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MRV Alba na Mara

Survey 0822A

PROGRAMME

07th – 20th June 2022

Ports:

Loading: Troon, 02nd June 2022
Unloading: Fraserburgh, 20th June 2022

In setting the survey programme and specific objectives, etc. the Scientist-in-Charge needs to be aware of the restrictions on working hours and the need to build in adequate rest days and rest breaks as set out in Marine Scotland's Working Time Policy (Lab Notice 34/03). In addition, the Scientist-in-Charge must formally review the risk assessments for the survey with staff on-board before work is commenced.

In the interest of efficient data management it is now mandatory to return the Survey Report, to I Gibb and the Survey Summary Report (old ROSCOP form) to M Geldart, within four weeks of a survey ending. In the case of the Survey Summary Report a nil return is required, if appropriate.

Estimated Days per Project: 10 days 20656 C44700, 3 days - PrePared

Equipment:

- 1 x Seacam HD video camera (MSS to supply)
- 1 x Digital Stills camera - Kongsberg OE14-408
- 1 x Table drop frame (Seatronics hire by NS)
- 6 x LED lights and cables (Seatronics hire by SNH)
- 2 x Line lasers + cables (MSS to supply)
- Day Grab
- Sieving table
- 1 mm sieves
- Stillage crate to store grab samples (buckets)

Background:

Survey 0822A serves work carried out by NatureScot investigating the distribution and condition of benthic habitats around Scotland. Data are required to underpin the management of marine protected areas and priority marine features, to meet commitments prescribed by
the Scottish MPA Monitoring Strategy, and to improve coverage required for the PMF review consultation.

Narrative:
Scientists (PB, SW and JH) will join on the 6th June to set up equipment. The survey will begin on the 7th June. SW will disembark on the 15th at nearest available port (likely Mallaig or Oban). RL and DC will join on the 17th at Scrabster, PB will disembark.

Objectives:

1. **South Arran MPA and Clyde**
- Grab sampling in mud and maerl boxes (T1 to T4 and D1 to D5) – estimate 3 days
- Possible drop video work in "illustrative PMF management areas" (poor weather contingency)

2. **Coll/Tiree**
- Deployment of 10 acoustic transceivers for basking sharks – estimate 1 day for deployment

3. **West Coast**
- Drop video work on deeper maerl off Arisaig and in Inner Sound/Applecross – estimate 2 days
- Drop video work in "illustrative PMF management areas" around Mallaig and the Small Isles - estimate 2 days (or however long remains of the survey)

4. **Calibration of EK60**
- *Alba na Mara* will transit to Scapa Flow and for calibration of the EK60 system – estimate 2 days.

Prioritisation:

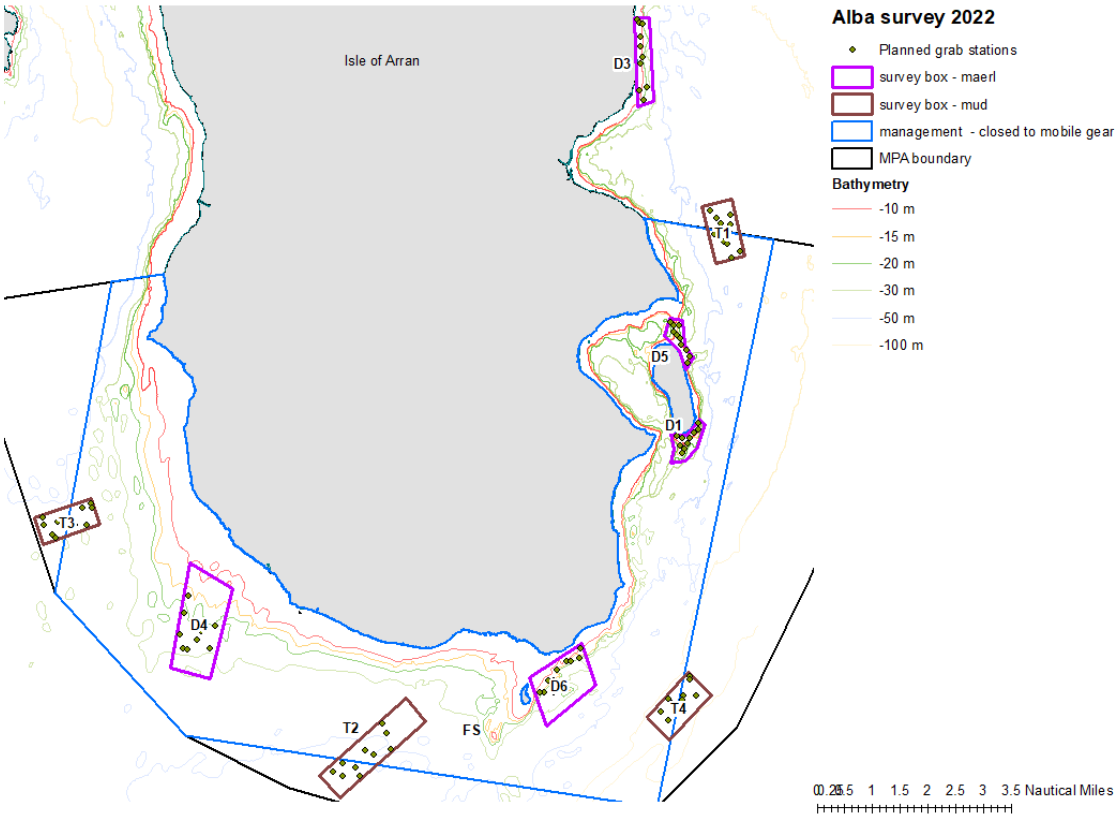
1. Grab sampling around Arran is 1st priority
   (Prioritise completing boxes over doing a bit of work in each, so if pushed for time miss out entire boxes. But since this work is priority hopefully all can be done.)
2. Deployment of acoustic transceivers is 2nd priority
3. Drop video work of deeper maerl off Arisaig and Inner Sound/Applecross is 3rd priority
4. Drop video work in illustrative PMF management areas is 4th priority.

