

South-West Marine Ecosystems

Report for 2019



High abundances. The May plankton bloom (*Phaeocystis* sp.) started earlier than usual, in late April, and divers recorded it as particularly 'strong'. Image taken in Bigbury Bay on 23 April by Dom Robinson.



Unusual finds. A Tripletail (*Lobotes surinamensis*) caught in set nets on the Stert Flats off Stolford in Bridgewater Bay. This species seldom occurs north of Gibraltar in the East Atlantic. Image: Carl Sellick.



Firsts. Twitchers flocked to St Ives in Cornwall to see a brown booby whose more regular habitats are Mexico and the Caribbean. The first sighting in Britain. Here, at St Ives on 31 August. Image: Mashuq Ahmad.



Look out for more? A slipper lobster (*Scyllarus arcutus*) caught in pots on 10th November off Start Point by Adam Cardew. Doug Herdson notes: According to my records this is the 66th for Britain and Ireland since 1758. Adam Cardew.

Edited by Keith Hiscock, Bob Earll & Richard White

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2. Objectives of the South-West Marine Ecosystems Conference

The objectives of SWME were updated following delegate feedback from SWME 2017 conference and are as follows:

1. **Networking** Through the conferences, website and mailings, to provide a networking opportunity for a wide cross section of people to meet, exchange views and build networks for the south-west's marine ecosystems in order to:

- Provide active support for existing networks enabling and building citizen science projects;
- To encourage collaboration between users, researchers/scientists and managers/policy makers;
- Encourage links between researchers on science projects throughout the region's seas (e.g. the English Channel, Bristol Channel, Celtic Seas and the wider Atlantic Ocean).

2. **Annual Events & Recording** To use the annual conference to record observation on ecological and oceanographic events of the previous year that have affected the south west marine ecosystems and to make the linkages between environmental and biological phenomena. To publish these observations annually. To promote the recording of observations through the year and ongoing regional and national marine recording projects through the SWME website.

3. **Ecology of marine species** To promote research studies that focus on the ecology of marine species, planktonic, benthic and 'mobile' species (fish, birds, mammals, turtles) and the ecosystem that supports them. To understand the status of populations of marine species in the region's seas and how they are responding to environmental and anthropogenic pressures. To enable stories to be told about the ecology of our common species, their distribution, movements and numbers, and importantly to highlight the gaps in our knowledge.

4. **Management of south west marine ecosystems** To encourage strong relationships between policy makers and scientists; to promote science and the evidence base that underpins management of human activities in the coastal and marine environment with a view to supporting and promoting the health of south west's marine ecosystems.

5. **Marine Education and Outreach** To highlight marine education and outreach programmes in the south west. To support the development of new programmes that promote marine management and make use of marine science. To promote good practice in environmental education, interpretation, signage and outreach.

...and to come together to celebrate being part of the South West Marine Ecosystem.

3. Contents

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4. Objectives of the South-West Marine Ecosystems Reports

Why produce the South-West Marine Ecosystems Annual Report?

The overall purpose of the report supports the objectives of the conference: collecting observations, supporting recording and science, helping to build networks and providing feedback to everyone involved in order to make a difference in protecting and managing our marine environment. A detailed breakdown of reasons includes:

1. **Describing 'normal' patterns of events** e.g. the oceanographic and planktonic systems
2. **Marking major events and their effects** e.g. the major winter storms of 2013-14.
3. **Highlighting significant ecological and population changes** including:
 - **Trends** e.g. the increase in seabirds on islands after rat control and blooms of barrel jellyfish.
 - **Good years & bad years – relative status - trends** For species like jellyfish e.g. basking sharks, sunfish, bottlenose dolphins
 - **Noting new records for the south-west**
 - **Recording recovery** e.g. recruitment of spiny lobsters (crawfish) after an absence of c. 40 years.
4. **Highlighting Remarkable sightings** e.g. Bowhead whale, Cornwall in 2016 or the Dalmatian pelican.
5. **Acting to focus interest** Publishing provides a focus for further research, year on year e.g. tuna, spiny lobster, bottlenose dolphins.
6. **Posing questions and exploring interactions – making the links** between environmental, species, habitat and management changes
7. **Telling stories about what we know and providing access – education & outreach**
8. **Making a difference – managing human activities** e.g. wildlife entanglement, fisheries for crawfish or wrasse, the spatial allocation for developments or protected areas, acting on plastics.

The past SWME annual reports (for 2014, 2015, 2016, 2017 and 2018) illustrate these points and can be accessed from the SWME website <http://swmecosystems.co.uk/annual-reports>.

South-West Marine Ecosystems Report for 2019

A collation of observations made through the year from monitoring studies, harvested from social media, publications etc. and recorded by the editors of sections.

5. Introduction

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This is the sixth in the series of annual reports on the observations of species, ecology and ecosystems for a specific year. Collating observation for 2019 has been a very different task to previous years. We have not had the benefit of an annual meeting (scheduled for 3 April 2020 but cancelled because of the Covid19 pandemic) and have relied on the records kept by editors of the different sections as well as having harvested postings on social media, published papers and notes of 'across-the-coffee-table' chats.

We have improved the ability to cite the report by agreeing that the report is to be published by the Marine Biological Association and assigned a Digital Object Identifier (DOI). This means that the whole report can be cited (but depending on the house style of where it is being cited) as:

Hiscock, K., Earll, R. & White, R. (eds) 2020. South-west Marine Ecosystems Report for 2019. *Marine Biological Association of the UK, Plymouth*. DOI: 10.17031/a4k9-p258

We encourage you to cite the specific chapter/section and the editor of that section.

We would thank the section editors and all the people who have contributed their observations, views and images.

The development of the SWME report

It is great to see the editors of the chapters bringing in a wide range of people to help and support their preparation. The chapters often reflect the contributions of hundreds of recorders across the south-west many of whom have gone the extra mile to record and photograph and report their sightings. It goes to show how citizen science and professional science can work effectively together on many issues. Hopefully the SWME report will provide another source of feedback that encourages more people to take part in the overall effort. We now have a contact list for SWME of over 650 people who will receive the links to this report. You can sign up on <http://swmecosystems.co.uk/>.

The process of producing the report is also leading to certain groups having more detailed assessments – for 2019, there is a summary in the seal report and a longer one accessible from: <http://swmecosystems.co.uk/wp-content/uploads/2020/07/WEB-2019-SEALS-by-Sue-Sayer-V3062020.pdf>.

Following feedback at the SWME conference in 2019 we have brought the publication process for the report forward to coincide with the spring conference and this has worked very well. The SWME report is developing both in terms of content and detail, many of the chapters are falling into a tried and tested format with multiple contributors. For example, this year the Marine Biological Association have agreed to publish the report in their occasional report series and give it a DOI number which enables it to be more widely cited as a formal publication.

Making the links

The SWME report is based on a very traditional model with difference chapters covering the major subjects. A next step is to make the links between sections. We know that many of the things we are observing are very closely interlinked and this is illustrated by many points made in this report. For instance:

- Weather and extreme events are one of the main drivers of what we see in variable abundances of species and unusual occurrences. For instance, strandings of oceanic species and seal mortality on the beaches linked to storms.
- Basking shark sightings were very low once again in 2019 as was the abundance of one its main prey species *Calanus helgolandicus* (Fig.7.3).
- Doug Herdson gives a couple of references to how anglers suggest that poor catches are often linked to plankton blooms.
- 110 seals were recorded entangled in netting during the year – is the amount of netting found at sea or on the beaches decreasing?
- Some warmer water species are increasing in abundance or distribution (for instance: golden kelp *Laminaria ochroleuca*; the gametophyte stage of the harpoon weed *Asparagopsis armata*; Pacific oysters *Megallana gigas*; ring-necked / variable blenny *Parablennius pilicornis*) but many have been at 'standstill' for the past 15+ years as has seawater temperature range. Are we missing some subtleties?

