Application for Consent to conduct
Marine Scientific Research

Date: 08/06/2020

1. General Information

1.1 Cruise name and/or number: CV20021
INTERREG SeaMonitor: Deployment and retrieval of acoustic receivers and Multibeam survey in the N. Channel (Main array).

1.2 Sponsoring Institution(s):	
Name:	Marine Institute
Address:	Rinville, Oranmore, Co. Galway H91 R673
Name of Director:	Dr Ciaran Kelly

1.3 Scientist in charge of the Project:	
Name:	Dr Niall Ó Maoiléidigh
Country:	Ireland
Affiliation:	Marine Institute
Address:	Marine Institute Newport, Co. Mayo, F28 PF65
Telephone:	00353 87 6296393
Fax:	
Email:	Niall.omaoileidigh@marine.ie
Website (for CV and photo):	

1.4 Entity(ies)/Participant(s) from coastal State involved in the planning of the project:	
Name:	Ross McGill
Affiliation:	Loughs Agency
Address:	22 Victoria Rd, Londonderry BT47 2AB
Telephone:	028 7134 2100
Fax:	
Email:	Ross.McGill@loughs-agency.org
Website (for CV and photo):	

2. Description of Project

2.1 Nature and objectives of the project:
The Marine Institute was recently successful in securing over €1 million in funding in an INTERREG VA Ireland, N. Ireland and Scotland call resulting the formation of the SeaMonitor project. The INTERREG VA SeaMonitor project is a novel and comprehensive project focussing on a wide range of issues across the Programme Area (Scotland, Ireland and N. Ireland). It will directly deliver the INTERREG V objective of developing cross-border capacity for the monitoring and management of marine protected areas and species. It will result in a corresponding increase in cross-border monitoring and management capacity. This will facilitate the development and growth of a regional 'blue economy' based on its maritime

resources and the alignment of regional activities with the EU's Atlantic Strategy through the potential of e.g. developing and strengthening the growth of marine tourism, providing management plans and enabling sustainable development to occur in often sensitive environments.

The project will deliver 5 models, 3 management plans/groups and extend the INTERREG VA COMPASS network of buoys from the east coast of the Island of Ireland to the North establishing a physical connection of acoustic receivers between the Island of Ireland and Scotland thus providing a tangible monitoring network to the INTERREG programme. SeaMonitor has been jointly developed by all the partners and will be jointly implemented with partners working together across a range of activities.

SeaMonitor will establish a network of buoys for regional seas, including telemetry and oceanographic monitoring (e.g. for seals, cetaceans and salmonids).

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:

Led by the Loughs Agency, a cross boarder UK/Ireland body, this s an INTERREG VA EU funded project with 9 partners i.e. Loughs Agency (UK, Ireland), Marine Institute (Ireland), Queens University Belfast (UK), Agri-Food and Biosciences Institute for Northern Ireland (UK), University of Glasgow (UK), University College Cork (Ireland), Galway-Mayo Institute of Technology (Ireland), Ocean Tracking Network (Canada), Dalhousie University (Canada). University of California Davies (USA).

2.3 Relevant previous or future research projects:

INTERREG Compass Project led by the AFBI (UK) is a sister project and INTERREG MARPAMM led by AFBI are associated projects.

2.4 Previous publications relating to the project:

Abecasis, David, Andre Steckenreuter, Jan Reubens, Kim Aarestrup, Josep Alós, Fabio Badalamenti, Lenore Bajona et al. **"A review of acoustic telemetry in Europe and the need for a regional aquatic telemetry network**." Animal Biotelemetry 6, no. 1 (2018): 12.

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.

Deployment of 5 listening stations at specified locations across the North Channel from Malin Head in Northern Ireland to the Isle of Islay in Scotland (Main array, Figure 1).

Further, a total of 6 acoustic receivers will be removed from the water for data download and maintenance off-site (Figure 1). During standby periods the vessel will complete multiband mapping in the Irish-UK waters where bathymetry gap exits and limited to the main array line (Figure 2).

