Application for Consent to conduct
Marine Scientific Research

Date: 23 May – 7 June 2014

1. General Information

1.1 Cruise name and/or number:
HE-425

1.2 Sponsoring Institution(s):	
Name:	Alfred-Wegener-Institut für Polar- und Meeresforschung in the Helmholtz-Gemeinschaft
Address:	Am Handelshafen 12 27570 Bremerhaven
Name of Director:	Prof. Dr. Karin Lochte

1.3 Scientist in charge of the Project:	
Name:	Dr. Meinhard Simon
Country:	Germany
Affiliation:	ICBM University of Oldenburg
Address:	D-26111 Oldenburg, Germany
Telephone:	+49 (0) 441-798 5361
Fax:	+49 (0) 441-798 3438
Email:	m.simon@icbm.de
Website (for CV and photo):	http://www.icbm.de/bgp

1.4 Entity(ies)/Participant(s) from coastal State involved in the planning of the project:	
Name:	Not applicable
Affiliation:	
Address:	
Telephone:	
Fax:	
Email:	
Website (for CV and photo):	

2. Description of Project

2.1 Nature and objectives of the project:
The cruise is a core project of a Collaborative Research Center (CRC) funded by Deutsche Forschungsgemeinschaft (DFG) on the *Roseobacter* clade, a globally important group of marine bacteria. The CRC started in January 2010 and enters in January 2014 the second funding period which last until December 2017. 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 subgroups of this bacterial clade are prominent components 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 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, usually in May and June. 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, May 2006 and July 2011.
Work permission is requested to collect samples in the area of the EEZ of the United Kingdom. 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.

2.2 If designated as part of a larger scale project, then provide the name of the project and the Organisation responsible for coordinating the project:

Collaborative Research Centre
Ecology, Physiology and Molecular Biology of the *Roseobacter* clade:
Towards a Systems Biology Understanding of a Globally Important Clade of Marine Bacteria
Funded by Deutsche Forschungsgemeinschaft

2.3 Relevant previous or future research projects:

HE 238 (01.-11.09.2005)
HE-249 (08.-16.05.2006)
HE-361 (12.-29.07. 2011)

2.4 Previous publications relating to the project:

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.

Wemheuer B, Güllert S, Billerbeck S, Giebel H-A, Voget S, Simon M, Daniel R. (2013). Impact of a phytoplankton bloom on the diversity of the active bacterial community in the southern North Sea as revealed by metatranscriptomic approaches. FEMS Microbiol Ecol online first (DOI: 10.1111/1574-6941.12230).

3. Geographical Areas

3.1 Indicate geographical areas in which the project is to be conducted (with reference in Latitude and longitude in decimal degrees, including coordinates of cruise/track/way points/sampling stations). Please provide coordinates in a separate excel spreadsheet.

56N° to 62°N, 2°W to 7,5°E; presumably mainly in the Norwegian EEZ

(See also the attached map)
A separate Excel list is not attached, as we don't have a station list.

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 strait line directly to the bloom area and back home and pass the EEZ of Denmark on this track. Samples in the water column and the surface sediment will be collected at stations appr. 50 nm apart. The exact locations can not be determined prior to the cruise.

3.2 Attach chart(s) at an appropriate scale (1 page, high-resolution) showing the geographical areas of the intended work and, as far as practicable, the location and depth of sampling stations, the tracks of survey lines, and the locations of installations and equipment.

4. Methods and means to be used

4.1 Particulars of vessel:	
Name:	Heincke
Type/Class:	Research Vessel
Nationality (Flag State):	Germany
Identification Number (IMO/Lloyds No.):	8806113
Owner:	"Federal Ministry of Education and Research" - German Government
Operator:	Alfred-Wegener-Institute for Polar- und Marine Research in the Helmholtz-Association
Overall length (meters):	55,2
Maximum draught:	3,95
Displacement/Gross Tonnage:	1000
Propulsion:	Diesel Electric
Cruising & maximum speed:	12kn
Call sign:	DBCK
INMARSAT number and method and capability of communication (including emergency frequencies):	INMARSAT +870-764-140-491 IRIDIUM +881-631-815-155 Email: Bruecke@Heincke.Briese-Research.de
Name of Master:	Voss
Number of Crew:	11
Number of Scientists on board:	12

