



Seasearch Wales 2017 Summary Report

Seasearch Cymru 2017 Adroddiad Cryno



Report prepared by
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Seasearch Wales 2017

Seasearch is a volunteer marine habitat and species surveying scheme for recreational divers in Britain and Ireland. It is coordinated by the Marine Conservation Society.

This report summarises the Seasearch activity in Wales in 2017. 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 2017, 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 Wales in 2017 comprises 88 Surveyor forms and 21 Observer forms, a total of 109 forms.

Seasearch in Wales in 2017 has been delivered by two Seasearch regional co-ordinators. Kate Lock has co-ordinated the South and West Wales region which extends from the Severn estuary to Aberystwyth. Liz Morris-Webb has co-ordinated the North Wales region which extends from Aberystwyth to the Dee. The two co-ordinators are assisted by a number of active Seasearch Tutors, Assistant Tutors and Diver Organisers. Overall guidance and support is provided by the National Seasearch Co-ordinator, Charlotte Bolton.

Seasearch Cymru 2017

Mae Seasearch yn gynllun gwirfoddol sy'n cynnal arolygon o gynefinoedd a rhywogaethau morol ar gyfer plymwyr hamdden ym Mhrydain ac Iwerddon. Mae'n cael ei gydlynu gan y Gymdeithas Cadwraeth Forol.

Mae'r adroddiad hwn yn crynhoi gweithgarwch Seasearch yng Nghymru yn 2017. Mae'n cynnwys crynodebau o'r safleoedd lle mae arolygon wedi cael eu cynnal ac yn nodi rhywogaethau a chynefinoedd prin neu anarferol a ddaethpwyd ar eu traws. 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 gan fod hyn wedi'i fewnbynnu i gronfa ddata'r Cofnodwr Morol ac wedi cael ei ddarparu i Cyfoeth Naturiol Cymru i'w ddefnyddio yn ei weithgareddau cadwraeth forol. Mae'r data ar rywogaethau hefyd ar gael ar-lein drwy'r Rhwydwaith Bioamrywiaeth Genedlaethol.

Yn ystod 2017, 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 oeddent wedi cael eu harolygu o'r blaen.

Mae data o Gymru yn 2017 yn cynnwys 88 o ffurflenni arolygwyr a 21 o ffurflenni arsylwyr, sef cyfanswm o 109 o ffurflenni.

Cyflwynwyd Seasearch yng Nghymru yn 2017 gan ddau gydlynnydd rhanbarthol Seasearch. Mae Kate Lock wedi cydlynu rhanbarth de a gorllewin Cymru, sy'n ymestyn o aber Afon Hafren i Aberystwyth. Mae Liz Morris-Webb wedi cydlynu rhanbarth gogledd Cymru, sy'n ymestyn o Aberystwyth i aber Afon Dyfrdwy. Mae'r ddau gydlynnydd yn cael eu cynorthwyo gan nifer o diwtoriaid, tiwtoriaid cynorthwyol a threfnwyr plymwyr Seasearch gweithredol. Mae arweiniad a chymorth cyffredinol yn cael eu darparu gan gydlynnydd cenedlaethol Seasearch, Charlotte Bolton.

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



**Cyfoeth
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South and West Wales Summary

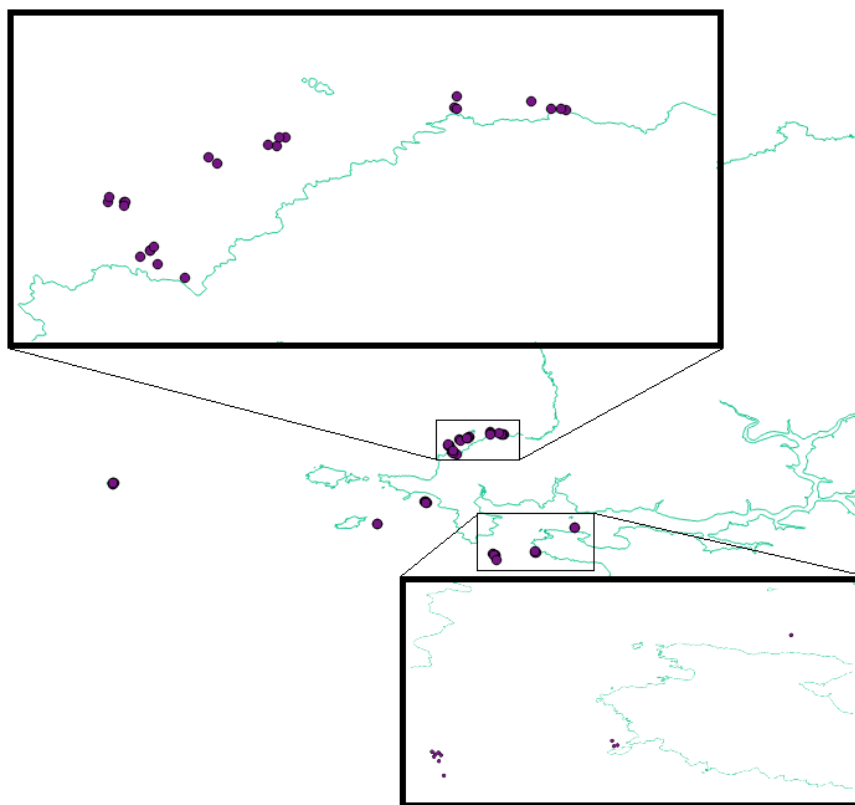
2017 was an eventful year in South and West Wales. A list of target dive areas was drawn up at the beginning of the year in a meeting held with the Natural Resources Wales marine monitoring team leader and the Pembrokeshire Marine SAC Officer. It was agreed, when conditions allowed, to continue to aim for sites in St Brides Bay and the offshore islands. Weekend dive plans were kept flexible so that most sites could be selected based on the weather and tides

A total of 6 survey weekends were planned, sadly due to poor weather conditions 5 days were cancelled impacting on the number of forms completed for the year. 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 new divers to gain experience and complete qualifications.

Two days of diving were completed to help establish new target sites for crawfish recording following survey methods established in the North Pembrokeshire crawfish surveys in 2011.

Survey dives were completed in the following locations:

- Milford Haven waterway (3 sites)
- Skokholm (1 site)
- Marloes Sands (1 site)
- Smalls (1 site)
- Grassholm (1 site)
- St Brides Bay (6 sites)



A presentation was given by Kate Lock at the Dale Fort Marine Symposium held in March, targeting an audience interested and involved in marine conservation. Kate gave two further presentations: Darwin summer science café held in June and at the Pembrokeshire Coastal Forum's Wildlife Sightings event in October. These are excellent awareness opportunities that target a more general audience and many members of the public.

2017 South and West Wales highlights

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

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

- Crawfish, *Palinurus elephas* recorded at 4 sites.



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

- Sponge species: mashed potato sponge, *Thymosia gurnei*, yellow staghorn sponge, *Axinella dissimilis*, brain sponge, *Axinella damicornis* at Skokholm SE reef, Marloes Reef and Mid Channel Rocks.
- Red Blenny *Parablennius ruber* was first recorded in Wales at the Smalls in 2016. It was again found at this site in 2017.
- Nudibranch species: *Thecacera pinnegera* at Skokholm SE reef, Marloes Reef and Baby Handmarks, the elegant nudibranch, *Okenia elegans* at Skokholm SE reef and *Doris sticta* at Mid Channel Rocks. *Eubranchus linensis* was found at both Borough Pinnacles and SW Stack Reef in St Brides Bay, these are the first records of this species in Wales since 1990 when it was photographed by Bernard Picton at Skomer. It is a rare species in the UK which has recently only been recorded at a handful of sites.



- Sea squirt species: The first record in Wales for *Didemnum pseudofulgens* was in 2012 at Long Point, Pembrokeshire but has since been recorded at other Pembrokeshire sites and in North Wales, in 2017 it was found at three sites: Borough Pinnacles, St Brides Haven outer reef, Rubble Reef. The 'strawberry' *Aplidium* sp. is regularly recorded at South Pembrokeshire sites, it has been given a temporary common name as it is still to be described and confirmed. In 2017 it was recorded at Borough Pinnacles in St Brides Bay, Skokholm SE reef and Mid Channel Rocks.



Strawberry *Aplidium* David Kipling



Didemnum pseudofulgens Blaise Bullimore

North Wales Summary

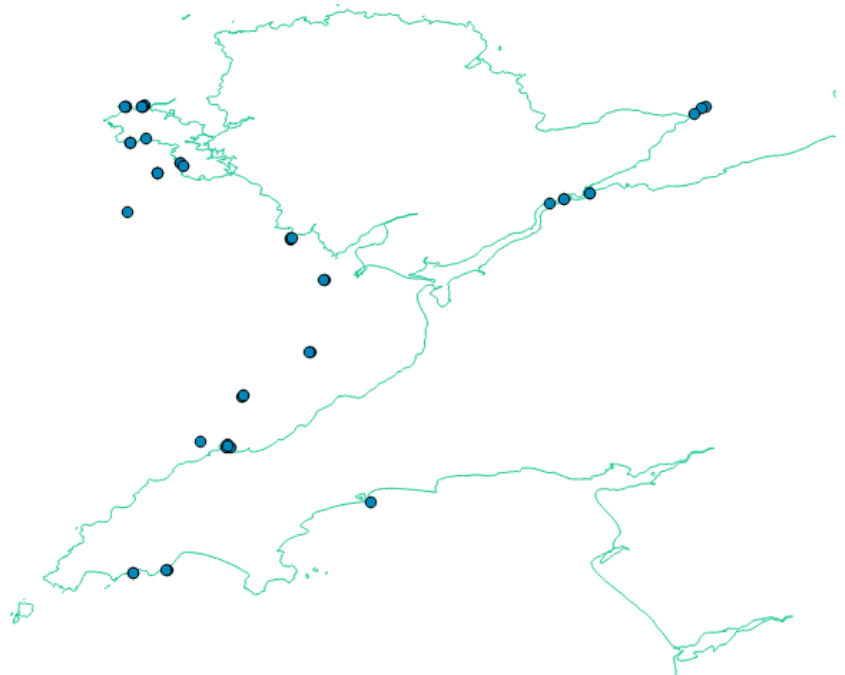
Despite poor weather over planned Seasearch weekends in North Wales in 2017, a number of new sites were visited and some interesting habitats and species recorded, with some new species records for North Wales.

Prioritised locations for diving were discussed in a meeting between the North Wales Seasearch Co-ordinator Liz Morris-Webb and Natural Resources Wales at the beginning of the year and a number of areas were identified for Seasearch diving if conditions allowed. Dive weekends were planned to target particular areas and to fit in with the availability of boat operators.

A total of 5 survey weekends were planned but unfortunately, due to poor weather one full weekend and 1 day of two of the other weekends of the planned Seasearch dives had to be cancelled. This had a knock-on effect to the total number of forms completed over the year. However, additional days of diving were organised and carried out independently by local Seasearch divers and a number of Seasearch forms were completed as part of the 'Dive into Monitoring: Seagrass 2017' project at Porthdinllaen which was funded through Sea-Changers. The majority of forms completed in 2017 were Surveyor forms, many completed by experienced Seasearch divers, with 44 Surveyor forms out of a total number of 55 forms. The organised programme of Seasearch diving was organised by Liz Morris-Webb and the weekends were run by Liz and experienced Seasearch tutors.

