

NOTIFICATION OF PROPOSED RESEARCH CRUISE**PART A: GENERAL**

1. NAME OF RESEARCH SHIP **RV HEINCKE** CRUISE NO. **HE 302**
2. DATES OF CRUISE From **21 April 2009** To **13 May 2009**
3. OPERATING AUTHORITY:
Alfred-Wegener-Institute for Polar and Marine Research
P.O. Box 12 01 61
27515 Bremerhaven
TELEPHONE: **+49 471 4831-0**
TELEFAX: **+49 471 4831-1355**
TELEX: **238 695 polar d**
4. OWNER (if different from no. 3)
5. PARTICULARS OF SHIP:
Name: **HEINCKE**
Nationality: **German**
Overall length: (in metres) **55,20**
Maximum draught: (in metres) **4,16**
Net tonnage: **396**
Propulsion e.g. diesel/steam: **diesel electric**
Call sign: **DBCK**
No IMO: **8806113**
No MMSI: **211208720**
Registration port and number (if registered fishing vessel) **Helgoland**
6. CREW
Name of master: **Robert Voss**
Number of crew: **12**
7. SCIENTIFIC PERSONNEL
Name and address of scientist in charge: **Scientist in charge:**
Prof. Dr. Allan Cembella (Leg II – III)
Alfred Wegener Institute
for Polar and Marine Research
27570 Bremerhaven
Germany
Allan.Cembella@awi.de

Prof. Dr. Oliver Zielinski (Leg I)
Hochschule Bremerhaven
Marine Technology Laboratory
An der Karlstadt 8
27568 Bremerhaven
Germany
Oliver.Zielinski@hs-bremerhaven.de
- Tel/telex/fax no.: **+49 471 4831 1494/2115**
No. of scientists: **12**
8. GEOGRAPHICAL AREA IN WHICH SHIP WILL OPERATE (with reference to latitude and longitude)
North Sea **Box A: 56°00'N, 03°20'E; 53°30'N, 08°30'E**
North Sea/North Atlantic **Box B: 59°20'N, 09°30'W; 56°00'N, 00°00'**
Irish Sea/Celtic Sea **Box C: 54°30'N, 13°00'W; 51°30'N, 05°30'W**

9. BRIEF DESCRIPTION OF PURPOSE OF CRUISE
Biogeographical distribution of key harmful algal bloom organisms; Chemical ecological interactions between grazers and phytoplankton; Molecular ecology and genotyping of toxic microalgae; Chemical analysis on board of phycotoxins in various size-fractions and food web compartments
10. DATES AND NAMES OF INTENDED PORTS OF CALL
 1. Arrive: 25 April 2009 (late afternoon) – Departure: 26 April 2009 (morning), Aberdeen, United Kingdom (exchange of scientific personnel)
 2. Arrive: 3 May 2009 (afternoon) – Departure: 5 May 2009 (morning), Dublin, Ireland (exchange of scientific personnel; embark film crew: 2 persons plus 2 Irish scientists)
 3. Arrive: 7 May 2009 (afternoon) – Departure: 7 May (evening) 2009, Cork, Ireland (disembark film crew plus 2 Irish scientists)
11. ANY SPECIAL REQUIREMENTS AT PORTS OF CALL
No special requirements, except customs clearance for personnel exchanges

NOTIFICATION OF PROPOSED RESEARCH CRUISE

1. PART B: DETAILS

1. NAME OF RESEARCH SHIP CRUISE NO.
RV HEINCKE HE 302

2. DATES OF CRUISE From To
21 April 2009 13 May 2009

3. a) PURPOSE OF RESEARCH

The purpose of this research cruise is to determine the biogeographical distribution of key harmful algal bloom organisms, particularly *Alexandrium* spp., *Pseudo-nitzschia* spp., *Dinophysis* spp. and the newly discovered source of azaspiracid toxins, *Azadinium spinosum* in the coastal waters of the North Sea and Celtic Sea. Once the horizontal and vertical distribution is established we will evaluate chemical ecological interactions between grazers and toxic phytoplankton. Such information is critical to the optimization of monitoring strategies for harmful algae and to determine the factors regulating bloom dynamics.

