

Application for Consent to conduct  
Marine Scientific Research in UK

Date: 16/12/2014

1. General Information

1.1 Cruise name and/or number: Survey code CV15011

1.2 Sponsoring Institution(s): EUROFLEETS2 call for ship-time "Regional 2" call 2013 (Grant agreement n° 312762)
Name: Verónica Willmott Puig ( EUROFLEETS2 Evaluation Office)
Address: Am Handelshafen 12 D-27570 BREMERHAVEN
Name of Director: Jacques Binot (EUROFLEETS2 Coordinator)

1.3 Scientist in charge of the Project:
Name: Dr. Marija Sciberras
Country: United Kingdom
Affiliation: Bangor University
Address: School of Ocean Sciences, Bangor University, Menai Bridge, LL59 5AB
Telephone: (0044) 01248388150
Fax:
Email: m.sciberras@bangor.ac.uk
Website (for CV and photo): <a href="http://www.bangor.ac.uk/oceansciences/staff/php/staffdetails1.php?person=0199">http://www.bangor.ac.uk/oceansciences/staff/php/staffdetails1.php?person=0199</a>

1.4 Entity(ies)/Participant(s) from coastal State involved in the planning of the project:	
Name:	
Affiliation:	
Address:	
Telephone:	
Fax:	
Email:	
Website (for CV and photo):	

2. Description of Project

2.1 Nature and objectives of the project:
In the present study, we propose to examine the secondary effects of bottom fishing along a gradient of otter trawling disturbance from a <i>Nephrops norvegicus</i> fishery over a muddy fishing ground in the Celtic Sea. The specific survey objectives are: (1) To quantify the chronic effect of trawling on macroinfauna community functional composition (i.e. abundance, richness, evenness) (2) To assess the impact of bottom trawling on the trophic structure of benthic communities in the Celtic Sea <i>Nephrops</i> fishery (3) To assess whether bottom trawling affects the fitness of fish species that feed on benthic invertebrates by changing their food availability.

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:
Not part of any large scale project

2.3 Relevant previous or future research projects:
BENTHIS (Benthic Ecosystem Fisheries Impact Studies): <a href="http://www.benthis.eu/en/benthis.htm">http://www.benthis.eu/en/benthis.htm</a>

BMCC (Biogeochemistry, Macronutrient and Carbon Cycling):  
[http://www.southampton.ac.uk/oes/research/projects/biogeochemistry\\_macronutrient\\_and\\_carbon\\_cycling\\_in\\_the\\_benthic\\_layer.page](http://www.southampton.ac.uk/oes/research/projects/biogeochemistry_macronutrient_and_carbon_cycling_in_the_benthic_layer.page)

#### 2.4 Previous publications relating to the project:

Sciberras, M., Hinz, H., Bennell, J., Jenkins, S.R., Hawkins, S.J. and Kaiser, M.J. 2013. Benthic community response to a scallop dredging closure within a dynamic seabed habitat. *Marine Ecology Progress Series*, 480: 83-98

Hiddink, J. G., Jennings, S., Kaiser, M. J., Queirós, A. M., Duplisea, D. E. & Piet, G. J. (2006) Cumulative impacts of seabed trawl disturbance on benthic biomass, production and species richness in different habitats. *Canadian Journal of Fisheries and Aquatic Sciences*, 63, 721-736

Hiddink, J. G., Johnson, A. F., Kingham, R. & Hinz, H. (2011) Could our fisheries be more productive? Indirect negative effects of bottom trawl fisheries on fish condition. *Journal of Applied Ecology*, 48, 1441–1449

Hinz, H., Prieto V., and Kaiser, M.J. 2009. Trawl disturbance on benthic communities: chronic effects and experimental predictions. *Ecological Applications* 19(2): 761-773

Hinz, H., Bergmann M., Sucksmith R., Kaiser, M.J. and Rogers S.I., 2006. Habitat association of plaice, sole and lemon sole in the English Channel. *ICES Journal of Marine Sciences*, 63: 912-927

