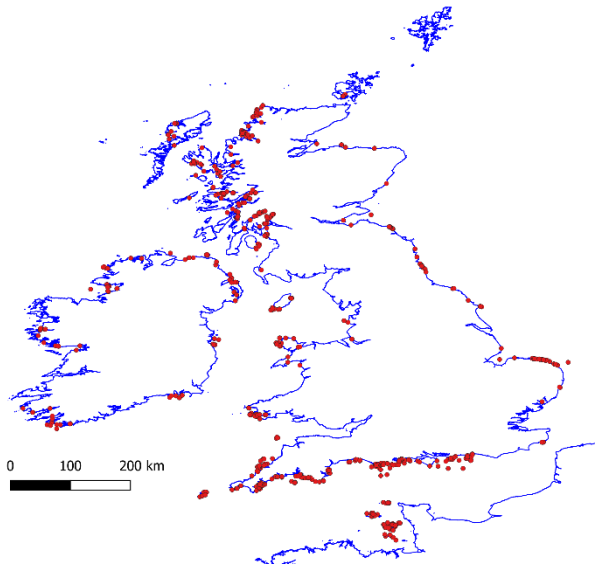
ANNUAL REPORT 2019

This report summarises Seasearch activities throughout Britain, Ireland and the neighbouring Crown Dependencies of the Channel Islands and the Isle of Man in 2019. It includes a summary of the main surveys undertaken (pages 2-13), reports produced and a summary of the data collected. This includes records of Priority habitats and species, locally important features and nationally scarce and rare species (pages 14-17) and habitats (pages 17-23). It also includes a summary of the training courses run for volunteer divers (page 24) and information on how Seasearch is organised and the data is managed and made available (page 25).

All of the reports referred to may be downloaded from the Seasearch website and the species data may be accessed through the National Biodiversity Network (NBN) Atlas website at nbnatlas.org, where Seasearch now provide the second-largest marine dataset (after the historical Marine Nature Conservation Review of the late 1980s and early 1990s).

Seasearch Surveys 2019



The following pages summarise the main surveys undertaken in 2019. They were arranged by Seasearch Coordinators and other volunteers; we would like to thank all of the organisations who supported survey activity at a local level. There were many other dives both organised by Seasearch coordinators and undertaken by individual divers.

Data from all of the surveys has been entered into the Marine Recorder database and can be freely accessed on the National Biodiversity Network (NBN) Atlas at nbnatlas.org. In addition to this, there are separate datasets for crawfish and pink sea fan survey forms.

In some cases, Summary Reports (denoted ®) can be downloaded from the Seasearch website.

Financial support in 2019 at a national level was given by the partners on the right in addition to the MCS.

Scottish Natural Heritage
Dualchas Nàdair na h-Alba
All of nature for all of Scotland
Nàdar air fad airson Alba air fad

Cyfoeth Naturiol Cymru
Natural Resources Wales

NATURAL ENGLAND

marine conservation society

THE wildlife TRUSTS

COMHAIRLE FO-THUINN
IRISH UNDERWATER COUNCIL

Seasearch is coordinated and delivered locally in England by Wildlife Trust and MCS coordinators, in Scotland, Wales, Northern Ireland, the Channel Islands and the Isle of Man by MCS coordinators and in the Republic of Ireland by the Irish Underwater Council/Comhairle Fo-Thuinn.

SCOTLAND®

Following on from the record-breaking number of forms last year, 2019 was always going to struggle to compare… However, a very respectable 382 forms were submitted and some new and exciting areas surveyed. Ongoing partnership working and logistical support from community groups is enabling us to carry out data gathering in remote areas (more detail in the separate Scotland summary and West Scotland summary/individual reports on the Seasearch website, and not included here for reasons of space!).

Third time lucky, Seasearch won in the "Coasts and Waters" category of the RSPB Nature of Scotland Awards 2019, which invited both freshwater and seawater projects and was a very popular category ahead of Year of Coasts and Waters 2020.

Here's Calum Duncan's (Head of Conservation Scotland for MCS) take on it:

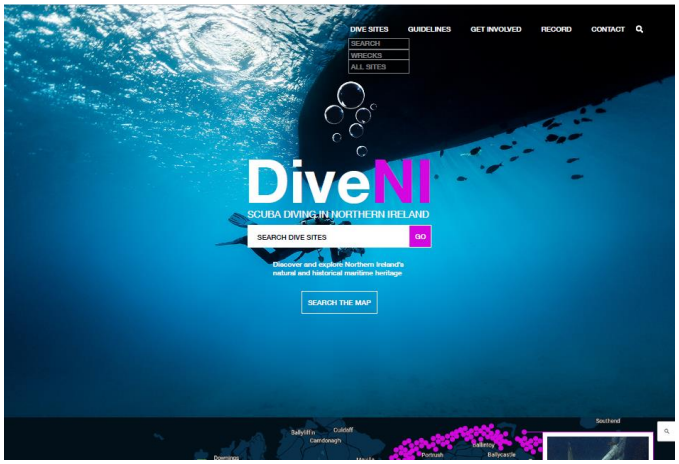
"The win is testimony to the shoulders of giants on which the project stands. We are collectively indebted to the pioneers at the nature conservancies, then to become JNCC, SNH, English Nature (now Natural England), CCW (now Natural Resources Wales) and Daerd (*sic*; ?DAERA), and the late 1980s pioneers at the Marine Conservation Society, whom were often the same people, that pioneered the project from 1988. SNH, including David Donnan and John Baxter, deserve particular credit for supporting the project in the 1990s in Scotland, developing their own packs with Dr Bob Foster-Smith and his wonderful pictures, and then funding a MCS post in Scotland and subsequently regional coordinators to help build on this. That support has continued to this day. In Scotland, the late, great Christine Howson, Iain Dixon, Sue Scott, Neil Cowie, Mary Harvey, Fiona Crouch, Jack Laws and Jim Greenfield (at St Abbs VMR) were among the pioneers of the preceding years and important mentors for me, as was inspired diving with Lothian Divers BSAC1945. Subsequent funding allowed invaluable (Scotland has a lot of coasts and waters as we know!) regional support within Scotland from Owen Paisley (Argyll and west coast), Marion Harrald (North and Northeast Scotland) then Chris Rickard (N & NE) and national coordination by Georgia Conolly then Natalie Hirst, whose collective commitment and coordination has taken the project to where it is now, with a record-breaking 500 forms in the 30th anniversary year in 2018. Further standout support from my tenure included George Brown & Neil MacInnes (Inverness Sub-Aqua Club), Howard Wood, Don McNeish and the late Dave Butcher (Community of Arran Seabed Trust, COAST), David Ainsley, Becky Hitchin, Mark Woombs, Joanne Porter and many others and I know current and previous Seasearch coordinators would highlight many people including the above and of course Sarah Bowen and Genine Keogh (that deservedly collected the award), David Kipling, Jon Rees and many others. Sue Mitchell and Dawn Watson were crucial in entering the all-important data into Marine Recorder! At MCS, Samantha Fanshawe deserves huge credit for re-booting Seasearch at the start of the 2000s, coordinating a steering group including Robert Irving and the country agencies, BSAC, PADI, ScotSAC, NAS and Wildlife Trusts, and Chris Wood for taking the mantle of inaugural UK and Ireland Coordinator, growing the project further and then passing the baton on to Charlotte Bolton. Administrative support is also provided by a core team working with Charlotte Bolton at MCS, that together ensure the project runs smoothly. ScotSAC has also helped provide regular profile through the Scottish Diver membership magazine and annual conference. We are also proud to be on the Project Advisory Group of the Coastal Communities Network coordinated by Kerri Helena, to which Seasearch can contribute following the pioneering model created by COAST. Seasearch is also recognised as part of Scotland's MPA monitoring strategy (p.21 of 24 here: https://www2.gov.scot/Resource/0052/00521312.pdf). Excuse a long-posting as I was thinking of all the above and more on an exciting Wednesday night when the award was collected on behalf of everyone! Thanks for everything you do to help Seasearch identify special places needing protected or damaged places needing repaired. We hope the award can help keep up the profile and support of Seasearch long into the future. MCS will continue to champion ocean recovery in Scotland, the UK and overseas, even more urgent now in a climate, nature and ocean emergency. https://www.rspb.org.uk/about-the-rspb/at-home-and-abroad/scotland/nature-of-scotland-awards/winners-and-finalists/the-2019-winners-and-shortlist/"

IRELAND

Northern Ireland®:

Divers in Northern Ireland now have an exciting new resource to help plan their dives and share their

experience with others – the DiveNI website launched in November 2019 (visit www.dive-ni.com).



Lots of litter-picking dives took place in 2019, with attendant publicity, collecting impressive numbers of golf-balls near Ardglass (not unexpected given the nearby golf course!) and various other items better removed from the sea.

In terms of diving pins on the map, priority habitats such as the Cushendall maerl bed and the seagrass Red Bay were targeted, possible elasmobranch hotspots (with support from the Sea Deep project) and a trip to the offshore wonder that is Rathlin Island made for a busy diving year. Lots of independent forms were received from popular shore dive spots which is great longitudinal monitoring. An anemone and soft corals course with the author of the Seasearch guide put those on the radar for accurate recording, with a chance to immediately put it into practice with a shore dive at Orlock Point.

ISLE OF MAN

Eelgrass beds in Laxey Bay and Ramsey Bay were the focus of the organised 2019 surveys. HIghlight of the year was the grooved topshell (*Jujubinus striatus*) "inadvertently caught on camera" on a survey in the Langness Marine Nature Reserve at Fort Island Gully in December 2019. It was spotted in Tony Glen's photos by Dr Peter Duncan of DEFA, who asked for samples to be collected for confirmation. The tiny mollusc, which is about 0.3ins (10mm) tall, was last found by marine biologist Edward Forbes in 1838. This is believed to be the most northerly record of live specimens.

© Tony Glen

Earlier in the year, a Surveyor course was held at the Discover Diving centre in Port St Mary, introducing five keen local volunteers to the higher-level recording, followed by an Observer course at the start of May, just in time for Manx Marine Week.

Later in 2019, the sad loss of the fishing vessel “Polaris” west of Bradda Head will provide a fascinating chance to record ongoing colonisation of this wreck.

WALES

Crawfish (*Palinurus elephas*):
In Pembrokeshire, 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.