b) GENERAL OPERATIONAL METHODS (including full description of any fish gear, trawl type, mesh size, etc;

Plankton will be collected by vertical plankton net hauls for phytoplankton (20 µm) and zooplankton (150 µm), respectively. A CTD profiler with accompanying biooptical sensors for chlorophyll fluorescence, turbidity and spectral absorbance will be deployed at each station through the water column. A free-falling hyperspectral radionmeter will also be launched at each station. A free-floating autonomous profiler COASTFLOAT will be deployed at a few selected coastal station for several hours and then recovered. Other plankton samples will be harvested by pumping from discrete depths followed by on-board filtration. Toxic microalgae will be genotyped on board by molecular probes and qPCR and the toxin profiles determined by tandem mass spectrometry (LC-MS/MS).

4. ATTACHED CHART showing (on an appropriate scale) the geographical area of intended work, positions of intended stations, tracks of survey lines, positions of moored/seabed equipment, areas to be fished
Working areas are marked on attached map (see attachment): North Sea Box A: 56°00'N, 03°20'E; 53°30'N 08°30'E; North Sea/North Atlantic Box B: 59°20'N, 09°30'W; 56°00'N 00°00'; Irish Sea/Celtic Sea Box C: 54°30'N, 13°00'W; 51°30'N 05°30'W. Further details on the preliminary time plan and station location are available upon request. Specific stations will be selected according previous cruises, weather conditions, and the on site discovery of plankton patches containing target species and their toxins.

5. a) TYPES OF SAMPLES REQUIRED (e.g., geological/water/plankton/fish/radionuclide)

- 1) Phytoplankton and microzooplankton from the water column
- 2) Seawater from discrete depths

b) METHODS OF OBTAINING SAMPLES (e.g., dredging/coring/drilling/fishing, etc. When using fishing gear, indicate fish stocks being worked, quantity of each species required, and quantity of fish to be retained on board).

1. Plankton nets (phytoplankton, zooplankton); 2. Diaphragm pump from fixed depths

6. DETAILS OF MOORED EQUIPMENT

No moored equipment

<u>Dates</u>	<u>Recovery</u>	<u>Description</u>	<u>Depth</u>	<u>Latitude</u>	<u>Longitude</u>
<u>Laying</u>					

7. Explosives

- a) Type and trade name
- b) Chemical content (and formula)
- c) IMO IMDG code (reference and UN no.)
- d) Quantity and method of storage on board
- e) If explosives give dates of detonation

no explosives

- Method of detonation
- Position of detonation

- Frequency of detonation
- Depth of detonation
- Size of explosive charge in kg.

8. DETAIL AND REFERENCE OFa) Any relevant previous/future cruises

Cruise No. POSEIDON 352 NORCOHAB1 (June-July 2007)

b) Any previously published research data relating to the proposed cruise

Cembella, A.D. The Poseidon Adventure Redux – the NORCOHAB Cruise in the North Sea. Harmful Algae News, January 2008;

Krock, B., U. Tillmann, A.I. Selwood, A.D. Cembella 2008. Unambiguous identification of pectenotoxin-1 and distribution of pectenotoxins in plankton from the North Sea. Toxicon 52, 927–935;

Krock, B., U. Tillmann, U. John, A. Cembella 2008. LC-MS-MS aboard ship: tandem mass spectrometry in the search for phycotoxins and novel toxigenic plankton from the North Sea. Anal. Bioanal. Chem. 392:797–803;

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

Tillmann, U., M. Elbrächter, B. Krock, U. John, A. Cembella. 2009. *Azadinium spinosum* gen. et sp. nov (Dinophyceae) identified as a primary producer of azaspiracid toxins. Eur. J. Phycol., in press.

