



The Abundance of Fry (0-Group) of Flatfish in the Coastal
Waters of the Southern Baltic in the Years 1961-1966

by
Z. Reimann^{x)}

This study is a continuation of the observations started in 1948 by Z. Mulicki (1, 2, and 3) and by the author, the results of which for the years 1954-60 were published in the "Annales Biologiques", Vol.XVII for 1960 (publ. in 1962).

In Polish commercial catches four species of flatfish are included, namely Flounder (Platichthys flesus L.), Plaice (Pleuronectes platessa L.), Dab (Limanda limanda L.), and Turbot (Psetta maxima L.). The ratio of their quantities in the catches fluctuates considerably in the different years and depends on the geographical position of the spawning grounds. Flounder predominates all over the southern Baltic, though this predominance decreases towards the west. The percentage ratio of the various species in the years 1961-66 is shown in the following table:-

Region	Flounder	Plaice	Dab	Turbot	Total
Pomeranian Bay	31.0	68.2	-	0.8	100%
Bornholm Basin	51.9	47.4	0.3	0.4	100%
Gdańsk Bay	84.0	15.5	0.1	0.4	100%

As is seen from this table flounder and plaice predominate in the catches, whereas the other species of flatfish, such as dab and turbot, are of minor importance.

Observations on the abundance of fry of the 0-group of flatfish were made from the catches with the so-called "push-net" (3), i.e. small trawl with fine mesh (mesh diameter 6 mm). This trawl was pushed on sandy bottoms by means of a long pole. The hauls were made at definite points along the coasts of the southern Baltic. The duration of hauls was from a few to several minutes. The catch of small fish was evaluated per 1 hour trawling.

Experimental catches were carried out in the period when small fish concentrated in the warmed-up shallow waters of the coastal zone. This took place at the end of the summer or at the beginning of the autumn. Observations were made at 6 stations, distributed along the southern coast of the Baltic, namely: Krynica Morska (1), Gdynia (2), Władysławowo (3), Ustka (4), Kołobrzeg (5), and Międzyzdroje (6). The hauls were made at depths of 0.5 m, 1.0 m and 1.5 m. The number of fish caught per 1 hour trawling, given in Tables I, II and III, show the concentration of the different species. Figure 1 shows the deviation from the mean values for the occurrence of fry of flatfish, calculated for the period 1961-66. The 0-groups of flounder and plaice were particularly abundant in 1966, and the abundance of fry of turbot was also slightly above the mean value.

From the data given in Tables I, II and III and in Figure 2 it appears that most of the fry of flounder occurred at the eastern stations 1, 2 and 3. At Station 2 (Gdynia), situated in the Gdańsk Bay in a quiet area with the warmest water in summer, there were more fry than at the stations situated along the open sea-coast. The concentrations of flounder fry decrease towards west, giving way to the fry of plaice. Complete lack of fry of dab corresponds with an almost complete vanishing of this species in the catches.

References

- | | | | |
|----|------------|------|--|
| 1- | Z. Mulicki | 1948 | "Investigations on 0-group flatfish on the Polish coasts". Anls.biol.Copenh., <u>V</u> . |
| 2- | Z. Mulicki | 1950 | "Liczebność narybku p ł astug w latach 1948 i 1949". Biul.MIR, No.5, Gdynia. |
| 3- | Z. Mulicki | 1955 | "Liczebność narybku p ł astug przy polskich brzegach w latach 1948-1953". Prace MIR w Gdyni, No.8. |
| 4- | Z. Reinann | 1960 | "Investigations on flatfish fry off the coasts of the southern Baltic in the period 1954-1960". Anls.biol.Copenh., <u>XVII</u> . |

