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Cruise report
476th cruise of FRV „Walther Herwig III"
03/04 – 08/04/2024

Investigation of the vertical migration behaviour of different larval stages of brown shrimp (*Crangon crangon*) depending on time of day and tide (Project: CRANMAN II)

Cruise leader: Dr. Julia Friese

1. Summary

This cruise was part of the project CRANMAN II ("Scientific investigations into the biology and fisheries of the North Sea shrimp CRANgon crangon as a basis for an efficient self-management system"). The aim of the cruise was to investigate the vertical migration behaviour of the larval stages of the North Sea brown shrimp *Crangon crangon* as a function of time of day and tide. For this purpose, vertically resolved plankton catches were carried out at three stations in 24-hour operation. A fourth 24-hour station was started, but had to be cancelled shortly afterwards due to a technical problem of the vessel. A MultiNet ("MultiNet midi", HYDRO-BIOS Apparatebau GmbH) was towed horizontally to sample different water depths in the water column and an epibenthos sledge was used to sample close to the sea floor. Both gear types used 300 µm plankton nets. A total of 64 MultiNet hauls and 65 epibenthos sledge hauls were conducted resulting in 311 samples from different depths, tides and daytimes. Together with the temperature-dependent development time of the larvae, the information obtained will be used to simulate larval drift paths using a 3D ocean model and thus to investigate the connectivity of the adult stocks and recruitment in different areas.

Verteiler:

Schiffsführung FFS „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
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LA für Landwirtschaft, Lebensmittels. und Fischerei (LALLF)
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Thünen-Institut - Institut für Ostseefischerei
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Thünen-Institut - Präsidialbüro
Thünen-Institut - Reiseplanung Forschungsschiffe, Dr. Rohlf
Fahrtteilnehmer*innen

2. Cruise objectives

Respondek et al. (2022)[a] observed a negative correlation between the catch effort of the North Sea brown shrimp fishery in south-western areas in winter (January-February) and brown shrimp densities (defined as landings per unit effort) in the following summer (July-August). They concluded that this correlation indicates a connectivity between the different regions (via a larval drift along the coast), which could be an indication of a recruitment overfishing.
Within the project "CRANMAN II" the larval drift will be analysed in cooperation with the "Helmholtz-Zentrum hereon" using a 3D ocean model. In addition to the physical processes, the drift distances and pathways also depend on the individual behaviour of the animals. It is known that adult brown shrimp perform a selective tidal ebb transport for reaching deeper spawning areas[bc]. Juvenile brown shrimp use the shallow Wadden Sea as a nursery and their arrival in that area cannot be explained by passive drifting alone as the major currents run parallel to the coast. Therefore, it is hypothesized, that young brown shrimp perform a selective tidal flood transport at some point of their life history to reach the shallow nearshore areas. This hypothesis is supported by a field observation of Boddeke (1976)[d], who found more juvenile brown shrimp in the water column at high tide than at ebb tide.
However, it is unknown (1) at which life stage this behaviour starts – only in the juvenile stage or already in a larval stage, (2) how it changes with daytime and (3) how pronounced such a behaviour is. Empirical data on the vertical migration behaviour of brown shrimp larvae as a function of time of day and tide is essential to model this behaviour and finally implement it into the 3D drift model.
The aim of the 476th cruise of FRV "Walther Herwig III" was to sample brown shrimp larvae separately in different water depths over 24-hour period (whole day and night and two tidal cycles at each station sampled). As the 24-hour stations represent replicates, we aimed to sample as many 24-hour stations with the highest temporal and vertical resolution as possible.

Survey design and sampling procedure
After arriving at a 24-hour station – and as soon as the weather conditions allowed – sampling started at different water depths by using two gears, one for the water column and one for the seafloor, alternately (Fig. 1). After each haul, the order of gear operations was reversed, i.e. each gear was operated twice before being changed. Taking into account sample processing and logistics on board, we aimed for the highest temporal resolution possible. Towing paths and directions were defined according to the wind and current conditions by the ship´s captain and officers and remained close to the aimed positon of the station (Fig. 2).

Brown shrimp larvae were sampled in the water column using a horizontally towed multi-plankton sampling net "MultiNet midi" (HYDRO-BIOS Apparatebau GmbH, abbreviated as "MultiNet") with a net opening of 0.5 x 0.5 m (0.25 m²) equipped with a V-fin depth depressor, five nets of 300 µm mesh size, two electronic flowmeters in the net opening and outside (to measure the filtration volume and recognise net clogging), and an underwater unit including a motor for remote triggering of net opening and closure and a CTD[e] sensor (Fig. 1 A). The underwater unit, which transferred all signals and measured data, was connected to a deck unit and finally to a computer with the software OceanLab 3 (version 3.5.7.3), which allows a real-time control of all measured data and activation of net opening and closure. After arming the net closing mechanism and switching on the underwater unit, the gear was heaved outboard and the safety locking bar was released. The gear was veered with 0.5 m s^{-1} to ca. 5 m above the seafloor, where the first net was opened. After filtrating almost 100 m³, the gear was heaved by 5 m with 0.5 m s^{-1} up to 10 m above the seafloor and the simultaneous closing/opening mechanism was activated between the sampling depths strata (at 7.5 m above the seafloor). This way, the overlap between sampling the different depths was reduced to a minimum and the net was closed when ca. 100 m³ were filtrated. This procedure was repeated up to the surface. Depending on the weather conditions a minimum distance to the surface of 2 or up to 4 m was kept. Depending on weather conditions and bathymetry, per haul 2-4 nets were used (resulting in equivalent numbers of samples). The MultiNet was towed on average with 2.7 kn through the water.

[a] *Respondek, G., Günther, C., Beier, U., Bleeker, K., Pedersen, E.M., Schulze, T., Temming, A., 2022. Connectivity of local sub-stocks of Crangon crangon in the North Sea and the risk of local recruitment overfishing. Journal of Sea Research 181, 102173.*

[b] *Hufnagl, M., Temming, A., Pohlmann, T., 2014. The missing link: Tidal-influenced activity a likely candidate to close the migration triangle in brown shrimp Crangon crangon (Crustacea, Decapoda). Fish. Oceanogr. 23 (3), 242–257.*

[c] *Tielmann, M., Reiser, S., Hufnagl, M., Herrmann, J.-P., Eckardt, A., Temming, A., 2015. Hydrostatic pressure affects selective tidal stream transport in the North Sea brown shrimp (Crangon crangon). The Journal of experimental biology 218 (Pt 20), 3241–3248.*

[d] *Boddeke, R., 1976. The seasonal migration of the brown shrimp Crangon crangon. Netherlands Journal of Sea Research 10 (1), 103–130.*

[e] A CTD sensor measures conductivity (C, which is transformed to salinity), temperature (T), and depth (D)

Close above the sea floor, brown shrimp larvae were sampled with a self-made epibenthos sledge (Fig. 1B). Due to limited space on deck a standard epibenthos sledge[f] could not be operated. The deployed epibenthos sledge was composed of a 2m-beam trawl frame work with a four-sided beam equipped with a double net frame from a "Neuston Net acc. to David/Hempel Model 300" (HYDRO-BIOS Apparatebau GmbH). Each net had an opening of 0.3 x 0.15 m (0.045 m^2) and a mesh size of 300 µm. The center of the lower net (named N1) and the upper net (N2) were 34.5 cm and 55.5 cm above the seafloor, respectively. Below the plankton nets, an old trawl net was used as an abrasion protection. To measure the filtrated water volume each net opening was equipped with a mechanical flow meter (Model 2030R mechanical flowmeter with high-speed impeller by General Oceanics, Inc.). A depth and temperature recorder (Star Oddi DST centi-DT, ID: C8516) was attached to the beam measuring both parameters every minute. Additionally, a net sounder (MARPORT) was attached, giving the bridge real-time information of the position of the gear and the time it arrived at the seafloor. On the sea floor it was towed 10 min with 3 kn over ground. Veering and heaving speed was 0.5 m s^{-1}. As the self-build device did not have a closing mechanism, it also collected samples during the veering and heaving procedure in the water column. Therefore, total numbers of collected animals must be corrected using the density of those organisms in the water column (from the MultiNet samples) and the time share spend on the seafloor (vs. total time in water).

All samples were concentrated on board via sieving. For the MultiNet samples sieves with 300 µm meshes were used. The samples from the epibenthos sledge could not be concentrated with those sieves and therefore, we used sieves with a mesh size of 405 µm for the epibenthos samples[g]. All samples were preserved in 4% borax buffered formaldehyde sea water solution and stored in 500 mL plastic containers.

3. Cruise schedule

The cruise started as scheduled on the 2nd of April 2024. The FRV "Walther Herwig III" left the port of Bremerhaven, Germany, in the morning of 03/04/24. After passing the Weser estuary, a test haul was carried out with each of the two sampling gears. As both test hauls were successful, the first 24-hour station was approached. Due to the weather conditions, it was decided to head for station T3S7 first. Work began there at around 2 pm (UTC) on 03/04/24. After 24 hours on site and a total of 17 hauls with each gear, we steamed on towards the coast to station T3S8, where another 22 hauls were made with both devices each over 24 hours until ca. 3 pm (UTC) on 04/04/24. We then steamed northwards and initially headed for station T2S6 near the coast due to the weather conditions. A first epibenthos sledge haul was made there at 23:10 (UTC) on 05/04/24. However, as the swell was too strong for the deployment of the MultiNet and for safety reasons, it was decided to stop work for the time being and wait for the forecast improvement in the weather conditions. About 1.5 hours later (around 01:00 UTC), the swell had subsided to such an extent that it was once again possible to work safely with the equipment. The 24-hour station T2S6 was then terminated on 07/04/24 at around 1 am (UTC) with 24 hauls (per gear) in total. By this time, the weather situation further offshore had also eased somewhat, so we headed for station T2S5 and were able to start work there at 2:18 (UTC) on 07/04/24. However, after in total 2 MultiNet and 3 epibenthos hauls, shortly after 5 am (UTC), the work had to be stopped due to a rudder damage. Therefore, we steamed towards Helgoland, where we initially waited for pilots and tugs and reached our home port of Bremerhaven in the night of 8th April 2024.

4. Overview of the collected samples

Three 24-hours stations could be successfully completed during the cruise (Tab. 1, Fig. 3). In total (incl. all four stations) 65 epibenthos sledge hauls and 64 MultiNet hauls with a 5 m vertical resolution and a temporal resolution of ca. 1-2 hours were performed (Tab. 2). This resulted in 311 samples (Tab. 3). As expected, the two offshore stations (T3S7 and T2S5) differed in their abiotic characteristics from the two nearshore stations (T3S8 and T2S6). In the nearshore stations the tidal cycle was reflected in the measured water depths, while it was covered by waves at the offshore station T3S7 (Fig. 4). Furthermore, the nearshore stations had slightly warmer water temperatures and a lower salinity (Fig. 4). The temperatures were very similar in all sampling depths indicating that the water body was well mixed (no stratification/ thermocline) in all sampling areas, which is typical for the North Sea in early April.