4.2 Particulars of Aircraft:	
Name:	Not applicable
Make/Model:	
Nationality (flag State):	
Website for diagram & Specifications:	
Owner:	
Operator:	
Overall Length (meters):	
Propulsion:	
Cruising & Maximum speed:	
Registration No.:	
Call Sign:	
Method and capability of communication (including emergency frequencies):	
Name of Pilot:	
Number of crew:	
Number of scientists on board:	
Details of sensor packages:	
Other relevant information:	

4.3 Particulars of Autonomous Underwater Vehicle (AUV):	
Name:	Not applicable
Manufacturer and make/model:	
Nationality (Flag State):	
Website for diagram & Specifications:	
Owner:	
Operator:	
Overall length (meters):	
Displacement/Gross tonnage:	

Cruising & Maximum speed:	
Range/Endurance:	
Method and capability of communication (including emergency frequencies):	
Details of sensor packages:	
Other relevant information:	

4.4 other craft in the project, including its use:
Not applicable

4.5 Particulars of methods, full description of scientific instruments to be used(for fishing gear specify type and dimension) and location			
Types of samples and Measurements:	Methods to be used:	Instruments to be used:	To be carried out within 12nm (yes or no):
Water samples, Hydrography Inorganic and organic nutrients	CTD Niskin bottles	CTD, Rosette water sampler	no
Plankton samples Phytoplankton, zooplankton, Bacteria Suspended matter	Niskin bottles Hand net tows	CTD Rosette water sampler, Plankton net	no
Surface sediment Bacteria Pore water Inorganic and organic nutrients	sediment coring, surface sediments, upper 100 cm	Multi corer	no
Water samples, Temperature & Conductivity	Continuous pumping	Thermosalinograph Seacat SBE21	no
Water sound velocity SVP/T	Continuous measurement	SVP/T fixed installation Valeport MIDAS SVP	no

4.6 Indicate nature and quantity of substances to be released into the marine environment:
None

4.7 Indicate whether drilling will be carried out. If yes, please specify:
None

4.8 Indicate whether explosives will be used. If yes, please specify type and trade name, Chemical content, depth of trade class and stowage, size, depth of detonation, frequency of Detonation, and position in latitude and longitude:
No

5. Installations and Equipment

Details of installations and equipment (including dates of laying, servicing, method and Anticipated timeframe for recover, as far as possible exact locations and depth, and Measurements):
No installations

6. Dates

6.1 Expected dates of first entry into and final departure from the research area by the research vessel and/or other platforms:
First entry: 26 May 2014 Final departure: 3 June 2014
6.2 Indicate if multiple entries are expected:
No

7. Port Calls

7.1 Dates and Names of intended ports of call:
None

7.2 Any special logistical requirements at ports of call:
None

7.3 Name/Address/Telephone of shipping agent (if available):
Not applicable

8. Participation of the representative of the coastal State

8.1 Modalities of the participation of the representative of the coastal State in the research Project:
Please contact: Schiffskoord@awi.de

8.2 Proposed dates and ports for embarkation/disembarkation:
Bremerhaven 23.05.2014, Bremerhaven 07.06.2014

9. Access to Data, Samples and Research Results

9.1 Expected dates of submission to coastal State of preliminary report, which should include The expected dates of submission of the data and research results:
November 2014

9.2 Anticipated dates of submission to the coastal State of the final report:
March 2015

9.3 Proposed means for access by coastal State to data (including format) and samples:
Deposition in the public domain of PANGAEA Bacterial DNA sequence data: NCBI-data base

9.4 Proposed means to provide coastal State with assessment of data, samples and Research results:
information on data access

9.5 Proposed means to provide assistance in assessment or interpretation of data, samples And research results:
Provide information on data

9.6 Proposed means of making results internationally available:
Deposition in the public domain of PANGAEA Bacterial DNA sequence data: NCBI-data base Publication of main results in international peer-reviewed journals

10. Other permits Submitted

10.1 Indicate other types of coastal state permits anticipated for this research (received or Pending):
Applications for entering the EEZ of Denmark and Norway are submitted

