

North Wales Seasearch Report 1995-1999

**Compiled by
Kirsten Ramsay**

NORTH WALES SEASEARCH REPORT 1995-1999

Report compiled by Kirsten Ramsay
March 2000

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The Countryside Council for Wales provided funding for the compilation of this report and has given financial support for some of the Seasearch activities reported here.

1. INTRODUCTION

Seasearch is a project that aims to describe seabed scenery, habitats and communities using volunteer divers. The project is managed by a partnership of organisations including the Marine Conservation Society (MCS), the Joint Nature Conservation Committee (JNCC) and the country conservation agencies (in Wales, the Countryside Council for Wales (CCW)). After each dive, divers are asked to fill in a form detailing the type of seabed encountered and the dominant species or groups of species found.

This report summarises information collected by Seasearch volunteers around the coast of North Wales between 1995 and 1999. One hundred and eight dives were carried out at 66 sites by 42 divers during this time. Some of the sites are popular dive sites, whilst others were specifically chosen to target sites about which little was known. One notable find during a Seasearch dive on a previously undived site was the rare mantis shrimp *Rissoides desmaresti*. This was the first (and to date, only) record of this species in Wales.

1.1 AREA SURVEYED

The area covered by this report stretches from Anglesey in the north to Bardsey Island at the southern end of the Llŷn Peninsula (Figure 1). For the purposes of this report this has been subdivided into four smaller areas: 1. North Anglesey (including the east coast to Moelfre), 2. Menai Strait and Puffin Island, 3. North Llŷn Peninsula and 4. South Llŷn Peninsula including Bardsey Island. A report on Seasearch dives carried out on the coast of North Anglesey was produced by the Menai Sub-Aqua Club in 1997; this information is repeated in the current report, which also includes some additional sites from this area surveyed at a later date.

1.2 INFORMATION INCLUDED IN THIS REPORT

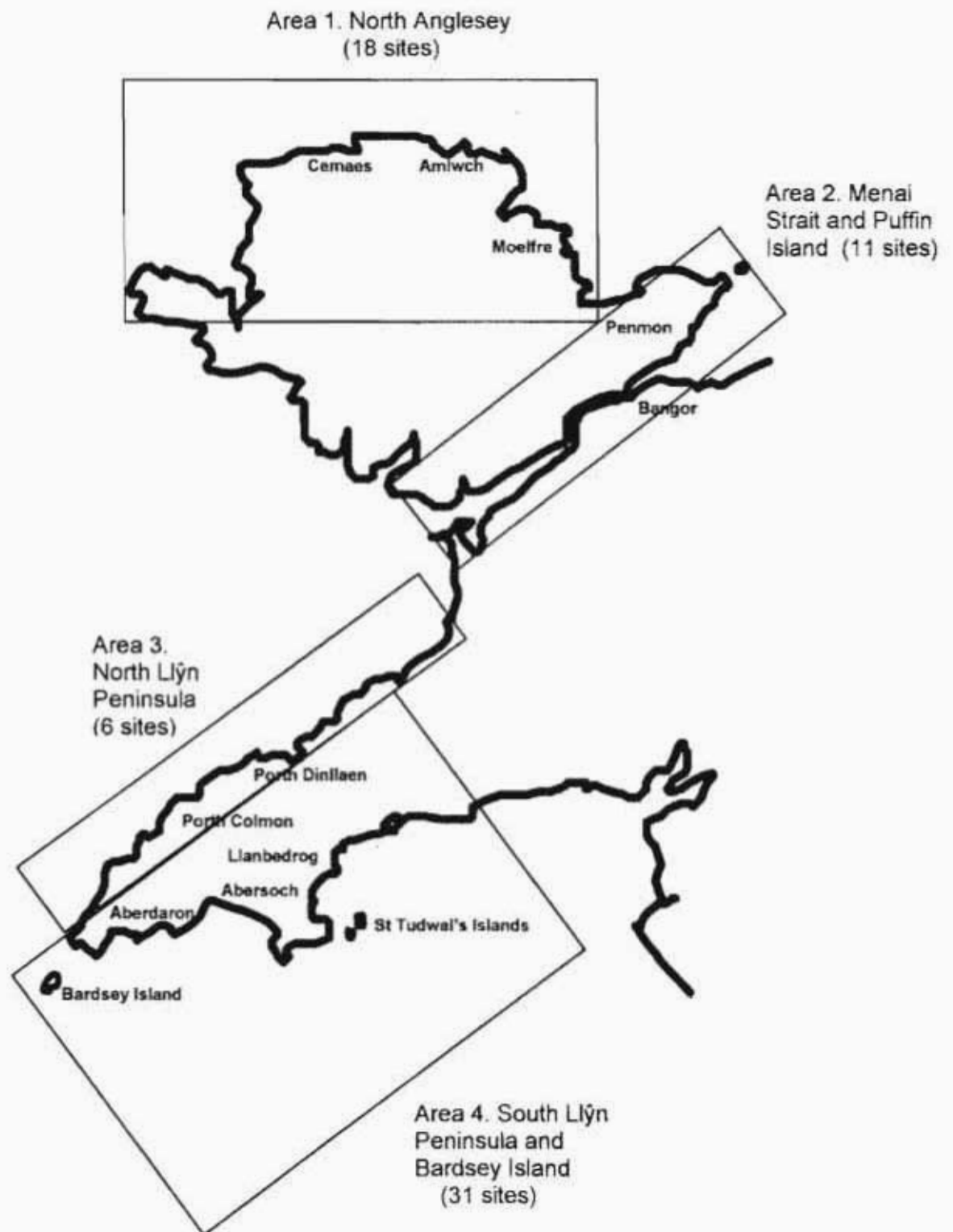
SITE-BY-SITE SUMMARIES: The information collected has been used to produce a summary of the sea bed types and dominant species encountered at each site. These are the site-by-site summaries in Section 3, together with sketch drawings of selected sites. The maps are intended to give a rough indication of the position of the site and should not be used by divers to attempt to locate dive sites. The water depths given throughout this report are corrected to chart datum. Where possible the information has also been used to assign a biotope to each sea bed type and associated species. A biotope is a combination of the physical attributes (e.g. substratum, wave exposure, salinity) and the associated community of species at a particular site. For example the biotope with the code MIR.Ldig comprises moderately wave exposed rock at 0 to 5 m depth with kelp *Laminaria digitata*. A list of previously described biotopes can be found in Connor *et al.* (1997). For some sites the species information provided was not sufficiently detailed to ascertain the full biotope and in these cases a higher division of the biotope has been used (e.g. CMS – circalittoral muddy sand). It was often difficult to

assign biotopes to the records collected by less experienced surveyors, as characterising species such as algae, hydroids, bryozoans and sponges were often not identified to species level. Problems were also encountered where the older version of the Seasearch form was used, as these did not require the recorder to provide any indication of the abundance of each species. Appendix 1 gives fuller descriptions (codes and titles) of all the biotopes listed in Section 3. Every site has been assigned a station number. Each station number comprises two parts; the first is the area code (1= North Anglesey, 2= Menai Strait etc.) and the second a chronological numbering of sites as they were surveyed. In Section 3 the sites have been presented in north to south or west to east order (e.g. for North Anglesey, the first site described is the most westerly and the last the most easterly).

SPECIES LISTS: The species present at each site have been summarised in Section 4. It should be noted that **species recording is not consistent amongst different volunteers**. The volunteers participating in the Seasearch surveys included in this report ranged from divers taking part in their first species identification course to marine biologists experienced in underwater survey techniques. Therefore, species lists should be treated with extreme caution, as a low number of species at a site may merely indicate an inexperienced recorder and should not be taken to indicate low species richness. For example, at one site on the North Llŷn coast an experienced marine biologist recorded 65 species, whilst another diver with no previous experience recorded only 7 species. Some species may also have been mis-identified; for example, *Chartella papyracea* as *Securiflustra securifrons* and solenettes *Buglossidium luteum* as juvenile sole *Solea solea*. The nomenclature of species used throughout this report follows that of the Species Directory (Howson & Picton 1997).

SITE DETAILS: Section 5 lists the positions, date and time of survey, number of dives and names of divers surveying each site. The positions given are those recorded on the Seasearch forms and may vary in their accuracy. In particular, it was noted that several of the GPS positions appear to be incorrect. This is particularly problematic when the latest Seasearch forms were used, as these do not include a sketch map or copy of a map with the dive position marked.

Figure 1. Areas surveyed during Seasearch dives 1995-1999



2. MARINE WILDLIFE ENCOUNTERED

The following section gives site-by-site summaries of the data collected during Seasearch surveys carried out in North Wales between 1995 and 1999. The sites are subdivided into 4 areas; of these 3 are open coast whilst the fourth, the Menai Strait, is a sheltered but extremely tide-swept stretch of water between the Isle of Anglesey and mainland Wales.

The substrata surveyed varied from mud to bedrock, although the majority of sites surveyed were rock as visual *in situ* surveys are not entirely appropriate for sediments. In UK waters the groups of species found on rock tend to vary in a predictable manner according to the depth zone in which they are found. The intertidal zone is dominated by seaweeds such as wracks and is rarely included in Seasearch surveys. The next zone, the upper infralittoral, is dominated by kelp (*Laminaria* or *Alaria* spp.). The greatest depth at which kelp is found is influenced by water clarity; with clear water enabling kelp to photosynthesise and survive at greater depths. Seasearch surveys found that in North Wales the kelp zone can extend from 0 to 9 m (depths at chart datum), although it more usually stops at around 3 to 5 m. The next zone (the lower infralittoral) is dominated by red algae and this again, varies with depth according to water clarity. In North Wales this zone occurred between 1 to 20 m, although deepest depths of 8 to 15 m were more common. Below the red algal zone the rock becomes dominated by animals, generally short sessile (fixed position) species like hydroids, bryozoans and sponges. The hydroids and bryozoans tend to be small and difficult to identify and many Seasearch divers do not record individual species. This zone is known as the circalittoral.

Some of the characteristic species found and any striking differences between areas are described below.

1. North Anglesey

Off the north coast of Anglesey the kelp zone generally extends to around 3 m and the red algal zone to around 6 m, indicating fairly turbid water. The faunal turfs found below the red algal zone tended to consist of a mixture of predominantly bryozoans, hydroids and squirts (e.g. *Polycarpa pomaria*). On some rocky walls the featherstar *Antedon bifida* was abundant.

2. Menai Strait and Puffin Island.

In the Menai Strait the kelp zone is very narrow (generally about 1 m), indicating poor visibility throughout much of the year. The Menai Strait has an unusual faunal community, due to the extremely strong tidal currents in this area. Sponges (e.g. the breadcrumb sponge *Halichondria panicea* and the shredded-carrot sponge *Esperiopsis fucorum*) are very abundant here and grow to sizes not usually seen off other parts of the North Wales coast. There are also areas of extremely dense mussel *Mytilus edulis* beds.

3. North Llŷn Peninsula

Only six sites were surveyed on the North Llŷn coast. Bryozoa, squirts and sponges were abundant species in the faunal turf. Further details of this area

(and the rest of the North Wales coast) can be found in the MNCR Sector 10 report (Brazier *et al.* 1999).

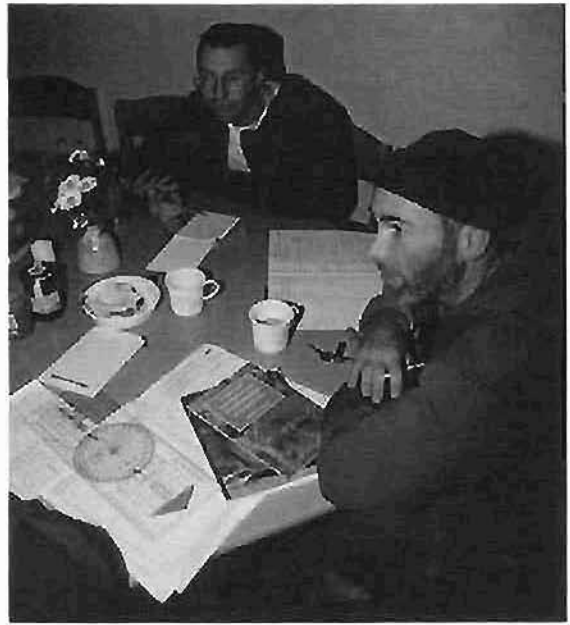
4. South Llŷn Peninsula and Bardsey Island

The kelp around Bardsey and St Tudwal's Islands was often found to extend to depths of 8 to 9 m and the red algae to 13 to 20 m (considerably deeper than North Anglesey or the Menai Strait). Species with a south and west distribution were found off Bardsey e.g. the yellow star anemone *Parazoanthus axinellae*. Species that indicate strong tides and clear water e.g. the oaten pipes hydroid *Tubularia indivisa* and the jewel anemone *Corynactis viridis* were also present at some sites around Bardsey Island.

Sites with a sediment substratum were also surveyed, including mud (N Anglesey, Menai Strait, S Llŷn), sand (all areas), gravel (N Anglesey, Menai Strait, S Llŷn) and maerl (S Llŷn).

The following list highlights sites that were particularly interesting, either in terms of species present or richness of species. This is by no means a comprehensive list, as the varied experience of the divers involved may have resulted in some sites being overlooked.

Site name	Site number	Reason
West of Llanlleiana Head	1/4	Cushion stars <i>Asterina phylactica</i> present
Porth Wen	1/5	Mud-runner crab <i>Goneplax rhomboides</i> present in shallow water. Mud may be species rich.
West Cemaes Bay	1/9	Mud-runner crab <i>Goneplax rhomboides</i> present in shallow water
N of Llanbadrig	1/10	Cushion stars <i>Asterina phylactica</i> present
SE corner Middle Mouse	1/13	Species rich vertical wall
Menai Strait	All sites	Tideswept communities, rich in filter feeders
NE Porth Ysgaden	3/1	Ascidian <i>Distomus variolosus</i> recorded (most northerly record?)
SW Porth Oer	3/5	Rich in sponges (21 species recorded)
E of Tudwal East	4/18	Mantis shrimp <i>Rissoides desmaresti</i> present
SW side Tudwal West	4/6	Possible site for mantis shrimp? (burrows recorded but not investigated)
Bardsey N of Pen Cristin	4/15	Yellow star anemone <i>Parazoanthus axinellae</i> and high numbers of axinellid sponges present
Bardsey E of Pen Cristin	4/17	Yellow star anemone <i>Parazoanthus axinellae</i> and high numbers of axinellid sponges present
Bardsey NE corner	4/16	Species rich walls



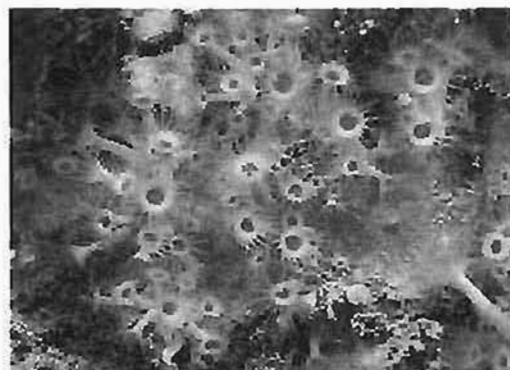
Top left: Seasearch diver

Top right: Divers filling in Seasearch forms

Bottom left: Kelp forest

Middle right: Red algal turf

Bottom right: Faunal turf with bryozoans *Cellaria* sp., sponges *Stelligera stuposa* and *Raspailia ramosa* and didemnid colonial seasquirts.



Top left: The featherstar *Antedon bifida* is common around the north Anglesey coast

Top right: The black mastik sponge *Dercitus bucklandi* and fried egg anemones *Actinothoe sphyrodetata* on Middle Mouse

2nd down left: The plumose anemone *Metridium senile* and bloody Henry starfish *Henricia* sp. on Middle Mouse.

Middle right: The oaten pipes hydroid *Tubularia indivisa* is found in tideswept areas, such as the Menai Strait and Bardsey Island.

3rd down left: The rare mantis shrimp *Rissoides desmaresti*

3rd down right: Mantis shrimp burrow

Bottom left: The yellow star anemone *Parazoanthus axinellae* is a species with a typically south-western distribution and is found at some sites around Bardsey Island.

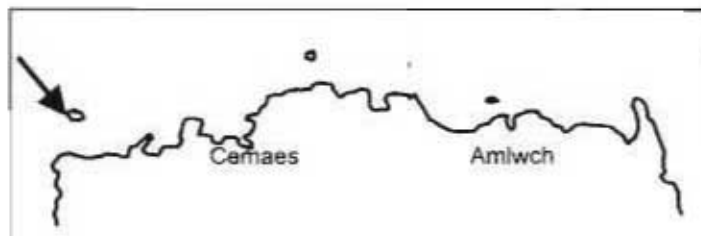
3. SITE-BY-SITE SUMMARIES

NORTH ANGLESEY

Site name W side West Mouse

Site number 1/14

Site details: Bedrock and boulder wall levelling out at c. 13 m. Moderately exposed, moderately tideswept and silty.



Habitat 1:

Depth Range: 6 - 13 m

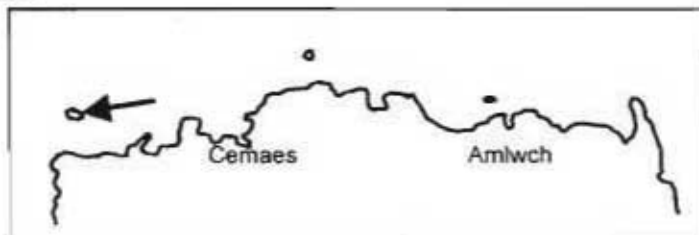
Description: Bedrock wall, large boulders and steel wreckage with faunal turf including patches of hornwrack *Flustra foliacea* and sea squirts *Polycarpa pomaria* and *Molgula manhattensis* (MolPol)

Comments: Conger eels *Conger conger* common in steel pipes

Site name SE side West Mouse

Site number 1/16

Site details: Sloping bedrock ridges and boulders. Moderately exposed, moderately tideswept and silty.



Habitat 1:

Depth Range: 0 - 6 m

Description: Bedrock ridges with kelp *Laminaria hyperborea* (Lhyp)

Habitat 2:

Depth Range: 6 - 9 m

Description: Bedrock ridges with red algal turf (FoR)

Habitat 3:

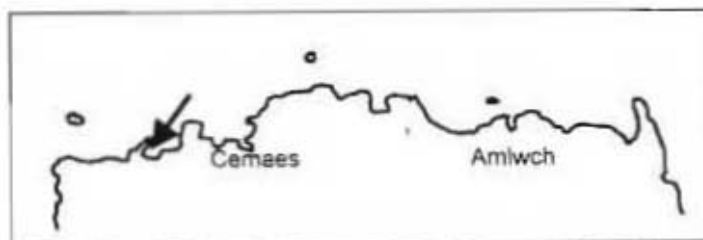
Depth Range: 9 - 13 m

Description: Bedrock ridges with faunal turf of sea squirts *Molgula* sp., bryozoans including *Crisia* spp., anemones, sponges and hydroids (MolPol)

Comments:

Site name Cemlyn Bay
Site number 1/2

Site details: Gently sloping cobbles and pebbles with some sand. Sheltered with little tidal movement.



Habitat 1:

Depth Range: 0 - 0.5 m

Description: Pebbles and cobbles, gaps filled with fine sand / silt. Kelp *Laminaria saccharina* and *L. digitata*, bootlace weed *Chorda filum* and algal turf on pebbles and cobbles. (LsacChoR)

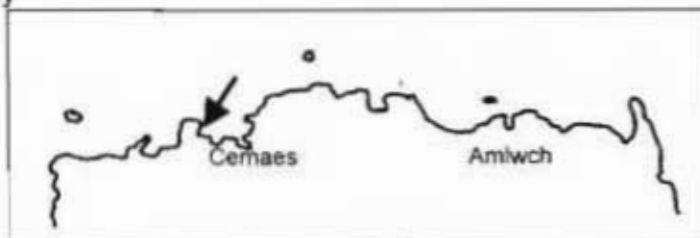
Comments:



Site name West Cemaes Bay

Site number 1/9

Site details: Boulders leading onto fine sandy mud at c. 7 m. Sheltered, with little tidal movement, very silty.



Habitat 1:

Depth Range: -0.5 - 2 m

Description: Boulders covered in silt with sparse kelp forest (*Laminaria hyperborea*) and red algal turf (Lhyp)

Habitat 2:

Depth Range: 2 - 6 m

Description: Boulders covered in silt with red algal turf. (FoR)

Habitat 3:

Depth Range: 6 - 6.5 m

Description: Circalittoral cobbles covered in silt with featherstars *Antedon bifida*, sponge *Suberites carnosus* and squirts *Ciona intestinalis*. (SubSoAs?)

Habitat 4:

Depth Range: 6.5 - 7.5 m

Description: Mud with crab burrows (*Goneplax rhomboides*) and brittlestars *Ophiura albida*, *O. ophiura* and *Amphiura* sp. (CMU)

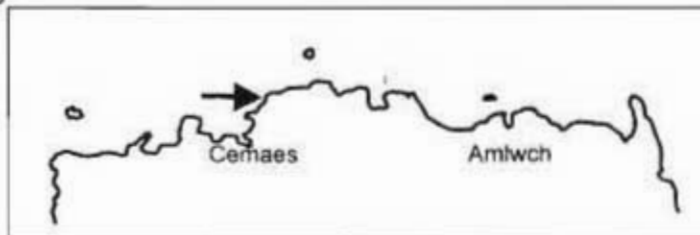
Comments:



Site name North of Llanbadrig

Site number 1/10

Site details: Steep bedrock levelling out to boulders at c. 12 m. Moderately exposed, weak tidal streams, very silty.



