

R1/3

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Charter Cruises

Seol Mara – Charter Cruise 1807H

Farsain - Charter Cruise 1707H

Urchin - Charter Cruise 1607H

Diving and ROV surveys to assess the benthic impact of scallop dredging in the Firth of Lorn

Reports

Dates

6- 11 May 2007.

Vessels

Seol Mara – 0830 Mon 7/5/07 to 1400 Fri 11/5/07 (ROV Support Vessel)

Farsain - 0830 Mon 7/5/07 to 2000 Mon 7/5/07 (Diving Support Vessel)

Urchin - 0830 Tues 8/5/07 to 1400 Fri 11/5/07 (Diving Support Vessel)

Project Codes: MF02q (10460)

Personnel

Sue Marrs (SNH) (Survey Coordinator)

David Donnan (SNH) (In charge of ROV Operations)

Mike Breen (In charge of Diving Operations)

Trevor Howell

Keith Summerbell

Melanie Harding

Martin Burns

Laura Baxter (SNH Diver)

Jane Dodd (SNH Diver)

Objectives

To conduct a video survey to assess for the benthic impact of scallop dredging along pre-defined transects, using both ROV and diver operated systems.

ROV Operations

ROV Support Vessel: RV Seol Mara

Personnel: David Donnan (SNH), Sue Marrs (SNH); Martin Burns (FRS); Lesley Kennedy (SAMS) (visitor 8 & 9 May).

Equipment: VideoRay ROV (GTO model with upgraded boosters for operating in currents). Umbilical: two 75m lengths of neutral buoyancy cable, and one 40m length of sinking cable. Footage recorded onto Mini digital cassettes, using Sony GV900 video walkman VCR.

Generator (240v AC, 3KW) and Drop Frame Camera.

Narrative

7 May

ROV loaded and set up. ROV deployed with 2 x 75m lengths of neutral buoyancy cable. Interference experienced when approximately 100m was coiled off the cable drum (this problem was consistent throughout the trip when these two cables were used). Westerly weather and time restrictions limited site opportunities. Initial trials and equipment familiarisation were undertaken to the north end of Shuna. Six (R1 – R4) familiarisation dives were taken in this location.

Five dives (R5 – R9) were then undertaken on the east side of Luing, outwith the SAC, but in a location where there was reported scallop dredge activity. Much time was spent troubleshooting the cable fault, and discussing the work with stakeholders on the telephone (DD).

8 May

Again, weather limited operations and the only workable location where data indicated dredging had occurred was off the east coast of Scarba. Ten dives (R10 – R19) were undertaken in this location.

9 May

Work focussed on the Garvellachs, the most westerly group of islands in the SAC. Damage has been reported by recreational divers in this area in the Dun Chonnuill channel in 2007. This is a very tidal area, which made ROV deployment challenging. Two dives (R20 & R21) were undertaken at this location in the morning, and a further six (R26 – R31) were undertaken in the afternoon. R31 had to be aborted and the ROV recovered and redeployed due to insufficient cable length. Three dives (R22 – R24) were undertaken along the sediment reef interface to the southwest of A'Chuil in the area of Sgeir nam Marag. There was quite a heavy swell at this site, following the previous days of wind.

10 May

ROV cable re-rigged with 40m sinking line inserted between the two 75m neutral density lengths in an attempt to increase the depth capability of the unit. Based on intelligence received from the dive team's activities on 9 May, one (R32) drift dive was undertaken through Dun Chonnuill channel. Footage from this dive clearly shows obvious sorting of cobbles into parallel lines.

Two dives (R33 & R34) were undertaken to the northwest of Garbh Eileach, at the westerly end of Dun Connuill channel.

Two dives on the west side of the Garvellachs (R35 & R36) on a previously unrecorded reef. Two further dives were undertaken to the east of Garbh Eileach.

The final three dives of the trip (R39 – R41) were undertaken on the west side of Luing. Recovery of the ROV into the boat was recorded at this location (R40). Equipment dismantled.

11 May

Equipment offloaded and containers packed. Demob and returned to respective bases.

Diving Operations

Diving Contractor: Fisheries Research Services, Aberdeen.

7 May

Diving Support Vessel: *Farsain* (Commercial dive charter)

Personnel: Mike Breen (Diving Officer); Melanie Harding; Trevor Howell; Keith Summerbell (FRS).

