



Seasearch
South and West Wales 2019
Summary Report



Report prepared by
Kate Lock, South and West Wales Co-ordinator

Seasearch De a Gorllewin Cymru 2019

Mae Seasearch yn gynllun cynnal arolygon o gynefinoedd a rhywogaethau morol i wirfoddolwyr sy'n ddeifwyr a snorcelwyr ym Mhrydain ac Iwerddon. Mae'n cael ei gydlynu gan y Gymdeithas Gadwraeth Forol.

Mae'r adroddiad hwn yn crynhoi prif ganfyddiadau Seasearch yn ne a gorllewin Cymru yn 2019. Mae'n cynnwys crynodebau o'r safleoedd lle cynhaliwyd arolygon ac yn nodi rhywogaethau a chynefinoedd prin neu anarferol sydd wedi cael eu gweld. Mae'r rhain yn cynnwys nifer o gynefinoedd a rhywogaethau â blaenoriaeth yng Nghymru. Nid yw'r adroddiad hwn yn cynnwys yr holl ddata manwl am fod yr wybodaeth hon wedi cael ei mewnbynnu i gronfa ddata'r Cofnodwr Morol a'i rhoi i Cyfoeth Naturiol Cymru er mwyn ei defnyddio yn ei weithgareddau cadwraeth forol. Mae data ar y rhywogaethau ar gael ar-lein hefyd drwy'r Rhwydwaith Bioamrywiaeth Cenedlaethol.

Yn 2019, gwnaeth Seasearch yng Nghymru barhau i ganolbwyntio ar rywogaethau a chynefinoedd â blaenoriaeth yn ogystal â chasglu gwybodaeth am wely'r môr a bywyd morol mewn safleoedd lle nad oedd arolygon wedi cael eu cynnal cyn hyn.

Mae data a gasglwyd o dde a gorllewin Cymru yn 2019 yn cynnwys cyfanswm o 57 o ffurflenni arolygwyr a 42 o ffurflenni gwylwyr, sef cyfanswm o 99 o ffurflenni.

Yn 2019, mae'r rhaglen Seasearch yn ne a gorllewin Cymru – ardal sy'n ymestyn o aber afon Hafren i Aberystwyth – wedi cael ei chynnal gan gydlynnydd rhanbarthol Seasearch, Kate Lock. Mae arweiniad a chymorth cyffredinol yn cael eu darparu gan gydlynnydd cenedlaethol Seasearch, Charlotte Bolton.

MAE CYFOETH NATURIOL CYMRU A'R GYMDEITHAS CADWRAETH MOROL YN ARIANNU SEASEARCH CYMRU.



Seasearch South and West Wales 2019

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.

This report summarises the Seasearch activity in South and West Wales in 2019. 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 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 2019, 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.

Data from South and West Wales in 2019 comprises a total of 57 Surveyor forms and 42 Observer forms, a total of 99 forms.

Seasearch in South and West Wales in 2019 has been delivered by Seasearch regional co-ordinator Kate Lock, this area extends from the Severn estuary to Aberystwyth. Overall guidance and support are provided by the National Seasearch Co-ordinator, Charlotte Bolton.

SEASEARCH WALES IS FUNDED BY NATURAL RESOURCES WALES AND THE MARINE CONSERVATION SOCIETY.



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1. Seasearch and Sustainable Management of Natural Resources

The Environment (Wales) Act and the Wellbeing of Future Generations (Wales) Act provide the framework for NRW's work to pursue the sustainable management of natural resources as defined in the former, while maximising our contribution to the well-being goals set out in the latter.

Sustainable management of natural resources follows nine main principles. The planning and delivery of Seasearch and the application of its outputs all support the delivery of these principles:

Adaptive management – the selection of survey sites for Seasearch incorporates a prioritisation process (for example, focus on priority feature, gap filling or targeting potential priority habitat) which results in a suite of possible survey locations that can be dived according to weather conditions and any other considerations on the day. The data collected through Seasearch contributes to improving the evidence base for Welsh marine habitats and species and helps to inform all types of marine management decision-making.

Scale – Marine habitat data is required from around the whole of the Welsh coast. The delivery structure for Seasearch with two regional co-ordinators (one based in south-west Wales and the other in north Wales) enables Seasearch to operate effectively throughout the whole of this area. Working collaboratively with others, Seasearch can develop and deliver specific projects appropriate to a local or regional scale as required.

Collaboration and engagement – The annual programme of Seasearch activity in Wales is developed through collaborative discussions with Natural Resources Wales, Special Area of Conservation officers and regional biodiversity officers to ensure integration with local projects and other relevant initiatives such as projects relating to Section 7 species and habitats (Environment (Wales) Act 2016). In 2019 this included supporting Project Seagrass, Swansea University settlement plate project, National Museum Wales research project, Summit to Sea (Cardigan Bay) and Crawfish surveys in Pembrokeshire.

Partnering with marine centres, Wildlife Trusts, local authorities and others enables Seasearch to bring the subtidal world to non-divers and engage with them to show them what is on their doorstep. Seasearch uses public events (on the beach as well as indoor talks/displays) to highlight this and connect people to their local marine environment. Seasearch also works with local dive clubs and dive centres to promote Seasearch recording.

Seasearch engages with academic institutions to identify possible projects or areas of work where Seasearch can provide vocational training and/or data. Engaging people at an early stage of their life and career makes them into lifelong ambassadors with a high level of 'ocean literacy' and excellent job prospects.

Public participation –Volunteer involvement is at the heart of Seasearch, enthusing a particular community of individuals to take part in a specialised citizen science project and make records of seabed habitats and associated wildlife. Volunteers can take part through organised events but are also encouraged and supported to undertake the recording on their own independent dives and/or with their dive clubs. Public participation engendered by Seasearch is wider than the community of scuba divers - the public and collaborative events that Seasearch is involved with establish connection with a much wider audience base and enthuse individuals to support Seasearch in other ways if they are not in a position to take part in the diving survey, or to become involved in other citizen science or environmental initiatives. The information collected by Seasearch is publicly available through the NBN Atlas thereby benefiting a much wider audience than those directly involved in the project.

Evidence – Seasearch provides data to help support marine management in Wales. To ensure high quality data the QA process has been reviewed and relies on robust training and ongoing mentoring

of volunteers and subsequent multi-level validation of the submitted data. In 2018 training materials were revised and a regional recorder development workshop was held in Wales to support volunteers maximise the value and accuracy of the data collected. Quality as well as quantity of data is absolutely critical to reach robust decisions capable of withstanding challenge.

Multiple benefits – Collaborative partnerships will maximise the benefits to us all - more data, more engagement, more people having a purpose to dive in Wales. Welsh diving is exceedingly popular with divers from outside Wales who will travel very large distances to enjoy it - visitors who spend money on accommodation, subsistence and socialising, thus increasing the socio-economic benefits to the local area.