Annex 1: Map and table of positions for grab stations
Annex 2: Maps and table of deeper maerl sampling stations off Arisaig
Annex 3: Maps and table of deeper maerl sampling stations Inner Sound (north of BUTEC)
Annex 4: Maps and table of "Illustrative PMF management areas"
Annex 5: Maps and procedures for Coll/Tiree acoustic receiver deployments to follow separately.

Submitted:
S. Wells
31 May 2022

Approved:
I. Gibb
02 June 2022

Annex 1: Map and positions for grab sampling stations around South Arran MPA

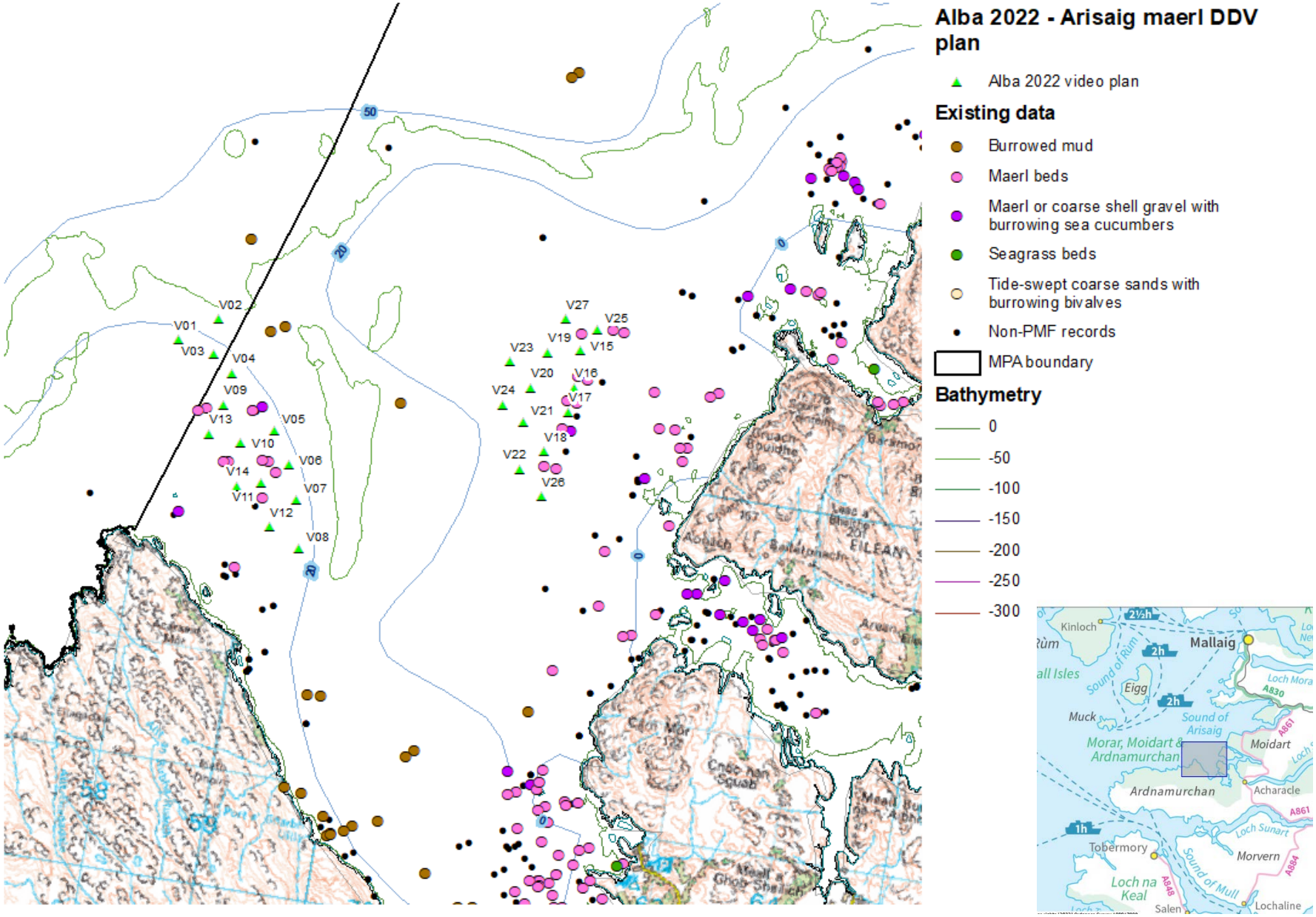


Name	Lat	Long	Approx depth
D3_G01	55° 37.733' N	5° 8.070' W	10
D3_G02	55° 37.684' N	5° 7.958' W	10
D3_G03	55° 37.693' N	5° 7.853' W	20
D3_G05	55° 37.277' N	5° 7.783' W	10
D3_G06	55° 37.113' N	5° 7.643' W	20
D3_G07	55° 36.993' N	5° 7.675' W	10
D3_G08	55° 36.604' N	5° 7.320' W	30
D3_G09	55° 36.520' N	5° 7.526' W	10
D3_G10	55° 36.362' N	5° 7.337' W	30
D3_G04	55° 37.455' N	5° 7.845' W	10
T1_01	55° 34.689' N	5° 4.503' W	60-80
T1_02	55° 34.533' N	5° 3.788' W	60-80
T1_03	55° 34.501' N	5° 4.091' W	60-80
T1_04	55° 34.292' N	5° 4.218' W	60-80
T1_05	55° 34.213' N	5° 3.863' W	60-80
T1_06	55° 34.697' N	5° 3.840' W	60-80
T1_07	55° 34.595' N	5° 4.261' W	60-80
T1_08	55° 34.177' N	5° 3.736' W	60-80
T1_09	55° 34.101' N	5° 3.284' W	60-80

Name	Lat	Long	Approx depth
T1_10	55° 33.947' N	5° 3.530' W	60-80
D5_01	55° 32.620' N	5° 5.035' W	15
