

Cruise Report
FRV "Walther Herwig III"
Cruise 485
06.01.-14.01.2025

Cruise Leader: Dr. Norbert Rohlf

International Herring Larvae Survey in the North Sea

Summary

The cruise is part of the German contribution to the international herring larvae surveys in the North Sea (IHLS). These surveys are conducted during the autumn and winter herring spawning activity. The ICES coordinated studies monitor the spatial distribution and abundance of herring larvae on an annual basis. Survey results gives information about herring spawning stock biomass and the contribution of different spawning components on the overall hatching success. The results provide valuable information for herring stock assessment and the fixation of fishing quotas.

For a cruise in January, weather conditions during the sampling activity were optimal. All stations were covered as planned. Only at the beginning of the cruise, two days ship time were lost due to strong wind stress.

The samples yielded 14,602 herring larvae in total. This is on the lower end of the range when compared to previous year's estimates (in the range of 12,000-26,000 larvae, except of low estimates in 2017).

Verteiler:

Schiffsführung FFS „Solea“ Walther Herwig III
BA für Landwirtschaft und Ernährung (BLE) Fischereiforschung
BM für Ernährung und Landwirtschaft (BMEL), Ref. 614
BA für Seeschifffahrt und Hydrographie (BSH), Hamburg
Deutscher Angelfischerverband e.V.
Deutsche Fischfang-Union, Cuxhaven
Deutscher Fischereiverband Hamburg
Doggerbank Seefischerei GmbH, Bremerhaven
Erzeugergemeinschaft der Deutschen Krabbenfischer GmbH
Euro-Baltic Mukran
GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel
Kutter- und Küstenfisch Sassnitz
LA für Landwirtschaft, Lebensmittels. und Fischerei (LALLF)
LFA für Landwirtschaft und Fischerei MV (LFA)
Landesverband der Kutter- u. Küstenfischer MV e.V.
Leibniz-Institut für Ostseeforschung Warnemünde
Thünen-Institut - Institut für Fischereiökologie
Thünen-Institut - Institut für Seefischerei

Thünen-Institut - Institut für Ostseefischerei
Thünen-Institut - Pressestelle
Thünen-Institut - Präsidialbüro
Thünen-Institut - Reiseplanung Forschungsschiffe, Dr. Rohlf
Fahrtteilnehmer*innen
-Verband e.V.
DFFU

2. Research programme

The cruise is a component of the international herring larvae surveys in the North Sea. Parts of ICES area 27.4.c and 27.7.d should be sampled by double oblique tows of the "Nackthai" (a modified GULF sampler), resulting in herring larval abundance estimates and spatial distribution as well as bycatch of other Ichthyoplankton, especially plaice eggs.

3. Narrative

The vessel was embarked on Monday, 06.01.25. Due to storm in the German Bight the vessel left port of Bremerhaven two days later. Tuesday was used for some IT repairment.

The vessel steamed into the English Channel to conduct the herring larvae survey. The area under investigation was reached Thursday morning, 09.01.25. Wind speed was around 7 Beaufort, but decreased the next days. Plankton sampling run smoothly and all stations were covered on Monday, 13.01.25., including 16 extra stations to check for larvae drift and growth rates. The only technical failure was a fatal error on the salinity sensor of the CTD after haul 16, so there are no salinity measurements available.

Cruise WH 485 was concluded in Bremerhaven on Tuesday, 14.01.25.

4. Preliminary results

In total, 65 plankton tows were done within the IHLS framework and 16 additional stations to account for larvae drift. Plankton sampling was achieved according to the manual of the herring larvae surveys. Fish eggs and larvae were sorted from the plankton samples after the end of the cruise. Herring larvae were counted, length measured and their abundance per square metre estimated.

The samples yielded in total 14,602 herring larvae. This is on the lower end of the range when compared to previous year's estimates (in the range of 12,000-26,000 larvae, except of low estimates in 2017).