Seasearch is expanding its series of photo-identification guidebooks to marine life in Britain and Ireland which provide a key national (UK) resource for identification of underwater species aimed at a general diving audience. A much expanded and fully revised Guide to Marine Life was published in 2018 along with a brand-new guide to Sea Squirts and Sponges. Plans for new guides on other common taxa (crustaceans, fish and echinoderms) are in the early stages. These are invaluable aids for both learning and engagement and they fill a gap between very basic and limited marine life guides and more technically complex taxonomic field guides, with the considerable benefit of providing *in situ* photographs of the animals and plants. Seasearch plays an important educational role in terms of providing opportunities for aspiring or qualified marine biologists to volunteer and gain valuable underwater survey skills by taking part in the marine recording. Few universities provide such opportunities and so for people with appropriate diving qualifications and experience, Seasearch enables them to develop and maintain practical surveying skills.

Long term – Information collected by Seasearch has helped inform decision making about one-off development applications as well as contributing to the body of knowledge being used for marine planning in Wales. Seasearch is able to contribute to monitoring of underwater habitats and wildlife to better understand the current status of particular species populations or to look at the consequences of human activities on marine habitats and improve understanding about impacts on seabed habitats and wildlife. Seasearch can collect data that helps monitor medium to long-term change in the marine environment in response to environmental changes and/or management decisions. Collaboration with the Angel Shark project, the crawfish surveys and previous surveys on seafans, native oysters, eelgrass beds and fan shells are examples of this.

Preventative action – The information collected by Seasearch contributes to collective understanding of the marine environment of Wales, helping identify the distribution and abundance of particular habitats and species. This information is essential to help inform sound decision making to avoid damage and degradation to Welsh seas and wildlife. The observation of seabed habitats, which are otherwise out of sight to most, can also help to highlight issues concerning marine wildlife and habitats that might otherwise be unknown and, if left, would lead to detrimental impacts on Wales' natural resources.

Building resilience – Data on marine habitats and species such as that collected by Seasearch is an essential component to help improve understanding of marine ecosystems and their functioning. It is only by continually developing this knowledge base alongside other information that it will be possible to gain some appreciation of the complexity and inter-connections of marine ecosystems that can be then used to inform sound decision making. It is vital that sound environmental principles are applied to ensure that (amongst other things) the diversity, abundance, connectivity and functioning of ecosystems are not degraded in order to contribute to building marine ecosystem resilience in the face of anthropogenic change.

2. South and West Wales Summary 2019

2019 was an eventful year in South and West Wales. A list of target dive areas was drawn up at the beginning of the year in a meeting held with the Natural Resources Wales marine monitoring team leader and the Pembrokeshire Marine SAC Officer. It was agreed, when conditions allowed, to continue to aim for sites in St Brides Bay and the offshore islands. In addition, a selection of sites using the NRW multi-scan data for the Milford Haven were used to identified possible tidal rapid reef sites to be explored.

Dives to support other projects in the region that Seasearch could support were also identified, these were: Summit to Sea (Cardigan Bay), Project Eelgrass: Seagrass Ocean Rescue (Milford Haven), Swansea University settlement plates (Milford Haven).

A total of 15 survey days were planned and 11 went ahead. The August weekend was cancelled due to bad weather along with 2 planned dives in September and October in Aberystwyth, Summit to Sea. All weekends were organised and run by Kate Lock. A good combination of experienced Seasearch divers along with some new keen divers participated on the surveys. This allowed a good quality of survey data to be collected and the opportunity for new divers to gain experience and complete qualifications.

One day of diving was planned at the two sites established in 2017/2018 for crawfish surveys. Surveys were repeated at each of these sites in September adding to the survey data collected in the two previous years.

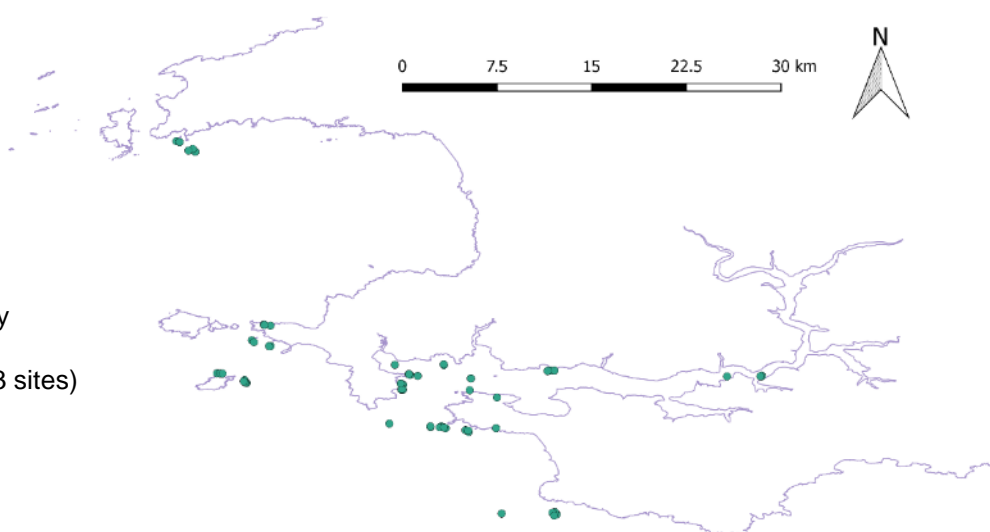
Surveys were completed at Sheep Reef and Parsons Quarry Bay, both located close to Pickard Bay. East Pickard Bay is a proposed location as a Marine Energy Test Area (META) and the data from the Seasearch dives will be provided to Marine Energy Wales.

Survey dives were completed at Gelliswick eelgrass bed to support Project Seagrass and a dive at Chapel rocks settlement plates, supporting Swansea University research project. Survey records and photographs from 5 sites were provided to Teresa Darbyshire, National Museum, Cardiff who is currently completing research on Eyelash worm, *Myxicola infundibulum*.

A presentation was given by Kate Lock and volunteer Blaise Bullimore at the Porcupine Marine Natural History Society conference, Cardiff in March 2019.

Seasearch survey dives were completed in the following locations:

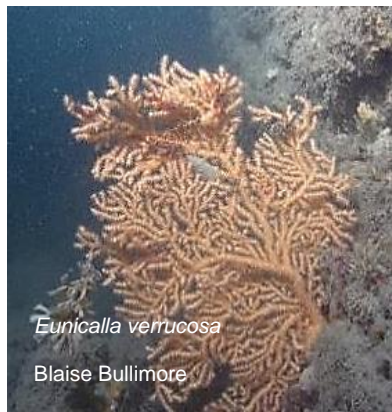
- Skomer MCZ (3 sites)
- Skokholm (2 sites)
- Milford Haven Waterway (9 sites)
- South Pembrokeshire (3 sites)
- St Brides Bay (2 sites)



Highlights include nationally important species listed on Section 7, Environment Act (Wales) 2016 and species considered as rare, scarce or unusual records.

