

Muckairn Mussels Seaweed application – Method Statement

Introduction

Muckairn Mussels Ltd, intend to apply to Marine Scotland for licenses to set light lines seeded with algae (up to 4 species) on existing, licensed mussel farm in Loch Etive, Argyll and Bute. It is our intention to have the necessary consent in place to start seeding lines early in 2018.

The license application will have the critical information required and as much information we can get on the license currently held and any consultation responses received during the setup of the original mussel farm.

We hope that when MS-LOT approach the original statutory consultees you receive a reply of no contest from each and that Marine Scotland will be confident about consenting licences.

This Method Statement will be submitted along with the Algae License by the license holder and site owner's Agent and paid for immediately by BACS to begin the process.

The expected level of seaweed work is low as the work will primarily be done on a trial basis so cost of works expected are to be less than £2,500, so the marine licence application fee will be £56. At this time there are no plans for large scale commercial operations. The site will primarily be used as a test bed for seeding media and deployment and harvesting techniques. Should that situation change, MS-LOT will be informed via an FEP5 form.

The works will be bounded within the coordinates of 5 existing consented mussel farm arrays at the Muckairn site. Please see the attachments "Site map - All Sites, Muckairn Mussels, Loch Etive", as well as attachments with individual site coordinates and larger scaled maps.