Survey dives were completed in the following locations:

- NW/W Anglesey (9 sites)
- Menai Strait (5 sites)
- North Llŷn coast (4 sites)
- S/SW Llŷn coast (3 sites)



A variety of Seasearch-related activities other than diving also took place during 2017 in North Wales. Local North Wales Seasearcher Carol Horne organised a display of photographs by local Seasearch divers at Caban Café in Bryn yr Efail near Llanberis. To accompany the photographic display she also organised an evening event of marine talks and presentations at the café; Seasearch tutor Lucy Kay gave a talk 'Exploring the undersea world' which highlighted the contribution that Seasearch has made to knowledge about the marine life around North Wales and other talks were given by Nia Jones, Living Seas Manager for the North Wales Wildlife Trust, and underwater photographer Paul Kay. Despite poor weather on the day there was a good turnout for the event and a lot of interest generated about the local marine environment. As a result of the success of this event, Carol has organised for a marine display to be set up by Seasearch and the North Wales Wildlife Trust in the foyer of Gwynedd Hospital in Bangor for the three months April – June in 2018.

Two other Seasearch presentations were given by North Wales Seasearch Co-ordinator Liz Morris-Webb in April and May to a Capturing our Coast (CoCoast) science and wine evening and Gwynedd Sub Aqua Club, respectively. These talks, entitled "All eyes on the seabed: What nearly 30 years of diving for citizen science can achieve" resulted in lots of queries as to how local divers can get involved in recording marine life.

Seasearch had a presence at the Bangor University freshers' fayre 'Seren' over 2 days, sharing a stand with Capturing

our Coast and the University Marine Society 'Endeavour' and this generated lot of interest from current and new students at Bangor.

Two other Seasarch-based projects developed during 2017, these are:

- Dive into Monitoring: Seagrass 2017, and
- Commemorating the forgotten U-boat war around the Welsh coast, 1914-18

There is more about both of these projects later in the report

2017 North Wales highlights

Highlights from 2017 include new Welsh species records, habitats and species listed under Section 7 of the Environment Act (Wales) 2016 as of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales, as well as species considered as rare, scarce or unusual records.

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

- Seagrass bed *Zostera marina* (Porthdinllaen)
- Crawfish, *Palinurus elephas* recorded at 4 sites.
- Maerl, *Phymatolithon calcareum* (as individual twiglets)
- Plaice, *Pleuronectes platessa*

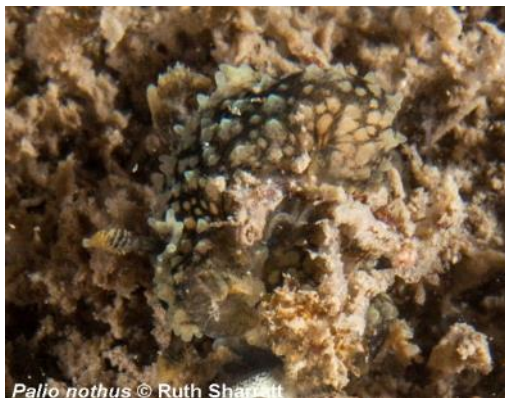
Nationally rare and scarce species, unusual records and those of limited geographic distribution

Sponge species:

Two new sponge records for North Wales both recorded from north-west and west Anglesey

- Sponge *Hexadella racovitzai* (Porth Namarch and East of North Stack)
- Maroon-coloured sponge *Chelonaplysilla noevus* (East of North Stack and North of Black Arch (Porth y Garan)

Nudibranch species:



Palio nothus © Ruth Sharrett



Chelonaplysilla noevus © Rohan Holt

- *Palio nothus*, not commonly recorded (Porth Namarch, north-west Anglesey)

Red seaweed:

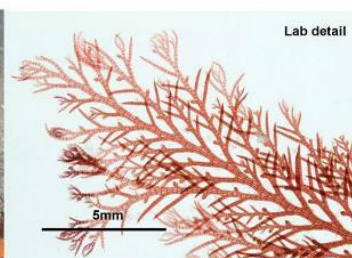
- Red seaweed *Xiphosiphonia pennata* (Careg Gorad Goch, Menai Strait). With the exception of one record on the west coast of Scotland this is the first record north of Skomer for this species.



Xiphosiphonia pennata habitat © Lin Baldock



In situ
© Lin Baldock



Lab detail



Lab detail

Xiphosiphonia pennata (formerly *Pterosiphonia*)

Coll: Lin Baldock
Confirmed: Paul Brazier

Careg Gorad Gorch
2nd Oct 2017

53° 13.09'N 004° 10.91'W
(WGS84) from Google Earth

© Lin Baldock

Records of species more commonly found in the south and south-west of the UK:

- Mashed potato sponge, *Thymosia gurnei* (East of North Stack, north-west Anglesey; this is the most northerly record in Wales for this species)
- Yellow staghorn sponge, *Axinella dissimilis* (Maen Gwenonwy, south-west Llŷn)
- Yellow branching sponge *Axinella damicornis* (Maen Gwenonwy and Cormorant Rock Hell's Mouth, south-west Llŷn)
- Yellow feathers hydroid *Gymnangium montagui* (south-west Llŷn (Maen Gwenonwy and Hell's Mouth)) and west of Maen Piscar, west Anglesey (this species is not commonly recorded from Anglesey)
- Brown seaweed – Dotted Peacock Weed *Taonia atomaria*

Unusual habitats

- *Sabella pavonina* characterised low-lying silted circalittoral reef (Carreg y Trai, SW Anglesey)



South and West Wales dive sites

Milford Haven Waterway

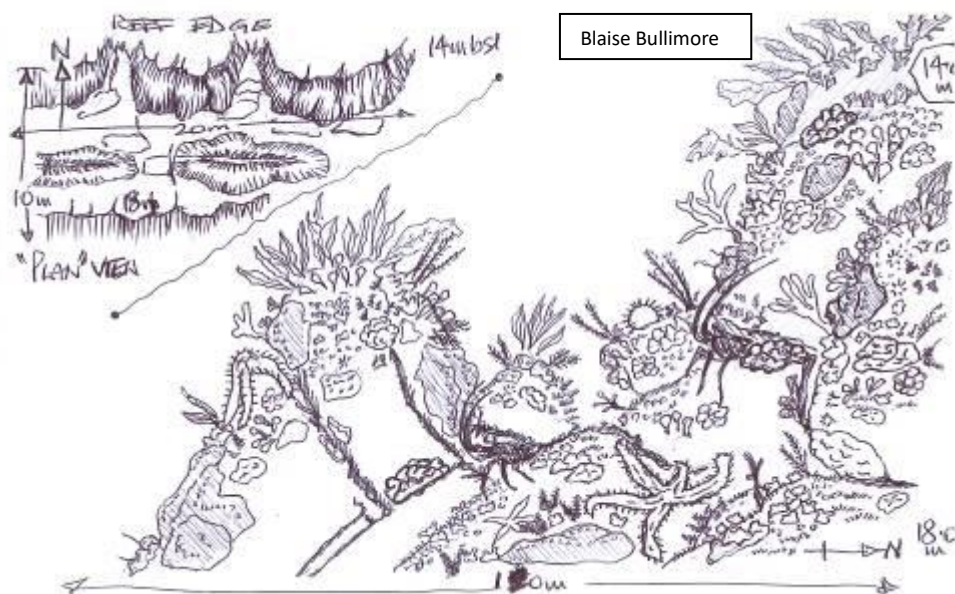
The Milford Haven waterway is a very active area with both commercial and recreation interest. Seasearch has completed many dives in the area looking at habitats and species of national importance: tidal rapid reefs, eelgrass *Zostera marina* beds and the native oyster *Ostrea edulis*. There are also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

Three sites were dived in the Milford Haven waterway in 2017. Due to poor weather conditions restricting safe diving, two sites were dived in the shelter of Milford Haven – these were repeat dives at Sheep Island and the Angle Landing Craft sites. Considering the poor visibility at each site limiting recording effort, there was no notable information gathered to add to these previously described sites.

Mid Channel Rocks

Mid Channel Rocks are located south of St Ann's head at the entrance of Milford Haven waterway. A navigation light beacon is positioned on the rocks, marking the busy shipping channel. It is a wave exposed site with currents up to 3 knots. The reef is extensive and a highly complex with gullies and pinnacles between 14 to 18m depth, at the edge of the reef a steep drop-off leads to a seabed of around 40m depth. The gullies run in both east to west and north to south forming a 'chocolate box' structure. A dense mixed animal turf covered the reef with encrusting barnacles, colonial sea squirts, bryozoan turf species, erect, cushion and massive sponges, sparse hydroids and patchy mixed red seaweeds.

Club sea squirt, *Aplidium punctum* was abundant and both *Morchellium argus* and *Polycarpa scuba* were recorded as common, along with 11 additional sea squirt species. Bryozoan turf included spiral bryozoan, *Bugula plumosa* and *B. turbinatum*, *Scrupocellaria spp* and white claw moss, *Crisia spp*. Finger bryozoan, *Alcyonidium diaphanum* was locally abundant on gently sloping surfaces and hornwrack, *Flustra foliacea* was found in isolated patches along with occasional potato crisp bryozoan, *Pentapora foliacea*. Elephant hide sponge, *Pachymatisma johnstonia* and shredded carrot sponge, *Amphilectus fucorum* were both common and notable were staghorn sponge, *Axinella dissimilis* and mashed potato sponge, *Thymosia gurnei*. The rugged habitat was favoured by territorial fish and crustacean species with both lobster, *Homarus gammarus* and crawfish, *Palinurus elephas* found and a tiny juvenile clingfish. Notable was a record of the rare UK nudibranch *Doris sticta*.



Nudibranch *Doris sticta* Hayden Close



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 2017 the SE reef was explored further. Additionally, a reef was surveyed off Marloes Sands, a beach on the mainland coast adjacent to Skokholm.

SE Reef

This is an extensive reef located approximately 1 mile of the SE side of Skokholm. The sandstone rocks form a very steep, rugged and fractured reef edge with many vertical faces and crevices down to 18m depth. The animal turf consists of a rich, diverse assemblage of sponges, bryozoans, hydroids and sea squirts including extensive frequent patches of pinhead sea squirt, *Pycnoclavella producta*.

The bright orange shredded carrot sponge and large boring sponge, *Cliona celata* are distinctive features of this site and other notable sponges were the staghorn sponge, *Axinella dissimilis* and mashed potato sponge, *Thymosia gurnei*. Spiral bryozoan, *Bugula plumosa*, *B. turbinata* and *B. flabellata* were all present, finger bryozoan, *Alcyonidium diaphanum* and potato crisp bryozoan, *Pentapora foliacea* both frequently recorded along with hornwrack, *Flustra foliacea* in isolated patches.

Fish and crustacean species favoured the rugged terrain, a conger eel, *Conger conger* was found and squat lobster, *Galathea strigosa* and crawfish, *Palinurus elephas* both recorded. Nudibranch species were found the most notable being the elegant nudibranch, *Okenia elegans*.



Marloes Reef

An old red sandstone reef found off Marloes Sands between 12-16m depth, the reef was low lying with gullies up to 2m width and 2m high faces with numerous ledges and crevices. The upper surfaces were covered in lush red algae meadows whilst the vertical faces were dominated in club sea squirt, *Aplidium punctum*, spiral bryozoan, *Bugula plumosa*, finger bryozoan, *Alcyonidium diaphanum* and along with sponge and hydroid species. Fifteen sponge species were recorded, notable was the yellow staghorn sponge, *Axinella dissimilis*, brain sponge *A. damicornis* and mashed potato sponge, *Thymosia gurnei*. Exploring deep crevices juvenile crawfish, *Palinurus elephas* and squat lobster *Galathea strigosa* were found. Nudibranch species included *Rostanga rubra* and *Thecacera pennigera*.



