB	-	-	-	41	8239	37	-	-	-	-	-	-
	4X	OTB	-	-	-	6	1145	179	-	-	-	-	-	-
<u>CAPELIN</u>														
Cuba	3N	OTM	-	-	-	-	-	-	3	622	...	-	-	-
GDR	3L	OTM	-	-	-	1	595	100	-	-	-	-	-	-
Jap	3K	OTM	-	-	-	-	-	-	-	-	-	1	208	...
	3L	OTM	-	-	-	5	993	...	-	-	-	-	-	-
	3N	OTM	-	-	-	9	2408	...	5	994	...	-	-	-
	3O	OTM	-	-	-	2	400	...	-	-	-	-	-	-
Pol	3L	OTM	1	371	...	1	360	...	-	-	-	-	-	-
Rom	2J	OTM	-	-	-	-	-	-	12	3098	976	-	-	-
	3K	OTM	-	-	-	-	-	-	9	2846	681	14	2850	979
USSR	2J	OTM	-	-	-	-	-	-	5	1505	...	-	-	-
	3K	OTM	-	-	-	-	-	-	9	2942	...	8	2672	...
	3L	OTM	-	-	-	11	4231	...	-	-	-	-	-	-

Table 1. (Cont'd)

ICNAF Div.	Gear	Quarter 1			Quarter 2			Quarter 3			Quarter 4			
		No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	No.	Meas.	Aged	
<u>LONG-FINNED SQUID (<i>Loligo</i>)</u>														
Jap	5Ze	OTB	-	-	-	-	-	-	-	-	-	2	393	-
	5Zw	OTB	-	-	-	-	-	-	-	-	-	6	981	-
	6A	OTB	-	-	-	-	-	-	-	-	-	1	207	-
	6C	OTB	-	-	-	-	-	-	-	-	-	3	594	-
Rom	5Zw	OTM	-	-	-	-	-	-	-	-	-	8	1475	-
	6B	OTM	-	-	-	-	-	-	-	-	-	3	594	-
<u>SHORT-FINNED SQUID (<i>Illex</i>)</u>														
Bul	4VWX	OTM	-	-	-	-	-	-	4	900	-	-	-	-
Cuba	4VWX	OTM	-	-	-	9	1460	-	18	11810	-	-	-	-
Fra(M)	4W	OTB	-	-	-	-	-	-	3	446	-	-	-	-
Fra(SP)	3Ps	OTB	-	-	-	-	-	-	-	-	-	36	1165	-
		LHP	-	-	-	-	-	-	1	37	-	1	237	-
Jap	3O	OTB	-	-	-	-	-	-	1	200	-	1	201	-
	4Vs	OTB	-	-	-	-	-	-	9	1707	-	1	100	-
	4W	OTB	-	-	-	-	-	-	23	4413	-	11	2108	-
	4X	OTB	-	-	-	-	-	-	5	999	-	1	200	-
	5Ze	OTB	-	-	-	-	-	-	-	-	-	2	400	-
	5Zw	OTB	-	-	-	-	-	-	-	-	-	2	404	-
	6B	OTB	-	-	-	-	-	-	16	3209	-	-	-	-
	6C	OTB	-	-	-	-	-	-	-	-	-	4	700	-
Pol	3N	OTM	-	-	-	-	-	-	1	556	-	-	-	-
	4W	OTM	-	-	-	-	-	-	8	4248	-	-	-	-
Rom	4W	OTM	-	-	-	-	-	-	15	4055	-	-	-	-
	5Zw	OTM	-	-	-	-	-	-	-	-	-	5	732	-
	6B	OTM	-	-	-	-	-	-	-	-	-	8	1601	-

Table 2. Sampling efficiency in relation to nominal catches by species, area and country, 1978.