©Blaise Bullimore

South & West Wales ®:

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). Another focus during 2019 (not just in Wales) has been the collection of records and images of the eyelash worm, *Myxicola* sp., for a National Museum of Wales project aiming to establish the distribution of the two colour morphs of the species (with and without black tips to the 'eyelashes').

© Kate Lock

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.

Milford Haven:

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, Lindsway 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.

©Blaise Bullimore

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.

Skomer MCZ & Skokholm:

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 2019 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.

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. The most striking observation of the latter was the large numbers of shoaling fish.

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 David's Head – Carreg y Esgob and Cliona City, ½ mile south of Carreg Fgan (no prizes for guessing the abundant sponge species recorded at the latter!)


©Blaise Bullimore

North Wales ®:

Seasearch dives in North Wales during 2019 concentrated on a wide range of sites around North and West Anglesey with both boat and shore dives undertaken. In addition, a small number of dives took place in the Menai Strait, North Llŷn, South Llŷn and also further south in Tremadog Bay at Shell Island (near Llanbedr, south Harlech) as part of the collaboration with the Angel Shark Project Wales jointly run by the Zoological Society of London and Natural Resources Wales (https://angelsharknetwork.com/wales/). A range of different habitats and species were recorded including observations of several unusual or less commonly recorded species.

As in previous years, limited boat availability had an impact on the areas around the North Wales coast that can be more easily reached for Seasearch diving, and the weather played its part in disrupting some of the planned survey days. However, despite these constraints, a total of nine planned Seasearch survey days went ahead with both experienced and new volunteers taking part. As a result of increased interest from snorkellers to take part in Seasearch, a number of the events were both dive and snorkel friendly.

Exciting species records in 2019 included the Southern cup coral (*Caryophyllia inornata*) at the Skerries. This small, solitary cup coral is not that commonly recorded, and this was the first record of it from Anglesey (the previous North Wales records being from the Llŷn Peninsula). The Skerries is clearly one of the places where north and south meet, biogeographically speaking, since the northern starfish *Leptasterias muelleri* was also sighted here.

© Paul Kay


Newry beach in Holyhead harbour also proved a happy hunting ground in the unusual mud habitat there - slender seapen (*Virgularia mirabilis*), the sea slug *Akera bullata* and the free-living polychaete worm *Oxydromus flexuosus* were all recorded here, in addition to a number of non-native species (not unexpectedly).

Anglesey (incl. North Anglesey Marine SAC, Menai Strait & Conwy Bay SAC):
The greatest number of Seasearch dives were undertaken around north and west Anglesey in 2019 due, primarily, to the availability of dive boats. Sites dived on organised Seasearch weekends were chosen to fill gaps in existing survey effort and provide shore dive opportunities. The boat dives were fortunate in the weather to be able to visit the exposed location of the Skerries (twice) and Wylfa Head on the north coast.

Newry Beach provides an opportunity to dive on a range of seabed habitats and observe species not commonly seen elsewhere in Wales. An eagle-eyed shore surveyor also spotted a stalked jellyfish, *Calvadosia campanulata*, at Traeth Penial.

Records from two sites in the incomparable Menai Strait were submitted by independent Seasearchers, one on the Anglesey side of the Strait by Nelson's Column and the other on the mainland side of the Strait close to Normal College (Coleg Normal). The former yielded only the second record for North Wales of the red seaweed *Xiphosiphonia pennata*.

Llyn Peninsula and Tremadog Bay (Pen Llŷn a'r Sarnau SAC):

As with previous years, the lack of charter dive boats covering the Llŷn Peninsula mean that it is much more difficult to plan boat-based Seasearch dives along this stretch of the North Wales coast in recent years. One independent shore dive was undertaken in 2019 at the site of the former Trefor Pier, which continues to be popular as an easy access shore dive albeit with a high incidence of human impact in the form of fishing weights and fishing line (not surprising given the popularity of the pier for angling).

Two days of shore diving and snorkelling took place in August at Pwllheli and Shell Island (on the Meirionnydd coast south of Harlech) as part of the "Diving for Angels" collaboration with the Angel Shark Project. Seventeen citizen science divers and snorkellers took part in this weekend and were provided with briefing about angel sharks and how to spot them when they are lying in the sand. Joanna Barker from the Zoological Society London gave a lecture on 'Angel shark ecology and survey methodology'. Although no angel sharks were observed on this occasion, some interesting species were recorded including a John Dory (*Zeus faber*) and red mullet (*Mullus surmuletus*). The dives were both shore dives for logistical reasons although a lack of availability of dive charter boats covering this area is a key reason why there have been much fewer Seasearch dives in this part of North Wales in recent years.

ENGLAND

North West England – Dukes Dock, Liverpool ®:

Since the opening of The Albert Dock complex for leisure purposes in 1986, the marine life has taken hold and continues to flourish. The main features of the habitat are silty seabed and stone dock walls. Water quality is paramount as this is a public place thus the marine life is very important in helping to achieve this.

Diving in the dock is restricted to November – March inclusive as there is an Aqua Gym in place during the summer months. Fortuitous timing of qualifying course dives in November meant that part of the gym was still available for examination having recently been removed from the water. This provided a very interesting insight as to the colonisation – bryozoans *Cryptosula pallasiana*, *Conopeum reticulum* and *Crisia* plus edible mussels (*Mytilus edulis*) were attached. This was very encouraging to the life in the docks – several previous papers had expressed concern that spat fall of the mussels was low suspecting that future generations were not being established.

The non-native sea squirt species *Styela clava* was recorded but not in great numbers and for the first time *Ficopomatus enigmaticus* (Australian tubeworm) was found.

NW England – Liverpool Bay & Morecombe Bay:

©Wendy Northway

The waters around Blackpool show an amazing array of life with adequate visibility. This coastline is often overlooked but thanks to the pioneering spirit of a local dive club (West Lancs SAC), it proves to be a hidden gem. Two dives were carried out in May, on an area of seabed previously sampled by grab (and no sign of the promised wreckage!), and on the Crusader wreck (which was very light and with at least 3m viz). The seabed was of muddy sand with rich life, predominantly *Ophiura* sp. (brittle stars) but with *Euspira catena* (moon snails), *Aphrodita aculeata* (sea mouse), small hermit crabs, heart urchins and spiny cockles, and a *Sepiola atlantica* as a highlight.

© Sarah Whatmough

Encouragingly, very little litter was seen on the seabed on either of the 2 dives which supports the blue flag status of Blackpool. Owing to poor weather, diving in Liverpool Bay did not happen in 2019. Hopefully next year…!

North-East England:

Thanks to funding from Sea-Changers and the Marine Conservation Society, two 2-day seaweed identification courses were run in 2019. Both were delivered by the excellent Dr Jane Pottas, whose extensive knowledge and great enthusiasm for seaweed ensured the events were a great success.

The first course took place at Flamborough in March, with trips to collect seaweed at South Landing and North Landing followed by classroom sessions at the Living Seas Centre.

© Paula Lightfoot

The second course was held at the Dove Marine Laboratory near Newcastle in May, which offered the chance to visit St Mary's Island and Cullercoats Bay. We would like to thank Yorkshire Wildlife Trust and Newcastle University providing first-rate classroom facilities in such perfect locations! The courses were attended by 26 participants – we hope they will put their new seaweed ID skills to good use on Seasearch forms!

© Paula Lightfoot

Since 2017 we have been trialling snorkelling to survey sites and habitats that are not accessible to divers. This continued in 2019, with 48% of Seasearch forms for North East England generated by snorkelling, many from sites which had never previously been surveyed. The trend in the increasing proportion of Survey forms relative to Observation forms in this region also continued, with Survey forms constituting 96% of forms received in 2019. An interesting species recorded in 2019 was the bright blue sponge *Terpios gelatinosus*. This species previously had only one record on the NBN Atlas on the east coast of England, but this year was recorded in Northumberland, North Yorkshire and East Anglia.

Paula Lightfoot stepped down as coordinator for North East England at the end of the year, and has handed over to Natalie Hirst who will be coordinating activities from 2020 onwards.

Tyne to Tees – the Durham Heritage Coast:
One highlight of the year was diving on extensive *Sabellaria spinulosa* reef off the coast of Marsden, which was home to a great diversity of both sessile and mobile species. This and other dives on the Tyne to Tees coast were made possible thanks to support from the Durham Heritage Coast Partnership.

Yorkshire:
Another highlight was surveying a number of new sites around Flamborough Head thanks to a generous donation to the Marine Conservation Society, providing an opportunity for Seasearch divers and snorkellers to explore the wildlife of chalk gullies, sea stacks and caves.

© Paula Lightfoot

East Anglia:
Seasearch East had a very late start to 2019, with the first record being an intertidal form from Lincolnshire on May 1st. Our last records of the year were both on December 31st; a live octopus washed up at Brancaster in Norfolk and a marina survey at Levington in Suffolk.

Despite the late start, a healthy 181 forms were received in total, a slight improvement on the year before. Of the forms received, 89 (49%) were Observation and 92 (51%) were the more detailed Survey forms. Several keen new trainees worked through the Observer training process and went on to take part in dives and intertidal surveys over the season.

Species highlights included *Athanas nitescens*, *Iphimedia obesa*, *Hermaea bifida*, *Raniceps raninus* and *Lamellaria perspicua*, all seen for only the second time since we started recording and a congregation of *Scyliorhinus canicula* off East Runton late in the year.

The most impressive find, however, was a very tiny calcareous tubeworm called *Pileolaria berkelayana* (ID confirmed from a sample by experts at the National Museum of Wales in Cardiff), which went from a first sighting of a few individuals on a night dive early in the season to dominant species at East Runton and Cromer in Norfolk by late September, though not seen at surrounding dive sites – it will be interesting to see how it survives the winter! This is an invasive species, otherwise only seen on the South coast.

© Dawn Watson

Seasearch East was presented with the NBN award for marine wildlife recording at the annual conference in November, in recognition of how much the quantity and quality of Seasearch records from East Anglia have improved over the last 14 years, going from the part of England with the fewest form returns in 2005 to the highest in 2019! Massive congratulations to everyone involved and especially coordinator Dawn Watson (seen here accepting the award).

