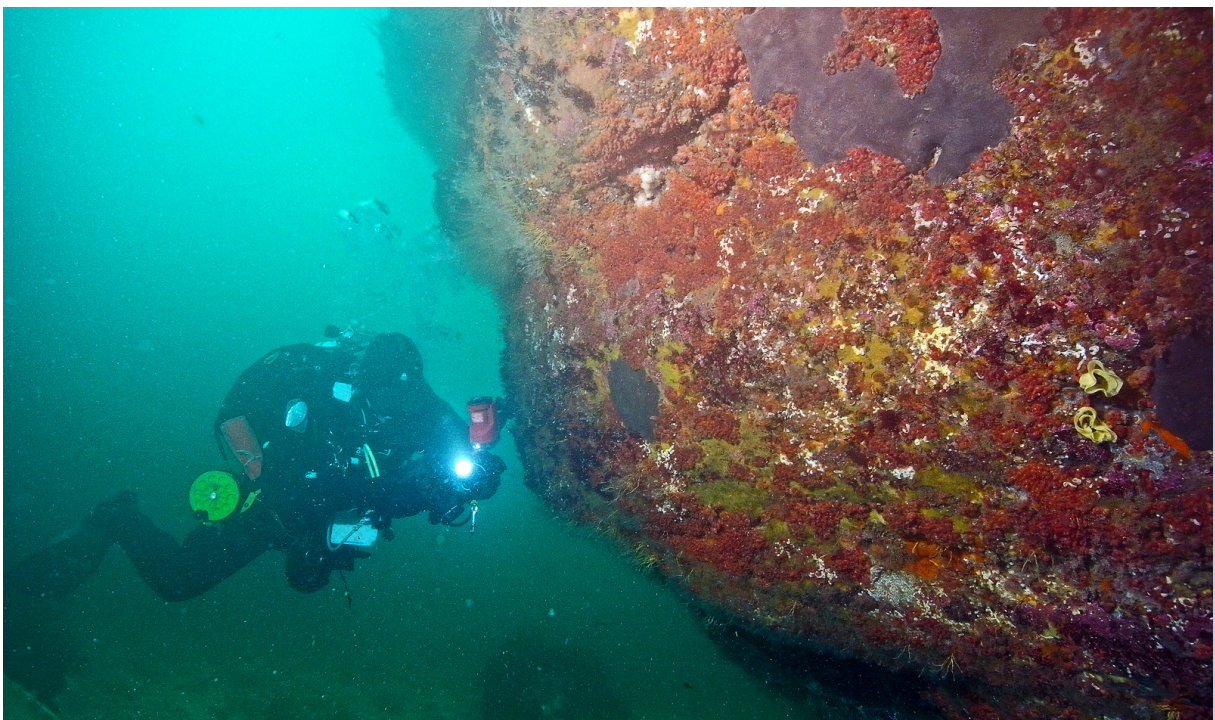


Report of an Isle of Man marine biological diving survey 14 -19 June 2015



Blaise Bullimore

December 2015

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The records in this report and the compilation of the report would not have been possible without the expertise and time, freely given, by the survey team listed above.

Cover photo: Ross Bullimore, Anvil Gulley. ©BB

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14 -19 June 2015

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1 Introduction

A strong nucleus of volunteer, citizen-science, diving marine biologists has developed in the UK over recent years. Increasingly, volunteer divers are collaborating with and supporting professional marine biologists to carry out survey, monitoring and surveillance in the field. Over time the expertise base of marine survey volunteers has equaled or, in some cases, outpaced many professionals.

The Marine Conservation Society's *Seasearch* project (<http://www.seasearch.org.uk/>), begun in the mid-1980s, developed and expanded substantially following appointment of a national coordinator 2003 and regional coordinators in 2004-5. Since *Seasearch* began, almost 800 *Observers* and *Surveyors* have contributed some 500,000 species records to the National Biodiversity Network database, completed 17,000 survey forms and contributed to nearly 300 survey reports. *Seasearch* is well supported by professional marine biologists who regularly participate in and lead surveys.

The Porcupine Marine Natural History Society (<http://pmnhs.co.uk/>) is an informal society with a membership interested in marine natural history and recording. As with *Seasearch*, it forms a bridge between and brings together professionals and interested, expert and enthusiastic non-professionals (the term amateur does not do them justice).

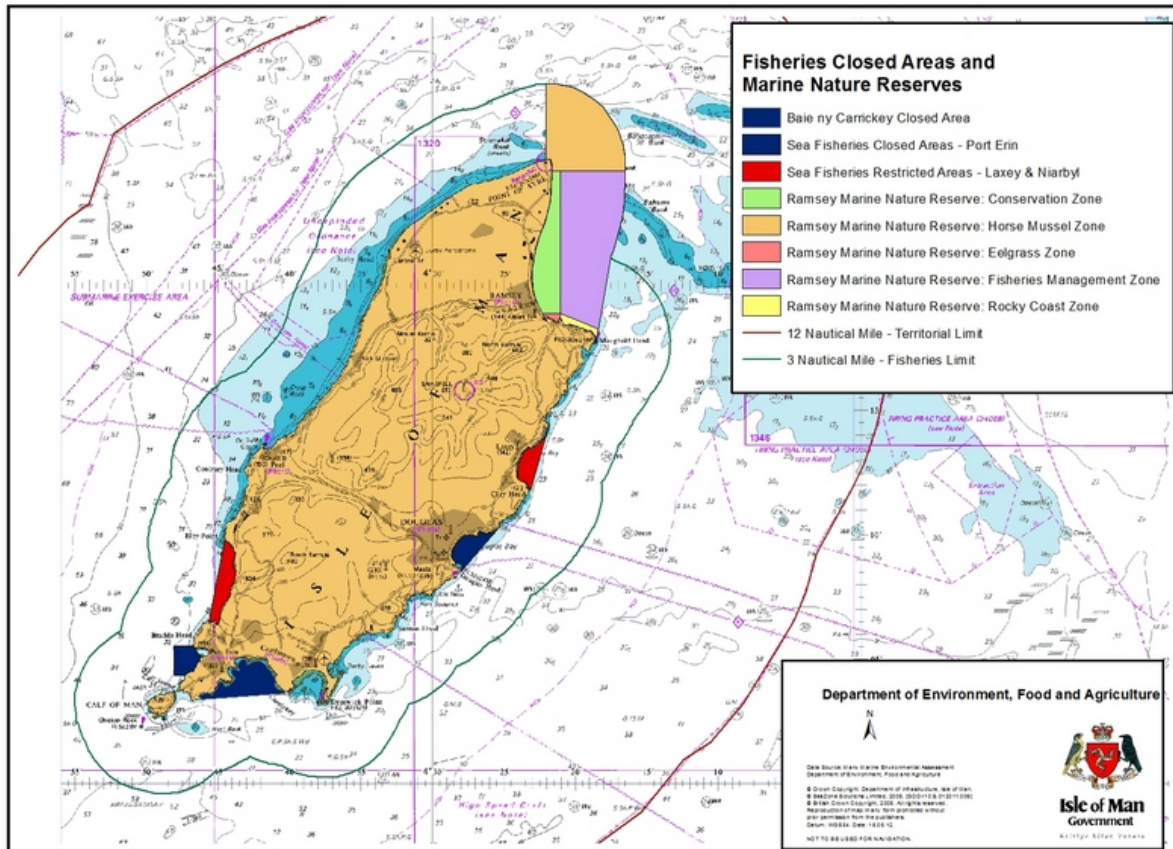
This survey was conceived as a result of discussions between *Seasearch* volunteer and PMNHS member Professor David Kipling and Tony Glen, Isle of Man *Seasearch* coordinator, during a PMNHS field meeting to the Isle of Man in 2014. Ten UK based volunteers, both professional and non-professional, interested in visiting and diving around the Isle of Man to support Manx *Seasearch* volunteers and the Manx Wildlife Trust joined Tony and Lara Howe, Manx Wildlife Trust, to survey a dozen sites around the southwest of the Isle of Man in June 2015.

In addition to the survey diving, Blaise Bullimore, former manager of the Skomer Marine Nature Reserve, SW Wales, gave a talk on Marine Protected Areas in Wales and their highs and lows at Isle of Man Yacht Club Port in St Mary during the week, and Bernard Picton ran a successful nudibranch (sea slug) workshop the day following the survey.

2 Sites

Sites were selected through a combination of local knowledge (Tony Glen and Discover Diving), the need to target an area in Ramsey Bay Marine Nature Reserve permanently closed to dredging and beam trawling, the wish to target fishery closed areas (Map 1), previous survey work¹ and weather considerations.

Other than Ramsey Bay, survey sites were confined to the SW peninsula and the Calf of Man.

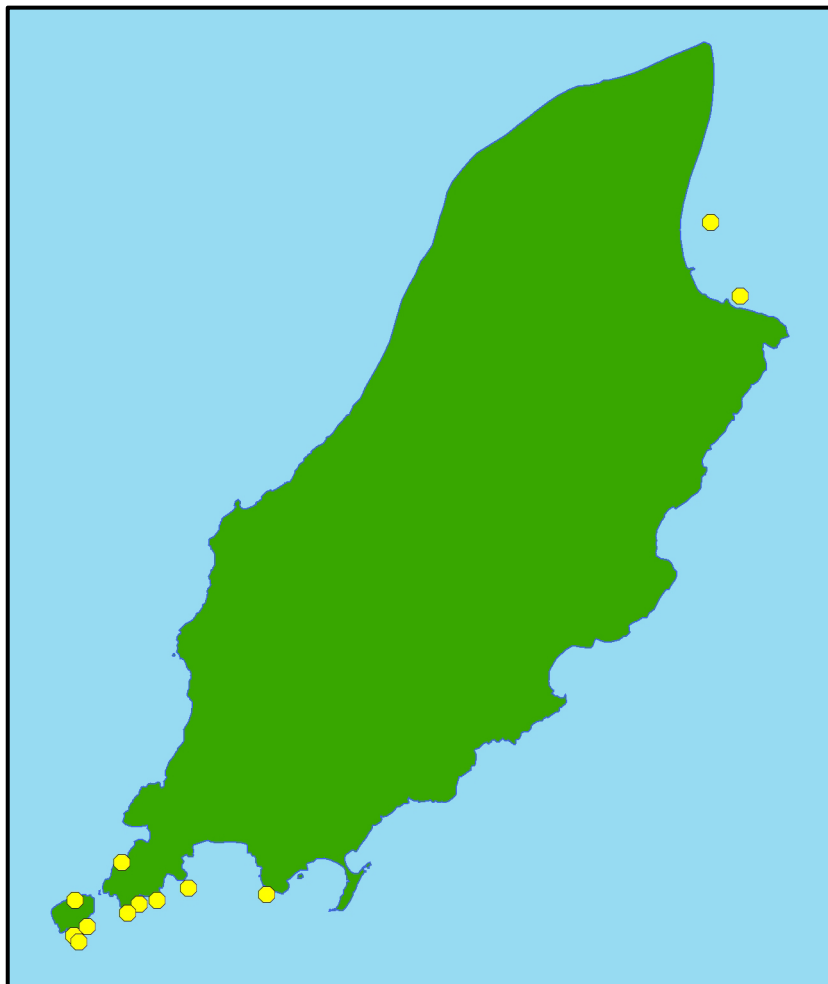


Map 1. Fisheries Closed Areas and Marine Nature Reserve. The five Fisheries Closed or Restricted Areas are designated primarily for the enhancement of the scallop stocks. The Marine Nature Reserve is designated primarily for conservation and also for fisheries management. © Department Environment Food and Agriculture, Isle of Man Government.

¹ C.C. Morrow, B.E. Picton & J.D.D. Bishop, 1993. *A sublittoral survey of the Calf of Man*. Report from the Ulster Museum to the Calf Marine Trust.

Table 1. Survey dates, site names and positions

	Site name	Lat (N)	Long (W)
14 June 2015	Basalt Wall, Bay ny Carrickey	54°3.773	004°40.708
	The Puddle, Calf of Man	54°2.741	004°48.962
15 June 2015	Grand Island Hotel, Ramsey Bay	54°20.574	004°21.724
	Port Lewaigue, Ramsey Bay	54°18.743	004°20.46
16 June 2015	Gibdale Bay	54°3.625	004°48.917
	Bay Stacka	54°3.52	004°46.17
17 June 2015	Kione ny Halby	54°2.962	004°48.4
	Bay Fine	54°4.575	004°46.912
18 June 2015	Spanish Head	54°3.304	004°46.66
	Fairy Cave / Anvil	54°3.63	004°45.415
19 June 2015	Burroo, Calf of Man	54°2.577	004°48.742
	Port St Mary Ledges	54°3.933	004°44.05



Map 2. Distribution of survey sites

3 Recording

Participants recorded from the same areas at each site, except for Ramsey Bay, though they focused on different habitats at some sites. As all divers remained in close proximity, generally within visual range, for much of the time, records were pooled and a single *Seasearch* form completed for each site. Species lists and abundances were recorded promptly following each dive and later supplemented by additional records from photographs. Most divers were set up for macrophotography resulting in a limited number of representative habitat images being captured.

In the site descriptions below and in Appendices 1 and 2, the abundances of species are described using the terms of the standard semi-quantitative SACFOR abundance scale: Superabundant > Abundant > Common > Frequent > Occasional > Rare ².

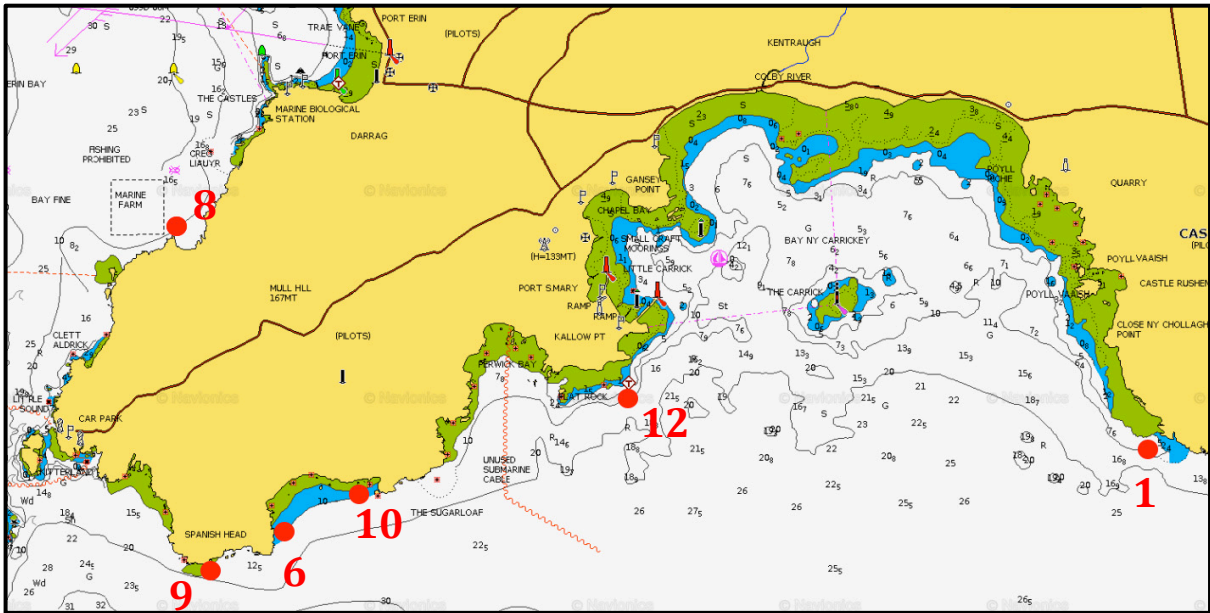
Appendix 1 summarises all species records by site and the completed Seasearch forms comprise Appendix 2.

The comprehensiveness of the species recorded partly reflects the expertise and specific interests of the surveyors. Most have a specific interest in nudibranchs (sea slugs) and several also focused on ascidians (sea-squirts) and sponges. Conversely, no phycologists were included in the team and algal species are very likely to have been significantly under-recorded. Gravel samples collected from six sites were provided to the Marine Recorder of the Conchological Society of Great Britain and Ireland who returned the species list forming Appendix 4.

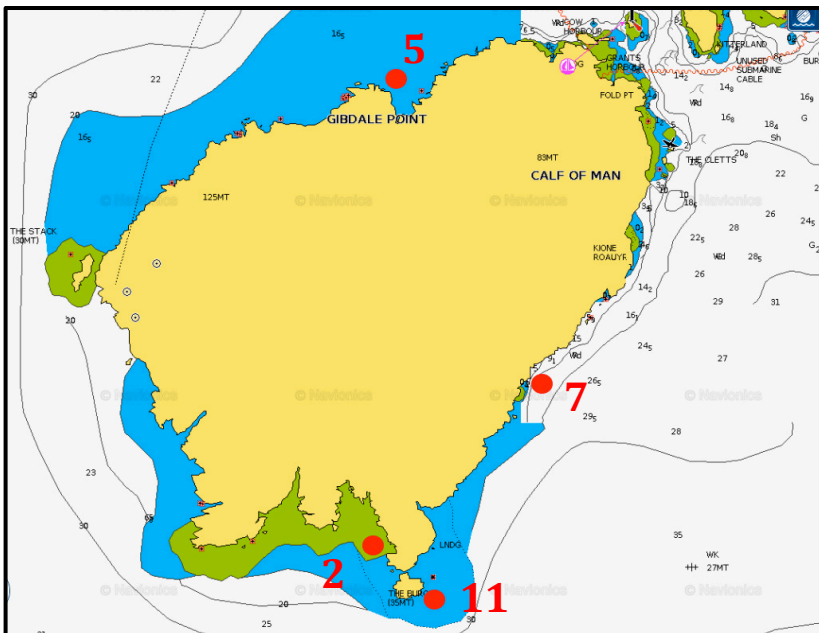
All depth values shown are corrected to chart datum.

² Appendix 9 in Hiscock, K., (ed) 1996. *Marine Nature Conservation Review: rationale and methods*. Peterborough, Joint Nature Conservation Committee. (Coasts and seas of the United Kingdom. MNCR series).

4 Site accounts



Map 3. Cregneash peninsula survey sites: 1 – Basalt Wall; 6 – Bay Stacka; 8 – Bay Fine; 9 – Spanish Head; 10 – Fairy cave / Anvil; 12- Port St Mary ledges



Map 4. Calf of Man survey sites:

- 2 – The Puddle**
- 5 – Gibdale Bay**
- 7 – Kione ny Halby**
- 11 –Burroo**

Chart basemaps ©
Navionics

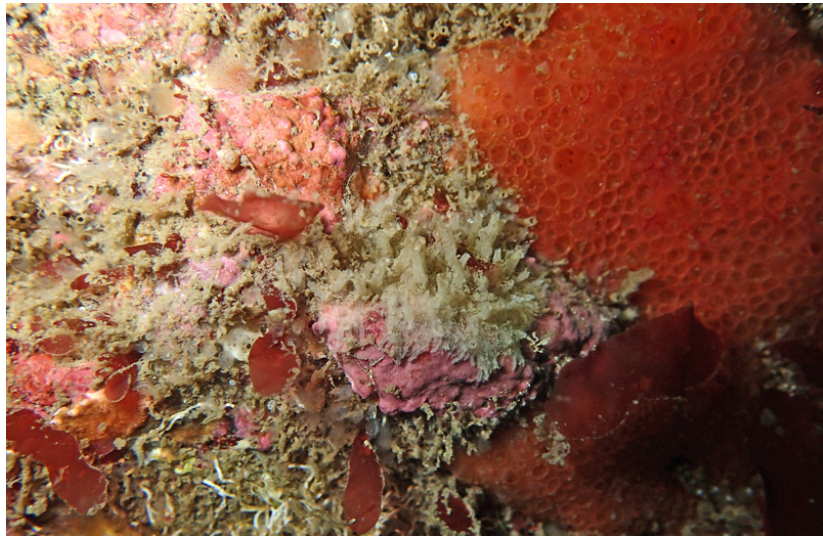
4.1 Basalt Wall, Bay ny Carrickey

14 June 2015; 12 – 20m; JA, GB, JB, JC, WD, LH, EK, KL, BP

Bedrock wall, descended to slope of large boulders and then to a sandy gravel plain; moderately wave exposed with weak tidal streams; 7.5 – 15.5 m. Lobster potting within surveyed area.

Habitat 1: Steeply sloping rock wall leading to large angular boulders; depths 7.5 - 14m surveyed. Dominated by colonial tunicates, particularly *Clavelina lepadiformis* and *Morchellium argus*, with patches of pin-head sea-squirt *Pycnoclavella stolonialis*. Soft coral dead-men's fingers, *Alcyonium digitatum*, anemones, hydroids, sponges, encrusting bryozoans and encrusting pink calcareous algae on the rock wall. (Image 1, right. ©KL)

Several nudibranch species and spawn, including *Janolus cristatus*, *Acanthodoris pilosa*, *Jorunna tomentosa*, *Knoutsodonta depressa*. Four species of wrasse noted, as well as four different species of crustaceans.



Habitat 2: Coarse sediment with gravel, cobbles, pebbles and shell fragments; depths 13.5-15.5m surveyed. Cobbles encrusted by pink coralline algal crusts and calcareous tube-worms, *Pomatoceros* and *Spirorbis* spp. (Image 2, below. ©JA)

Several nudibranch species and spawn, including *Polycera quadrilineata*, *Eubranchus farrani* (with spawn), *Tritonia plebeia* and *Ancula gibbosa*. Several echinoderm species also recorded, notably *Ocnus lacteus*, *Asterina phylactica* under cobbles close to base of cliff (Image 3) and gravel sea cucumber *Neopentadactyla mixta*.

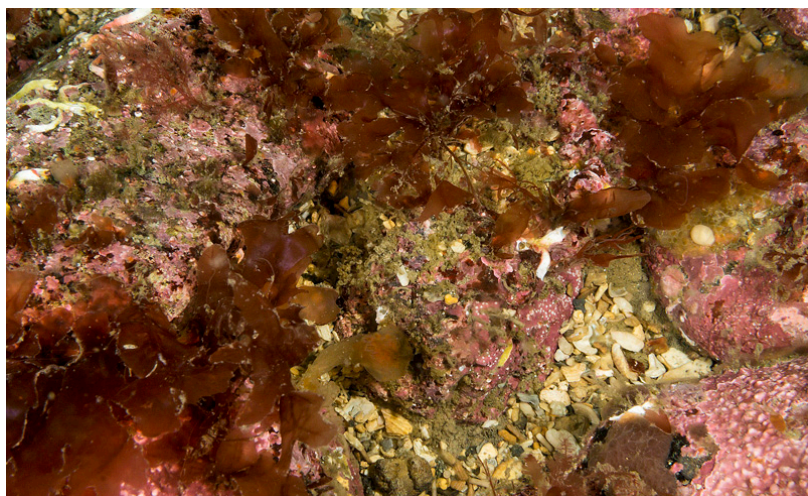




Image 3. *Asterina phylactica* on underside of cobble. ©JA

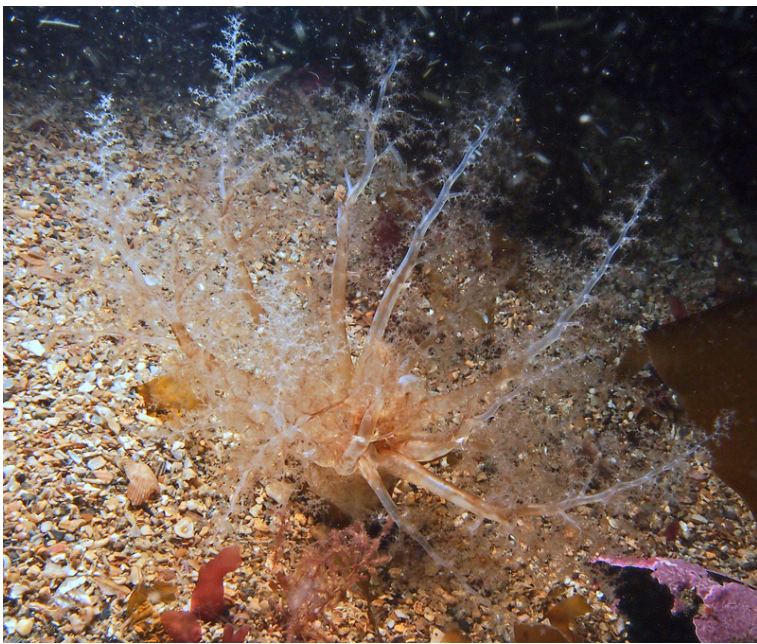


Image 4. Gravel sea-cucumber *Neopentadactyla mixta*. ©JC

4.2 The Puddle, Calf of Man

14 June 2015; JA, GB, JB, JC, WD, LH, EK, KL, BP

Moderately steep boulder slope meeting flat gravel/cobble seabed at c.16.5m; very wave exposed with weak tidal streams; depths 6.5-18.5m surveyed. Seals present at end of dive (3 underwater; 2 at surface).

Habitat 1: Steep slope of large boulders from surface to c.16.5m, with many overhangs, crevices and holes; depths 6.5–16.5m surveyed.

Kelp park with mixed red algae (c. eight species recorded) and encrusting pink calcareous algae; 5.5-14.5m. Sparse kelp Occasional at shallowest depths. Deeper boulders overgrown with mixed red algae and animal turf.

Encrusting bryozoa such as *Electra pilosa* and *Membranipora membranacea* present on kelp and red algae. Frequent anemone *Anemonia viridis* (attached to kelp) and sea urchin *Echinus esculentus*. Most other species recorded as Rare or Occasional, including two sponge species, and six echinoderms, with *Psammechinus miliaris* and *Pawsonia saxicola* both Occasional. Ballan and cuckoo wrasse Present.

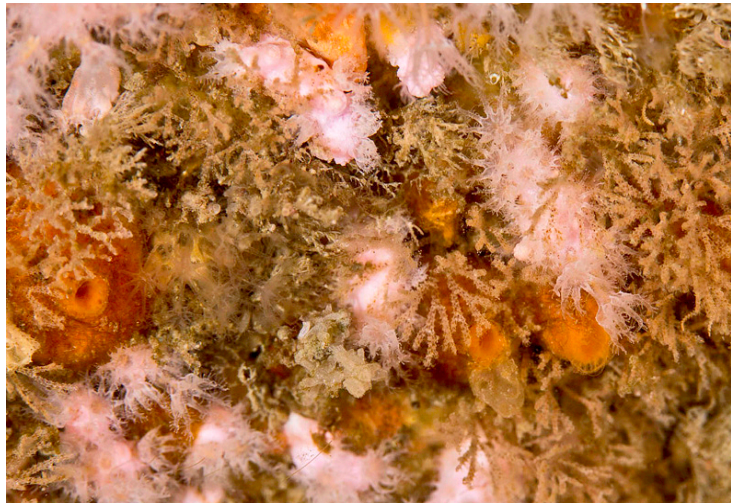


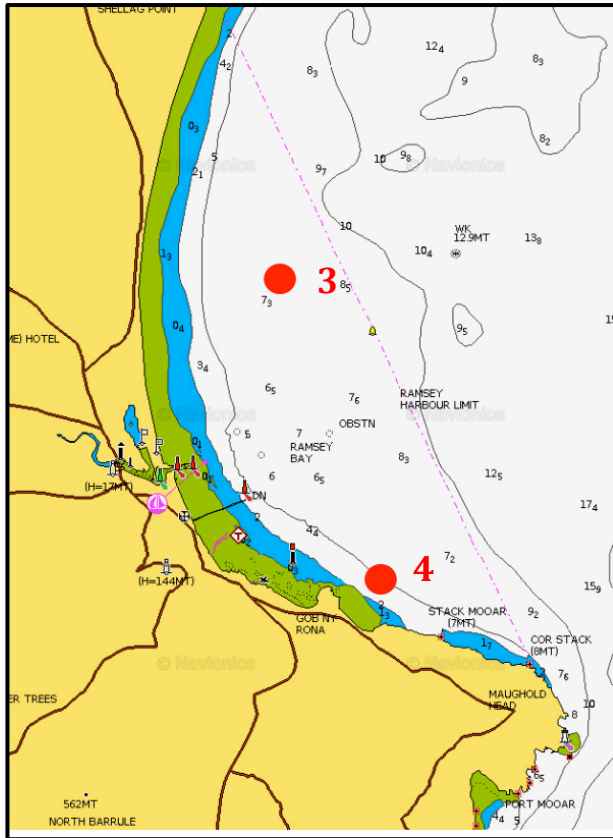
Image 5. Soft coral pink sea fingers, *Alcyonium hibericum*, The Puddle, habitat 1. ©BP

Habitat 2: Flat cobble, gravel, shell gravel and sand plain; depths 16 – 18.5m surveyed.

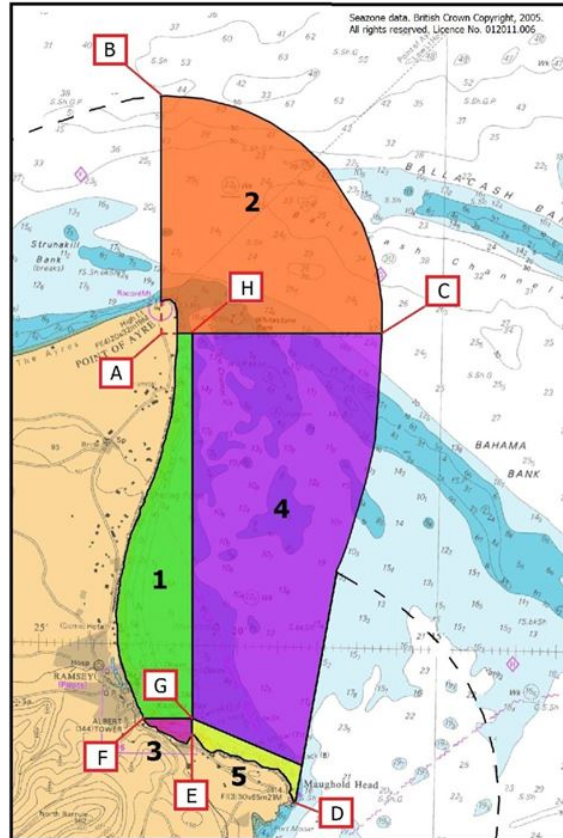
Calcareous tube-worms Frequent and several species of ascidians Occasional to Common on the larger cobbles, particularly the light-bulb squirt, *Clavelina lepadiformis*. Several species of burrowing anemones sparsely distributed in sand and gravel with Occasional hermit crabs, *Pagurus prideaux*, carrying cloak anemones, *Adamsia carciniopados*, on their shells. Thick layers of unattached drift kelp and other algae.



Image 6. Burrowing heart urchin, *Echinocardium flavescens*. The Puddle, habitat 2. ©BP



Map 5. Ramsey Bay survey sites:
3 – Grand Rapid Hotel
4 – Port Lewaigue



Map 6. Ramsey Bay Marine Nature Reserve Zones:
1: conservation zone
3: eel-grass zone
4: fisheries management zone
5: rocky shore zone

4.3 Grand Island Hotel, Ramsey Bay

15 June 2015; map 5; JA, GB, JB JC, LH, EK, KL, BP

Survey site located within Ramsey MNR conservation zone (Zone 1, map 6). Ramsey MNR was designated in 2011 specifically for three habitats considered conservation priorities under international conventions, horse mussel reefs, maerl beds and eelgrass meadows, following extensive consultation with the public and with the support of the Manx fishing industry. The conservation zone is permanently closed to dredging and beam trawling and Ramsey Bay is described on the Manx Wildlife Trust website as having been seeded with juvenile scallops in 2010, which were tagged so that their survival and movement could be monitored, though the precise location is unspecified³.

The survey aimed to record scallop numbers and sizes of both queen, *Aequipecten opercularis*, and great scallop, *Pecten maximus*, to help inform estimation of changes in abundance since the closure.

