

seasearch



South and West Wales 2022 Summary Report



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Cover images

Survey group May 2022, *Atlantic Blue*.

Image: Andy Trulove

West Dale Outer Reef, May 2022.

Image: Blaise Bullimore

Seasearch surveyor, Linney Head West, May 2022.

Image: Blaise Bullimore

Fried egg sea slug, *Diaphodoris luteocinta*.

Image Cleo Browne

Crynodeb

Mae Seasearch yn gynllun gwirfoddol lle mae deifwyr a snorcelwyr hamdden ym Mhrydain ac Iwerddon yn arolygu cynefinoedd a rhywogaethau morol. Fe'i cydlynir gan y Gymdeithas Cadwraeth Forol. Mae ardal De a Gorllewin Cymru yn ymestyn o aber yr Hafren i Aberystwyth.

Mae'r adroddiad hwn yn crynhoi gweithgarwch Seasearch yn Ne a Gorllewin Cymru yn 2022. Mae'n cynnwys crynodebau o'r safleoedd a arolygwyd ac yn nodi rhywogaethau a chynefinoedd prin neu anarferol a gofnodwyd. Mae'r rhain yn cynnwys nifer o gynefinoedd a rhywogaethau sydd â blaenoriaeth yng Nghymru. Nid yw'r adroddiad hwn yn cynnwys holl ddata'r arolwg gan fod hyn wedi'i fewnbynnu i gronfa ddata Marine Recorder a'i gyflenwi i Cyfoeth Naturiol Cymru i'w ddefnyddio yn ei weithgareddau cadwraeth morol. Mae'r data ar rywogaethau hefyd ar gael ar-lein drwy'r Rhwydwaith Bioamrywiaeth Cenedlaethol.

Yn ystod 2021, parhaodd Seasearch yng Nghymru i ganolbwyntio ar rywogaethau a chynefinoedd â blaenoriaeth yn ogystal â chasglu gwybodaeth am wely'r môr a bywyd morol ar gyfer safleoedd nad oedd wedi'u harolygu o'r blaen.

Cwblhawyd cyfanswm o 138 o ffurflenni ar gyfer De a Gorllewin Cymru; 64 Tirfesyrydd, 73 Arsylwr ac un morwr yn ffurflen ar gyfer môr-wyntyllau.

Mae Seasearch yn Ne a Gorllewin Cymru yn 2022, am y 25ain flwyddyn, wedi'i ddarparu gan Gydlynnydd Rhanbarthol Seasearch Kate Lock. Darperir arweiniad a chymorth cyffredinol gan Gydlynnydd Cenedlaethol Seasearch, Charlotte Bolton.

Summary

Seasearch is a volunteer marine habitat and species surveying scheme for recreational divers and snorkellers in Britain and Ireland. It is coordinated by the Marine Conservation Society. The South and West Wales area extends from the Severn estuary to Aberystwyth.

This report summarises Seasearch activity in South and West Wales in 2022. It includes summaries of the sites surveyed and identifies rare or unusual species and habitat encountered. These include a number of priority habitat and species in Wales. This report does not include all of the detailed data as this has been entered into the Marine Recorder database and also supplied to Natural Resources Wales for use in its marine conservation activities. The species data is also available online through the National Biodiversity Network.

During 2022, Seasearch in Wales continued to focus on priority species and habitats as well as collecting seabed and marine life information for sites that had not been previously surveyed,

In total, 138 forms were completed for South and West Wales; 64 Surveyor and 73 Observer forms and one seafan form.

Seasearch in South and West Wales in 2022 has, for the 25th year, been delivered by Seasearch Regional Co-ordinator Kate Lock. Overall guidance and support were provided by the National Seasearch Co-ordinator, Charlotte Bolton.

GYMDEITHAS CADWRAETH MOROL YN ARIANNU SEASEARCH CYMRU.

SEASEARCH WALES IS FUNDED BY THE MARINE CONSERVATION SOCIETY.





Distomus variolosus dominated mixed ascidians, Linney Head West Image: Ross Bullimore

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Crynodeb

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Charts and aerial / satellite image maps from Navionics or EasyMapMaker and the image and data copyrights listed therein are acknowledged.

1. Introduction

1.1 Seasearch

Seasearch is a UK volunteer marine habitat and species survey scheme for both recreational and professional divers and snorkellers in Britain and Ireland. It is coordinated by the Marine Conservation Society.

The main aim is to provide quality assured Seasearch data to partner organisations and the public. However, the project also aims to raise public awareness of the diversity of marine life and habitats in Britain and Ireland through the dissemination of information gathered and the identification of issues arising from it.

The divers are trained in species and habitat recording and help survey the seabed around the British and Irish coasts. Completed survey forms ¹ are quality checked by experienced marine biologists who enter all data into the UK national database managed by Joint Nature Conservation Committee (JNCC), which contributes to the National Biodiversity Network.

Seasearch surveys record the various types of seabed found in the near-shore zone around the whole of the UK and, as comprehensively as possible, the identity and frequency of the dominant animals and plants living at each survey site. Species frequencies are recorded using established semi-quantitative abundance scales ². Habitats described on survey forms are assigned biotope codes by an experienced post survey analyst, using the JNCC Marine Nature Conservation Review set of biotopes (JNCC, 2015) ³. All data is entered into the national seabed survey data management system “Marine Recorder” ⁴ and, following quality control, is available *via* the National Biodiversity Network (NBN) Atlas ⁵ and as Access database data “snapshots” ⁶.

The surveys contribute to establishing the location of the richest sites for marine life, sites where there are environmental pressures and sites which are in need of protection. Surveys target important habitats and species that have been identified by governments to need priority conservation action. In Wales these are detailed in Section 7 of the Environment (Wales) Act 2016 ⁷, which identifies duties to maintain biodiversity lists and to take steps to maintain and enhance biodiversity. Other important species recorded include invasive and non-native species (INNS) and notable species which have limited distribution ranges in the UK or are nationally rare or scarce.

This report summarises Seasearch activity in South and West Wales in 2022. It includes summaries of the sites surveyed and identifies rare or unusual species and habitat encountered. These include a number of priority habitat and species in Wales. This report does not include all of the detailed data as this has been lodged in the Marine Recorder database and also supplied to Natural Resources Wales for use in its marine conservation activities. The species data is also available online through the National Biodiversity Network.

1.2 South and West Wales 2022

Several circumstances conspired to reduce the level of effort and survey output seen in previous years. The grant aid from Natural Resources Wales which Seasearch in Wales had received for many years finished at the end of March 2022. Since the grant-aid had mainly been used to subsidise boat charter fees, the increase in participant cost so as to cover full charter rates came as

¹ <https://www.seasearch.org.uk/record>

² S = Super-abundant, A = Abundant, C = Common, F = Frequent, O = Occasional, R = Rare and NS = Not Seen. Actual numerical frequencies vary with taxonomic group and species. Abundance scores in the text are capitalised to distinguish them from standard grammatical usage, eg Common versus common.

³ JNCC (2015) The Marine Habitat Classification for Britain and Ireland Version 15.03 [Online] [accessed 2 January 2018]. Available from: jncc.defra.gov.uk/MarineHabitatClassification

⁴ <https://jncc.gov.uk/our-work/marine-recorder/>

⁵ <https://nbnatlas.org/>

⁶ From link provided on the Marine Recorder web page linked at footnote 4

⁷ [Wales Biodiversity Partnership - Environment \(Wales\) Act \(biodiversitywales.org.uk\)](https://www.biodiversitywales.org.uk/)

somewhat of a surprise to established volunteers, despite it being the norm in the rest of the UK, and seemed to be a discouragement to participation or to joining multiple surveys. Further, several regular surveyors had either not fully returned to diving post-Covid or had experienced changes in family circumstances which curtailed their availability.

Recent years have also seen a dramatic decline in the availability of dive charter vessels in the area as operators have retired or down-sized, reflecting the significant dip in recreational diving activity in SW Wales. This has inevitably resulted in increased competition for the remaining vessels during optimal tidal conditions.

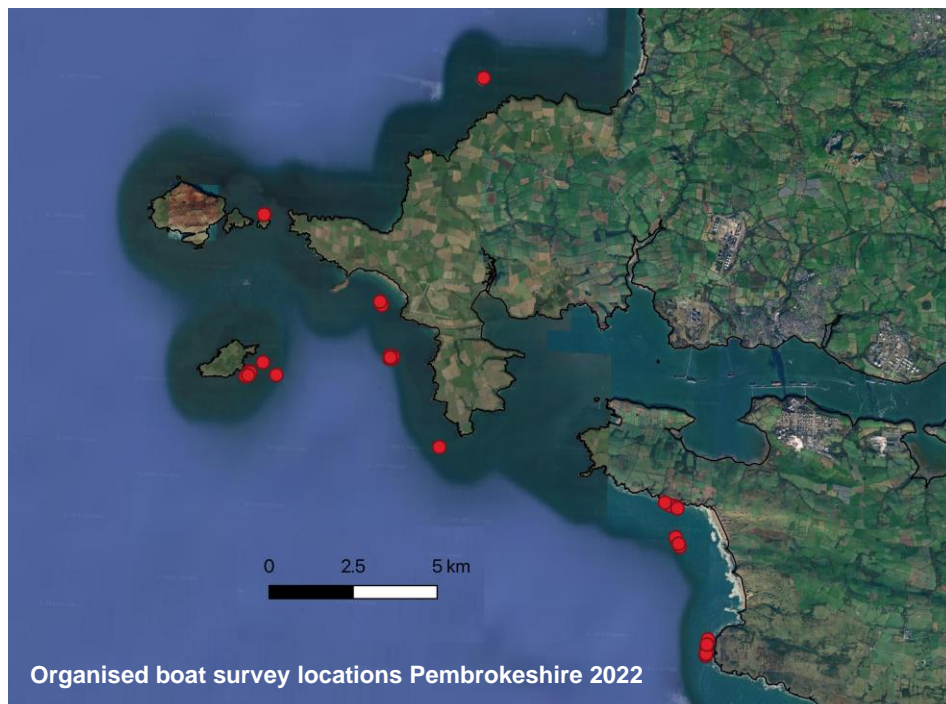
Lastly, following promotion to leader of the Skomer Marine Conservation Zone team, Kate Lock returned to full time working after many years being part-time. This constrained the amount of time she could devote to her Seasearch coordinator role and was an additional contribution to the reduced scale of surveys in 2022.

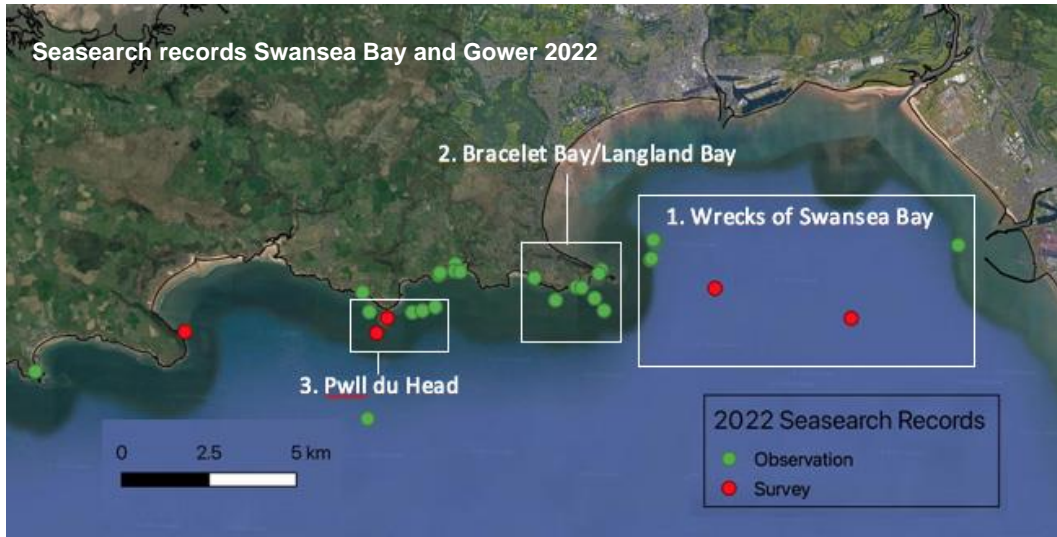
As a consequence, other than training dives, only three organised Seasearch survey weekends took place in 2022 (28-29 May, 30-31 July; 17-18 September), just half the number accomplished in recent years. However, additional to these, survey events were undertaken by members of the Swansea British Sub-aqua Club branch under the auspices of Matt Green and several SW Wales based Surveyors and Observers also completed forms following club or independent dives.

In total, 138 forms were completed for South and West Wales; 64 Surveyor, 73 Observer and one seafan forms. The high proportion of Observer forms is a result of encouraging and supporting Observers to gain their qualifications.

The healthy number of Surveyor forms reflects the continued excellent support of qualified Surveyor level divers in the area. This helps ensure high quality level of recording for the dives. These divers also regularly buddy up with new divers training for their Observer and Surveyor qualifications and provide their experience and help.

As noted above, all data has been entered onto Marine Recorder and is available on the JNCC National Biodiversity Network Atlas. Although crawfish data is entered into Marine Recorder, following Natural Resources Wales' guidelines it is tagged as sensitive data and therefore public access to this data is restricted.