Perhaps you have a view on possible links between events and species abundances or between the relative abundance of different species that may be interacting. Let us know.

Population trends – up and down

Year on year it now possible to see some major trends reported in the SWME annual reports in a variety of data on certain species:

- In two cases, the blue fin tuna and crawfish, records have gone from being exceptionally rare (crawfish in certain areas) and have warranted new studies.
- The Pacific oyster (*Megallana gigas*) populations have significantly increased over the last few years in the inlets of Cornwall.
- St Piron's crab 'returned' in about 2016 after an absence of about 30 years – why?
- There were several sightings of common octopus *Octopus vulgaris* again in 2019 but not the 'plague' numbers of 1900 and 1950. Why do such episodic events occur?
- There was no super bloom in 2019 of the large Jellyfish *Rhizostoma octopus*.

[See also 'Climate change impacts on benthos in SW Britain: on hold?' in Section 8.]

'Stand-out' observations – new novel and exceptional events

Observations in 2019 mainly suggest 'steady-as-it-goes' with the unusual (in recent years) high numbers of spiny lobster recruits, re-occurrence of St Piron's crab, shoals of bluefin tuna, occasional common octopus and high abundances of cephalopods in general continuing. The occurrence of a brown booby in west Cornwall (the first recorded in Britain) was notable but, presumably, it just lost its way. Equally important is to note continuing low numbers of grey trigger fish and apparent reduced extent and/or abundance of black-faced blennies and ring-necked blennies. The new(ish) fishery for wrasse continued.

'Normality'

Whilst it is a common human trait to pick out new, novel or exceptional observations what the SWME report also highlights is how year on year records give us sense of what is 'normal'. We seem programmed to notice change.

Take the kelps for example. They are clearly a 'normal' part of our shallow marine habitats. They are routinely seen by diving biologists but what if climate change actually changes the balance of the population structure on our rocky sublittoral habitats as has happened in regions of California or Australia? Recordings of 'normal' things are actually remarkably helpful.

A good example of this has been provided Niki Clear (CWT) who has collated trend data on basking sharks, sunfish and some cetaceans so that we can see a distinct pattern to our observations – they give us a measure of normality. We thank her for preparing this for us.

Managing human activities in the south west marine ecosystems

The insights we are gaining are also important in the way we view, inform and manage our activities in the marine environment.

- The bycatch of common dolphins and strandings because of the pelagic bass fishery is still a major concern.
- The scale of entanglement of seals in fishing gear and the disturbance of many is a concern.
- Catches of cuttlefish remain 'high' after the boom in about 2017/18 but why are numbers so high and can the fishery be sustainable?
- The recovery of next seabirds on Lundy and the Scilly Isles continues apace.
- The MCZ programme is developing with great news about a further 22 sites in the south-west.
- Getting to grips with plastic pollution has been greatly aided by the publicity it received in Blue Planet II and it seems to be showing a steady decrease in overall marine waste volumes and larger items over the past five years.
- Wrasse potting has taken its toll of rock cooks *Centrolabrus exoletus*, the numbers of which are reported as having declined over the past three years.

Tips for recorders

This year, we have tried to give a structure to observations but the fact-of-the-matter-is that many significant observations are obtained from very unstructured (but reliable) sources.

Nevertheless, we are moving towards ensuring, where possible, that your observations are logged, validated and progressed to national reporting schemes where they will be maintained in perpetuity (so that when in a hundred years' time someone see a swordfish washed-up on a beach in SW England, they can see that you recorded such in 2019) and have worked with The Archive for Marine Species and Habitats (DASSH) at the Marine Biological Association to establish a protocol to enter data and information.

We are, of course, aware that some recorders already submit their observations to established reporting schemes.

Thanks to Summer Grundy of www.dassh.ac.uk for advice and for developing a 'Scientific Narratives Database'.

Here is a check list, from the Scientific Narratives Database, for observers that are able to structure observations:

Essentials

1. **Name of species:** Full genus and species (e.g. *Delphinus delphis*) to Family name (e.g. Delphinidae) minimum. Could be common name (e.g. common dolphin).
2. **Confidence in identification:** Certain (absolutely certain), Fairly certain (probably), Likely (possibly), Maybe.
3. **Abundance:** include if possible and note if and what scale is used. [Could be, e.g., "five seen in 10 mins"; Abundant (SACFOR scale); 20% cover etc.] Marked as 'P' if no abundance given.
4. **Recorders name:**
5. **Date when observation made:** dd/mm/yyyy
6. **Location where observation made:** Name of location and/or position (OS Grid Reference / Lat.Long.). Lat. long. From chart or GPS as degrees, minutes, decimal minutes (e.g. 50° 17.691'N 4° 08.342'W).
7. **Height on shore / depth to seabed:** e.g. 'mid-tide level'; '21 m below sea level at 1335'; '19 m below chart datum' etc.
8. **Habitat:** Could be EUNIS Level 3 but often it is the subhabitat that is important; e.g. 'On muddy sand', 'On steel wreck'; 'In rockpool'; 'On cave roof'.
9. **Source:** e.g. Personal observation; Facebook; North Devon Journal; Spotlight

Desirables (for instance:)

Male or female: record where such is clear

Developmental stage (juvenile etc.)

Behaviour (e.g. 'mating')

Dead (e.g. 'dead shell')

Diseased

Stranded

Sample/observation notes (e.g. 'Observed at c. 5 m below surface on decompression stop'; 'in poor condition')

Any other information: e.g. 'Reported to me by an angler, no images'.

Images available? Please provide if possible and indicate if permission granted to use.

Thanks to all for your observations. Don't be intimidated by the above but do give as much information as you can about what you have seen and photographed that may help to understand change and ensure that 'highlight' events are recorded.

6. Oceanography background conditions – Western Channel Observatory

Edited by Tim Smyth

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The Western Channel Observatory (WCO) is an oceanographic time-series and marine biodiversity reference site in the Western English Channel (Figure). In situ measurements are undertaken weekly at coastal station L4 and fortnightly at open shelf station E1 using the research vessels of the Plymouth Marine Laboratory and the Marine Biological Association. These measurements are complemented by PML's recognised excellence in ecosystem modelling and satellite remote sensing science. By integrating these different observational disciplines, we can begin to disentangle the complexity of the marine ecosystem. The WCO measures several key parameters important to the functioning of the marine ecosystem such as light, temperature, salinity and nutrients. Station L4 has some of the longest time-series in the world for zooplankton and phytoplankton, and fish trawls have been made by the MBA for a century. Station E1 has a hydrographic series dating from 1903. These long series are complemented by hourly measurements made at autonomous buoys situated at both stations. These can elucidate changes not captured by the routine weekly sampling.

Figure 6.1. Stations of the Western Channel

Vertical profiles for multiple parameters are taken using the RV Plymouth Quest on a weekly basis at station L4 (Figure 6.1). This is at fine enough resolution to observe the start of the thermal stratification of the water column in spring (April) and the breakdown in autumn (September).