8 – 11 May

Diving Support Vessel: *Urchin* (Commercial dive charter)

Personnel: Mike Breen (Diving Officer); Melanie Harding; Trevor Howell; Keith Summerbell (FRS); Laura Baxter (SNH, Inverness); Jane Dodd (SNH, Oban).

Equipment: SCUBA Breathing Apparatus (FRS diving on Nitrox; SNH diving on air); Nitrox Pumps (x2); Mobile Air (Breathing) Compressor; Through-Water Communications; Stills camera: Olympus SP350 in a housing; and Video camera (Sony TRV 900 in housing).

Shore Base location: Croabh Haven

Diving Survey Strategy

In an attempt to substantiate observations made by recreational divers in this area, where possible the diving survey focussed on recreational dive sites that were in close proximity to known dredging operations. However, when this not possible – due to weather and/or tidal constraints – the survey dives were directed at diveable sites where there were identifiable reef features adjacent to known dredge tracks.

Management of Diving Operations

The objectives, protocols and risk assessment of the diving operations for this survey are detailed in Diving Project Plan 03/2007.

The combined FRS/SNH diving team were working under a compilation of both FRS and SNH diving rules that ensured that both sets of rules were complied with (see Diving Project Plan 03/2007). In summary, this meant that the team was restricted by ensuring a minimum of 2 hours between dives (SNH rule) and that the maximum dive time would be less than the respective decompression no stop times for that depth (as defined by RNPL Tables)(FRS rule). Moreover, the SNH divers could not use Nitrox, so both worked together as a pair throughout the whole week to simplify the diving gas management and to ensure the decompression no stop times of the nitrox divers were not constrained.

Narrative

7 May

Loaded Farsain and steamed to Scarba. A blockage in the vessel water intake resulted in the engine overheating. This was cleared by the onboard diving team, but caused ~1 hour delay. Two dives were undertaken to the east of Scarba (D1 & D2). Failure of the video system meant that no footage was recorded throughout this day, although still photographs were taken on all four dives. A third dive was conducted at Reisa Mhic Phaidean (D3) and a fourth (D4) to the west of Craignish Point. The vessel was unloaded on the return to Craobh Haven.

8 May

SNH staff joined the dive team. The dive support vessel Urchin left Oban at 0530 to meet the dive team at Croabh Haven, but had to turn back to due to poor weather. A later attempt to steam round was successful, as the weather conditions improved. Diving operations for that day were therefore late in commencing, with the first dive not starting until 13:08. Due to the weather conditions, diving activities were confined to three sites (D5 – D7) to the east of Scarba. Video footage was taken on all three dives. Still photographs were taken on dives D5 & D7.

9 May

Weather conditions improved sufficiently to permit survey operations to move to the Garvellachs. Five dives (D8 – D12) were undertaken in the popular recreational site of Dun Chonnuill channel. Aligned stones in cobble noted in Dive 10. Marks on the substratum noted in Dive 11. Video footage was taken on all fives dives. Still photographs were taken on dives D8, D9 & D11.

10 May

Weather conditions remained favourable, so a further three dives (D13 – D15) were undertaken at two recreational dive sites at the Garvellachs. The first two dives (D13 & D14) were undertaken in a recreational dive site known locally as 'The Steps'; while the third (D15) dive took place at 'The Slippers'. The last two dives of the day (D16 & D17) were undertaken to the north of Lunga. This was not a known recreational site – but presented a good opportunity to survey an area where there had been recent dredging activity in close proximity to identifiable reefs. Video footage was taken on all fives dives. Still photographs were taken on dives D13, D14, D16 & D17.

11 May

In the morning, equipment was offloaded from the charter vessels, and the transport containers were packed and loaded on a HGV. Staff then returned to their respective bases.

Sue Marrs (SNH Project Coordinator)

Mike Breen (FRS Diving Officer)

8 August 2007

Table 1 – ROV sites

All depths are below sea level - not corrected to CD.