D5_02	55° 32.575' N	5° 4.905' W	15
D5_03	55° 32.594' N	5° 4.716' W	15
D5_04	55° 32.463' N	5° 4.863' W	15
D5_05	55° 32.413' N	5° 4.730' W	15
D5_06	55° 32.365' N	5° 4.604' W	15
D5_07	55° 32.262' N	5° 4.529' W	15
D5_08	55° 32.191' N	5° 4.353' W	15
D5_09	55° 32.095' N	5° 4.203' W	15
D5_10	55° 31.980' N	5° 4.211' W	15
D1_01	55° 30.965' N	5° 3.503' W	15
D1_02	55° 30.860' N	5° 3.453' W	15
D1_03	55° 30.779' N	5° 3.556' W	15
D1_04	55° 30.678' N	5° 3.642' W	15
D1_05	55° 30.582' N	5° 3.709' W	15
D1_06	55° 30.466' N	5° 3.752' W	15
D1_07	55° 30.383' N	5° 3.778' W	15
D1_08	55° 30.508' N	5° 3.912' W	15
D1_09	55° 30.646' N	5° 3.877' W	15
D1_10	55° 30.668' N	5° 4.081' W	15
T4_01	55° 26.546' N	5° 2.091' W	100
T4_02	55° 26.488' N	5° 2.079' W	100
T4_03	55° 26.192' N	5° 2.172' W	100
T4_04	55° 26.242' N	5° 1.767' W	100
T4_05	55° 26.074' N	5° 2.638' W	100
T4_06	55° 26.122' N	5° 2.175' W	100
T4_07	55° 26.028' N	5° 2.499' W	100
T4_08	55° 25.878' N	5° 2.355' W	100
T4_09	55° 25.830' N	5° 2.770' W	100
T4_10	55° 25.703' N	5° 2.493' W	100
D6_01	55° 26.630' N	5° 5.719' W	15
D6_02	55° 26.467' N	5° 5.671' W	20
D6_03	55° 26.354' N	5° 6.067' W	20
D6_04	55° 26.386' N	5° 5.918' W	15
D6_05	55° 26.181' N	5° 6.306' W	20
D6_06	55° 25.977' N	5° 6.351' W	20
D6_07	55° 25.967' N	5° 6.502' W	15
D6_08	55° 25.780' N	5° 6.249' W	30
D6_09	55° 25.736' N	5° 6.557' W	20
D6_10	55° 25.723' N	5° 6.700' W	15
T2_02	55° 24.044' N	5° 11.497' W	40

