

ABUNDANCE OF BALTIC HERRING LARVAE IN THE SEAS AROUND FINLAND  
IN 1976

by

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Abstract

In May - August of 1976 weekly samples were taken at seven field stations with the modified Gulf V sampler. The greatest abundance of herring larvae, on the average 60 larvae per 10 m<sup>2</sup>, was recorded in the Archipelago Sea (Kustavi). The larvae numbered 19 per 10 m<sup>2</sup> in the Åland Islands and 17 per 10 m<sup>2</sup> in the Bothnian Sea (Reposaari). The lowest abundance, 2 larvae per 10 m<sup>2</sup>, was recorded in the Bothnian Bay (Kalajoki). The abundance of Baltic herring larvae was 11 % smaller than in the preceding year. Thus according to the larval sampling the year class 1976 is smaller than that of 1975 in the northern Baltic.

Résumé

Des échantillons ont été prélevés chaque semaine, en sept endroits de mai à août. Les prélèvements ont été effectués au moyen de Gulf V modifié. C'est à Kustavi, dans la Mer de l'Archipel, que l'on a rencontré le plus de jeunes harengs baltique: 60 au 10 m<sup>2</sup>. Dans les îles d'Åland on a obtenu 19 jeunes harengs au 10 m<sup>2</sup>, et dans la Mer de Bothnie, à hauteur de Reposaari: 17 au 10 m<sup>2</sup>. C'est à hauteur de Kalajoki, dans la Baie de Bothnie, que l'on en a rencontré le moins: 2 au 10 m<sup>2</sup>. Le nombre des larves harengs était de 11 % inférieur à celui de l'année précédente et l'on peut dire, sur la base des échantillons prélevés, que le nombre de harengs baltique nés en 1976 dans la partie nord de la mer Baltique est plus petit qu'en 1975.

## Introduction

The earlier information about the abundance of Baltic herring larvae off the coast of Finland covers the years 1974 and 1975 (cf. SJÖBLOM & PARMANNE 1975, 1976). This report presents the results of sampling in 1976.

## Material and methods

Sampling was performed at the seven permanent field stations situated in the Archipelago Sea (ICES subdivision 29), the Bothnian Sea (30), the Bothnian Bay (31) and the Gulf of Finland (32) (Fig. 1). Samples were taken with the modified Gulf V sampler (NELLEN & HEMPEL 1969) equipped with a "baby hai" for zooplankton sampling (cf. SCHNACK 1974). The mesh size of the larval net was 300  $\mu\text{m}$ . The towing speed was 4 knots. At each station single oblique hauls from the surface to the bottom were made each week at the five or six places shown in an earlier report (SJÖBLOM & PARMANNE 1976, Fig. 2 - 8). The sampling technique has also been described earlier (SJÖBLOM & PARMANNE 1975).

## Results

Table 1 gives the monthly abundance of Baltic herring larvae in various length groups. The greatest mean abundance was recorded in the Archipelago Sea (29), Kustavi in May - August, 60 larvae per 10  $\text{m}^2$ . The next highest values were obtained in the Åland Islands, 19 per 10  $\text{m}^2$ , and Reposaari, 17 per 10  $\text{m}^2$ . The lowest abundance, about 2 larvae per 10  $\text{m}^2$ , was recorded in Kalajoki.

In the Archipelago Sea (29) the monthly mean was highest in July, 136 larvae per 10  $\text{m}^2$ , in the Bothnian Sea (30) in June, 33 larvae per 10  $\text{m}^2$ , and in the Gulf of Finland (32) in June and July, 17 larvae per 10  $\text{m}^2$ .

## Discussion

The results agree with the picture of the occurrence of Baltic herring larvae in the seas around Finland given by earlier sampling (SJÖBLOM & PARMANNE 1975, 1976). The abundance is greatest in the Archipelago Sea (29) and smallest in the Bothnian Bay (31). Larvae are more numerous in the western part of the Gulf of Finland (32) than in the eastern part.

