

*GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel: Cruise report*

**GEOMAR  
Helmholtz-Zentrum für Ozeanforschung Kiel**

**Date: 18.05.2018**

**Cruise Report**

**Compiled by:** Mario Finkel, [mario-finkel@mail.de](mailto:mario-finkel@mail.de)

**F.K. Littorina**

**Cruise No.: L18-05 2018**

**Date of cruise:** 14.05. - 18.05.2018

**Areas of research:** Public relations and Aquarium West Shore

**Port Calls:** Osterby / Læsø DK (15.05. - 16.05.2018) & Grenå DK (16.05. - 17.05.2018)

**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 14 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
  - d. Species lists

## 1. Scientific crew

<b>Name</b>	<b>Function</b>	<b>Institute</b>	<b>Leg</b>
Heidi Gonschior	Chief scientist	GEOMAR	Complete
Gregor Steffen	Scientist	GEOMAR	Complete
Mario Finkel	Scientist	GEOMAR	Complete
Ruven Luca Heuberger	Aquarium	GEOMAR	Complete
Nicole Pekruhl	Aquarium	Multimar Wattforum	Complete
<b>Total</b>	<b>5</b>		

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

## 2. Research programme

The aim of this cruise of the research vessel „Littorina“ from May 14<sup>th</sup> to May 18<sup>th</sup> 2018 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 2018” and to complete scientific collections in the Kiel aquarium and Multimar Wattforum. 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

14.05.2018	09:30	Departure of RV “Littorina” from Kiel harbour
	10:00 – 10:55	Refueling at Friedrichsort
15.05.2018	08:55 until 09:30	Arrival at first station in the south-east of Læsø / DK & sampling of depth water from 44m. Salinity was 30,1 and temperature 7,5°C. Dive point: 56°59,4’N, 011°39,734’E
	10:10	First dredge at 14m. (Dive point: 57°00,235’N, 011°35,119’E)
	15:00	Finished first station after 17 dredge tows. Heading towards port of Osterby / Læsø DK.
	18:00 – 19:00	Waiting just north of Osterby until first fishing vessels leave the harbour. Use of Mini-ROV to collect video footage of the habitat at 10m depth.
	19:30	Mooring at Osterby / Læsø DK.
16.05.2018	07:45	Departing port of Osterby / Læsø DK.
	15:15	Arrival at second station in the south of Anholt. First dredge at 25m. (Dive point: 56°24,892’N, 011°21,432’E)
	17:30	Finished second station after 12 dredge tows. Heading towards port of Grenå DK.
	19:20	Mooring at port of Grenå DK.
17.05.2018	07:15	Departing port of Grenå DK.
	08:45	Arrival at second station east of Grenå again. First dredge at 21m. (Dive point: 56°24,023’N, 011°19,894’E)
	11:30	Finished second station after 14 dredge tows.
	12:05-12:30	Sampling of depth water from 30m. Salinity was 30,9 and temperature 7,8°C. Heading towards third station.
	12:45	Arrival at third station. First dredge at 20m. (Dive point: 56°20,550’N,

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	<b>15:00</b>	<b>011°18,967'E)</b> <b>Finished third station after 9 dredge tows.</b> <b>Heading towards Kiel harbour.</b>
<b>18.05.2018</b>	<b>07:45</b>	<b>Arrival of RV "Littorina" at Kiel harbour</b>

#### **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 2018 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**