2. Training and qualifications

Two training courses were run in April in Marloes village hall. The first was an Observer course with 13 participants run by Kate Lock and trainee tutor Matt Green. The course was run over a weekend to allow for a combination of both shore and dive sessions to be completed at St Brides and Martins Havens. This was later followed by a Surveyor course with 11 participants; the first day covered all the theory allowing everyone to complete their first Surveyor's forms at Stackpole Quay on the Sunday.

In June Matt Green ran an Observer course for eight divers at the Swansea Yacht and Sub-aqua club. Matt was observed by the National Co-ordinator Charlotte Bolton and has now qualified as an Observer tutor and plans to run more courses in Swansea. Kate Lock also provided training to 27 shore observer in Swansea (see also section 3)

During the 2022 season, seven divers, Nigel Beech, John Graham, Chris Williams, Cleopatra Browne, Aidan Bryne, Chloe James and Harriet Alvis completed their Observer qualifications and Lauren Eyles and Madison Bowen-Parry both completed their Observer qualifications with independent shore surveys on the Swansea and Gower coast. Joanne Prosser successfully completed her Surveyor qualification.

A specialist nudibranch identification course was provided by well known nudibranch experts Bernard and Christine Picton to 17 sea-slug experienced and inexperienced participants in Marloes village hall in June. Shore dives at Martins Haven were completed with the aim of recording as many species as possible with the team undertaking a 'NudiblitZ' contributing towards the quadrennial Skomer MCZ nudibranch survey. However a combination of strong wind and low visibility made recording conditions difficult and only nine species were recorded compared to 30 species recorded on previous NudiblitZ events.



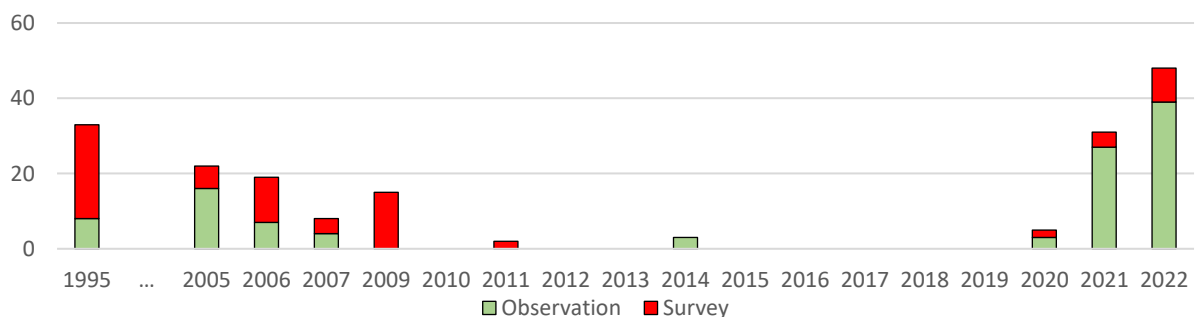
3. Seasearch recording around Swansea and Gower

There was a record number of Seasearch records from Swansea Bay and Gower in 2022. This included records from boat dives with the Swansea Yacht and Sub-aqua Club, shore dives and shore searches between May and September. Recent Increased training and co-ordination in this area has meant higher capacity which can be seen in the higher number of records submitted.

Although Seasearch has been well established in Pembrokeshire and North Wales for many years, there is a paucity of records from Swansea Bay and Gower Peninsula (currently around a total 150 Seasearch records) because of the usually high water turbidity, lack of charter boats and historically no local co-ordinator. Underwater visibility in Swansea Bay and Gower can be a challenge for divers and snorkelers and likely impacts the popularity of Seasearch participation. However, local conditions can also present opportunities for divers and snorkelers. The high turbidity, particularly in the winter months where the water almost never clears, causes less dominance of algal species in sub-tidal habitats and a proliferation of filter and suspension feeding reef fauna with associated mobile epifauna. Large tides (up to 10.5m) with occasional 'fairly good' summer visibility mean that at low tide, it is possible to access the lower infra-littoral/upper circa-littoral zone in shallow diving depths. This creates opportunities for divers and snorkelers to readily access biological communities usually found in deeper waters, for divers to spend more time in these habitats and for less experienced divers with depth limitations to also access these normally deeper water species and assemblages.

During the last 3 years, Seasearch recording has increased to an historical high in 2022 with 48 records, almost a third of all records for the area. Establishment of a Marine Life Swansea and Gower Facebook page (now with over 2,000 followers) facilitated successful recruitment and subsequent training of 27 enthusiastic Seasearch shore observer volunteers by Kate Lock. In June 2022, Matt Green trained eight divers as Seasearch observers at the Swansea Yacht and Sub-aqua Club, three of whom have subsequently qualified. A positive collaboration with the Swansea BSAC Club facilitates boat diving which is supplemented by occasional shore dives.

Initial Seasearch records were relatively well distributed along the south Gower Peninsula coast in 1995 with the first volunteer organised, structured survey of habitats around Gower Coast ⁸ which followed an earlier professional Nature Conservancy Council scientific dive survey in 1978 ⁹. Further Seasearch records were made between 2005 and 2009 when there was a local co-ordinator (Vicky Howe) organising Seasearch events. Records were more sporadic and low between 2009 and 2020, after which survey numbers and distribution increased following recruitment of Matt Green as local co-ordinator; see graph below and maps overleaf (data from Marine Recorder Database, accessed 20/03/2023). In 2022, the highest ever annual number of Seasearch records for Gower were made.



⁸ [Bunker & Hart, 1995](#) Gower Seasearch 1995. Report to Countryside Council for Wales

⁹ Hiscock, 1978. South-west Britain Sublittoral Survey. Field survey of sublittoral habitats and species along the Gower coast 1978. Nature Conservancy Council CSD report 274.

1995



2005



2006



2007



2009



2011



2014



2020



2021



2022



Seasearch records around Swansea and Gower between 1995 and 2022

4. Important species recording

For the purposes of this report, important species are defined as: nationally important species listed in Section 7 of the Environment (Wales) Act 2016; species considered as rare, scarce or unusual; invasive and non-native.

4.1 Priority species and habitats

Nationally important species, listed in Section 7 of the Wales Environment Act 2016 ¹⁰

Pink sea fan, *Eunicella verrucosa* was recorded at: Skokholm SE and SE Inner Reefs; West Dale Outer Reef.

Fragile sponge and anthozoan communities were recorded at: West Dale Outer Reef; St Ann's Reef; Skokholm Crab Rocks and SE Reefs.

Crawfish, *Palinurus elephas* were recorded from: Skokholm SE Reef, SW South Haven and Crab Rocks; West Dale Outer Reef.

Thornback ray, *Raja clavata*, were recorded at Pwll Du Head and central Swansea Bay and a small-eyed ray, *Raja microocellata*, in Caswell Bay during a night dive.

Plaice, *Pleuronectes platessa*, were recorded from Pwll Du Head and Mumbles pier.

A single, small, angler or monkfish, *Lophius piscatorius* was recorded at the SW corner of South Haven, Skokholm



4.2 Other notable species records.

Species which are notable for their rarity or scarcity in the UK or Wales; close to the edge of their distribution range, including those possibly undergoing range extensions or increasing in frequency; of limited geographic distribution; previously unrecorded in Wales / UK; new to science or undescribed, such as some ascidian (sea squirt) species which seem to be locally common in Pembrokeshire; or unusual for other reasons.

Dercitus bucklandi, black tar sponge; a southwestern species with very precise habitat preferences: Skokholm SE Reefs and Crab Rocks; Marloes Reef; Black Cave; Freshwater West; Linney Head West.

Homaxinella subdola: a southwestern species which extends north, with one exception recorded in the Sound of Mull, western Scotland, to the west facing coasts of Pembrokeshire: Skokholm SW South Haven; West Dale Outer Reef.

Thymosia guernei, mashed potato sponge; a southwestern species close to the edge of its range: Skokholm SE Reefs, Crab Rocks and SW South Haven; Marloes Reef; West Dale Outer Reef; Black Cave; Freshwater West.



¹⁰ <https://www.biodiversitywales.org.uk/Section-7>

Axinella dissimilis, yellow staghorn sponge, a southwestern species: Skokholm SE Reefs, Crab Rocks and SW South Haven; West Dale Outer Reef; Black Cave; Freshwater West.

Axinella damicornis, crumpled duster sponge; a southwestern species: Skokholm Crab Rocks; West Dale Outer Reef; Black Cave; Freshwater West.

Dysidea pallescens, a scarce southern species; fourth record for Wales (others all in Skomer MCZ, within 10km): St Ann's Reef. (ID Christine Picton).



Dysidea pallescens

BB

Diaphodoris alba: Martin's Haven.

Okenia elegans, elegant sea slug: Porthgain; Linney Head West.

Trapania pallida; a scarce species with scattered records from the west coasts of Scotland and Ireland, Isle of Man, south west England and Atlantic coasts of France and Spain: Middleholm N; Behar wreck Milford Haven; Stombus wreck Swansea Bay, doubling the number of Welsh records to six.

Amphorina andra, Middleholm N: recently described species.



Diaphodoris alba

CB



Okenia elegans

CB



Trapania pallida, North Middleholm

BB



Trapania pallida, Behar wreck Milford Haven

CB

Undescribed *Aplidium* species 'strawberry', 'honeycomb' and 'caramel 2-spot' which have been given temporary common names are regularly recorded at Pembrokeshire sites and are likely to be underrecorded elsewhere.

Aplidium 'honeycomb' and 'caramel 2-spot': Linney Head West.

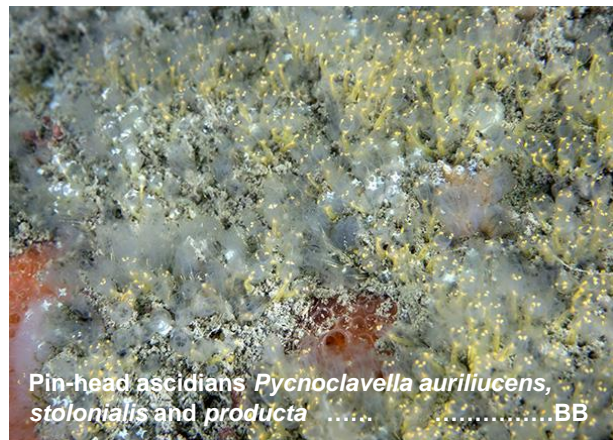
Aplidium 'Strawberry': St Ann's Reef; Linney Head West.

Didemnum pseudofulgens: Stack Rocks East; Middleholm North; Skokholm Crab Rocks and W South Haven (see image in section 5.2.1).

Pycnoclavella auriliucens and *stolonialis*; southwestern species: Skokholm SE Reef and SW South Haven; St Ann's Reef; West Dale Outer Reef; Freshwater West; Linney Head West.

Pycnoclavella producta; southern species: West Dale Outer Reef; Skokholm Crab Rocks and SW South Haven.

Micrenephrys lilljeborgii, Norway bullhead, Middleholm N; first record for Wales (see image in section 5.2.1).



4.3 Invasive & Non-Native Species

Only two records of INNS were made in Pembrokeshire sites during 2022 surveys; wireweed, *Sargassum muticum*, at Stackpole Quay during a training day and the ascidian *Styela clava*, common in Milford Haven waterway, on the Behar wreck during an independent Observer dive.

The American slipper limpet *Crepidula fornicata* is common around Swansea and Gower and was recorded at Mumbles Pier and the Strombus Wreck, central Swansea Bay. *Styela clava* was also recorded from the Strombus and at Limeslade Bay and Pwll du Head. *Perophora japonica* was recorded at the Solar Wreck, Oxwich Bay (sixth record for Wales).

5. Survey site descriptions

All depths given are below chart datum (bcd).

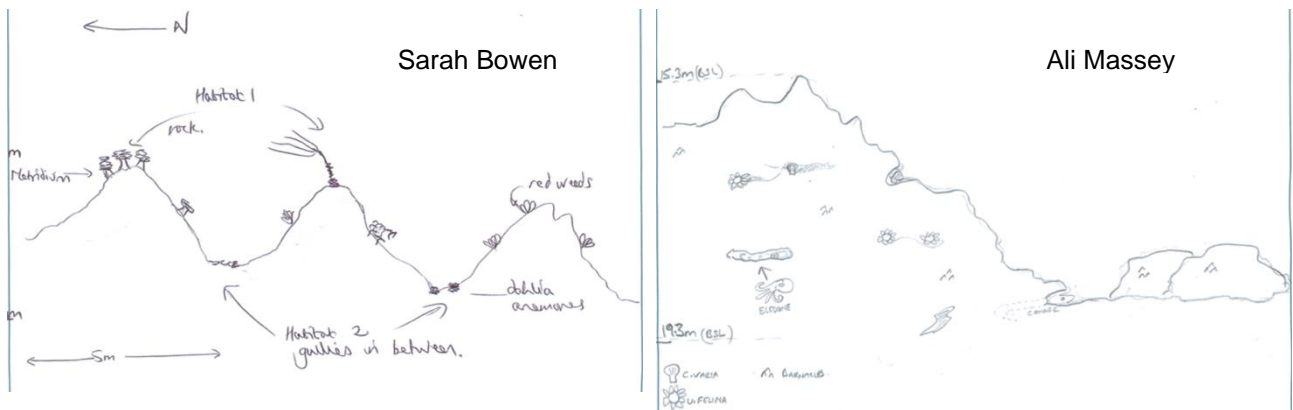
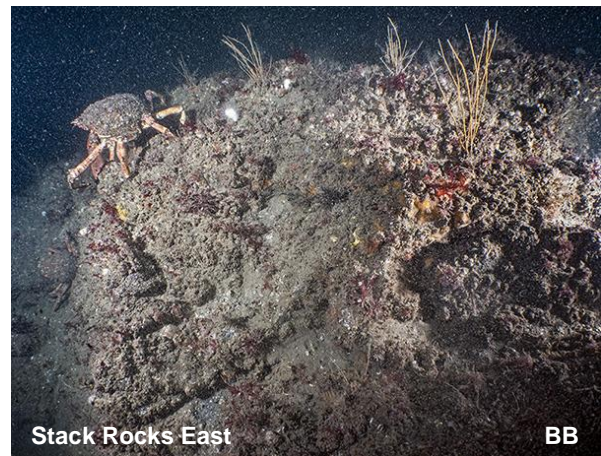
5.1 St Brides Bay

St Brides is a large bay with Ramsey Island marking the northern end and Skomer island the south. Old Red Sandstone cliffs and headlands, small igneous rock islands and islets, offshore reefs and mixed sediment plains are all features of the Bay. Seasearch SW Wales has targeted many sites in the Bay over the previous 25 years and only one survey was undertaken in 2022, east of the centre of Stack Rocks in the south-east corner of the Bay. Observer forms were additionally completed for St Brides' and Martin's Havens.

