

# NOTIFICATION OF PROPOSED RESEARCH CRUISE

## GENERAL PART A

1. Name of ship **FS 'HEINCKE'** Voy.No.: **HE 361**
2. Dates of cruise from: 12.07.2011 to: 29.07.2011
3. Operating Authority **Alfred-Wegener-Institute for Polar- und Marine Research**  
in the Helmholtz-Association  
Am Handelshafen 12  
27570 Bremerhaven  
Telephone +49 (0) 471-4831-2241  
Telefax +49 (0) 471-4831-1355  
E-mail: [Schiffskoord@awi.de](mailto:Schiffskoord@awi.de)
4. Owner: "Federal Ministry of Education and Research"  
- German Government -
5. Particulars of ship:
- |                 |  |
|-----------------|--|
| Name            | <b>HEINCKE</b>   |
| Nationality     | German   |
| Overall length  | 55,20 metres   |
| Maximal draught | 3,95 metres  |
| BRT             | 1000   |
| Propulsion      | Diesel Electric  |
| Call Sign       | DBCK   |
| IMO no.         | 8806113  |
| MMSI no.        | 211216570  |
| Telephone       | INMARSAT +870-764-140-491<br>IRIDIUM +881-631-815-155                                      |
| Telefax         | INMARSAT +870-764-140-493  |
| e-mail          | <a href="mailto:Bruecke@Heincke.Briese-Research.de">Bruecke@Heincke.Briese-Research.de</a> |
6. Crew
- |                |       |
|----------------|-------|
| Name of Master | :Voss |
| No of Crew     | :11   |
7. Scientific Personnel
- |                     |   |
|---------------------|---|
| Scientist in charge | Dr. Meinhard Simon  |
| Name and address :  | ICBM, University of Oldenburg<br>D-26111 Oldenburg, Germany |
| Phone               | : 0441-798 5361   |
| Fax                 | : 0441-798 3438   |
| E-mail              | : <a href="mailto:m.simon@icbm.de">m.simon@icbm.de</a>      |
| No. of Scientists   | : 12  |
8. Geographical area in which ship will operate 55°-60°N, 2°W-7° 30'E, going beyond the Danish EEZ  
(See also the attached map)

### 9. Brief description of purpose of cruise

The cruise is a core project of a collaborative research center (CRC) funded by Deutsche Forschungsgemeinschaft (DFG) which started in January 2010 for 4 years (1st funding period) on the *Roseobacter* clade, a globally important group of marine bacteria. One major aim of this CRC is to assess the significance of this group of bacteria in the North Sea. Our previous work has already shown that one subgroup of this bacterial clade is a prominent component of the bacterioplankton in the North Sea.

The aim of this cruise, therefore, is to assess the abundance, diversity and physiological activity of members of the *Roseobacter* clade during a summer phytoplankton bloom in the northern or central North Sea. Remote sensing of chlorophyll *a* and previous studies have shown that such phytoplankton blooms regularly occur in the northern North Sea. The location, however, can vary considerably. Therefore, we can not precisely identify the exact working area until shortly before the cruise starts. We need to examine satellite images for the chlorophyll distribution to spot a bloom shortly before the start of this cruise. Then we want to steam to the area of the bloom and study the response of the *Roseobacter* clade to this bloom in the water column and in surface sediments. We plan to collect samples at various depths in the water column and in the sediment along a transect from the German Bight to the bloom area and in and outside the bloom area for about 10 days. The samples will be

analysed for the composition of the phytoplankton, the bacterioplankton with special emphasis on the *Roseobacter* clade, and for organic and inorganic nutrients. Samples on the transect will be collected at stations appr. every 50 nm and in time series in and outside the bloom area in areas of appr. 10x10 nm.

This cruise is a follow up cruise of rather similar cruises conducted in September 2005 and May 2006.

Work permission is requested to collect samples in the area of the EEZ of the UK. Samples will be collected with Niskin bottles mounted on a CTD rosette in the water column at various depths and with plankton nets and at the sediment surface with a sediment corer.

10. Dates and names of intended ports of call

No port in the UK will be visited.

11. Any special logistic requirement at ports of call

No, as no port in the UK will be visited.

**PART B**

1. Name of ship           **F.S. "HEINCKE"**      Voy No.: **HE 361**
2. Dates of cruise       from: 12.07.2011    to: 29.07.2011
3. Purpose of research and general operational methods.

The cruise is a core project of a collaborative research center (CRC) funded by Deutsche Forschungsgemeinschaft starting on January 2010 for 4 years (1st funding period) on the *Roseobacter* clade, a globally important group of marine bacteria. A major aim of this CRC is to assess the significance of this group of bacteria in the North Sea. Our previous work has already shown that one subgroup of this bacterial clade, the *Roseobacter* Clade Affiliated (RCA) cluster constitutes up to 22% of the bacterioplankton in the North Sea (Giebel et al. 2011, Selje et al. 2004). Based on other studies of our lab carried out in the German Bight we expect that other groups of the *Roseobacter* clade also occur in the central and northern North Sea and also constitute prominent components of the bacterioplankton.