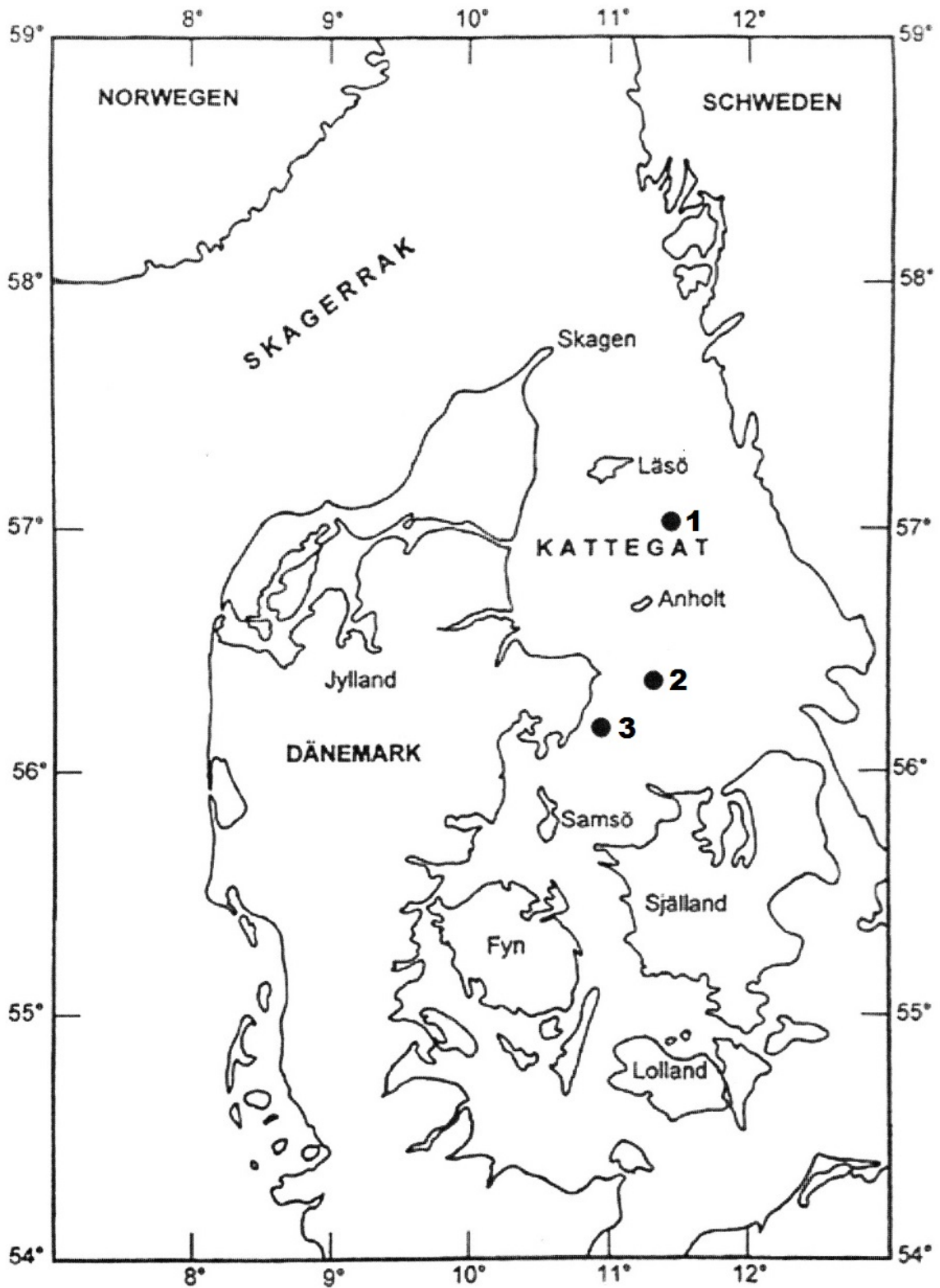
Thanks to the captain and the whole Littorina crew for the big support during the trip.

#### **7. Appendix**

- a. Map
- b. Dredge position list
- c. Station list
- d. Species lists

**Map**

Map:



**Dredge position list:**

**Station 1 (15.05.2018):**

Dredge#	Time	Start coordinates		Depth (m)
1	10:10	57°00,235'N	011°35,119'E	14
2	10:24	57°00,619'N	011°35,049'E	20
3	10:34	57°00,933'N	011°35,059'E	21-32
4	10:47	57°01,085'N	011°35,032'E	22-26
5	10:51	57°00,804'N	011°34,958'E	20
6	11:08	57°00,380'N	011°34,920'E	20
7	12:10	57°00,750'N	011°35,304'E	20
8	12:18	57°00,781'N	011°34,923'E	21
9	12:30	57°00,882'N	011°34,895'E	20
10	12:36	57°00,642'N	011°34,857'E	20
11	12:45	57°00,422'N	011°34,763'E	27
12	13:00	57°00,054'N	011°34,967'E	13
13	13:20	57°00,242'N	011°34,808'E	25
14	13:30	57°00,450'N	011°34,757'E	27
15	13:45	57°00,866'N	011°34,740'E	22
16	14:20	57°01,340'N	011°35,657'E	23
17	14:30	57°01,028'N	011°35,600'E	21