Name	Lat	Long	Approx depth
T2_01	55° 24.199' N	5° 10.996' W	40
T2_03	55° 24.605' N	5° 11.434' W	40
T2_04	55° 24.094' N	5° 11.800' W	40
T2_05	55° 24.464' N	5° 11.225' W	40
T2_06	55° 23.754' N	5° 11.988' W	50
T2_07	55° 23.779' N	5° 12.416' W	50
T2_08	55° 23.549' N	5° 12.335' W	50
T2_09	55° 23.596' N	5° 12.636' W	50
D4_01	55° 23.614' N	5° 11.780' W	20
D4_02	55° 26.113' N	5° 18.357' W	30
D4_03	55° 25.682' N	5° 17.314' W	30
D4_04	55° 25.793' N	5° 18.376' W	30
D4_05	55° 25.555' N	5° 17.697' W	30
D4_06	55° 25.406' N	5° 18.363' W	30
D4_07	55° 25.381' N	5° 17.779' W	30
D4_08	55° 25.275' N	5° 17.307' W	30
D4_09	55° 25.193' N	5° 18.167' W	30
D4_10	55° 25.182' N	5° 18.007' W	30
T3_01	55° 27.356' N	5° 22.025' W	35
T3_02	55° 27.247' N	5° 22.237' W	35
T3_03	55° 27.286' N	5° 21.947' W	35
T3_04	55° 26.935' N	5° 23.418' W	35
T3_05	55° 26.916' N	5° 22.946' W	35
T3_06	55° 26.809' N	5° 23.336' W	35
T3_07	55° 26.922' N	5° 22.374' W	35
T3_08	55° 26.958' N	5° 21.990' W	35
T3_09	55° 26.632' N	5° 22.887' W	35
T3_10	55° 26.678' N	5° 23.015' W	35

Annex 2: Maps and table of deeper maerl stations Arisaig



Arisaig maerl DDV plan positions

Name	Lat	Long	Approx Depth	Target	Area
V01	56° 47.990' N	5° 57.813' W	20	maerl beds	Arisaig
V02	56° 48.123' N	5° 57.508' W	20	maerl beds	Arisaig
V03	56° 47.959' N	5° 57.492' W	20	maerl beds	Arisaig
V04	56° 47.893' N	5° 57.297' W	20	maerl beds	Arisaig
V05	56° 47.672' N	5° 56.833' W	20	maerl beds	Arisaig
V06	56° 47.535' N	5° 56.648' W	20	maerl beds	Arisaig
V07	56° 47.385' N	5° 56.521' W	20	maerl beds	Arisaig
V08	56° 47.165' N	5° 56.404' W	20	maerl beds	Arisaig
V09	56° 47.739' N	5° 57.311' W	20	maerl beds	Arisaig
V10	56° 47.586' N	5° 57.093' W	20	maerl beds	Arisaig
V11	56° 47.422' N	5° 56.845' W	20	maerl beds	Arisaig
V12	56° 47.234' N	5° 56.690' W	20	maerl beds	Arisaig
V13	56° 47.593' N	5° 57.379' W	20	maerl beds	Arisaig
V14	56° 47.385' N	5° 57.048' W	20	maerl beds	Arisaig
V15	56° 48.346' N	5° 54.396' W	20	maerl beds	Arisaig
V16	56° 48.170' N	5° 54.375' W	20	maerl beds	Arisaig
V17	56° 48.052' N	5° 54.378' W	20	maerl beds	Arisaig
V18	56° 47.850' N	5° 54.513' W	20	maerl beds	Arisaig
V19	56° 48.301' N	5° 54.661' W	20	maerl beds	Arisaig
V20	56° 48.126' N	5° 54.743' W	20	maerl beds	Arisaig
V21	56° 47.961' N	5° 54.739' W	20	maerl beds	Arisaig
V22	56° 47.747' N	5° 54.689' W	20	maerl beds	Arisaig
V23	56° 48.224' N	5° 54.963' W	20	maerl beds	Arisaig
V24	56° 48.020' N	5° 54.943' W	20	maerl beds	Arisaig
V25	56° 48.456' N	5° 54.287' W	20	maerl beds	Arisaig
V26	56° 47.644' N	5° 54.454' W	20	maerl beds	Arisaig
V27	56° 48.470' N	5° 54.576' W	20	maerl beds	Arisaig