The locations of the listening stations to be deployed are displayed below (Red numbers and circles in Figure 1):

Desired deployment location	Position	Type of device
Station 27	N 55° 28.2244'; W 007° 08.7181'	C-POD
Station 40	N 55° 30.9201'; W 007° 03.2005'	SoundTrap
Station 55	N 55°34.028'; W 006° 56.8360'	C-POD
Station 76	N 55° 37.2168 ; W 006° 46.5892'	SoundTrap + C-POD
Station 100	N 55° 39.4722; W 006° 34.5879'	SoundTrap

The locations of the listening stations to be retrieved are displayed below (Blue numbers and circles in Figure 1):

Desired deployment location	Position	Notes
Station 55	N 55°34.028'; W 006°56.836'	Deployed with C-POD
Station 56	N 55°34.287'; W 006°56.327'	
Station 57	N 55°34.473'; W 006°55.998'	
Station 58	N 55°34.642'; W 006°55.539'	
Station 59	N 55°34.810'; W 006°54.946'	
Station 60	N 55°34.913'; W 006°54.523'	

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.

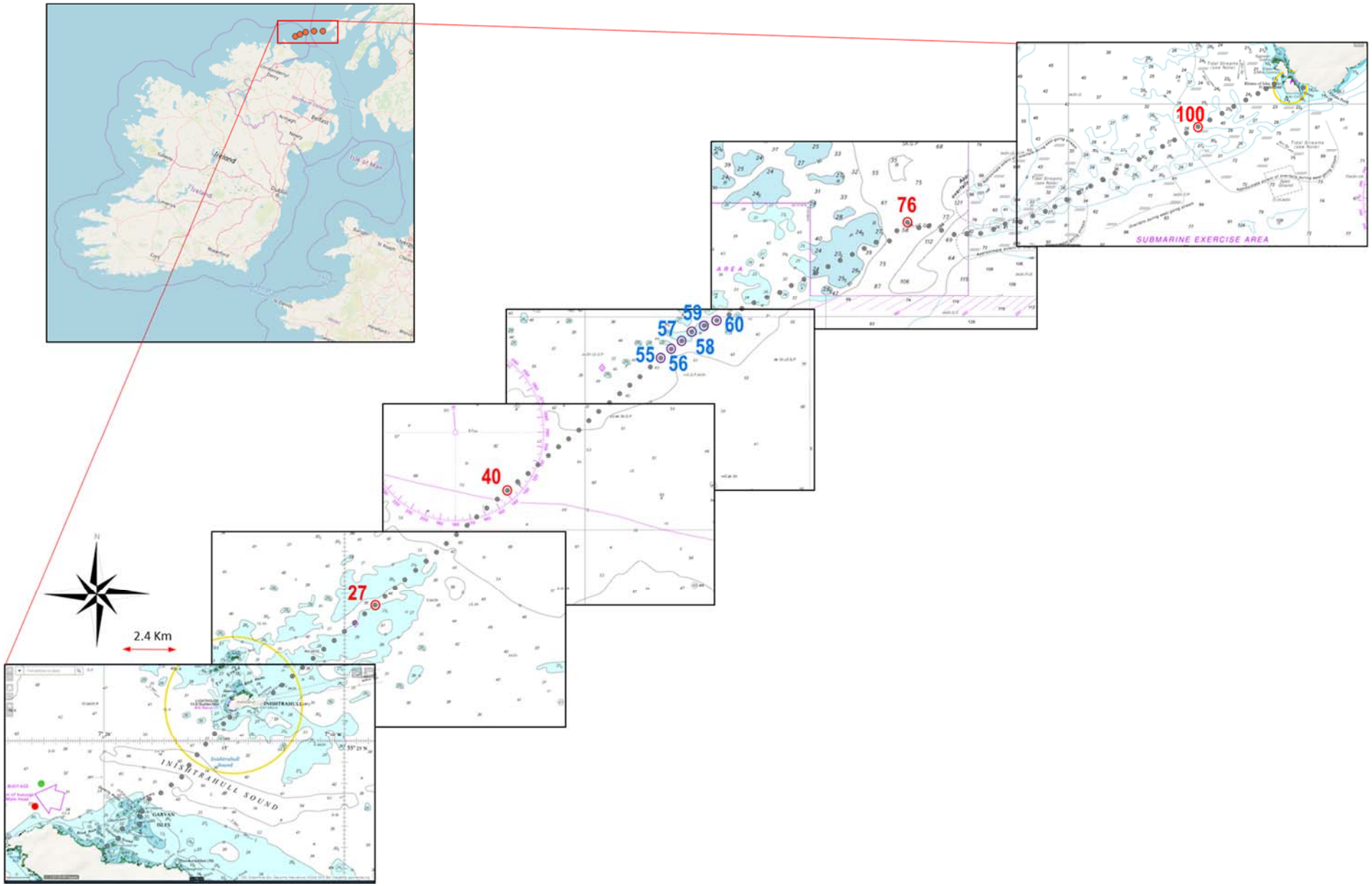

Figure 1: Red numbers and circles represent the location of acoustic receivers to be deployed and Blue numbers and circles represent acoustic receivers to be recovered during the October mission.