The year started with relatively warm conditions throughout the water column (well mixed) with temperatures around 11 – 11.5 °C. This cooled to the minimum recorded temperature (for 2019) in early February of <9.5 °C. Stratification became established during April, with the maximum stratified state in July and August (surface around 17.5 °C; depths below 20 m around 14 °C). Stratification was eroded after this point and finally became mixed in late September / early October (16 °C throughout the water column).

Several surface freshening events (see salinity plot) were observed in 2019 as a decrease in salinity below the background value of 35.2 PSU. These were particularly marked in February, July and October / November. These are mainly driven by inputs from the Tamar Estuary as it responds to precipitation events within its catchment. The summer-time events are usually confined to the upper few metres (giving the appearance of a lens) whereas winter events can penetrate the top 20 m or so of the water column. This is because of a combination of stratification and likely larger river flows in the winter months.

The fluorescence signal shows a classic seasonal succession pattern, with the spring bloom starting in April: this was confirmed by laboratory analysis to be dominated by *Phaeocystis*, which formed surface colonies early in the bloom which then quickly sank to populate the entire water column over the period of a week – fortnight. Smaller and weaker blooms lower in the water column (sub-surface chlorophyll maxima) were apparent through the late spring until late summer.

The turbidity sensor shows some evidence of higher turbidities being mixed up from the sea-floor during February, with some elevated levels in the summer (July) due to riverine inputs.

Overall conditions for the year – 2019

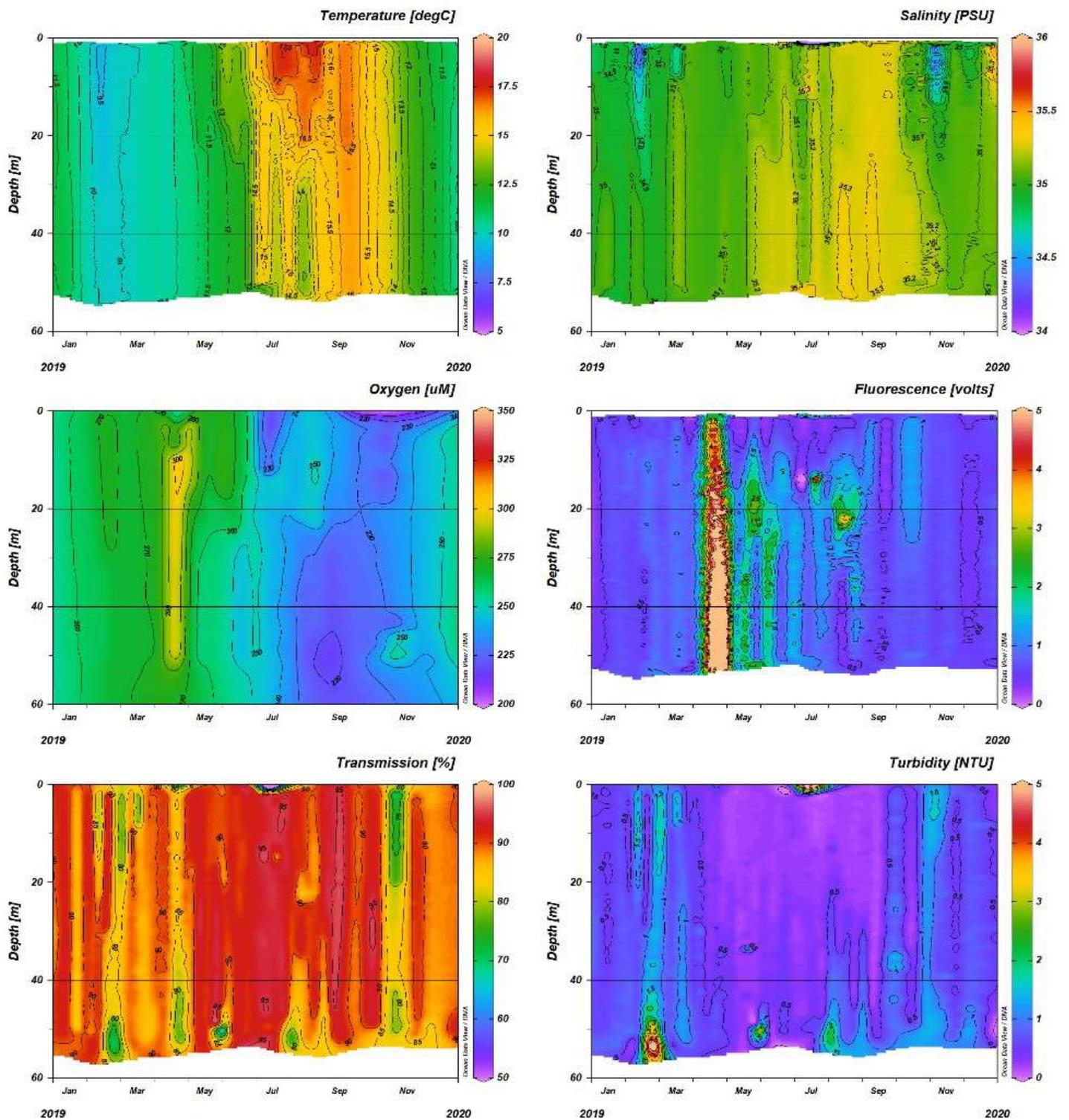


Figure 6.1. Conditions throughout the water column at station L4 during 2019 from individual profiles taken using a rosette sampler with multi-parameter “CTD”, deployed from the RV Plymouth Quest.