Site Number	Position	Video tape: time code	JPEG	Notes (date, time GMT, depth, substrate, species)
SITE R1 (test)	56 13.683N 05 35.833W	1: 0 – 0.10.24		07/05/07, 10:43 – 10:52, 16m. Level seabed of muddy sand with abundant filamentous algae.
SITE R2 (test)	56 13.705N 05 35.998W	1: 0.10.52 – 0.24.59		07/05/07, 11:03 – 11:19, 7.5m. Level seabed. <i>Laminaria saccharina</i> and filamentous algae.
SITE R3a (test)	56 13.701N 05 36.009W	1: 0.24.59 – 0.33.58		07/05/07, 11:37 – 11:48. 5.0 to 8.0m, Sand with filamentous algae & <i>Ulva</i> .
SITE R3b (test)	56 13.695N 05 35.988W	1: 0.33.58 – 0.52.56		07/05/07, 12:45 (approx) – 13:06. 22m, Sediment and green algae. Misc burrows including <i>Goneplax rhomboides</i> .
SITE R3c (test)	56 13.747N 05 35.914W	1: 0.52.56 - end		07/05/07, ??? – 14:20. 23.5m, Mud with <i>Amphiura</i> . Occ <i>Nephrops</i> burrows and (prob) <i>Calocaris</i> , <i>Pennatula</i> , Holothurian @ 54.
SITE R4	56 13.788N 05 35.782W	2: 0 – 0.10.07		07/05/07, 13:25 – 13:40, 25.7m, Mud with burrows inc <i>Nephrops</i> . <i>Pennatula</i> , <i>Virgularia</i> .
SITE R5	56 14.057N 05 37.159W	2: 0.10.05 – 0.19.54		07/05/07, 13:51 – 14:04, 11-12m, Muddy sand, some burrows and Ascidians and <i>Pennatula</i> .
SITE R6	56 13.816N 05 37.410W	2: 0.19.54 – 0.28.33		07/05/07, 14:20 – 14:29, 6-8.8m, Sand and filamentous algae. <i>Cerianthus</i> .
SITE R7	56 13.689N 05 37.477W	2: 0.28.33 – 0.33.28		07/05/07, 14:36 – 14:45, 8.8m, Muddy sand filamentous algae.
SITE R8	56 13.181N 05 37.721W	2: 0.33.28 – 0.38.26		07/05/07, 14:35 – 14:59, 9.3m, Muddy sand with filamentous algae. <i>Pagurus bernhardus</i> .
SITE R9	56 12.764N 05 37.715W	2: 0.38.26 – 0.43.21		07/05/07, 15:07 – 15:15, 8.7m, Muddy sand with filamentous algae. Occasional boulders. <i>Nemertesia</i> & <i>Echinus</i> .
SITE R10	56 11.225N 05 40.584W	3: 0 0 – 0.06.35		08/05/07, 09:33 – 09:44, 18.8 - 20.5m, Level firm sand, Occasional <i>Laminaria saccharina</i> . No conspicuous epifauna.
SITE R11	56 11.167N	3: 0.06.35 –		08/05/07, 09:51 – 10:06, 24.7 - 25.7m, Firm sands, <i>Arenicola</i> mounds, with stones & gravel. Drift weed

