Application for Consent to conduct
Marine Scientific Research

Date: _3/12/2019_____

1. General Information

1.1 Cruise name and/or number:
1. App-CV20001 'Aran-Porcupine Nephrops UTWV' from the 26th June to the 7th July, inclusive. 2. App-CV20002 'Celtic Sea Leg 1 UWTV survey' from the 9th – 19th July, inclusive. 3. App-CV20003 'Celtic Sea Leg 2 UWTV survey' from the 8th – 16th August, inclusive.

1.2 Sponsoring Institution(s):	
Name:	Marine Institute
Address:	Rinville, Oranmore, Co. Galway
Name of Director:	Dr. Paul Connolly

1.3 Scientist in charge of the Project:	
Name:	Dr. Jonathan White
Country:	IRELAND
Affiliation:	Marine Institute
Address:	Rinville, Oranmore, Co. Galway
Telephone:	00 353 91 387200
Fax:	00 353 91 387201
Email:	Jonathan.White @Marine.ie
Website (for CV and photo):	

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:
Since 2002 the Marine Institute have carried UWTV surveys of the Aran *Nephrops* Grounds and since 2012 the Porcupine Grounds. Since 2006 the Marine Institute have carried UWTV surveys of the Celtic Sea *Nephrops* grounds which includes the Smalls and Labadie Nephrops grounds. In case of unfavourable weather patterns during the planned survey schedule we propose to undertake the three legs of the survey based upon the most favourable conditions at the time. The results of the survey legs are used to describe abundance, distribution and estimate biomass of *Nephrops* on grounds west of Ireland and in the Celtic Sea.

2.1 Nature of objectives of the project:

1. To obtain 2020 quality assured estimates of *Nephrops* burrow densities from a randomised isometric grid of UWTV stations at 4 nautical mile spacing on the Smalls *Nephrops* grounds.
2. To obtain 2020 quality assured estimates of *Nephrops* burrow densities from from a randomised isometric grid of UWTV stations at 6 nautical mile spacing Labadie, Cockburn and Jones Banks.
3. To obtain 2020 quality assured estimates of *Nephrops* burrow densities from a randomised isometric grid of UWTV stations at 5 nautical mile spacing on the western Irish Sea *Nephrops* grounds if time allows.
4. To collect ancillary information from the UWTV footage collected at each station such as the occurrence of sea-pens, other macro-benthos and fish species and trawl marks on the sea bed on the Smalls ground.
5. To collect oceanographic data using a sledge mounted CTD.
6. To sample *Nephrops* and macro benthos using a 3 m beam trawl deployed at ~10 stations on the Smalls only if time allows
7. To satisfy the requirements of the Irish National programme under the 'Data collection regulation' EC Regulation 1543/2000.

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:

2.3 Relevant previous or future research projects:

Since 2002 the Marine Institute have carried UWTV surveys of the Aran *Nephrops* grounds.

In 2012 the Porcupine *Nephrop*s Grounds were surveyed for the first time.
The Celtic Sea *Nephrops* grounds have been surveyed annually since 2006.

2.4 Previous publications relating to the project:

2019:

Aristegui, M.; O' Brien, S.; Tully, D.; Galligan, S.; McCorriston, P.; Bentley, K.; Lordan, C., 2019. Porcupine Bank Nephrops Grounds (FU16) 2019 UWTV Survey Report and catch scenarios for 2020. https://oar.marine.ie/handle/10793/59

White, J.; Aristegui, M.; Blaszkowski, M.; Fee, D.; O'Connor, S.; Power, J.; Notaro, D. A.; O' Brien, S.; Doyle, J. 2019. The Labadie, Jones and Cockburn Banks Nephrops Grounds (FU20-21) 2019 UWTV Survey Report and catch scenarios for 2020. https://oar.marine.ie/handle/10793/1430

Doyle, J.; Aristegui, M.; O' Brien, S.; Lynch, D.; Vacherot, J.P.; Fitzgerald, R. 2019. FU19 Nephrops grounds 2019 UWTV survey report and catch scenarios for 2020. https://oar.marine.ie/handle/10793/1429

Doyle, J.; O' Brien, S.; Fitzgerald, R.; Vacherot, J.P.; Sugrue, S.; Quinn, M. 2019. The "Smalls" Nephrops Grounds (FU22) 2019 UWTV Survey Report and catch scenarios for 2020. https://oar.marine.ie/handle/10793/1428