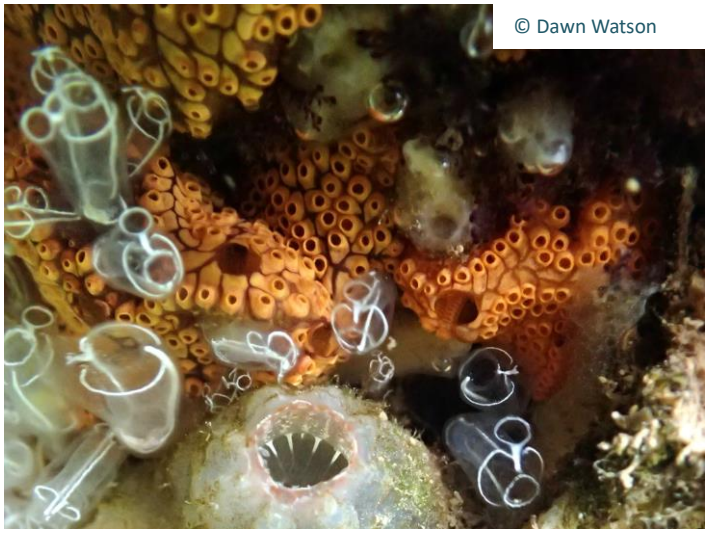
© NBN Trust

Lincolnshire and The Wash:
Only two forms were received for Lincolnshire this year – an intertidal Observation form for Ingoldmells and

another for the colonisation array removed from the SONDE buoy in the centre of the Wash. Sadly, available dates and suitable weather failed to line up with the EIFCA for dives from their boats but we hope to work with them to investigate potting damage to the chalk reef in 2020.

East Anglia - Norfolk:
For the first time, more forms were received for sites around Sheringham, making it a more popular destination than Weybourne. Elsewhere, there was an increase in potting activities and unfortunately associated damage to the reef. Waste in the form of dumped cooked shellfish also seems to be on the increase.
Many volunteers made their way out to the wood reef (300m off shore at Cley) for the first time, and were very excited by the diversity of wildlife seen on the wood itself, as well as in the layer of glacial clay and on the 3m long anchor standing on the reef.

East Anglia – Suffolk:
After 2016 being a very good year for Suffolk, with a brief period in September when visibility at the shore got up to a mighty 1-2m, visibility has once again returned to the usual 'drinking chocolate' ever since... Two intertidal Observation forms were received from Southwold, both of which contained records of attached live *Sargassum muticum*, the invasive 'Wireweed'. These are the most northerly records we have so far for this species in East Anglia. Levington marina unsurprisingly is a hot-spot for non-native species, including the sea squirt *Botrylloides diegensis* (photo below) and the algae *Undaria pinnatifida* (wakame) and *Sargassum muticum*.


© Dawn Watson

East Anglia – Essex:
No records were made for Essex in 2019 but the county will be the focus of much survey effort in 2020, with projects monitoring native oysters and eelgrass beds.

Crawfish in the South-West:
Crawfish data gathering was targeted on surveys and supported by additional funding from the Prince of Wales Charitable Fund through MCS.

Reports of crawfish in Dorset waters continue to come in with nine records received in 2019, four from Lyme Bay and five east of Portland Bill. Most were from deeper wrecks but there were also reports from natural habitats.


© Hugh Waite

In Devon, in the fifth year of the recovery there, crawfish are getting to a size where they enter the fishery and females may become berried. We hope this recovery will be maintained into a sustainable population through appropriate management and the detailed analysis of our records currently being undertaken by Seasearch will help that.

In Cornwall, the Wildlife Trust (coordinators of Seasearch there) launched their Sea-Changers-funded campaign to educate and encourage divers to set a good example and not to collect crawfish.

2019 was another good year for crawfish sightings with large animals being seen on both coasts, as well as large numbers of small crawfish around which is very positive. The annual survey of the SS Volnay and SS Mohegan boilers was repeated and further surveys carried out on the Quies, off Trevose Head, and in St Austell Bay. Crawfish seem to be here *en masse* but they could very quickly be over-fished, hence the campaign #HandsOffOurCrawfish to highlight the issue to divers (sign the pledge at the following link: https://www.cornwallwildlifetrust.org.uk/crawfishproject)

Cornwall ®:

It has been another great year for Seasearch Cornwall. This year we trained 10 new Seasearchers and 6 of them qualified as fully fledged Seasearch Observers. A total of 10 days of diving were organised by CWT and a total of 16 dives carried out. On top of this our volunteers submitted a huge number of forms from independent dives. Also popular this year were the informal talks on anemones and the anemone specialist course with Chris Wood (former National Coordinator and author of the Seasearch Guide to Anemones and Corals).

Thanks to some lovely weather and a great skipper (Charles Hood) we finally made it out to dive on the Runnel Stone! This offshore reef, due south of Gwennap Head, is an awe-inspiring dive site. Right out in the open ocean, with huge granite pinnacles covered in jewel anemones and elegant anemones, brilliant visibility ensured an exhilarating dive! A sighting of a red blenny (*Parablennius ruber*) is not unexpected in a high-energy environment like this – the fact that we don't get to dive them very often may explain the paucity of sightings and apparent rarity of this species.

© Matt Slater

Shoals of bass (*Dicentrarchus labrax*) have been spotted all around Cornwall in 2019. We hope that this is a sign that EU-wide bass management measures including an increased minimum landing size (42cm), a ban on pair trawling for bass in area VII and closed seasons for angling and commercial fishing are starting to work. Additionally, local fisheries byelaws such as the ban on netting in the estuaries will also help bass stocks. Snorkelling or free diving is a great way to see bass. Just hide in the kelp and let them come to you. They were also spotted in large numbers when the Quies and Runnel Stone reefs were surveyed.

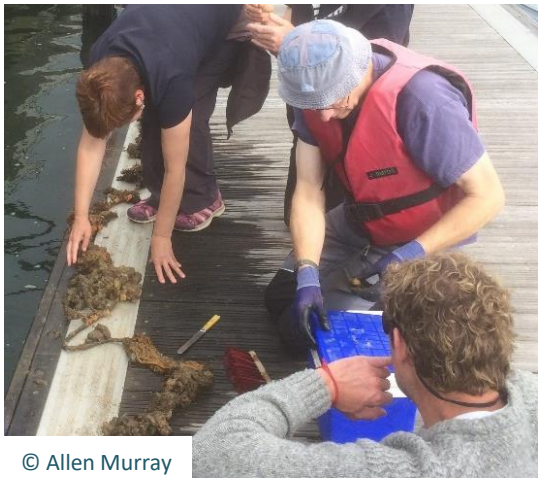
An exciting range extension was reported from an independent survey at Silver Steps, Falmouth, early in the year – the snakelocks shrimp *Periclimenes sagittifer* had not previously been reported west of Babbacombe. The lack of records may well be due to lack of surveying rather than lack of suitable habitat – there's a focus for the future!

Devon®:

Twelve Seasearch-organised survey days were achieved from eighteen planned ones in Devon in 2019, with days lost due to bad weather including dives in the Wembury Bioblitz. All the organised survey effort was targeted in Marine Protected Areas (MPAs) and 98% of Seasearch forms submitted came from them. Seasearch Devon continued to target the lesser recorded areas of Lyme Bay and the South Hams this year and many interesting and fabulous new sites were discovered around Devon's coast. With its two coastlines, Devon has a great variety of habitats. Enthusiastic independent divers continue to record sites in Plymouth Sound, Torbay and Lundy.

Seasearch data has played an important role in the designation of MPAs and now moves into the area of further exploration and monitoring. New survey sites in Lyme Bay were targeted to ground-truth drop-down video surveys carried out by the Devon & Severn Inshore Fisheries and Conservation Authority.

An Observer Course was run for Plymouth University Scuba Society's keen students. Another highlight was the Sea Squirts Speciality Course - it was a great privilege having David Kipling and Sarah Bowen deliver their brilliant course on this fascinating subject. We were also very fortunate to have John Bishop and Christine Wood, of the MBA Invasive Animals Group, sharing their expertise on non-native squirts.



© Allen Murray

North Devon & Lundy:
Enthusiastic individuals observed several popular wrecks and reefs all around the island, including Seal Rock, Knoll Pins and, on the exposed west side, Pretty Cove.

South Devon:
The variety of flow regimes in the area from Prawle Point to where Start Point juts into the main tidal stream creates notably different habitats. The rugged topography at the Start Point Race site further accentuates this with heavily gravel-scoured platforms indented by deep winding gulleys. Nearby the northern edge of Start Point Reef benefits from a tidal shadow to some extent. It has a diverse hydroid, anthozoan, bryozoan and ascidian fauna on parallel, linear ridges, which become lower as the reef deepens and runs out to sediment. The poorly known Bolt Head reef system was further surveyed on organised surveys.

Keen individuals contributed forms from popular dive sites along the coast from stoke Point to Plymouth Sound. They tend to be from the scenic, rugged reefs, where the steeply inclined or vertical strata often form high ridge and gulley systems. Within the Sound, records from the muddy sediment north of the breakwater fort was well surveyed revealing the continued presence of slender sea pens *Virgularia mirabilis.*

Six pinnacles, in the main Eddystone reef area and the Mammaries, were explored and enjoyed, especially in September's tropical visibility. One highlight was an electric ray (*Torpedo marmorata*) – common in the Channel Islands but now being occasionally recorded on the south coast.


© Chris Webb

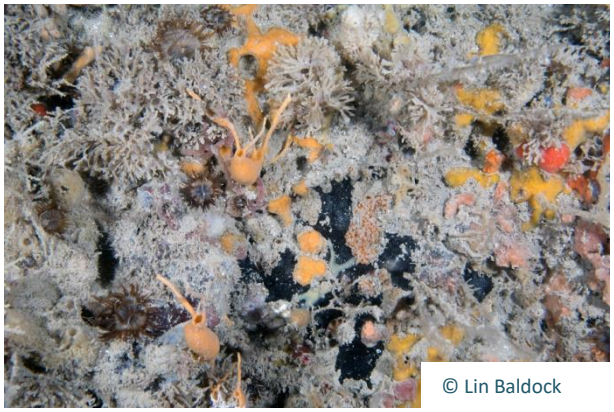
Torbay MCZ:
'Seasearch East on Tour' did a fine job surveying the varied habitats of Babbacombe. On the muddy sand, several anemone species occurred, including *Sagartiogeton undatus*, and the necklace shell *Euspira catena* seen gliding across it. The snakelocks shrimp *Periclimenes sagittifer* maintains its presence in the cove although still not recorded having made its way into Torbay itself. Enthusiastic individuals continue to spot curious critters, such as the nudibranch *Aeolidiella glauca*, on the muddy sand of Anstey's Cove.


