Northwest Atlantic Fisheries Organization

Serial No. N144 NAFO SCS Doc. 80/VI/18

SCIENTIFIC COUNCIL MEETING - JUNE 1980

USSR Research Report for 1979

by

K. G. Konstantinov
PINRO, Murmansk, USSR

and

A. S. Noskov
AtlantNIRO, Kaliningrad, USSR

CONTENT

Report of the USSR investigations in Subareas off Newfoundland, Labrador and Baffin Land in 1979

by
Konstantinov, K.G.
PINRO, M u r m a n s k, USSR

The total yield taken by the Soviet fleet in Subarea 0, 2 and 3 in 1979 was equal to 62,7 thou.tons (Table 1) or 68,7 thou.tons less than in 1978. The reduction was mainly caused by a sharp decrease of the capelin yield.

A. Fisheries status

The productivity of trawl fishery almost of all demersal fishes in 1979 was higher than that of 1978, that was related with the increase in abundance and biomass of the most stocks. The stocks of marine redfish, Labrador cod, Greenland halibut and roundnose grenadier were observed in particular favourable state.

C o d

The only large-capacity Soviet trawler operated in cod fishery in the South Labrador subarea. In the first ten days of February her fishing capacity was very high, but further fishing was interrupted by ice.

In the South and Central Labrador subareas, age samples of cod were collected during the trawling on dense commercial concentrations by the Soviet research vessels at different time of the year.

The abundant predominance of the specimens belonged to the 1972 and 1973 year classes at the age of 7 and 6 years, 50-60 cm long, mainly, was revealed (Tables 2 and 3).

Judging by the age sample collected in January 1979, more than half of all cod specimens on the Flemish Cap referred to the 1973 year class. Average length of these specimens constituted 51.44 cm (Table 2). In the catches taken by fish-counting trawl with the codend rigged with small-meshed net insertion the cod of 42-56 cm long prevailed (Table 3). Apparently, the cod belonged mainly to the 1973 year class. Exclusively high abundance of this year class was earlier revealed by the survey of the young cod (Table 4). Owing to the recruitment with the 1973 year class specimens the total abundance of cod on the Flemish Cap reached the maximum in 1976, and cod biomass - in 1977 (Tables 5 and 6). In summer 1978, when the total trawl survey of demersal fishes was undertaken, the abundance and biomass of cod on the Flemish Cap Bank already decreased under the influence of intensive fishery and natural mortality. In 1979 the abundance and biomass of cod again somewhat increased owing to considerable abundance of the 1977 year class (Tables 4, 5 and 6). Tendency to cod biomass increase will maintain both in 1980 and 1981.

Judging by a size composition of the catches taken with a fish-counting trawl on the southern slopes of the Grand Bank (Divisions 3NO) the 1975 year class cod prevailed by abundance. The strength of this year class was higher than that of the long-term mean level (Table 4). The cod of the previous, more strengthful 1974 year class became rather scanty in catches.

Redfish

The Soviet fishing fleet carried out the trawl fishery of redfish chiefly on the Flemish Cap Bank and on the southern slopes of the Grand Bank.

Two distinct peaks were observed in size frequencies of beaked redfish (Sebastes mentella) taken with fish-counting

and conventional trawls on the Flemish Cap Bank (Table 7). One of the peaks was compiled by the mature specimens of 30-35 cm long (males) and of 32-38 cm long (females). The immature specimens of 23-26 cm long, belong to the 1971, 1970 and 1969 year classes created the other peak (Table 8). The strength of these year classes is extremely high. The total trawl survey showed that the abundance and biomass of beaked redfish on the Flemish Cap Bank reached the highest level for the last decade in 1979. In 1981 the species of three above-mentioned strengthful year classes will reach the length of 28-33 cm and form the basis for commercial catches. Thus, the perspectives for redfish fishery on the Flemish Cap are extraordinarily favourable.

The abundance and biomass of beaked redfish on the southern slopes of the Grand Bank are at a very high level. It is typical that in recent years a gradual transfer of redfish from Division 3O into Division 3N took place (Tables 5 and 6). One of the reasons of such transfer was an increase of the mean sizes of redfish. It is long ago known that with their growth the redfish from the southern slopes of the Grand Bank transfers eastward; the average length and weight of redfish in Division 3N is always somewhat greater than those in Division 3O (Table 9). Probably, the limitation of the yield in recent 5 years favored the increase of mean sizes of redfish.

The redfish Sebastes marinus in commercial volumes is mainly occurred at 250-350 m depths on the Flemish Cap Bank. In 1977/78 an intensive cod fishery decreasing the abundance and biomass of golden redfish up to very low level was undertaken at these depths (Tables 5 and 6).

F l o u n d e r s

The typical features of the size-sex structure of the American plaice stock (the females are always larger and mo-

re numerous than males) are reflected in the data on fish-counting trawls, taken in spring 1979 (Table 10).

Judging by the results of the total trawl survey the American plaice stocks in their main fishing areas are on the average level (Tables 5 and 6).

Essentially the increased abundance and biomass of yellowtail flounder (Limanda ferruginea)in Division 3N attract everyone's attention.

Roundnose grenadier

Grenadiers are the least investigated commercial fishes in the Northwest Atlantic. In particular, the methods of reading on their age and growth rate are insufficiently developed.

Judging by the investigations of the Soviet researchers, the linear and weight growths of the roundnose grenadier are very slow, and their life duration is considerable (Table 11). The analysis of age composition of the catches allows to make one more fairly important conclusion: the fluctuations of the roundnose grenadier are very weak expressed; the relation between the abundances of fishes of the rich and poor year classes does not exceed 2:1.

Greenland halibut

The analysis of the size composition of the catches (Table 12) shows that in the northern areas the Greenland halibut is of more than 0.5 m average length, by other words, much larger than that, for instance, in Division 3K, where the fry predominantly inhabits. Thus, it is reasonable to carry out the main commercial exploatation of the Greenland halibut in the northern areas. Age composition of Greenland halibut in these areas is represented in Table 13.

Capelin

In May-June the assessments of the capelin stocks on the Grand Bank (Divisions 3LNO) and (in November on the South Labrador Shelf (Division 2J) were conducted.

The echometric survey undertaken by the research vessel "Poisk" in May-June gave the following results:

Division	Date of survey	Abundance (milliards of spec.)	Biomass (thou.tons)
3L	10-13 May	23.3	483
3N	16-19 May	6.4	104
3LNO	25 May-05 June	13.0	234

On the capelin spawning grounds directly, where in 1979 the fishery was prohibited, 11 shoals of pre-spawning capelin of the total biomass of not more than 10 thou.tons, in total,were detected.

