

Results of Standard-Trawl Catches in the Gulf of Gdańsk in 1958-62

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Catches by means of a standard trawl (mesh of the bag 10 mm from knot to knot) were carried out from the research vessel "Ewa II" (a cutter 17,8 m in length and with a 150 HP motor). The hauls were half an hour long - the speed of vessel 3 knots.

Table 1 presents the number of hauls performed in the particular months.

Table 1.

Year of catches	Months of catches												Total
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
1958	-	-	-	-	-	10	2	-	-	-	15	-	27
1959	-	-	17	17	-	17	-	-	-	-	-	-	51
1960	-	4	-	13	-	-	4	21	-	-	-	13	60
1961	-	-	-	-	-	-	-	-	-	16	-	-	16
1962	29	-	28	-	-	-	-	-	-	-	-	-	57

The catches were carried out in the following regions:-

- I. The Puck Bay,
- II. to the east of Wisloujście,
- III. on the fishing-ground called "Bromka",
- IV. to the north-east of Wladyslawowo.

The places and regions of catches in 1962 are presented in Figure 1.

In the former years catches were carried out in only the first three regions, whereas region III was extended more westwards than at present.

The Cod in the Standard-Trawl Catches

The depth of the haul and the results per $\frac{1}{2}$ hour of catches carried out in March 1962 are presented in Table 2.

Table 2

Depth m	R e g i o n			
	I	II	III	IV
20	-	70	0	-
30	316/94	219	2	0
40	617/643	394	2	65
50	553/618	242	45	164
60	670	54	135	180
70	-	97	99	159
80	-	-	106	264
90	-	-	68	85

The best results have always been attained in the Puck Bay. Region II should be mentioned as the second best one, while regions III and IV have always yielded poor results.

The average amount of cod caught per 1 hour's trawling in the years 1958-62 are presented in Table 3.

Table 3.

Length of fish (cm)	Year of catches			Length of fish (cm)	Year of catches	
	1958	1959	1960		1961	1962
5-9	6.4	7.9	3.0	1-5	0.4	0.4
10-14	54.1	48.8	33.5	6-10	22.1	25.6
15-19	70.3	35.8	58.4	11-15	81.9	110.4
20-24	53.1	62.8	45.0	16-20	19.3	142.1
25-29	20.2	55.7	26.7	21-25	6.7	60.9
30-34	5.7	34.7	22.9	26-30	2.3	15.4
35-39	2.6	17.7	14.2	31-35	2.4	8.8
40-44	1.1	5.1	18.7	36-40	2.5	7.7
45-49	1.0	3.0	18.7	41-45	3.9	6.9
50-54	1.2	2.0	16.6	46-50	1.1	3.6
55-59	0.5	1.0	11.4	51-55	0.4	1.8
60-64	0.3	0.4	7.1	56-60	0.3	0.7
65-69	-	0.1	0.4	61-65	0.2	0.5
70-74	-	0.1	-	66-70	-	0.3
75-79	-	-	-	71-75	-	0.2
80-84	0.1	-	-	76-80	-	0.1
				81-85	-	-
Total	216.6	275.0	276.6	-	143.5	385.20

The catches carried on in 1958 by means of a standard trawl were mainly composed of the good generation hatches in 1957. Mainly two generations appeared in the 1959 catches: the abundant 1957 one, and the 1958 group, which is a medium one. Among the juvenile fish caught in 1960 two medium generations hatched in 1958 and 1959 appeared. The older groups appeared in the catches in large numbers; in the autumn of that year 2500 older fish were caught during one hour's trawling at a depth of 40 m. The fish appeared on the fishing grounds owing to favourable winds and bottom currents.

In the catches carried out in October 1961 mainly juvenile fish belonging to the 1961 spring generation appeared. The fish hatched in 1960 appeared in small numbers; this would be evidence that this generation belongs to the poorest ones hatched in the period since catch by means of standard trawls was introduced. The catches performed in January and March 1962, as well as in October 1961, show that the generation of cod hatched in the Gulf and Deep of Gdańsk in 1961 is exceptionally abundant.

Flatfish in Standard-Trawl Catches

The second species, which appeared in larger numbers in the standard-trawl catches was the flounder. The results of catches of this fish per 1 hour's trawling are presented in Table 4.

Table 4

Length of fish (cm)	Years of catches			Length of fish (cm)	Years of catches	
	1958	1959	1960		1961	1962
5-9	-	-	0.2	1-5	0.6	1.9
10-14	0.3	0.9	43.4	6-10	0.5	2.6
15-19	2.4	4.6	62.9	11-15	0.6	6.9
20-24	3.1	4.5	26.6	16-20	6.9	36.7
25-29	1.6	0.4	12.5	21-25	4.4	58.9
30-34	0.2	0.1	2.1	26-30	1.0	8.2
35-40	-	-	0.1	31-35	0.1	1.2
				36-40	-	0.1
Total	7.6	10.5	147.8	-	14.1	116.5

In 1958 and 1959 the flounder appeared in the standard-trawl catches in insignificant numbers. 1 hour's trawling gave 7.6 individuals in 1958, and 10.5 in 1959. The results in 1960 were better and gave 147.8 individuals per 1 hour's trawling. It seems, however, that this was the result of favourable hydrologic conditions owing to which the flounder gathered in the Gulf of Gdańsk.