© Dawn Watson

Lyme Bay – Devon & Dorset:
Seasearch Devon continued the exploration of the lesser-known Devon part of Lyme Bay, particularly south/southeast of Beer, and were richly rewarded at six new sites selected from multibeam sonar maps (DORIS/UKHO). Typically, the reefs of Beer Fans 6 and 7 and Beer Ridge 2 are flat, almost-level, veneered bedrock with ~30 cm high scarps resulting from the erosion of strata edges. They support a diverse sponge, hydroid and bryozoan fauna with significant pink sea fan *Eunicella verrucosa* numbers, including good recruitment over the last few years.


© Chris Webb

The August visit to Lyme Bay organised by Dorset Seasearch targeted a long reef feature running southwest from Sawtooth Ledges. An earlier visit to the site in June had identified a very interesting community dominated by massive sponges (see separate report). Sponge species recorded included black tar sponge, elephant hide sponge and the nationally scarce *Stryphnus ponderosus* together with trumpet anemones growing on vertical rock and this visit extended the record another 300m along the reef to the southwest.



© Lin Baldock

Similar sponge-based communities have now been recorded from other high energy Dorset sites on Lulworth Banks and off St Aldhelm's Head and we hope to continue to study and map these. Seasearchers recorded over 20 sponge species on Long Reef which did not include any of the diverse encrusting forms – a job for another day! It is likely that the soft muddy sediment and cobbles adjacent to the reef has not been much worked by bottom towed gear and may represent a relatively undisturbed infaunal community. The Long Reef site needs a lot more study and we plan to return there in 2020 and extend survey coverage both of the unusual sponge habitat and the muddy sediment which might even harbour fan mussels (*Atrina fragilis*, a priority and protected species).

Dorset®:

The seemingly almost continuous rough weather through late summer and autumn played havoc with Dorset Seasearch diving plans in 2019, forcing the cancellation of five official diving days. This left us with a good weekend out of Poole with Trevor Small on Rocket in July, one day in August in Lyme Bay working out of Lyme Regis with Rob King on Blue Turtle (see above) and a re-scheduled day from Portland with Nick Bentall on Scimitar in October. The early October weekend from Lyme Regis was lost entirely to bad weather.

Records of the occurrence of fish in the wrasse family are of interest given the increase in the fishery for these species in Dorset to service the growing demand for cleaner fish used in the salmon farm cages in Scotland. The consequences of removing these species from the rocky reef communities around the Dorset coast are unknown. In the case of cuckoo wrasse it would be useful to record the sex of the fish that you see. Ballan wrasse, cuckoo wrasse and goldsinny were all widely distributed.

© Hugh Waite

Exciting species records from Dorset in 2019 include a Yarrell's blenny, above, from the wreck of the Warrior II at a depth of 54m (thanks to Hugh Waite for this independent report which is well beyond the depths of 'normal Seasearch!). This is one of the most easterly records for this fish in the English Channel with the next cluster of records to the west being in Torbay, it's only the second record for this species from Dorset, and the first for Dorset Seasearch. Also seemingly spreading eastwards is the branching sponge Homaxinella subdola with two more sightings from Lyme Bay this year. There are only scattered records for this species east of Start Point in Devon but the sponge seems to be cropping up regularly in Lyme Bay now.

A peer-reviewed paper has been published reporting the first records for a green seaweed new to the British list: *Flabellia petiolata*, a species previously thought to be a Mediterranean endemic. Most records for this species were collated during Seasearch dives by the Dorset Coordinator over the last five years in Weymouth Bay and around the west side of the Isle of Wight. The publication is freely available from the following link: https://www.sciencedirect.com/science/article/pii/S0304377019302232

The non-native compass sea squirt (*Asterocarpa humilis*) was recorded from Bournemouth Pier and on the wreck of the barge near the Fleur in Swanage Bay; the first Dorset records for this species from outside a marina or port but notably still on artificial substrates. This species has yet to be reported from Swanage Pier, which can only be a matter of time… The non-native bryozoan *Watersipora subatra* has already colonised the wall adjacent to the pier.

South Dorset - Poole Bay:

The Poole weekend found us visiting sites in the Poole Rocks Marine Conservation Zone (MCZ), Southbourne Rough MCZ designated for Black Bream and a more distant destination on Christchurch Ledge where there have been reports of crawfish. Part of the rationale for the site selection for Poole Rocks was to start revisiting

locations to provide on-going site monitoring for the MCZ rather than always going to new locations. There are plans to revisit at least one of these sites again during the 2020 season.

The non-native slipper limpet (*Crepidula fornicata*) was common on the sediment, no surprise there, but interestingly there were also large colonies of the colourful invasive San Diego sea squirt (*Botrylloides diegensis*, below), a relatively recent arrival in Poole Harbour now spreading widely into natural habitats.

© Lin Baldock

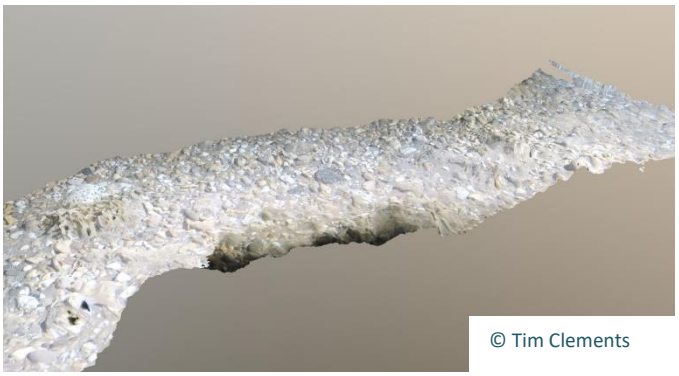
Hampshire, the Solent and Isle of Wight:
Despite 2019 being a rather quiet year for Hampshire Seasearch data were collected from several interesting sites, in particular a rather deeper, high energy mark (~35m BCD) southeast of Ventnor off the Isle of Wight. Dive sites were situated from the Utopia Marine Conservation Zone (MCZ) in the East Solent west to a location on Christchurch Ledge. Underwater conditions are often challenging around Hampshire and the Isle of Wight and the circumstances in 2019 were no exception. Inevitably the tides only permit one slack dive per day so some rapid drifts (in Christchurch Bay, Whitecliff Bay and across Brook Ledges) were 'enjoyed' by the volunteers.

The first dives in early May were plagued by a dense *Phaeocystis* bloom reducing the visibility to less than a meter. A fortnight later the selected dive site at Utopia was also beset by the bloom and again there was a lively surge and some current. A rapid drift across Whitecliff Bay on the southeast coast of the Isle of Wight in search of maerl found a seabed of predominantly fine, rippled sand with only a few, sparse well-worn fragments of long dead maerl. No live maerl was recorded.

A fine day in early June found us heading out to St Catherine's Deep just southeast of the lighthouse to an area of level, pitted bedrock dropping steeply into the Deep to the north. This proved to support a fascinating fauna of sea squirts and *Tubularia*. The sea squirt fauna was dominated by a very handsome red colonial which goes under the name "Strawberry Aplidium" because as yet it has not been described.

© Lin Baldock

The final dive in July was to a high energy site over 11km southeast of Ventnor close to but not inside the Offshore Overfalls MCZ. The seabed at over 33m depth was rough limestone and chalk bedrock and boulders surrounded by highly mobile coarse sediment of sand, gravel and pebbles. A composite image of the seabed at the site (below) gives a very good feel for the physical nature of the seabed complemented by still images providing in-depth detail of the fauna which tolerates this very dynamic and thoroughly scoured habitat.



© Tim Clements

The latter two dives were supported by a Sea-Changers grant to local volunteer Cath Quick.

Sussex ®:

Due to the regional coordinator in Sussex being away on maternity leave, no summary report was received for 2019.

Kent:
Due to the lack of a regional coordinator in Kent, no summary report was received for 2019.

CHANNEL ISLANDS

Alderney seagrass snorkelling:

Local volunteers on Alderney continued in their quest to map the seagrass beds around the island, generally

located in the sheltered bays out of the worst of the fearsome local tides. Momentum is being maintained on the ground in Alderney and the wider Bailiwick of Guernsey by an interactive map created by a local volunteer, coordinating survey efforts by snorkelling, sea swimming and intertidal activities.

Guernsey ®:

A week-long expedition to Guernsey and Alderney in late June was plagued by the strong easterly winds that always seem occur at this time of year. Despite the challenging conditions, new high-energy sites were surveyed on the east coast of Guernsey and off the outlying puffin colony at Burhou.

Species recorded in 2019

A total of 48485 taxon records (covering 1407 distinct taxa, not all identified to species and containing some non-taxonomic recording aggregates) were made during 2019. The following table provides a summary of the species recorded and identifies both the most commonly recorded species and those of special interest.

Priority (formerly Biodiversity Action Plan) species and habitats continue to be a major focus for our surveys and are highlighted in the table as are occurrences of nationally scarce and rare species as defined by the JNCC. The JNCC list has not been revised for some years and the records also include some nationally scarce and rare fishes which are not in the JNCC list and records of other southerly species which have only been recently recorded in our area. The list also identifies non-native species, based on the Marine Biological Association guide[1].

