

**APPLICATION FOR CONSENT TO CONDUCT MARINE
SCIENTIFIC RESEARCH IN AREAS UNDER NATIONAL
JURISDICTION OF ICELAND**

Date: 11.02.2015

1. General Information

- 1.1 Ship and cruise number:** Magnus Heinason, Cruise BentHabIceland
- 1.2 Sponsoring institution:**
Name: Havstovan
Address: PO Box 3051, Nóatún, FO-110 Tórshavn
Faroe Islands
Name of director: Eilif Gaard
- 1.3 Scientist in charge of project:**
Name: Kirsty Kemp
Address: Institute of Zoology
Zoological Society of London
Regent's Park, London, NW1 4RY
UK
Telephone: +44 (0)20 7449 6527
Telefax: n/a
- 1.4 Scientist from Iceland with knowledge of the project:**
Name: Steinunn Hilma Ólafsdóttir
Address: Marine Research Institute
Skúlagata 4
101 Reykjavík, Iceland
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- 1.5 Submitting officer:**
Name: Eilif Gaard
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Faroe Islands
Telephone: +298 353900
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2. Description of Project

2.1 Nature and objectives of the project:

We will use a benthic camera to survey the seabed in the shrimp fishing areas of Northern Iceland. We will take hundreds of images in order to document and analyse the composition of the benthic fauna. For most areas this will be the first time photographic surveys have been conducted. A limited amount of physical sampling of seabed will be used to aid faunal identifications. These data will allow us to obtain baseline data on the benthic fauna at shrimp grounds. We will then evaluate the community composition of North Iceland and compare the fauna present and habitat structure with those in West Greenland. Finally, we will evaluate whether there is a relationship between the benthic community structure and diversity and fishing pressure.

2.2 Relevant previous or future research cruises:

June 2011, July 2012, July 2013, June 2014, June 2015. Benthic camera surveys of West Greenland shrimp fishery areas conducted by Dr Kirsty Kemp and Dr Chris Yesson of the Institute of Zoology aboard M/T Paamiut in collaboration with Greenland Institute of Natural Resources.

2.3 Previously published research data relating to the project:

Kemp, K.M., Simon, P., Chemshirova, I., Gorham, T., Hammeken Arboe, N., Blicher, M.E., Yesson, C. Epibenthic megafauna community composition and diversity of the West Greenland Shelf. Submitted to Polar Biology Jan 2015.

Kemp, K.M., Yesson, C. (2013) 1st Annual Report: Institute of Zoology Greenland Benthic Assessment June 2012-May 2013. 42 page report submitted to Sustainable Fisheries Greenland (SFG), the Greenland Climate Research Centre, and the Greenland Institute of Natural Resources.

Guijarro Garcia, E., Ragnarsson, S.A. (2006) Impact of scallop dredging on the macrobenthic community in Breidafjörður, West Iceland, pp129-150. IN: (ed) Guijarro Garcia, E. Bottom Trawling and Scallop Dredging in the Arctic, Impacts of fishing on non-target species, vulnerable habitats and cultural heritage, TemaNord, Nordic Council of Ministers, Copenhagen. 374pp

Ólafsdóttir, Steinunn H., and Jörundur Svavarsson. "Ciliate (Protozoa) epibionts of deep-water asellote isopods (Crustacea): pattern and diversity." *Journal of Crustacean Biology* 22.3 (2002): 607-618.

3. Methods and Means to be Used

3.1 Particulars of vessel:

Name: FRV Magnus Heinason **Nationality:** Faroese
Owner: Føroya Landsstýri (The Local Faroese Government)
Operator: Havstovan
Overall length: 44.5 m **Maximum draught:** 4.8 m
Net tonnage: 184.9 **Gross tonnage:** 455
Propulsion: Diesel
Cruising speed: 10 kn **Maximum speed:** 11 kn
Call sign: OW 2252
Registered port and number: TN 407
Method and capability of communication: Radio-telephone
Name of master: Dánial J. Lydersen
Number of crew: 10
Number of scientists on board: 5-6

3.2 Aircraft or other craft to be used in the project: N/A

3.3 Particulars of methods and scientific instruments:

Types of samples and data	Methods to be used	Instruments to be used
Benthic photographs	Photography. 10 images will be taken at each station, with a 1 minute drift interval between images.	Benthic camera. (Model DSC-10000) in a 2000m-rated underwater housing. A flash unit (200 W-S Remote Head Strobe Model 3831), and remote trigger.
Mud and benthic fauna	A grab sampler or benthic sledge will be deployed from the winch to collect material from the seabed at selected photographic stations.	Agassiz sledge and Shipek grab
Conductivity, Temperature and Pressure measurements	A CTD sensor will be attached to the drop camera.	CTD sensor (to be determined)

3.4 Indicate whether harmful substances will be used: NO

3.5 Indicate whether drilling will be carried out: NO

3.6 Indicate whether explosives will be used: NO

4. Installations and Equipment

Details of installations and equipment (dates of laying, servicing, recovery; exact locations and depth):

None.