Squat lobster, *Galathea strigosa* Emily Williams

Grassholm

Grassholm is a small island located 14 miles off the west coast of Pembrokeshire and is internationally protected for its gannet colony. It is an incredible island to visit as the whole island and air is filled with these sea birds. The currents are very strong around the island and it is important to dive at the slackest part of the tide and tuck into sheltered areas of the reef. Seasearch diving was completed on the west side of Grassholm in 2013 and in 2017 the east side of the island was surveyed.

In the shallows kelp forest covered the rocks to 10m depth, the rocks then led down to 16m depth forming an undulating

rocky reef with gullies up to 2m width filled with boulders and cobbles and rocky faces 2m height. In other areas extensive areas of boulders and cobbles were found with scattered low lying wreckage.

The reef and boulders were covered in mixed red algae, deadman's fingers, *Alcyonium digitatum*, Jewel anemone, *Corynactis viridis* and oaten pipe hydroid, *Tubularia* 'stalks' all smothered in amphipod *Jassa falcata* tube crusts. An abundance of dahlia anemones, *Urticina felina* were found nestled in the cobble gullies. Velvet swimming crab, *Necora puber*, edible crab, *Cancer pagarus* along with scorpion fish, *Taurulus bubalis* and lesser spotted catshark, *Scyliorhinus canicula* were recorded hiding in the gullies and rock crevices.



Edible crab, *Cancer pagarus* and Dahlia anemone, *Urticina felina* Kate Lock



Jewel anemone, *Corynactis viridis* Hayden Close

The Smalls

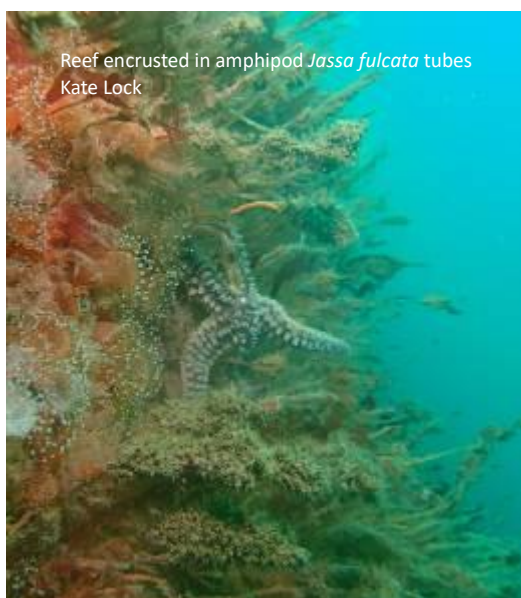
The Smalls is a group of wave-washed basalt and dolerite rocks located 20 miles off the Marloes Peninsula. The site is exposed to both strong currents and wave action so can only be dived on calm days with neap tides. In 2016 the south side of the rock complex was surveyed and in 2017 the north side was targeted.

In the shallows kelp forest covered the rocks with a mix of both forest kelp, *Laminaria hyperborea* and furbelows, *Saccorhiza polyschides*. Beneath the kelp canopy was a dense mix of red algae heavily encrusted in bryozoan sea mat, *Electra pilosa*. A mix of sponges, hydroids and ascidians were found in the gullies and growing on the base of the kelp plants. These included shredded carrot sponge, *Amphilectis fucorum*, hydroids *Aglaophenia pluma* along with encrusting *Didemnum* sea squirts.

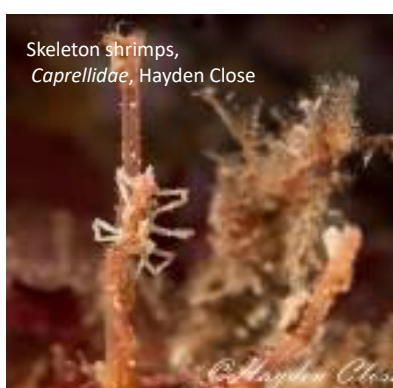
Steep rocky walls were found from 14 to 25m depth. The walls were blanketed in oaten pipe hydroids, *Tubularia indivisa*, 'stalks' completely encrusted in tubes made by the amphipod *Jassa falcata* and crawling in skeleton shrimps, *Caprellidae*. Dense patches of colourful jewel anemone, *Corynactis viridis* and deadman's fingers *Alcyonium digitatum* were also found.



Kelp forest, Kate Lock



Reef encrusted in amphipod *Jassa falcata* tubes
Kate Lock



Skeleton shrimps,
Caprellidae, Hayden Close

In some areas the reef gave way to low lying rocks and boulders (between 11-18m depth) covered in mixed red algae, antennae hydroids *Nemertesia antennina* and *N. ramosa* and clusters of deadman's fingers *A. digitatum*. Spiral bryozoan *Bugula plumosa* and *B. turbinatum* were common and hornwrack, *Flustra foliacea* was frequently recorded. Edible crabs, *Cancer pagarus* were found nestled between the boulders along with the occasional lobster, *Homarus gammarus*. The nationally rare red blenny *Parablennius ruber* was spotted; the Smalls is the only site in Wales where this fish has been recorded, with the first record by Seasearch in 2016.

Grey seals were seen before, during and after the dive and common dolphin were seen on the surface.

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, off shore reefs and mixed sediment plains are all features of the bay. In 2017, 6 sites were surveyed in the southern area of the bay adding to the data for this area.

Borough Pinnacles

This is a reef found just off Borough Head close to Little Haven village. A shallow reef of bedrock and boulders leads down to 10m depth where a sandy bed is found. A mixed kelp forest comprising of forest kelp, *Laminaria hyperborea* and furbelows, *Saccorhiza polyschides* was found with a dense meadow of red algae heavily encrusted in bryozoan sea mats, *Electra pilosa* and *Membranipora membranacea*.



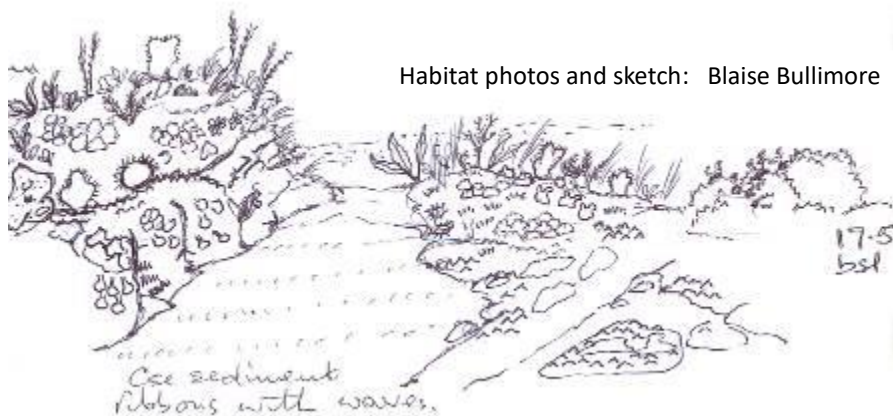
Cowrie *Trivia monacha* Kerry Lewis

Barnacles, orange bryozoan crusts and encrusting sponges covered large areas of the rocks. Ten species of sea squirt were recorded all in low abundance but notable was the snowflake sea squirt, *Didemnum maculosum* var. *dentata*, along with the un-named 'Sandy polyclinid' and 'Strawberry Aplidium'. A diverse number of nudibranch species were found, with 13 species recorded, including some unusual sightings for the region: *Tenellia caerulea* and the very camouflaged *Aegires punctilucens* along with *Eubranchus linensis* a rare nudibranch in the UK that has only been recorded at a handful of sites.

SW Stack Reef

A low-lying reef at 16-18m with boulders, cobbles and ribbons of coarse sand and shell gravel between. The rocks were covered in an abundance of barnacles over-lain in red algae, hydroids, sea squirts and occasional sponges. Herring bone hydroid, *Halecium halecium* was common and *H. beanii* was recorded as occasional as were both antenna hydroids, *Nemertisia antennina* and *N. ramosa*. The orange sea squirt, *Stolonica socialis* was common and star sea squirt, *Botryllus schlosseri* frequent with one individual found with two *Gonidora castanea* nudibranch feeding on it. Boring sponge, *Cliona celata* were found along with two very small sponge crabs, *Dromia personata* that had cut chunks of the sponge to 'wear' over their bodies.

Patchy areas of the reef were more impoverished, possibly due to semi-mobile cobbles and small boulders, these areas were dominated by barnacles and crevice sea cucumber, *Pawsonia saxicola*. Notable was *Eubranchus linensis* a rare nudibranch in the UK that has only been recorded at a handful of sites.



Habitat photos and sketch: Blaise Bullimore



Nudibranch *Gonidoris castanea* Kerry Lewis



Sponge crab *Dromia personata* Kerry Lewis

Outer Reef St Brides Haven

This reef is located just out in the entrance of St Brides Haven, it is a low-lying sandstone and boulder reef protruding up 1-2m from the sea bed with narrow gullies filled with coarse sand, gravel and broken shell fragments within which little life was apparent. The rocks and boulders were covered in kelp park of forest kelp, *Laminaria hyperborea* and red algae cover mixed with hydroids and bryozoans. A high number of animal species were recorded but all in low abundance except for barnacles, *Balanus crenatus* which were abundant. Twelve species of sea squirt were found, most notable the snowflake sea squirt, *Didemnum maculosum* var. *dentata* and the nationally rare *Didemnum pseudofulgens*. The boulders provided good habitat for crab species and lobster, *Homarus gammarus* and a single crawfish, *Palinurus elephas* was recorded.

Hen and Chicks

A shallow reef from 8-11m depth, the tops of the reef were covered in a kelp park with a scruffy understory of red and brown algae, below which the reef slopes down to a coarse sandy seabed. In the sandy areas adjacent to the rock dahlia anemone, *Urticina felina* were common and daisy anemone, *Cereus pedunculatus* occasional.

On the reef walls elegant anemone, *Sagartia elegans*, jewel anemones, *Corynactis viridis* and *Acinotheroe sphyrodeta* were all found amongst the hydroid and bryozoan turf. Nudibranch species were diverse with 13 species recorded, these included *Doto pinnatifida* and *D. fragilis* feeding on antennae hydroids *Nemertesia antennina* and *N. ramosa* and *D. lemchei* on hydroid *Aglaophenia tuberculata*. The sea hare *Aplysia punctata* was found in abundance most likely in a breeding frenzy, many individuals were 10cm or larger in size.



Sea hare *Aplysia punctata* Louise Bebb

Baby Handmarks



Orange sea squirt *Stolonica socialis* Emily Williams

This small reef has been named after a large offshore reef area called Handmarks in south St Brides Bay as it has many similar features. The sandstone reef was found at depths 15-18m with 2-3m high walls divided by gullies of boulders and cobbles. The horizontal reef surfaces were characterised by an abundance of red and brown algae whilst the boulders were mainly encrusted in pink encrusting algae and barnacles. The reef walls were dominated in animal turf of hydroids and sea squirts with large patches of orange sea squirt, *Stolonica socialis*. Hydroids included the antennae hydroids, *Nemertesia antennina* and *N. ramosa* alongside the herring bone hydroid, *Halecium halecium*. Fourteen species of nudibranch were recorded at the site including *Thecacera pennigera*, *Fjordia lineata* and *Eubranthus pallidus*. In the gullies both dahlia anemone, *Urticina felina* and daisy anemone, *Cereus pedunculatus* were found.