Phyla and commonly recorded species (> 200 records)	**Priority (P), Scarce (S), Rare (R) & Non-native (NN) species**
FORAMINIFERA, (13 records, 3 taxa)	
BACTERIA, (15 records, 2 taxa)	
ENTOPROCTA, (18 records, 1 taxon)	
PLANKTON, (2 records, 1 taxon)	
PORIFERA, Sponges (6945 records, 97 taxa)	
Halichondria panicea (895 records), *Amphilectus fucorum* (704), *Sycon ciliatum* (624), *Raspailia ramosa* (447), crusts (not identified to species) (414), *Cliona celata* (412), *Dysidea fragilis* (348), *Hemimycale columella* (231), *Pachymatisma johnstoni* (229), *Haliclona viscosa* (228),	*Dysidea pallescens* (R, 15 records in Dorset, Devon and Norfolk) *Suberites massa* (R, 29 records in Norfolk) *Adreus fascicularis* (S, 21 records in Dorset, Devon, Guernsey and Jersey) *Axinella damicornis* (S, 40 records in Pembrokeshire, Isles of Scilly, Cornwall, Devon and Guernsey) *Tethyspira spinosa* (S, 3 records from Dorset and Pembrokeshire) *Stelletta grubii* (S, 2 records from Dorset)
CNIDARIA, Jellyfish, hydroids, siphonophores, anemones and corals (7625 records, 153 taxa)	
Jellyfish (360 records, 10 taxa)	*Calvadosia (*was *Lucernariopsis) campanulata* (P, 44 records in Norfolk, Pembrokeshire, Co. Mayo, West Scotland and Orkney) *Calvadosia cruxmelitensis* (P, 4 records in Northumberland and Loch Broom/Summer Isles) *Craterolophus convolvulus* (4 records)
Hydroids (3111 records, 73 taxa) *Nemertesia antennina* (698 records), *Halecium halecinum* (314)	*Aglaophenia kirchenpaueri* (S, 11 records from Pembrokeshire, Dorset and Devon) *Tamarisca tamarisca* (S, 1 record in Loch Carron)
Anemones and corals (4116 records, 70 taxa) *Alcyonium digitatum* (595 records), *Caryophyllia smithii* (435), *Urticina felina* (448), *Metridium dianthus (*was *M. senile)* (254), *Corynactis viridis* (246), *Sagartia elegans* (251), *Anemonia viridis* (252), *Cerianthus lloydii* (210)	*Amphianthus dohrnii* (P/R, 5 records from Devon and Isles of Scilly) *Eunicella verrucosa* (P, 187 records from Channel Islands, Dorset, Devon, Cornwall, Isles of Scilly, Co. Donegal, Co. Clare and Co. Sligo) *Swiftia pallida* (P, 11 records from Sound of Mull, Loch Sunart, Loch Alsh and Loch Laxford) *Pachycerianthus multiplicatus* (P, 21 records from Lochs Long, Fyne, Sunart, Duich, Creran and Alsh) *Funiculina quadrangularis* (P, 12 records from West Scotland) *Leptopsammia pruvoti* (P, 2 records from Dorset, Devon and Isles of Scilly) *Hoplangia durotrix* (R, 2 records from Devon and Dorset) *Aiptasia couchii (*was *A. mutabilis)* (S, 98 records from Dorset, Devon, Cornwall, Pembrokeshire, Jersey and Co. Cork) *Parazoanthus anguicomus* (S, 4 records from Devon and Orkney) *Diadumene lineata* (NN, 1 record from Liverpool Docks)
CTENOPHORA, Comb Jellies (38 records, 5 taxa)	
PHORONIDA, Horseshoe worms (61 records, 3 taxa)	

[1] https://www.mba.ac.uk/sites/default/files/downloads/ID%20NNS%20English.pdf (in English); https://www.mba.ac.uk/sites/default/files/downloads/ID%20NNS%20Cymraeg.pdf (in Welsh)

Phyla and commonly recorded species (> 200 records)	**Priority (P), Scarce (S), Rare (R) & Non-native (NN) species**

PLATYHELMINTHES, Flat worms (113 records, 4 taxa)

NEMERTEA, Ribbon Worms (64 records, 6 taxa)

ANNELIDA, Segmented worms (3705 records, 63 taxa)

Spirobranchus (1112 records), *Sabella pavonina* (466), *Lanice conchilega* (319), *Bispira volutacornis* (202)

© Chris Wood

Amalosoma eddystonense (S, 9 records from Loch Sunart)

Sabellaria spinulosa (Priority habitat when reef-forming, 60 records from Anglesey, Devon, Dorset, Hampshire, Sussex, Kent, Norfolk, North-East England and Pembrokeshire; most not reef-forming)

Serpula vermicularis (Priority habitat when reef-forming, 80 records from Orkney, West Scotland, Co. Galway, Co. Mayo, Cornwall, Devon and Dorset; most not reef-forming)

Sabella spallanzani (southerly) – (8 records from the Channel Isles; **photo left)**

Ficopomatus enigmaticus (NN, 1 record from Liverpool Docks)

Pileolaria berkelayana (NN, 15 records from East Anglia)

BRACHIOPODA, Brachiopods (93 records, 2 taxa)

CRUSTACEA, Barnacles, amphipods, isopods, crabs, lobsters and prawns (5747 records, 117 taxa)

Cancer pagurus (664 records), *Necora puber* (659), *Cirripedia* (396), *Pagurus bernhardus* (379), *Homarus gammurus* (372), *Carcinus maenas* (291), *Maja brachydactyla* (302)

Palinurus elephas (P, 106 records in Co. Donegal, Co. Antrim, Cornwall, Devon, Pembrokeshire, North-west Scotland, Orkney, and Channel Islands)
Dromia personata (S, 4 records in North Wales, Pembrokeshire and Jersey)
Austrominius modestus (NN, 3 records in Dorset, Sussex and Suffolk)

Periclimenes sagittifer (southerly) – 11 records in Cornwall and Jersey

MOLLUSCA, shells, sea slugs, bivalves and cephalopods (6449 records, 228 taxa)

Calliostoma zizyphinum (836 records; **photo below**), *Steromphala (*was *Gibbula) cineraria* (490), *Pecten maximus* (222), *Tritia reticulata* (212), *Edmundsella pedata* (210)

© Rik Girdler

Ostrea edulis (P, 30 records from Cornwall, Devon, Dorset, Hampshire, Sussex, Kent, West Scotland and Co. Louth)
Arctica islandica (P in Wales (4 records in Isle of Man, Orkney, Pembrokeshire, Lochs Sunart, Carron and Duich)
Limaria hians (Priority habitat, 24 records from West Scotland and Orkney)
Modiolus modiolus (Priority habitat, 50 records from West Scotland, Orkney and Shetland)
Okenia elegans (R, 6 records from West Scotland and Orkney)
Tritonia nilsodhneri (S, 44 records from Channel Islands, Dorset, Devon, Cornwall, Isles of Scilly, Co. Donegal and Co. Sligo)
Doris sticta (S, 4 records from Pembrokeshire, Cornwall and Guernsey)
Crassostrea (now *Magellana*) *gigas* (NN, 2 records from Suffolk)
Crepidula fornicata (NN, 128 records from Cornwall, Devon, Dorset, Hampshire/IOW, Sussex, Norfolk, Lincolnshire, Pembrokeshire and Jersey)
Mya arenaria (NN, 3 records in Anglesey, Cumbrae and the Summer Isles)

Southerly species:
Haliotis tuberculata (8 records in Guernsey and Jersey)

BRYOZOA, sea mats and sea mosses (2682 records, 76 taxa)

Crusts (not identified to species) (289), *Electra pilosa* (262 records), *Membranipora membranacea* (205) *Flustra foliacea* (211), *Pentapora foliacea* (203)

Schizobrachiella sanguinea (R, 13 records in Lyme Bay)
Bugula neritina (NN, 2 records in Dorset and Suffolk)
Tricellaria inopinata (NN, 2 records in Dorset)
Watersipora subatra (was *W. subtorquata*) (NN, 7 records in Dorset)

Phyla and commonly recorded species (> 200 records)	**Priority (P), Scarce (S), Rare (R) & Non-native (NN) species**

PHORONIDA, horseshoe worms (61 records, 3 taxa)

ECHINODERMATA, starfish, sea urchins and sea cucumbers (4127 records, 62 taxa)

Asterias rubens (839 records), *Echinus esculentus* (540), *Marthasterias glacialis* (485), *Henricia* (371), *Antedon bifida* (221)

TUNICATA, sea squirts (4428 records, 76 taxa)

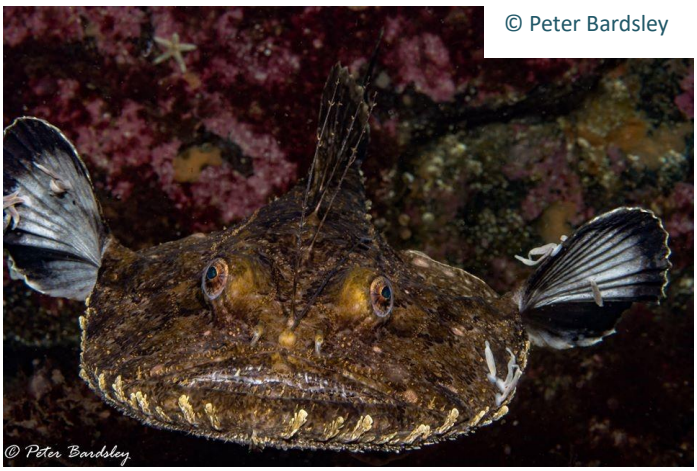
Ascidiella aspersa (436 records), *Clavelina lepadiformis* (314), *Didemnum maculosum* (310), *Botryllus schlosseri* (242), *Ascidia mentula* (225), *Diplosoma spongiforme* (212)

© Charlotte Bolton

Polysyncraton lacazei (R, 13 records from Jersey and Guernsey)
Pycnoclavella aurilucens (S, 56 records from Sussex, Channel Islands, Dorset, Devon, Cornwall, Isles of Scilly, Pembrokeshire, Anglesey and Co. Cork)
Phallusia mammillata (S, 59 records from Jersey, Dorset, Devon, Co. Cork, Co. Donegal and Co. Antrim)
Asterocarpa humilis (NN, 8 records in Dorset, Devon, Co. Down; **photo left**)
Corella eumyota (NN, 16 records in Pembrokeshire, Anglesey, Dorset, Devon, Norfolk and Northumberland)
Perophora japonica (NN, 21 records in Norfolk, Devon and Dorset)
Botrylloides diegensis (NN, 15 records in Dorset and Suffolk)
Botrylloides violaceus (NN, 5 records in Dorset and Devon)
Styela clava (NN, 67 records in Dorset, Jersey, North Wales, Ireland (all coasts), Cornwall, South Devon, West Scotland, Hampshire/IOW, Sussex and Suffolk)

PISCES, fishes (5424 records, 143 taxa) (fish are not included in the JNCC rare and scarce species lists)

Symphodus melops (606 records), *Labrus bergylta* (447), *Pomatoschistus* spp. (396), *Ctenolabrus rupestris* (308), *Pollachius pollachius* (275), *Labrus mixtus* (243), *Thorogobius ephippiatus* (222), *Gobiusculus flavescens* (212), *Trisopterus luscus* (205)