	05 40.473W	0.14.49		accumulating in patches. Lines of gravel and stone that may be consistent with dredging? Ridges of gravel in alignment. Boulder seen with covering of barnacles that was not consistent with having recently been turned.
SITE R12	56 10.912N 05 40.192W	3: 0.14.50 – 0.22.55		08/05/07, 10:16 – 10:25, 28m, Firm sand compacted pebble/gravel and stones. Occasional boulder. Good shots with overview of habitat.
SITE R13	56 10.795N 05 40.048W	3: 0.22.55 – 0.23.12		08/05/07, 10:34 – 10:41, 46.4m, Compact sand/gravel. Drift weed moving in current. No conspicuous epifauna.
SITE R14	56 10.733N 05 40.212W	3: 0.26.12 – 0.42.52		08/05/07, 11:05 – 11:23, 10 – 19.9m, Transition area from level boulders in sand to boulders with kelp. 10m: kelp on bedrock and boulder, 50% sand. 22.9m: transition between bedrock and sand/boulder. Kelp forest rich with epiflora of red algae. <i>Luidia</i> , <i>Echinus</i> , <i>Cliona</i> . Drift dive
SITE R15	56 10.750N 05 40.189W	3: 0.42.57 - end		08/05/07, 11:32 – 11:54, 14 – 22.5m, compacted pebble/ cobble in sand. <i>Ophiocomina</i> , <i>Luidia</i> , <i>Flustra?</i> . <i>Acyonidium?</i> Drift dive over same site as R14. 0.57.28 – one large boulder that may have been turned.
SITE R16	56 11.475N 05 40.385W	4: 0 – 0.12.46		08/05/07, 12:51 – 13:04, 9.3 – 21.5m, Kelp and sand gravel, descending through low density kelp forest to boulders on sand with algal turf and occasional <i>Laminaria</i> .
SITE R17	56 11.501N 05 40.275W	4: 0.12.46 – 0.19.38		08/05/07, 13:19 – 13:28, 32 – 36m, Boulders with faunal turf, including <i>Cliona</i> at 32m. 36m: compacted cobble and boulders (100%). No sediment. Tideswept. <i>Echinus</i> , red crusts.
SITE R18	56 11.380N 05 40.501W	4: 0.19.38 – 0.42.22		08/05/07, 13:35 – 13:57, 13m, Sand with occasional cobbles, <i>Virgularia</i> , diatom film/mat. Occasional <i>Laminaria saccharina</i> on cobbles. <i>Desmarestia</i> , strawberry worms, <i>Turritella</i> .
SITE R19	56 11.781N 05 40.837W	4: 0.42.29 - end		08/05/07, 14:06 – 14:30, 19 – 21m, Tideswept cobble and pebble. <i>Alcyonium digitata</i> , Occasional <i>Nermertesia</i> , <i>Neopentadactyla picta</i> (0.47.58).
SITE R20	56 14.707N 05 44.962W	5: 0 – 0.11.30		09/05/07, 09:37 – 09:49, 20 – 21m, Mixed coarse sand and cobbles with occasional <i>Alcyonium</i> & <i>Echinus</i> , Sparse bryozoans. Holothurians.
SITE R21	56 14.447N 05 45.147W	5: 0.11.30 – 0.19.57		09/05/07, 09:59 – 10:09, 3 - 15.5m, Coarse sand, diatom film and filamentous algae. Kelp boundary at 12m.
SITE R22	56 13.827N 05 47.128W	5: 0.19.57 – 0.34.08		09/05/07, 10:34 – 10:50, 14 –20.4m, <i>Cerianthus</i> on coarse sand, <i>Virgularia</i> at base of hard cobble reef at 17m. Travelled along transition between coarse sand and reef boundary. No sign of damage.
SITE R23	56 13.775N 05 47.581W	5: 0.34.08 – 0.46.44		09/05/07, 11:00 – 11:14, 10 – 18.9m, reef/cobble interface, sparse epibiota on rock. Kelp.
SITE R24	56 13.309N 5 47.947W	5: 0.46.44 – 0.57.51		09/05/07, 11:25 – 11:37, 13.7 – 15.9m, flight along reef/sediment interface. Sediment coarse sand.
SITE R25	56 12.974N 5	6: 0 –		09/05/07, 11:47 – 12:01, 19 – 25m, Algal bryozoan turf at deepest. Flight along sediment reef interface