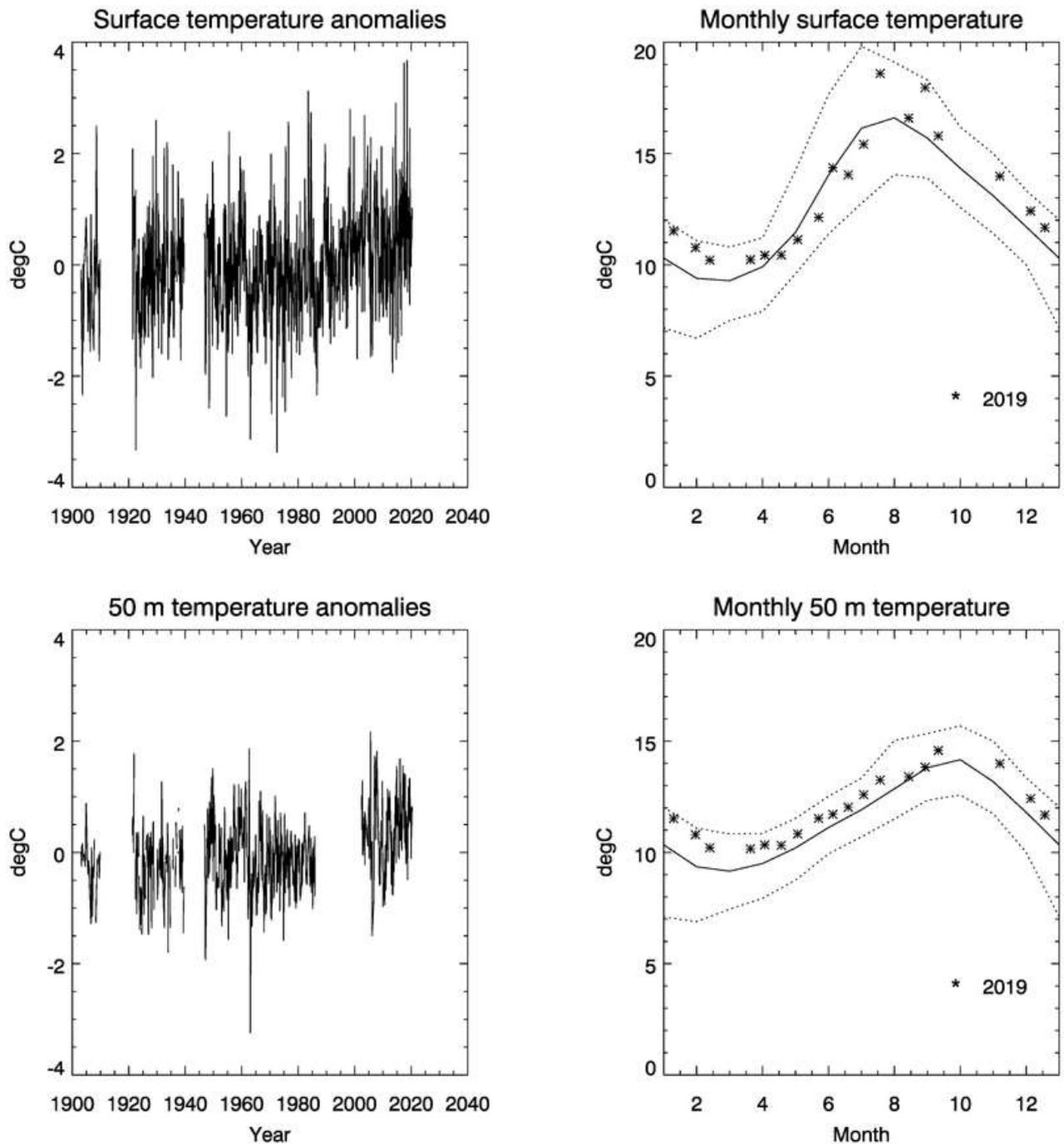


Figure 6.3. E1 temperature time-series and anomaly analysis. Solid lines show mean monthly temperatures, with dashed lines giving the standard deviation around the mean. Asterisks represent individual observations (18) made by the RV Plymouth Quest.

Figure 6.3 shows the temperature time-series anomalies made at station E1, which is one of the longest hydrographic series in the world. At the surface, E1 started 2019 slightly above average and only reached a minimum temperature of around 10 °C. The spring and early summer posted temperatures slightly below the long-term mean (at the surface) but some heat during the summer manifested as temperatures in excess of 18 °C during July. At 50m, temperatures were above the series mean for the entire year.

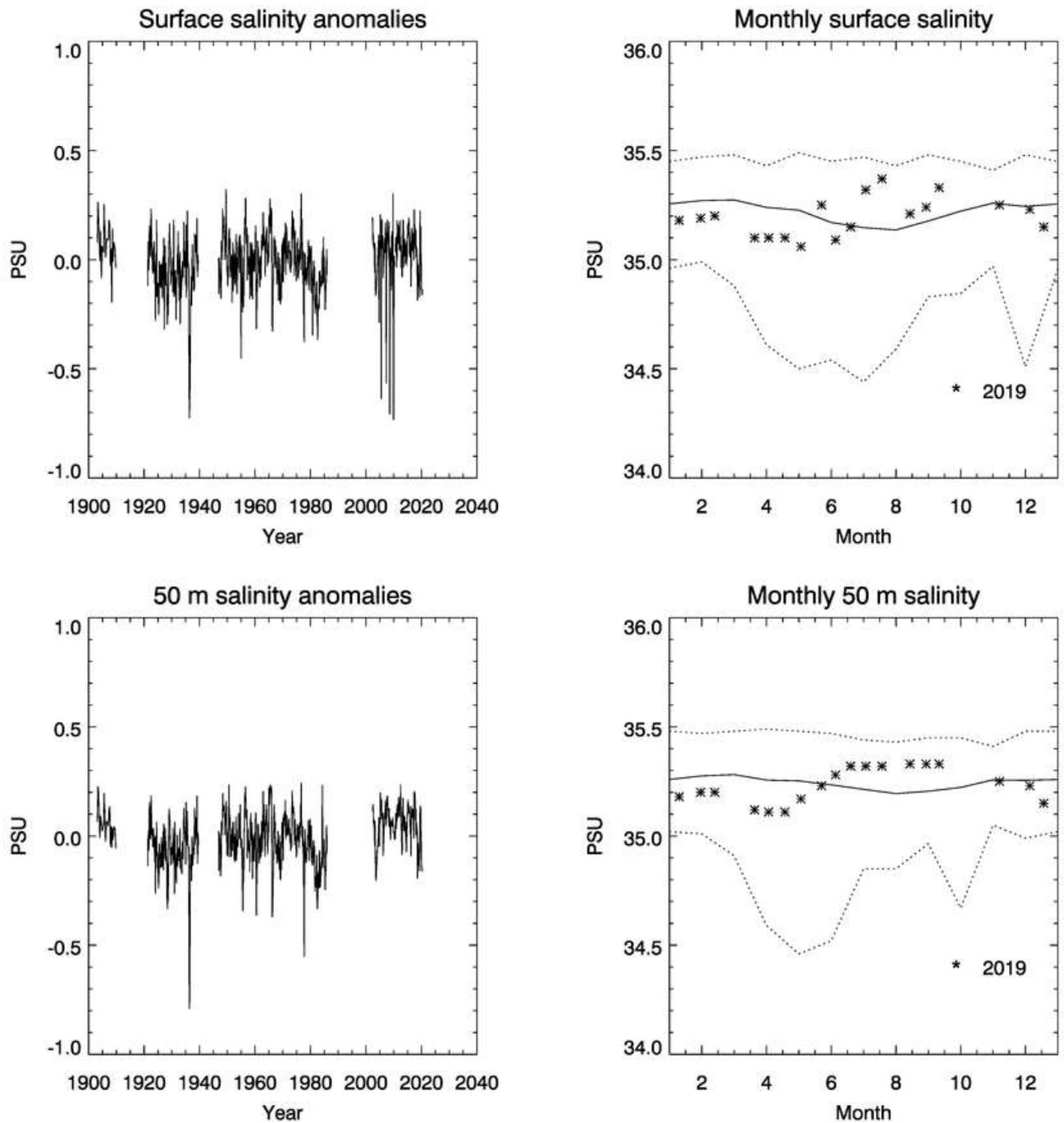


Figure 6.4. E1 salinity time-series and anomaly analysis. Solid lines show mean salinity, with dashed lines giving the standard deviation around the mean. Asterisks represent individual observations (18) made by the RV Plymouth Quest.

Figure 6.4 shows the salinity time-series made using the CTD profiler at station E1. For the first 6 months of 2019 the waters were slightly below the long-term mean salinity. However, during the summer months there was an increase in salinity ~ 0.1 PSU throughout the water column. The year ended with salinities slightly below the long-term mean, likely due to the input of local surface precipitation.

7. Plankton Observations 2019

Editors: Angus Atkinson, Andrea McEvoy, Claire Widdicombe & Keith Hiscock

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This section comprises a summary of results from the weekly plankton monitoring at the Plymouth L4 site, 13 km SSW of Plymouth <http://www.westernchannelobservatory.org.uk/>, as well as other observations from across the West Country. It describes first the phytoplankton and then the zooplankton.