© Peter Bardsley

Anguilla anguilla (P, 7 records in Jersey and Norfolk)
Gadus morhua (P, 36 records in Orkney, Shetland, Arran, West Scotland, Norfolk, Northumberland, Co. Antrim, Co. Down, Co. Donegal and Pembrokeshire)
Molva molva (P, 23 records from Shetland, Orkney, Scotland (all coasts), Co Donegal, Co. Sligo, Isle of Man, Pembrokeshire, Devon, Cornwall and Dorset)
Lophius piscatorius (P, 13 records from Isle of Man, East Scotland, Shetland, Durham Heritage Coast, Yorkshire, Devon, Dorset and Cornwall; **photo left**)
Pleuronectes platessa (P, 54 records from all coasts)
Solea solea (P, 8 records from Cornwall, Devon and Norfolk)
Dipturus batis (P, 6 records from North-west Scotland)
Raja undulata (P, 4 records from Devon, Dorset and Jersey)
Raja clavata (P in Scotland (11 records))

Southerly species:
Tripterygion delaisi (17 records)
Parablennius ruber (3 records)
Parablennius pilicornis (2 records)
Symphodus ballioni (81 records)
Balistes capriscus (6 records)
Spondylosoma cantharus (18 records)
Torpedo marmorata (6 records)

AVES & MAMMALIA, birds & mammals (354 records of birds, seals and cetaceans, 20 taxa)

ALGAE, seaweeds (8275 records, 242 taxa)

Rhodophycota, Red seaweeds (4629 records, 141 taxa)

Encrusting algae indet. (869 records), Rhodophyta (854), *Delessaria sanguinea* (230), *Plocamium* spp. (222), *Cryptopleura ramosa* (206), *Calliblepharis ciliata* (202)

Gracilaria bursa-pastoris (S, 1 record from Dorset)
Gracilaria multipartita (S, 1 record from Dorset)

Asparagopsis armata (NN, 48 records from Channel Islands, IOW, Dorset, Devon, Cornwall, Isle of Man, Co. Down, Loch Alsh)
Bonnemaisonia hamifera (NN, 3 records from Dorset)
Antithamnionella ternifolia (NN, 1 record from Dorset)

Phyla and commonly recorded species (> 200 records)	**Priority (P), Scarce (S), Rare (R) & Non-native (NN) species**
 © Charlotte Bolton	*Caulacanthus okamurae* (NN, 2 records from Guernsey) *Dasysiphonia (*was *Heterosiphonia) japonica* (NN, 40 records from Co. Mayo, Co. Down, West Scotland, Isle of Man, Pembrokeshire, Dorset and Isle of Wight) *Grateloupia turuturu* (NN, 5 records from Dorset, Cornwall and Jersey) *Solieria chordalis* (NN, 7 records from Jersey, Cornwall and Dorset; **photo left**) Maerl (Priority habitat, 58 records, most not identified to species, from Isle of Wight to Orkney on south/western coasts; high abundances (maerl beds in Jersey, Ireland, Falmouth and West Scotland)
Ochrophyta, Brown seaweeds (2802 records, 64 taxa) *Saccharina latissima* (392), *Laminaria hyperborea* (320 records), *Dictyopteris polypodioides* (262), *Dictyota dichotoma* (251)	*Carpomitra costata* (S, 10 records from Guernsey, Devon, Cornwall and Isles of Scilly) *Sargassum muticum* (NN, 106 records from Channel Islands, Devon, Cornwall, Isles of Scilly, Hampshire/IOW, Dorset, Suffolk, Ireland (all coasts), West Scotland and Isle of Man) *Undaria pinnatifada* (NN, 10 records from Channel Isles, Cornwall, Devon, Dorset and Suffolk) *Colpomenia peregrina* (NN, 34 records from Channel Isles, Dorset, Devon, Cornwall, Norfolk, Northumberland, Co. Cork, Anglesey, Isle of Man, Arran and Outer Hebrides)
Chlorophyta, Green seaweeds (844 records, 27 taxa) *Ulva* spp. (532 records)	
TRACHEOPHYTA, vascular plants (132 records, 4 taxa)	*Zostera marina* (Priority habitat, 130 records from Scotland, Isle of Man, North Wales, Ireland, Cornwall, Devon, Dorset, Hampshire/IOW and Channel Islands)

TOTAL TAXA RECORDS = 48,485

Habitats and Biotopes

Seasearch records habitats and animal and plant communities in two ways.

On an Observation Form the field recorder identifies one or more Seabed Cover Types (SCT) for the whole of their record from a list of nine options. For the Survey Forms the data is separated into a number of different Samples and each sample is given a Biotope Code using the MNCR 15.03 suite devised by the Joint Nature Conservation Committee[2]. This process of 'biotoping' is usually carried out by a post survey assessor rather than the recorder themselves as it requires specialist knowledge of the biotope system.

During 2019 3202 SCTs and Biotopes were identified, of which 62.65% (2006) were MNCR Biotopes & 37.35% (1196) SCTs.

Seabed Cover Types

The 1196 SCTs recorded were divided as follows:

Kelp forest and kelp park 201 (16.81%)

Mixed seaweeds 290 (24.25%)

Encrusting pink algae 56 (4.68%)

Short animal turf on rock 317 (26.51%)

Tall animal turf on rock 164 (13.71%)

Animal beds (*e.g.* mussels, brittlestars) 4 (0.33%)

Sediment with life apparent 153 (12.79%)

Barren sediment 11 (0.92%)

This data provides a broad indication of the habitats and communities present at the site. In some cases it is apparent that the level of detail on the record is sufficient to assign a MNCR Biotope to an Observation Form.

[2] JNCC (2015) The Marine Habitat Classification for Britain and Ireland Version 15.03 [Online]. [Accessed 2020-03-10 and various other dates]. Available from: https://mhc.jncc.gov.uk/

MNCR 15.03 Biotopes

The 2006 biotopes assigned were divided by main habitat as follows:

Littoral rock/sediment 37 (1.85%)

Infralittoral rock 610 (30.41%)

Circalittoral rock 751 (37.43%)

Sublittoral sediment 608 (30.31%)

In almost all cases more detailed biotopes were assigned within these broad categories. These are based on variations in the type of physical habitat, and different communities of plants and animals.

Some habitats have been assessed as priority habitats for conservation in the UK[3]. Whilst these are not identified in the same way in Ireland, Irish records have been included below. Priority habitat records were as follows:

Blue mussel beds on sediment

LS.LBR.LMus/ LS.LBR.LMus.Myt/ LS.LBR.LMus.Myt.Mx/ LS.LBR.LMus.Myt.Sa/ LS.LBR.LMus.Myt.Mu/ LS.LSa.St.MytFab/

SS.SBR.SMus.MytSS: no records in 2019

Coastal Saltmarsh

LS.LMp.Sm: no records in 2019

Cold-water Coral Reefs

SS.SBR.Crl.Lop: no records in 2019

Estuarine Rocky Habitats

LR.LLR.FVS/ LR.LLR.FVS.PelVS/ LR.LLR.FVS.FspiVS/ LR.LLR.FVS.FvesVS/ LR.LLR.FVS.AscVS/ LR.LLR.FVS.Ascmac/ LR.LLR.FVS.FserVS/ LR.LLR.FVS.FCer/ IR.LIR.KVS.Cod/ IR.LIR.KVS.LsacPsaVS/ IR.LIR.KVS.LsacPhyVS/ LR.FLR.Eph.EntPor: no records in 2019

LR.FLR.Eph.Ent: *Enteromorpha* spp. on freshwater-influenced and/or unstable upper eulittoral rock: 1 records in Lincolnshire

LR.FLR.CvOv.SpR.Den: Sponges, shade-tolerant red seaweeds and *Dendrodoa grossularia* on wave-surged overhanging lower eulittoral bedrock and caves: 1 record in North-East England

LR.FLR.Rkp.G/ LR.FLR.Lic.Ver.Ver: no records in 2019

LR.FLR.Lic.YG: Yellow and grey lichens on supralittoral rock: 1 record in Guernsey

File Shell (*aka* Flame Shell) Beds

SS.SMX.IMX.Lim: *Limaria hians* beds in tide-swept sublittoral muddy mixed sediment: 6 records in West Scotland

Fragile sponge and Anthozoan Communities on Rocky Habitats

CR.HCR.DpSp.PhaAxi: no records in 2019

CR.HCR.XFa.ByErSp.DysAct: Mixed turf of bryozoans and erect sponges with *Dysidea fragilis* and *Actinothoe sphyrodeta* on tide-swept wave-exposed circalittoral rock: 9 records from Dorset, Pembrokeshire and Jersey

CR.HCR.XFa.ByErSp.Eun: *Eunicella verrucosa* and *Pentapora foliacea* on wave-exposed circalittoral rock: 18 records from Isles of Scilly, Cornwall and Dorset

[3] See https://jncc.gov.uk/our-work/uk-bap-priority-habitats/ and links therein

Fragile sponge and Anthozoan Communities on Rocky Habitats (continued)

CR.HCR.XFa.ByErSp.Sag: no records in 2019

CR.HCR.XFa.SwiLgAs: Mixed turf of hydroids and large ascidians with *Swiftia pallida* and *Caryophyllia smithii* on weakly tide-swept circalittoral rock: 2 record from Kinlochbervie and Loch Craignish

CR.MCR.EcCr.CarSwi: *Caryophyllia smithii* and *Swiftia pallida* on circalittoral rock; 1 record from the Small Isles

CR.MCR.EcCr.CarSwi.Aglo: *Caryophyllia smithii*, *Swiftia pallida* and *Alcyonium glomeratum* on wave-sheltered circalittoral rock: 8 records from Loch Sunart, Sound of Mull, Skye and the Small Isles

CR.MCR.EcCr.CarSwi.LgAs: no records in 2019

Horse Mussel Beds

SS.SBR.SMus.ModT: *Modiolus modiolus* beds with hydroids and red seaweeds on tide-swept circalittoral mixed substrata:1 record from Loch Creran

SS.SBR.SMus.ModHAs: *Modiolus modiolus* beds with fine hydroids and large solitary ascidians on very sheltered

circalittoral mixed substrata: 6 records from Lochs Creran and Long/Goil

SS.SBR.SMus.ModMx/ SS.SBR.SMus.ModCvar: no records in 2019

Intertidal chalk

LR.HLR.FR.Osm: *Osmundea pinnatifida* on moderately exposed mid eulittoral rock: 1 record in Yorkshire

