

## **Cruise Report**

**18.12.12, 10-19.6.2013, Jnr 12/17627**

Research cruise of RV SENCKENBERG to the Norwegian Skagerrak from June 10–19, 2013

### **Chief Scientist and contact person:**

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### **Particulars of ship:**

Name:	FK Senckenberg
Owner:	Senckenberg Gesellschaft für Naturforschung Senckenberganlage 25 D-60325 Frankfurt am Main, Germany
Nationality:	German
Overall length (in metres):	29.5 m
Maximum draught (in metres):	3.0 m
Net tonnage:	55.0 BRZ
Propulsion e.g. diesel/steam:	diesel
Call sign:	DDAW
Crew:	5 persons
Name of master:	Karl Baumann
Scientific personnel:	5 persons

## **Purpose of the cruise:**

According to the scientific literature (e.g. Norman 1903, Sars 1909, Lang 1948, Conroy-Dalton & Huys 2000) species of the typically deep-sea inhabiting Ancorabolidae Sars, 1909 (Copepoda, Harpacticoida) have been reported from shallower depths in the Skagerrak (among other Scandinavian and also British areas). Ancorabolidae constitute a group of quite small (0.03–0.05 mm), bizarre-shaped crustaceans, presenting quite peculiar characteristics like e.g. a “spider-like” habitus due to extremely transverse elongation of their swimming legs, and the possession of long cuticular processes on the body somites (Fig. 1). They are rare animals that are regularly found in deep-sea samples but present only with very low individual numbers.



Figure 1: *Ceratonotus steiningeri* George, 2006, a representative of Ancorabolidae. The head (“cephalothorax”) is on the left, the tail (“furca”) on the right. Please note the branched processes (in yellow) arising on the dorsal side of the body somites. Also discernible: the out-sticking swimming legs (brownish) below the processes. Foto: Senckenberg/J. Michels.

Ancorabolid records predominantly from deep-sea samples have the effect that no living specimens of that taxon have been got so far, inhibiting that the study of their biology and living. Thus, until now it is for instance completely unknown what function the above named (processes, out-sticking swimming legs) and other characteristics have. Therefore, the main objective of the here reported cruise of FK SENCKENBERG to the Norwegian Skagerrak was to sample living meiofauna at six stations along the Norwegian coast (Tab. 1) with special emphasis on Ancorabolidae, aiming to get a base for culturing the sampled animals and subsequently studying their life and biology.

## **Sampling area:**

Following the data found in the literature (Conroy-Dalton & Huys 2000), we looked for locations in water depths between 50 and 90 m. Finally, six stations along the Norwegian Skagerrak coast were selected in total; however, only five stations could be sampled; the sampling of Station #6 had to be cancelled due to bad weather conditions (cf. Fig. 2, Tab. 1).