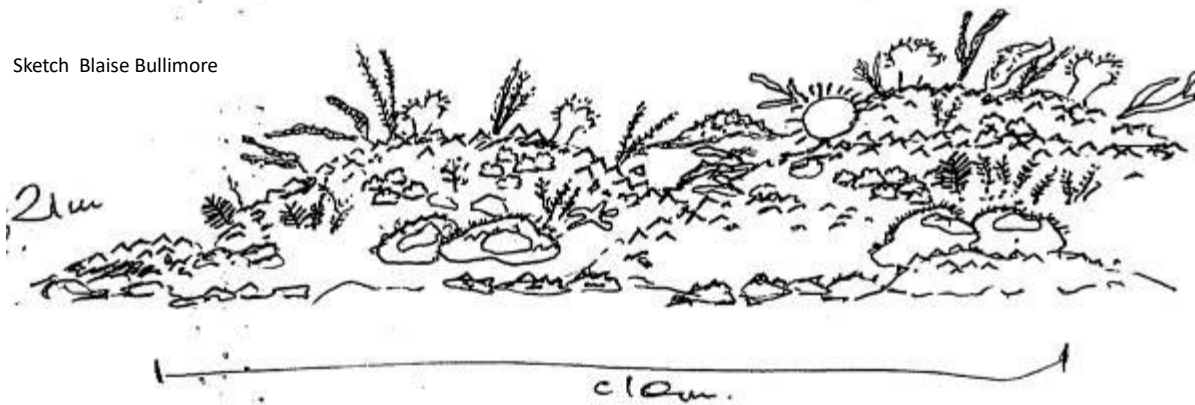
Rubble Reef

A low lying rugged reef with small boulders and small patches of cobbles and shell gravel at 18-20m depth. Very little silt was present on the rocks which were heavily encrusted in barnacles and tubeworms. A scattering of other encrusting animals were found with patches of sea squirts, sparse hydroids and bryozoan along with isolated patches of deadman's fingers, *Alcyonium digitatum*. Bryozoans included patches of finger bryozoan, *Alcyonidium diaphanum* and orange pumice bryozoan *Cellepora pumicosa*. Orange sea squirts, *Stolonica socialis* were frequent and notable was the rare *Didemnum pseudofulgens*.

Common urchin, *Echinus esculentus* along with spiny starfish *Marthasterias glacialis* and common starfish, *Asterias rubens* were found grazing on the rocks. The habitat was favoured by small crustacean species with common prawn *Palaemon serratus* and *Crangon crangon*, spindly spider crab, *Macropodia sp*, hairy hermit crab *Pagaurus cuanensis* and common hermit crab *Pagurus bernhardus* all recorded.



Sketch Blaise Bullimore



North Wales dive sites

Anglesey

The different sides of the island of Anglesey present a range of environmental conditions such as variations in degrees of exposure to wave action and tidal currents, shallow to deep water and proximity to extensive areas of sediment and potential for sediment scour. Consequently the habitats and marine life that occur around the island vary in response to these differing conditions with some communities only being present, or being more commonly found in particular locations around the island. Seasearch has undertaken many surveys around Anglesey to expand the collective knowledge of these habitats and the marine life they support; a significant proportion of the publicly available marine biological data survey points around Anglesey (within depths accessible to divers) are from Seasearch data.

Anglesey received most attention from Seasearch dives in 2017 with nine sites dived on the west and north-west coasts of the island, primarily targeting locations for which there was no survey data. Dives in the Menai Strait between the south side of Anglesey and mainland North Wales are presented in another section of the report.

The sites visited in 2017 are described below in an order that runs from just west of Holyhead in a southerly direction along the west coast of Anglesey.

Porth Namarch (May 2017)

Porth Namarch is a small bay situated immediately to the west of Holyhead breakwater on the north of Holy Island, NW Anglesey. Ridges of silted bedrock reef extend in a northerly direction out from the shore. The reef is a continuation of a rocky intertidal shore and the area of reef between about 1.5m – 13.5m was surveyed on the dives. The shallower and upward facing surfaces

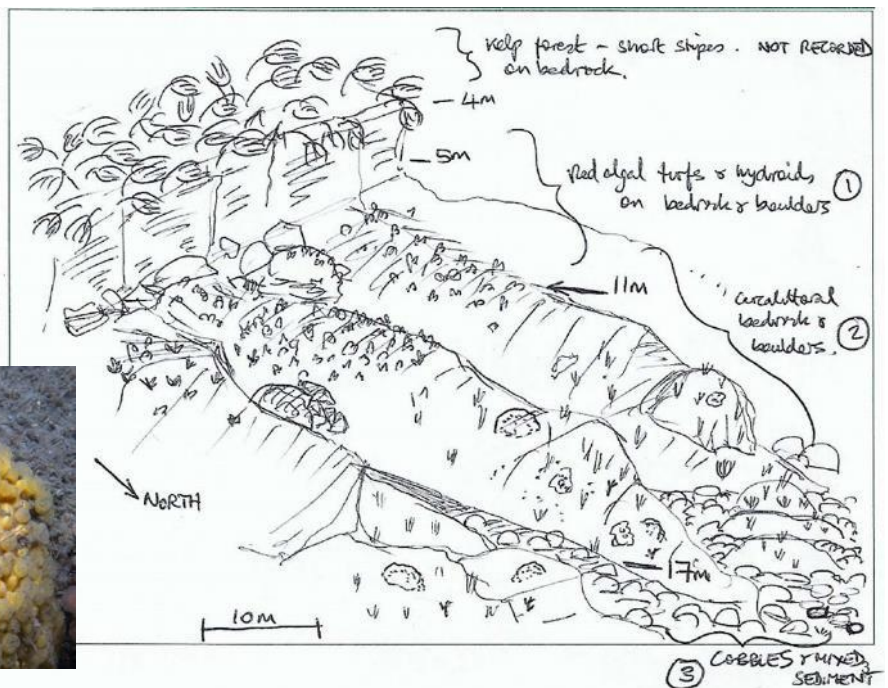
of the reef supported *Laminaria hyperborea* kelp forest and a dense turf of mixed red seaweeds down to about 6.5m



Cliona celata © Rohan Holt

with frequent *Plocamium* sp.,

Heterosiphonia plumosa, *Phycodrys rubens* and pink coralline crusts. The pink ears *Meredithia microphylla* seaweed was also common in places. A variety of other red seaweed species were recorded including *Rhodophyllis divaricata*, *Delessaria sanguinea*, *Cryptopleura ramosa* and *Acrosorium venulosum*, and the brown seaweeds *Dictyota dichotoma* and *Dictyopteris polypodioides* were also present but in low abundance.



The bedrock gullies had vertical and steeply sloping, silted rock walls between 1-2m high with some fissures and crevices present. There was a relatively sparse turf of hydroids, bryozoans, sponges and sea squirts with the most visually dominant species including the antenna hydroid *Nemertesia antennina*, elephant hide sponge *Pachymatisma johnstonia*, boring sponge *Cliona celata* and small branching sponges. A new sponge record for North Wales of the sponge *Hexadella racovitza* was recorded in this habitat. The black sponge *Dercitus bucklandi* was also present in small amounts. This habitat also provided another unusual find of an individual of the rarely recorded nudibranch *Palio nothus* together with its eggs; the other most recent record of this species from Anglesey was also on a Seasearch dive in 2013! The base of the gully walls supported little life and is likely to be scoured by the cobbles and mixed sediment in the base of the gullies in periods of rough weather. The bedrock reef was recorded to 13.5m depth.

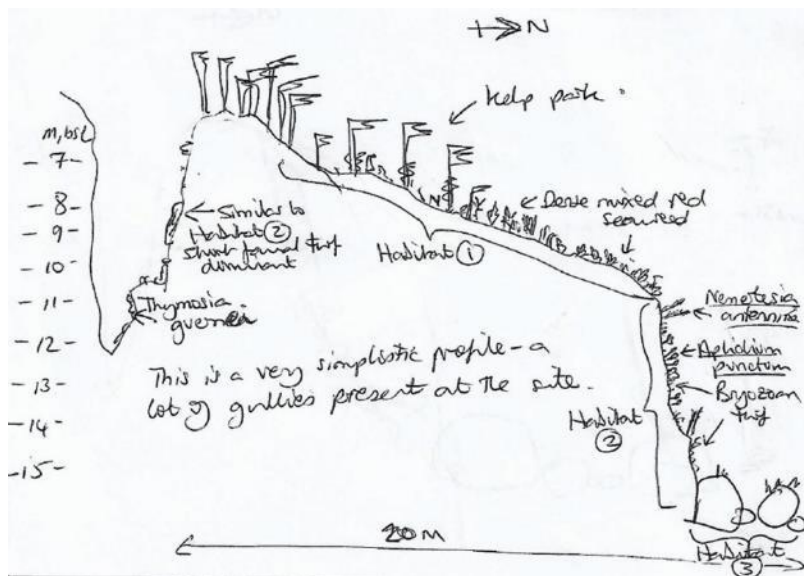


Dercitus bucklandi © Rohan Holt

Larger, silted boulders partly within the gullies but also extending into deeper water around the end of the bedrock gullies supported a fauna of sponges (*Raspalia hispida* and *Cliona celata* frequent), hydroids (*Nemertesia antennina* and *Halecium halecinum* frequent), anemones (mainly *Actinothoe sphyrodeta* but *Isozanthus sulcatus* also present) and sea squirts and clumps of the red seaweed *Rhodophyllis divaricata*.

East Side of North Stack (May 2017)

This site is just to the east of North Stack, a particularly exposed point in terms of tides and wave action on the north-west corner of Holy Island, NW Anglesey. Rugged bedrock and very large boulder reef extending from <1m to 9.3m was dominated on the upper-facing surfaces by *Laminaria hyperborea* kelp forest and kelp park in shallow water to about 5m and a dense turf of red and brown seaweed extending to 7m.



Vertical and steeply sloping rock surfaces were covered in a dense turf of sponges, hydroids and bryozoans. *Pachymatisma johnstonia*, *Cliona celata* and *Polymastia boletiformis* were the most abundant sponge species on the vertical walls and a further 18 other species of sponge were recorded including one of the two 2017 new records for North Wales of a dark blue/maroon-coloured sponge *Chelonaplysilla noevus* and a record for the less-commonly recorded white sponge *Thymosia guernei* putting a new point on the NBN map for this species as the most northerly record in Wales. The hydroid portion of the turf was dominated by frequent *Nemertesia antennina*, *Halecium halecinum*, and *Abietinaria abietina* whilst crinid species were the most abundant bryozoans present with smaller amounts of other bryozoan species including *Cellaria* sp., *Bugula* sp. and hornwrack *Flustra foliacea*

At the base of the more rugged bedrock and boulder reef between 4m – 9m there were silted boulders supporting a very diverse community characterised by branching sponges including *Haliclona oculata*, *Stelligera stuposa* and *Raspalia hispida*, hydroids, bryozoans and, in the shallow parts of this habitat, red seaweeds; clumps of the red seaweed *Rhodophyllis divaricata* were common in one part of this habitat. A second record for the new sponge record for North Wales of *Hexadella racovitzai* was recorded from this habitat. Anemones *Cerianthus lloydii* and *Sagartia troglodytes* were present in the coarse sediments at the base of the boulders.