5.1.1 Stack Rocks East

The area around Stack Rocks has been extensively surveyed and this site was revisited (previously surveyed in 2021) as it provided some shelter and workable visibility in adverse weather conditions; nevertheless, swell surge and poor visibility restricted recording.

Three closely spaced locations were surveyed, spanning 9 to 15m bcd, at the intersection between the eastern bedrock slope of Stack Rocks and the adjacent sediment plain. All surveyors recorded shallow bedrock slopes, 2-3m high ridges and extended, roughly ovoid, rocky outcrops roughly aligned NW-SE. The rock was fissured, with pockets of coarse shell gravel in hollows. Between the ridges were gullies of varying widths and mixed sediment floors, dominated by coarse shell gravel and very fine muddy sand.



Rock surfaces were dominated by barnacles with a patchy, silty, turf of bryozoans, tall hydroids, mostly *Nemertesia antennina*, sparse red algae, scattered dead-men's fingers colonies, *Alcyonium digitatum*, and anemones, *Corynactis viridis* and *Urticina felina*. A wide species range of colonial ascidians were recorded embedded in the turf but at low frequencies. Few sponge species were noted with only *Cliona celata* recorded as Frequent. Several small clumps of large plumose anemone, *Metridium senile* (formerly *dianthus*¹¹), were recorded from the tops of ridges and

¹¹ Glon et al 2021, Comparison of sequence-capture and ddRAD approaches in resolving species and populations in hexacorallian anthozoans. *Molecular Phylogenetics and Evolution*, 163. tinyurl.com/2s3mh2bw

outcrops; although not an uncommon species, it has a limited distribution in this area with a concentration of records around Stack Rocks. Just three species of nudibranch were noted, *Antipella cristata*, *Doto pinnatifida* and *Limacea clavigera*.



Barnacles and *Corynactis viridis*

BB



Metridium senile

LB



Lissocinum weigelei

SB



Caryphyllia smithii with *Adna anglica*

DK

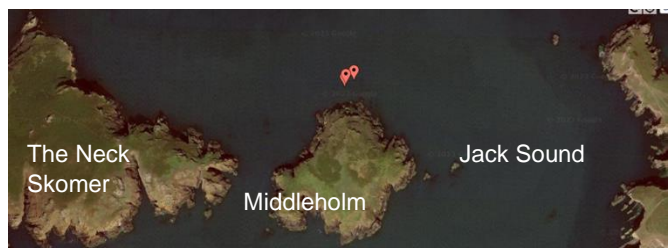
The sediment habitat was not surveyed but anemones *Urticina felina*, *Cylista troglodytes* and *Cereus pedunculatus*, scattered great scallop, *Pecten maximus*, and dragonets, *Callionymus* spp were noted.

5.2 Skomer Marine Conservation Zone

The Skomer MCZ is one of the most intensively surveyed nearshore areas in the UK, since before 1970. In addition to the MCZ's extensive monitoring programme, several sites are revisited by Seasearch on an *ad-hoc* basis. Only one survey was undertaken in the MCZ in 2022, on the northern side of Middleholm. Observer forms were also completed for Martin's Haven.

5.2.1 Middleholm North Reef

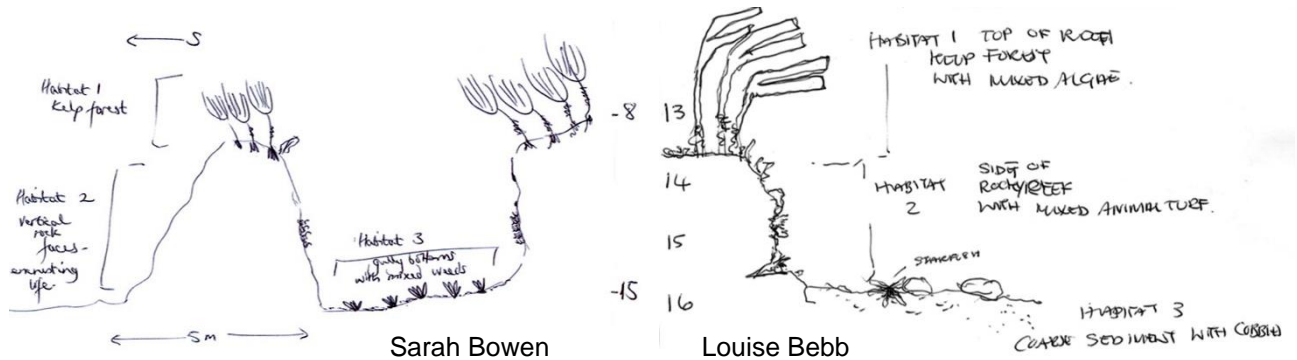
An elongated, narrow rocky ridge, extends north from the small island of Middleholm which provides it with some shelter from the strong currents passing either side through Jack and Little Sounds. This survey was focussed on the western, steeper side, close to the southern end of the ridge near Middleholm, with most of the effort toward the



base of the ridge, adjacent to the coarse shell gravel and pebble floor of Little Sound, to avoid the worst of the swell surge prevailing at the time.

Dense *Laminaria hyperborea* kelp forest extended along ridge top to 6m bcd with the stipes thickly encrusted with a dense assemblage of red algae, encrusting and erect bryozoans and hydroids.

The ridge side facing Little Sound was a series of irregular steep and vertical faces at various angles to the tidal streams and localised isolated ridges, with both vertical and horizontal gullies and crevices, providing local variation in current exposure and shelter, between seven and 12m bcd. Horizontal surfaces had a conspicuous sediment layer and scattered patches of shell gravel were present near the base of the ridge.



The shallowest, less steeply sloping surfaces supported kelp park to around 9m bcd but the steeper majority of rock surfaces were dominated by barnacles overlaid by a mosaic of mixed short bryozoan turf and hydroids, with scattered red algae and *Dictyota dichotoma*, encrusting sponges, occasional Devonshire cup-corals, *Caryophyllia smithii*, many with the barnacle *Adna anglica*, colonial ascidians, including Occasional *Didemnum pseudofulgens*, and small sponges. Seven species of nudibranch were noted including the recently described (2020) *Amphorina andra* (ID confirmation Bernard Picton) and the sparsely recorded *Trapania pallida*.



Rock wall community of algae, sparse erect bryozoans, barnacles, cup corals, encrusting sponge and calcareous algae. BB



Didemnum pseudofulgens DK



Scale worm *Alentia gelatinosa* DK



Norway bullhead, *Micrenophrys jilljeborgii*, lateral spines just visible SB

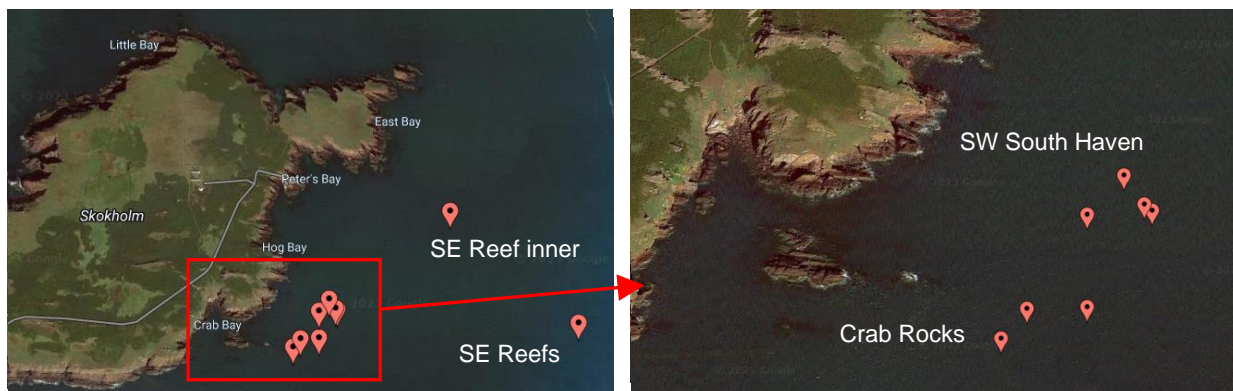
Between the ridges and extending to the west was a flat area of mixed cobbles, pebbles, gravel and coarse shell gravel. The larger stones were clearly scoured and dominated by barnacles, *Spirobranchus* spp tubeworms and encrusting pink calcareous algae with scattered red algae.

Several dragonets were noted on the sediments and a single Norway bullhead, *Micrenophrys lilljeborgii*, a first record for Wales, was subsequently identified as 'by-catch' in a photograph amongst algae on the ridge (ID confirmation Lin Baldock).

5.3 Skokholm

Skokholm is an Old Red Sandstone island lying two miles off the southwest Pembrokeshire coast which has received considerable effort by Seasearch surveyors over previous years. The south and western coasts of the island are deep, extremely exposed and often very difficult to access. After the successes of surveying several sites in the NW coast's aptly named Mad Bay in 2021, the 2022 survey effort was limited to the area east of Crab Rocks at the western entrance to South Haven, the annually visited crawfish survey site on the offshore SE Reefs and an inshore reef SE of the Neck (see map below left).

Seven locations near Crab Rocks were surveyed over two consecutive days. Although similar and part of the same reef system, these split into two groups; an inner group of four (described below under heading SW South Haven) and the three remaining locations ESE of Crab Rocks (described below under Crab Rocks; see map below right).

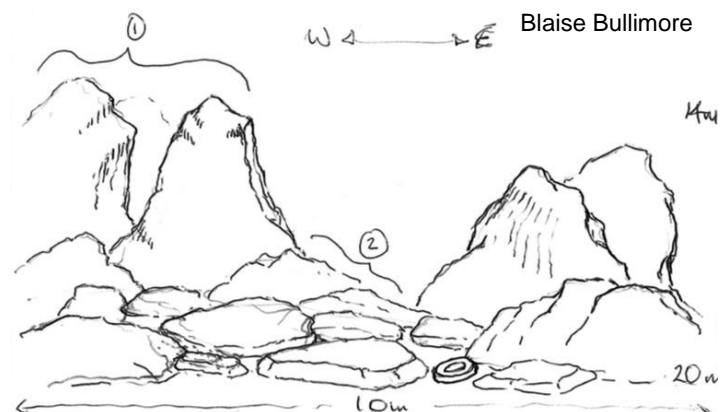


5.3.1 SE Skokholm Reefs

An extensive area of very rugged reef extends over 700m east and southeast from Skokholm island. Numerous sites across the reef have been surveyed since 2000 and the area continues to be explored. The same general location is revisited annually with more ground being covered than in a usual Seasearch dive and a group survey form is completed.

The surveyed area comprised very irregularly jagged bedrock ridges and broad pinnacles 2-3m high, interspersed with flattened large to very large angular boulders and occasional ribbons of coarse sediment, between 12 and 17.5m bcd.

Typically for this reef system, the ridges were dominated by massive sponges, particularly Abundant *Pachymatisma johnstoni* and *Amphilectus fucorum*, mixed short red algae, scattered patches of short erect bryozoan turf with frequent tall hydroids *Nemertesia antennina*, *Tubularia indivisa* and *Halecium halecinum*, scattered erect, cushion and



encrusting sponges, most commonly goosebump sponge, *Dysidea fragilis*, and Occasional *Pentapora foliacea* and *Alcyonium digitatum*. These species overlay an understory of Abundant barnacles with mixed compound ascidians, jewel anemone patches, *Corynactis viridis*, and Common *Caryophyllia smithii*. Occasional patches of the southern species *Gymnagium montagui* (Indian feather hydroid) and the yellow trumpet anemone *Parazoanthus axinellae* were encountered.



Ridge habitat

BB



Boulder habitat with *Pentapora foliacea*

BB



Ridge – boulder habitat interface

BB



Mixed ascidians and erect bryozoans

BB



Well concealed juvenile crawfish

KL



Parazoanthus axinellae

KL

Occasional *Thymosia guernei* and *Pawsonia saxicola* and few black tar sponges *Dercitus bucklandi* were recorded in crevices and under overhangs on the more sheltered (northern) sides of ridges.