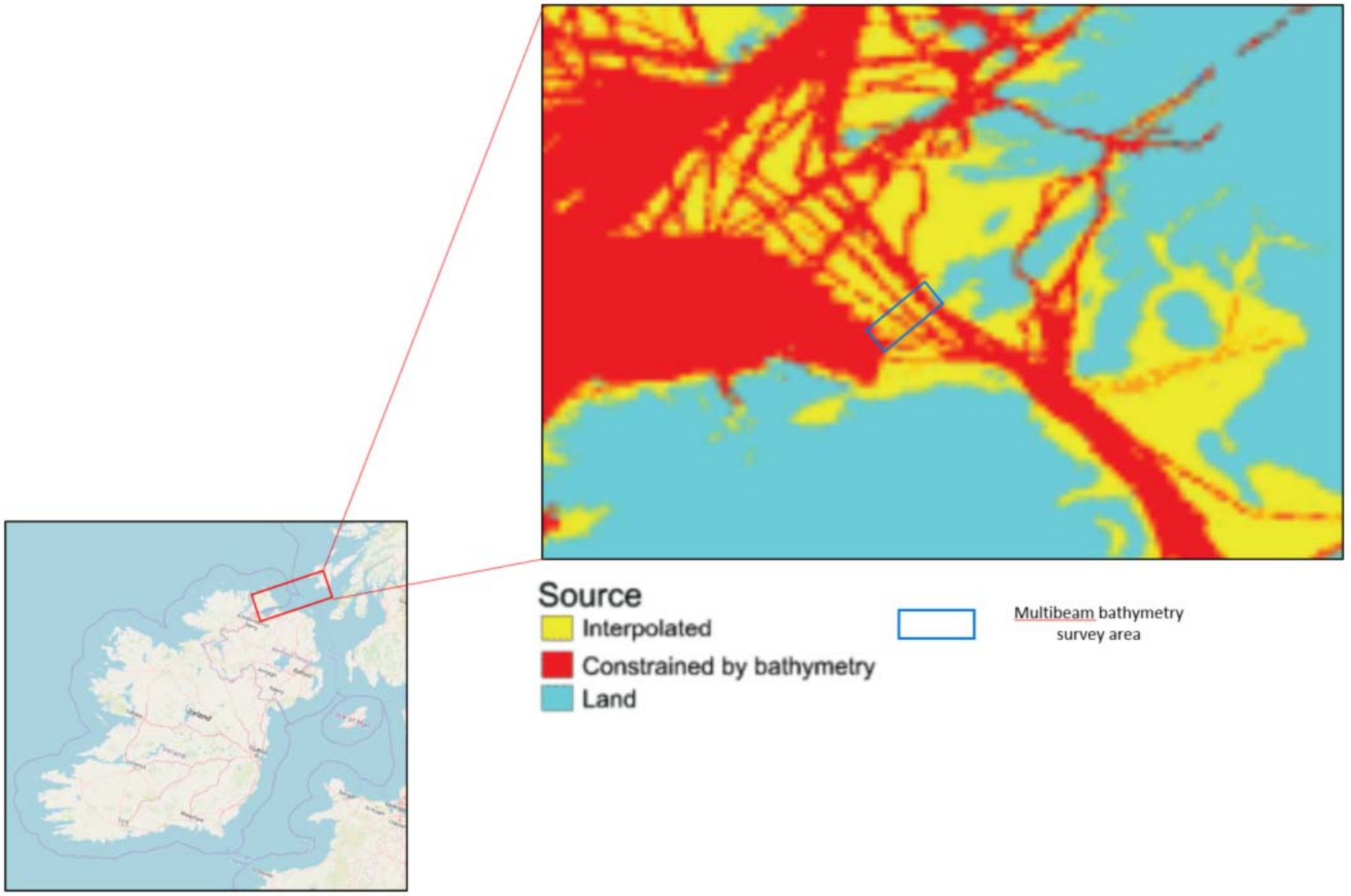

Figure 2: Detail of unmapped areas in line with the line of acoustic receivers.

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):
Recovery, and deployment of acoustic receivers for wildlife monitoring	Acoustic telemetry equipment for fish tracking	Vemco Acoustic receivers (VR2AR).	YES
Seabed Mapping	Multibeam Echosounder	Simrad EM1002	YES

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

The 5 moorings to be deployed during the mission will feature autonomous static recorders for passive and active acoustic monitoring of low to high frequency and ambient noise. Three type of devices are involved: fish tag receiver (Vemco, VR2AR), SoundTrap (Ocean Instruments, NZ) and C-POD click loggers (Cheliona Limited, UK) (Figure 1).

Figure 3: Three different types of acoustic recorders to be deployed.

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):

All five moorings will be placed on the sea bed allowing for a free navigational channel. If needed the receivers can be recovered at any time by sending a release acoustic signal using a transponder hydrophone stored on board (VR100). All receivers will be deployed at depths < 60 m (Fig.2 & 3).

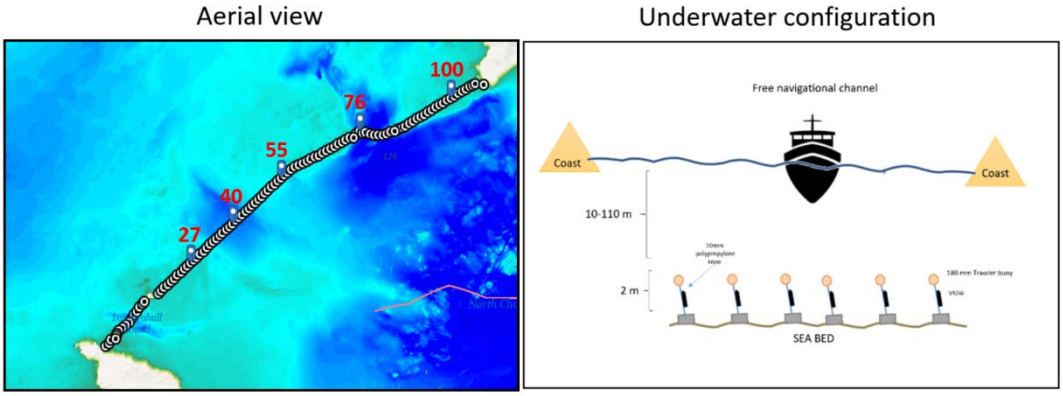

Figure 2: Mooring location and underwater configuration.