Habitat 1:

Depth Range: 1.5 m

Description: Bedrock with kelp *Laminaria digitata* and dabberlocks *Alaria esculenta*. (Ala.Ldig)

Habitat 2:

Depth Range: 1.5 - 11.5 m

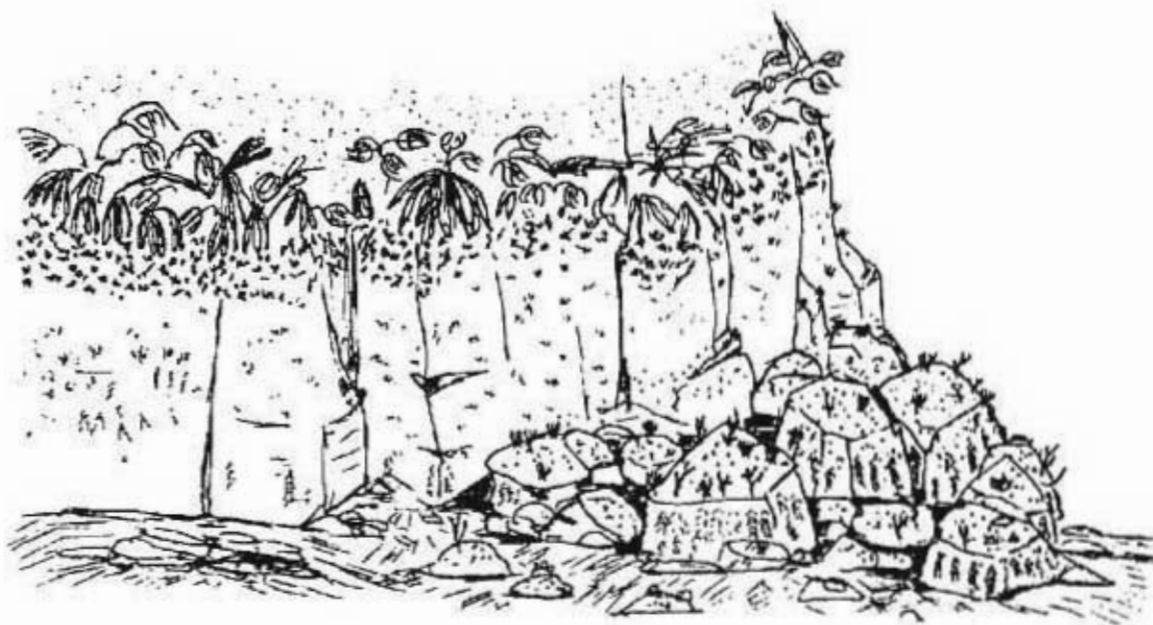
Description: Bedrock and boulders with featherstars *Antedon bifida*, sponges *Polymastia boletiformis*, hornwrack *Flustra foliacea* and baked bean squirts *Dendrodoa grossularia*. (ErSPbolSH)

Habitat 3:

Depth Range: 9.5 m

Description: Mud between boulders with polychaete worms *Lagis koreni*. (CMU)

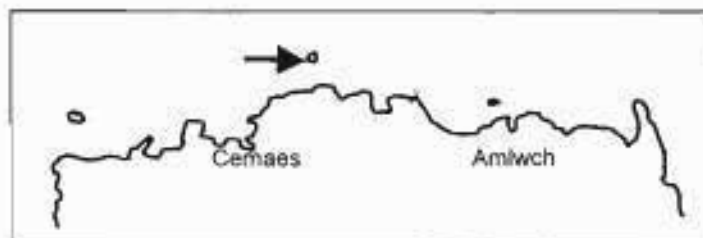
Comments: Cushion stars *Asterina phylactica* and *Asterina gibbosa* present in habitat 1.



Site name W Middle Mouse

Site number 1/3

Site details: Large ridge of coarse pea sized gravel. Moderately exposed and moderately tideswept.



Habitat 1:

Depth Range: 19.5 - 31.5 m

Description: Ridge of coarse 'pea' sized gravel mostly very mobile and clean apart from small patches bound together by mussels *Mytilus edulis*. Occasional starfish *Asterias rubens* and hermit crabs *Pagurus bernhardus*. (CGS)

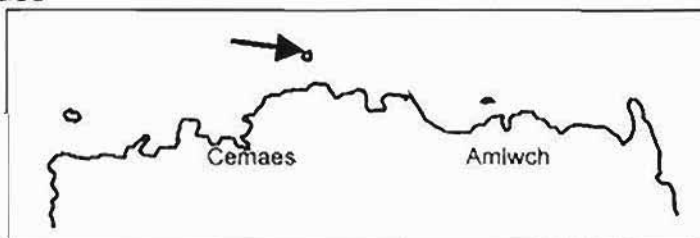
Comments:



Site name N side Middle Mouse

Site number 1/15

Site details: Sloping bedrock levelling out at c. 8 m to boulders. Moderately exposed, moderately tideswept, fairly silty.



Habitat 1:

Depth Range: 0 - 3 m

Description: Sloping bedrock with kelp *Laminaria hyperborea*, dabberlocks *Alaria esculenta*, red algal and bryozoan turf (Ala.Ldig and Lhyp)

Habitat 2:

Depth Range: 3 - 5 m

Description: Sloping bedrock with red algal and bryozoan turf (FoR)

Habitat 3:

Depth Range: 7 - 9 m

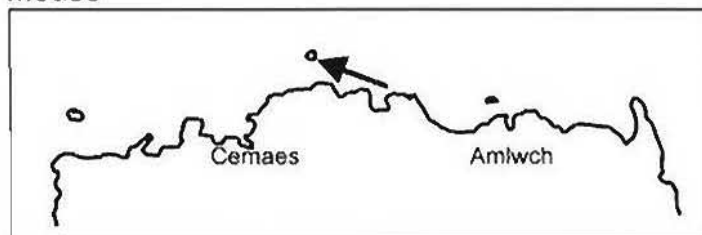
Description: Sloping bedrock and boulders with mainly bryozoan turf, occasional patches of dense mussels *Mytilus edulis* (CorCri? But no *Corynactis viridis* found)

Comments:

Site name SE corner Middle Mouse

Site number 1/13

Site details: Steep cliff and boulder slope levelling out at c. 25 m. Moderately exposed, strongly tideswept.



Habitat 1:

Depth Range: -2 - 0 m

Description: Cliff with kelp forest *Laminaria hyperborea* (Lhyp)

Habitat 2:

Depth Range: 0 - 5 m

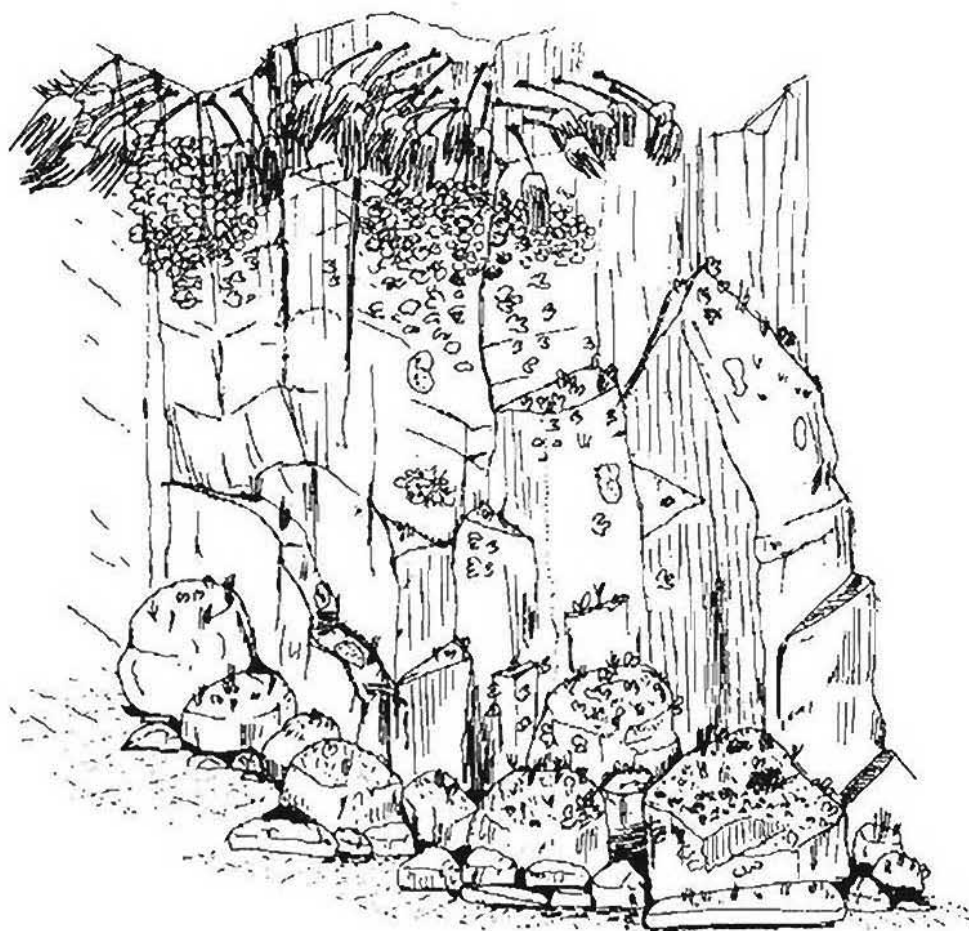
Description: Cliff with red algal turf and dense patches of mussels *Mytilus edulis* (FoR)

Habitat 3:

Depth Range: 5 - 27 m

Description: Cliff with faunal turf of bryozoans especially *Crisia* spp., sponges and hydroids including *Tubularia indivisa* and dense patches of plumose anemones *Metridium senile* (also overhanging areas with baked bean squirt *Dendrodoa grossularia*) (ErSPbolSH and TubS?)

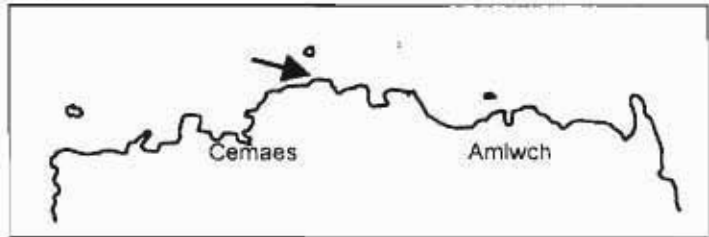
Comments: High intrinsic appeal in this dive site, species rich.



Site name West of Llanlleiana Head

Site number 1/4

Site details: Gently sloping bedrock ridges levelling out at c. 13 m to sandy mud. Moderately exposed, weak tidal streams, silty.



Habitat 1:

Depth Range: 2 - 3 m

Description: Bedrock ridges with boulders and cobbles, gaps filled with silt. Kelp forest (*Laminaria hyperborea*) with red algal turf (Lhyp)

Habitat 2:

Depth Range: 2 - 7 m

Description: Bedrock ridges with boulders and cobbles, gaps filled with silt. Red algal turf (FoR)

Habitat 3:

Depth Range: 7 - 13 m

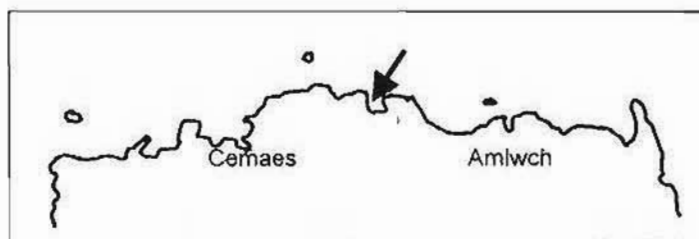
Description: Bedrock ridges with boulders and cobbles, gaps filled with silt. Faunal turf with featherstars *Antedon bifida*, sponge *Polymastia boletiformis*, *P. mamillaris* and hornwrack *Flustra foliacea*. (ErSPbolSH)

Comments: Cushion stars *Asterina phylactica* and *A. gibbosa* present in habitat 2.

Site name Porth Wen

Site number 1/5

Site details: Gently sloping fine sand and mud with small boulders above 5 m. Sheltered, weak tidal streams, silty.



Habitat 1:

Depth Range: 0.5 - 5.5 m

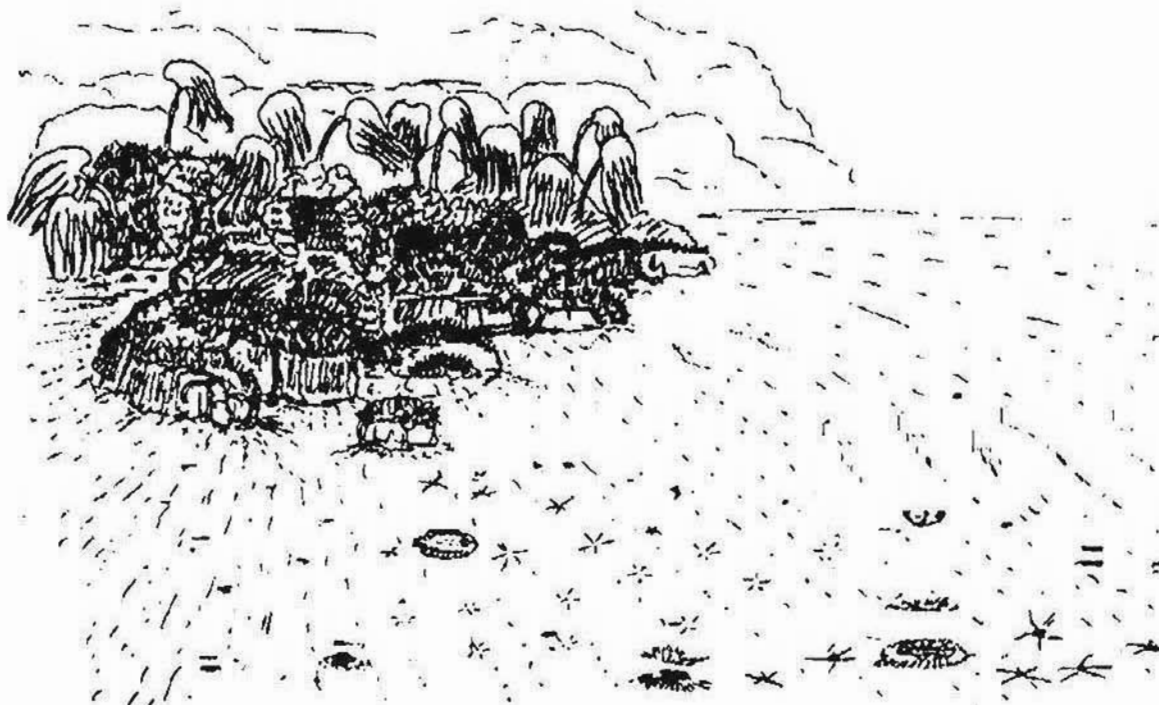
Description: Small boulders with a thick covering of silt with red algal turf and sparse kelp (*Laminaria saccharina* and *L. hyperborea*). *L. hyperborea* occurring only above 5 m. (XKScrR)

Habitat 2:

Depth Range: 5.5 - 10.5 m

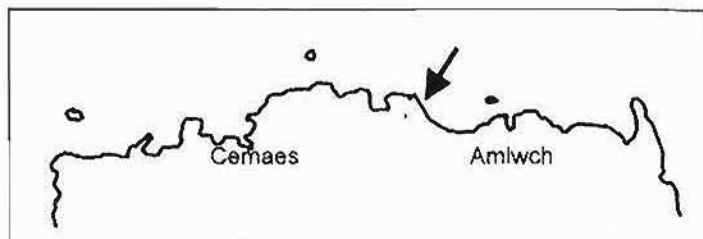
Description: Very fine sand and mud with polychaete worms *Lagis koreni*, brittlestars *Ophiura ophiura*, *Ophiura albida* and crab burrows (*Goneplax rhomboides*). (CMU)

Comments: Habitat 2 possibly very species rich mud.



Site name Bull Bay
Site number 1/1

Site details: Bedrock and boulder outcrop levelling out at c. 3 m to mud, or cobbles and pebbles closer to the shore. Sheltered, weak tidal streams, silty.



Habitat 1:

Depth Range: 0 - 3.5 m

Description: Cobbles with kelp *Laminaria saccharina*, *L. hyperborea*, bootlace weed *Chorda filum*, snakelocks anemones *Anemonia viridis* and algal turf. (LsacChoR)

Habitat 2:

Depth Range: 2.5 - 3.5 m

Description: Bedrock or boulders with red algae, snakelocks anemone *Anemonia viridis*, featherstars *Antedon bifida*. (FoR?)

Habitat 3:

Depth Range: 3.5 m

Description: Mud with patches of diatoms, anoxic c. 2 cm below surface with a few daisy anemones *Cereus pedunculatus*. (IMU)

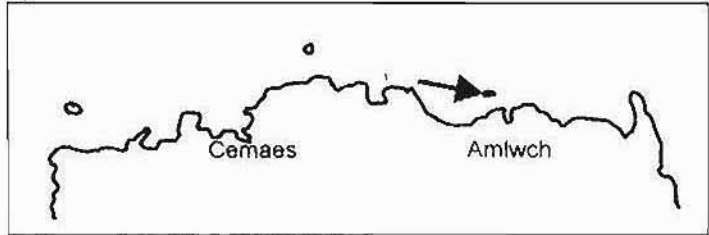
Comments:



Site name East Mouse (W side)

Site number 1/8

Site details: Steep bedrock levelling out slightly at c. 13 m to boulders. Moderately exposed, moderately tideswept, silty.



Habitat 1:

Depth Range: 1.5 - 6.5 m

Description: Sloping bedrock with kelp forest (*Laminaria hyperborea*) (to 2.5 m) and red algal turf. (Lhyp)

Habitat 2:

Depth Range: 6.5 - 11 m

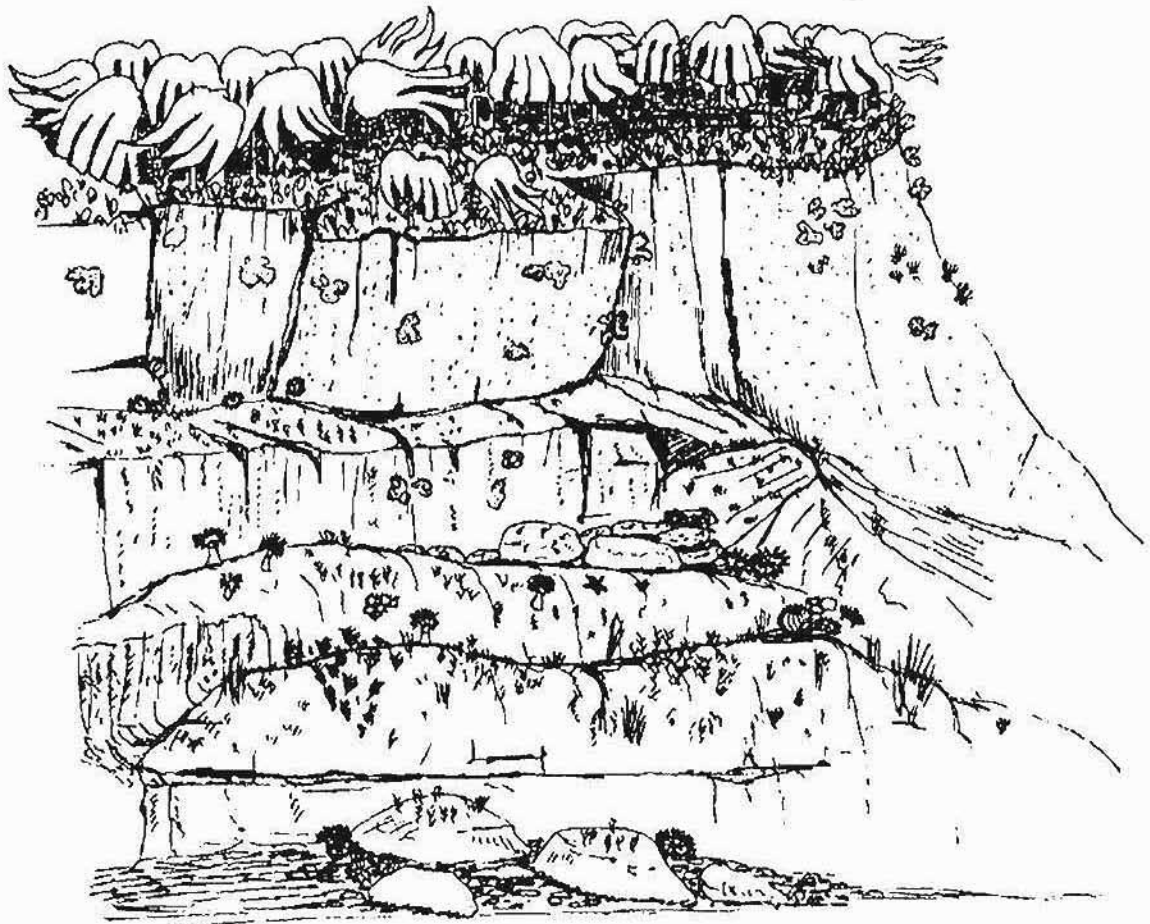
Description: Vertical bedrock 'cliff face' with crevices and fissures covered in bryozoan dominant turf with *Bicellariella* sp., *Cellaria* sp., *Bugula* spp. (Bug?)

Habitat 3:

Depth Range: 11 - 14 m

Description: Bedrock ridges and boulders with bryozoan dominated turf. (Flu.HByS?)

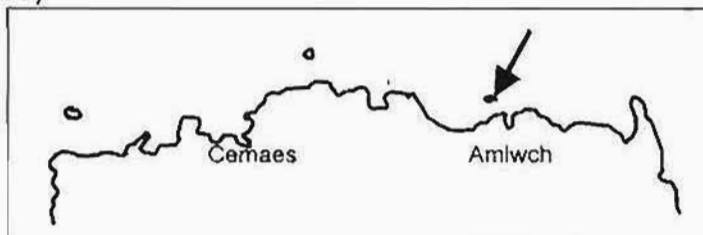
Comments:



Site name East Mouse (NE side)

Site number 1/18

Site details: Bedrock ridges levelling out at c. 13 m to patches of sand with bedrock outcrops. Moderately exposed, moderately tideswept, silty.



Habitat 1:

Depth Range: 5 - 14 m

Description: Bedrock with featherstars *Antedon bifida*, bryozoans *Cellaria* sp. and dahlia anemones *Urticina felina* (Flu.HByS).

Habitat 2:

Depth Range: 12 - 15 m

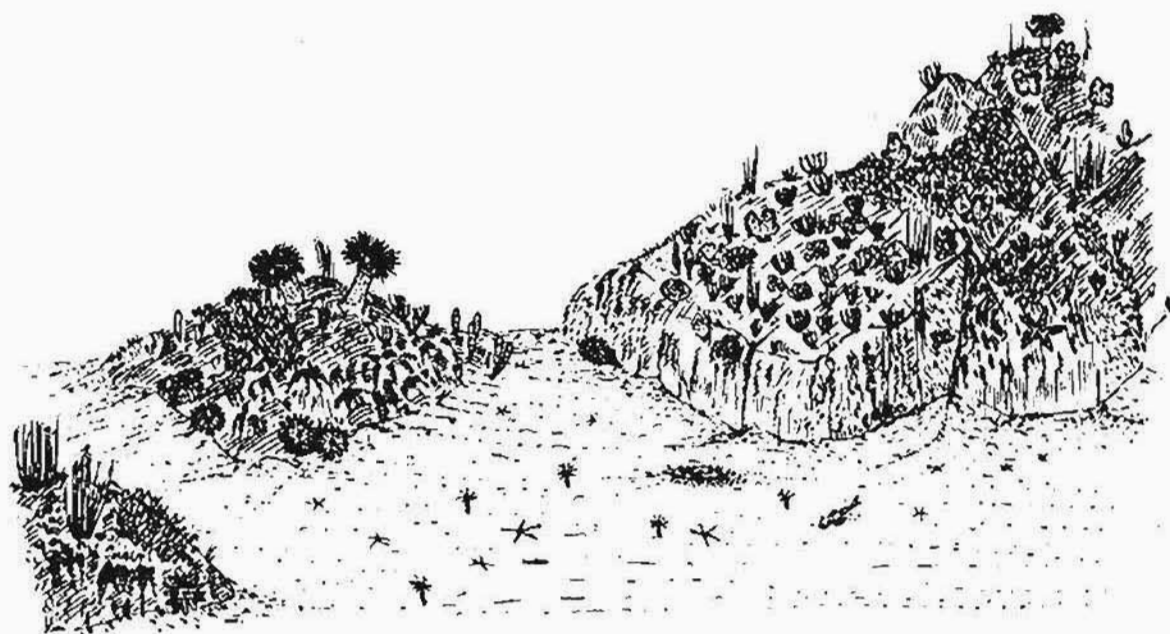
Description: Rocky outcrops with dead mans fingers *Alcyonium digitatum*, bryozoans *Bugula* spp. and dahlia anemones *Urticina felina*. (Urt.Urt / Flu.HByS).

