The Global Alliance Against Industrial Aquaculture, 7 May 2017

Cetaceans Sound Alarm On Salmon Farms
- New research sparks EC complaint & call to ban Acoustic Deterrent Devices

New research - "Large-scale underwater noise pollution from Acoustic Deterrent Devices (ADDs) on the west coast of Scotland" - presented earlier this week at the European Cetacean Society conference in Denmark sounds the alarm on the use of ADDs on Scottish salmon farms **[1]**. The Global Alliance Against Industrial Aquaculture is now calling for an immediate ban on the use of ADDs on salmon farms to protect cetaceans, especially harbour porpoises on the West coast of Scotland.

Read more via today's Sunday Herald: "Health of whales, dolphins and porpoises put at risk by underwater alarms"

Today (7 May), GAAIA filed a formal complaint with the European Commission against the UK and Scottish Government for the "deliberate & reckless disturbance" of cetaceans (European Protected Species) including breach of The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland) and breach of the Inner Hebrides and the Minches candidate Special Area of Conservation (cSAC) for harbour porpoise submitted to the European Commission in 2016 **[2]**.

"Their unregulated use in Scotland could pose unintended ecological impacts to non-target species such as the harbour porpoise," stated the paper co-authored by scientists from the Scottish Association of Marine Science, the University of St. Andrews and Hebridean Whale and Dolphin Trust. "Results found a significant spatial and temporal increase in ADD presence across the west coast study regions. This study highlights the large-scale extent of noise from ADDs use at fish farms across Scotland and illustrates its gradual increase over the study period. The increasing ensonification of the Scottish coastline which increase multiple protected areas for marine mammals, due to these devices may pose a risk to both target and non-target species," continued the paper (which will be submitted soon for publication in a scientific journal).

A research update presented at the Scottish Association of Marine Science (SAMS) in August 2016 showed that "the Sound of Mull and Loch Linnhe were completely ensonified, and that the ADD signal can be detected all the way across the Minch" (reported by Scottish Natural Heritage (SNH) in an internal email obtained by GAAIA via Freedom of Information). "There was preliminary analysis of how the levels dropped with distance (from two locations) - from Portree the signal could be detected out to 20km from source, in Lochmaddy the signal could be detected out to 30km. This is in keeping with literature which suggests the signal can travel up to 50km".

"This new scientific research sounds the alarm bells on the use of ADDs on salmon farms far and wide," said Don Staniford, Director of the Global Alliance Against Industrial Aquaculture. "The increasing use of ADDs surely represents a case of 'deliberate and reckless disturbance' and therefore constitutes a breach of the law. Salmon farmers are clearly guilty of propagating porpoise noise pollution, pardon the pun, on purpose. Please hear the clarion calls of cetaceans all around the Scottish coast - stop noise pollution from salmon farms now."

According to the Hebridean Whale & Dolphin Trust, the waters of the Hebrides are one of the most important marine habitats in Europe, home to nearly 70% of its whale, dolphin and porpoise species, in addition to basking sharks and seals **[3]**.

GAAIA is calling on MSPs to speak out loudly in support of cetacean protection by supporting an immediate ban on the use of ADDs on salmon farms **[4]**. GAAIA maintains that, at a bare minimum, all salmon farms currently using ADDs must apply for a licence including detailed evidence that "there are no satisfactory alternatives" (e.g. anti-predator nets, closed containment on land; translocation of seals; or startle devices).

"Salmon farmers are clearly caught between a rock and a hard place, between the devil and the deep blue sea," concluded Staniford. "On the one hand they can continue to shoot seals (and lose £200 million in US exports) and on the other they can continue to use ADDs. The industry must bite the bullet and immediately install anti-predator nets or move salmon farms out of the ocean."

Data compiled by Marine Scotland and obtained by GAAIA from SNH via FOI include site specific details of 119 salmon farms using ADDs (including 103 where ADDs were described as "Always On"). In comparison, 86 salmon farms did not use ADDs (1 October 2015 to 30 September 2016 is listed as the 'Application Period'; October 2015 is listed as a 'Creation Date' and 1 February 2016 to 31 January 2017 is listed as the 'Licence Period).

The latest data obtained by GAAIA from SNH via FOI reveals that there are 135 salmon farms listed as using ADDs and 70 not using ADDs (9 sites have no data available for ADD use). Of the 135 salmon farms using ADDs, 84 are listed as "ADD Always On" and 50 as not "ADD Always On" (one site has no data re. the question "ADD Always On"). Of the 135 salmon farms which reported the use of ADDs in 2016*, 67 salmon farms used an Airmar/Mon Aqua; 33 salmon farms used a used a Terecos; 32 salmon farms used an Ace Aquatech and 3 salmon farm used an OTAQ (1 February 2017 to 31 January 2018 is listed as a 'Licence Period' and 1 October 2016 to 30 September 2017 is listed as the 'Application Period').

For a full list of salmon farms using ADDs see Note **[5]** and Download SNH FOI 25 April 2017 document #7 ADDs used only.

Note that the latest Scottish Government fish farm production survey 2015 - published in September 2016 - reported 254 salmon farm sites but only 139 were active (i.e. 115 reported zero production). In other words, it seems that the vast majority of active salmon farms - perhaps over 95% - use ADDs.

Data disclosed by SNH details companies and regions which use and do not use ADDs:

Region	Company	ADD
Shetland	Cooke	Don't use
Shetland	Hjatland	Don't use
South West	Hjatland	Don't use
Outer Hebrides	Scottish Salmon Co	Ace aquatec US3
South West	Scottish Salmon Co	Ace aquatec US3
West Scotland	Scottish Salmon Co	Airmar, OTAQ Sealfance, Ace aquatec US3
South West	Scottish Salmon Co	Airmar, Ace aquatec
South West	Marine Harvest	Mon aqua, Terecos
Outer Hebrides	Marine Harvest	Don't use
West Scotland	Marine Harvest	Terecos, Airmar, Mohn aqua
Orkney and the North Coast	Scottish Sea Farms	Airmar, Ace aquatec
Shetland	Scottish Sea Farms	Mohn AquaMAG, Ace aquatec US3
West Scotland	Scottish Sea Farms	Mohn aqua, Airmar
West Scotland	Loch Duart	Airmar, Mohnaqua, Ace aquatec
Shetland	Balta	Ace aquatec, Lofitech
South West	Dawnfresh	Mon Aqua

Download the documents in full online via:

- **Download SNH FOI 25 April 2017 document #1**
- **Download SNH FOI 25 April 2017 document #2**
- **Download SNH FOI 25 April 2017 document #3**
- **Download SNH FOI 25 April 2017 document #4**
- **Download SNH FOI 25 April 2017 document #5**
- **Download SNH FOI 25 April 2017 document #6**
- **Download SNH FOI 25 April 2017 document #7**

Read more via Media Backgrounder: ADDs & Salmon Farms (May 2017) **[6]**.

Read GAAIA's formal complaint to the European Commission (7 May 2017) online here

Read GAAIA's letter to the Scottish Government, SNH and the UK Government (7 May 2017) online here

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Notes to Editors:

[1] Here's the abstract of a paper - "Large-scale underwater noise pollution from Acoustic Deterrent Devices (ADDs) on the west coast of Scotland" - presented on 1 May 2017 at the European Cetacean Society conference in Denmark (read conference abstracts online here):

Monday 1 May 2017

Large-scale underwater noise pollution from Acoustic Deterrent Devices (ADDs) on the west coast of Scotland

Denise Risch[3], Charlotte Rose Findlay[1,2], Hayden Ripple[2], Steven Benjamins[3], Ben Wilson[3], Frazer Coomber[4]

(1) Joint Nature Conservation Committee, Aberdeen, AB, United Kingdom.
(2) University of St Andrews; Scottish Association for Marine Science.
(3) Scottish Association for Marine Science.
(4) Hebridean Whale and Dolphin Trust.

