NOTIFICATION OF PROPOSED RESEARCH CRUISE To: United Kingdom

Part A: GENERAL

1. **Name of research ship:** RV Pelagia

2. **Cruise dates:** 12 June - 1 July 2007.

3a. **Operating authority:**
Royal Netherlands Institute for Sea Research (NIOZ)
Telephone: (+31) (0)222-369300
Telefax: (+31) (0)222-319674

3b. **Operating agent:**
Netherlands Institute for Sea Research (NIOZ)
Telephone: (+31) (0)222-369300
Telefax: (+31) (0)222-319674

4. **Owner:** Royal Netherlands Institute for Sea Research (NIOZ)

5. **Particulars of ship:**

name:	Pelagia
nationality:	Dutch
overall length:	66.00 meters
maximum draught:	4.00 meters
nett tonnage:	1553 NRT
propulsion:	2 diesel electric Elliot White Gill Bow Truster
call sign:	PGRQ

6. **Crew:**

name of master:	J. Ellen
number of crew:	10

7. **Chief scientist:**

name:	G.C.A. Duineveld
addresses:	Royal Netherlands Institute for Sea Research P.O. Box 59 1790 AB Den Burg
telephone:	(+31) (0)222-369300/
telefax:	(+31) (0)222-319674
e-mail address:	duin@nioz.nl

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

Rockall Bank and Hatton Bank, 12°00 W to 21°00 W, and 54°00 N to 60°0O N
Whittard Canyon and surroundings, 9°00 W to 14°00 W, and 47°00 N to 50° 00 N
Mingulay Reef (SE Outer Hebrides), 6°30 W to 8°00 W, and 56°00 N to 57° 30 N

9. **Brief description of purpose of cruise:**
Biological research on the cold-water coral community. This research forms part of the international HERMES project funded by the European Community

10. Names and dates of intended ports of call:

Cork (Ireland), 12 June 2007
Brest (France), 1 july 2007

11. Any special logistic requirements at ports of call:

No special requirements

Part B: DETAIL

1. **Name of research ship:** RV Pelagia

2. **Cruise dates:** 12 June - 1 July 2007.

3. **Purpose of research and general operational methods:**

Biological research on the cold-water coral community. This research forms part of the international HERMES project. HERMES is a so-called Integrated Project funded by the EU. Its objective is a comparative study on functioning of biodiversity hotspots along the European continental margin. Cold coral ecosystems form one of the target habitats of HERMES. In the workpackage dealing with cold corals, the following aspect will be studied: 1) supply of C, N and the fate of these compounds using stable isotopes; 2) biodiversity of the community in relation to the food web; 3) mapping of the coral area by multibeam and groundtruthing with videocamera and ROV. In this study we will cooperate with international partners in HERMES. Data will be collected by deploying shortterm moorings and bottomlanders. Biological samples will be taken by boxcorer, dredge, Rosette-sampler, waterbox and waterpumps. Videomaterial by a hoppercamera and ROV.

HERMES aims to develop a better understanding of marine biodiversity and ecosystem functioning in Europe's deep waters by integrating biodiversity expertise (including microbial ecologists, taxonomists, systematicists, geneticists) with that of geologists, sedimentologists, physical oceanographers and biogeochemists, so that generic principles of the relationships between biodiversity and ecosystem functioning can be resolved. In this programme, the role and contribution that a diverse suite of deep-sea ecosystem "hotspots" provide in creating the heterogeneity and biodiversity richness of Europe's deep ocean margins will be established.

The particular aim of the Workpackage 'Coral Reef and Carbonate Mound Systems' is to understand the structure, functioning and dynamics of deep-water coral ecosystems under different trophic regimes and under different climatic settings. To investigate the change of biodiversity which affected deep-water coral ecosystems during the last glacial-interglacial cycle and to forecast how the ecosystem will react to future environmental change. To study the links between deep-water circulation patterns and the likely geosphere-biosphere coupling of deep-water coral ecosystems in hydrocarbon provinces. The overall aim is to analyse and minimise the negative impacts of human activities on deep-water coral ecosystems through provision of mitigation options, risk assessments and recommendations for management and conservation.

Specific tasks of NIOZ partner (Duineveld/Lavaleye/ Bergman) in cooperation with HERMES partners:

- Assess species variety in modern coral ecosystems thriving under contrasting trophic regimes and compare with environmental conditions at the last glacial maximum [taxonomy and systematics, biodiversity indexing].

- Analyse food and nutrient utilisation and build a food-web model for deep-water coral ecosystems in conjunction with WP 7 [particle flux, nitrogen & carbon isotopy, lipids, C/N analysis, modelling].
- Decipher species relationships such as symbiosis, parasitism and predator-prey interactions from microbial to vertebrate scales [analysing the endolithic (bioerosion), fouling macrofauna and microbial community interactions, aquaria experiments].
- Output: Deep-water coral system model along a trophic gradient. Time frame April 2005-April 2009.