Habitat 3:

Depth Range: 13 m

Description: Patches of sand with polychaete worms *Lagis koreni*, brittlestars *Ophiura ophiura* and dragonets *Callionymus lyra*. (CGS).

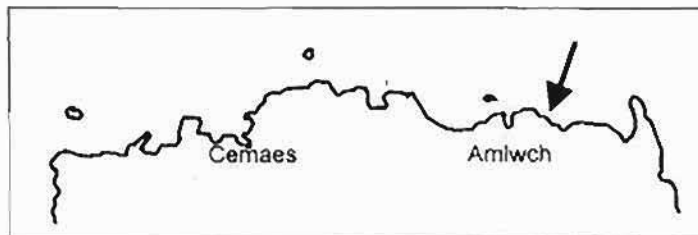
Comments:



Site name East of Amlwch

Site number 1/7

Site details: Bedrock and boulder wall levelling out at c. 10 m.
Moderately exposed, moderately
tideswept and silty.



Habitat 1:

Depth Range: 2 - 2.5 m

Description: Bedrock and large boulders with sparse kelp forest (*Laminaria hyperborea*).
(Lhyp).

Habitat 2:

Depth Range: 2.5 - 4 m

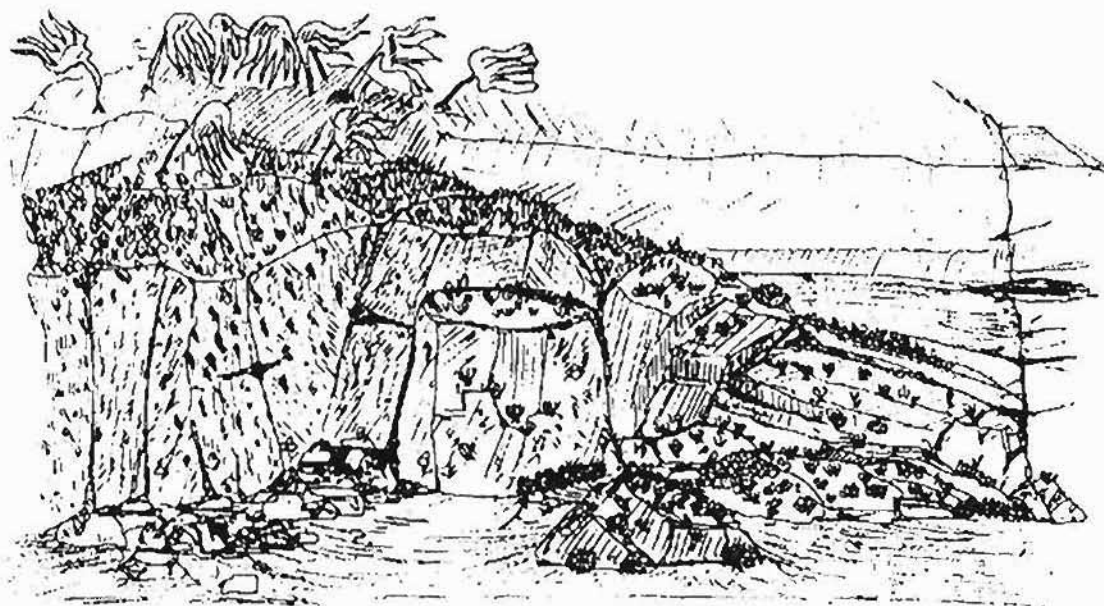
Description: Bedrock and large boulders with red algal and bryozoan turf (FoR.Dic).

Habitat 3:

Depth Range: 4 - 10 m

Description: Circalittoral bedrock and boulders with featherstars *Antedon bifida*, hornwrack *Flustra foliacea*, *Crisia* spp. and *Scrupocellaria* sp. (Flu.HByS)

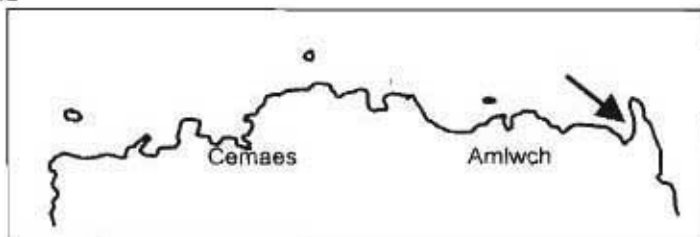
Comments:



Site name West of Point Lynas

Site number 1/6

Site details: Mounds of bedrock and boulders. Moderately exposed, moderately tideswept and silty.



Habitat 1:

Depth Range: 5.5 - 9.5 m

Description: Bedrock ridges with featherstars *Antedon bifida*, bryozoan and sparse red algal turf (ErSPbolSH?).

Habitat 2:

Depth Range: 9.5 - 11.5 m

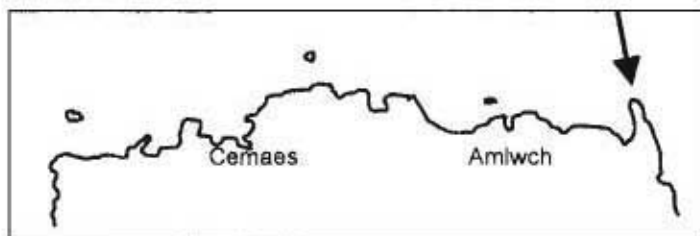
Description: Boulder slope with featherstars *Antedon bifida*, bryozoan and hydroid turf. (Flu.HByS?).

Comments:

Site name North Point Lynas - offshore

Site number 1/11

Site details: Sloping bedrock ridges and boulders levelling out at c. 26 m. Moderately exposed, moderately tideswept and silty.



Habitat 1:

Depth Range: 0 - 2 m

Description: Bedrock ridges and large boulders with kelp *Laminaria hyperborea* and red algae. (Lhyp)

Habitat 2:

Depth Range: 4 - 6 m

Description: Bedrock ridges with red algal turf (FoR).

Habitat 3:

Depth Range: 6 - 26 m

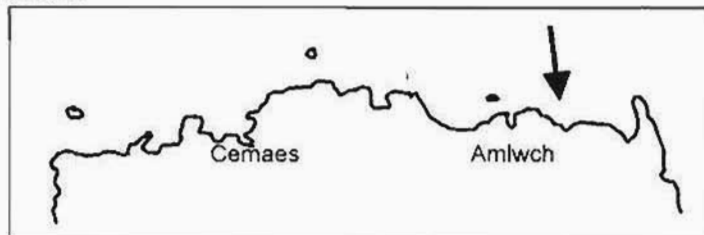
Description: Bedrock ridges and boulders with bryozoan turf (*Crisia* spp. and hornwrack *Flustra foliacea*) and cushion and stalked sponges (ErSPbolSH).

Comments:

Site name N Point Lynas - inshore

Site number 1/12

Site details: Undulating bedrock and boulders with patches of gravel. Moderately exposed, moderately tideswept and silty.



Habitat 1:

Depth Range: to 7 m

Description: Undulating bedrock with red algal and faunal turf with featherstars *Antedon bifida* and hornwrack *Flustra foliacea* (Flu.HByS).

Habitat 2:

Depth Range: 10 m

Description: Shelly gravel with sparse fauna (CGS)

Habitat 3:

Depth Range: 14 m

Description: Large boulders with faunal turf including barnacles *Balanus balanus*, hornwrack *Flustra foliacea* and featherstars *Antedon bifida* (Flu.HByS)

Comments:

Site name Ynys Moelfre

Site number 1/17

Site details: Gently sloping sand with areas of cobbles and small boulders. Sheltered, slight tidal streams, silty.

Habitat 1:

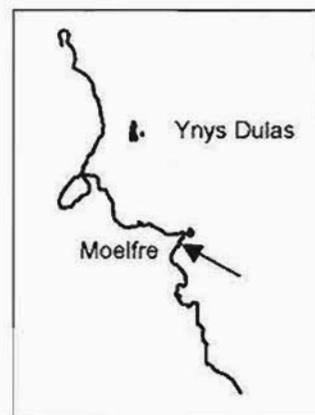
Depth Range: 0 - 4m

Description: Boulders and cobbles (with coarse sand in between) with faunal turf with large numbers of plumose anemones *Metridium senile* (AlcC?)

Habitat 2:

Depth Range: 2 - 7m

Description: Sand with shell fragments - burrowing anemone *Cerianthus lloydii* abundant. (CGS)



Comments:

SITE-BY-SITE SUMMARIES

MENAI STRAIT AND PUFFIN ISLAND

Site name PwllfanogI

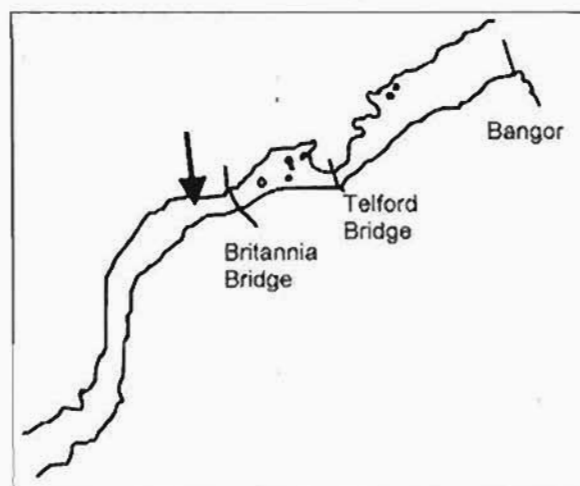
Site number 2/8

Site details: Boulder and cobble slope levelling out at c. 16 m to pebbles, gravel and sand. Very sheltered, strongly tideswept.

Habitat 1:

Depth Range: 0 - 5 m

Description: Boulders and cobbles covered with sponge (shredded-carrot sponge *Esperiopsis fucorum* and breadcrumb sponge *Halichondria panicea*) (CuSH /BalHpan)



Habitat 2:

Depth Range: 5 - 16 m

Description: Pebbles, gravel and sand with sparse barnacles, keel worms (*Pomatoceros triqueter*), sponges and hydroids (PomByC?)

Comments:

Site name Nelson's Statue to Britannia Bridge

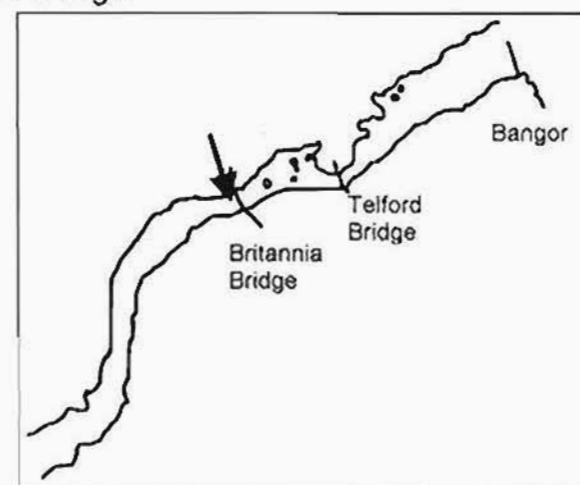
Site number 2/7

Site details: Slope of gravel and pebbles with outcrops of boulders. Very sheltered, strongly tideswept.

Habitat 1:

Depth Range: 4 - 11 m

Description: Outcrops of boulders and cobbles covered in sponge (*Halichondria panicea* and *Esperiopsis fucorum*) (CuSH)



Habitat 2:

Depth Range: 4 - 11 m

Description: Gravel and pebbles with sparse life except keel worms *Pomatoceros* sp. (CCBal.Pom?)

Comments:

Site name West Ynys Gored Goch
Site number 2/6

Site details: Slope of shell gravel and mud to c. 4 m, then a mixture of bedrock, boulders and cobbles. Very sheltered, strongly tideswept.

Habitat 1:

Depth Range: 1 - 4 m

Description: Mussel *Mytilus edulis* beds on shell gravel or mud. (MyTHAs)

Habitat 2:

Depth Range: 4 - 7 m

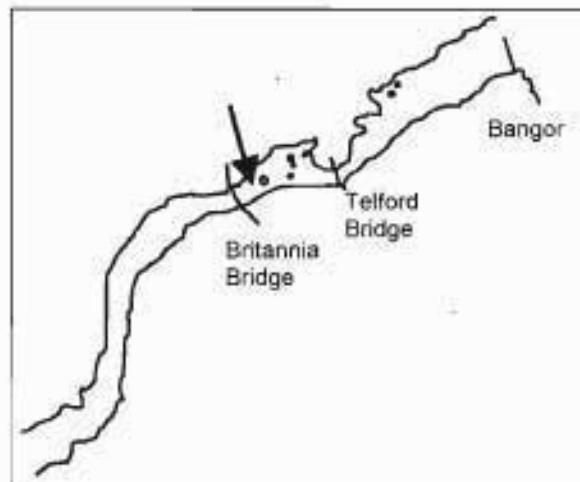
Description: Bedrock stepped in places with a few boulders, barnacles abundant and anemones *Sagartia elegans* (BalTub)

Habitat 3:

Depth Range: 4 - 6 m

Description: Boulders and cobbles dominated by sponges (*Halichondria panicea*, *Espiropsis fucorum*) (CuSH)

Comments:



Site name Channel between Anglesey and Ynys Gored Goch
Site number 2/5

Site details: Channel with bedrock and boulders in the middle, mud on the Anglesey side and sloping bedrock and boulders on the other side. Very sheltered, moderately tideswept.

Habitat 1:

Depth Range: 0 m

Description: Mud with podweed *Halidrys siliquosa* forest (HalXK)

Habitat 2:

Depth Range: 1 - 5 m

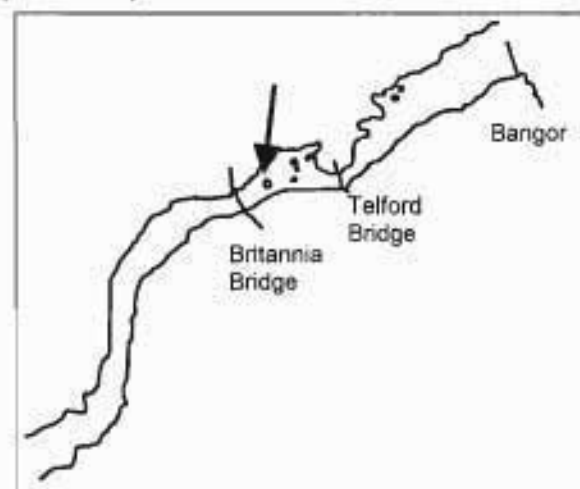
Description: Bedrock and boulders with dense covering of sponges and a few red algae (CuSH)

Habitat 3:

Depth Range: 1 m

Description: Bedrock and boulders with dense mussels *Mytilus edulis* towards the Gored Goch shore (MyTHAs)

Comments:



Site name Swellies

Site number 2/4

Site details: Mixture of substrata, including boulders, bedrock, cobbles and gravel. Very sheltered, very strongly tideswept (probably > 6 kt).

Habitat 1:

Depth Range: 0 m

Description: Clean sand with dense podweed *Halidrys siliquosa* (HalXK)

Habitat 2:

Depth Range: 1 m

Description: Large boulders with dense sugar kelp *Laminaria saccharina* (LhypLsac?)

Habitat 3:

Depth Range: 1 - 4 m

Description: Small boulders and bedrock with a red algal turf (FoR?)

Habitat 4:

Depth Range: 4 - 5 m

Description: Boulders and cobbles dominated by sponges (CuSH)

Habitat 5:

Depth Range: 4 - 10 m

Description: Bedrock and boulders, faunal turf of mainly sponges, some patches of mussels (CuSH)

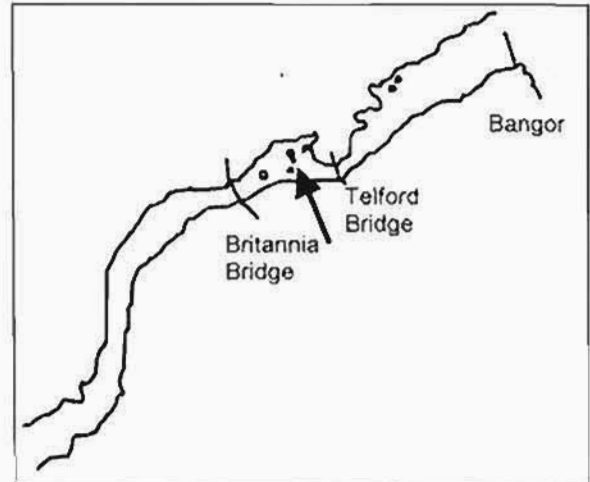
Habitat 6:

Depth Range: 4 - 10 m

Description: Patches of pea gravel, covered by dense mussel *Mytilus edulis* beds. (MytHAs)

Comments: This area is subject to extremely strong currents

(Sketches on next page)

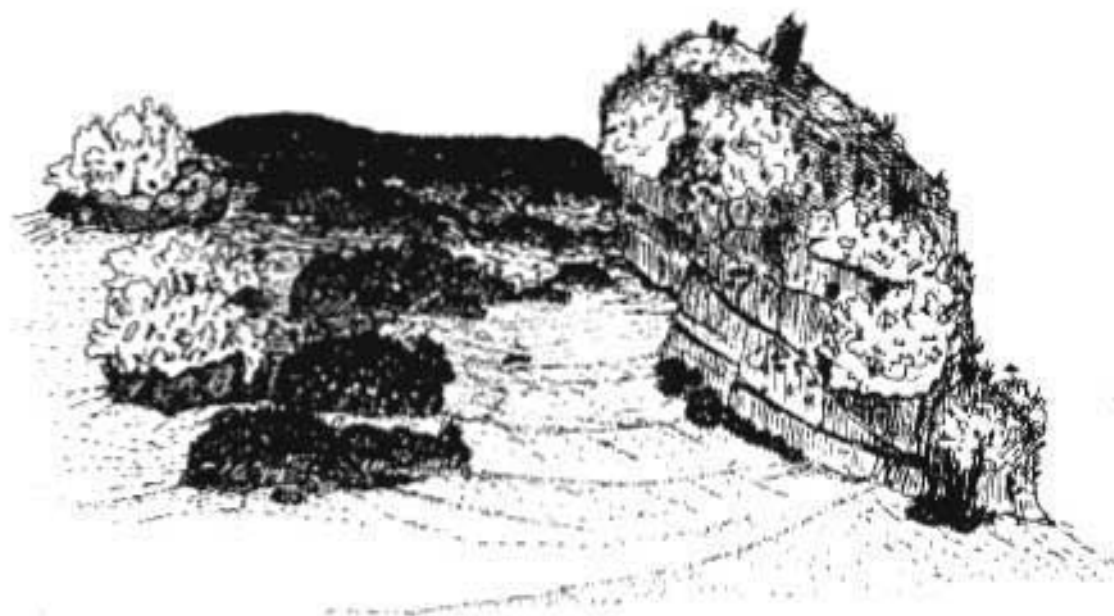


Continued ...
Site name Swellies
Site number 2/4

Habitats 1, 2 & 3



Habitats 4, 5 & 6



Site name Telford Bridge, W side
Site number 2/3

Site details: Slope of mixed bedrock and cobbles, with occasional cliff faces. Very sheltered, strongly tideswept.

Habitat 1:

Depth Range: 2 - 3 m

Description: Areas of bedrock and areas of cobbles all covered in a red algal turf (FoR?)

Habitat 2:

Depth Range: 3 - 7 m

Description: Cliff covered with dense fauna with abundant sponges (*Halichondria panacea* and *Eспериopsis fucorum*) (CuSH / Flu.Hocu)

Habitat 3:

Depth Range: 4 - 8 m

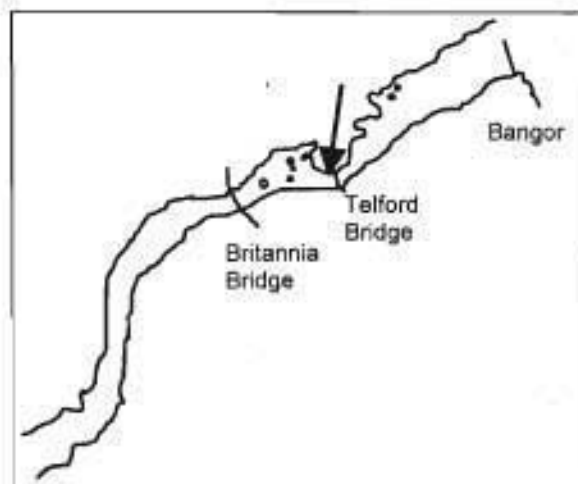
Description: Tideswept cobbles with mainly keel worms (*Pomatoceros* sp.) and barnacles (PomByC?)

Habitat 4:

Depth Range: 5 - 8 m

Description: Other areas of cobbles covered with sponges (CuSH / Flu.Hocu)

Comments:



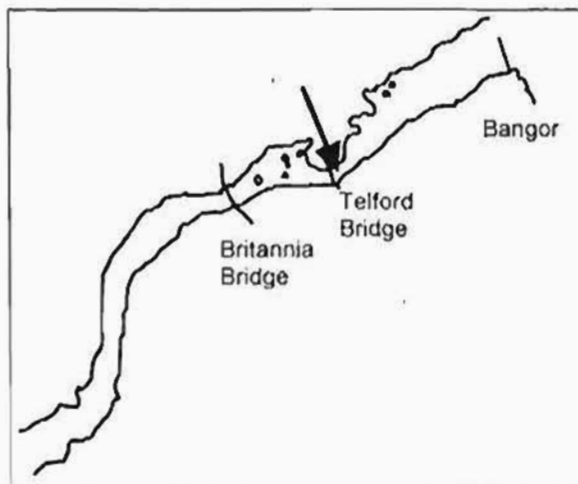
Site name Telford Bridge, E side
Site number 2/2

Site details: Bedrock and boulder slope leading to coarse shell gravel, followed by scoured bedrock at c. 12 m. Very sheltered, strongly tideswept.

Habitat 1:

Depth Range: 0 - 3 m

Description: Bedrock and boulders dominated by wracks, fucoids to 0 m, a narrow band of kelp *Laminaria digitata* and *L. hyperborea* at 2 - 3 m. (Ldig and Lhyp)



Habitat 2:

Depth Range: 3 - 5 m

Description: Bedrock and boulders with red algal turf (FoR)

Habitat 3:

Depth Range: 4 - 9 m

Description: Bedrock and boulders dominated by sponges - some extremely large colonies. Abundant *Halichondria panicea* and *Eperiopsis fucorum*. (Flu.Hocu and CuSH and BalHpan).