The boulders were characterised by Superabundant barnacles, short erect bryozoan / hydroid turf, extensive patches of *Flustra foliacea* and occasional colonial ascidians.

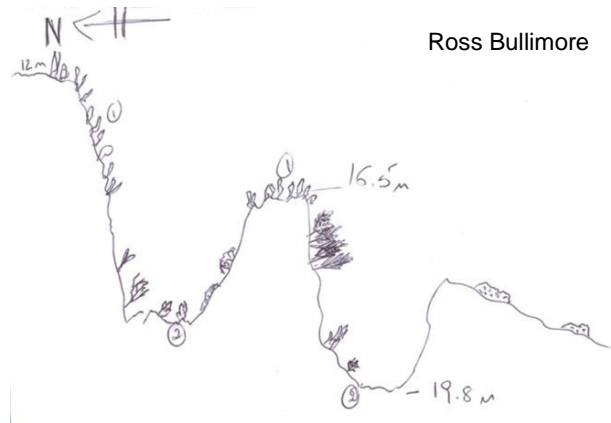
Several crawfish, *Palinurus elephas*, were encountered.

5.3.2 SE Skokholm Inner Reef

The survey area consisted of rugged, creviced and fissured reef of ridges and steep sides gullies extending between eight and 15m bcd.

The reef tops and upper sides of the ridges to c.10m bcd were characterised by mixed red, mostly *Delesseria sanguinea* and *Heterosiphonia* sp, and encrusting pink calcareous algae, massive and cushion sponges, *Pachymatisma johnstoni*, *Cliona celata* and *Amphilectus fucorum*, erect bryozoan turf of *Cellaria* and *Crisia* spp, and *Caryophyllia smithii*.

From c.10 to 15m bcd the sides of the ridges to the gully floors between the ridges were dominated by the same species of massive and cushion sponges with small erect sponges and patches of *Cellaria* spp, tall hydroids, including a single large patch of *Gymnagium montagui*, Frequent *Pentapora foliacea* and Rare *Eunicella verrucosa*. Larger erect sponges, including Occasional *Axinella dissimilis*, were more frequent on the more locally sheltered, highly creviced, fissured and overhung north faces of the ridges. The mashed potato sponge, *Thymosia guernei*, was recorded as Frequent and several *Dercitus bucklandi* were noticed in crevices.



Ross Bullimore



Mixed sponges

BB

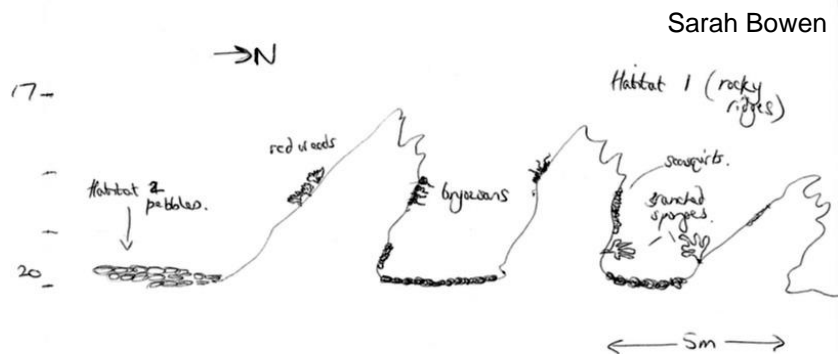


Leopard spot goby *Thorogobius ephippiatus* CJ

5.3.3 SW South Haven

An apparently extensive, complex reef system of jagged, parallel, steep-sided, tilted, silty, rock ridge outcrops orientated roughly E-W, with gullies between, lying at the western entrance to South Haven was surveyed from 15.5-19.5m bcd.

The ridges were covered with a dense turf of erect bryozoans, tall hydroids, cup corals, *Caryophyllia smithii*, colonial and small solitary ascidians with erect, encrusting, cushion (particularly *Amphilectus fucorum*) and Frequent to Common massive sponges, and scattered *Pentapora foliacea*. *Pycnoclavella producta* was recorded as



Sarah Bowen

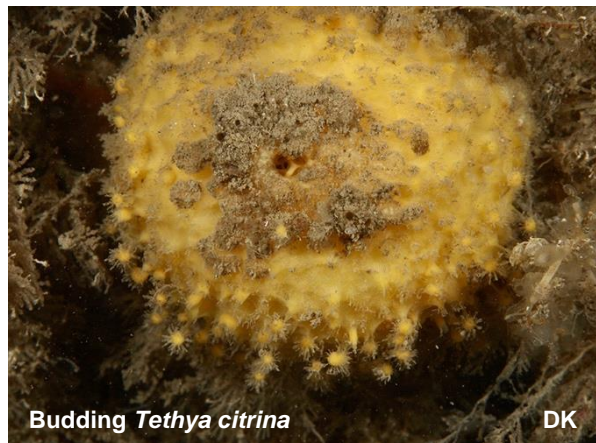
Frequent and other colonial ascidians of apparently limited distribution, including *Aplidium* 'strawberry' and *Didemnum pseudofulgens*, were noted. A few patches of the exposure and coarse sand / shell gravel-tolerant sponge *Ciocalypa penicillus* were recorded, as were scarce patches of *Flustra foliacea* on some ridge tops. Crawfish were noted in two of the four locations.

Larger erect sponges, particularly *Axinella dissimilis*, were again more frequent on the more locally sheltered, highly creviced, fissured and overhung north faces of the ridges. *Thymosia guernei*, fan worms, *Bispira voluticornis*, and conger eel were recorded from the crevices.



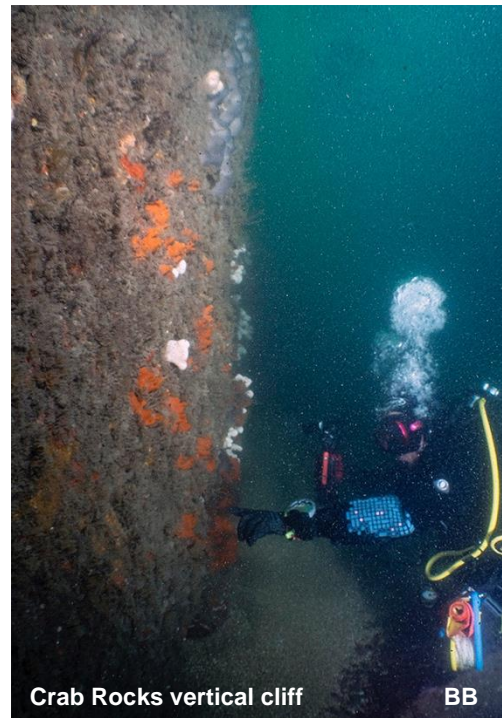
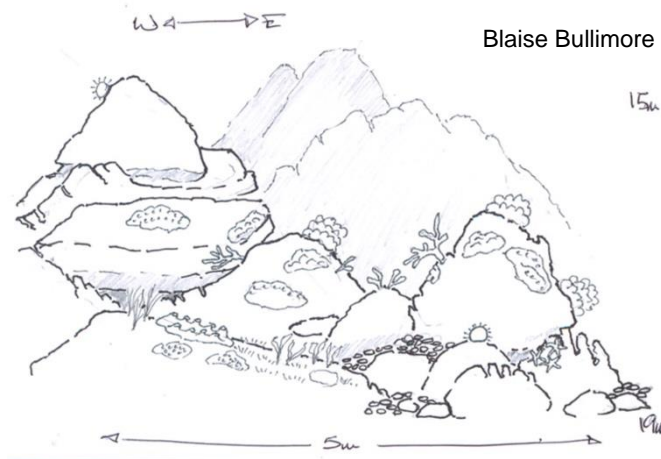
The hydroid *Aglaophenia acacia* was provisionally identified from a photograph. There are only ten UK records of this species, one of which is from Skokholm SE Reefs made by the same recorder.

The coarse sand, rounded pebbles and cobbles and occasional shell fragments of the flat gully floors appeared mobile and scoured and the only biota recorded was a scattering of finger bryozoan, *Alcyonidium diaphanum*, dragonets, leopard spotted gobies and a single, small anglerfish, *Lophius piscatorius*.



5.3.4 Crab Rocks

This site was a continuation of the reef system described above, but more wave and current exposed and rugged, with taller ridges, extending to 18.5m bcd, and an extensive vertical cliff which extended from 9.5 to 15.5m bcd at the most inshore location. The very rugged and tilted ridges were aligned E-W with adjacent very large flattened boulders to the south, and cobbles, pebbles and gravel between them. Flatter rock faces were moderately heavily silt-covered.

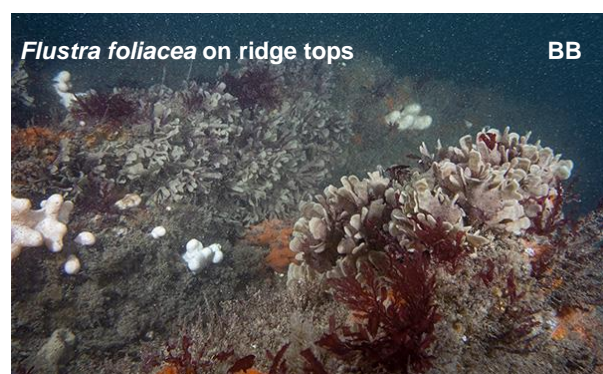
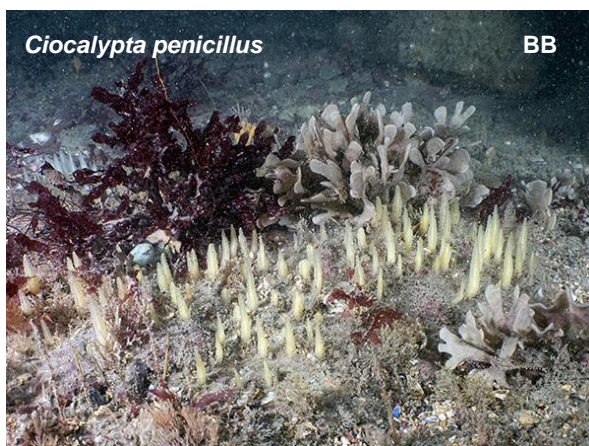


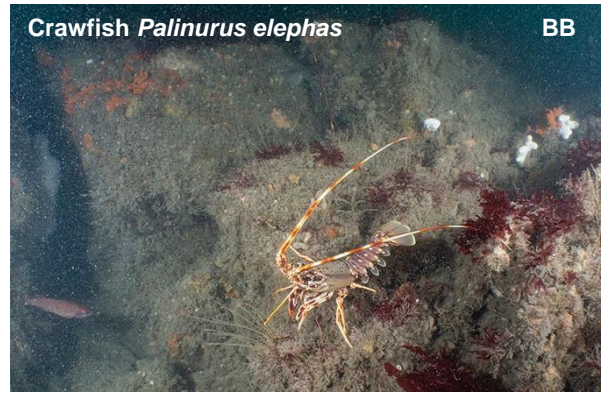
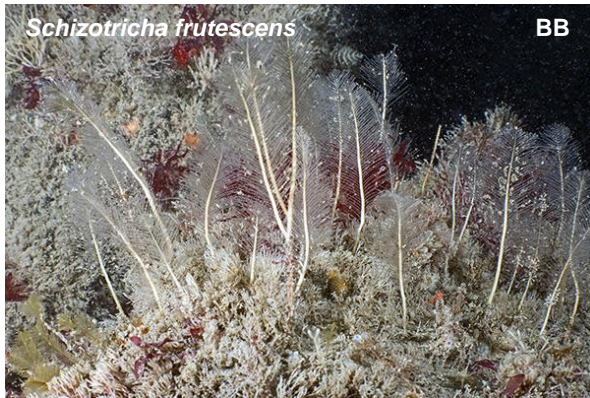
The shallowest uppermost sides of the ridges supported a turf of mixed red algae with an understory of bryozoans and sparse sponges. Deeper, the ridge slopes and boulders were dominated by massive, cushion and erect sponges, including large

Pachymatisma johnstoni, the extensive patches of *Amphilectus focurum* which characterise many sites around southeast Skokholm, and large *Axinella dissimilis* in local shelter. Dead-men's fingers, *Alcyonium digitatum*, and Frequent, some large, ross corals, *Pentapora foliacea*, were also present together with a short, silty, dense bryozoan / hydroid / colonial ascidian turf in which the pinhead sea squirt *Pycnoclavella producta* was recorded as Common and *Stolonica socialis* and *Caryophyllia smithii* as Frequent. *Thyrosia guernei* and *Bispira voluticornis* were again recorded from crevices on the north faces of ridges, together with *Dercitus bucklandi*.

Ciocalypta penicillus was also recorded again, as were much more extensive and frequent patches of *Flustra foliacea*, indicative of greater current exposure than at the inner locations described above. A single patch of *Schizotricha frutescens*, normally found deeper than 20m and only recorded in SW Wales previously from Skomer, was recorded.

Crawfish were noted in two of the three locations.