The maximum abundances were recorded later in 1976 than in previous years (cf. SJÖBLOM & PARMANNE 1975, 1976). This was obviously due to the delayed spring and the cool summer. The abundance of Baltic herring larvae in 1976 was 11 % lower than in the preceding year. Thus according to the larval sampling the year class 1976 is smaller than that of 1975. Estimates of the abundance of young fish have also indicated that the year class 1976 is poor in the northern Baltic.

#### References

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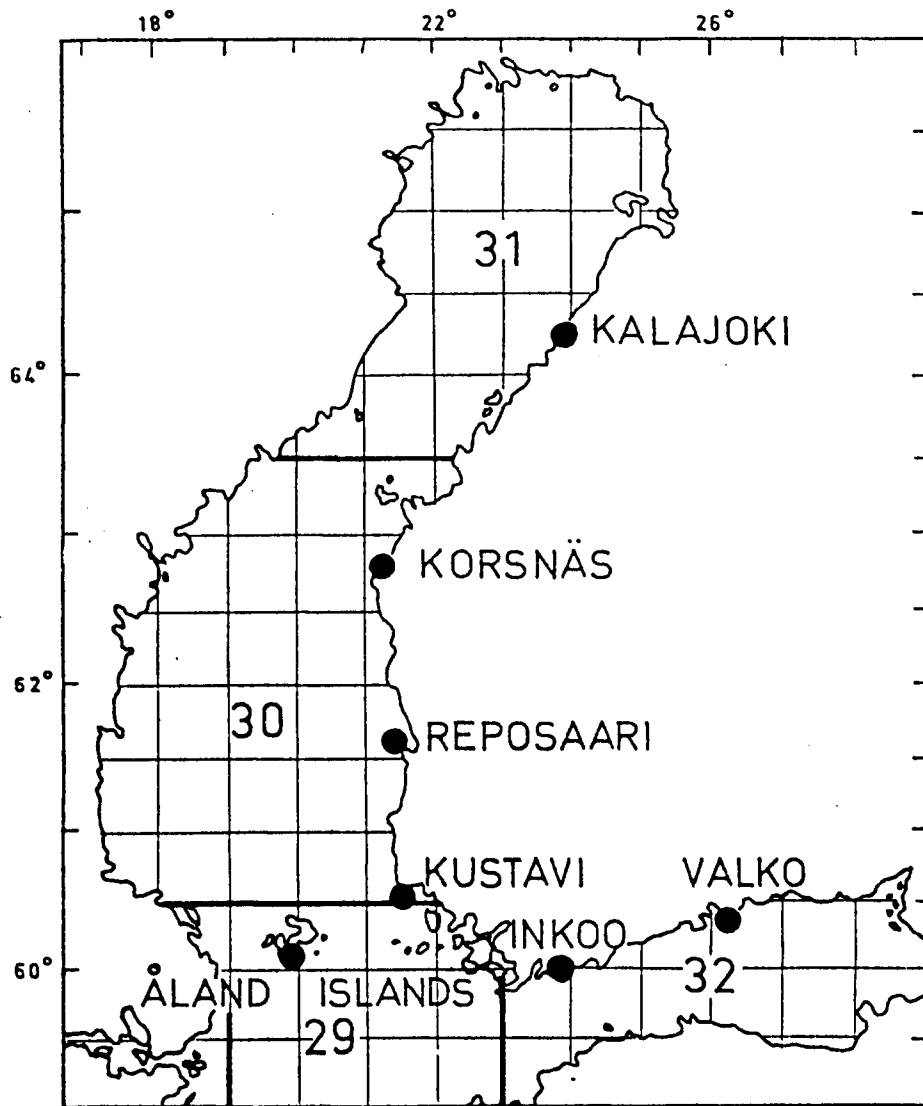


Fig. 1. Permanent field stations for sampling Baltic herring off the Finnish coast in ICES subdivisions 29 - 32.

Table 1. The abundance of Baltic herring larvae <10 mm, 10 - 15 mm and >15 mm at various sampling sites in 1976. Monthly mean numbers below 10 sq. m of sea surface.