**Station 2 (16.05.2018):**

Dredge#	Time	Start coordinates		Depth (m)
1	15:18	56°24,892'N	011°21,432'E	25
2	15:30	56°24,620'N	011°21,246'E	23
3	15:45	56°24,291'N	011°21,053'E	20
4	15:53	56°24,212'N	011°20,690'E	21
5	16:02	56°24,112'N	011°20,197'E	21
6	16:12	56°24,066'N	011°19,864'E	21
7	16:20	56°24,201'N	011°20,334'E	21
8	16:38	56°24,308'N	011°23,037'E	20-23
9	16:47	56°24,312'N	011°23,591'E	23
10	16:58	56°24,305'N	011°24,115'E	21
11	17:07	56°24,295'N	011°24,632'E	21
12	17:17	56°24,367'N	011°24,934'E	20

**Station 2 (17.05.2018):**

Dredge#	Time	Start coordinates		Depth (m)
1	08:47	56°24,023'N	011°19,894'E	21
2	08:56	56°24,080'N	011°20,339'E	21
3	09:08	56°24,181'N	011°20,876'E	21
4	09:24	56°24,303'N	011°21,412'E	23
5	09:41	56°24,342'N	011°21,159'E	21
6	09:51	56°24,276'N	011°20,711'E	21
7	10:05	56°24,126'N	011°19,999'E	21

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8	10:15	56°24,018'N	011°19,883'E	21
9	10:26	56°24,115'N	011°20,243'E	20
10	10:40	56°23,795'N	011°19,833'E	19
11	10:50	56°23,631'N	011°19,795'E	22
12	11:00	56°23,900'N	011°19,903'E	20
13	11:12	56°24,105'N	011°19,958'E	21
14	11:22	56°24,185'N	011°20,115'E	21

**Station 3 (17.05.2018):**

<b>Dredge#</b>	<b>Time</b>	<b>Start coordinates</b>		<b>Depth (m)</b>
1	12:42	56°20,550'N	011°18,967'E	20
2	12:55	56°20,321'N	011°18,917'E	19
3	13:15	56°19,256'N	011°17,429'E	20
4	13:55	56°20,898'N	011°21,061'E	22
5	14:10	56°21,162'N	011°21,187'E	18
6	14:20	56°20,700'N	011°21,500'E	20
7	14:30	56°20,718'N	011°21,693'E	20
8	14:40	56°21,013'N	011°21,755'E	22
9	14:50	56°20,810'N	011°21,280'E	21

**Station list:**

<b>Station 1</b>	57°00,235'N, 011°35,119'E
<b>Station 2</b>	56°24,892'N, 011°21,432'E
<b>Station 3</b>	56°20,550'N, 011°18,967'E



**Species lists:**

**Artenliste vom 15.05.2018 Kattegat südl. Laesö**

**Crustacea (Krebstiere)**

*Crangon crangon* (Nordseegarnele)  
*Liocarcinus depurator* (Schwimmkrabbe)  
*Macropodia rostrata* (Gewöhnliche Gespensterkrabbe)  
*Inachus dorsettensis* (Dornige Gespensterkrabbe)  
*Pagurus bernhardus* (Einsiedlerkrebs)  
*Ebalia* sp.  
*Pisidia longicornis* (Schwarzer Porzellankrebs)  
*Galathea* sp. (Furchenkrebs)

**Echinodermata (Stachelhäuter)**

*Asterias rubens* (Gemeiner Seestern)  
*Marthasterias glacialis* (Eisstern)  
*Astropecten irregularis* (Nordischer Kammstern)  
*Luidia sarsi*  
*Ophiocomina nigra* (Schwarzbrauner Schlangensterne)  
*Amphiura chiajei* (Langarmiger Schlangensterne)  
*Echinus esculentus* (Essbarer Seeigel)  
*Echinocardium cordatum* (Kleiner Herzigel)  
*Echinocardium flavescens* (Nordischer Herzigel)  
*Brissopsis lyrifera* (Leier-Herzigel)  
*Spatangus purpureus* (Violetter Herzigel)  
*Echinocyamus pusillus* (Zwergherzigel)