[f] *Brenke, N., 2005. An Epibenthic Sledge for Operations on Marine Soft Bottom and Bedrock. Marine Technology Society Journal 39 (2), 13–42.*

[g] This was considered legitimate as a previous study used a 400µm net and found also all brown shrimp larval stages *(Hünerlage, K., Siegel, V., Saborowski, R., 2019. Reproduction and recruitment of the brown shrimp Crangon crangon in the inner German Bight (North Sea): An interannual study and critical reappraisal. Fish Oceanogr 28 (6), 708–722.)*

5. Participants

1.	Dr. Julia Friese	TI-SF	whole cruise
2.	Dr. Kim Hünerlage	TI-SF	whole cruise
3.	Georg Respondek	University of Hamburg (IMF)h	whole cruise
4.	Jana Bäger	TI-SF	whole cruise
5.	Karin Krüger	TI-SF	whole cruise
6.	Sakis Kroupis	TI-SF	whole cruise
7.	Birgit Suer	TI-SF	whole cruise
8.	Stephanie Kondratowicz	University of Hamburg (IMF)	whole cruise
9.	Rachel Harmer	University of Hamburg (IMF)	whole cruise
10.	Victoria Laura Chudziak	University of Hamburg (IMF)	whole cruise
11.	Juliane Ringel	University of Hamburg (IMF)	whole cruise

6. Acknowledgements

I would like to thank especially captain Stefan Meier and the entire crew of the FRV "Walther Herwig III", who supported us actively and with exceptional commitment in all matters and were always focused on the success of the trip and our safety. I would also like to thank all the participants for their valuable commitment, as well as my colleagues at the Thünen-Institute of Sea Fisheries and the Institute of Marine Ecosystem and Fishery Sciences, who supported us in the preparations for the trip. Special thanks go to Richard Klinger, who spent several days to introduce us into the operation of the MultiNet and took care that we have all equipment for this gear that we need. We would also like to thank the GEOMAR Helmholtz Centre for Ocean Research in Kiel for lending us their neuston nets. Furthermore, thanks go to the Lower Saxony Ministry of Food, Agriculture and Consumer Protection for funding the CRANMAN II project.

Dr. Julia Friese

[h] IMF: Institute of Marine Ecosystem and Fishery Sciences (University of Hamburg, Department of Biology)

8. Figures and tables

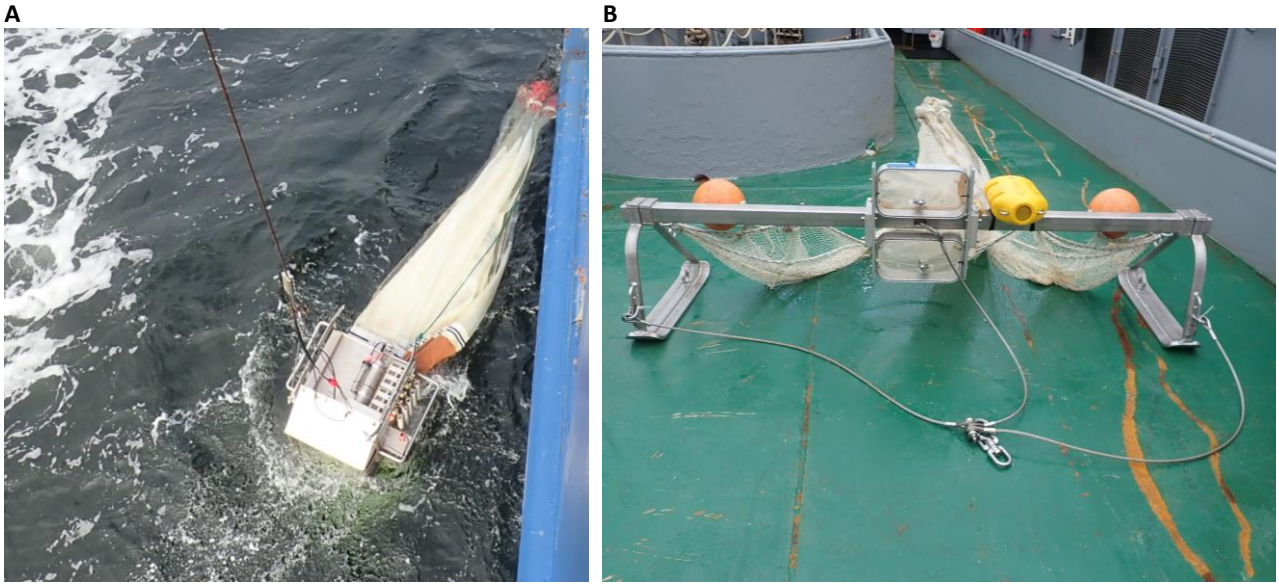

Fig. 1: Sampling gear. A: HYDRO-BIOS MultiNet Midi equipped with a CTD and five plankton nets with 300 µm mesh size. B: Self-built epibenthos sledge consisting of a 2-meter beam trawl with an attached neuston frame with two nets with 300 µm mesh size. Both net openings were equipped with flow meters. The beam is additionally equipped with a net sounder and a Star Oddi logger and a trawl net was attached below the plankton nets as an abrasion protection.

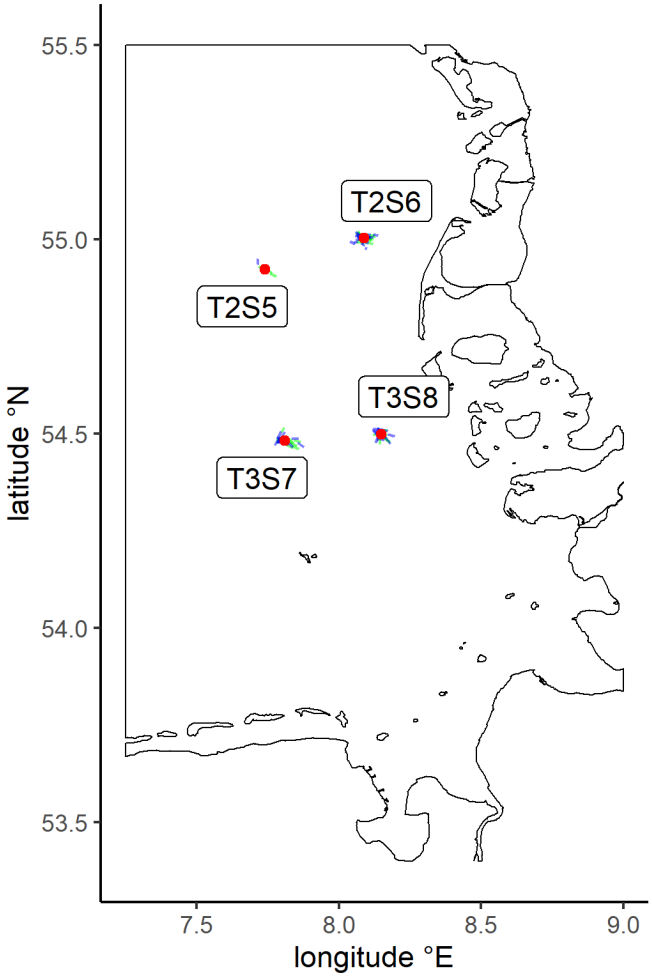

Fig. 2: Map of the sampled 24-hour stations. Red points indicate the mean positions per station. Blue lines: MultiNet trawling tracks; green lines: epibenthos sledge trawling tracks.

Tab. 1: Station overview

24-hour station	Average geographical position		water depth [m]		24h-station start time (UTC)	24h-station stop time (UTC)	epibenthos sledge		MultiNet	
	latitude	longitude	measured on board (mean)	official bathymetry (LAT)*			number of hauls	number of samples	number of hauls	number of samples
T3S7	54.482350736	7.8095433824	22.82	21.43	03/04/2024 13:58	04/04/2024 14:00	17	34	17	34
T3S8	54.499186482	8.1477894445	16.77	14.50	04/04/2024 14:59	05/04/2024 14:55	21	42	21	58
T2S6	55.003161735	8.0876525511	17.12	14.81	05/04/2024 23:10	07/04/2024 00:55	24	48	24	48
T2S5	54.923038334	7.7401833333	21.50	20.41	07/04/2024 02:18	07/04/2024 05:00	3	6	2	7

*LAT = lowest astronomical tide, bathymetry data downloaded from http://www.emodnet-bathymetry.eu/data-products, 21.08.2018, resolution 1/8 x 1/8 arc minutes

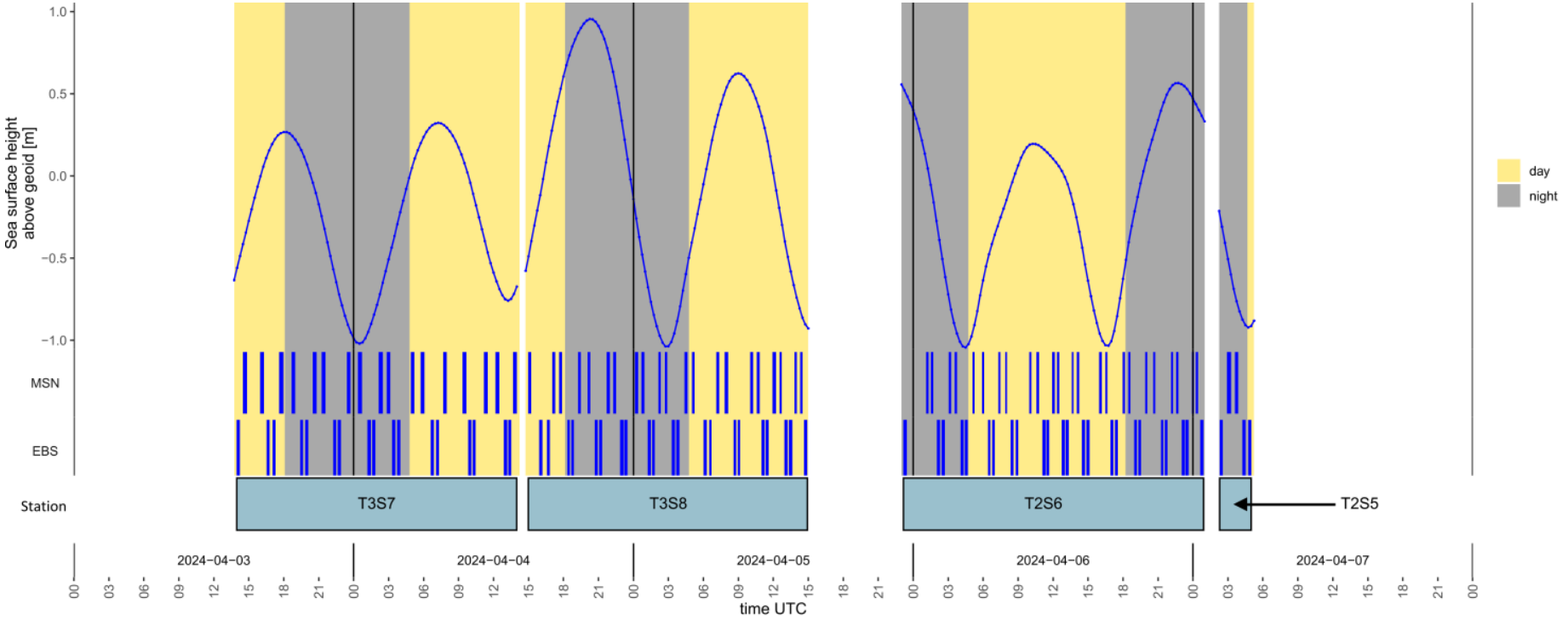

Fig. 3: Temporal course of sampling the different stations during WH476. Lower panel: 24-hour station (T3S7, T3S8, T2S6, T2S5; see Fig.2). Lower blue stripes: epibenthos sledge (EBS) haul, upper blue stripes: MultiNet (MSN) haul. Stripe width indicates the time period, when the gear was in the water. Each gear was applied twice, before changing the shackle to the other gear. Upper panel: blue curves indicate the tide via the sea surface height and background colour the daytime (yellow background: day, grey background: night; data source sea surface height: https://doi.org/10.48670/moi-00054; dataset ID: cmems_mod_nws_phy_anfc_0.027deg-2D_PT15M-I; resolution: 15 minutes; downloaded on 30.01.2025 using mean geographic positions per 24-hour station).