Nationally important species, Section 7 species and habitats, Wales Environment Act 2016

- Crawfish, *Palinurus elephas* recorded at 5 sites.
- Pink sea fan, *Eunicella verrucosa* at Carreg Y Esgob



- Icelandic quahog, *Arctica islandica* at Martins Haven, Skomer MCZ



- Fan shell, *Atrina fragilis* was found by NRW divers in 2018, in 2019 it was revisited by Seasearch to take photos and check its condition.



Nationally rare and scarce species, unusual records and those of limited geographic distribution

- Sponge species: Mashed potato sponge, *Thymosia guernei*, Skokholm SE reef and North Pinnacles, Sheep reef and Parsons Quarry Bay.
- Yellow staghorn sponge, *Axinella dissimilis* at Carreg Y Esgob, Skokholm SE reef and North Pinnacles, Lindsway Bay, Sheep Reef and Parsons Quarry Bay.
- Crumpled duster sponge, *Axinella damicornis* at Skokholm North Pinnacles and Sheep Reef.
- Prawn cracker sponge, *Axinella infundibuliformis* at Lindsway Bay.



- Nudibranch species: *Thecacera pinnegera* at Sheep Reef.

- Sea squirt species:
The 'strawberry', 'Honeycomb' and 2-spot *Aplidium* species are all regularly recorded at South Pembrokeshire sites, they have been given temporary common names as they are still to be described and confirmed. In 2019 they were recorded at Sheep Reef and Crow Rock.



- Sunstar, *Crossaster papposus* is a northern species only occasionally recorded in Pembrokeshire. A single record was made on the Collier Wreck, Milford Haven.



3. Dive site descriptions

3.1 St Brides Bay

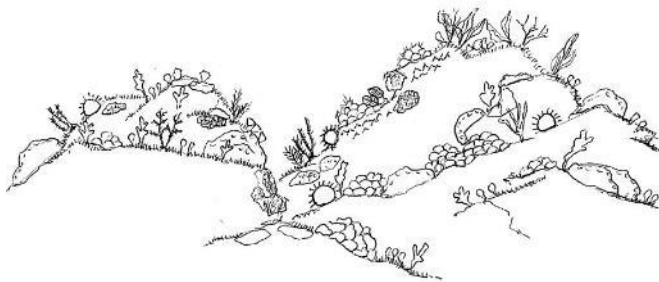
St Brides Bay is a large bay with Ramsey island marking the northern end and Skomer island the south. Seasearch survey diving has targeted many sites in the bay over the last 15 years, red sandstone cliffs and headlands, small islands and islets, offshore reefs and mixed sediment plains are all features of the bay. In 2019, two sites were surveyed at the northern end close to St Davids Head adding to the data for this area.

3.1.1 Carreg Y Esgob

A rugged reef with small pinnacles and short ridges with red algae communities on the peaks. Visually the reef was dominated by large colonies of potato crisp bryozoan, *Pentapora foliacea* recorded as Abundant along with large colonies of boring sponge, *Cliona celata* recorded as Frequent.



Blaise Bullimore



5 ← 10 m → 25



A high diversity of sponge species was found, notable was yellow staghorn sponge, *Axinella dissimilis*. Bryozoan and hydroid turf encrusted the rock faces with white claw moss, *Crisia spp* Common, both Antenna hydroids, *Nemertesia antennina* and *Nemertesia ramosa* and Indian feather hydroid *Gymnangium montagui*. Grazing common urchins, *Echinus esculentus* were Frequent and starfish species: spiny starfish, *Marthasterias glacialis*, common starfish, *Asterias rubens* and bloody henry *Henricia sp.* along with a juvenile seven-armed starfish, *Luidia ciliaris* were all found. A single pink seafan *Eunicella verrucosa* was recorded.

3.1.2 *Cliona* city, ½ mile south of Carreg Fgan

A low-lying bedrock reef from 16-18m bsl with high-energy loving animal communities. Boring sponge, *Cliona celata* were Abundant along with shredded carrot sponge, *Amphilectus fucorum*. Oaten pipe hydroid, *Tubularia indivisa* and jewel anemones *Corynactis viridis* were both Common along with Devonshire cup coral *Caryophyllia smithii*. Ascidian turf was also abundant, in particular sand-encrusted polyclinids *Synoicum incrustatum* and the pin-head sea squirt, *Pycnoclavella aurilucens*. The teapot sea squirt *Polycarpa scuba* and the snowflake sea squirt, *Didemnum maculosum var.dentata* were both Frequent. Notable were Frequent records of potato crisp bryozoan, *Pentapora folicacea*, and an octopus, *Eledone cirrhosa*.



Cliona celata Blaise Bullimore



Eledone cirrhosa Blaise Bullimore



Sponge & sea squirt community,
Edmundsella pedata Blaise Bullimore

3.2 Skomer Marine Conservation Zone

Skomer MCZ is managed by Natural Resources Wales, its dedicated team of marine scientists have established a programme of littoral, sublittoral and oceanographic monitoring.

Although habitat and species records are considerable for the MCZ, it has been identified by the MCZ management plan that this need continued updating with new records. In 2018 Seasearch surveyed the Bench and Rainy rock, both located at the south side of Jack Sound.

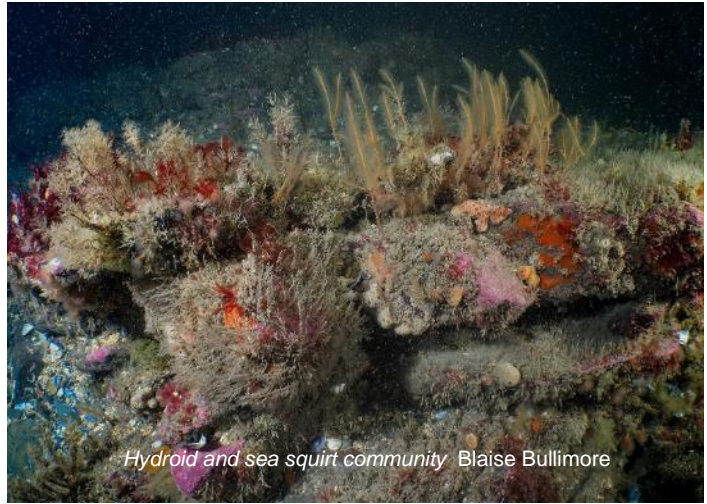
Martins Haven shore site was used for training dives for Observer trainees and a night dive was also completed at this site targeting the sediment habitat in the central areas of the bay.

3.2.1 *The Bench*

An extensive area of rugged rocky reef, between 16-18m bsl. Old red sandstone rock slabs formed irregular ridges with sharply angled edges. The slabs were angled at 30 degrees and the ridges ran in an east to west direction. At the base of the gullies were small boulders and shell gravel.