³ <http://www.manxwt.org.uk/manx-wildlife/manx-marine/marine-protected-areas>

The adjacent fisheries management area has restrictions on the fishing effort allowed within the area. An emergency closure was put in place in 2009 to protect the scallop stocks and was later lifted in 2013.

Four divers undertook a *Seasearch* survey (JA, GB, JC, BP) and four completed two scallop survey transects (LH, KL, JB, EK).

Seasearch survey: Flat sand/gravel plain; wave exposed with moderate tidal streams; depths 5 – 8.5m surveyed.

Sand plain with gravel, shell gravel, shell debris and scattered cobbles and pebbles, covered by abundant drift algae. Kelp, *Dictyota dichotoma*, red foliose algae and calcareous tubeworms, *Pomatoceros* sp, on larger stones. Burrowing anemones, tubeworms, crabs and gobies and burrowing bivalve molluscs present in the sand and gravel, with Occasional maerl nodules and queen scallops and Rare great scallops (3 very small scallops recorded by one surveyor, all on kelp plants).



Image 7. Sand, gravel and pebble habitat with maerl nodule and red algae. © KL



Image 8. Juvenile queen scallop *Aequipecten opercularis*, on kelp. © JC



Image 9. *Elysia viridis*. © JC



Image 10. Painted goby, *Pomatoschistus pictus*. © KL

Scallop survey transects: habitat as above.

Two 2 x 50m long north to south transects were surveyed. Each diver-pair recorded from one metre either side of a 50 metre tape deployed on the seabed. Seabed substrate, depth, number and size of queen and great scallops encountered and other species encountered were recorded for each five metre section along the transect tape; see Annex 3. Both transects commenced from the location recorded in Table 1.

North transect: sand with gravel and, between 25 and 50m, small amounts of maerl, common drift algae; depth 8m. No scallops or queens recorded. Other fauna very sparse.

South transect: gravelly sand with scattered maerl, common drift algae; depth 7.5m. Two *P. maximus* (at 10-15m and 35-40m) and nine *A. opercularis* between 40 and 50m. Other fauna less sparse than North transect: Occasional *Cereus pedunculatus*, hermit crabs and dragonets throughout the length of the transect. *Polycera quadrilineata* were common.

Clearly considerably greater effort in terms of numbers of divers, numbers of transects and distribution of sites would be required to obtain a worthwhile estimate of scallop density and distribution. The value of volunteer, 'citizen science', divers to assist with surveys such as these has been clearly demonstrated in the Skomer Marine Nature Reserve (now redesignated as Marine Conservation Zone) in SW Wales where four substantial scallop surveys have been completed by volunteer divers since 2000; see reports available here: <http://www.wmmc.org.uk/skomer-mnr-allies/science-monitoring/>.

4.4 Port Lewaigue

15 June 2015; map 5; JA, GB, JB, JC, EK, KL, BP

Flat sandy seabed; wave exposed with weak tidal streams; depths 7-7.5m surveyed. Site just within northern boundary of Ramsey MNR *rocky shore zone* and just east of the *eelgrass zone* (dredging excluded within 500m of the shore). The dive was planned to be in the *eelgrass zone* where it was intended to compile a detailed species list to highlight the importance of the area and the need to protect it.

Habitat 1: Sandy flat sea bed with mounds/casts and burrows/holes in firm, stable sediment. Isolated pebbles and small nodules of maerl amongst copious amounts of drift algae.

Some large patches of *Zostera marina* (eelgrass) were recorded and noted to be in good condition, but coverage was discontinuous; other divers only encountered sparse patches.

Several species of crustaceans were recorded, including *Corystes cassivelaunus*, *Liocarcinus depurator* and *Pagurus prideaux*. Rich assemblages of encrusting bryozoans on kelp were photographed. Other sediment dwelling species included anemones *Cereus pendunculatus*, *Cerianthus lloydii* and burrowing urchin *Echinocardium sp.* Eleven species of fish were recorded.

An abandoned, but open, lobster pot with line attached was recorded.



Image 11 (above).
Encrusting bryozoans and
***Spirorbis* tubeworms on**
kelp. ©KL



Image 12. Common necklace
shell, *Euspira nitida*. ©KL

Image 13 (right).
Snakelocks anemone,
***Anemonia viridis*. ©KL.**



4.5 Gibdale Bay

16 June 2015; JA, GB, JB, BB, RB, JC, EK, KL, BP

Rugged steep boulder slope grading into gently sloping coarse sand with cobble, pebbles and gravel; wave exposed with weak tidal streams; 13 – 20.5m.

Habitat 1: Boulder slope with dense algal meadow and occasional kelp, depths 13-17m surveyed. Upper surfaces of shallower boulders dominated by red algae; vertical, overhanging and deeper surfaces dominated by urchin, *Echinus esculentus*, grazed pink coralline algal crusts with frequent *Caryophyllia smithii*, calcareous tubeworms, encrusting bryozoans and occasional patches of large *Alcyonium digitatum* colonies.

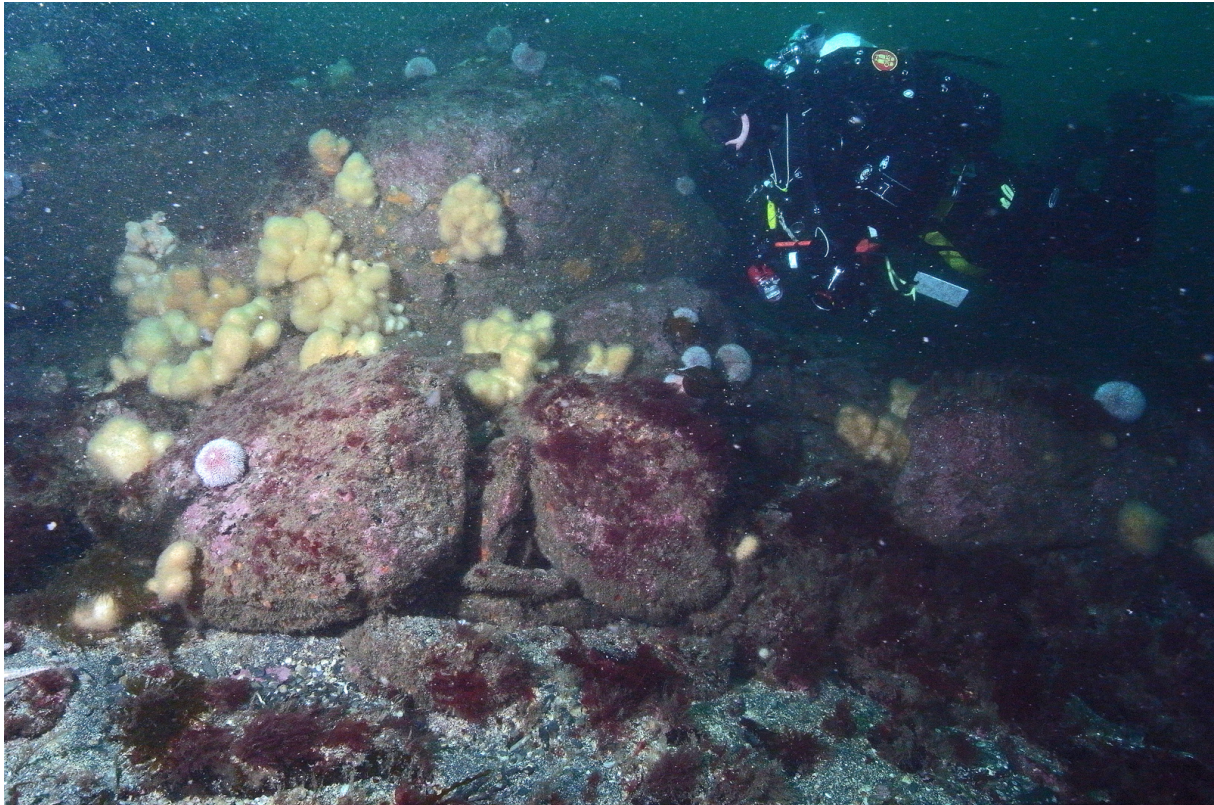


Image 14. Transition between habitats 1 and 2, Gibdale Bay. © BB

Habitat 2: mixed boulder, cobble, pebble and coarse sand with broken shell substrates; depths 17-20.5m surveyed. Foliose red algae present on upward facing boulder surfaces to 18m; rock surfaces below this depth dominated with mixed hydroid-bryozoan turf, calcareous tubeworms and Occasional colonial ascidians.



Image 15 (left). Finger bryozoan *Alcyonidium diaphanum*. ©JA

Image 16 (above). Juvenile queen scallop *Aequipecten opercularis*. ©JA

4.6 Garden Rock, Bay Stacka

16 June 2015

JA, GB, JB, BB, RB, JC, EK, KL, BP

Boulder slope grading into gently sloping, coarse, mobile sand with occasional boulders (possibly low bedrock outcrops), and cobbles and pebbles adjacent to the boulders; wave exposed with weak-moderate tidal streams; 8.5-16.5m. Steep sided rock pinnacle to south; 4.5-12m.

Although the area surveyed lies within the Bay ny Carrickey Fisheries Closure Area (Map 1), closed to the extraction of scallops by any means in late 2012, clear evidence of recent scallop dredging was noted approximately 15 m away from the bottom of the boulder slope (Images 22 & 23).

Habitat 1: Moderately steep slope of mostly large boulders; depths 8.5-13.5m metres surveyed. Rock surfaces shallower than 13m dominated by pink coralline algal crusts with sparse foliose red algae and kelp.

Deeper than 13m, boulders were heavily grazed by urchins, *E. esculentus*, and dominated by coralline algal crusts, encrusting bryozoans and Occasional patches of large *Alcyonium digitatum* with Frequent *Caryophyllia smithii* and calcareous tubeworms, *Pomatoceros* sp. Wrasses, particularly cuckoo and ballan, were Frequent.



Images 17 & 18. Bay Stacka habitat 1. ©BB



Habitat 2: Coarse sand with scattered pebbles and gravel; depths 13.5-16.5m surveyed. Sparse fauna dominated by frequent tube-dwelling anemones *Cerianthus lloydii* and tube-building worm *Lanice conchilega* close to the boulder slope, with occasional gravel sea cucumbers *Neopentadactyla mixta* and large burrowing bivalves, probably *Lutraria* sp.



Image 19. Bay Stacka habitat 2. ©BB

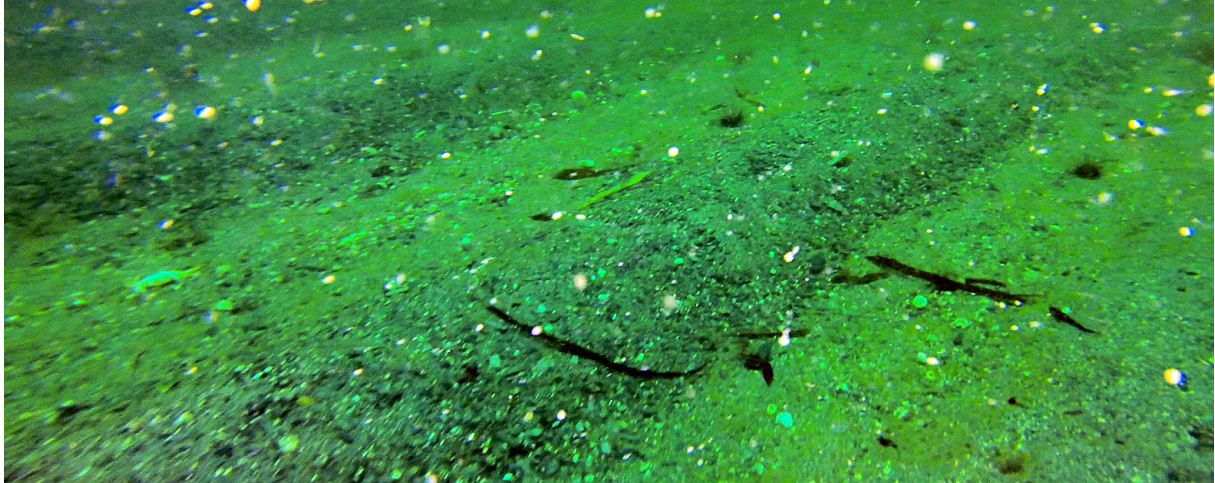
An absence of conspicuous fauna was recorded from dredge tacks approximately 15m offshore from the base of the boulder slope, although shell debris was recorded in the tracks (Images 22 and 23. These images are still-captures from video; the green colour cast is caused by natural light as video lights were not being used.)



Image 20 (above). Burrowing anemone *Peachia hastata*. ©BP

Image 21 (below). Necklace shell *Euspira nitida*. ©GB





Images 22 & 23. Still images captured from *GoPro* video showing characteristic flattened sandy dredged areas separated by ridges of more coarse material heaped between scallop dredges. ©JB

Habitat 3: Steep sided rock pinnacle with extensive vertical faces topped by flat, kelp dominated plateau; 4.5-12m. Vertical faces dominated by a mixed hydroid-sponge-bryozoan-colonial ascidian turf and crusts with occasional dense patches of *A. digitatum*.

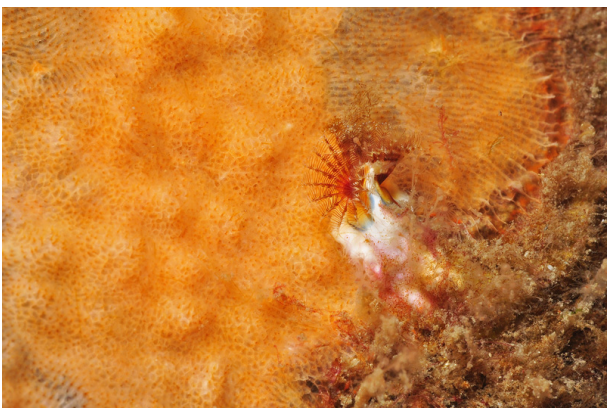


Image 24. Calcareous tubeworm amongst encrusting bryozoan. ©GB



Image 25. Light-bulb squirt, *Clavelina lepadiformis*. ©GB

4.7 Kione ny Halby, Calf of Man

17 June 2015; JA, GB, JB, BB, RB, JC, LH, EK, KL, BP

Moderate slope of large boulders extending to c.16-18m, merging into gently sloping mixture of small boulders, cobbles and coarse gravel; wave exposed with moderate tidal streams; depths 10-19m surveyed. A string of lobster pots crossed the area surveyed.

Habitat 1: Moderate slope of large boulders interspersed with patches of pebbles and gravel; depths 10–14m surveyed. Dominated by kelp, red algae and patches of pink coralline algal crusts. Boulder sides and extensive overhanging surfaces dominated by coralline crusts, *A. digitatum* with Occasional anemones, hydroids and *E. esculentus*.

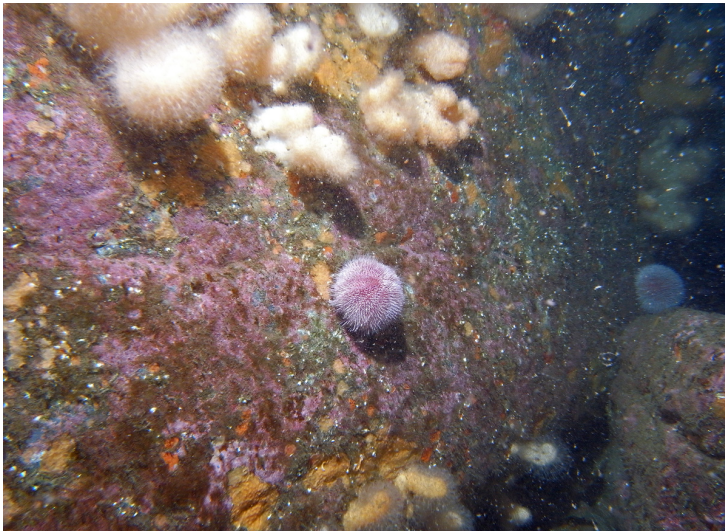
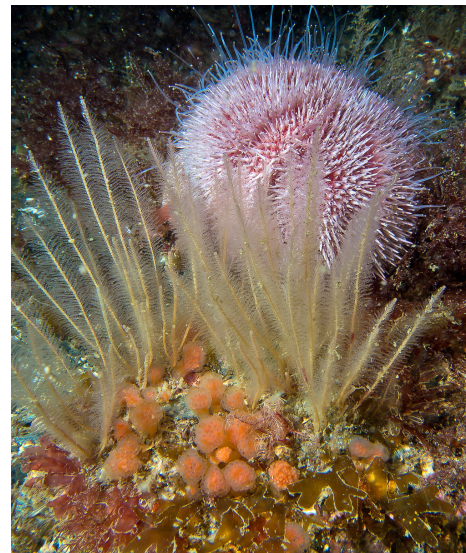


Image 26 (left). Kione ny Halby habitat 1. ©BB

Image 27 (below left). Encrusting algae, hydroids and *Alcyonium digitatum*. ©RB

Image 28 (below right). *Echinus esculentus*, *Nemertesia antennina* and *Aplidium punctum*. ©RB



Habitat 2: Gentle slope of small boulders, cobbles and coarse gravel; depths 16-19m surveyed. Dominated by coralline algal crusts and hydroids with sparse foliose red algae, calcareous tubeworms and *A. digitatum*. Occasional *C. lloydii* present in gravel. Twelve species of nudibranch recorded.

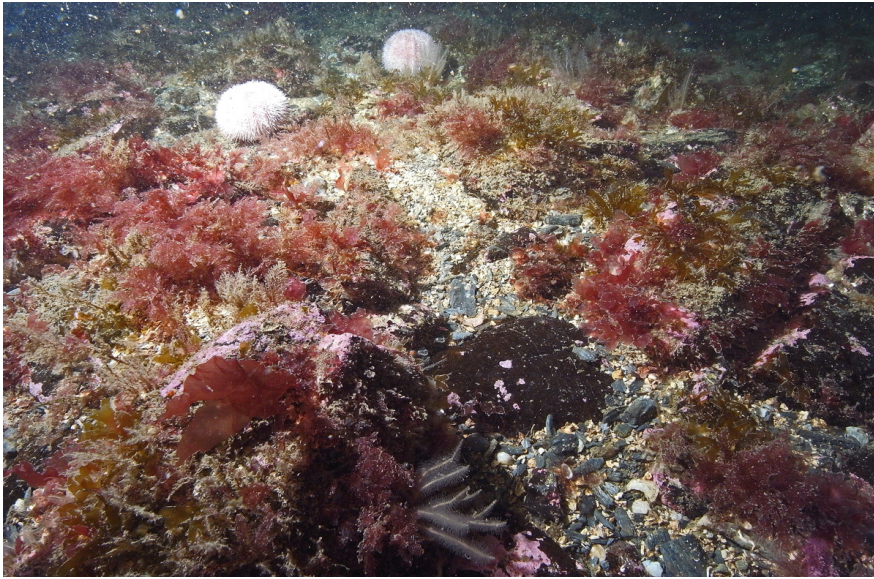


Image 29 (above).
Kione ny Halby habitat
2. © BB



Image 30 (left).
Bootlace worm, *Lineus*
***longissimus*, amongst**
light-bulb squirt
***Clavelina lepadiformis*.**
© JA



Image 31 (left).
Uncommon Imperial
anemone *Capnea*
sanguinea* (*Aureliania
***heterocera*) ©BP**

4.8 Bay Fine

17 June 2015; JA, GB, JB, BB, RB, JC, LH, EK, KL, BP

Large bedrock reef and wall giving way to gentle, coarse gravel, pebble and cobble slope; moderately wave exposed with moderate tidal streams; depths 3.5-15.5m surveyed. The site lies within the Port Erin Fisheries Closed Area, established in 1989.

Habitat 1: Vertical bedrock wall; depths c.3.5-10.5m surveyed. Kelp forest at top of wall was not surveyed. Wall dominated by red algae, *A. digitatum* and, on overhanging surfaces, hydroids and short bryozoan turf. Occasional patches of jewel anemones, *Corynactis viridis*, colonial ascidians and a single, large (c.1m²) patch of the scarce soft-coral *Alcyonium hibernicum*, pink sea fingers. Several brooding cushion stars, *Asterina phylactica*, were recorded; this species is considered scarce but may be under-recorded.

Image 32 (upper right). Bay Fine habitat 1. ©BB



Habitat 2: Broken bedrock reef sloping at c.45°; depths c.10-14m surveyed. Dominated by a dense hydroid-bryozoan turf with frequent *A. digitatum* and barnacles, and occasional cushion and massive sponges and patches of the colonial ascidian *Clavelina lepadiformis*, light-bulb squirt. Yellow boring sponge *Cliona celata* noticeable for being present in the rock boring form at shallower depths (c.10m) and the massive form deeper at c.14-15m.

Image 33 (lower right). Bay Fine habitat 2. ©BB



Habitat 3: Very coarse gravel, angular slate pebbles and cobbles; depths 13.5-15.5m surveyed. Cobbles and larger pebbles dominated by barnacles, *Pomatoceros* sp, hydroids, red algae and *C. lepadiformis*, with feather stars *Antedon bifida* on larger cobbles. Gravel and smaller cobbles bare. The habitat specialist gravel sea cucumber *Neopentadactyla mixta* and *C. lloydii* were both Common in gravel, with scattered scallops, *Pecten maximus*, occasionally up to 3/m² between cobbles.



Image 34 (above). Bay Fine habitat 3. ©BB

Image 35 (below). Scallop *Pecten maximus* with luxuriant epibiota on shell. ©RB



4.9 Spanish Head

18 June 2015; Map 2; JA, GB, JB, BB, RB, JC, LH, EK, KL, BP

Steep slope of large boulders from 6.5 to 16.5m; dense kelp forest extended to c. 8.5m depth; boulders fringed by a narrow band of coarse sand then a transition into coarse gravel, cobbles and boulders; very wave exposed with moderate tidal streams; depths 11.5-18.5m surveyed.

Habitat 1: Steep slope of large boulders.

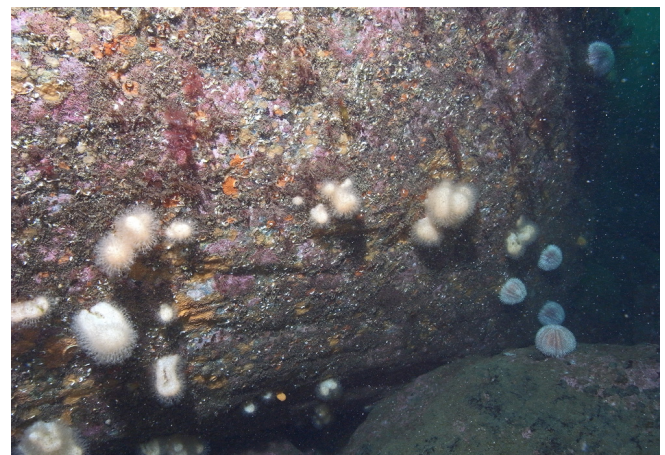
Below kelp forest, *E esculentus* were abundant and surfaces were mostly grazed to bare rock and pink coralline and red algal crusts, except for frequent patches of large *A. digitatum* colonies. Several other larger individual echinoderms were also noted including *Marthasterias glacialis* and the cushion stars *Porania pulvillus* (image 39), and *Crossaster papossus*, common sunstar. A small group of *A. hibernicum*, colonies were recorded from a crevice at c.14m.



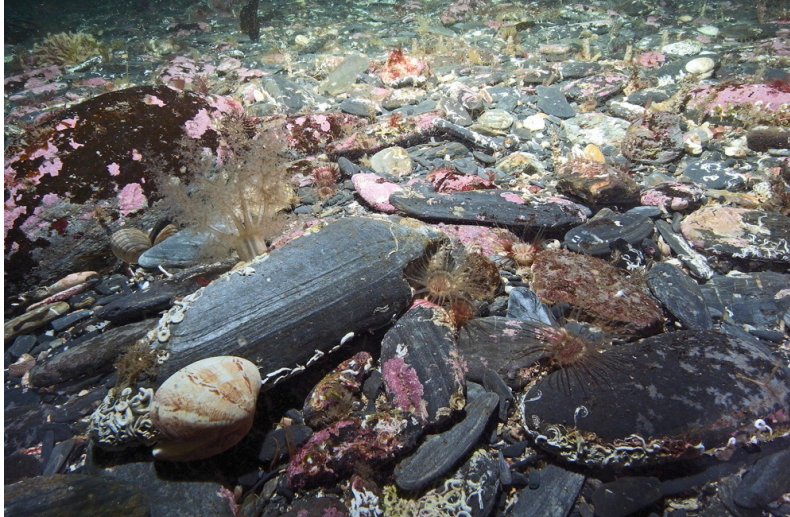
Images 36 – 38 (right, top to bottom).
Spanish Head habitat 1, c. 11, 13 and 15 metres depths. ©BB



Image 39 (below). Cushion star *Porania pulvillus*. ©RB



Habitat 2: Coarse angular gravel, cobbles and occasional boulders; 16-18.5m. Boulders and cobbles dominated by dense stands of hydroids, particularly *Nemertesia antennina*, *N. ramosa* and *Sertularia argentea*. Gravel sea cucumber *N. mixta*, *C. lloydii* and *L. conchilega* were Common in gravel, and the solitary hydroid *Corymorpha nutans* and unidentified siphons of a several large burrowing bivalve, possibly *Lutraria* sp, were recorded.



Images 40 & 41 (left and below left). Spanish Head habitat 2. ©BB

Image 42 (below). Sporadically occurring solitary hydroid *Corymorpha nutans*. ©RB



Habitat 3: Coarse sand with shell and occasional gravel/cobbles (incompletely recorded). King scallops, *Pecten maximus*, present adjacent to the base of the boulder slope. Tube dwelling anemone *Cerianthus lloydii* and sand mason worms, *Lanice conchilega*, and burrowing sea cucumbers present in sand.

4.10 Fairy Cave / Anvil gulley

18 June 2015

Fairy Cave: JA, GB, JB, LH, EK, KL, BP

Extensive bedrock cave with floor comprised of bare, mobile cobbles; very wave exposed (wave surge); depths 3-5.5m surveyed. Cave walls smothered with typical surge community sponges *Pachymatisma johnstoni*, *Clathrina coriacea* and ascidian *Dendrodoa grossularia*. Sponges *Stryphnus ponderosus* and *Dercitus bucklandi*,



characteristic of caves or low light and *Leuconia spp*, characteristic of strong water movement, were Occasional to Frequent and a dozen species of colonial ascidians were present. The lowest parts of the cave walls adjacent to cobble seabed were scoured with Superabundant calcareous tubeworms *Pomatoceros sp.*, bare rock and, near the cave entrance, pink calcareous algal crusts.

Image 43 (upper left). Baked-bean squirt *Dendrodoa grossularia* and encrusting sponge on cave wall. ©KL



Image 44 (centre left). *Leuconia johnstoni* surrounded by *D. grossularia* on cave wall. ©JA

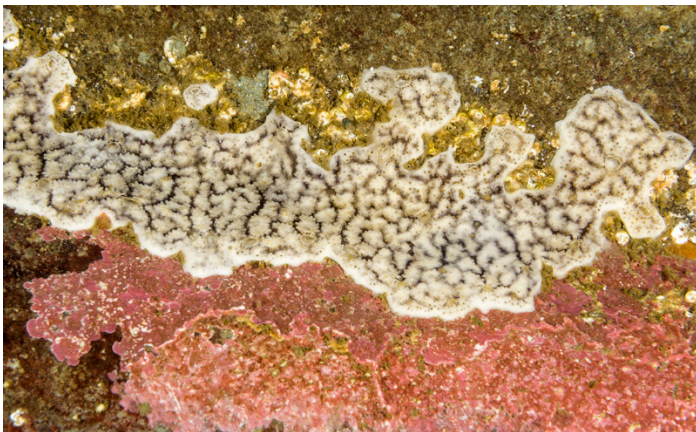


Image 45 (lower left). Encrusting colonial ascidian *Didemnum maculosum* above band of pink crustose calcareous algae on cave wall. ©JA



Images 46 & 47. Atypical colour morphs of normally blood-red anemone *Actinia equina* in Fairy Cave ©BP (left) / JA (right)

Anvil gully: JA, GB, JB, BB, RB, JC, LH, EK, KL, BP

Broad gully on the shoreward side of extensive bedrock ridge running parallel to island shore; gully sides vertical to overhanging bedrock; floor comprised a mixture of very large boulders and bare, mobile, cobbles; wave exposed (wave surge) with moderate tidal streams; rock walls at depths 0-5.5m surveyed.

The north facing gully wall was densely covered by at least 16 colonial and solitary ascidian species. Extensive sheets of *Dendrodoa grossularia* with *Clathrina coriacea*, *Leucosolenia* sp and other sponges extended in a rough band about two metres deep above the lowest, scoured, 1-1.5m gully wall, with an irregular band of pink calcareous algal crusts and barnacles above bare rock.

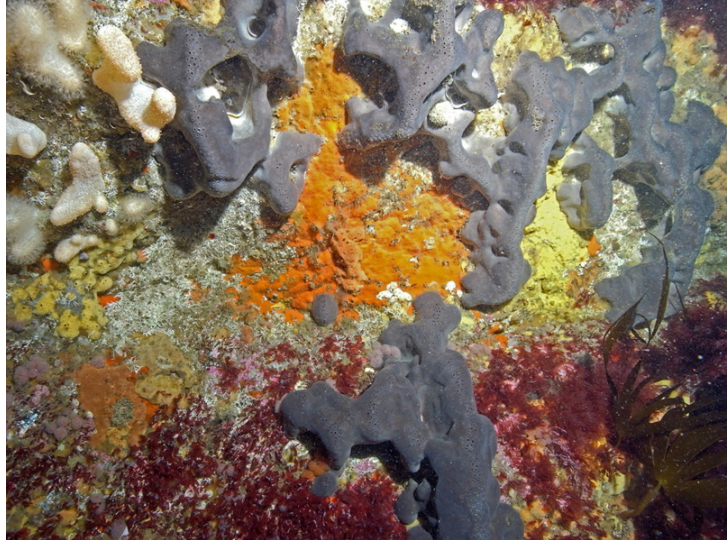


Image 48 (left). Anvil gully, north-facing bedrock wall. ©BB

Image 49 (below). *Dendrodoa grossularia* and encrusting sponges. ©RB



**Image 50 (upper right).
Massive and encrusting
sponges on north-facing
gulley wall. ©BB**



**Image 51 (lower right).
Deepest, pink algal encrusted
and scoured, rock wall. ©BB**

Kelp park and dense red foliose algal meadow were present to c. 3m on north (*ie* south-facing), island wall, with dense ascidian turf amongst and deeper than the red algae. Two small (c.0.1m²) patches of *A. hibernicum* under small overhangs at c.3m.