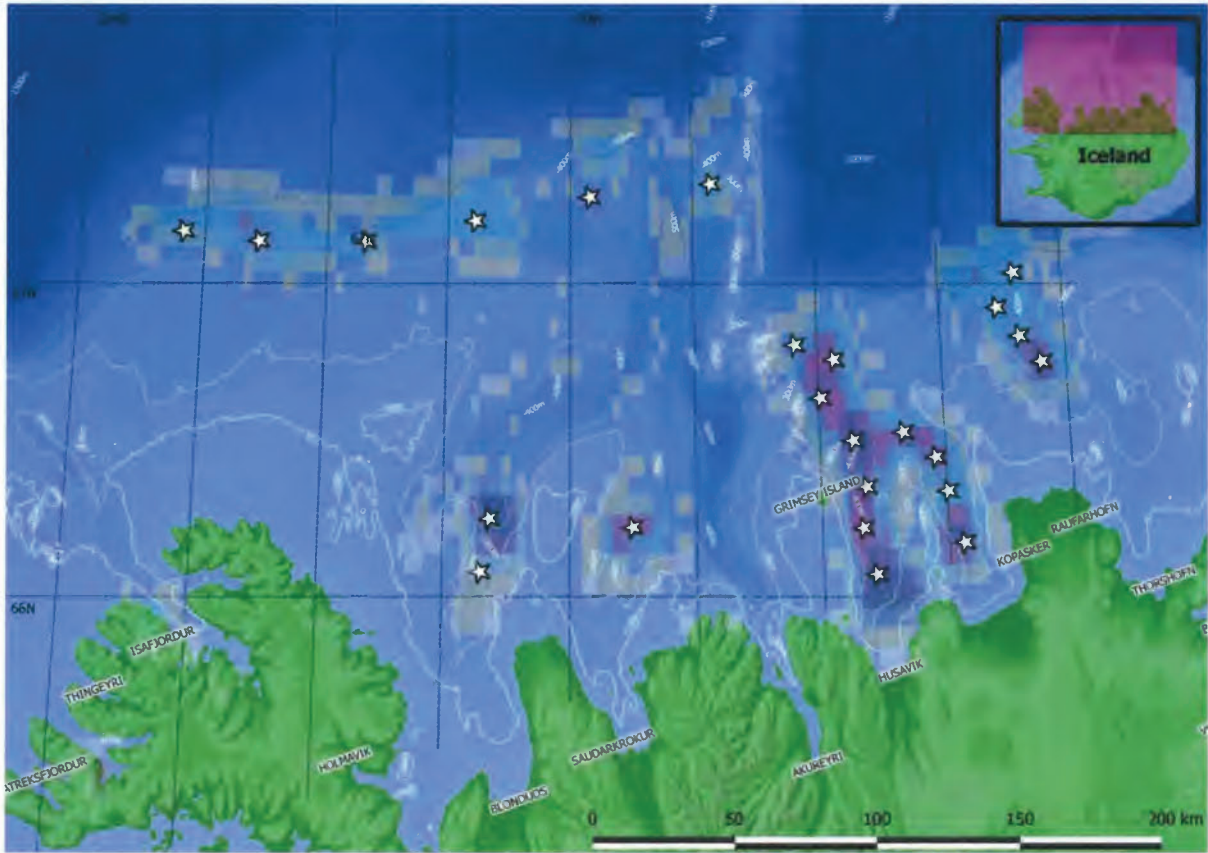
5. Geographical Areas

5.1 Indicate geographical areas in which the project is to be conducted (with reference in latitude and longitude):

The survey area will be the area of the shrimp fishery in Northern Iceland. The survey will start and finish at the port of Husavik. Station locations are shown in the table below.