Red algae meadows dominated the tops of the ridges. The rugged faces were dominated by short compound ascidian turf including an abundance of pin-head sea squirt *Pycnoclavella aurilucens*, club sea squirts *Aplidium punctum*, orange sea squirt *Stolonica socialis* and *Morchellium argus*, all

recorded as Frequent. Notable were the large colonies of boring sponge *Cliona celata* and shredded carrot sponge *Amphilectus fucorum* both recorded as Common along with Frequent colonies of potato crisp bryozoan, *Pentapora foliacea*. Extensive areas of hydroids and bryozoan were found with both antenna hydroids *Nemertesia antennina* and *Nemertesia ramosa* along with the squirrel's tail hydroid *Sertularia argentea*. Devonshire cup coral *Caryophyllia smithii* was recorded as Common, dead men's fingers, *Alcyonium digitatum* Frequent and several patches of hornwrack, *Flustra foliacea* were found.



Hydroid and sea squirt community Blaise Bullimore



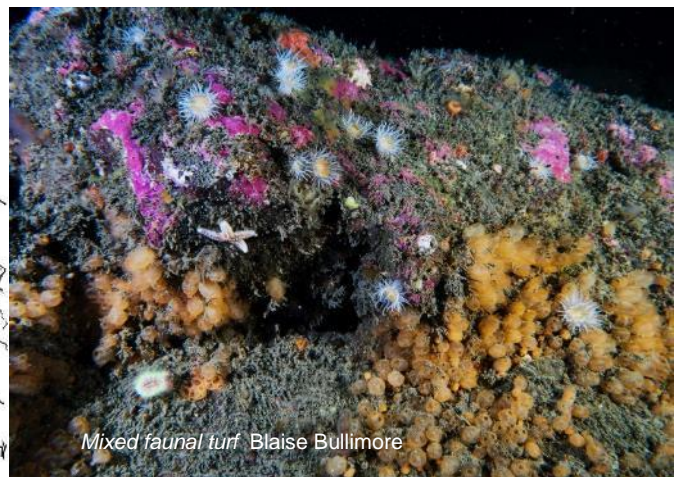
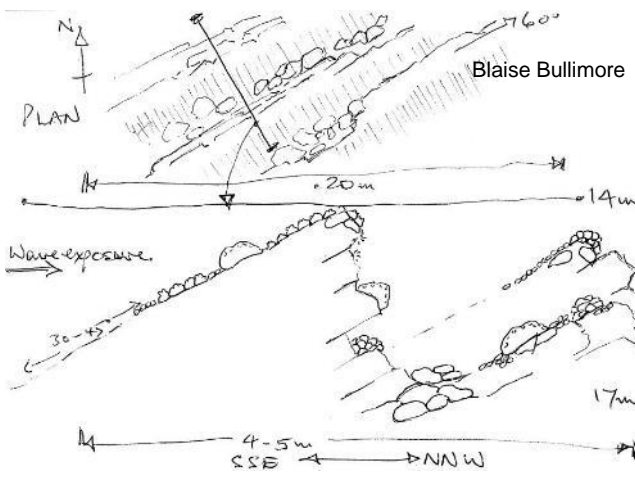
Stolonica socialis Blaise Bullimore



Pycnoclavella spp Blaise Bullimore

3.2.2 Rainy Rock

A series of bedrock ridges at 11-15m bsl comprised of old red sandstone slabs pitched at a 45-degree angle forming ridges in a north east direction. The flat south facing slab faces were populated with extensive patches of orange sea squirts *Stolonica socialis*, occasional potato crisp bryozoan *Pentapora foliacea* and boring sponge *Cliona celata* along with extensive short scruffy bryozoan, hydroid turf and small ascidians: sandy polyclinids and occasional pin head sea squirt *Pycnoclavella producta*.



Mixed faunal turf Blaise Bullimore

The bedrock slab edges on the north faces were in the shallows covered with sea beech *Delesseria sanguinea* and brown fan weed *Dictyota dichotoma* along with Frequent forest kelp *Laminaria hyperborea*. Common sea urchin *Echinus esculentus* were grazing and crevice sea cumpers *Pawsonia saxicola* Frequent in crevices. Large patches of orange sea squirt *Stolonica socialis* were found and both club sea squirt *Aplidium punctum* and star sea squirt *Botryllus schlosseri* were Common. Large boring sponge *Cliona celata* and elephants hide sponge *Pachymatisma johnstonia* were Common along with large colonies of potato crisp bryozoan, *Pentapora foliacea*. Scruffy bryozoan and hydroid turf dominated the rocks with an abundance of white claw sea moss *Crisia* spp. and herring bone hydroid *Halecium halecium* and antenna hydroid *Nemertesia antennina*.

3.2.3 Martins Haven

This is a regular shore dive and records for this site are well documented. A plan was made though to explore the sediment habitats in the centre of the bay at night.

A gentle sediment slope of muddy sand with occasional pebbles and broken shells. In the deeper areas (15m bsl) a healthy king scallop bed, *Pecten maximus* is present, the sediments are rich in burrowing anemones and worms with occasional crustacean species. Burrowing anemones included: *Cerianthus lloydii*, Frequent, policeman anemone, *Mesacmaea mitchelli* Occasional, *Peachia cylindrica* Frequent, imperial anemone *Capnea sanguinea* Rare and *Sagartia troglodytes* Rare. Worms included *Acromelagloma vesticulosum*, peacock worm *Sabella pavonina* and eyelash worm *Myxicola infundibulum*.



Eutrigla gurnardus Blaise Bullimore



Capnea sanguinea Blaise Bullimore



Atelecyclus sp. Jon Moore



Peachia cylindrica and *Mesacmaea mitchelli*
Blaise Bullimore

Several crustacean species were recorded, most notable was a tiny round crab *Atelecyclus* sp. Notable too was the arctic quahog, *Artica islandica*. The night dive also brought in some interesting fish records with grey gurnard *Eutrigla gurnardus*, shore rockling *Gaidropsarus mediterraneus* and poor cod *Trisopterus minutus*.

3.3 Skokholm

Skokholm is an old red sandstone island located two miles off the Pembrokeshire coast. Seasearch dives are regularly completed at sites around the island and in 2019 the South-east Reef and North Pinnacles were explored.

3.3.1 South-east Reef

The South-east Reef is located half a mile off the south east corner of Skokholm. A rugged reef down to 20m bsl with steep vertical faces up to 5m in height and gullies 3-4m wide. At the base of the gullies large boulders and cobbles were found.

