

**GEOMAR
Helmholtz-Zentrum für Ozeanforschung Kiel**

Date: 20.05.2019

Cruise Report

Compiled by: Gregor Steffen, gsteffen@geomar.de

F.K. Littorina

Cruise No.: L19-04

Date of cruise: 06.05. - 10.05.2019

Areas of research: Public relations and Aquarium West Shore

Port Calls: Grenå DK (07.05. - 08.05. & 08.05 – 09.05.2019)

Institute: GEOMAR

Chief scientist: Heidi Gonschior

Number of scientists: 5

Projects:

Acquisition of living marine organisms for the public relations division (GEOMAR), the institute's own aquarium and the Multimar Wattforum (Tönning) in the northern Kattegat.

Cruise Report

This cruise report consists of 09 pages including cover:

1. Scientific crew
2. Research programme
3. Narrative of cruise with technical details
4. Scientific report and first results
5. Moorings, scientific equipment and instruments
6. Additional remarks
7. Appendix
 - a. Map with cruise track
 - b. Dredge position list
 - c. Station list

1. Scientific crew

Name	Function	Institute	Leg
Heidi Gonschior	Chief scientist	GEOMAR	Complete
Gregor Steffen	Scientist	GEOMAR	Complete
Nicole Rekrühle	Worker	Multimar Wattforum	Complete
Alba Lopez de Lamadrid	Student		Complete
Julius Wolf	Student	Aquarium Kiel	Complete
Total	5		

Chief scientist: Heidi Gonschior, Dorfstraße 251, 24222 Schwentinental/Klausdorf, Germany, 0049-431-6004514, 0049-431-6001515, hgonschior@geomar.de

2. Research programme

The aim of this cruise of the research vessel „Littorina“ from May 06th to May 10th 2019 was the sampling of living marine organisms for the public relations division (GEOMAR) and the institute's own aquarium.

Marine invertebrates and vertebrates were collected with dredges at different stations and depths in the northern Kattegat for use during “F.K. Littorina Open Ship Kids Festival 2019” and to complete scientific collections in the Kiel aquarium and the Multimar Wattforum in Tönning and Ostsee Erlebniswelt in Heiligenhafen. Furthermore, a Mini-ROV “Video Ray” was used to collect video material of the sampled habitats.

Additional depth water sampling was maintained for rearing the organisms.

3. Narrative of cruise with technical details

06.05.2019	09:15	Departure of RV “Littorina” from Kiel harbour
07.05.2019	08:30 until 09:10	Arrival at first station in the west of Grenå / DK & sampling of depth water from 35m. Salinity was 30,0 and temperature 6,8°C.
	09:10	Heading towards port of Grenå / DK.
	11:15	Mooring at Grenå / DK
08.05.2019	04:00	Departing port of Grenå / DK.
	06:15	Arrival at first station east of Grenå. First dredge at 23m. (Dive point: 56°24,978’N, 011°21,404’E)
	09:00	Finished first station after 15 dredge towings.
	10:15	Arrival at second station east of Grenå. First dredge at 18m. (Dive point: 56°23,794’N, 011°20,005’E)
	13:30	Finished second station after 14 dredge towings
	15:00 16:30	Heading towards port of Grenå / DK. Mooring at Grenå / DK
09.05.2019	08:00	Departing port of Grenå DK.
	11:00	Arrival at third station at the Syiaellands bank. First dredge at 18m. (Dive point: 56°09,164’N, 011°23,794’E)
	12:00	Finished third station after 4 dredge towings.
	14:15	Sampling of depth water from 35m. Salinity was 29 and temperature 6,8°C. Heading towards fourth station at the Hjelm bank.
	16:00	Arrival at fourth station. First dredge at 18m. (Dive point: 56°10,236’N,

		010°54,576'E)
	17:30	Finished fourth station after 6 dredge tows.
	18:00	Heading towards Kiel harbour.
10.05.2019	07:00	Arrival of RV "Littorina" at Kiel harbour

