

NOTIFICATION OF PROPOSED RESEARCH CRUISE

Part A: GENERAL

1. Name of research ship: **RV Pelagia** **Cruise number: 64PE345**

2. Cruise dates: 27/09/2011 - 14/10/2011

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

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

4. Owner: NIOZ Royal Netherlands Institute for Sea Research

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.C. Ellen/C. Burkhard
number of crew: 11

7. Chief scientist: name: M.S.S. Lavaley
addresses: NIOZ Royal Netherlands Institute for Sea
Research
P.O. Box 59
1790 AB Den Burg
telephone: (+31) (0)222-369520/
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e-mail address: marc.lavaley@nioz.nl

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

Whittard Canyon complex	47-49.5°N/9.5-11.5°W
Belgica Mounds	51.18-51.50°N/11.41-11.87°W
NW Porcupine Bight	51.20-52.00°N/12.70-13.60°W
Goban Spur	49-49.5°N/12-13°W

9. Brief description of purpose of cruise:

Cruise serves two major EU-funded programs: HERMIONE (1) and CoralFISH (2). The focus of HERMIONE is to study structure and physical drivers of hotspot ecosystems such as canyons and cold water coral mounds. The aim of the CoralFISH program is to determine the relationship between fish and cold-water coral systems and to study carbon flow through the coral ecosystem to the fish community. Work consists of in-situ observations by means of autonomous benthic landers and seabed sampling.

- 1) www.eu-hermione.net, coordinator Prof. Weaver NOC-Southampton, UK
- 2) www.eu-fp7-coralfish.net, coordinator Dr. A. Grehan, NUIG, Ireland

10. Names and dates of intended ports of call:

Texel (Netherlands) departure 27 September 2011
Vigo (Spain) return 14 October 2011