Expansion of the aquaculture industry off Scotland has lead to conflicts with marine predators such as seals, which predate species bred in aquaculture facilities and cause damage to equipment. To mitigate this, non-lethal management tools have been developed, the most popular of which are Acoustic Deterrent Devices (ADDs) or 'seal scarers'. ADDs broadcast loud, aversive sounds within the hearing range of the target species (i.e. seals). However their success in addressing the issue has been variable. In addition their unregulated use in Scotland could pose unintended ecological impacts to non-target species such as the harbour porpoise (*Phocoena phocoena*). This study aimed to address the gap in knowledge on the extent of ADD use in the Scottish aquaculture industry, and to quantify the scale of their acoustic presence in Scottish waters. Acoustic data collected during cetacean line-transect surveys carried out by the Hebridean Whale and Dolphin Trust (HWDT) were used to map the acoustic presence of ADDs across the west coast between 2006 and 2015. Results found a significant spatial and temporal increase in ADD presence across the west coast study regions (detections per unit effort; 2006 = 0.5%; 2015 = 15.3%). This study highlights the large-scale extent of noise from ADDs use at fish farms across Scotland and illustrates its gradual increase over the study period. The increasing ensonification of the Scottish coastline which includes multiple protected areas for marine mammals, due to these devices may pose a risk to both target and non-target species (e.g. odontocete cetaceans) that use these areas either seasonally or year round. This study is one of the first to highlight the large-scale extent of ADD noise pollution and its overlap with marine mammal habitat. This information is crucial in order to effectively address European legislation related to underwater noise and marine species protection.

[2] Read GAAIA's complaint to the European Commission online here

Includes:

Challenged in Court:

A report to Marine Scotland - "Investigations on Seal Depredation at Scottish Fish Farms" - published in 2013 stated:

> Under EU and domestic legislation, the deliberate or reckless disturbance of cetaceans (and other European Protected Species) in Scotland is prohibited. At present Scottish Natural Heritage (SNH), as the statutory nature conservation body, is consulted on fish farm site licence applications in Scotland. SNH policy towards the use of ADDs used at new sites is currently based on whether or not the site is considered important for cetaceans. However, it is still unclear whether or not the use of ADDs more widely might be construed as the deliberate or reckless disturbance of cetaceans, and the uncertainty seems unlikely to be clarified until the current interpretation is challenged in court. This means that it is conceivable that the existing permitted use of ADDs in Scotland could be challenged, perhaps leading to more widespread restrictions on their use. Furthermore, under recently agreed Global Standards for Salmon Aquaculture, initiated by the WWF and agreed by over 500 international stakeholders, ADDs are intended to be phased out in salmon aquaculture within three years of the publication of the Salmon Aquaculture Dialogue[13] (SAD) by those companies that sign up to the Standards. The SAD proscription of ADDs appears to be based on the assumption that all such deterrents are inimical to cetacean conservation. An exception to this may be granted where new technologies can be shown to present less risk to non-target populations.

[3] Watch a recent BBC News report online here:

HWDTs Science Officer, Dr Lauren Hartny-Mills, on the BBC Breakfast Sofa

A SNH report - "The use of harbour porpoise sightings and acoustic data to inform the development of the Inner Hebrides and the Minches draft Special Area of Conservation on the west coast of Scotland" - shows how the West coast of Scotland is vitally important for harbour porpoises in particular:

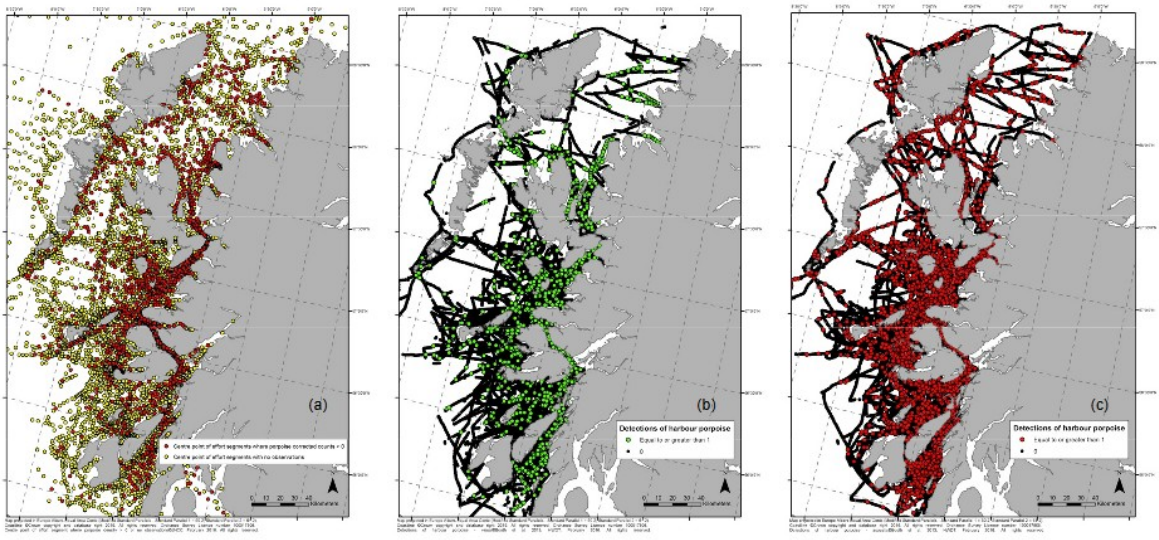


Figure 1a-c. Maps showing (a) Heinänen and Skov (2015a) 'sightings' data (effort segments with harbour porpoise corrected counts >0); (b) Booth *et al.* (2013) sightings of harbour porpoise during visual surveys (black dots indicate where no animals sighted, and green dots indicate where one or more animals were sighted; (c) Booth (2010) detections of harbour porpoise during acoustic surveys (black dots indicate where no animals were detected, and red dots indicate where one or more animals were detected).

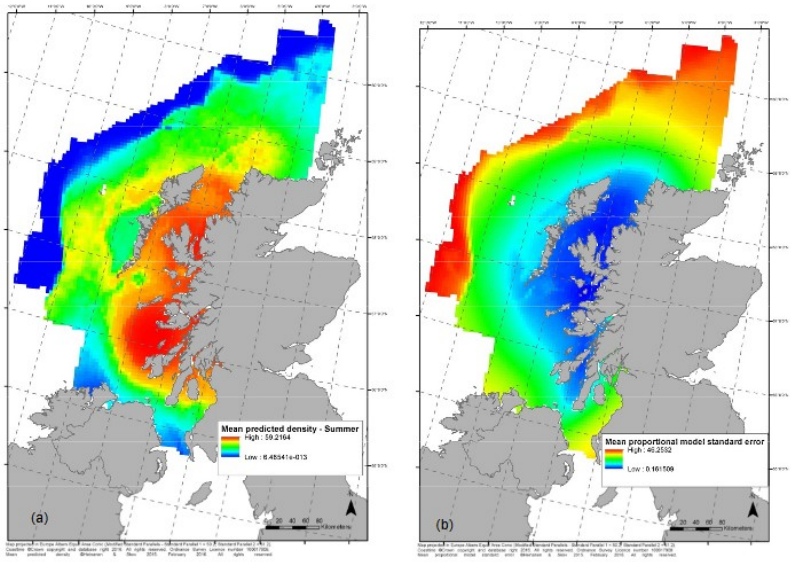


Figure 4: (a) Mean predicted density for all years (1994-2011) during summer in West Scotland MU (increasing density from blue to red); (b) Model confidence - mean proportional model standard error^3 with decreasing confidence from blue to red(from Heinänen and Skov (2015b)).