Species identification of none clupeid fish eggs and larvae has not been completed yet, but most fish eggs are already identified as plaice eggs (*Pleuronectes platessa*).

Information on sampling positions and abundance estimates are listed in Table 1.

The cruise track is given in Figure 1, and the spatial distribution of herring larvae in Figure 2. Figure 3 depicts the length-frequency of herring larvae. Distribution of near-bottom temperature is given in Figure 4.

5. Participants

Name	Institution	Function
1. Dr. Norbert Rohlf	TI-SF	Cruise leader
2. Birgit Suer	TI-SF	Technician
3. Karin Krüger	TI-SF	Technician
4. Jörg Appel	TI-SF	Technician
5. Alexandra Poell	TI-SF	Technician
6. Svea Winning	TI-SF	Technician
7. Martina Hefter-Siebolt	TI-SF	Technician

6. Acknowledgement

Thanks to Captain Arne Schwegmann and FRV "Walther Herwig III" crew members for their excellent support and hospitality and to all participants for their reliable and responsible teamwork.

7. Tables and Figures

Table 1: Main data of Ichthyoplankton hauls made during WH 485.

Stat. Nr.	Haul Nr.	Lat	Long.	E/ W	Date (UTC)	Time (UTC)	Duration (min)	Water depth (m)	Catch depth (m)	Flow (m³)	Hela (n/m²)	Bottom temp. (°C)
1	1	52°25.16	003°30.03	E	09.01.25	07:45	2.58	25	23	17.9	6	8.64
2	2	52°25.04	003°10.38	E	09.01.25	08:59	4.45	37	34	26.0	0	9.19
3	3	52°25.04	002°50.46	E	09.01.25	10:13	4.18	33	31	26.0	0	9.55
4	4	52°15.08	002°49.47	E	09.01.25	11:22	4.41	35	32	26.8	1	9.68
5	5	52°15.06	003°09.88	E	09.01.25	12:31	3.19	28	25	19.3	7	9.14
6	6	52°14.98	003°29.87	E	09.01.25	13:41	2.34	24	21	15.3	3	8.42
7	7	52°15.09	003°47.98	E	09.01.25	14:42	1.59	19	16	11.7	0	8.22
8	8	52°05.24	003°49.77	E	09.01.25	15:35	1.28	19	14	7.5	0	7.96
9	9	52°05.10	003°30.40	E	09.01.25	16:46	2.07	23	20	11.3	0	8.17
10	10	52°05.07	003°10.67	E	09.01.25	17:59	3.07	26	23	18.6	7	8.79
11	11	52°05.01	002°50.44	E	09.01.25	19:18	4.10	33	29	23.8	4	9.28
12	12	52°05.01	002°30.41	E	09.01.25	20:40	5.52	41	38	35.0	7	9.73
13	13	51°55.35	002°30.00	E	09.01.25	21:47	4.16	33	30	24.8	16	9.49
14	14	51°55.05	002°49.54	E	09.01.25	22:54	4.02	31	28	24.2	72	9.28
15	15	51°54.99	003°09.70	E	10.01.25	00:03	3.10	26	23	19.1	15	8.47