	48.186W	0.13.56		tracking back and forth from sediment onto rock.
SITE R26	56 15.025N 5 44.859W	6: 0.13.56 – 0.24.18		09/05/07, 12:57 – 13:08, 27 – 30m, <i>Alcyonium</i> covered rock, with bioturbation noted at foot of reef (19.46). Good views of sediment reef interface.
SITE R27	56 15.111N 5 44.695W	6: 0.24.18 – 0.29.17		09/05/07, 13:15 – 13:20, 15 – 21m, bedrock, red algae, <i>Alcyonium</i> boundary with coarse sand with <i>Echinus</i> . Premature ending for safety reasons.
SITE R28	56 15.035N 5 44.468W	6: 0.29.17 – 0.37.59		09/05/07, 13:29 – 13:41, 13 – 17m, sand & kelp
SITE R29	56 15.058N 5 44.412W	6: 0.37.59 – 0.48.14		09/05/07, 13:43 – 13:55, 18.4 – 21.9m, mixed pebbles/ coarse sand. Sparse epibenthic cover.
SITE R30	56 14.928N 5 44.487W	6: 0.48.14 – 0.58.45		09/05/07, 14:04 – 14:15, 17 – 23m, <i>Virgularia</i> , <i>Cerianthus</i> , sparse algae & fauna.
SITE R31	56 14.889N 5 44.915W 56 14.844N 5 44.914W	7: 0 – 0.07.56 7: 0.07.56 – 0.14.08		09/05/07, 14:28 – 14:36 / 14:41 – 14:48, Cobbles, sparse cover. Some <i>Ophiocomina nigra</i> . Two dives in same location.
SITE R32	56 14.935N 5 44.925W	8: 0 – 0.15.47		10/05/07, 09:34 – 09:49, 17 – 35m, Dredge marks clearly visible in pebble/cobble substrate in middle part of sound. Cobble & pebble with clearly defined dredge marks. Drift dive.
SITE R33	56 14.955N 5 45.743W	8: 0.15.47 – 0.33.39		10/05/07, 10:03 – 10:22, 27.5 – 33.5m, Cobble (90%) on sand to cobble/ small boulders on coarse sand. <i>Luidia</i> , <i>O. nigra</i> , <i>Nemertesia antonina</i> .
SITE R34	56 15.050N 5 45.535W	8: 0.33.39 – 0.42.55		10/05/07, 10:29 – 10:40, 43m, Cobbles on coarse sand and gravel. <i>Antedon</i> .
SITE R35	56 14.353N 5 46.937W	8: 0.42.55 - end		10/05/07, 11:00 – 11:21, 20 – 26m, Coarse sand through to Cobble/ pebble on sand, to edge of cobble/ boulder & bedrock. <i>Utricina</i> , <i>Pometoceros</i> on pebbles, <i>O nigra</i> , <i>Echinus</i> , red algae, <i>Alcyonium</i> , <i>Marthasterias</i> .
SITE R36	56 14.495N 5 46.972W	9: 0 – 0.14.14		10/05/07, 11:29 – 11:45, 39 – 44.5m, Bedrock cliff of depth at least 50 – 39m. Typical Garvellachs reef: <i>Alcyonium</i> , sponges, <i>Diazona</i> , <i>Sabella</i> , <i>Carophylla smithii</i> .
SITE R37	56 14.061N 5 46.208W	9: 0.14.14 – 0.37.03		10/05/07, 12:48 – 12:13, 35 – 41m, <50m ² bedrock outcrop (cup corals, <i>Diazona</i> , <i>Parasmittima</i> , <i>Echinus</i> , <i>Swiftia</i> , ballan wrasse) surrounded by muddy sand with small boulders (<i>Nemertesia antinina</i>), <i>Munida</i> , <i>Arachnanthus sarsi</i> (probably?).
SITE R38	56 14.222N 05 45.809W	9: 0.37.03 – 0.46.29		10/05/07, 13:25 – 13:37, 44m, Sandy mud, small burrows and mounds, occasional stones, <i>Munida</i> .

SITE R39	56 12.934N 05 39.794W	9: 0.46.29 – 0.55.13		10/05/09, 14:15 – 14:25, 24 – 25m, Plains of firm sand and gravel. Broken shells occasional cobbles. Very little epibiota on cobbles. <i>Cancer</i> .
SITE R40	56 12.781N 05 39.754W	10: 0 – 0.11.17		10/05/07, 14:29 – 14:41, 25.9 – 28m, coarse sand gravel with cobbles and pebbles. Hard packed. Recorded recovery of ROV into boat.
SITE R41	56 12.755N 05 39.702W	10: 0.11.17 – 0.21.29		10/05/07, 14:46 – 15:04, 15.5 – 15.7m, kelp on small boulder on sand/gravel.

Table 2 – SCUBA sites

All depths are below sea level - not corrected to CD. All positions are WGS84.