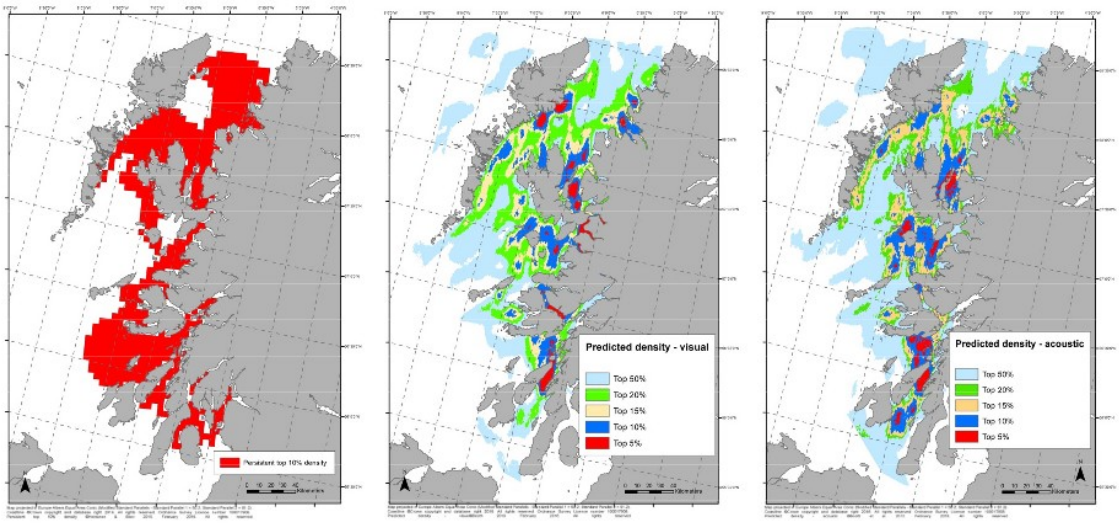
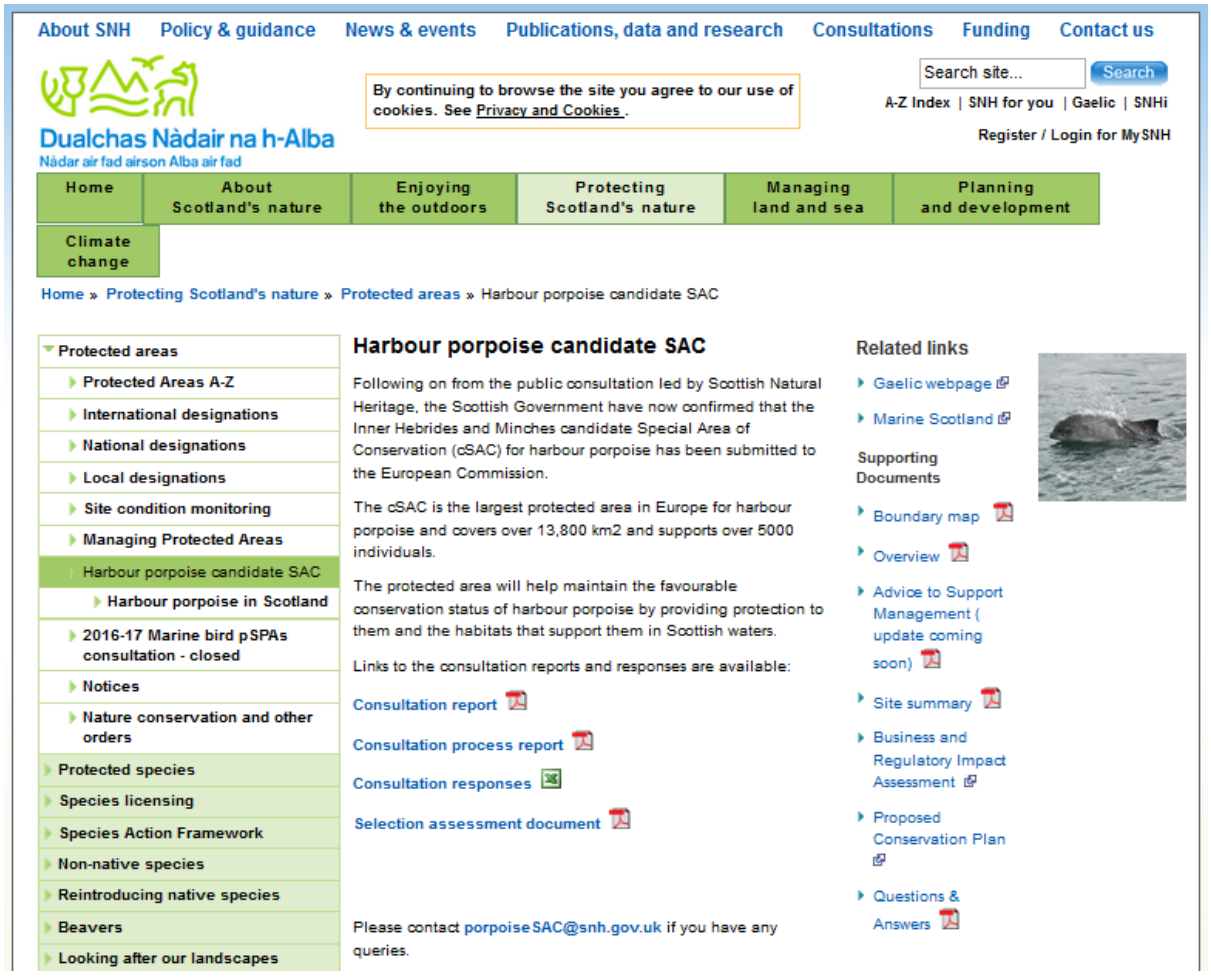


Figure 6. Outputs from West Scotland shelf (left, Heinänen & Skov, 2015) and west coast of Scotland analyses (Booth *et al.* 2013) showing areas of predicted high density of harbour porpoise

Hence in 2016 a Special Area of Conservation for harbour porpoise (Inner Hebrides & the Minches) was submitted via SNH to the EC:



[**4**] GAAIA is calling on MSPs to support a motion calling for the immediate ban on ADDs on salmon farms to protect cetaceans. In particular:

Maureen Watt MSP is species champion for the harbour porpoise
Kenneth Gibson MSP is species champion for the blue whale
Peter Chapman MSP is species champion for the bottlenose dolphin
James Dornan MSP is species champion for the common dolphin
Richard Leonard MSP is species champion for the humpback whale
Richard Lochhead MSP is species champion for the minke whale
Tavish Scott MSP is species champion for the orca
Neil Bibby MSP is species champion for the Risso's dolphin
Kevin Stewart MSP is species champion for the Sei whale
Christina McKelvie is species champion for the white beaked dolphin

[5] Here's the latest list (1 February 2017 to 31 January 2018 is listed as a 'Licence Period' and 1 October 2016 to 30 September 2017 is listed as the 'Application Period') detailing 135 salmon farms using ADDs (including 84 listed as "ADDs Always On") - Download SNH FOI 25 April 2017 document #7 ADDs used only:

	FishFarmName	Reg #	SiteOwner	ADDUsed	ADDCount	ADDModel	ADDFreq	ADDOutpı	ADDAlwaysOn
2	Aird	FS0594	The Scottish Salmon Company	TRUE	2	ACE Aquatec US3	12	195 to 197	FALSE
3	Ardcastle	FS0818	The Scottish Salmon Company	TRUE	2	ACE AQUATEC US3	14	195 to 197	FALSE
4	Ardchattan Bay	FS0197	Dawnfresh Farming Ltd	TRUE	6	Mohn Aqua	10.00	192 dB re :	FALSE
5	Ardgadden	FS0851	The Scottish Salmon Company	TRUE	2	ACE Aquatec US3	14	195 to 197	FALSE
6	ARDINTOUL	FS0245	Marine Harvest (Scotland) Ltd	TRUE	6	Terecos DSMS 4	9.3	135-178	TRUE
7	Ardnish	FS0249	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS 4	9.3	135-178	FALSE
8	Ardyne	FS0559	The Scottish Salmon Company	TRUE	2	ACE Aquatec US3	16	194 to 197	TRUE
9	Badcall Bay	FS0067	Northern Salmon Management (	TRUE	18	Air Db Plus 11	60	180	TRUE
10	Bagh Dail Nan Cean	FS0805	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS 4	9.3	135-178	TRUE
11	Bay of Cleat North	FS1080	Cooke Aquaculture Scotland	TRUE	10	Ace Aquatec	10-20KHz	195dbre1ı	TRUE
12	Bight of Bellister, Du	FS1121	Scottish Sea Farms Ltd	TRUE	12	Ace Aquatec US3	12	195 to 197	TRUE
13	Burrastow	FS0666	Cooke Aquaculture Scotland	TRUE	6	Ace Aquatec	10-20KHz	195dbre1ı	TRUE
14	CAIRIDH	FS0252	Marine Harvest (Scotland) Ltd	TRUE	8	Terecos DSMS 4	9.3	135-178	TRUE
15	Calbha	FS0068	Northern Salmon Management (	TRUE	14	Airmar Db Plus 11	60	180	TRUE
16	CAMAS GLAS	FS0413	Marine Harvest (Scotland) Ltd	TRUE	20	Airmar	10	0	TRUE
17	Cloudin	FS0088	Cooke Aquaculture Scotland	TRUE	12	Ace Aquatec	10-20KHz	195dbre1ı	FALSE
18	CREAG AN T SAGAIR	FS0605	Marine Harvest (Scotland) Ltd	TRUE	4	Terecos DSMS 4	9.3	135-178	TRUE
19	Druimyeon Bay	FS0336	The Scottish Salmon Company	TRUE	4	ACE Aquatec US3	14	195 to 197	FALSE
20	Drumbeg (Loch Dhro	FS0487	Northern Salmon Management (	TRUE	6	Airmar Db Plus 11	6	180	TRUE
21	DUICH	FS0248	Marine Harvest (Scotland) Ltd	TRUE	8	Terecos DSMS 4	9.3	135-178	TRUE
22	Dunstaffnage	FS0299	Scottish Sea Farms Ltd	TRUE	9	Airmar DB2	10	197	TRUE
23	Dury Voe	FS0033	Scottish Sea Farms Ltd	TRUE	10	Mohn aqua MAG	10	198	TRUE
24	East Tarbert Bay	FS1010	The Scottish Salmon Company	TRUE	2	ACE Aquatec US3	14	195 to 197	FALSE

25	Eilean Coltair	FS0777	Kames Fish Farming Ltd	TRUE	1	Terecos DSMS 4	9.3	179	FALSE
26	Eilean Grianain	FS1176	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS4	9.3	135-178	TRUE
27	Etive 6	FS1288	Dawnfresh Farming Ltd	TRUE	10	Mohn Aqua	10.00	192 dB re :	TRUE
28	Eughlam	FS1233	The Scottish Salmon Company	TRUE	15	ACE Aquatec US3	20	195 to 197	TRUE
29	Fada	FS0858	Scottish Sea Farms Ltd	TRUE	12	Mohn Aqua Airmar I	10	197	TRUE
30	Fishnish (A)	FS0427	Scottish Sea Farms Ltd	TRUE	8	Mohn Aqua Airmar I	10	197	TRUE
31	Fishnish (B)	FS0694	Scottish Sea Farms Ltd	TRUE	8	Mohn Aqua Airmar I	10	197	TRUE
32	Fiunary	FS0696	Scottish Sea Farms Ltd	TRUE	8	Mohn Aqua MAG Se	10	197	FALSE
33	Foreholm	FS0936	Scottish Sea Farms Ltd	TRUE	10	Mohn aqua MAG	10	198	TRUE
34	Furnace	FS0567	The Scottish Salmon Company	TRUE	2	ACE Aquatec US 3	12	195 to 197	FALSE
35	Geasgill	FS0839	The Scottish Salmon Company	TRUE	12	OTAQ SF3	10	196	FALSE
36	Glenan Bay	FS0590	The Scottish Salmon Company	TRUE	3	Ace Aquatec US 3	12	195 to 197	FALSE
37	Gob a Bharra	FS0683	The Scottish Salmon Company	TRUE	2	Ace Aquatec US 3	12	195 to 197	FALSE
38	Gometra	FS1267	The Scottish Salmon Company	TRUE	15	ACE Aquatec US3	12	195 to 197	TRUE
39	Gorsten	FS0237	Marine Harvest (Scotland) Ltd	TRUE	12	Terecos DSMS 4	9.3	135-178	TRUE
40	Gousam	FS0998	The Scottish Salmon Company	TRUE	4	Airmar db Plus 11	6.5	195 to 198	FALSE
41	Gravir	FS0242	The Scottish Salmon Company	TRUE	3	Airmar dB Plus 11	6.5	195 to 198	FALSE
42	Greanamul	FS1282	The Scottish Salmon Company	TRUE	4	Airmar db 11 plus	6.5	195 to 198	FALSE
43	GRESHORNISH	FS0015	Marine Harvest (Scotland) Ltd	TRUE	12	Terecos DSMS 4	9.3	135-180	TRUE
44	Grey Horse Channel	FS1122	Marine Harvest (Scotland) Ltd	TRUE	7	Terecos DSMS 4	9.3	135-178	TRUE
45	Groatay	FS1083	Marine Harvest (Scotland) Ltd	TRUE	14	Terecos DSMS4	9.3	135-178	TRUE
46	HELLISAY	FS1261	Marine Harvest (Scotland) Ltd	TRUE	2	mon aqua airmar II	10	135-178	TRUE
47	Holms Geo	FS0749	Scottish Sea Farms Ltd	TRUE	12	Ace Aquates US3	12	195-197	TRUE
48	Inch Kenneth	FS0593	The Scottish Salmon Company	TRUE	3	AIRmar bb PLUS 11	1.8 per ch	198	FALSE
49	INVASION BAY	FS0212	Marine Harvest (Scotland) Ltd	TRUE	3	Terecos DSMS 4	9.3	135-178	TRUE
50	ISLE EWE	FS1084	Marine Harvest (Scotland) Ltd	TRUE	12	MON AQUA AIRMAF	10	135-178	TRUE
51	Kames Bay (east)	FS0462	Kames Fish Farming Ltd	TRUE	1	Terecos DSMS4	5	179	FALSE
52	Kames Bay (west)	FS0271	Kames Fish Farming Ltd	TRUE	1	DSMS4 Terecos	5	179	FALSE
53	Kempie Bay	FS0359	Scottish Sea Farms Orkney and E	TRUE	4	Airmar dbII	10.3	192	TRUE
54	Kenmore	FS0050	The Scottish Salmon Company	TRUE	2	ACE Aquatec US3	12	195 to 197	FALSE
55	Kerrera B	FS0663	Scottish Sea Farms Ltd	TRUE	13	Mohn Aqua Airmar I	10	197dB	TRUE
56	KINGAIRLOCH	FS0241	Marine Harvest (Scotland) Ltd	TRUE	1	Terecos DSMS4	9.3	135-178	TRUE
57	Kishorn A (South)	FS0709	Scottish Sea Farms Ltd	TRUE	12	Mohn Aqua Airmar I	10	197	TRUE
58	Kishorn B (North)	FS0804	Scottish Sea Farms Ltd	TRUE	16	Mohn Aqua Airmar I	10	197	TRUE
59	Kishorn West	FS1274	Scottish Sea Farms Ltd	TRUE	14	Mohn Aqua Airmar I	10	197	TRUE
60	Kyles Vuia	FS0927	The Scottish Salmon Company	TRUE	4	Airmar dB Plus 11	6.5	195 to 198	FALSE
61	Lamlash Bay	FS0423	The Scottish Salmon Company	TRUE	2	Ace Aquatec US3	12	195 to 197	FALSE
62	LEVEN	FS0244	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS 4	9.3	135-178	TRUE
63	LINNHE	FS0240	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS 4	9.3	135-178	TRUE
64	Lismore North	FS0745	Scottish Sea Farms Ltd	TRUE	4	Mohn Aqua Airmar I	10	197	TRUE
65	Lismore West	FS0914	Scottish Sea Farms Ltd	TRUE	10	Mohn Aqua Airmar I	10	197	TRUE
66	Loch A Chairn Bhain	FS0621	Northern Salmon Management (	TRUE	14	Airmar Db Plus 11	60	180	TRUE
67	Loch Carnan	FS1280	Loch Duart Ltd	TRUE	12	AIRMAR / MAG - MC	10	198	TRUE
68	Loch Creran (B)	FS0426	Scottish Sea Farms Ltd	TRUE	14	Mohn Aqua Airmar I	10	197	TRUE
69	Loch Creran (D)	FS1047	Scottish Sea Farms Ltd	TRUE	14	Mohn Aqua Airmar I	10	197	FALSE
70	Loch Laxford	FS0065	Northern Salmon Management (	TRUE	18	Airmar Db Plus 11	60	180	TRUE
71	Loch Spelve (A)	FS0634	Scottish Sea Farms Ltd	TRUE	10	Airmar DBII	10	197	TRUE
72	Loch Spelve (B)	FS0253	Scottish Sea Farms Ltd	TRUE	10	Mohn Aqua Airmar I	10	197	TRUE
73	Lochmaddy	FS0853	Loch Duart Ltd	TRUE	20	AIRMAR / MAG - MC	10	198	TRUE
74	Loura Voe	FS0699	Scottish Sea Farms Ltd	TRUE	10	Mohn Aqua MAG	10	198	TRUE
75	MacLean's Nose	FS0599	Marine Harvest (Scotland) Ltd	TRUE	1	Terecos DSMS4	9.3	135-178	FALSE
76	MAOL BAN	FS0519	Marine Harvest (Scotland) Ltd	TRUE	8	Terecos DSMS 4	9.3	135-178	TRUE
77	Marulaig Bay	FS0865	Marine Harvest (Scotland) Ltd	TRUE	4	Terecos DSMS4	9.3	135-178	TRUE
78	Meall Mhor	FS0091	The Scottish Salmon Company	TRUE	2	ACE Aquatec US 3	12	195 to 197	FALSE
79	Mid Taing	FS0167	Cooke Aquaculture Scotland	TRUE	6	Ace Aquatech	10-20KHz	195dbre1u	TRUE
80	Nevis A	FS0430	Scottish Sea Farms Ltd	TRUE	12	Mohn Aqua airmar I	10	197	TRUE
81	Nevis B	FS0616	Scottish Sea Farms Ltd	TRUE	12	Mohn Aqua Airmar I	10	197	TRUE
82	Nevis C (Ardintigh)	FS0546	Scottish Sea Farms Ltd	TRUE	12	Mohn Aqua Airmar I	10	197	TRUE
83	North Moine	FS0356	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS 4	9.3	135-178	FALSE
84	North Shore	FS1033	Marine Harvest (Scotland) Ltd	TRUE	6	Terecos DSMS-4	9.3	135-178	TRUE
85	Oldany	FS0933	Northern Salmon Management (	TRUE	10	Airmar Db Plus 11	60	180	TRUE
86	Ornish	FS0531	Marine Harvest (Scotland) Ltd	TRUE	2	ACE AQUATEC	10	135 -180	TRUE
87	Ouseness	FS1209	Cooke Aquaculture Scotland	TRUE	10	Ace Aquatec	10-20KHz	195dbre1u	TRUE
88	Outer Bay (Loch Droi	FS0671	Northern Salmon Management (	TRUE	6	Airmar Db Plus 11	60	180	TRUE
89	Outer Eport	FS1254	The Scottish Salmon Company	TRUE	2	Airmar db11 plus	6.5	195 to 198	FALSE

