NOTIFICATION OF PROPOSED RESEARCH CRUISE

GENERAL PART A

1. Name of ship: ***FS 'HEINCKE'*** Voy.No.: ***HE 358***

2. Dates of cruise: from: 25.05.2011 to: 13.06.2011

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

4. Owner: "Federal Ministry of Education and Research"
- German Government -

5. Particulars of ship:

Name	**HEINCKE**
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
	IRIDIUM +881-631-815-155
Telefax	INMARSAT +870-764-140-493
e-mail	Bruecke@Heincke.Briese-Research.de

6. Crew

Name of Master	:Voss
No of Crew	:11

7. Scientific Personnel

Scientist in charge

Name and address	:	Allan Cembella Am Handelshafen 12 27570 Bremerhaven Germany
Phone	:	+49-4714831-1494
Fax	:	+49-47148312115
E-mail	:	allan.cembella@awi.de
No. of Scientists	:	12

8. Geographical area in which ship will operate (with reference to latitude and longitude)

North Sea and north coast of Scotland, including Orkney and Shetland Islands (See attached map)

9. Brief description of purpose of cruise

The mission of the cruise is to explore and define the biodiversity and toxin profiles of planktonic organisms in North European coastal waters, with specific reference to species responsible for the formation of Harmful Algal Blooms associated with shellfish toxicity and fish mortalities.

10. Dates and names of intended ports of call

No harbour visits with docking required and no ports of call in waters under UK jurisdiction

11. Any special logistic requirement at ports of call

Not applicable

DETAIL

PART B

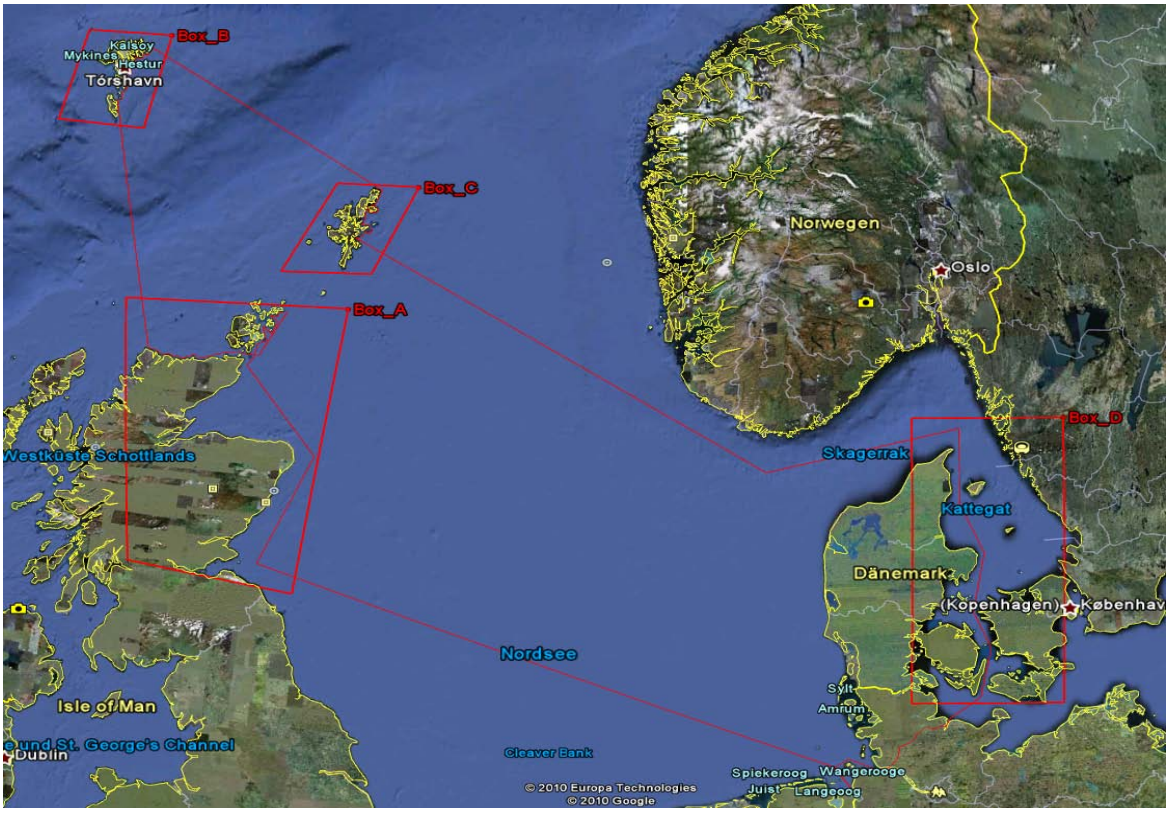
1. Name of ship ***F.S. "HEINCKE"*** Voy No.: ***HE358***

2. Dates of cruise from: 25.05.2011 to: 13.06.2011

3 Purpose of research and general operational methods.
The research proposed is to explore the biographical distribution and biodiversity of toxigenic species associated with Harmful Algal Blooms. Vertical profiles will be conducted with respect to standard oceanographic parameters (temperature, salinity, turbidity, oxygen, chlorophyll) through the upper water column. Plankton samples will be obtained by pumping from discrete depths in the euphotic zone, and also by means of plankton net tows and entrapment bottle casts. On board analysis of toxins will be carried out by mass spectrometry coupled with liquid chromatography and DNA sequencing of plankton assemblages will be done on board with pyrosequencing equipment.