Species	Stock area	Country	Gear	Nominal catches by quarter				Total for countries listed	%	Sampling efficiency					
				1	2	3	4			1	2	3	4	Total	
COD	1	DEN	OT	10.8	5.1	0.3	1.6	17.8		0.3	0.4	(2)	**	0.4	
			OTH	0.2	3.3	10.8	1.7	19.7		-	0.3	0.8	**	0.5	
		FRG	OT	0.6	0.4	-	-	1.1		(19)	-	-	-	19.0	
		Total		11.6	8.8	11.1	3.2	38.6	(100)	1.9	0.3	1.0	**	0.9	
	2GH	FRG	OT	0.2	-	-	2.3	2.5		(5)	-	-	-	**	2.0
			POL	OT	0.3	-	0.5	0.2	1.0		-	-	-	-	-
		USSR	OT	0.8	-	-	-	0.8		-	-	-	-	-	-
		Total		1.3	-	0.5	2.5	4.3	(88)	(5)	-	-	-	**	1.1
	2J+3KL	CAN	OT	8.6	8.5	2.2	1.6	20.9		2.8	2.5	3.2	4.4	-	2.8
			GN	-	6.2	16.9	0.5	23.6		-	0.7	3.9	-	-	3.0
			LL	-	0.3	7.4	1.1	8.8		-	-	0.8	**	-	0.7
			HL	-	0.7	9.2	1.5	11.4		-	11.0	2.5	**	-	3.0
			FPN	-	11.7	25.7	-	37.4		-	1.2	2.0	-	-	1.7
			FRA	OT	1.5	0.9	-	0.1	2.5		6.7	1.0	-	(2)	5.2
			FRG	OT	3.1	-	-	-	3.1		8.4	-	-	-	8.4
GDR			OT	1.9	-	-	-	1.9		14.7	-	-	-	14.7	
POL		OT	2.8	0.1	-	-	2.9		1.8	-	-	-	-	1.7	
		POR	OT	3.2	1.1	-	1.0	5.3		3.4	14.5	-	1.0	5.3	
		GN	-	0.6	1.7	0.4	2.7		-	-	**	-	-	**	
		SPA	OT	0.5	0.8	0.2	0.7	2.2		-	-	-	-	**	
USSR		PT	0.3	1.9	1.0	3.2	6.4		-	**	**	**	-	**	
		OT	7.1	-	-	0.2	7.3		1.7	(5)	-	-	-	4.0	
UK		OT	0.3	0.2	-	-	0.5		(1)	(1)	-	-	-	(2)	
Total		29.3	33.0	64.3	10.3	136.9	(99)	4.4	2.6	2.4	1.0	-	2.8		
3M	FAR	LL	2.2	2.5	3.0	0.2	7.9		**	**	**	-	-	**	
		OT	1.6	0.2	1.0	2.4	5.2		**	-	**	10.0	-	4.6	
	NOR	LL	0.9	0.7	-	-	1.6		-	-	-	-	-	**	
	POR	OT	1.7	3.8	2.7	1.6	9.8		**	2.9	**	21.0	-	5.4	
	SPA	PT	0.8	1.5	-	0.2	2.5		-	**	-	-	-	**	
	USSR	OT	2.6	0.7	0.1	0.4	3.8		11.5	-	(4)	-	-	9.0	
	Total		9.8	9.4	6.8	4.8	30.8	(93)	3.0	1.2	0.6	20.0	-	4.7	
	3NO	CAN	OT	0.4	1.9	1.3	2.6	6.2		(2)	6.8	4.6	4.6	-	5.3