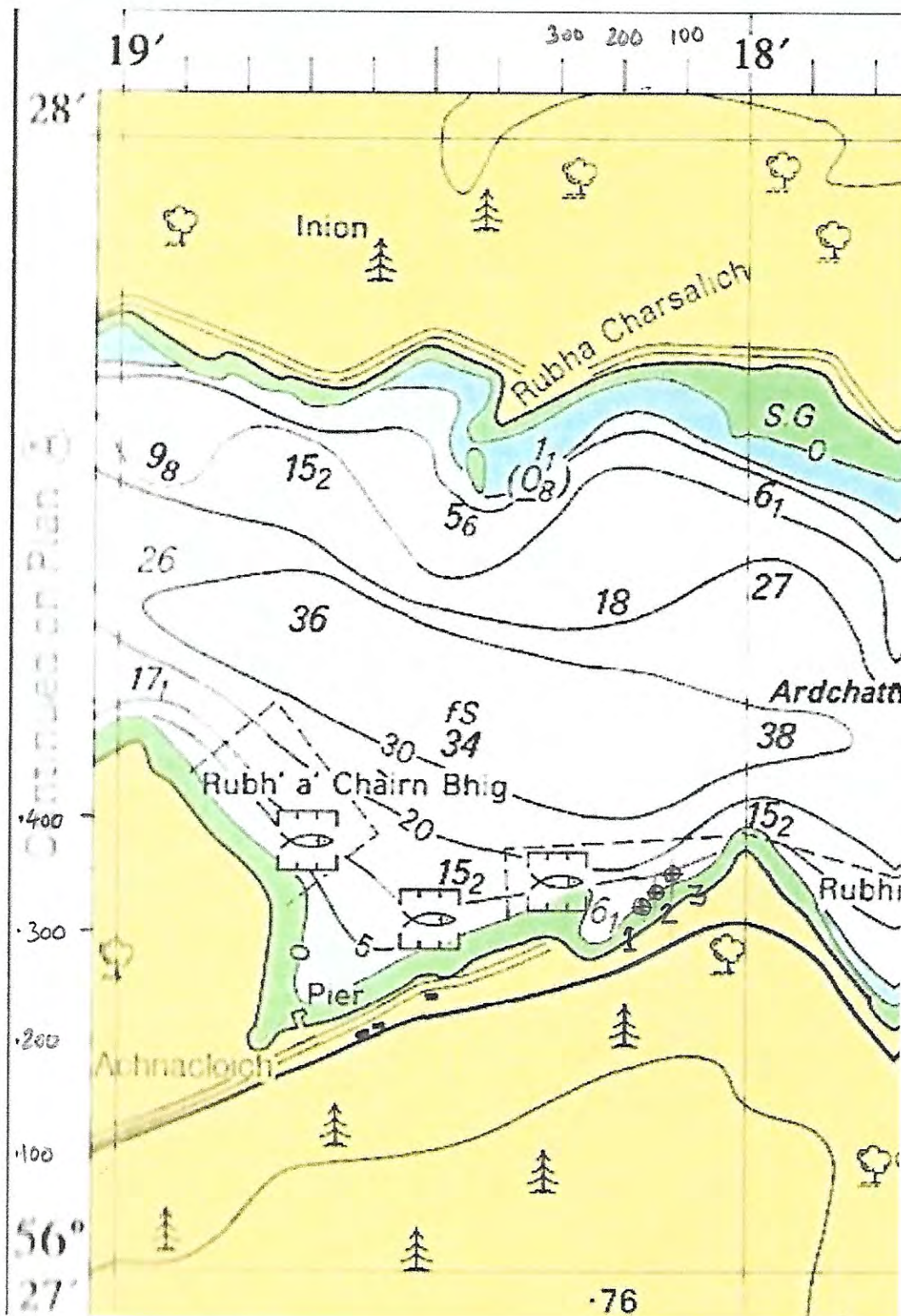
In water equipment

We will use the same header floats, ropes and anchors, same type of headlines, rafts and same shore infrastructure as is already in place at the site of the established, charted mussel farm with appropriate special marks denoting their limits.

There are no chemical additions or treatments used for the seaweed growing process. The seeded stock is sourced from local shore sites and will be cultured onto growing medium at commercial hatcheries such as Scottish Association for Marine Science (SAMS) at Dunstaffnage or any of the other hatcheries that are emerging around Scotland. The harvest for seeding plants will be very small volumes (<10 wet kg) and by taking no more than around 25% in any given patch on a shore. The species to be farmed are all found locally at or near the farm sites.

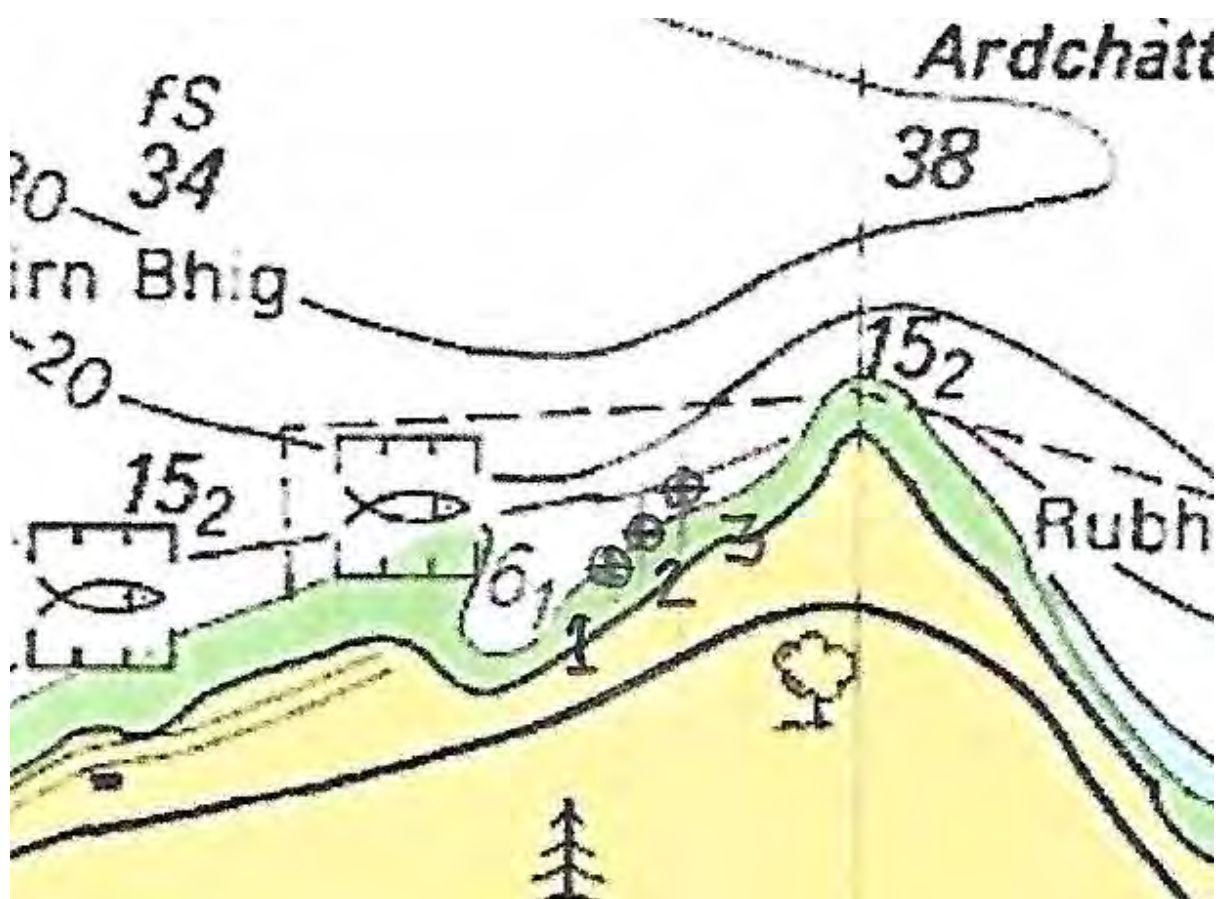
The species planned for use are Dulse (*palmaria palmata*), Oarweed (*laminaria digitata*) and Sugar Kelp (*saccharina latissima*). We will also trial small amounts of Atlantic Wakame (*alaria esculenta*).