F:8/Reimann

Years	Depth cm	S T A T I O N S						1 - 6
		Krynica Morska	Gdynia	Władysła- wowo	Ustka	Kołobrzeg	Między- zdroje	
		1	2	3	4	5	6	
		Number of fish						
1961	50	140	540	25	130	37	120	165
	100	180	510	60	40	36	60	148
	150	80	120	90	60	40	0	65
	50 - 150	133	390	58	77	38	60	126
1962	50	40	1040	240	40	60	20	240
	100	24	710	300	45	20	8	185
	150	20	180	15	30	15	35	49
	50 - 150	28	643	185	38	32	21	158
1963	50	60	100	555	40	10	42	135
	100	20	135	465	90	18	30	126
	150	0	70	120	20	0	10	37
	50 - 150	27	102	380	50	9	27	99
1964	50	0	135	750	15	70	90	177
	100	0	40	300	15	95	35	81
	150	30	20	0	15	0	0	11
	50 - 150	10	65	350	15	55	42	90
1965	50	40	160	160	40	90	80	95
	100	80	300	240	75	105	105	151
	150	60	120	108	48	100	48	81
	50 - 150	60	193	169	54	98	78	109
1966	50	60	1140	80	40	0	120	240
	100	80	880	100	140	440	140	297
	150	20	400	100	100	80	100	133
	50 - 150	53	807	93	93	173	120	223
1961- -1966	50	57	519	302	51	44	79	175
	100	64	429	244	68	119	63	165
	150	35	152	72	45	39	32	63
	50 - 150	52	367	206	54	67	58	134

TABLE L. NUMBER OF 0-GROUP OF FLOUNDER PER 1-HOUR TRAWLING.

Reimann/P:8

Years	Depth cm	STATIONS						1 - 6
		Krynica Morska	Gdynia	Władysławo- wowo	Ustka	Kołobrzeg	Między- zdroje	
		1	2	3	4	5	6	
Number of fish								
1961	50	0	0	0	60	45	210	105
	100	0	0	0	40	48	90	59
	150	0	0	0	45	40	0	28
	50 - 150	0	0	0	48	44	100	64
1962	50	0	0	0	30	20	47	32
	100	0	0	0	15	40	15	23
	150	0	0	0	0	15	55	23
	50 - 150	0	0	0	15	25	39	26
1963	50	0	0	0	25	10	48	28
	100	0	0	0	0	43	30	24
	150	0	0	0	0	25	30	18
	50 - 150	0	0	0	8	26	36	23
1964	50	0	0	0	30	80	135	81
	100	0	0	0	20	75	90	62
	150	0	0	0	15	20	10	15
	50 - 150	0	0	0	22	58	78	53
1965	50	0	0	0	60	90	160	103
	100	0	0	0	105	135	210	150
	150	0	0	0	60	60	72	64
	50 - 150	0	0	0	75	95	147	106
1966	50	0	0	0	40	0	90	43
	100	0	0	0	120	60	120	100
	150	0	0	0	100	340	80	173
	50 - 150	0	0	0	87	133	97	105
1961 - -1966	50	0	0	0	41	41	115	65
	100	0	0	0	50	67	92	70
	150	0	0	0	37	83	41	53
	50 - 150	0	0	0	42	63	83	63

TABLE II. NUMBER OF 0-GROUP OF PLAICE PER 1 HOUR TRAWLING.

Reimann/F:8

Years	Depth cm	S T A T I O N S						1 - 6
		Krynica Morska	Gdynia	Władysławo- wowo	Ustka	Kołobrzeg	Między- zdroje	
		1	2	3	4	5	6	
		Number of fish						
1961	50	60	0	25	20	45	0	25
	100	80	0	0	60	30	0	28
	150	40	0	30	0	0	0	12
	50 - 150	60	0	18	27	25	0	22
1962	50	20	0	10	20	40	20	18
	100	0	00	75	45	0	15	23
	150	0	0	0	30	30	0	10
	50 - 150	7	0	28	32	23	12	17
1963	50	0	45	95	10	27	84	44
	100	0	0	165	15	10	265	76
	150	0	10	55	55	0	70	32
	50 - 150	0	18	105	27	12	140	50
1964	50	60	0	0	75	100	0	39
	100	20	0	60	30	25	0	22
	150	20	0	30	60	0	0	18
	50 - 150	33	0	30	55	42	0	26
1965	50	60	20	20	80	60	20	43
	100	80	60	60	90	45	45	63
	150	60	15	12	36	40	24	31
	50 - 150	67	32	31	69	48	30	46
1966	50	0	40	40	20	0	90	32
	100	40	60	20	100	40	100	60
	150	20	20	0	120	20	60	46
	50 - 150	20	40	20	80	20	83	44
1961 - -1966	50	33	17	32	37	45	36	33
	100	37	20	63	57	25	71	45
	150	23	7	21	50	15	26	24
	50 - 150	31	15	39	48	28	44	34

TABLE III. NUMBER OF 0-GROUP OF TURBOT PER 1 HOUR TRAWLING.