11. List of Supporting Documentation

11.1 List of attachments, such as additional forms required by the coastal State, etc.:
Map of research area

Signature: 06.01.2014

Stiftung Alfred-Wegener-Institut
für Polar- und Meeresforschung
in der Helmholtz-Gemeinschaft
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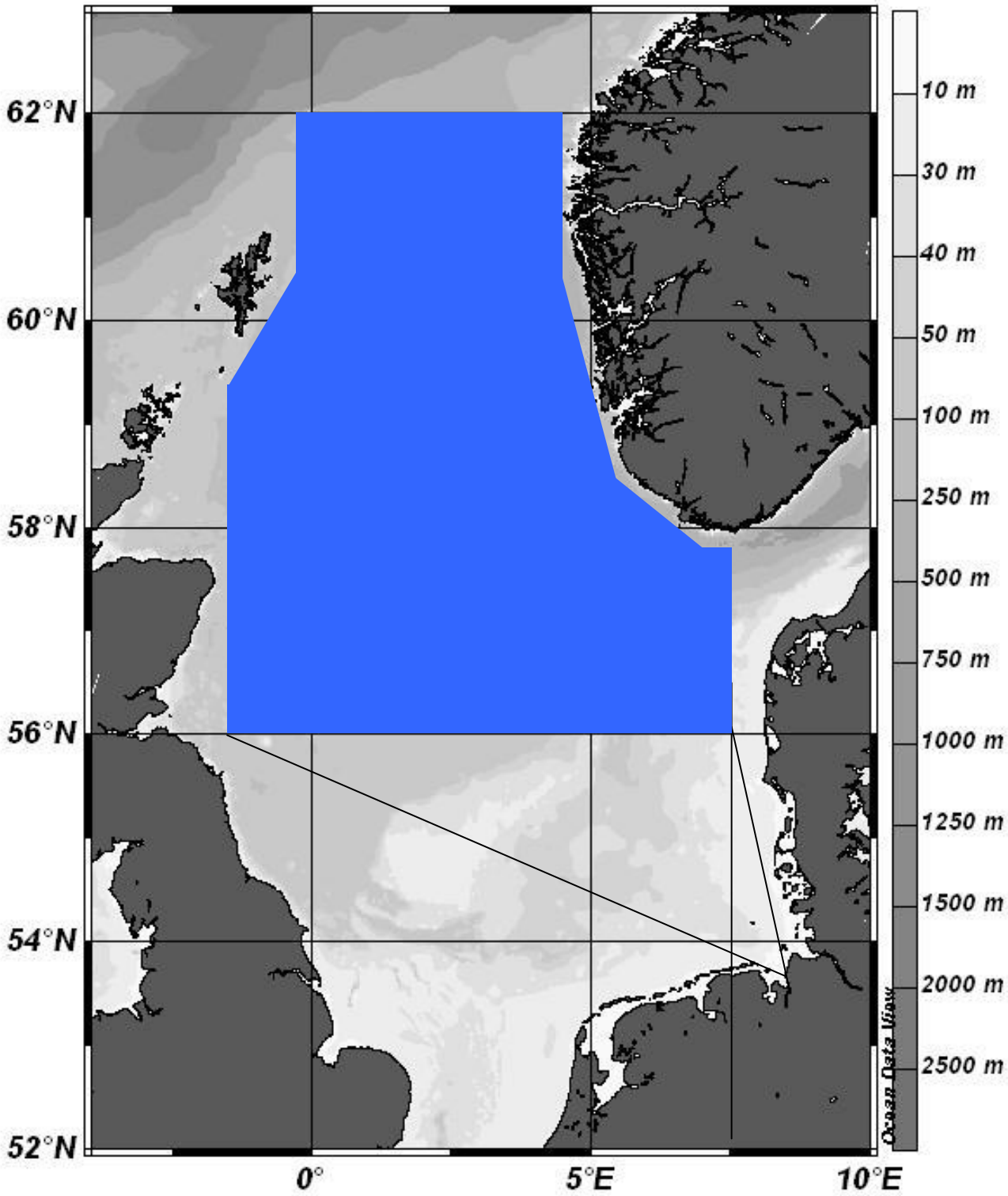
Attachment I (Map)



Potential working area in the North Sea during cruise HE 425 in May/June 2014.
The phytoplankton bloom we want to study may occur in the area marked blue.