16	16	51°55.14	003°29.68	E	10.01.25	01:12	2.07	18	15	12.9	3	7.60
17	17	51°45.11	003°10.21	E	10.01.25	03:06	2.56	26	23	18.1	6	7.73
18	18	51°46.17	002°50.43	E	10.01.25	04:26	3.17	27	25	20.2	55	8.84
19	19	51°45.06	002°30.56	E	10.01.25	05:32	5.36	39	36	33.1	93	9.36
20	20	51°45.00	002°10.90	E	10.01.25	06:41	8.06	51	48	47.4	131	9.36
21	21	51°35.25	002°10.35	E	10.01.25	07:41	6.27	43	40	38.5	179	9.52
22	22	51°34.97	001°50.47	E	10.01.25	08:56	5.55	41	38	34.1	6	8.81
23	23	51°25.28	001°50.03	E	10.01.25	10:01	6.30	44	41	38.9	17	9.84
24	24	51°15.26	001°50.25	E	10.01.25	11:05	6.02	41	38	34.0	66	9.92
25	25	51°05.15	001°30.36	E	10.01.25	12:39	9.53	55	52	57.9	4	9.58
26	26	50°54.87	001°09.62	E	10.01.25	14:11	4.51	33	30	26.8	1	10.23
27	27	50°45.03	001°10.66	E	10.01.25	15:08	3.05	26	23	19.2	115	9.68
28	28	50°44.90	000°50.63	E	10.01.25	16:16	5.26	38	35	32.8	0	10.51
29	29	50°34.45	000°50.07	E	10.01.25	17:09	6.43	45	42	38.3	320	10.47
30	30	50°34.96	000°30.78	E	10.01.25	18:30	8.36	52	49	49.7	72	10.76
31	31	50°27.15	000°30.26	E	10.01.25	19:22	7.38	50	47	45.3	839	10.76
32	32	50°25.05	000°10.43	E	10.01.25	20:36	8.07	54	51	46.2	258	10.94
33	33	50°15.03	000°10.84	E	10.01.25	21:41	7.55	47	44	45.7	1665	10.94
34	34	50°15.00	000°09.54	W	10.01.25	22:49	8.45	53	50	51.3	871	11.15
35	35	50°05.44	000°10.01	W	10.01.25	23:51	8.04	48	45	45.0	741	11.14
36	36	50°05.05	000°29.30	W	11.01.25	00:59	6.49	47	44	39.5	688	11.30
37	37	49°55.54	000°30.05	W	11.01.25	02:01	6.32	45	42	35.8	449	11.20
38	38	49°45.38	000°30.00	W	11.01.25	02:58	5.46	41	38	33.5	7	10.44
39	39	49°35.38	000°30.03	W	11.01.25	04:03	4.01	32	30	22.5	9	10.27
40	40	49°34.99	000°10.30	W	11.01.25	05:12	3.52	31	28	23.4	5	10.14
41	41	49°44.62	000°10.89	W	11.01.25	06:11	5.38	40	38	33.3	24	10.40
42	42	49°54.73	000°10.03	W	11.01.25	07:08	8.38	55	52	50.6	865	10.87
43	43	49°45.14	000°09.31	E	11.01.25	08:48	3.59	30	28	23.3	5	9.93
44	44	49°54.77	000°08.58	E	11.01.25	09:48	6.15	41	38	37.0	306	10.32
45	45	50°04.73	000°09.96	E	11.01.25	10:46	6.25	44	41	36.4	499	10.50
46	46	50°14.80	000°29.55	E	11.01.25	12:24	6.08	41	38	35.6	2118	10.43
47	47	50°04.87	000°29.99	E	11.01.25	13:26	3.53	35	32	22.8	546	10.12