Annex 3: Map of sampling areas for DDV in Inner Sound and adjacent PMF mgt. areas. (BUTEC sites will not be sampled).

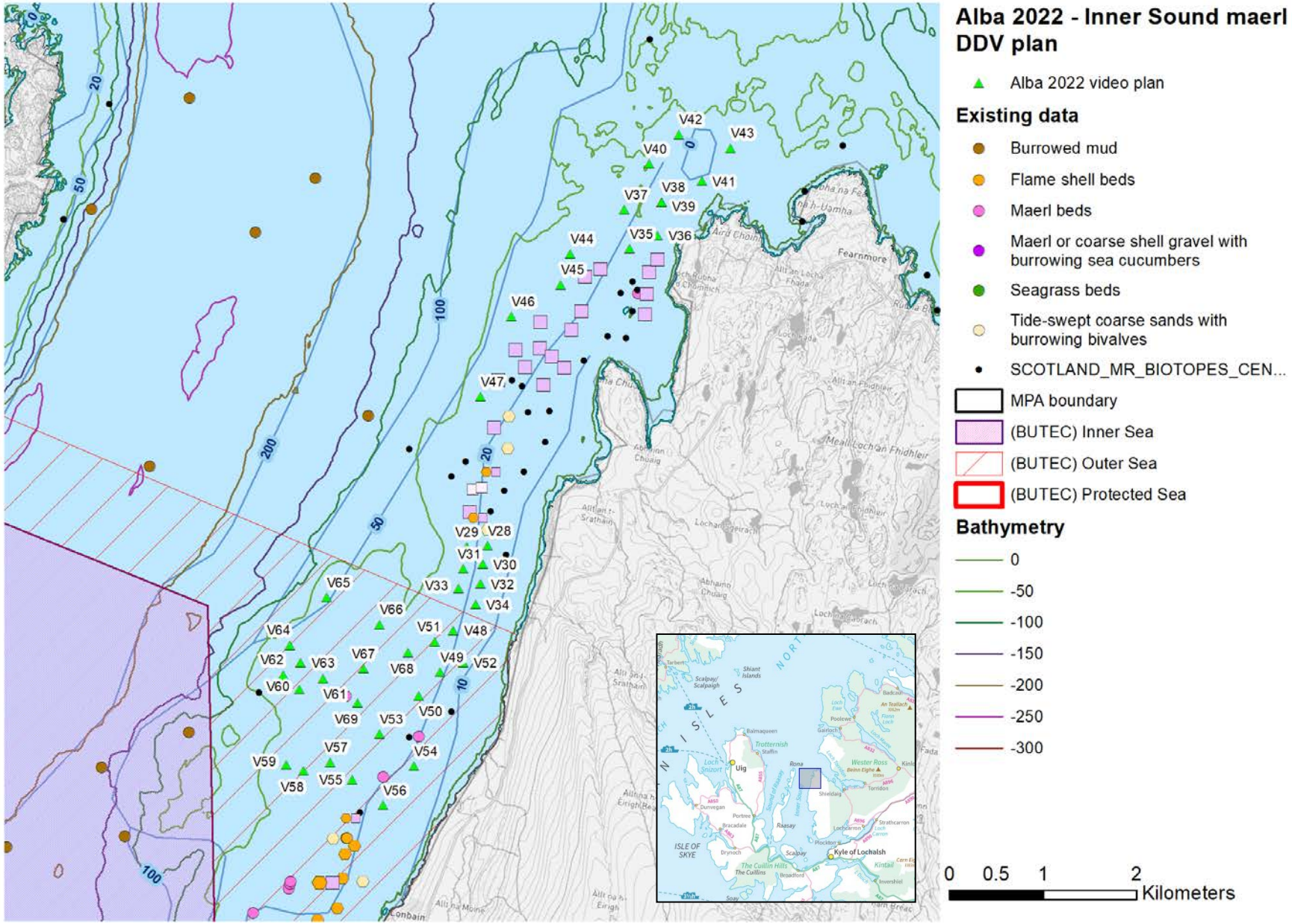
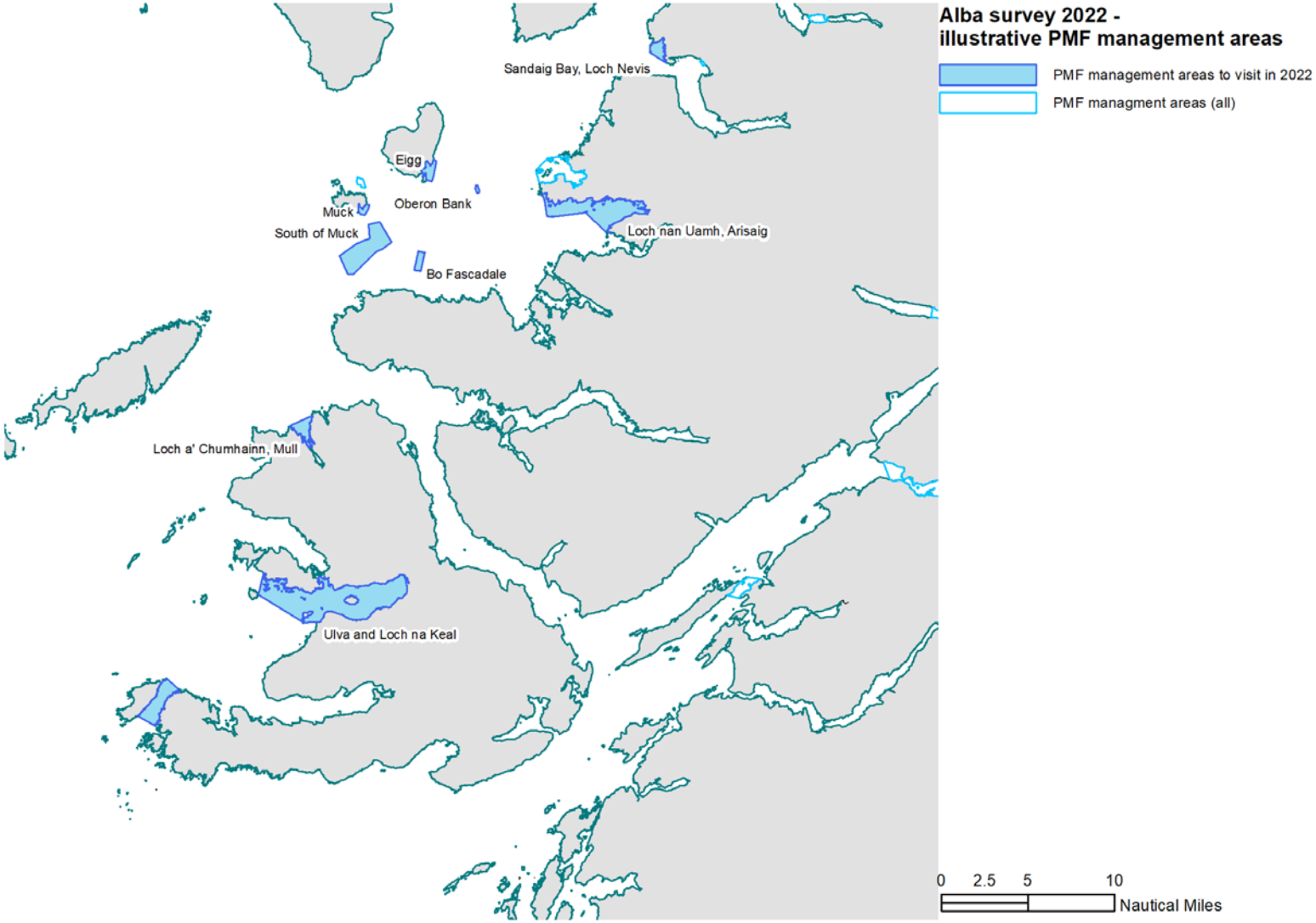