4. Scientific report and first results

During our fieldwork the sampling results contained a wide range of marine organisms with a focus on a high salinity environment within the Baltic Sea in an area called the Kattegat. Because this area is located close to the North Sea it is characterized by a high salinity and also by a high abundance of North Sea species, which is important and very interesting for sampling cruises. An effect of the low salinity environment like existing in most parts of the Baltic Sea is that the organisms, which are mainly emigrated from the North Sea, have to cope with salinity stress. To deal with that energy demanding stress the organisms have to relocate their focus from growth processes to e.g. ion exchange processes resulting in smaller sizes compared to their species members in the salty North Sea environment. One proper way to show the public the differences in species abundance and the size to stress relationship is the public presentation of living organisms. This public relations work is done during the F.K. Littorina Open Ship at the Kids Festival 2019 in Kiel and in the Kiel Aquarium.

To gain as many different species as possible we also dredged in various depths between 13 to 32m where the factor “light intensity” plays also a big role in benthic community composition.

5. Moorings, scientific equipment and instruments

- **Dredge**
- **Depthwater pump**
- **Salinity probe**
- **Mini-ROV “Video Ray”**

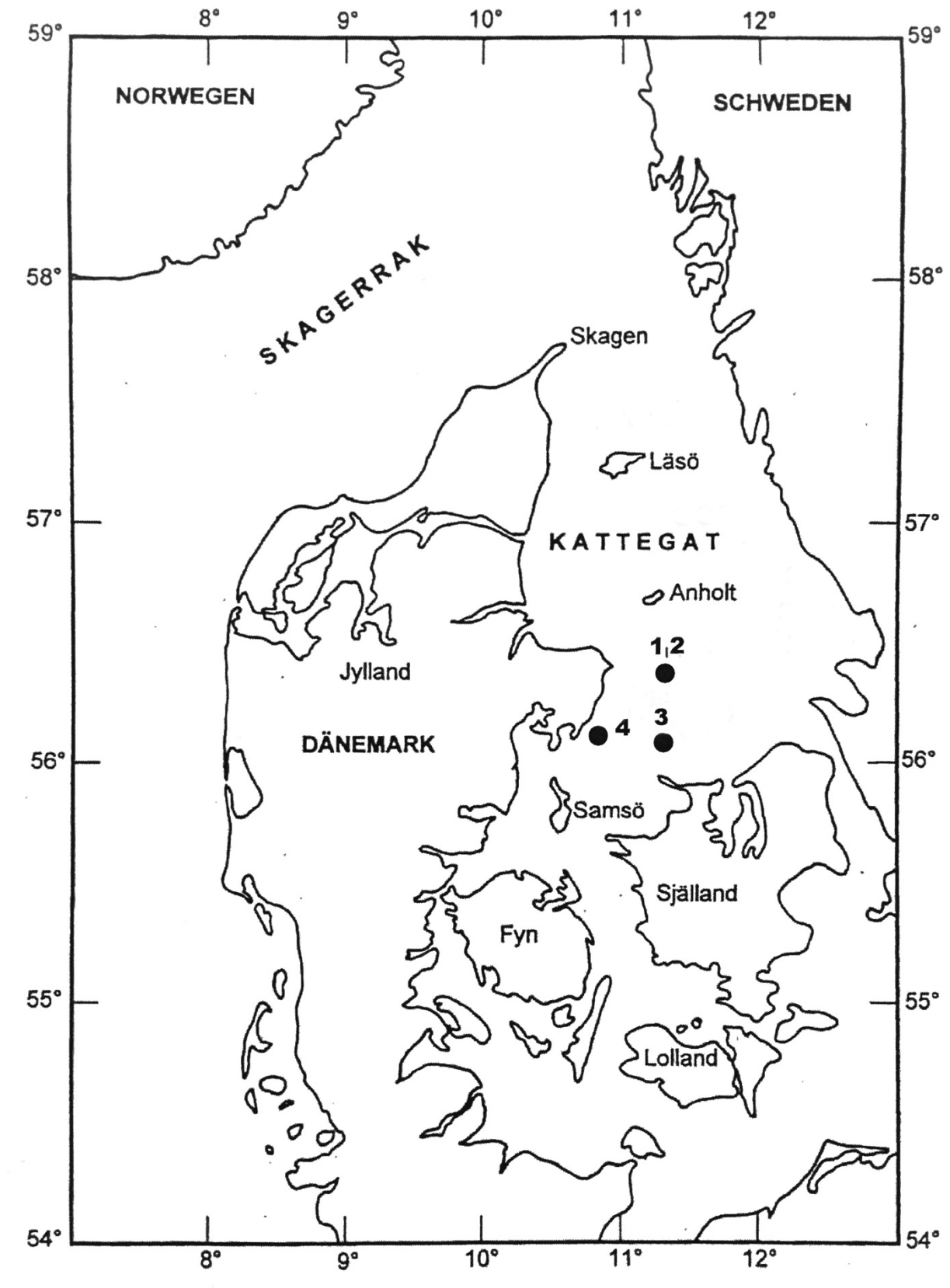
6. Acknowledgements

Thanks to the captain and the whole Littorina crew for the big support during the trip.

7. Appendix

- a. Map
- b. Dredge position list
- c. Station list

Map



Dredge position list:

Station 1 (08.05.2019):

Dredge#	Time	Start coordinates		Depth (m)