Phytoplankton



In 2019 the phytoplankton community at Station L4 (50°15.0'N; 4°13.0'W) showed two peaks in biomass, one during spring and the other during the autumn. This marked a return to the 'classical' pattern of plankton blooms (Figure 7.1) traditionally seen in the NE Atlantic. Yet again, storms at the beginning of the year (Storms Erik and Freya) mixed up the water column and re-suspended species normally regarded as benthic e.g. *Odontella aurita* and *Plagiolemma distortum*. Diatoms and *Phaeocystis* co-occurred in high numbers during the spring bloom, peaking in abundance in April. The typical summer coccolithophore peak of *Emiliania huxleyi* occurred during June (280,000 cells per L) but in much lower numbers than the previous year (i.e. less than half, when compared to 2018). During July, diatoms all-but disappeared and when compared to the long-term average, fits with a trend of decreasing biomass during summer months. As expected, total dinoflagellate numbers peaked during late summer when surface temperatures were high and nutrients low, and this was largely due to a bloom of *Karenia mikimotoi*. A second, smaller and diverse bloom of coccolithophores co-occurred with diatoms during the autumn biomass peak. More storms at the end of the year gave rise to a higher than average biomass of diatoms which may have helped to sustain over-wintering populations of zooplankton.

Plate 7.1. Divers reported a dense bloom of 'May water' (*Phaeocystis* sp.) earlier than usual. Here on 23 April in Bigbury Bay. Image: Dominic Robinson.

A few rare and noteworthy taxa were recorded at various times during the year. The dinoflagellate *Gyrodinium falcatum* (Plate 7.2) is regarded as a harmful algal (HAB) species (e.g. in the Sea of Japan) and was frequently observed in net samples earlier in the year, coinciding with record-level warm temperatures in February. Another HAB species *Pseudochattonella* (Plate 7.3) was identified in water samples collected during May. However, due to its small size (<20µm) it has not previously been identified to species level in the L4 time-series. The parasitic dinoflagellate *Dissodinium pseudolunular* (Plate 7.4) is known to infect copepods and was regularly recorded during July, particularly in the 20µm vertical net hauls.

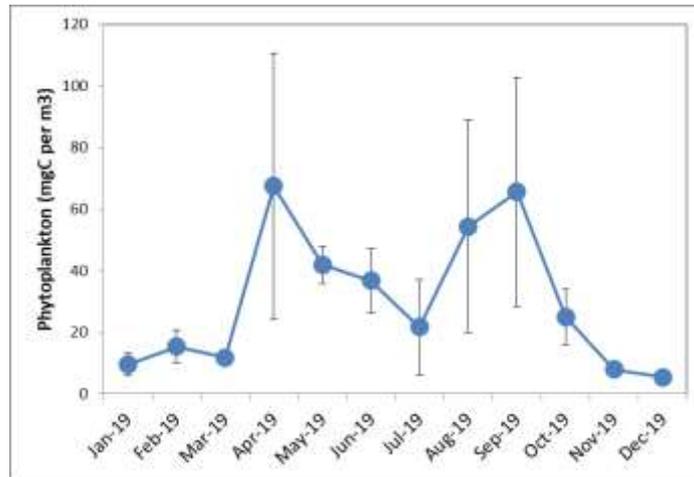


Figure 7.1. “Classic” spring and autumn phytoplankton blooms were recorded at Station L4. Weekly samples collected from a depth of 10m were analysed by light microscopy using the Utermöhl technique at PML. Data are presented as monthly averages with error bars showing the standard deviation.

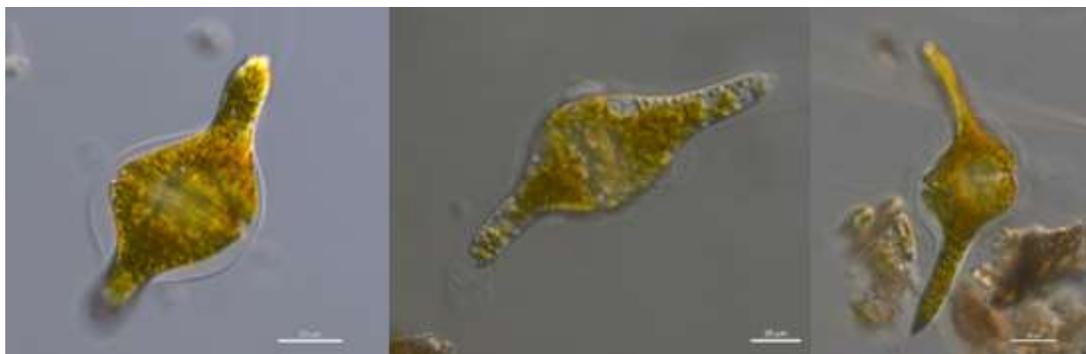


Plate 7.2. *Gyrodinium falcatum* is a dinoflagellate species recently identified in L4 samples.

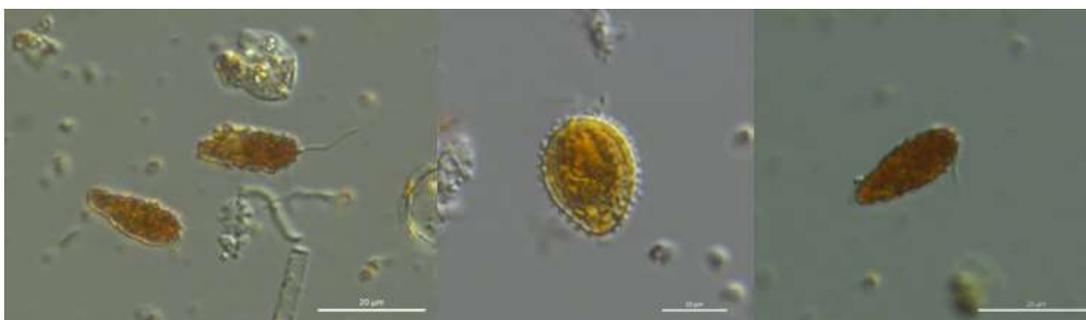


Plate 7.3. The small flagellate *Pseudochattonella* was identified for the first time in 2019 in L4 samples



Plate 7.4. During July, the parasitic dinoflagellate *Dissodinium pseudolunula*, which is known to infect copepods, was recorded in 20µm net hauls and in the 10m water samples. Positive identification is not always possible due to the different life stages of this species.



During July, there were reports of "large bright orange patches / streaks in the water 8 miles NW of Trevoze Head and further west off St Agnes at the water surface in North Cornwall". They were identified as 'sea sparkle' *Noctiluca* sp. (a dinoflagellate).

Plate 7.5. Patch of *Noctiluca* sp. offshore in North Cornwall. Image from Matt Slater

Zooplankton



L4: unusual observations

From 21/10/2019 – 25/11/2019 the siphonophore *Apolemia uvaria* (Plate 7.6) was recorded in the L4 zooplankton samples. This is the first record for WCO time-series. A previous record for Plymouth is from 2007 (Marine Biodiversity Records: Dec 2010). This beast has a powerful sting and is responsible for mortality in farmed salmon in 1990's in Ireland Shetland and Norway. It is a Mediterranean species that has, however, been known to establish colonies in cold water areas. Its presence is unlikely to be due to seawater warming, but more likely an influx/ variation in Atlantic water.

There were also observations (by divers) in other parts of the English Channel coast, specifically east of the Lizard Peninsula and in Falmouth Bay

Plate 7.6. Siphosome of *Apolemia uvaria*.