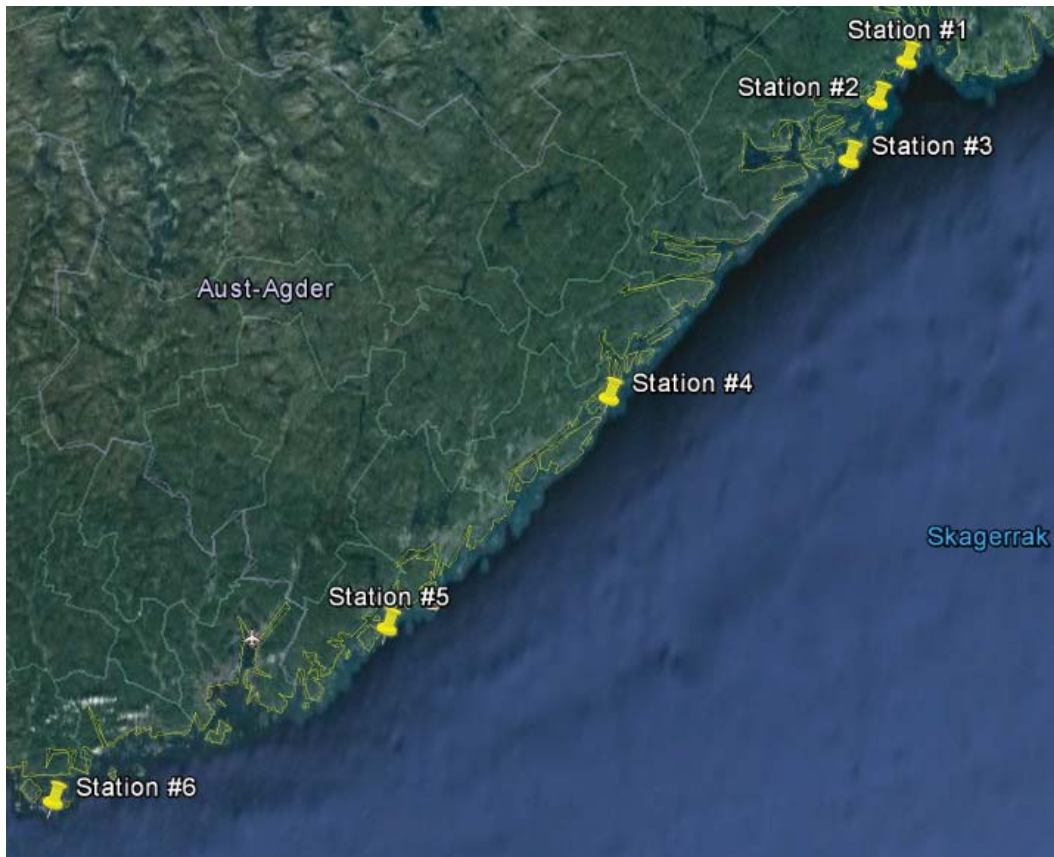


Figure 2: Location of the selected sampling stations along the Norwegian Skagerrak coast. Source: Google Earth.

The selected areas were the following:

Station #1:	58°57'43.27"N/09°42'17.25"E
Station #2:	58°54'26.45"N/09°37'48.87"E
Station #3:	58°49'43.46"N/09°33'27.48"E
Station #4:	58°30'33.40"N/08°57'08.39"E
Station #5:	58°11'50.21"N/08°24'07.28"E
Station #6:	57°57'03.59"N/07°34'14.04"E

The cruise started on Monday, June 10<sup>th</sup>, 2013 at 11:15 hrs. in Wilhelmshaven, Germany. It was planned to end thereat on Wednesday, 17<sup>th</sup> of June but, due to bad weather conditions, ended ahead of schedule on Sunday, June 16<sup>th</sup>, at 04:35 hrs.

#### **Used gears and sampling treatment:**

Before sampling for meiofauna, at each station an underwater video camera was deployed to check whether the sediment would allow sampling. For meiofauna sampling a 0.1 m<sup>2</sup> van Veen grab was deployed (Fig. 3). At each station, five to 12 deployments have been realized, targeting to get as much sediment as possible. The high number of deployments for instance at stations #3 and #4 were necessary, as the weather conditions became continuously worse, so the gear did not sample as much sediment as necessary.

After finishing the sampling at Station #5 on June 13<sup>th</sup>, we started steaming to our last scheduled sampling area.

# SENCKENBERG

world of biodiversity

Dr. Kai Horst George, Abt. DZMB, Senckenberg am Meer Wilhelmshaven

Table 1: List of sampled stations during the research cruise of FK SENCKENBERG in the Norwegian Skagerrak from June 10<sup>th</sup> to 16<sup>th</sup>, 2013.