The lines will be deployed by existing mussel farm vessels. Regular monitoring will decide the optimum harvest periods. Harvesting will be a reversal of the process using the same vessels. We expect the usual pattern of deployment to be from October to February and the expected harvest period being April to June. We will undertake regular monitoring of seaweed growth and duty of care over lines.



Moorings:

- 1 $56^{\circ} 27.32' N : 005^{\circ} 18.16' W$
- 2 $56^{\circ} 27.34' N : 005^{\circ} 18.14' W$
- 3 $56^{\circ} 27.35' N : 005^{\circ} 18.11' W.$



Moorings:

- 1 $56^{\circ} 27.32' N : 005^{\circ} 18.16' W$
- 2 $56^{\circ} 27.34' N : 005^{\circ} 18.14' W$
- 3 $56^{\circ} 27.35' N : 005^{\circ} 18.11' W.$

SITE 1 – (AR2-29-21) – RAFTS

Planning area

	WGS84			OSGB36	
	Degrees, Minutes, Seconds	Degrees, Decimal Minutes	Decimal Degrees	Grid reference	XY
NW corner	56°27'21.18"N 5°18'33.48"W	56° 27.353N 005° 18.558W*	56.4559 -5.3093	NM9617934216	196179 734216
NE corner	56°27'21.18"N 5°18'27.96"W	56° 27.353N 005° 18.466W	56.4559 -5.3078	NM9627234212	196272 734212
SW corner	56°27'17.94"N 5°18'33.48"W	56° 27.299N 005° 18.558W	56.4550 -5.3093	NM9617434116	196174 734116
SE corner	56°27'17.94"N 5°18'27.96"W	56° 27.299N 005° 18.466W	56.4550 -5.3078	NM9626734112	196267 734112

*note that coordinate 4 (NW corner) of Crown Estate lease area is incorrect and has been corrected in the table above