Habitat 4:

Depth Range: 9 - 11 m

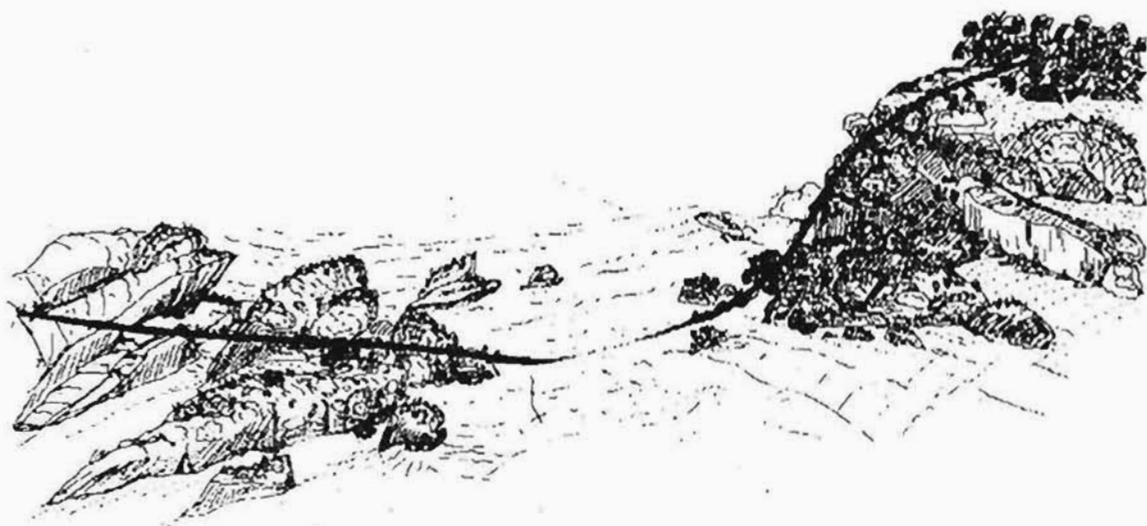
Description: Coarse shell gravel bank with few species (PomByC)

Habitat 5:

Depth Range: 11 - 13 m

Description: Tideswept bedrock with barnacles dominant. (BalTub?)

Comments: dive follows telegraph cable



Site name Coleg Normal

Site number 2/1

Site details: Steep slope of boulders and cobbles levelling out at c. 14 m. Very sheltered, strongly tideswept.

Habitat 1:

Depth Range: to 1 m

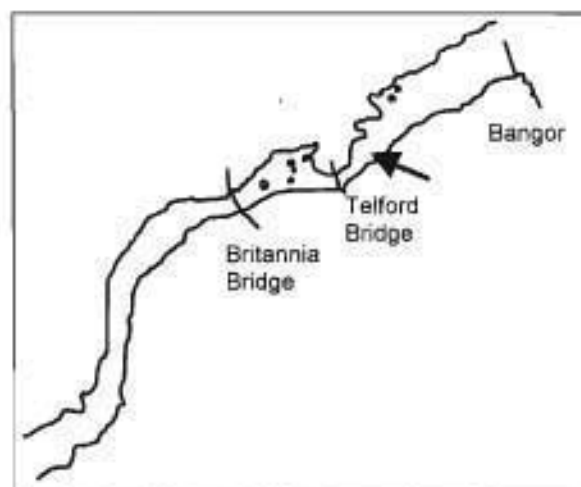
Description: Small boulders and cobbles with kelp *Laminaria hyperborea* and *L. saccharina* (LhypLsac).

Habitat 2:

Depth Range: 1 - 14 m

Description: Small and occasional large boulders and cobbles dominated by sponges (*Haliclona oculata*, *Espenopsis fucorum* and *Dysidea fragilis* common) (Flu.Hocu).

Comments:



Site name W of Penmon point

Site number 2/9

Site details: Gently sloping area of boulders and cobbles leading to a sand plain at c. 1 m. Moderately exposed, weak tidal streams.

Habitat 1:

Depth Range: 0 - 1 m

Description: Boulders and cobbles with kelp (*Laminaria hyperborea*) and red algae on tops of boulders. Vertical faces covered in faunal turf of sponges, anemones and squirts. (Lhyp, FoR and CorMetAlc? – but no *Corynactis viridis*).

Habitat 2:

Depth Range: 1 m

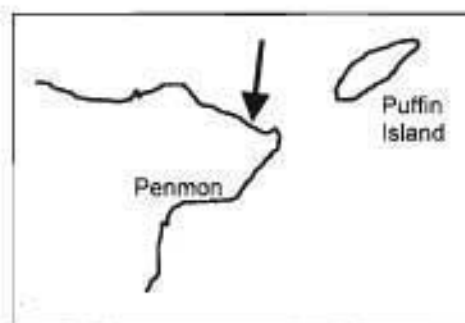
Description: Sand ripples with a few sand mason worms *Janice conchilega*, dab *Limanda limanda* and dragonets *Callionymus lyra*. (FaS)

Habitat 3:

Depth Range: 1 m

Description: Scoured bedrock, boulders and cobbles with only green algal "fuzz". (no fit)

Comments:



Site name Mid N side Puffin Island

Site number 2/11

Site details: Gentle slope of boulders from 2 - 6 m with patches of gravel. Moderately exposed, moderately tideswept.

Habitat 1:

Depth Range: 2 - 3 m

Description: Limestone boulders with kelp *Laminaria hyperborea* and red algal turf (Lhyp)

Habitat 2:

Depth Range: 3 - 10 m

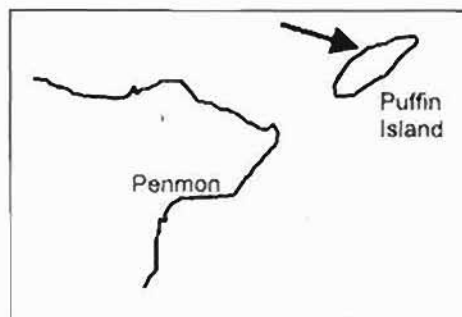
Description: Boulders with patches of plumose anemones *Metridium senile* and also hydroids and dead man's fingers *Alcyonium digitatum* (AlcMaS – silty version)

Habitat 3:

Depth Range: 6 m

Description: Gravel between boulders with few species, one of which was *Cerianthus lloydii*. (CGS)

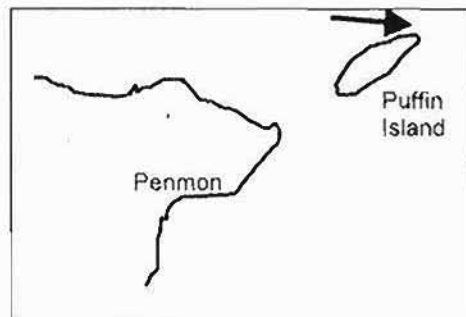
Comments:



Site name NE end Puffin Island

Site number 2/10

Site details: Bedrock ridges and boulders with occasional cliffs leading to gently sloping cobbles, pebbles and gravel from 11 m. Moderately exposed, strongly tideswept.



Habitat 1:

Depth Range: 0 - 1 m

Description: Bedrock ridges with kelp *Laminaria hyperborea* and red algae (Lhyp)

Habitat 2:

Depth Range: 1 - 2 m

Description: Vertical bedrock with dense plumose anemones *Metridium senile* and dead man's fingers *Alcyonium digitatum* (CorMetAlc – no *Corynactis viridis*).

Habitat 3:

Depth Range: 3 - 10 m

Description: Boulders with faunal turf consisting of hydroids, bryozoans (including hornwrack *Flustra foliacea*), sponges and dahlia anemones *Urticina felina* (Flu.HByS and ErSPbolSH).

Habitat 4:

Depth Range: 11 - 21 m

Description: Cobbles, pebbles and gravel with hydroids *Sertularia* spp., parchment tube worms *Chaetopterus variopedatus*, and burrowing anemones *Cerianthus lloydii*. (Flu.SerHyd)

Comments:



SITE-BY-SITE SUMMARIES

NORTH LLŶN

Site name SW Porth Oer
Site number 3/5

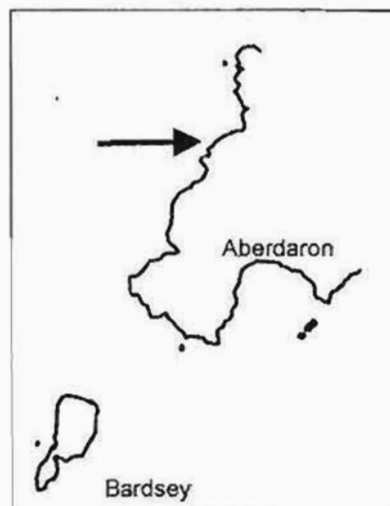
Site details: Slope of bedrock, boulders and cobbles from 14 - 15 m. Moderately exposed, strong tidal streams

Habitat 1:

Depth Range: 14 - 15 m

Description: Cobbles, small boulders and sloping bedrock covered in a dense faunal turf of mainly bryozoans (hornwrack *Flustra foliacea*, *Cellaria* sp., *Crisia* spp.), sponges and squirts. (MolPol)

Comments: Rich in sponges (21 species recorded)



Site name SW Porth Oer, offshore
Site number 3/6

Site details: Sand with occasional cobble areas. Moderately exposed, strong tidal streams.

Habitat 1:

Depth Range: 12 - 16 m

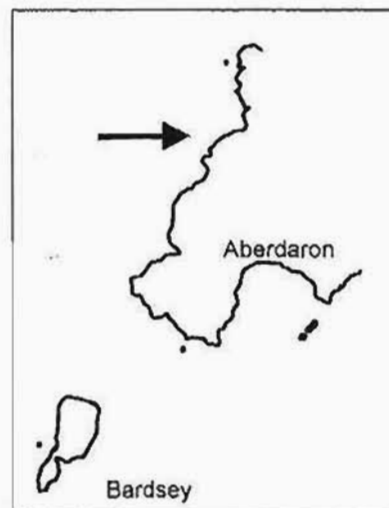
Description: Mobile sand - sparse life apparent (Mob).

Habitat 2:

Depth Range: 12 - 16 m

Description: Patches of cobbles with faunal turf, areas of dense sea squirts *Molgula* sp. (MolPol)

Comments:



Site name Between Maen Mellt and Porth Oer
Site number 3/4

Site details: Sand with occasional areas of cobbles and small boulders. Moderately exposed, strong tidal streams.

Habitat 1:

Depth Range: 10 – 17 m

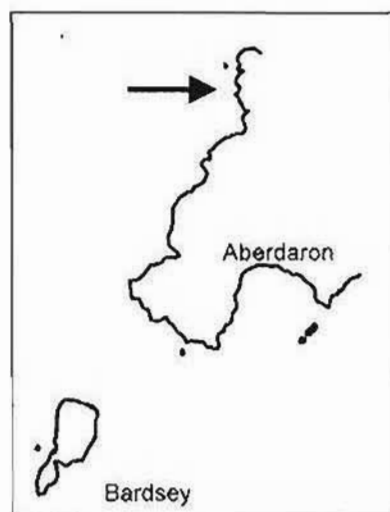
Description: Occasional cobbles and small boulders covered with red algal and bryozoan turf with sea squirts (*Molgula manhattensis* frequent). (MolPol)

Habitat 2:

Depth Range: 16 - 18 m

Description: Fine sand with occasional brittlestars *Ophiura albida* (FaS)

Comments:



Site name Porth Ysgaden
Site number 3/2

Site details: Rocky ridge protecting a sandy bay, with bedrock outcrops and boulders. Sheltered, weak tidal streams.

Habitat 1:

Depth Range: to 7 m

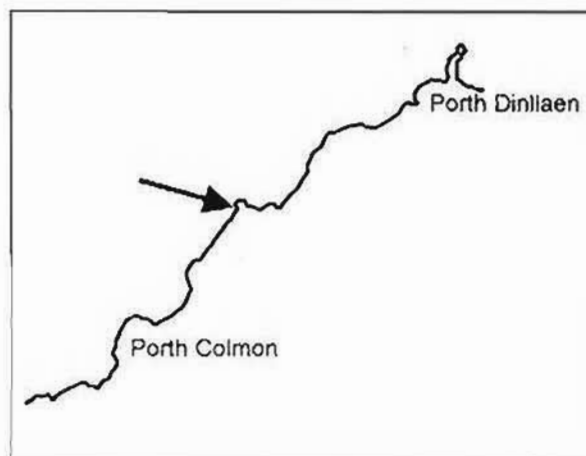
Description: Bedrock and boulders with kelp forest (mostly *Laminaria hyperborea*) and dense red algal turf. (Lhyp)

Habitat 2:

Depth Range: to 7 m

Description: Vertical faces of bedrock with short bryozoan/hydroid turf. (FaSwV)

Comments:



Site name NE Porth Ysgaden

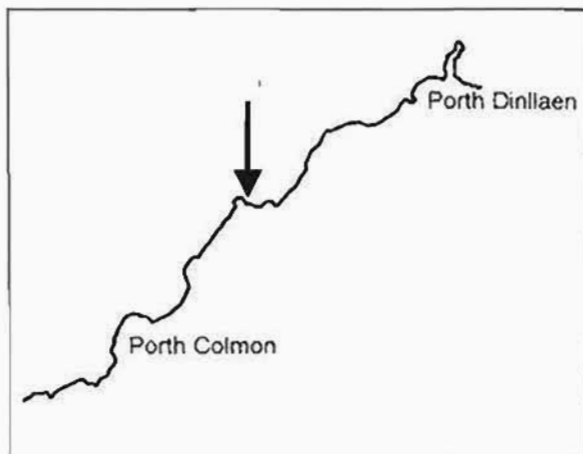
Site number 3/1

Site details: Gently sloping boulders and cobbles. Moderately exposed, weak tidal streams.

Habitat 1:

Depth Range: 1 - 5 m

Description: Boulders and cobbles covered with a dense kelp forest (mainly *Laminaria hyperborea*) and red algal turf (XKScrR and FoR.Dic)



Comments: Ascidian *Distomus variolosus* recorded (most northerly record?)

Site name Trefor pier

Site number 3/3

Site details: Wooden pier supports and seabed of sand, small boulders and cobbles. Moderately exposed, weak tidal streams.

Habitat 1:

Depth Range: to 3 m

Description: Boulder outcrops (surrounded by sand) with kelp and red algae (Lhyp)

Habitat 2:

Depth Range: to 3 m

Description: Pier supports, small boulders and cobbles with kelp and red algae. Plumose anemones *Metridium senile* and sponges on pier supports. (FaSwV)

Comments:

SITE-BY-SITE SUMMARIES

SOUTH LLŶN AND BARDSEY

Site name Bae y Rhigol, Bardsey
Site number 4/31

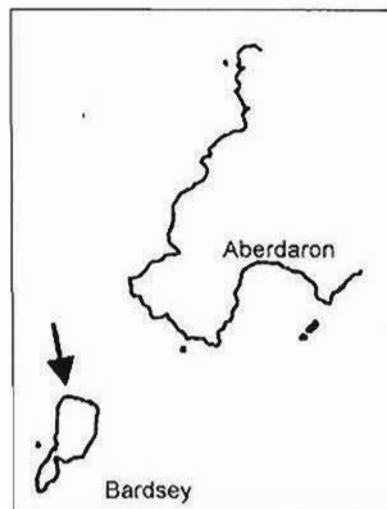
Site details: Bedrock ridges and gullies. Exposed, strong tidal streams.

Habitat 1:

Depth Range: 10 - 13 m

Description: Mixed sizes of boulders and cobbles with kelp park and a faunal and red algal turf including hydroids, bryozoans and sponges. (Lhyp, AlcMaS)

Comments:



Site name NW side Bae'r Nant, Bardsey
Site number 4/28

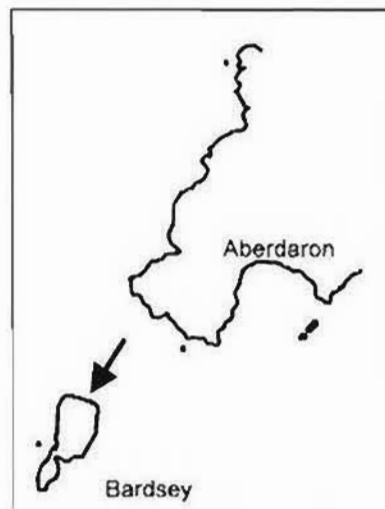
Site details: Sloping bedrock ridges and gullies levelling out at c. 14 m. Moderately exposed, strong tidal streams.

Habitat 1:

Depth Range: 12 - 14 m

Description: Mainly steep bedrock with short gullies covered with red algal (sparse) and faunal turf dominated by hydroids, bryozoans and barnacles. Some patches of oaten pipe hydroid *Tubularia indivisa*. (BalTub or StoPaur)

Comments:



Site name Bardsey, NE corner
Site number 4/16

Site details: Steep bedrock ridges and boulders to c. 27 m.
Moderately exposed, strong tidal streams.

Habitat 1:

Depth Range: 3 - 9 m

Description: Bedrock and very large boulders with dense kelp *Laminaria hyperborea* forest, dense red algae. (LhypR.Ft)

Habitat 2:

Depth Range: 6 - 18 m

Description: Vertical faces with dense faunal turf of mainly bryozoans *Bugula* spp. and *Cellaria* sp. Patches of jewel anemones *Corynactis viridis*. (CorCri)

Habitat 3:

Depth Range: 6 - 18 m

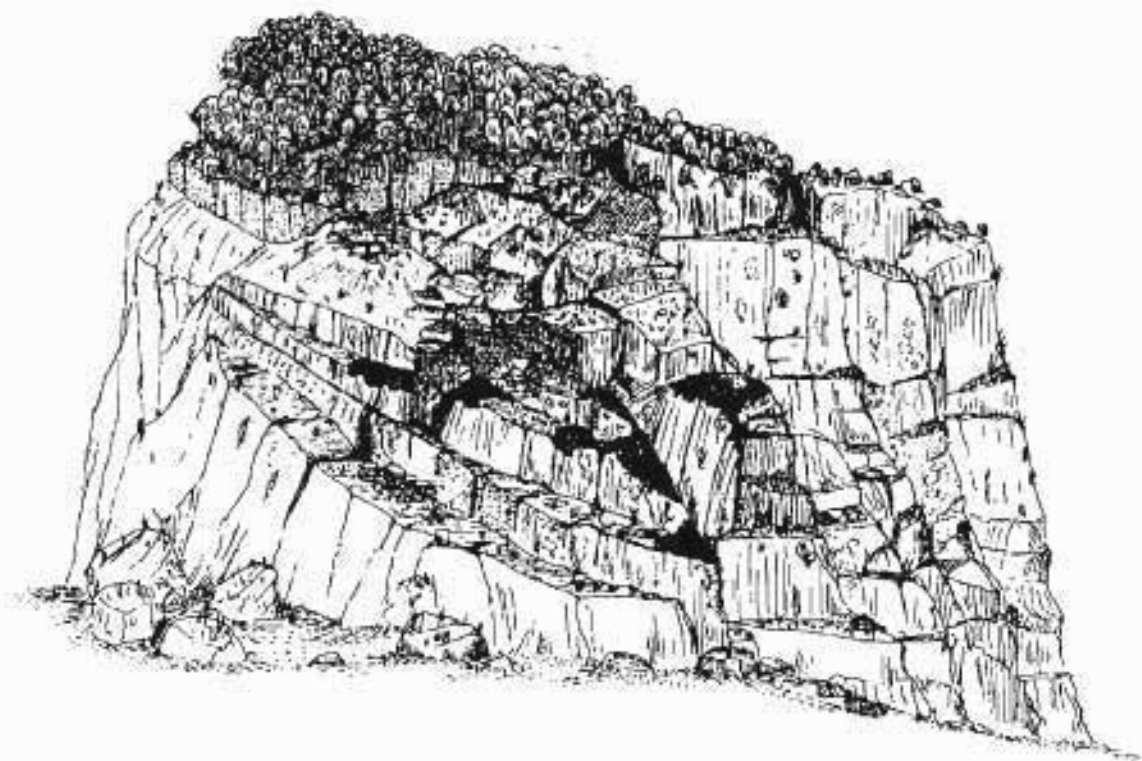
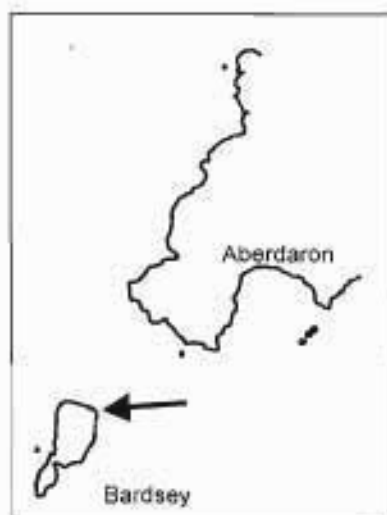
Description: Open rock faces with clumps of bryozoans *Cellaria* sp. and mussels *Mytilus edulis* (ErSPbolSH?)

Habitat 4:

Depth Range: 9 - 27 m

Description: Tide exposed rocky ridges with barnacles *Balanus crenatus*, fried egg anemones *Actinotoe sphyrodeta*, mussels and remains of oaten pipe hydroids *Tubularia indivisa*. (BalTub)

Comments: Spectacular dive site.



Site name Bardsey, E of Pen Cristin
Site number 4/17

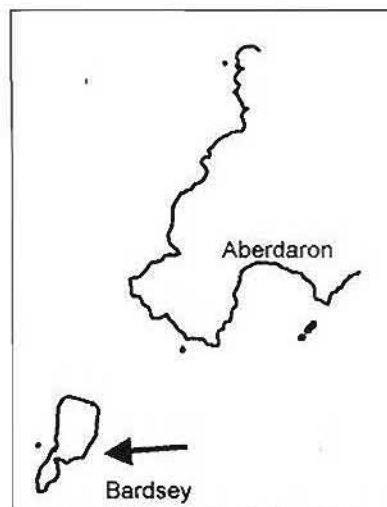
Site details: Steep bedrock and boulders levelling out at c. 17 m. Moderately exposed, moderate tidal streams.

Habitat 1:

Depth Range: 15 - 17 m

Description: Large boulders and bedrock with faunal turf (mainly bryozoans) including several sponge species and the yellow star anemone *Parazoanthus axinellae* (ErSEun)

Comments:



Site name Bardsey, N of Pen Cristin
Site number 4/15

Site details: Sloping bedrock and boulders levelling out at c. 24 m. Moderately exposed, moderate tidal streams.

Habitat 1:

Depth Range: to 8 m

Description: Bedrock and large boulders with kelp forest (LhypR.Ft)

Habitat 2:

Depth Range: 8 - 18 m

Description: Bedrock and large boulders with a dense red algal turf (FoR)

Habitat 3:

Depth Range: 18 - 23 m

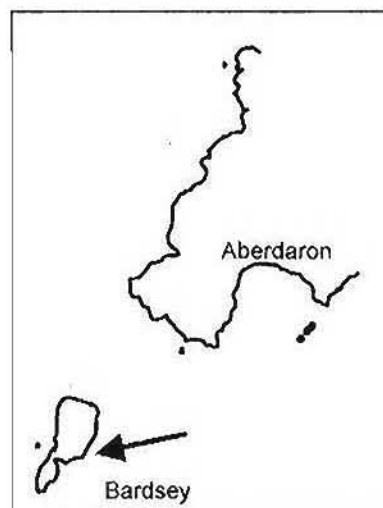
Description: Bedrock and large boulders with a faunal turf including bryozoans *Bugula* spp., *Cellaria* sp, hydroids *Nemertesia* sp. and sponges *Axinella dissimilis* (ErSEun or ErSPbolSH)

Habitat 4:

Depth Range: 24 m

Description: Muddy shell gravel (CGS)

Comments: Clumps of the yellow star anemone *Parazoanthus axinellae* in habitat 3.



Site name Bardsey, S of Henllwyn
Site number 4/14

Site details: Cobble slope from 8 to 24 m. Moderately exposed, moderate tidal streams.