Image 52 (above left). Pink sea fingers *Alcyonium hibernicum* colonies. ©RB



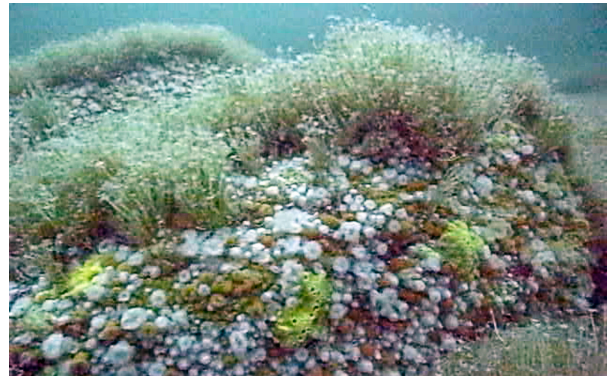
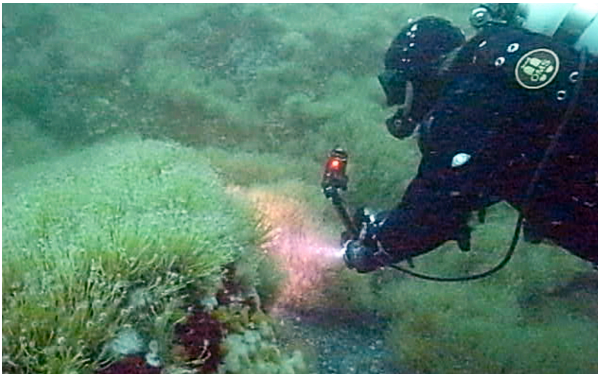
**Image 53 (above right). Cushion star *Asterina phylactica* amongst kelp holdfasts.
©BB**

4.11 Burroo, Calf of Man

19 June 2015; JA, GB, BB, RB, JC, LH, KL, BP

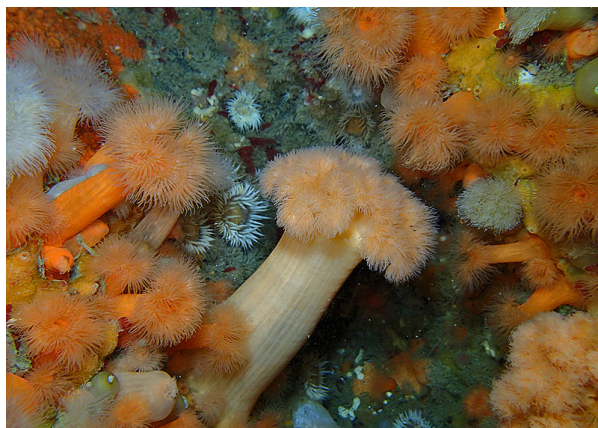
Steep to vertical-sided bedrock ridges and gullies; gently sloping and undulating bedrock reef extended seaward from outer bedrock ridge beginning at 17-19m depth; gully floor between ridges comprised low undulating reef with small gravel patches; very wave exposed with moderate tidal streams; depths 15.5-21.5m surveyed.

Dominated by Superabundant *Tubularia indivisa* and Common *Ectopleura larynx*, with large discrete patches of *A. digitatum*, and anemones *Metridium senile* and *Sagartia* sp(p). A rich variety of erect, massive and cushion sponges, patches of hydroids, erect bryozoans and colonial ascidians and scattered foliose red algae were also present. Jewel anemones *Corynactis viridis* were Common overall, with extensive patches on gully walls. Unidentified caprellid amphipods, skeleton shrimps, were Abundant on the hydroids, particularly *Tubularia*. Wrasses, mainly ballan, cuckoo and rock-cook, were conspicuously present.



Images 54 & 55 (above). Burroo habitat: low undulating reef with dense stands of *Tubularia indivisa* and patches of *Sagartia elegans* and sponges. Images captured from video shot with available light. ©BB

Images 56 & 57 (below). Dense patches of plumose or ghost anemone *Metridium senile* (left). Elephants ear sponge *Pachymatisma johnstoni*, *M. senile*, *S. elegans* and *T. indivisa* (right). ©KL



Reflecting the abundance of prey, at least a dozen species of nudibranchs were recorded, including large numbers and many large individuals of *Dendronotus frondosus*, feeding on *Tubularia indivisa*.

Kelp park and dense algal habitat at top of ridges, above c.12-14m, not surveyed.



Images 58 & 59 (above). Colour morphs of *Sagartia elegans*. ©JA (left) / RB (right)

Image 60 (left). *Dendronotus cf frondosus* preying on hydroid *Tubularia indivisa*. ©KL

4.12 Port St Mary Ledges

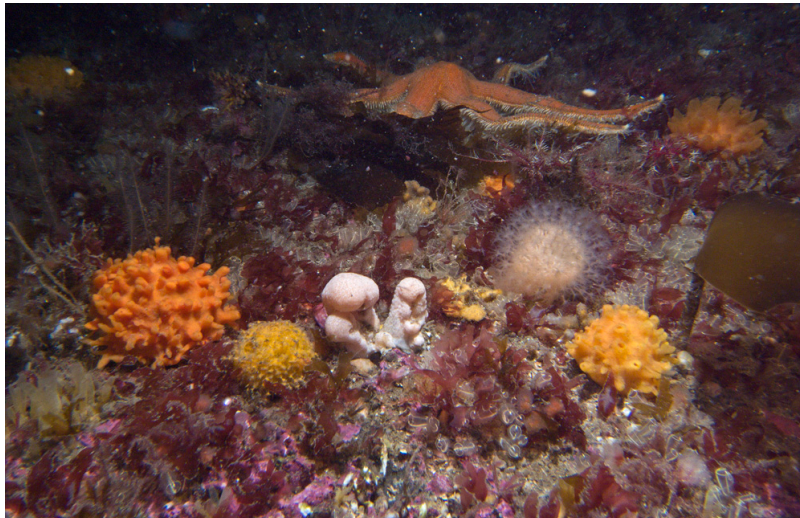
19 June 2015; JA, GB, JB, BB, RB, JC, EK, KL, BP

Low, roughly linear, limestone ridges with coarse sand, gravel, pebbles and cobbles between; wave exposed with weak-moderate tidal streams; depths 16–19.5m surveyed.

Habitat 1: low, c.0.5, max 1m high, bedrock ridges; depths 16-19.5m surveyed

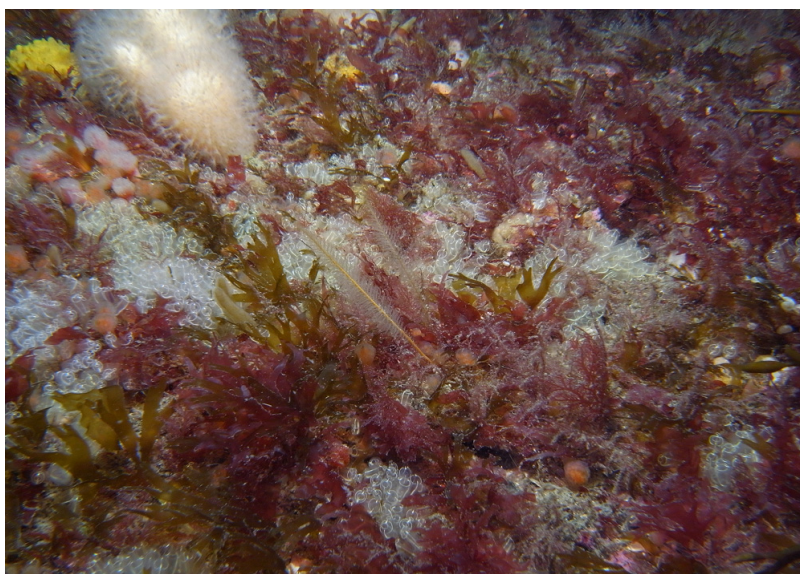
Sparse kelp park and red algal meadow with extensive patches of pink coralline algal crusts, colonial and solitary ascidians, and small erect and cushion sponges, including Common *Polymastia boletiformis*, Frequent *P. penicillus* and *Tethya citrina*. *A. digitatum* and feather star *Antedon bifida*, were Frequent and hydroids mostly Occasional.

Although conspicuous amongst the otherwise predominantly short turf, massive sponges, *Cliona celata* and *Pachymatisma johnstoni* and urchins *E. esculentus* were only recorded as Occasional. Several diseased, damaged specimens of *Cliona celata* were noted. Unidentified caprellids were Common and ballan wrasses were recorded as Frequent.



Images 61 & 62. Port St Marys ledges habitat 1. ©BB.

Sponges *Polymastia boletiformis* & *Tethya citrina*, red foliose and encrusting pink coralline algae, seven-armed starfish *Luidia ciliaris* (top).



Red and brown algae, light-bulb squirts *Clavelina lepadiformis* and soft coral deadmen's fingers *Alcyonium digitatum* (bottom).

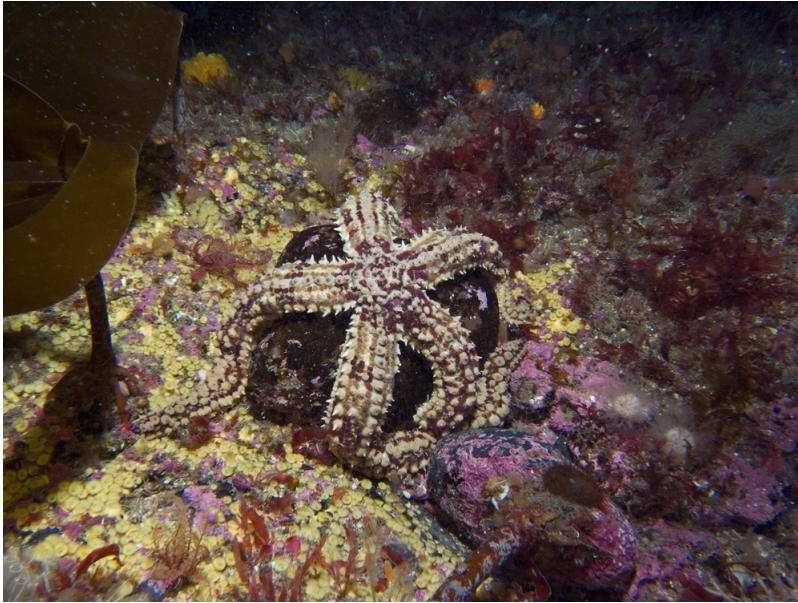


Image 63. Spiny starfish *Marthasterias glacialis* and rock boring form of yellow sponge *Cliona celata*. ©BB

Habitat 2: gravel with coarse sand, pebble, cobble and shell fragment ribbons between rock ridges; depths 17.5-19.5m surveyed. Cobbles and pebbles encrusted with pink coralline algal crusts, hydroids, *Pomatoceros* sp, barnacles, bryozoans and colonial ascidians, mainly light-bulb sea-squirt *C. lepadiformis*. The boring form of *C. celata* was recorded from cobbles.

Gravel sea cucumber *Neopentadactyla mixta* and tube building *Lanice conchilega* were both Frequent and scallops *Pecten maximus* Occasional in gravel, where scattered large Asteroid echinoderms *Luidia ciliaris*, *Crossaster papposus* and *Marthasterias glacialis* were also recorded. Scattered nodules of live maerl were recorded as Occasional.

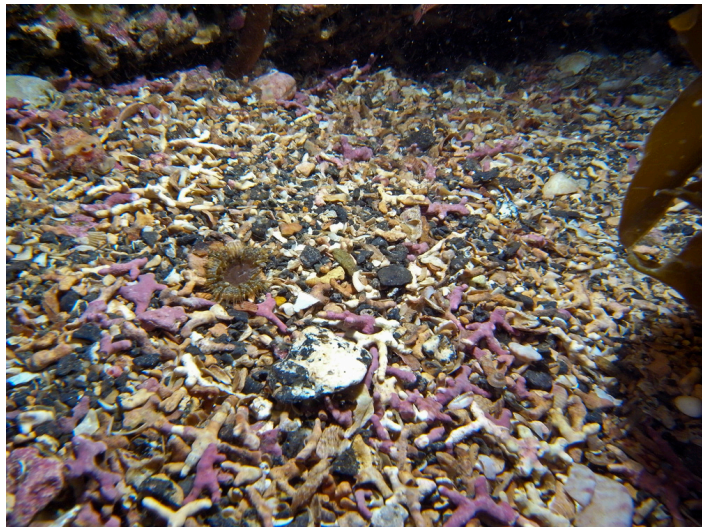


Image 64 (upper right). Maerl nodules (live and dead). ©BB

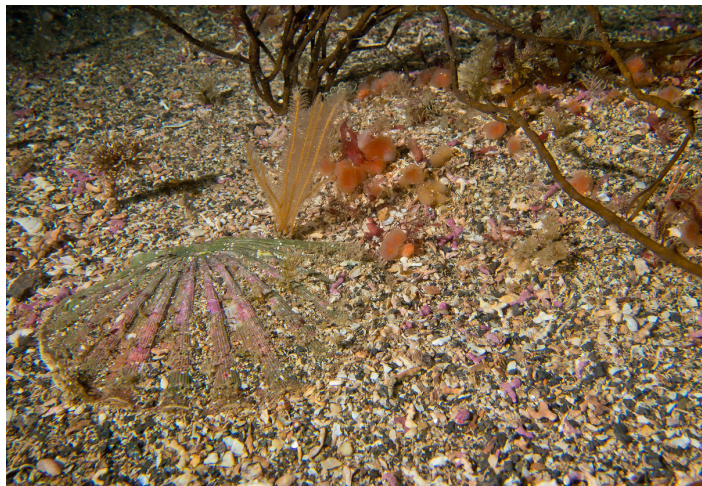


Image 65 (lower right). Scallop *Pecten maximus* in shell gravel & maerl. ©RB

5 Nudibranch sea-slugs

5.1 The nudibranchs of the Isle of Man. Bernard Picton.

The nudibranch fauna of the Isle of Man was extensively investigated by M. C. Miller who completed a PhD at Port Erin marine biological station and published papers on the food and distribution of the nudibranchs (and sacoglossans) (Miller, 1961) and the annual cycles of some species (Miller, 1962). Miller recorded 55 species of nudibranchs and 5 sacoglossans. The marine fauna of the Isle of Man, published in 1963, included details of the nudibranch fauna in a section edited by Miller (Bruce, Colman & Jones, 1963). It did not add any species to Miller's previous work.

In 1976 Henning Lemche (Lemche, 1976) described several new species of *Doto* including some, which would have been identified as *Doto coronata* by Miller. Each species is specific to a different hydroid so it is possible to reinterpret Miller's data and allocate to species where he has listed *Doto coronata* as feeding on different hydroids. Shipman & Gosliner (2015) investigated *Doto* using DNA sequencing and confirmed the specific differences between several of Lemche's species but questioned the distinction between *Doto dunnei* and *Doto millbayana* which have CO1 barcoding fragment DNA sequences which are less than 1% divergent. Typically mollusc species have 4% or greater divergence in CO1 between species.

A study at Port Erin laboratory using enzyme electrophoresis conducted by Morrow in 1992 (Morrow, Thorpe & Picton, 1992) described two new species from the *Doto coronata* complex. These species, *Doto hydrallmaniae* and *Doto sarsiae*, were both collected on this expedition. They have never been sampled for DNA.

Miller lists a number of hydroids as food of *Doto coronata* which consistently have animals which differ slightly from typical *Doto coronata* feeding on them. Several of these were collected on this expedition and have been found at other sites in the UK and Ireland. They will be sampled for DNA in a further investigation of this species complex. They are listed in Table 2 as *Doto cf. coronata* and *Doto cf. fragilis*. Preliminary sequencing results suggest that these are species complexes of several species.

Dendronotus frondosus was widely accepted to be the only species of *Dendronotus* in the N.E. Atlantic for most of the 20th century. Thollessen (Thollessen, 1998) separated *Dendronotus lacteus* from synonymy on the basis of enzyme electrophoresis but only partly clarified the differences in external morphology between the species. In 2015 Ekimova et al. described a new species of *Dendronotus* from Norway and defined *D. frondosus* and *Dendronotus lacteus* more closely as well as designating a neotype for *Dendronotus frondosus*. They showed that white and brown morphs occur in both *D. frondosus* and *D. lacteus* and that external colouration in these species is variable and not a good character for distinguishing between species. Shape and structure of the gills is a better character, but is also related to the size of the individual. Specimens photographed and collected during this expedition differ in detail from both *D. frondosus* and *D. lacteus* and may constitute new species. Specimens were preserved for DNA analysis.







In 1991 and 1992 expeditions were made to survey the Calf of Man as a potential marine reserve. A report was published in 1993 and has records of a number of nudibranchs not previously recorded (Morrow *et al.*, 1993).

This expedition discovered four new named and well known species of nudibranch, *Crimora papillata*, *Cuthona pustulata*, *Doto tuberculata* and *Doto maculata*. It also collected specimens for DNA analysis of *Doto* and *Dendronotus* species. During a nudibranch course held after the expedition Tim Nicholson showed a number of photographs he had taken on the island and these included the first record of *Thecacera pennigera* and *Okenia elegans*, which had only been recorded once before. This brings the total list of species recorded from the Isle of Man to 76, plus 15 possibly undescribed species of *Doto* and *Dendronotus*. The new records are all of species known to have distributions centred to the south of the Isle of Man and may be new arrivals in the area due to sea temperature increases. There is some evidence that nudibranchs in the North Atlantic are shifting their ranges northwards in recent years (Martynov *et al.*, 2006).

Table 2. Nudibranchs recorded from the Isle of Man.

All currently known nudibranchs recorded from the UK are listed below; species shown in bold have been recorded from the Isle of Man, with those shown in red having been recorded during this survey. Abbreviations: MCM - M.C. Miller; MFIOM – Bruce Colman & Jones, 1963; CCM - Christine Morrow et al., 1993; CCM* - Christine Morrow et al., 1992; 2015 - This expedition; TN – Tim Nicholson, photo confirmed by B. Picton; NBN – record on NBN gateway; BEP – Bernard Picton, photo; JC – Jon Chamberlain, photo; KL – Kerry Lewis, photo; LH – Lara Howe, photo; GB – George Brown, photo.

	Species	Food	Recorded	Notes, nearest records
1	Acanthodoris pilosa	Alcyonidium spp.	MCM, 2015	
2	Adalaria loveni	Membranipora membranacea		Norway, Scotland, Ireland
3	Adalaria proxima	Electra pilosa	MCM*	MFIOM
4	Aegires punctilucens	Leucosolenia botryoides	MCM	
5	Aeolidia cf. papillosa			In press, Carmona, Cervera et al.
6	Aeolidia papillosa	Metridium senile, Actinia equina	MCM	
7	Aeolidiella alderi	Cereus pedunculatus		Southwest UK & Ireland
8	Aeolidiella cf. glauca			Strangford Lough
9	Aeolidiella glauca	Sagartiogeton laceratus	MCM, JC, 2015	
10	Aeolidiella sanguinea		CCM	
11	Aldisa zetlandica	Hymedesmia jecusculum		Offshore, West, Ireland & Scotland
12	Ancula gibbosa	Entoprocta, Pedicellina sp.	MCM, KL, BEP, 2015	
13	Archidoris pseudoargus	Halichondria spp., Suberites ficus	MCM, 2015	Frequent
14	Armina loveni	Virgularia mirabilis	MCM*	MFIOM
15	Atagema gibba			Scilly, Cornwall
16	Cadlina laevis	Dysidea fragilis, ?Halisarca	MCM*, 2015	MFIOM: 12 mi. WSW of Chicken Rock. Cornwall, Devon.
17	Cadlina pellucida			Cornwall, Devon.
18	Calma glaucoides	Lepadogaster, Blenny eggs	MCM	On Lepadogaster eggs
19	Calma gobioophaga	Goby eggs		Probable
20	Caloria elegans			Irish Sea at Maidens, Co Antrim
21	Catriona gymnota	Tubularia indivisa	MCM, 2015	
22	Coryphella browni	Tubularia indivisa	CCM, TN, 2015	
23	Coryphella cf. lineata	Tubularia indivisa	BEP, 2015	New species, DNA evidence, BEP
24	Coryphella gracilis	Eudendrium annulatum		Probable. MCM treated as synonym of C. verrucosa.
25	Coryphella lineata	Tubularia indivisa	MCM	
26	Coryphella rufibranchialis	Tubularia indivisa	MCM	MCM as C. verrucosa

	Species	Food	Recorded	Notes, nearest records
27	<i>Coryphella verrucosa</i> s.s.	<i>Tubularia indivisa</i> , <i>Aurelia</i> , hydroids		Possible different species but not supported by DNA results
28	<i>Crimora papillata</i>	<i>Securiflustra</i> <i>securifrons</i> , <i>Flustra foliacea</i>	BEP, 2015	Gibdale
29	<i>Cumanotus beaumonti</i>	<i>Corymorpha nutans</i>		Irish Sea at Dundrum Bay
30	<i>Cuthona amoena</i>	<i>Halecium halecinum</i>	MCM, BEP, 2015	
31	<i>Cuthona caerulea</i>	<i>Sertularella polyzonias</i>	MCM, BEP, 2015	
32	<i>Cuthona concinna</i>	<i>Sertularia argentea</i>	MCM, BEP, 2015	
33	<i>Cuthona foliata</i>		MCM, BEP, 2015	
34	<i>Cuthona genovae</i>			Southwest UK & Ireland
35	<i>Cuthona nana</i>	<i>Hydractinia echinata</i>	CCM	
36	<i>Cuthona pustulata</i>	<i>Halecium muricatum</i>	JC, 2015	
37	<i>Cuthona rubescens</i>	<i>Halecium halecinum</i>	CCM	
38	<i>Cuthona viridis</i>	<i>Sertularella</i> spp.	CCM	
39	<i>Dendronotus cf. frondosus</i>	<i>Tubularia indivisa</i>	Burroo, 2015	The common large form of <i>Dendronotus frondosus</i> in Britain & Ireland
40	<i>Dendronotus cf. frondosus</i>	<i>Sertularia argentea</i>	Bay Fine, 2015	
41	<i>Dendronotus cf. frondosus</i>	<i>Abietinaria abietina</i>		Strangford Lough
42	<i>Dendronotus cf. frondosus</i>	<i>Hydrallmania falcata</i>	Gibdale, 2015	
43	<i>Dendronotus cf. frondosus</i>	<i>Thuiaria articulata</i>		Jim Anderson obs. Scotland
44	<i>Dendronotus frondosus</i>		MCM, BEP, 2015	MCM records multiple species? Also reported on <i>Dynamena pumila</i>
45	<i>Dendronotus lacteus</i>	<i>Obelia geniculata</i>		Probable
46	<i>Diaphorodoris alba</i>			Northern limit Pembrokeshire
47	<i>Diaphorodoris luteocincta</i>	<i>Crisia</i> spp.	MCM, 2015	Common
48	<i>Discodoris rosi</i>			Scilly Isles, Cornwall
49	<i>Dicata odhneri</i>			Southwest Ireland
50	<i>Doris ocelligera</i>			Devon, Connemara
51	<i>Doris sticta</i>	<i>Ciocalypta penicillus</i> , <i>Halichondriids</i>		Southwest UK & Ireland
52	<i>Doris verrucosa</i>			Doubtful for area
53	<i>Doto cf. coronata</i>	<i>Garveia nutans</i>		Strangford Lough
54	<i>Doto cf. coronata</i>	<i>Abietinaria abietina</i>	MCM?	MCM lists as food of <i>Doto coronata</i>
55	<i>Doto cf. coronata</i>	<i>Sertularia argentea</i>	MCM?, 2015	MCM lists as food of <i>Doto coronata</i>
56	<i>Doto cf. coronata</i>	<i>Diphasia rosacea</i>	2015	
57	<i>Doto cf. coronata</i>	<i>Diphasia margareta</i>		Rathlin Island
58	<i>Doto cf. coronata</i>	<i>Bougainvillea ramosa</i>	MCM?, 2015	MCM lists as food of <i>Doto</i>

	Species	Food	Recorded	Notes, nearest records
				coronata
59	<i>Doto cf. coronata</i>	<i>Abietinaria filicula</i>		
60	Doto cf. coronata	<i>Lafoea dumosa</i>	MCM?	MCM lists as food of <i>Doto coronata</i>
61	Doto cf. coronata	<i>Laomedea flexuosa</i>	MCM?	MCM lists as food of <i>Doto coronata</i>
62	Doto cf. coronata	<i>Sertularella polyzonias</i>	MCM?	MCM lists as food of <i>Doto coronata</i>
63	Doto cf. fragilis	<i>Halecium halecinum</i>	MCM?, 2015	MCM lists as food of <i>Doto coronata</i>
64	Doto cf. fragilis	<i>Tamarisca tamarisca</i>	MCM?	MCM lists as food of <i>Doto coronata</i>
65	<i>Doto cf. fragilis</i>	<i>Halecium muricatum</i>		Probable
66	<i>Doto cf. koenneckeri</i>	<i>Aglaophenia white form</i>		Skomer Island
67	<i>Doto cf. koenneckeri</i>	<i>Aglaophenia acacia</i>		Saltees
68	Doto cf. sarsiae	<i>Coryne muscoides</i>	MCM?	MCM lists as food of <i>Doto coronata</i>
69	Doto coronata	<i>Obelia geniculata</i>	MCM, 2015	
70	Doto cuspidata	<i>Nemertesia ramosa</i>	MCM	
71	Doto dunnei	<i>Kirchenpaueria pinnata</i>	CCM, 2015	MCM lists as food of <i>Doto coronata</i>
72	<i>Doto eireana</i>	<i>Amphisbetia operculata</i>		West coast of Ireland
73	<i>Doto floridicola</i>	<i>Aglaophenia kirchenpaueri</i>		Southwest UK & Ireland
74	Doto fragilis	<i>Nemertesia ramosa</i>	MCM, 2015	
75	Doto hydrallmaniae	<i>Hydrallmania falcata</i>	CCM*, 2015	
76	<i>Doto hystrix</i>	<i>Schizotricha frutescens</i>		Strangford Lough, probable
77	Doto koenneckeri	<i>Aglaophenia pluma</i>	CCM, 2015	
78	<i>Doto lemchei</i>	<i>Aglaophenia tubulifera</i>		Probable
79	Doto maculata	<i>Halopteris catharina</i>	2015	
80	Doto millbayana	<i>Plumularia setacea</i>	MCM?	MCM lists as food of <i>Doto coronata</i>
81	<i>Doto onusta</i>	<i>Dynamena pumila</i>		Probable
82	Doto pinnatifida	<i>Nemertesia antennina</i>	MCM, 2015	
83	Doto sarsiae	<i>Coryne eximia</i>	CCM*, 2015	MCM lists as food of <i>Doto coronata</i>
84	Doto tuberculata	<i>Sertularella gayi</i>	BEP, 2015	
85	Embletonia pulchra		MCM, JC, 2015	
86	<i>Eubranthus doriae</i>	<i>Kirchenpaueria similis</i>		Probable
87	Eubranthus exiguus	<i>Obelia dichotoma</i> , <i>Laomedea spp.</i>	MCM, KL, BEP, 2015	
88	Eubranthus farrani	<i>Obelia spp.</i>	MCM	
89	Eubranthus pallidus	<i>Halecium spp.</i>	MCM	
90	Eubranthus tricolor	<i>Nemertesia ramosa</i> , <i>Diphasia margareta</i> , <i>Halecium halecinum</i>	MCM, BEP, 2015	
91	Eubranthus vittatus	<i>Kirchenpaueria pinnata</i>	MCM, BEP, 2015	
92	<i>Facelina annulicornis</i>	<i>Halecium halecinum</i>		Southwest UK & Ireland

	Species	Food	Recorded	Notes, nearest records
93	Facelina auriculata	Tubularia indivisa, Obelia geniculata	MCM, BEP, 2015	
94	Facelina bostoniensis	Hydroids	MCM, BEP, 2015	
95	Facelina dubia			Southwest Ireland
96	Favorinus brianus	Opisthobranch eggs	CCM, LH, 2015	
97	Favorinus branchialis	Opisthobranch eggs	MCM, 2015	
98	Fiona pinnata	Goose barnacles, pelagic		Atlantic drift
99	Flabellina pedata	Eudendrium ramosum	MCM, 2015	
100	Flabellina pellucida	Eudendrium arbusculum	MCM	
101	Geitodoris planata	Mycale rotalis, Mycale spp.	CCM, 2015	spawn common
102	Goniodoris castanea	Botrylloides leachii, Botryllus schlosseri	MCM	
103	Goniodoris nodosa	Alcyonidium spp., Dendrodoa grossularia	MCM, 2015	
104	Greilada elegans	Bugula turbinata		Southwest UK & Ireland
105	Hancockia uncinata	Clytia hemisphaerica		Southwest UK & Ireland
106	Hero formosa	Tubularia indivisa	MCM	
107	Janolus cf. hyalinus	Scrupocellaria scruposa		Portrush, Northern Ireland
108	Janolus cristatus	Bugula flabellata	CCM, 2015	
109	Janolus hyalinus	Scrupocellaria scruposa	MCM	
110	Jorunna cf. tomentosa	Haliclona oculata		Strangford Lough
111	Jorunna cf. tomentosa	Haliclona urceolus		
112	Jorunna tomentosa	Haliclona cinerea	MCM, 2015	Port St Mary
113	Limacia clavigera	Electra pilosa	MCM, 2015	
114	Lomanotus cf. marmoratus	Nemertesia antennina	MCM, CCM	Strangford Lough
115	Lomanotus genei	Nemertesia ramosa		MCM, but probably L. cf. marmoratus as it is reported on Nemertesia antennina Portrush, Northern Ireland
116	Lomanotus marmoratus	Nemertesia antennina		
117	Okenia aspersa	Molgula occulta	MCM*, CCM	MFIOM: HBM reports as common under stones, Fleshwick, Port Erin.
118	Okenia elegans	Polycarpa scuba	NBN, TN, 2015	Confirmed BEP, from photograph
119	Okenia leachii			Shiant Islands, the Minch, Scotland
120	Okenia pulchella	Molgula occulta	2015, spawn?	
121	Onchidoris bilamellata	Barnacles	MCM	
122	Onchidoris depressa	Schizomavella linearis, Parasmittina trispinosa	MCM, BEP, 2015	
123	Onchidoris inconspicua	Cellaria sinuosa (Miller, 1961), Cellepora pumicosa (A&H)	MCM	MCM reported this on the diet for O. oblonga, but also recorded O. oblonga

	Species	Food	Recorded	Notes, nearest records
124	Onchidoris muricata	Securiflustra securifrons	MCM	
125	Onchidoris oblonga	Cellaria fistulosa	MCM, KL, 2015	
126	Onchidoris pusilla	Escharella immersa, Microporella ciliata, Escharoides coccineus, Porella concinna and Oshurkovia littoralis	MCM	
127	Onchidoris cf. pusilla	Reptadeonella violacea		Mediterranean, western Ireland
128	Onchidoris sparsa	Cellepora pumicosa, Porella concinna		Probable
129	Palio dubia	Eucratea loricata		MCM, but probably Palio nothus as MCM combines these species in MFIOM
130	Palio nothus	Bowerbankia spp.	MCM, GB, 2015	
131	Polycera faeroensis	Crisia denticulata, Bicellariella ciliata	CCM, 2015	Not reported by MCM, possibly mistaken for P. quadrilineata
132	Polycera quadrilineata	Membranipora membranacea	MCM, 2015	
133	Proctonotus mucroniferus			Irish Sea, Malahide
134	Pseudovermis boadeni	Halammohydra?		Interstitial species only found with special techniques
135	Rostanga cf. rubra	Microciona atrasanguinea		Strangford Lough
136	Rostanga rubra	Ophlitaspongia seriata	MCM*	MFIOM: HBM one off Port St. Mary, 5 fms.
137	Scyllaea pelagica	Hydroids on Sargassum, pelagic		
138	Taringa millegrana			Devon
139	Tenellia adpersa	Cordylophora caspia		Brackish water
140	Tergipes tergipes	Obelia spp., Bougainvillea spp.	MCM, 2015	
141	Thecacera pennigera	Bugula plumosa	TN, 2015	Confirmed BEP, from photograph Southwest UK
142	Trapania maculata	Entoprocta		
143	Trapania pallida	Entoprocta	CCM	
144	Trapania tartanella	Entoprocta		Southwest UK
145	Tritonia hombergi	Alcyonium digitatum	MCM, BEP, 2015	
146	Tritonia lineata		MCM*, BEP, 2015	MFIOM: NBE Calf sound, Bay Fine
147	Tritonia manicata			Southwest UK
148	Tritonia nilsodhneri	Eunicella verrucosa		Southwest UK & Ireland
149	Tritonia plebeia	Alcyonium digitatum	MCM, JC, 2015	

Recorded from Isle of Man - named species	76
Undescribed species	15
Isle of Man Total	91
Miller (described species)	55
Miller (undescribed species)	10
Miller total	65
2015 total	56
Named species Britain & Ireland	119
Potential new (undescribed) species	30
Total species in area	149

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5.2 *Embletonia pulchra* Jon Chamberlain

All divers have their specialisms; some like fish, others like nudibranchs, but all tend to enjoy charismatic fauna that can be spotted whilst swimming around on a dive. One surveyor on the trip, Jon Chamberlain, gravitated towards the specialism of finding a very small and cryptic sea slug called *Embletonia pulchra* (Alder & Hancock, 1844) that lives under rocks. Most records of *E. pulchra* come from dredge samples where a scoop of seabed is analysed under a microscope. Given the impracticalities of temperate water diving at depth and that these animals are so small and hard to find, hunting for them *in situ* would seem like a waste of time.