PT			-	1.2	1.0	3.5	5.7		-	**	**	**	-	**	
USSR		OT	0.9	0.5	0.1	0.3	1.8		(7)	(2)	-	-	-	5.0	
Total			1.3	3.6	2.4	6.4	13.7	(93)	6.9	4.2	2.5	1.9	-	3.1	
3Ps	CAN	OT	1.7	0.3	0.3	0.4	2.7		2.9	(2)	(1)	-	-	3.0	
		GN	0.1	1.1	1.0	0.2	2.4		-	7.3	**	-	-	3.3	
		LL	1.8	2.4	5.2	2.4	11.8		2.8	9.6	3.5	2.5	-	4.4	
		HL	-	1.2	1.8	0.1	3.1		-	**	0.6	-	-	0.3	
	FPN	-	1.7	0.5	-	2.2		-	5.3	(1)	-	-	4.5		
	FRA	OT	3.1	0.2	-	1.2	4.5		0.7	(1)	-	0.8	-	0.9	
Total		6.7	6.9	8.8	4.3	26.7	(98)	1.8	6.2	2.4	1.6	-	3.1		
3Pn+4RS	CAN	OT	13.6	7.9	6.4	1.5	29.4		1.8	1.7	0.2	0.7	-	1.3	
		GN	-	7.3	9.0	0.6	16.9		-	2.2	**	-	-	1.0	
		LL	3.0	2.1	1.5	1.2	7.8		2.7	**	0.7	**	-	1.1	
		HL	-	0.6	1.2	0.2	2.0		-	-	**	-	-	**	
	FPN	-	1.4	4.8	0.1	6.3		-	**	0.6	-	-	0.5		
	FRA	OT	15.6	0.2	-	-	15.8		1.7	-	-	-	-	1.7	
Total		32.2	19.5	22.9	3.6	78.2	(100)	1.8	1.5	0.2	0.3	-	1.2		
4TVn	CAN	OT	9.1	7.0	2.9	1.6	20.6		1.3	1.7	0.3	1.2	-	1.3	
		SN	-	2.3	1.5	1.0	4.8		-	3.0	6.8	-	-	5.0	
		GN	-	2.4	5.9	0.7	9.0		-	0.8	0.2	-	-	0.3	
		LL	-	0.7	1.1	1.4	3.2		-	(9)	9.1	**	-	5.9	
	HL	-	0.4	0.9	0.5	1.8		-	(1)	(2)	-	-	1.7		
	FRA	OT	3.4	-	-	0.1	3.5		4.1	-	-	-	-	4.0	
	Total		12.5	12.8	12.3	5.3	42.9	(99)	2.1	2.4	2.5	0.4	-	1.8	
4VsW	CAN	OT	1.4	4.8	2.5	8.8	17.5		5.7	0.6	2.4	0.7	-	1.3	
		SN	0.1	0.1	0.2	0.5	0.9		-	-	(2)	-	-	2.0	
		LL	0.2	1.4	2.0	1.0	4.6		(1)	0.7	1.0	**	-	0.9	
		HL	-	-	0.1	0.1	0.2		-	-	(2)	-	-	(2)	
	Total		1.7	6.3	4.8	10.4	23.2	(91)	5.3	0.6	2.5	0.6	-	1.3	
4X	CAN	OT	1.1	2.3	2.8	1.1	7.3		5.4	**	1.1	**	-	1.2	
		GN	0.2	0.6	0.6	1.3	2.7		-	-	(1)	**	-	0.4	
		LL	2.5	2.7	3.6	1.5	10.3		3.2	0.4	**	**	-	0.9	
		HL	-	0.6	1.3	0.2	2.1		-	-	**	-	-	**	
Total		3.8	6.2	8.3	4.1	22.4	(95)	3.7	0.2	0.5	**	-	0.9		