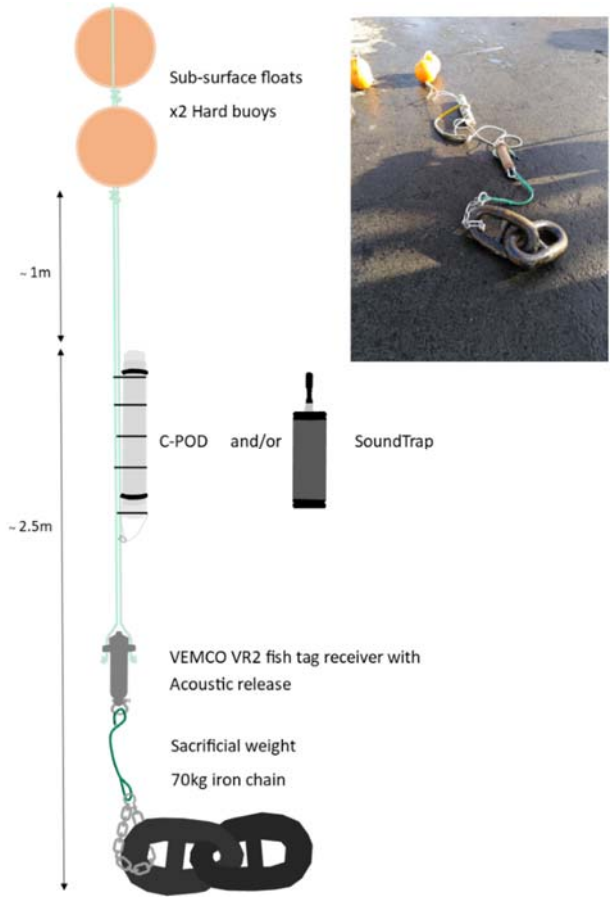

Figure 3: Mooring design and components.

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:
Embarkation: 01/10/2020 **Disembarkation** : 07/10/2020 **No. Of Survey Days:** 7
6.2 Indicate if multiple entries are expected:

7. Port Calls

7.1 Dates and Names of intended ports of call:
Northern Ireland -Greencastle harbour -Foyle port -Malin Head Coast Guard. Radio VHF Channels 16,67,23,85 DSC70 -Malin Head MRSC. Scotland -Glesanda port

7.2 Any special logistical requirements at ports of call:
Scientific crew boarding at Lisahally harbour.

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:
We are more than willing to accommodate an observer on board, for the duration of the survey. Regular meetings have been carried out with the Foyle port and maritime authorities to explain and discuss the relevant aspects of the project.

8.2 Proposed dates and ports for embarkation/disembarkation:

Embarkation: 01/10/2020
Disembarkation : 07/10/2020
No. Of Survey Days: 7

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:

9.2 Anticipated dates of submission to the coastal State of the final report:

9.3 Proposed means for access by coastal State to data (including format) and samples:

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

9.5 Proposed means to provide assistance in assessment or interpretation of data, samples And research results:
Marine Institute will guarantee that data will be extracted, analysed and categorised after each recovery so data analyses will be ongoing once monitoring starts. One year of data will be modelled at the end of 2020 and the overall dataset by Dec 2021. Results will be generated at 4/5 monthly periods when equipment is recovered to facilitate collaboration with existing projects and to identify significant trends over the duration of the project. All progress will be updated in quarterly reports and summary results delivered when available. Extensive analysis of data will also be delivered when available for quarterly reports but this will be dependent on deployment and retrieval of equipment.

9.6 Proposed means of making results internationally available:
We will produce 8 peer reviewed publications by December 2024. This will be after the programme finishes but due to the length of time in getting the data analysed and going through the peer review process this is a more realistic target than the end of the programme in March 2022.