In Division 2J the average catch for a large-capacity trawler per day did not exceed 20 tons. Since 16 September throughout 05 November the RV "Suloy" carried out the echo-survey of capelin in Divisions 3K and 2J three times. Insignificant concentrations were registered only in the southern part of the Hamilton Bank. Total abundance of capelin due to the survey data (3-5 November) was equal to 736.5 mill. spec., that at the average mass of one specimen of 19.7 g corresponded to the biomass of 14.5 thou.tons. That was the lowest value for the period since 1974 throughout 1979.

Very low abundance of the 1974-1976 year classes, and, probably, also of the 1977 year class was the main reason of the depressive status of capelin stocks in all the areas (Divisions 3KLNO and 2J).

B. Special investigations

Oceanographic observations

The hydrological observations were conducted aboard the following Soviet vessels: "Suloy" - at all stations, where the fish-counting trawlings during the total trawl survey were carried out, and also at the section 8-A; "Gemma" - at the sections 3-A, 4-A, 6-A, 7-A, 40-A and "triangle".

Due to hydrological conditions 1979 can be referred to the moderate ones. In April, the water temperature at all the sections in Divisions 3K, 3L, 3M and 3N was on the long-term mean level and almost 1° lower, than that in April 1978. In November, the water temperature in the 0-200 m layer on the section 8-A (Division 2J) in the main branch of the Labrador Current increased compared to that of the same month in 1978, but in the 200-500 m layer it decreased. In November, the negative temperature anomalies were observed in the coastal branch of the Labrador Current; so, in the o-200 m layer the water temperature was 0.15° lower than that in the same period of 1978.

On the whole, on the 1-st November, the water temperature in the 50-200 m layer for the main and coastal branches of the Labrador Current was 0.19° lower than that on the 1-st November, 1978 (Table 16).

Year-to-year fluctuations of water temperature in the Northwest Atlantic take place with a certain cycle. Based upon this cycle, it should be expected the further cooling of water masses in 1980 and 1981. It is also known, that the water temperature in the Northwest Atlantic and Barents Sea varies in anti-phase. In late 1979 and during first months of 1980 a fast decrease of the negative temperature anomalies, by other words, the transfer from the extreme cooling of water masses to their moderate (the long-term mean) heat condition was observed in the southern Barents Sea. Consequent-

ly, in the Northwest Atlantic an inverse process - the change of high temperature of water masses into their moderate heat state should be observed. In future,(for example, in 1981) negative water temperature anomalies will be observed on the section 8-A.

Ichthyoplankton sampling

From 07 April to 02 June the Soviet research vessel "Gemma" simultaneously with hydrological observations carried out the sampling of eggs and larvae in the middle and near-surface layers of the ocean. In total, 690 ichthyoplankton samples were collected on 206 stations, located on the polygon 3M, at the sections 3-A, 4-A, 6-A, 7-A, 40-A and "triangle". Ichthyoplankton samples were fixed in formalin, brought to the port and investigated at the laboratory. The data obtained are analysed and summarised.

Tagging of commercial fishes

In June 1979 in Division 2J the Soviet ichthyologists tagged 300 specimens of the demersal commercial fishes, mainly, cod.

Judging by information entered the PINRO, the fishermen of different countries, mostly, of Canada, in the period from 01 January to 31 December 1979 recaptured the fishes with Soviet tags:

1 specimen, tagged in 1973;
1 specimen, tagged in 1976;
11 specimens, tagged in 1977;
78 specimens, tagged in 1978;
1 specimen, tagged in 1979.

Data on release of tagged fishes, the place of recapture is informed particularly accurate, are given in Table 17. The fishes under item No.'s 1-12 were released from the board of the research vessel "Persey III"; the fish under item No.'s 13 - from the board of RV "Suloy".

Data on tagged cod release are well corresponded with a total scheme of their migrations, developed by the Canadian and Soviet ichthyologists.

Selectivity investigations

The investigations on selectivity capacity of the bottom trawl with a 124 mm internal mesh size for the Greenland halibut fishery were undertaken in Division 2H and off the Baffin Land. Total loss of the catch did not exceed 8% by abundance and 3% by biomass.

THE USSR INVESTIGATIONS IN NAFO SUBAREA 4 IN 1979

A. S. Noskov
AtlantNIRO, Kaliningrad, USSR

Subarea 4

A. State of the Fishery

Silver hake. In 1979, the Soviet silver hake catch constituted 45,I thous. tons. The fishing was made with bottom trawls in May, June and July on southern slopes of Emerald and Sable Island Banks at depths of 100-300 m. Some vessels with the observers on board successfully fished for silver hake in the shelf regions, where the fishing with the 60 mm mesh size trawls is prohibited. Beginning in July, the silver hake catches were taken with a considerable by-catch of shortfin squids. The silver

hake catches were mainly represented by the specimens of 25-35 cm in length (81%) at the age of 3-5 (Tables 18, 19).

The abundant 1977 year class will make the bulk of the 1980 catches. The total allowable catch of silver hake of 150 thous. tons can be recommended for 1980 (Noskov A.S., NAFO SCR Doc. 80/II/46).

Argentine. In 1979, this species was taken as an insignificant by-catch in the silver hake fishery. The total argentine catch by the USSR in 1979 amounted to 0.2 thous. tons, with the quota allocation of 11.0 thous. tons. The specimens of 27-35 cm in length at the age of 4 to 10 predominated (Tables 20, 21). In the absence of significant fluctuation in the year class abundance, and due to limited exploitation of the argentine stocks during the recent period, the argentine stock size in 1980 and 1981 is expected to be the same as in the previous years. Therefore, the total allowable catch of 20 thous. tons can be recommended.

Shortfin squid. The species was mainly caught in July through September on the shelf slopes in the silver hake fishery and during the directed fishery for squids. In July-September, the directed fishing by BMRT class vessels yielded on the average 32.4 tons per fishing day. In July, the bulk of the catches was mainly represented by the specimens of 19-21 cm mantle length, in August by the specimens of 21-24 cm mantle length, and in September - 22-25 cm mantle length (Table 22).

β. Special Studies

1. Environmental conditions

Hydrology. In July-November 1979, the SRTM-8002 VIANDRA made hydrometeorological observations on the Nova Scotian shelf along with hydrobiological and ichthyological studies. Water temperatures were determined from BT casts to within 200 m of the surface, and 490 stations were occupied during four hydrological surveys.

Weather conditions in 1979 were more favourable than in 1978. They were determined by cyclons moving mainly to the north-east and to the east, and by anticyclones moving from the continent in the east and south-east directions. The winds and waves (3-4 Beaufort number) of the west and north-west directions predominated.