**Plathelminthes**

*Cryptocelides loveni* (Planarie)

**Sipunculida**

*Phascolion strombi* (Kreiselspitzwurm)

**Polychäten (Vielborster)**

*Aphrodita aculeata* (Seemaus)  
*Pectinaria auricoma* (Krummer Köcherwurm)  
*Pomatoceros triqueter* (Dreikantwurm)  
*Ophelia limacina* (Schneckenwurm)

**Mollusca (Schnecken & Muscheln)**

*Tonicella marmorea* (Marmorierte Käferschnecke)  
*Buccinum undatum* (Wellhornschncke)  
*Colus gracilis*  
*Aporrhais pespelecani* (Pelikanfuß)  
*Turritella communis* (Gemeine Turmschnecke)

*Lunatia nitida* (Glänzende Nabelschnecke)  
*Crepidula fornicata* (Pantoffelschnecke)  
*Gibbula cineraria* (Graue Kreiselschnecke)  
*Aplysia punctata* (Seehase)  
*Dentalium entalis* (Elefantenzahn)  
*Pecten maximus* (Große Kammmuschel)  
*Chlamys opercularis* (Kleine Pilgermuschel)  
*Palliolum tigrinus* (Getigerte Kammmuschel)  
*Cardium echinatum* (Igel-Herzmuschel)  
*Laevicardium norvegicum* (Norwegische Herzmuschel)  
*Venus ovata* (Ovale Venusmuschel)  
*Clausinella fasciata* (Gebänderte Venusmuschel)  
*Chamelea striatula* (Gestreifte Venusmuschel)  
*Psammobia ferroensis* (Violettgestreifte Sandmuschel)  
*Lucinoma borealis* (Nordische Mondmuschel)  
*Nucula nitida* (Glänzende Nussmuschel)  
*Lyonsia norvegica*  
*Cuspidaria cuspidata*  
*Limea loscombii*  
*Mya truncata* (Abgestutzte Klaffmuschel)

### **Algen**

*Phyllophora pseudoceranoides* (Dünnes Rotblatt)  
*Lithothamnion glaciale* (Eismeer-Kalkalge)  
*Laminaria saccharina* (Zuckertang)  
*Laminaria digitata* (Fingertang)  
*Fucus vesiculosus* (Blasentang)  
*Zostera marina* (Großes Seegras)

### **Bryozoa (Moostierchen)**

*Membranipora membranacea* (Gewöhnliche Seerinde)  
*Electra pilosa* (Zottige Seerinde)

### **Tunikaten (Manteltiere)**

*Botryllus schlosseri* (Sternseescheide)  
*Polyclinum aurantium*  
*Asciella aspersa* (Spritzseescheide)  
*Ascidia virginea* (Glatte Seescheide)

### **Chordata**

*Branchiostoma lanceolatum* (Lanzettfischchen)

### **Porifera (Schwämme)**

*Suberites ficus* (Korkschwamm)  
*Scypha ciliata* (Wimpern-Kalkschwamm)

### **Cnidaria (Nesseltiere)**

*Hydractinia echinata* (Stachelpolyp)  
*Alcyonium digitatum* (Tote Mannshand)  
*Pennatulula phosphorea* (Leuchtende Seefeder)

### **Pisces (Fische)**

*Entelurus aequoreus* (Große Schlangennadel)  
*Ctenolabrus rupestris* (Klippenbarsch)  
*Ammodytes tobianus* (Tobiasfisch)  
*Callionymus lyra* (Gestreifter Leierfisch)  
*Limanda limanda* (Kliesche)  
*Microstomus kitt* (Rotzunge)  
*Solea solea* (Seezunge)  
*Buglossidium luteum* (Zwergzunge)