The tops of the reef were covered in red algae meadows with sea beech *Delesseria sanguinea* Abundant. Large colonies of elephants hide sponge *Pachymatisma johnstonia* and shredded carrot sponge *Amphilectus fucorum* were both Abundant along with a high diversity of sponges including the nationally scarce staghorn sponge *Axinella dissimilis* and mashed potato sponge *Thymosia gurnei*. Devonshire cup coral, *Caryophyllia smithii* were Abundant and there was a dense turf of



Parablennius gattorugine Kate Lock

white claw sea moss *Crisia spp* and *Cellaria spp*. Potato crisp bryozoan *Pentapora foliacea* were Frequent. Lurking in crevices were velvet swimming crab *Necora puber*, Lobster *Homarus gammarus*, squat lobster, *Galathea strigosa* and Tompot blenny *Parablennius gattorugine*.

Wrasse species were frequently recorded with ballan wrasse *Labrus bergylta*, cuckoo wrasse *Labrus mixtus*, Corkwing wrasse *Symphodus melops*, rock cook *Centrolabrus exoletus* and goldsinny *Ctenolabrus rupestris* all present.

3.3.2 North Pinnacles

North pinnacles are located at the north east corner of Skokholm. Towering vertical faces of sandstone slabs were found from 13 to 25m bsl with numerous crevices and fissures. Between the towering pinnacles were gullies ranging from 20cm to 2m width. The tops of the reef were rugged and covered in forest kelp *Laminaria hyperborea* and thick red algae meadow. The red algae continued down the faces leading to a dominant bryozoan turf of white claw sea moss *Crisia spp* and *Cellaria spp*, large boring sponge, *Cliona celata* and a super abundance of Devonshire cup corals *Caryophyllia smithii*. A scattering of sponge species was recorded including the nationally scarce yellow staghorn sponge *Axinella dissimilis*, crumpled duster sponge *Axinella damicornis* and mashed potato sponge *Thymosia gurnei*.

Hiding in crevices were squat lobster *Galathea strigosa*, prawns *Palemone serratus* and a 5-bearded rockling *Ciliata mustela*. The most striking observation of the site was the large numbers of shoaling fish. Large pollack *Pollachius pollachius* and large ballan wrasse *Labrus bergylta* were cruising around the pinnacles and in the gullies Corkwing wrasse *Symphodus melops*, rock cook *Centrolabrus exoletus* and goldsinny *Ctenolabrus rupestris* were all Frequent.

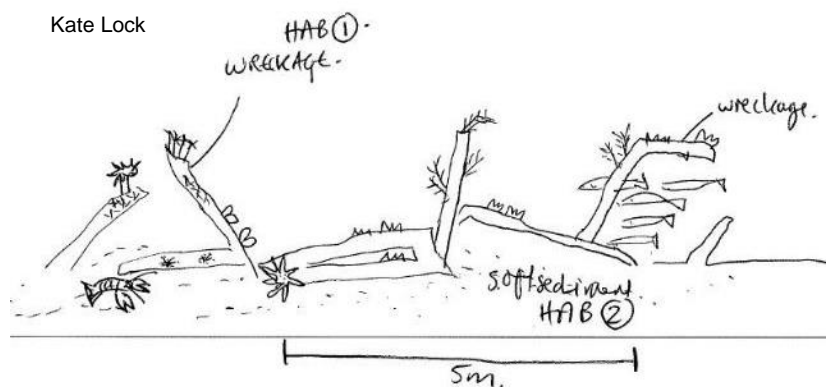
3.4 Milford Haven Waterway

The Milford Haven waterway is a very active area with both commercial and recreation interest. Seasearch has completed many dives in the area looking at habitats and species of national importance: tidal rapid reefs, eelgrass *Zostera marina* beds and the native oyster *Ostrea edulis*. There are also high numbers of non-native species like the invasive slipper limpet *Crepidula fornicata*.

In 2019 five sites were dived in the entrances of Milford Haven waterway: Collier Wreck, Lindsay Reef, Castle Bay, Dale Fort Point and Watwick Reef. Four sites were dived in the Milford Haven (Cleddau river): Cosheston outer Reef, Hobbs Point both identified to be explored by the CCW (NRW) multi scan survey maps as a potential area of tidal rapid rocky reef. Gelliswick eelgrass bed supporting Project Seagrass and Chapel Bay where Swansea University settlement plates are located

3.4.1 Collier Wreck

The wreck is located next to the Stack buoy in the Milford Haven entrances. The wreckage is broken up and located 14-17 bsl with jumbled uprights and plates encrusted in mixed animal turf, lying on a soft sand and mud seabed. A high diversity of species were found attached to the wreckage but no species dominated.



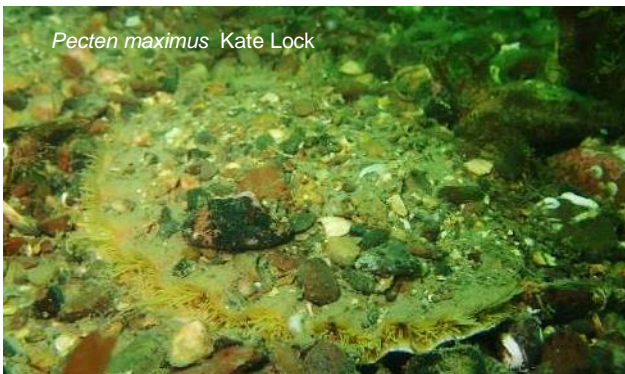
Encrusting sponges included crater sponge *Hemimycale columella* were frequently found and erect species included *Stelligera stuposa* and *Raspailia hispida*. The fried egg anemone *Actinothoe sphyrodeta* was frequent along with Devonshire cup coral *Caryophyllia smithii*, antenna hydroid *Nemertesia antennina* and squirrel's tail *Sertularia argentea*. Oaten pipe hydroid *Tubularia indivisa* and plumose anemone *Metridium dianthus* were found on the wreck uprights. A scattering of sea squirt species was present but all scarce. Fish species were found with pollack *Pollachius pollachius* frequent, a large bull huss *Scyliorhinus stellaris* and cuckoo wrasse *Labrus mixtus*. A highlight was a single record of the sunstar *Crossaster papposus*.



3.4.2 Linsway Bay

A low-lying red sandstone reef and boulders and pebbles, gravel and sand between. The rocks were covered in a thick red algae meadow, with eyelash weed *Calliblepharis ciliata* Abundant and siphoned feather weed *Heterosiphonia plumosa* Common. A diverse selection of animals was recorded on the reef but all low in numbers. Notable sponges were yellow staghorn sponge *Axinella dissimilis* and prawn cracker sponge *Axinella infundibuliformis*, sea squirts included the orange sea squirt *Stolonica socialis* and snowflake sea squirt *Didemnum maculosum var.dentata*. Fish and crustacean species were found with a large conger eel *Conger conger* a highlight.

Sediment community included eyelash worm *Myxicola infundibulum* and sand mason *Lanice conchilega* along with small numbers of king scallops *Pecten maximus*.