L4: 2019 in relation to long-term (32y) trends in key zooplankton groups

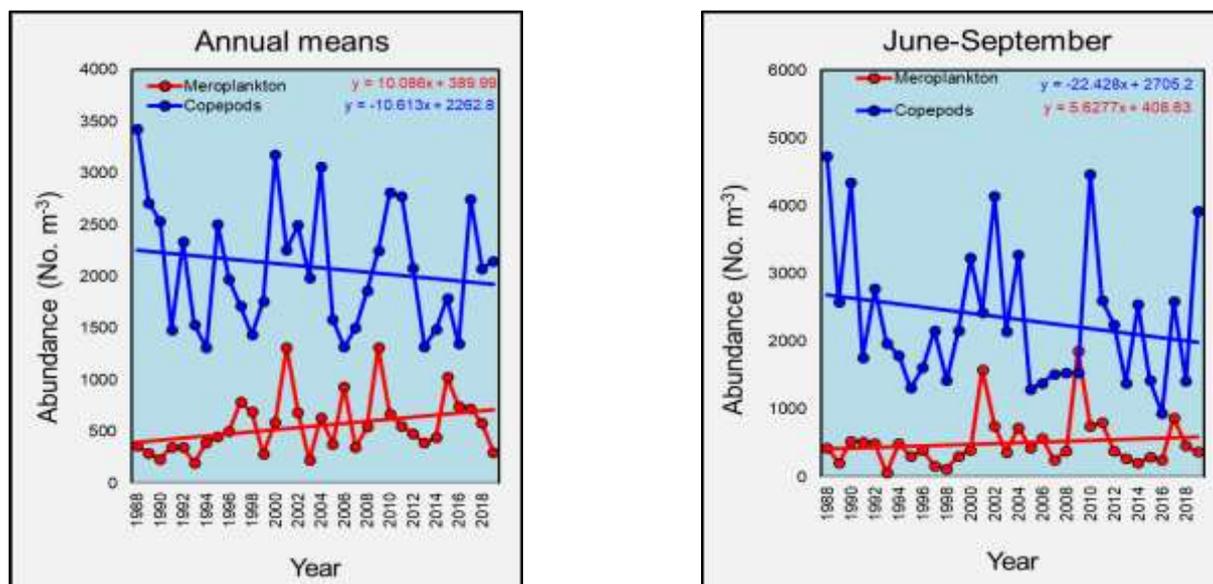
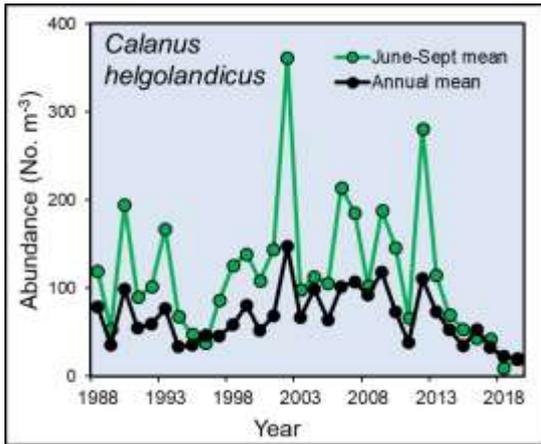


Figure 7.2. Subdecadal periodicity and trend directions in annual zooplankton abundance. The year 2019 (right-hand data points) is part of a long-term trend of increasing annual meroplankton abundance and decreasing annual copepod abundance seen right across the NW European shelf (Bedford *et al.* Global Change Biology 2020). The copepod decline is a summer-only phenomenon and has been linked to increases in picoplankton (tiny <2 micron cells) especially of picocyanobacteria under increasing stratification and nutrient starvation (Schmidt *et al.* Global Change Biology 2020).



The 2019 season was not a 'remarkable' one for zooplankton at L4, but marked ongoing trends in some key zooplankton species as well as the functional groups described above. Of particular note is a recent and substantial decline in the large, biomass-dominant copepod *Calanus helgolandicus*. Again, this decline in 'traditional food web' components is most marked in the summer stratified period of June-Sept (Fig. 7.3).

Figure 7.3. Long term trends in abundance of the large copepod *Calanus helgolandicus* showing the 2019 season (right-hand data points) in relation to the preceding years. The recent decline in annual mean abundance (black line) is caused mainly by a sharp decline in summer abundance (green line).

'Gelatinous plankton'

The term represents plankton from the Phylum Ctenophore (comb jellies and sea gooseberry), subphylum Tunicata (salps and Appendicularia) and the phylum Cnidaria. The latter contains classes Scyphozoa (large jellyfish), Anthozoa (sea anemones) and Hydrozoa (those with a velum including siphonophores)

Notable observations (ones that may contribute to understanding trends in abundance or reflect oceanographic conditions) are included below.

Barrel jellyfish (*Rhizostoma octopus*) were present throughout the year off north and south coasts and sometimes in moderate numbers (several would be seen on a day out at sea or a clifftop walk). However, "Over 90 spotted off Dodman Point by kayakers last week" (posted 30/03 by Deborah Kelbrick). Not as abundant as the exceptional year in 2015. (Various postings on Facebook and records from the LFS logbook on Lundy).

Moon jellyfish (*Aurelia aurita*). Large aggregations at the surface along the North Devon coast in early July.

Portuguese man o' war (*Physalia physalis*). Low to moderate number of mostly small individuals being washed-up on the north and south coasts including Lundy. Records from late February when small individuals and 20 washed-up at Sennen Cove reported 11th October.

By-the-wind sailors (*Veleva veleva*). Low numbers being washed-up in September and October (Various postings on Facebook and records from the LFS logbook on Lundy).

Snorkelling in the Landing Bay at Lundy produces records of a suite of species similar during spring and summer from year-to-year and currently relying on the particular interest and expertise of the Warden, Dean Jones. The species include: **A siphonophore (string jelly)** (*Nanomia cara*); **Many-ribbed Jellyfish** (*Aequorea* sp.); **A hydrozoan** (*Neoturris* spp.); **A hydromedusa** (?*Clytia hemisphaerica*); **Blue Jellyfish** (*Cyanea lamarckii*); **Moon Jellyfish** (*Aurelia aurita*); **Compass Jellyfish** (*Chrysaora hysoscella*); **Melon Comb Jelly** (*Beroë cucumis*); **Northern Comb Jelly** (*Bolinopsis infundibulum*); **Sea Gooseberry** (*Pleurobranchia pileus*).



Plate 7.7. Common salps *Salpa fusiformis* stranded in the Isles of Scilly on 17th October with a further report on 30th October (Nikki Banfield). Image: Barefoot Photographer.

8. The Seashore and Seabed

Edited by Keith Hiscock

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Overview

Overall, seashore and seabed marine life was much as in 2018. The observations noted here are identified as unusual occurrences, trends and range extensions especially. Records of fish species associated with seabed habitats are included in the section on fish.

Algae

Lundy, Devil's Kitchen on 11th May. Notable that no *Asparagopsis armata* (harpoon weed) seen in pools (where occasional plants in previous years).

Golden kelp *Laminaria ochroleuca* has increased in abundance and expanded its distribution into more wave-exposed conditions. Pippa Moore and Dan Smale (MCCIP Science Review 2020, 272–292).

Cnidaria

Candelabrum cocksii, a candelabrum hydroid. Reported in Wembury Bay on 8th April and on 1st September at Wembury Point (John Hepburn). Reported on 18th September in Devil's Kitchen, Lundy (Rosie Ellis, Jan Whittington and Samantha Nieto). Likely more widespread than the editor thought. David Fenwick writes that "*Candelabrum cocksii* is abundant in Mounts Bay".