Embletonia pulchra are an Aeolid type of nudibranch, with 5-7 pairs of swollen cerata bunched at the rear of the animal. Usually found up to 2mm in length, although reported to grow to 7mm, they have a white speckled pigment over the body and cerata. All specimens found on this trip were underneath loosely situated cobbles in a sand-gravel-shell seabed and were typically compressed against the rock making them even more difficult to spot.



Observations in the field and lab indicate they do not like light and will immediately move to a darker area if disturbed, which may be an indication they are nocturnal. The prey of such a small animal has been speculated to be fish eggs, small hydroids, ecoprocts or detritus (Thompson, 1988⁴). They have a wide NE Atlantic distribution but are rarely recorded due to the difficulty in finding them.

These animals were found in number at several dives sites during this survey, typically in undisturbed gravel habitats rich in hydroids, bryozoans and other nudibranchs: Gibdale Bay (19m), Kione Ny Halby (14m), Bay Fine (13.5m) and Spanish Head (16.5m). Some time (c.5-10 mins) per dive at all surveyed sites was dedicated to trying to find these animals, although the dive at Bay Fine was exclusively searched for 45 mins resulting in 5 specimens in different locations. Specimens from Gibdale Bay, Kione Ny Halby and Bay Fine were collected.



⁴ Thompson, T.E., 1988. Molluscs: Benthic Opisthobranchs (Mollusca: Gastropoda). Synopses of the British fauna (NS), 8: 1-356.

The recommended method for collection is to place the cobble bearing the specimen in its own sealed plastic bag as the animals are very fragile and hard to remove underwater. The animal usually stays on the rock it was found on; however, should it be hard to find, the bag and rocks can be placed in a tray of seawater with a light shining on it. After an hour or so the animal will have moved under the rock again.

Taxonomically *E. pulchra* is a bit of an anomaly. Previously placed in the Aeolidiidea family due to its morphology, it now resides in a parvorder of unassigned Cladobranchia (see WoRMS ⁵). It is unclear whether these animals have nematocysts at the end of the cerata, which terminate in bilobed pads. The specimens collected from the dives will be RNA and DNA sequenced to help resolve the taxonomy.

⁵ <http://www.marinespecies.org/aphia.php?p=taxdetails&id=141638>

Appendix 1. Table of species recorded by site

SITE:	1.1	1.2	2.1	2.2	3.1	4.1	5.1	5.2	6.1	6.2	6.3	7.1	7.2	8.1	8.2	8.3	9.1	9.2	10.1	10.2	11.1	12.1	12.2
<i>Pomatoschistus pictus</i>					P	O										R							
<i>Thorogobius ephippiatus</i>	O																						
<i>Phrynorhombus norvegicus</i>																							
RHODOPHYTA																							
Corallinales																							
Corallinaceae indet. (crusts)	C	C		F		O	C	F	C		F	C	A	O	F	R	C	F	F	C	O	C	F
Mearl indet					O	O																	O
Gigartinales																							
<i>Dilsea carnosa</i>			O	R	P																		
<i>Callophyllis laciniata</i>												P											
<i>Plocamium cartilagineum</i>				O		C	F	F				O	O	O	F						P	R	
Rhodymeniales																							
<i>Chylocladia verticillata</i>						O																	
Ceramiales																							
<i>Ceramium</i> sp.					P																		
<i>Cryptopleura</i> indet																							F
<i>Delesseria sanguinea</i>			F	O			C		F				F	F									F
<i>Drachiella heterocarpa</i>			F																				
<i>Drachiella spectabilis</i>												F											
<i>Phycodrys rubens</i>			F									P											
<i>Heterosiphonia plumosa</i>			F									F											
<i>Odonthalia dentata</i>							F																
<i>Polysiphonia</i> sp.			F																				
<i>Rhodophyta</i> indet (non-calc. crusts)	C	C											P										F
PHAEOPHYTA																							
<i>Dictyota dichotoma</i>			F	O		F	F	F	O		O	F		O		O	O			F	P		
<i>Desmarestia aculeata</i>																							O
<i>Desmarestia ligulata</i>																							
<i>Desmarestia viridis</i>					P																		
<i>Chorda filum</i>						O																	
<i>Laminaria hyperborea</i>	P	P	C	O	C	C					F	F		O			F				C	F	

Appendix 2. *Seasearch* forms

SEASEARCH SURVEY FORM

- If anything is unclear please refer to the **Guidance Notes**
- Each pair of divers should complete a form between them
- Please complete all parts of the form. Where there is a * only fill in the information if you know it.



Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name Jon Chamberlain	Tel No: 07747 051280. hm/wk
Address 7 Colne Terrace, Wiverrhoe, ESSEX	Email: JON@REDATOM.NET.
Buddy's Name	
Name of group or survey KEPLER REEF	
Postcode CO9 9MD.	IMPS 2015

Dive/Site details

Site name Basalt Wall.	Date of dive: 14 dd / 06 mm / 15. yy
General location SW Isle of Man, close to Port St Mary.	Start of dive: 11.05 (24hr)
	Dive duration: 60 (mins)
	Sea temperature: 12 °C
Position (degrees and decimal minutes – state if in any other format)	Underwater visibility: 10 m
Centre of site	Drift dive? yes / no
For drift dives	Night dive? yes / no
From 54° 03.773' N 4° 40.708' W	Did you or your buddy take any of the following? photographs yes / no video footage yes / no specimens yes / no seaweeds for pressing yes / no
To	
Or OS Grid Reference	
Position derived from: (circle) GPS Chart OS map Web mapping WGS84 OSGB36	
Exposure of site: extremely exposed <input type="checkbox"/> v exposed <input checked="" type="checkbox"/> exposed <input type="checkbox"/> mod exposed <input type="checkbox"/> sheltered <input type="checkbox"/> v sheltered <input type="checkbox"/> ext sheltered <input type="checkbox"/>	For the area surveyed, what was the shallowest depth? (m) 12 bsl 7.5 bcd the deepest depth? (m) 20 bsl 15.5 bcd Tidal correction to chart datum 4.05 - 4.3 m*
Max tidal stream: >6kt <input type="checkbox"/> 3-6kt <input type="checkbox"/> 1-3kt <input type="checkbox"/> <1kt <input checked="" type="checkbox"/> v. weak <input type="checkbox"/>	

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

a) Large, angular boulders and wall leading to a sand/gravel plain

b) Lots of mud branches and sponges at the cliff base.

c) Lobster potting

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Sloping rock wall leading to large angular boulders, then down to a sand and cobble field. Lots of squirts, deadman fingers, anemones, hydroids and sponges on the rocks and wall. Cobble field had lots of slugs, sparrow and crabs, as well as ~~anemones~~ tube worms.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other Shell debris

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

Basalt Wall

Imps ①

1	2	3	
m			DEPTH LIMITS
12	18		Upper (from sea level) (i.e. minimum)
18	20		Lower (from sea level) (i.e. maximum)
7.5	13.5		Upper (from chart datum) *
14	15.5		Lower (from chart datum) *

%			SUBSTRATUM
60			Bedrock type? <i>Rock wall</i>
30			Boulders - very large > 1.0 m
			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
	20		Cobbles (fist - head size)
	10		Pebbles (50p - fist size)
5	10		Gravel - stone
			- shell fragments
5	10		Sand - coarse
			- medium
			- fine
			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

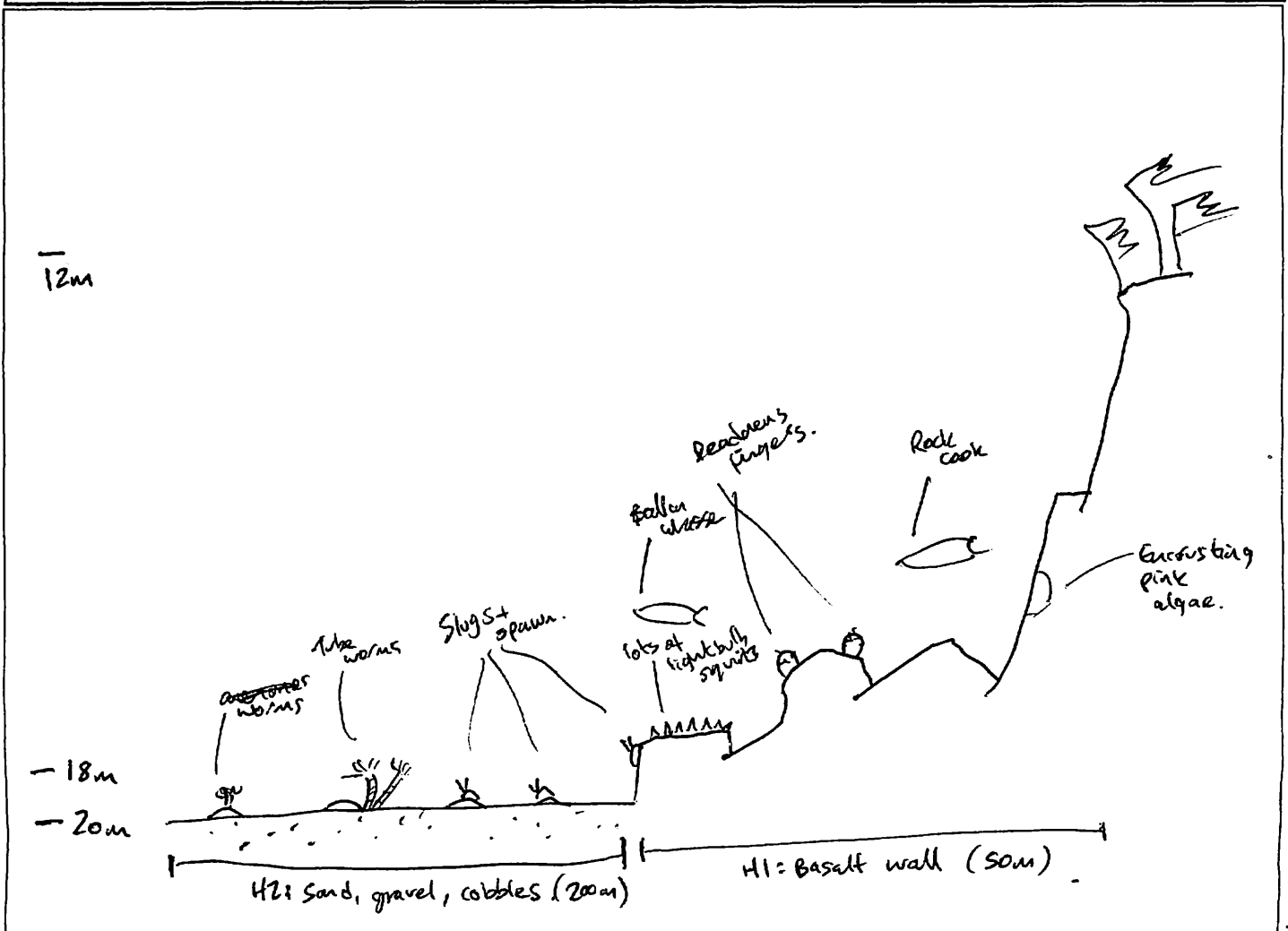
1	2	3	
1-5			FEATURES - ROCK (all categories)
4			Relief of habitat (even - rugged)
4			Texture (smooth - pitted)
1			Stability (stable - mobile)
2			Scour (none - scoured)
3			Silt (none - silted)
4			Fissures > 10 mm (none - many)
4			Crevices < 10 mm (none - many)
4			Boulder/cobble/pebble shape (rounded - angular)
✓			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
	✓		Mounds / casts
	✓		Burrows / holes
			Waves (>10 cm high)
			Ripples (< 10 cm high)
	✓		Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5		FEATURES - SEDIMENT (2)
	4 2	Firmness (firm - soft)
	2	Stability (stable - mobile)
	2	Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify positively from the different habitats. Use latin names if possible. but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column.

	ph	WdH HABIT				ph	WdH HOAR.		
		1	2	3			1	2	3
sponges					echinoderms				
<i>Phorichas fictitias</i>	✓	O			<i>Marthasterias glacialis</i>	✓	O	O	
<i>Dysidea fragilis</i>	✓	O			<i>Henricia</i> sp	✓	F		
<i>Lucasileana</i> sp	✓	O			<i>Asterina pinnata</i>	✓	F		
<i>Polymastix polymorphica</i>	✓	O			<i>Lacteus octocels</i>	✓	F		
<i>Henimycale columella</i>	✓	O			<i>Echinus esculentus</i>	✓	C	C	
<i>Scapha ciliata</i>	✓	R			<i>Neopentactyla mixta</i>	✓		O	
<i>Mycale rotalis</i>	BP	R			<i>Ophiopholis aculeata</i>	✓		P	
					<i>Pycnoclavella stolonialis</i>	JA	R		
cnidarians: hydroids, anemones, corals,					sea squirts <i>Physcynereator bilob</i>	JA		R	
<i>Actinonion digitatum</i>	✓	C	O		<i>Clavelina lepadiformis</i>	✓	A		
<i>Caryophyllia smithii</i>		O			<i>Morchellium argus</i>	✓	C	F	
<i>Actinotassa sphurodeta</i>	✓	O	O		<i>Polycarpa scuba</i>	✓	O		
<i>Cladia geniculata</i>		O			<i>Polydora agrantorum</i>	✓	O		
<i>Aglaophenia phana</i>	✓	R			<i>Silkyon turbidatum</i>	✓	R		
<i>Kerckleya pinnata</i>	✓	O			<i>Pycnodaveila stolonialis</i>	✓	O		
<i>Sertularia galii</i>	✓	O			<i>Didemnum maculosum</i>	KL	O		
<i>Ectopleura larynx</i>	KL	O			fishes <i>Aplidium punctum</i>	JA	O		
<i>Siphonia rosacea</i>	KL	R			<i>Labrus mixtus</i>	✓	O	O	
<i>Edwardsiella caesia</i>	BP	R			<i>Labrus bergylta</i>		O		
worms					Goldswiny		O		
<i>Polydora implexa</i>		O			Rock cod		O		
<i>Pontoboreas</i> sp	JA		F		<i>Thorogobius ephippiatus</i>	✓	O		
<i>Spirorbis</i> sp (P)	JA		F						
crustaceans					seaweeds Red algal crusts	JA			
<i>Hemurus granosus</i>		O			frustrating pink algae	✓	C	C	
<i>Galathea squamifera</i>	✓	O			<i>Laminaria hyperborea</i>				
<i>Cancer pagurus</i>		O			<i>Pectyca dichotoma</i>				
<i>Galathea strisosa</i>	✓	O			<i>Physcodymus rubens</i>				
<i>Octopus</i>		R			<i>Archidorois pseudoargus</i>		R		
<i>Trochonia plebeia</i>	✓	R			<i>Toruma tomentosa</i>	✓	O		
<i>Anula gibbosa</i>	✓		R		<i>Halidrys setigerosa</i>	✓	O		
<i>Eubranchius ferrari</i>	✓		R		<i>Bryopsis plumosa</i>	✓	O		
molluscs									
<i>Vanolus cristatus</i>	✓	O	O		Moll. <i>Leptochiton asellus</i>	✓	O		
<i>Platella pedata</i>	✓	F	F		<i>Tectura virginea</i>	✓	O		
<i>Polycera quadrilobata</i>	✓	O	O		<i>Acanthodoris pilosa</i>	✓	O		
<i>Polycera lacroasis</i>	✓	F	O		<i>Calochiton achatanus</i>	✓	O		
<i>Cadlina laevis</i>	✓	R			other or continuations				
<i>Diaphanopsis luteocincta</i>	✓	R			<i>Aeitodoris planata</i> sparis	✓	O		
<i>Deta</i> sp <i>knoutsadonta</i>	BP	R							
bryozoans					<i>Thua arctica</i>		O		
<i>Parazotia frispinosa</i>	✓	O			<i>Calirostoma 22</i>			P	
<i>Electra pilosa</i>		O			<i>Cilobulo cineraria</i>		O	O	
<i>Memb memb</i>		F			<i>Okenia aspersa</i>	BP			
<i>Boguta flabellata</i>			O		<i>Haliphyssea tomamowiczi</i>				
<i>Alcyonidium diaploum</i>			P						
<i>Scrupocellaria</i> sp	BP	F							

Continue on a separate sheet if you need to

Once completed, return the form to the Dive Organiser or to: Seasearch, Marine Conservation Society, Unit 3, Wolf Business Park, Alton Road, Ross on Wye, HR9 5NB.

Your contact details will be included on the Seasearch database and those of partner organisations and will be used to send you information about Seasearch and associated projects. They will not be passed to third parties without your consent. The location, dive details, habitats and species information and the name of the recorder will be entered into a database and made available to the participating organisations and the general public through the Seasearch and NBN websites. If you do not agree with this use of the data do not submit the form.

SEASEARCH SURVEY FORM

- If anything is unclear please refer to the **Guidance Notes**
- Each pair of divers should complete a form between them
- Please complete all parts of the form. Where there is a * only fill in the information if you know it.



Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name <u>Kerry Lewis</u>	Tel No: <u>07812332656</u> hm/wk
Address <u>Ynys Wen</u>	Email: <u>kerry-lewis25@hotmail.com</u>
<u>21 Sea View Place</u>	Buddy's Name <u>Lara Howe</u>
<u>Aberystwyth</u>	Name of group or survey <u>1MPS 2015</u>
Postcode <u>SY23 1DZ</u>	XXXXXXXXXX (2)

Dive/Site details *GEORGE BROWN; JIM ANDERSON; BERNARD PICTON; ROSS + BLAISE BULLMORE; JON CHAMBERLAIN; EMMA KENYON; JIM BULL

Site name <u>Puddle, Calf of Man</u>	Date of dive: <u>14</u> dd / <u>6</u> mm / <u>15</u> yy	
General location <u>I.O.M.</u>	Start of dive: <u>14</u> 45 <u>40</u> (24hr)	
	Dive duration: <u>60</u> (mins)	
	Sea temperature: <u>11</u> °C	
Position (degrees and decimal minutes - state if in any other format)	Underwater visibility: <u>10</u> m	
	Drift dive? <u>yes</u> / no	
Centre of site <u>54° 02.741</u> <u>4° 48.962</u>	Night dive? <u>yes</u> / no	
For drift dives	Did you or your buddy take any of the following?	
From <u>0</u> <u>0</u>		photographs <u>yes</u> / no
To <u>0</u> <u>0</u>		video footage <u>yes</u> / no
Or OS Grid Reference	specimens <u>yes</u> / no	
Position derived from: (circle) <u>GPS</u> Chart OS map Web mapping <u>WGS84</u> OSGB36	seaweeds for pressing <u>yes</u> / no	
Exposure of site: extremely exposed <input type="checkbox"/> v exposed <input checked="" type="checkbox"/> exposed <input type="checkbox"/>	For the area surveyed, what was	
mod exposed <input type="checkbox"/> sheltered <input type="checkbox"/> v sheltered <input type="checkbox"/> ext sheltered <input type="checkbox"/>	the shallowest depth? (m) <u>8</u> bsl <u>6.5</u> bcd	
Max tidal stream:	the deepest depth? (m) <u>20</u> bsl <u>18.5</u> bcd	
>6kt <input type="checkbox"/> 3-6kt <input type="checkbox"/> 1-3kt <input type="checkbox"/> <1kt <input checked="" type="checkbox"/> v. weak <input type="checkbox"/>	Tidal correction to chart datum <u>1.5</u> m* <u>-21.0</u>	

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

a) Bay area at S. end of Calf; rocky boulders with kelp dropping down steepish slope from surface to gravel / cobble seabed at ca. 20m.

b) Seals present at end of dive & on surfacing (3 underwater; 2 at surface).

c) None.

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Large boulders on fairly steep slope from seabed to surface, with "wall" type habitat and many overhangs / crevices / hidey holes. Covered with mixed red algae & animal turf. Some kelp at shallower depth. (sparse rather than dense).

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf Mixed.

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

Flat gravel and cobble plain with flattened kelp and other algae. Lots of tube worms and squirts on the larger cobbles.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

1	2	3	
m			DEPTH LIMITS
6	18		Upper (from sea level) (i.e. minimum)
18	20		Lower (from sea level) (i.e. maximum)
6.5	16.5		Upper (from chart datum) *
16.5	18.5		Lower (from chart datum) *

%			SUBSTRATUM
			Bedrock type?:
80			Boulders - very large > 1.0 m
10			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
	30		Cobbles (fist - head size)
	10		Pebbles (50p - fist size)
5	20		Gravel - stone
5	20		- shell fragments
	10		Sand - coarse
			- medium
			- fine
			Mud
	10		Shells (empty - or as large pieces)
	10		Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

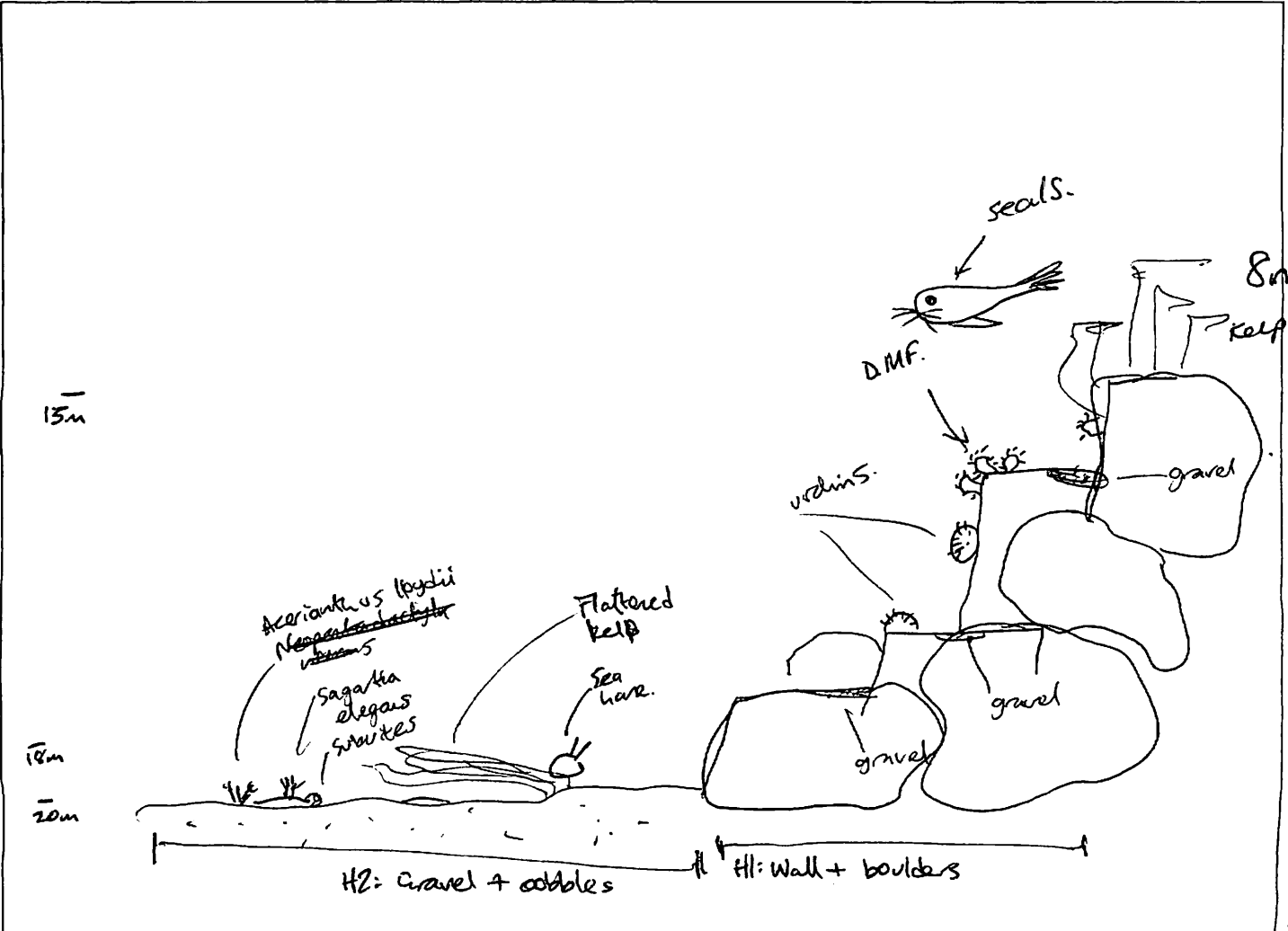
1	2	3	
1-5			FEATURES - ROCK (all categories)
3			Relief of habitat (even - rugged)
3			Texture (smooth - pitted)
1			Stability (stable - mobile)
1			Scour (none - scoured)
3			Silt (none - silted)
			Fissures > 10 mm (none - many)
			Crevices < 10 mm (none - many)
3			Boulder/cobble/pebble shape (rounded - angular)
✓			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
			Mounds / casts
	✓		Burrows / holes
			Waves (>10 cm high)
			Ripples (< 10 cm high)
	✓		Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
	2		Firmness (firm - soft)
	2		Stability (stable - mobile)
	4		Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify positively from the different habitats. Use latin names if possible, but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column.

	wall cobble					wall cobble			
	ph	1	2	3		ph	1	2	3
sponges					echinoderms				
<i>Suvaria canosa</i>	JZ		R.		<i>Ophiura albida</i>	UB		0	
<i>Aplysilla sulphur</i>	UB	1	0		<i>Psammochinus miliaris</i>	UB	0	0	
<i>Polymastia boletiformis</i>	UB	0			<i>Antedon bipida</i>	UB	0	0	
<i>Leucosolenia</i> sp.	KL	0			<i>Echinus esculentus</i>	UB	P		
					<i>Ophiotrix fragilis</i>	UB	0		
					<i>Marthasterias glacialis</i>	UB	0		
					<i>Panossia seticola</i>	KL	0		
<i>Aleporina libanionum</i>	R	R			<i>Echinocastium javense</i> SP			R	
cnidarians: hydroids, anemones, corals,					sea squirts				
<i>Sagartia elagans</i>	JZ		0		<i>Clavelina lepadiformis</i>	JZ	R	C	
<i>Clavularia smithii</i> <i>Coryphyllia</i>	JZ		0		sparkly golden colonial squirt	JZ	0	0	
<i>Acerianthus boydii</i>	JZ		0		<i>Aplidium punctatum</i>	UB		0	
<i>Stylodactylus (Arenaria virens)</i>	UB	F	0		<i>Trididemnum cereum</i>	UB		0	
<i>Adamsia carcaniopardos</i>	UB	1	0		<i>Mordellium argus</i>	UB	0	0	
<i>Urticina felix</i>	UB		0		<i>Botryllus schlosseri</i>	UB		0	
<i>Edwardsia clareddii</i>	UB		R						
<i>Sarcodictyon roseum</i>	UB		R		fishes				
<i>Ackiahae sphyrodeta</i>	UB	0			Sand goby	UB		0	
<i>Alcyonium digitatum</i>	KL	R	1		<i>Callionymus lyra</i>	UB	0		
worms <i>Polydora ciliata</i>	UB	0	1		Balkan wrasse		R		
<i>Neopentadactyla lineus longissimus</i>	UB		R		Cuckoo wrasse		R		
<i>Keelworms (Paratoceros sp)</i>	JZ	F	F						
Ragworm	JZ		R						
Terebellid worm	UB		0						
<i>Cirratulus cirratus</i>	UB		R						
crustaceans					seaweeds				
Chitons (big ones!)	JZ		E		Emerging pink algae	JZ	1	F	
<i>Pagurus prideaux</i>	UB	1	0		<i>Dichtyota dichotoma</i>	UB	F	0	
<i>Isochiton asellus</i>	UB		0		Brown foliose weeds	UB		0	
<i>Taricella marmorea</i>	UB		0		<i>Plocamium cartilaginum</i>	UB		0	
<i>Cancer pagurus</i>	KL	R			<i>Laminaria hyperborea</i>	UB	C	0	
					<i>Desmarestia sanguinea</i>	UB	F	0	
					<i>Pilsea carnea</i>	UB	0	R	
					<i>Drachiella spectabilis</i>	KL	F		
					<i>Laurencia</i>				
molluscs <i>Anacardium gibbosa</i>	BP	R			<i>Heterosiphonia plumosa</i>	KL	F		
<i>Aplysia punctata</i>	JZ		R.		<i>Callidephonis ciliata</i>	KL	F		
<i>Gibbula cineraria</i>	UB		0		<i>Plysiphonia</i> sp.	KL	F		
<i>Hinea reticulata</i>	UB	0			<i>Phycodryas rubens</i>	KL	F		
<i>Gastropods egg mass</i>	KL	R			other or continuations				
<i>Limacea clangeria</i>	KL	R			<i>Halidodius grypus</i>	KL	0		
<i>Mitonia lineata</i>	KL	R			<i>Castina lewis</i>	SP	0		
<i>Tina marmorata arctica</i>	KL	R			<i>Diplodonis heterocincta</i>	SP	R		
bryozoans					<i>Gelidium nodosum</i>	SP	R		
<i>Platoporella patina Plagioecia</i>	UB	1	0		<i>Sargassum cristatum</i>	BP	R		
<i>Nothella</i> sp.	UB		0		<i>Polysera quad.</i>	BP	R		
<i>Disporrella hispida</i>	UB	0	0		<i>Ryssia parva</i>	BP	R		
<i>Membranipora membranacea</i>	UB	F							
<i>Electra pilosa</i>	KL	F							
<i>Escharoides coccinea</i>	KL	P							

Continue on a separate sheet if you need to

Once completed, return the form to the Dive Organiser or to: Seasearch, Marine Conservation Society, Unit 3, Wolf Business Park, Alton Road, Ross on Wye, HR9 5NB.

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SEASEARCH SURVEY FORM

Form No (leave blank)

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- Please complete all parts of the form. Where there is a * only fill in the information if you know it.



Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name	Jon Chamberlain	Tel No:	07747 051280	hm/wk
Address	7 Colne Terrace, Wivenhoe, Essex	Email:	JON@LEDATON.NET	
		Buddy's Name	Jim Anderson, Bernard Pitar, George Brown.	
		Name of group or survey	test IMPS	
Postcode	CO14ND		Kerry Lewis? 2015	

Dive/Site details

Site name	Grand Rapids ^{Island} Hotel, Ramsey Bay				Date of dive:	15	dd /	06	mm /	15	yy
General location	Ramsey Bay, Isle of Man				Start of dive:	11:04	(24hr)				
					Dive duration:	60	(mins)				
					Sea temperature:	11	°C				
Position (degrees and decimal minutes – state if in any other format)					Underwater visibility:	10	m				
	Latitude		Longitude			Drift dive?	yes / no				
Centre of site	54°	20.574N	4°	21.724	(W) or E	Night dive?	yes / no				
For drift dives						Did you or your buddy take any of the following?					
From	0	.	0	.		photographs	yes / no				
To	0	.	0	.		video footage	yes / no				
						specimens	yes / no				
						seaweeds for pressing	yes / no				
Or OS Grid Reference					For the area surveyed, what was						
Position derived from: (circle)					the shallowest depth? (m)						
(GPS) Chart	OS map	Web mapping	(GPS) Datum (circle)		bsl						
			WGS84		bcd						
			OSGB36		the deepest depth? (m)						
Exposure of site: extremely exposed <input type="checkbox"/>	v exposed <input type="checkbox"/>	exposed <input checked="" type="checkbox"/>			bsl						
mod exposed <input type="checkbox"/>	sheltered <input type="checkbox"/>	v sheltered <input type="checkbox"/>	ext sheltered <input type="checkbox"/>		bcd						
Max tidal stream:					Tidal correction to chart datum						
>6kt <input type="checkbox"/>	3-6kt <input type="checkbox"/>	1-3kt <input checked="" type="checkbox"/>	<1kt <input type="checkbox"/>	v. weak <input type="checkbox"/>	7.0 m*						
					-0.5						

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

a) Flat sand/gravel plain with kelp and other seaweeds almost completely covering the substrate when blown in the current.

b) 3 very small scallops observed by 1 surveyor (JC) in 60 mins, all on kelp fronds

c) ~~Strongly exposed seabed~~ 2x ~~50m~~ transects on the same dive by 4 other divers.
Within Ramsey Bay MNR Zone 1 conservation zone

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Sand/gravel plain with anemones, kelp, seaweeds, crabs and gobies.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

Grand Rapids Hotel Island

1	2	3	
m			DEPTH LIMITS
12			Upper (from sea level) (i.e. minimum)
15			Lower (from sea level) (i.e. maximum)
5			Upper (from chart datum) *
8.5			Lower (from chart datum) *

%			SUBSTRATUM
			Bedrock type?:
			Boulders - very large > 1.0 m
			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
5			Cobbles (fist - head size)
5			Pebbles (50p - fist size)
10			Gravel - stone
10			- shell fragments
60			Sand - coarse
			- medium
			- fine
			Mud
10			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

IMPS ③

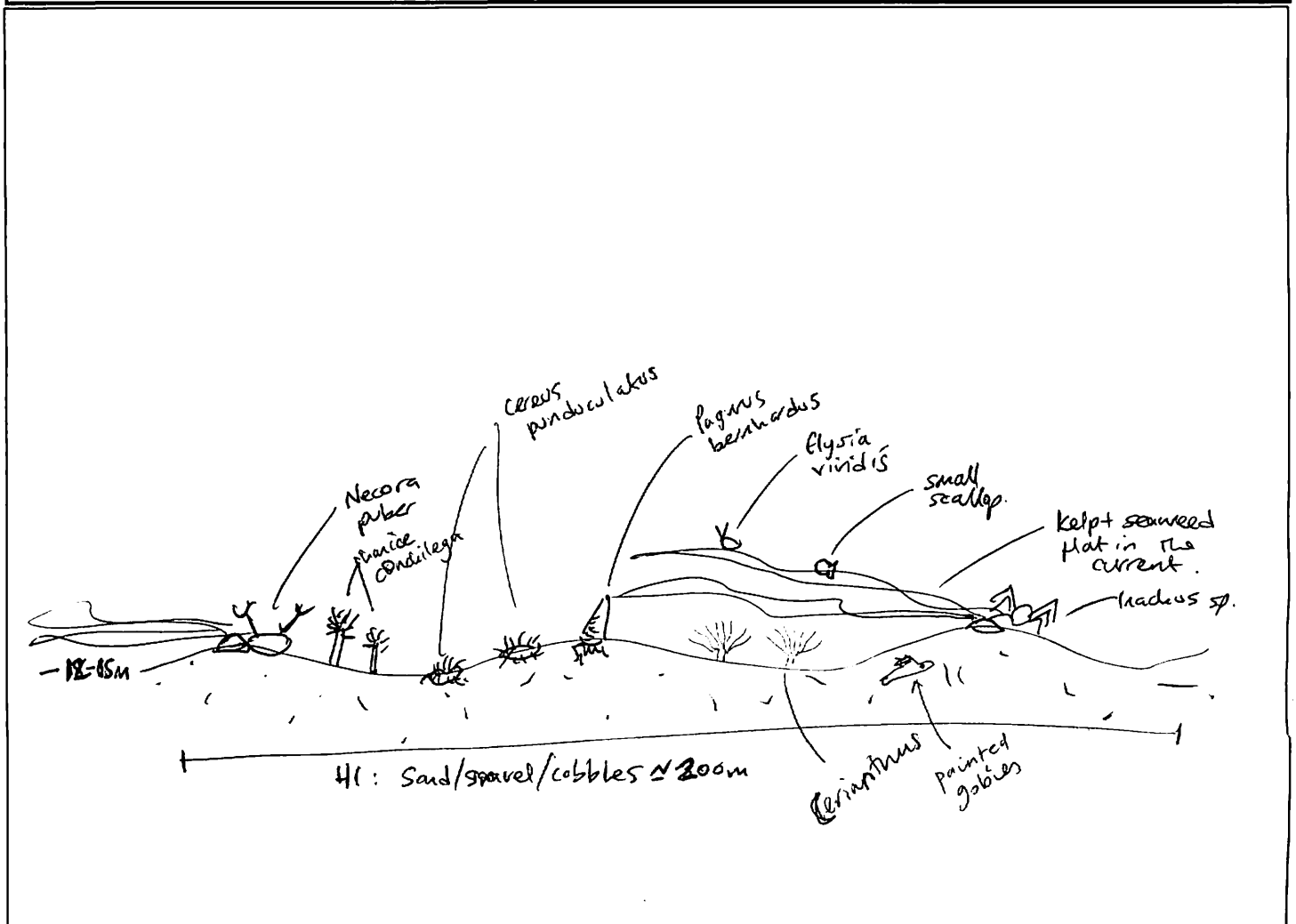
1	2	3	
1-5			FEATURES - ROCK (all categories)
			Relief of habitat (even - rugged)
			Texture (smooth - pitted)
			Stability (stable - mobile)
			Scour (none - scoured)
			Silt (none - silted)
			Fissures > 10 mm (none - many)
			Crevices < 10 mm (none - many)
			Boulder/cobble/pebble shape (rounded - angular)
			Sediment on rock? (tick if present)

			FEATURES - SEDIMENT (1)
✓			Mounds / casts
✓			Burrows / holes
✓			Waves (>10 cm high)
✓			Ripples (< 10 cm high)
✓			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

			FEATURES - SEDIMENT (2)
4	1-5		Firmness (firm - soft)
3			Stability (stable - mobile)
2			Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



SEASEARCH SURVEY FORM

Form No (leave blank)



- If anything is unclear please refer to the **Guidance Notes**
- Each pair of divers should complete a form between them
- Please complete all parts of the form. Where there is a * only fill in the information if you know it.

Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name <u>Kerry Lewis</u>	Tel No: <u>07812 332656</u> hm/wk
Address <u>Yags Wen</u>	Email: <u>kerry-lewis25@hotmail.com</u>
<u>21 Sea View Place</u>	Buddy's Name <u>Jon Chamberlain</u>
<u>Abenystmyth</u>	Name of group or survey
Postcode <u>SY23 1DZ</u>	* <u>Also George Brown, Jim Anderson, Bernard Fictor, Emma Keyon, Jim Bull</u>

Dive/Site details

Site name <u>Port Lewaigue</u>	Date of dive: <u>15</u> dd / <u>6</u> mm / <u>15</u> yy																				
General location	Start of dive: <u>14:30</u> (24hr)																				
	Dive duration: <u>60</u> (mins)																				
	Sea temperature: <u>12</u> °C																				
Position (degrees and decimal minutes - state if in any other format)	Underwater visibility: <u>8</u> m																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Latitude</th> <th>Longitude</th> <th>(W) or E</th> </tr> </thead> <tbody> <tr> <td>Centre of site</td> <td><u>0</u></td> <td><u>0</u></td> <td><u>(W)</u></td> </tr> <tr> <td>For drift dives</td> <td></td> <td></td> <td></td> </tr> <tr> <td> From</td> <td><u>54</u>° <u>18</u>' <u>734</u>" <u>N</u></td> <td><u>4</u>° <u>20</u>' <u>460</u>" <u>W</u></td> <td></td> </tr> <tr> <td> To</td> <td><u>0</u></td> <td><u>0</u></td> <td></td> </tr> </tbody> </table>		Latitude	Longitude	(W) or E	Centre of site	<u>0</u>	<u>0</u>	<u>(W)</u>	For drift dives				From	<u>54</u> ° <u>18</u> ' <u>734</u> " <u>N</u>	<u>4</u> ° <u>20</u> ' <u>460</u> " <u>W</u>		To	<u>0</u>	<u>0</u>		Drift dive? yes <input type="radio"/> no <input checked="" type="radio"/> Night dive? yes <input type="radio"/> no <input checked="" type="radio"/> Did you or your buddy take any of the following? photographs <input checked="" type="radio"/> yes / no <input type="radio"/> video footage <input type="radio"/> yes / no <input type="radio"/> specimens <input checked="" type="radio"/> yes / no <input type="radio"/> seaweeds for pressing <input checked="" type="radio"/> yes / no <input type="radio"/>
	Latitude	Longitude	(W) or E																		
Centre of site	<u>0</u>	<u>0</u>	<u>(W)</u>																		
For drift dives																					
From	<u>54</u> ° <u>18</u> ' <u>734</u> " <u>N</u>	<u>4</u> ° <u>20</u> ' <u>460</u> " <u>W</u>																			
To	<u>0</u>	<u>0</u>																			
Or OS Grid Reference																					
Position derived from: (circle) <u>GPS</u> Chart OS map Web mapping	GPS Datum (circle) <u>WGS84</u> OSGB36																				
Exposure of site: extremely exposed <input type="checkbox"/> v exposed <input type="checkbox"/> exposed <input checked="" type="checkbox"/> mod exposed <input type="checkbox"/> sheltered <input type="checkbox"/> v sheltered <input type="checkbox"/> ext sheltered <input type="checkbox"/> Max tidal stream: >6kt <input type="checkbox"/> 3-6kt <input type="checkbox"/> 1-3kt <input type="checkbox"/> <1kt <input checked="" type="checkbox"/> v. weak <input type="checkbox"/>	For the area surveyed, what was the shallowest depth? (m) <u>10</u> bsl <u>7</u> bcd the deepest depth? (m) <u>10</u> bsl <u>7.5</u> bcd Tidal correction to chart datum <u>3 -> 2.5</u> m																				

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

a) Flat, sandy, very weedy - much of it loose.

b) Conyctes cassivaleus. Zostera marina. Ocu. maerl.

c) Abandoned lobster pot, with line attached to another object. Pot was open.

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Sandy flat bottom - a plain of rolling seaweed.
Some pebbles (isolated).
Firm, stable.
Some seaweeds in healthy condition

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

1	2	3	
m			DEPTH LIMITS
10			Upper (from sea level) (i.e. minimum)
10			Lower (from sea level) (i.e. maximum)
7			Upper (from chart datum) *
7.5			Lower (from chart datum) *

%			SUBSTRATUM
			Bedrock type?:
			Boulders - very large > 1.0 m
			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
5			Cobbles (fist - head size)
10			Pebbles (50p - fist size)
			Gravel - stone
			- shell fragments
40			Sand - coarse
40			- medium
			- fine
5			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

1	2	3	
1-5			FEATURES - ROCK (all categories)
			Relief of habitat (even - rugged)
			Texture (smooth - pitted)
			Stability (stable - mobile)
			Scour (none - scoured)
			Silt (none - silted)
			Fissures > 10 mm (none - many)
			Crevices < 10 mm (none - many)
			Boulder/cobble/pebble shape (rounded - angular)
			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
✓			Mounds / casts
✓			Burrows / holes
			Waves (>10 cm high)
			Ripples (< 10 cm high)
			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
			Firmness (firm - soft)
			Stability (stable - mobile)
			Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.

dogfish.

lots of bushy mixed weed.

occasional pebbles.

Very flat seabed.
 mixed algae - brown + red.
 some Z. marina.

Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify **positively** from the different habitats. Use latin names if possible, but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column.

	ph	1	2	3		ph	1	2	3
sponges					echinoderms				
<i>Subentes carnosus</i>	GB	R			<i>Asterias rubens</i>	-	R		
<i>Polymastia boletiformis</i>	GB	R			<i>Echinocardium</i> sp.	GB	O		
<i>Sypho ciliata</i>	GB	R			<i>Ophiura</i> sp.	GB	F		
				(1670)	ECHINUS ECIDENUS		R		
					<i>Acrocnida brachiata</i>	GB	R		
cnidarians: hydroids, anemones, corals,					sea squirts <i>Marshallia esquis</i>	JA	R		
<i>Cerast pendunc.</i>	GB	O			<i>Botryllus Schlosseri</i>	KL	O		
<i>Cerianthus lloydii</i>	GB	O			<i>Ascidrella aspersa</i>	JL	R		
<i>Sagartia geton undatus</i>	GB	R			Didemnum maculatum				
<i>Sagartia boglodytes</i>	-	P			Didemnum maculatum				
<i>Obelia geniculata</i>	JA	O			<i>Didemnum maculatum</i>	-	F		
<i>Adamsia caraniopadus</i>	GB	R			<i>Eplosoma spongiforme</i>		P		
<i>Anemonia viridis</i>	GB	O			<i>Cinella parallelogram</i>	JA	R		
<i>Urticina felixa</i>	KL	R			fishes <i>Gobiosoma flavescens</i>	GB	R		
					<i>Dogfish</i>	-	R		
worms <i>Arenicola marina</i>	GB	F			<i>Dragonet</i>	GB	O		
<i>Chone infund.</i>	GB	O			Synbranchia				
<i>Lanice conchilega</i>	KL	O			<i>Gurnard (Eutrigla)</i>		R		
<i>Spirobia</i> sp.		F			<i>Gubbadus</i>				
<i>Megalomma vesiculosum</i>	JA	O			<i>Pholis gunnellus</i>	-	R		
<i>Tabularius annulatus</i>	GB	O			<i>Pomatoschistus microps</i>	GB	O		
crustaceans					CENTROLABRUS CANCERUS		R		
<i>Necora puber</i>	-	R			seaweeds				
<i>Conyctes cassidarius</i>	GB	O			<i>Anmatolithon calcar.</i>	GB	O		
<i>Cancer pagane</i>	JA	R			<i>Laminaria hyperborea</i>		E		
<i>Liocarcinus depurator</i>	GB	F			<i>Laminaria saccharina</i>		C		
<i>Pagurus bernhardus</i>	GB	O			<i>Plocamium cartigenum</i>		C		
<i>Pagurus prideaux</i>	GB	O			<i>Zostera marina</i>		C		
<i>Dendrocteus frondosus</i>	BP	R		(1658)	<i>Dichotyota dichotoma</i>		F		
molluscs <i>Aequipea ocellularis</i>	KL	R			<i>Chorda filum</i>	KL	O		
<i>Polycera quadrilineata</i>	KL	F			<i>Chylocladia verticillata</i>	GB	O		
<i>Polycera faerboensis</i>	KL	O			<i>Styela filum</i>	KL	R		
<i>Doto koenneckeri</i>		R			molluscs				
<i>Onchidons oblonga</i>	JL	R			<i>Placida dendritica</i>				
<i>Triabellina lineata</i> s.s.	GB	R			other or continuations				
<i>Gibbula cineraria</i>	GB	F			<i>Strawberry worm</i>		P		
<i>Limacea clavigera</i>	JA	O			<i>Goniopsis nodosa</i>	JA	R		
bryozoans <i>Platellus pedata</i>	BP	R			Polinices polianus	GB	O		
<i>Electra pilosa</i>	KL	O			<i>Euspira nitida</i>	GB	R + Eggs		
<i>Membranipora memb.</i>	-	O			<i>Ocenebra enniacea</i>	GB	R + Eggs		
<i>Alcyonidium diaphanum</i>	-	R			<i>Mina monacha</i>	GB	R		
<i>Littoropora</i> sp.	KL	R			" <i>arctica</i>	GB	F		
<i>Celleporella lyalina</i>	KL	R			<i>Pecten maximus</i>	GB	R		

Continue on a separate sheet if you need to

Once completed, return the form to the Dive Organiser or to: Seasearch, Marine Conservation Society, Unit 3, Wolf Business Park, Alton Road, Ross on Wye, HR9 5NB.

Your contact details will be included on the Seasearch database and those of partner organisations and will be used to send you information about Seasearch and associated projects. They will not be passed to third parties without your consent. The location, dive details, habitats and species information and the name of the recorder will be entered into a database and made available to the participating organisations and the general public through the Seasearch and NBN websites. If you do not agree with this use of the data do not submit the form.

SEASEARCH SURVEY FORM

Form No (leave blank)

- If anything is unclear please refer to the **Guidance Notes**
- Each pair of divers should complete a form between them
- Please complete all parts of the form. Where there is a * only fill in the information if you know it.



Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name <i>Blaise Bullimore</i>	Tel No: _____ hm/wk _____
Address <i>RB / BP / JC / JA /</i>	Email: _____
<i>GB / KL / KA JB / EK</i>	Buddy's _____
Postcode _____	Name of group or survey <i>1MPS 2015.</i>

Dive/Site details

Site name <i>GIRDALE BAY</i>	Date of dive: <i>16</i> dd / <i>10</i> mm / <i>15</i> yy
General location <i>CALF OF MAN</i> <i>ISLE OF MAN</i>	Start of dive: <i>10:20</i> (24hr)
	Dive duration: <i>60</i> (mins)
	Sea temperature: <i>10</i> °C
Position (degrees and decimal minutes – state if in any other format)	Underwater visibility: <i>8-10</i> m
Centre of site <i>5</i> ° <i>0</i> '	Drift dive? <input type="checkbox"/> yes / <input checked="" type="checkbox"/> no
For drift dives From <i>54</i> ° <i>03.6254</i> '	Night dive? <input type="checkbox"/> yes / <input checked="" type="checkbox"/> no
To <i>0</i> '	Did you or your buddy take any of the following?
Or OS Grid Reference	photographs <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no
Position derived from: (circle) <input checked="" type="checkbox"/> GPS <input type="checkbox"/> Chart <input type="checkbox"/> OS map <input type="checkbox"/> Web mapping	video footage <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no
GPS Datum (circle) <input checked="" type="checkbox"/> WGS84 <input type="checkbox"/> OSGB36	specimens <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no
Exposure of site: extremely exposed <input type="checkbox"/> v exposed <input type="checkbox"/> exposed <input checked="" type="checkbox"/>	seaweeds for pressing <input type="checkbox"/> yes / <input checked="" type="checkbox"/> no
mod exposed <input type="checkbox"/> sheltered <input type="checkbox"/> v sheltered <input type="checkbox"/> ext sheltered <input type="checkbox"/>	For the area surveyed, what was
Max tidal stream: <i>~exposed to wave butlers to tide</i>	the shallowest depth? (m) <input type="text" value="14"/> bsl <input type="text" value="13"/> bcd
>6kt <input type="checkbox"/> 3-6kt <input type="checkbox"/> 1-3kt <input type="checkbox"/> <1kt <input checked="" type="checkbox"/> v. weak <input type="checkbox"/>	the deepest depth? (m) <input type="text" value="21"/> bsl <input type="text" value="20.5"/> bcd
	Tidal correction to chart datum <input type="text" value="1.0"/> m <i>20.5</i>

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

*Seabed slope gentle gently sloping coarse sand with cobbles, pebbles and gravel. Dense algal meadow interspersed with *A. liphocarpum*. Red algae posits to 18m shift to hydroids 15-21m.*

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community) *Boulderless slope with dense, luxuriant algal meadow.*

*Occasional kelp to 18m, Red algae still persisting at 18m.
Upper faces of boulders dominated by red algae, vertical faces and overhangs dominated by pinkish algae, grazed by Echinus,
Some large patches of *Mayrionium digitatum*.*

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

*bottom - sea bed of boulders, cobbles, pebbles and coarse sediment w/ broken shell.
Some reds persist to 18m. - below 20m-21m community shift more to hydroids.*

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf *Hydroids*

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

1	2	3	
m			DEPTH LIMITS
14	18		Upper (from sea level) (i.e. minimum)
18	21		Lower (from sea level) (i.e. maximum)
13	17		Upper (from chart datum) *
17	20.5		Lower (from chart datum) *

%			SUBSTRATUM
			Bedrock type?:
100	10		Boulders - very large > 1.0 m
	20		- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
	20		Cobbles (fist - head size)
	20		Pebbles (50p - fist size)
			Gravel - stone
	10		- shell fragments
	20		Sand - coarse
			- medium
			- fine
			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

1	2	3	
1-5			FEATURES - ROCK (all categories)
3	4		Relief of habitat (even - rugged)
1	1		Texture (smooth - pitted)
1	4		Stability (stable - mobile)
3	2		Scour (none - scoured)
1	1		Silt (none - silted)
1	3		Fissures > 10 mm (none - many)
1	4		Crevices < 10 mm (none - many)
4	4		Boulder/cobble/pebble shape (rounded - angular)
	✓		Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
			Mounds / casts
			Burrows / holes
			Waves (>10 cm high)
			Ripples (< 10 cm high)
			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
			Firmness (firm - soft)
			Stability (stable - mobile)
			Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify positively from the different habitats. Use latin names if possible, but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column.

	ph	1	2	3		ph	1	2	3
sponges					echinoderms				
<i>Lucasella</i> sp.	GB	SA	CB CB	CB	<i>Echinus esculentus</i>		F	O	
+ <i>Lucasella complicata</i>	SA		PO	CB	<i>Asterias rubens</i>		R	O	
<i>Alpheida sulcata</i> (2 sp.)	GB		O		<i>Marthasterias glacialis</i>		O	O	
<i>Sycon ciliata</i>	GB		O		<i>Harrisia sanguinea</i>		O	O	
<i>Mycale rotalis</i>	GB		R						
<i>Obelia geniculata</i>	GB		C						
<i>Sesularia argentea</i>	GB		C						
cnidarians: hydroids, anemones, corals,					sea squirts <i>Polysyncratum bilob</i>		O		JA
<i>Alcyonium digitatum</i>			F		<i>Pyrosomella aurilucens</i>		O		
<i>Aglaia heliolum</i>			O		— <i>stolonialis</i>		O		
<i>Nerentaria antennaria</i>			O	O	<i>Clavelina lepadiformis</i>		O		
<i>Tubularia indivisa</i>	JA		P		<i>Aphidium punctatum</i>		O		
<i>Kirchneria pinnata</i>	GB	JA		O	<i>Ascidella l. conchilega</i>	GB		O	
<i>Caryophyllon smithi</i>	GB	JA	F	R	<i>Aphidium 2-spot</i>	GB		O	
Hydractinia <i>Hydractinia falcatula</i> (JA)				O	<i>Marthellum argus</i>	GB		O	
<i>Cerianthus lloydii</i>				O	fishes				
<i>Pleurobranchus pileus</i> (Pelagic)					<i>Lobus mixtus</i>		O		
<i>Liana mare</i>					— <i>bergitta</i>		O		
worms <i>Lineus longissimus</i>	GB			R	Pollack <i>Pollachius</i>		O		
Caprellidae <i>Filigrana</i>			P	P	long spined scorpion		R		
<i>Spirorbis</i> spp.	JA		C						
<i>Pomatoschistus</i> spp. <i>triqueter</i>	GB			F	<i>Polysora falconensis</i>	BP		R	
<i>Polydora ciliata</i>				R	<i>Eubranchius exigens</i>	BP	R		
crustaceans					seaweeds				
<i>Salanus cretatus</i>			C		<i>Enteromorpha pinkalec.</i>		C	F	
Homarus gemmers			R		<i>Dictyota digitata</i>		F	F	
<i>Crimora papillata</i>	BP		R		<i>Plocosium cartilagineum</i>		F	F	
<i>Gibbula cinererea</i>	GB		R		<i>Desmarestia sanguinea</i>		C		
<i>Calliostoma zephyrinum</i>	GB		R		<i>Odenthalia dentata</i>		F		
<i>Polysora quadrilineata</i>	GB		R		Spawn of <i>Oridotaria depressa</i>	GB		P	
<i>Dendronotus fondosus</i>	GB		R		<i>Plagiosira platina</i>	GB		O	
<i>Doto coronata</i>	GB		R		<i>Levibelldia</i>	GB		R	
molluscs <i>Tergipes</i> spawn	GB		R		<i>Hicella index</i>	GB		R	
<i>Aplysia punctata</i>	EB/BR	JA	B		<i>Segaria elegans</i>	GB		R	
<i>Streblospio benedicti</i>			R	O	<i>Doto dunnei</i>	BP		R	
<i>Saxidomus nutalli</i>			R	R	<i>Doto hydruntina</i>	Jon		O	
<i>Lamacia clavata</i>	RB		R	O	<i>Eubranchius triocellus</i>	Jon		R	
<i>Coryphælla</i> lucida	RB/JA		O	O	other or continuations				
<i>Eubranchius farreri</i>	JA		R		<i>Hicella reticulata</i>	GB		R	
<i>Tridacna</i> monarcha AND <i>Archia</i>	JA/GB			R	<i>Aquiptera ocularis</i>	JA		R	
byozoans <i>Bugula flabellata</i>	GB		O	F	<i>Leptochiton asellus</i>	GB		R	
<i>Hustria liliifolia</i>	RB		R	O	<i>Guthriea amoena</i>	Jon		R	
<i>Scrupocellaria</i> sp.	GB			O	<i>Aethalia glauca</i>	Jon		R	
<i>Crisiidae</i>	JA		O		<i>Cithona concinna</i>	Jon		R	
<i>Alcyonium diphyllum</i>	GB	JA		C	<i>Facelina auriculata</i>	Jon		R	
<i>Parasmittina</i>	GB	JA		F	<i>Embletonia pulchra</i>	Jon		R	
<i>Disporella hispida</i>				O	Continue on a separate sheet if you need to				
					<i>Lacuna vincta</i>	GB		R	

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SEASEARCH SURVEY FORM

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Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name BLAISE/ROSS	Tel No: 01437 890984 hm/ mk
Address BULLIMORE FAIRHAVEN TIERS CROSS HAVERFORDWEST PEMBROKESHIRE SA62 3DG	Email: blaise.bullimore@gmail.com
	Buddy's Name JA/GB/IB/RB/Sc/EK
	Name of group or survey KL/8P
Postcode	1MPS 2015

Dive/Site details

Site name BAY STACKA (GARDEN RD)	Date of dive: 16 dd / 06 mm / 15 yy																				
General location ISLE OF MAN	Start of dive: 13:00 (24hr)																				
	Dive duration: 60 (mins)																				
	Sea temperature: 10° °c																				
Position (degrees and decimal minutes – state if in any other format)	Underwater visibility: 6 m																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Latitude</th> <th>Longitude</th> <th>W or E</th> </tr> </thead> <tbody> <tr> <td>Centre of site</td> <td>54° 03.320</td> <td>4° 46.170</td> <td></td> </tr> <tr> <td>For drift dives</td> <td></td> <td></td> <td></td> </tr> <tr> <td> From</td> <td>0 .</td> <td>0 .</td> <td></td> </tr> <tr> <td> To</td> <td>0 .</td> <td>0 .</td> <td></td> </tr> </tbody> </table>		Latitude	Longitude	W or E	Centre of site	54° 03.320	4° 46.170		For drift dives				From	0 .	0 .		To	0 .	0 .		Drift dive? yes / <input checked="" type="radio"/> no Night dive? yes / <input checked="" type="radio"/> no Did you or your buddy take any of the following? photographs yes <input checked="" type="radio"/> no video footage yes <input checked="" type="radio"/> no specimens yes <input checked="" type="radio"/> no seaweeds for pressing yes <input checked="" type="radio"/> no
	Latitude	Longitude	W or E																		
Centre of site	54° 03.320	4° 46.170																			
For drift dives																					
From	0 .	0 .																			
To	0 .	0 .																			
Or OS Grid Reference																					
Position derived from: (circle) GPS Chart OS map Web mapping WGS84 OSGB36																					
Exposure of site: extremely exposed <input type="checkbox"/> v exposed <input type="checkbox"/> exposed <input checked="" type="checkbox"/> mod exposed <input type="checkbox"/> sheltered <input type="checkbox"/> v sheltered <input type="checkbox"/> ext sheltered <input type="checkbox"/> Max tidal stream: <i>exposed to wave - less to tide</i> >6kt <input type="checkbox"/> 3-6kt <input type="checkbox"/> 1-3kt <input type="checkbox"/> <1kt <input checked="" type="checkbox"/> v. weak <input type="checkbox"/>	For the area surveyed, what was the shallowest depth? (m) 9 bsl 4.5 bcd the deepest depth? (m) 20 bsl 16.6 bcd Tidal correction to chart datum 4.5 - 3.8 m*																				

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

Boulders slope adjacent to gently sloping ^{mobile} sand with occasional bldrs (?bedrock outcrops); cobbles + pebbles near bldrs. Heavily urchin grazed rock. Common Ceriantlus in sand. Evidence of scallop dredging c. 15m off bldr slope

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Mod slope large boulders. Heavily grazed by Echini. Encr. calcareous algae and bryozoans. Sparse foliose algae with kelps above 13m. Occasional patches A. digitatum. Extensive areas encr. pink calc. algae and orange bryozoans

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

Coarse sand with pebbles + gravel. Cerianthus and Lanice close to boulder slope (above) but dredge tracks more or less devoid of life c. 15m offshore from bldrs but with shell debris.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Rock Pinnacle, ~ steep sided, vertical faces, flat Plateau corner in Laminera hypobrea. 16m to 9m vertical faces dominated by hydroid + bryo turf w/ dense patches of Alcyonium didg (Cracks in vertical faces)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf Bryozoan/Hydroid

animal bed sediment with life barren sediment Biotope Code

Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify positively from the different habitats. Use latin names if possible, but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column.

	ph	1	2	3		ph	1	2	3
sponges					echinoderms				
<i>Pachymatasma joubertii</i>		R			<i>Echinus esculentus</i>	BB	C		
<i>Lucasoporia indet.</i>	GB	O		OC	<i>Urosalpinx</i> <i>Panopaea Sax</i>	BB	P		
<i>Aspidochela sphaera?</i>	GB	O		O	<i>Asterias rubens</i>				O
					<i>Neopentadactyla mix</i>	SB		O	
cnidarians: hydroids, anemones, corals,					sea squirts				
<i>Alcyonium digitatum</i>		F		F	<i>Clavelina lepad</i>	R/BB	F		EC
<i>Cerioderma nodosum</i>			F		<i>Ascidella ceratoloba</i>		O		P
<i>Coryphoptera smithii</i>		O		F	<i>Artidium 2spot</i>	GB	O		
<i>Pleurobranchus pileus (pelagic)</i>					<i>Polysarpa scuba</i>	GB			O
<i>Liana nana</i>		P			<i>Pycno acrilucosa</i>	GB			O
<i>Cerere pedunculatus</i>					<i>Morchellium crispum</i>	GB			O
<i>Sagartia elegans</i>	GB	O		F	<i>Didemnum maculosum</i>	GB			F
<i>Kirkpatrickia cinnata</i>	GB			BF	fishes fish <i>Pycno stolonalis</i>	GB			O
<i>Halopteris catherina</i>	BP	P			<i>Labrus mixtus</i>		C		
<i>Peachia hastata</i>	BP		R		<i>Aspidochela sphaera</i>				
worms					<i>Aspidochela sphaera</i>		O		
<i>Salmacina/Filigrana</i>		P		F/H	<i>Aspidochela sphaera</i>		O		
<i>Pomatoceros nidmetis</i>		F			<i>Labrus bergyllia</i>		F		
<i>Lanice conchulega</i>			O		<i>Paralichthys virens</i>		O		
<i>Teribellidae indet</i>		F		O	dog fish		O		
<i>Polydora ciliata</i>	GB	O		O	sea kelping		R		
crustaceans					seaweeds				
<i>Balanus crenatus</i>		F			<i>Endi. pulcherrimum</i>		C		F
<i>Comastus pagurus</i>		R			<i>Dic. dichotoma</i>		O		O
<i>Homarus gammarus</i>		R			<i>Delesseria sangu.</i>		F		
<i>Photis longicauda (on. callinoidi)</i>	GB		R	R	low hyp				F
<i>Crepidula indet</i>				F	sea oak				O
<i>Sarcelus cristatus</i>	BP	R			<i>Buccinum undatum</i>				O
<i>Flabellina peltata</i>	BP	R			<i>Hinia reticulata</i>	BP		R	
<i>Doto maculata</i>	BP	R			<i>Lutaria sp.</i>	BP		O	
molluscs					<i>Diclidona depressa wilsorum</i>	GB			P
<i>Diaphorosis luteocincta</i>	BP	R		O	<i>Intona plabra (w/ spawn)</i>	GB			P
Spawn of <i>Geitodoris planata</i>		P			<i>Intona hamboji w/ spawn</i>	GB			O
Spawn of <i>Archidoris pseudopagus</i>		P			<i>Bicellogelliculata</i>	GB			O
<i>Calliostoma zizyph</i>		O		O	<i>Solenus cristatus</i>	GB			O
<i>Limacia clavigera</i>		R			other or continuations				
<i>Colus islandicus</i>	GB	R		R	Butterfish		P		
<i>Mitella arctica</i>	GB	F		O	Copackwing (<i>Ctenolabrus</i>)		P		
<i>Trivia arctica</i>	GB	O		O	<i>Euspira nitida tipps</i>	GB		O	
bryozoans					<i>Bugula flab</i>				BF
<i>Parasynthia</i>		C		C	<i>Crista sp.</i>				P
<i>Hustra foliacea</i>		P			<i>Diaphorosis luteocincta</i>	GB			R
<i>Alcyonium</i> <i>Alcyonium diaph</i>		O		O	<i>Poly. faerensis</i>	GB			R
<i>Disporaella hirsuta</i>	GB	O		F	<i>Flab. pedata</i>	GB			R
<i>Platyleptea patina</i>	GB	F		F					
<i>Nobelia sp.</i>	GB	O							

Continue on a separate sheet if you need to

Once completed, return the form to the Dive Organiser or to: Seasearch, Marine Conservation Society, Unit 3, Wolf Business Park, Alton Road, Ross on Wye, HR9 5NB.