Habitat 1:

Depth Range: to 8 m

Description: Cobbles with kelp forest with red algal and faunal turf (Lhyp)

Habitat 2:

Depth Range: 8 - 13 m

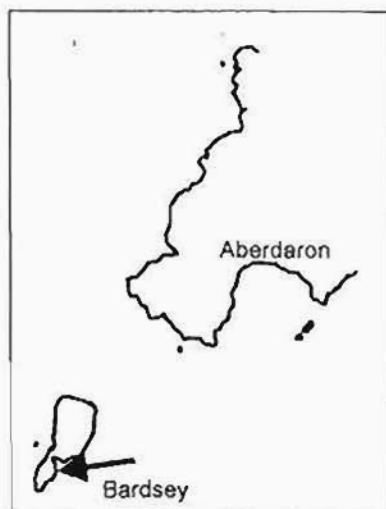
Description: Cobbles with a turf of red algae, hydroids and bryozoans with sparse kelp (FoR or EphR)

Habitat 3:

Depth Range: 13 - 24 m

Description: Cobbles with a mixed faunal turf, including bryozoans *Bugula turbinata*, *Cellaria* sp. and hydroids *Nemertesia antennina* (Flu.HByS)

Comments:



Site name Ogof Ystwffwl Glas, Bardsey
Site number 4/29

Site details: Rocky ridges and large boulders between 18 and 24 m. Exposed, strong tidal streams.

Habitat 1:

Depth Range: 18 - 20 m

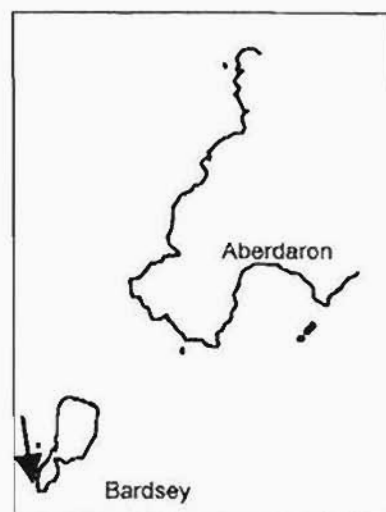
Description: Bedrock ridges Covered with a red algal (sparse) and faunal turf consisting mainly of bryozoans (*Flustra foliacea*, *Bugula* spp., *Crisia* spp.) and hydroids (*Nemertesia antennina*, *Sertularia* sp., *Hydrallmania falcata*). (Flu.HByS)

Habitat 2:

Depth Range: 20 - 24 m

Description: Mixed sizes of boulders with a faunal turf dominated by dead man's fingers *Alcyonium digitatum* and sponges. (AlcMaS?)

Comments:



Site name SW Bardsey

Site number 4/30

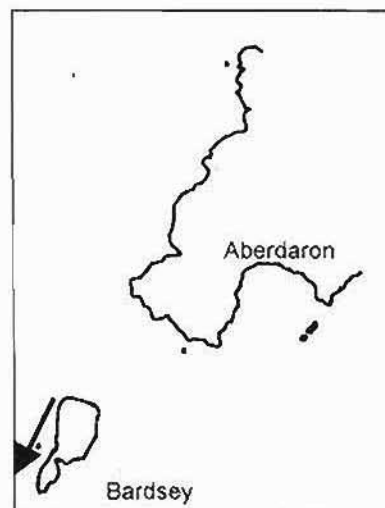
Site details: Flat bedrock at 28 - 29 m. Exposed, strong tidal streams.

Habitat 1:

Depth Range: 28 - 29 m

Description: Flat bedrock with occasional slabs of rock covered in a faunal turf of hydroids and dense barnacles. (AlcTub?)

Comments:



Site name Porth Felen

Site number 4/25

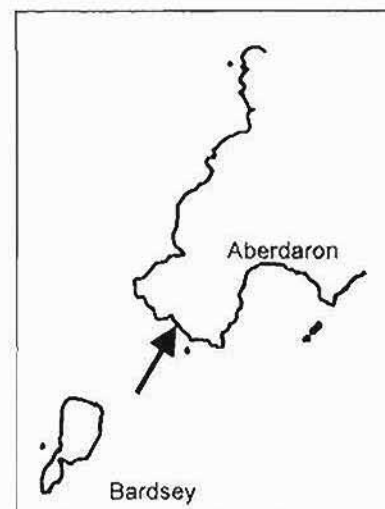
Site details: Slope of bedrock or boulders with sand in between. Moderately exposed, moderate tidal streams. Some silt

Habitat 1:

Depth Range: 9 - 15 m

Description: Mixed bedrock and boulders covered with red algal and faunal turf consisting mainly of hydroids, bryozoans and sponges. (ErSPboISH)

Comments:



Site name Porth Felen (offshore)

Site number 4/24

Site details: Bedrock slope levelling out at c. 11 m to small boulders on a cobble/sand bottom. Moderately exposed, moderate tidal streams. Some silt.

Habitat 1:

Depth Range: 10 m

Description: Mixed bedrock and boulders with kelp *Laminaria hyperborea*. (Lhyp)

Habitat 2:

Depth Range: 10 - 11 m

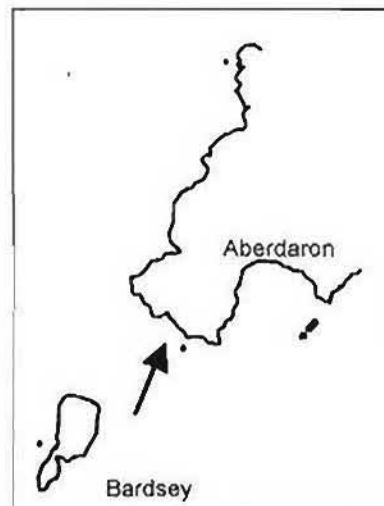
Description: Vertical faces of boulders covered with a faunal turf of dead man's fingers *Alcyonium digitatum*, hydroids and bryozoans. (AlcTub?)

Habitat 3:

Depth Range: 11 - 14 m

Description: Large silt covered boulders with pebbles, cobbles and muddy sand between. Boulders covered in a red algal and faunal turf. (ErSPbolSH)

Comments: Large numbers of starfish *Asterias rubens* present



Site name S of Hen Borth

Site number 4/22

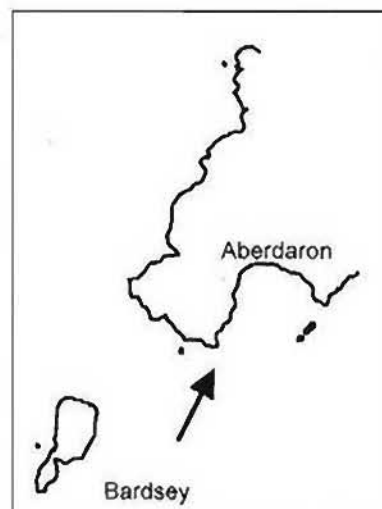
Site details: Slope of boulders, cobbles and pebbles (boulders mostly in shallower water) from 14 - 18 m. Exposed, moderate tidal streams.

Habitat 1:

Depth Range: 14 - 18 m

Description: Slope of mixed boulders, cobbles and gravel covered in a red algal (sparse, mainly *Plocamium cartilagineum*) and faunal turf of hydroids (particularly *Nemertesia antennina*) and sponges (*Esperiopsis fucorum* dominant). (ErSPbolSH)

Comments:



Site name Porth y Pistyll

Site number 4/23

Site details: Flat cobble bottom with an area of small boulders at 12 - 13 m. Moderately exposed, moderate tidal streams.

Habitat 1:

Depth Range: 12 m

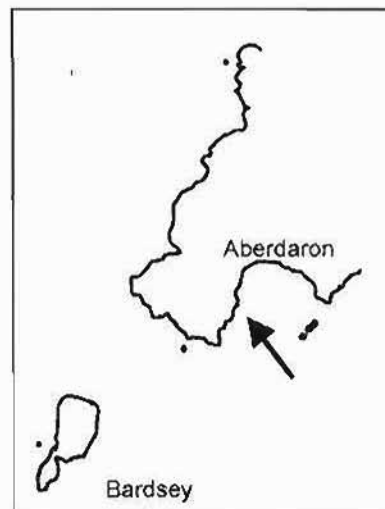
Description: Flat cobble bottom covered in a mixed algal turf. (FoR)

Habitat 2:

Depth Range: 12 - 13 m

Description: Small boulders covered in a faunal turf including sponges *Esperiopsis fucorum* and dead man's fingers *Alcyonium digitatum*. (ErSPbolSH?)

Comments:



Site name Porth Meudwy

Site number 4/27

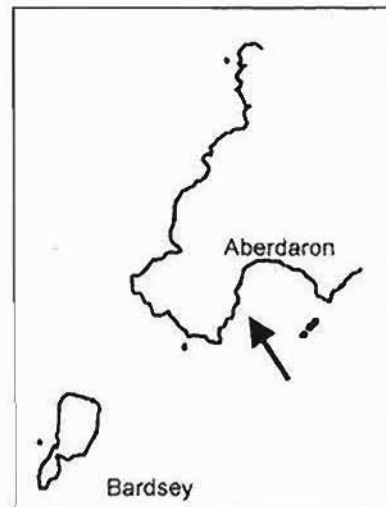
Site details: Fairly flat seabed of boulders, cobbles, pebbles and gravel. Moderately exposed, moderate tidal streams. Some silt.

Habitat 1:

Depth Range: 7 - 10 m

Description: Flat seabed of boulders, cobbles, pebbles and gravel with kelp (*Laminaria hyperborea* and *L. saccharina*), red algae (*Plocamium cartilagineum* and *Heterosiphonia plumosa*) and mixed faunal turf more dominant on sides of larger boulders. (XKScrR)

Comments:



Site name SW of Ynys Gwylan Bach
Site number 4/21

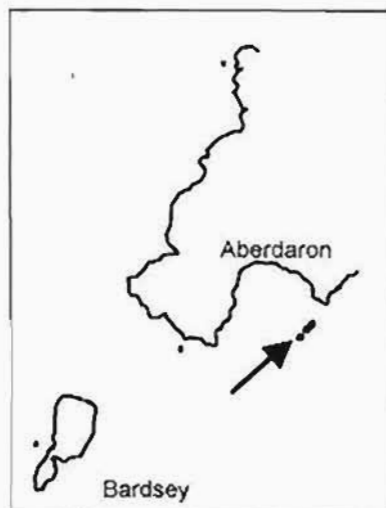
Site details: Gently sloping large boulders and occasional bedrock with small cobbles and pebbles. Exposed, moderate tidal streams.

Habitat 1:

Depth Range: 14 - 18 m

Description: Large boulders and occasional bedrock with small cobbles and pebbles between the boulders. Faunal turf including hornwrack *Flustra foliacea*, dead man's fingers *Alcyonium digitatum* and shredded carrot sponge *Esperiopsis fucorum*. (Flu.HByS)

Comments:



Site name NW side of Ynys Gwylan Fawr
Site number 4/26

Site details: Boulder slope levelling out at 10 m. Exposed, moderate tidal streams.

Habitat 1:

Depth Range: 5 - 6 m

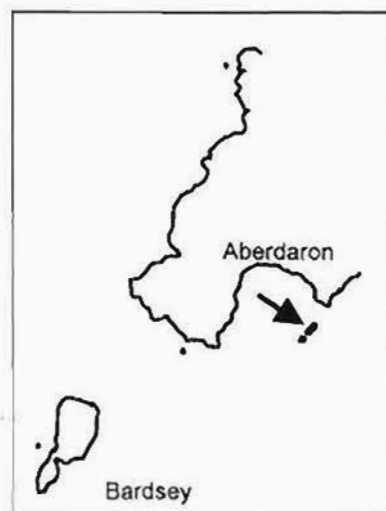
Description: Mixed sizes of boulders with kelp. (Lhyp)

Habitat 2:

Depth Range: 6 - 10 m

Description: Slope of mixed sizes of boulders with red algal, hydroid and bryozoan turf. (Flu.HByS?)

Comments:



Site name Trwyn Talfarach

Site number 4/19

Site details: Boulders and cobbles between pockets of sand. Exposed, moderate tidal streams. Some silt.

Habitat 1:

Depth Range: 5 - 11 m

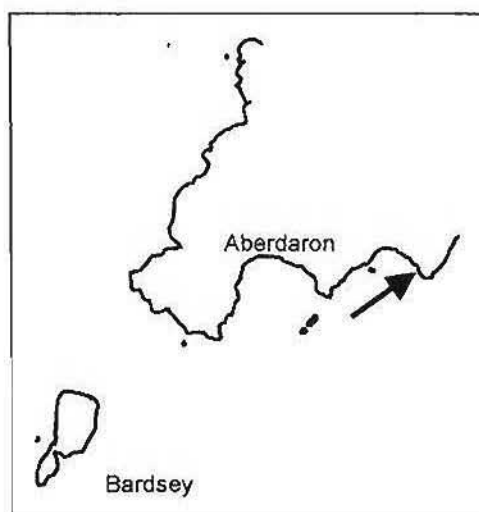
Description: Boulders and cobbles with sparse kelp, red algal and bryozoan turf. (FoR.Dic)

Habitat 2:

Depth Range: 7 - 11 m

Description: Mobile, rippled sand, sparse fauna apparent. (Mob)

Comments:



Site name Trwyn yr Wylfa (Ceiriad corner)

Site number 4/13

Site details: Large boulders and bedrock levelling out to sand at 10 m. Exposed, moderate tidal streams. Some silt.

Habitat 1:

Depth Range: 5 - 7 m

Description: Tops of boulders covered with kelp and mixed red algal and faunal turf (Lhyp)

Habitat 2:

Depth Range: 7 - 10 m

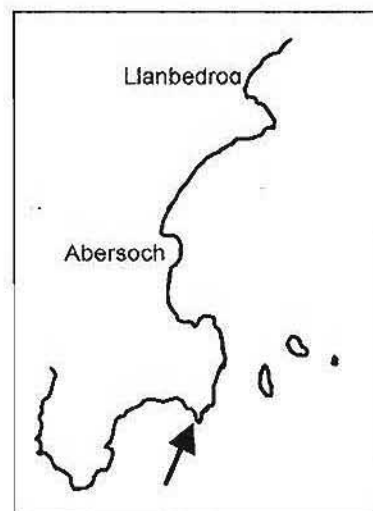
Description: Large boulders and gullies, patchy and varied faunal / algal turf: areas of red algae, bryozoans and hydroids, areas of dense barnacles, areas with dense cover of dead man's fingers *Alcyonium digitatum* and plumose anemones *Metridium senile*. (Flu?)

Habitat 3:

Depth Range: 10 m+

Description: Sand overlying pebbles and gravel with sparse fauna visible (Mob)

Comments:



Site name N of Pistyll Cim

Site number 4/12

Site details: Large boulders and bedrock leading to sand at 7 m. Moderately exposed, moderate tidal streams.

Habitat 1:

Depth Range: 0 - 3 m

Description: Bedrock with dense kelp *Laminaria hyperborea* and red algae (XKScrR)

Habitat 2:

Depth Range: 3 - 7 m

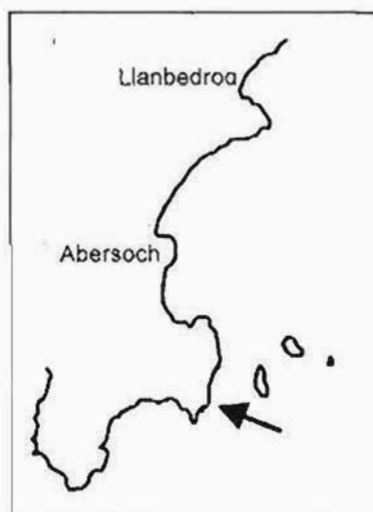
Description: Sand-scoured bedrock and large boulders with red algal turf (*Furcellaria lumbricalis* and *Cladostephus spongiosus* dominant) (HalXK)

Habitat 3:

Depth Range: 7 m

Description: Clean sand with worms *Nephtys* sp. and sand eels. (Mob)

Comments:



Site name Tudwal West, west side (below lighthouse)

Site number 4/11

Site details: Gently sloping boulders on sand to 10 m, then cobbles, pebbles and gravel to 12 m. Exposed, strong tidal streams.

Habitat 1:

Depth Range: 6 - 10 m

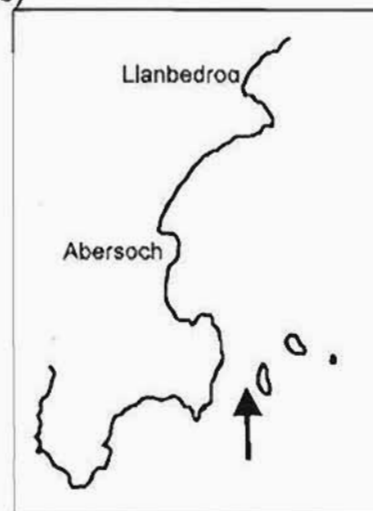
Description: Boulders, cobbles and pebbles covered with mixed turf (red algae, hydroids and bryozoans) and sparse kelp *Laminaria hyperborea* (XKScrR?)

Habitat 2:

Depth Range: 12 m

Description: Cobbles, pebbles and gravel with a short turf of hydroids and algae (FoR?)

Comments:



Site name Tudwal West, west side of SW corner
Site number 4/9

Site details: Slope of large boulders to 16 m, then pebbles, cobbles and gravel to 18 m. Exposed, moderate tidal streams. Some silt.

Habitat 1:

Depth Range: 3 - 9 m

Description: Large boulders, the tops of which were covered with kelp *Laminaria hyperborea* with a red algal understory. Vertical faces covered with a dense turf of predominantly bryozoans (Lhyp)

Habitat 2:

Depth Range: 9 - 13 m

Description: Boulders with red algal turf and faunal turf on vertical faces (FoR)

Habitat 3:

Depth Range: 14 - 16 m

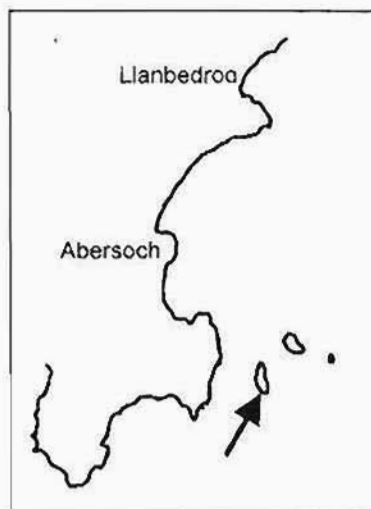
Description: Boulders with turf comprising mainly the hornwrack *Flustra foliacea* and some red algae (Flu.HByS?)

Habitat 4:

Depth Range: 16 - 18 m

Description: Pebbles, cobbles and gravel with various fauna including hornwrack *Flustra foliacea* and the burrowing anemone *Cerianthus lloydii* (CMX)

Comments:



Site name SW side Tudwal West
Site number 4/6

Site details: Slight slope of sand and silt 9 - 11 m, then waves of mostly dead maerl 11 - 13 m. Exposed, moderate tidal streams.

Habitat 1:

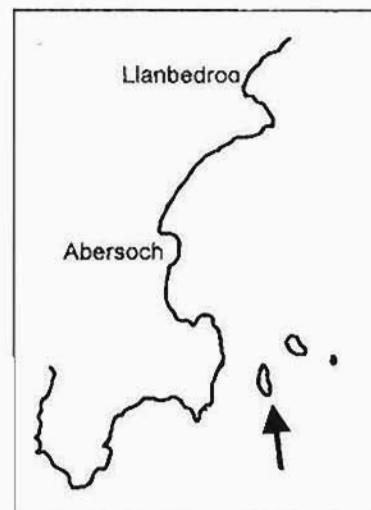
Depth Range: 9 - 11 m

Description: Sand and silt with sparse fauna; the most common species was the burrowing anemone *Cerianthus lloydii* (CMX)

Habitat 2:

Depth Range: 11 - 13 m

Description: Waves of mostly dead maerl with numerous burrows. Clumps of the sea squirt *Ascidella aspersa* present (Mrl?)



Comments:

Site name Tudwal West, c. 100m offshore from SW end
Site number 4/10

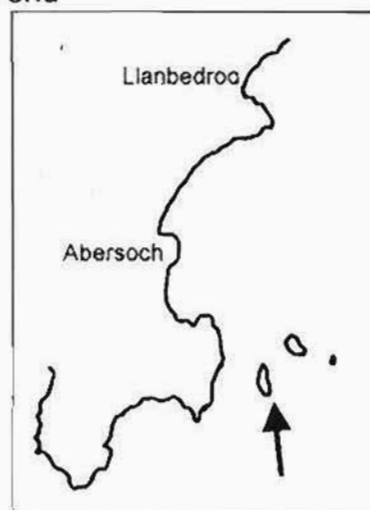
Site details: Series of rocky ridges from 15 - 18 m. Exposed, moderate tidal streams.

Habitat 1:

Depth Range: 15 - 18 m

Description: Rocky ridges with areas of cobbles. Covered in a rich faunal turf including hornwrack *Flustra foliacea* and hydroids *Abietinaria abietina* (ErSPboISH)

Comments:



Site name Tudwal East, SE corner
Site number 4/7

Site details: Stepped slope of bedrock and boulders turning into a cobble and pebble slope below 13 m. Exposed, moderate tidal streams.

Habitat 1:

Depth Range: to 8 m

Description: Bedrock and boulders with kelp forest *Laminaria hyperborea* and red algal turf (XKScrR)

Habitat 2:

Depth Range: 8 - 10 m

Description: Boulders covered with a dense red algal turf, small pebbles and cobbles between the boulders. (FoR)

Habitat 3:

Depth Range: 7 - 9 m

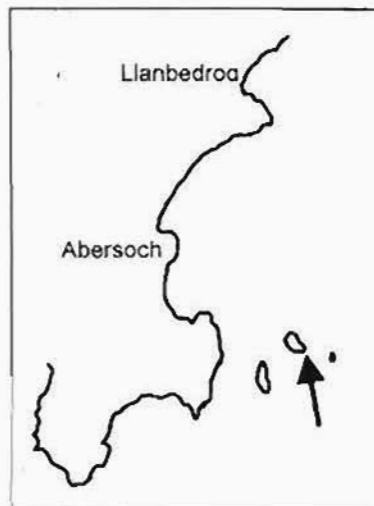
Description: Bedrock with vertical faces covered in faunal turf comprising mainly bryozoans (ErSPbolSH)

Habitat 4:

Depth Range: 13 m

Description: Cobbles, pebbles, dead shell and gravel with sparse red algal turf and sparse fauna (CMX)

Comments:



Site name Tudwal east, south corner
Site number 4/8

Site details: Steep slope of bedrock and large boulders to 12 m. Flat sandy area below 12 m. Exposed, moderate tidal streams.

Habitat 1:

Depth Range: 2 - 5 m

Description: Bedrock and boulders with dense kelp *Laminaria hyperborea* forest with red and brown algal turf (XKScrR)

Habitat 2:

Depth Range: 5 - 12 m

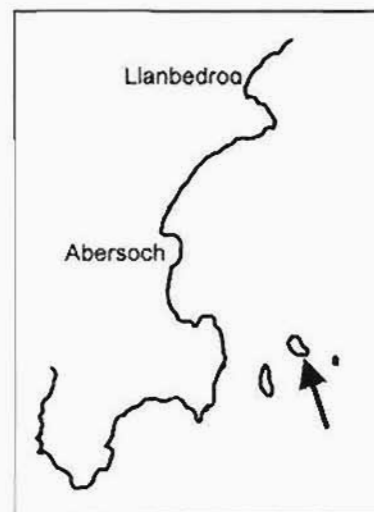
Description: Boulders and cobbles with dense red algal turf (FoR.Dic)

Habitat 3:

Depth Range: 12 m

Description: Interface between boulders and sand plain with sparse flora or fauna. *Ciocalypa penicillus* and podweed *Halidrys siliquosa* (Urt.Cio)

Comments:



Site name E of Tudwal East

Site number 4/18

Site details: Waves of muddy sand and gravel with sparse maerl between 11 - 13 m. Moderately exposed, moderate tidal streams.