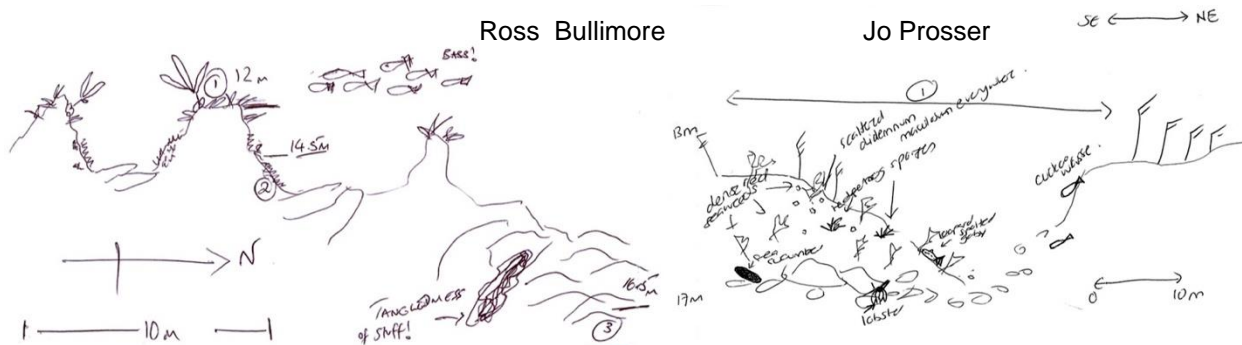
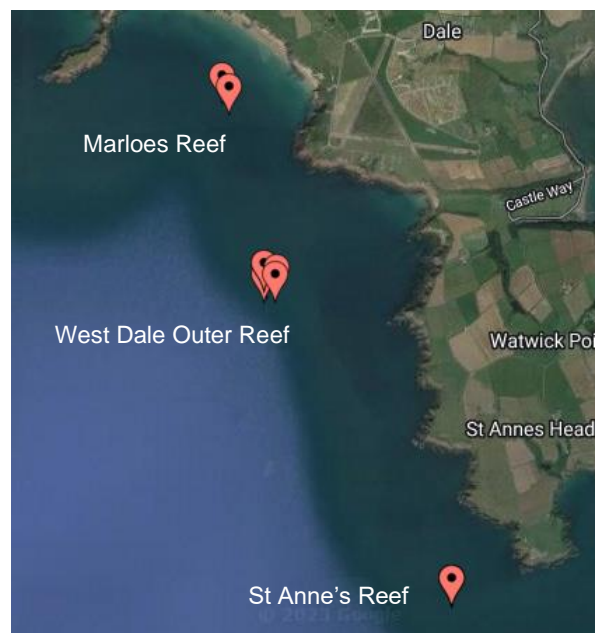


5.4 Dale and SE Marloes peninsulas

5.5.1 Marloes Reef

An elongated series of scattered Old Red Sandstone reef outcrops runs ESE from Gateholm Island off Marloes Sands beach, several of which have been surveyed previously. This survey was of low lying, irregular bedrock reef outcrops and shallow gullies with boulders, falling away to sand with small to medium sand waves.

The outcrop tops and upward facing surfaces from seven to nine metres bcd were covered with a dense red algal meadow, including Abundant *Calliblepharis ciliata*, *Heterosiphonia* spp, *Delesseria sanguinea*, with a sparse *Saccorhiza polyschides* and *Laminaria hyperborea* kelp park and scattered *Dictyota dichotoma*. There was an understory of encrusting pink calcareous algae, occasional patches of compound ascidians and scattered patches of encrusting and massive sponges including Occasional *Amphilectus fucorum*, *Dysidea fragilis* and *Polymastia boletiformis*. *Caryophyllia smithii* cup corals were frequently scattered amongst the algae.



The deeper slopes and vertical and overhanging faces of the outcrops between nine and 11m bcd were heavily creviced and fissured. Encrusting pink calcareous algae were Common as were *Caryophyllia smithii* and the compound ascidians *Didemnum maculosum* and *Polysyncraton bilobatum*. *Diplosoma spongiforme* was noted as Frequent. Large *Thymosia guernei* and, in crevices, *Dercitus bucklandi*, were also recorded as Common together with many orange bryozoan crusts and scattered finger bryozoan, *Alcyonidium diaphanum*, colonies.

A school of bass, *Dicentrarchus labrax*, and frequent ballan and goldsinny wrasse were observed over the reef.

A large tangled mass of fishing net, angling debris, electrical cable and steel wire was noted as rolled up and snagged on boulders at the sand interface.

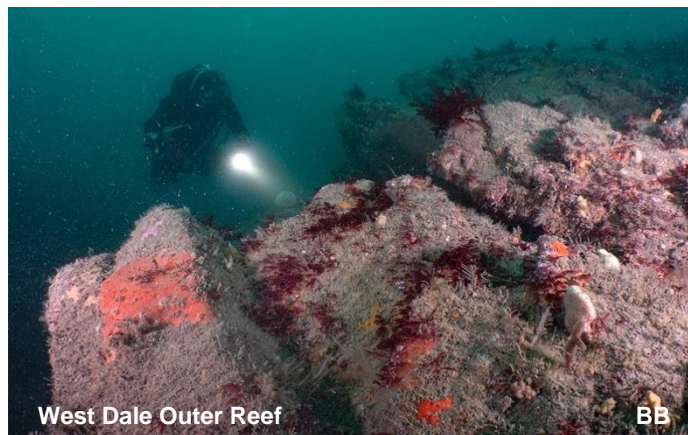


Bass, *Dicentrarchus labrax*

BB

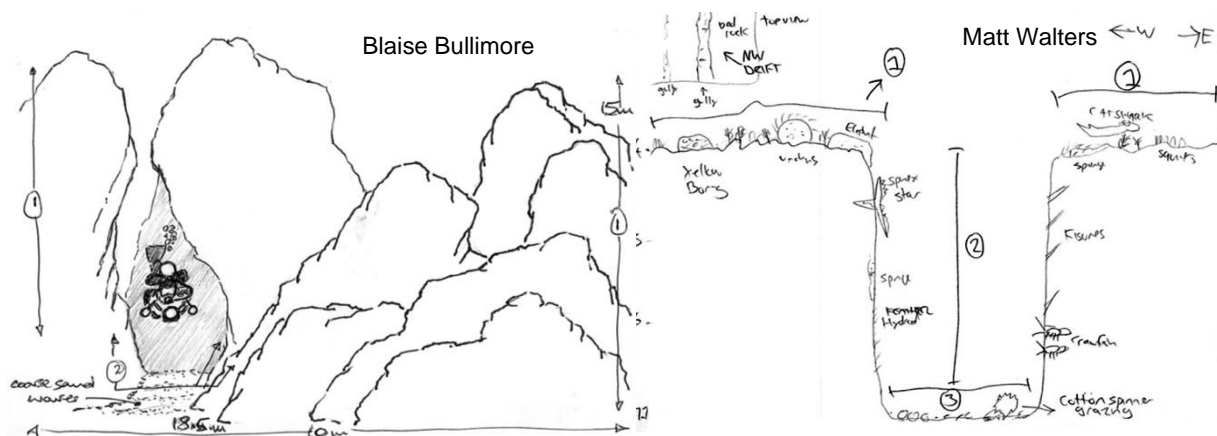
5.5.2 West Dale Outer Reef

An extensive, very wave exposed, Old Red Sandstone reef runs over a kilometre southwest from West Dale Bay at the base of the Dale peninsula. The surveyed locations comprised rugged bedrock ridges, pinnacles, slopes and gullies, some more than 4m deep in places, to 16m bcd. The many steep, vertical and overhanging surfaces provided some slight local wave shelter. The lowest of the rock surfaces abutting coarse sand waves (which were not surveyed) were clearly subject to sand scour and described as a separate habitat. .



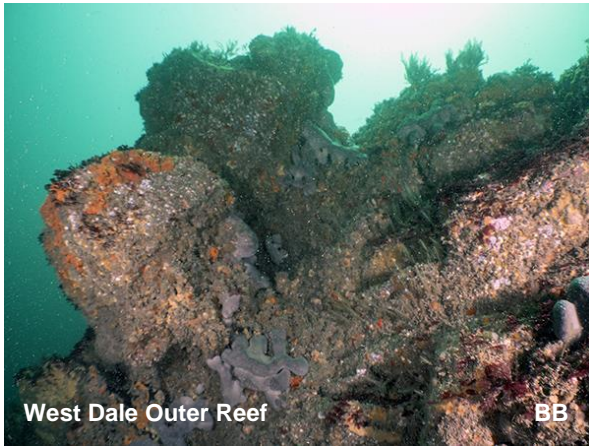
West Dale Outer Reef

BB



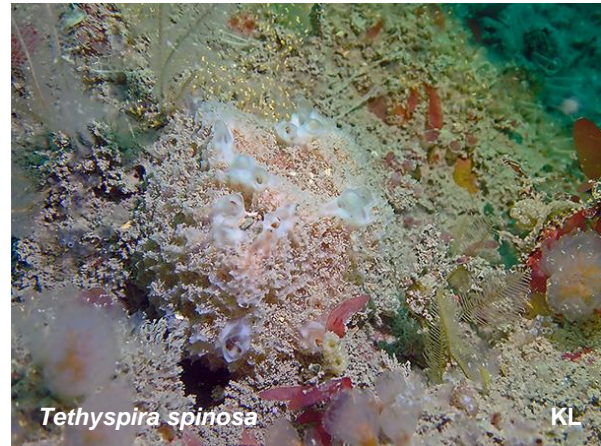
Survey effort focussed on the creviced and fissured sides of the ridges, slopes and gullies which were dominated by sponges, mostly massive and cushion, and ascidians, with extensive patches of the colonial stoloniferous species *Stolonica socialis* and *Pycnoclavella aurilucens* recorded as Abundant and Common respectively, overlying an understory of Abundant barnacles.. A rich erect bryozoan / hydroid turf with *Caryophyllia smithii*, scattered *Pentapora foliacea* and patches of *Pycnoclavella stolonialis* and *P. producta* were also present mixed amongst the sponges and ascidians.

Scattered thin flat red algae and *Delesseria sanguinea* were present on upward facing surfaces on the shallower rock, with grazing urchins, *Echinus esculentus*, and patches of encrusting pink calcareous algae. The pink algal crusts also extended to the bottom of the bedrock walls and outcrops to the rock-sand interface.



West Dale Outer Reef

BB



Tethyspira spinosa

KL



Cowrie *Trivia arctica*

CB



Mixed ascidians

BB

The localised shelter provided on the deeper steeply overhanging surfaces in the gullies was evidenced by the presence of erect sponges, including a single *Homaxinella subdola*, normally found in less exposed locations, a few *Eunicella verrucosa* and larger *Pentapora foliacea* colonies. Localised dense patches of tall hydroids, mainly *Nemertesia antennina*, and erect bryozoans were also present. Patches of *Flustra foliacea* were recorded in more exposed locations.

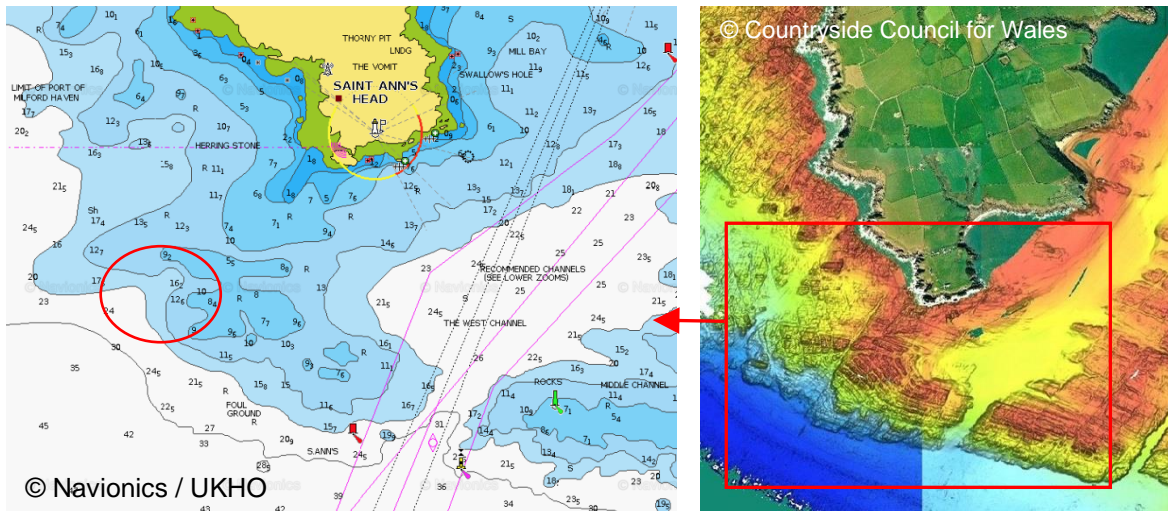
Juvenile and small crawfish were recorded and schools of pollack, *Pollachius pollachius*, were noted swimming over the reef

5.5.3 St Ann's Reef

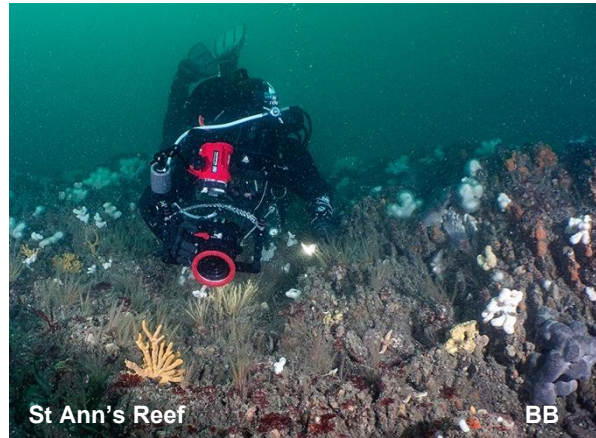
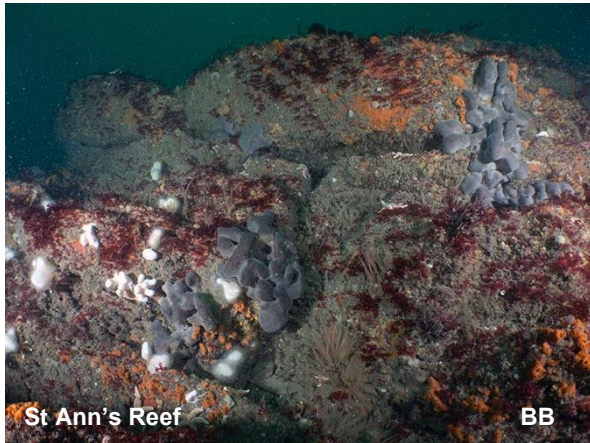
A very extensive, rugged, shallow, extremely wave and very current exposed Old Red Sandstone reef extends south to southwest from St Ann's Head at the western entrance to Milford Haven (see chart overleaf left). The site has long been on the target list for survey but conditions are rarely conducive since it is subject to long wavelength swells much of the time. The survey location was in the approximate position where the oil tanker Sea Empress became grounded for three days after running into Mid-Channel Rocks in the centre of the Milford Haven entrance in 1996 whilst carrying 130,000, and spilling 72,000 tonnes of North Sea Forties crude oil.