Your contact details will be included on the Seasearch database and those of partner organisations and will be used to send you information about Seasearch and associated projects. They will not be passed to third parties without your consent. The location, dive details, habitats and species information and the name of the recorder will be entered into a database and made available to the participating organisations and the general public through the Seasearch and NBN websites. If you do not agree with this use of the data do not submit the form.

1	2	3	
m			DEPTH LIMITS
13	18	9	Upper (from sea level) (i.e. minimum)
18	20	16	Lower (from sea level) (i.e. maximum)
8.5	13.5	4.5	Upper (from chart datum) *
13.5	16.2	12	Lower (from chart datum) *

%			SUBSTRATUM
		100	Bedrock type?:
100			Boulders - very large > 1.0 m
			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
			Cobbles (fist - head size)
			Pebbles (50p - fist size)
	2		Gravel - stone
			- shell fragments
	90		Sand - coarse
			- medium
			- fine
			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

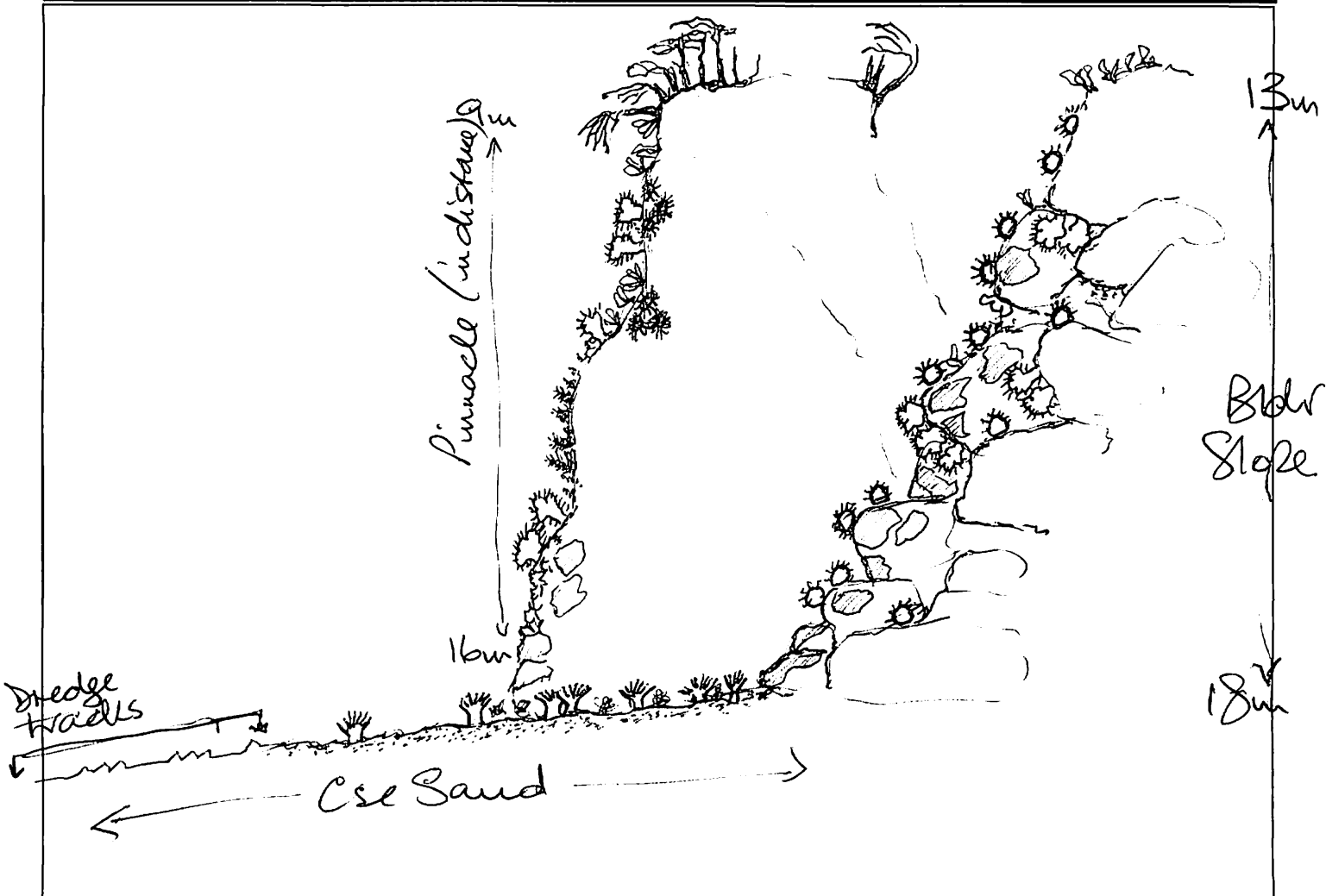
1	2	3	
1-5			FEATURES - ROCK (all categories)
3		2	Relief of habitat (even - rugged)
1		2	Texture (smooth - pitted)
1	1	1	Stability (stable - mobile)
3		5	Scour (none - scoured)
1		1	Silt (none - silted)
1		3	Fissures > 10 mm (none - many)
1		2	Crevice < 10 mm (none - many)
4		4	Boulder/cobble/pebble shape (rounded - angular)
			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
			Mounds / casts
	✓		Burrows / holes
			Waves (>10 cm high)
	✓		Ripples (< 10 cm high)
			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
	3		Firmness (firm - soft)
	3		Stability (stable - mobile)
	3		Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance scale** (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



SEASEARCH SURVEY FORM

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- Please complete all parts of the form. Where there is a * only fill in the information if you know it.



Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name	B. BULLIMORE / R. BULLIMORE	Tel No:	BULLIMORE FAIRHAVEN TIERS CROSS HAVERFORDWEST PEMBROKESHIRE SA62 3DG	hm/wk
Address	ANDERSON / BROWN / LEWIS / PITON / CHAMBERLAIN / HOWE	Email:		
Buddy's I				
		Name of group or survey		
Postcode				

Dive/Site details

Site name	KIONE NY HALPY			Date of dive:	17 dd / 06 mm / 2015 yy
General location	SE CAUF OF MAN			Start of dive:	10 : 20 (24hr)
				Dive duration:	60 (mins)
				Sea temperature:	10° °C
Position (degrees and decimal minutes – state if in any other format)				Underwater visibility:	m
	Latitude	Longitude	W or E	Drift dive?	yes / <input checked="" type="radio"/> no
Centre of site	54° 02.962	04° 48.400	W	Night dive?	yes / <input checked="" type="radio"/> no
For drift dives				Did you or your buddy take any of the following?	
From	0	0		photographs	yes / <input checked="" type="radio"/> no
To	0	0		video footage	yes / <input checked="" type="radio"/> no
Or OS Grid Reference				specimens	yes / <input checked="" type="radio"/> no
Position derived from: (circle)	GPS Datum (circle)			seaweeds for pressing	yes / <input checked="" type="radio"/> no
<input checked="" type="radio"/> GPS	<input type="radio"/> Chart	<input type="radio"/> OS map	<input type="radio"/> Web mapping	<input checked="" type="radio"/> WGS84	<input type="radio"/> OSGB36
Exposure of site: extremely exposed <input type="checkbox"/>	v exposed <input checked="" type="checkbox"/>	exposed <input type="checkbox"/>	For the area surveyed, what was		
mod exposed <input type="checkbox"/>	sheltered <input type="checkbox"/>	v sheltered <input type="checkbox"/>	ext sheltered <input type="checkbox"/>	the shallowest depth? (m)	14 bsl / 10.2 bcd
Max tidal stream:	<input type="checkbox"/> >6kt <input type="checkbox"/> 3-6kt <input checked="" type="checkbox"/> 1-3kt <input type="checkbox"/> <1kt <input type="checkbox"/> v. weak <input type="checkbox"/>			the deepest depth? (m)	23 bsl / 18.5 bcd
				Tidal correction to chart datum	38.5 / 4.5 m*

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

Slope of large boulders to 20m then onto a gently sloping seabed of small boulders + cobbles and coarse gravel dominated by hydroids and occasional algae to 23m.

Lobster pot string on the site

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Large boulders interspersed with patches of pebbles & gravel. Lots of overhangs.
 Kelp ~~forest~~ ^{park} and mixed red algae, with pink encrusting algae.
 14-18m depth.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

20-23m gently sloping seabed of small boulders (cobbles and coarse gravel, some foliose algae (mostly red) but dominated by branching hydroids, *Alcyonium digitatum* and on bare rock, Pink Crusty Algae.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community) *Species list of:*
Nitzschium punctatum (KL)
Desmarestia aculeata (KL)
Dictyopteris polyoides (KL)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

1	2	3	
	m		DEPTH LIMITS
14	18		Upper (from sea level) (i.e. minimum)
22	25		Lower (from sea level) (i.e. maximum)
10.2	14.0		Upper (from chart datum) *
14	18	19	Lower (from chart datum) *

%			SUBSTRATUM
			Bedrock type?:
			Boulders - very large > 1.0 m
5	20		- large 0.5 - 1.0 m
5	10		- small 0.25 - 0.5 m
5	50		Cobbles (fist - head size)
5			Pebbles (50p - fist size)
5	15		Gravel - stone
	5		- shell fragments
			Sand - coarse
			- medium
			- fine
			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

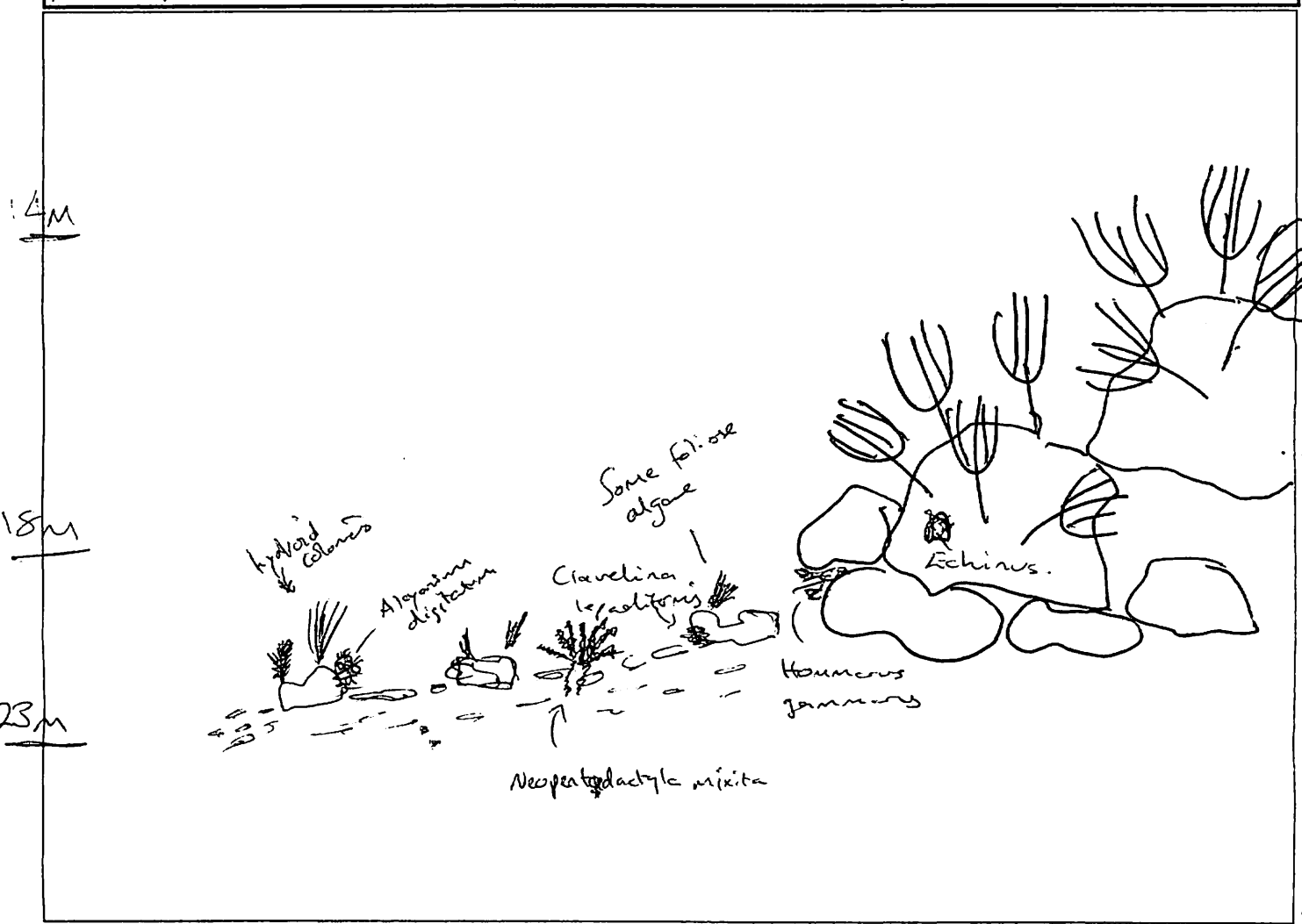
1	2	3	
1-5			FEATURES - ROCK (all categories)
1	4		Relief of habitat (even - rugged)
2	3		Texture (smooth - pitted)
1	3		Stability (stable - mobile)
2	2		Scour (none - scoured)
2	3		Silt (none - silted)
4	3		Fissures > 10 mm (none - many)
2	4		Crevices < 10 mm (none - many)
4	4		Boulder/cobble/pebble shape (rounded - angular)
			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
			Mounds / casts
			Burrows / holes
			Waves (>10 cm high)
			Ripples (< 10 cm high)
			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
			Firmness (firm - soft)
			Stability (stable - mobile)
			Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify positively from the different habitats. Use latin names if possible, but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column.

	ph	1	2	3		ph	1	2	3
sponges					echinoderms				
<i>Scypha ciliata</i>		R			<i>Echinus</i> sp.		O	R	
<i>Polyspongia boletiformis</i>	RB		R		<i>Asterias rubens</i>			R	
<i>Scypha ciliata</i>	BB		R		<i>Neopentadactyla mixta</i>			F	
<i>Pachymatisma jehovah</i>	GB		R		<i>Henriac</i> sp.	RB/BB		R	
<i>Lucospora</i> sp.	GB		P		<i>Antedon bifida</i>	RB		R	
<i>Lucospora botryoides</i>	BP		R		<i>Marthastius glac</i>	SB		O	
<i>Congue eximia</i>	BP	R			<i>Pawsonia saxicola</i>	GB		R	
<i>Aurethema heliocola</i>	BP		R		<i>Parasabella argus</i>	GB		R	
<i>Sagartia elegans</i>	GB		R		<i>Lucia</i> sp.	GB		R	
cnidarians: hydroids, anemones, corals,					sea squirts <i>Cynodavella aur.</i>	GB		R	
none ant. <i>Nemertesia onitacea</i>			F		<i>Clavaria lepadiformis</i>	BB	O	F	
<i>Kirkpatrickia pin.</i>			F		<i>Botrylloides leachi</i>	KL	R		
<i>Sertularia argentea</i>			F		<i>Dendrodoa grossularia</i>		R		
<i>Obelia geniculata</i>		O			<i>Aplidium punctum</i>			O	
<i>Halecium hal.</i>			F		<i>Botryllus schlosseri</i>			R	
<i>Actinothoe sphaerocata</i>	KL	O			<i>Ascidia mentula</i>	RB		P	
<i>Cerianthus kroyeri</i>			O		Snowflake?	GB/BB		O	
<i>Caryophyllia smithi</i>	ms		R		fishes <i>Marshallium argus</i>	BB/KL		O	
<i>Alcyonium didym.</i>	KL	F	F		Lab mix			O	
<i>Epizo couchii</i>	BB/KB		O		<i>Labrus bergylta</i>			O	
worms <i>Plumularia setacea</i>	BP	P			<i>Goldsinny</i> <i>Leurostomus</i>			R	
long <i>longissima</i>	KL	R			Blenny				
<i>Panathroca keel worm</i> sp.	RB/IA		C		Rock cook			O	
<i>Partheceraeus vittatus</i>	BB		R		eggs of 2 spot Goby	GB		P	
<i>Lanice conchulaga</i>	GB		O		<i>Gobius celer flourens</i>	2 spot GB		P	
<i>Polydora ciliata</i>	GB		O		<i>Calloplyctis laciniata</i>	KL/P		P	
crustaceans					seaweeds <i>Phyllocladus rubens</i>	KL/P		P	
<i>Cancer pagurus</i>	-	R			<i>Valoniopsis</i>			F	
<i>Homarus gammarus</i>	-	R			Die die		F		
Caprellids?	RB		O		Pink Enc Algae		F	A	
<i>Pisidia longicornis</i>	JA/KB		C		<i>Heterosiphonia</i>		F		
<i>Limacea clavigera</i>	BP		R		<i>Laminaria hyperborea</i>		F		
<i>Dendrochorda fimbriata</i>	BP		R		<i>Drachella spectabilis</i>		F		
<i>Triakchusia caerulea</i>	JA		R		<i>Placaminia cart.</i>			O	
Pol Quad AND <i>Fucospora</i>	JA		R		Encrusting Red - non calc.				
molluscs <i>Fucella auriculata</i>	JA		R		Seaweed				
<i>Gibbula sinuata</i>		F			<i>Leptochiton arellus</i>	GB		R	
Col Ziz AND var <i>lucida</i>	GB	F/R			<i>Aquilecton opercularis</i>	GB		R	
<i>Tridacna pellata</i>	KL	O			<i>Euspira nitida</i>	GB		R	
<i>Sanulus cris.</i>	RB		R		<i>Aglophonia tubalifera</i>	BB		R	
Flab ped	RB		R		other or continuations				
<i>Coryphella lineata</i>	GB	RB		R	<i>Dotu dinnei</i>	BB		P	
<i>Polydora ciliata</i>	BB		R		<i>Goniodoris redosa</i>	BB		P	
bryozoans					<i>Diaphodoris luteocincta</i>	BB		O	
<i>Bucula flabellata</i>			O		<i>Sagartia</i> sp.	BP		P	
<i>Myosium diaphanum</i>			O		<i>Eublettonia pulchra</i>	IC		R	
<i>Potamococcus</i>	GB		O		<i>Trinia</i> sp. - Arctica	GB		O	
<i>Agardhia patina</i>	GB		F		<i>Trinia</i> sp.			R	
<i>Crissia</i> sp.	GB		C		<i>Tritonia plebeia</i>	IC		R	
<i>Electra pilosa</i>	GB		C		Continue on a separate sheet if you need to				
<i>Disporaella hispida</i>	GB		F		<i>Uncella marmorata</i>	GB		R	

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Duchidons oblonga sp. R
Polysyncraton bilob. JA. R
Botrylloides inaeq. JA R 4

1 mps 8

SEASEARCH SURVEY FORM

Form No (leave blank)

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- Please complete all parts of the form. Where there is a * only fill in the information if you know it.



Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name	ROSE BLAISE BULLIMORE	Tel No:	01437 890984	hm/wh
Address	BULLIMORE FAIRHAVEN TIERS CROSS HAVERFORDWEST PEMBROKESHIRE SA62 3DG	Email:	blaise.bullimore@gmail.com	
		Buddy's Name	JA/AB/BP/KL/SC	
Postcode		Name of group or survey		

Dive/Site details

Site name	Bay FIVE 10Man				Date of dive:	17 dd / 06 mm / 2015 yy						
General location	Near Port ERIN INSIDE Port ERIN closed area				Start of dive:	13 05 (24hr)						
					Dive duration:	60 (mins)						
					Sea temperature:	10 °C						
Position (degrees and decimal minutes – state if in any other format)	<table border="1"> <tr> <th>Latitude</th> <th>Longitude</th> <th>W or E</th> </tr> <tr> <td>54° 04.575</td> <td>04° 46.912</td> <td>W</td> </tr> </table>				Latitude	Longitude	W or E	54° 04.575	04° 46.912	W	Underwater visibility:	8 m
					Latitude	Longitude	W or E					
54° 04.575	04° 46.912	W										
Centre of site					Drift dive?	yes / <input checked="" type="radio"/> no						
For drift dives					Night dive?	yes / <input checked="" type="radio"/> no						
From	0	0			Did you or your buddy take any of the following?	photographs <input checked="" type="radio"/> yes / <input type="radio"/> no video footage <input checked="" type="radio"/> yes / <input type="radio"/> no specimens <input checked="" type="radio"/> yes / <input type="radio"/> no seaweeds for pressing <input checked="" type="radio"/> yes / <input type="radio"/> no						
To	0	0										
Or OS Grid Reference												
Position derived from: (circle)	GPS Chart		OS map		Web mapping		<input checked="" type="radio"/> WGS84 <input type="radio"/> OSGB36					
Exposure of site: extremely exposed <input type="checkbox"/>	v exposed <input type="checkbox"/>	exposed <input type="checkbox"/>										
mod exposed <input checked="" type="checkbox"/>	sheltered <input type="checkbox"/>	v sheltered <input type="checkbox"/>	ext sheltered <input type="checkbox"/>									
Max tidal stream:					For the area surveyed, what was							
>6kt <input type="checkbox"/>	3-6kt <input type="checkbox"/>	1-3kt <input checked="" type="checkbox"/>	<1kt <input type="checkbox"/>	v. weak <input type="checkbox"/>	the shallowest depth? (m)	8 bsl 3.5 bcd						
					the deepest depth? (m)	20 bsl 15.5 bcd						
					Tidal correction to chart datum	474.2 m*						

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

Large bedrock reef and wall, seabed of very coarse gravel
 pebbles and cobbles. (SLATE)
 Very common Coriaria Lloydii + Neopentadactyle murice present
 in the gravel and wash epibioten on larger cobbles indicates lack
 of disturbance ~ (inside closed area) - notable - Cliona celata
 @ 14m in boring stage and @ 18-19m in large
 crevices in massive form
 One large (1m²) patch of Alcyonium hibernicum
 recorded in an overhang

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

① DESCRIPTION (physical + community) ~~broken~~

Broken sloping Reef dominated by hydroids, byzoo on turf
occasional sponges

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community) seabed (gravel / cobbles)

② Very coarse gravel, pebbles and cobbles. ~~dominated~~ frequently dominated by keel worms. frequent *Neopentadactyla mixta* and *Cericutus Uaydoi* in the gravel. Reasonable numbers of *Pecten maximus* ~ up to 3/m².
larger cobbles dominated by hydroids, red algae and *Clavelina* - lepad.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community) ~~vertical~~

③ Vertical wall dominated by red algae (- overhays at bottom)
Alcyonium didg + hydroids w/ some byzoo on turf
+ *Comnactis viridis* - occasional

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf *AnneloZoan/byzo*

animal bed sediment with life barren sediment Biotope Code

- ① = WALL
 ② = SLOPE
 ③ = GRAVEL

Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify positively from the different habitats. Use latin names if possible, but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column.

	ph	1	2	3		ph	1	2	3
sponges					echinoderms <i>Luidia ciliaris</i>	RB			R
<i>Cliona celata</i>	BP		O		<i>Marthasterias glacialis</i>	BB		O	
<i>Pacliyomatium jouberti</i>			R		<i>Ophiura index</i>	BB			O
<i>Suberites</i> sp.	BB		R		<i>Neopentadactyla mixta</i>				C
<i>Leucospongia complicata</i>	BB	P	O		<i>Henricia</i> sp.		R		R
<i>Suberites caradseus</i>	KL		R		<i>Antedon bifida</i>	GB			F
					<i>Ophiura albida</i>				R
<i>Adamsia palliata</i>	GB			R	<i>Asterina phyliactica</i>	BA	R		
<i>Alyconium hispanicum</i>	GB	R							
<i>Utridium senile</i>			O		<i>Botryllus schlosseri</i>	BB			O
cnidarians: hydroids, anemones, corals,					sea squirts <i>Aplidium punctatum</i>	BB/BB	O	R	F
<i>Caryophyllia smithii</i>			O		<i>Clavellina lepadiformis</i>	BB	O	O	F
<i>Halopteris catherina</i>	BP/KL		R		<i>Botryllus leachi</i>	RB			R
<i>Hallecium hallecinum</i>		F	F	O	<i>Obolium mac. dentate</i>	BB/BB			O
<i>Cerianthus lloydii</i>				C	<i>Ryanodactyla auriluc.</i>	GB/BB	O	R	
<i>Nemertea antennata</i>	F	F	F	F	<i>Asoclinium perforat.</i>	BB			R
" <i>ramosa</i>		O		O	<i>Didemnum pilgus(?)</i>	GB			P
<i>Urticina felina</i>				R	<i>Botryllus</i> sp.	GB			R
<i>Achnothis sphyradeta</i>	BP	P			fishes <i>Labrus mixtus</i>			P	
<i>Conus viridis</i>	BB	O	O		<i>Pollachius pollach</i>			P	
<i>Alyconium digitatum</i>		C	C		<i>Ctenolabrus exoletus</i>			P	
worms					<i>Labrus bergylla</i>			P	
<i>Pomatoceros</i> sp.		R	C	O	<i>Pomatoceros pictus</i>				R
<i>Prothecaceraeus vittatus</i>	BB/GB			R					
<i>Terebellid</i> indet				P	<i>Eubranchius vittatus</i>	BP		R	
					<i>Gnathodoris nodosa</i>	BP			R
crustaceans <i>Cancer pagurus</i>				O	seaweeds <i>Enc. corallines</i>		O	F	R
<i>Cirripedia</i> indet		F	C		<i>Lam. polyschides</i>		F		
<i>Balanus crenatus</i>		C	C	O	<i>Plocamium cartilag.</i>		O	F	
<i>Pisidia longicornis</i>				C	<i>Dictyota dichotoma</i>		O		O
<i>Pagurus prideaux</i>				R	<i>Laminaria hyper.</i>				O
					<i>Saccharina latissima</i>		P		
<i>Eubranchius tricolor</i>	BP/GB			R	<i>Desmarestia</i> sp.		P		
<i>Pavoninus branchialis</i>	KL		R		<i>Doto maculata</i>	BP	K		
<i>Anatula gibbosa</i>	KL		R		<i>Doto dunnei</i>	BP	R		
molluscs <i>Leptochiton asellus</i>	CB			R	<i>Facellina boston.</i>	GB			R
<i>Diaphodoris luteocincta</i>	BB/BB	O	F		<i>Comphella lineata</i>	GB			O
<i>Gibbula cinerea</i>				O	<i>Eubranchius exiguus</i>	KL/GB		R	R
<i>Volucera faerensis</i>	BB		R		<i>Terpes terpes (+spun)</i>		R		
<i>Aplysia punctata</i>	BB		R		<i>Doto pinnatifida</i>	BP/GB		P	
<i>Abellda pedata</i>	BP/KL/BB	R	R	R	other of continuations <i>Doto crenata</i>		P		
<i>Lecten maximus</i>	BB			F	<i>Collepora pumicosa</i>	GB	O		O
<i>Hermalea bifida</i> (single record)	BB			R	<i>Pantodon brachialis</i>				
bryozoans Orange crusts			O		<i>Pala notus</i>	CB			R
<i>Alyconium diaphanum</i>	BB		R	R	<i>Cadina laevis</i>	BP/KL	R		
<i>Bugula turbinata</i>	BB		R		<i>Limnorea clarigera</i>	BP/BB		R	
<i>Electra pilosa</i>	GB/BB			R	<i>Embletonia plechra</i>	JC			O
<i>Bugula flabellata</i>			F		<i>Doto sarsia</i>	GB	P		
<i>Crepidula indet</i>		F	F		<i>Doto fragilis</i>	BP/BB	P		
<i>Cellaria</i> - " -			F						

Nemertea antennata GB F F
 Once completed, return the form to the Dive Organiser or to: Seasearch, Marine Conservation Society, Unit 3, Wolf Business Park, Alton Road, Ross on Wye, HR9 5NB.

Your contact details will be included on the Seasearch database and those of partner organisations and will be used to send you information about Seasearch and associated projects. They will not be passed to third parties without your consent. The location, dive details, habitats and species information and the name of the recorder will be entered into a database and made available to the participating organisations and the general public through the Seasearch and NBN websites. If you do not agree with this use of the data do not submit the form.

1MPS (9)

Form No (leave blank)

SEASEARCH SURVEY FORM

- If anything is unclear please refer to the **Guidance Notes**
- Each pair of divers should complete a form between them
- Please complete all parts of the form. Where there is a * only fill in the information if you know it.



Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name ROSS + BLAISE BULLIMORE	Tel No: 01437 890984 hm/
Address BULLIMORE FAIRHAVEN TIERS CROSS HAVERFORDWEST PEMBROKESHIRE SA62 3DG	Email: blaise.bullimore@gmail.com
	Buddy's Name BP/SC/JA/GB/KL/LH
	Name of group or survey JB/EK
Postcode	1MPS 2015.

