INTERNATIONAL COMMISSION FOR THE NORTHWEST ATLANTIC FISHERIES

Serial No. 768
(D.c.8)

Document No. 44

ANNUAL MEETING - MAY/JUNE 1960

Cod Trap Selectivity

by J.M. Boulanger

Department of Fisheries, Quebec

During the summer of 1959 experiments have been conducted at La Tabatiere Experimental Fishing Station, Quebec, to determine the selectivity of a cod trap used by Quebec fishermen.

The experimental trap was installed in the immediate vicinity of the laboratory at La Tabatiere, where productivity for this kind of gear has been low in the past few years.

The trap used was of standard type except for the back, which had a mesh size of 5.2 inches (130 mm) and fitted with an auxiliary back - 3-inch mesh (85 mm) - to retain escaping fish (Figure 1). Both backs were of treated cotton single twine, No. 18 for the 5-inch back and No. 9 for the auxiliary part.

The meshes were measured in used condition and dry with the standard ICNAF gauge under a pressure of 12 pounds.

Observations of commercial fishermen and a few of our own observations suggest that the back is most important for selection, though more observations are needed to give a reliable account of the escapement process. When the trap is left undisturbed, fish can be seen swimming lazily around or standing still in a slight current with their snout pointing and close to meshes which would permit escapement. We could observe that even Capelin does not take advantage of the situation. If fish (Cod and Capelin) are disturbed, they dart in every direction, and not necessarily through the webbing.

However, if the disturbance is caused by the drying up of the net, which takes place from the door towards the back, fish are forced to move towards the back, their escapement through the sides of the gear getting less and less likely to occur as drying up proceeds.

Since catches were not too large, we were able to measure the whole catch each time the trap was visited (15 samples), and the fish were sorted by 3-cm groups, according to the recommended classification.

Table I is a tally of the numbers in the catches each day; column "A" shows the quantity of fish released by the 5-inch mesh, column "D" gives the quantity of fish retained by the same mesh, while columns "B" and "C" are subdivisions of column "D", showing respectively the amount of fish gilled and not gilled within the confines of the trap enclosed by the 5-inch back. Column "D" is the population sampled which was retained by the 3-inch mesh.

As can be seen from this table, 35.8 percent of the total catch by number has been retained by the large mesh, 64.2 percent has been released and 11.3 percent of the fish was gilled. From a practical

.../2

point of view, a 5-inch back would not be suitable for commercial practices.

The 50 percent selection point was found to be at about 57 cm

For a 5.2-inch (130 mm) mesh, this value gives a selection factor of 4.4, the highest obtained so far for our Cod traps. Previous observations had given, for the same trap, the following factors: 3.9, 4.0, 4.1, 4.2. The average would be 4.1.

Some minor sources of error were gilling of fish which might have escaped, and also escapement of a few big fish over the headline of the 5-inch back.

It may be noted that in the upper limit of the selection curve the percentage escapement was somewhat irregular. The exact curve of these irregularities is unknown. The irregularities have been traced out in drawing the curve, although a smooth curve might have been fitted.

Data to trace the ogive (Figure 2) are given in Table II.

Table I. Cod Trap Selectivity La Tabatiere 1959

	A	B	C	D	E
Date	Released by 5.18" mesh (130 mm)	Retained by 5.18" mesh (130 mm)		Total retained by 5.18" mesh (130 mm)	Population retained by 3" mesh (85 mm) (see text)
		Not gilled	Gilled		
June 30	1092	991	---	991	2083
July 2	963	262	140	402	1365
3	169	56	13	69	238
6	1043	622	---	622	1665
7	285	21	---	21	306
9	370	143	134	277	647
10	757	207	321	528	1285
11	809	183	314	497	1306
13	687	173	217	390	1077
14	470	267	141	408	878
15	436	77	60	137	573
16	367	43	65	108	475
17	312	66	30	96	408
20	344	30	32	62	406
21	194	26	---	26	220
TOTAL	8298	3167	1467	4634	12932
%	64.17	24.49	11.34	35.83	100.0