1	06:20	56°24,978'N	011°21,404'E	23
2	06:29	56°24,773'N	011°21,427'E	19
3	06:38	56°24,553'N	011°21,418'E	19,5
4	06:48	56°24,352'N	011°21,304'E	19,3
5	06:58	56°24,235'N	011°21,011'E	19,3
6	07:08	56°24,149'N	011°20,621'E	18,7
7	07:18	56°24,067'N	011°20,170'E	17,7
8	07:26	56°24,025'N	011°19,857'E	17,8
9	07:45	56°24,256'N	011°20,028'E	17,8
10	07:54	56°24,340'N	011°20,422'E	18
11	08:05	56°24,394'N	011°20,843'E	18,7
12	08:17	56°24,386'N	011°21,437'E	21
13	08:30	56°24,450'N	011°21,513'E	20
14	08:40	56°24,301'N	011°21,220'E	19,3

Station 2 (08.05.2019):

Dredge#	Time	Start coordinates		Depth (m)
1	10:08	56°23,794'N	011°20,005'E	18,2
2	10:22	56°23,482'N	011°19,521'E	19,2
3	10:33	56°23,294'N	011°19,374'E	19
4	10:47	56°23,768'N	011°19,439'E	18,5
5	11:00	56°24,087'N	011°19,786'E	18
6	11:12	56°24,164'N	011°20,466'E	18,3
7	11:21	56°24,257'N	011°20,863'E	18,3
8	12:20	56°20,437'N	011°18,544'E	18,5
9	12:30	56°20,271'N	011°18,350'E	18,5
10	12:40	56°19,981'N	011°18,200'E	14,2
11	13:00	56°19,460'N	011°17,870'E	11,3
12	13:18	56°19,083'N	011°17,295'E	18

Station 3 (09.05.2019):

Dredge#	Time	Start coordinates		Depth (m)
1	10:55	56°09,164'N	011°23,794'E	18
2	11:04	56°08,990'N	011°24,029'E	18,3
3	11:14	56°08,779'N	011°24,282'E	18,2
4	11:31	56°08,396'N	011°23,920'E	18,2

Station 4 (09.05.2019):

Dredge#	Time	Start coordinates		Depth (m)
1	15:50	56°10,236'N	010°54,576'E	18
2	16:04	56°10,073'N	010°55,194'E	19
3	16:20	56°09,751'N	010°55,553'E	17,5
4	16:34	56°09,343'N	010°55,450'E	18,6
5	16:48	56°08,907'N	010°55,298'E	18

6	17:05	56°08,533'N	010°55,225'E	17
---	-------	-------------	--------------	----

Station list:

Station 1	56°24,978'N, 011°21,404'E
Station 2	56°23,794'N, 011°20,005'E
Station 3	56°09,164'N, 011°23,794'E
Station 4	56°10,236'N, 011°54,576'E