Porth Dafarch (August 2017)

Just one qualification Observer form was submitted for Porth Dafarch recording a boulder reef with brown seaweed and limpets in shallow water leading into an area of sand and gravel with casts of *Arenicola* sp. common. Apart from the *Arenicola* only a sparse fauna was recorded on the sediment but it included a little cuttlefish (most likely *Sepiolo* sp.) and a plaice *Pleuronectes platessa*.

Porth Ryffydd (June 2017)

Porth Ryffydd is located to the north of Treaddur Bay on the west coast of Anglesey, an area of the island's coast exposed to the prevailing south-westerly winds. At this site, bedrock reef with a few gullies between just over 9m – 13m led into a flatter area of pebbles and gravel with some boulders between 11m – 13m deep supporting a sparse fauna, with only painted topshells *Calliostoma zizyphinum*, painted gobies *Pomatoschistus pictus* and lesser-spotted catshark *Scyliorhinus canicula* recorded on the mixed ground.

The bedrock reef was quite silted with most of the shallower area quite flat but with some bedrock ridges present up to a metre high. The rock reef was dominated by a mix of red and brown seaweeds (*Delessaria sanguinea*, *Calliblepharis ciliata* and *Heterosiphonia plumosa* all recorded as common) and sponges, as well as areas of dense bryozoan, hydroid and ascidian turf. The boring sponge *Cliona celata* was common where sponges were abundant and other sponge species, *Tethya citrina*, *Pachymatisma johnstonia*, *Polymastia boletiformis* and *Dysidea fragilis* were frequent. The most abundant species in the hydroid, bryozoan and ascidian turf were recorded as *Nemertesia antennina*, crinids and the light bulb sea squirt *Clavelina lepadiformis*. A limited number of fish species were recorded including some wrasse,

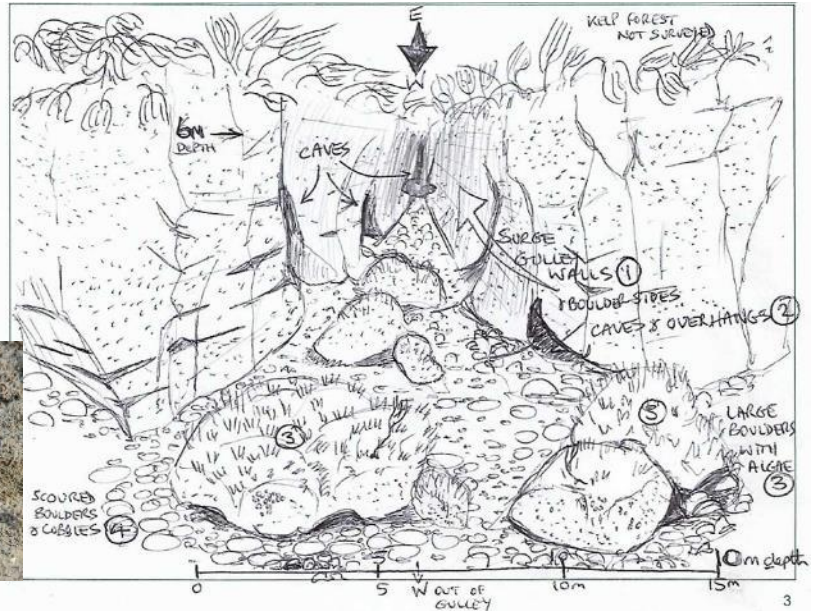
gobies and blennies, but not in large numbers.

North of Black Arch – Porth y Garan (June 2017)

The visually dominant feature at this site, again on the west coast of Anglesey, was a rugged bedrock reef between 1m – 8m that formed a notable surge gully with vertical rock faces, overhangs, crevices, fissures and small caves in the rock face. The vertical faces of the bedrock and also very large boulders within the area of the surge gully had an almost continuous cover of the classic surge gully species of



Thorogobius ephippiatus © Rohan Holt



Taonia atomaria © Rohan Holt



Limacia clavigera © Rohan Holt

the white sponge *Clathrina coriacea* and the small red sea squirt *Dendrodoa grossularia*. The second of the two 2017 new records for North Wales of the dark blue/maroon-coloured sponge *Chelonaplysilla noevus* was from this habitat where a very small patch of it was recorded amongst the *Dendrodoa*. Other sponges were also present in high abundance with *Sycon ciliatum* abundant, *Halichondria panicea* common and *Tethya citrina*, *Pachymatisma johnstonia*, *Dysidea fragilis* and an unidentified orange sponge crust all recorded as frequent.

The numerous fissures and crevices and small caves within the vertical rock faces provided an excellent home for *Palaemon serratus*, *Galathea strigosa*, *Necora puber*, *Thorogobius ephippiatus* and *Parablennius gattorugine*.

Whilst *Clathrina* and *Dendrodoa* were notably less abundant in these areas, there was quite a high abundance of sponges with several species recorded as frequent including the black sponge *Dercitus bucklandi* and an unidentified orange sponge crust.

A field of scoured boulders and cobbles was present at the base of the bedrock reef and gully. Within this area there were very large rounded boulders and, within close proximity of the bedrock reef and surge gully, a bedrock reef outcrop from 4m – 7m depth. The upward-facing surfaces of these boulders and bedrock reef were dominated by a dense and diverse mix of red and brown seaweeds; 38 species were recorded including a new record for Anglesey on the NBN Atlas of the probably under-recorded red seaweed *Radicilingua thysanorhizans*. The brown seaweed *Taonia atomaria*, a species more frequently recorded in more southerly areas of the UK was also recorded here.

A number of nudibranch species were seen at this site: *Limacia clavigera*, *Fjordia browni*, *Doris pseudoargus*, *Facelina auriculata*, *Tritonia lineata*, *Crimora papillata* and *Polycera quadrilineata*.

Between Black and White Arches (June 2017)

Another site on the west side of Anglesey this location had rock reef comprising bedrock with gullies and also very large boulders in shallower water between around 1.7m to 7.6m sloping gently seawards into an area of boulders and cobbles and subsequently sand at a depth of just under 9m.

Laminaria hyperborea kelp forest dominated the shallower parts of the bedrock and boulder reef to around 5m, with the kelp thinning out into kelp park to about 8m with many red and brown seaweeds amongst the kelp plants; *Delessaria sanguinea*, *Heterosiphonia plumosa*, *Drachiella*



Dendrodoa grossularia and *Clathrina coriacea* © Richard Yorke



spectabilis, *Dictyota dichotoma*, *Calliblepharis ciliata* and pink encrusting coralline algae were recorded as the most abundant seaweed species. The extensive area of boulders and cobbles between 7.6m-9m also supported mainly red seaweeds but also frequent sea squirts *Clavellina lepadiformis*, *Morchellium argus* and *Dendrodoa grossularia*.

Very little life was recorded on the sand seabed at the seaward side of the reef.

West of Maen Piscar (June 2017)

The seabed feature that was the focus of the dive at this site (again on the West coast of Anglesey) was a low-lying circalittoral bedrock and boulder reef between 16m-19m. Rounded low knolls of bedrock together with very large boulders, some of which had short vertical faces, were covered with a dense cover of hydroids, bryozoans, sponges, patches of *Flustra foliacea*, ascidians, barnacles and anemones (*Actinothoe sphyrodeta* and *Sagartia elegans*).



The ascidians recorded included abundant *Distomus variolosus*, and frequent *Botrylloides leachii* and *Dendrodoa grossularia*. Abundant *Sabellaria* (possibly *spinulosa*) tubes and amphipod whips (possibly *Dyopedos porrectus*) were also present. *Nemertesia antennina*, *N. ramosa*, and *Hydrallmania falcata* were all recorded as common although there were also a number of other hydroid species observed included *Gymnangium montagui* which is not often seen around Anglesey. As well as *Flustra foliacea*, the bryozoan component of the animal turf included *Cellaria fistulosa*, *Bugula* spp., *Scrupocellaria* sp. and crisiids, all of which were common. Many *Doto* spp. nudibranchs were observed.

Coarse shell gravel was present around the base of the bedrock and boulders. Being slightly offshore this site is likely to be quite tide swept.

Carreg y Trai (September 2017)

Located off the south-west Anglesey this site had a sloping bedrock and boulder reef extending from just over 4m to just over 7m, with circalittoral gravel waves and cobbles and silted, low-lying bedrock reef in slightly deeper water at the base of the reef (7.4m – 9.4m).

Laminaria hyperborea kelp park dominated the shallow part of the bedrock reef to about 6m with a meadow of mixed red and brown seaweeds with frequent *Plocamium* sp., *Heterosiphonia plumosa*, *Cryptopleura ramosa* and *Dictyota dichotoma* present in a fairly narrow zone below the kelp park to about 6.5m. Below this the marine community living on the large boulders and bedrock were characterised by a diversity of sponges (*Hymeniacion perlevis* the most abundant (recorded as frequent)), hydroids, bryozoans (*Bowerbankia* sp., *Scrupocellaria* sp. and crisiids most abundant) and frequent *Alcyonium digitatum*. The ascidians *Clavellina lepadiformis*, *Ciona intestinalis* and barnacles were also all frequent in this habitat.



Hydroids (primarily *Halecium halecinum* and *Hydrallmania falcata*) and *Urticina felina* were the predominant fauna in the circalittoral cobble and gravel habitat at the base of the reef slope. The silted, low-lying bedrock reef also present in the deeper part of the site at around 9m supported an unusual community characterised by abundant *Sabella pavonina* and *Bowerbankia* spp. together with hydroids *Halecium halecinum* (common) and *Nemertesia antennina* (frequent).

Numerous dragonets *Callionymus* sp., two spot gobies *Gobius flavescens* and hermit crabs were observed in the habitats at the base of the bedrock and boulder reef.

Onchidoris Orgy

No prizes for guessing one of the dominant species recorded at this site which was located approximately 4 miles south west of Malltraeth off SW Anglesey! An almost flat seabed of mixed ground of cobbles, pebbles, sand, stone and shell grave, mud and shell fragments between 13m-15m supported a limited variety of sessile fauna dominated by hydroids (*Sertularia argentea* frequent) with some bryozoans and ascidians together with occasional red seaweeds. There was quite a wide variety of mobile fauna of crustaceans, molluscs and small fish. Not surprisingly *Onchidoris bilamellata* was the most abundant mollusc present, but pagurid crabs were also abundant, *Inachus* sp., *Macaropodia* sp. common and there were frequent *Carcinus maenas*, the latter not that common a sight in high abundance in the sublittoral. Gobies of the genus *Pomatoschistus* sp. and dragonets *Callionymus* sp. were the most abundant of the small fish species recorded, but other species were present including pogge *Agonus cataphractus*. More sandy areas had signs of infauna with *Lanice conchilega* (rare), *Sagartiogeton* sp. and observations of bivalve siphons.



Human activities / impacts recorded

Relatively few records of human activities and/or impacts were recorded by Seasearchers from the Anglesey sites dived in 2017. Not surprisingly, given the dominance of rocky reef around many parts of Anglesey, potting for crustaceans was recorded at a few of the sites. Observations of the seabed having possibly been dredged or trawled were made at Onchidoris Orgy but there was no specific evidence to confirm this.

Only a very small amount of litter was observed and the remains of an anchor and some pieces of metal, possibly from wreck were recorded near Black Arch. The observation of quite a lot of golf balls at one site off the west Anglesey coast may seem a rather odd observation of human activity underwater, but actually isn't that unusual for North Wales where there are several golf courses situated on the coast in close proximity to the sea, and sublittoral golf balls can be encountered relatively frequently in some areas!