Polychaeta

Ficopotamus enigmaticus, a non-native tube worm. Known to occur at several locations in the Plymouth area. Recorded for possibly the first time at Plymouth Yacht Haven on 17th December (John Hepburn).

Crustacea

Clibanarius erythropus, St Piran's hermit crab. Continues to be widely present in Cornwall after being 'rediscovered' there in 2016. Reported from Wembury on 6th and 7th April (John Hepburn).



Crawfish (*Palinurus elephas*). Recruitment continues (very small individuals continue to be seen) and counts by divers of up to 30 in a dive. Matt Slater (Cornwall Wildlife Trust) reports lots of crawfish records again this year, mainly around Falmouth Bay but fishermen are catching large numbers out west in and around the Lands' End SAC and Scillies as well as off Hayle and North Cornwall. Cornwall Wildlife Trust / Seasearch and Cornwall IFCA continue surveys on the Volnay wreck out of Falmouth. Sizes of individuals difficult to estimate but all seem smaller than legal minimum size (110 mm carapace length). The large-scale recruitment since 2014 and the general biology of the species has been summarised by Keith Hiscock in *British Wildlife*, published in December.

Plate 8.1. Crawfish on 17th June 2019 on The Manacles reef, Cornwall. Image: Andy Grant

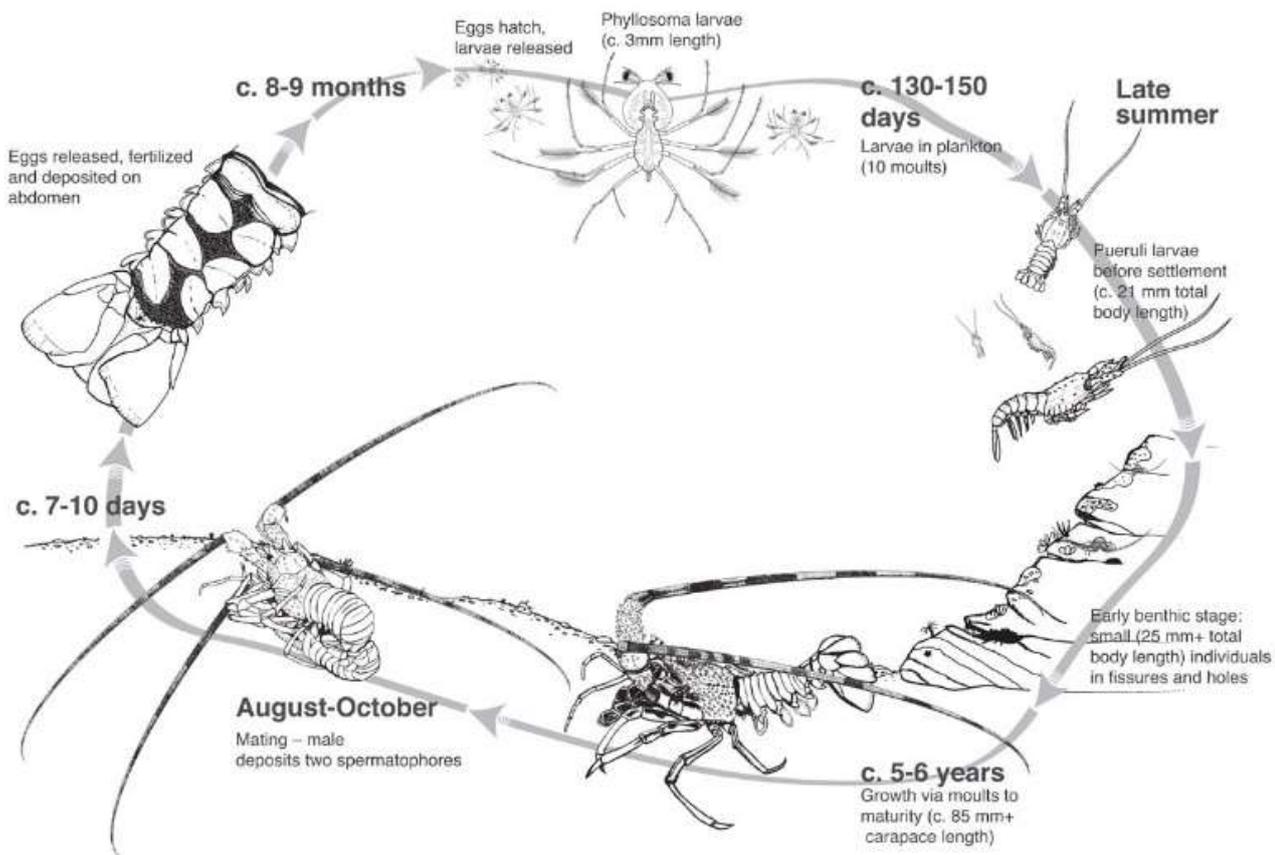


Figure 8.1. Life history of *Palinurus elephas*. From: Hiscock, K. 2019. The European spiny lobster in south-west Britain – back from the brink? *British Wildlife* 31(2), 79-85. Drawing by Jack Sewell.

Anemone shrimp *Periclimenes sagittifer* was spotted by Trudy Russell and photographed by Fiona Crouch on the 10th April at Silver Steps, Pendennis point, Falmouth. Previously recoded from Swanage in Dorset and Torbay in south Devon. A warm water species.



Plate 8.2. Furrowed crab, *Xantho hydrophilus*, photographed at Kimmeridge. Image: Steve Trehwella.



Plate 8.3. Slipper lobster *Scyllarus arctus*. Caught by FV Hustler off Start Point. Image: Adam Cardew.

Furrowed crab *Xantho hydrophilus*, the second one found at Kimmeridge, very rare in Dorset. Steve Trehwella.

Slipper lobster *Scyllarus arctus*. Caught in pots on 10th November off Start Point by Adam Cardew (information from Doug Herdson and Beshlie Pool). Doug Herdson notes: According to my records this is the 66th for Britain and Ireland since 1758. Most from Devon and Cornwall, but one this year from Scotland.



Aggregation of **spider crabs** *Maja brachydactyla* at King Point Marina (Millbay, Plymouth Sound) on 1st August (Penny Cross/Plymouth Live) and 3rd August (Charlie Elder). "Local marine workers said they'd never seen anything like it in the 20 plus years they had been based in the area".

An **American lobster** (*Homarus americanus*) was caught in early September east of the Lizard Peninsula. This is a non-native species used in the restaurant trade.

Plate 8.4. Spider crabs in Millbay, Plymouth Sound. Image: Penny Cross/Plymouth Live.

Mollusca

Sea hare (*Aplysia punctata*) Hundreds seen in St Mary's Harbour and across island sand flats, Isles of Scilly on 19th April - larger numbers than older residents can ever remember seeing them in their lifetime – many of whom had not seen them before. Nikki Banfield.

Castle Cove Beach in Portland Harbour - high numbers of very large sea hares (*Aplysia punctata*) in May, June. Steve Trehwella.

Heather Buttivant mentions *Doris ocelligera* was more abundant [at Hannafore] in 2019 – this species was a 'highlight' (David Fenwick) in 2018.

Philine catena. This gastropod was found in a mud sample from Castle Beach, Portland Harbour. It is not currently recorded so far east on the NBN Atlas. Steve Trehwella.

Bubble shell *Haminoea navicular* is rarely reported and was found, with the lathe acteon *Acteon tornatilis*, at Castle Cove Beach together with eggs of both species.



