

Application for Consent to conduct Marine Scientific Research

Date: 3/12/2019

1. General Information

1.1 Cruise name and/or number: APP CV20024
INTERREG SeaMonitor Survey Glider deployment and ADCP/CTD & Mapping survey

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

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.omaileidigh@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:
<p>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.</p> <p>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</p>

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 is 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 Davis (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.

A total of 108 Acoustic Listening Stations (ALS) are planned to be deployed at different locations across the North Channel from Malin Head to Scotland (Islay) (Main array) to detect the presence of acoustically tagged fish and marine mammals.

The precise location for the main and the Foyle acoustic listening stations are detailed in the end of this document (See appendix, Table 1).

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.



Each flag represents a single acoustic listening station (See section 4.6 for full details).

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.):	9154842
Owner:	Marine Institute
Operator:	P&O Maritime Services
Overall length (meters):	32.45
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:	
Number of Crew:	
Number of Scientists on board:	

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:	Teledyne
Manufacturer and make/model:	Teledyne Webb G2
Nationality (Flag State):	Ireland
Website for diagram & Specifications:	http://www.teledynemarine.com/slocum-glider
Owner:	Marine Institute
Operator:	Marine Institute
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):
Deployment and removal of scientific instruments	Acoustic telemetry equipment for fish tracking	Vemco's VR2AR	YES and NO. Acoustic receivers and glider will be

Deployment and removal of scientific instruments	Monitoring and removal of acoustic receivers	ROV	deployed within and beyond the 12nm limit.
Oceanographic survey	Oceanography	ADCP/CTD	
Marine habitat survey	Habitat mapping	Side scan	
Tracking	Marine species tracking	Glider	
Bathymetry surveys	Habitat & bathymetry mapping	Multibeam EM2040 and Sub bottom profiler	Position of Acoustic receivers will be ascertained and mapped within and beyond the 12nm limit

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

A bespoke acoustic listening station is needed for fish tracking as detailed in Figure 1. T

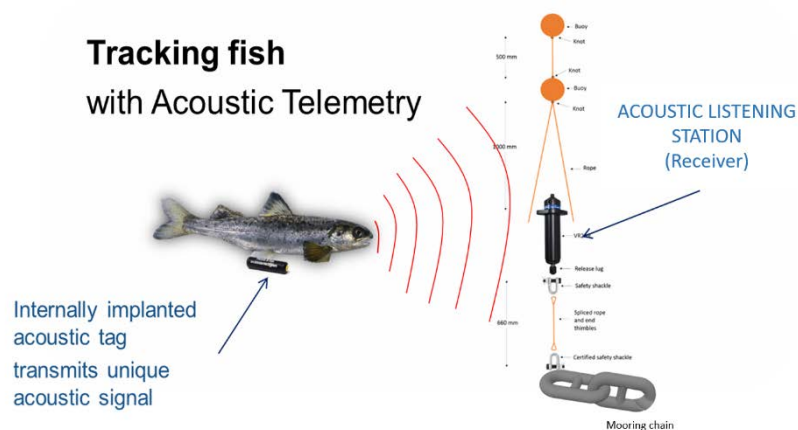


Figure 1: Principles of acoustic tracking for the detection of migrating fish.

In this regard, a total of 108 Acoustic Listening Stations (ALS) are planned to be deployed. After the conclusion of each tracking season in September, acoustic receivers will be recovered from the water by sending an acoustic signal that activates a releasing mechanism allowing the receiver to float to the surface. The mooring chain will be left on the sea bed as sea conditions in the study area are not adequate for a safely removal of the chains.

In this case, a total of 108 units of 2 stud-link iron chain @ 70 Kg/unit= 14,000 Kg will be left on the sea bed.

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

5.1 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):
See section 4.6. Locations of the surveys are the same as those in Table 1 (See appendix).

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:
Equipment monitoring/ Oceanographic surveys: Start Date: 28/05/2020 End Date: 05/06/20 Locations of the surveys are the same as those in Table 1 (See appendix).
6.2 Indicate if multiple entries are expected:
Yes, multiple entries are expected on the dates detailed in section 6.1.

7. Port Calls

7.1 Dates and Names of intended ports of call:
<u>Northern Ireland</u> -Greencastle harbour -Foyle port -Malin Head Coast Guard. Radio VHF Channels 16,67,23,85 DSC70 -Malin Head MRSC. <u>Scotland</u> -Glesanda port
7.2 Any special logistical requirements at ports of call:
- Equipment upload at Greencastle 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:

--

8.2 Proposed dates and ports for embarkation/disembarkation:

Greencastle Harbour (Donegal County Council, County Donegal) is the preferred option for embarkation and disembarkation. The use of the harbour will be daily from:

- 28th May to 4th June 2020

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:

Coastal state is a partner in the INTERREG VA project (Loughs Agency is lead, with University of Glasgow and Marine Scotland are on the project Board), so will have access to all information and interim reports during the project

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

Final Report Due in April 2023

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

Coastal state is a partner in the INTERREG VA project (Loughs Agency is lead, with University of Glasgow and Marine Scotland are on the project Board), so will have direct access to all information and interim reports during the project

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

Results will be provided in tabular, database and report format as required. Access to central database for partners including coastal state will be established. Requirement under INTERREG to have data and in some cases samples available post the project.

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: Niall Ó Maoiléidigh

Country: Ireland

Affiliation: Marine Institute

Address: Marine Institute, Newport, Co. Mayo Ireland, F28 PF65

Telephone: 00353 98 42300

Fax:

Email: niall.omaileidigh@marine.ie

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