Table of DDV stations north of BUTEC / Applecross (Inner Sound)

Name	Lat	Long	Approx depth	Target	Area
V28	57° 32.627' N	5° 51.795' W	20	maerl / flameshell beds	Applecross
V29	57° 32.595' N	5° 52.014' W	20	maerl / flameshell beds	Applecross
V30	57° 32.518' N	5° 51.804' W	20	maerl / flameshell beds	Applecross
V31	57° 32.467' N	5° 52.001' W	20	maerl / flameshell beds	Applecross
V32	57° 32.406' N	5° 51.785' W	20	maerl / flameshell beds	Applecross
V33	57° 32.351' N	5° 52.007' W	20	maerl / flameshell beds	Applecross
V34	57° 32.283' N	5° 51.788' W	20	maerl / flameshell beds	Applecross
V35	57° 34.450' N	5° 50.988' W	20	maerl / flameshell beds	Applecross
V36	57° 34.560' N	5° 50.720' W	20	maerl / flameshell beds	Applecross
V37	57° 34.663' N	5° 51.132' W	20	maerl / flameshell beds	Applecross
V38	57° 34.750' N	5° 50.758' W	20	maerl / flameshell beds	Applecross
V39	57° 34.750' N	5° 50.758' W	20	maerl / flameshell beds	Applecross
V40	57° 34.947' N	5° 50.977' W	20	maerl / flameshell beds	Applecross
V41	57° 34.916' N	5° 50.377' W	20	maerl / flameshell beds	Applecross
V42	57° 35.147' N	5° 50.734' W	20	maerl / flameshell beds	Applecross
V43	57° 35.135' N	5° 50.155' W	20	maerl / flameshell beds	Applecross
V44	57° 34.351' N	5° 51.602' W	35	maerl / flameshell beds	Applecross
V45	57° 34.167' N	5° 51.635' W	35	maerl / flameshell beds	Applecross
V46	57° 33.929' N	5° 52.081' W	35	maerl / flameshell beds	Applecross
V47	57° 33.446' N	5° 52.220' W	35	maerl / flameshell beds	Applecross
V48	57° 32.113' N	5° 51.962' W	20	BUTEC maerl / flameshells	Applecross
V49	57° 31.863' N	5° 52.008' W	20	BUTEC maerl / flameshells	Applecross
V50	57° 31.708' N	5° 52.175' W	20	BUTEC maerl / flameshells	Applecross
V51	57° 32.028' N	5° 52.131' W	20	BUTEC maerl / flameshells	Applecross
V52	57° 31.947' N	5° 51.783' W	20	BUTEC maerl / flameshells	Applecross
V53	57° 31.447' N	5° 52.502' W	20	BUTEC maerl / flameshells	Applecross
V54	57° 31.311' N	5° 52.063' W	20	BUTEC maerl / flameshells	Applecross
V55	57° 31.161' N	5° 52.682' W	20	BUTEC maerl / flameshells	Applecross
V56	57° 31.055' N	5° 52.297' W	20	BUTEC maerl / flameshells	Applecross
V57	57° 31.229' N	5° 52.956' W	20	BUTEC maerl / flameshells	Applecross
V58	57° 31.148' N	5° 53.223' W	40	BUTEC skate eggs	Applecross
V59	57° 31.161' N	5° 53.419' W	40	BUTEC skate eggs	Applecross
V60	57° 31.596' N	5° 53.451' W	40	BUTEC skate eggs	Applecross
V61	57° 31.686' N	5° 53.230' W	40	BUTEC skate eggs	Applecross
V62	57° 31.658' N	5° 53.654' W	40	BUTEC skate eggs	Applecross
V63	57° 31.748' N	5° 53.501' W	40	BUTEC skate eggs	Applecross
V64	57° 31.830' N	5° 53.658' W	40	BUTEC skate eggs	Applecross
V65	57° 32.142' N	5° 53.380' W	40	BUTEC skate eggs	Applecross
V66	57° 32.056' N	5° 52.757' W	40	BUTEC skate eggs	Applecross
V67	57° 31.790' N	5° 52.823' W	40	BUTEC skate eggs	Applecross
V68	57° 31.934' N	5° 52.392' W	40	BUTEC skate eggs	Applecross
V69	57° 31.591' N	5° 52.808' W	40	BUTEC skate eggs	Applecross