90	Petersport	FS0340	The Scottish Salmon Company	TRUE	14	OTAQ SealFence	20	195	FALSE
91	Plocrapol	FS1256	The Scottish Salmon Company	TRUE	4	Airmar db 11 plus	6.5	195 to 198	FALSE
92	Polle Na Gille	FS0629	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS 4	9.3	135-178	TRUE
93	Port Na Cro	FS0859	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS 4	9.3	135-178	TRUE
94	Portree	FS0708	The Scottish Salmon Company	TRUE	4	ACE Aquatec US3	12	195 to 197	FALSE
95	Puldrite	FS0813	Scottish Sea Farms Orkney and E	TRUE	10	Airmar dbII	10.3	192	TRUE
96	Quarry Point	FS0698	The Scottish Salmon Company	TRUE	2	ACE Aquatec US 3	12	195 to 197	FALSE
97	Raineach	FS1263	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS4	9.3	135-178	TRUE
98	Reibinish	FS1277	The Scottish Salmon Company	TRUE	2	Airmar db11 plus	6.5	195 to 198	FALSE
99	Rubha Stillaig	FS0894	The Scottish Salmon Company	TRUE	2	Ace Aquatec US 3	12	195 to 197	FALSE
100	Scadabay	FS1293	The Scottish Salmon Company	TRUE	2	Airmar db11 plus	6.5	195 to 198	FALSE
101	Scallastle	FS0209	Scottish Sea Farms Ltd	TRUE	8	Mohn Aqua Airmar I	10	197dB	FALSE
102	SCONSER	FS0602	Marine Harvest (Scotland) Ltd	TRUE	12	Terecos DSMS 4	9.3	135-178	FALSE
103	Scotasay	FS0502	Marine Harvest (Scotland) Ltd	TRUE	2	Terecos DSMS-4	9.3	135-178	TRUE
104	SEAFORTH	FS1042	Marine Harvest (Scotland) Ltd	TRUE	2	TERECOS DSMS-4	9.3	135-178	TRUE
105	Sgeir Dughall	FS1262	The Scottish Salmon Company	TRUE	2	ACE Aquatec US3	12	195 to 197	FALSE
106	Sgian Dubh	FS1281	The Scottish Salmon Company	TRUE	2	ACE Aquatec US3	16	194 to 197	FALSE
107	Shapinsay	FS0860	Scottish Sea Farms Orkney and E	TRUE	8	Ace Aquatec US3	20	195	TRUE
108	Shuna Castle	FS0465	Kames Fish Farming Ltd	TRUE	1	Terecos DSMS4	5	179	FALSE
109	Shuna SW (Rubhan T	FS1290	Kames Fish Farming Ltd	TRUE	2	Terecos DSMS 4	9.3	135 – 178	TRUE
110	Sian Bay	FS0361	Scottish Sea Farms Orkney and E	TRUE	10	Airmar dbII	10.3	192	TRUE
111	Slocka Ronas Voe	FS1018	Scottish Sea Farms Ltd	TRUE	14	Mohn aqua MAG	10	198	TRUE
112	Snarraness	FS0400	Scottish Sea Farms Ltd	TRUE	8	Ace Aquatec US3	12	195 to 197	TRUE
113	Sound of Harris	FS1260	Loch Duart Ltd	TRUE	14	AIRMAR / MAG - MC	10	198	TRUE
114	South Sound	FS0183	Scottish Sea Farms Ltd	TRUE	14	Mohn Aqua Mag	10	198	TRUE
115	Strome	FS0570	The Scottish Salmon Company	TRUE	4	ACE AQUATEC US3	12	195 to 197	FALSE
116	Strone	FS1056	The Scottish Salmon Company	TRUE	2	ACE Aquatec US3	16	194 to 197	FALSE
117	STULAIGH	FS1259	Marine Harvest (Scotland) Ltd	TRUE	16	Airmar	10	135-178	TRUE
118	Tabhaigh	FS1297	Marine Harvest (Scotland) Ltd	TRUE	4	Terecos DSMS-4	9.3	135-178	TRUE
119	Tanera	FS0549	Scottish Sea Farms Ltd	TRUE	24	Mohn Aqua MAG Se	10	197	TRUE
120	Taranaish	FS0752	The Scottish Salmon Company	TRUE	4	Airmar dB Plus 11	12	195 to 198	TRUE
121	Tarbert South	FS0767	The Scottish Salmon Company	TRUE	2	ACE Aquatec	12	195 to 197	FALSE
122	Teisti Geo	FS1093	Scottish Sea Farms Ltd	TRUE	14	Mohn aqua MAG	10	198	TRUE
123	TORRIDON	FS0234	Marine Harvest (Scotland) Ltd	TRUE	10	Terecos DSMS4	9.3	135-178	TRUE
124	Trenay	FS0796	The Scottish Salmon Company	TRUE	2	Airmar db 11 plus	6.5	198	FALSE
125	Trilleachan Mor	FS1118	The Scottish Salmon Company	TRUE	3	Airmar dB Plus 11	6.5	194 to 198	FALSE
126	Tuath	FS0617	The Scottish Salmon Company	TRUE	12	OTAQ SF3	10	196	FALSE
127	Uiskevagh	FS1255	The Scottish Salmon Company	TRUE	4	Airmar db11 plus	6.5	198	FALSE
128	Vacasay	FS1091	The Scottish Salmon Company	TRUE	4	Airmar dB Plus 11	12	195 to 198	FALSE
129	Vidlin North	FS0608	Scottish Sea Farms Ltd	TRUE	20	Mohn Aqua MAG	10	198	TRUE
130	Vuia Beag	FS0411	The Scottish Salmon Company	TRUE	2	Airmar dB Plus 11	6.5	195 to 198	FALSE
131	Vuia Mor	FS1103	The Scottish Salmon Company	TRUE	4	Airmar dB Plus 11	6.5	195 to 198	FALSE
132	Walters (East Lismor	FS0875	Scottish Sea Farms Ltd	TRUE	11	Mohn Aqua Airmar /	10	197	TRUE
133	Wester Ross Fisherie	FS0057	Northern Salmon Management (	TRUE	12	Airmaar Db Plus 11	1	198	TRUE
134	Wester Ross Fisherie	FS0517	Northern Salmon Management (	TRUE	8	Airmaar Db Plus 11	10	198	TRUE
135	Wester Ross Fisherie	FS0675	Northern Salmon Management (	TRUE	8	Airmaar Db Plus 11			
136	Wester Ross Fisherie	FS0056	Northern Salmon Management (	TRUE	14	Airmar Db Plus 11	10	198	TRUE