Dive/Site details

Site name Spanish Head	Date of dive: 18 dd / 06 mm / 2015 yy
General location SE 10 Man.	Start of dive: 10 : 40 (24hr)
	Dive duration: 60 (mins)
	Sea temperature: 10° °C
Position (degrees and decimal minutes – state if in any other format)	Underwater visibility: 8 m
	Drift dive? yes <input type="radio"/> no <input checked="" type="radio"/>
	Night dive? yes <input type="radio"/> no <input checked="" type="radio"/>
Centre of site 54° 0'	Did you or your buddy take any of the following?
For drift dives From 54° 03' 30.4"	
To 46° 6' 00.0" W	
Or OS Grid Reference	photographs <input checked="" type="radio"/> / no <input type="radio"/>
Position derived from: (circle) GPS Chart OS map Web mapping WGS84 OSGB36	video footage <input checked="" type="radio"/> / no <input type="radio"/>
Exposure of site: extremely exposed <input type="checkbox"/> v exposed <input checked="" type="checkbox"/> exposed <input checked="" type="checkbox"/>	specimens <input checked="" type="radio"/> / no <input type="radio"/>
mod exposed <input type="checkbox"/> sheltered <input type="checkbox"/> v sheltered <input type="checkbox"/> ext sheltered <input type="checkbox"/>	seaweeds for pressing yes <input type="radio"/> no <input checked="" type="radio"/>
Max tidal stream: Wave exposed	For the area surveyed, what was
>6kt <input type="checkbox"/> 3-6kt <input type="checkbox"/> 1-3kt <input checked="" type="checkbox"/> <1kt <input type="checkbox"/> v. weak <input type="checkbox"/>	the shallowest depth? (m) 15 bsl 17.5 bcd
	the deepest depth? (m) 22 bsl 18.3 bcd
	Tidal correction to chart datum 3.3-3.9m*

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

Large boulders - steep slope 10-20m with kelp - 12m abundant
Orchids 20-22m narrow band of coarse sand
then transition onto coarse gravel, cobbles and
some boulders dominated by dense patches of
hydroids.
- Lobster pots on site.
(15.4m in a crevice in boulders - Alcyonium hibernicum)

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Steep slope of large boulders kelp (low hyp) dense forest to 12m. Abundant Echinus esculentus and bare rock dominated by crusty pink and red algae. areas of dense Alcyonium digitatum, occasional hydroid tufts and foliose red algae - 15.8m in a crevice of a boulder - Alcyonium hioboricum

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

Coarse gravel, cobbles and some boulders dominated by dense stacks of hydroids - Nemertea out and Panorea, Sertularia argentea Many Neopentadactyla mixta and ~~Ceryoph~~ Cerianturus Urydii in gravel and burrowing bivalves ^{And} laire couch.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf hydroid

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

Spanish Head

IMPs (8) (9)

1	2	3	
m			DEPTH LIMITS
15	20		Upper (from sea level) (i.e. minimum)
20	22		Lower (from sea level) (i.e. maximum)
11.5	16.5		Upper (from chart datum) *
16.5	18.3		Lower (from chart datum) *

%			SUBSTRATUM
			Bedrock type?:
100			Boulders - very large > 1.0 m
			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
	70		Cobbles (fist - head size)
	15		Pebbles (50p - fist size)
	5		Gravel - stone
			- shell fragments
	10		Sand - coarse
			- medium
			- fine
			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

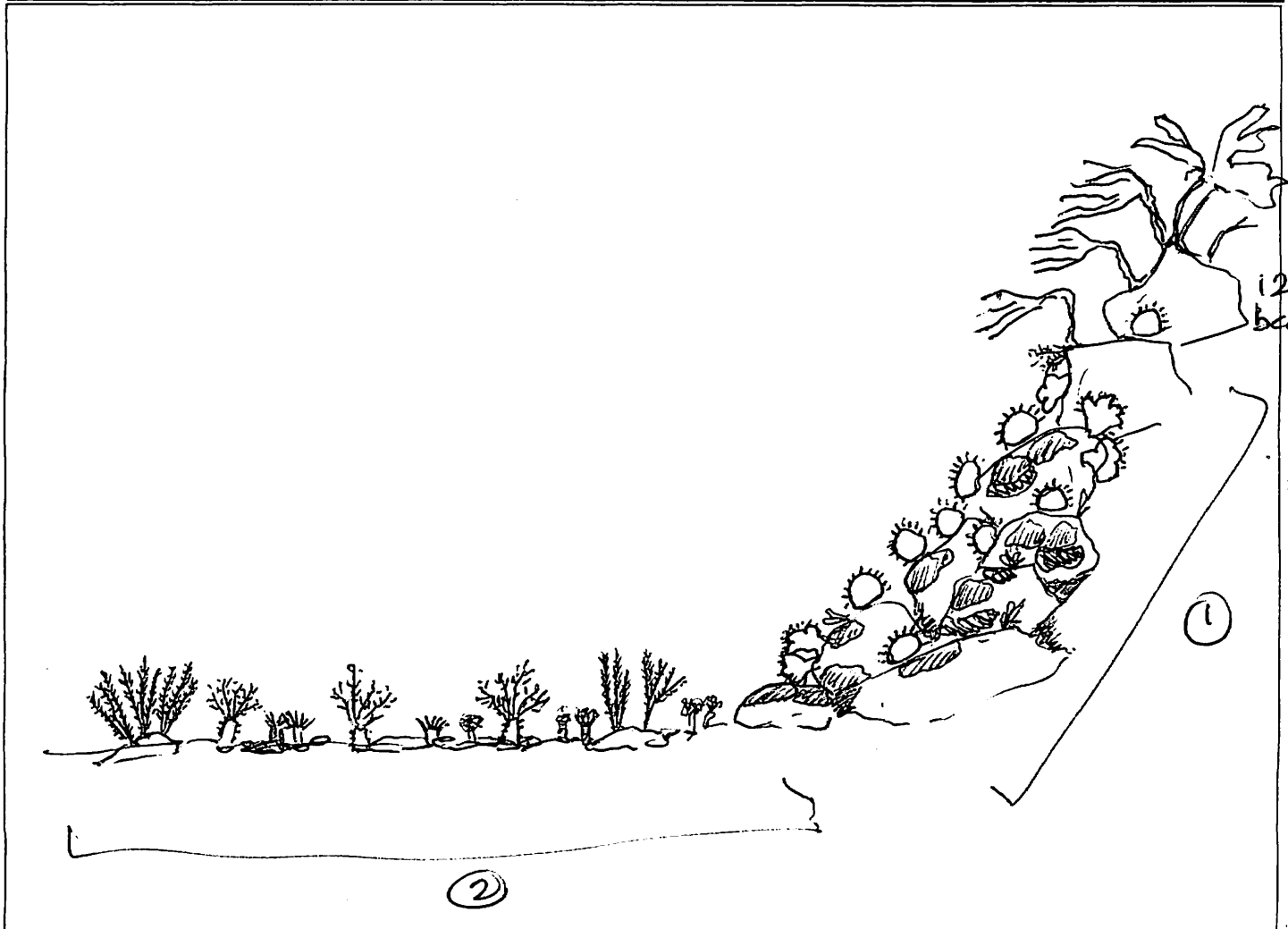
1	2	3	
1-5			FEATURES - ROCK (all categories)
3	1		Relief of habitat (even - rugged)
2	1		Texture (smooth - pitted)
1	4		Stability (stable - mobile)
1	2		Scour (none - scoured)
1	1		Silt (none - silted)
2	1		Fissures > 10 mm (none - many)
	1		Crevices < 10 mm (none - many)
2	4		Boulder/cobble/pebble shape
✓			(rounded - angular)
			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
			Mounds / casts
			Burrows / holes
			Waves (>10 cm high)
			Ripples (< 10 cm high)
			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
			Firmness (firm - soft)
			Stability (stable - mobile)
			Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



SEASEARCH SURVEY FORM

- If anything is unclear please refer to the **Guidance Notes**
- Each pair of divers should complete a form between them
- Please complete all parts of the form. Where there is a * only fill in the information if you know it.



Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name Kerry Lewis	Tel No: 07812332656 hm/wk
Address 21 Sea View Place	Email: kerry_lewis25@hotmail.com
Abemystwyth	Buddy's Name Lara Howe
Ceredigion, Wales	Name of group or survey
Postcode SY23 1DZ	Kipling Trek

Dive/Site details **Blaise + Ross Bullimore; Bernard Pictor; Jon Chamberlain; George Brown; Jim Anderson; Emma Kenyon; James Bull.**

Site name Superloaf Caves	Date of dive: 18 dd / 06 mm / 2015 yy	
General location Fairy Cave and Aurl's channel (near Superloaf) Isle of Man	Start of dive: 13 : 15 (24hr)	
	Dive duration: 60 (mins)	
	Sea temperature: 11 °C	
Position (degrees and decimal minutes - state if in any other format)	Underwater visibility: 8-10 m	
	Drift dive? <input type="checkbox"/> yes / <input checked="" type="checkbox"/> no	
Centre of site 54° 03.600' 4° 45.415' W	Night dive? <input type="checkbox"/> yes / <input checked="" type="checkbox"/> no	
For drift dives	Did you or your buddy take any of the following?	
From		photographs <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no
To		video footage <input type="checkbox"/> yes / <input checked="" type="checkbox"/> no
Or OS Grid Reference	specimens <input checked="" type="checkbox"/> yes / <input type="checkbox"/> no	
Position derived from: (circle) GPS Chart OS map Web mapping WGS84 OSGB36	seaweeds for pressing <input type="checkbox"/> yes / <input checked="" type="checkbox"/> no	
Exposure of site: extremely exposed <input type="checkbox"/> v exposed <input checked="" type="checkbox"/> exposed <input type="checkbox"/> mod exposed <input type="checkbox"/> sheltered <input type="checkbox"/> v sheltered <input type="checkbox"/> ext sheltered <input checked="" type="checkbox"/>	For the area surveyed, what was	
Max tidal stream: 3-PR <input checked="" type="checkbox"/> >6kt <input type="checkbox"/> 3-PR <input checked="" type="checkbox"/> 1-3kt <input type="checkbox"/> <1kt <input type="checkbox"/> v. weak <input checked="" type="checkbox"/>	the shallowest depth? (m) 5 bsl 0 bcd	
	the deepest depth? (m) 10 bsl 5.4 bcd	
	Tidal correction to chart datum 5 → 4.6 m	

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

a) Cobble sea bed - very bare; cave covered in sponge/squirt life; gully with mixed algae + animal life.

b) Abundant *D. grossuaria*; very diverse mix of squirts. Rare/new nudibranchs seen in gully on *Bougainvillea* + *Dyphasia rosacea*.

c) Length of cable seen in cave.

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Cave - cave floor cobbles - bare.
Walls covered in sponge / squirt life.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf mixed squirt / sponge

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

Gully with steep / vertical walls. Some boulders on floor of gully.
Mixed cover - algae & animal turf.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf mixed

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

Fairy Cave / Anvil

1 M Ps (10)

cave gully

1	2	3	
m			DEPTH LIMITS
8	5		Upper (from sea level) (i.e. minimum)
10	10		Lower (from sea level) (i.e. maximum)
3	0		Upper (from chart datum) *
5.4	5.4		Lower (from chart datum) *

%			SUBSTRATUM
100	80		Bedrock type?:
	10		Boulders - very large > 1.0 m
			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
			Cobbles (fist - head size)
			Pebbles (50p - fist size)
	10		Gravel - stone
			- shell fragments
			Sand - coarse
			- medium
			- fine
			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

cave gully

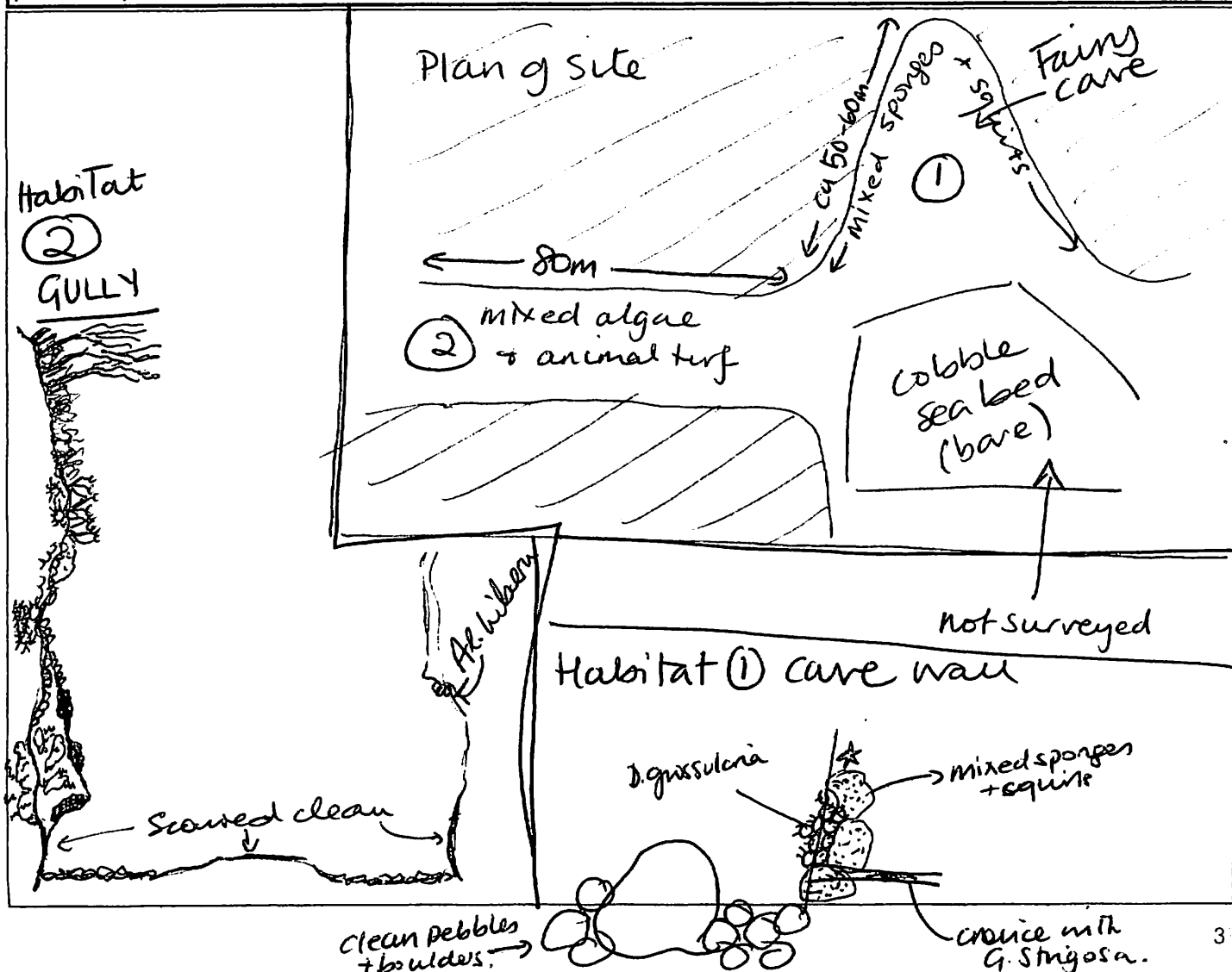
1	2	3	
1-5			FEATURES - ROCK (all categories)
1	1		Relief of habitat (even - rugged)
1	1		Texture (smooth - pitted)
1	1		Stability (stable - mobile)
1	1		Scour (none - scoured)
1	1		Silt (none - silted)
3	1		Fissures > 10 mm (none - many)
3	1		Crevices < 10 mm (none - many)
(3)	(3)		Boulder/cobble/pebble shape (rounded - angular)
			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
			Mounds / casts
			Burrows / holes
			Waves (>10 cm high)
			Ripples (< 10 cm high)
			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
			Firmness (firm - soft)
			Stability (stable - mobile)
			Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify positively from the different habitats. Use latin names if possible, but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column. undescribed.

cave gully				cave gully					
	ph	1	2	3		ph	1	2	3
sponges									
<i>Styphnus poudosus</i>	BP	F			echinoderms				
<i>Pachymatoma johnst.</i>	BP	F	C		<i>Astenna phylactica</i>	BP		O	
<i>Persinus richland.</i>	BP/BS	O	O		<i>Henricia</i> sp.			R	
<i>Halicondria pan.</i>	JL		O		<i>Poly. sync. bibbatum</i>	BS		R	
<i>Clatunna coriacea</i>	BS	F	F		<i>Poly. sync. watum</i> sp.	BS		R	
<i>Esperopsis furorum</i>	BS	JL	O		<i>Ptileroid</i> indet.	BS		R	
<i>Scypha cubata</i>	JL		O		<i>Lycodelanella producta</i>	BS		R	
<i>Myxilla incrustans</i>	BP		R		<i>Didemnum maculosum dentate</i>	BS		R	
<i>Leukosolenia complicata</i>			F		<i>Didemnum cerium</i>	BS	O	F	
<i>Leuconia nivea</i>	BP	F	F		<i>Asciadiella</i> sp.	JA	R		
cnidarians: hydroids, anemones, corals,					sea squirts				
<i>Tubularia indivisa</i>	BS		O		<i>Aphidium cavendishii</i>	2sp		R	(JA)
<i>Pachymatoma johnst.</i>					<i>Didemnum maculosum</i>		O	O	
<i>Bougainvillea</i> sp.		P			<i>Diplosoma listerianum</i>	BS	O	F	
<i>Diphysia rosacea</i>		P			<i>Pycnoclavella stolonialis</i>	BS	R	O	
<i>Pulmulana sebacea</i>			P		<i>Clavelina lepadif.</i>			C	
<i>Myconium digitatum</i>	BS		R		<i>Morchellium ergus</i>	BS	O	C	
<i>Myconium hibernicum</i>	BP/BS		R		<i>Dendrodoa grossularia</i>	BP	A	A	
<i>Actinia equina</i>	JA/BS	BP			<i>Clavaria Bot. Schlosseri</i>			O	
					<i>Clavaria</i> <i>Aphidium rubinatum</i>	BS	O	O	
					<i>Aphidium punctum</i>	KL	O	O	
worms					<i>Lissoclinum perforat.</i>	KL	O	O	
<i>Pomatoceros fiqueter</i>	JA	S			<i>Botrylloides leachi</i>	JL		O	
<i>Filograna</i>	JA	O			<i>Polycarpa scuba</i>	BP	JL	R	F
					<i>Diplosoma spangiforme</i>	BS	JL	R	R
					<i>Didemnum julgens</i>		O	O	
					<i>Aphidium nordmanni</i>	BS	O	O	
					<i>Polyclinum aurantium</i>	BS	R	R	
crustaceans					seaweeds				
<i>Galathea strigosa</i>	KL	R			<i>Sydnum</i> sp.	JA		R	
<i>Homarus gammarus</i>		R			<i>Dichyota dichotoma</i>			F	
<i>Balanus crenatus</i>		C			<i>Dicellastrum sp.</i>			F	
<i>Cancer pagurus</i>					<i>Corallina</i> sp.			F	
<i>Balanus crenatus</i>	JA	F			<i>Delessania sanguinea</i>			F	
					<i>Laminaria digitatum</i>			C	
					<i>Enc. pink algae</i>	JA	F	C	
<i>Tritonia plebia</i> spawn	JA	R			<i>Cyrtopleura</i>			C	
molluscs					<i>Laminaria hypoleuca</i>			C	
<i>Donis pseudargus</i>	JA	R			<i>Desmarestia aculeata</i>			P	
<i>Linsaea clavigera</i>	JL		R						
<i>Platellina pedata</i>	JL	O			<i>Vanellia blemus</i>	BP	R		
<i>Eysia viridis</i>			R		<i>Halidoria sp.</i>	JA	R		
<i>Gibbula cineraria</i>	KL		O		<i>Placortis</i> ??	BP			
<i>Anula gibbosa</i>	JL		R		other or continuations				
<i>Calliostoma zephyr.</i>		O	O		<i>J. tomentosa</i> eggs	JA	R		
<i>Doto on bougainvillea</i> (? new)		R			<i>D. pseudoargus</i> eggs	JA	R		
bryozoans					<i>Leuconia johnstoni</i>	JA/BS	F	F	
<i>Electra pilosa</i>			F		<i>Doto on Diphysia ros</i> (new?)			R	
<i>Scrupocellaria</i> sp.	JA	F	F		<i>Halidonia similans</i>	BP	O		
					<i>Stelletta grubii</i>	BP	P		
					<i>Oscarella</i> sp.		F		
					<i>Dysidea fragilis</i>		R		

Continue on a separate sheet if you need to

Once completed, return the form to the Dive Organiser or to: Seasearch, Marine Conservation Society, Unit 3, Wolf Business Park, Aiton Road, Ross on Wye, HR9 5NB.

Your contact details will be included on the Seasearch database and those of partner organisations and will be used to send you information about Seasearch and associated projects. They will not be passed to third parties without your consent. The location, dive details, habitats and species information and the name of the recorder will be entered into a database and made available to the participating organisations and the general public through the Seasearch and NBN websites. If you do not agree with this use of the data do not submit the form.

Form No (leave blank)

SEASEARCH SURVEY FORM

- If anything is unclear please refer to the **Guidance Notes**
- Each pair of divers should complete a form between them
- Please complete all parts of the form. Where there is a * only fill in the information if you know it.



Validated by	Date	Entered by	Date	MR Reference
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Recorder leave blank - for Seasearch use

Your details

Name	BLAKE CROSS BULLMARE	Tel No:		BULLIMORE FAIRHAVEN TIERS CROSS HAVERFORDWEST PEMBROKESHIRE SA62 3DG	hm/wk
Address	BP/SC/SA/GB/KL/LH.	Email:			
		Buddy's Name:			
		Name of group or survey	1MPS 2015		
Postcode					

Dive/Site details

Site name	SURROO				Date of dive:	19 dd / 6 mm / 15 yy	
General location	CALF OF MAN				Start of dive:	07:15	(24hr)
					Dive duration:	60	(mins)
					Sea temperature:	10	°C
Position (degrees and decimal minutes -- state if in any other format)					Underwater visibility:	8	m
		Latitude	Longitude	W or E	Drift dive?	yes	<input type="radio"/> no
Centre of site	54°	02.577	4°	48.742	Night dive?	yes	<input type="radio"/> no
For drift dives	From	0	0		Did you or your buddy take any of the following?		
	To	0	0				
Or OS Grid Reference					photographs	yes	<input type="radio"/> no
Position derived from: (circle)			GPS Datum (circle)		video footage	yes	<input type="radio"/> no
<input checked="" type="radio"/> GPS	<input type="radio"/> Chart	<input type="radio"/> OS map	<input type="radio"/> Web mapping	<input checked="" type="radio"/> WGS84	specimens	yes	<input type="radio"/> no
				<input type="radio"/> OSGB36	seaweeds for pressing	yes	<input type="radio"/> no
Exposure of site: extremely exposed <input type="checkbox"/>	v exposed <input checked="" type="checkbox"/>	exposed <input type="checkbox"/>	For the area surveyed, what was				
mod exposed <input type="checkbox"/>	sheltered <input type="checkbox"/>	v sheltered <input type="checkbox"/>					
Max tidal stream:					the shallowest depth? (m)	16	bsl 15.5 bcd
>6kt <input type="checkbox"/>	3-6kt <input type="checkbox"/>	1-3kt <input checked="" type="checkbox"/>	<1kt <input type="checkbox"/>	v. weak <input type="checkbox"/>	the deepest depth? (m)	22	bsl 21.5 bcd
					Tidal correction to chart datum	0.5	m*

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

Steep - vertical bedrock ridges / gullies extending up onto irregular reef at 18-20m.

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Bedrock ridges and gullies, low undulating reef between, small gravel patches. Dominated by tubularia with ^{discrete} patches of *Alcyonaria* (*Sagartia* spp) and *Alcyonaria digitatum*. Small + less frequent patches: other hydroids, *Conchactis* (extensive on gully walls), colonial ascidians. Areas of *Tubularia* being grazed by large numbers *Dendronotus pumilus* - of various sizes → very large.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf *Tubularia/arenosae*

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

1	2	3	
m			DEPTH LIMITS
16			Upper (from sea level) (i.e. minimum)
21.5			Lower (from sea level) (i.e. maximum)
15.5			Upper (from chart datum) *
21.5			Lower (from chart datum) *

%			SUBSTRATUM
98			Bedrock type?
			Boulders - very large > 1.0 m
			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
			Cobbles (fist - head size)
			Pebbles (50p - fist size)
2			Gravel - stone
			- shell fragments
			Sand - coarse
			- medium
			- fine
			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

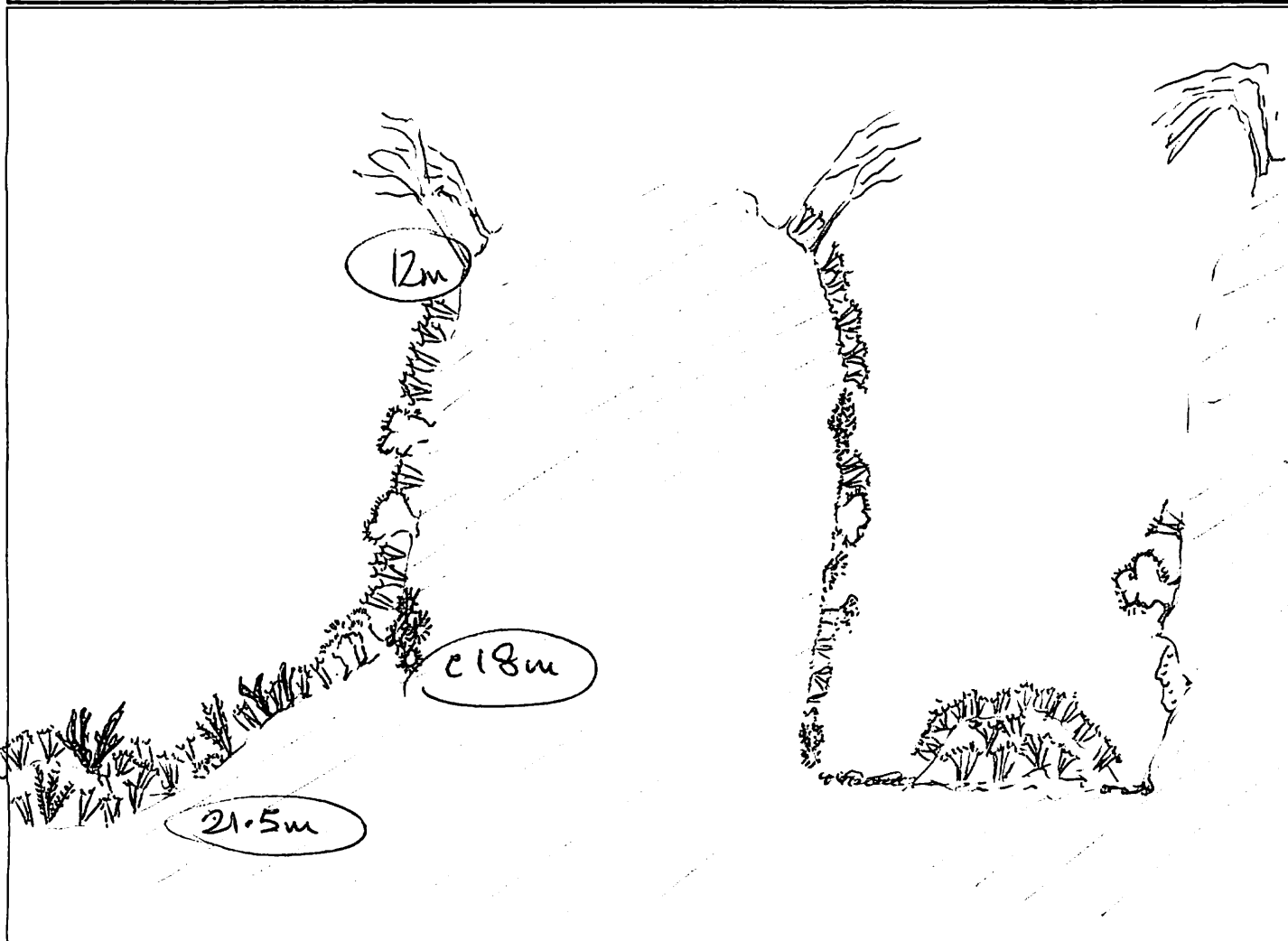
1	2	3	
1-5			FEATURES - ROCK (all categories)
2			Relief of habitat (even - rugged)
1			Texture (smooth - pitted)
1			Stability (stable - mobile)
1			Scour (none - scoured)
1			Silt (none - silted)
1			Fissures > 10 mm (none - many)
1			Crevices < 10 mm (none - many)
1			Boulder/cobble/pebble shape (rounded - angular)
1			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
			Mounds / casts
			Burrows / holes
			Waves (> 10 cm high)
			Ripples (< 10 cm high)
			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
			Firmness (firm - soft)
			Stability (stable - mobile)
			Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance scale** (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify positively from the different habitats. Use latin names if possible, but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column.

	ph	1	2	3		ph	1	2	3
sponges <i>Leucosolenia botry.</i>	BP	P			echinoderms				
<i>Aplysina</i>		O			<i>Hemicera</i> sp.		O		
<i>Mysilla?</i>		O			<i>Antedon</i> spp. <i>bifida</i>		O		
<i>Sephadia</i>		R			<i>Asterina</i> <i>phyllactica</i>	BP	P		
<i>Polysiphonia</i> <i>plumellus</i>	BP	O							
<i>Ulva</i> <i>citrona</i>		O							
<i>Leucosolenia</i> <i>compl.</i>		O							
<i>Raspailia</i> <i>variosa</i>		O							
<i>Myxilla</i> sp?		F							
<i>Amphilectus</i>		O							
cnidarians: hydroids, anemones, corals,					sea squirts <i>Lissochinum</i> sp?		F		
<i>Acyronium</i> <i>ditatum</i>		F			<i>Didemnum</i> <i>mac.</i>		O		
<i>Saccaria</i> <i>decurva</i>	BP	C			<i>Cordia</i> <i>parallela</i>		R		
<i>Camachil</i> <i>picidii</i>	GB	C			<i>Hydrocolella</i> <i>auriculata</i>	BP	O		
<i>Tubularia</i> <i>laxa</i> (<i>Ectopora</i>)		C			<i>Clavellina</i> sp.		O		
<i> indivisa</i>		S			<i>Polychinus</i> <i>aurantiorum</i>		O		
<i>Seriatopora</i> <i>seriatopora</i>		R			<i>Aplicia</i> <i>punctatum</i>		O		
<i>Neomastrea</i> <i>aur.</i>		F			<i>Marchellium</i> <i>argus</i>		O		
<i>Halicium</i> <i>halicium</i>		O			fishes <i>Syngnathus</i>		P		
<i>Mitridium</i> <i>seriale</i>		C			<i>Labrus</i> <i>bergata</i>		F		
<i>Seriatopora</i> <i>argentea</i>		F			<i> nigra</i>		O		
worms <i>Aphrodite</i> <i>sphyra</i>	KL	O			Rock coral (<i>Solenastrea</i> sp.)		O		
<i>Sabellaria</i> <i>filicirca</i>		O			Scorpion fish.		R		
<i>Tomatopora</i> sp.		F							
<i>Garveia</i> <i>nitens</i>	BP	P			<i>Diphysia</i> <i>roseacea</i>	BP	P		
crustaceans <i>Homarus</i> <i>gammarus</i>	BP	R			seaweeds				
<i>Callinectes</i> <i>pagurus</i>		O			<i>Placantia</i>		P		
<i>Necora</i> <i>puber</i>		O			<i>Calcarea</i> <i>red.</i>		O		
<i>Caprellids</i> <i>indet.</i>		A							
<i>Scudicella</i> <i>crispata</i>	BP	P			<i>Doto</i> <i>Koeneckii</i>	Jc	R		
<i>Flabellina</i> <i>pedata</i>	BP	P			<i>Coryphella</i> <i>lineata</i>	Jc/BP	O		
<i>Doto</i> <i>indet.</i>	BP	P			<i>Aegidiella</i> <i>glauca</i>	RB	R		
<i>Doto</i> <i>sarsiae</i>	BP	R			<i>Haliclona</i> <i>scutata</i>	RB	R		
<i>Janolus</i> <i>in status</i>	KL	R			<i>Didemnum</i> <i>circum</i>		F		
molluscs <i>Facellina</i> <i>bostonensis</i>		R			<i>Cliona</i> <i>celata</i>	BP/SP	F		
<i>Caprellid</i> <i>sp.</i>		A			<i> mult. ple. unid.</i>				
<i>Facellina</i> <i>auricula</i>	BP	R			sponges.				
<i>Sabellaria</i> <i>spinosa</i> <i>Cuthona</i>	BP	C			<i>Doto</i> sp.	KL	R		
<i>Deudorhynchus</i> <i>porosus</i>	BP	C			<i>Seriatopora</i> <i>argentea</i>		F		
<i>Titonia</i> <i>homburgi</i>		R			other or continuations				
<i>Limia</i> <i>massachusetts</i> <i>arctica</i>		O			<i>Linacea</i> <i>clavig.</i>	BP	R		
<i>Calliostoma</i> <i>zizy.</i>		O			<i>Calliostoma</i>				
bryozoans <i>Aequipesten</i> <i>opete</i>	KL	R			<i>Doto</i> <i>tuberculata</i>	BP	R		
<i>Sicellana</i>		O			<i>Diplosoma</i> <i>spanglowe</i>		R		
<i>Sup. Hab.</i>		O			<i>Botryllus</i> <i>schosteki</i>	KL	O		
<i>Cristidote</i>		F			<i>Sycon</i> <i>tuberculatum</i>		P		
<i>Parasmitina</i>		R			<i>Allepore</i> <i>purcosa</i>		R		
<i>Acyronium</i> <i>diaphanum</i>		O			<i>Beach</i> <i>Lissochinum</i>		P		
<i>Electra</i> <i>pilosa</i>		P							

Continue on a separate sheet if you need to

Didemnum fulgens?