LR.MLR.BF.Fser.Pid/ LR.FLR.CvOv.ChrHap/ IR.MIR.KR.Ldig.Pid/ LR.FLR.Lic.Bli/ LR.FLR.Lic.UloUro: no records in 2019

Intertidal Mudflats

LS.LSa.MuSa/ LS.LMu: no records in 2019

Intertidal Under-boulder Communities

LR.MLR.BF.Fser.Bo: *Fucus serratus* and under-boulder fauna on exposed to moderately exposed lower eulittoral boulders: 2 records in Yorkshire and Northumberland

IR.MIR.KR.Ldig.Bo: no records in 2019

Maerl beds

SS.SMp.Mrl: Maerl beds: 13 records from the Channel Isles, Cornwall, Co. Galway, Co. Antrim and West Scotland

SS.SMp.Mrl.Lgla/ SS.SMp.Pcal/ SS.SMp.Pcal.R: no records in 2019 (we generally do not record 'maerl' to species level)

Mud Habitats in Deep Water

SS.SMu.CFiMu: Circalittoral fine mud: 12 records from West Scotland, Dorset and Belfast Lough

SS.SMu.CFiMu.SpnMeg: Seapens and burrowing megafauna in circalittoral fine mud: 19 records from West Scotland

SS.SMu.CFiMu.SpnMeg.Fun: Seapens, including *Funiculina quadrangularis*, and burrowing megafauna in undisturbed circalittoral fine mud: 13 records from West Scotland

SS.SMu.CSaMu/ SS.SMu.OMu/ SS.SMu.CFiMu.BlyrAchi/ SS.SMu.OMu.ForThy/ SS.SMu.OMu.StyPse/ SS.SMu.CFiMu.MegMax: no records in 2019

Peat and Clay Exposures with Piddocks

LR.HLR.FR.RPid/ LR.MLR.MusF.MytPid: no records in 2019

The following two biotopes are also included in the 'subtidal chalk' priority habitat:

CR.MCR.SfR: Soft rock communities; 14 records from Norfolk, Sussex and Dorset

CR.MCR.SfR.Pid: Piddocks with a sparse associated fauna in sublittoral very soft chalk or clay; 25 records from Dorset, Hampshire, Sussex and Norfolk

***Sabellaria alveolata* Reefs**

LS.LBR.Sab/ SS.SBR.PoR.SalvMx: no records in 2019

***Sabellaria spinulosa* reefs**

SS.SBR.PoR.SspiMx: *Sabellaria spinulosa* on stable circalittoral mixed sediment: 2 records from Norfolk and the Durham Heritage Coast

Also:

CR.MCR.CSab.Sspi: *Sabellaria spinulosa* encrusted circalittoral rock: 6 records from Hampshire and Dorset

CR.MCR.CSab.Sspi.As: *Sabellaria spinulosa*, didemnids and other small ascidians on tide-swept moderately wave-exposed circalittoral rock: 2 records from Dorset

Saline Lagoons

IR.LIR.Lag: Submerged fucoids, green or red seaweeds (low salinity infralittoral rock): 36 records in West Scotland and Suffolk

SS.SSa.SSaLS/ SS.SMu.SMuLS/ SS.SMx.SMxLS /SS.SMp.Ang: No records in 2019

Seagrass Beds (intertidal)

LS.LMp.LSgr/ LS.LMp.LSgr.Znol: no records in 2019

Seagrass Beds (subtidal)

SS.SMp.SSgr: Sublittoral seagrass beds: 4 records from Alderney and Jersey

SS.SMp.SSgr.Rup: no records in 2019

SS.SMp.SSgr.Zmar: *Zostera marina/angustifolia* beds on lower shore or infralittoral clean or muddy sand: 33 records from Channel Isles, Dorset, Devon, Cornwall, Pembrokeshire, Isle of Man, Arran, Co. Galway and Co. Antrim.

Serpulid Reefs

SS.SBR.PoR.Ser: no records in 2019

Sheltered Muddy Gravels (intertidal mixed sediment)

LS.LMx/ LS.LMx.GvMx/ LS.LMx.Mx/ LS.LMx.Mx.CirCer: no records in 2019

Sheltered Muddy Gravels (subtidal mixed sediment)

SS.SMx.IMx: Infralittoral mixed sediment: 16 records in West Scotland, Isle of Man, Pembrokeshire, Cornwall and Sussex

SS.SMx.IMx.CreAsAn: *Crepidula fornicata* with ascidians and anemones on infralittoral coarse mixed sediment: 7 records in Pembrokeshire, Dorset and Sussex

SS.SMx.IMx.SpavSpAn/ SS.SMx.IMx.VsenAsquAps: no records in 2019

Subtidal Chalk

IR.MIR.KR.HiaSw: no records in 2019

CR.MCR.SfR: Soft rock communities; 14 records from Norfolk, Sussex and Dorset

CR.MCR.SfR.Pid: Piddocks with a sparse associated fauna in sublittoral very soft chalk or clay; 25 records from Dorset, Hampshire, Sussex and Norfolk

CR.MCR.SfR.Pol: *Polydora* sp. tubes on moderately exposed sublittoral soft rock: 43 records from Norfolk

CR.MCR.SfR.Hia: no records in 2019

Subtidal Sands and Gravels

This habitat has a broad definition and many biotopes are included. The following are all broad scale habitats and in many cases there are more detailed biotopes in our records.

SS.SCS.SCSVS/ SS.SCS.OCS: no records in 2019

SS.SCS.CCS: Circalittoral coarse sediment: 53 records

SS.SCS.ICS: Infralittoral coarse sediment: 44 records

SS.SSa.IFiSa: no records in 2019

SS.SSa.CFiSa: Circalittoral fine sand: 12 records

SS.SSa.CMuSa: Circalittoral muddy sand: 6 records

SS.SSa.IMuSa: Infralittoral muddy sand: 7 records

SS.SSa.SSaVS/ SS.SSa.OSa: no records in 2019

Tide-swept Channels

LR.HLR.FT/ LR.HLR.FT.FserTX: no records in 2019

IR.MIR.KR.LhypT: *Laminaria hyperborea* on tide-swept, infralittoral rock: 2 records from Dorset and Loch Sunart

IR.MIR.KR.LhypT.Ft: *Laminaria hyperborea* forest, foliose red seaweeds and a diverse fauna on tide-swept upper infralittoral rock: 2 records from Belfast Lough and the Summer Isles

IR.MIR.KR.LhypT.Pk: no records in 2019

IR.MIR.KR.LhypTX: *Laminaria hyperborea* on tide-swept infralittoral mixed substrata: 1 record from Arran

IR.MIR.KR.LhypTX.Ft: *Laminaria hyperborea* forest and foliose red seaweeds on tide-swept upper infralittoral mixed substrata: 1 record from the Outer Hebrides

IR.MIR.KR.LhypTX.Pk: *Laminaria hyperborea* park and foliose red seaweeds on tide-swept upper infralittoral mixed substrata: 5 records from Belfast Lough

IR.MIR.KR.LhypVt: *Laminaria hyperborea* on moderately exposed vertical rock: 3 records from Loch Sunart, Durham Heritage Coast and Yorkshire

IR.MIR.KT: Kelp and seaweed communities in tide-swept sheltered conditions: 4 records from Jersey and the Menai Strait

IR.MIR.KT.LsacT: *Laminaria saccharina* with foliose red seaweeds and ascidians on sheltered tide-swept infralittoral rock: 1 record from the Summer Isles

Tide-swept Channels (continued)

IR.MIR.KT.XKT: Mixed kelp with foliose red seaweeds, sponges and ascidians on sheltered tide-swept infralittoral rock: 2 records from Loch Etive

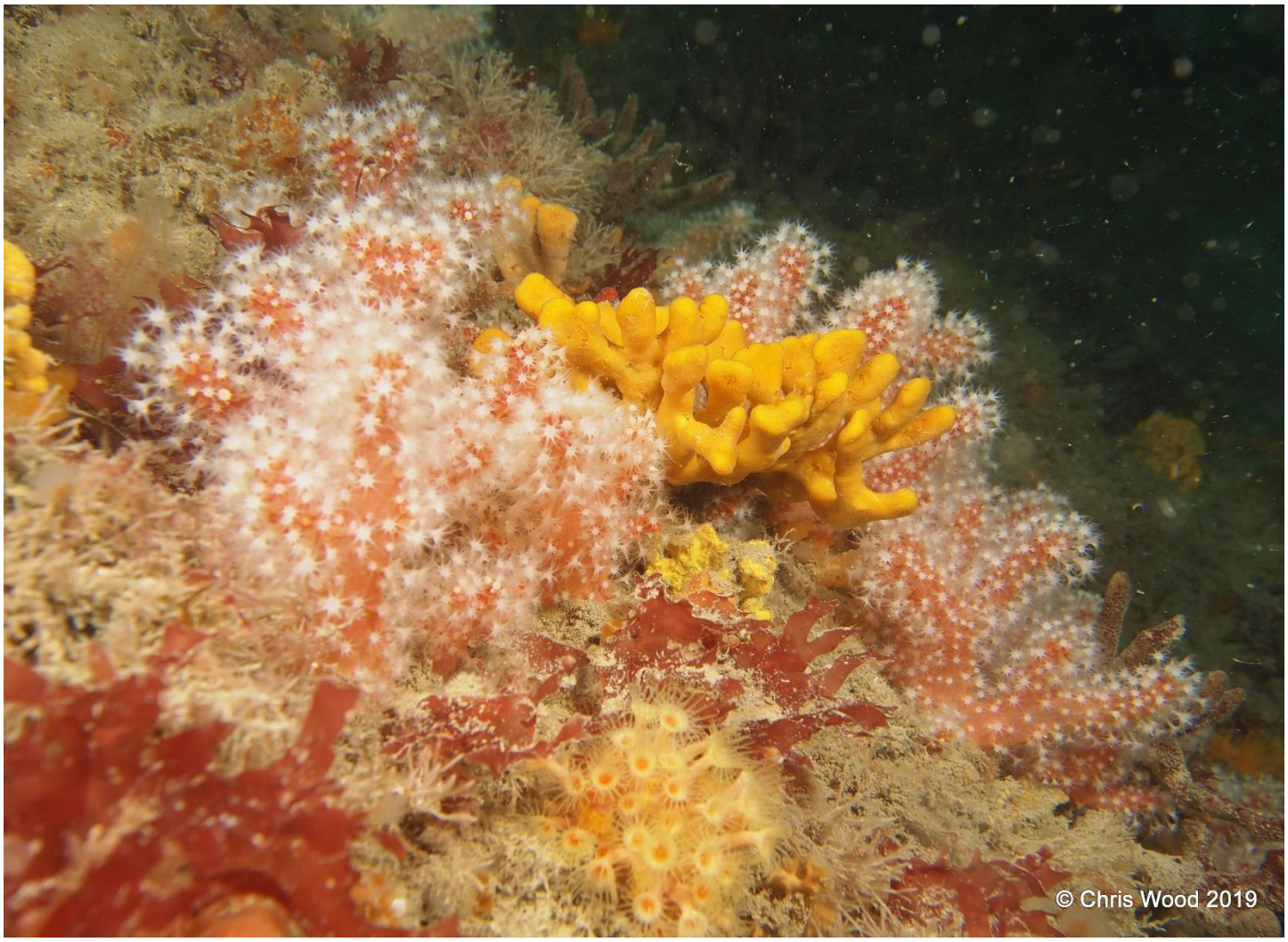
IR.MIR.KT.XKTX: Mixed kelp and red seaweeds on infralittoral boulders, cobbles and gravel in tidal rapids: 4 records in Lochs Creran, Glencoul and Sunart.