Hydrological conditions were determined by the interaction between warm oceanic, cold Labrador Current and shelf waters.

Within the entire water column, a drop of temperature was observed from the south-west to the north-east.

Maximum surface temperatures of 21°C were recorded on the south-western part of the shelf in August, and minimum temperatures below 11°C on the eastern part of the shelf in October. The water temperature decreased from August to October with decreasing effect of the solar activity.

The recorded depths of the upper limit of the seasonal thermocline were between 10 and 20 m in August,and between 40-50 m in October.

Cold Labrador waters (1-3°C) were observed in the north-eastern part of the area at the 50 m depth during the entire investigation period. At the 50-100 m depth level cold intermediate waters (1-5°C) predominated, while in the south-eastern area the tongues of warm water were observed. At the 100 m depth the temperatures of 5-7°C prevailed. In 1978, these waters were recorded at greater depth, and the temperatures were 2-3°C higher than in 1979.

At the 200 m depth the temperatures of 5-8°C predominated.

Ichthyoplankton. In 1979, the joint USSR-Canada research on the silver hake spawning efficiency in the Nova Scotian shelf waters was continued. Two subsequent ecological surveys were conducted in August and the first half of September during the main spawning period of silver hake. The collections included:

- ichthyological samples
- zooplankton samples
- water temperature measurements

At present the data are being processed in the laboratory ashore.

Silver hake abundance. In October 1979, a trawl survey on silver hake fry abundance and distribution covering 100 stations on the Nova Sctian shelf was made. The results of the survey showed that the largest recorded numbers of silver hake fry (100 or more per haul) were from the south-west slopes of Sable Island and La-Have, where they kept to the 100-200 m depth at the water temperature of 8-10°C. The length of the fry in the catches ranged between 1 and 12 cm, 3 cm on the average. The abundance index was 30 sp. per sq. mile compared with 135 sp. per sq. mile in 1978.

The study on distribution and abundance of the young shortfin squids. The fishing for the young shortfin squids was made by RTM BELOGORSK from 10 March to 13 April outside the shelf slopes near Nova Scotia. The young squids were caught in the area between the shelf slopes and the edge of the Gulf Stream. The young squids were most abundant in the water massive adjacent to the Gulf Stream, where the temperatures ranged between 14.3 and 15.3°C (Froerman, 1980, NAFO Doc. 80/II/36).

The mean length and weight of the young shortfin squids were 4.6 cm and 2.0 g. Trawl surveys of the young squid abundance allow for estimating of the stock size 5-6 months before the start of the commercial season. According to Froerman the stock size of the shortfin squids in 1979 amounted to 1.5-3.0 mill. tons.

Table 1. The USSR catches taken in the Northwest Atlantic in 1979 (tons)

Object of fishery	Subareas				Total II-V	Stat. Area 0	Total (NWA)
	II	III	IV	V			
T O T A L	I5839	45779	57779	I633	I2I030	3059	II02	I25I9I
Including:								
Capelin	9357	230	-	-	9587	-	-	9587
Argentine	-	-	232	-	232	-	-	232
Atlantic halibut	-	I2	-	-	I2	-	-	I2
Greenland halibut	I555	406	-	-	I96I	-	987	2948
American plaice	9	I677	I3	5	I704	6I	-	I765
Winter flounder	-	-	-	-	-	-	-	-
Witch	7	20II	3	-	202I	-	-	202I
Yellowtail flounder	-	-	-	-	-	-	-	-
Flounders (not broken)	-	-	-	-	-	-	-	-
Cod	380	7900	683	-	8963	-	-	8963
Haddock	-	27	I07	-	I34	-	-	I34
Pollock	-	-	I025	-	I025	-	-	I025
White hake	-	23	-	-	23	-	-	23
Red hake	-	-	I97	I52	349	5I7	-	866
Silver hake	-	8	45076	I36I	46445	I7I5	-	48I60
Grenadier	4059	3I42	-	-	720I	-	I06	7307
Redfish	387	26658	I52	-	27I97	-	9	27206
Wolffishes	27	69	-	-	96	-	-	96
Angler	-	-	3I	-	3I	-	-	3I
Sea robin	-	-	-	2	2	30	-	32
Beryx	-	-	-	-	-	437	-	437
Other bottom fish	-	-	-	-	-	-	-	-
Butterfish	-	-	-	I	I	I	-	2
Herring	-	-	-	-	-	-	-	-
Alewife	-	-	-	4	4	7	-	II
Mackerel	-	-	266	I	267	8	-	275
Other pelagic fish	-	-	-	-	-	-	-	-
Sharks	-	-	30	24	54	5I	-	I05
Skates	-	I042	287	I7	I346	62	-	I408
Other fish	58	I846	I092	63	3059	I64	-	3223
Illex squid	-	728	8585	-	93I3	-	-	93I3
Loligo squid.	-	-	-	3	3	6	-	9

Table 2. Age composition and mean length of cod in catches taken by conventional trawl in Divs. 2J, 2H and 3M

Year class	Age	Div.2J (Jun.)		Div.2H (Oct.)		Div.3M (Jan.)	
		No.of spec. (‰)	Mean length (cm)	No.of spec. (‰)	Mean length (cm)	No.of spec. (‰)	Mean length (cm)
I976	3	3	34,00	-	-	3	34,00
I975	4	67	40,30	I0	44,00	37	39,45
I974	5	I50	45,53	70	49,7I	83	45,88
I973	6	230	52,57	367	55,52	534	5I,44
I972	7	354	58,54	396	59,I3	3I7	55,66
I97I	8	II7	6I,09	I20	62,00	23	66,57
I970	9	20	7I,50	27	65,50	3	73,00
I969	I0	I7	74,50	7	68,50	-	-
I968	II	I3	89,50	-	-	-	-
I967	I2	I3	79,00	3	85,00	-	-
I966	I3	I0	90,00	-	-	-	-
I965	I4	-	-	-	-	-	-
I964	I5	3	97,00	-	-	-	-
I963	I6	3	9I,00	-	-	-	-
Total		I000	55,97	I000	57,66	I000	52,24

Table 3. Size composition of cod in catches taken by fish-counting bottom trawl with small-meshed net insertion, ‰