Nr.OF FISH/1 h.TRAWLING

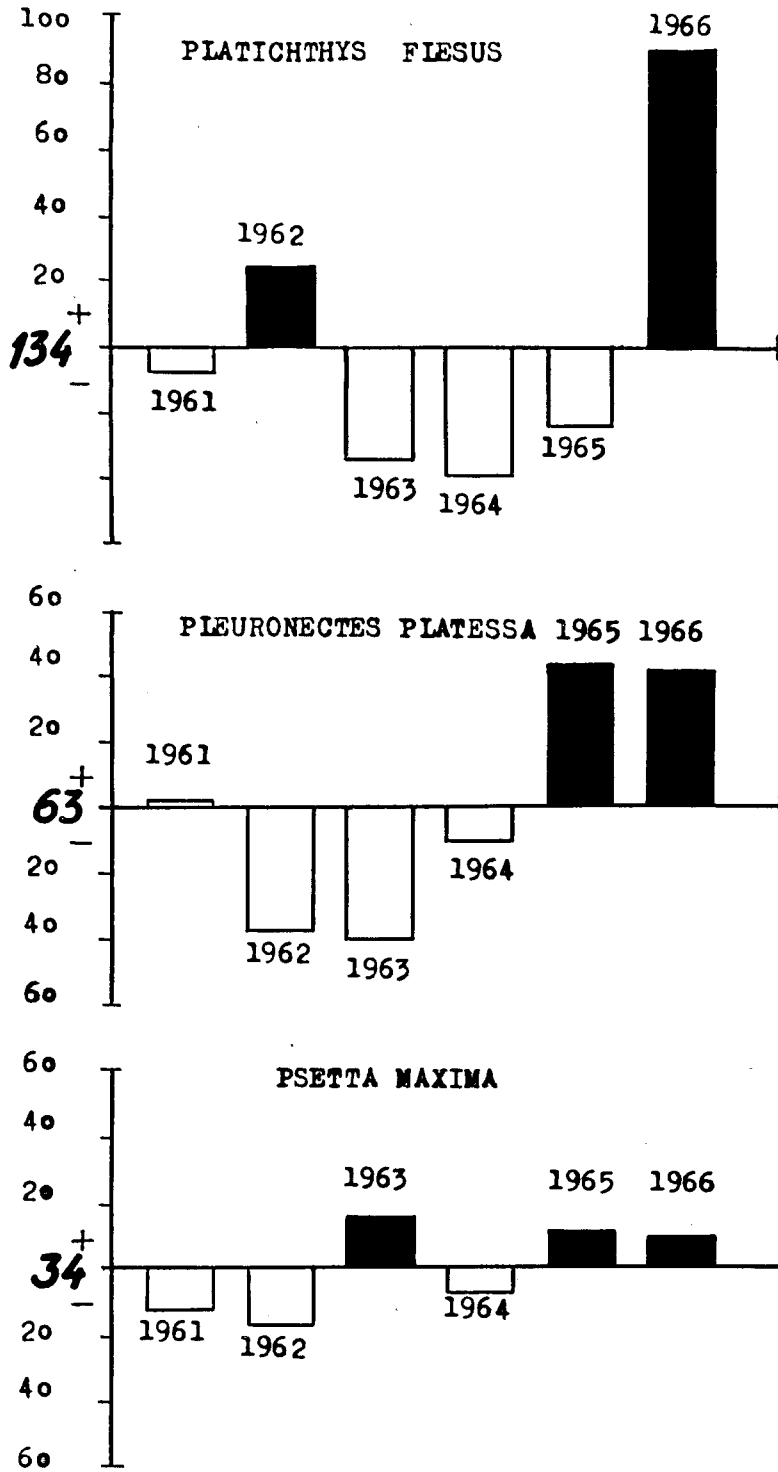
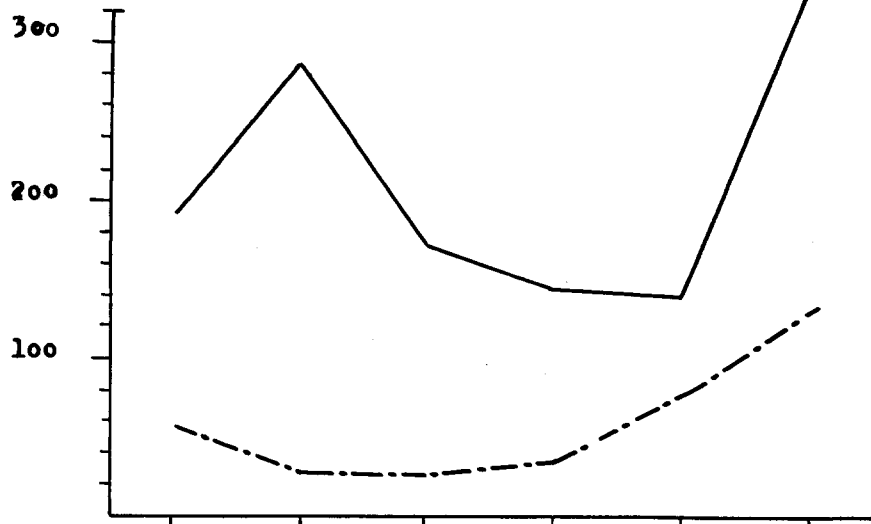