Habitat 1:

Depth Range: 11 - 13 m

Description: Muddy fine sand and gravel with sparse maerl and numerous burrows. (Mri?)

Comments: Mantis shrimp *Rissoides desmaresti* abundant – this is the first record in Wales and the species is only rarely recorded elsewhere around the UK.



Site name Carreg y Trai, W side

Site number 4/3

Site details: Boulder slope to 8 m, then less steep slope of boulders, cobbles and pebbles. Exposed, moderate tidal streams.

Habitat 1:

Depth Range: to 8 m

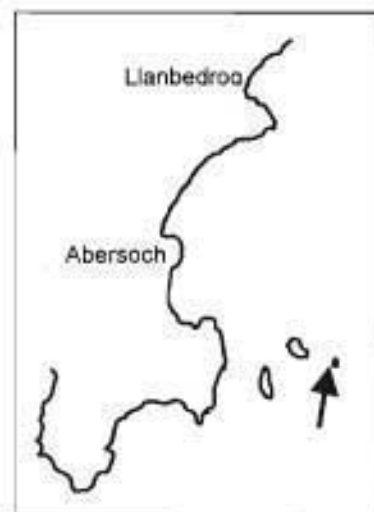
Description: Boulders with kelp *Laminaria hyperborea* forest (Lhyp?)

Habitat 2:

Depth Range: 8 - 12 m

Description: Boulders, cobbles and pebbles with red algal and faunal (hydroids *Nemertesia antennina*, hornwrack *Flustra foliacea*) turf (Flu.HByS)

Comments:



Site name Carreg y Trai, E side
Site number 4/4

Site details: Slight slope of boulders and cobbles to 11 m.
Exposed, moderate tidal streams.

Habitat 1:

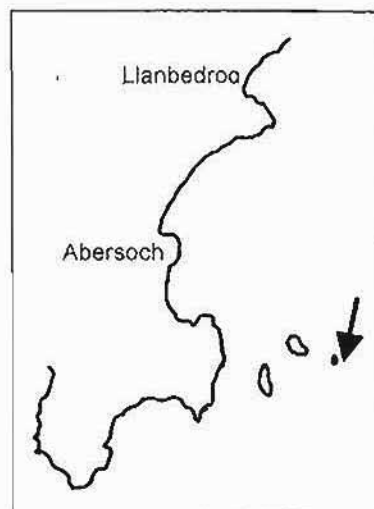
Depth Range: 8 m

Description: Boulders with sparse kelp *Laminaria hyperborea* (Lhyp?)

Habitat 2:

Depth Range: 9 - 11 m

Description: Boulders and cobbles with red algal (mainly *Plocamium cartilagineum*) and faunal turf (hornwrack *Flustra foliacea*, hydroids *Nemertesia antennina*, star squirts *Botryllus schlosseri*). (FoR)



Comments:

Site name Carreg y Trai, off E side
Site number 4/5

Site details: Gently sloping seabed of boulders, cobbles and pebbles from 11 to 13 m. Exposed, moderate tidal streams.

Habitat 1:

Depth Range: 11 - 12 m

Description: Boulders, cobbles and pebbles with red algal (abundant *Plocamium cartilagineum*) and faunal turf (mainly shredded carrot sponge *Esperiopsis fucorum*, hornwrack *Flustra foliacea*, hydroids *Nemertesia antennina*) (FoR and Flu.HByS)

Habitat 2:

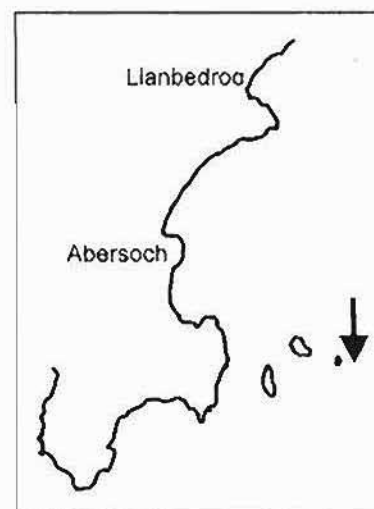
Depth Range: 12 - 13 m

Description: Boulders, cobbles and pebbles with sparse red algae and faunal turf (including dead man's fingers *Alcyonium digitatum*) (Flu.HByS)

Habitat 3:

Depth Range: 13 m

Description: Small boulders, cobbles and pebbles with faunal turf of mainly featherstars *Antedon bifida* and hydroids *Nemertesia antennina*. (SNemAdia?)



Comments:

Site name Off Llanbedrog

Site number 4/1

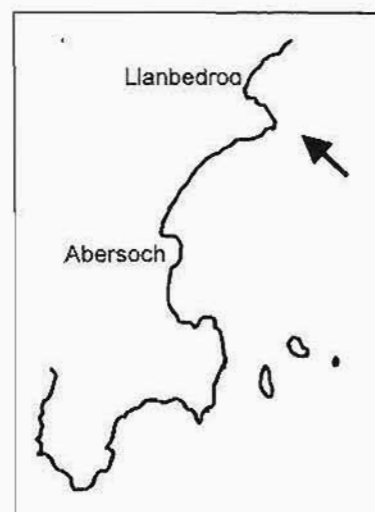
Site details: Flat seabed of gravel, pebbles and cobbles from 4 to 6 m. Moderately exposed, moderate tidal streams.

Habitat 1:

Depth Range: 4 - 6 m

Description: Gravel, pebbles, cobbles and mud with sparse red algal turf and abundant ascidians (sea squirts) on pebbles. (CMX)

Comments:



Site name NW of Llanbedrog

Site number 4/2

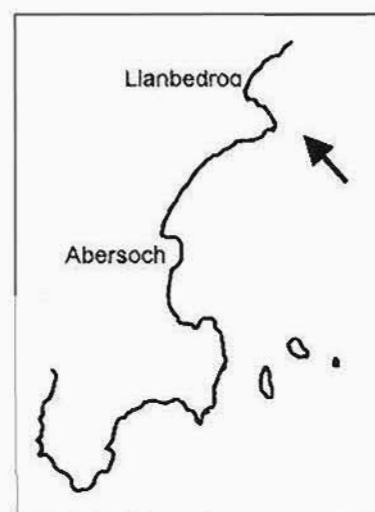
Site details: Flat seabed of sand with some shell from 5 to 7 m. Moderately exposed, moderate tidal streams.

Habitat 1:

Depth Range: 5 - 7 m

Description: Sand with some shell, bootlace weed *Chorda filum* and sparse fauna (LsacChoR)

Comments:



Site name Muddy Hollow
Site number 4/20

Site details: Rippled sand from 13 to 21 m, then a slope of muddy sand gradually levelling out at c. 30 m. Exposed, moderate tidal streams.

Habitat 1:

Depth Range: 13 - 21 m

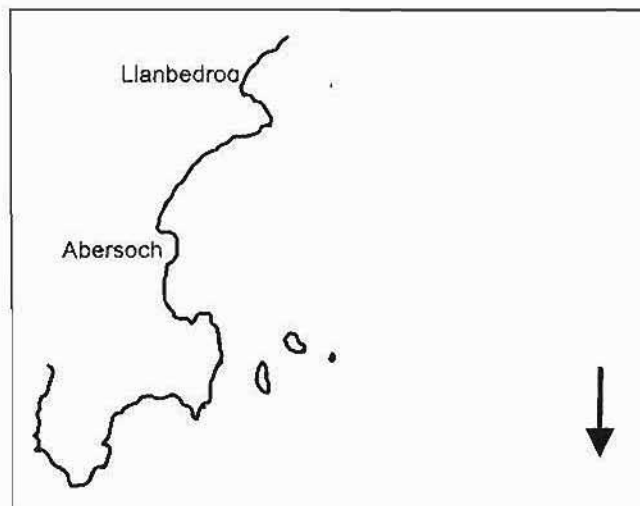
Description: Flat sandy sea bed with few species apparent (CGS)

Habitat 2:

Depth Range: 21 - 31 m

Description: Slope of muddy sand gradually levelling out at around 30 m. Few obvious species except flatfish, swimming crabs *Liocarcinus depurator* and hermit crabs *Pagurus bernhardus*. (CGS)

Comments:



4. SPECIES LIST

It should be noted that species recording is not consistent amongst different volunteers. Low numbers of species at a site may merely indicate an inexperienced recorder and should not be taken to indicate low species richness.

Scientific name	Common name	Sites where recorded
Porifera	Sponges	
<i>Clathrina</i> sp.		1/15 4/1 4/21
<i>Clathrina conacea</i>		2/3 3/6
<i>Clathrina lacunosa</i>		1/10
<i>Leucosolenia</i> sp.		3/2 4/8
<i>Leucosolenia complicata</i>		2/5 3/5
<i>Grantia compressa</i>		2/1 2/4 2/5 2/8
<i>Scypha</i> sp.		4/22
<i>Scypha ciliata</i>	purse sponge	1/12 1/13 1/15 2/1 2/4 3/1 4/3 4/8 4/12 4/27
<i>Pachymastix johnstonia</i>	elephant's ear sponge	1/6 1/10 1/13 1/14 1/15 1/16 2/2 3/2 4/3 4/7 4/9 4/10 4/14 4/16 4/17 4/21 4/22 4/24 4/25 4/28 4/29 4/30 4/31
<i>Dercitus bucklandi</i>	black mastik sponge	1/13 1/14 1/15 2/10 3/2 4/7 4/9
<i>Thymosia guernei</i>	mashed potato sponge	1/15
<i>Tethya aurantium</i>	golf ball sponge	1/1 1/4 1/6 1/10 1/11 1/13 2/10 2/11 3/4 3/5 3/6 4/7 4/8 4/14 4/17 4/21 4/27
<i>Polymastia</i> sp.		4/9 4/14 4/29
<i>Polymastia boletiformis</i>		1/4 1/6 1/10 1/11 1/13 1/14 1/15 2/10 3/5 4/3 4/7 4/9 4/11 4/15 4/24 4/25 4/29
<i>Polymastia mamillaris</i>		1/4 1/11 1/13 2/10 3/4 3/5 4/13 4/15 4/22 4/27
<i>Suberites</i> sp.		1/1 1/16 2/3 2/11 4/2 4/11 4/19
<i>Suberites carnosus</i>		1/4 1/6 1/7 1/9 1/10 1/13 2/7 2/10 2/11 4/1 4/10 4/25 4/31
<i>Suberites ficus</i>		1/7 2/8 4/18
<i>Stelligera</i> sp.		1/8 4/27
<i>Stelligera rigida</i>		1/6 1/7 1/10 1/11 1/13 1/14 1/15 1/16 1/18 2/10 3/5 4/3 4/5 4/7 4/9 4/10 4/17 4/22
<i>Stelligera stuposa</i>		1/4 1/6 1/9 1/10 1/13 3/5 4/10 4/17 4/19
<i>Cliona celata</i>	sulphur sponge	1/6 1/13 1/17 2/9 2/10 2/11 3/4 3/5 3/6 4/9 4/13 4/16 4/17 4/21 4/22 4/24 4/25 4/28 4/31
<i>Axinella</i> sp.		2/3 4/28
<i>Axinella dissimilis</i>		1/4 3/5 4/15 4/17 4/24 4/25
<i>Axinella infundibuliformis</i>	cup sponge	1/1 1/4 1/11 1/13 1/15 3/5 4/17 4/25
<i>Ciocalypta penicillus</i>		3/4 3/5 3/6 4/8
<i>Halichondria</i> sp.		2/1
<i>Halichondria bowerbanki</i>		2/2 3/5
<i>Halichondria panicea</i>	breadcrumb sponge	1/13 1/16 2/2 2/3 2/4 2/5 2/6 2/7 2/8 2/11
<i>Esperiopsis fucorum</i>	shredded carrot sponge	1/4 1/6 1/13 1/15 1/16 1/18 2/1 2/2 2/3 2/4 2/5 2/6 2/7 2/8 2/9 2/10 2/11 3/1 3/2 3/5 4/3 4/5 4/7 4/8 4/9 4/10 4/19 4/22 4/23 4/24 4/25 4/27 4/29
<i>Hemimycete columella</i>	moon-crater sponge	1/10 1/11 1/13 1/14 1/16 3/5 4/3 4/7 4/8 4/9 4/11 4/21 4/22 4/24 4/26 4/27 4/29 4/31
<i>Phorbast fictitius</i>		1/13 1/15 3/5 4/8 4/10 4/11
<i>Stylostichon plumosum</i>	garlic sponge	3/5
<i>Myxilla incrustans</i>	sulphur sponge	1/13 1/15 2/1 2/3 3/5
<i>Microciona</i> sp.		2/10
<i>Raspailia</i> sp.		4/29
<i>Raspailia hispida</i>		1/4 1/6 1/8 1/10 1/11 1/15 2/11 3/5
<i>Raspailia ramosa</i>	chocolate finger sponge	1/4 1/6 1/10 1/11 1/12 1/13 1/15 1/16 1/18 2/1 2/10 3/5 4/3 4/7 4/10 4/17 4/22 4/24 4/27
<i>Tethyspira spinosa</i>		1/13 3/5
<i>Haliclona</i> sp.		2/2 4/22 4/24 4/29 4/31
<i>Haliclona cinerea</i>		2/1 2/8 4/8
<i>Haliclona fistulosa</i>		3/5 4/8
<i>Haliclona oculata</i>		1/7 1/9 1/10 1/13 2/1 2/2 2/3 2/5 2/7 2/8 2/10
<i>Haliclona simulans</i>		2/10 4/5 4/7 4/10
<i>Haliclona viscosa</i>		2/5 4/3
<i>Aplysilla sulfurea</i>		1/5
<i>Dysidea fragilis</i>	goose bump sponge	1/4 1/5 1/6 1/10 1/11 1/12 1/13 1/15 1/16 2/1 2/2 2/3 2/5 2/7 2/10 2/11 3/1 3/2 3/5 4/1 4/3 4/7 4/8 4/9 4/10 4/11 4/12 4/13 4/17 4/19 4/22 4/28
<i>Halysarca dujardini</i>		2/1
Cnidaria	Anemones, hydroids etc	
<i>Chrysaora hysoscella</i>	compass jellyfish	4/5 4/7
<i>Cyanea lamarckii</i>	lion's mane jellyfish	4/7
<i>Aurelia aurita</i>		1/13

Scientific name	Common name	Sites where recorded
<i>Rhizostoma octopus</i>	moon jellyfish	3/1 4/7
<i>Tubularia</i> sp.		2/1 2/3 4/16
<i>Tubularia indivisa</i>	oaten pipes hydroid	1/13 1/14 1/15 1/16 2/2 2/3 2/4 2/5 2/6 2/7 4/28 4/30
<i>Tubularia larynx</i>		1/15 4/28
<i>Bougainvillea</i> sp.		1/6
<i>Lafaea dumosa</i>		1/11
<i>Halacium</i> sp.		1/6 4/11 4/13 4/27
<i>Halacium halacinum</i>		3/5 4/3
<i>Abietinaria abietina</i>		1/8 1/11 1/15 1/18 2/1 2/2 2/3 2/5 2/8 4/3 4/9 4/10 4/17 4/19 4/22 4/28
<i>Hydrallmania falcata</i>		1/3 1/6 1/8 1/11 1/12 1/15 1/16 1/17 1/18 2/2 2/8 2/10 2/11 4/11 4/14 4/29
<i>Sertularella gayi</i>		4/3 4/14
<i>Sertularia</i> sp.		4/29
<i>Sertularia argentea</i>		1/8 1/12 1/14 4/3 4/11
<i>Sertularia cupressina</i>		2/5 2/10
<i>Kirchenpaueria pinnata</i>		2/7
<i>Nemertesia</i> sp.		2/3 4/15 4/25 4/26
<i>Nemertesia antennina</i>		1/4 1/6 1/7 1/8 1/10 1/11 1/12 1/13 1/15 1/18 2/8 2/11 4/3 4/4 4/5 4/7 4/8 4/9 4/10 4/11 4/13 4/14 4/15 4/22 4/24 4/27 4/28 4/29
<i>Nemertesia ramosa</i>		1/11 4/3 4/5 4/8 4/10 4/13 4/27 4/28 4/29
<i>Plumularia setacea</i>		2/4 2/6 4/3
<i>Aglaophenia</i> sp.		1/13 1/14 2/1 2/5 4/12 4/17 4/24 4/27
<i>Aglaophenia kirchenpaueri</i>		4/19
<i>Aglaophenia plume</i>		3/5 4/19
<i>Aglaophenia tubulifera</i>		2/5 4/3
<i>Gymnangium montagui</i>		3/5 4/10 4/14 4/15 4/22 4/24 4/25 4/28 4/29 4/30
<i>Obelia</i> sp.		1/18
<i>Obelia geniculata</i>		1/9 3/1
<i>Alcyonium digitatum</i>	dead mans fingers	1/4 1/7 1/8 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 2/1 2/2 2/3 2/4 2/5 2/7 2/9 2/10 2/11 3/1 3/5 3/6 4/1 4/3 4/5 4/9 4/11 4/12 4/13 4/14 4/22 4/23 4/25 4/27 4/28 4/29 4/30 4/31
<i>Cerianthus lloydii</i>	burrowing anemone	1/5 1/9 1/17 2/8 2/10 2/11 4/6 4/9 4/11 4/18 4/20 4/23
<i>Epizoanthus couchii</i>		1/2 1/11 1/13 1/15 3/4 3/5 4/3 4/5 4/6 4/7 4/10 4/14 4/17 4/22
<i>Parazoanthus axinellae</i>	yellow star anemone	4/15 4/17
<i>Isozoanthus sulcatus</i>	ginger tinies	1/6 1/9 1/10 4/24
<i>Actinia equina</i>	beadlet anemone	2/2 3/3
<i>Anemonia viridis</i>	snakelocks anemone	1/1 1/2 3/1 3/2 3/3 4/5 4/7 4/8 4/9 4/11 4/19 4/22 4/23 4/27
<i>Urticina felina</i>	dahlia anemone	1/1 1/6 1/7 1/8 1/11 1/12 1/13 1/15 1/17 1/18 2/1 2/2 2/3 2/4 2/5 2/6 2/7 2/8 2/9 2/10 2/11 3/4 4/1 4/6 4/9 4/11 4/13 4/19 4/21 4/27 4/28 4/30
<i>Aureliaa heterocera</i>	imperial anemone	4/11
<i>Metridium senile</i>	plumose anemone	1/1 1/6 1/7 1/8 1/11 1/12 1/13 1/14 1/15 1/17 1/18 2/1 2/2 2/3 2/4 2/5 2/6 2/9 2/10 2/11 3/3 4/6 4/7 4/13 4/20
<i>Sagartia elegans</i>		1/4 1/8 1/10 1/13 1/15 1/16 1/17 1/18 2/1 2/2 2/3 2/4 2/5 2/6 2/7 2/8 2/10 2/11 4/13 4/26
<i>Cereus pedunculatus</i>	daisy anemone	1/1 1/15 2/3 2/10 2/11 4/6
<i>Actinothoe sphyrrodeta</i>	fried egg anemone	1/4 1/9 1/13 1/15 1/16 2/1 3/1 3/5 3/6 4/14 4/16 4/22 4/23 4/25 4/28 4/29 4/30 4/31
<i>Sagartiogeloni</i> sp.		1/7 1/17
<i>Peechia cylindrica</i>	burrowing anemone	1/5
<i>Corynactis windis</i>	jewel anemone	3/6 4/13 4/16 4/28 4/31
<i>Caryophyllia smithii</i>	Devonshire cup-coral	1/10 3/5 4/14 4/17 4/22 4/25 4/31
Platyhelminthes	Flatworms	
<i>Prostheceraeus vittatus</i>	candy stripe flatworm	3/2 4/1 4/3 4/5 4/8 4/9 4/10 4/14 4/22 4/24 4/26 4/31
Nemertea	Nemertine worms	
<i>Linneus longissimus</i>		4/8
Annelida	Segmented worms	
<i>Aphrodite aculeata</i>	sea mouse	4/20
<i>Polydora</i> sp.		2/11 4/11
<i>Chaetopterus variopedatus</i>	parchment tubeworm	1/18 2/10
<i>Lagis korei</i>		1/5 1/10 1/18
<i>Sabellaria spinulosa</i>		3/4
<i>Terabellidae</i> indet.	strawberry worms	1/18
<i>Eupolymnia nebulosa</i>	strawberry worm	1/1 1/2 4/23
<i>Lanice conchilega</i>	sand mason worm	1/2 1/18 2/6 2/9 2/11 4/9 4/20
<i>Sabellida</i>	sabellid worm	1/15 4/22 4/31
<i>Bispira volutacornis</i>	double fan worm	3/2 4/3 4/5 4/9 4/10 4/11 4/14 4/17 4/22 4/24 4/25 4/31
<i>Sabella pavonina</i>	peacock worm	1/13 1/17 3/6 4/9 4/11
<i>Pomatoceros inquefer</i>	keel worm	1/2 1/3 1/12 1/15 1/18 2/1 2/2 2/3 2/7 2/8 2/10 3/1 4/3 4/5