Aristegui, M.; Doyle, J.; O' Brien, S.; Fitzgerald, R.; Vacherot, J.P.; Sugrue, S.; Quinn, M. 2019. Aran, Galway Bay and Slyne Head Nephrops Grounds (FU17) 2019 UWTV Survey Report and catch scenarios for 2020. https://oar.marine.ie/handle/10793/1427

2018:

Doyle, J., O'Brien, S., Ryan, G., Galligan, S., Hernon, P., Aristegui, M., Vacherot, J.P and Lordan, C. 2018. Porcupine Bank Nephrops Grounds (FU16) 2018 UWTV Survey Report and catch scenarios for 2019. Marine Institute UWTV Survey report.
http://hdl.handle.net/10793/1379

Doyle, J., O'Brien, S., Ryan, G., Galligan, S., Hernon, P., Aristegui, M. and Vacherot, J.P. 2018. Aran, Galway Bay and Slyne Head Nephrops Grounds (FU17) 2018 UWTV Survey Report and catch scenarios for 2019. Marine Institute UWTV Survey report.
https://oar.marine.ie/handle/10793/1374

Aristegui, M., O'Brien, S., Blaszkowski, M., O'Connor, S., Fitzgerald, R., and Doyle, J. 2018. FU19 Nephrops Grounds (FU19) 2018 UWTV Survey Report and catch scenarios for 2019. Marine Institute UWTV Survey report.
https://oar.marine.ie/handle/10793/1375

Doyle, J., Aristegui, M., Hanniffy, O., White, J., Fee, D., and McCorriston, P. 2018. The Labadie, Jones and Cockburn Banks Nephrops Grounds (FU20-21) 2018 UWTV Survey Report and catch scenarios for 2019. Marine Institute UWTV Survey report.
http://hdl.handle.net/10793/1377

Aristegui, M., O'Brien, S., Blaszkowski, M., O'Connor, S., Fitzgerald, R., and Doyle, J. 2018. The "Smalls" Nephrops Grounds (FU22) 2018 UWTV Survey Report and catch scenarios for 2019. Marine Institute UWTV Survey report.
http://hdl.handle.net/10793/1376

2017:

Lordan, C., Doyle, J., Butler, R., Sugrue, S., Allsop, C., O'Connor, S, and Vacherot, J-P. (2017). Porcupine Bank Nephrops Grounds (FU16) 2017 UWTV Survey Report and catch options for 2018. Marine Institute UWTV Survey report
https://oar.marine.ie/handle/10793/1334

Lordan, C., Doyle, J., Butler, R., Sugrue, S., Allsop, C., O' Connor, S and Vacherot, J.P. 2017. Aran, Galway Bay and Slyne Head Nephrops Grounds (FU17) 2017 UWTV Survey Report and catch options for 2018. Marine Institute UWTV Survey report.
https://oar.marine.ie/handle/10793/1335

O'Brien, S., Blaszkowski, M., Butler, R., Fee, D., Hernon, P., Santana, C., Lordan, C. and Doyle, J. 2017. The "Smalls" Nephrops Grounds (FU22) 2017 UWTV Survey Report and catch options for 2018. Marine Institute UWTV Survey report.
https://oar.marine.ie/handle/10793/1331

Doyle, J., Fitzgerald, R., O'Brien, S., Ryan, G., McGeady, R., and Lordan, C. 2017. The Labadie, Jones and Cockburn Banks Nephrops Grounds (FU20-21) 2017 UWTV Survey Report and catch options for 2018. Marine Institute UWTV Survey report
https://oar.marine.ie/handle/10793/1330

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.

Way points of the Smalls.