Table 2. (Cont'd)

Species	Stock area	Country	Gear	Nominal catches by quarter				Total for countries listed	%	Sampling efficiency											
				1	2	3	4			1	2	3	4	Total							
5Y	USA		OT	1.7	3.2	1.5	1.6	8.0	(90)	(NO SAMPLING DATA REPORTED)											
			GN	0.3	1.7	1.0	0.5	3.5													
	Total	2.0	4.9	2.5	2.1	11.5															
5Z	CAN		OT	1.2	2.1	1.5	3.3	8.1	(94)	5.8	3.3	5.3	2.1	3.6							
			USA	OT	5.3	7.1	4.7	5.3							22.4	(NO SAMPLING DATA REPORTED)					
		LL	0.1	0.7	0.6	0.2	1.6														
	Total	6.6	9.9	6.8	8.8	32.1															
HADDOCK	4VW	CAN	OT	1.0	2.5	0.2	0.4	4.1	(88)	12.0	3.2	(1)	(1)	5.4							
			LL	0.2	0.3	0.5	0.1	1.1							(1)	(4)	-	-	4.5		
	Total	1.2	2.8	0.7	0.5	5.2	10.8	4.3		(1)	(1)	5.2									
	4X	CAN		OT	3.2	8.0	4.4	1.9		17.5	(99)	5.6	2.1	3.0	0.5	2.8					
				SN	-	0.2	-	-		0.2							-	(1)	-	-	(1)
				GN	-	0.1	0.3	0.2		0.6							-	-	(1)	-	(1)
				LL	1.8	0.9	2.5	0.9		6.1							2.8	3.0	0.4	1.0	1.6
				HL	-	0.1	0.7	-		0.8							-	-	2.0	-	2.0
				USA	OT	1.0	0.1	0.1		-							1.2	**	-	-	-
	Total	6.0	9.4	8.0	3.0	26.4	3.8	2.2		2.1	0.7	2.4									
	5	CAN		OT	1.1	0.3	1.0	7.6		10.0	(99)	9.1	-	1.0	2.1	2.7					
				USA	OT	1.9	4.3	3.5		2.3							12.0	(NO SAMPLING DATA REPORTED)			
		Total	3.0	4.6	4.5	9.9	22.0														
REDFISH	1	FRG	OT	6.5	0.9	-	-	7.4	(93)	**	-	-	-	**							
	2+3K	CAN	OT	4.7	4.1	10.2	2.9	21.9	(95)	3.4	2.9	1.6	0.7	2.1							
				GDR	0.1	-	-	2.8							2.9	-	-	**	**		
				USSR	1.4	0.1	0.6	0.6							2.7	10.0	(8)	-	-	7.8	
				Total	6.2	4.2	10.8	6.3							27.5	4.8	4.8	1.5	0.3	2.4	
	3LN	CAN	OT	-	0.6	0.2	2.2	3.0	(85)	-	2.0	-	2.3	2.3							
				CUBA	0.8	0.4	-	-							1.2	-	-	-	-		
				USSR	3.7	1.8	-	0.3							5.8	3.8	**	-	-	2.4	
	Total	4.5	2.8	0.2	2.5	10.0	3.1	0.7	-	2.0	2.1										
	3M	CAN	OT	-	-	2.2	2.2	4.4	(82)	-	-	1.4	0.9	1.1							
				USSR	1.5	5.6	0.3	1.9							9.3	14.0	**	-	**	2.3	
	Total	1.5	5.6	2.5	4.1	13.7	14.0	**	1.2	0.5	1.9										
	30	CAN	OT	-	0.3	1.4	0.1	1.8	(93)	-	(2)	4.3	-	4.4							
				USSR	1.6	3.0	-	-							4.6	**	**	-	-	**	
	Total	1.6	3.3	1.4	0.1	6.4	**	0.6	4.3	-	1.3										
	3P	CAN	OT	2.1	1.3	6.2	4.7	14.3	(96)	1.4	3.1	1.8	0.9	1.5							
				FRA	0.1	0.1	0.1	-							0.3	-	(1)	-	-	(1)	
Total	2.2	1.4	6.3	4.7	14.6	1.4	3.6	1.7	0.9	1.4											
4RST	CAN	OT	0.8	2.5	8.4	1.4	13.1	(96)	7.0	6.4	3.3	0.7	4.0								
4VWX	CAN	OT	0.5	6.1	5.0	1.9	13.5	(97)	(5)	3.3	5.2	1.1	3.9								
			USA	0.4	1.3	0.4	-							2.1	-	**	-	-	**		
Total	0.9	7.4	5.4	1.9	15.6	5.0	2.7	4.8	1.1	3.4											
5	USA	OT	3.5	4.4	3.2	2.8	13.9	(99)	(NO SAMPLING DATA REPORTED)												
SILVER HAKE	4VWX	BUL	OT	-	0.1	0.5	-	0.6	(100)	-	-	(1)	-	1.0							
				CUBA	-	1.9	1.5	-							3.4	-	11.0	9.3	-	10.3	
				JAPAN	-	-	0.1	0.1							0.2	-	-	(1)	-	(1)	
				USSR	-	22.4	21.4	0.2							44.0	-	11.5	6.4	-	9.0	
				Total	-	24.4	23.5	0.3							48.2	-	11.4	6.5	-	8.7	
	5Y	USA	OT	0.5	1.4	2.7	1.6	6.2	(100)	(NO SAMPLING DATA REPORTED)											
	5Ze	USSR	OT	-	3.6	-	-	3.6	(100)	-	13.9	-	-	13.9							
				USA	OT	-	0.1	6.0							0.3	6.4	(NO SAMPLING DATA REPORTED)				
	Total	-	3.7	6.0	0.3	10.0															
	5Zw+6	JAPAN	OT	-	-	-	0.3	0.3	(96)	-	-	-	(3)	(3)							
USSR				9.9	-	-	-	9.9							16.8	-	-	-	16.8		
USA				3.5	3.8	0.7	3.2	11.2												(NO SAMPLING DATA REPORTED)	
Total				13.4	3.8	0.7	3.5	21.4													