[6] GAAIA's Media Backgrounder: ADDs & Salmon Farms (May 2017) includes:

Scientific research published by the Scottish Aquaculture Research Forum in 2010 showed that ADDs could be detected by porpoises 14.7 km from the sound source (i.e. salmon farm).

2.3.2.1 Sound Fields

Figure 9 shows a map of ADD received levels in the Sound of Mull in 2008. It is clear that received levels were elevated well above background at ranges of many km from fish farm sites. From this and from Figure 9 its clear that ADDs can be detected at ranges of up to 14.7 km and that with several fish farms using ADDs there, ADDs can be detected through most of the Sound of Mull. Previous studies of the effects of ADDs on porpoise distributions have not measured received levels directly however research in the Bay of Fundy (Johnston, 2002) estimated that porpoises would be excluded from an ADD at received levels of 125dB.

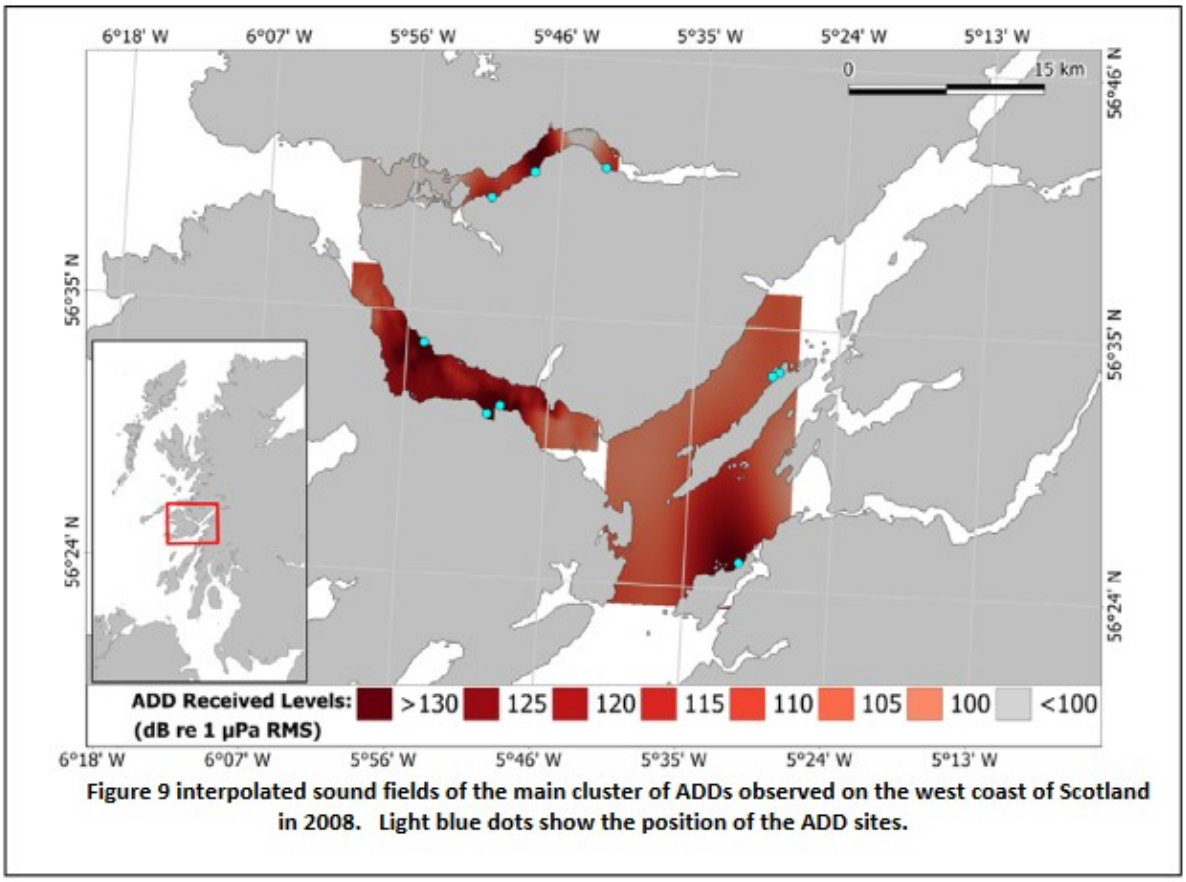
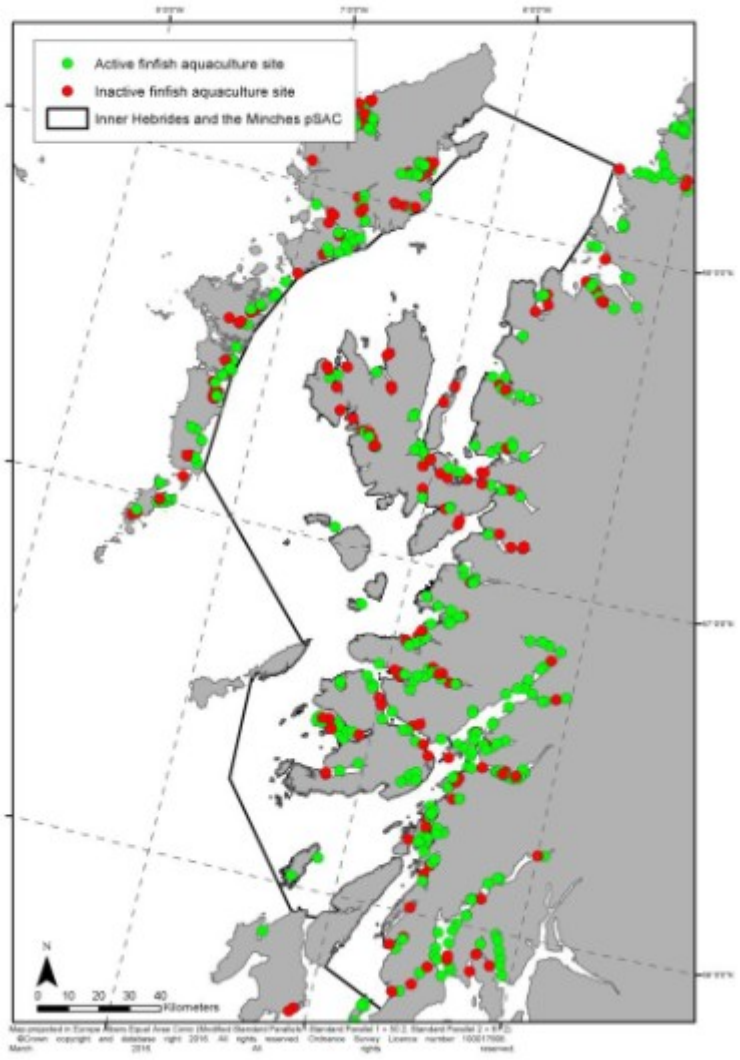


Figure 9 interpolated sound fields of the main cluster of ADDs observed on the west coast of Scotland in 2008. Light blue dots show the position of the ADD sites.