The aim of this cruise, therefore, is to assess the abundance, diversity and physiological activity of various members of the *Roseobacter* clade during a summer phytoplankton bloom in the northern or central North Sea. Remote sensing of chlorophyll *a* and previous studies have shown that such phytoplankton blooms, often dominated by coccolithophores, regularly occur in the northern North Sea. The location, however, can vary considerably. Therefore, we can not precisely identify the exact working area until shortly before the cruise starts. We need to examine satellite images for the chlorophyll distribution to spot a bloom shortly before the start of this cruise. Then we want to steam to the area of the bloom and study the response of the *Roseobacter* clade to this bloom in the water column and in surface sediments (<1 m). We plan to collect samples at various depths in the water column and the sediment along a transect from the German Bight to the bloom area and in and outside the bloom area for about 10 days. The samples will be analysed for the composition of the phytoplankton, chlorophyll *a*, the bacterioplankton with special emphasis on the *Roseobacter* clade, and for nutrients. Samples on the transect will be collected at stations appr. every 50 nm and in time series in and outside the bloom area in areas of appr. 10x10 nm, depending on the size of the bloom area. Bacterioplankton samples will be analyzed by culture-independent (quantitative (q)PCR and reversely transcribed (RT) qPCR, metagenomics, metatranscriptomics, metaproteomics) and culture-dependent methods (isolation of members of the *Roseobacter* clade).

The results of this cruise will be important contributions to a better understanding of why the *Roseobacter* clade is such an important component of the bacterioplankton in temperate waters and a major mile stone in achieving the goals of the first four years of the CRC on the *Roseobacter* clade.

This cruise is a follow up cruise of rather similar cruises conducted in September 2005 and May 2006.

Work permission is requested to collect samples in the area of the EEZ of the UK. Samples will be collected with Niskin bottles and plankton nets in the water column at various depths and at the sediment surface with a sediment corer.

4. Attach a chart showing (on an appropriate scale) the geographical area of the intended work, positions of intended stations, tracks of survey lines, positions of moored/seabed equipment.

The attached map shows the area in which the research will be conducted. We expect the bloom to occur in the EEZ of Norway or the UK. Therefore, we will steam from the German port of Bremerhaven on a straight line directly to the bloom area and back home on this track. As stated above, samples in the water column and the surface sediment will be collected on the transect at stations appr. 50 nm apart and in a detailed manner in the bloom area. The exact locations can not be determined prior to the cruise.

5. Types of samples required e.g. Geological/Water/Plankton/Fish/Radioactivity/Isotope

Water samples for dissolved constituents, plankton samples for bacteria, phytoplankton and suspended matter and sediment cores down to 1 m for bacteria and the elemental composition will be collected.

6. Details of moored equipment:

Not applicable.

7. Explosives: not applicable
- (a) Type and Trade Name
  - (b) Chemical content
  - (c) Depth of Trade class and stowage
  - (d) Size
  - (e) Depth of detonation
  - (f) Frequency of detonation
  - (g) Position in latitude and longitude
  - (h) Dates of detonation
8. Detail and reference of
- (a) Any relevant previous/future cruises  
HE 238 (01.-11.09.2005)  
HE-249 (08.-16.05.2006)
  - (b) Any previously published research data relating to the proposed cruise.  
  
Giebel HA, Kalhoefer D, Lemke A, Thole S, Gahl-Janssen R, Simon M, Brinkhoff T (2011) Distribution of *Roseobacter* RCA and SAR11 lineages in the North Sea and characteristics of an abundant RCA isolate. ISME J 5: 8-19.  
Selje, N., Simon, M., Brinkhoff, T (2004) A newly discovered *Roseobacter* cluster in temperate and polar oceans. Nature 427: 445-448.
9. Names and addresses of scientists of the coastal state in whose waters the proposed cruise takes place with whom previous contact has been made.
- No previous contact was made.
10. State:
- (a) Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable.  
  
YES
  - (b) Whether it will be acceptable to carry on board an observer from the coastal state for any part of the cruise and dates and ports of embarkation/disembarkation.  
  
YES
  - (c) When research data from the intended cruise is likely to be made available to the coastal state and if so by what means.  
  
YES, by direct contact with the chief scientist.