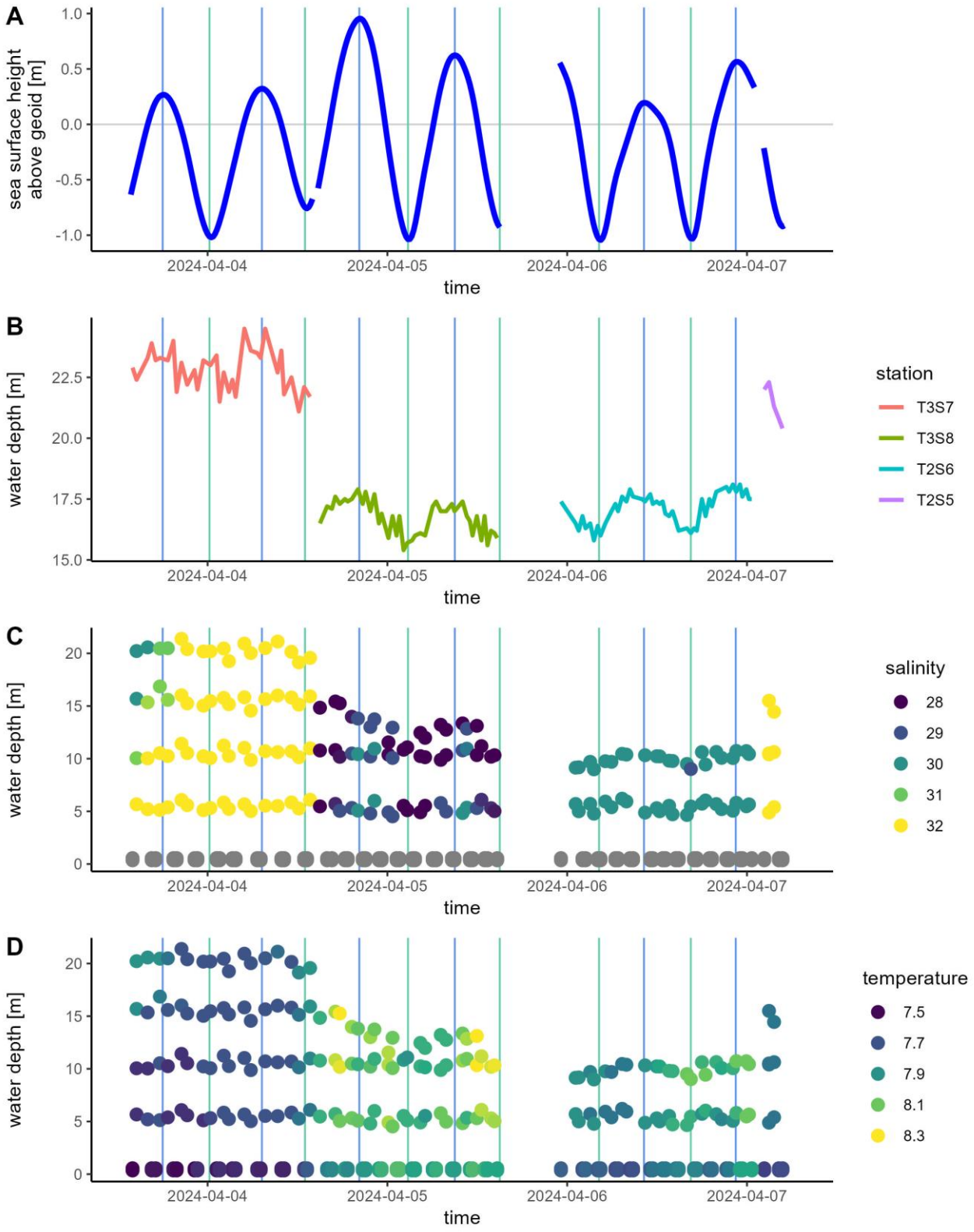

Fig. 4: Abiotic parameters. A: tidal cycle downloaded from the EU´s Copernicus programme (https://doi.org/10.48670/moi-00054; dataset ID: cmems_mod_nws_phy_anfc_0.027deg-2D_PT15M-I; resolution: 15 minutes; downloaded on 30.01.2025 using mean geographic positions per 24-hour station). B: water depth measured with the vessel's own echo sounder. C: salinity measured with the CTD of the MultiNet averaged per haul and net (i.e. sampling depth). D: water temperature per water depth measured in the water column with the CTD of the multinet and on the seafloor with the Star Oddi logger attached to the epibenthos sledge. All values were averaged per haul and net (i.e. sampling depth). All panels: blue background lines align to high tide, turquoise background lines align to low tide (see panel A).

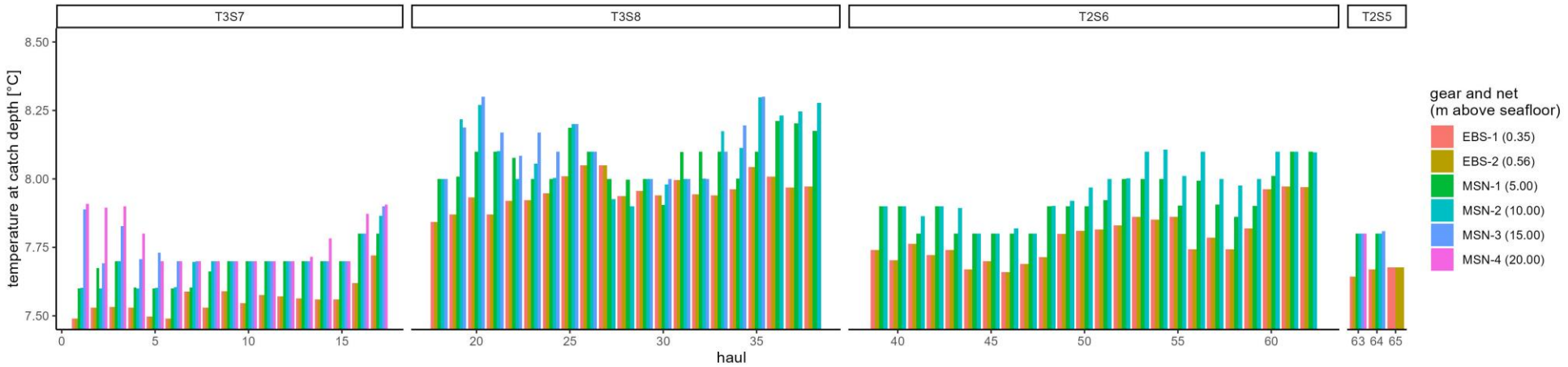

Fig. 5: Water temperature at catch depth per haul.

Tab. 2: Recorded data per haul (start of the haul). Abbreviations: MSN: MultiNet, EBS: epibenthos sledge, temp.: temperature.

station	gear	haul	date	time (UTC)	latitude	longitude	towing direction [°]	drift angle [°]	wind direction [°]	wind speed		air temp. [°C]	air pressure [hPa]	operation time (gear in water) [minutes]	water depth [m]
										[m/s]	[bft]				
T3S7	EBS	1	03.04.24	13:58:47	54.47635	7.79140	20.5	4	106	10.9	5	6.2	1004.0	16.4	22.9
T3S7	MSN	1	03.04.24	14:30:56	54.48962	7.79643	20.9	6	107	9.8	5	6.8	1003.7	20.1	22.4
T3S7	MSN	2	03.04.24	15:59:41	54.47527	7.78113	42.0	346	108	13.5	6	6.7	1002.9	18.4	23.3
T3S7	EBS	2	03.04.24	16:32:05	54.47743	7.78260	37.8	350	107	11.6	6	7.0	1002.9	16.4	23.9
T3S7	EBS	3	03.04.24	17:03:55	54.47512	7.78063	27.3	350	103	10.9	6	7.4	1003.0	16.0	23.2
T3S7	MSN	3	03.04.24	17:37:52	54.47115	7.77377	40.5	346	103	9.5	5	7.4	1002.7	22.5	23.3
T3S7	MSN	4	03.04.24	18:41:25	54.48860	7.78500	44.8	333	121	15.0	7	7.6	1002.3	19.5	23.2
T3S7	EBS	4	03.04.24	19:25:43	54.48000	7.78537	35.1	333	115	11.8	6	7.7	1002.4	14.2	24.0
T3S7	EBS	5	03.04.24	19:52:12	54.50412	7.79695	50.6	332	124	12.0	6	7.8	1002.1	15.0	21.9
T3S7	MSN	5	03.04.24	20:30:45	54.47695	7.78257	52.8	334	133	11.1	6	8.5	1001.8	18.6	23.1
T3S7	MSN	6	03.04.24	21:16:46	54.47567	7.78813	57.9	336	155	8.7	5	8.8	1001.8	18.4	22.2
T3S7	EBS	6	03.04.24	22:15:20	54.47875	7.79280	92.6	345	192	8.6	5	9.7	1001.8	16.0	22.8
T3S7	EBS	7	03.04.24	22:38:30	54.47835	7.81990	101.2	356	200	8.3	5	9.1	1001.8	17.3	22.0
T3S7	MSN	7	03.04.24	23:26:00	54.48063	7.78602	102.0	352	205	8.5	5	9.2	1001.6	18.6	23.2
T3S7	MSN	8	04.04.24	00:22:23	54.47997	7.79392	116.5	357	219	9.2	5	9.0	1001.7	20.8	23.0
T3S7	EBS	8	04.04.24	01:11:45	54.48170	7.78968	125.0	350	218	11.2	6	9.5	1001.6	19.2	23.4
T3S7	EBS	9	04.04.24	01:36:04	54.47237	7.81613	125.0	351	225	11.2	6	9.4	1001.5	16.9	21.5
T3S7	MSN	9	04.04.24	02:09:22	54.47975	7.81523	144.3	349	223	8.7	5	9.1	1001.7	20.7	22.7
T3S7	MSN	10	04.04.24	02:50:24	54.49043	7.80157	137.8	347	216	9.7	5	9.1	1001.3	19.0	21.9
T3S7	EBS	10	04.04.24	03:18:37	54.47685	7.82970	130.2	352	216	11.0	6	9.3	1001.2	16.5	22.4
T3S7	EBS	11	04.04.24	03:44:33	54.46872	7.83503	127.1	353	209	10.1	5	9.1	1001.2	16.5	21.7
T3S7	MSN	11	04.04.24	04:54:31	54.48303	7.78725	137.5	348	213	10.0	5	8.9	1001.1	19.4	24.5
T3S7	MSN	12	04.04.24	05:45:55	54.48485	7.79750	133.0	343	207	11.7	6	9.2	1001.0	19.3	23.6
T3S7	EBS	12	04.04.24	06:37:32	54.48653	7.79155	126.8	343	185	9.9	5	8.5	1000.5	27.3	23.5
T3S7	EBS	13	04.04.24	07:04:54	54.48193	7.81923	121.2	347	191	9.3	5	8.2	1000.9	14.4	23.3
T3S7	MSN	13	04.04.24	07:41:33	54.48027	7.78413	119.0	341	194	10.0	5	8.4	1000.5	18.7	24.5
T3S7	MSN	14	04.04.24	09:20:53	54.48992	7.78038	110.9	350	177	8.9	5	7.9	1000.2	19.5	22.7
T3S7	EBS	14	04.04.24	09:50:46	54.48467	7.78062	69.1	349	171	6.3	4	7.8	1000.3	16.2	23.6