Equipment

10, 10x10m mussel rafts

		WGS84			OSGB36	
		Degrees, Minutes, Seconds	Degrees, Decimal Minutes	Decimal Degrees	Grid reference	XY
Row 1 (5x1 rafts)	NW corner	56°27'20.264"N 5°18'32.294"W	56 27.33774 -5 18.538236	56.455629 -5.3089706	NM9619834185	196198 734185
	NE corner	56°27'20.279"N 5°18'29.373"W	56 27.33798 -5 18.489552	56.455633 -5.3081592	NM9624834183	196248 734183
	SE corner	56°27'19.955"N 5°18'29.345"W	56 27.33258 -5 18.489084	56.455543 -5.3081514	NM9624834173	196248 734173
	SW corner	56°27'19.94"N 5°18'32.266"W	56 27.33234 -5 18.537768	56.455539 -5.3089628	NM9619834175	196198 734175
Row 2 (5x1 rafts)	NW corner	56°27'19.296"N 5°18'32.268"W	56 27.3216 -5 18.537804	56.455360 -5.3089634	NM9619734155	196197 734155
	NE corner	56°27'19.307"N 5°18'29.347"W	56 27.32178 -5 18.48912	56.455363 -5.3081520	NM9624734153	196247 734153
	SE corner	56°27'18.95"N 5°18'29.375"W	56 27.31584 -5 18.489576	56.455264 -5.3081596	NM9624634142	196246 734142
	SW corner	56°27'18.94"N 5°18'32.296"W	56 27.31566 -5 18.53826	56.455261 -5.3089710	NM9619634144	196196 734144

Centre point of site

OSGB		WGS84 (lat/long)	
XY	Grid reference	Degrees, Decimal Minutes	Decimal Degrees
196221.97 734165.10	NM9622134165	56 27.3276 -5 18.51495	56.455460 -5.3085825

SITE 2 – (AR2-30-31) – SGEIR A' CHAIT

Planning area

	WGS84			OSGB36	
	Degrees, Minutes, Seconds	Degrees, Decimal Minutes	Decimal Degrees	Grid reference	XY
NW corner	56°27'25.2"N 5°18'20.64"W	56° 27.420N 005° 18.344W	56.4570 -5.3057	NM9640734328	196407 734328
SE corner	56°27'23.76"N 5°18'0.78"W	56° 27.396N 005° 18.013W	56.4566 -5.3002	NM9674334267	196743 734267
SW corner	56°27'19.74"N 5°18'21.24"W	56° 27.329N 005° 18.354W	56.4555 -5.3059	NM9638634162	196386 734162

Equipment

5 x 2, 10x10m mussel rafts + 4, 200m longlines

		WGS84			OSGB36	
		Degrees, Minutes, Seconds	Degrees, Decimal Minutes	Decimal Degrees	Grid reference	XY
Block of rafts (5x2 config)	NW corner	56°27'19.588"N 5°18'14.058"W	56 27.32646 -5 18.2343	56.455441 -5.3039050	NM9650934149	196509.561 734149.162
	NE corner	56°27'21.031"N 5°18'10.794"W	56 27.35052 -5 18.179898	56.455842 -5.3029983	NM9656734191	196567.311 734191.105
	SE corner	56°27'20.750"N 5°18'10.419"W	56 27.34584 -5 18.173646	56.455764 -5.3028941	NM9657334182	196573.778 734182.662
	SW corner	56°27'19.303"N 5°18'13.683"W	56 27.32172 -5 18.228048	56.455362 -5.3038008	NM9651534140	196515.758 734140.45
Longline 1	W point	56°27'24.293"N 5°18'17.156"W	56 27.40488 -5 18.28593	56.456748 -5.3047655	NM9646334297	196463.298 734297.926
	E point	56°27'23.472"N 5°18'5.453"W	56 27.39120 -5 18.090888	56.456520 -5.3015148	NM9666234262	196662.835 734262.404
Longline 2	W point	56°27'23.641"N 5°18'17.275"W	56 27.39402 -5 18.28791	56.456567 -5.3047985	NM9646034277	196460.228 734277.753
	E point	56°27'22.820"N 5°18'5.572"W	56 27.38034 -5 18.092868	56.456339 -5.3015478	NM9665934242	196659.327 734242.231
Longline 3	W point	56°27'23.022"N 5°18'17.455"W	56 27.38370 -5 18.29091	56.456395 -5.3048485	NM9645634258	196456.939 734258.018
	E point	56°27'22.172"N 5°18'5.691"W	56 27.36954 -5 18.094848	56.456159 -5.3015808	NM9665634222	196656.038 734222.496
Longline 4	W point	56°27'22.306"N 5°18'17.626"W	56 27.37176 -5 18.293766	56.456196 -5.3048961	NM9645234236	196452.773 734236.749
	E point	56°27'21.488"N 5°18'5.865"W	56 27.35814 -5 18.097758	56.455969 -5.3016293	NM9665234201	196652.31 734201.446