Table 2. (Cont'd)

Species	Stock area	Country	Gear	Nominal catches by quarter				Total for countries listed	%	Sampling efficiency					
				1	2	3	4			1	2	3	4	Total	
RED HAKE	5Ze	USSR	OT	-	0.8	-	-	0.8	-	-	(37)	-	-	(37)	
		USA	OT	-	-	0.1	-	0.1	-	-	(NO SAMPLING DATA REPORTED)	-	-	-	
	Total				-	0.8	0.1	-	0.9	(90)					
	5Zw+6	USSR	OT	1.3	-	-	-	1.3	(53)	-	-	-	-	(53)	
		USA	OT	0.2	2.2	0.5	0.3	3.2	-	-	-	-	-	(NO SAMPLING DATA REPORTED)	
	Total				1.5	2.2	0.5	0.3	4.5	(98)					
POLLOCK	4VWX	CAN	OT	4.7	6.8	2.8	2.3	16.6	4.9	2.2	2.9	1.3	3.6		
			GN	0.1	0.5	1.1	2.6	4.3	-	(2)	1.8	0.4	1.2		
	Total				4.8	7.3	3.9	4.9	20.9	(91)	4.8	2.3	2.6	0.8	3.1
	5	CAN	OT	2.8	0.5	0.7	0.7	4.7	2.1	(4)	1.0	1.0	2.6		
		USA	OT	1.9	2.5	1.7	3.1	9.2	-	-	-	-	(NO SAMPLING DATA REPORTED)		
	Total				1.0	1.2	1.6	3.4	7.2	-	-	-	-	(NO SAMPLING DATA REPORTED)	
Total				5.7	4.2	4.0	7.2	21.1	(95)						
A. PLAICE	2+3K	CAN	OT	1.2	0.4	-	-	1.6	8.3	(1)	-	-	3.1		
			GN	-	0.6	0.9	-	1.5	-	-	6.0	-	4.0		
		USSR	OT	0.1	-	-	-	0.1	(2)	-	-	-	(2)		
		Total				1.3	1.0	0.9	-	3.2	(92)	9.2	1.0	6.0	-
	3LNO	CAN	OT	2.9	11.6	17.1	12.8	44.4	3.8	2.3	1.5	2.1	2.0		
			GN	-	2.0	2.1	-	4.1	-	**	3.3	-	1.7		
		FRA	OT	-	0.1	0.1	-	0.2	-	(1)	-	-	(1)		
		USSR	OT	0.1	0.6	0.1	0.3	1.1	(6)	(2)	-	-	7.3		
	Total				3.0	14.3	19.4	13.1	49.8	(98)	5.7	2.1	1.7	2.1	2.1
	3Ps	CAN	OT	0.6	1.8	0.6	0.1	3.1	(86)	2.0	1.7	2.0	(1)	2.5	
	4RST	CAN	OT	0.2	2.4	2.4	1.9	6.9	(2)	0.8	0.4	0.5	0.9		
			SN	-	1.2	1.5	1.1	3.8	-	3.3	4.0	**	2.6		
	TOTAL				0.2	3.6	3.9	3.0	10.7	(87)	(2)	1.7	1.8	0.3	1.5
	4VWX	CAN	OT	0.9	2.0	1.2	0.7	4.8	10.0	2.0	1.7	-	3.3		
			SN	-	0.7	0.5	0.1	1.3	-	3.0	(8)	-	8.4		
	Total				0.9	2.7	1.7	0.8	6.1	(91)	10.0	2.6	5.9	-	4.4
	5+6	USA	-	-	1.3	4.7	2.1	1.3	9.4	(98)	(NO SAMPLING DATA REPORTED)				
	WITCH	2J+3KL	CAN	OT	0.6	0.8	0.1	0.1	1.6	2.0	5.0	(2)	(2)	6.8	
				GN	-	0.1	0.3	-	0.4	-	-	(6)	-	(6)	
			POL	OT	2.7	0.8	-	-	3.5	1.9	2.0	-	-	2.0	
USSR			OT	1.2	0.1	-	-	1.3	24.1	(13)	-	-	32.0		
TOTAL				4.5	1.8	0.4	0.1	6.8	(99)	8.0	11.1	(8)	(2)	9.7	
3NO		CAN	OT	0.3	0.6	-	0.3	1.2	(6)	(3)	(1)	(4)	11.6		
		USSR	OT	0.1	1.3	0.9	-	2.3	-	**	-	-	**		
Total				0.4	1.9	0.9	0.3	3.5	(100)	(6)	1.6	1.0	(4)	4.0	
3Ps		CAN	-	-	0.2	0.4	0.2	0.2	1.0	(100)	(1)	(1)	-	-	2.0
4VWX		CAN	OT	0.7	0.3	0.1	0.1	1.2	12.0	(2)	-	-	11.7		
			SN	-	0.5	0.3	0.1	0.9	-	(6)	(6)	-	12.0		
Total				0.7	0.8	0.4	0.2	2.1	(91)	12.0	8.0	(6)	-	12.0	
5+6	USA	-	-	0.8	1.2	0.8	0.6	3.4	(97)	(NO SAMPLING DATA REPORTED)					
YELLOWTAIL	3LNO	CAN	OT	0.4	4.2	4.1	6.3	15.0	(1)	5.7	2.9	1.7	3.2		
		FRA	OT	-	0.1	0.2	0.1	0.4	-	(1)	-	(1)	(2)		
	Total				0.4	4.3	4.3	6.4	15.4	(99)	(1)	5.8	2.8	1.8	3.2
	4VWX	CAN	OT	-	0.7	0.4	0.3	1.4	-	4.0	(3)	-	5.0		
			SN	-	0.1	0.1	-	0.2	-	-	(3)	-	(3)		
	Total				-	0.8	0.5	0.3	1.6	(100)	-	4.0	(6)	-	6.3
5+6	USA	-	-	3.0	2.2	3.8	2.3	11.3	(99)	(NO SAMPLING DATA REPORTED)					
G. HALIBUT	0+1	DEN	-	1.2	1.6	1.7	0.8	5.3	**	**	**	-	**		
		FRG	OT	1.3	3.6	-	0.1	5.0	**	**	-	-	**		
	Total				2.5	5.2	1.7	0.9	10.3	(89)	**	**	**	-	**