## **Artenliste vom 16.05.2018 Kattegat südl. Anholt**

### **Crustacea (Krebstiere)**

*Xantho pilipes*  
*Liocarcinus navigator*  
*Macropodia rostrata* (Gewöhnliche Gespensterkrabbe)  
*Eurynome aspera* (Erdbeerkrabbe)  
*Hyas coarctatus* (Geigenkasten-Seespinne)  
*Inachus dorsettensis* (Dornige Gespensterkrabbe)  
*Pagurus bernhardus* (Einsiedlerkrebs)  
*Galathea* sp. (Furchenkrebs)

### **Echinodermata (Stachelhäuter)**

*Asterias rubens* (Gemeiner Seestern)  
*Marthasterias glacialis* (Eisstern)  
*Solaster papposus* (Gewöhnlicher Sonnenstern)  
*Henricia sanguinolenta* (Blutstern)  
*Ophiopholis aculeata* (Höhlenschlangensterne)  
*Ophiocomina nigra* (Schwarzbrauner Schlangensterne)  
*Ophiothrix fragilis* (Zerbrechlicher Schlangensterne)  
*Echinus esculentus* (Essbarer Seeigel)  
*Echinus acutus* (Langstacheliger Seeigel)  
*Strongylocentrotus droebachiensis* (Rundstacheliger Seeigel)

### **Polychäten (Vielborster)**

*Pomatoceros triqueter* (Dreikantwurm)

### **Mollusca (Schnecken & Muscheln)**

*Lepidopleurus asellus* (Assel-Käferschnecke)  
*Tonicella rubra* (Rote Käferschnecke)  
*Buccinum undatum* (Wellhornschncke)  
*Neptunea antiqua* (Spindelschnecke)

*Aporrhais pespelecani* (Pelikanfuß)  
*Turritella communis* (Gemeine Turmschnecke)  
*Lunatia nitida* (Glänzende Nabelschnecke)  
*Crepidula fornicata* (Pantoffelschnecke)  
*Gibbula cineraria* (Graue Kreiselschnecke)  
*Calliostoma miliare* (Gefleckte Kreiselschnecke)  
*Anomia* sp. (Sattelmuschel)  
*Chlamys opercularis* (Kleine Pilgermuschel)  
*Palliolum tigrinus* (Getigerte Kammuschel)  
*Astarte sulcata*  
*Cardium echinatum* (Igel-Herzmuschel)  
*Laevicardium norvegicum* (Norwegische Herzmuschel)  
*Arctica islandica* (Islandmuschel)  
*Venus ovata* (Ovale Venusmuschel)  
*Clausinella fasciata* (Gebänderte Venusmuschel)  
*Chamelea striatula* (Gestreifte Venusmuschel)  
*Psammobia ferroensis* (Violettgestreifte Sandmuschel)  
*Ensis directus* (Amerikanische Schwertmuschel)  
*Modiolus modiolus* (Pferdemuschel)  
*Lyonsia norvegica*  
*Linea loscombii*  
*Saxicava arctica* (Nordischer Steinbohrer)

### **Tunikaten (Manteltiere)**

*Asciadiella aspersa* (Spritzseescheide)  
*Ascidia virginea* (Glatte Seescheide)

### **Porifera (Schwämme)**

*Suberites ficus* (Korkschwamm)

### **Cnidaria (Nesseltiere)**

*Hydractinia echinata* (Stachelpolyp)  
*Alcyonium digitatum* (Tote Mannshand)

### **Pisces (Fische)**

*Gadus morhua* (Dorsch)  
*Agonus cataphractus* (Steinpicker)  
*Trachinus draco* (Petermännchen)  
*Callionymus lyra* (Gestreifter Leierfisch)  
*Limanda limanda* (Kliesche)  
*Pleuronectes platessa* (Scholle)  
*Microstomus kitt* (Rotzunge)  
*Buglossidium luteum* (Zwergzunge)

## **Artenliste vom 17.05.2018 Kattegat südl. Anholt**

**Crustacea (Krebstiere)**

*Balanus balanus* (Große Seepocke)  
*Pandalus montagui* (Äsopgarnele)  
*Macropodia rostrata* (Gewöhnliche Gespensterkrabbe)  
*Hyas araneus* (Nordische Seespinne)  
*Hyas coarctatus* (Geigenkasten-Seespinne)  
*Pagurus bernhardus* (Einsiedlerkrebs)