3.4.3 Castle Bay

The dive was completed on the west side of the bay, sheltering from the wind. A shallow rock reef from 3-7m bsl was covered in a thick kelp forest with oarweed *Laminaria digitata* Frequent, furbellows *Sacchorhiza polyschides* Common and sugar kelp *Saccharina latissima* Frequent with a thick red algae understory. Below the kelp forest were boulders covered in mixed red algae. Animal life was found but all species were scarce, records were all Occasional or Rare. A scattering of sponge, sea squirt and anemone species were found along with squat lobster *Galathea strigosa*, velvet swimming crab *Necora puber* and prawns *Palaemon serratus* hiding in crevices.

At 10m bsl a mixed sediment ground was found comprising of sand, gravel and shell mix. The sediments were rich in life with *Acromelagroma vesticulosum* worms Frequent along with sand mason *Lanice conchilega*, peacock worm *Sabella pavonina* and eyelash worm *Myxicola infundibulum*. Hermit crab *Pagurus bernhardus* were recorded as Frequent, king scallop *Pecten maximus* Occasional and the burrowing anemone *Sagartia troglodytes* Occasional.

Fish included sand and common gobies *Pomatoschistus spp*, tub gurnard *Chelidonichthys lucernus* and a juvenile sole Soleidae. The angular crab *Goneplax rhomboides* was found in burrows.

3.4.4 Dale Fort Point

The dive was completed on the north side of the point. A mixed sediment plain at 7-10m bsl, comprising of small pebbles, stone, shell gravel and fine sand. Larger stones were encrusted in barnacles and calcareous tube worms along with the papery fan weed *Stenogramme interrupta* and siphoned feather weed *Heterosiphonia plumosa* both recorded as Common. Burrowing worms were found with *Acromelagroma vesticulosum*, sand mason *Lanice conchilega*, peacock worm

Sabella pavonina and eyelash worm *Myxicola infundibulum* along with *Terebellidae*. Burrowing anemones included daisy anemone *Cereus pedunculatus*, imperial anemone *Capnea sanguinea*, dahlia anemone *Urticina felina* and *Sagartia troglodytes*.



Pagarus bernhardus & *Hydractinia echinata* Kate Lock

Hermit crab *Pagarus bernhardus* were Abundant and edible crab *Cancer pagarus* Occasional, found burrowed in the sediments. Fish included the greater pipefish *Syngnathus acus* and numerous sand gobies *Pomatoschistus spp.* Notable was a record of the nudibranch *Facelina bostoniensis*.

3.4.5 Watwick Reef

Located on the north side of the entrances to Milford Haven waterway. A rocky reef with large boulders, cobbles and pebbles interspersed with mixed gravel and sand. Seasearch has dived this site on a number of occasions and a detailed description is in the Milford Haven 10 year summary report. It was dived again in 2019 as was sheltered by the weather and a good choice for a number of trainee Observers completing their qualifying forms.

3.4.6 Cosheton outer Reef

A boulder and cobble steep slope from 10 to 18m bsl, was found leading down to the centre channel in the river. The boulders and cobbles were angular and growing on them were large colonies of sponges, breadcrumb sponge *Halichondria panicea*, mermaid's purse *Haliclona oculata* and goose bump sponge *Dysidea fragilis*. A scattering of hydroids were found with the antenna hydroids *Nemertesia antennina* and *Nemertesia ramosa*, oaten pipe hydroid *Tubularia indivisa*, helter skelter hydroid *Hydrallmania falcata* and *Kirchenpaueria similis* all recorded as Occasional. Anemones included the burrowing anemone *Sagartia troglodytes*, dahlia anemone *Urticina felina* and fried egg anemone *Actinothoe sphyrodeta*. Both hermit crabs *Pagarus bernhardus* and painted topshell *Calliostoma zizyphinum* were recorded as Frequent.

Fish species included sand and painted gobies *Pomatoschistus spp.* and butterfish *Pholis gunnelis*.



Dysidea fragilis and *Kirchenpaueria similis* Steve Cumines



Pagarus bernhardus & *Hydractinia echinata* Steve Cumines

3.4.7 Hobbs Point moorings drop off

The dive just off the mooring area between Hobbs Point and the Cleddau Bridge. A sloping mud bank from 10-16m bsl on the outer edge of the moorings with slipper limpets *Crepidula fornicata* recorded as Super abundant and large growths of shredded carrot sponge *Amphilectus fucorum* Frequent and painted topshell *Calliostoma zizyphinum* Frequent. There were several sightings of super-sized common starfish *Asterias rubens* feeding on the slipper limpets.



Asterias rubens Kate Lock

A small rocky outcrop was found, around one metre in height with a jumble of angular boulders. These were covered in shredded carrot sponge *Amphilectus fucorum* and breadcrumb sponge *Halichondria panicea* along with thick patches of horn wrack *Flustra foliacea*. Edible crab *Cancer pagarus* and sponge spider crab *Inachus* spp. were both found. Antenna hydroids *Nemertesia antennina* and *Nemertesia ramosa* and squirrel's tail *Sertularia argentea* were all Occasional and notable nudibranch were *Lomanotus genei*, *Facelina bostoniensis* and large sea lemon *Doris pseudoargus*.

3.4.8 Gelliswick Eelgrass Bed

The eelgrass *Zostera marina* bed is located between Gelliswick bay and the Milford Haven Port Authority jetty, it is an extensive and well documented eelgrass bed. Seasearch dives were completed to record other species found and gain a good selection of photographs for the Pembrokeshire Marine SAC officer and Project Seagrass.

A flat sandy and muddy seabed with shell gravel interspersed with patches of eelgrass *Zostera marina* and foliose red algae attached to shells. Daisy anemone *Cereus pedunculatus* were recorded as Abundant and *Sagartia troglodytes* as Common. Both *Acromelagroma vesticulosum* worms and peacock worms *Sabella pavonina* were Frequent, other worm species included sand



Mixed community Kate Lock



Pleuronectes platessa Louise Bebb



Sabella pavonina Ruth Sharratt

mason *Lanice conchilega*, eyelash worm *Myxicola infundibulum* and *Terebellidae*.

Large numbers of gobies and other fish species were observed. Sand goby *Pomatoschistus minutus* Abundant and painted goby *Pomatoschistus pictus* Common. Juvenile rock cook *Ctenolabrus exoletus* and corkwing wrasse *Symphodus melops* were recorded, dragonet *Callionymus spp.*, fifteen spine stickleback *Spinachia spinachia* and black goby *Gobius niger*. Flat fish were also found with plaice *Pleuronectes platessa*, dab *Limanda limanda* and sole *Soleidae* all recorded.

