REVIEW OF THE CURRENT STATUS OF THE GEORGES BANK SCALLOP FISHERY

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Prepared for Industry Meeting
New Bedford, Massachusetts

May 9, 1972

Laboratory Reference No. 72-3

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Fishery Trends

Scallop landings from Georges Bank reached peak catches of over 15,000 MT meat weights in the early 1960's. Primarily because of the reduction of the U.S. scallop landings the harvest has steadily declined. The 1971 catch was 5,000 MT (Table 1). Abundance indices were derived from U.S. research vessel studies from 1961 through 1968, and from the Canadian commercial fishery from 1961 through 1971 (Table 2), a decline to almost one-fifth of the level of the early 1960's, a period of peak abundance. Fishing mortality has increased during this period.

Changes have also taken place in the size frequency of scallops landed in the commercial fishery. Age of first harvest in Canadian landings is reported to have decreased from 5 to 3 years of age as landings of 70 meats per pound and greater are reported. In U.S. landings there is a decrease in the percentage of larger size scallops and a shift to a smaller cull size (Figure 1 and Table 3). The greatest number of scallops landed in any size group in 1971 were in the 85-95 mm range (3.3 - 3") whereas previously the peak numbers were in the 100-110 mm size range (3.9 - 4.3"). This corresponds to a shift of mean age at first harvest from 5 to 4 years.

Yield Per Recruit

A considerable improvement in yield per recruit is obtained by increasing the mean size at first capture. At current levels of fishing, the increase of age at first capture from 3.5 to 5 years of age would result in an increase in yield per 10,000 recruits of 50% from below 200 pounds to about 300 pounds. An increase from 3.5 to 4 years of age would give a 15 percent increase from below 200 pounds to about 230 pounds.

Management

Canadian scientists have suggested that an increase in age at first harvest could be achieved by establishing a limit on landed meat size. Judged from U.S. samples, a maximum limit of 40 meats per pound as proposed by Canada for consideration by the ICNAF Commissioners would not change the current fishing practices of the United States fleet (Table 2). Presumably, it would effect the Canadian fleet and also prohibit changes by the U.S. fleet in the direction of harvesting smaller scallop.

If, in 1971, U.S. scallop fishermen had harvested only scallops 90 mm (3.5") or greater in size, then the average size of meats landed would have been 16 per pound. Changes in size composition of the population fished would, of course, alter this figure. However, it is apparent that a maximum average landing limit of about 20 meats per pound would be required to produce the benefits gained by increasing age of first harvest to 5 years of age.

An alternative management procedure would be to set a lower limit on the shell size to be kept, and monitoring this by measurements of samples of individual meat weights ashore. In Table 5 is presented the lengths for various ages and their expected mean weight.

Meat weights are variable for a given shell size and the presence of meat weights smaller than the predicted value would not necessarily mean that undersize scallops were taken. However, values can be set at which it is extremely unlikely that the scallops from which the meats came were as large as the legal limit. For a minimum size at 90 mm (3.5") scallop meats smaller than 60 meat weights per pound would occur only 5 percent of the time (Table 5).

Table 1. Trends in the 5Z scallop landings (M.T. meat weight).

	Canada M.T.	U. S. M.T.	Total M.T.
1961	4580	10656	15236
1962	5669	9686	15325
1963	5941	7906	13847
1964	5986	6296	12282
1965	4580	1509	6089
1966	4853	901	5754
1967	5034	1229	6263
1968	4807	1050	5857
1969	4354	1343	5697
1970	4036	1421	5457
1971	3946	1335	5281

Table 2. Abundance indices for sea scallop from Georges Bank (ICNAF Division 5Z).

	U. S.* Research Cruise	Canada Commercial Catch/Hour (M.T.)
1961	92.6	.1842
1962	99.1	.1002
1963	45.4	.0780
1964	40.0	.0658
1965	33.5	.0567
1966	48.0	.0726
1967	63.0	.0562
1968	44.7	.0505
1969	-	.0491
1970	-	.0376
1971	-	.0381

*Number of scallops over 70 mm per 10,000 ft^2 dragged.