10. Other permits Submitted

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

11. List of Supporting Documentation

11.1 List of attachments, such as additional forms required by the coastal State, etc.:

Signature:

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

Appendix

Table 1: Coordinates of the main Array between Mailin Head (Northern Ireland) and Portnahaven (Isle of Islay, Scotland) across the North Channel.

Id	name	Array	xcoord	ycoord
1	SeaMonitor_1	Main	-7.3306264	55.37539598
2	SeaMonitor_2	Main	-7.3230723	55.37852407
3	SeaMonitor_3	Main	-7.32039387	55.38221713
4	SeaMonitor_4	Main	-7.30848841	55.38393665
5	SeaMonitor_5	Main	-7.30764022	55.3869472
6	SeaMonitor_6	Main	-7.30657223	55.38923351
7	SeaMonitor_7	Main	-7.30161477	55.39383855
8	SeaMonitor_8	Main	-7.29360513	55.39622445
9	SeaMonitor_9	Main	-7.28636697	55.39939348
10	SeaMonitor_10	Main	-7.279096	55.40247373
11	SeaMonitor_11	Main	-7.27397061	55.40704169
12	SeaMonitor_12	Main	-7.26846937	55.41121477
13	SeaMonitor_13	Main	-7.26253616	55.41538705
14	SeaMonitor_14	Main	-7.25635878	55.41966623
15	SeaMonitor_15	Main	-7.25013709	55.42360205
16	SeaMonitor_16	Main	-7.24570043	55.42613308
17	SeaMonitor_17	Main	-7.21570099	55.43584336
18	SeaMonitor_18	Main	-7.20965935	55.43881763
19	SeaMonitor_19	Main	-7.20234385	55.44236754
20	SeaMonitor_20	Main	-7.1954211	55.44579326
21	SeaMonitor_21	Main	-7.18816026	55.44939234
22	SeaMonitor_22	Main	-7.18069739	55.45291234
23	SeaMonitor_23	Main	-7.17353131	55.45637705
24	SeaMonitor_24	Main	-7.16656129	55.45995485
25	SeaMonitor_25	Main	-7.15956825	55.46341929
26	SeaMonitor_26	Main	-7.15244227	55.46688465
27	SeaMonitor_27	Main	-7.1453027	55.47040798
28	SeaMonitor_28	Main	-7.13833368	55.47382419
29	SeaMonitor_29	Main	-7.13139261	55.47720923
30	SeaMonitor_30	Main	-7.12468358	55.480504
31	SeaMonitor_31	Main	-7.11713897	55.48419116
32	SeaMonitor_32	Main	-7.10985765	55.48781441
33	SeaMonitor_33	Main	-7.10270421	55.49127825
34	SeaMonitor_34	Main	-7.09578498	55.49470093
35	SeaMonitor_35	Main	-7.08876977	55.49816685
36	SeaMonitor_36	Main	-7.08141648	55.50165898
37	SeaMonitor_37	Main	-7.07461213	55.50503308
38	SeaMonitor_38	Main	-7.06759602	55.50837469
39	SeaMonitor_39	Main	-7.06048286	55.51189706
40	SeaMonitor_40	Main	-7.05334282	55.51533565
41	SeaMonitor_41	Main	-7.04634271	55.51867336
42	SeaMonitor_42	Main	-7.03922506	55.52192132
43	SeaMonitor_43	Main	-7.03228589	55.52533269
44	SeaMonitor_44	Main	-7.02509545	55.5289419
45	SeaMonitor_45	Main	-7.01808723	55.53231765
46	SeaMonitor_46	Main	-7.01093116	55.53569024
47	SeaMonitor_47	Main	-7.00389832	55.53913897
48	SeaMonitor_48	Main	-6.99702021	55.54283203
49	SeaMonitor_49	Main	-6.99020932	55.54636293
50	SeaMonitor_50	Main	-6.98288718	55.54986651