### 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.

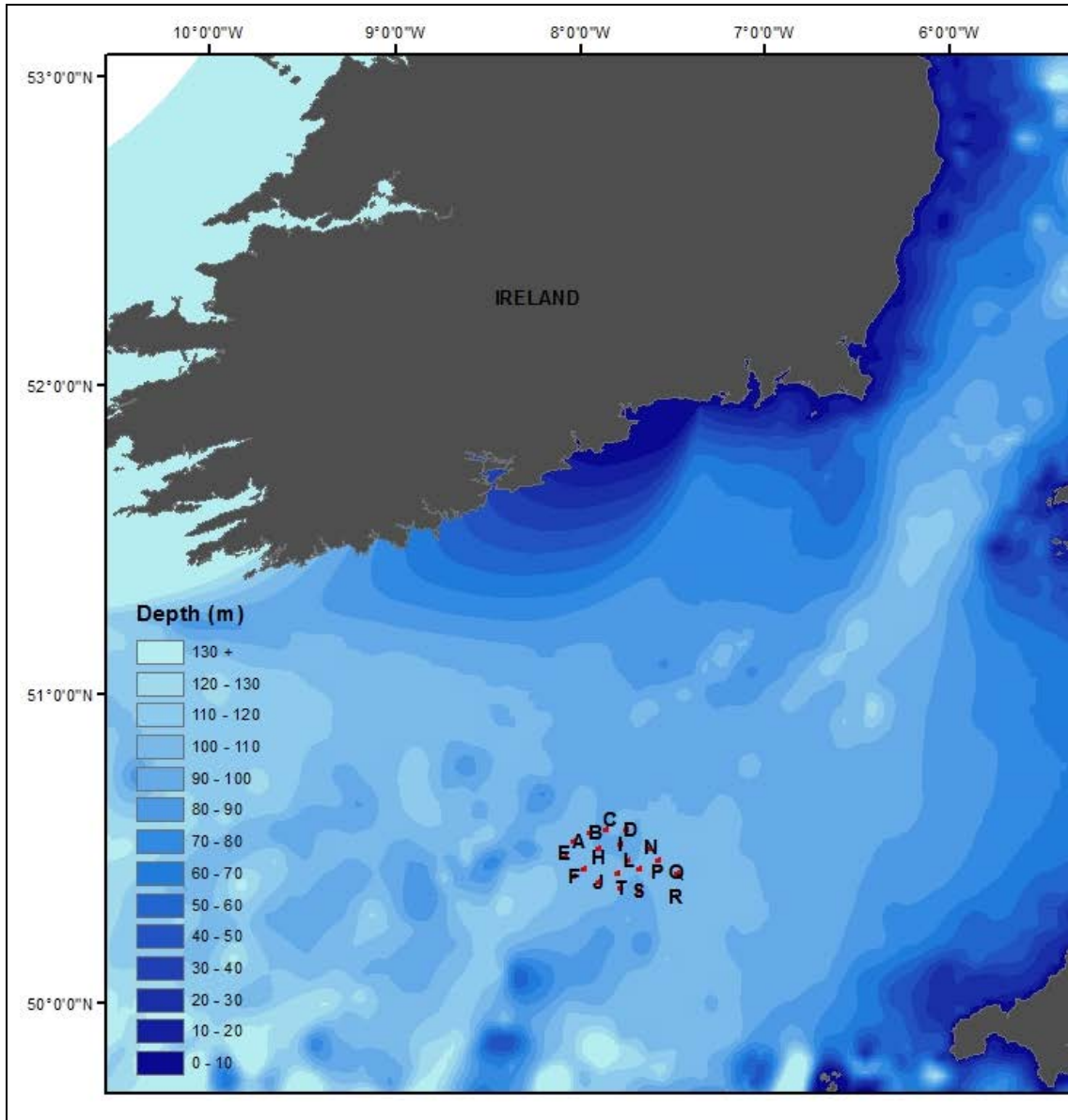
Attached excel document (Coordinates of stations.xlsx)

List of station geographic position (centre-point of 1 x 1 km sample boxes) and environmental variables

Priority order	Sampling site	Longitude	Latitude	Trawling pressure (number of VMS records per year)	Depth (m)	Tide stress (Nm <sup>-2</sup> )	Mud content (%)
1	K	- 7.466 53	50.57 204	17	104	0.14	24.5
1	L	- 7.415 46	50.61 943	19	98	0.14	35.84
1	M	- 7.356 09	50.59 518	15	97	0.15	34.85
1	N	- 7.306 9	50.66 044	31	102	0.15	24.58
1	O	- 7.260 66	50.62 659	21	104	0.15	32.79

<b>1</b>	P	- 7.256 61	50.59 072	28	103	0.15	36.34
<b>1</b>	Q	- 7.157 15	50.58 619	10	104	0.16	32.91
<b>1</b>	R	- 7.163 34	50.51 392	0	106	0.18	30.12
<b>1</b>	S	- 7.347 93	50.52 356	4	94	0.16	29.19
<b>1</b>	T	- 7.447 28	50.52 794	31	102	0.14	26.45
<b>2</b>	A	- 7.704 37	50.66 862	0	104	0.13	51.25
<b>2</b>	B	- 7.623 25	50.69 954	1	101	0.13	32.01
<b>2</b>	C	- 7.539 63	50.71 26	8	100	0.13	29.1
<b>2</b>	D	- 7.440 92	50.71 725	5	101	0.14	22.7
<b>2</b>	E	- 7.740 07	50.61 285	12	108	0.12	58.66
<b>2</b>	F	- 7.690 28	50.55 224	1	103	0.12	40.93
<b>2</b>	G	- 7.637 79	50.58 161	23	103	0.13	52.17
<b>2</b>	H	- 7.574 45	50.64 792	18	100	0.13	25.62
<b>2</b>	I	- 7.463 85	50.67 117	17	97	0.14	23.93
<b>2</b>	J	- 7.561 73	50.54 051	24	105	0.13	40.78