Tab. 2: continued.

station	gear	haul	date	time (UTC)	latitude	longitude	towing direction [°]	drift angle [°]	wind direction [°]	wind speed		air temp. [°C]	air pressure [hPa]	operation time (gear in water) [minutes]	water depth [m]
										[m/s]	[bft]				
T3S7	EBS	15	04.04.24	10:12:20	54.48915	7.80558	90.0	350	178	7.7	4	7.8	1000.1	16.2	21.8
T3S7	MSN	15	04.04.24	11:11:20	54.48780	7.78655	80.0	359	157	7.1	4	7.9	999.8	19.8	22.5
T3S7	MSN	16	04.04.24	12:10:51	54.48833	7.83312	82.0	7	187	7.3	4	8.4	999.7	20.9	21.1
T3S7	EBS	16	04.04.24	12:53:14	54.48608	7.81028	86.6	3	191	6.2	4	8.5	999.7	18.4	22.1
T3S7	EBS	17	04.04.24	13:16:08	54.48402	7.84097	95.0	3	190	7.5	4	8.6	999.7	16.6	21.9
T3S7	MSN	17	04.04.24	13:40:39	54.47773	7.85377	137.3	356	214	6.9	4	9.3	999.7	20.0	21.7
T3S8	MSN	18	04.04.24	14:59:43	54.50188	8.14695	132.7	4	230	8.4	5	8.8	999.9	15.0	16.5
T3S8	EBS	18	04.04.24	15:56:56	54.49707	8.15340	155.4	345	257	8.3	5	8.6	1000.9	15.4	17.2
T3S8	EBS	19	04.04.24	16:35:46	54.50850	8.15033	181.4	335	275	11.5	6	8.3	1001.5	16.1	17.1
T3S8	MSN	19	04.04.24	17:03:04	54.49260	8.15630	183.6	345	266	12.5	6	8.3	1002.2	15.1	17.6
T3S8	MSN	20	04.04.24	17:38:23	54.51452	8.14015	172.1	332	259	10.5	5	8.4	1002.7	15.6	17.3
T3S8	EBS	20	04.04.24	18:20:04	54.50807	8.14370	157.1	336	251	8.4	5	8.1	1003.4	13.1	17.5
T3S8	EBS	21	04.04.24	18:41:54	54.49765	8.15617	186.8	338	252	10.6	5	8.2	1003.8	13.0	17.4
T3S8	MSN	21	04.04.24	19:15:01	54.51218	8.14278	183.9	343	258	10.1	5	8.1	1004.4	14.6	17.5
T3S8	MSN	22	04.04.24	20:04:09	54.49263	8.14947	173.0	346	255	13.1	6	8.1	1004.8	15.7	17.9
T3S8	EBS	22	04.04.24	20:42:23	54.51228	8.14283	183.1	355	255	13.7	6	8.1	1004.7	14.8	17.3
T3S8	EBS	23	04.04.24	21:05:15	54.49753	8.14097	193.3	346	251	15.8	7	8.1	1004.9	14.9	17.8
T3S8	MSN	23	04.04.24	21:43:15	54.51427	8.14077	186.8	3	256	13.9	7	7.8	1005.4	16.8	17.0
T3S8	MSN	24	04.04.24	22:16:07	54.49328	8.13475	173.6	352	252	16.3	7	7.7	1005.7	16.8	17.7
T3S8	EBS	24	04.04.24	22:52:01	54.51187	8.14465	180.0	4	253	13.1	6	7.6	1005.9	17.6	16.5
T3S8	EBS	25	04.04.24	23:13:55	54.49603	8.14142	186.8	357	257	13.7	6	7.5	1005.9	15.9	16.9
T3S8	MSN	25	05.04.24	00:08:24	54.51318	8.13978	178.8	1	245	12.9	6	7.5	1006.0	15.8	15.9
T3S8	MSN	26	05.04.24	00:41:14	54.48993	8.13433	182.0	2	244	13.4	6	7.6	1006.2	15.8	16.8
T3S8	EBS	26	05.04.24	01:13:25	54.50405	8.13948	162.7	3	237	10.7	6	7.7	1006.4	17.3	16.0
T3S8	EBS	27	05.04.24	01:36:40	54.48542	8.14462	175.5	359	238	10.0	5	7.7	1006.5	15.2	16.8
T3S8	MSN	27	05.04.24	02:09:35	54.50342	8.14460	115.5	11	230	6.3	4	7.8	1006.7	11.4	15.4
T3S8	MSN	28	05.04.24	02:39:12	54.48722	8.16770	134.5	6	237	7.0	4	7.7	1006.8	15.4	15.7
T3S8	EBS	28	05.04.24	03:17:49	54.50757	8.13840	136.6	5	243	4.9	3	7.8	1007.0	16.4	15.8

Tab. 2: continued.

station	gear	haul	date	time (UTC)	latitude	longitude	towing direction [°]	drift angle [°]	wind direction [°]	wind speed		air temp. [°C]	air pressure [hPa]	operation time (gear in water) [minutes]	water depth [m]
										[m/s]	[bft]				
T3S8	EBS	29	05.04.24	03:41:14	54.48895	8.16008	113.6	9	232	3.9	3	7.6	1006.9	16.5	16.0
T3S8	MSN	29	05.04.24	04:24:13	54.51430	8.13553	110.8	11	217	4.5	3	7.6	1006.7	14.9	16.1
T3S8	MSN	30	05.04.24	05:01:51	54.49777	8.17087	88.8	17	195	3.3	2	7.3	1006.9	14.3	16.0
T3S8	EBS	30	05.04.24	06:02:53	54.50363	8.12993	86.6	5	177	4.8	3	7.8	1006.9	15.1	17.2
T3S8	EBS	31	05.04.24	06:30:17	54.48998	8.16285	129.4	350	206	7.4	4	8.6	1007.0	13.7	17.4
T3S8	MSN	31	05.04.24	07:07:09	54.51142	8.14033	106.0	353	201	8.0	5	8.8	1006.6	16.1	17.0
T3S8	MSN	32	05.04.24	07:50:37	54.50955	8.15007	95.4	352	181	8.3	5	8.9	1006.0	18.3	17.0
T3S8	EBS	32	05.04.24	08:36:34	54.50598	8.13377	129.5	331	190	10.6	5	9.1	1006.1	13.2	17.3
T3S8	EBS	33	05.04.24	08:57:42	54.50132	8.15462	118.0	331	187	11.5	6	9.1	1005.9	13.0	17.0
T3S8	MSN	33	05.04.24	10:01:52	54.51227	8.11930	95.3	343	179	9.2	5	9.3	1005.3	15.0	17.4
T3S8	MSN	34	05.04.24	10:35:52	54.50828	8.13790	101.0	340	165	12.1	6	9.4	1004.0	15.3	16.8
T3S8	EBS	34	05.04.24	11:00:14	54.50525	8.13667	97.1	336	160	13.3	6	9.8	1003.2	17.2	16.6
T3S8	EBS	35	05.04.24	11:21:56	54.50915	8.15760	114.4	332	174	15.0	7	9.8	1003.8	14.7	16.0
T3S8	MSN	35	05.04.24	11:56:27	54.49930	8.12605	75.1	334	162	15.2	7	10.1	1002.9	17.9	16.8
T3S8	MSN	36	05.04.24	12:33:12	54.50857	8.14350	81.6	338	167	17.4	8	10.3	1002.1	10.9	15.8
T3S8	EBS	36	05.04.24	12:58:11	54.49667	8.12033	74.8	345	167	15.0	7	10.4	1001.6	16.3	16.8
T3S8	EBS	37	05.04.24	13:21:49	54.50382	8.14370	83.7	341	179	13.2	6	10.4	1002.0	16.4	15.6
T3S8	MSN	37	05.04.24	13:50:08	54.50108	8.12995	91.7	342	187	14.0	7	10.9	1001.7	11.0	16.2
T3S8	MSN	38	05.04.24	14:17:46	54.50862	8.11825	108.5	352	199	15.2	7	11.0	1001.3	12.7	16.1
T3S8	EBS	38	05.04.24	14:39:38	54.50177	8.13827	118.9	357	214	14.4	7	11.4	1001.6	16.1	15.9
T2S6	EBS	39	05.04.24	23:10:06	55.00867	8.10017	160.8	339	232	12.1	6	9.3	1006.7	17.1	17.4
T2S6	MSN	39	06.04.24	01:07:38	54.99657	8.10037	187.4	348	239	12.0	6	9.3	1008.0	11.4	16.5
T2S6	MSN	40	06.04.24	01:32:29	54.98107	8.09712	182.6	351	236	11.2	6	9.3	1008.2	12.3	16.2
T2S6	EBS	40	06.04.24	02:02:31	55.01847	8.06810	120.5	356	226	7.2	4	9.3	1008.4	16.6	16.8
T2S6	EBS	41	06.04.24	02:27:08	55.00263	8.08398	128.6	359	223	9.9	5	9.0	1008.7	16.1	16.3
T2S6	MSN	41	06.04.24	03:04:13	55.01913	8.06378	138.8	359	229	10.0	5	9.1	1008.8	11.7	16.5
T2S6	MSN	42	06.04.24	03:34:03	54.99968	8.08070	135.5	7	227	9.7	5	9.1	1008.8	12.2	15.8
T2S6	EBS	42	06.04.24	04:04:10	55.01863	8.06020	134.6	356	229	8.9	5	9.1	1008.8	16.3	16.4

Tab. 2: continued.