9. NAMES AND ADDRESSES OF SCIENTISTS OF THE COASTAL STATE(S) IN WHOSE WATERS THE PROPOSED CRUISE TAKES PLACE WITH WHOM PREVIOUS CONTACT HAS BEEN MADE

Joe Silke
Marine Institute (80 Harcourt Street Dublin 2)
Renville, Oranmore, Co Galway
Ireland

10. STATEa) Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable (Yes/No)

Yes

b) Participation of an observer from the coastal state for any part of the cruise together with the dates and the ports for embarkation and disembarkation

Yes

c) When research data from the intended cruise are likely to be made available to the coastal state and by what means

Cruise Summary Report, scientific literature

PART C. SCIENTIFIC EQUIPMENT

Complete the following table
using a separate page for
each coastal state

Coastal state United Kingdom

Port of call Aberdeen

Dates 25-26 April 2009

Indicate "YES" or "NO"

<u>List scientific work by function</u> e.g.	Water column including sediment sampling of the seabed	Fisheries research within fishing limits	Research concerning the natural resources of the continental shelf or its physical characteristics	DISTANCE FROM COAST		
				Within 3 nm	Between 3-12 nm	Between 12-200 nm
Plankton net (& water samples)	Yes, (excluding sediment)	No	No	No	Yes	Yes
Dredge	No	No	No	No	No	No
Diving	No	No	No	No	No	No
Echosounding (< 50 kHz)	No	No	No	No	No	No
TV-camera	No	No	No	No	No	No
Multicorer	No	No	No	No	No	No
CTD/Rosette	Yes (excluding sediment)	No	No	No	Yes	Yes
Gravity corer	No	No	No	No	No	No
Bottom trawl fishing	No	No	No	No	No	No

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D-27515 Bremerhaven

i. A. [Signature]