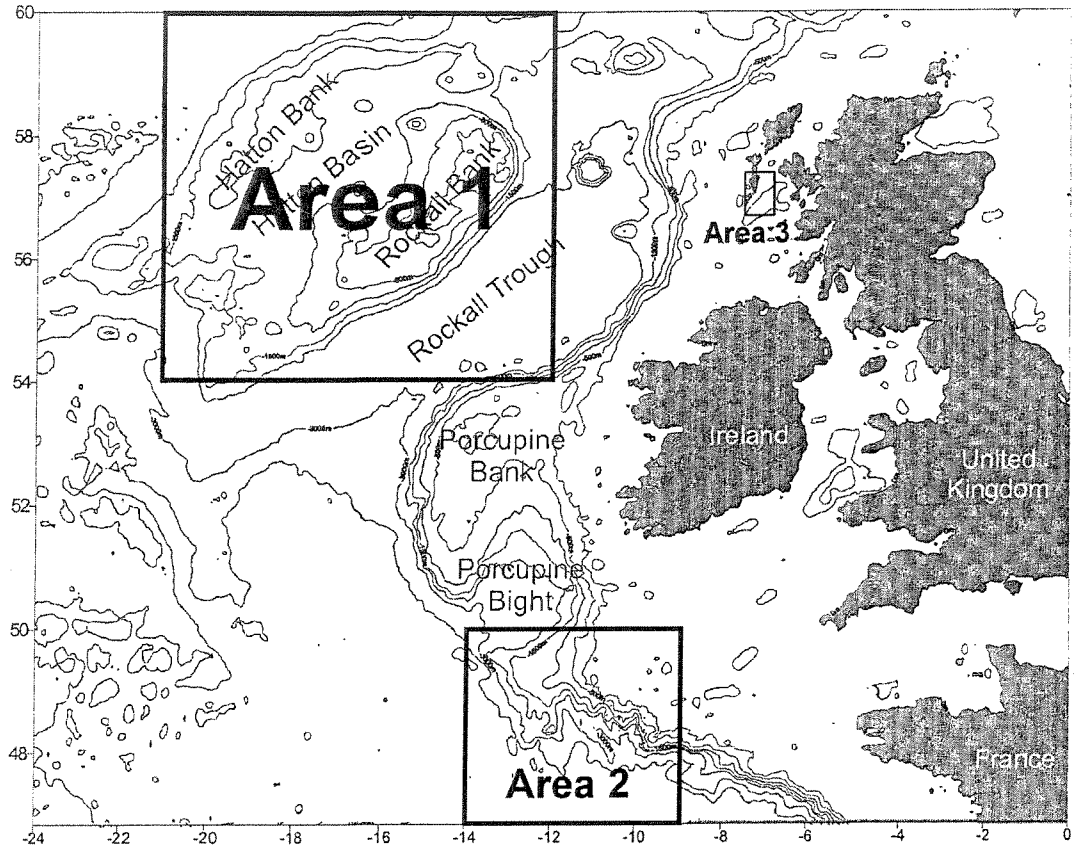
In addition to the coral research we also will visit the Whittard Canyon. This research also fits within the frame work of the HERMES project but than in the Workpackage "Canyons". This will be only a short visit, mainly to recover a benthic lander that will be deployed in April 2007 during another HERMES cruise.

On special request of our Scottish partner within the HERMES project (Dr. M. Roberts, Dunstaffage Marine Laboratory, Oban) we like to do additional work on the Mingulay coral reefs (SE of the Outer Hebrides), especially on the current regime and water conditions. This research will form an extension of the work done during the BIOSYS 2006 cruise in this area with the RV Pelagia from 7-23 July 2006.

4. Attach chart showing (on an appropriate scale) the geographical area of the intended work, positions of intended stations/hydrographic sections:

Area 1 (Rockall and Hatton Bank) will be the main research area.
Area 2 (Whittard Canyon and surroundings) will be visited to recover a benthic lander.
Area 3 (Outer Hebrides) for additional studies on the Mingulay Coral Reef

Proposed research areas R.V. Pelagia
12 June - 1 July 2007



5a. Type of samples required: Water-samples
Bottom-fauna samples

5b. Methods by which samples will be obtained (including dredge/core/drill techniques):

Rosette-sampler, Waterbox and Waterpump for watersamples.
Boxcore, dredge and ROV for bottomfauna (benthos) samples

6. Details of moored equipment:

Up to three benthic landers (about 3m high) will be deployed between 100-1500m depth at the seabottom. These landers will record currents, particles in the water, pigments, particle flux and temperature. Besides it will have a settlement experiment monitored by video camera's. Intension is to use the landers for short (few days) as well as long (max. one year) deployments.
In the Whittard Canyon a benthic lander will be recovered that is planned to be deployed in April 2007 during another HERMES cruise.