station	gear	haul	date	time (UTC)	latitude	longitude	towing direction [°]	drift angle [°]	wind direction [°]	wind speed		air temp. [°C]	air pressure [hPa]	operation time (gear in water) [minutes]	water depth [m]
										[m/s]	[bft]				
T2S6	EBS	43	06.04.24	04:26:54	55.00032	8.07443	135.3	3	219	8.6	5	8.8	1009.0	15.4	16.0
T2S6	MSN	43	06.04.24	05:05:37	55.01512	8.06882	134.4	2	215	8.0	5	8.9	1008.9	11.6	16.5
T2S6	MSN	44	06.04.24	05:54:18	55.01415	8.06163	148.1	357	215	9.3	5	8.9	1009.6	12.2	17.0
T2S6	EBS	44	06.04.24	06:25:40	55.02093	8.06562	147.6	351	210	11.0	6	9.3	1009.9	13.3	17.3
T2S6	EBS	45	06.04.24	06:47:27	55.00675	8.08160	142.1	348	216	12.0	6	9.6	1010.3	13.4	17.0
T2S6	MSN	45	06.04.24	07:19:42	55.01940	8.05913	136.7	357	210	9.3	5	9.7	1010.5	10.6	17.6
T2S6	MSN	46	06.04.24	07:54:02	55.00625	8.08417	103.2	357	176	7.1	4	9.4	1010.4	9.5	17.4
T2S6	EBS	46	06.04.24	08:22:48	55.01497	8.06088	113.1	356	184	8.2	5	9.5	1010.5	17.2	17.9
T2S6	EBS	47	06.04.24	08:47:27	55.00757	8.08615	95.4	351	178	8.3	5	9.1	1010.6	13.6	17.6
T2S6	MSN	47	06.04.24	09:58:19	55.01133	8.07333	88.2	347	166	9.6	5	9.5	1010.1	11.2	17.5
T2S6	MSN	48	06.04.24	10:23:18	55.01258	8.10713	113.8	336	162	11.7	6	9.9	1009.6	26.4	17.4
T2S6	EBS	48	06.04.24	11:05:37	54.99907	8.08042	73.6	347	151	11.4	6	9.9	1009.1	17.1	17.7
T2S6	EBS	49	06.04.24	11:25:37	55.00610	8.10695	97.6	331	161	12.2	6	10.7	1009.2	15.3	17.3
T2S6	MSN	49	06.04.24	11:56:30	55.00032	8.07927	73.8	346	156	11.7	6	11.2	1009.1	13.0	17.4
T2S6	MSN	50	06.04.24	12:20:20	55.00642	8.09598	81.3	345	145	11.7	6	11.4	1008.7	13.3	17.3
T2S6	EBS	50	06.04.24	12:44:34	55.01200	8.08527	81.7	349	144	13.3	6	11.9	1008.0	18.5	17.4
T2S6	EBS	51	06.04.24	13:06:25	55.01053	8.10847	73.6	353	146	12.8	6	12.7	1007.8	16.3	16.9
T2S6	MSN	51	06.04.24	13:36:10	54.99758	8.07757	62.7	349	140	12.0	6	12.5	1007.3	10.6	16.8
T2S6	MSN	52	06.04.24	14:03:55	54.99203	8.05140	34.0	354	131	10.1	5	12.2	1007.0	11.4	17.0
T2S6	EBS	52	06.04.24	14:29:14	54.99810	8.06623	65.6	342	138	13.1	6	13.1	1006.4	16.5	16.6
T2S6	EBS	53	06.04.24	14:52:59	54.99958	8.09220	62.9	350	140	13.0	6	13.7	1006.2	15.8	16.2
T2S6	MSN	53	06.04.24	15:58:51	54.99832	8.05787	77.1	358	149	14.2	7	13.8	1005.9	12.2	16.3
T2S6	MSN	54	06.04.24	16:30:21	55.00180	8.09117	63.3	7	145	14.1	7	13.6	1005.7	10.0	16.1
T2S6	EBS	54	06.04.24	16:55:42	54.99263	8.06172	56.2	20	152	12.0	6	14.1	1005.5	15.8	16.3
T2S6	EBS	55	06.04.24	17:18:04	54.99313	8.09330	89.8	1	163	10.9	6	13.0	1005.9	16.1	16.2
T2S6	MSN	55	06.04.24	17:59:09	54.99498	8.03832	101.0	0	183	12.2	6	13.0	1006.7	11.3	17.5
T2S6	MSN	56	06.04.24	18:28:00	54.99040	8.07600	113.5	350	201	12.7	6	13.5	1007.1	10.1	16.8
T2S6	EBS	56	06.04.24	18:58:44	55.01673	8.06647	119.2	354	185	11.3	6	12.5	1006.7	13.9	17.5

Tab. 2: continued.

station	gear	haul	date	time (UTC)	latitude	longitude	towing direction [°]	drift angle [°]	wind direction [°]	wind speed		air temp. [°C]	air pressure [hPa]	operation time (gear in water) [minutes]	water depth [m]
										[m/s]	[bft]				
T2S6	EBS	57	06.04.24	19:19:53	55.00627	8.09387	108.8	355	185	10.7	5	12.2	1006.8	13.4	17.2
T2S6	MSN	57	06.04.24	19:54:00	55.01040	8.05708	108.1	353	184	11.2	6	12.2	1006.2	11.4	17.8
T2S6	MSN	58	06.04.24	20:36:25	55.01075	8.09017	112.3	345	187	12.2	6	12.9	1005.7	11.4	17.9
T2S6	EBS	58	06.04.24	21:15:08	55.00615	8.07355	136.3	332	192	13.4	6	12.6	1005.9	13.7	18.0
T2S6	EBS	59	06.04.24	21:36:50	55.00032	8.09743	124.4	339	192	12.2	6	12.3	1006.1	13.6	17.8
T2S6	MSN	59	06.04.24	22:07:00	55.00350	8.06563	98.7	349	193	12.6	6	12.2	1006.5	11.4	18.1
T2S6	MSN	60	06.04.24	22:34:05	55.00498	8.10287	112.1	341	196	13.2	6	12.6	1006.6	12.0	17.8
T2S6	EBS	60	06.04.24	23:03:36	54.99930	8.06825	92.5	345	192	11.0	6	12.3	1006.3	16.3	18.1
T2S6	EBS	61	06.04.24	23:22:45	55.00030	8.09748	104.4	337	198	11.6	6	13.6	1006.1	15.8	17.6
T2S6	MSN	61	06.04.24	23:54:37	55.00218	8.06717	95.1	349	194	9.8	5	12.3	1006.0	11.8	17.9
T2S6	MSN	62	07.04.24	00:15:54	55.00322	8.09602	95.1	340	192	9.8	5	12.8	1005.7	11.5	17.5
T2S6	EBS	62	07.04.24	00:38:08	55.00200	8.08278	88.5	352	198	9.6	5	14.3	1005.7	16.9	17.5
T2S5	EBS	63	07.04.24	02:18:22	54.93065	7.71813	121.0	351	214	11.3	6	11.7	1006.4	16.4	22.0
T2S5	MSN	63	07.04.24	02:56:15	54.95097	7.71393	162.6	357	229	11.7	6	11.4	1006.9	20.3	22.3
T2S5	MSN	64	07.04.24	03:36:46	54.92457	7.73650	150.3	358	233	13.9	6	10.6	1006.8	16.4	21.3
T2S5	EBS	64	07.04.24	04:15:12	54.92342	7.74718	118.7	358	213	11.7	6	9.7	1007.1	16.6	20.8
T2S5	EBS	65	07.04.24	04:44:33	54.91238	7.75673	114.2	12	207	11.9	6	9.8	1006.9	16.2	20.4

Tab. 3: Recorded data per haul and net. Except for catch duration and filtrated volume values are calculated as mean over the whole catch duration.

sample	station	gear	haul	net	catch duration [min]	catch depth above seafloor [m]	catch depth under surface [m]	filtrated volume [m³]	flow inside net [m/s]	flow outside net [m/s]	flow ratio [%]	water temp. [°C]	salinity
1	T3S7	EBS	1	1	10.00	0.35	22.56	75	-	-	-	7.49	-
2	T3S7	EBS	1	2	10.00	0.56	22.35	51	-	-	-	7.49	-
3	T3S7	MSN	1	1	4.47	5.67	16.73	104	1.54	1.34	114.9	7.60	32.0
4	T3S7	MSN	1	2	4.00	10.05	12.35	103	1.71	1.62	106.2	7.60	31.2
5	T3S7	MSN	1	3	4.57	15.69	6.71	101	1.48	1.42	103.8	7.89	30.1
6	T3S7	MSN	1	4	4.37	20.22	2.18	101	1.53	1.43	107.3	7.91	30.0
7	T3S7	MSN	2	1	4.00	5.20	18.10	102	1.69	1.51	112.2	7.68	32.0
8	T3S7	MSN	2	2	4.27	10.03	13.27	101	1.57	1.45	109.1	7.60	32.0
9	T3S7	MSN	2	3	4.42	15.35	7.95	102	1.54	1.47	104.8	7.69	31.4
10	T3S7	MSN	2	4	4.17	20.57	2.73	100	1.6	1.49	107.7	7.90	30.0
11	T3S7	EBS	2	1	10.02	0.35	23.56	19	-	-	-	7.53	-
12	T3S7	EBS	2	2	10.02	0.56	23.35	69	-	-	-	7.53	-
13	T3S7	EBS	3	1	10.02	0.35	22.86	98	-	-	-	7.53	-
14	T3S7	EBS	3	2	10.02	0.56	22.65	59	-	-	-	7.53	-
15	T3S7	MSN	3	1	4.15	5.13	18.17	99	1.58	1.4	113.6	7.70	32.0
16	T3S7	MSN	3	2	4.25	10.53	12.77	102	1.59	1.47	108.4	7.70	32.0
17	T3S7	MSN	3	3	6.47	16.86	6.44	143	1.47	1.38	106.8	7.83	31.2
18	T3S7	MSN	3	4	5.35	20.46	2.84	100	1.25	1.15	109.2	7.90	31.0
19	T3S7	MSN	4	1	4.02	5.39	17.81	103	1.72	1.54	111.9	7.60	32.0
20	T3S7	MSN	4	2	4.78	10.25	12.95	111	1.55	1.45	106.4	7.60	32.0
21	T3S7	MSN	4	3	4.25	15.59	7.61	102	1.6	1.5	106.9	7.71	31.3
22	T3S7	MSN	4	4	4.55	20.49	2.71	101	1.47	1.32	111.6	7.80	31.0
23	T3S7	EBS	4	1	10.02	0.35	23.66	61	-	-	-	7.53	-
24	T3S7	EBS	4	2	10.02	0.56	23.45	52	-	-	-	7.53	-
25	T3S7	EBS	5	1	10.03	0.35	21.56	65	-	-	-	7.50	-
26	T3S7	EBS	5	2	10.03	0.56	21.35	58	-	-	-	7.50	-
27	T3S7	MSN	5	1	3.80	6.08	17.02	101	1.77	1.57	113.5	7.60	32.0
28	T3S7	MSN	5	2	3.98	11.42	11.68	104	1.74	1.64	106.3	7.60	32.0
29	T3S7	MSN	5	3	4.18	16.02	7.08	101	1.6	1.47	109.1	7.73	32.0
30	T3S7	MSN	5	4	4.43	21.38	1.72	100	1.5	1.41	106.5	7.70	32.0
31	T3S7	MSN	6	1	4.02	5.59	16.61	104	1.73	1.5	116.2	7.60	32.0
32	T3S7	MSN	6	2	3.82	10.53	11.67	103	1.78	1.69	106.0	7.60	32.0
33	T3S7	MSN	6	3	3.95	15.25	6.95	103	1.73	1.59	109.7	7.70	32.0
34	T3S7	MSN	6	4	3.98	20.40	1.80	100	1.67	1.54	108.4	7.70	32.0
35	T3S7	EBS	6	1	10.02	0.35	22.46	60	-	-	-	7.49	-
36	T3S7	EBS	6	2	10.02	0.56	22.25	55	-	-	-	7.49	-
37	T3S7	EBS	7	1	10.02	0.35	21.66	40	-	-	-	7.59	-
38	T3S7	EBS	7	2	10.02	0.56	21.45	45	-	-	-	7.59	-
39	T3S7	MSN	7	1	3.98	5.11	18.09	103	1.72	1.49	115.9	7.60	32.0
40	T3S7	MSN	7	2	4.15	10.23	12.97	101	1.62	1.45	112.1	7.70	32.0
41	T3S7	MSN	7	3	3.82	15.03	8.17	99	1.73	1.61	107.7	7.70	32.0
42	T3S7	MSN	7	4	4.28	20.18	3.02	101	1.56	1.35	115.3	7.70	32.0