Site Number	Position	Video tape: time code	JPEG	Notes (date, time BST, depth, substrate, species)
SITE D1 E Scarba	56.17389N 05.66872W	N/A	P5070001 – P5070019.jpg	07/05/07, 12:30 – 12:57, 23 – 6m, Still images only, no video.
SITE D2 E Scarba	56.18882N 05.67319W	N/A	P5070020 – P5070064.jpg	07/05/07, 13:42 – 14:28, 21.8 – 13.9m, Still images only, no video.
SITE D3 Reisa Mhic Phaidean	56.14643N 05.61942W	N/A	P5070065 – P5070084.jpg	07/05/07, 16:00 – 16:25, 14.9 – 16.5m, Still images only, no video.
SITE D4 W Craignish	56.14134N 05.60900W	N/A	P5070085 – P5070102.jpg	07/05/07, 17:00 – 17:24, 21.3 – 13m, Still images only, no video.
SITE D5 E Scarba	56.10469N 05.40052W	1: 0 - 0.26.17	P5080105 – P5080133.jpg	08/05/07, 13:08 – 13:37, 23.8 – 5m, mixed boulders, bedrock to coarse sand and gravel , to sandy mud.
SITE D6 E Scarba	56.10469N 05.40052W	1: 0.26.17 - end	N/A	08/05/07, 14:15 – 14:49, 22.4 – 7, flat sand with scallop dredge mark through to bedrock reef at 11m. Starfish, seapens, mounds & burrows.
SITE D7 E Scarba	56.18268N 05.67268W	2: 0 - ???.???.??	P5080134 – P5080189.jpg	08/05/07, 15:30 – 16:10, 24.8m, Gully reef with rock and coarse sands and stones, and rocky reefs. Scallops. <i>Diazona</i> .
SITE D8 Dun Chonnuill	56.24950N 05.75484W	3:	P5090190 – P5090205.jpg	09/05/07, 10:54 – 11:32, 22 – 12m, Boulder slope, with cobble pebble substrate at base. hydroids, <i>Antedon</i> , echurians, <i>Alcyonium digitatum</i> , <i>Clavelina</i> , <i>Halecium</i> , <i>Nemertesia</i> , holothurians, <i>Laminaria hyperbore</i> .
SITE D9 Dun Chonnuill	56.24894N 05.74934W	3:	P5090207 – P5090251.jpg	09/05/07, 12:05 – 12:41, 20.5 – 17.6, boulders sand and gravel at start of dive then cobble.
SITE D10 Dun Chonnuill	56.24976N 05.74859W	4:	N/A	09/05/07, 13:27 – 14:09, 22.6m, Aligned stones and cobbles in parallel lines on floor with bedrock reef at edge of channel.
SITE D11	56.24950N	5:	P1010001 –	09/05/07, 15:16 – 15:50, 25.9 – 11m, Rocky with <i>Alcyonium</i> on channel

Dun Chonnuill	05.74803W		P1010047.jpg	side, with channel floor of cobble bottom with dredge marks. Toothbar of dredge.
SITE D12 Dun Chonnuill	56.24776N 05.74851W	5:	N/A	09/05/07, 16:08 – 16:34, 20 – 10m, Boulder slope, then gravel cobble. No damage observed. <i>Alcyonium digitatum</i> , red algae, <i>Luidia</i> , <i>Echinus esculentus</i> , <i>Marthasterias</i> , <i>Solaster</i> , <i>Asterias</i> , squat lobsters, <i>Diazona</i> .
SITE D13 Garvellachs (The Steps)	56.22803N 05.79682W	6:	P5100252 – P5100276.jpg	10/05/07, 11:03 – 11:41, 23.6m, Coarse sand “steps” to a small reef (~1.5m high) at ~18m followed by a coarse sand slope to a large reef at 22m (reef max height at 11m) (<i>Alcyonium</i> on exposed faces, kelp forest on ridge top and sheltered side). Reef declined to SW meeting coarse sand and scallops at 22-24m.
SITE D14 Garvellachs (The Steps)	56.22644N 05.79666W	6:	P5100277 – P5100330.jpg	10/05/07, 12:18 – 12:55, 24.6 – 13.5m, coarse sand ridges, with boulders and kelp in shallows.
SITE D15 Garvellachs (The Slippers)	56.21684N 05.80313W	7:	N/A	10/05/09, 13:29 – 13:54, mixed bedrock & sediment. At deepest point sediment in large, deep ripples with shell & maerl in furrows.
SITE D16 N Lunga	56.22933N 05.70037W	7:	P5100335 – P5100354.jpg	10/05/07, 15:49 – 16:11, 26.3m, descended onto homogenised sand (with clear striations) on ~level plain, ~ 30m eastwards onto coarse sand slope, ascending from 24m to ~14m, onto bedrock/boulder cliff rising to ~8m with kelp forest on top and flat coarse sand and gravel beyond.
SITE D17 N Lunga	56.22909N 05.69914W	8:	P5100355 – P5100375.jpg	10/05/07, 16:58 – 17:20, 16.9 – 9.1, Boulder and bedrock descending to boulders with kelp then a rocky spur with coarse sand and gravel on the other side.

Chart 1 – Location of ROV & Diver Survey Sites in the Firth of Lorn.