Field station	Sampling depth, m	May			June			July			August			May - August		
		<10	10-15	>15	<10	10-15	>15	<10	10-15	>15	<10	10-15	>15	<10	10-15	>15
Åland Islands (29)																
1	11	8	0	0	15	3	0	35	16	8	0	1	9	15	5	4
2	9	1	0	0	7	8	0	23	15	7	1	0	8	6	2	
3	15	2	0	0	8	8	0	18	15	2	2	7	8	8	2	
4	9	1	0	0	10	3	0	38	14	4	9	21	15	10	3	
5	10	0	0	0	4	0	0	12	1	0	10	6	7	2	0	
6	10	0	0	0	4	0	0	14	4	0	25	10	11	4	1	
1 - 6		2	0	0	8	4	0	23	11	4	8	8	4	11	6	2
Kustavi (29)																
1	9	25	1	0	70	30	0	94	136	30	0	3	0	47	43	8
2	10	6	1	0	45	19	0	101	95	13	8	9	0	40	31	3
3	18	11	0	0	38	5	0	98	26	5	17	19	2	41	13	2
4	10	77	0	0	41	16	0	30	10	4	0	0	0	37	7	1
5	8	22	0	0	39	6	1	64	12	6	0	3	1	31	5	2
6	14	0	0	0	39	3	0	76	14	2	30	20	2	36	9	1
1 - 6		24	<1	0	45	13	<1	77	49	10	9	9	1	39	18	3
Reposaari (30)																
1	8	0	0	0	31	1	0	5	4	0	9	8	0	11	3	0
2	7	7	0	0	39	2	0	6	1	0	4	1	0	14	1	0
3	15	5	0	0	13	1	0	4	2	0	3	1	0	6	1	0
4	5	29	0	0	19	4	0	6	2	0	3	1	0	14	2	0
5	8	20	0	0	50	5	0	8	3	0	17	1	0	24	2	0
6	6	22	0	0	32	1	0	3	0	0	22	6	0	20	2	0
1 - 6		14	0	0	31	2	0	5	2	0	10	3	0	15	2	0
Korsnäs (30)																
1	8	0	0	0	17	8	0	8	3	0	2	6	0	7	4	0
2	7	0	0	0	6	1	0	3	0	0	9	2	0	5	1	0
3	7	0	0	0	1	0	0	3	0	0	12	22	0	4	6	0
4	5	0	0	0	2	0	0	8	<1	0	37	11	0	12	3	0
5	8	0	0	0	1	1	0	16	<1	0	6	23	0	6	6	0
6	8	0	0	0	1	0	0	8	1	0	11	14	0	5	4	0
1 - 6		0	0	0	5	2	0	8	1	0	13	13	0	7	4	0
Kalajoki (31)																
1	6				0	0	0	1	4	0	2	0	0	1	1	0
2	10				0	0	0	2	2	0	4	0	0	2	1	0
3	6				0	0	0	1	<1	0	0	0	0	<1	<1	0
4	6				0	0	0	3	1	<1	0	0	0	1	<1	<1
5	5				0	0	0	0	1	0	0	0	0	0	<1	0
1 - 5		-	-	-	0	0	0	1	2	<1	1	0	0	1	1	<1
Inkoo (32)																
1	10	8	7	0	27	18	9	20	8	1	0	6	0	14	10	3
2	12	0	0	0	3	1	0	5	4	1	1	0	0	2	1	<1
3	9	2	1	0	8	5	1	15	7	4	6	6	2	8	5	2
4	8	0	0	0	3	1	0	10	3	1	0	5	1	3	2	1
5	10	3	0	0	2	4	0	2	1	1	2	5	0	2	3	<1
1 - 5		3	2	0	9	6	2	10	5	2	2	4	1	6	4	1
Valko (32)																
1	5	0	0	0	3	2	0	5	2	1	0	1	4	2	1	1
2	7	5	0	0	3	1	0	4	1	1	0	0	2	3	1	1
3	10	0	0	0	4	1	0	8	10	1	0	4	2	3	4	1
4	7	0	5	0	2	1	1	2	3	0	0	0	2	1	2	1
5	9	10	0	0	2	0	0	1	4	1	0	0	0	3	1	<1
6	12	0	0	0	1	<1	0	1	1	2	0	0	0	1	<1	1
1 - 6		3	1	0	3	1	<1	4	4	1	0	1	2	3	2	1