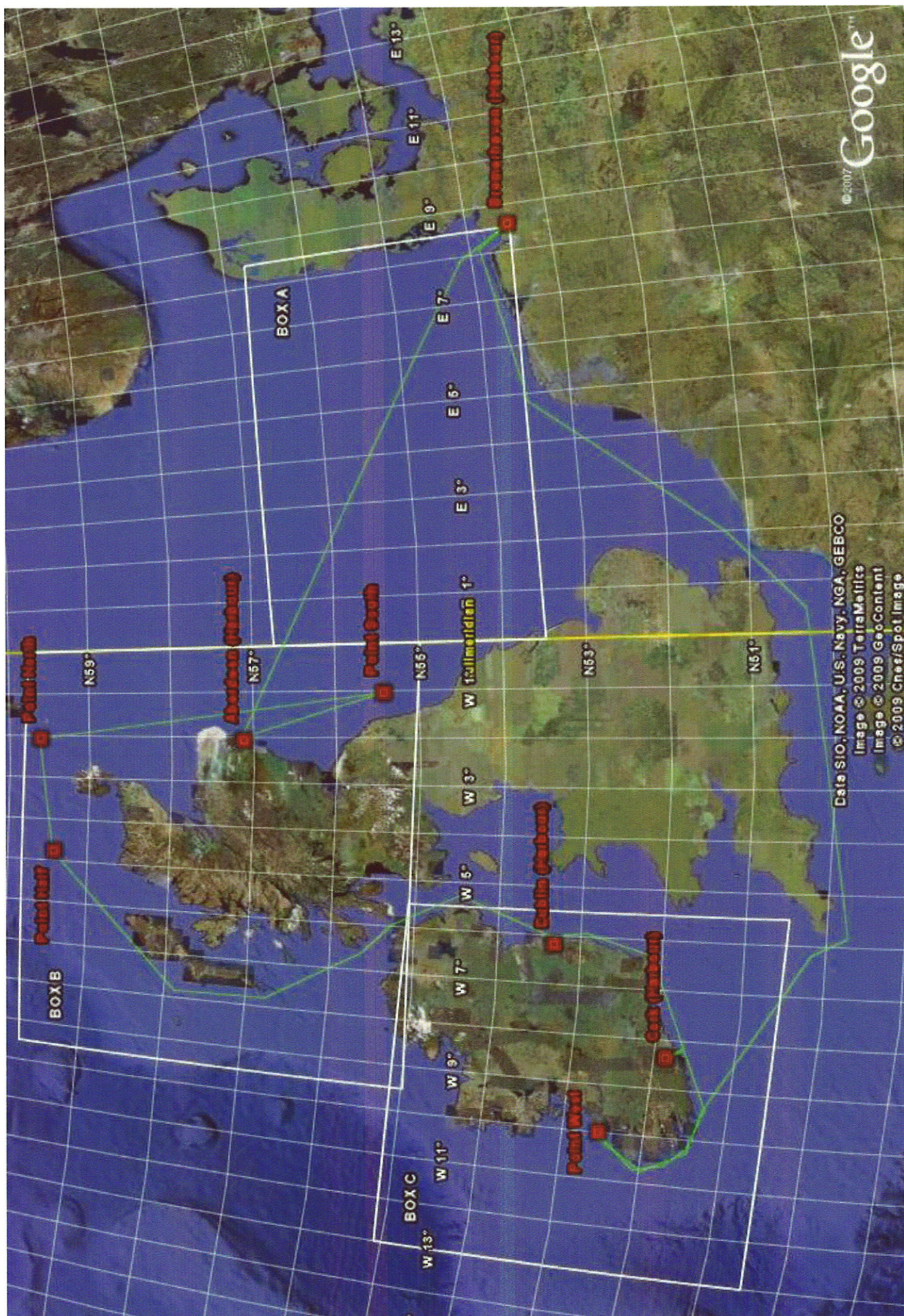
Dated

29.01.2009

(On behalf of the Principal Scientist)

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

Attached Map:



Attached station table

Ser. No.:	Legs				Number of stations	Distance	Distance between the stations	Stations per day (10 kn; 45 min station; 10 h daylight)
	Departure in		Arrival in					
1	21.04.09	Bremerhaven 53° 32' 05.53" N 08° 34' 42.90" E	25.04.09	Aberdeen (Harbour) 57° 08' 27.30" N 02° 04' 18.08" W	25	~ 420 nm	16,8 nm	~ 4
2	25.04.09	Aberdeen (Harbour) 57° 08' 27.30" N 02° 04' 18.08" W	26.04.09	Point South 55° 27' 07.23" N 01° 02' 31.11" W	x	~ 110 nm	x	x
3	26.04.09	Point South 55° 27' 07.23" N 01° 02' 31.11" W	30.04.09	Point North 59° 37' 30.55" N 02° 04' 25.00" W	25	~ 250 nm	10 nm	~ 5
4	30.04.09	Point North 59° 37' 30.55" N 02° 04' 25.00" W	01.05.09	Point Half 59° 26' 38.07" N 04° 45' 41.38" W	10	~ 80 nm	8 nm	~ 6
5	01.05.09	Point Half 59° 26' 38.07" N 04° 45' 41.38" W	03.05.09	Dublin (Harbour) 53° 21' 06.00" N 06° 10' 46.36" W	10	~ 450 nm	45 nm	~ 2
6	04.05.09	Dublin (Harbour) 53° 21' 06.00" N 06° 10' 46.36" W	04.05.09	Dublin (Harbour) 53° 21' 06.00" N 06° 10' 46.36" W	x stay	x stay	x stay	x stay
7	05.05.09	Dublin (Harbour) 53° 21' 06.00" N 06° 10' 46.36" W	07.05.09	Cork (Harbour) 51° 53' 16.01" N 08° 21' 15.74" W	15	~ 160 nm	10,7 nm	~ 5
8	07.05.09	Cork (Harbour) 51° 53' 16.01" N 08° 21' 15.74" W	10.05.09	Point West 52° 36' 09.83" N 10° 00' 22.85" W	15	~ 200 nm	12 nm	~ 4
9	10.05.09	Point West 52° 36' 09.83" N 10° 00' 22.85" W	14.05.09	Bremerhaven 53° 32' 05.53" N 08° 34' 42.90" E	5	~ 960 nm	180 nm	~ 1