Tab. 3: continued.

sample	station	gear	haul	net	catch duration [min]	catch depth above seafloor [m]	catch depth under surface [m]	filtrated volume [m³]	flow inside net [m/s]	flow outside net [m/s]	flow ratio [%]	water temp. [°C]	salinity
43	T3S7	MSN	8	1	4.17	5.32	17.68	102	1.63	1.39	117.5	7.66	32.0
44	T3S7	MSN	8	2	4.12	10.06	12.94	101	1.63	1.48	110.7	7.70	32.0
45	T3S7	MSN	8	3	4.15	15.47	7.53	102	1.63	1.51	108.6	7.70	32.0
46	T3S7	MSN	8	4	4.13	20.19	2.81	100	1.6	1.44	111.4	7.70	32.0
47	T3S7	EBS	8	1	10.02	0.35	23.06	74	-	-	-	7.53	-
48	T3S7	EBS	8	2	10.02	0.56	22.85	66	-	-	-	7.53	-
49	T3S7	EBS	9	1	10.02	0.35	21.16	34	-	-	-	7.59	-
50	T3S7	EBS	9	2	10.02	0.56	20.95	40	-	-	-	7.59	-
51	T3S7	MSN	9	1	4.22	5.84	16.86	101	1.59	1.38	115.1	7.70	32.0
52	T3S7	MSN	9	2	4.13	11.25	11.45	102	1.64	1.52	108.3	7.70	32.0
53	T3S7	MSN	9	3	4.28	15.77	6.93	100	1.56	1.44	108.4	7.70	32.0
54	T3S7	MSN	9	4	4.58	20.46	2.24	101	1.46	1.34	109.1	7.70	32.0
55	T3S7	MSN	10	1	3.82	5.23	16.67	102	1.78	1.63	110.1	7.70	32.0
56	T3S7	MSN	10	2	4.05	10.26	11.64	103	1.69	1.57	107.8	7.70	32.0
57	T3S7	MSN	10	3	4.32	15.17	6.73	102	1.57	1.47	107.1	7.70	32.0
58	T3S7	MSN	10	4	4.35	19.26	2.64	100	1.52	1.39	108.9	7.70	32.0
59	T3S7	EBS	10	1	10.00	0.35	22.06	NA	-	-	-	7.55	-
60	T3S7	EBS	10	2	10.00	0.56	21.85	NA	-	-	-	7.55	-
61	T3S7	EBS	11	1	10.02	0.35	21.36	NA	-	-	-	7.58	-
62	T3S7	EBS	11	2	10.02	0.56	21.15	NA	-	-	-	7.58	-
63	T3S7	MSN	11	1	4.15	5.67	18.83	103	1.65	1.48	111.6	7.70	32.0
64	T3S7	MSN	11	2	4.35	11.03	13.47	102	1.57	1.44	109.0	7.70	32.0
65	T3S7	MSN	11	3	3.93	15.83	8.67	101	1.71	1.6	107.2	7.70	32.0
66	T3S7	MSN	11	4	4.15	20.93	3.57	100	1.62	1.49	109.1	7.70	32.0
67	T3S7	MSN	12	1	4.27	5.03	18.57	103	1.61	1.4	115.5	7.70	32.0
68	T3S7	MSN	12	2	4.02	9.88	13.72	103	1.7	1.61	106.0	7.70	32.0
69	T3S7	MSN	12	3	4.28	14.56	9.04	103	1.6	1.54	104.3	7.70	32.0
70	T3S7	MSN	12	4	4.07	20.03	3.57	101	1.65	1.49	110.4	7.70	32.0
71	T3S7	EBS	12	1	10.02	0.35	23.16	65	-	-	-	7.57	-
72	T3S7	EBS	12	2	10.02	0.56	22.95	58	-	-	-	7.57	-
73	T3S7	EBS	13	1	10.02	0.35	22.96	56	-	-	-	7.56	-
74	T3S7	EBS	13	2	10.02	0.56	22.75	49	-	-	-	7.56	-
75	T3S7	MSN	13	1	4.28	5.53	18.97	104	1.62	1.44	112.8	7.70	32.0
76	T3S7	MSN	13	2	4.22	10.71	13.79	104	1.63	1.52	107.7	7.70	32.0
77	T3S7	MSN	13	3	4.20	15.65	8.85	102	1.62	1.52	107.0	7.70	32.0
78	T3S7	MSN	13	4	4.07	20.50	4.00	100	1.64	1.51	108.4	7.72	32.0
79	T3S7	MSN	14	1	4.02	5.51	17.19	104	1.72	1.53	113.2	7.70	32.0
80	T3S7	MSN	14	2	4.38	10.62	12.08	102	1.55	1.43	109.2	7.70	32.0
81	T3S7	MSN	14	3	4.67	16.00	6.70	100	1.42	1.33	107.1	7.70	32.0
82	T3S7	MSN	14	4	4.23	21.12	1.58	100	1.57	1.5	104.9	7.78	32.0
83	T3S7	EBS	14	1	10.02	0.35	23.26	62	-	-	-	7.56	-
84	T3S7	EBS	14	2	10.02	0.56	23.05	65	-	-	-	7.56	-
85	T3S7	EBS	15	1	10.00	0.35	21.46	46	-	-	-	7.56	-

Tab. 3: continued.

sample	station	gear	haul	net	catch duration [min]	catch depth above seafloor [m]	catch depth under surface [m]	filtrated volume [m³]	flow inside net [m/s]	flow outside net [m/s]	flow ratio [%]	water temp. [°C]	salinity
86	T3S7	EBS	15	2	10.00	0.56	21.25	33	-	-	-	7.56	-
87	T3S7	MSN	15	1	4.38	5.85	16.65	102	1.55	1.34	115.9	7.70	32.0
88	T3S7	MSN	15	2	4.28	10.70	11.80	101	1.56	1.42	110.1	7.70	32.0
89	T3S7	MSN	15	3	4.12	15.81	6.69	101	1.63	1.48	110.4	7.70	32.0
90	T3S7	MSN	15	4	4.33	20.15	2.35	100	1.54	1.44	107.0	7.70	32.0
91	T3S7	MSN	16	1	4.27	5.27	15.83	103	1.59	1.38	115.7	7.80	32.0
92	T3S7	MSN	16	2	4.45	10.14	10.96	102	1.53	1.38	110.8	7.80	32.0
93	T3S7	MSN	16	3	4.32	15.13	5.97	101	1.56	1.4	111.4	7.80	32.0
94	T3S7	MSN	16	4	4.43	19.14	1.96	101	1.51	1.42	106.5	7.87	32.0
95	T3S7	EBS	16	1	10.03	0.35	21.76	25	-	-	-	7.62	-
96	T3S7	EBS	16	2	10.03	0.56	21.55	25	-	-	-	7.62	-
97	T3S7	EBS	17	1	10.27	0.35	21.56	66	-	-	-	7.72	-
98	T3S7	EBS	17	2	10.27	0.56	21.35	55	-	-	-	7.72	-
99	T3S7	MSN	17	1	4.30	6.10	15.60	103	1.59	1.36	117.5	7.80	32.0
100	T3S7	MSN	17	2	4.05	10.98	10.72	105	1.73	1.61	107.9	7.87	32.0
101	T3S7	MSN	17	3	4.12	15.92	5.78	101	1.63	1.54	106.3	7.90	32.0
102	T3S7	MSN	17	4	4.45	19.57	2.13	99	1.49	1.39	107.8	7.91	32.0
103	T3S8	MSN	18	1	3.93	5.47	11.03	102	1.73	1.55	111.9	8.00	28.0
104	T3S8	MSN	18	2	4.03	10.78	5.72	102	1.69	1.56	108.6	8.00	28.0
105	T3S8	MSN	18	3	4.18	14.84	1.66	101	1.6	1.55	103.1	8.00	28.0
106	T3S8	EBS	18	1	9.65	0.35	16.86	63	-	-	-	7.84	-
107	T3S8	EBS	18	2	9.65	0.56	16.65	56	-	-	-	7.84	-
108	T3S8	EBS	19	1	10.00	0.35	16.76	66	-	-	-	7.87	-
109	T3S8	EBS	19	2	10.00	0.56	16.55	56	-	-	-	7.87	-
110	T3S8	MSN	19	1	3.88	5.71	11.89	103	1.77	1.6	111.0	8.01	28.4
111	T3S8	MSN	19	2	4.23	10.82	6.78	102	1.61	1.47	109.9	8.22	28.0
112	T3S8	MSN	19	3	4.47	15.43	2.17	101	1.5	1.41	106.4	8.19	28.0
113	T3S8	MSN	20	1	4.33	5.05	12.25	100	1.53	1.32	115.9	8.10	29.0
114	T3S8	MSN	20	2	3.80	10.18	7.12	103	1.8	1.69	107.0	8.27	28.2
115	T3S8	MSN	20	3	4.50	15.25	2.05	100	1.49	1.42	105.0	8.30	28.0
116	T3S8	EBS	20	1	10.17	0.35	17.16	52	-	-	-	7.93	-
117	T3S8	EBS	20	2	10.17	0.56	16.95	43	-	-	-	7.93	-
118	T3S8	EBS	21	1	10.02	0.35	-	48	-	-	-	7.87	-
119	T3S8	EBS	21	2	10.02	0.56	-	39	-	-	-	7.87	-
120	T3S8	MSN	21	1	4.17	5.32	12.18	105	1.68	1.49	113.3	8.10	29.0
121	T3S8	MSN	21	2	4.35	10.49	7.01	101	1.54	1.46	105.6	8.10	29.0
122	T3S8	MSN	21	3	3.62	13.98	3.52	102	1.89	1.87	101.2	8.17	28.2
123	T3S8	MSN	22	1	4.42	5.07	12.83	101	1.52	1.35	112.8	8.08	30.0
124	T3S8	MSN	22	2	3.95	10.43	7.47	103	1.73	1.64	105.7	8.00	30.0
125	T3S8	MSN	22	3	3.72	13.81	4.09	101	1.81	1.74	104.1	8.08	29.0
126	T3S8	EBS	22	1	10.03	0.35	16.96	61	-	-	-	7.92	-
127	T3S8	EBS	22	2	10.03	0.56	16.75	54	-	-	-	7.92	-
128	T3S8	EBS	23	1	10.02	0.35	17.46	57	-	-	-	7.92	-