CR.HCR.FaT: Very tide-swept faunal communities: 1 record from Alderney

CR.HCR.FaT.CTub: *Tubularia indivisa* on tide-swept circalittoral rock: 15 records from Guernsey, Anglesey, Norfolk, St Abbs, Arran and Hampshire

CR.HCR.FaT.CTub.CuSp: *Tubularia indivisa* and cushion sponges on tide-swept turbid circalittoral bedrock: 1 record from Dorset

CR.MCR.CFaVS/ SS.SMp.KSwSS.LsacR.CbPb: no records in 2019



Classic sponge and anthozoan turf in the Channel Isles (Les Audames, Guernsey)

Seasearch Training in 2019

The Seasearch training programme provides courses and survey skills at three levels, Observer, Surveyor and Specialist.

The **Observer** level training consists of a one-day course for divers without previous survey experience. This covers an introduction to Seasearch, identifying marine habitats and species, and a series of practical skills from position fixing to recording from filmed surveys. The aim is to equip participants to complete the Seasearch Observation Form. Dives are arranged where participants can undertake surveys with a tutor present to help with form completion and identifications. The Observer qualification involves participation in the course and completion of 5 Observation Forms.

There were 25 Observer courses held in 2019 in England (11), Scotland (4), Ireland (all) (2), Channel Islands (4), Wales (3) and Isle of Man (1). Over 230 divers took part in the Observer courses, the vast majority of whom were new to Seasearch.

The **Surveyor** level training is aimed at volunteers with some existing experience of marine recording, whether as a Seasearch Observer or elsewhere, and aims to equip them to successfully complete the Seasearch Survey Form. It involves a weekend course, completion of 6 survey dives and an ID test.

Only one Surveyor Course was held in 2019, in the Isle of Man and involving 5 participants in total. One 'recorder workshop' aimed primarily at Surveyor-level volunteers also took place in 2019.

Seasearch **Specialist** courses are aimed at either teaching new survey skills or improving knowledge and identification of marine life. Thirteen courses were held in 2019. Subjects covered fish ID (North Wales), ascidians (Devon), seaweeds (North-East England), nudibranchs (Galway), anemones/corals (Cornwall and Northern Ireland), sponges (Jersey, Kent and Galway) and photography (Dorset and Northern Ireland).

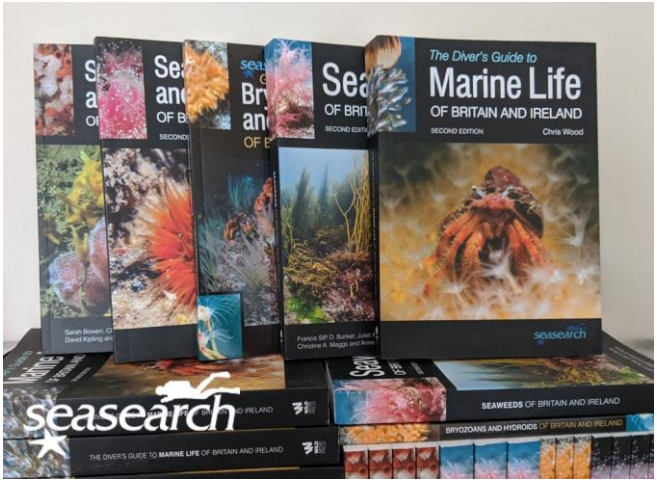
Seasearch Observer and Surveyor training courses are delivered by our team of tutors, all of whom are experienced Seasearch recorders and active divers. Sally Stewart-Moore (Northern Ireland) became an Observer tutor in 2019, while four more trainee tutors are close to gaining accreditation.

Seasearch qualifications are awarded to those completing the Seasearch Observer (course and 5 acceptable observation forms), or Surveyor (course, 6 acceptable survey forms & an ID test) programmes. In 2019 forty-five volunteers achieved the Observer qualification and 12 volunteers the Surveyor qualification.

The qualification process not only acts as a reward to participants but is also an official recognition of the skills available within the Seasearch community of volunteer divers and thus the validity of their observations.

Seasearch Identification Guides and survey materials

As a part of our aim to improve the identification skills of volunteer divers we produce a range of illustrated field identification guides. We now have five titles in the series.



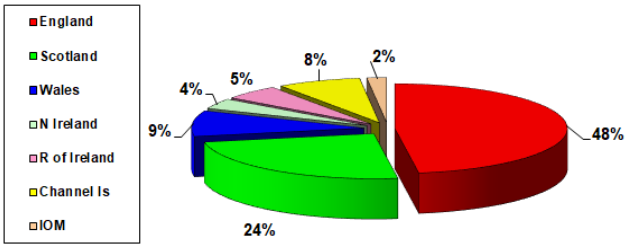
The updated second edition of the general Marine Life Guide is popular as an introductory guide and sells primarily on Observer Courses. We have four more specialised Guides covering Sea Anemones and Corals, Sea Squirts and Sponges, Bryozoans & Hydroids and Seaweeds.

In addition to the guides, Seasearch also produces writing slates in two sizes and recycled wooden pencils to aid the recording of information underwater, plus cotton bags to keep all your books together. These are all available at Seasearch courses and events, through regional co-ordinators and can also be purchased online via the MCS shop.

Seasearch Data

A total of 1,580 forms were received from dives in 2019. The total comprised observation (56%) and survey (41%) forms with the remainder being crawfish forms, reflecting the population increase of this species in the south-west. Both the Channel Islands and the North-West recorded their highest total of forms ever.

The pie chart shows the origin of each form.



The 2019 dataset comprises 90 surveys with 1150 survey events, and contains 48485 taxon records and 3202 biotope/habitat records. All of the data is made available on the National Biodiversity Network Atlas, where Seasearch is the second-largest provider of marine data. Additional data on pink sea fans and crawfish is entered into separate databases.

Data validation and management

On receipt of a Seasearch form, summary information is recorded in a database and the position mapped. This also acts as the first stage in the validation process for the data which is carried out by the local co-ordinator, national co-ordinator or a Seasearch tutor.

All Observation and Survey Form data is entered into the Marine Recorder database by a variety of experienced individuals and organisations. They are responsible for the second stage of verification of the data and for the assignation of MNCR biotopes. The data is retained locally and also passed on and merged with all the other data to produce a single Seasearch dataset for the year. At this stage the third validation check is carried out by the National Seasearch Co-ordinator and the Data Officer.

In addition to the annual update the data is managed on an ongoing basis and amendments, updates and corrections are made to earlier data as required. Any errors in the Seasearch dataset should be notified to the email address below.

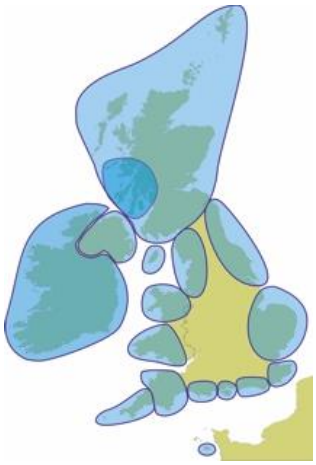
Seasearch Co-ordination and Promotion

The core activities are delivered by the National Co-ordinator, supported by the Data Officer and the Administrator, with a team of Local Co-ordinators throughout Britain, Ireland and the Crown Dependencies. During 2019 the team was as follows:

National Co-ordinator	Charlotte Bolton MCS
Data Officer	Angus Jackson MCS
Administrator	ML Anderson MCS
Scotland	Natalie Hirst MCS
West Scotland	Owen Paisley MCS
Northern Ireland	Sally Stewart-Moore MCS
Republic of Ireland	Tony O'Callaghan IUC/CFT
Isle of Man	Tony Glen MCS
North Wales	Holly Date MCS
South & West Wales	Kate Lock MCS
North East England	Paula Lightfoot MCS
North West England	Wendy Northway MCS
East Anglia	Dawn Watson MCS
Kent	Bryony Chapman Kent WT
Sussex	Sarah Ward Sussex WT
Hants/Isle of Wight	Lin Baldock MCS
Dorset	Lin Baldock Dorset WT
Devon	Chris Webb MCS
Cornwall	Matt Slater Cornwall WT
Alderney	Mel Broadhurst-Allen MCS
Guernsey	Laura Bampton La Societe Guernesiase
Jersey	Kevin McIlwee MCS

Thanks to all the Seasearch Tutors and co-ordinators for their enthusiasm, organisational and teaching skills during 2019. Thanks also to all of the volunteer divers who have participated in Seasearch training, recording and promotion – without your contributions Seasearch would not exist.

Local Co-ordinators are responsible for Seasearch activities within their own areas (see map right). This includes promotion to local dive clubs and other groups, communication with local volunteers and arranging training courses and surveys.



This report has been produced by Seasearch on behalf of the Marine Conservation Society, Overross House, Ross Park, Ross-on-Wye HR9 7US.

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