On the Mingulay coral reefs moorings and landers will be deployed. Intension is to do only short term deployments during the time of the expedition

7. **Explosives:**

No explosives.

8. **Detail and reference of:**
   a. **Any relevant previous/future cruises:**

   We participated in the Moundforce 2004 expedition with the RV Pelagia in the same area (Chief scientist H.de Haas, NIOZ). The first HERMES cruise with the RV Pelagia was carried out at Rockall Bank and Porcupine Bank from 21 June - 21 July 2005. The second HERMES cruise with RV Pelagia was carried out at Rockall Bank from 19 June - 7 July 2006, and a BIOSYS cruise with RV Pelagia did research at Mingulay Reef (Hebrides) from 7 July - 23 July 2006.

   b. **Any previous published research data relating to the proposed cruise: (Attach separate sheet if necessary)**

   Duyl, F.C.van, G.C.A. Duineveld and others, 2005. Biodiversity, ecosystem functioning and food web complexity of deep water coral reefs in the NE Atlantic (Rockall Bank and Porcupine Bank). - BIOSYS-HERMES 2005 Cruise Report, NIOZ, Texel. pp. 1-31, Appendix I-VII.

   Duineveld, G.C.A. & shipboard scientific crew, 2006. Biodiversity, ecosystem functioning and food web complexity of cold water coral reefs in the NE Atlantic (Rockall Bank). HERMES 2006 Cruise Report with R.V. Pelagia. Cruise 64PE 249, Galway-Oban,19 June-7 July 2006. pp. 1-25, appendix I-VI.

   Maier, C. & shipboard scientific party, 2006. Biology and ecosystem functioning of cold water coral bioherms at Mingulay (Hebrides), NE Atlantic. Cruise Report, BIOSYS 2006. Cruise 64PE250 on R/V Pelagia, Oban–Oban, 7-23 July 2006. pp. 1-63.

   [pdf of these reports were send to the contacts and are available on request]

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:**

   Dr. A. Grehan, Martin Ryan Marine Science Institute, National University of Ireland, Galway, Ireland.
   Dr. M.Roberts, Dunstaffage Marine Laboratory, Scottish Association for Marine Science, Oban, Scotland.

10. State:

a. Whether visits to the ship in port by scientist 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 intended cruise is likely to be made available to the coastal state and if so, by what means:

The data will be made available through a scientific publication. The cruise reports of former HERMES and BIOSYS cruises are available as pdf's on request.

SCIENTIFIC EQUIPMENT

11. Complete the following table - include a separate copy for each coastal state (indicate "Yes" or "No" if applicable)

Marine scientific equipment used	**water depth (m)**	**fisheries research**	**distance of research to coast in nautical miles**			
			< 3	**3-12**	**12-50**	**50-200**
For Rockall Bank						
Rosette sampler	0-1500	no	no	no	no	yes
Waterbox	0 -1500	no	no	no	no	yes
SAPS (waterpump)	0-1500	no	no	no	no	yes
Boxcorer	400-1500	no	no	no	no	yes
Dredge	400-1500	no	no	no	no	yes
ROV	400-1000	no	no	no	no	yes
Lander/Mooring	400-1500	no	no	no	no	yes
For Hatton Bank						
Rosette sampler	0-1500	no	no	no	no	yes
Waterbox	0 -1500	no	no	no	no	yes
SAPS (waterpump)	0-1500	no	no	no	no	yes
Boxcorer	400-1500	no	no	no	no	yes
Dredge	400-1500	no	no	no	no	yes
Bottom-lander	400-1500	no	no	no	no	yes
ROV	400-1000	no	no	no	no	yes
Lander/Mooring	400-1500	no	no	no	no	yes
Whittard Canyon						
Lander	500-5000	no	no	no	no	yes
Mingulay Reef						**Coastal State: UK**
Rosette sampler	0-300	no	yes	yes	yes	no
Waterbox	0 -300	no	yes	yes	yes	no
SAPS (waterpump)	0-300	no	yes	yes	yes	no
Boxcorer	50-300	no	yes	yes	yes	no
Dredge	50-300	no	yes	yes	yes	no
Bottom-lander	50-300	no	yes	yes	yes	no
ROV	50-300	no	yes	yes	yes	no
Lander/Mooring	50-300	no	yes	yes	yes	no

List of intended sampling stations during Pelagia cruise

The position of stations will be discussed during the annual meeting of the HERMES project in March 2007 with the other partners of HERMES.

References

None