Scientific name	Common name	Sites where recorded
<i>Salmacina dysteri</i>	coral worm	4/7 4/8 4/9 4/10 4/11 4/19
<i>Spirorbis</i> sp.		4/7 4/9
<i>Spirorbis tridentatus</i>		3/1
Crustacea	Crustaceans	3/1
<i>Balanoidea</i> indet.	barnacles	1/13 2/2 2/3 2/4 2/11 3/6 4/3 4/5 4/7 4/13 4/22 4/24 4/25 4/28 4/29 4/30
<i>Semibalanus balanoides</i>	acorn barnacle	4/19
<i>Balanus balanoides</i>	barnacle	1/6 1/12 1/13 1/15 2/5 4/11 4/12 4/19
<i>Balanus crenatus</i>	barnacle	2/1 2/3 2/4 2/5 2/6 2/7 2/8 3/5 4/16 4/19
<i>Rissoides desmaresti</i>	red dragon mantis shrimp	4/18
<i>Jassa</i> sp.		4/13
<i>Caprellida</i> indet.	caprellids	4/13
<i>Palaemonoidea</i> indet.	prawns	2/8 2/9 3/3
<i>Palaemon serratus</i>	common prawn	4/19 4/31
<i>Pandalus montagui</i>	common prawn	2/1 4/21
<i>Homarus gammarus</i>	lobster	1/10 1/11 1/15 2/1 2/3 2/8 3/2 3/4 4/1 4/3 4/7 4/8 4/10 4/11 4/16 4/17 4/19 4/22 4/25 4/26
<i>Palinurus elephas</i>	crawfish/spiny lobster	4/29
<i>Anapagurus hyndmanni</i>	lesser hermit crab	4/11
<i>Pagurus bernhardus</i>	hermit crab	1/2 1/3 1/5 1/15 1/17 2/2 2/4 2/8 2/10 3/3 3/4 3/5 3/6 4/1 4/2 4/3 4/11 4/18 4/20
<i>Pagurus cuanensis</i>	hairy hermit crab	4/1 4/3
<i>Galathea</i> sp.	squat lobster	4/11
<i>Galathea squamifera</i>	squat lobster	2/10 3/1 3/2 4/7
<i>Galathea strigosa</i>	squat lobster	3/2 4/10
<i>Pisida longicornis</i>	long-clawed porcelain crab	1/12 1/15 2/1 4/3 4/27
<i>Porcellana platycheles</i>	hairy porcelain crab	1/18 2/8 4/8
<i>Maja squinado</i>	spiny spider crab	3/1 3/6 4/4
<i>Hyas</i> sp.		4/11
<i>Hyas araneus</i>	sea toad/spider crab	2/7 2/8 3/4 3/5 3/6
<i>Hyas coarctatus</i>	sea toad/spider crab	2/7
<i>Inachus</i> sp.	spider crab	2/1 3/4 3/6 4/14 4/22 4/23 4/31
<i>Inachus dorsettensis</i>	spider crab	1/9 2/2 2/3 2/6 2/7 4/1 4/3 4/9 4/11 4/22
<i>Inachus phalangium</i>	scorpion spider crab	2/7 2/10 3/5 4/1 4/22 4/27
<i>Macropodia</i> sp.	slender spider crab	1/17 2/4 4/1 4/11 4/21
<i>Macropodia rostrata</i>	slender spider crab	2/8
<i>Cancer pagurus</i>	edible crab	1/1 1/2 1/3 1/4 1/5 1/6 1/11 1/13 1/14 1/15 1/16 1/17 1/18 2/1 2/2 2/3 2/4 2/5 2/6 2/7 2/8 2/9 2/10 3/2 3/4 4/1 4/3 4/4 4/5 4/7 4/8 4/9 4/10 4/11 4/13 4/14 4/16 4/19 4/22 4/23 4/24 4/25 4/26 4/29 4/31
<i>Liocarcinus</i> sp.	swimming crab	1/10 4/1
<i>Liocarcinus depurator</i>	harbour swimming crab	1/5 1/17 4/18 4/20
<i>Necora puber</i>	velvet swimming crab	1/2 1/6 1/7 1/8 1/10 1/11 1/12 1/13 1/16 1/17 1/18 2/1 2/2 2/3 2/4 2/7 2/8 2/9 2/10 3/1 3/2 3/3 3/5 3/6 4/5 4/7 4/9 4/10 4/11 4/14 4/17 4/19 4/22 4/23 4/27 4/31
<i>Carcinus maenas</i>	shore crab	1/2 1/17 2/1 2/2 2/3 2/4 2/5 2/6 2/7 2/8 2/9 3/1
<i>Goneplax rhomboides</i>	mud runner crab	1/5 1/9 4/20
Mollusca	Molluscs	
<i>Gibbula tumida</i>		4/11
<i>Gibbula cineraria</i>	grey top shell	1/18 2/1 2/8 3/1 3/5 4/1 4/3 4/8 4/10 4/11 4/19 4/27
<i>Calliostoma zizyphinum</i>	painted topshell	1/14 1/16 1/18 3/4 3/5 4/3 4/5 4/10 4/14 4/17 4/22 4/28 4/31
<i>Tectura virginea</i>	painted limpet	3/1
<i>Helcion pellucidum</i>	blue rayed limpet	3/1 3/2 4/19
<i>Lacuna vincta</i>		3/1
<i>Trivia</i> sp.	cowrie	3/4 4/31
<i>Trivia arctica</i>	Arctic cowrie	4/19
<i>Trivia monacha</i>	cowrie	3/5 3/6 4/10
<i>Ocenebra erinacea</i>	sting winkle	4/14
<i>Nucella lapillus</i>	dogwhelk	2/3 2/4 2/5 2/6
<i>Buccinum undatum</i>	edible whelk	4/1 4/6 4/18 4/20
<i>Hinia incrassata</i>	netted dogwhelk	4/14
<i>Philine aperta</i>		4/6
<i>Elysia viridis</i>	green sea hare	1/1
<i>Aplysia punctata</i>	sea hare	4/3 4/7 4/8 4/11 4/14 4/26 4/28 4/31
<i>Tritonia</i> sp.		1/4
<i>Tritonia lineata</i>		1/6 1/7 1/11 4/3 4/24 4/26
<i>Dendronotus frondosus</i>		2/4 2/5
<i>Doto</i> sp.		4/3
<i>Goniadoris nodosa</i>		3/4 3/5 4/10 4/14

Scientific name	Common name	Sites where recorded
<i>Onchidoris bilamellata</i>		2/4 2/6 4/6
<i>Dalphrodons luteocincta</i>		4/26
<i>Crimora papillata</i>		4/24
<i>Polycera</i> sp.		4/25
<i>Polycera quadrilineata</i>		4/3 4/11 4/14 4/23 4/24
<i>Limacia clavigera</i>		4/3 4/8 4/14
<i>Thecacera pennigera</i>		4/31
<i>Archidoris pseudoargus</i>	sea lemon	1/17 2/2 2/3 2/4 2/5 2/7 2/10 2/11 4/1
<i>Janolus cristatus</i>		1/13 2/8
<i>Coryphella lineata</i>		4/7
<i>Flabellina pedata</i>		1/11 4/22 4/31
<i>Eubranchius tricolor</i>		2/8
<i>Facelina</i> sp.		2/5 2/10 4/11 4/25
<i>Facelina auriculata</i>		4/3 4/11
<i>Facelina bostoniensis</i>		4/14
<i>Acidalia papillosa</i>		4/11
<i>Mytilus edulis</i>	edible mussel	1/3 1/13 1/15 2/3 2/4 2/5 2/6 2/7 4/16
<i>Pecten maximus</i>	scallop	4/14 4/23 4/27
<i>Aequipecten opercularis</i>	queen scallop	4/1
<i>Chlamys varia</i>	white scallop	1/18 4/1 4/8
<i>Pododesmus patelliformis</i>	saddle oyster	1/5 1/10 1/15
<i>Lucinoma borealis</i>		2/8
<i>Spisula</i> sp.		1/18
<i>Ensis</i> sp.	razor shell	4/8 4/20
<i>Abra</i> sp.		1/18
<i>Tapes aureus</i>		2/8
<i>Hiatella arctica</i>		2/10
<i>Sepiella atlantica</i>	little cuttle	1/3
<i>Eledone cirrhosa</i>	curled octopus	1/11 4/4
Bryozoa	Bryozoans	1/5 1/6 1/8 1/15
<i>Crisia</i> sp.		1/4 1/6 1/7 1/8 1/10 1/11 1/12 1/13 1/14 1/15 1/16 2/1 2/8 2/10 3/1 3/4 3/5 4/3 4/8 4/9 4/10 4/11 4/16 4/17 4/19 4/22 4/27 4/28 4/29
<i>Alcyonidium</i> sp.		2/2 2/10 2/11 4/5 4/9 4/29
<i>Alcyonidium diaphanum</i>	finger bryozoan	1/7 1/12 1/14 1/18 2/1 2/3 3/5 4/3 4/10 4/18 4/25
<i>Alcyonidium hirsutum</i>		1/8
<i>Vesiculana spinosa</i>		1/6 1/10 1/11 1/16 1/18 3/4
<i>Bowerbankia</i> sp.		1/4 1/6 1/10 1/18 3/4 3/5 4/17
<i>Bowerbankia citrina</i>		1/4 1/7 1/11 1/12 4/10
<i>Eucratea lorica</i>		1/7 1/18
<i>Membranopora membranacea</i>	sea mat	1/9 1/10 3/1 4/8 4/19 4/27
<i>Electra</i> sp.		1/7 1/10 1/12 1/15 2/6 3/1 4/8 4/3 4/19
<i>Flustra foliacea</i>	hornwrack	1/4 1/6 1/7 1/10 1/11 1/12 1/13 1/14 1/15 1/16 1/18 2/1 2/2 2/3 2/10 2/11 3/4 3/5 3/6 4/3 4/4 4/5 4/7 4/8 4/9 4/10 4/11 4/13 4/14 4/19 4/21 4/22 4/26 4/29 4/30 4/31
<i>Chartella papyracea</i>	lesser hornwrack	1/7 1/11 1/13 1/14 1/15 4/17 4/24
<i>Securiflustra securifrons</i>		4/22 4/25 4/26 4/27
<i>Bugula</i> sp.		1/1 2/10 4/25 4/26 4/27 4/28
<i>Bugula flabellata</i>		1/6 1/7 1/8 1/10 1/18 3/5 4/3 4/8 4/13 4/14 4/22
<i>Bugula plumosa</i>		1/4 1/6 1/7 1/8 1/9 1/11 1/18 2/5 3/5 4/14 4/15 4/16 4/22 4/24 4/27 4/29 4/31
<i>Bugula turbinata</i>		1/7 1/10 1/12 1/15 1/18 2/1 2/10 4/8 4/9 4/11 4/13 4/14 4/16 4/24 4/27 4/29
<i>Bicellaria ciliata</i>		1/8 1/18 2/11 3/1
<i>Bicellaria alderi</i>		2/8
<i>Scrupocellaria</i> sp.		1/8 1/7 1/10 1/15 1/18 4/8
<i>Scrupocellaria scruposa</i>		4/3
<i>Cellaria</i> sp.		1/1 1/4 1/6 1/8 1/10 1/12 1/15 1/18 3/4 4/14 4/15 4/16 4/17
<i>Cellaria fistulosa</i>		1/7 1/11 1/13 1/15 1/16 3/5 3/6 4/21
<i>Cellaria sinuosa</i>		1/11 1/13 1/15 1/18 3/5
<i>Pentapora foliacea</i>	Ross 'coral'	3/5 3/6 4/5 4/14 4/15 4/22 4/23 4/29
<i>Smittina landsborovii</i>		1/11 1/13 1/15
<i>Cleptopora pumicosa</i>		3/4
Phoronida	Phoronids	
<i>Phoronis hippocrepia</i>	horse shoe worm	2/9 2/11
Echinodermata	Echinoderms	
<i>Antedon biloba</i>	featherstar	1/1 1/4 1/6 1/7 1/9 1/10 1/11 1/12 1/13 1/15 1/16 1/17 1/18 4/1 4/11 4/13 4/19 4/27
<i>Astropecten irregularis</i>	sand star	1/17 4/6
<i>Asterina gibbosa</i>	green cushion star	1/2 1/4 1/10
<i>Asterina phylactica</i>	green cushion star	1/4 1/10 1/16
<i>Crossaster papposus</i>	common sun star	1/12 1/14 1/16 1/18 3/4 3/5 4/5 4/10 4/11 4/13 4/21 4/22 4/23 4/26 4/27

Scientific name	Common name	Sites where recorded
<i>Hennicia</i> sp.	Bloody Henry	1/12 1/15 3/4 4/1 4/3 4/8 4/11 4/12 4/19 4/24 4/25 4/26 4/29
<i>Hennicia oculata</i>	bloody Henry	1/1 1/6 1/7 1/11 1/13 1/15 1/16 1/18 3/2 3/3 4/3 4/4 4/5 4/7 4/9 4/10 4/13 4/14 4/17 4/21 4/22 4/23 4/27 4/28
<i>Hennicia sanguinolenta</i>	bloody Henry	1/13 1/14 3/5
<i>Asterias rubens</i>	common starfish	1/1 1/3 1/4 1/6 1/7 1/11 1/12 1/13 1/14 1/15 1/16 1/17 1/18 2/1 2/2 2/3 2/4 2/5 2/6 2/7 2/8 2/9 2/10 2/11 3/2 3/4 3/5 4/1 4/3 4/4 4/5 4/6 4/7 4/8 4/9 4/10 4/11 4/12 4/13 4/14 4/17 4/18 4/19 4/20 4/21 4/22 4/23 4/24 4/25 4/26 4/27 4/28 4/29 4/30 4/31
<i>Marthasterias glacialis</i>	spiny starfish	4/3 4/4 4/5 4/6 4/9 4/10 4/11 4/22 4/27
<i>Ophiothrix fragilis</i>	fragile brittlestar	2/1 2/4 2/5 2/6 2/7 2/8 3/4 4/1 4/11
<i>Amphiura</i> sp.	brittlestar	1/5 1/9
<i>Ophiuridae</i> indet.	brittlestars	2/3
<i>Ophiura albida</i>	brittlestar	1/5 1/9 1/16 3/4
<i>Ophiura ophiura</i>	sand brittlestar	1/5 1/9 3/6 4/20
<i>Psammochinus mullaris</i>		4/27
<i>Echinus esculentus</i>	common urchin	1/8 3/4 3/5 4/22 4/29
<i>Echinocardium cordatum</i>	sea potato	1/5
<i>Cucumariidae</i> indet.		4/22 4/31
<i>Pawsonia saxicola</i>	white crevice cucumber	4/11
<i>Aslia lefevrei</i>	crevice cucumber	4/23
Tunicata	Seasquirts	4/28
<i>Clavelinidae</i> indet.	pinhead squirts	1/11 1/14 2/11 3/5
<i>Clavelina lepadiformis</i>	light bulb seasquirt	1/1 1/2 1/5 1/6 1/7 1/10 1/11 1/17 2/3 2/9 2/11 3/1 3/2 4/3 4/5 4/10 4/11 4/12 4/13 4/14 4/15 4/19 4/22 4/23 4/24 4/25 4/31
<i>Pycnoclavella aurilucens</i>	lesser seasquirt	2/10 3/5 4/14 4/15
<i>Distaplia violacea</i>		4/22 4/31
<i>Polyclinum aurantium</i>	colonial seasquirt	1/14 2/1 2/8 3/4 3/5 4/19
<i>Morchellium argus</i>	colonial seasquirt	2/3 2/5 2/8 2/10 4/14 4/15 4/19 4/27
<i>Sidryum turbinatum</i>	colonial seasquirt	3/1
<i>Apidium punctum</i>	colonial seasquirt	1/1 1/6 1/7 1/13 1/15 1/18 2/1 2/2 2/3 2/9 2/10 2/11 3/1 4/3 4/5 4/7 4/8 4/9 4/10 4/11 4/12 4/13 4/22 4/24 4/25 4/26 4/27 4/29 4/31
<i>Didemnidae</i> indet.	colonial seasquirt	4/19 4/27
<i>Didemnum</i> sp.	colonial seasquirt	4/17
<i>Didemnum maculosum</i>	colonial seasquirt	3/5 4/19
<i>Diplosoma</i> sp.	colonial seasquirt	4/14
<i>Diplosoma listerianum</i>	colonial seasquirt	2/5 3/1
<i>Diplosoma spongiforme</i>	colonial seasquirt	2/5
<i>Lissoclinum perforatum</i>	colonial seasquirt	1/4 1/11 1/12 1/13 1/15
<i>Ciona intestinalis</i>		1/7 1/9 3/4 3/5 4/1
<i>Perophora listeri</i>		1/10 2/1 2/8 3/5 4/8 4/10 4/14
<i>Ascidella aspersa</i>		3/6 4/6 4/18
<i>Ascidella scabra</i>		1/10 4/11
<i>Ascidia conchilega</i>		3/1
<i>Ascidia mentula</i>		1/9 3/6 4/10
<i>Polycarpa</i> sp.		4/11 4/13 4/22
<i>Polycarpa pomaria</i>	teapot seasquirt	1/13 1/14 1/16 3/5
<i>Dendrodoa grossularia</i>	baked bean seasquirt	1/5 1/9 1/10 1/13 1/16 2/1 3/2 4/1 4/12 4/13 4/22
<i>Distomus variolosus</i>		3/1 4/13
<i>Botryllus schlosseri</i>	star seasquirt	2/1 2/2 2/3 2/4 2/5 2/7 2/8 2/10 3/1 3/5 4/4 4/5 4/8 4/11 4/12 4/19 4/25 4/27 4/30
<i>Botrylloides leachi</i>		2/1 4/19
<i>Molgula manhattensis</i>		1/13 1/14 1/16 3/4 3/5 4/14
Pisces	Fish	
<i>Scyliorhinus canicula</i>	lesser spotted dogfish	1/11 2/10 3/2 3/3 3/5 4/1 4/2 4/6 4/7 4/9 4/11 4/12 4/13 4/22 4/24 4/27 4/30 4/31
<i>Scyliorhinus stellaris</i>	greater spotted dogfish	4/4
<i>Raja clavata</i>	thornback ray	4/1 4/6 4/19
<i>Conger conger</i>	conger	1/11 1/12 1/13 4/17
<i>Lepadogaster</i> sp.	Clingfish	4/22
	Rockling	1/12
<i>Pollachius pollachius</i>	pollack	2/11 3/1 3/2 4/3 4/7 4/8 4/9 4/29
<i>Pollachius virens</i>	saithe	4/3
<i>Trisopterus luscus</i>	bib	1/3
<i>Trisopterus minutus</i>	poor cod	1/11
<i>Spinachia spinachia</i>	15 spined stickleback	3/1 4/1 4/19
<i>Entelurus aequoreus</i>	snake pipefish	3/1 4/1 4/11 4/27
<i>Syngnathus acus</i>	greater pipefish	4/1 4/2 4/11 4/19
	Gurnard indet.	3/6

Scientific name	Common name	Sites where recorded
<i>Aspitrigla cuculus</i>	red gurnard	4/20
<i>Myoxocephalus scorpius</i>	short-spined scorpion	2/9
<i>Taurulus bubalis</i>	scorpion fish	1/2 1/8 2/2 2/4 2/5 2/7 4/3 4/31
<i>Agonus cataphractus</i>	pogge	4/25
<i>Dicentrarchus labrax</i>	bass	2/3
Labridae indet.	wrasse	4/7
<i>Centrolabrus exoletus</i>	rock-cook	4/3 4/8 4/9 4/26
<i>Crenilabrus melops</i>	corkwing wrasse	1/11 2/1 4/3 4/7 4/10 4/17
<i>Ctenolabrus rupestris</i>	goldsinny wrasse	1/11 1/13 2/1 2/11 3/5 4/3 4/5 4/8 4/9 4/11 4/17 4/19 4/22 4/25 4/29 4/31
<i>Labrus bergylla</i>	ballan wrasse	1/11 1/13 1/15 2/10 2/11 3/1 3/2 3/5 4/3 4/7 4/8 4/9 4/11 4/13 4/14 4/17 4/22 4/24 4/26 4/28 4/29 4/31
<i>Labrus mixtus</i>	cuckoo wrasse	1/13 2/2 4/3 4/7 4/9 4/10 4/16 4/17 4/19 4/22 4/29 4/30
<i>Echiichthys vipera</i>	lesser weaver	4/20
<i>Blennius ocellaris</i>	butterfly blenny	4/18
<i>Parablennius gattorugine</i>	tompot blenny	1/11 1/12 1/13 1/14 3/2 4/3 4/5 4/7 4/9 4/10 4/17 4/23 4/28 4/31
<i>Chirolophis ascanii</i>	Yarrels blenny	2/1
<i>Pholis gunnellus</i>	butterfish	2/2 2/3 2/4 2/5 2/6 2/7 2/9 2/10 4/1 4/14 4/22 4/23 4/31
Ammodytidae indet.	sandeels indet.	2/10 3/1
<i>Callionymus lyra</i>	dragonet	1/1 1/2 1/5 1/8 1/10 1/12 1/18 2/8 2/9 3/4 4/1 4/2 4/8 4/11 4/19 4/20 4/27
Gobiidae indet.	goby indet.	2/1 2/2 2/8 3/3
<i>Gobius niger</i>	black goby	2/1 4/8
<i>Gobius paganellus</i>	rock goby	1/6 2/3 4/1 4/7
<i>Gobiusculus flavescens</i>	2 spot goby	1/6 3/1 4/7 4/8 4/11 4/19 4/27
<i>Pomatoschistus minutus</i>	sand goby	1/12 1/17 3/4 3/5 4/11 4/19 4/20
<i>Thorogobius ephippiatus</i>	leopard spot goby	1/11 1/13 1/15 2/1 3/2 4/2 4/7 4/9 4/10 4/24
<i>Pleuronectiformes</i> indet.	flatfish	4/20
	topknot	4/11
<i>Zeugopterus punctatus</i>	topnot	1/6
<i>Limanda limanda</i>	dab	2/9 4/20
<i>Pleuronectes platessa</i>	plaice	1/1 1/5 3/3
<i>Buglossidium luteum</i>	solenette	1/5
Mammalia	Mammals	
<i>Halichoerus grypus</i>	grey seal	2/10 4/5
Rhodophycota	Red seaweeds	2/1 2/2 2/3 2/4 2/8 2/9 2/10 2/11 4/1 4/3 4/7 4/9 4/10 4/16 4/23 4/14 4/9 4/15 4/3 1/5 3/1 4/3 4/8 4/14 1/9 2/5 3/1 3/2 4/7 4/8 1/2 1/4 1/6 3/4 4/3 4/4 4/9 4/11 4/19 3/1 4/3 4/8 4/12 4/13 4/19 4/12 4/1 4/18 4/19 4/14 4/3 4/4 4/5 4/8 4/9 4/12 4/14 4/19 4/27 1/9 2/5 3/1 1/4 1/5 1/9 1/10 2/10 3/1 4/8 4/9 4/12 4/13 4/19 4/14 1/5 4/12 4/8 4/14 3/1 4/12 4/14 3/1 2/10 3/1 4/14 1/6 1/7 3/4 1/4 2/1 3/5 4/14 4/19 1/4 1/11 2/1 2/5 1/6 1/7 4/14 4/8 1/4 1/5 1/6 1/7 1/9 1/11 1/15 1/16 2/1 2/2 2/3 2/4 2/5 2/8 2/10 3/1 3/4 3/5 4/3 4/4 4/5 4/7 4/8 4/9 4/10 4/12 4/13 4/14 4/19 4/22 4/27 2/5 1/15 2/5 4/14 2/5 2/5 4/14 2/5
<i>Scinara trigona</i>		
<i>Bonnemaisonia</i> sp.		
<i>Bonnemaisonia hamifera</i>		
<i>Bonnemaisonia asparagoides</i>		
<i>Palmaria palmata</i>		
Coralline crust indet.	encrusting corallines	
<i>Corallina officinalis</i>	coral weed	
<i>Jania rubens</i>		
<i>Lithothamnion</i> sp.	maerl	
<i>Schmitzia hiscockiana</i>		
<i>Calliblepharis ciliata</i>		
<i>Calliblepharis jubata</i>		
<i>Cystoclonium purpureum</i>		
<i>Dilsea camosa</i>	pepper dulse	
<i>Dudresnaya verticillata</i>		
<i>Furcellaria lumbicalis</i>		
<i>Halarachnion ligulatum</i>		
<i>Chondrus crispus</i>	carraigheer/Irishmoss	
<i>Gloiosiphonia capillaris</i>		
<i>Callophyllis laciniata</i>		
<i>Kallymenia reniformis</i>		
<i>Meredithia microphylla</i>		
<i>Phyllophora</i> sp.		
<i>Phyllophora crispa</i>		
<i>Phyllophora pseudoceranoides</i>		
<i>Schottera nicaeensis</i>		
<i>Sphaerococcus coronopifolius</i>		
<i>Gracilaria gracilis</i>		
<i>Plocamium cartilagineum</i>		
<i>Lomentaria clavellata</i>		
<i>Lomentaria orcadensis</i>		
<i>Rhodomenia holmasii</i>		
<i>Rhodomenia pseudopalmata</i>		
<i>Ceramium</i> sp.		