The survey area comprised highly irregular, pitted and fissured bedrock, roughly horizontal overall but comprised of ridges, gullies and low pinnacles (see multibeam image overleaf right) with areas of boulders and cobbles between 13 and 16m bcd. The reef was dominated by large massive and cushion sponges, including Abundant *Amphilectus fucorum*, a dense compound ascidian / erect bryozoan / hydroid turf overlying barnacles, with short, thin flat red algae and embedded solitary ascidians. However, the distributions were very patchy with large patches of *Flustra foliacea* or dense *Alcyonium digitatum* colonies dominating some areas. Occasional extensive encrusting sponges and scattered scoured areas of encrusting pink calcareous algae and bare bedrock were also present,

each of which provided a marked contrast with the areas of short turf. Scattered large *Pentapora foliacea* and aggregations of common starfish, *Asterias rubens*, were also present.



The commonest compound ascidians were *Morchellium argus*, *Aplidium punctum*, two of the known but currently undescribed *Aplidium* species, “strawberry” and “caramel 2-spot” and other unidentified sand-encrusted polyclinids. Embedded solitary ascidian *Polycarpa scuba* was recorded as Abundant and scattered patches of *Stolonica socialis* and *Archidistoma aggregatum* were Occasional. The bryozoan / hydroid turf was dominated by Abundant *Crisia* spp mixed with *Bugulina* spp, *Bicellariella ciliata*, medium to tall hydroids, most frequently *Nemertesia antennina* but also including *Sertularia argentea*, *Abietinaria abietina* and *Aglaophenia* spp, and, less frequently, *Cellaria* spp and *Caryophyllia smithii* cup corals.



The sponge *Dysidea pallescens* was recorded and photographed (ID Christine Picton; see image in section 3.2); the fourth record for Wales. All three other records are from the sponge monitoring programme in the Skomer MCZ.

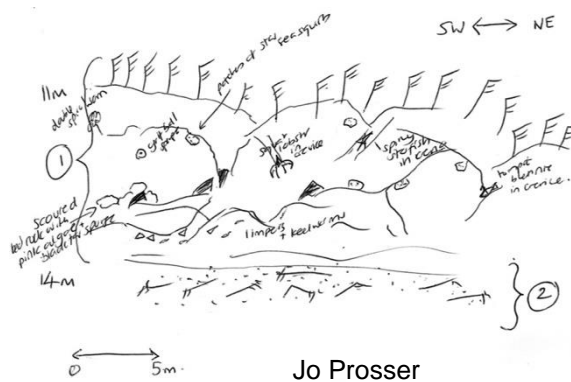
5.5 South Pembrokeshire

Three sites were surveyed on the Angle and Castlemartin peninsulas, two on Old Red Sandstone (Black Cave and Freshwater West Offshore) and one on Limestone (Linney Head West).

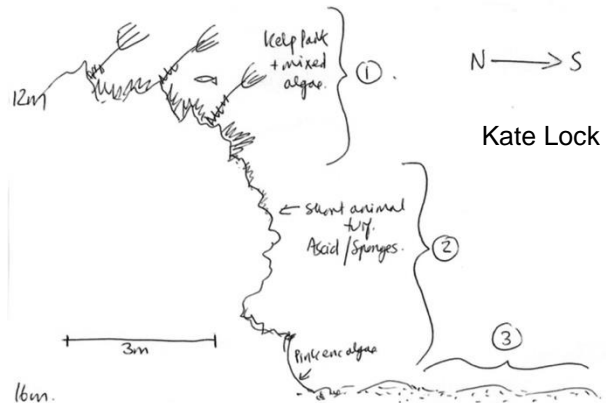
5.5.1 Black Cave

Four locations were surveyed along c.400m of the Angle Peninsula coast westwards from Black Cave, c.1km west of Freshwater West.

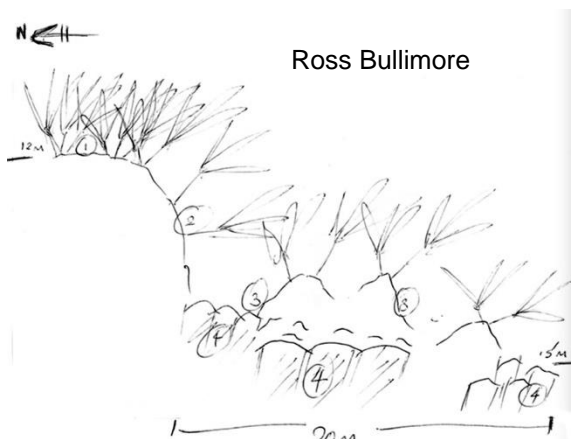
The survey sites comprised very rugged, creviced and fissured, rocky reef with steep seaward faces around two metres high, with small, shallow caves and overhangs in places, between 6.5 and 10.5m bcd, adjacent to (unsurveyed) coarse sand with medium mobile sand waves at 9.5 – 10.5m bcd. The topography at each of the locations varied but the habitat and species descriptions for each were consistent.



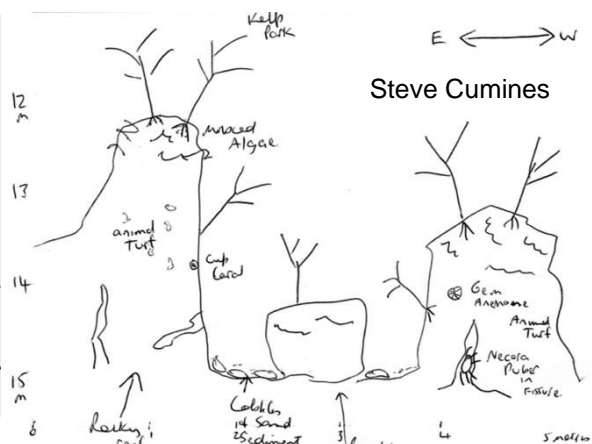
Jo Prosser



Kate Lock



Ross Bullimore



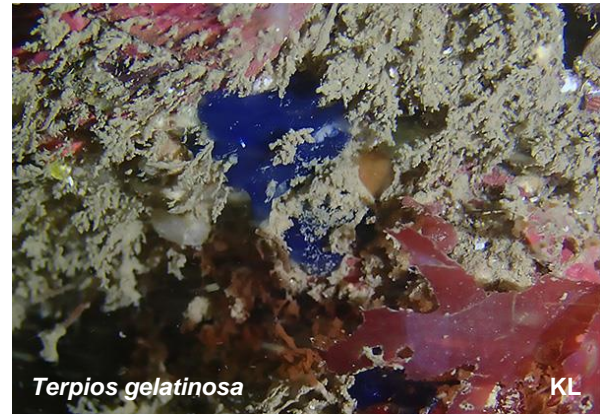
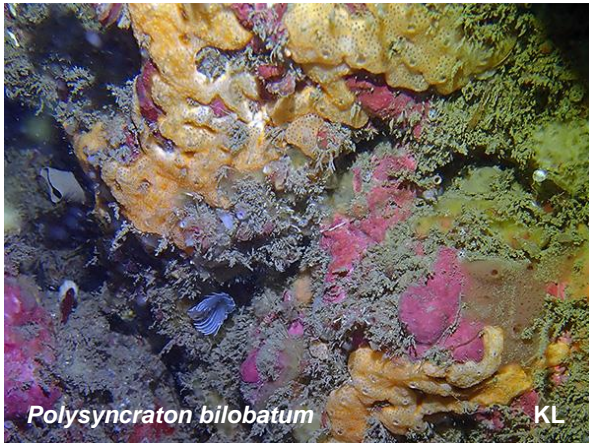
Steve Cumines

The shallowest, roughly horizontal, reef tops between 6.5 and 8.5m bcd were dominated by *Laminaria hyperborea* kelp forest and a dense red algal understory of mainly *Delesseria sanguinea*, *Cryptopleura ramosa*, *Plocamium* spp, *Calliblepharis ciliata* and *Dilsea carnosa*, and encrusting pink calcareous algae. The kelp and larger red algae were frequently encrusted with *Membranipora membranacea* and *Electra pilosa* respectively, with *Botryllus schlosseri* on kelp holdfasts.

The transition between the flatter areas of reef and the top of the the steep to vertical faces between eight and 9.5m bcd supported kelp park with sparse algal meadow, Abundant encrusting pink calcareous algae and *Spirobranchus* sp calcareous tubeworms. Scattered sponge crusts and a

scoured bryozoan turf, comprised of mainly *Crisia* spp and *Alcyonidium diaphanum*, with encrusting orange bryozoans was also present, together with Occasional *Caryophyllia smithii* and encrusting compound ascidians *Diplosoma spongiforme* and *Polysyncraton bilobatum*. Low numbers of small erect finger sponges were recorded in local shelter from the shallow caves and deeper clefts.

The south (seaward) facing, deeper, vertical surfaces were very scoured and dominated by Superabundant encrusting pink calcareous algae with Occasional *Spirobranchus* sp and *Dercitus bucklandi* (in crevices) and very low numbers of *Ascidia mentula* and *Bispira voluticornis* in local shelter in crevices



5.5.2 Freshwater West Reef

Four locations running about 200m north to south c.1.25km offshore from Freshwater West were surveyed. A low lying, ruggedly undulating, Old Red Sandstone bedrock reef with shallow gullies and moderately rounded small boulders, cobbles and pebbles was recorded between 9.5 and 14m bcd. Evidence of scour was noted nearest to adjacent mobile substrates.

Localised patchy kelp park was present on the highest points of the reef but the rock was mostly characterised by mixed red algae, most commonly *Delesseria sanguinea* and Frequent *Cryptopleura ramosa*, *Acrosorium venulosum*, *Plocamium* spp, *Heterosiphonia plumosa* and *Dilsea carnosia*, with Occasional *Dictyota dichotoma* and *Dictopteris polypodioides* and an understory of patches of encrusting pink calcareous algae.

Sparse faunal cover was present between the algae and on slightly deeper surfaces. This comprised an impoverished short bryozoa turf of mainly Frequent *Cellaria* and *Crisia* spp and Occasional *Alcyonidium diaphanum*, with scattered *Caryophyllia smithii*. Small, localised patches of *Flustra foliacea*, infrequent massive sponges *Pachymatisma johnstoni* and *Cliona celata* were also present together with low numbers of small erect branching and cushion sponges, compound ascidians *Aplidium punctum*, *Botryllus schlosseri* and other unidentified sand-encrusted Polyclinid ascidians.



In more obviously scoured areas, encrusting pink calcareous algae was Abundant with Frequent *Spirobranchus* and *Spirorbis* spp calcareous tubeworms.