In 2015, Scottish Natural Heritage (SNH) and Marine Scotland (MS) raised the issue of whether the use of Acoustic Deterrent Devices (ADDs) on salmon farms could be deemed an offence via 'reckless disturbance'. SNH expressed the view that mitigation measures could be applied but in practice "all would have logistical or financial implications for aquaculture companies that would render them, for the most part, infeasible to apply". It was suggested that the tightening of ADD specifications and guidance on ADD use with the salmon farming industry's best practice guidelines "may not be palatable to the industry".

Here's a map - published by SNH and the Scottish Government via "Inner Hebrides and the Minches Proposed SAC - advice to support management" - showing dozens of salmon farms within the Inner Hebrides and the Minches SAC:

Map 2. *Finfish aquaculture sites in relation to the Inner Hebrides and the Minches pSAC*



Juxtapose the location of salmon farms with a map (published by SNH) of sightings of harbour porpoise calves and juveniles and the problem becomes clear:

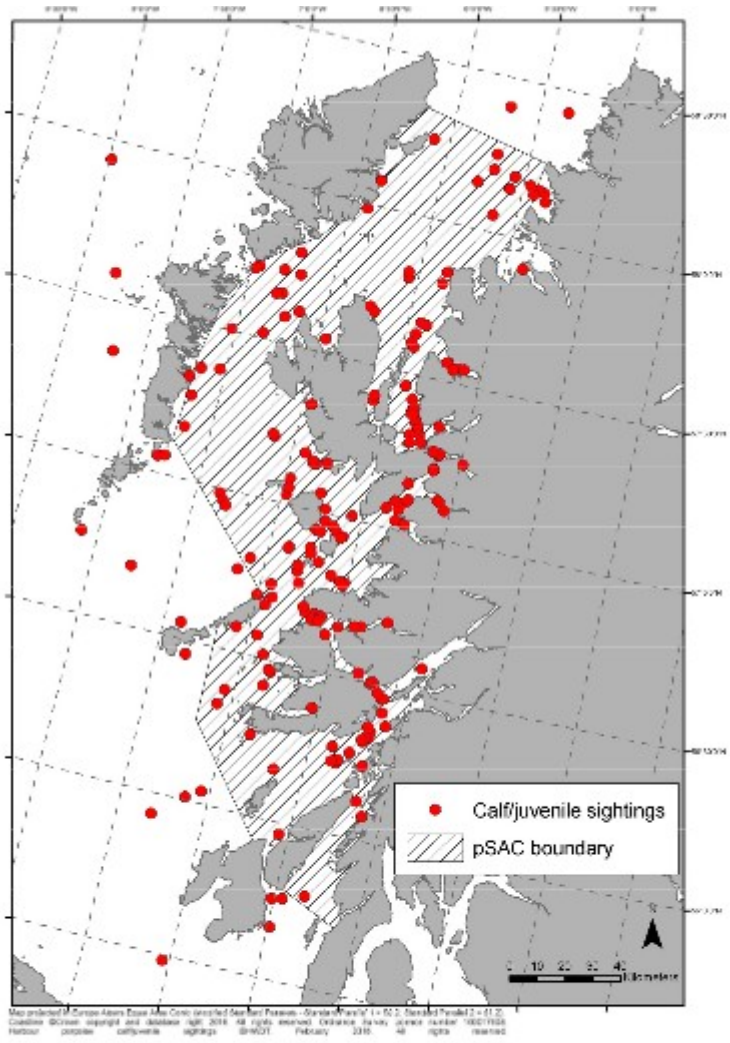


Figure 9. Map showing recorded sightings of calves and juveniles overlain on map of the site boundary. Note that these data show the locations at which harbour porpoise calves and juveniles were recorded as part of HWDT surveys. These data have not been corrected for effort.

A Scottish Government report - "Evaluating and Assessing the Relative Effectiveness of Acoustic Deterrent Devices and other Non-Lethal Measures on Marine Mammals" - published in 2014 included:

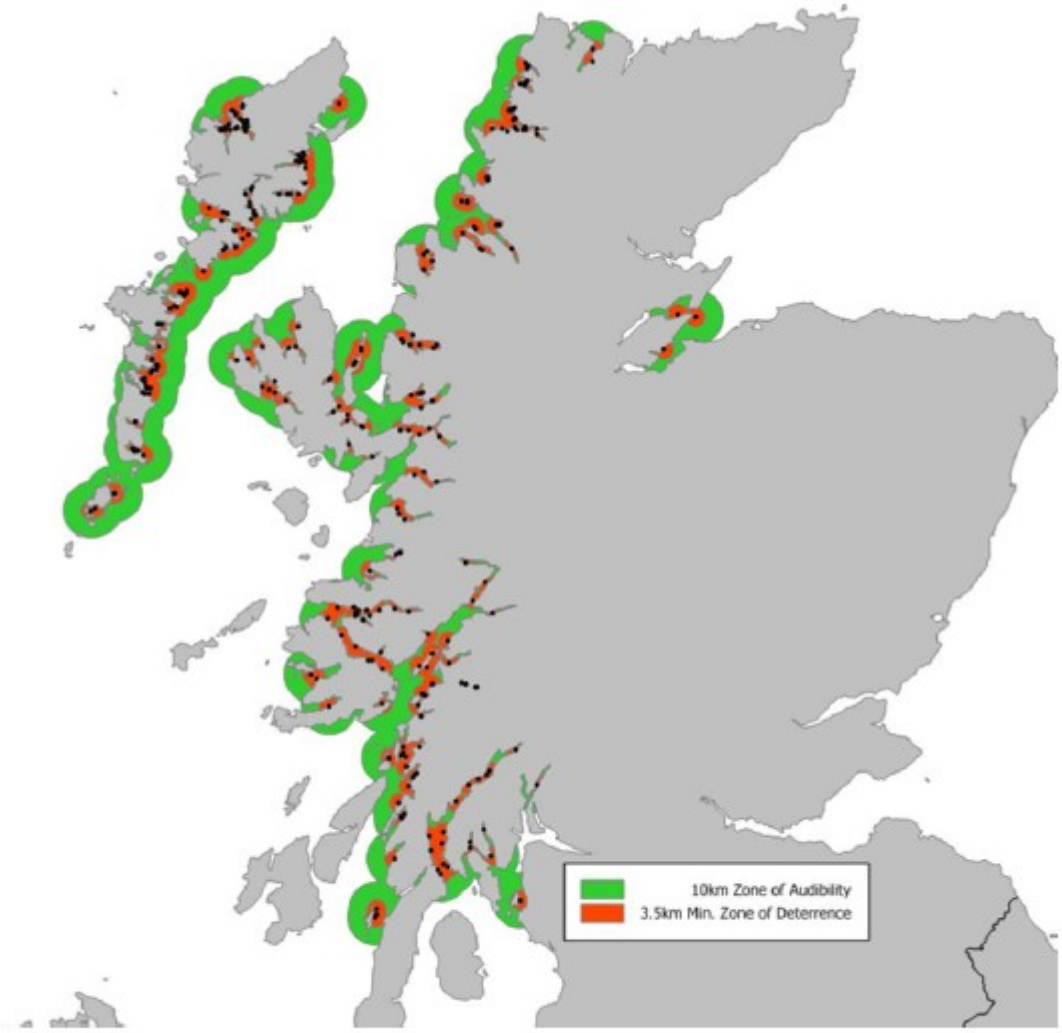


Figure 5 Map of Potential Extent of ADD Audibility to Harbour Porpoise (Mainland and Hebrides)

"It is our view that continuous noise emission from ADDs at fish farm sites is not best practice," stated an undated report "Inner Hebrides and the Minches Proposed SAC - advice to support management" published by SNH and the Scottish Government. "In areas of higher cumulative risk to the Conservation Objectives (e.g. areas with larger numbers of fish farms within straits, sounds and embayments where ADD use may limit access to these areas), further measures to reduce ADD noise emission should be considered via ongoing discussions with industry". "The use of ADDs for predator control at salmon farms may require an EPS licence," stated the report (believed to be dated 2016).