In 1961 14.1 individuals of flounder per 1 hour's trawling were caught, in 1962 116.5 individuals. This sudden increase in number of flounder caught may be explained by the fact that both juvenile and adult fish descend to deeper layers in winter (the juvenile fish to the wintering grounds, the older to the spawning grounds); it was just in the winter of 1962 that the standard-trawl catches were carried out along the slopes of the Deep.

There were two other species in the standard-trawl catches, namely: the plaice and the turbot. The results of catches of these species per 1 hour's trawling in the particular years are presented in Table 5.

Table 5

Species	Years of catches				
	1958	1959	1960	1961	1962
Plaice	2.2	1.4	3.5	4.4	3.2
Turbot	0.1	0.1	-	0.8	1.1

A gradual increase from year to year in number of both the plaice and turbot per 1 hour's trawling by means of a standard trawl has been noted.

Conclusion

The experiments carried out so far have proved that the standard-trawl catches should be continued in the Gulf of Gdańsk region only in the late autumn, in winter and early spring, i.e. when the juvenile cod descends to the bottom, and the juvenile flounder shifts from the shallowwater to deeper layers for the winter. Catches carried out in this period will bring better comparative results and more complete data as to the number of juvenile fish. This is true for cod as well as for flounder, since these species appear in deeper layers in this period; these layers have more constant hydrologic conditions than the more shallow coastal waters - in spring and summer. Here the hydrologic conditions change more and may influence the considerable instability of results.

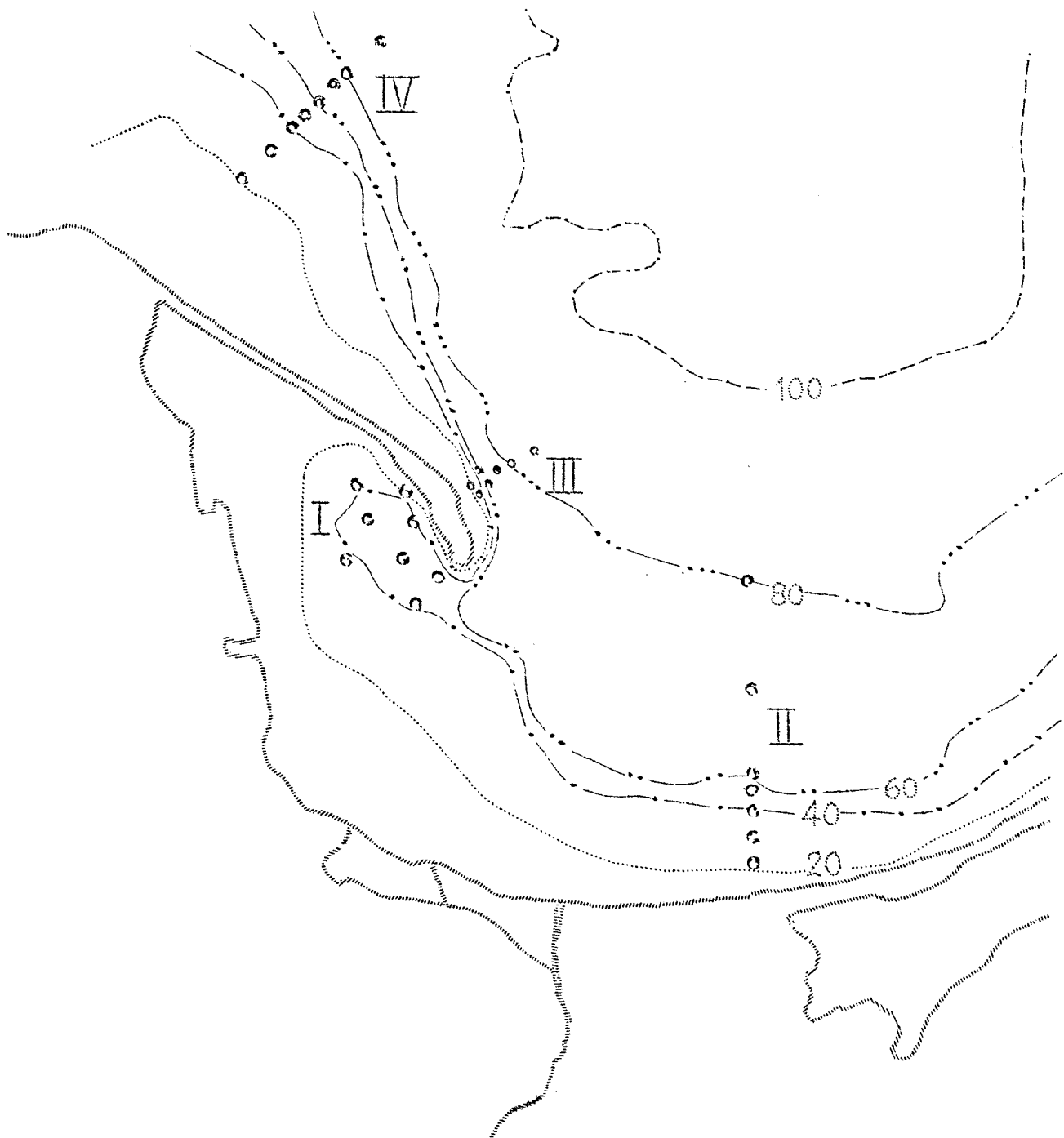


Figure 1. The Gulf of Gdańsk. Regions and places of standard-trawl catches.