Stat. Nr.	Haul Nr.	Lat	Long.	E/W	Date (UTC)	Time (UTC)	Duration (min)	Water depth (m)	Catch depth (m)	Flow (m³)	Hela (n/m²)	Bottom temp. (°C)
48	48	49°55.04	000°29.42	E	11.01.25	14:20	3.19	28	25	18.9	53	9.19
49	49	49°55.39	000°44.49	E	11.01.25	15:20	3.05	24	22	19.1	3	8.84
50	50	50°04.68	000°49.86	E	11.01.25	16:20	3.42	29	29	22.7	520	9.34
51	51	50°14.75	000°50.02	E	11.01.25	17:26	4.45	37	35	31.2	1829	9.67
52	52	50°24.79	000°49.49	E	11.01.25	18:24	4.46	36	34	30.1	358	10.05
53	53	50°14.88	001°09.53	E	11.01.25	19:50	4.47	34	32	30.1	463	8.88
54	54	50°24.75	001°09.80	E	11.01.25	20:47	4.49	36	34	28.7	552	9.46
55	55	50°34.80	001°09.42	E	11.01.25	21:41	10.27	60	58	64.2	382	9.66
56	56	50°34.77	001°22.66	E	11.01.25	22:46	4.40	33	31	27.8	82	9.10
57	57	50°44.58	001°24.93	E	11.01.25	23:37	6.51	46	43	44.0	133	8.68
58	58	50°54.48	001°29.82	E	12.01.25	00:31	7.49	51	48	48.6	98	9.23
59	59	51°04.71	001°50.07	E	12.01.25	02:02	2.42	26	23	15.5	101	8.50
60	60	51°14.77	002°09.43	E	12.01.25	03:36	4.53	37	34	30.4	11	8.78
61	61	51°24.58	002°09.97	E	12.01.25	04:38	4.40	36	34	28.5	172	9.22
62	62	51°24.54	002°29.57	E	12.01.25	06:20	4.12	32	29	23.9	33	8.62
63	63	51°24.75	002°49.72	E	12.01.25	07:44	2.49	23	21	16.1	6	7.04
64	64	51°34.91	002°50.30	E	12.01.25	08:47	3.04	26	24	17.2	20	7.59
65	65	51°34.96	002°30.55	E	12.01.25	09:58	5.17	39	36	31.1	376	8.84
66	66	51°54.46	002°30.06	E	12.01.25	11:51	6.16	46	43	37.3	38	9.30
67	67	51°55.00	002°49.37	E	12.01.25	12:59	5.11	39	36	30.8	332	9.03
68	68	51°55.07	003°09.31	E	12.01.25	15:52	3.44	29	26	22.4	25	8.29
69	69	51°55.06	003°29.22	E	12.01.25	17:02	2.54	23	21	7.6	15	7.45
70	70	52°04.66	003°05.00	E	12.01.25	18:35	3.26	24	22	22.0	0	5.97
71	71	52°05.05	003°30.21	E	12.01.25	19:44	3.35	26	24	21.7	5	7.90
72	72	52°04.98	003°10.35	E	12.01.25	20:47	5.13	35	33	31.4	12	8.51
73	73	52°05.01	002°50.50	E	12.01.25	21:53	6.00	40	38	36.5	41	8.94
74	74	52°05.02	002°30.54	E	12.01.25	23:03	6.39	43	40	39.4	16	9.47
75	75	52°14.76	002°49.47	E	13.01.25	00:29	5.24	41	41	31.9	8	9.33
76	76	52°15.09	003°09.21	E	13.01.25	01:34	4.04	31	29	23.7	0	8.92
77	77	52°15.01	003°29.26	E	13.01.25	02:40	3.12	29	26	18.6	9	8.13
78	78	52°15.33	003°47.08	E	13.01.25	03:43	2.38	23	21	17.9	15	7.07
79	79	52°24.92	003°30.39	E	13.01.25	05:06	3.50	27	25	24.6	0	8.19
80	80	52°24.99	003°10.61	E	13.01.25	06:16	6.05	40	37	38.4	2	8.92
81	81	52°24.98	002°50.63	E	13.01.25	07:25	5.58	40	38	36.4	0	9.26