Length (cm)	2H (Nov.)	2J (May)	3K (May)	3L (Apr.)	3N (Apr.)	3O (Apr.)	3M (Mar.)
I	2	3	4	5	6	7	8
6-8	-	-	-	-	3	I6	-
9-II	-	-	-	-	I7	79	-
I2-I4	-	-	-	-	I2	120	3
I5-I7	-	-	-	-	2	36	3
I8-20	-	-	-	-	3	4	I
2I-23	-	2	I	-	34	I4	I3
24-26	-	-	6	2	84	28	95
27-29	-	3	7	3	55	44	97
30-32	-	8	I2	12	45	29	17
33-35	I	25	19	32	99	3I	I3
36-38	I	46	38	73	I06	24	22
39-4I	4	89	74	II4	83	37	42
42-44	24	75	9I	I4I	I03	40	I0I
45-47	54	63	II9	I58	I0I	55	I03
48-50	64	99	I32	I20	83	62	II8
5I-53	II6	I30	I34	98	36	46	I04
54-56	I60	I30	II3	70	29	52	92
57-59	I95	I4I	89	59	2I	45	59
60-62	209	75	58	39	2I	33	46
63-65	95	49	32	24	9	35	25
66-68	46	I9	22	I4	7	3I	I0
69-7I	I7	II	I5	II	9	I8	I2
72-74	6	4	9	7	8	I6	5
75-77	2	4	7	5	4	I7	5
78-80	2	8	7	6	3	I7	2
8I-83	I	4	4	3	3	I3	3
84-86	2	5	2	3	I	8	-
87-89	I	4	3	I	-	9	2
90-92	-	I	I	2	2	6	I
93-95	-	-	3	I	2	5	-
96-98	-	2	2	I	I	7	3
99-I0I	-	I	-	I	2	5	2
I02-I04	-	-	-	I	I	4	-
I05-I07	-	I	-	-	I	4	-
I08-II0	-	-	-	-	I	2	-
III-II3	-	-	-	-	I	I	-
II4-II6	-	-	-	-	-	2	-
II7-II9	-	I	-	-	I	-	I
I20-I22	-	-	-	-	I	I	-
I23-I25	-	-	-	I	I	2	-
Over 125	-	-	-	-	5	2	-
Relative number (‰)	I000	I000	I000	I000	I000	I000	I000
Mean length (cm)	57,25	52,I5	5I,I9	48,64	40,75	43,I5	45,76
No.of spec. measured	3398	I8I8	2846	6875	29I6	956	2I92

Table 4. Number of young cod of the 1959-1978 year classes in average catch per hour trawling, spec.

Year class	Ages, years														
	1					2					3				
	3K	3L	3N	3O	3M	3K	3L	3N	3O	3M	3K	3L	3N	3O	3M
1959	-	-	-	-	-	-	-	-	-	-	33	18	12	1	-
1960	-	-	-	-	-	9	3	5	0	-	16	11	3	2	-
1961	2	2	2	2	-	5	6	9	4	-	29	42	17	2	6
1962	0	1	2	10	-	2	8	23	3	7	22	56	26	3	29
1963	1	3	1	1	0	1	11	8	2	6	51	44	42	2	14
1964	0	2	57	37	0	4	22	192	18	1	11	68	103	60	14
1965	0	1	0	0	3	1	2	19	17	2	27	17	32	27	9
1966	0	0	2	21	0	4	10	39	24	0	38	61	53	47	13
1967	0	0	0	2	0	11	15	4	6	13	48	36	44	20	20
1968	1	1	8	24	10	10	68	153	40	106	46	118	127	32	58
1969	1	4	4	6	0	0	31	15	8	2	19	60	37	17	2
1970	0	1	9	2	0	1	7	35	4	1	8	8	29	14	1
1971	0	0	6	2	22	2	1	51	21	87	4	12	81	12	3
1972	0	0	6	3	3	0	3	12	11	29	8	7	34	9	22
1973	0	1	1	3	303	7	9	43	10	350	41	24	92	9	568
1974	0	2	2	4	133	3	4	89	7	50	10	58	201	21	57
1975	0	0	10	1	5	1	8	92	5	17	2	6	62	5	17
1976	0	0	0	0	0	0	0	4	3	2	2	3	24	2	13
1977	0	0	0	1	8	0	0	8	0	51	-	-	-	-	-
1978	0	0	2	5	3	-	-	-	-	-	-	-	-	-	-
Mean	0	1	6	7	31	3	12	44	10	45	23	36	57	16	53

Table 5. Average number of demersal fishes of all sizes (total) per hour trawling taken by fish-counting trawl in total trawl survey, spec.

Year	3K	3L	3M	3N	3O
I	2	3	4	5	6
		C O D			
I97I	97	I84	77	208	44
I972	I58	205	66	I39	56
I973	4I	29	I08	I34	53
I974	32	40	346	185	30
I975	27	24	550	I86	28
I976	98	57	693	243	32
I977	42	I35	489	452	70
I978	I5	3I	95	I8I	43
I979	55	13I	I22	I03	22
		redfish Sebastes mentella			
I97I	337	82	66	9II	957
I972	6I2	37	449	366	498
I973	475	II3	484	645	884
I974	796	3I4	3I4	733	560
I975	692	73	5I6	I278	I864
I976	227	4	I03	I28	I085
I977	600	73	660	282	3033
I978	405	224	8I6	2556	508
I979	9I0	42	48I3	4247	668
		redfish Sebastes marinus			
I97I	30	-	93	-	-
I972	I5	II	400	-	-
I973	45	-	2I5	-	-
I974	65	-	264	-	-
I975	9	7	I37	-	I03
I976	I4	2	I64	-	-
I977	59	5	62I	-	-
I978	I	I	I25	-	-
I979	I	20	22	3	-
		American plaice			
I97I	57	703	38	I94	I45
I972	74	5I6	4I	387	I67
I973	I42	569	55	277	278
I974	I77	67I	83	357	I58
I975	238	683	93	356	30I
I976	I75	394	I69	223	209
I977	227	I086	69	567	203
I978	69	573	46	I67	I2I
I979	52	487	I6	53I	I5I
		Yellowtail flounder Limanda ferruginea			
I97I	-	7I	-	282	I6
I972	-	I26	-	326	I28
I973	-	3I	-	206	I22
I974	-	84	-	395	98
I975	-	I6	-	227	I00
I976	-	23	-	439	I2I
I977	-	24	-	I08	II2
I978	-	8	-	I05	I24
I979	-	57	-	327	68

Table 6. Average catch of demersal fishes of all sizes per hour trawling taken by fish-counting trawl in total trawl survey, kg