In November 2016, SNH presented in a meeting with Marine Scotland "maps illustrating the range of audibility of ADDs in NW Scotland, and increasing persistent detection over the last decade; Areas within cSAC which recent studies have identified as being ensonified".

In November 2016, minutes of a meeting between SNH and Marine Scotland reported that "recent legal advice received by Marine Scotland on the definition of 'reckless'....was not definitive but, in case law, implied 'culpable indifference and blameless disregard'". "Examples of recklessness in a driving context were also given," reported the minutes. "It

was Marine Scotland's opinion, on the basis of this advice that ADD use by the aquaculture sector, is not 'reckless', the intention of ADD use being different for aquaculture to that for other industries where ADDs may be applied to 'deliberately' scare/disturb EPS (cetaceans)."

"Marine Scotland considered that, unless there was an identified negative effect of ADDs used in aquaculture upon EPS species, and that operators had been made aware of the negative consequences of their actions, potentially via guidance which informed operators that what they were doing could disturb cetaceans, and provided them with routes by which they might avoid this, it would be difficult to infer recklessness," continued the minutes of a meeting between SNH and Marine Scotland in November 2016. "Further to this, [named redacted] argued that since ADD use for aquaculture was (in Marine Scotland opinion) not, by this token, reckless and not therefore a criminal offence, there was no basis for introducing an EPS licensing regime. Rather, regulators should promote good practice to help achieve safeguard of EPS."

The minutes of a meeting between SNH and Marine Scotland in November 2016 continued:

> SNH questioned this interpretation, indicating that the objective of the EPS legislation was to minimise or avoid disturbance and harm to protected species and, given our understanding of the potential risks to cetaceans from exposure to certain levels of underwater noise, that a reasonable interpretation of the legislation and accompanying guidance would conclude that disturbance through ADD use (irrespective of the sector employing it) falls within its scope. SNH further queried the interpretation of 'reckless / deliberate' for use of ADDs, where there has been widespread discussion with industry on potential risks to EPS, such that an operator would be 'aware of the likelihood that disturbance would result from his actions…'.
> **Action 1. MS ([redacted] or [redacted]).** To provide SNH with a copy of the legal question raised by MS and the advice received from lawyers on defining reckless behaviour and written confirmation of how MS interpret that advice (as set out in the meeting). Also in relation to Reg 39 (2) issue raised later.
> **Action 2. SNH (CT).** To investigate the potential for SNH to obtain a separate legal opinion on defining 'reckless / deliberate behaviour' (in the context of the EPS) and perhaps also in relation to Reg 39 (2), noting that SNH lawyers may not wish to offer advice on the same question asked by MS.
>
> [redacted] & [redacted] indicated that legal advice received on the definition of 'reckless' within the MS Marine EPS Guidance would, need to be fully considered.

The minutes of a meeting between SNH and Marine Scotland in November 2016 concluded:

> - **Action 7. SNH (CT/All).** To compile a list of questions for MS and also to include, for further discussion, our initial views on possible approaches that could be implemented (whether via EPS legislation or otherwise) to address the concerns we are raising. See Annexes 1 and 2.
> - SNH emphasised the opinion that ADD use by the aquaculture industry, and the associated EPS licensing issues, is an issue of growing concern, that needs to be addressed to ensure safeguard of HP and compliance with European legislation.
> - **Action 8. MS** To provide a timetable to SNH for addressing the points raised at today's meeting.
>
> George Lees.
> 8 December 2016.

The Annexes included:

Annex 1. Actions / questions for Marine Scotland in relation to ADD use by the aquaculture sector.

1. MS to provide SNH with a copy of the legal question posed and the advice received from lawyers on defining reckless behaviour (and on Reg 39 (2)) and provide written confirmation of how MS interpret that advice (Actions 1 and 6).

2. The aquaculture industry widely acknowledges that ADDs can impact cetaceans. Our understanding is that the legal advice received by MS regarding the definition of reckless is 'culpable indifference and blameless disregard'. Does MS conclude that an ADD left on continuously throughout the production cycle, with no mitigation, and given common understanding of potential risk to cetaceans, is not a reckless action which could result in the disturbance of cetaceans? If so then what is the justification for this conclusion?

3. MS to clarify which parts of the Marine EPS guidance they intend to update e.g. the definition of reckless and/ or description of Reg 39(2); and set out timescales / process for this revision (Action 3).

4. In areas of higher cumulative pressure it seems logical that there is an increased risk to cetacean species. In some areas this could theoretically result in their exclusion from significant areas for significant periods of time. Do MS agree this is a reasonable conclusion and if so what are the implications in relation to Regulation 39 (and within the HP cSAC, the ability to achieve Conservation Objectives on avoiding significant disturbance and maintaining access to all parts of the cSAC)?

5. Does MS consider that the concerns raised by SNH regarding ADD use for aquaculture inside and outwith the cSAC, require to be addressed? If not, what is the basis for that decision? If so, does this justify changes to current regulatory practices and do the options in annex 2 merit further consideration? Can MS clarify their timescale for providing a clear and formal policy statement that sets out the government position (Action 5 and 8)

Annex 2. Potential approaches for addressing concerns about impact of ADD use on cetaceans and ensuring compliance with legislative requirements.

- **Options for EPS licensing for all aquaculture ADDs:**
  - Introduce a 'general licence' which permits the use of ADDs in less sensitive locations, provided that they comply with general mitigation conditions (e.g. advertised on website and promoted to industry). Note that this approach does not require any application process and therefore no information on devices is submitted, which would make future monitoring of cumulative impacts more difficult. An offence is still committed if non-compliance with conditions can be demonstrated.
  - Introduce a 'class licence' which permits use of ADDs in less sensitive locations, subject to registering devices with regulator and providing certain information (such as model, location, whether or not linked to triggering mechanism etc). Operation is permitted subject to general terms and conditions applicable to all devices covered by the Licence. An offence is committed if these conditions are not complied with. This approach may provide a good trade-off between provision of information and potential for compliance monitoring via a light-touch and simple approach to licensing process.
  - Individual EPS licence may still be required for sensitive / higher risk locations, with specific mitigation conditions attached to the licence.

- **Using planning conditions as first stage mitigation**
  - Condition 'best practice' mitigation at all sites through planning (likely to be through an Environmental Management Plan).
  - Any breach of these conditions would breach planning consent (enforcement action?) but could also be considered reckless disturbance and a potential offence, leading to requirement for an EPS licence?.
  - For sensitive locations, 'best practice' mitigation may not be sufficient and so additional mitigation may be required (potentially including no ADDs without an EPS license or that use of ADDs would be inappropriate in certain locations).
  - Issues with this approach are that it is not deemed competent for planning conditions to cover matters that are dealt with under other legislation, and LA may be reluctant to condition issues over which they have little control / experience. This approach could only be applied gradually as sites apply for planning consent for other aspects, so would mean a piecemeal approach to managing ADDs and difficulties in monitoring and managing any cumulative issues.

Potential mitigation conditions (currently under discussion with industry):

- No continuous use of ADDs at any site.
- Use of automatic triggered devices (with some guidance on frequency / duration of triggering)
- Use of low frequency devices
- Reporting requirements (to be agreed)
- Use of strategic area-wide approach to ADD deployment?
- Seasonal restrictions on ADD use?
- Consideration of cumulative impacts and possible further restriction / no ADD use in areas of highest risk (NB Further work and discussion is required to clarify the location of such areas and the basis for their identification).