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:	R.V. Celtic Voyager
Type/Class:	100 A1 Research Vessel, LMC
Nationality (Flag State):	Irish
Identification Number (IMO/Lloyds No.):	
Owner:	Marine Institute
Operator:	P&O Maritime Services
Overall length (meters):	31.4
Maximum draught:	4m
Displacement/Gross Tonnage:	340
Propulsion:	Wärtsilä UD25M5 (626 kW),
Cruising & maximum speed:	<= 10 knots
Call sign:	EIQN
INMARSAT number and method and capability of communication (including emergency frequencies):	GMDSS A class, E-mail. Mini M SAT C and GSM 00 353 91 423396 / 00870 763066755 00870-764687325 / 764687326
Name of Master:	Philip Baugh/Colin McBrearty

Number of Crew:	7
Number of Scientists on board:	8 max

4.2 Particulars of Aircraft:	
Name:	
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:	
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:

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):
Grab samples will be taken at random positions from within each sampling station to estimate the abundance, biomass and community composition of the infaunal invertebrates	Day grab sampling (5 replicates per station)	0.1 m <sup>2</sup> Day grab	no
Photographic images	Sediment Profile	Sediment Profile	no

of the sediment profile to measure biogenic mixing depth due to bioturbation	Imaging camera (5 replicates per station)	Imaging camera	
Tissue samples of fish (plaice and dab) and stomach contents will be taken at sampling stations to determine the relative changes in isotopic signature and fish condition along the trawling gradient	Two tows of 30-min duration will be carried out at each station at a speed of three knots with a demersal otter trawl	GOV. Length in meters of the headline/footrope: 28.9/37, 20mm cod end liner, 160mm mesh size	no

4.6 Indicate nature and quantity of substances to be released into the marine environment:

No substances will be released in the marine environment

4.7 Indicate whether drilling will be carried out. If yes, please specify:

No drilling will be carried out

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 explosives will be used

## 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 equipment will be installed at sea

## 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:

Date of first entry: 17<sup>th</sup> May 2015

Date of final departure: 24<sup>th</sup> May 2015

6.2 Indicate if multiple entries are expected:

Multiple entries are not expected

## 7. Port Calls

7.1 Dates and Names of intended ports of call:

There are no port of calls intended during the duration of the research cruise.  
The research vessel will be departing from and returning to Cork on the 17<sup>th</sup> and 24<sup>th</sup> of May 2015, respectively.

7.2 Any special logistical requirements at ports of call:

None

7.3 Name/Address/Telephone of shipping agent (if available):
N/A

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:
N/A

8.2 Proposed dates and ports for embarkation/disembarkation:
Mobilization date: 17 <sup>th</sup> May 2015 Demobilization date: 24 <sup>th</sup> May 2015 Port for embarkation/disembarkation: Cork

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:
August 2015

9.2 Anticipated dates of submission to the coastal State of the final report:
May / June 2016

9.3 Proposed means for access by coastal State to data (including format) and samples:
Contact via principal scientist ( <a href="mailto:m.sciberras@bangor.ac.uk">m.sciberras@bangor.ac.uk</a> )

9.4 Proposed means to provide coastal State with assessment of data, samples and Research results:
Contact via principal scientist ( <a href="mailto:m.sciberras@bangor.ac.uk">m.sciberras@bangor.ac.uk</a> )

9.5 Proposed means to provide assistance in assessment or interpretation of data, samples And research results:
Contact via principal scientist ( <a href="mailto:m.sciberras@bangor.ac.uk">m.sciberras@bangor.ac.uk</a> )

9.6 Proposed means of making results internationally available:
Publications in peer-reviewed scientific journals

10. Other permits Submitted

10.1 Indicate other types of coastal state permits anticipated for this research (received or Pending):
None

11. List of Supporting Documentation

11.1 List of attachments, such as additional forms required by the coastal State, etc.:
None

Signature:

Contact information of the focal point:

Name: Dr. Marija Sciberras

Country: United Kingdom

Affiliation: Bangor University

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