Year	3K	3L	3M	3N	3O
I	2	3	4	5	6
		Cod			
1971	77	138	69	135	34
1972	134	163	75	72	67
1973	33	19	46	47	18
1974	36	33	51	72	10
1975	19	20	121	155	16
1976	123	48	296	121	25
1977	36	98	448	254	70
1978	17	36	79	122	23
1979	77	160	108	83	33
		redfish Sebastes mentella			
1971	144	33	13	221	80
1972	266	16	194	43	62
1973	160	38	117	161	114
1974	308	110	89	145	66
1975	282	29	163	241	166
1976	109	1	48	21	107
1977	205	23	327	56	509
1978	151	79	166	535	99
1979	553	15	710	971	106
		redfish Sebastes marinus			
1971	27	-	85	-	-
1972	21	11	334	-	-
1973	24	-	141	-	-
1974	62	-	104	-	-
1975	5	2	37	-	21
1976	12	-	84	-	-
1977	77	-	347	-	-
1978	1	1	66	-	-
1979	-	6	7	-	-
		American plaice			
1971	16	250	26	142	57
1972	9	132	22	117	42
1973	56	111	37	107	77
1974	43	166	74	186	53
1975	66	202	53	171	90
1976	39	112	127	84	86
1977	64	345	30	197	69
1978	16	208	29	75	54
1979	16	153	10	166	54
		Yellowtail flounder Limanda ferruginea			
1971	-	32	-	110	8
1972	-	57	-	140	46
1973	-	12	-	76	50
1974	-	40	-	137	46
1975	-	7	-	88	41
1976	-	10	-	171	52
1977	-	-	-	44	100
1978	-	3	-	45	57
1979	-	28	-	148	32

Table 7. Size composition of beaked redfish (Sebastes mentella) in catches taken by fish-counting bottom trawl (Mar., Apr., Jun.) and conventional trawl (Sep.) on the Flemish Cap Bank, %o

Length (cm)	Mar.		Apr.		Jun.		Sep.	
	males	females	males	females	males	females	males	females
I	2	3	4	5	6	7	8	9
I4	-	-	-	-	2	I	-	-
I5	-	-	-	-	2	I	-	-
I6	2	3	I	-	2	2	-	-
I7	6	2	I	I	4	3	-	-
I8	5	5	2	2	6	4	-	-
I9	5	3	I	I	4	5	-	-
20	4	8	I5	I4	7	5	-	-
2I	II	I2	20	I6	7	8	I	I
22	24	I9	33	24	I5	22	5	5
23	48	42	7I	44	39	39	9	I0
24	46	34	53	44	44	48	I4	I7
25	49	47	68	55	64	75	33	40
26	22	I9	28	22	28	35	24	28
27	II	I2	I0	5	II	I4	I2	I0
28	I2	I0	7	5	7	7	7	5
29	II	I0	6	3	7	3	7	3
30	23	I4	I5	5	I8	5	20	7
3I	25	I2	24	5	20	6	28	I0
32	43	I2	40	II	28	I2	47	29
33	42	I3	3I	20	32	I8	36	26
34	28	I3	I9	I9	29	I8	38	3I
35	35	25	22	23	36	24	52	5I
36	20	I9	23	20	27	I9	40	52
37	22	28	I7	24	29	25	28	54
38	I5	27	I3	22	26	23	22	53
39	I0	20	I2	20	I3	I7	9	33
40	I0	20	8	I7	8	I6	6	36
4I	2	I2	5	9	2	II	2	2I
42	2	I0	I	7	I	7	I	I7
43	I	8	2	5	-	5	I	9
44	-	3	I	3	-	2	-	3
45	-	2	-	3	-	2	-	4
46	-	I	-	2	-	-	-	2
47	-	I	-	-	-	-	-	I
Relative nuber number (%o)	534	466	549	45I	5I8	482	442	558
Mean length (cm)	29,26	30,56	28,30	30,00	29,55	29,5I	32,II	34,35
No.of spec. measured	268I	2337	I30I	I069	3653	3405	4356	5548

Table 8. Age composition and mean length of beaked redfish (Sebastes mentella) in catches taken by conventional trawl in Divs. 2H and 3M

Year class	Age	Div. 2H (Oct.)				Div. 3M (Mar.)				Div. 3M (Oct.)			
		No. of spec. (%o)		Mean length (cm)		No. of spec. (%o)		Mean length (cm)		No. of spec. (%o)		Mean length (cm)	
		males	females	males	females	males	females	males	females	males	females	males	females
I	2	3	4	5	6	7	8	9	I0	II	I2	I3	I4
I973	6	4	-	2I,0	-	I4	7	2I,7	22,5	4	4	22,0	22,0
I972	7	I8	7	23,8	23,5	40	44	23,8	23,I	2I	39	23,2	23,5
I97I	8	52	29	25,2	25,I	29	22	23,8	25,7	I08	I08	23,9	24,3
I970	9	29	5I	27,4	26,6	33	73	26,0	26,9	I76	I5I	24,7	24,9
I969	I0	37	5I	28,6	27,I	58	I4	27,6	30,2	I44	I08	25,2	25,4
I968	II	92	66	30,8	29,2	25	I4	30,4	3I,2	I8	II	28,4	26,7
I967	I2	69	77	33,I	3I,I	95	36	32,I	32,7	25	7	30,8	34,0
I966	I3	52	40	34,8	32,9	83	I8	33,I	34,4	I8	I4	3I,6	34,5
I965	I4	I8	58	35,8	34,3	29	7	35,6	35,5	7	I4	35,5	34,5
I964	I5	7	I8	37,0	36,2	5I	29	37,I	37,6	4	4	36,0	38,0
I963	I6	22	33	37,7	37,4	72	I2	37,8	39,0	-	4	-	37,0
I962	I7	4	46	37,0	38,I	43	7	38,I	40,0	-	7	-	38,0
I96I	I8	4	36	40,0	38,8	25	26	40,I	40,6	-	-	-	-
I960	I9	-	I4	-	40,0	29	22	40,4	4I,7	-	-	-	-
I959	20	7	36	4I,5	4I,6	-	I4	-	43,0	-	-	-	-
I958	2I	4	4	43,0	43,0	-	I4	-	42,8	-	4	-	4I,0
I957	22	-	7	-	42,5	4	7	42,0	44,0	-	-	-	-
I956	23	-	4	-	47,0	-	-	-	-	-	-	-	-
I955	24	-	-	-	-	4	-	-	-	-	-	-	-
I954	25	-	4	-	49,0	-	-	-	-	-	-	-	-
Total		4I9	58I	3I,3	33,I	634	366	32,7	32,5	52,5	475	25,5	26,I

Table 9. Size composition of beaked redfish (Sebastes mentella) in catches taken by fish-counting bottom trawl with a small-meshed net insertion, %o