Date	Station no.	Latitude	Longitude	Depth (m)	Gear	Remark
12.06.2013	#1	58°57.188	09°44.352	70.0	Video	ok
		58°57.336	09°44.376	64.0	Grab	ok
		58°57.116	09°44.492	75.0	Grab	ok
		58°57.113	09°44.504	75.0	Grab	failure
		58°57.089	09°44.565	80.0	Grab	failure
		58°57.146	09°44.156	43.0	Grab	ok
	#2	58°51.801	09°36.543	56.0	Video	ok
		58°51.372	09°36.525	56.0	Grab	ok
		58°51.343	09°36.484	57.5	Grab	ok
		58°51.341	09°36.430	56.0	Grab	ok
		58°51.317	09°36.357	57.5	Grab	ok
		58°51.287	09°36.295	58.0	Grab	ok
		58°51.242	09°36.244	58.0	Grab	ok
	#3	58°46.995	09°28.450	55.0	Video	ok
		58°47.000	09°28.468	55.0	Grab	ok
		58°46.979	09°28.472	56.0	Grab	ok
		58°46.852	09°28.423	55.0	Grab	ok
		58°46.958	09°28.465	57.0	Grab	ok
58°46.952		09°28.408	54.5	Grab	ok	
58°46.951		09°28.419	55.0	Grab	ok	
58°46.964		09°28.407	56.0	Grab	ok	
58°46.556		09°28.418	55.5	Grab	ok	
13.06.2013		#4	58°30.089	08°59.207	~60.0	Video
	58°30.074		08°59.332	61.3	Grab	ok
	58°30.099		08°59.326	57.4	Grab	ok
	58°30.065		08°59.298	58.3	Grab	ok
	58°30.033		08°59.243	51.3	Grab	ok
	58°30.001		08°59.232	53.0	Grab	failure
	58°29.970		08°59.209	53.0	Grab	ok
	58°29.976		08°59.042	48.5	Grab	ok
	58°29.471		08°59.032	48.4	Grab	ok
	58°29.471		08°59.034	48.5	Grab	failure
	58°29.972		08°59.044	45.5	Grab	ok
	58°29.968		08°59.042	48.3	Grab	ok
	58°29.477		08°59.028	47.2	Grab	ok
	58°29.977	08°59.038	47.4	Grab	ok	
	#5	58°11.053	08°26.086	72.0	Video	ok
		58°11.021	08°26.058	83.0	Grab	failure
		58°11.061	08°25.712	75.2	Grab	ok
		58°11.056	08°25.684	76.0	Grab	failure
		58°11.055	08°25.720	71.5	Grab	ok
		58°11.065	08°25.762	69.6	Grab	ok
		58°11.087	08°25.780	71.8	Grab	ok
		58°11.117	08°25.810	60.0	Grab	ok
58°11.118		08°25.840	56.0	Grab	ok	
#6					cancelled	

Nonetheless, due to the very bad weather conditions the chief scientist decided to cancel sampling the last station, to finish the field research in Norwegian territorial waters and instead to return back to Wilhelmshaven.



Figure 3: Van Veen Grab going overboard. Foto: T. Molodtsova.

Samples were sieved immediately on board, using 40 $\mu$ m sieves for getting all meiobenthic organisms. The meiobenthic material was kept alive in plastic vials (1L) filled with marine water and bubbled with air and brought to the laboratories of the department Deutsches Zentrum für Marine Biodiversitätsforschung DZMB (German Centre for Marine Biodiversity Research) at the Senckenberg am Meer Research Institute in Wilhelmshaven. The sampling material is currently sorted and all meiobenthic organisms are picked out and transferred into specific culture aquaria. Thus, we expect getting enough material for investigating biology and life of several different meiobenthic groups.

### **Result of the cruise:**

Despite the increasingly deteriorating weather conditions during the cruise that finally lead to the decision of an earlier end of the field work than originally planned, the sampling at all stations was quite successful. We got a lot of living meiofauna and are now sorting the sampling material picking out all living meiobenthos. First insights already revealed a considerable number of living meiobenthic organisms, mainly belonging to major taxa like

Gastrotricha, Halacarida, Kinorhyncha, Nematoda, and in particular to Copepoda Harpacticoida. Sorting is going on and will reveal whether also Ancorabolidae, the main target taxon, might be present in the material.

I and my scientific colleagues are indebted to the master and crew of FK SENCKENBERG for their valuable support and their efforts during the cruise. Furthermore, on behalf of myself and of my participating colleagues I would like to express our deep gratitude to the Norwegian authorities for giving us the permission to sample in the requested area.



Dr Kai Horst George  
Chief scientist

**Cited literature:**

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