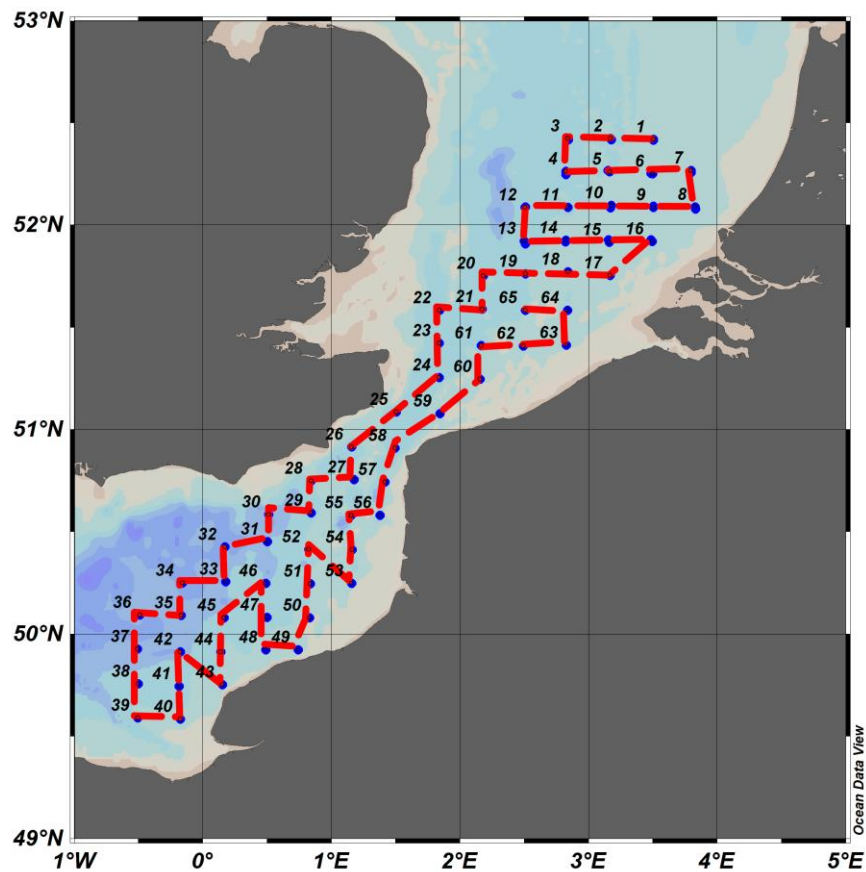


Figure 1: Positions of herring larvae stations in the southern North Sea. Cruise track at regular IHLS stations is indicated by the red line.

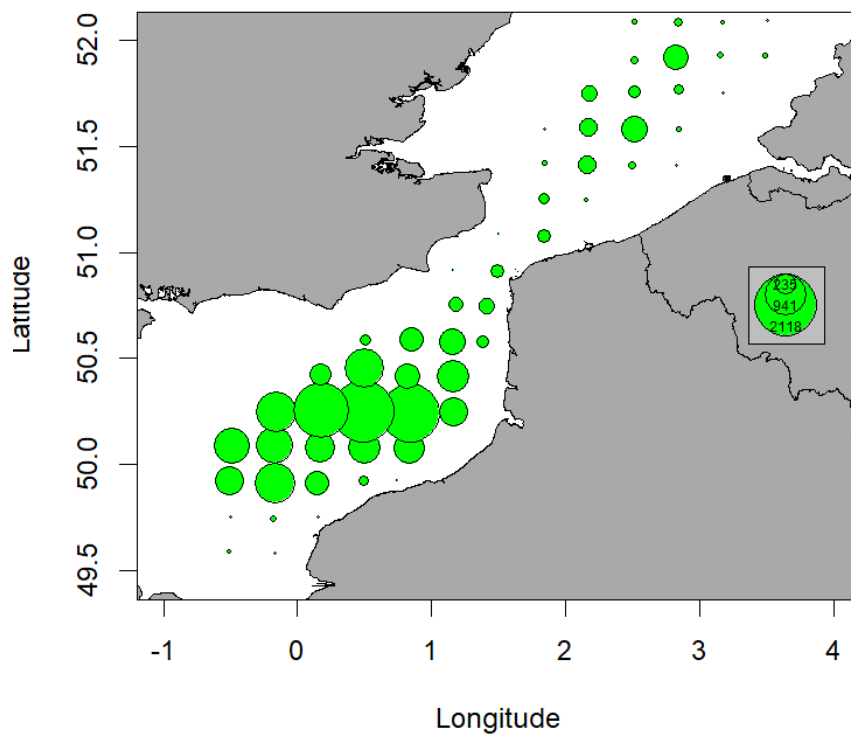


Figure 2: Distribution and abundance of herring larvae (n/m², all length classes) in the southern North Sea. The inset indicates the equivalent to circle size of larvae per square metre.