Length (cm)	2H (Oct.)		2J (May)		3K (May)		3L (May)		3N (Apr.)		3O (Apr.)	
	males	females	males	females	males	females	males	females	males	females	males	females
I	2	3	4	5	6	7	8	9	I0	II	I2	I3
I0	-	-	-	-	-	-	-	-	-	-	-	I
II	-	-	-	-	-	-	-	-	-	-	I	I
I2	-	-	-	I	-	-	I	-	-	-	6	3
I3	-	-	5	4	6	4	4	3	I	I	9	5
I4	-	-	I0	II	II	II	8	4	I	I	I8	8
I5	-	-	7	7	22	2I	8	8	2	2	II	8
I6	-	-	7	I0	I5	I6	9	6	5	3	II	8
I7	-	-	9	6	8	9	II	9	I4	I0	I9	20
I8	-	-	I4	6	I4	I7	I0	8	3I	I7	32	22
I9	-	-	I5	23	I6	I5	6	7	4I	35	38	25
20	-	-	24	24	33	32	8	I0	43	42	42	32
2I	I	2	4I	40	24	24	6	I0	38	42	44	32
22	4	7	32	4I	I8	I9	II	I3	59	38	62	38
23	9	9	32	26	I4	II	27	I8	68	49	78	53
24	9	I9	39	27	8	6	26	26	44	36	57	45
25	I9	34	39	43	I7	II	52	40	50	40	55	52
26	25	35	4I	38	I7	I5	42	36	28	2I	3I	30
27	27	28	37	43	22	I5	39	38	2I	20	I4	23
28	29	38	40	32	22	I3	35	25	I4	I5	9	I6
29	I9	26	I9	I2	I4	8	20	I3	6	9	3	7
30	2I	34	22	I2	25	I0	25	I5	II	II	3	7
3I	26	26	I5	I4	39	7	22	8	9	7	I	4
32	34	32	I8	I0	5I	I0	28	I3	8	4	I	2
33	26	28	I5	7	30	I3	2I	II	II	3	I	2
34	I7	20	5	4	I7	I4	I4	7	I0	3	-	I
35	28	32	4	4	2I	I8	20	7	I2	4	I	2
36	26	37	3	6	23	I9	I9	6	9	3	-	2
37	23	26	3	6	27	I6	29	8	6	4	-	2
38	30	44	3	I	25	8	I8	I0	8	2	-	I
39	23	24	3	I	II	3	I0	7	7	I	-	-
40	2I	30	I	-	7	4	I0	I3	9	2	-	I
4I	6	I6	I	2	I	4	I	I0	2	2	-	-
42	3	II	3	2	-	6	2	I5	-	I	-	-
43	-	7	-	I	-	8	2	I3	I	I	-	-
44	-	3	I	4	-	9	I	I3	-	I	-	-
45	-	3	-	6	-	I0	-	I2	-	I	-	-
46	-	2	-	4	-	8	-	8	-	-	-	-
47	-	-	-	2	-	4	-	3	-	-	-	-
48	-	I	-	3	-	3	-	I	-	-	-	-
49	-	-	I	4	-	I	-	I	-	-	-	-
50	-	-	-	2	-	-	-	-	-	-	-	-
Over 50	-	-	-	2	-	-	-	-	-	-	-	-
Relative number (%o)	426	574	509	49I	558	442	545	455	569	43I	547	453
Mean length (cm)	32,2	32,6	25,I	25,8	27,7	28,7	28,2	29,7	24,6	23,9	2I,6	22,7
No.of spec. measured	I740	2346	692	665	2369	I864	I358	II45	2332	I766	2870	2374

Table 10. Size composition of American plaice in catches taken by bottom trawl with a small-meshed net insertion, %o

Length (cm)	2J (May)		3K (May)		3L (Apr.)		3N (Apr.)		3O (Apr.)	
	males	females	males	females	males	females	males	females	males	females
I	2	3	4	5	6	7	8	9	I0	II
I4-I5	-	-	2	I	7	5	2	3	5	2
I6-I7	4	3	7	8	I6	I5	3	4	I2	II
I8-I9	II	I0	I8	I9	28	27	9	9	I4	9
20-2I	I4	2I	42	36	32	36	2I	23	23	28
22-23	45	33	52	64	39	35	32	33	40	37
24-25	59	42	53	54	43	37	43	5I	55	55
26-27	66	5I	5I	59	5I	44	54	59	50	73
28-29	57	63	34	67	48	45	47	54	52	63
30-3I	58	62	27	67	49	48	48	60	36	57
32-33	42	56	24	63	46	4I	43	60	3I	43
34-35	20	5I	I4	43	29	37	29	49	I8	29
36-37	2I	54	8	45	3I	33	25	47	I2	29
38-39	I2	34	5	36	I8	29	I3	32	I3	20
40-4I	7	32	2	29	I4	26	I0	26	I5	20
42-43	3	I5	-	22	I0	I9	8	20	I7	I5
44-45	I	I9	-	I5	6	I4	6	I5	I2	I2
46-47	I	I3	-	6	3	I2	5	II	9	I2
48-49	-	7	-	7	2	8	3	I0	9	I2
50-5I	-	6	-	II	I	6	2	8	3	8
52-53	-	4	-	4	-	4	I	6	I	7
54-55	-	2	-	4	-	2	-	4	I	7
56-57	-	I	-	-	-	I	-	3	-	8
58-59	-	-	-	I	-	I	-	3	-	5
Over 60	-	-	-	-	-	2	-	6	-	I0
Relative number (%o)	42I	579	339	66I	473	527	404	596	428	572
Mean length (cm)	28,4	32,3	26,0	3I,I	28,7	3I,2	29,8	32,7	29,6	32,2
No.of spec. measured	696	960	800	I562	6239	6979	3286	4855	I983	2658

Table 11. Age composition, mean length and average weight of roundnose grenadier in catch taken by conventional trawl in Div.3K (May 1979)

Year class	Age	No.of spec.(%o)		Length (cm)		Weight (g)	
		males	females	males	females	males	females
I975	4	-	2	-	39,0	-	II5,0
I974	5	2	3	38,0	4I,0	I40,0	I60,0
I973	6	5	22	43,0	45,2	200,0	2I2,2
I972	7	24	37	47,3	49,3	202,0	288,0
I97I	8	5I	63	48,9	55,I	256,7	368,5
I970	9	65	64	53,7	58,6	329,6	453,5
I969	I0	I07	46	57,0	62,2	402,0	546,6
I968	II	92	78	60,6	67,3	457,9	652,5
I967	I2	95	36	65,2	69,9	575,9	739,3
I966	I3	56	3I	68,2	74,5	620,9	886,2
I965	I4	39	22	7I,0	76,8	729,4	987,2
I964	I5	22	I2	74,6	80,6	832,2	II58,0
I963	I6	5	5	78,5	86,0	I000,0	I300,0
I962	I7	5	2	79,0	90,0	I040,0	I270,0
I96I	I8	5	2	82,0	91,0	I085,0	I560,0
I960	I9	-	2	-	95,0	-	I700,0
Total		573	427	60,5	62,9	483,4	588,4