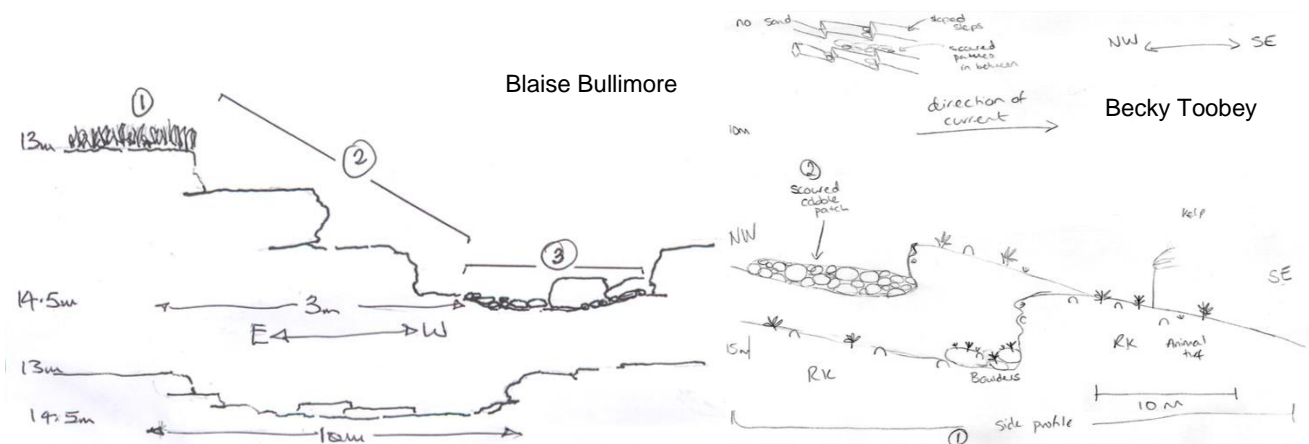
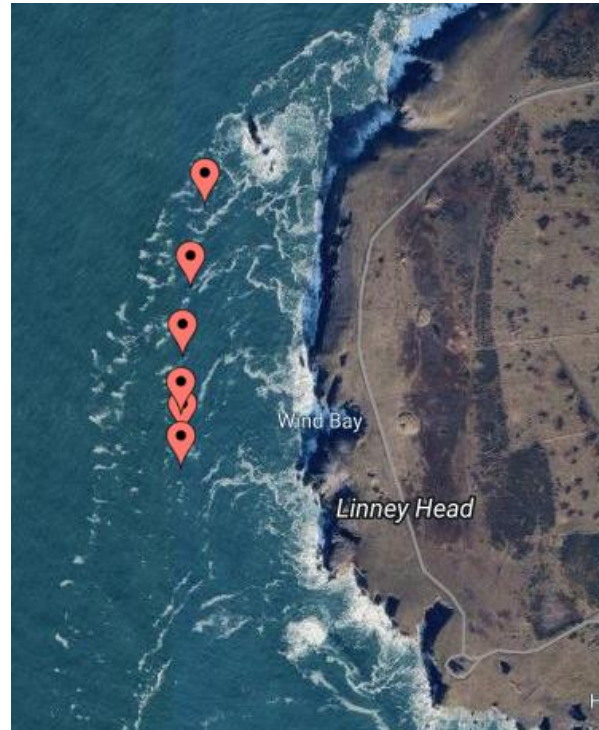
5.5.3 Linney Head West

The same late May day which allowed access to St Ann's Reef also provided the opportunity to survey another very wave and tidally exposed site which has been on the wish-list for many years, the western side of Linney Head on the Castlemartin Peninsula.

Six survey locations were spread 450m along a roughly north to south line. Survey pairs encountered very similar habitats but the slightly different depths resulting from a broad shelf of shallower reef toward the south, immediately west of Linney Head, revealed localised differences in topography and substrate.

The adjacent peninsula's use as a military training range was evidenced by the presence of expended munitions.

Seabed at the three northernmost locations lay at between 9.5 and 11m bcd. It comprised roughly horizontal or slightly sloping limestone plateaux and strata at nine to 9.5m bcd, falling away in a north-south series of squared rock steps, each about a half metre high with shelf-like crevices up to 200mm deep between the strata. Adjacent to the 'steps' were roughly horizontal or slightly sloping, flat-topped, low, smooth bedrock ridges less than 300mm high and occasional, slightly taller, rectangular outcrop blocks and large boulders also aligned north-south. Between these ridges and blocks were both small patches and more extensive areas of mobile, very rounded, small boulders, cobbles and coarse sand at 10 to 11m bcd. Similar, discrete, higher-standing outcrop blocks provided occasional slightly shallower spots on the reef top. Above the smooth, scoured and eroded surfaces the bedrock was heavily fissured and pitted, particularly the vertical sides of the steps. Just visible to the west was what appeared to be a further north-south aligned block of bedrock reef plateau suggesting that the area of low ridges and mobile substrates was a broad gully rather than the transition to a sediment seabed.



The reef top was superficially surveyed. It comprised a lush mixed red algal meadow dominated by *Heterosiphonia plumosa*, *Delesseria sanguinea* and *Plocamium cartilagineum* with extremely sparse *Laminaria hyperborea* and a few scattered but conspicuous and some large *Polymastia penicillus*. Extensive patches of ascidicans *Dendrodoa grossularia*, *Distomus variolosus* and unidentified sandy

polyclinids formed a partial understory and continued over the lip of the reef onto the rock steps below.

The upper surfaces of the steps, the taller ridges and isolated squared-off outcrops and boulders supported a short faunal turf, *Dendrodoa* / *Distomus* patches and the same, though more sparse, filamentous and flat red algal meadow. A diverse range of massive, encrusting, cushion and gobular sponge species were also present on the reef lip and horizontal step surfaces, including Common *Halichondria panicea* and Frequent *Pachymatisma johnstoni*; whilst none were present in large numbers, many were conspicuously large examples. *Clathrina coriacea* was also noted as Occasional within some *Dendrodoa* patches. Sparsely scattered *Alcyonium digitatum* colonies were present along the lip of the reef edge.



Limestone rock steps and adjacent cobbles BB



Limestone end strata ridges and cobbles BB



Mixed ascidians BB



Expended military munition BB

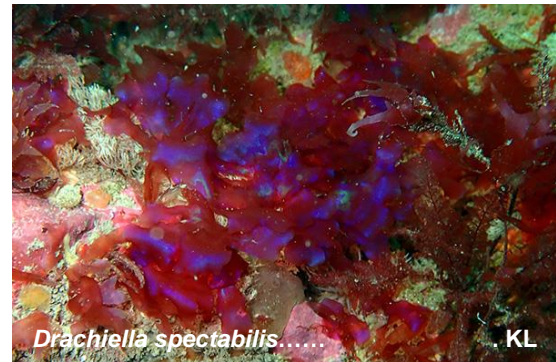
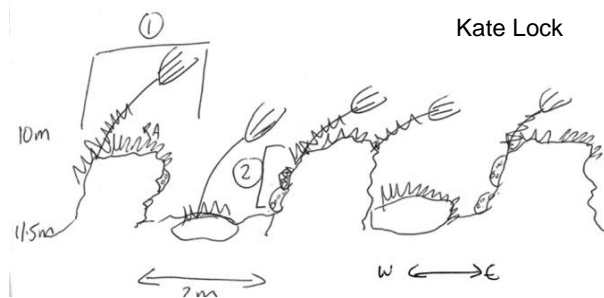
The vertical step faces were characterised by an extremely dense and species rich assemblage of solitary and, mostly, compound ascidians interspersed with sponges, hydroids and a patchy, but locally dense, erect bryozoan turf of *Cellaria*, *Scrupocellaria* and *Crisia* spp. *Dercitus bucklandi* was occasionally noted in horizontal crevices.

Dendrodoa grossularia and *Distomus variolosus* dominated the jigsaw-like ascidian assemblage (see frontispiece image before contents page) which included notably large and frequent patches of other species of both widespread and limited distribution: *Stolonica socialis*, *Morchellium argus*, *Polycarpa scuba*, *Sidnyum turbinatum*, *Aplidium nordmani*, extensive patches of at least four other undescribed *Aplidium* species including “strawberry” (recorded as Common), “honeycomb” and “caramel 2-spot”, and also of pin-head squirts *Pycnoclavella aurilucens* and *P. stolonialis*. Rare but large sheets of *Polysyncraton bilobatum* were also noted.

Adjacent to the steps, the bedrock was highly scoured up to the interface with the ascidian and algal dominated community described above. The most scoured rock was smooth, rounded and bare or supported encrusting pink calcareous algae. The small boulders and cobbles were smooth, rounded bare rock. The least scoured, higher standing ridges, blocks and boulders also supported barnacles,

Spirobranchus spp and *Sertularia argentea* before transitioning into the step community described above.

The three southernmost locations were slightly shallower, at 6 – 7.5m bcd, and comprised low lying rock ridges with approximately metre high vertical faces, also aligned north-south, with large boulders and scattered gravel and coarse sand on the gully floors between them. Upward facing ridge tops were dominated by *Laminaria hyperborea* kelp park and rich red algal meadows dominated by *Heterosiphonia plumosa*, *Cryptopleura ramosa*, *Drachiella spectabilis* and *heterocarpa*, *Delesseria sanguinea*, *Acrosorium venulosum* and *Rhodymenia pseudoplamata*.



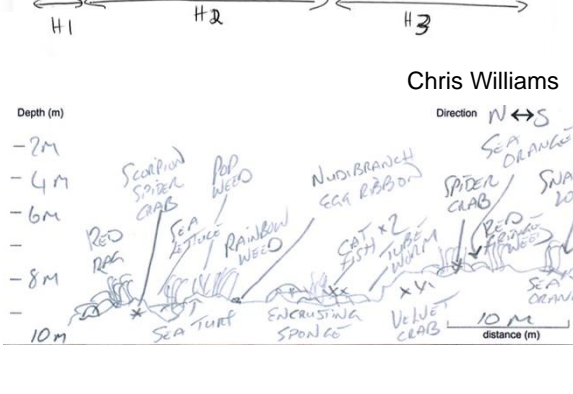
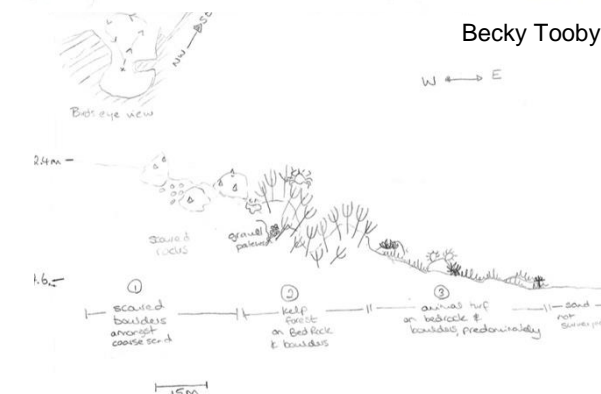
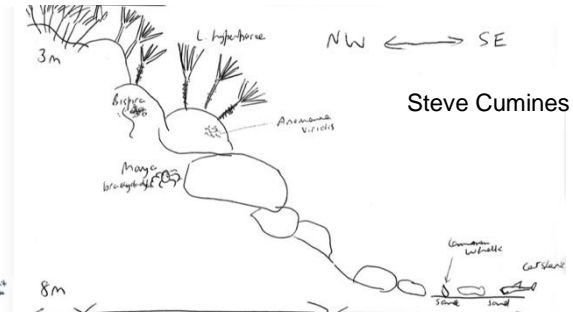
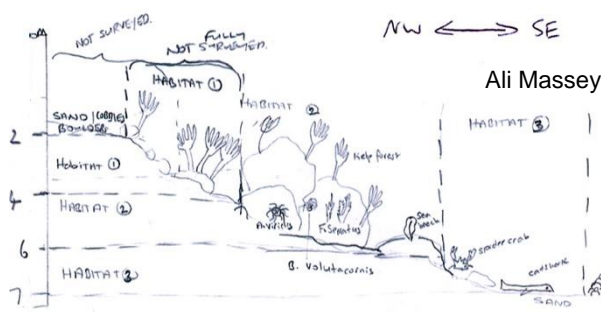
The vertical ridge sides supported the same red algal assemblage but also with *Alcyonium digitatum*, both solitary and compound ascidians and infrequent massive and cushion sponges. The faunal, ridge-side community included very little bryozoan turf and fewer ascidians than at the slightly deeper locations further north.

5.5.4 Stackpole Quay

Both Observer (10) and Surveyor (7) forms were completed as part of training day exercises. The exact locations of some of the survey dives were not clearly specified on several, but the site sketches made it possible to infer which side of the Quay entrance the surveys were undertaken.

The left, northern side of the embayment outside the quay wall comprised gently sloping limestone bedrock with overlying large boulders in the intertidal, from c.+2m bcd across a narrow band of boulders onto rippled sand with a few scattered boulders at c.2-3m bcd.

The bedrock on the right, southern, side extended deeper, with fingers of rock and boulders extending into the sand at between four and 6m bcd and shallow, sandy gullies in between. One or two Observers apparently also surveyed the sides of the large rectangular blocks which form a seaward defence for the quay wall.



Laminaria digitata forest with fucoid algae was present above chart datum on the north side bedrock slope, below which was a narrow band of *Laminaria hyperborea* forest thinning quickly to kelp park and mixed red algae, mainly *Delesseria sanguinea*, between + 0.5 and 2m bcd.

The south side bedrock / boulder slope was dominated by a fairly sparse red algal meadow with the deeper surfaces supporting a bryozoan / hydroid turf and sparsely scattered massive and encrusting sponges.

Most recorders noted frequent snakelocks anemones, *Anemonia viridis*, and, on the southern side, the trumpet anemones *Aiptasia mutabilis* which are a characteristic of the Stackpole area. Most also commented on the high frequency of spiny spider crab, *Maja brachydactyla*, and hermit crabs, *Pagurus* spp. Rock surfaces adjacent to sand on both sides were recorded as supporting Abundant encrusting pink coralline algae. Two sharp-eyed recorders also noted the presence of sand-eels, *Ammodytes* sp.

The invasive alga wireweed, *Sargassum muticum*, was noted as present and several recorders encountered angling debris on the southern side.