.../3

Table II. Cod Trap La Tabatiere 1959

	A	B	
Length Group (cm)	Actual number of fish retained by 5.18" (130 mm) mesh	Total population	Ratio A/B
28	0	25	0.00
31	0	161	0.00
34	0	293	0.00
37	0	436	0.00
40	2	535	0.00
43	20	619	0.03
46	60	801	0.07
49	250	1340	0.19
52	540	1807	0.30
55	800	1939	0.41
58	789	1530	0.52
61	730	1226	0.60
64	580	927	0.63
67	369	608	0.61
70	255	354	0.74
73	105	161	0.65
76	54	73	0.74
79	38	48	0.79
82	17	23	0.74
85	11	12	0.92
88	7	7	1.00
91	3	3	1.00
94	4	4	1.00

.../4

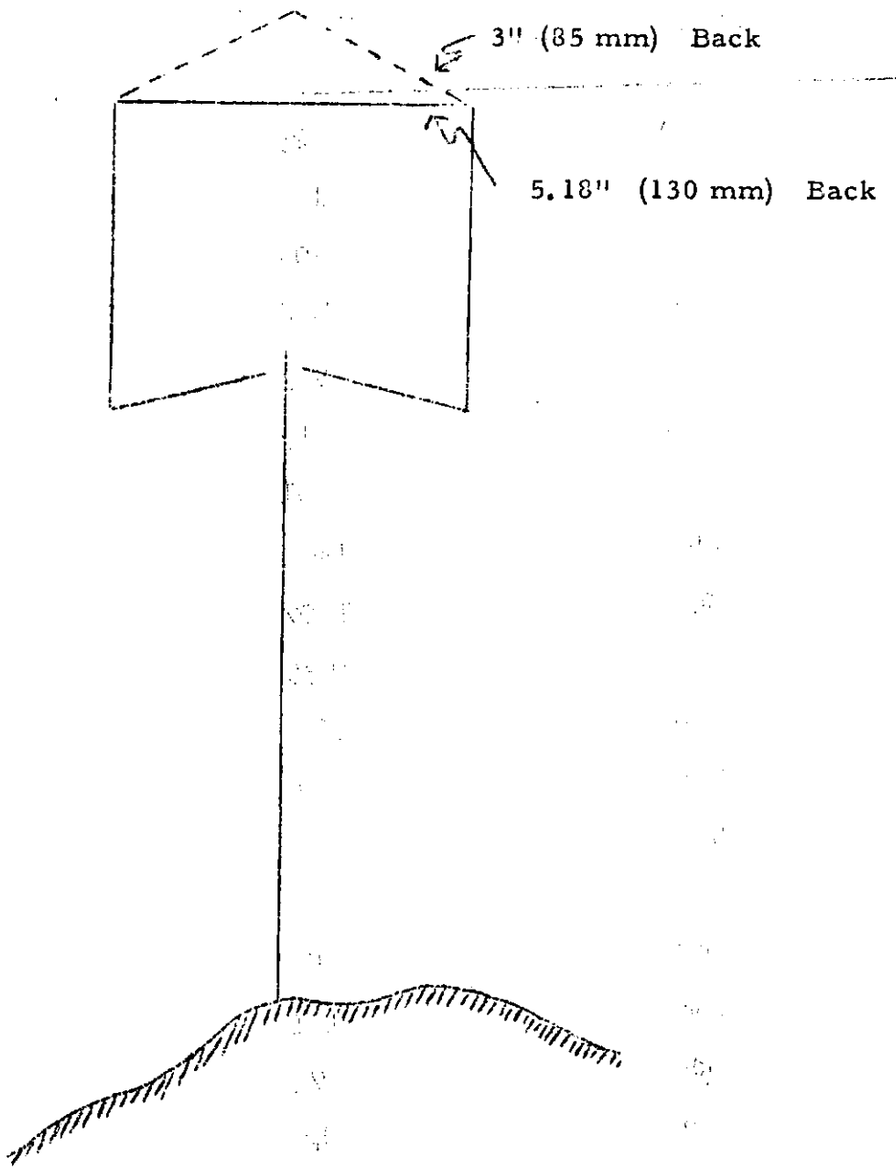

Fig. 1. Diagram showing the arrangement used in 1959 to study the selectivity of a Cod Trap at La Tabatiere, P. Q.