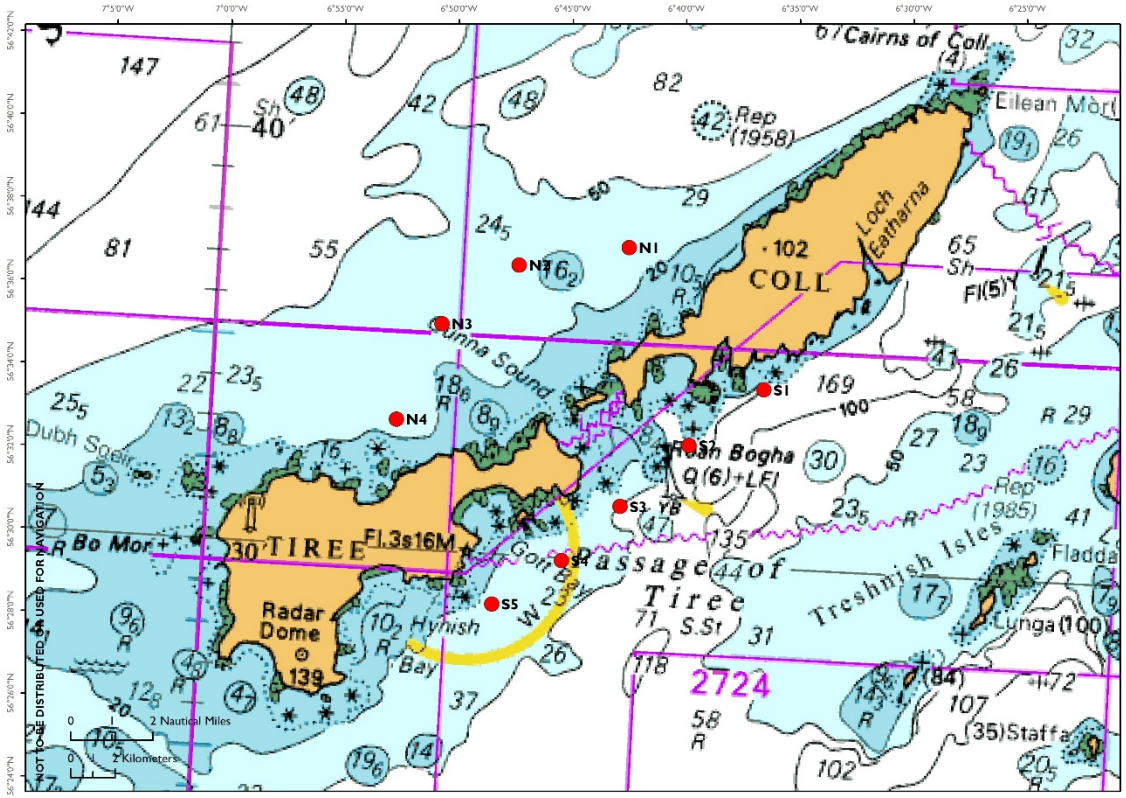
Annex 4: Map and table of "Illustrative PMF management areas"

Map and table show illustrative PMF management areas from which more video data would be especially useful shaded in blue (outlines of all illustrative ares are given for reference).



Name	Species / PMFs	Rationale	Priority
South of Muck	Northern sea fan; fan mussel	PMFs (SNH advice)	
Loch nan Uamh, Arisaig	Maerl gravel; northern sea fan; seagrass beds	PMFs; geography; partial overlap with footprint	
Sandaig Bay, Loch Nevis	Maerl beds	PMFs; geography; partial overlap with footprint	
Eigg	Northern sea fan; maerl beds	PMFs; geography; follows lat/lon;	
Muck	Northern sea fan	PMFs (SNH advice)	

Annex 5 Maps and table for Coll/Tiree acoustic receiver deployments.



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S5	-6.78602134999	56.47984290170
S3	-6.69620488831	56.52190117610
S2	-6.64826217394	56.54804239660
N2	-6.77939304066	56.61686636550
S1	-6.59574624516	56.57193023200
N4	-6.86279689623	56.55217487590
N1	-6.69963495379	56.62638908540
N3	-6.83340599095	56.59157479490