Table 2. (Cont'd)

Species	Stock area	Country	Gear	Nominal catches by quarter				Total for countries listed		Sampling efficiency					
				1	2	3	4		%	1	2	3	4	Total	
	2+3KL	CAN	OT	1.6	1.1	0.8	0.5	4.0		5.0	3.6	-	-	-	3.0
		GN		-	3.0	15.0	2.6	20.6		-	1.3	1.1	**	-	1.0
		GDR	OT	0.3	-	0.3	1.0	1.6		(19)	-	-	-	-	11.8
		POL	OT	3.6	1.5	0.1	-	5.2		1.9	**	-	-	-	1.3
		USSR	OT	4.4	-	0.6	0.6	5.6		3.4	(1)	-	-	-	2.8
	Total			9.9	5.6	16.8	4.7	37.0	(96)	5.0	2.0	1.0	**	2.1	
R. GRENADIER	0+1	FRG	OT	1.0	4.8	-	-	5.8	(100)	**	**	-	-	-	**
		2+3	GDR	OT	-	-	0.2	1.6	1.8		-	-	-	**	**
			USSR	OT	0.7	0.4	11.8	4.8	17.7		(8)	-	1.8	1.0	1.9
	Total			0.7	0.4	12.0	6.4	19.5	(95)	8.0	-	1.7	0.8	1.7	
HERRING	3+4	CAN	-	23.2	65.1	98.1	59.2	245.6	(100)	(NO SAMPLING DATA REPORTED)					
		5+6	CAN	-	-	0.6	-	-	0.6		(NO SAMPLING DATA REPORTED)				
			USA	-	13.4	3.3	25.5	8.3	50.5		(NO SAMPLING DATA REPORTED)				
	Total			13.4	3.9	25.5	8.3	51.1	(100)	(NO SAMPLING DATA REPORTED)					
MACKEREL	3+4	CAN(M)	-	-	5.5	4.6	1.7	11.8		-	8.7	10.9	0.6	8.4	
		CAN(N)	-	-	0.1	9.2	4.4	13.7		-	-	**	**	**	
		USSR	-	-	0.2	0.3	-	0.5		-	-	(8)	-	8.0	
	Total			-	5.8	14.1	6.1	26.0	(100)	-	8.3	4.1	0.2	4.1	
	5+6	USA	-	0.1	0.9	0.3	0.3	1.6	(85)	(NO SAMPLING DATA REPORTED)					
BUTTERFISH	5+6	JAP	OT	0.2	-	-	0.4	0.6		-	-	-	(6)	(6)	
		ROM	OT	-	-	-	0.1	0.1		-	-	-	(11)	(11)	
		USA	-	0.4	0.5	0.8	1.9	3.6		-	-	-	**	**	
	Total			0.6	0.5	0.8	2.4	4.3	(88)	-	-	-	7.1	3.9	
ARGENTINE	4VWX	JAP	OT	-	-	1.2	0.3	1.5		-	-	8.3	-	6.7	
		USSR	OT	-	0.1	0.2	-	0.3		-	(51)	-	-	(51)	
		Total		-	0.1	1.4	0.3	1.8	(95)	-	(51)	7.1	-	33.8	
CAPELIN	2+3K	CAN	-	-	1.4	1.0	-	2.4		-	**	**	-	**	
		CUBA	-	-	-	0.1	1.3	1.4		-	-	-	**	**	
		JAP	-	-	-	-	0.1	0.1		-	-	-	(1)	(1)	
		ROM	-	-	-	1.4	1.1	2.5		-	-	15.0	12.7	14.0	
		USSR	-	-	-	24.7	22.6	47.3		-	-	0.6	0.4	0.5	
		Total			-	1.4	26.2	25.1	53.7	(98)	-	**	1.3	0.9	1.1
	3LNO	CAN	-	-	4.5	2.0	-	6.5		-	**	**	-	**	
		CUBA	-	-	0.1	-	-	0.1		-	-	(3)	-	(3)	
		GDR	-	-	0.2	-	-	0.2		-	(1)	-	-	(1)	
		JAP	-	-	0.8	-	-	0.8		-	(16)	(5)	-	(21)	
NOR		-	-	5.1	-	-	5.1		-	**	-	-	**		
	Total			-	16.4	-	16.4		-	(1)	-	-	(1)		
	USSR	-	-	16.4	-	-	16.4		-	0.7	-	-	0.7		
	Total			-	27.6	2.0	-	29.6	(99)	-	0.9	4.0	-	1.1	
SQUID-ILLEX	3+4	BUL	-	-	-	0.9	-	0.9		-	-	4.0	-	4.0	
		CAN	-	-	0.1	29.8	6.1	36.0		-	-	**	**	**	
		CUBA	-	-	0.2	3.1	0.8	4.1		-	(9)	5.8	-	6.6	
		FRA	-	-	-	3.5	0.2	3.7		-	-	1.1	-	1.1	
		JAP	-	-	-	9.7	16.4	27.1		-	-	3.9	0.9	1.9	
		POL	-	-	-	1.9	-	1.9		-	-	4.7	-	4.7	
		ROM	-	-	-	1.0	0.1	1.1		-	-	15.0	-	13.6	
		USSR	-	-	0.1	3.1	1.2	4.4		-	-	**	**	**	
		Total			-	0.3	10.8	1.6	12.7		-	**	**	**	
		5+6	ITA	-	-	-	0.6	1.4	2.0		-	-	-	**	**
		JAP	-	-	-	1.9	1.8	3.7		-	-	8.4	4.4	6.5	
		SPA	-	0.1	1.9	5.9	0.7	8.6		-	**	**	-	**	
	USA	-	-	0.2	0.1	-	0.3		-	-	-	-	-		
	Total			0.1	2.1	8.5	3.9	14.6	(80)	-	**	1.9	2.0	1.6	
SQUID-LOLIGO	5+6	ITA	-	0.7	-	-	0.7	1.4		-	-	-	-	-	
		JAP	-	1.0	-	-	1.3	2.3		**	-	-	9.2	5.2	
		ROM	-	-	-	-	0.1	0.1		-	-	-	(11)	(11)	
		SPA	-	2.8	0.2	-	1.6	4.6		**	-	-	**	**	
		USA	-	0.1	0.3	0.1	0.2	0.7		-	-	-	-	-	
	Total			4.6	0.5	0.1	3.9	9.1	(100)	**	-	-	5.9	2.5	

Table 3. Summary of sampling efficiency by country and stock in relation to nominal catches (000 tons) for 1978.