Menai Strait

The Menai Strait is a narrow sea channel that separates the island of Anglesey from mainland North Wales. The channel forms a tidal rapid in its central section which is very sheltered from wave action but subject to particularly strong tidal currents. The Strait widens at its south-western and north-eastern ends and there are sandbanks and extensive sandflats, particularly at the north-eastern end, that abut the navigable channel. Predominantly rocky seabed in the central section gives way to areas of more mixed ground at either side, although rock habitat continuous to be present, albeit patchily, along the length of the Strait. The presence of marine science research centres by the Strait mean that this area has been studied for a number of years, but diving surveys only really got underway in the 1980's as part of the systematic sublittoral surveys commissioned by the Nature Conservancy Council. The Menai Strait is part of a marine Special Area of Conservation with a number of intertidal Sites of Special Scientific Interest along its north and south coasts. Seasearch has made a significant contribution to marine biological data for the area.



Puffin Island (May 2017)

Puffin Island is situated at the north-eastern end of the Menai Strait and is separated from the south-eastern tip of the Isle of Anglesey by a narrow but in places deep, channel. The island is formed from limestone as part of the band of limestone running along part of the North Wales coast that also gives rise to the Great and Little Ormes by Llandudno. The island is an important seabird nesting site as well as providing a valued spot for grey seals to haul out. Two sites on the north-facing side of the Puffin Island were surveyed by Seasearch in 2017.

One of these sites (Puffin Island North) had a gradual slope of rugged limestone boulders between 4m – 8m characterised by red and brown seaweeds together with abundant *Alcyonium digitata*, tall turfs of hydroids (*Nemertesia* spp., *Abietinaria abietina*, *Halecium halecinum* and *Hydrallmania falcata*) and bushy bryozoan colonies of occasional *Flustra foliacea* and *Chartella papyracea* which was recorded as frequent. Amongst the mixed seaweeds *Brongniartella byssoides*, *Calliblepharis ciliata* and *Plocamium* sp. were common and there was frequent *Dictyota dichotoma*, *Hypoglossum hypoglossoides*, *Heterosiphonia plumosa*, *Cryptopleura ramosa* and *Delessaria sanguinea*. The pin-head sea squirt *Pycnoclavella stolonialis* was recorded as frequent.

The second site surveyed at Puffin Island was situated slightly more to the west on the north-facing coast of the island. Here many large boulders on a flat sandy seabed with between 8.5m – 10m supported an animal turf dominated by *Alcyonium digitatum*, hydroids (*Nemertesia* spp., *Sertularia* sp., *Halecium halecinum* and *Sertularella gayi* being most abundant), and frequent *Flustra foliacea* and some other bryozoans. The pin-head sea squirt *Pycnoclavella stolonialis* was again recorded as frequent as was *Clavelina lepadiformis*.

Bottle Rock (May 2017)

Bottle Rock is a bedrock outcrop situated between Puffin Island and Anglesey. The area surveyed was between 8.5m – 10m and comprised a metre-high rock wall with fissures in the rock, and very large and large boulders. The poor visibility at the time of the dive was brightened by abundant, large *Metridium dianthus* of white and orange colour morphs. Hydroids (indet.) were also abundant and there were a variety of sponges present (including *Amphilectus fucorum*, *Raspailia ramosa* and *Haliclona oculata*) but in low abundance. There were frequent *Clavelina lepadiformis* but no other ascidians were recorded. Muddy sand at the base of the rock reef had burrowing anemones in it but this habitat was not surveyed.

North-West of Coleg Normal (October 2017)

Coleg Normal, on the mainland coast of the Menai Strait is part of the local higher education institutions in the county of Gwynedd. The college is situated to the east of Thomas Telford's famous Menai Suspension bridge constructed in the 1820s. This site is almost within the tidal rapid area of the Strait and consequently is subject to high tidal flow but is very sheltered from wave action. Boulder, cobble and pebble reef extending from 4m – 11m provided a variety of habitats colonised predominantly by short and tall faunal turf.

The water of the Menai Strait is characteristically turbid and the depth of algal growth is consequently limited. The shallower areas the reef between 3m-6m were dominated by sponges with occasional red seaweed. The elegant yellow branched sponge *Haliclona oculata* was frequent and there were abundant unidentified sponge crusts recorded. A limited abundance of hydroids, bryozoans, and ascidians were also present.



At 6m-7m depth the slope flattened off slightly and there was an extensive area of coarse sand and shell fragments with occasional cobbles and pebbles. This was characterised by frequent burrowing anemones *Cerianthus lloydii* and occasional *Urticina felina*, with some sponges and hydroids on the protruding small rocks. Quite extensive areas of this very clean, coarse shell gravel (a large proportion of which is made up of barnacle shell remains), can be found in a number of locations within the more central section of the Strait.

The cobble and pebble slope continued from 7m – 11m and supported sparse erect sponges, sponge crusts and cushions and abundant *Spirobranchus* sp. and barnacles. A limited variety of mobile species were recorded with the most abundant being *Necora puber* and *Pomatoschistus pictus* both of which were present at all depths and

frequent in the deeper habitat. Common starfish *Asterias rubens* were frequent in the more rocky habitats.

Carreg Gorad Goch (October 2017)

Ynys Gorad Goch is a small island situated within the tidal rapid of the Menai Strait between the Menai Suspension Bridge and the Britannia Bridge (originally built just as a railway bridge by Robert Stephenson in the mid 1800s). This particular dive site was on the south west side of the island. The shallow bedrock reef extended from 0m – 2.5m with some boulders and pockets of shell gravel.



Laminaria hyperborea kelp park, red seaweeds and a dense turf of sponges and ascidians dominated the reef. A variety of red seaweed species were recorded including a new record for North Wales of the red seaweed *Xiphosiphonia* (previously *Pterosiphonia*) *pennata* that provides the first record north of Skomer in Pembrokeshire for this species (with the exception of one record on the west coast of Scotland). Sponge crusts and the purse sponge *Grantia compressa* were frequent there was an abundant ascidian turf with *Botryllus schlosseri*, polyclinidae, *Didemnum maculosum*, *Perophora listeri* and *Diplosoma* sp. all recorded as frequent. Many *Inachus* sp. crabs were seen as well as high numbers of *Necora puber*, *Carcinus maenas* and small *Cancer pagurus*. Tube worms *Spirobranchus* sp.

were common on the rock. The pockets of coarse shell gravel supported occasional *Urticina felina*.

Pwllfanog (May 2017)

Most of the channel of the Menai Strait is relatively shallow between around 10m-15m for much of its length. But there are a few isolated deeper areas that form deeper 'holes' to depths between 20-30m and Pwllfanog is one of these features.

A spur of bedrock running perpendicular to the shoreline between 16m-21m forms a dramatic rock reef with alternating vertical and horizontal rock faces and large fissures where the rock is undercut. The reef was dominated by abundant *Haliclona oculata*, and other sponges (*Halichondria panicea*, *Amphilectus fucorum*, *Microciona atrasanguinea* and *Grantia compressa* all of which were frequent). There were also abundant hydroids (*Nemertesia antennina*, *Hydrallmania falcata*, *Abietinaria abietina* and *Sertularia argentea* all being frequent) and frequent *Alcyonium digitatum*, *Flustra foliacea*, *Sagartia elegans* and *Urticina felina*.



An adjacent area of sloping boulder, cobble and gravel seabed also supported a turf of sponges, hydroids of similar species to the bedrock, as well as clumps of big *Flustra foliacea* and *Halichondria panicea*. There were big *Urticina felina* scattered throughout this second habitat.

Human activities / impacts recorded

Human material on the seabed was only recorded from Coleg Normal and Garreg Gorad Goch sites and included records of mooring chain and bits of anchor, plastic and ceramic remains and a bottle.

The Llŷn Peninsula

The Llŷn Peninsula extends in a west /south-westerly direction into the Irish Sea as an extension to the north coast of mainland North Wales. The contrasting sides of the peninsula provide very different conditions for marine life with deeper water and stronger tidal currents on the north and south-west facing coasts and greater exposure to wave action where the shores face the prevailing south-westerly wind. This contrasts with more sheltered conditions along parts of the south Llŷn coast particularly in the area of Tremadog Bay. The varied marine life that can be found in the contrasting habitats around the peninsula (from exposed rugged bedrock to extensive areas of muddy gravel and muddy sand) has been of particular interest to Seasearchers and a number of unusual and uncommon habitats and species have been recorded here. The marine biological importance of the area is recognised by the fact that much of it has been designated as a marine Special Area of Conservation with many marine biological Sites of Special Scientific Interest covering parts of the intertidal. Recent limitations in the availability of dive charter boats in the area has somewhat limited the extent of Seasearch diving here in the last few years, but, despite this, a number of sites were surveyed in 2017.

North Llŷn

Clingfish Cobbles / 3 miles west of Pontllyfni (September 2017)

The flat circalittoral seabed of mixed cobble, pebble, gravel and sand at between 16m-17m was characterised by small faunal turfs of hydroids (*Halecium* sp, *Nemertesia antennina*, *Hydrallmania falcata* and *Sertularia argentea* most abundant) and the bryozoan *Bowerbankia* sp. and frequent tubeworms *Spirobranchus* sp. attached to shells and stones, with a variety of mobile fauna present. As well as a large number of two-spotted clingfish *Diplecogaster bimaculata* (18



were seen by one pair of divers!), the small spider crabs *Inachus* sp., *Macropodia* sp., squat lobster *Galathea intermedia* and juvenile squat lobsters *Galathea* sp. were frequent at this site and many painted gobies *Pomatoschistus pictus* and dragonets *Callionymus* sp. were seen. Other fish included the snake pipefish *Entelurus aequoreus* and *Syngnathus acus*, pogue *Agonus cataphractus*, red gurnard *Aspitrigla cuculus* and lesser-spotted catshark *Scyliorhinus canicula* but all in low abundance. There were a lot of empty bivalve shells on the surface of the sediment

and live *Modiolus modiolus* were recorded as occasional (but not reef-forming)

together with *Mya* sp. and other bivalve species. Two individuals of the woody canoe-bubble *Scaphander lignaris* were recorded which is an interesting record of a species not that commonly seen by divers.

The mixed ground and patches of rippled muddy fine sand amongst the mixed ground had signs of life within the sediment with burrows and casts, bivalve siphons and *Chaetopterus* worm tubes seen and the sandmason worm *Lanice conchilega* also present in the fine sand.



Pentapora Bank (September 2017)

The seabed at the site named Pentapora Bank following the Seasearch dive here was a relatively flat area of circalittoral mixed ground at about 17m with low-lying cobbles and boulders with pebbles, gravel and slightly muddy sediment. The stones were encrusted by *Balanus crenatus* barnacles and the tube worm *Spirobranchus* sp. together with a varied, but in places relatively sparse, turf with *Alcyonium digitatum*, hydroids and bryozoans on the larger rocks. Some of the divers had the pleasure of many colonies of the bryozoan *Pentapora foliacea* (recorded as common) but other bryozoans *Bowerbankia* sp. and *Scrupocellaria* sp. were also frequent.

A variety of mobile species were present with numerous small crabs including the small squat lobsters *Galathea intermedia* and juvenile other *Galathea* sp., hermit crabs including *Pagurus bernhardus* and *Pagurus prideaux* together with its attendant anemone *Adamsia palliata*. An exciting observation from this site was of a juvenile John Dory *Zeus faber*. Some adjacent areas of gravelly sand had sparse live horse mussels *Modiolus modiolus*.