11. Any special logistic requirements at ports of call:

None

Part B: DETAIL

1. Name of research ship: RV Pelagia

2. Cruise dates: 27/09/2010 - 14/10/2010

3. Purpose of research and general operational methods:

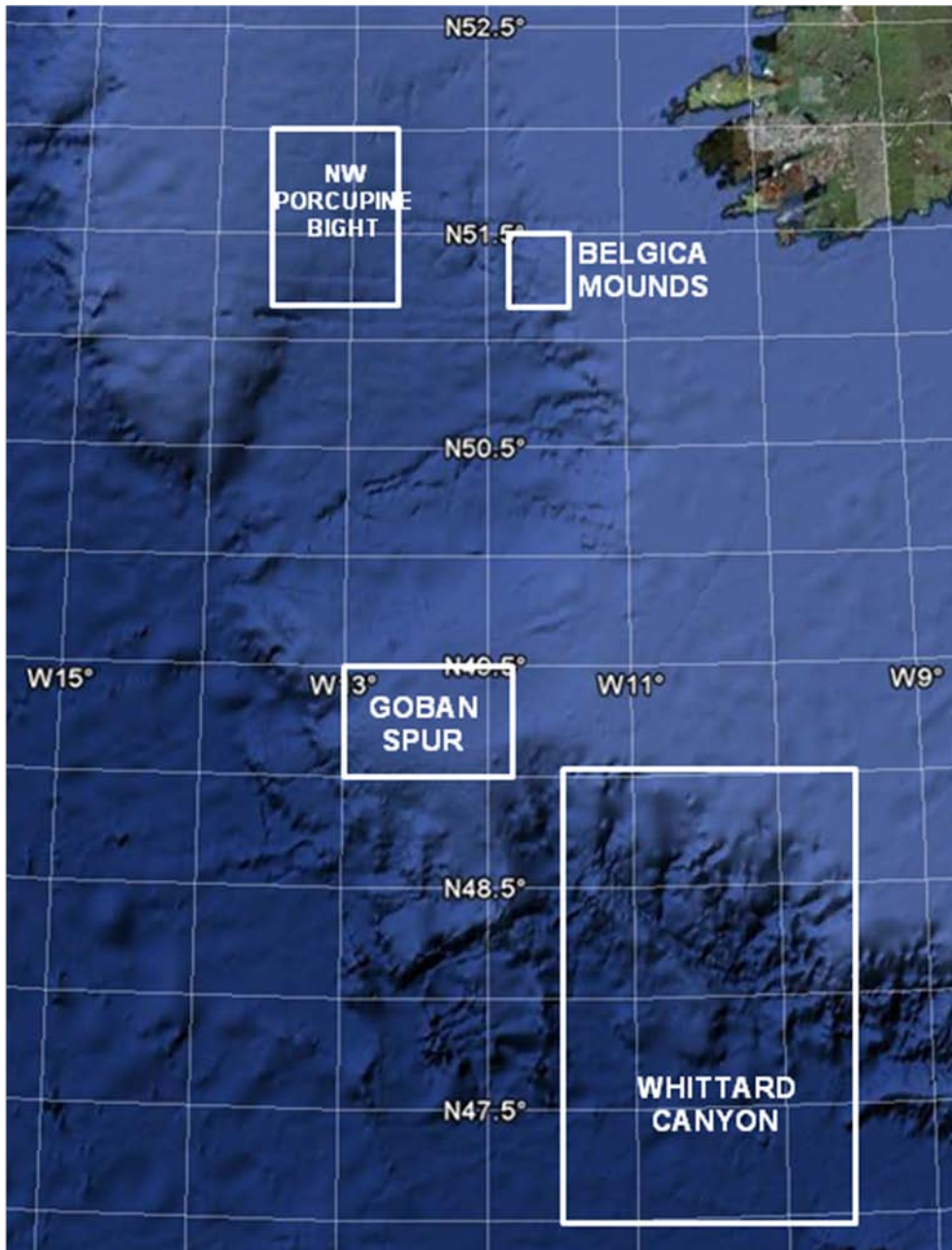
The purpose of the cruise is to collect observational data and seabed samples for two EU-programs: HERMIONE and CoralFISH. The HERMIONE project is focused on study of various hotspot ecosystems such as canyons (Whittard canyon) and cold water coral mounds (Belgica Mounds) whereas CoralFISH aims to study relationships between cold water coral ecosystems and fish. Both projects are Integrated projects funded by the European Union and comprise partners belonging to the major European marine institutions. Coordinating institutions are NOC (Southampton, UK) and Galway University (Martin Ryan Institute Ireland), respectively. As a contribution to the HERMIONE project we intend to study relations between seafloor morphology, particle transport in the BBL and the benthic fauna in the Whittard Canyon by means of multibeam, a tethered video system, video-guided boxcore sampling, and benthic lander deployments. The lander deployed in 2010 will be recovered. Particulate matter higher in the water column over the canyon will be sampled by means of CTD casts, and water pump samples (SAPS). The following aspects will be studied on the video footage and core/dredge samples 1) density and size estimates of macro/epifauna, 2) stable isotopes of organism tissues to analyse food web structure. Data will be related to bottom topography and particle density and quality.

In the CoralFISH part of the cruise (Belgica Mounds) we intend to make estimates of fish abundance on and off coral mounds by means of 1) surveys with tethered video across mounds, and 2) a novel baited video lander. The novel lander with fish observatory was deployed in October 2010 and will be recovered. Additional short deployments for periods of 1 – 2 days will be done during the cruise and possibly another long deployment for a period of 1 yr by the end of the cruise. This will depend on state of equipment and test results. These data will ultimately be fed in a carbon flow model as part of the CoralFISH program.

If time permits preliminary research will be done on the the so-called sponge belt (Pheronema) between 1000 and 1400m in the NW Porcupine Bight and Goban Spur. Research will include multibeam and video surveying, and possibly macrofauna sampling.

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

Exact positions of stations will depend on forthcoming discussions during the HERMIONE meeting (Malaga, April 2011) and the CoralFISH Steering committee meeting (May 2009) and the mapping during the cruise, but can be sent to the appropriate organisation 48 hours before hand. However research will be concentrated on the coldwater coral communities of the Belgica Mounds, the Pheronema sponge belt (below 1000m) on Goban Spur and NW Porcupine Belt, while the canyon research will focus on the Whittard Canyon from 1000 to 4500m.



Map with the four intended research areas indicated

5a. Type of samples required:

- Sediment samples
- Macrofauna and epifauna samples
- Water column samples
- Video footage
- Multibeam survey

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

CTD Rosette-sampler (water column sample), Stand-alone submersible Pump (water column sample), video-guided boxcorer (macrofauna), multicorer, triangular dredge (epifauna), NIOZ benthic lander (video footage).