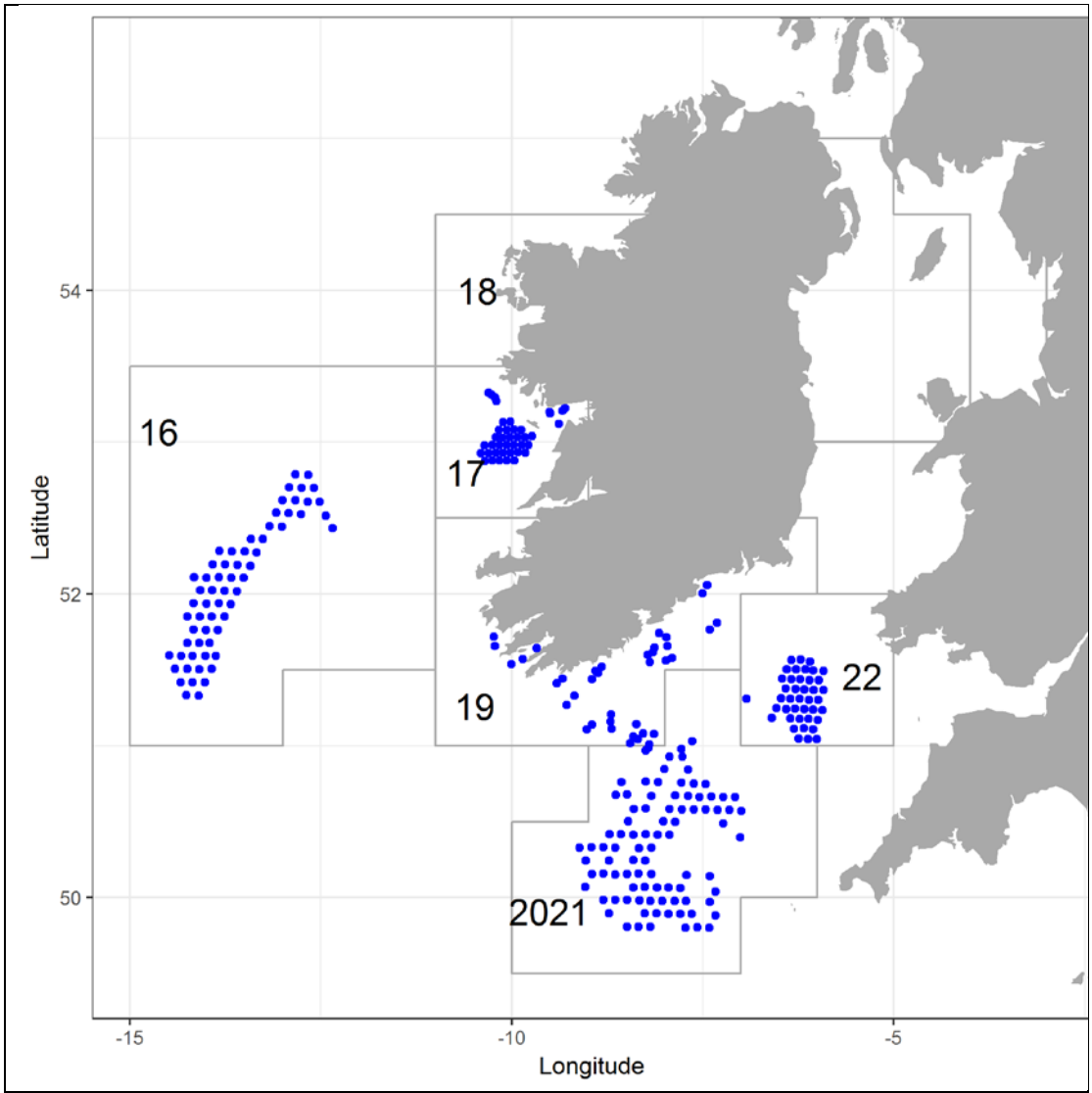
Latitude North		Longitude West	
51°	46.00	6°	48.00
51°	26.00	6°	48.00
51°	56.00	6°	4.00
51°	11.00	6°	4.00
50°	96.00	6°	32.00
50°	86.00	6°	32.00
51°	61.00	6°	23.00
50°	86.00	6°	8.00
50°	96.00	6°	0.00
51°	26.00	5°	84.00
51°	46.00	5°	75.00
51°	0.06	5°	76.00

Way points of the Labadie.

Latitude North		Longitude West	
51°	26.25	6°	46.9
51°	9.6	7°	28.45
50°	50.11	8°	35.19
50°	18.25	9°	9.24
49°	50.46	8°	58.2
49°	46.7	8°	27.39
49°	42.12	7°	53.23
49°	47.33	7°	22.41
50°	33.57	7°	0.012
51°	21.38	6°	46.59

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.

Stations in 2020 will be slightly offset to the previously surveyed stations shown as (•) in the below map to allow for scientific station randomisation, however they will cover the same areas.