.../5

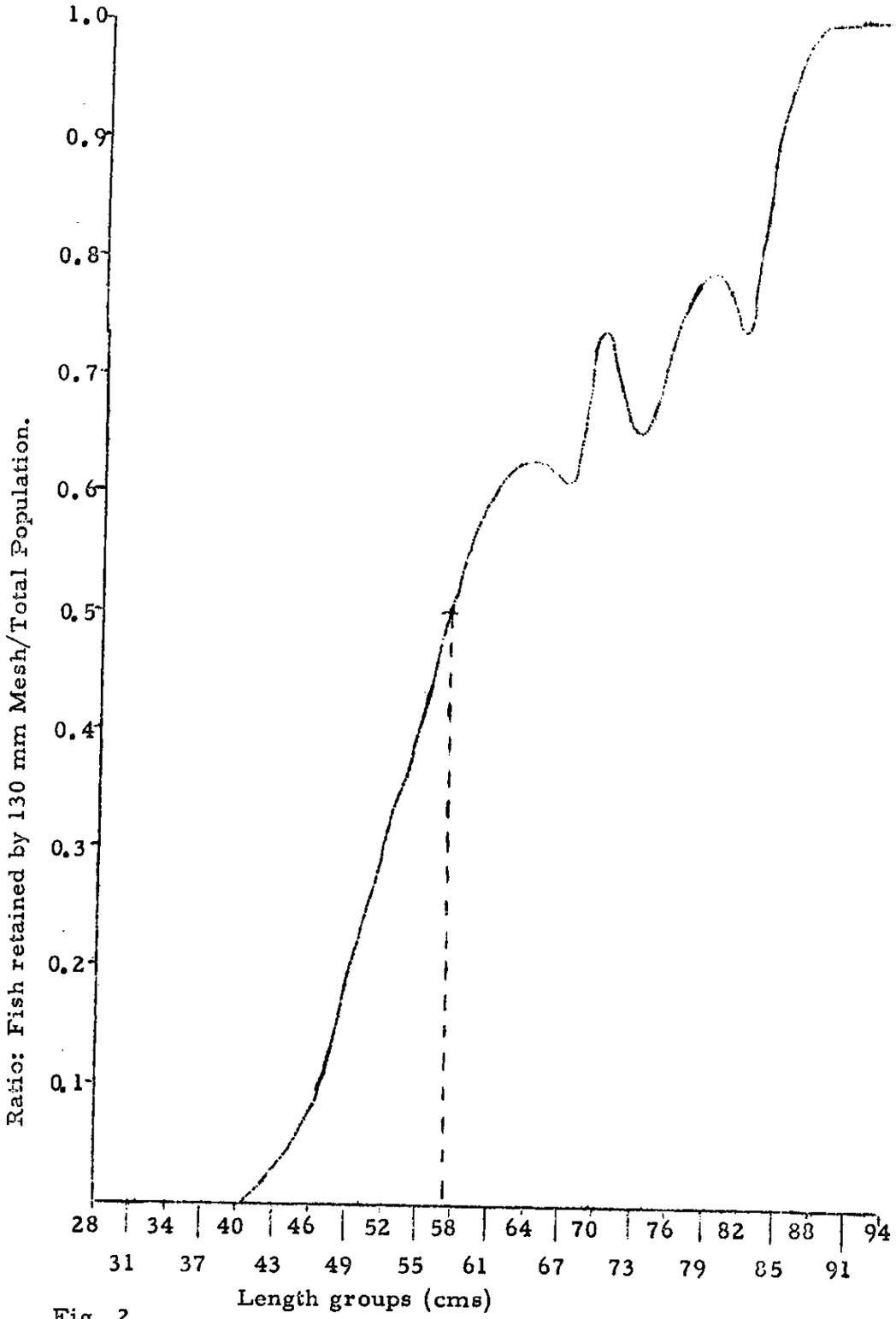

Fig. 2. Selectivity of a 5.18" (130 mm) Mesh Cod Trap based on the ratio of fish retained by same mesh to total population sampled (1959 La Tabatiere).