	COD 1	COD 2GH	COD 2J+3KL	COD 3M	COD 3NO	COD 3Ps	COD 3Pn+4RS	COD 4TVn	COD 4Vsw	COD 4X	COD 5Y	COD 5Z	HAD 4VW
BUL	-	-	-	-	-	-	-	-	-	-	-	-	-
CAN	-	-	102/2.3	-	6/5.3	22/3.6	62/1.1	39/4.0	23/1.3	22/0.9	-	8/3.6	5/5.2
CUBA	-	-	-	-	-	-	-	-	-	-	-	-	-
FAR	-	-	-	8/***	-	-	-	-	-	-	-	-	-
DEN	38/0.5	-	-	-	-	-	-	-	-	-	-	-	-
FRA	-	-	2/5.2	5/4.6	-	5/0.9	16/1.7	4/4.0	-	-	-	-	-
FRG	1/19.0	2/2.0	3/8.4	-	-	-	-	-	-	-	-	-	-
GDR	-	-	2/15.0	-	-	-	-	-	-	-	-	-	-
ICE	-	-	-	-	-	-	-	-	-	-	-	-	-
ITA	-	-	-	-	-	-	-	-	-	-	-	-	-
JAP	-	-	-	-	-	-	-	-	-	-	-	-	-
NOR	-	-	-	2/***	-	-	-	-	-	-	-	-	-
POL	-	1/	3/1.7	-	-	-	-	-	-	-	-	-	-
POR	-	-	8/3.5	10/5.4	-	-	-	-	-	-	-	-	-
ROM	-	-	-	-	-	-	-	-	-	-	-	-	-
SPA	-	-	9/***	2/***	6/***	-	-	-	-	-	-	-	-
USSR	-	1/	7/4.0	4/9.0	2/5.0	-	-	-	-	-	-	-	-
UK	-	-	1/2.0	-	-	-	-	-	-	-	-	-	-
USA	-	-	-	-	-	-	-	-	-	-	12/***	24/***	-
Total	39/0.9 (100)	4/1.1 (88)	137/2.8 (99)	31/4.7 (93)	14/3.1 (93)	27/3.1 (98)	78/1.2 (100)	43/4.0 (99)	23/1.3 (91)	22/0.9 (95)	12 ? (90)	32 ? (94)	5/5.2 (88)

	HAD 4X	HAD 5	RED 1	RED 2+3K	RED 3LN	RED 3M	RED 30	RED 3P	RED 4RST	RED 4VWX	RED 5	HKS 4VWX	HKS 5Ze
BUL	-	-	-	-	-	-	-	-	-	-	-	1/1.0	-
CAN	25/2.5	10/2.7	-	22/2.1	3/2.3	5/1.1	2/4.4	14/1.5	13/4.0	14/3.9	-	-	-
CUBA	-	-	-	-	1/***	-	-	-	-	-	-	3/10.3	-
FAR	-	-	-	-	-	-	-	-	-	-	-	-	-
DEN	-	-	-	-	-	-	-	-	-	-	-	-	-
FRA	-	-	-	-	-	-	-	+(1)	-	-	-	-	-
FRG	-	-	7/***	-	-	-	-	-	-	-	-	-	-
GDR	-	-	-	3/***	-	-	-	-	-	-	-	-	-
ICE	-	-	-	-	-	-	-	-	-	-	-	-	-
ITA	-	-	-	-	-	-	-	-	-	-	-	-	-
JAP	-	-	-	-	-	-	-	-	-	-	-	+(1)	-
NOR	-	-	-	-	-	-	-	-	-	-	-	-	-
POL	-	-	-	-	-	-	-	-	-	-	-	-	-
POR	-	-	-	-	-	-	-	-	-	-	-	-	-
ROM	-	-	-	-	-	-	-	-	-	-	-	-	-
SPA	-	-	-	-	-	-	-	-	-	-	-	-	-
USSR	-	-	-	3/7.8	6/2.4	9/2.3	5/***	-	-	-	-	44/9.0	4/13.9
UK	-	-	-	-	-	-	-	-	-	-	-	-	-
USA	1/***	12/***	-	-	-	-	-	-	-	2/***	14/***	-	6/***
Total	26/2.4 (99)	22/ ? (99)	7/*** (93)	28/2.4 (95)	10/2.1 (85)	14/1.9 (82)	7/1.3 (93)	15/1.4 (96)	13/4.0 (96)	16/3.4 (97)	14/ ? (99)	48/8.7 (100)	10/ ? (100)

	HKS 5Zw+6	HKR 5Ze	HKR 5Zw+6	POK 4VWX	POK 5	PLA 2+3K	PLA 3M	PLA 3LN0	PLA 3Ps	PLA 4RST	PLA 4VWX	PLA 5+6	WIT 2J+3KL
BUL	-	-	-	-	-	-	-	-	-	-	-	-	-
CAN	-	-	-	21/3.1	5/2.6	3/3.5	+/	49/2.0	3/2.5	11/0.5	6/4.4	-	2/6.8
CUBA	-	-	-	-	-	-	-	-	-	-	-	-	-
FAR	-	-	-	-	-	-	-	-	-	-	-	-	-
DEN	-	-	-	-	-	-	-	-	-	-	-	-	-
FRA	-	-	-	-	-	-	-	+(1)	-	-	-	-	-
FRG	-	-	-	-	-	-	+/	-	-	-	-	-	-
GDR	-	-	-	-	-	-	-	-	-	-	-	-	-
ICE	-	-	-	-	-	-	-	-	-	-	-	-	-
ITA	-	-	-	-	-	-	-	-	-	-	-	-	-
JAP	+(3)	-	-	-	-	-	+/	-	-	-	-	-	-
NOR	-	-	-	-	-	-	+/	-	-	-	-	-	-
POL	-	-	-	-	-	-	+/	-	-	-	-	-	4/2.0
POR	-	-	-	-	-	-	-	-	-	-	-	-	-
ROM	-	-	-	-	-	-	-	-	-	-	-	-	-
SPA	-	-	-	-	-	-	+/	-	-	-	-	-	-
USSR	10/16.8	1/(37)	1/(53)	-	-	+(2)	+/	1/7.3	-	-	-	-	1/32.0
UK	-	-	-	-	-	-	-	-	-	-	-	-	-
USA	11/***	-	3/***	-	16/***	-	-	-	-	-	-	9/***	-
Total	21/ ? (96)	1/ ? (90)	4/ ? (98)	21/3.1 (91)	21/ ? (95)	3/5.9 (92)	1/ - (100)	50/2.1 (98)	3/2.5 (86)	11/0.5 (87)	6/4.4 (91)	9/ ? (98)	7/9.7 (99)