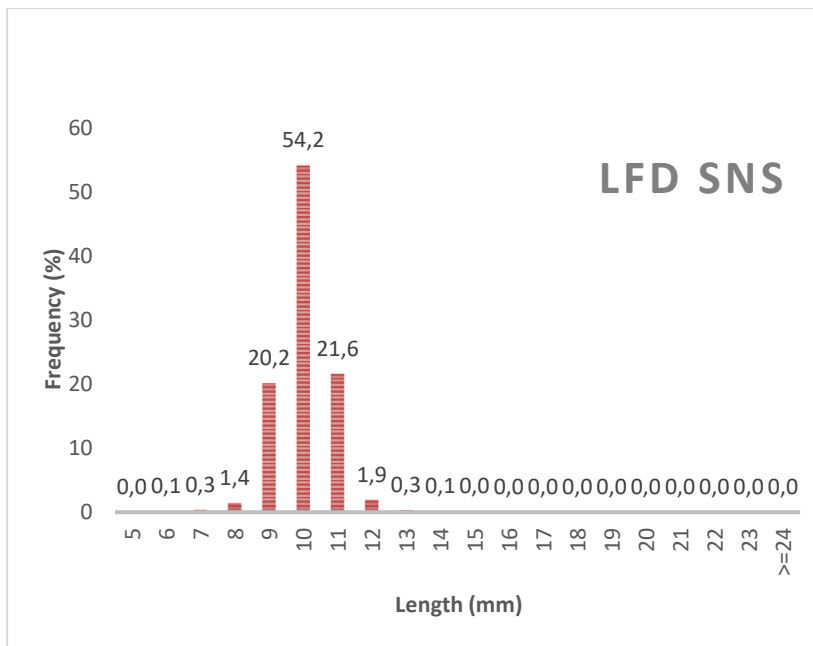


Figure 3: Length-frequency plot of herring larvae obtained during WH 485. The percentage per length class is given on top of each bar (LFD SNS = length frequency distribution southern North Sea).

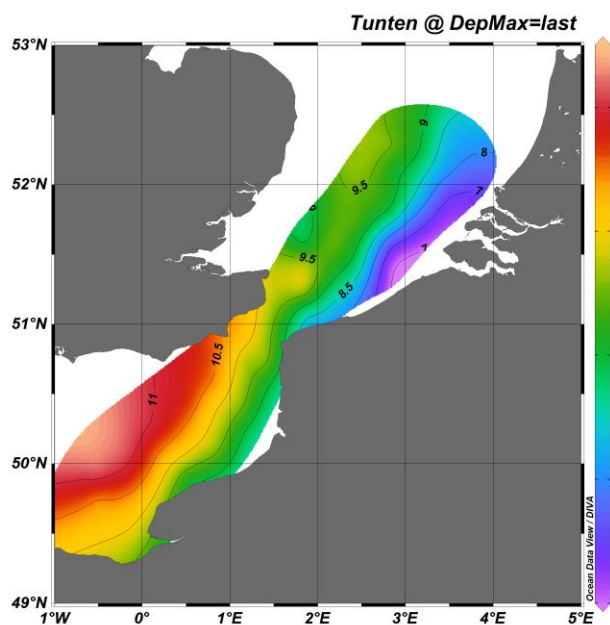


Figure 4: Distribution of near-bottom temperature (°C, left panel) in the area under investigation

N. Rohlf

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