

SENCKENBERG

Report on the 2011 Dogger Bank cruise with R. V. Heincke

24. 01. – 06. 02. 2011



MICHAEL TÜRKAY & MORITZ SONNEWALD
Forschungsinstitut Senckenberg

Contents:

1. Aims and setting
2. Narrative
3. Methods
4. Station list and station map
5. RCM9 and CTD data

Annex: Cruise summary report (ROSCOP)

Frankfurt a. M., August 2008

1. Aims and setting

The interannual variability of the epibenthic fauna of the Dogger Bank is a long term project of the Senckenberg-Institute since 1991. This project aims at gathering basic data which may form the background information for understanding presumed environmental changes. Therefore the study refers to 37 stations (see map in Annex) that are, whenever possible, sampled on a yearly basis in the same season with the same gear. To gather information about the winter's influence on the benthic species communities, this is the last of three scheduled winter cruises to the Dogger Bank. This cruise was conducted by the Department for Marine Zoology at the Senckenberg Institute in Frankfurt am Main.

The fauna is recorded quantitatively from each sample in order to allow studies on relative abundance. Another important aspect is the recording of climate forced changes. This study therefore is also part of the scientific programme of the Research Centre "Biodiversity and Climate (BIK-F)" funded by the state of Hessen since 2008. We thankfully acknowledge this support.

The present cruise forms the 20th of the series and gets the suffix DOG-T. All former cruises were labelled after the alphabet with one letter starting with DOG-A in 1992. The first cruise in 1991 was called DOG without any suffix.

2. Narrative

The cruise started from Bremerhaven, on Tuesday, 2011-01-24. On 13.00 CEST (UTC+1), the vessel left the shipyard and headed towards the main working area, the Doggerbank.

Station 14 (see station map) was reached on January 25, 2011 at 15.47 CEST. At this and the following stations, the following technique was used: current strength and direction were measured with a probe (RCM9) at the seafloor and directly under the surface. In addition, a CTD probe was used to measure the temperature and salinity of the water column. Then, a standardized endobenthic sampling with the Ring Dredge was performed (see methods, chapter 3). Subsequently one sample with a 2m-beam-trawl was taken, towed for 2 kn of speed on a length of one nautical mile. These procedures took place on every single station (see station map, chapter 4), except stations one and two. Here, a geological dredge was used to sample for sediment containing rubble and sparse boulders.

The exact sequence of stations sampled can be seen at the station list (chapter 4). The sampling at the Dogger Bank ended with the last pass at the 48h-station (where the described procedure was repeated every three hours during a timeframe of 48 hours) on February 02, 2011, 13.11 CEST. Due to increasing winds, sampling had to be stopped before schedule after 12 of 16 passes planned at the last station. Due to a bad weather forecast, the vessel was then heading towards Helgoland at 13.15 CEST. It was decided to switch to an alternate programme for the remaining ship time.

The area around Helgoland was reached in the morning of February 03, 2011. At 07.59 CEST, the vessel reached the Helgoland Trench south of the island of Helgoland. The beam trawl was deployed once from 07.59 to 08.31 CEST on the routine station sampled regularly by our team. The aim of this work was to collect epibenthos-material in order to complement to life-cycle studies of decapod crustaceans of the German Bight. Due to a bad weather forecast, the vessel then headed back towards the port of Bremerhaven. It was moored at 11.30 CEST.

3. Methods:

For measuring environmental parameters a RCM9 probe was used. The Probe was activated and then lowered to the seafloor, where it was kept recording for two minutes. Then it was heaved right beneath the sea surface, recording again for two minutes. During this measurement cycle, current speed, current direction, temperature, conductivity, pressure and turbidity were recorded.

For the measurement of the temperature and salinity of the water body, a CTD probe was lowered to the seafloor. The recording by itself took place while hauling up the probe again. The RCM9 and CTD values can be found in chapter 5.

Epibenthos was collected with a 2m beam trawl with a tickler chain and a chain in the bottom rope. The minimum mesh size in the cod-end was 1 cm, so that animals above that size were collected quantitatively. The trawl was towed for 1 nautical mile at a speed of 2 knots. The sample was secured quantitatively (as far as possible) and washed through a set of sieves with 1 cm maximum and 1 mm minimum mesh size, respectively. The 1 cm-fraction was identified and counted on board the vessel, organisms not readily identifiable were preserved and taken back to the home laboratory. The smaller fractions were also preserved and taken back for qualitative analysis.