Once completed, return the form to the Dive Organiser or to: Seasearch, Marine Conservation Society, Unit 3, Wolf Business Park, Alton Road, Ross on Wye, HR9 5NB.

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SEASEARCH SURVEY FORM



- If anything is unclear please refer to the **Guidance Notes**
- Each pair of divers should complete a form between them
- Please complete all parts of the form. Where there is a * only fill in the information if you know it.

Validated by	Date	Entered by	Date	MR Reference
Recorder leave blank - for Seasearch use				

Your details

Name	BLAIR & ROSS BULLIMORE	Tel No:	01437 890984	hm/	<input checked="" type="checkbox"/>
Address	BULLIMORE FAIRHAVEN TIERS CROSS HAVERFORDWEST PEMBROKESHIRE SA62 3DG	Email:	blair.bullimore@gmail.com		
		Buddy's Name	JAG/GB/SB/SE/ER/RL		
		Name of group or survey	IMPS 2015 Kipton...		
Postcode	IMPS 2015 Kipton...				

Dive/Site details

Site name ST MARY'S LEDGES					Date of dive: 19 dd / 6 mm / 15 yy	
General location PORT ST MARY ISLE OF MAN					Start of dive: 10 30 (24hr)	
					Dive duration: 60 (mins)	
					Sea temperature: 10 °C	
Position (degrees and decimal minutes – state if in any other format)					Underwater visibility: 7 m	
	Latitude		Longitude		W or E	Drift dive? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Centre of site	54° 03.933	4° 44.050	W			Night dive? yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
For drift dives					Did you or your buddy take any of the following?	
From	0	0			photographs	yes <input checked="" type="checkbox"/> no <input type="checkbox"/>
To	0	0			video footage	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Or OS Grid Reference					specimens	yes <input checked="" type="checkbox"/> no <input type="checkbox"/>
Position derived from: (circle) GPS Chart OS map Web mapping WGS84 OSGB36					seaweeds for pressing	yes <input type="checkbox"/> no <input checked="" type="checkbox"/>
Exposure of site: extremely exposed <input type="checkbox"/> v exposed <input type="checkbox"/> exposed <input checked="" type="checkbox"/> mod exposed <input type="checkbox"/> sheltered <input type="checkbox"/> v sheltered <input type="checkbox"/> ext sheltered <input type="checkbox"/>					For the area surveyed, what was	
Max tidal stream: >6kt <input type="checkbox"/> 3-6kt <input type="checkbox"/> 1-3kt <input type="checkbox"/> <1kt <input checked="" type="checkbox"/> v. weak <input type="checkbox"/>					the shallowest depth? (m) 18 bsl 15.8 bcd	
					the deepest depth? (m) 22 bsl 19.5 bcd	
					Tidal correction to chart datum 2.4-3 m	

Seabed summary

Summarise: a. The main features of the site, b. Any unusual features or species, c. Any human activities or impacts at the site

Low limestone ridges with coarse sand, gravel & pebble/cobble between. Rock dominated by low sponges, ascidian, red algal turf. Pebbles + cobbles by hydroids, encrusting calcareous alge with Lanice, Pecten + Neopentadactylus in gravel. Ginetodonis. Pelting. Diseased or damaged Pachymatisma (photos RL)

Habitat descriptions

Complete a box below for each **habitat** you found on your dive. Normally the shallowest habitat is No. 1 even if you have done the dive deepest first. Each written description should tally with the information entered in the columns and diagrams on the next page. If you found more than 3 habitats, continue your descriptions on another form. Tick boxes where shown, and insert percentages (they must add up to 100%) or assign a score from 1-5 as appropriate. If you are uncertain leave the box blank. The biotope code will be assigned later from your description.

1. DESCRIPTION (physical + community)

Limestone ridges. Kelp park and red algal meadow with extensive patches of colonial + ~~with~~ solitary ascidians, small erect + cushion sponges, hydroids, occasional massive sponges + Echinus.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf Sponge/ascidian
Hydroid/bryo/ascid

animal bed sediment with life barren sediment Biotope Code

2. DESCRIPTION (physical + community)

Coarse sand/gravel/pebble/cobble/shell fragments. Stones with hydroids, encr. pink calc. algae and bryozoans + ascidians. Pecten, Neopentadactyla + ~~Cerata~~ larvae in gravel with occasional large ~~ectoparasitic~~ Asteroid echinoderms.

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf Hydroid/larva/ascid

animal bed sediment with life barren sediment Biotope Code

3. DESCRIPTION (physical + community)

Seabed type: rock boulders cobbles pebbles gravel sand mud wreckage other

Communities: kelp forest kelp park red seaweeds enc pink algae animal turf

animal bed sediment with life barren sediment Biotope Code

1	2	3	
			DEPTH LIMITS
m			
18	20		Upper (from sea level) (i.e. minimum)
22	22		Lower (from sea level) (i.e. maximum)
15.8	17.5		Upper (from chart datum) *
19.5	19.5		Lower (from chart datum) *

%			SUBSTRATUM
100			Bedrock type?: LIMESTONE
			Boulders - very large > 1.0 m
			- large 0.5 - 1.0 m
			- small 0.25 - 0.5 m
10			Cobbles (fist - head size)
10			Pebbles (50p - fist size)
50			Gravel - stone
10			- shell fragments
20			Sand - coarse
			- medium
			- fine
			Mud
			Shells (empty - or as large pieces)
			Shells (living - eg mussels, limpets)
			Artificial - metal
			- concrete
			- wood
			Other (state)
100	100	100	Total

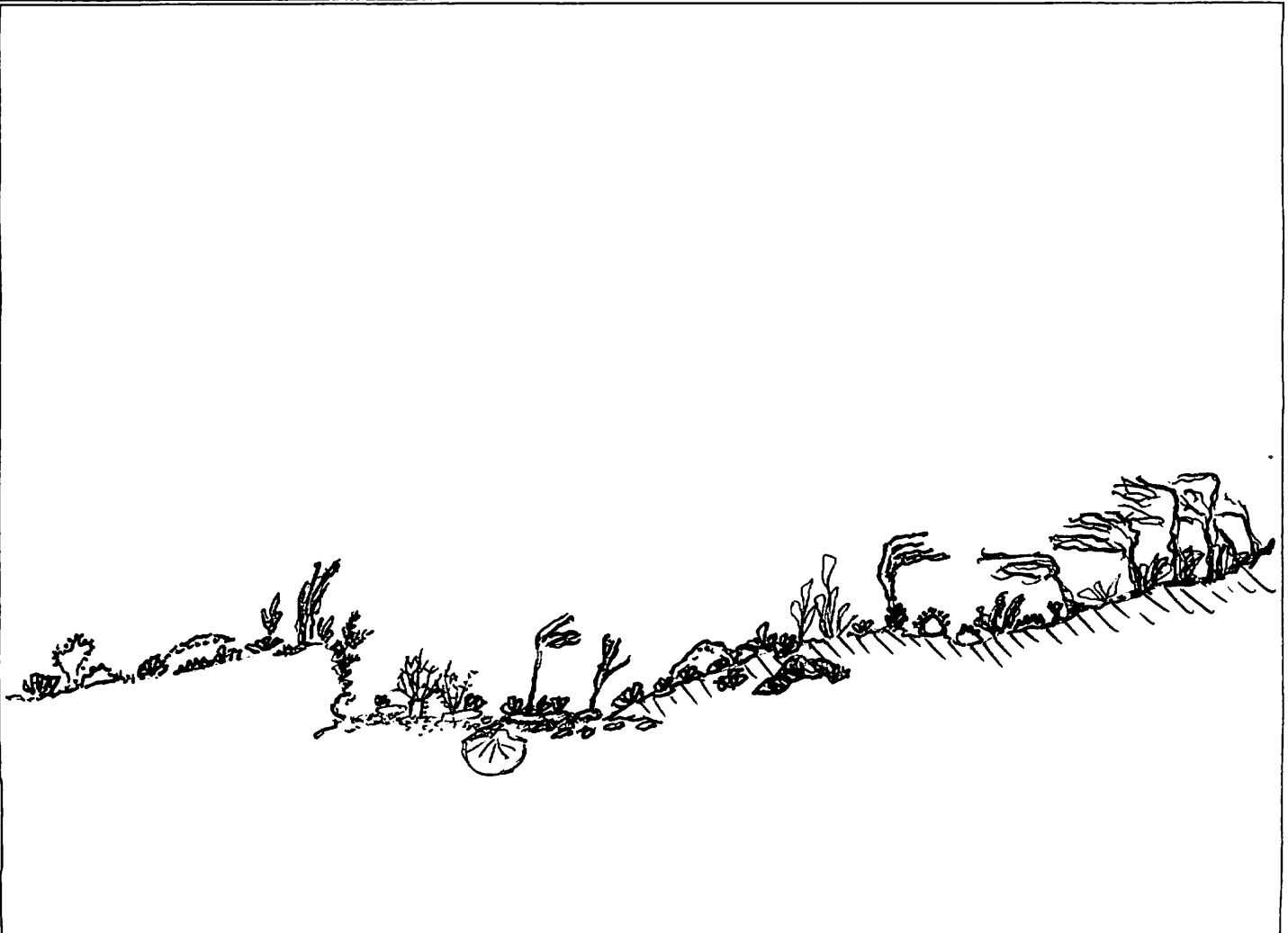
1	2	3	
1-5			FEATURES - ROCK (all categories)
2	2		Relief of habitat (even - rugged)
3	1		Texture (smooth - pitted)
1	3		Stability (stable - mobile)
1	3		Scour (none - scoured)
			Silt (none - silted)
2			Fissures > 10 mm (none - many)
2			Crevices < 10 mm (none - many)
	4		Boulder/cobble/pebble shape (rounded - angular)
✓			Sediment on rock? (tick if present)

✓			FEATURES - SEDIMENT (1)
			Mounds / casts
			Burrows / holes
			Waves (>10 cm high)
			Ripples (< 10 cm high)
			Subsurface coarse layer?
			Subsurface anoxic (black) layer?

1-5			FEATURES - SEDIMENT (2)
			Firmness (firm - soft)
			Stability (stable - mobile)
			Sorting (well - poor)

Sketches and plans

Draw a **profile and/or plan** of the sea bed you encountered on your dive in the space below. Mark (& number) the different habitats, corresponding to the written descriptions on p.2. Indicate conspicuous and/or characteristic species. Make sure you include **depth(s)** (vertical axis) and a **distance** scale (horizontal axis) for a profile and scale and north point for a plan. Indicate the direction of the profile or plan and the direction of any current.



Euboscichus vittatus (BP) R/-
Facellia boston (BP) R/-
Tritonia houbesgi (BP) R/-

Species List

Score the abundance of each group of animals and plants in each habitat alongside the name. In the blank spaces list the seaweeds & animals which you were able to identify positively from the different habitats. Use latin names if possible, but if you don't know them, common or descriptive names are acceptable. If you are not 100% sure about any, add a question mark. Do not enter names as guesses - it's better to exclude them than to include incorrect identifications. Give abundances in the columns: Super abundant, Abundant, Common, Frequent, Occasional & Rare. If you did not note abundances, simply enter a P for Present. Continue on a separate sheet, if necessary. If you have a photograph of the species tick the ph column.

Hemiphyllia calvella BP R/				Lawsonia saxicola R/BP R/P					
KL	ph	R1	2	3	KL	ph	R1	2	3
sponges				echinoderms					
<i>Hymedesmia pauperatus</i>	KL		P		<i>Oculus laticus</i>	KL			
<i>Dysidea fragilis</i>	KL				<i>Heimeria</i>	GB	O		
<i>Glypta celata</i>	BP	O	O		<i>Mathasterias</i>			R	
<i>Pachymatium</i>		O			<i>Luidia</i>			R	
<i>Tethys citrina</i>	BP	F			<i>Neopentadactyla</i>			F	
<i>Sycon ciliatum</i>		O			<i>Crabaster</i>			R	
<i>Polymastia borealis</i>		O	O		<i>Antedon bifida</i>		F		
<i>pericillus</i>		F			<i>Echinus esculentus</i>		O		
<i>Raspailia ramosa</i>		O			<i>Opalina (albida?)</i>			O	
<i>Stelligera stuposa</i>		O			<i>Ascidia viscaria</i>	BB/BP		R	
<i>rigida</i>		O			<i>Schmiedeknechtia sp (laevis?)</i>	KL		O	
cnidarians: hydroids, alchemones, corals,					sea squirts				
<i>Alcyonium digitatum</i>		F			<i>Possibly Lissoclinum caeleste (BB plus 6)</i>				
<i>Tubularia indivisa</i>	BP	O			<i>Marchellium angus</i>	BP	F		
<i>Halicium halecium</i>	BP	O			<i>Aplidium punctatum</i>	BP	F		
<i>Cereus palmulatus</i>		O			<i>Clavellina lepadii</i>	BP/BP	C	F	
<i>Epidendyllus</i>		R			<i>Diplomus maculosus</i>		F		"suck/lick"
<i>Neuretecia antennata</i>	BP	O	O		<i>Clavellina lepadii</i>				
<i>ramosa</i>		O	O		<i>Rhynchonella stromboli</i>		R		
<i>Sarcobea elegans</i>		O			<i>Indidulum cereus</i>	BB/BA	F		
<i>Copporphorum</i>		R			fishes			O	
<i>Kitcheniana pinn</i>			R		<i>Didimna</i>			R	
worms					<i>Cellionymus sp.</i>				
<i>Serpulastrea garyi</i>	BP	P			Long spined sea scorp.		R		
<i>Panostrea triquetra</i>		F	F		<i>Paralichthys</i>			R	
<i>Chrotophaga</i>			O		<i>Labrus bergylta</i>		F	O	
<i>Larid leucis</i>			F		<i>Two spot goby</i>	GB	R		
<i>Hydora sp.</i>	GB		O		<i>Nonregian topknot</i>			R	
<i>Prosthecopsis vittatus</i>	KL		P		<i>Pleurobia erinacea</i>	GB	R		
crustaceans					<i>Hexapleura plum</i>	GB/BP	R		
<i>Squilla venata</i>		O	F		seaweeds				
<i>Caprellids</i>		C			<i>Euc pinn calcaratus</i>		C	F	
<i>Tritonia lineata</i>	KL	R			<i>Live maerl (both corals?)</i>		P	O	
<i>Okemia sp eggs</i>	KL	P			<i>Dicysta</i>				
<i>Flabellina pedata</i>	BP/KL	R			<i>Halidius</i>	GB		O	
<i>Eusira patida</i>	GB	R	R		<i>Gambusia hyp.</i>		F		
<i>Postanga tuba</i>	Je	R	R		<i>Gul. reds.</i>			F	
<i>Aplysia punctata (+ eggs)</i>	Je		R		<i>Paranurus curt.</i>	BB	R		
molluscs					<i>Tethyspora spinosa</i>	GB	P		
<i>Calliostoma ziz</i>	Je	O			<i>Archidistoma egg</i>				
<i>Calliostoma - Flat ped</i>	BP	R	O		<i>Actinoptera sp. hyp.</i>			O	
<i>Cuthona caerulea</i>	Je	F			<i>Golden sandy squirt</i>	??			
<i>Uvinia arctica</i>			O		<i>Unid red sponge</i>	BB/Je	✓	✓	
<i>Pecten maximus</i>		R	R		other or continuations				
<i>Gibbula cinerea</i>	BP	O	R		<i>Phorbac pictus</i>	Je	F		
<i>Samolus cristatus</i>	BP	R	R		<i>Leucosolenia compl.</i>		F		
<i>Polycera faerensis</i>	BP	R	R		<i>Halobryon viscosa</i>		P		
bryozoans					<i>Gelidium planata</i>	SS	R		
<i>Aequipecten operc.</i>	BP		R		<i>Substitia callosa</i>		O		
<i>Alexandrium diaphanum</i>		O	O		<i>Red sea diume</i>	BP		R	
<i>Uertin pilosa</i>		O			<i>Polycera quadrilobata</i>	Je/KL		R	
<i>Picellatella</i>		O			<i>Incidium borup</i>	Je/CL		F	
<i>Cellina sp.</i>		R							
<i>Bugula plumosa</i>	BP	P							

Continue on a separate sheet if you need to

Diaphodon's luteocincta BP P
 Once completed, return the form to the Dive Organiser or to: Seasearch, Marine Conservation Society, Unit 3, Wolf Business Park, Alton Road, Ross on Wye, HR9 5NB.

Your contact details will be included on the Seasearch database and those of partner organisations and will be used to send you information about Seasearch and associated projects. They will not be passed to third parties without your consent. The location, dive details, habitats and species information and the name of the recorder will be entered into a database and made available to the participating organisations and the general public through the Seasearch and NBN websites. If you do not agree with this use of the data do not submit the form.

Diopatra punctifida BP P
Cuthona aurea BP P
Didemnid indet BP P 4

Appendix 3. Ramsey Bay scallop transect forms

Site Name: Ramsey Bay Ground Date: 15 July 2015		Time: 11.10					Other info: Swam North from shot				
Site co-ordinates: 54 20 57.4 N 12 21 24.4 W		Dive no:									
Direction travelled from start point: Emma Kenyon		Scale for smaller species: Abundant, Common, Frequent, Occasional Rare									
Survey diver name: Emma Kenyon		Record actual numbers for large animals (scallops)									
Photographer name: James Bull											
Distance along tape:		0-5m	5-10m	10-15m	15-20m	20-25m	25-30m	30-35m	35-40m	40-45m	45-50m
Max depth/m		15m	15m	15m	15m	15m	15m	15m	15m	15m	15m
Main seabed type: seabed and habitat and % cover: e.g. animal turf, maerl (say live or dead), eelgrass, kelp, algal turf		15m sand Shingle 20% Kelp 10%	15m Maerl (0.5%) Sand 60.5% Shingle 20% Kelp 10%	15m Sand 65% Shingle 20% Kelp 15%	15m sand 65% Shingle 15% Kelp 20%	15m Sand 55% Shingle 15% Kelp 30%	15m Sand 54.5% Shingle 15% Maerl 0.5% Kelp 30%	15m Sand 54.5% Shingle 15% Maerl 0.5% Kelp 30%	15m Sand 54.5% Shingle 15% Maerl 0.5% Kelp 30%	15m Sand 54.5% Shingle 15% Maerl 0.5% Kelp 30%	15m Sand 54.5% Shingle 15% Maerl 0.5% Kelp 30%
Scallops (record size in cm of each one)											
Queenies (record size in cm of each one)											
Large animals - record actual numbers if possible											
Edible crab											
Lobster											
Horse mussel											
Common urchin											
Common starfish											
Other species (use abundance categories)											
Sand mason					Occ						
Pink crab											
Hermit crab											
Shingle back											
Small Turquoise geard											
Anemone											
Fish (abundance categories)											
Dogfish											
Dragonet											
Painted goby											
Plaice											
Sand goby											
Other comments - evidence of human impacts, litter, unusual features etc:		Lots of dogfish eggs		≈ 20 attached to kelp		≈ 20 attached to sugar kelp		≈ 20 attached to kelp		holdfast of	

Site Name: Ramsey Bay, Grand Isle		Date: 11.10		Other info: SWTH SOUTH PLANE STOP							
Site co-ordinates: 54.20 574 04.21724		Dive no: 1									
Direction travelled from start point: SOUTH											
Survey diver name: LARA HOUSE, KERRY LEWIS											
Photographer name:											
Distance along tape:	0-5m	5-10m	10-15m	15-20m	20-25m	25-30m	30-35m	35-40m	40-45m	45-50m	End
	14.3	14.3	14.5	14.5	14.5	14.8	14.3	14.3	14.4	14.4	14.2
Main seabed type: seabed and habitat and % cover: e.g. animal turf, maerl (say live or dead), eelgrass, kelp, algal turf	sand/gravel/mud Gravel = 80% Sand/mud = 20%. Uniform substrate throughout transect. Mixed algae, incl. kelp such as sugar kelp and also red seaweeds. Dense patches in places. Scattered maerl. - throughout transect. Both dead + alive Occasional dead razor shells + <i>Dosinia exolata</i> .										
Scallops (record size in cm of each one)	15cm										
Queenies (record size in cm of each one)											
Large animals - record actual numbers if possible											
Edible crab											
Lobster											
Horse mussel											
Common urchin											
Common starfish											
<i>Licorarius depurator</i>	1										
<i>Macropodina</i> sp	1										
<i>Urticina felina</i>	1										
Other species (use abundance categories)											
<i>Cerastis pend.</i>	throughout the transect - Occasional										
<i>Cerastis boule</i>	1										
<i>Bryozoa quadrilin.</i>	throughout the transect - Frequent.										
<i>Al. dlay</i>	1										
Hermit crabs	throughout transect - Frequent										
Fish (abundance categories)											
Dogfish											
Dragonet	1										
Painted goby	?										
Plaice	1										
Unidentified fish	1										
Other comments - evidence of human impacts, litter, unusual features etc:	Several eelgrass branch egg cases - new & hatched.										

? - P. goby - photos available.

Appendix 4. Molluscan list from gravel samples

	Specimen L(ive) or S(hell)	Abundance (SACFOR)	Depth (m bcd)
1. Basalt Wall			
<i>Emarginula fissura</i>	S	O	18m
<i>Tectura virginea</i>	S	O	18m
<i>Helcion pellucidum</i>	S	O	18m
<i>Gibbula tumida</i>	S	O	18m
<i>Gibbula umbilicalis</i>	S	F	18m
<i>Calliostoma zizyphinum</i>	S	O	18m
<i>Dikoleps nitens</i>	S	R	18m
<i>Skenea serpuloides</i>	S	O	18m
<i>Tricolia pullus</i>	S	O	18m
<i>Lacuna parva</i>	S	O	18m
<i>Lacuna vincta</i>	S	O	18m
<i>Littorina saxatilis</i>	S	F	18m
<i>Rissoa interrupta</i>	S	O	18m
<i>Rissoa parva</i>	S	O	18m
<i>Alvania beanii</i>	S	R	18m
<i>Alvania punctura</i>	S	O	18m
<i>Cingula trifasciata</i>	S	R	18m
<i>Onoba aculeus</i>	S	F	18m
<i>Onoba semicostata</i>	S	F	18m
<i>Trivia arctica</i>	S	R	18m
<i>Euspira nitida</i>	S	R	18m
<i>Hinia incrassata</i>	S	O	18m
<i>Odostomia turrita</i>	S	R	18m
<i>Brachystomia scalaris</i>	S	R	18m
<i>Jordaniella nivosa</i>	S	R	18m
<i>Partulida spiralis</i>	S	R	18m
<i>Glycymeris glycymeris</i>	S	R	18m
<i>Mytilus edulis</i>	S	O	18m
<i>Aequipecten opercularis</i>	S	O	18m
<i>Lucimoma borealis</i>	S	R	18m
<i>Lasaea adansonii</i>	S	F	18m
<i>Mysella bidentata</i>	L	R	18m
<i>Parvicardium scabrum</i>	L	R	18m
<i>Spisula elliptica</i>	S	O	18m
<i>Chamelea striatula</i>	S	R	18m
<i>Hiatella arctica</i>	S	O	18m
2. The Puddle			
<i>Diodora graeca</i>	S	O	18m
<i>Tectura virginea</i>	S	O	18m
<i>Helcion pellucidum</i>	S	R	18m
<i>Gibbula umbilicalis</i>	S	O	18m
<i>Calliostoma zizyphinum</i>	S	O	18m

	Specimen L(ive) or S(hell)	Abundance (SACFOR)	Depth (m bcd)
<i>Tricolia pullus</i>	S	O	18m
<i>Lacuna vincta</i>	S	R	18m
<i>Rissoa interrupta</i>	S	O	18m
<i>Rissoa parva</i>	S	F	18m
<i>Onoba aculeus</i>	S	F	18m
<i>Onoba semicostata</i>	S	F	18m
<i>Nassarius incrassata</i>	S	R	18m
<i>Oenopota rufa</i>	S	O	18m
<i>Turbonilla lactea</i>	S	R	18m
<i>Nucula turgida</i>	S	O	18m
<i>Venus casina</i>	S	R	18m
<i>Timoclea ovata</i>	S	O	18m

3. Grand Rapid Hotel

<i>Diodora graeca</i>	S	O	15m
<i>Tectura virginea</i>	S	F	15m
<i>Gibbula tumida</i>	S	F	15m
<i>Gibbula umbilicalis</i>	S	O	15m
<i>Dikoleps nitens</i>	S	O	15m
<i>Skenea serpuloides</i>	S	F	15m
<i>Lacuna parva</i>	S	O	15m
<i>Lacuna vincta</i>	S	R	15m
<i>Skeneopsis planorbis</i>	S	O	15m
<i>Rissoa interrupta</i>	S	O	15m
<i>Rissoa parva</i>	S	O	15m
<i>Alvania beani</i>	S	R	15m
<i>Alvania punctura</i>	S	O	15m
<i>Alvania semistriata</i>	S	R	15m
<i>Manzonina crassa</i>	S	O	15m
<i>Onoba aculeus</i>	S	F	15m
<i>Onoba semicostata</i>	S	F	15m
<i>Pusillina inconspicua</i>	S	O	15m
<i>Glycymeris glycymeris</i>	S	O	15m
<i>Mytilus edulis</i>	S	O	15m
<i>Mimachlamys varia</i>	S	R	15m
<i>Aequipecten opercularis</i>	S	O	15m
<i>Lasaea adansoni</i>	S	O	15m
<i>Goodallia triangularis</i>	S	O	15m
<i>Tellina tenuis</i>	S	R	15m
<i>Chamelea striatula</i>	S	R	15m
<i>Timoclea ovata</i>	S	O	15m
<i>Sphenia binghami</i>	S	R	15m
<i>Hiatella arctica</i>	S	O	15m
<i>Ondina divisa</i>	S	R	15m

	Specimen L(ive) or S(hell)	Abundance (SACFOR)	Depth (m bcd)
8. Bay Fine			
<i>Calliostoma zizyphinum</i>	S	O	20m
<i>Gibbula umbiicalis</i>	S	O	20m
<i>Nucula turgida</i>	S	O	20m
<i>Littorina saxatilis</i>	S	F	20m
<i>Tricolia pullus</i>	S	O	20m
<i>Mytilus edulis</i>	S	O	20m
<i>Clausinella fasciata</i>	S	O	20m
<i>Patella vulgata</i>	S	O	20m
<i>Cingula trifasciata</i>	S	O	20m
<i>Timoclea ovata</i>	S	O	20m
<i>Onoba semicostata</i>	S	F	20m
<i>Hinia incrassata</i>			20m
<i>Gibbula tumida</i>			20m
<i>Emarginula fissura</i>	S	O	20m
<i>Rissoa interrrupta</i>			20m
<i>Tectura virginea</i>			20m
<i>Helcion pellucidum</i>			20m
<i>Turbonilla lactea</i>	S	R	20m
<i>Aequipecten opercularis</i>			20m
<i>Mimachlamys varia</i>			20m
<i>Hiatella arctica</i>			20m
<i>Euspira nitida</i>	S	R	20m
<i>Skenea serpuloides</i>			20m
<i>Lasaea adansonii</i>			20m
11. Burroo			
<i>Helcion pellucidum</i>	S	O	20m
<i>Gibbula tumida</i>	S	R	20m
<i>Gibbula umbilicalis</i>	S	O	20m
<i>Calliostoma zizyphinum</i>	S	O	20m
<i>Tricolia pullus</i>	S	O	20m
<i>Lacuna vincta</i>	S	R	20m
<i>Rissoa parva</i>	S	O	20m
<i>Onoba aculeus</i>	L	O	20m
<i>Onoba semicostata</i>	S	O	20m
<i>Euspira nitida</i>	S	R	20m
<i>Nassarius incrassata</i>	S	O	20m
<i>Turbonilla lactea</i>	S	R	20m
<i>Glycymeris glycymeris</i>	S	R	20m
<i>Mytilus edulis</i>	S	R	20m
<i>Musculus discors</i>	S	O	20m
<i>Mimachlamys varia</i>	S	R	20m

	Specimen L(ive) or S(hell)	Abundance (SACFOR)	Depth (m bcd)
Gari tellinella	S	R	20m
Venus casina	S	O	20m
Clausinella fasciata	S	R	20m
Timoclea ovata	S	R	20m
12. Port St.Mary Ledges			
Emarginula fissura	S	F	18m
Diodora graeca	S	O	18m
Tectura virginea	S	O	18m
Jujubinus montagui	S	R	18m
Gibbula tumida	S	O	18m
Gibbula umbilicalis	S	O	18m
Calliostoma zizyphinum	S	O	18m
Dikoleps nitens	S	O	18m
Skenea serpuloides	S	O	18m
Tricolia pullus	S	F	18m
Bittium reticulatum	S	R	18m
Lacuna parva	S	R	18m
Lacuna vincta	S	O	18m
Skeneopsis planorbis	S	R	18m
Rissoa interrupta	S	F	18m
Rissoa parva	S	F	18m
Alvania beanii	S	F	18m
Alvania punctura	S	O	18m
Alvania semistriata	S	O	18m
Manzonina crassa	S	R	18m
Onoba aculeus	S	F	18m
Onoba semicostata	S	F	18m
Pusillina inconspicua	S	O	18m
Capulus ungaricus	S	O	18m
Triviia arctica	S	O	18m
Velutina velutina	S	R	18m
Euspira nitida	S	R	18m
Cerithiopsis tubercularis	S	R	18m
Marshallora adversa	S	R	18m
Eulima bilineata	S	R	18m
Ocenebra erinacea	S	O	18m
Hinia incrassata	S	O	18m
Mangelia coarctata	S	R	18m
Oenopota rufa	S	O	18m
Raphitoma linearis	S	O	18m
Partulida spiralis	S	O	18m
Turbonilla lactea	S	F	18m
Retusa truncatula	S	O	18m

	Specimen L(ive) or S(hell)	Abundance (SACFOR)	Depth (m bcd)
<i>Retusa umbilicata</i>	S	O	18m
<i>Nucula turgida</i>	S	R	18m
<i>Modiolus modiolus</i>	S	R	18m
<i>Musculus discors</i>	S	R	18m
<i>Mimachlamys varia</i>	S	O	18m
<i>Aequipecten opercularis</i>	S	R	18m
<i>Palliolium tigerinum</i>	S	O	18m
<i>Anomia ehippium</i>	S	R	18m
<i>Lucinoma borealis</i>	S	O	18m
<i>Semierycina nitida</i>	L	O	18m
<i>Mysella bidentata</i>	L	O	18m
<i>Goodallia triangularis</i>	S	O	18m
<i>Parvicardium ovale</i>	L	O	18m
<i>Gari tellinella</i>	S	O	18m
<i>Venus casina</i>	S	R	18m
<i>Chamelea striatula</i>	L	O	18m
<i>Timoclea ovata</i>	L	O	18m
<i>Tapes rhomboides</i>	S	O	18m
<i>Hiatella arctica</i>	S	O	18m
<i>Ondina divisa</i>	S	R	18m
<i>Neolepton sulcatulum</i>	S	O	18m