Centre point of site

OSGB		WGS84 (lat/long)	
XY	Grid reference	Degrees, Decimal Minutes	Decimal Degrees
196545.887 734226.641	NM9654534226	56 27.36882 -5 18.202914	56.456147 -5.3033819

Moorings:

56° 27.32' N : 005° 18.16' W
 56° 27.34' N : 005° 18.14' W
 56° 27.35' N : 005° 18.11' W.

SITE 3 – (AR2-29-6) – RUBHA NAN CARV

Planning area

	WGS84			OSGB	
	Degrees, Minutes, Seconds	Degrees, Decimal Minutes	Decimal Degrees	Grid reference	XY
NW corner	56°27'23.28"N 5°17'58.14"W	56° 27.388N 005° 17.969W	56.4565 -5.2995	NM9678634254	196786 734254
NE corner	56°27'17.28"N 5°17'24.3"W	56° 27.288N 005° 17.405W	56.4548 -5.2901	NM9735634037	197356 734037
SE corner	56°27'14.7"N 5°17'28.98"W	56° 27.245N 005° 17.483W	56.4541 -5.2914	NM9727233963	197272 733963

Equipment

10, 10x10m rafts + 2, 200m longlines + 1, 300m longline

		WGS84			OSGB36	
		Degrees, Minutes, Seconds	Degrees, Decimal Minutes	Decimal Degrees	Grid reference	XY
Block of rafts 10 x1 config	NW corner	56°27'20.171"N 5°17'47.165"W	56 27.33618 -5 17.786082	56.455603 -5.2964347	NM9697034145	196970.595 734145.54
	NE corner	56°27'18.738"N 5°17'39.092"W	56 27.31230 -5 17.651526	56.455205 -5.2941921	NM9710634094	197106.109 734094.107
	SE corner	56°27'18.410"N 5°17'39.239"W	56 27.30684 -5 17.653980	56.455114 -5.2942330	NM9710334084	197103.128 734084.864
	SW corner	56°27'19.876"N 5°17'47.315"W	56 27.33126 -5 17.788578	56.455521 -5.2964763	NM9696734136	196967.167 734136.148
Longline 1 (300m)	W point	56°27'21.751"N 5°17'51.042"W	56 27.36252 -5 17.850708	56.456042 -5.2975118	NM9690634197	196906.181 734197.385
	E point	56°27'18.587"N 5°17'33.760"W	56 27.30978 -5 17.562672	56.455163 -5.2927112	NM9719734085	197197.778 734085.901
Longline 2 (200m)	W point	56°27'19.642"N 5°17'48.931"W	56 27.32736 -5 17.815512	56.455456 -5.2969252	NM9693934130	196939.108 734130.882
	E point	56°27'17.640"N 5°17'37.769"W	56 27.29400 -5 17.629488	56.454900 -5.2938248	NM9712734059	197127.128 734059.447
Longline 3 (200m)	W point	56°27'19.177"N 5°17'49.241"W	56 27.31962 -5 17.82069	56.455327 -5.2970115	NM9693334116	196933.891 734116.836
	E point	56°27'17.179"N 5°17'38.022"W	56 27.28632 -5 17.633694	56.454772 -5.2938949	NM9712234045	197122.312 734045.802

Centre point of site

OSGB		WGS84 (lat/long)	
XY	Grid reference	Degrees, Decimal Minutes	Decimal Degrees
197047.82 734068.349	NM9704734068	56 27.29676 -5 17.707656	56.454946 -5.2951276