Standard endobenthic sampling was performed with the Ring Dredge, being towed over the ground for approximately three minutes per station. The samples were preserved qualitatively.

Additionally, a geological dredge with a metal net was used at stations 1 and 2 to sample stones and boulders for petrographical analyses.

4. Station list and station map

For the station list with the used gear and additional information, please refer to the supplement **Stations.pdf** (all times UTC +1).

The station map with the used course is shown in Fig. 1.

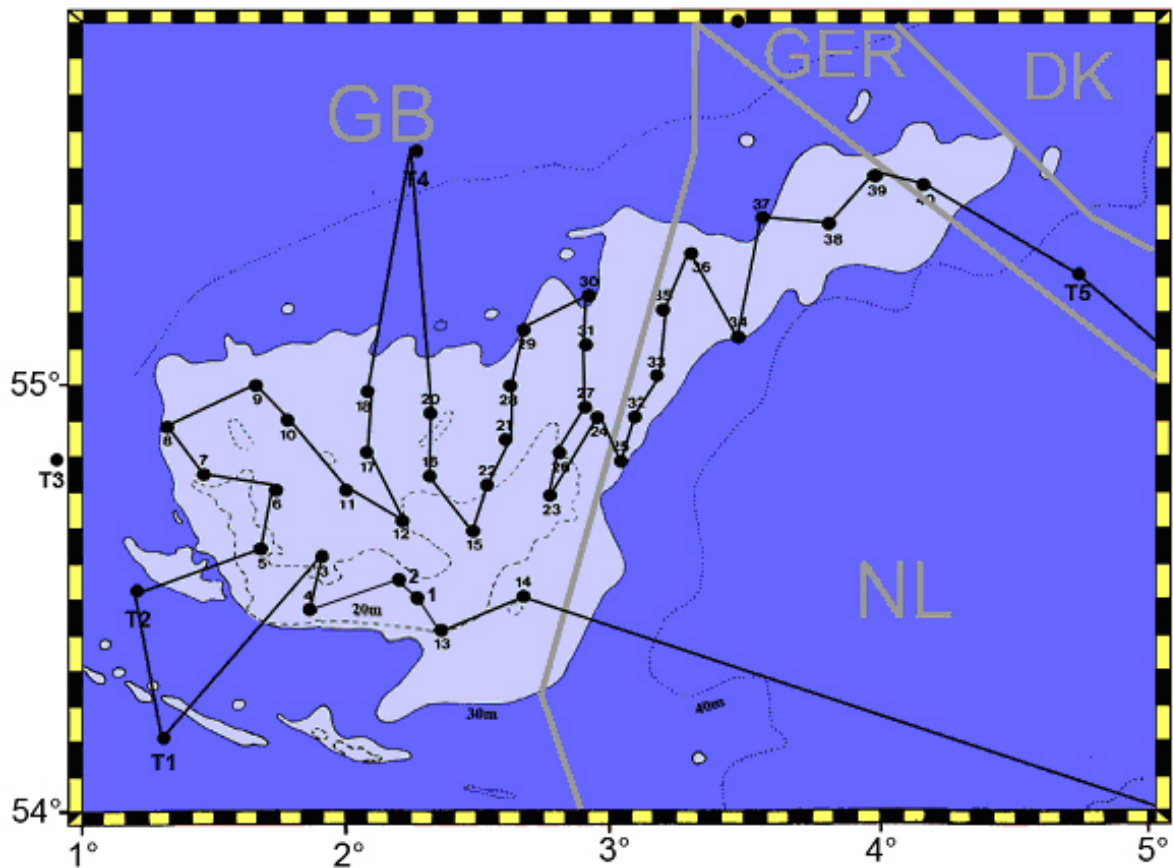


Fig. 1 Station map. Black dots: stations. Black line: ship course. The exclusive economic zones of the neighbouring countries are shown in grey.

5. RCM9 and CTD data

Please refer to the supplement **RCM9.pdf** for the RCM9-Data. The CTD-Data will be available at http://www.senckenberg.de/root/index.php?page_id=1633 soon, but is also contained in the supplement **CTD DogT.xls**.