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.

(see attached geographical coordinates for the cruise transect stations and also map of the sampling areas). No moorages, benthic sampling or drifters will be deployed.



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

Plankton samples (< 150 µm mesh-size) of organisms in the upper water column. No fish will be collected and stable/radioactive isotopes will not be part of the sampling regime.

6. Details of moored equipment:

(No deployment intended)

7. Explosives: (no explosives will be used on this cruise)

(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
Previous cruises of the research group involved in sampling of Scottish coastal waters include NORCOHAB I (FS Poseidon, 2007) and NORCOHAB II (FS Heincke, 2009)

(b) Any previously published research data relating to the proposed cruise.
(Attach separate sheet if necessary)
Selected publications based on or relevant to the previous cruises in the North Sea:

Alpermann, T. J., Tillmann, U., Beszteri, B., Cembella, A.D., John, U.(2010). Phenotypic variation and genotypic diversity in a planktonic population of the toxigenic marine dinoflagellate Alexandrium tamarense (Dinophyceae), Journal of Phycology, 46(1), 18-32.

Alpermann, T.J., Beszteri, B., John, U., Tillmann, U., Cembella, A.D.(2009).Implications of life-history transitions on the population genetic structure of the toxigenic marine dinoflagellate Alexandrium tamarense, Molecular Ecology, 18, 2122–2133.

Krock, B., Tillmann, U., John, U., Cembella, A.D.(2009). Characterization of azaspiracids in plankton size-fractions and isolation of an azaspiracid-producing dinoflagellate from the North Sea, Harmful Algae, 8, 254-263.

Krock, B., Tillmann, U., John, U., Cembella, A.(2008).LC-MS-MS aboard ship: tandem mass spectrometry in the search for phycotoxins and novel toxigenic plankton from the North Sea, Analytical and Bioanalytical Chemistry, 392(5), 797-803**.**

Ma, H., Krock, B., Tillmann, U., Cembella, A.(2009).Preliminary characterization of extracellular allelochemicals of the toxic marine dinoflagellate Alexandrium tamarense using a Rhodomonas salina bioassay, Marine Drugs, 7(4), 497-522.

Tillmann, U., Elbrächter, M., Krock, B., John, U., Cembella, A.(2009).Azadinium spinosum gen. et sp. nov. (Dinophyceae) identified as a primary producer of azaspiracid toxins, European Journal of Phycology, 44(1), 63-79

Tillmann, U., Alpermann, T.L., da Purificação, R.C., Krock, B., Cembella, A.(2009).Inter-population clonal variability in allelochemical potency of the toxigenic dinoflagellate Alexandrium tamarense, Harmful Algae, 8(5), 759-769.

Tillmann, U., Alpermann, T., John, U., Cembella, A.(2008).Allelochemical interactions and short-term effects of the dinoflagellate Alexandrium on selected photoautotrophic and heterotrophic protists, Harmful Algae, 7(1), 52-64.

Scholin, C. A., Doucette, G. J., Cembella, A. D.(2008).Prospects for developing automated systems for in situ detection of harmful algae and their toxins, In: Real-Time Coastal Observing Systems for Marine Ecosystem Dynamics and Harmful Algal Blooms, Babin, M., Roesler, C.S., Cullen, J.J. (eds), Oceanographic Methodology Series, UNESCO Publications, Paris, pp. 413-462.

Yang, I., John, U., Beszteri, S., Gloeckner, G., Krock, B., Goesmann, A., Cembella, A. D.(2010).Comparative gene expression in toxic versus non-toxic strains of the marine dinoflagellate Alexandrium minutum., BMC Genomics. 5.

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.

Keith Davidson, Scottish Association for Marine Science, Scottish Marine Institute, Oban, Argyll PA37 1QA UK

Eileen Bresnan, Marine Scotland Marine Laboratory, PO Box 101, 375 Victoria Road, Aberdeen AB11 9DB UK

10. State:

(a) Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable.

YES, although ports stays are not planned

(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, if requested

(c) When research data from the intended cruise is likely to be made available to the coastal state and if so by what means.

Cruise data and highlights of the findings will be disseminated by Publication in the scientific peer-reviewed literature, in scientific society bulletins, such as *Harmful Algae News,* at scientific conferences and via public media interviews, and in the ship cruise report within 1 year after the cruise.