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):
Underwater TV Footage of Nephrops ground to estimate burrow counts	Rapid Visual Counts	Underwater TV System	Yes

Nephrops and macrobenthos catches	Fishing Gear	3 m beam trawl	No
CTD data	CTD profile	CTD	Yes

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

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

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:
N/A

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):
The sled will be towed by a load bearing umbilical cable and associated winches. RV Celtic Voyager will making between 2-3 knots for shooting into the weather. Once in the water the camera lights are switched on and warp paid out until the seabed comes into view. Shortly before touch down the vessel is slowed back to 0.8-1.0 knots. A warp-depth ratio of around between 1.4:1 and 1.8:1 is used at most stations. Once stable on the bottom the sledge is towed between 0.8-1.0 knots for around 10-14 minutes. During this time the sledge travels between 160-200m along the sea bed. The sledge will be deployed at around 4-6 nautical mile intervals in regularly spaced grid over the survey area. The starting point for this grid will be randomized. The depth range will be from 50-150 meters (average ~100 m) for the Celtic Sea. If time allows when TV operations are completed successfully, 10 stations selected randomly on the Smalls ground only will be trawled using beam trawl for 30 minutes using a warp-depth ratio of 3:1.

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:
4. App-CV20001 'Aran-Porcupine Nephrops UTWV' from the 26th June to the 7th July, inclusive. 5. App-CV20002 'Celtic Sea Leg 1 UWTV survey' from the 9th – 19th July, inclusive. 6. App-CV20003 'Celtic Sea Leg 2 UWTV survey' from the 8th – 16th August, inclusive.
6.2 Indicate if multiple entries are expected:
Yes (the survey area covers some of the Irish zone and UK zone) so multiple entry are expected. It may be necessary to survey areas in alternate order in order to maximise weather windows and facilitate prevailing wind directions.

7. Port Calls

7.1 Dates and Names of intended ports of call:
N/A

7.2 Any special logistical requirements at ports of call:
N/A

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

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:
This survey involves fishery and oceanography and we would be happy to accommodate further multi-disciplinary elements within the survey programme**.**

8.2 Proposed dates and ports for embarkation/disembarkation:
7. App-CV20001 'Aran-Porcupine Nephrops UTWV' from the 26th June to the 7th July. To and from Galway, County Galway, Ireland. 8. App-CV20002 'Celtic Sea Leg 1 UWTV survey' from the 9th – 19th July, inclusive. From Galway, County Galway, Ireland, to Cork, County Cork, Ireland. 9. App-CV20003 'Celtic Sea Leg 2 UWTV survey' from the 8th – 16th August, inclusive. To and from Cork, County Cork, Ireland

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:
30/09/2019 Preliminary survey report.

9.2 Anticipated dates of submission to the coastal State of the final report:
31/10/2019 Final survey report.

9.3 Proposed means for access by coastal State to data (including format) and samples:
Survey data and results will be analysed and reviewed by Scientists from MI (Ireland), AFBI (Northern Ireland), CEFAS (UK), Marine Scotland (Scotland) through ICES. Access to data and samples can be arranged via Chief Scientist. Historical data and UWTV footage has been provided to JNCC in the UK in 2015.

9.4 Proposed means to provide coastal State with assessment of data, samples and Research results:

Data and results will shared freely between scientists from MI (Ireland), AFBI (Northern Ireland), CEFAS (UK), Marine Scotland (Scotland) IFREMER (France), JNCC UK, and through ICES. Access to data and samples via Chief Scientist.

9.5 Proposed means to provide assistance in assessment or interpretation of data, samples And research results:
via Chief Scientist and through ICES for a

9.6 Proposed means of making results internationally available:
Report will be presented to the international scientific community through the relevant ICES working groups**.** The survey results will also be made publically available on the Marine Institute's publications repository: http://oar.marine.ie/handle/10793/59/browse?type=title&submit_browse=Title

10. Other permits Submitted

10.1 Indicate other types of coastal state permits anticipated for this research (received or Pending):
N/A

11. List of Supporting Documentation

11.1 List of attachments, such as additional forms required by the coastal State, etc.:
UWTV_2020_CV diplomatic clearance UK template.xlsx

Signature:

Contact information of the focal point:
Name:
Country:
Affiliation:
Address:
Telephone:
Fax:
Email: