

Preliminary results of herring taggings
in the Greifswalder Bodden 1977

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Summary

Of the 9.753 spring herring marked in the Greifswalder Bodden from March 22nd to June 17th, 1977, 681 have so far been recovered, this corresponding to a recovery rate of 7.0 %. It has been possible to confirm the results of the experiments performed in 1975 and 1976.

Résumé

Des 9.753 harengs de printemps, marqués du 22 mars au 17 juin 1977 681 ont été résignalés, ce qui correspond à un indice de reprise de 7 %. Les résultats des expériences de marquage effectuées en 1975 et en 1976 ont pu être confirmés.

Introduction

The marking experiments performed on the Ruegen spring herring in 1975 and 1976 were continued in 1977 (BIESTER, JÖNSSON, KRÜGER, 1975, 1976 a,b, 1977; KRÜGER, BIESTER, JÖNSSON, 1976).

Material and methods

Neither the marking site nor the marking method were altered. During the 1977 experiment, it was intended to tag particularly large numbers of herring at the beginning and end of the season. Parallel to the marking activities, samples comprising 100 herring each were taken from the same net and on the same day for examination. The samples were selected so that they could be regarded as representative for the marked fish (BIESTER and HERING, 1977).

Results

The trap net fisheries could once again not start until the end of March in 1977. A total of 9,753 herring were marked from March 22nd to June 17th. Up to July, 1977, 681 recoveries had been reported corresponding to a recovery rate of 7.0 % (table 1).

Table 1: Number of markings and recoveries per marking day during 1977.

Marking date	Number of fish marked	Recoveries	%
22.03.77	613	168	27,4
23.03.77	626	112	17,9
25.03.77	539	54	10,0
30.03.77	989	106	10,7
20.04.77	501	47	8,6
10.05.77	827	77	9,3
13.05.77	577	37	6,4
17.05.77	371	17	4,6
18.05.77	1302	16	1,2
19.05.77	940	24	2,6
2.06.77	1545	23	1,5
17.06.77	922	-	-
	9753	681	7,0 %

The majority of the recovery reports were received during the month in which the fish were marked, mostly (57,1 %) already during the first two days after marking (table 2).

Table 2: Monthly recovery reports for 1977 and the number of recoveries 2 days after marking.

Marking date	Month caught				After 2 days	%
	III	IV	V	VI		
22.03.77	163	5			122	72,6
23.03.77	99	8	3	2	62	55,4
25.03.77	40	12	2		30	55,6
30.03.77	46	52	7	1	50	47,2
20.04.77		44	3		30	63,8
10.05.77			77		50	64,9
13.05.77			37		19	51,4
17.05.77			16	1	12	70,6
18.05.77			15	1	6	37,5
19.05.77			24		3	12,5
2.06.77				23	5	21,7
17.06.77	-	-	-	-	-	-
	348	121	184	28	389	57,1

Some 544 recoveries (79,4 %) were received for the Greifswalder Bodden. The distribution of the recoveries is similar to the preceding years; only a few recoveries were reported inside the bodden (table 3, figure 1). The possibility of migration towards the west through the Strelasund and into the Baltic was also corroborated by 10 recoveries in regions 7.6 and 7.5. However, the majority of herring migrate out of the Greifswalder Bodden into the Baltic in a north-eastern direction after spawning.

Table 3: Number and distribution of recoveries during 1977 per recovery region

Marking date	Recovery region																							
	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	7.10	7.11	8.2	8.3	8.4	8.5	4.4	4.5	4.6	4.7	4.8	4.9	4.10	1.2	5	
22.03.77	11	32	86				6	14		1	3		4			1	1		9					
23.03.77	8	17	36	1	5		3	17		6			3			1		1	11	2			1	
25.03.77	2	9	10		1		2	3		3		2				3			15	3	1			
30.03.77	3	18	28		3	1	3	14	1	1			5	1	1	3			19	3	1			
20.04.77	6	8	13				8			2			1			4			4	1				
10.05.77	4	16	21				5	19	1	2		1	1						6		1			
13.05.77		10	12				5	2		1		2							4	1				
17.05.77	2	3	2				1	4			1		1						3					
18.05.77			10				1				1		2						2					
19.05.77	1		14				4					2	1			2								
2.06.77	1		3				15									1			3					
17.06.77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	38	113	235	1	9	1	53	73	2	16	5	7	18	1	1	15	1	1	76	10	3	1		

The most eastern of the recoveries (12) were reported from the Usedom region (4.8) and the Ober Bank (4.9); one fish was caught in April 5 nm north Bornholm (region 4.5) (figure 2).

A concentration of recovery reports were obtained from the region off the east coast of Ruegen (table 3, figures 1 and 2). Some 30 recoveries (4.6 %) were received from the regions fished by trap and set nets up to 3 nm from the coast, 91 (13.4 %) coming from regions 4.8 and 4.5. The herring migrating out of the bodden thus move the arkona Sea along the east coast of Ruegen more or less near to the coastline.

The western migration group is so far represented by four recoveries. One fish was recovered in each of the regions 4.4 and 4.7. One recovery was reported from the west coast of Ruegen (8.5) between the Isle of Hiddensee and Ruegen. The most distant recovery was made at the beginning of June in the northern Kattegat (region 1.2).