Table 12. Size composition of Greenland halibut in catches taken by fish-counting bottom trawl with small-meshed net insertion on the continental slope, %o

Length (cm)	Baffin Land (Nov.)		North Labrador (Nov)		Central Labrador (Oct.)	
	males	females	males	females	males	females
1	2	3	4	5	6	7
24-25	-	-	-	-	-	I
26-27	-	I	-	-	-	-
28-29	I	I	-	I	I	I
30-3I	3	3	3	3	I	-
32-33	6	5	3	5	I	I
34-35	8	7	6	8	I	I
36-37	I4	I2	8	9	5	2
38-39	I5	I5	9	9	4	2
40-4I	2I	I9	I5	I5	8	4
42-43	I9	I3	I9	I5	I2	7
44-45	I4	9	I5	I6	I6	8
46-47	25	II	23	20	26	II
48-49	29	I0	32	I4	30	I4
50-5I	56	I4	39	2I	45	I8
52-53	65	I2	43	22	45	20
54-55	6I	I0	43	I4	38	I6
56-57	73	I6	52	I8	49	26
58-59	58	I4	47	20	49	25
60-6I	63	I8	55	22	57	35
62-63	54	I4	43	22	59	33
64-65	35	I3	30	I8	39	20
66-67	26	I3	28	23	32	23
68-69	I6	9	20	23	I7	I9
70-7I	I0	II	9	2I	6	20
72-73	4	I2	5	2I	3	I7
74-75	2	7	I	II	2	I4
76-77	I	7	-	I3	-	I3
78-79	-	9	-	II	I	I5
80-8I	-	6	-	9	I	I2
82-83	-	7	-	I0	-	I2
84-85	-	5	-	8	-	I2
86-87	-	4	-	7	-	8
88-89	-	4	-	6	-	II
90-9I	-	3	-	5	-	7
92-93	-	3	-	2	-	5
94-95	-	I	-	3	-	5
96-97	-	I	-	2	-	4
98-99	-	I	-	2	-	4
I00-I0I	-	I	-	I	-	2
Over 100	-	-	-	2	-	4
Relative number (%o)	679	32I	548	452	548	452
Mean length (cm)	54,63	58,3I	53,I6	63,03	56,40	66,94
No.of spec. measured	I0I72	4809	3983	3287	4893	402I

Table 13. Age composition of Greenland halibut in catches taken by fish-counting trawl with small-meshed net insertion in November off the Baffin Land, %o

Year class	Age	No.of spec. (%o)		Mean length (cm)	
		males	females	males	females
I975	4	4	I2	32,5	35,8
I974	5	39	27	40,3	39,9
I973	6	67	28	44,6	44,5
I972	7	I58	28	50,2	52,8
I97I	8	I77	35	54,7	56,9
I970	9	I34	7I	60,I	6I,2
I969	I0	59	39	62,2	68,9
I968	II	27	43	65,0	70,9
I967	I2	20	20	69,3	75,5
I966	I3	-	-	-	-
I965	I4	-	4	-	88,5
I964	I5	-	8	-	83,5
Total		685	3I5	54,3	59,9

Table 14. Size composition of capelin in catches taken by midwater trawl, %o

Length (cm)	2J (Sep.-Nov.)		3L (May-Jun.)			3N (Jun.)			3O (Jun.)		
	males	females	males	females	juv.	males	females	juv.	males	females	juv.
8,5	-	-	-	-	I	-	-	I	-	-	-
9,0	-	-	-	-	5	-	-	I	-	-	-
9,5	-	-	-	-	20	-	-	4	-	-	-
I0,0	-	I	-	-	56	-	-	5	-	-	-
I0,5	I	I	-	-	60	-	-	I3	-	-	56
II,0	2	2	-	I	70	-	-	II	-	-	22
II,5	3	3	-	4	77	-	-	6	-	-	45
I2,0	2	4	-	25	74	-	3	I	-	22	-
I2,5	3	7	-	45	58	I	I4	-	-	I56	II
I3,0	5	I5	2	69	42	-	56	I	-	I56	-
I3,5	I3	32	7	57	22	-	I0I	-	-	2I0	-
I4,0	23	53	I2	5I	8	4	I26	2	22	56	II
I4,5	39	76	I8	26	2	I4	I00	I	II	56	-
I5,0	5I	78	29	33	-	43	90	-	-	33	II
I5,5	66	72	24	I5	-	49	52	-	33	II	-
I6,0	70	59	26	8	-	75	29	-	23	-	-
I6,5	76	37	2I	5	-	68	I0	-	33	II	-
I7,0	58	26	I5	5	-	66	6	-	II	-	-
I7,5	3I	23	5	-	-	32	3	-	-	-	-
I8,0	I3	I9	2	-	-	8	-	-	-	-	-
I8,5	5	I4	-	-	-	3	-	-	-	-	-
I9,0	I	I0	-	-	-	I	-	-	-	-	-
I9,5	I	3	-	-	-	-	-	-	-	-	-
20,0	I	I	-	-	-	-	-	-	-	-	-
Relative number (%o)	464	536	I6I	344	495	364	590	46	I33	7II	I56
Mean length (cm)	I5,80	I5,38	I5,48	I3,68	II,49	I6,20	I4,34	I0,86	I5,63	I3,39	II,57
No.of spec. measured	6608	7654	6I0	I305	I878	84I	I360	I06	I2	64	I4

Table 15. Age composition of capelin in catches taken by midwater trawl, %o

Year class	Age	2J (Sep.-Nov.)		3L (May-Jun.)			3N (Jun.)		
		males	females	males	females	juv.	males	females	juv.
I977	2	I8	32	-	2	4	-	9	I39
I976	3	348	I78	85	202	I28	87	I96	-
I975	4	248	I62	I20	I36	22	I04	I22	-
I974	5	68	86	I33	II8	-	I70	II7	-
I973	6	6	52	24	24	-	39	I7	-
I972	7	-	2	2	-	-	-	-	-
Total		488	5I2	364	482	I54	400	46I	I39

Table 16. Water temperature (°C) at the hydrological section 8-A (between 53°40'N, 55°44'W and 54°50'N, 53°32'W) on the 1-st of November