Table 3. (cont'd)

	WIT 3NO	WIT 3Ps	WIT 4VWX	WIT 5+6	YEL 3LNO	YEL 4VWX	YEL 5+6	GHL 0+1	GHL 2+3KL	RNG 0+1	RNG 2+3	HER 3+4	HER 5+6
BUL	-	-	-	-	-	-	-	-	-	-	-	-	-
CAN	1/12.0	1/2.0	2/12.0	-	15/3.2	2/6.3	-	-	25/1.3	-	-	245/***	1/***
CUBA	-	-	-	-	-	-	-	-	-	-	-	-	-
FAR	-	-	-	-	-	-	-	-	-	-	-	-	-
DEN	-	-	-	-	-	-	-	5/***	-	-	-	-	-
FRA	-	-	-	-	-	-	-	-	-	-	-	-	-
FRG	-	-	-	-	-	-	-	5/***	-	6/***	-	-	-
GDR	-	-	-	-	-	-	-	-	2/12.0	-	2/***	-	-
ICE	-	-	-	-	-	-	-	-	-	-	-	-	-
ITA	-	-	-	-	-	-	-	-	-	-	-	-	-
JAP	-	-	-	-	-	-	-	-	-	-	-	-	-
NOR	-	-	-	-	-	-	-	-	-	-	-	-	-
POL	-	-	-	-	-	-	-	-	5/1.3	-	-	-	-
POR	-	-	-	-	-	-	-	-	-	-	-	-	-
ROM	-	-	-	-	-	-	-	-	-	-	-	-	-
SPA	-	-	-	-	-	-	-	-	-	-	-	-	-
USSR	2/***	-	-	-	-	-	-	-	6/2.8	-	18/1.9	-	-
UK	-	-	-	3/***	-	-	-	-	-	-	-	-	-
USA	-	-	-	-	-	-	11/***	-	-	-	-	-	50/***
Total	4/4.0 (100)	1/2.0 (100)	2/12.0 (91)	3/ ? (97)	15/3.2 (99)	2/3.2 (100)	11/ ? (99)	10/*** (89)	37/2.1 (96)	6/*** (100)	20/1.7 (95)	245/*** (100)	51/ ? (100)

	MAC 3-4	MAC 5+6	BUT 5+6	ARG 4VWX	CAP 2+3K	CAP 3LNO	SQI 3+4	SQI 5+6	SQL 5+6	PAN 0+1
BUL	-	-	-	-	-	-	1/4.0	-	-	-
CAN	25/3.9	-	-	-	3/***	7/***	36/***	-	-	-
CUBA	-	-	-	-	1/***	-	4/6.6	-	-	-
FAR	-	-	-	-	-	-	-	-	8/***	-
DEN	-	-	-	-	-	-	-	-	16/***	-
FRA	-	-	-	-	-	-	4/1.1	-	-	-
FRG	-	-	-	-	-	-	-	-	-	-
GDR	-	-	-	-	-	-	-	-	-	-
ICE	-	-	-	-	-	-	-	-	-	-
ITA	-	-	-	-	-	-	-	2/***	1/***	-
JAP	-	-	1/6.0	2/6.7	-	1/21.0	27/1.9	4/6.5	2/5.2	-
NOR	-	-	-	-	-	5/***	-	-	-	10/***
POL	-	-	-	-	-	1/2.0	2/4.7	-	-	-
POR	-	-	-	-	-	-	-	-	-	-
ROM	-	-	-	-	3/14.0	-	1/14.0	-	-	-
SPA	-	-	-	-	-	-	4/***	9/***	5/***	-
USSR	1/8.0	-	-	+/(51)	47/0.5	16/0.7	13/***	-	-	-
UK	-	-	-	-	-	-	-	-	-	-
USA	-	2/***	4/***	-	-	-	-	-	1/***	-
Total	26/4.1 (100)	2/ ? (85)	5/ ? (88)	2/33.0 (95)	54/1.1 (98)	30/1.1 (99)	92/1.2 (98)	15/1.6 (99)	9/2.5 (100)	35/*** (100)