We received two very interesting recovery reports on fish which were both marked in the Greifswalder Bodden on May 28th, 1975. One was caught in region 4.5 on January 1st, 1977 and the other one at the eastern entrance to the Greifswalder Bodden (Isle of Ruden, region 4.8) after spawning on May 2nd, 1977. The first fish was thus caught on its way to the spawning grounds, whereas the spent fish was caught during the migration.

Discussion

The recovery rate so far achieved for the 3rd marking experiment performed on 9.753 herring in the Greifswalder Bodden from March 22nd to June 17th, 1977, is 7.0 %. (3 % in 1975 and 6.4 % in 1976).

Some 79,4 % (541 animals) were recovered in the Greifswalder Bodden, mainly near the marking site, 57.1 % of these being caught within two days of marking. The distribution on the recoveries over the whole area of the bodden is similar to that in former years. Comparatively few recovery reports were received for the inside of the bodden. Confirmation was obtained that some slight migration towards the west takes place into the Baltic through the Strelasund.

After spawning, the herring remain in the spawning grounds for only a short time and then leave the bodden mainly in a north-east direction.

The western and eastern migration components to the within the Baltic and into the Kattegat could also be observed this year.

The two recovery reports received after 610 and 705 days respectively are worthy of special attention. They indicate not only the suitability of the marking method but also prove that the fish return to their spawning grounds.

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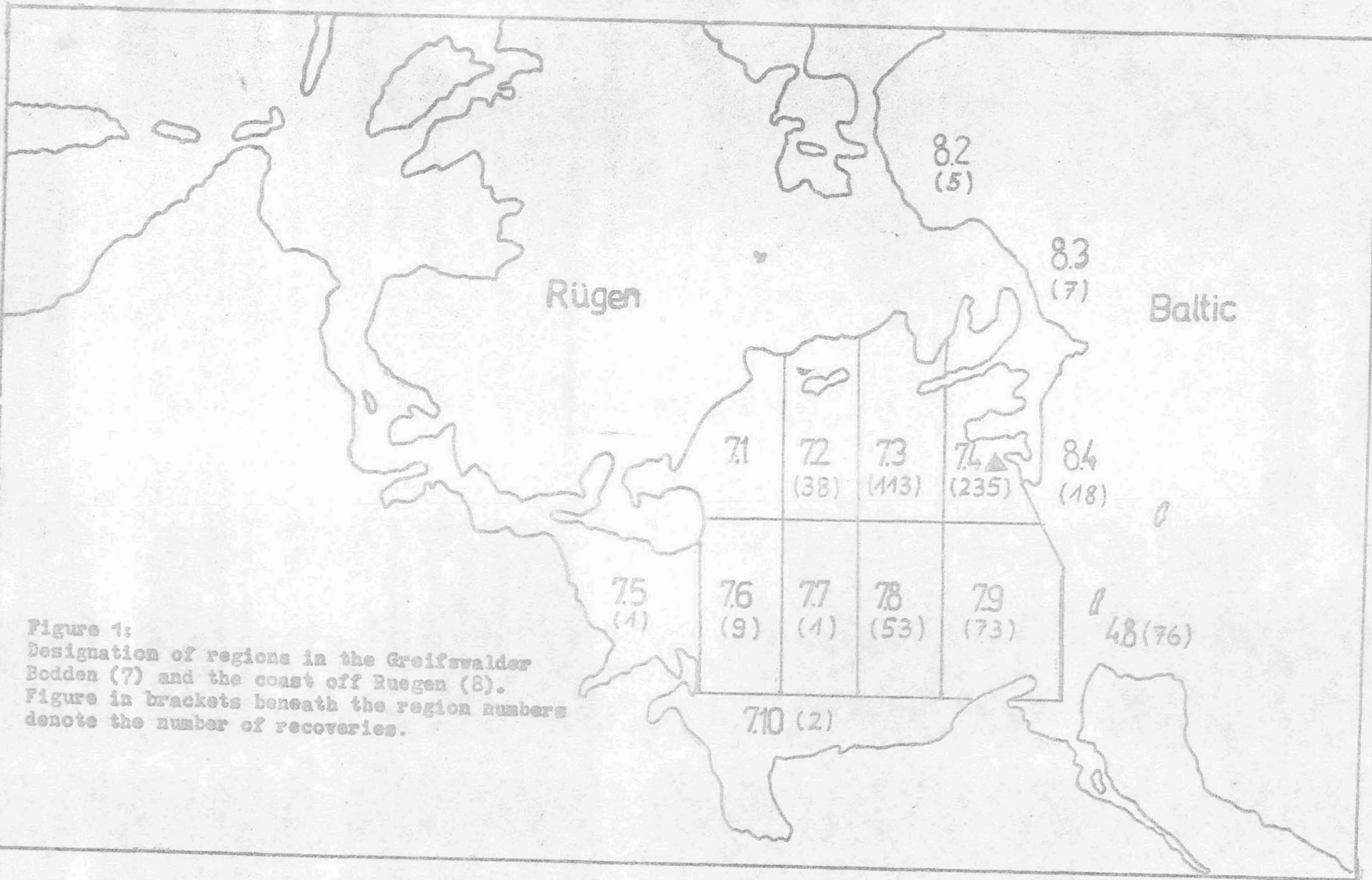


Figure 1:
Designation of regions in the Greifswalder Bodden (7) and the coast off Rügen (8).
Figure in brackets beneath the region numbers denote the number of recoveries.

▲ Markierungsort
marking site