Scientific name	Common name	Sites where recorded
<i>Griffithsia</i> sp.		1/7 2/1 4/3 4/14
<i>Halurus flosculosus</i>		1/5 1/6 1/9 1/15 2/5
<i>Pterothamnion</i> sp.		4/11
<i>Sphondyliothamnion multifidum</i>		4/14
<i>Heterosiphonia plumosa</i>		1/4 1/10 4/3 4/8 4/9 4/11 4/14 4/15 4/19 4/27
<i>Acrosorium vanulosum</i>		3/1
<i>Cryptopleura ramosa</i>		1/4 1/10 1/15 2/1 2/4 2/5 3/1 4/3 4/8 4/11 4/12 4/19
<i>Delesseria sanguinea</i>	sea beech	1/7 1/9 1/11 1/15 1/17 2/2 2/3 2/10 3/1 3/2 3/5 4/3 4/5 4/7 4/8 4/11 4/12 4/13 4/19 4/27
<i>Drachiella</i> sp.		2/3
<i>Erythroglossum laciniatum</i>		2/5
<i>Hypoglossum hypoglossoides</i>		1/4 2/10 3/1 4/11 4/14
<i>Membranoptera alata</i>		1/9 1/11
<i>Phycodrys rubens</i>	sea oak	1/4 1/5 1/6 1/7 1/9 1/15 2/2 2/3 2/4 2/5 2/10 3/1 3/2 4/8 4/14
<i>Brongniartella byssoides</i>		1/5 3/1 4/3
<i>Polysiphonia</i> sp.		2/3 2/5 4/11 4/12
<i>Polysiphonia nigra</i>		3/1
Chromophycota	Brown seaweeds	4/3
<i>Ectocarpaceae</i> indet.		2/5 3/1
<i>Cladostephus spongiosus</i>		4/12
<i>Dictyoptens membranacea</i>		3/5 4/8 4/19
<i>Dictyota dichotoma</i>		1/1 1/5 1/7 1/10 2/3 2/4 2/5 3/1 3/5 4/3 4/8 4/11 4/19 4/22 4/27 4/28
<i>Desmarestia aculeata</i>		3/1 4/8
<i>Desmarestia ligulata</i>		3/1 3/2 4/7 4/8
<i>Desmarestia viridis</i>		3/1 4/8
<i>Alaria esculenta</i>	dabberlocks	1/15 4/19
<i>Chorda filum</i>	bootlace weed	1/1 1/2 3/2 4/1 4/2 4/7
<i>Laminaria</i> sp.	kelp	3/3
<i>Laminaria digitata</i>	kelp/oarweed	1/2 1/12 2/2 2/3 2/5 2/11
<i>Laminaria hyperborea</i>	kelp	1/1 1/4 1/5 1/6 1/7 1/8 1/10 1/11 1/13 1/14 1/15 1/16 1/17 2/2 2/4 2/9 2/10 2/11 3/2 3/6 4/3 4/4 4/7 4/8 4/9 4/11 4/12 4/13 4/15 4/16 4/19 4/22 4/24 4/27
<i>Laminaria saccharina</i>	sugar kelp	1/1 1/2 1/5 1/17 2/3 2/4 2/8 2/10 3/1 3/2 4/1 4/3 4/7 4/10 4/11 4/12 4/19 4/27
<i>Saccorhiza polyschides</i>		3/1 4/7 4/8 4/12 4/19
<i>Halidrys siliquosa</i>	podweed	1/5 1/9 2/3 2/4 2/5 3/1 3/2 4/8 4/12 4/19 4/27
<i>Fucus serratus</i>	serrated wrack	2/2 3/1
Chlorophycota	Green seaweeds	
<i>Ulva</i> sp.	sea lettuce	1/2 2/3 3/1
<i>Ulva lactuca</i>	sea lettuce	3/1
<i>Chaetomorpha melagonium</i>		1/11
<i>Cladophora</i> sp.		2/1 2/3 3/1 4/3
<i>Bryopsis</i> sp.		2/5
<i>Bryopsis plumosa</i>		2/5 2/8
Benthic diatoms	slime	1/1 1/4

5. SITE DETAILS

Site number	Site name	Position (OS grid reference or Lat. Long.)	Survey date	Time	Number of dives	Divers*
<i>North Anglesey</i>						
1/1	Bull Bay	SH 428 943	25/08/96	11:45	1	NC, MH, KR,
1/2	Cemlyn Bay	SH 332 938	25/08/96	16:20	1	NC, MH, KR
1/3	W Middle Mouse	53° 26.2' N 04° 26.3' W	31/08/96	12:01	2	RH, LK, PK, KR
1/4	W Llanlleiana Head	53° 26.2' N 04° 25.75' W	31/08/96	12:49	1	PB, WS, JT
1/5	Porth Wen	53° 26.05' N 04° 24.2' W	31/08/96	14:41	1	RH, KR
1/6	West of Point Lynas	53° 24.85' N 04° 17.4' W	31/08/96	16:12	1	PB, WS, JT
1/7	East of Amlwch	53° 25.05' N 04° 19.04' W	01/09/96	11:50	1	RH, KR
1/8	East Mouse (W side)	53° 25.25' N 04° 20.45' W	01/09/96	12:38	1	LK, PK
1/9	West Cemaes Bay	53° 25.15' N 04° 28.3' W	01/09/96	14:13	1	RH, KR
1/10	N of Llanbadrig	53° 25.46' N 04° 26.56' W	01/09/96	15:17	2	PB, LK, PK, WS
1/11	N Point Lynas (offshore)	53° 25.066' N 04° 17.352' W	29/08/98	15:52	1	RH, KR
1/12	N Point Lynas (inshore)	SH 478 937	29/08/98	14:44	1	PB, SV
1/13	SE corner Middle Mouse	53° 26.103' N 04° 26.069' W	30/08/98	11:12	2	RH, MM, KR, PT
1/14	W side West Mouse	53° 25.054' N 04° 33.264' W	30/08/98	16:15	1	RH, KR
1/15	N side Middle Mouse	53° 26.135' N 04° 26.199' W	29/08/98	10:14	1	PB, RH, MM, KR, SV
1/16	SE side West Mouse	53° 25.031' N 04° 33.167' W	30/08/98	15:28	1	KR, PT
1/17	Ynys Moelfre	SH 518 867	08/06/96	11:20	3	LK, PK, JR, KR, CS, JT
1/18	East Mouse (NE side)	53° 25.3' N 04° 20.35' W	01/09/96	11:57	1	PB, WS
<i>Menai Strait and Puffin Island</i>						
2/1	Coleg Normal	SH 563 718	14/10/95	12:40	5	DB, PB, RH, LK, KM, KR, DS
2/2	Telford Bridge, E side	SH 557 714	10/08/96	13:10	2	LK, PK, KR, BT, PT
			02/08/98	11:23		
2/3	Telford Bridge, W side	SH 556 714	26/08/96	13:40	5	NC, MH, LK, PK, RN, BR, MR,
			02/08/97	?		KR, AS, WS, JT
2/4	Swellies	53° 13.16' N 04° 10.43' W	02/08/97	15:25	4	LB, LK, PK, ML, KR, PT, AW
2/5	Channel between Anglesey and Ynys Gored Goch	53° 13.15' N 04° 10.90' W	07/09/96	11:10	1	PB, KR
2/6	W Ynys Gored Goch	53° 13.02' N 04° 10.92' W	03/08/97	15:27	1	LK, PK
2/7	Nelson's statue to Britannia Bridge	SH 537 710	03/08/97	17:20	1	RH, KR
2/8	Pwllfanog	53° 12.75' N 04° 11.96' W	09/09/96	13:52	1	PB, LK, PK
2/9	W of Penmon Point	SH 637 815	21/09/95	19:13	1	MI, KR
2/10	NE end Puffin Island	SH 657 824	17/08/96	16:45	4	PB, LK, PK, RH, KR,

Site number	Site name	Position (OS grid reference or Lat. Long.)	Survey date	Time	Number of dives	Divers*
2/11	Mid N side Puffin Island	53° 19.3'N 04° 01.35' W	13/04/97	12:41		
	<i>North Llyn Peninsula</i>		03/08/97	11:20	3	LB, RH, ML, KR, AS, WS
3/1	NE Porthysgaden	SH 221 375	23/07/95	12:22	4	DG, RH, MM, CR, KR
3/2	Porthysgaden	SH 219 376	17/07/96	19:10	1	LK
3/3	Trefor	SH 376 476	19/07/97	12:15	1	BT
3/4	between Maen Melit and Porth Oer	52° 50.767'N 04° 43.740' W	19/09/98	12:50	2	RH, KR, CT, PT, ST
3/5	SW Porth Oer	52° 49.906'N 04° 44.202' W	19/09/98	10:57	1	RH, KR, ST
3/6	SW Porth Oer Offshore	52° 50.151'N 04° 44.286' W	19/09/98	09:54	1	CT, PT
	<i>South Llyn Peninsula and Bardsey Island</i>					
4/1	Off Llanbedrog	52° 50.520'N 04° 26.99' W	06/07/97	15:43	3	HE, LK, PK, KR, PT, PV
4/2	NW of Llanbedrog	52° 50.537'N 04° 27.050' W	06/07/97	16:44	1	TB, GK
4/3	Carreg y Trai, W side	SH 348 256	22/07/95	12:38	1	RH, KR
4/4	Carreg y Trai, E side	SH 350 257	22/07/95	12:58	1	DG, TW
4/5	Carreg y Trai, off E side	SH 351 257	22/07/95	13:53	1	LK, PK
4/6	SW side Tudwal West	52° 47.786'N 04° 28.163' W	27/06/99	15:00	1	CT, PT
4/7	Tudwal East, SE corner	SH 343 287	13/07/96	13:35	2	LK, PV
4/8	Tudwal East, S corner	SH 342 258	13/07/96	12:24	1	RH, KR
4/9	Tudwal West, west side of SW corner	52° 47.781'N 04° 28.29' W	06/07/97	12:02	4	TB, GK, LK, KR, PT, PV
4/10	Tudwal West, c. 100m offshore from SW end	SH 336 248	28/06/99	13:10	1	RH, KR
4/11	Tudwal West, west side (below lighthouse)	SH 334 253	23/05/98	12:54	2	PB, LK, KR
4/12	N of Pistyll Cim	SH 324 248	23/05/98	16:59	1	PB
4/13	Trwyn yr Wylla (Ceiriad corner)	SH 321 244	23/05/98	14:48	1	LK, KR
4/14	Bardsey, S of Henllwyn	SH 114 205	11/08/96	12:00	1	RH, KR
4/15	Bardsey, N of Pen Cristin	SH 122 209	11/08/96	15:15	1	RH, KR
4/16	Bardsey, NE corner	SH 1255 2240	04/09/96	11:13	1	RH
4/17	Bardsey, E of Pen Cristin	52° 45.254'N 04° 46.945' W	20/09/98	15:00	2	HE, RH, KR, CT, PT
4/18	E of Tudwal East	52° 48.45'N 04° 27.25' W	11/07/99		1	RH, KR
4/19	Trwyn Talfarach	52° 48.122'N 04° 39.289' W	20/09/98	09:14	2	RH, MM, KR, ST
4/20	Muddy Hollow	52° 44.454'N 04° 23.753' W	14/06/98	10:22	3	VB, LK, PK, CT, PT, BW

Site number	Site name	Position (OS grid reference or Lat. Long.)	Survey date	Time	Number of dives	Divers*
4/21	SW of Ynys Gwylan Bach	52° 47.064'N 04° 41.711' W	20/09/98	13:10	1	HE, CT, PT
4/22	Hen Borth	52° 46.972'N 04° 43.536' W	12/06/98	16:21	2	LK, PK, CT, PT
4/23	Porth y Pistyll	52° 47.290'N 04° 43.379' W	14/06/98	14:09	1	CT, PT
4/24	Porth Felen (offshore)	52° 47.276'N 04° 45.279' W	12/06/98	14:51	2	VB, CSd, BW, CW
4/25	Porth Felen	52° 47.780'N 04° 45.184' W	12/06/98	15:00	1	PL, DT
		??				
4/26	NW side Ynys Gwylan Fawr	52° 47.266'N 04° 41.642' W	14/06/98	12:00	1	AC, PL
4/27	Porth Meudwy	52° 45.662'N 04° 43.272' W	14/06/98	14:00	2	VB, LK, PK, BW
		??				
4/28	NW side Bae'r Nant, Bardsey	52° 46.188'N 04° 47.329' W	12/06/98	12:07	1	LK, PK
4/29	Ogof Ystwwfwi Glas	52° 45.202'N 04° 48.762' W	12/06/98	10:35	2	VB, CSd, BW, CW
4/30	SW Bardsey	52° 45.172'N 04° 48.931' W	12/06/98	10:42	1	PL, DT
4/31	Bae y Rhigol, Bardsey	52° 46.156'N 04° 47.488' W	12/06/98	12:00	2	AC, BS, CT, PT

*diver's initials

DB: David Barnes
LB: Lin Baldock
PB: Paul Brazier
TB: Tim Brian
VB: Vicki Billings
AC: Andy Collis
NC: Neil Cowie
HE: Hugh Evans
DG: Dave Gilbert
MH: Mary Harvey
RH: Rohan Holt
MI: Mark Inall
GK: Glyn Knapper
LK: Lucy Kay
PK: Paul Kay
ML: Michele Leslie

PL: Pete Lilley
KM: Karen Meidlinger
MM: Mandy McMath
RN: Richard Northing
BR: Bridget Ripley
CR: Carol Robinson
MR: Mike Ripley
JR: John Rowlands
KR: Kirsten Ramsay
AS: Amanda Sutcliffe
CS: Chris Stokes
CSd: Chris Stanyard
DS: Damon Stanwell-Smith
WS: Bill Sanderson
BT: Barry Taberner
CT: Chris Turkentine

DT: Dave Trimble
JT: Jeff Tang
ST: Steve Trott
PT: Paul Turkentine
PV: Pete Vaughan
SV: Sam Vize
AW: Angela Williams
BW: Ben Wells
CW: Chris Wood
TW: Tony Warr

6. REFERENCE LIST

- Brazier, D.P., Holt, R.H.F., Murray, E., Nichols, D.M. (1999) Marine Nature Conservation Review Sector 10. Cardigan Bay and north Wales: area summaries. Peterborough, Joint Nature Conservation Committee. (Coasts and seas of the United Kingdom. MNCR series).
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- Howson, C.M., Picton, B.E. (eds) (1997) The species directory of the marine fauna and flora of the British Isles and surrounding seas. Ulster Museum and The Marine Conservation Society, Belfast and Ross-on-Wye.

APPENDIX 1

BIOTOPE DESCRIPTIONS

A hierarchical classification of the biotopes found during North Wales Seasearch surveys is given below. The biotopes listed are derived from the MNCR national biotopes classification (Connor *et al.* 1997) and are shown together with their higher types.

Higher code	Biotope code	Biotope
IR		INFRA LITTORAL ROCK (and other hard substrata)
EIR		Exposed infralittoral rock
EIR.KFaR		Kelp with cushion fauna, foliose red seaweeds or coralline crusts (exposed rock)
EIR.KFaR	Ala.Ldig	<i>Alaria esculenta</i> and <i>Laminaria digitata</i> on exposed sublittoral fringe bedrock
EIR.KFaR	LhypR.Ft	<i>Laminaria hyperborea</i> forest with dense foliose red seaweeds on exposed upper infralittoral rock
EIR.KFaR	FoR	Foliose red seaweeds on exposed or moderately exposed lower infralittoral rock
EIR.KFaR	FoR.Dic	Foliose red seaweeds with dense <i>Dictyota dichotoma</i> and/or <i>Dictyopteris membranacea</i> on exposed lower infralittoral rock
EIR.SG		Robust faunal cushions and crusts (surge gullies & caves)
EIR.SG	CC.BalPom	<i>Balanus crenatus</i> and/or <i>Pomatoceros triqueter</i> with spirorbid worms and coralline crusts on severely scoured vertical infralittoral rock
MIR		Moderately exposed infralittoral rock
MIR.KR		Kelp with red seaweeds (moderately exposed rock)
MIR.KR	Ldig	<i>Laminaria digitata</i> on moderately exposed or tide-swept sublittoral fringe rock
MIR.KR	Lhyp	<i>Laminaria hyperborea</i> and foliose red seaweeds on moderately exposed infralittoral rock
MIR.SedK		Sand or gravel-affected or disturbed kelp and seaweed communities
MIR.SedK	LsacChoR	<i>Laminaria saccharina</i> , <i>Chorda filum</i> and dense red seaweeds on shallow unstable infralittoral boulders and cobbles
MIR.SedK	XKScrR	Mixed kelps with scour-tolerant and opportunistic foliose red seaweeds on scoured or sand-covered infralittoral rock
MIR.SedK	EphR	Ephemeral red seaweeds and kelps on tide-swept mobile infralittoral cobbles
MIR.SedK	HalXX	<i>Halidrys siliquosa</i> and mixed kelps on tide-swept infralittoral rock with coarse sediment
SIR		Sheltered infralittoral rock
SIR.K		Silted kelp (stable rock)
SIR.K	LhypLsac	Mixed <i>Laminaria hyperborea</i> and <i>Laminaria saccharina</i> forest on sheltered upper infralittoral rock
SIR.EstFa		Estuarine faunal communities (shallow rock/mixed substrata)
		No biotopes found
		Infralittoral rock (other)
IR.FaSwV		Fauna and seaweeds (shallow vertical rock)
IR.FaSwV	CorMetAlc	<i>Corynactis viridis</i> , <i>Metridium senile</i> and <i>Alcyonium digitatum</i> on exposed or moderately exposed vertical infralittoral rock
CR		CIRCALITTORAL ROCK (and other hard substrata)

Higher code	Biotope code	Biotope
ECR		Exposed circalittoral rock
ECR.EFa		Faunal crusts or short turfs (wave-exposed rock)
ECR.EFa	CorCri	<i>Corynactis viridis</i> and a crisiid/ <i>Bugula/Cellaria</i> turf on steep or vertical exposed circalittoral rock
ECR.EFa	PomByC	<i>Pomatoceros triquetus</i> , <i>Balanus crenatus</i> and bryozoan crusts on mobile circalittoral cobbles and pebbles
ECR.Alc		Alcyonium-dominated communities (tide-swept/vertical)
ECR.Alc	AlcTub	<i>Alcyonium digitatum</i> with dense <i>Tubularia indivisa</i> and anemones on strongly tide-swept circalittoral rock
ECR.Alc	AlcMaS	<i>Alcyonium digitatum</i> with massive sponges (<i>Cliona celata</i> and <i>Pachymatisma johnstonia</i>) and <i>Nemertesia antennina</i> on moderately tide-swept exposed circalittoral rock
ECR.Alc	AlcC	<i>Alcyonium digitatum</i> , <i>Pomatoceros triquetus</i> , algal and bryozoan crusts on vertical exposed circalittoral rock
ECR.BS		Barnacle, cushion sponge and <i>Tubularia</i> communities (very tide-swept/wave-sheltered)
ECR.BS	BalTub	<i>Balanus crenatus</i> and <i>Tubularia indivisa</i> on extremely tide-swept circalittoral rock
ECR.BS	TubS	<i>Tubularia indivisa</i> , sponges and other hydroids on tide-swept circalittoral bedrock
ECR.BS	BalHpan	<i>Balanus crenatus</i> , <i>Halichondria panicea</i> and <i>Alcyonium diaphanum</i> on extremely tide-swept sheltered Circalittoral rock
ECR.BS	CuSH	Cushion sponges, hydroids and ascidians on very tide-swept sheltered circalittoral rock
MCR		Moderately exposed circalittoral rock
MCR.XFa		Mixed faunal turfs (moderately exposed rock)
MCR.XFa	ErSEun	Erect sponges, <i>Eunicella verrucosa</i> and <i>Pentapora foliacea</i> on slightly tide-swept moderately exposed circalittoral rock
MCR.XFa	ErSPbolSH	Cushion sponges (<i>Polymastia boletiformis</i> , <i>Tethya</i>), stalked sponges, <i>Nemertesia</i> spp. and <i>Pentapora foliacea</i> on moderately exposed circalittoral rock
MCR.ByH		Bryozoan/hydroid turfs (sand-influenced)
MCR.ByH	SNemAdia	Sparse sponges, <i>Nemertesia</i> spp., <i>Alcyonidium diaphanum</i> and <i>Bowerbankia</i> spp. on circalittoral mixed substrata
MCR.ByH	Flu	<i>Flustra foliacea</i> and other hydroid/bryozoan turf species on slightly scoured circalittoral rock or mixed substrata
MCR.ByH	Flu.HByS	<i>Flustra foliacea</i> with hydroids, bryozoans and sponges on slightly tide-swept circalittoral mixed substrata
MCR.ByH	Flu.SerHyd	<i>Sertularia argentea</i> , <i>S. cupressina</i> and <i>Hydrallmania falcata</i> on tide-swept circalittoral cobbles and pebbles
MCR.ByH	Flu.Hocu	<i>Haliclona oculata</i> and <i>Flustra foliacea</i> with a rich faunal turf on tide-swept sheltered circalittoral boulders or cobbles
MCR.ByH	Urt.Urt	<i>Urticina felina</i> on sand-scoured circalittoral rock
MCR.ByH	Urt.Cio	<i>Urticina felina</i> and <i>Ciocalypta penicillus</i> on sand-covered circalittoral rock
MCR.M		Mussel beds (open coast circalittoral rock/mixed substrata)
MCR.M	MytHAs	<i>Mytilus edulis</i> beds with hydroids and ascidians on tide-swept moderately exposed circalittoral rock
MCR.Bri		Brittlestar beds
		No biotopes found

Higher code	Biotope code	Biotope
MCR.As		Ascidian communities (silt-influenced)
MCR.As	StoPaur	<i>Stolonica socialis</i> and/or <i>Polyclinum aurantium</i> with <i>Flustra foliacea</i> on slightly sand-scoured tide-swept moderately exposed circalittoral rock
MCR.As	MolPol	<i>Molgula manhattensis</i> and <i>Polycarpa</i> spp. with erect sponges on tide-swept moderately exposed circalittoral rock
MCR.SfR		Soft rock communities
		No biotopes found
SCR		Sheltered circalittoral rock
SCR.BrAs		Brachiopod and solitary ascidian communities (sheltered rock)
SCR.BrAs	SubSoAs	<i>Suberites</i> spp. and other sponges with solitary ascidians on very sheltered circalittoral rock
		Circalittoral rock (other)
CR.FaV		Faunal turfs (deep vertical rock)
CR.FaV	Bug	<i>Bugula</i> spp. and other bryozoans on vertical moderately exposed circalittoral rock
CR.Cv		Caves and overhangs (deep)
		No biotopes found
SS		Sublittoral sediments
IGS		Infralittoral gravels and sands
IGS.Mrl		Maerl beds (open coast/clean sediments)
IGS.FaG		Shallow gravel faunal communities
		No biotopes found
IGS.FaS		Shallow sand faunal communities
IGS.FaS	Mob	Sparse fauna in marine infralittoral mobile clean sand
CGS		Circalittoral gravels and sands
IMS		Infralittoral muddy sands
IMS.Sgr		Seagrass beds (sublittoral/lower shore)
		No biotopes found
IMS.FaMS		Shallow muddy sand faunal communities
		No biotopes found
CMS		Circalittoral muddy sands
IMX		Infralittoral mixed sediments
CMX		Circalittoral mixed sediments