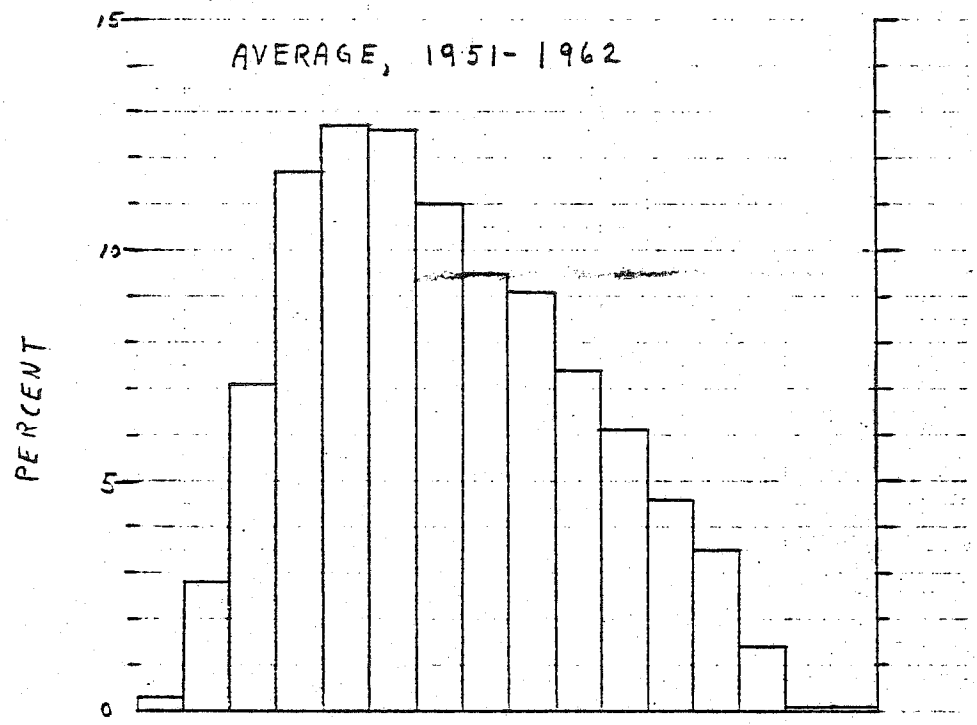
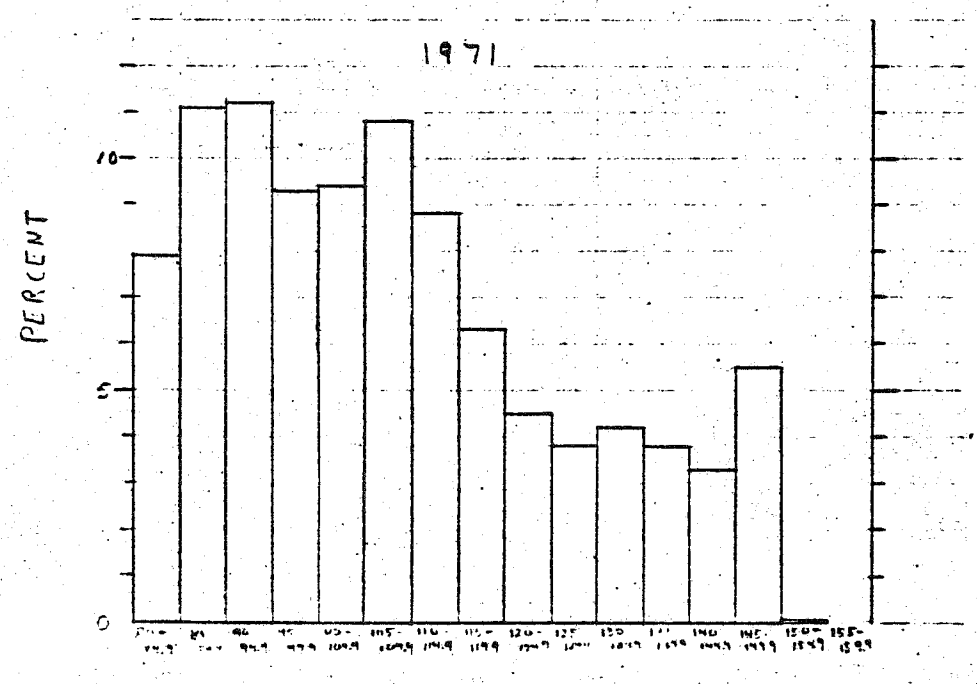
Table 3. Percent frequency distribution of U. S. commercial sea scallop landings (shell length in mm and approximate age in years).

Length	Approximate Age	1951-1962	1971
<-84.9	4	0.3	7.9
85-89.9	4	2.8	11.1
90-94.9	4	7.1	11.2
95-99.9	5	11.7	9.3
100-104.9	5	12.7	9.4
105-109.9	5-6	12.6	10.8
110-114.9	5-6	11.0	8.8
115-119.9	6	9.5	6.3
120-124.9	6	9.1	4.5
125-129.9	6	7.4	3.8
130-134.9	7	6.1	4.2
135-139.9	8	4.6	3.8
140-144.9	9	3.5	3.3
145-149.9	9	1.4	5.5
150-154.9	9	0.1	0.1
155-.59.9	9	0.1	0.0

Table 4. Frequency distribution of average meat weights in samples of U. S. commercial scallop fishing trips.

Meats/lbs.	1970		1971	
	No. of samples	%	No. of samples	%
>-44.9	2	4.4	1	1.8
40-44.9	8	17.8	3	5.4
35-39.9	4	8.9	5	8.9
30-34.9	6	13.3	5	8.9
25-29.9	2	4.4	11	19.6
20-24.9	16	35.6	10	17.9
15-19.9	7	15.6	21	37.5
10-14.9				
	45	100.0	56	100.0

Table 5. Age-length-meat weight relationships.

Age at Harvest	Cull Length (in)	Cull Length (mm)	per lb.	Lower Value Meats per lb.
3	2.5	63	114	162
4	3.5	89	41	59
5	4.2	107	24	34
6	4.7	119	118	25
7	5.0	127	14	20
8	5.2	133	13	18

LENGTH FREQUENCY
OF NEW BEDFORD
SCALLOP LANDINGS