5.6 Swansea Bay and Gower

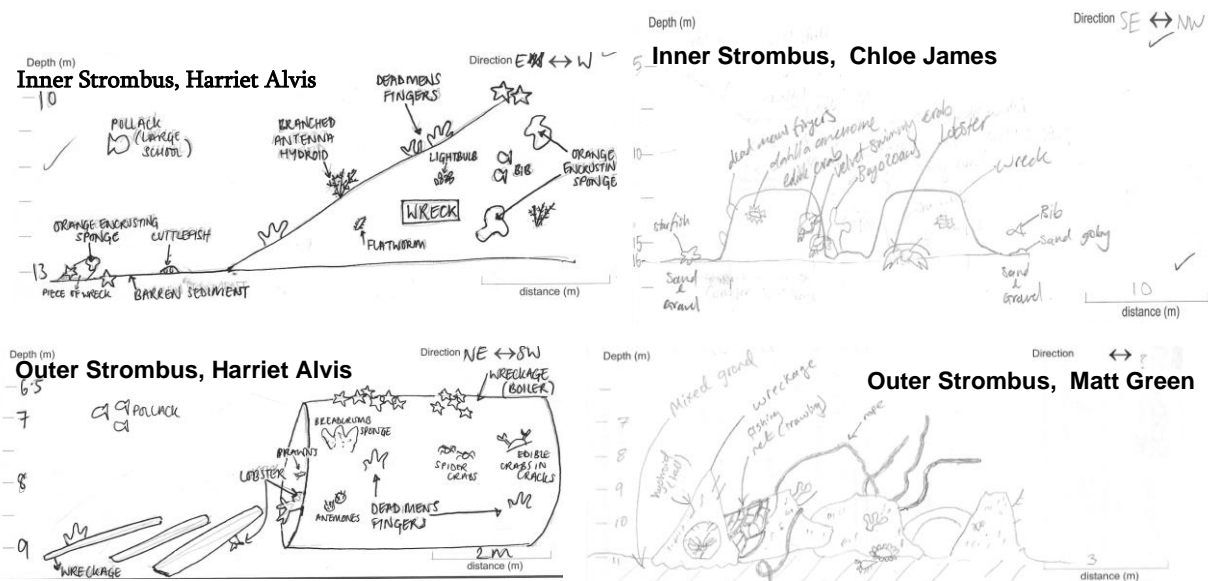
Swansea Bay Wrecks

5.6.1 Strombus Inner and Outer Wreck

The most frequently surveyed site was the Strombus (inner and outer) wreck, a regular dive site for the Swansea Sub-aqua Club. The vessel was a steam tanker, later converted to a whaling factory ship, which sank in 1940. Three sections lie on the seabed after being dispersed by planned explosions in 1977. The wreck mainly comprises broken metal plates and boilers which provide hard surfaces in the otherwise sedimentary bay, with large pieces of metal and several boilers sitting up to 2m proud of the seabed creating an ideal habitat for sessile reef fauna and large mobile crustaceans and fish.

Ten Observer forms were completed, several of which were qualifying forms from new volunteers. Visibility was generally poor for the earlier surveys (<1m) but improved later in the year (up to 7m).

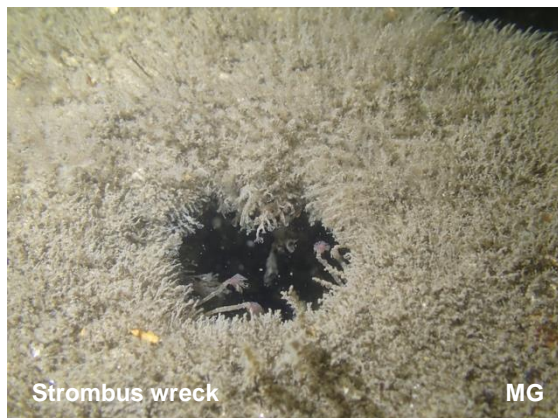
The wreck is a predominantly circalittoral environment despite being in very shallow water, c. +2 - 3.5m bcd, as a result of the high turbidity and low light levels, especially between late autumn and spring. It is characterised by filter and suspension-feeding sessile epifauna. Surfaces are covered in short and long faunal turf including bryozoan turf, crusts and *Flustra foliacea*, and erect hydroids including *Tubularia indivisa*, *Nemertesia antennina*, *N. ramosa*, *Sertularia* sp. and *Hydrallmania falcata*. Anemones, including *Metridium senile*, *Urticina felina* and *Cylista elegans* were Occasional to Frequent, together with lightbulb ascidians, *Clavelina lepadiformis*, dead-men's fingers, *Alcyonium digitatum*, mermaid's glove sponge, *Haliciona oculata*, and sponge crusts.



Mobile species were common on and in the vicinity of the wreckage. Bib, *Trisopterus luscus*, were commonly recorded and seen schooling around the wreck. Bottom dwelling and territorial fish, including gobies, dragonets, cat sharks *Scyliorhinus canicula* and conger eels, *Conger conger*, were also commonly recorded. Crustaceans were common, with hermit crabs, large and small spider crabs, swimming crabs, *Necora puber*, and *Cancer pagurus* all frequently recorded. Large lobsters were often recorded and the presence of epifauna on their carapaces showed that they had not moulted in a long time suggesting in some cases they were very old.

Six nudibranch species were recorded, including *Trapania pallida* and what appeared to be a mating pair of *Amphorina linensis*. This is the first record of *T. pallida* east of Pembrokeshire and Lundy Island and the one of the few *A. linensis* records for in Wales.

Common cuttlefish *Sepia officinalis* were recorded on two occasions and squid and little cuttle, *Sepiola atlantica*, were also noted. Common cuttlefish are not often recorded in south Wales but appear to be relatively common around Swansea and Gower.



5.6.2 Stalheim wreck

The first known biological survey of the Stalheim wreck in Port Talbot Bay was undertaken in poor visibility by new Surveyor Jo Prosser. The wreck was characterised by short and long faunal turf including anemones, particularly *Diadumene cincta*, and other less frequent species including *Metridium senile*, with *Alcyonium digitatum* amongst hydroids and byozoans.



5.6.3 Cabenda wreck

Jo Prosser also carried out the first known biological survey of the Cabenda wreck, also in Port Talbot Bay. The wreck supported a very similar fauna to the Stalheim and also appears to provide a good sanctuary for large mobile species, with conger eels, lobsters and brown crabs all frequently recorded.



Bracelet Bay and Langeland

5.6.4 Limeslade East

Sites east of Limeslade Bay were characterised by featherstars, *Antedon bifida*, and *Alcyonium digitatum*, with occasional hydroids, bryozoans and erect and massive sponges. There were high numbers of hermit crabs and low numbers of several bottom dwelling fish species.



5.6.5 Limeslade Bay

Littoral to upper infralittoral habitats were surveyed within Limeslade Bay.

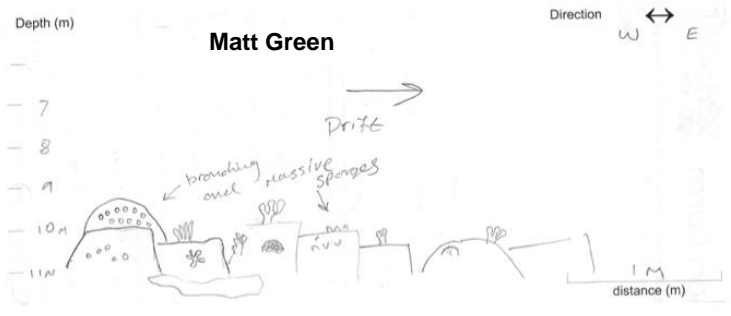
The bay is characterised by limestone rock outcrops to the west and boulders and rocky outcrops to the east. Algae were not dominant at the eastern site and only included *Cryptopleura ramosa*, *Heterosiphonia plumosa*, *Calliblepharis ciliata*, encrusting pink corallines and kelp park, indicating an upper infralittoral habitat. A relatively diverse assemblage of species was recorded. Bryozoans and phoronid worms were common and hydroids and sponge crusts were occasionally present.

In the west, algae were more dominant and included reds, greens and browns. The shallower area to the west was dominated by barnacles. Several mobile species were commonly recorded around the fringes of the reef including sandeels and bib, *Trisopterus luscus*, and large numbers of crabs. A juvenile common cuttlefish, *Sepia officinalis*, was recorded.

Unexpectedly, a gun was also found, recovered and promptly handed to the local police station!

5.6.6 Langeland Sponge Gardens

A reef of limestone slabs running parallel with the shore amongst sediment between Langeland and Limeslade was surveyed in challenging conditions of low visibility (<1m), current and moderate wave surge. The reef was mainly characterised by short and long faunal turf with relatively high diversity of erect and massive sponges including *Raspailia ramosa*, *Cliona celata*, *Dysidea fragilis*, *Amphilectus fucorum*, *Haliclona oculata*, *Stelligera rigida*, *Hemiycale sp*, *Myxilla incrustans*, *Polymastia penicillus* and *Tethya citrina*, alongside hydroid and bryozoan turf.



Selection of sponges at Langland Sponge Gardens MG

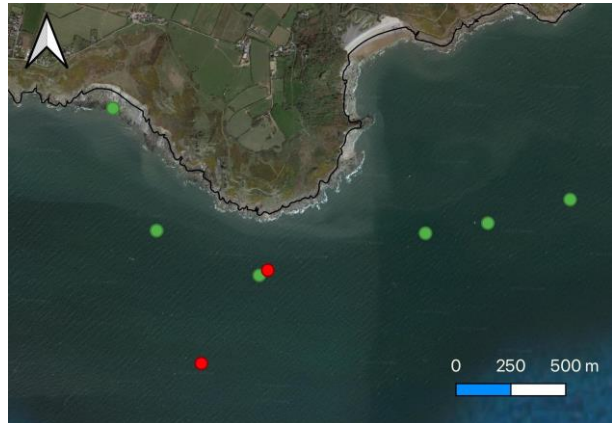
5.6.7 Pwll Du Head

Seven locations around the Pwll Du headland at between four and 17m bcd were surveyed.

Habitats were mostly limestone bedrock reef, likely contiguous with the headland, amongst sediment with occasional boulders.

Shallower areas represented lower infralittoral habitat but the majority of the records around this area were circalittoral. The rocky reef was characterised by mainly short and tall faunal turf with Abundant *Antedon bifida* feather stars in many locations, and erect and massive sponges including *Sycon ciliatum*, *Cliona celata*, *Dysidea fragilis*, *Haliclona oculata*, *Amphilectus fucorum*, *Polymastia penicillus*, *Halichondria panicea* and *Suberites ficus*.

Alcyonium digitatum was commonly recorded. Several bottom dwelling fish species were noted including flatfish and a thornback ray. Several nudibranch species were recorded including the first records of *Jorunna tomentosa* and *Tritonia hombergi* east of Pembrokeshire.



Feather star *Antedon bifida* and hydroids MG



Feather star *Antedon bifida* and hydroids MG



Tritonia hombergi on *Alcyonium digitatum* MG



Haliclona oculata

MG

5.7 Additional individual forms

Additional forms were completed by Observers from their own organised dives and shore surveys. Observer forms were completed for dives at (north to south): Caibach, Newquay, Ceredigion; Abereiddy Bay; Gramsbergen wreck, Fishguard Bay; Strumble Head; Baron Ardrosson wreck, Porthgain; St Brides Haven, St Bride's Bay; Martin's Haven, St Bride's Bay; West Angle Bay; Hunt's Bay, Gower; Oxwich wreck, Oxwich Bay, Gower; Brandy Cove, Gower; Caswell Bay, Gower; Mumbles Pier and Tutt Rock, Mumbles, Swansea Bay.



Little cuttle *Sepiola atlantica*, St Brides Haven CB

Data from these sites has been entered into Marine Recorder.

New Seasearch coordinator Matt Green and Ross Bullimore struggling with the tricky first question on page 1 of a Surveyor form. BB



5. Acknowledgements

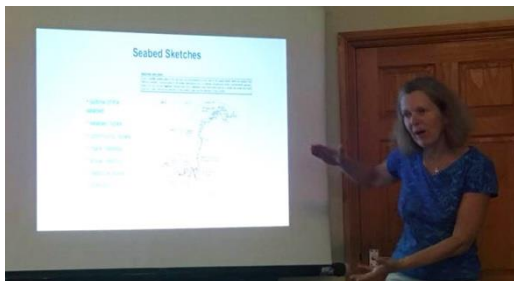
As always, very many thanks to all the Seasearch volunteers that have taken part and supported Seasearch in South and West Wales during the 2022 season and who contributed photographs for the report.

Thanks also to Jen Jones for project support and to Matt Green for compiling the site descriptions for Gower and for training courses in Swansea.

Great thanks go to our dive charter boat skippers Andy Truelove, *Atlantic Blue*, and David Stolwell, *Overdale*, whose seafaring skills and local knowledge helps the teams safely dive in locations that would not otherwise be possible.

We also thank Charlotte Bolton, Seasearch National Co-ordinator, for support throughout the year and proof-reading the text.

And finally, unquantifiable thanks to Kate Lock, Seasearch S&W Wales Coordinator for the last 25 years; for her tireless enthusiasm, effort and engagement; for all the Observer, Surveyor and many, many specialist training courses; for her weather wrangling, boat charter juggling, BBQs and marine biologically themed parties, and for facilitating many SW Wales Seasearch friendships and the resultant community and diaspora.



If you need the bottom right image explaining, you really should book onto the next available nudibranch course.