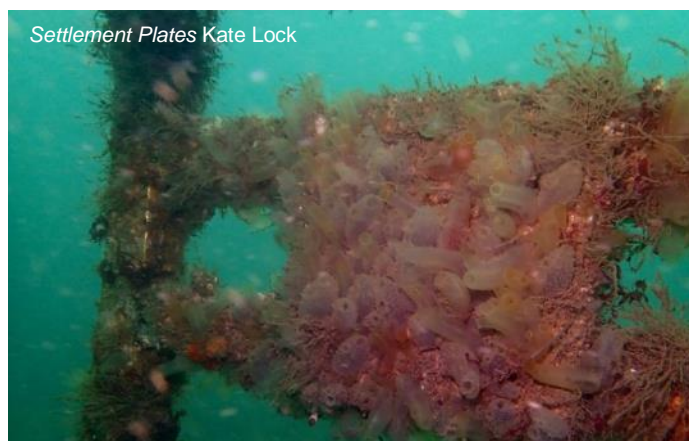


Goneplax rhomboides Kate Lock

Crustacea and molluscs were found in the eelgrass and weed. Hermit crabs *Pagarus bernhardus* were Frequent, large edible crabs *Cancer pagarus* Occasional and a very active angular crab *Goneplax rhomboides*. Non-native species were leathery sea squirt *Styela clava* and slipper limpet *Crepidula fornicata*, both recorded in low numbers.

3.4.9 Chapel Bay

Swansea University Postdoc. Matt Perkins is conducting a settlement plate project using concrete plates. The equipment with moorings and ground chain is set up in Chapel bay in the entrance of the Cleddau river.



Settlement Plates Kate Lock

A dive was completed to record the species found on the plates and on the surrounding seabed and to provide photo records for the project.

The seabed was a mix of cobbles, gravel and coarse sand with occasional small boulders with furbellows *Saccorhiza polyschides* and red algae attached. The burrowing worm *Acromelagroma vesticulosum* was Common and both sand mason *Lanice conchilega* and eyelash worm *Myxicola infundibulum*



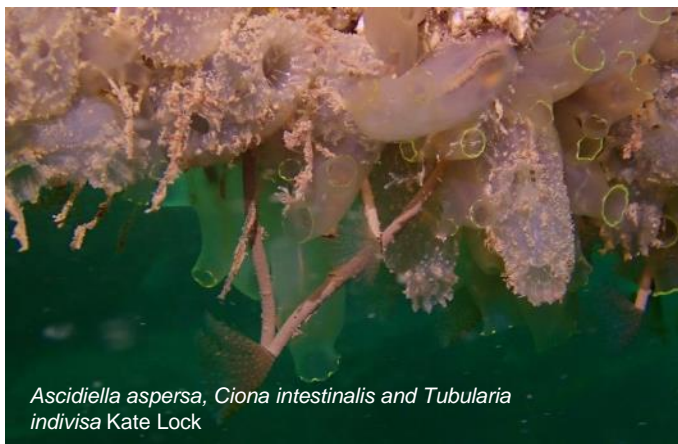
Acromelagroma vesticulosum Kate Lock



Sagartia troglodytes Kate Lock

Occasional. The fried egg anemone *Actinothoe sphyrodeta*, *Sargartia troglodytes* and *Cerianthus lloydi* were all Occasional. Crustaceans and fish species were sparse with hermit crabs *Pagurus bernhardus* and both sand and painted goby *Pomatoschistus spp.*

The settlement plates and metal framework were smothered in life. Yellow-ringed sea squirt *Ciona intestinalis* and fluted sea squirt *Asciidiella aspersa* were Abundant as were barnacles and oaten pipe hydroids *Tubularia indivisa* (albeit as 'stalks'). Peacock worms *Sabella pavonina* were Frequent along with netted whelks *Ocenebra erinacea*. Amongst the dense cover of sea squirts some colourful juvenile scorpion fish *Taurulus sp* were found, sponge spider crab *Inachus spp.* and the nudibranch *Facelina auriculata*.



Asciidiella aspersa, *Ciona intestinalis* and *Tubularia indivisa* Kate Lock



Taurulus sp Kate Lock

3.5 South Pembrokeshire

The south Pembrokeshire limestone coast has been a focus for Seasearch dives over the past few years and during 2019 three sites were explored. Surveys were completed at Sheep Reef and Parsons Quarry Bay. These sites are in the area of East Pickard Bay, a proposed location as a Marine Energy Test Area (META) and the data from the Seasearch dives will be provided to Marine Energy Wales. Crow Rock was also re-visited.

3.5.1 Sheep Reef

Sheep Reef is located half mile WSW of Sheep Island. A rugged rocky sandstone reef with sloping faces with boulders and cobbles in shallow gullies running in and E-W direction. The tops of the reef were covered in red algae, in particular sea beech *Delesseria sanguinea*, siphon feather weed *Heterosiphonia plumosa* and fine-veined crinkle weed *Cryptopleura ramosa*, all recorded as Common and rainbow weed *Drachiella spectabilis* Frequent.

Sponge and sea squirt species dominated the reef. 17 sponge species were recorded, including shredded carrot sponge, *Amphilectus fucorum*, boring sponge *Cliona celata* and elephants hide sponge *Pachymatisma johnstonia*. Notable was the yellow staghorn sponge *Axinella dissimilis*, crumpled duster sponge *Axinella damicornis*, mashed potato sponge *Thyosia gurnei* and on sandy ledges chimney sponge *Polymastia penicillus*. 18 species of sea squirts were recorded, tea pot sea squirt *Polycarpa scuba* and club sea squirt *Aplidium punctum* were both Common and notable was both strawberry and honeycomb *Aplidium* species.

Hydroid and bryozoan species were also prevalent with Frequent records of antenna hydroids *Nemertesia antennina* and *Nemertesia ramosa*, oaten pipe hydroid *Tubularia indivisa* and squirrel's tail *Sertularia argentea*. Potato crisp bryozoan *Pentapora foliacea* was locally Common and horn wrack *Flustra foliacea* found in small patches. Several nudibranch species were recorded including *Thecacera pennigera* and the sponge crab *Dromia personata*.