**Echinodermata (Stachelhäuter)**

*Asterias rubens* (Gemeiner Seestern)  
*Marthasterias glacialis* (Eisstern)  
*Astropecten irregularis* (Nordischer Kammstern)  
*Solaster papposus* (Gewöhnlicher Sonnenstern)  
*Ophiopholis aculeata* (Höhlenschlangensterne)  
*Ophiura texturata* (Großer Schlangensterne)  
*Ophiocoma nigra* (Schwarzbrauner Schlangensterne)  
*Ophiothrix fragilis* (Zerbrechlicher Schlangensterne)  
*Psolus phantapus* (Schuppen-Seegurke)  
*Echinus esculentus* (Essbarer Seeigel)  
*Echinus acutus* (Langstacheliger Seeigel)  
*Strongylocentrotus droebachiensis* (Rundstacheliger Seeigel)  
*Echinocardium cordatum* (Kleiner Herzigel)

**Polychäten (Vielborster)**

*Lepidonotus squamatus* (Grober Schuppenrücken)  
*Spirorbis spirorbis* (Gewöhnlicher Posthörnchenwurm)

**Mollusca (Schnecken & Muscheln)**

*Lepidopleurus asellus* (Assel-Käferschnecke)  
*Buccinum undatum* (Wellhornschncke)  
*Neptunea antiqua* (Spindelschnecke)  
*Aporrhais pespelecani* (Pelikanfuß)  
*Turritella communis* (Gemeine Turmschnecke)  
*Lunatia nitida* (Glänzende Nabelschnecke)  
*Crepidula fornicata* (Pantoffelschnecke)  
*Acmaea testudinalis* (Schildkröten-Napfschnecke)  
*Chlamys opercularis* (Kleine Pilgermuschel)  
*Palliolum tigrinus* (Getigerte Kammmuschel)  
*Cardium echinatum* (Igel-Herzmuschel)  
*Arctica islandica* (Islandmuschel)  
*Venus ovata* (Ovale Venusmuschel)  
*Chamelea striatula* (Gestreifte Venusmuschel)  
*Psammobia ferroensis* (Violettgestreifte Sandmuschel)  
*Ensis directus* (Amerikanische Schwertmuschel)  
*Musculus niger* (Schwarze Bohnenmuschel)  
*Modiolus modiolus* (Pferdemuschel)  
*Nucula nitida* (Glänzende Nussmuschel)  
*Lyonsia norvegica*  
*Saxicava arctica* (Nordischer Steinbohrer)

*Mya truncata* (Abgestutzte Klaffmuschel)

### **Algen**

*Delesseria sanguinea* (Blutroter Meerampfer)

*Phycodrys rubens* (Roter Eichtentang)

*Furcellaria lumbricalis* (Gabeltang)

*Laminaria saccharina* (Zuckertang)

*Halidrys siliquosa* (Schotentang)

*Fucus serratus* (Sägetang)

### **Tunikaten (Manteltiere)**

*Molgula manhattensis* (Samtseescheide)

*Styela coriacea* (Rotmundseescheide)

*Ciona intestinalis* (Schlauchseescheide)

*Ascidella aspersa* (Spritzseescheide)

### **Porifera (Schwämme)**

*Halichondria panicea* (Brotkrumenschwamm)

*Suberites ficus* (Korkschwamm)

*Leucosolenia botryoides* (Weißröhrenkalkschwamm)

### **Cnidaria (Nesseltiere)**

*Hydractinia echinata* (Stachelpolyp)

*Metridium senile* (Seenelke)

*Alcyonium digitatum* (Tote Mannshand)

### **Pisces (Fische)**

*Gadus morhua* (Dorsch)

*Myoxocephalus scorpius* (Seeskorpion)

*Agonus cataphractus* (Steinpicker)

*Ctenolabrus rupestris* (Klippenbarsch)

*Pholis gunellus* (Butterfisch)

*Callionymus lyra* (Gestreifter Leierfisch)

*Limanda limanda* (Kliesche)

*Pleuronectes platessa* (Scholle)

*Microstomus kitt* (Rotzunge)

*Solea solea* (Seezunge)

*Buglossidium luteum* (Zwergzunge)

*Arnoglossus laterna* (Lammzunge)