SCIENTIFIC EQUIPMENT COASTAL STATE : United Kingdom

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

				DISTANCE FROM COAST		
List of all major Marine Scientific Equipment which is proposed to be used and indicate waters in which it will be deployed.	Water column **ONLY; NO** sediment sampling of the seabed	Fisheries research within fishing limits	Research concerning natural resources of the continental shelf or it's physical characteristics	Within 3 NM	Between 3 - 12 NM	Between 12 - 200 NM
Plankton nets (phytoplankton, zooplankton)	yes	no	no	yes	yes	yes
Diaphragm pump	yes	no	no	yes	yes	yes
Rosette sampler with entrapment bottles and biooptical and physical sensors	yes	no	no	yes	yes	yes

Date/Signature:

11.03.2011 Markus Hirsekorn

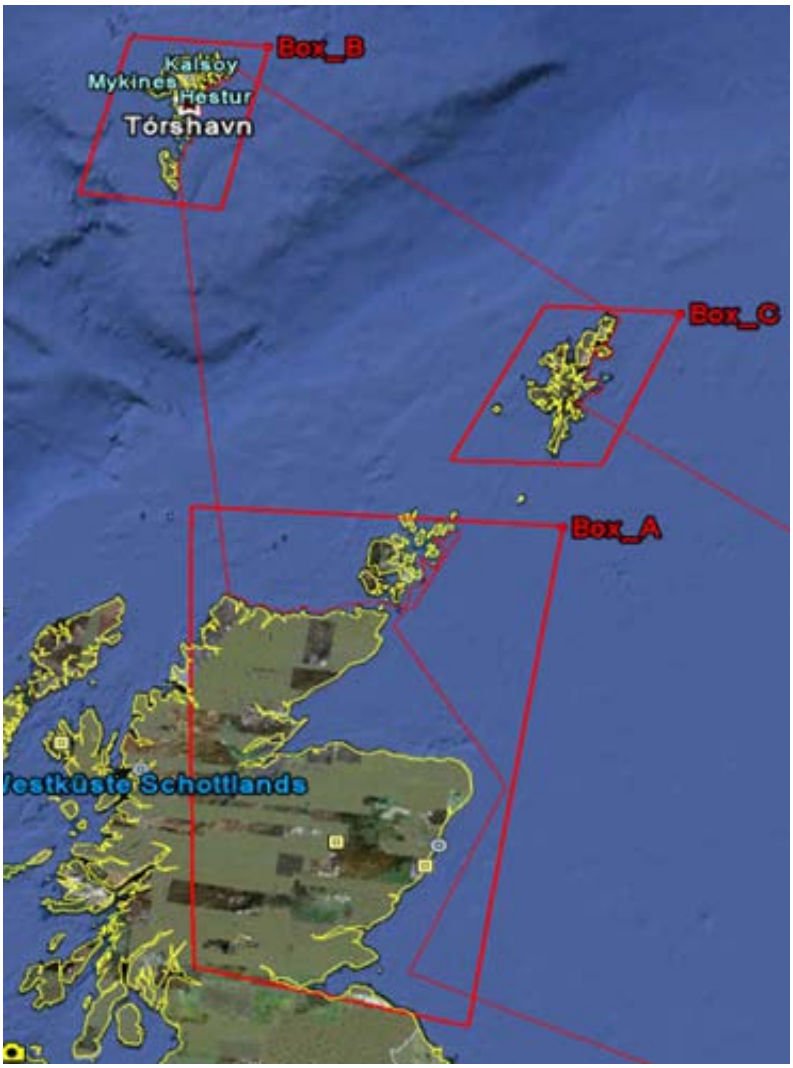
(On behalf of the Principal Scientist)

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 1 (Heincke 358 Cruise Transect and Schedule)



Nr.:	Transect Departure			Arrival	Number of stations	Distance	Distance between stations	Stations / day (10 kn; 45 min on station; 10 h daylight)
1	**25.05.11**	**Bremerhaven**	**27.05.11**	**Box_A Start**	**x**	**~ 400 nm**	**x**	**x**
2	**27.05.11**	**Box_A Start**	**30.05.11**	**Box_A End**	**16**	**~ 410 nm**	**25,6 nm**	**~ 4**
3	**30.05.11**	**Box_A End**	**01.06.11**	**Box_B Start**	**x**	**~ 130 nm**	**x**	**x**
4	**01.06.11**	**Box_B Start**	**03.06.11**	**Box_B End**	**12**	**~ 100 nm**	**8,3 nm**	**~ 4**
5	**03.06.11**	**Box_B End**	**05.06.11**	**Box_C Start**	**x**	**~ 170 nm**	**x**	**x**
6	**05.06.11**	**Box_C Start**	**06.06.11**	**Box_C End**	**8**	**~ 100 nm**	**12,5 nm**	**~ 4**
7	**06.06.11**	**Box_C End**	**09.06.11**	**Box_D Start**	**x**	**~ 370 nm**	**x**	**x**
8	**09.06.11**	**Box_D Start**	**10.06.11**	**Box_D End**	**8**	**~ 260 nm**	**32,5 nm**	**~ 4**
9	**10.06.11**	**Box_D End**	**10.06.11**	**Kiel**	**x**	**~ 25 nm**	**x**	**x**
10	**11.06.09**	**Kiel**	**12.06.09**	**Bremerhaven**	**x**	**~ 120 nm**	**x**	**x**