Tubularia indivisa Blaise Bullimore



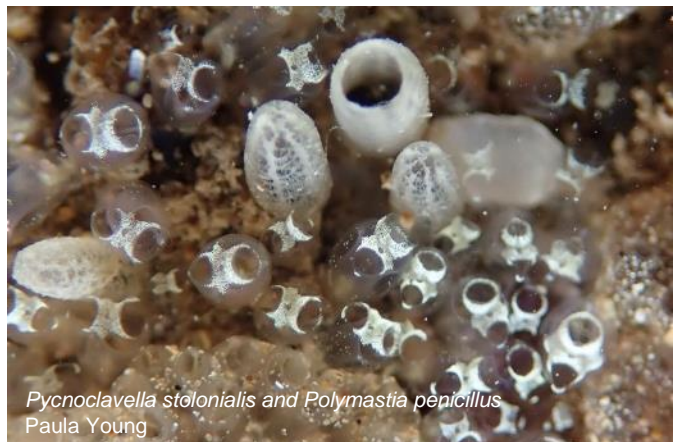
Ascidian community Blaise Bullimore

3.5.2 Parsons Quarry Reef

Parsons Quarry Reef is located east of Sheep island. Sandstone reef from 15-20m bsl with faces up to 3m high ridges with gullies 1-2m wide running in E-W direction. The site is both current and wave swept with barnacles *Balanus spp.* Superabundant. Animal turf was dominated in a mix of sponges, sea squirts, hydroids and bryozoans, a high diversity of species was recorded but all in relatively low numbers. Notable sponges included the yellow staghorn sponge *Axinella dissimilis*, mashed potato sponge *Thymosia gurnei* and chimney sponge *Polymastia penicillus*. The teapot sea squirt *Polycarpa scuba* was Common and both strawberry Aplidium and pin-head sea squirt *Pycnoclavella aurilucens* and *Pycnoclavella stolonialis* were both recorded. Devonshire cup coral *Caryophyllia smithii* was Common and peppercorn anemone *Isozoanthus sulcatus* was found on silty ledges. Crustacean were found in low numbers including a single record of sponge crab *Dromia personata*.



Dromia personata Matt Green



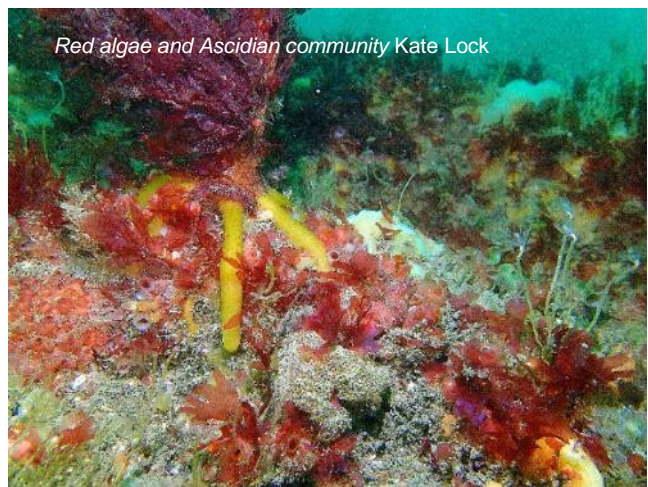
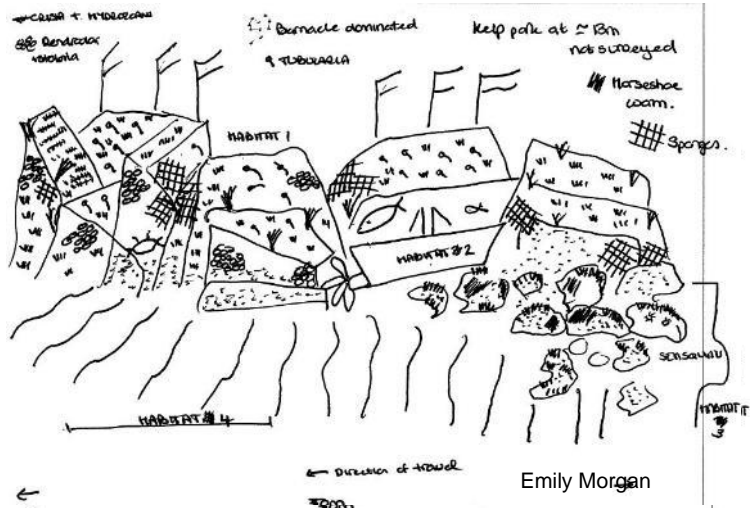
Pycnoclavella stolonialis and *Polymastia penicillus*
Paula Young

3.5.3 Crow Rock

Located offshore of Linney Head, a wave and current exposed limestone reef from 12-16m bsl. The reef is rugged with a jumble of rocky outcrops and gullies with boulders with shell gravel. Small pieces of metal wreckage were also found amongst the reef.

The shallow upper surfaces were covered in a sparse kelp park of forest kelp *Laminaria hyperborea* and rich red algae meadows with sea beech *Delesseria sanguinea*, siphon feather weed *Heterosiphonia plumosa* and fine-veined crinkle weed *Cryptopleura ramosa*, all recorded as Frequent and rainbow weed *Drachiella spectabilis* Occasional. The rock faces were festooned in a high diversity of sea squirts with 24 species recorded including both 'honeycomb' and 'strawberry' *Aplidium* and the pin-head sea squirts *Pycnoclavella stolonialis* and *Pycnoclavella aurilucens*. Sand encrusted polyclinids were particularly common. The diversity of sponges was also high with 18 species recorded, shredded carrot sponge *Amphilectus fucorum* was Common and elephants hide sponge *Pachymatisma johnstonia* Frequent.

The site was rich in both hydroid and bryozoan species with oaten pipe hydroids *Tubularia indivisa* Frequent on current swept ridges and Indian feather hydroid *Gymnangium montagui* Frequent, horn wrack *Flustra foliacea* was occasionally recorded in small patches. A highlight was a record of an octopus *Eledone cirrhosa*.



4. Training and data

4.1 Training and qualifications

In South and West Wales there was one Observer course run in April 2019 by Kate Lock with 11 participants at Marloes, Pembrokeshire with shore training dives at Martins Haven. Four divers Shelley Vince, Eleanor Ellick, Kate Davies and Steve Cumines followed on to complete their Observer qualification.

4.2 Forms

In 2019 99 forms were completed in South and West Wales. The form total breaks down as 42 Observation forms (43%), and 57 Survey forms (57%). The high percentage of observer forms is from encouraging and supporting observers to gain their qualifications. The healthy number of Surveyor forms comes from the 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.

All data has been entered onto Marine Recorder and is available on the JNCC National Biodiversity Network Atlas. Crawfish data is entered onto Marine Recorder but is tagged as sensitive data following Natural Resources Wales' guidelines; access to this data is therefore restricted.

5. Acknowledgements

Many thanks to all the Seasearch volunteers that have taken part and supported Seasearch in South and West Wales during the 2019 season.

Thanks are due to Jen Jones for Seasearch project support and Blaise Bullimore for help with diving logistics and promoting Seasearch. Thanks goes to our fantastic dive boat skippers Andy Truelove, Atlantic Blue and Tim Smith-Gosling, Eva Ann whose seafaring skills and local knowledge helps the teams safely dive in locations that would not otherwise be possible.

We would also like to thank Charlotte Bolton for support throughout the year, providing maps for this report and proof-reading the text.

Photo and Sketch credits

South and West Wales: Blaise Bullimore, Kate Lock, Sarah Bowen, Ruth Sharratt, Louise Bebb, Matt Green, Steve Cumines Emily Morgan and Paula Young.