6. Details of moored equipment:

One BOBO autonomous bottom lander, which was deployed in October 2010 in the Whittard canyon axis, will be recovered. One BOBO lander will be possibly deployed again at 4500 m water depth, for the duration of approximately 1 year. The BOBO landers consist of a 3 x 3 x 4 m tripod frame containing flotation spheres, instrument package and two Benthos releases, anchored to the seabed with three 100-kg iron weights. Instruments will record bottom water current speed and direction, turbidity, temperature and salinity, and a sediment trap will collect sinking particulate matter. A 15-m drift line with float is attached to the top of the lander frame.

An autonomous benthic lander (about 3 x 3 x 3 m), deployed in October 2010 on the Galway Mound, will be recovered, and possibly redeployed for another year. During the cruise also short deployments of 1-2 days with this lander will be done between 400-1500m depth near the Belgica Mound coral communities and sponge belt area. The lander records currents, near-bottom particle load and temperature. It carries a HD video system with fluid attractant to perform experiments on the approach time of fishes and invertebrate scavengers.

7. Explosives:

No explosives.

8. Detail and reference of:

a. Any relevant previous/future cruises:

The scientific party has participated in several cruises with RV Pelagia to the research area e.g., the MOUNDFORCE 2004 cruise (chief scientist H. de Haas, NIOZ), the HERMES-BIOSYS cruise to Rockall and Porcupine Banks in 2005 (chief-scientists F. van Duyl & G. Duineveld, NIOZ), HERMES cruises in 2007 to Whittard Canyon (chief scientist H. de Stigter, NIOZ), to the Belgica Mounds/Whittard Canyon in 2008 (chief scientist M. Lavaleye, NIOZ), to the Belgica Mounds/Whittard Canyon in 2009 (chief scientist G. Duineveld), and in 2010 to the Belgica Mounds/Whittard Canyon in 2008 (chief scientist M. Lavaleye, NIOZ).

There will be joint operations with the French cruise with the Pourquoi-pas? in the Belgica Mound area, as this cruise takes place during the same period (27 Sep-11 Oct 2011). Leading scientist is Sophie Arnaud, Ifremer.

b. Any previous published research data relating to the proposed cruise:

(Attach separate sheet if necessary)

- Duineveld, G.C.A., M.S.S. Lavaleye, E.M. Berghuis, P.A.W.J. de Wilde (2001) Activity and composition of the benthic fauna in the Whittard canyon and the adjacent continental slope (Goban Spur, NE Atlantic). *Oceanologica Acta* 24): 69-83
- 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 RV Pelagia cruise 64PE238, NIOZ, Texel. pp. 1-31
- Duineveld G.C.A. and others (2006) Biodiversity, ecosystem functioning and food web complexity of cold water coral reefs in the NE Atlantic (Rockall Bank). - HERMES 2006, Cruise Report RV Pelagia Cruise 64PE249, NIOZ, Texel, pp. 1-55.

- De Stigter H. and others (2008) Dispersal of anthropogenic lead in submarine canyons. Cruise report RV Pelagia cruise 64PE269, NIOZ, Texel, pp. 1-65.
- Duineveld G.C.A. and others (2009). Cruise report CoralFish/HERMIONE with the RV Pelagia to the Belgica Mounds and the Whittard Canyon. NIOZ, Texel. pp. 1-45.
- Lavaleye M.S.S. and others (2010). Cruise report CoralFish/HERMIONE with the RV Pelagia 64Pe324 to the Belgica Mounds and the Whittard Canyon. NIOZ, Texel. pp. 1-49.

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, University Road, Galway, Ireland (coordinator CoralFISH project)
- Prof. Dr. Phil Weaver, National Oceanography Center, University of Southampton Waterfront Campus, European Way, Southampton SO14 3ZH United Kingdom (Coordinator HERMIONE project)

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.

COASTAL STATE: UK

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
Multibeam	200-4500	no	no	no	no	yes
CTD	200-4500	no	no	no	no	yes
Visobs lander	200-4500	no	no	no	no	yes
ALBEX lander	200-4500	no	no	no	no	yes
Boxcorer	200-4500	no	no	no	no	yes
Multicorer	200-4500	no	no	no	no	yes
Dredge	500-4500	No	No	No	No	Yes
Agassiz trawl	>1000	No	No	No	No	Yes