One pair of divers recorded a swathe of empty bivalve shells including imbricated dead *Modiolus modiolus* shell and small boulders with little apparent live apart from tube worms *Spirobranchus* sp. and bryozoan crusts, and a distinct lack of *Pentapora* colonies seen by other dives. One of the boulders was overturned (hydroids and live barnacles on the underside). It is possible that the area had been subject to some sort of seabed disturbance.

Gwynfaen (April 2017)

The Gwynfaen wreck off the North Llŷn coast is popular with local dive clubs – it sits almost upright on a flat seabed of gravel and shell fragments and whilst it is colonised by relatively low diversity of sessile fauna it attracts relatively high numbers of fish that aggregate around the superstructure of the wreck, including pouting *Trisopterus luscus*, poor cod *Trisopterus minutus*, whiting *Merlangus merlangus*, pollack *Pollachius pollachius*, and is home to several wrasse species in lower abundance than the gadoid fish. The wreck itself has been colonised by a small number of sponges (shredded carrot sponge *Amphilectus fucorum* and breadcrumb sponge *Halichondria panicea* most abundant), dead men's fingers *Alcyonium digitatum*, *Actinothoe sphyrodeta* anemones and antenna hydroids *Nemertesia antennina* as well as abundant hornwrack *Flustra foliacea* and *Bugula* spp. There are some small patches of jewel anemones *Corynactis viridis* on parts of the wreck that are obviously subject to sufficient tidal flow for this species to establish. On the dive recorded this year several individuals of the colourful little nudibranch *Edmundsella* (formerly *Flabellina*) *pedata* were seen.

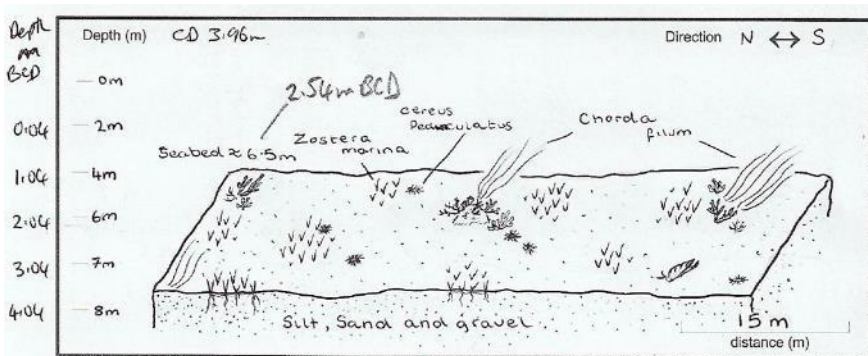
Although the surrounding seabed is not the main attraction for most divers visiting the wreck, it has its own interests with the burrowing sea cucumber *Neopentadactyla mixta* present.

Porthdinllaen (August & September 2017)



The *Zostera marina* seagrass bed at Porthdinllaen was the focus of some intensive Seasearch diving in 2017 as a result of the 'Dive into Monitoring: Seagrass 2017' project funded through a grant from Sea-Change and North Wales Seasearch. This project focussed on monitoring the presence and health of the seagrass bed at Porthdinllaen, with volunteer divers working to a specific monitoring protocol to record the presence, density and shoot length of seagrass in the areas dived. The results of this specific project will be reported separately but, in addition to the monitoring, a number of Seasearch forms were also completed.

Dense patches of *Zostera marina* seagrass in shallow water 1-3.5m on a fine muddy sand seabed were recorded although there were also areas with little or no seagrass present. Patches of coarser sediments with pebbles and cobbles were observed, particularly in areas subject to scour from the matrix of mooring chains in the bay. These areas of coarser sediments were characterised by stands of the brown seaweeds *Chorda filum* and *Halidrys siliquosa* together with clumps of fine red and brown seaweeds.



Daisy anemones *Cereus pedunculatus* and snakelocks anemones *Anemonia viridis* characterise the epifauna with burrows, casts and tubes indicating a more diverse infauna than can be observed on the surface.

South-west Llŷn

East of Maen Gwenonwy (July 2017)

Maen Gwenonwy is a small island located just off Porth Ysgo between Aberdaron and Hell's mouth on at the end of the Llŷn peninsula. A gently sloping seabed comprised an extensive area of infralittoral boulder reef between 10-12m that graded into a flatter area of coarse gravel and sand with underlying muddy/clay substrate in places between 10.5m-11.5m.

The upper facing surfaces of the boulder reef were dominated by a dense covering of red and brown seaweeds with *Calliblepharis ciliata*, *Heterosiphonia plumosa* and *Dictyoa dichotoma* most abundant. The vertical sides of the larger boulders had a dense faunal turf that was dominated by sponges and bryozoans with the bryozoans *Chartella papyracea* and *Bugula* spp. a particularly abundant component of the community. The hydroid *Gymnangium montau* was present as part of the faunal turf but not in any great abundance. A couple of individual *Echinus esculentus* were seen at this site. In other parts of the UK the sea urchin *Echinus esculentus* may not be that unusual, but it has never been present in high numbers around the Llŷn, and the individuals that are present are particularly large and seem to be characterised by short stocky spines and a slight light green hue to the colouration. Wrasse were a very obvious part of the mobile fauna on the reef with ballan wrasse *Labrus bergylta*, goldsinny wrasse *Ctenolabrus rupestris* and rock cook *Centrolabrus exoletus* present. A few individuals of the large spiny spider crab *Maia brachydactyla*, edible crab *Cancer pagurus* and lobster *Homarus gammarus* were also seen.

The coarse gravel and sand habitat had signs of life apparent with siphons visible but this habitat was not surveyed in detail.

Hell's Mouth (July 2017)

There is a rocky reef that runs along much of the western side of Hell's Mouth and in 2017 two sites in relatively close proximity to each other were surveyed in 2017. Similar habitats were recorded at both sites with a sloping boulder reef between 9m-14.5m leading into a flatter area of coarse sand and gravel with cobbles, pebbles and occasional boulders between 14m-15.5m.

The fairly rounded boulders on the rocky reef were characterised by a mixed community of red and brown seaweeds together with a limited variety of sponges, bryozoans and hydroids. The orange shredded carrot sponge *Amphilectus fucorum* was abundant in places and there was a significant covering of *Didemnum maculosum* var. *dentata* covering the mixed seaweeds. *Flustra foliacea* was frequent in places and small colonies of *Pentapora foliacea* were present. Wrasse were a very visible part of the mobile fauna as well as juvenile pollack *Pollachius pollachius*. Two-spot gobies were common and a few short-spined sea scorpions *Taurulus bubalis* were observed. A couple of sea urchins *Echinus esculentus* were also recorded – as noted for East of Maen Gwenonwy, these are a notable observation around Llŷn.



Cereus pedunculatus © Paul Kay



Ciocalypta penicillus © Paul Kay

shallower boulder reef habitat. Burrow holes in the sediment indicated the presence of other infauna that could not be readily observed.

South Llŷn

Gimlet Rock (April 2017)

This site is accessible as a shore dive from Pwllheli beach next to Gimlet Rock which is to the east of the entrance to Pwllheli harbour. A gently sloping seabed comprises medium sand in shallower water and extending into more cobble

and pebble dominated habitat with muddy sand between the stones. The route of the dive goes out to the storm overflow sewage pipe with the pipe and some of the concrete supporting structure exposed on the surface, providing additional hard substrate for marine life.

The visible life on the sand habitat was dominated by mobile species with hermit crabs (paguridae), painted gobies *Pomatoschistus pictus* and dragonets *Callionymus* sp. the most abundant. Also present were harbour crabs *Liocarcinus depurator*, velvet swimming crabs *Necora puber*, shore crabs *Carcinus maenas*, edible crabs *Cancer pagurus* and small spider crabs *Inachus* sp., as well as the necklace shell *Euspira catena* together with its egg mass and whelk *Buccinum undatum*. A juvenile cuttlefish *Sepioloa officinalis* was seen cruising over the sand. A few nodules of the calcareous seaweed maerl (likely *Phymatolithon calcareum*) were recorded from the sand habitat. Individual twiglets of this species are known from the adjacent area of Tremadog Bay but not in sufficient density to form a maerl bed.

The presence of cobbles and pebbles in the slightly deeper habitats provided a substrate for a short faunal turf to develop with ascidians *Ciona intestinalis*, *Aplidium punctum* and likely *Ascidea aspersa* present and also the non-native solitary sea squirt *Styela clava* which was recorded as frequent. Burrows and casts indicated the presence of infauna and the tube worm *Myxicola infundibulum* was present. Frequent dragonets *Callionymus* sp. and greater pipefish *Syngnathus acus* were recorded.

High numbers of sea lemons *Doris pseudoargus* and their egg masses were present on the pipe and concrete scour protection at the end of the outfall pipe. These structures also provided habitat for a few large tompot blennies *Parablennius gattorugine*, squat lobsters *Galathea squamifera* and velvet swimming crabs *Necora puber*.

Human activities / impacts recorded

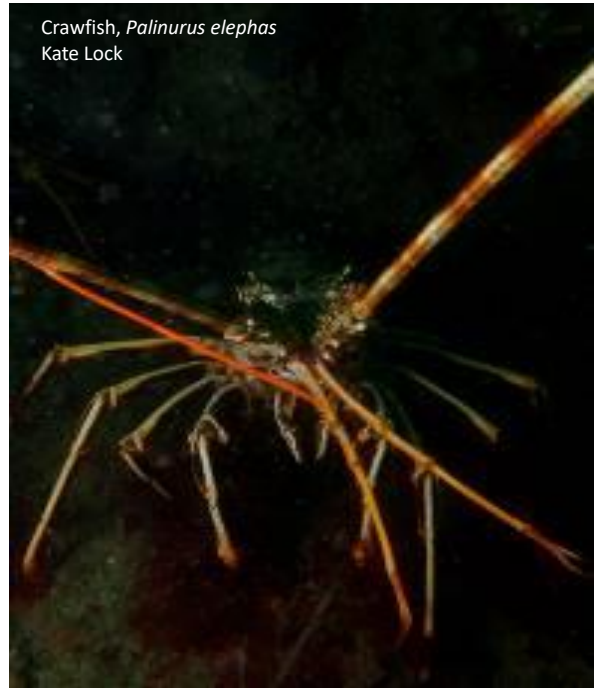
One of the main fisheries around the Llŷn peninsula is potting for lobster, crab and whelk so it is not surprising that these activities were recorded as present at a number of the sites surveyed in 2017. Remnants of old pots were recorded from the Gwynfaen wreck. Only a very small amount of fishing tackle and plastic was recorded on one of the dives and this was removed by the Seasearcher. The moorings within Porthdinllaen Bay are well recorded and were again noted on the Seasearch forms for this location. Only one area of possible seabed disturbance was recorded at Pentapora Bank.

Crawfish survey

Crawfish are an important predator on rocky reefs and are a key component of the 'Reef' feature of the Pembrokeshire Marine Special Area of Conservation, PMSAC. Unfortunately, they have been in decline since 1960 due to a dramatic increase in fishing for them both by potting and collection by scuba divers, as outlined in a report based on historical diver records in Wales (Lock, K. 2010).

Crawfish are an identified species that needs protection and was on the UK Biodiversity Action Plan species list – which has now been superseded by the Environment Act (Wales) Section 7 list of priority species. At the Marine Biodiversity Restoration and Enhancement task and finish group in 2016 set up by Welsh Government, crawfish were identified as the 4th species/habitat in need of suitable projects. Numbers of crawfish are currently very low in the UK but they are still seen, in low numbers, in Wales at sites around the Pembrokeshire coast and the Llyn Peninsula.