Year	Layer, m		
	0-50	50-200	0-200
I964	I,04	0,04	0,32
I965	I,49	I,76	I,66
I966	2,4I	I,44	I,72
I967	2,00	0,89	I,I9
I968	2,29	-0,I8	0,50
I969	0,82	0,36	0,50
I970	I,29	0,32	0,60
I97I	0,88	0,43	0,57
I972	0,35	-0,39	-0,I7
I973	I,00	0,59	0,72
I974	0,96	-0,02	0,27
I975	I,I4	0,5I	0,70
I976	0,74	0,20	0,36
I977	I,76	2,52	2,32
I978	0,95	0,79	0,83
I979	I,42	0,60	0,85
Mean	I,28	0,62	0,8I

Table 17. Data on recapture of tagged fishes released from the Soviet research vessels

No.	Species	Date of release	Position of release		Total fish length at release, cm	No. of tag	Date of recapture	Position of recapture		The country from which the fishermen caught the tagged fish
			latitude N	longitude W				latitude N	longitude W	
1	2	3	4	5	6	7	8	9	I0	II
I.	American plaice	31 May, 1978	46°40'0"	50°24'9"	37	338759	14 Jul., 1979	40°40'	49°05'	Canada
2.	American plaice	03 Jun., 1978	48°03'9"	50°28'9"	38	275073	01 Apr., 1979	48°20'	52°02'	Canada
3.	American plaice	03 Jun., 1978	48°0I'7"	49°58'3"	37	3557II	14 Aug., 1979	47°45'	50°00'	Canada
4.	American plaice	13 Jun., 1978	43°II'8"	49°36'0"	48	26I70I	14 Jan., 1979	42°50'	49°50'	USSR
5.	American plaice	13 Jun., 1978	43°II'8"	49°36'0"	4I	26I769	18 Jan., 1979	42°55'	49°49'	USSR
6.	American plaice	17 Jun., 1978	45°30'0"	50°I6'4"	54	322523	18 May, 1979	45°58'	49°52'	Canada
7.	C o d	26 Nov., 1978	55°07'I"	55°29'0"	54	275263	05 Mar., 1979	5I°42'	50°45'	Canada
8.	C o d	27 Nov., 1978	55°00'5"	54°43'5"	5I	342074	08 Feb., 1979	52°53'30"	5I°59'30"	Canada
9.	C o d	29 Nov., 1978	55°03'8"	54°58'0"	60	342752	24 Feb., 1979	5I°5I'	5I°29'	Canada
I0.	C o d	12 Dec., 1978	53°35'0"	52°50'9"	65	3549I7	09 Feb., 1979	5I°00'	5I°25'	Canada
II.	C o d	13 Dec., 1978	54°4I'	55°26'	53	356322	24 Feb., 1979	5I°58'	5I°28'	Canada
I2.	Greenland halibut	17 Dec., 1978	49°43'5"	52°36'7"	47	85438	23 May, 1979	49°46'	52°47'48"	Canada
I3.	C o d	01 Jun., 1979	52°30'8"	52°04'3"	55	939I9	25 Aug., 1979	50°57'	55°52'	Canada

Table 18. **Length composition (%) of silver hake in the Nova Scotian area (4W)**

Length, cm	1978	1979
10-11	-	-
12-13	+	+
14-15	+	0.1
16-17	0.3	1.2
18-19	0.5	2.5
20-21	1.2	2.4
22-23	2.5	2.4
24-25	6.0	4.3
26-27	9.0	10.5
28-29	14.5	21.6
30-31	25.3	23.1
32-33	20.6	18.1
34-35	11.7	7.8
36-37	5.1	3.7
38-39	1.9	1.3
40-41	0.7	0.6
42-43	0.3	0.2
44-45	0.2	0.2
46-47	0.1	+
48-49	0.1	+
50-51	+	+
52-53	+	-
54-55	+	-
56-57	+	-
Total, %	100.0	100.0
Mean length	30.6	29.6
No. of measured fish	79259	41693

Table 19. **Age composition (%%) of silver hake in the Nova Scotian area (4W)**

Age, years	1978	1979
1	0.5	4.9
2	18.5	23.0
3	37.5	35.3
4	32.8	25.4
5	8.9	9.5
6	1.2	1.5
7	0.4	0.4
8	0.2	+
9	+	+
10	+	-
Total, %	100.0	100.0
Mean age	3.40	3.08

Table 20. **Length composition (%) of argentine in the Nova Scotian area(4W)**

Emerald Bank

Length, cm	1978	1979
11	+	-
12	0.1	-
13	0.2	-
14	0.1	-
15	+	-
16	-	-
17	-	-
18	0.1	-
19	0.3	-
20	0.3	-

Table 20. (continued)

Length, cm	1978	1979
21	+	0.3
22	0.2	-
23	2.6	0.6
24	11.8	3.1
25	27.9	4.0
26	25.7	4.4
27	11.2	7.2
28	4.1	11.6
29	3.4	6.5
30	3.6	2.0
31	3.4	4.6
32	2.3	9.3
33	1.4	9.9
34	0.5	10.3
35	0.4	9.1
36	0.1	4.8
37	0.1	3.7
38	0.1	3.7
39	0.1	1.8
40	+	1.5
41	+	1.1
42	+	0.5
Total, %	100.0	100.0
Mean length	26.3	31.6
No. of measured fish	8219	599

Table 21. Age composition (%%) of argentine in the Nova Scotian area (4W)

Age, years	1978	1979
1	0.3	-
2	0.5	-
3	3.4	0.3
4	53.0	6.9
5	17.3	21.1
6	6.4	12.6
7	11.7	12.1
8	4.6	22.3
9	1.2	11.0
10	0.7	4.3
11	0.3	2.6
12	0.4	3.8
13	0.2	1.8
14	+	0.2
15	+	0.8
16		0.2
Total, %	100.0	100.0
Mean age	5.0	7.3

Table 22. **Length composition (%%) of shortfin squids caught in the Nova Scotian area in July-September 1979**

Length, cm		18	19	20	21	22	23	24	25	26	27	28	29	30	%	Total sp.
July	♂♂	5.1	23.4	33.8	23.8	9.5	3.4	1.0	-	-	-	-	-	-	100	830
	♀♀	3.3	11.8	22.8	23.2	19.4	12.7	6.3	0.5	-	-	-	-	-	100	970
August	♂♂	1.5	4.6	17.5	34.6	24.9	12.4	3.1	1.4	-	-	-	-	-	100	582
	♀♀	0.8	4.2	12.5	19.2	21.5	18.6	12.9	8.2	1.9	-	0.2	-	-	100	618
September	♂♂		0.9	6.7	28.0	30.4	24.2	8.2	1.2	0.4	-	-	-	-	100	570
	♀♀		0.2	2.3	10.2	22.1	27.0	19.8	9.1	5.3	1.2	1.4	0.9	0.5	100	430