Tab. 3: continued.

sample	station	gear	haul	net	catch duration [min]	catch depth above seafloor [m]	catch depth under surface [m]	filtrated volume [m³]	flow inside net [m/s]	flow outside net [m/s]	flow ratio [%]	water temp. [°C]	salinity
129	T3S8	EBS	23	2	10.02	0.56	17.25	51	-	-	-	7.92	-
130	T3S8	MSN	23	1	4.05	4.80	12.20	102	1.68	1.5	112.4	8.00	29.0
131	T3S8	MSN	23	2	4.30	10.21	6.79	99	1.53	1.44	107.3	8.06	29.0
132	T3S8	MSN	23	3	4.50	13.01	3.99	100	1.48	1.37	107.7	8.17	29.0
133	T3S8	MSN	24	1	4.23	6.00	11.70	101	1.59	1.44	110.0	8.00	30.0
134	T3S8	MSN	24	2	4.38	10.94	6.76	103	1.56	1.47	106.4	8.00	29.9
135	T3S8	MSN	24	3	5.33	13.74	3.96	101	1.26	1.19	106.2	8.10	29.0
136	T3S8	EBS	24	1	10.02	0.35	16.16	58	-	-	-	7.95	-
137	T3S8	EBS	24	2	10.02	0.56	15.95	52	-	-	-	7.95	-
138	T3S8	EBS	25	1	10.03	0.35	16.56	56	-	-	-	8.01	-
139	T3S8	EBS	25	2	10.03	0.56	16.35	46	-	-	-	8.01	-
140	T3S8	MSN	25	1	4.07	4.91	10.99	103	1.68	1.52	110.5	8.19	29.0
141	T3S8	MSN	25	2	4.32	10.38	5.52	98	1.51	1.47	102.5	8.20	28.0
142	T3S8	MSN	25	3	4.20	11.55	4.35	100	1.59	1.54	103.5	8.20	28.0
143	T3S8	MSN	26	1	4.02	4.53	12.27	101	1.68	1.54	109.6	8.10	29.0
144	T3S8	MSN	26	2	4.43	10.07	6.73	99	1.49	1.43	104.6	8.10	29.0
145	T3S8	MSN	26	3	4.20	12.95	3.85	100	1.59	1.55	102.9	8.10	29.0
146	T3S8	EBS	26	1	10.02	0.35	15.66	63	-	-	-	8.05	-
147	T3S8	EBS	26	2	10.02	0.56	15.45	50	-	-	-	8.05	-
148	T3S8	EBS	27	1	10.02	0.35	16.46	58	-	-	-	8.05	-
149	T3S8	EBS	27	2	10.02	0.56	16.25	47	-	-	-	8.05	-
150	T3S8	MSN	27	1	3.73	5.53	9.87	103	1.84	1.7	108.9	8.00	28.0
151	T3S8	MSN	27	2	4.28	10.85	4.55	100	1.56	1.42	109.9	7.93	28.0
152	T3S8	MSN	28	1	4.68	5.11	10.59	102	1.45	1.28	113.0	8.00	28.0
153	T3S8	MSN	28	2	4.53	11.08	4.62	100	1.47	1.35	108.9	7.90	28.0
154	T3S8	EBS	28	1	10.03	0.35	15.46	53	-	-	-	7.94	-
155	T3S8	EBS	28	2	10.03	0.56	15.25	53	-	-	-	7.94	-
156	T3S8	EBS	29	1	10.03	0.35	15.66	68	-	-	-	7.96	-
157	T3S8	EBS	29	2	10.03	0.56	15.45	58	-	-	-	7.96	-
158	T3S8	MSN	29	1	3.73	4.91	11.19	103	1.84	1.67	110.8	8.00	28.0
159	T3S8	MSN	29	2	4.37	10.24	5.86	100	1.52	1.37	110.9	8.00	28.0
160	T3S8	MSN	29	3	4.20	12.46	3.64	101	1.59	1.49	107.4	8.00	28.0
161	T3S8	MSN	30	1	3.63	5.53	10.47	102	1.86	1.65	113.1	7.91	28.0
162	T3S8	MSN	30	2	3.88	10.14	5.86	100	1.71	1.56	110.4	7.98	28.0
163	T3S8	MSN	30	3	4.13	11.98	4.02	100	1.62	1.47	110.2	8.00	28.0
164	T3S8	EBS	30	1	10.02	0.35	16.86	74	-	-	-	7.94	-
165	T3S8	EBS	30	2	10.02	0.56	16.65	68	-	-	-	7.94	-
166	T3S8	EBS	31	1	10.00	0.35	17.06	71	-	-	-	8.00	-
167	T3S8	EBS	31	2	10.00	0.56	16.85	65	-	-	-	8.00	-
168	T3S8	MSN	31	1	3.93	5.79	11.21	104	1.76	1.56	113.6	8.10	29.0
169	T3S8	MSN	31	2	4.35	9.89	7.11	103	1.57	1.41	111.5	8.00	28.0
170	T3S8	MSN	31	3	4.45	13.22	3.78	101	1.5	1.36	110.1	8.00	28.0
171	T3S8	MSN	32	1	4.45	4.98	12.02	102	1.53	1.29	118.7	8.10	29.0

Tab. 3: continued.

sample	station	gear	haul	net	catch duration [min]	catch depth above seafloor [m]	catch depth under surface [m]	filtrated volume [m³]	flow inside net [m/s]	flow outside net [m/s]	flow ratio [%]	water temp. [°C]	salinity
172	T3S8	MSN	32	2	4.70	10.34	6.66	101	1.43	1.27	113.0	8.00	28.0
173	T3S8	MSN	32	3	4.55	12.75	4.25	100	1.47	1.31	111.8	8.00	28.0
174	T3S8	EBS	32	1	10.05	0.35	16.96	42	-	-	-	7.94	-
175	T3S8	EBS	32	2	10.05	0.56	16.75	47	-	-	-	7.94	-
176	T3S8	EBS	33	1	10.03	0.35	16.66	49	-	-	-	7.94	-
177	T3S8	EBS	33	2	10.03	0.56	16.45	41	-	-	-	7.94	-
178	T3S8	MSN	33	1	4.03	4.84	12.56	102	1.69	1.47	115.2	8.10	30.0
179	T3S8	MSN	33	2	4.02	10.79	6.61	100	1.66	1.47	113.5	8.17	29.0
180	T3S8	MSN	33	3	3.82	13.35	4.05	100	1.74	1.59	109.7	8.10	28.0
181	T3S8	MSN	34	1	4.60	5.35	11.45	101	1.46	1.26	115.7	8.00	30.0
182	T3S8	MSN	34	2	4.22	10.95	5.85	98	1.55	1.36	114.1	8.11	29.6
183	T3S8	MSN	34	3	4.13	12.85	3.95	100	1.61	1.44	111.9	8.19	29.0
184	T3S8	EBS	34	1	10.03	0.35	16.26	48	-	-	-	7.96	-
185	T3S8	EBS	34	2	10.03	0.56	16.05	68	-	-	-	7.96	-
186	T3S8	EBS	35	1	10.05	0.35	15.66	41	-	-	-	8.04	-
187	T3S8	EBS	35	2	10.05	0.56	15.45	14	-	-	-	8.04	-
188	T3S8	MSN	35	1	4.12	5.31	11.49	103	1.66	1.42	118.0	8.10	29.0
189	T3S8	MSN	35	2	3.80	10.34	6.46	101	1.76	1.6	110.4	8.30	28.0
190	T3S8	MSN	35	3	3.83	13.12	3.68	101	1.74	1.58	110.4	8.30	28.0
191	T3S8	MSN	36	1	3.83	6.10	9.70	102	1.76	1.54	115.0	8.21	28.5
192	T3S8	MSN	36	2	4.00	11.19	4.61	101	1.67	1.52	110.5	8.23	28.0
193	T3S8	EBS	36	1	10.02	0.35	16.46	71	-	-	-	8.01	-
194	T3S8	EBS	36	2	10.02	0.56	16.25	52	-	-	-	8.01	-
195	T3S8	EBS	37	1	9.98	0.35	15.26	47	-	-	-	7.97	-
196	T3S8	EBS	37	2	9.98	0.56	15.05	49	-	-	-	7.97	-
197	T3S8	MSN	37	1	3.83	5.30	10.90	104	1.8	1.6	112.9	8.20	28.5
198	T3S8	MSN	37	2	3.72	10.19	6.01	101	1.81	1.7	106.6	8.25	28.0
199	T3S8	MSN	38	1	4.38	5.02	11.08	101	1.54	1.31	117.5	8.18	28.2
200	T3S8	MSN	38	2	3.92	10.33	5.77	100	1.7	1.58	107.8	8.28	28.0
201	T3S8	EBS	38	1	10.00	0.35	15.56	64	-	-	-	7.97	-
202	T3S8	EBS	38	2	10.00	0.56	15.35	53	-	-	-	7.97	-
203	T2S6	EBS	39	1	10.22	0.35	17.06	39	-	-	-	7.74	-
204	T2S6	EBS	39	2	10.22	0.56	16.85	45	-	-	-	7.74	-
205	T2S6	MSN	39	1	4.00	5.70	10.80	102	1.7	1.53	111.7	7.90	30.0
206	T2S6	MSN	39	2	4.48	9.15	7.35	100	1.49	1.4	106.8	7.90	30.0
207	T2S6	MSN	40	1	4.03	5.01	11.19	102	1.68	1.47	114.0	7.90	30.0
208	T2S6	MSN	40	2	4.17	9.18	7.02	100	1.59	1.46	109.3	7.90	29.9
209	T2S6	EBS	40	1	10.05	0.35	16.46	28	-	-	-	7.70	-
210	T2S6	EBS	40	2	10.05	0.56	16.25	33	-	-	-	7.70	-
211	T2S6	EBS	41	1	10.02	0.35	15.96	29	-	-	-	7.76	-
212	T2S6	EBS	41	2	10.02	0.56	15.75	36	-	-	-	7.76	-
213	T2S6	MSN	41	1	4.58	5.71	10.79	103	1.5	1.32	113.9	7.80	30.0
214	T2S6	MSN	41	2	3.90	9.70	6.80	101	1.72	1.61	106.7	7.86	30.0

Tab. 3: continued.