51	SeaMonitor_51	Main	-6.9758587	55.55336251
52	SeaMonitor_52	Main	-6.96886242	55.55670747
53	SeaMonitor_53	Main	-6.96178477	55.56000873
54	SeaMonitor_54	Main	-6.95455316	55.56376044
55	SeaMonitor_55	Main	-6.94737651	55.56725605
56	SeaMonitor_56	Main	-6.94012066	55.57079208
57	SeaMonitor_57	Main	-6.93279795	55.57393686
58	SeaMonitor_58	Main	-6.92577653	55.57745161
59	SeaMonitor_59	Main	-6.91730797	55.57987847
60	SeaMonitor_60	Main	-6.908605144	55.58192073
61	SeaMonitor_61	Main	-6.900012219	55.58417957
62	SeaMonitor_62	Main	-6.891232898	55.58644154
63	SeaMonitor_63	Main	-6.882703286	55.58868322
64	SeaMonitor_64	Main	-6.873788911	55.5909182
65	SeaMonitor_65	Main	-6.864895695	55.5930215
66	SeaMonitor_66	Main	-6.856809204	55.59572465
67	SeaMonitor_67	Main	-6.8481337	55.59809761
68	SeaMonitor_68	Main	-6.839692036	55.60063315
69	SeaMonitor_69	Main	-6.831457908	55.60303829
70	SeaMonitor_70	Main	-6.823000718	55.60548253
71	SeaMonitor_71	Main	-6.814679175	55.60781247
72	SeaMonitor_72	Main	-6.806315972	55.6101582
73	SeaMonitor_73	Main	-6.798116293	55.61252546
74	SeaMonitor_74	Main	-6.788917858	55.61309176
75	SeaMonitor_75	Main	-6.783702011	55.61702935
76	SeaMonitor_76	Main	-6.776487387	55.62028141
77	SeaMonitor_77	Main	-6.76848835	55.61820885
78	SeaMonitor_78	Main	-6.761507472	55.61884211
79	SeaMonitor_79	Main	-6.752876185	55.6171841
80	SeaMonitor_80	Main	-6.74405142	55.61554808
81	SeaMonitor_81	Main	-6.735115562	55.61584636
82	SeaMonitor_82	Main	-6.725763466	55.61592283
83	SeaMonitor_83	Main	-6.716848915	55.61757916
84	SeaMonitor_84	Main	-6.708689934	55.61966906
85	SeaMonitor_85	Main	-6.699531616	55.62041724
86	SeaMonitor_86	Main	-6.690992287	55.62273899
87	SeaMonitor_87	Main	-6.682330462	55.62452769
88	SeaMonitor_88	Main	-6.675670252	55.62637399
89	SeaMonitor_89	Main	-6.66745978	55.62905787
90	SeaMonitor_90	Main	-6.659123345	55.63179526
91	SeaMonitor_91	Main	-6.650816373	55.634347
92	SeaMonitor_92	Main	-6.642571776	55.63698324
93	SeaMonitor_93	Main	-6.634085747	55.63943151
94	SeaMonitor_94	Main	-6.625723279	55.64210513
95	SeaMonitor_95	Main	-6.617380011	55.644728
96	SeaMonitor_96	Main	-6.609229476	55.64745048
97	SeaMonitor_97	Main	-6.601074174	55.65011454
98	SeaMonitor_98	Main	-6.592808904	55.65263941
99	SeaMonitor_99	Main	-6.58462979	55.65532101
100	SeaMonitor_100	Main	-6.576466229	55.65787084
101	SeaMonitor_101	Main	-6.568254272	55.66041944
102	SeaMonitor_102	Main	-6.559963789	55.66297216
103	SeaMonitor_103	Main	-6.551755919	55.66563981
104	SeaMonitor_104	Main	-6.543389855	55.66815523
105	SeaMonitor_105	Main	-6.534915233	55.67073402
106	SeaMonitor_106	Main	-6.529373271	55.67257971
107	SeaMonitor_107	Main	-6.52373308	55.67425481
108	SeaMonitor_108	Main	-6.503507764	55.67305738