Crawfish have been recorded by Seasearch divers in Pembrokeshire since the project started in 1995. In 2010 Seasearch completed surveys at sites in north Pembrokeshire to establish baseline information on the number and size of crawfish and to identify habitat preferences. The survey also recorded the abundance of other commercial crustacean species: Edible crab (*Cancer pagarus*), Lobster (*Homarus gammarus*), Spider crab (*Maja brachydactyla*) and Velvet swimming crab (*Necora puber*). Repeat surveys at these sites were planned in both 2013 and 2014 but weather conditions did not allow these to take place.



Crawfish, *Palinurus elephas*
Kate Lock

A repeat of the sites surveyed in 2010 would be ideal, but a combination of both weather and the loss of the dive school in north Pembrokeshire has not allowed this to happen. In 2017 it was decided by Seasearch to identify suitable sites in close proximity to Milford Haven and are thus easily accessible by dive charter boats which should minimise cancellations due to weather. Two sites were identified, crawfish surveys were completed using the methods established in 2010 (Jones 2012), recording the abundance of both crawfish and commercial crustacean species. Site information for Crawfish data is sensitive and access restricted by Natural Resources Wales.

It is now essential to continue to build on the data collected, the following is proposed for 2018 season:

- Record numbers and size of crawfish;
- Record numbers of commercial crustacean species;
- Complete habitat descriptions of sites;
- Repeat survey at established 2017 sites;
- Survey further suitable sites in the area.
- Provide photos/video where possible to aid awareness raising.

. The data and reports will be used to inform:

- A crawfish local biodiversity action plan (in partnership);
- Management of the Pembrokeshire Marine Special Area of Conservation (SAC);
- Current status of crawfish distribution and abundance in the UK, National Biodiversity Network (NBN Atlas);
- A crawfish regeneration project plan of action for Pembrokeshire.

Dive into Monitoring: Seagrass 2017, Porthdinllaen

Thanks to the efforts of North Wales Seasearch co-ordinator Liz Morris-Webb and local Seasearcher Jake Davies, North Wales Seasearch was successful in securing funding from Sea-Changers to run a seagrass monitoring project involving volunteer divers at Porthdinllaen. This provided a great opportunity to engage local dive clubs, one of which had not been previously involved with Seasearch.

Despite less than favourable weather conditions, boats and divers gathered for some very successful days of seagrass monitoring at Porthdinllaen. Thanks to all the clubs, boat owners and divers who took part. The monitoring recorded the presence, density and shoot length of the seagrass (*Zostera marina*) bed at Porthdinllaen contributing to the ongoing work on seagrass bed which is a habitat of principle importance for the purpose of



Dive into Monitoring: Seagrass 2017

maintaining and enhancing biodiversity in relation to Wales under Section 7 of the Environment (Wales) Act 2016.

As well as undertaking the monitoring recording, a number of Seasearchers also completed Seasearch recording forms, providing additional habitat and associated species data that wouldn't have otherwise been recorded. A separate report on the 'Dive into Monitoring: Seagrass 2017' project will be available from Seasearch. All the monitoring data collected by this project will be inputted to the Marine Recorder database by Natural Resources Wales. The project involved a considerable amount of volunteer time by Jake and Liz to coordinate and report on this event.

Commemorating the forgotten U-boat war around the Welsh coast, 1914-18

This is a Heritage Lottery funded project that aims to inspire deep divers to contribute information to Seasearch and also to develop an online recording tool to analyse divers' video and images.

The project is a partnership project with the Royal Commission, the Centre for Applied Marine Science at Bangor University, Seasearch and the Nautical Archaeological Society and will be running through 2018. It aims to engage specialist deep wreck divers to contribute information to Seasearch for 4-8 wrecks. Local North Wales Seasearch tutor Rohan Holt is providing a lead for Seasearch on the project. We hope to bring more news about this project next year.



Training and data

Training and qualifications

In South and West Wales there was no Observer course run in 2017 but a course was run in March 2018 by Kate Lock with 8 participants at Marloes, Pembrokeshire with shore training dives at Martins Haven.

A Surveyor course was run in April 2017 by Jen Jones with 6 participants. Participants travelled from North and South Wales, London, and Leeds.

In North Wales two Observer training courses were run, with one in April 2017 and the second in March 2018, both held in Bangor with a total of 15 participants across the two courses. A further Observer course that was to be held in October 2017 had to be cancelled due to lack of committed numbers of participants.

A Surveyor refresher weekend was held in Menai Bridge in May 2017 and was attended by 5 North Wales Seasearchers and North Wales co-ordinator Liz Morris-Webb. This provided a useful opportunity early on in the survey season to remind participants about the key information to record on the Surveyor forms and a chance to look at some species identification queries.

Building on the Seasearch coordinators workshop in September 2017 (see below), a 'Surveyors development workshop' was run in south west Wales by Kate Lock in January 2018 with 16 people attending. This workshop was the first of its kind to take forward ideas developed by Seasearch co-ordinators and divers who had identified that development workshops could be an excellent way to improve quality of survey forms. The workshop proved to be an excellent forum

to discuss ideas and improve skills and provide a better understanding of the how the information on the forms is used. Materials and ideas from the workshop will be shared and used with other co-ordinators to use in their regions.

An introductory Marine ID course for divers was run by Kate Lock in March 2018 at Cardigan Bay Marine Wildlife Centre. The course was organised by Cardigan Sub Aqua Club and the aim was to inspire some of their divers to do some recording – particularly of crawfish and sea fans and other notable findings. Some of their club are active Seasearchers and the hope is that more will want to take part.

Training and data

Seasearch coordinators workshop

North Wales hosted a two-day Seasearch coordinators workshop at the end of September 2017 and welcomed coordinators from across the UK and Guernsey to Menai Bridge. Eight co-ordinators, together with seven Seasearch tutors and one CoCoast representative attended the event. The aims of the workshop were to enable coordinators to: (i) discuss and define future quality assurance requirements required by funders and Seasearch participants and, (ii) to improve consistency in biotoping and data entry between different localities.

To help inform some of the discussion at the workshop, Seasearch Surveyors were invited to fill in an online questionnaire about the ongoing support and feedback that they would like to see to maintain and develop their skills and support their involvement in Seasearch. The responses to this provided helpful comments on areas where Surveyors would like more ongoing support and also to have the opportunity to further develop their surveying skills and knowledge of marine habitats and communities around the UK.



The weekend proved to be a very useful opportunity for focussed discussion on the relevant topics. Outputs from the workshop included setting up a useful tools Dropbox folder for use by coordinators and a series of actions to address issues raised at the workshop. These include a number of Recorder Development weekends that are being run through 2018 as part of ongoing training and development for Seasearch volunteers. The event was organised by Liz Morris-Webb with assistance from Dorset Seasearch co-ordinator Lin Baldock and Seasearch tutor Lucy Kay. North Wales Seasearch would like to thank all those involved who made it such a successful event.

Forms

In 2017 54 forms were completed in South and West Wales; this is a lower number than is usual for this region and was due to the poor weather and cancelled weekends. One day of diving also focused on Crawfish surveys at 2 known sites so only 2 group forms were completed for these. The form total breaks down as 10 Observation forms (18.5%), and 44 Survey forms (81.5%). The high percentage of survey forms is due to the excellent number of trained divers that have completed the Surveyor level 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.

In North Wales in 2017, 55 forms were completed. Although fewer than in previous years the majority of these (44) were Surveyor forms providing more specific and detailed information for the habitat surveyed which is very beneficial for the seabed and marine life records for North Wales. The fewer forms in 2017 is due to the poor weather during the season leading to a loss of a number of the planned dive weekends. A total of 23 Seasearchers took part in the North Wales Seasearch diving in 2017. Several of the Observation forms were completed as part of people's qualification dives for Seasearch Observer.

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. Whilst Seasearch forms from the 'Dive into Monitoring: Seagrass 2017' project has been entered into Marine Recorder together with all the other Seasearch data from 2017, the specific monitoring data, such as seagrass density, will be input into Marine Recorder by Natural Resources Wales.

Acknowledgements

Many thanks to all the Seasearch volunteers that have taken part and supported Seasearch in Wales during the 2017 season.

Thanks are also due to Jen Jones for Seasearch project support in south and west Wales and Blaise Bullimore of help with diving logistics. A huge thanks goes to our fantastic dive boat skipper Andy Truelove, Atlantic Blue whose seafaring skills and local knowledge helps the teams safely dive in locations that would not otherwise be possible.

In North Wales we would like to thank boat skippers Aubrey Diggle, Scott Waterman and Brett Garner who have provided much needed boat support for the diving and would also like to thank the dive clubs and individuals who have supported Seasearch by making their boats available for Seasearch dives. We would also like to thank the Seasearch coordinators who came to North Wales for the coordinators workshop and stayed on to undertake dives in the Menai Strait and contribute to our marine life records.

Special thanks to Liz Morris-Webb

We would particularly like to thank North Wales Seasearch coordinator Liz Morris-Webb for all her hard work and fantastic leadership to Seasearch in North Wales since she took over the role in 2007. Her energy, passion and infectious enthusiasm has been a driving force for Seasearch in North Wales. Liz is passing the baton to new coordinator Holly Date (see below) who has been working with Liz since the New Year to become familiar with the Seasearch processes. We wish Liz well with her ongoing research work. She will still be an active Seasearcher, just not responsible for the organising!



Welcome to Holly

We are delighted to welcome Holly Date as the new North Wales Seasearch coordinator. Holly has several years experience working with volunteer divers overseas and is looking forward to applying her skills and enthusiasm to Seasearch. Based in North Wales for her academic studies we are looking forward to a great season of diving in 2018 and, possibly even good weather and vis (we can hope!).

Photo credits

South and West Wales: Hayden Close (Jewel anemone, Skeleton shrimp, nudibranch *Doris sticta*), Emily Williams (Squat lobster, Orange sea squirt), Blaise Bullimore (*Didemnum pseudofulgens*, Rocky reef, habitat photos and sketches), Louise Bebb (Sea hare, elegant nudibranch), Kerry Lewis (nudibranchs *Eubranchius linensis*, and *Gonidoris castanea* Stickleback, Hairy hermit crab, Sponge crab), Ruth Sharratt (Juvenile clingfish), David Kipling ('Strawberry *Aplidium*' sea squirt), Kate Lock (all other photos).

North Wales: Lin Baldock (*Xiphosiphonia pennata*, Coleg Normal and Carreg Gorad Goch), Paul Brazier (*Distomus variolosus* and *Sabellaria*), Catherine Gras (*Henricia* sp.), Rohan Holt (*Chelonaplysilla noevus*, *Cliona celata*, *Dercitus bucklandi*, *Limacia clavigera*, *Thorogobius ephippiatus*, *Taonia atomaria*, *Morchellium argus*, *Bowerbankia* sp. & *Halecium halecinum*, *Onchidoris bilamellata*, *Agonus cataphractus*, *Inachus* sp., *Callionymus* sp., *Pentapora foliacea*), Lucy Kay (*Thymosia guernei*), Paul Kay (*Ciocalypa penicillis*, *Cereus pedunculatus*), Liz Morris-Webb (divers and seagrass), Wendy Northway (*Laminara* kelp, happy divers), Ruth Sharratt (*Palio nothus*), Richard Yorke (*Dendrodoa grossularia* and *Clathrina coriacea*, *Bugula* sp., *Botryllus schlosseri*).

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