Station Activity	Position		Depth	Est time
1 Photo survey	49° 54.0425'N	8° 7.3763'W	104	1 hour
2 Photo survey	49° 50.0057'N	8° 4.3311'W	127	1 hour
3 Photo survey	49° 57.8822'N	8° 15.7297'W	125	1 hour
4 Photo survey	49° 58.2521'N	8° 5.0236'W	85	1 hour
5 Photo survey	50° 5.9360'N	7° 54.9131'W	102	1 hour
6 Photo survey	50° 12.2926'N	8° 6.2558'W	113	1 hour
7 Photo survey	50° 17.7385'N	7° 57.1829'W	111	1 hour
8 Photo survey	50° 22.1752'N	7° 50.0309'W	103	1 hour
9 Photo survey	50° 26.3503'N	7° 35.7774'W	88	1 hour
10 Photo survey	50° 23.1499'N	7° 25.5434'W	95	1 hour
11 Photo survey	50° 29.1213'N	7° 46.5878'W	109	1 hour
12 Photo survey	50° 12.2425'N	7° 40.2646'W	96	1 hour
13 Photo survey	50° 51.9696'N	6° 35.2511'W	95	1 hour
14 Photo survey	50° 58.0797'N	6° 32.8836'W	93	1 hour
15 Photo survey	50° 58.5656'N	6° 45.1858'W	95	1 hour
16 Photo survey	51° 2.4002'N	6° 38.2654'W	93	1 hour
17 Photo survey	51° 17.4592'N	6° 26.5232'W	122	1 hour
18 Photo survey	51° 17.1051'N	6° 15.0767'W	119	1 hour
19 Photo survey	51° 21.8713'N	6° 17.7170'W	113	1 hour
20 Photo survey	51° 24.0578'N	6° 26.7232'W	84	1 hour
21 Photo survey	51° 28.8934'N	5° 51.3266'W	86	1 hour
22 Photo survey	51° 31.3017'N	5° 52.1540'W	94	1 hour
23 Photo survey	51° 29.6065'N	5° 44.8304'W	78	1 hour
24 Photo survey	51° 30.1669'N	5° 41.0143'W	74	1 hour

5.2 Attach chart(s) at an appropriate scale showing the geographical areas of the intended work and, as far as practicable, the positions of intended stations, the tracks of survey lines, and the locations of installations and equipment.



6. Dates

6.1 Expected dates of first entry into and final departure from the research area of the research vessel:

The ship is expected to be in East Icelandic waters sporadically on the western cruising legs during the period, depending on the distribution of the targeted stocks (see attached map):

Entry: 02.07.2015

Exit: 09.07.2015

6.2 Indicate if multiple entry is expected:

Yes.

7. Port Calls

7.1 Dates and names of intended ports of call in Iceland:

3rd July 2015 Husavik, 7th July 2015 Husavik.

7.2 Any special logistical requirements at ports of call:

First stop is to pick up Icelandic researchers and equipment. Second stop is to drop off all researchers and equipment.

7.3 Name/address/telephone of shipping agent (if available):

N/A

8. Participation

8.1 Extent to which Iceland will be enabled to participate or to be represented in the research project:

The research is a full collaboration between researchers from Institute of Zoology (IoZ), Zoological Society of London and Marine Research Institute (MRI), Iceland. Researchers include: Dr Kirsty Kemp & Dr Chris Yesson (IoZ), Dr Stefan Aki Ragnarsson, Dr Steinunn Hilma Ólafsdóttir & Dr Ingibjörg Jonsdottir (MRI). At least 2 Icelandic researchers will be on board and conducting the survey.

8.2 Proposed dates and ports for embarkation/disembarkation:

Embarkation: 2nd July 2015 from Torshavn.

Disembarkation: 9th July 2015 to Torshavn.

9. Access to Data, Samples and Research Results

9.1 Expected dates of submission to Iceland of preliminary reports which should include the expected dates of submission of the final results:

Reporting will follow the requirements of the project funders Eurofleets. All reporting will be co-authored by Icelandic collaborators and circulated to the relevant departments. The final report will be submitted 6 months after the end of the cruise.

9.2 Proposed means for access by Iceland to data and samples:

Images collected on the cruise will be immediately shared with Icelandic collaborators. Data derived from the images will form part of collaborative research conducted with Icelandic collaborators. All data will be shared between collaborators and any resulting publications will be co-authored by IoZ and MRI researchers.

9.3 Proposed means to provide Iceland with assessment of data, samples and research results or provide assistance in their assessment or interpretation:

Every stage of the research project, from the initial proposal, to the field work, data analysis and report writing is in full collaboration with Icelandic colleagues.

9.4 Proposed means of making research results internationally available:

The results of the research will be disseminated at research conferences and will be written up as a peer-reviewed article to be submitted to an international journal

10. Scientific Equipment

Coastal State Iceland

Port Call No

Indicate "Yes" or "No"

Dates N/A

<u>LIST SCIENTIFIC WORK BY FUNCTION</u> eg: magnetometry, gravity, diving, seismics, bathymetry, sea bed sampling, trawling, echo sounding, water sampling, u/w TV, moored instruments, towed instruments	Water column including sediment sampling of the sea bed	Fisheries research within fishing limits	Research concerning the natural resources of the Continental Shelf or its physical characteristics	Distance from coast within 12 nms	Distance from coast between 12-200 nm	(Continental Shelf work only) Beyond 200 nm but within the Continental margin
Benthic photography using a drop camera	No	No	No	Yes	Yes	No
Grab sampler	Yes	No	No	Yes	Yes	No
Benthic Sledge	Yes	No	No	Yes	Yes	No
Measurements of conductivity, temperature and depth using a CTD sensor	No	No	No	Yes	Yes	No

Eilif Gaard

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Dated 11 March 2015

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