sample	station	gear	haul	net	catch duration [min]	catch depth above seafloor [m]	catch depth under surface [m]	filtrated volume [m³]	flow inside net [m/s]	flow outside net [m/s]	flow ratio [%]	water temp. [°C]	salinity
215	T2S6	MSN	42	1	5.08	4.78	11.02	117	1.52	1.32	114.9	7.90	30.0
216	T2S6	MSN	42	2	4.42	8.99	6.81	100	1.51	1.37	109.9	7.90	30.0
217	T2S6	EBS	42	1	10.02	0.35	16.06	18	-	-	-	7.72	-
218	T2S6	EBS	42	2	10.02	0.56	15.85	23	-	-	-	7.72	-
219	T2S6	EBS	43	1	10.02	0.35	15.66	34	-	-	-	7.74	-
220	T2S6	EBS	43	2	10.02	0.56	15.45	41	-	-	-	7.74	-
221	T2S6	MSN	43	1	4.30	5.93	10.57	99	1.53	1.34	113.9	7.80	30.0
222	T2S6	MSN	43	2	3.90	9.76	6.74	100	1.72	1.59	107.7	7.89	30.0
223	T2S6	MSN	44	1	4.10	5.39	11.61	102	1.67	1.49	112.1	7.80	30.0
224	T2S6	MSN	44	2	4.43	9.70	7.30	97	1.46	1.34	108.9	7.80	30.0
225	T2S6	EBS	44	1	10.02	0.35	16.96	59	-	-	-	7.67	-
226	T2S6	EBS	44	2	10.02	0.56	16.75	48	-	-	-	7.67	-
227	T2S6	EBS	45	1	10.00	0.35	16.66	39	-	-	-	7.70	-
228	T2S6	EBS	45	2	10.00	0.56	16.45	42	-	-	-	7.70	-
229	T2S6	MSN	45	1	3.53	6.20	11.40	106	2.01	1.87	108.2	7.80	30.0
230	T2S6	MSN	45	2	3.58	10.46	7.14	101	1.87	1.81	104.3	7.80	30.0
231	T2S6	MSN	46	1	3.40	5.94	11.46	106	2.08	1.94	107.8	7.80	30.0
232	T2S6	MSN	46	2	3.32	10.39	7.01	101	2.03	2.01	101.5	7.82	30.0
233	T2S6	EBS	46	1	10.05	0.35	17.56	58	-	-	-	7.66	-
234	T2S6	EBS	46	2	10.05	0.56	17.35	48	-	-	-	7.66	-
235	T2S6	EBS	47	1	10.02	0.35	17.26	43	-	-	-	7.69	-
236	T2S6	EBS	47	2	10.02	0.56	17.05	49	-	-	-	7.69	-
237	T2S6	MSN	47	1	3.68	-	12.12	103	1.86	1.62	114.9	7.80	30.0
238	T2S6	MSN	47	2	4.02	-	7.06	100	1.66	1.5	110.8	7.80	30.0
239	T2S6	MSN	48	1	5.43	4.88	12.52	95	1.16 (±0.6)	1.31	87.1	7.90	30.0
240	T2S6	MSN	48	2	5.45	10.33	7.07	100	1.22 (±0.4)	1.4	89.0	7.90	30.0
241	T2S6	EBS	48	1	10.02	0.35	17.36	46	-	-	-	7.72	-
242	T2S6	EBS	48	2	10.02	0.56	17.15	46	-	-	-	7.72	-
243	T2S6	EBS	49	1	10.02	0.35	16.96	49	-	-	-	7.80	-
244	T2S6	EBS	49	2	10.02	0.56	16.75	48	-	-	-	7.80	-
245	T2S6	MSN	49	1	3.97	5.30	12.10	101	1.7	1.45	117.2	7.90	30.0
246	T2S6	MSN	49	2	4.75	10.23	7.17	100	1.41	1.25	112.7	7.92	30.0
247	T2S6	MSN	50	1	4.42	5.01	12.29	99	1.49	1.31	114.0	7.90	30.0
248	T2S6	MSN	50	2	5.43	10.22	7.08	100	1.23 (±0.4)	1.3	94.6	7.97	30.0
249	T2S6	EBS	50	1	10.02	0.35	17.06	43	-	-	-	7.81	-
250	T2S6	EBS	50	2	10.02	0.56	16.85	43	-	-	-	7.81	-
251	T2S6	EBS	51	1	10.03	0.35	16.56	37	-	-	-	7.82	-
252	T2S6	EBS	51	2	10.03	0.56	16.35	39	-	-	-	7.82	-
253	T2S6	MSN	51	1	3.70	5.53	11.27	99	1.78	1.57	113.7	7.92	30.0
254	T2S6	MSN	51	2	3.95	9.81	6.99	100	1.69	1.54	110.0	8.00	30.0
255	T2S6	MSN	52	1	3.93	4.72	12.28	103	1.73	1.5	115.8	8.00	30.0
256	T2S6	MSN	52	2	4.08	9.78	7.22	100	1.63	1.49	109.2	8.00	30.0

Tab. 3: continued.

sample	station	gear	haul	net	catch duration [min]	catch depth above seafloor [m]	catch depth under surface [m]	filtrated volume [m³]	flow inside net [m/s]	flow outside net [m/s]	flow ratio [%]	water temp. [°C]	salinity
257	T2S6	EBS	52	1	10.03	0.35	16.26	47	-	-	-	7.83	-
258	T2S6	EBS	52	2	10.03	0.56	16.05	42	-	-	-	7.83	-
259	T2S6	EBS	53	1	10.08	0.35	15.86	53	-	-	-	7.86	-
260	T2S6	EBS	53	2	10.08	0.56	15.65	47	-	-	-	7.86	-
261	T2S6	MSN	53	1	4.77	4.66	11.64	98	1.36 (±0.4)	1.38	100.0	8.00	30.0
262	T2S6	MSN	53	2	4.33	9.50	6.80	100	1.54	1.44	107.8	8.10	30.0
263	T2S6	MSN	54	1	3.97	5.46	10.64	102	1.7	1.47	116.2	8.00	30.0
264	T2S6	MSN	54	2	3.40	9.02	7.08	100	1.97	1.88	105.4	8.11	29.0
265	T2S6	EBS	54	1	10.02	0.35	15.96	51	-	-	-	7.85	-
266	T2S6	EBS	54	2	10.02	0.56	15.75	44	-	-	-	7.85	-
267	T2S6	EBS	55	1	10.02	0.35	15.86	58	-	-	-	7.86	-
268	T2S6	EBS	55	2	10.02	0.56	15.65	49	-	-	-	7.86	-
269	T2S6	MSN	55	1	3.72	5.73	11.77	105	1.88	1.68	112.4	7.90	30.0
270	T2S6	MSN	55	2	3.78	10.63	6.87	100	1.75	1.6	109.8	8.01	30.0
271	T2S6	MSN	56	1	3.62	6.03	10.77	104	1.91	1.7	113.2	7.99	30.0
272	T2S6	MSN	56	2	3.50	9.44	7.36	101	1.92	1.8	107.2	8.10	30.0
273	T2S6	EBS	56	1	10.02	0.35	17.16	64	-	-	-	7.74	-
274	T2S6	EBS	56	2	10.02	0.56	16.95	66	-	-	-	7.74	-
275	T2S6	EBS	57	1	10.03	0.35	16.86	60	-	-	-	7.79	-
276	T2S6	EBS	57	2	10.03	0.56	16.65	61	-	-	-	7.79	-
277	T2S6	MSN	57	1	4.17	5.69	12.11	103	1.64 (±0.4)	1.36	120.7	7.91	30.0
278	T2S6	MSN	57	2	4.95	10.64	7.16	81	1.09	1.18	94.0	8.00	30.0
279	T2S6	MSN	58	1	4.03	5.21	12.69	103	1.7	1.46	117.1	7.86	30.0
280	T2S6	MSN	58	2	4.05	10.08	7.82	100	1.64	1.52	108.1	7.98	30.0
281	T2S6	EBS	58	1	10.27	0.35	17.66	58	-	-	-	7.74	-
282	T2S6	EBS	58	2	10.27	0.56	17.45	59	-	-	-	7.74	-
283	T2S6	EBS	59	1	9.98	0.35	17.46	52	-	-	-	7.82	-
284	T2S6	EBS	59	2	9.98	0.56	17.25	54	-	-	-	7.82	-
285	T2S6	MSN	59	1	3.33	5.06	13.04	106	2.12	1.91	111.5	7.90	30.0
286	T2S6	MSN	59	2	3.77	10.06	8.04	99	1.76	1.6	110.3	8.00	30.0
287	T2S6	MSN	60	1	3.60	5.81	11.99	101	1.88	1.65	114.3	8.01	30.0
288	T2S6	MSN	60	2	4.12	10.73	7.07	99	1.6	1.47	109.0	8.10	30.0
289	T2S6	EBS	60	1	10.02	0.35	17.76	67	-	-	-	7.96	-
290	T2S6	EBS	60	2	10.02	0.56	17.55	67	-	-	-	7.96	-
291	T2S6	EBS	61	1	10.02	0.35	17.26	NA	-	-	-	7.97	-
292	T2S6	EBS	61	2	10.02	0.56	17.05	NA	-	-	-	7.97	-
293	T2S6	MSN	61	1	3.43	5.48	12.42	103	2.01 (±0.4)	1.75	115.5	8.10	30.0
294	T2S6	MSN	61	2	4.07	10.72	7.18	103	1.68	1.53	110.0	8.10	30.0
295	T2S6	MSN	62	1	3.83	5.66	11.84	102	1.76	1.56	113.0	8.10	30.0
296	T2S6	MSN	62	2	3.87	10.44	7.06	100	1.71	1.61	107.1	8.10	30.0
297	T2S6	EBS	62	1	8.00	0.35	17.16	NA	-	-	-	7.97	-
298	T2S6	EBS	62	2	8.00	0.56	16.95	NA	-	-	-	7.97	-

Tab. 3: continued.

sample	station	gear	haul	net	catch duration [min]	catch depth above seafloor [m]	catch depth under surface [m]	filtrated volume [m³]	flow inside net [m/s]	flow outside net [m/s]	flow ratio [%]	water temp. [°C]	salinity
299	T2S5	EBS	63	1	10.03	0.35	21.66	55	-	-	-	7.64	-
300	T2S5	EBS	63	2	10.03	0.56	21.45	56	-	-	-	7.64	-
301	T2S5	MSN	63	1	3.90	10.51	11.79	94	1.6	1.4	114.4	7.80	32.0
302	T2S5	MSN	63	2	4.67	4.89	17.41	101	1.44	1.28	112.6	7.80	32.0
303	T2S5	MSN	63	3	4.63	10.41	11.89	103	1.48	1.39	106.7	7.80	32.0
304	T2S5	MSN	63	4	4.12	15.50	6.80	101	1.62	1.49	108.8	7.80	32.0
305	T2S5	MSN	64	1	4.52	5.40	15.90	101	1.49	1.3	115.4	7.80	32.0
306	T2S5	MSN	64	2	4.45	10.63	10.67	99	1.49	1.35	110.1	7.80	32.0
307	T2S5	MSN	64	3	4.28	14.45	6.85	100	1.56	1.45	108.0	7.81	32.0
308	T2S5	EBS	64	1	10.02	0.35	20.46	62	-	-	-	7.67	-
309	T2S5	EBS	64	2	10.02	0.56	20.25	61	-	-	-	7.67	-
310	T2S5	EBS	65	1	10.02	0.35	20.06	65	-	-	-	7.68	-
311	T2S5	EBS	65	2	10.02	0.56	19.85	64	-	-	-	7.68	-