Fig.1 FLUCTUATIONS OF ABUNDANCE OF FLATFISH FRY IN THE SOUTHERN BALTIC IN THE YEARS 1961-1966/THE DEVIATION FROM THE MEAN FOR THE PERIOD OF 1961-1966/.

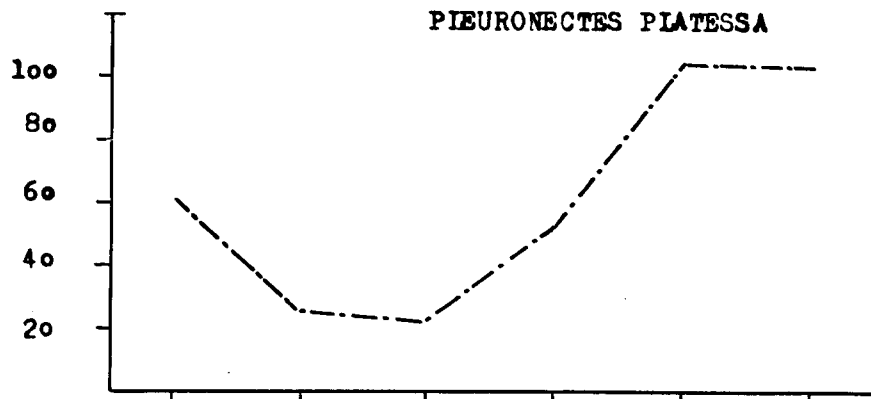
F:8/Reimann

Nr. OF FISH/1 h. TRAWLING

PLATICHTHYS FIESUS



PIEURONECTES PLATESSA



PSETTA MAXIMA

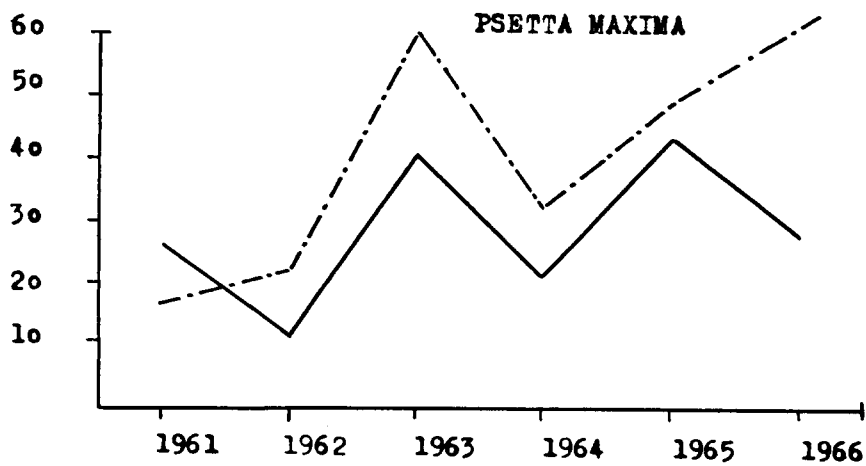


Fig.2 THE FLUCTUATION OF ABUNDANCE OF FLATFISH FRY IN THE SOUTHERN BALTIC.

— ALONG EASTERN COASTS

- - - ALONG WESTERN COASTS