**PART C**

SCIENTIFIC EQUIPMENT

COASTAL STATE : United Kingdom

11. Complete the following table – ( Indicate 'YES' or 'NO' )

A SEPARATE COPY FOR EACH COASTAL STATE IS REQUIRED

List of all major Marine Scientific Equipment which is proposed to be used and indicate waters in which it will be deployed.	Water column including sediment sampling of the seabed	Fisheries research within fishing limits	Research concerning continental shelf out to coastal state's margin	DISTANCE FROM COAST		
				Within 3 NM	Between 3 - 12 NM	Between 12 - 200 NM
Niskin bottle CTD	yes	no	no	no	Yes	Yes
Plankton net	Yes	no	no	no	Yes	Yes
Sediment corer	yes	no	no	no	Yes	Yes

(On behalf of the Principal Scientist)

Date/Signature:

03.05.2011

*Hans Hirschen*

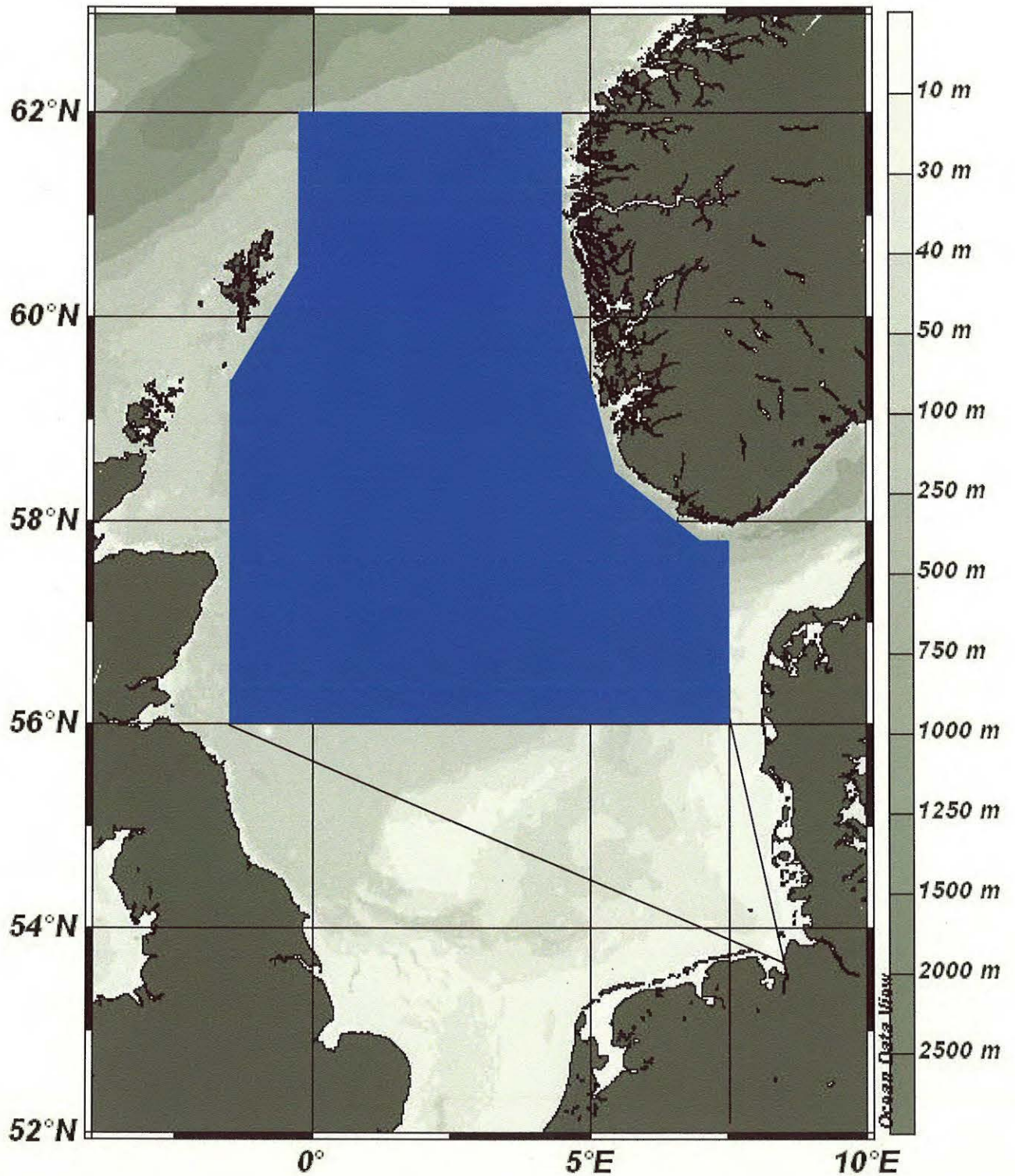
Operating Authority:

Stiftung Alfred-Wegener-Institut  
für Polar- und Meeresforschung  
in der Helmholtz-Gemeinschaft  
Am Handelshafen 12  
27570 Bremerhaven

N.B. IF ANY DETAILS ARE MATERIALLY CHANGED REGARDING DATES / AREA OF OPERATION AFTER THIS FORM HAS BEEN SUBMITTED, THE COASTAL STATE'S AUTHORITIES MUST BE NOTIFIED IMMEDIATELY.



ATTACHMENT I



Potential working area in the North Sea during cruise HE 361 in July 2011.  
The phytoplankton bloom we want to study may occur in the area marked blue.