Plate 8.5. The shell of an ormer found during the Wembury Bioblitz of 27 September. Image: Keith Hiscock

Ormer *Haliotis tuberculata* shell found by Maya Plass at Wembury during the BioBlitz on 27th September. Maya notes: "Having posted on Twitter the abalone shell someone who appears to be an ostracologist (Tony Legg) thinks it was *Haliotis tuberculata coccinea* – a sub species moved across from Gibraltar ... the green striping represents sequential feeding on Laminaria...often seen in aquaculture when reds are unavailable..." closest farms are in Plougearneau in W. Brittany".

Pacific oysters (*Megallana gigas*) Lots of oyster reefs have been discovered in Cornwall in 2019 – extremely large one on the Fal estuary and research showing that Fowey is inundated. (Matt Slater). Control measures (oyster bashing) have been initiated at several locations.



Plate 8.6. 'Bashed' oysters at Mount Batten on the Cattewater, Plymouth on 2nd June, two weeks after 'treatment'. Image: Keith Hiscock

Leonore Williams observes Pacific oysters from the Severn Estuary on 21st March 2019 at Weston Super Mare = Clevedon – Portishead. They appeared to be very small/juveniles less than a year old. There are no known oysters recorded from the Severn Estuary. The nearest oyster farm is located in Porlock Bay.

Maxine Chavner noticed that Pacific oysters have colonised many places in Torbay, including Torre Sands, Preston / Paignton Beach and Ladybird Cove and Shoalstone beach in Brixham. She hadn't noticed any Pacific oyster around the bay, particularly in Brixham, until August 2018. Since then, colonisation seems to have been rapid. The rocks on which Pacific oysters were seen in Ladybird Cove in August 2018 were sizeable boulders (up to ~80cm across) that had not been on the beach prior to the 'Beast from the East' and Emma storms earlier in the year. All the Pacifics seen have ranged between 3cm and 10 cm in size and have been on hard, rocky substrata. Interestingly, Maxine has noticed no colonisation at Mansands, between the Dart Estuary and Brixham. Due to the geology perhaps?

Pacific oyster studies

Following reports of Pacific oysters on the increase, a two-year citizen science study, funded by European Marine and Fisheries Fund began in 2019, led by Natural England and delivered in Cornwall by Cornwall Wildlife Trusts Shoresearch project, and in South Devon by South Devon AONB Estuaries partnership. We are carrying out repeatable surveys and are recording very large densities of Pacific oysters in all of Cornwall's estuaries. – Helford, Fal, Fowey, Looe and Tamar. Surprisingly we are also finding Pacific oysters settling on the shore in fairly high densities in some quite exposed locations including Whitsand bay, Mounts Bay, Par Beach and Carbis Bay (St Ives). In Devon, oysters are abundant in the Yealm and Dart Estuaries and many other areas. At many of the sites where oysters have been recorded we know that they were either not there or very rare just a few years ago.



We have trained and equipped 13 volunteer groups to carry out surveys to document oyster densities around the coast of Cornwall and South Devon. Where we have landowners permission and permission from Cornwall IFCA we are also using volunteers to trial control work by manually breaking oyster shells attached to rocky shore. On one survey day we were able to kill over 10,000 oysters in this way in 1.5 hours with 10 volunteers. This method is being used on oysters growing fused to intertidal rock (which have little use as food as they cannot be removed without damaging the shells

therefore they cannot be depurated). We have also discovered huge reefs of oysters forming in estuaries on shingle/gravel beaches and in these locations we are looking for alternative methods of control as bashing is not practical. We are keen to see a market developed for feral rock oysters 'wonky oysters,' as at present marketing opportunities are very limited. Ruth Crundwell at Natural England is also investigating alternative uses for these oysters – ground as a soil conditioner, used in biotechnology? We are very keen to hear peoples' ideas and to support development of processes that may help us control the oyster population. Matt Slater

Cephalopods (octopus and cuttlefish) There were large numbers of sightings of curled octopus *Eledone cirrhosa* again in 2019 particularly, in Cornwall at least, through winter and then starting again in Autumn and through until this spring (Matt Slater). The species frequently features on Facebook postings and was occurring widely. There were several reports of common octopus (*Octopus vulgaris*) especially via Facebook and fishermen were landing them but, at best, they could be described as 'occasional' – i.e. nowhere near the 'plagues' of 1900 and 1950 (Rees, W.R. and Lumby, J.C. 1954: JMBA 33, 515-536). Cuttlefish landings remained high. Early cuttlefish eggs at Babbacombe on 4th April.



Plate 8.7. Common octopus, *Octopus vulgaris*, on the north Eddystone pinnacle on 2nd January. Image: Keith Hiscock.



Plate 8.8. Curled octopus, *Elodne cirrhosa*, on the Plymouth fish market. Image: Douglas Herdson.

End of March and early April 2019 - **Squid and cuttlefish eggs** in Torbay - Tamsyn Mann and Daniel Montgomery.

Insects

Unusual insects reported by Steve Trehwella: The marine bug *Aepophilus bonnairei* turned up at Hannafore and Lee bay. The coastal beetle *Micralymma marinum* was found in a *Lichina* sample Kimmeridge Dorset: a new county record.

David Fenwick reports:

2nd August. Battery Rocks Penzance, Dorvilleid worm *Dorvillea rubrovittata* and a nice example of the scarce syllid worm *Virchowia clavata*.

17th September. Battery Rocks, Penzance, an astonishing discovery. Since about 2010 I have been working with Dr Tim Littlewood at the Natural History Museum, researching parasitic flatworms, namely *Fecampia erythrocephala*, with a view to putting out a paper on the subject. I've found *Fecampia* in two species of *Palaemon* prawn host over the past few years, the regular hosts though to be edible crabs and shore crabs. On looking through material under the microscope I discovered five amphipods, of the same species of *Ampithoë*, were each carrying what is likely *Fecampia erythrocephala*, no DNA data available as yet. Finding *Fecampia erythrocephala* in amphipods is an important step to determining how the species spreads from shore to shore as it has been noted in the past that on some sites there are plenty of flatworm cocoons, but few crabs to host them. Amphipods will be generally more plentiful than small crabs or *Palaemon*, so it looks like we have indeed finally determined how *Fecampia* spreads. How it has adapted to do this is for the scientists!

26th September. Newlyn Marina. Lots of fairy anemones *Aiptasiogeton pellucidus* var. *comatus* have again appeared attached to mussels on the pontoons.

15th December. Skilly, south of Newlyn. It's not every day I find something I've not seen before, and it's something that gets more and more difficult as time goes on, but at times you do get a nice surprise. This time it was with the cheilostome bryozoan *Beania mirabilis*, which was found growing on the undersurface of an old thongweed button. It's probably quite a common species, but certainly not one that I've come across before on the shore, or on growing under thongweed buttons that I've collected and looked at. *Beania mirabilis* is also quite easy to identify as there's nothing else much like it.

Climate change impacts on benthos in SW Britain: on 'hold'?

This note is about south-west England and refers to species that live on or are associated with the seabed. Information about areas further north and east in Britain and in the north Atlantic in general can be found in separate papers in the Marine Climate Change Impacts Partnership [MCCIP] Science Review 2020 and in Burrows *et al.* (2019).

Please advise if you have your own observations or thoughts.

With regard to temperature and in summary (from Mieszkowska, Burrows and Sugden, 2020):

"The lack of dramatic observed responses of intertidal species from 2002 to 2018 is consistent with the lack of increase in sea temperatures since 2000. Despite the continued global upward trend in temperature, UK regional sea temperatures have remained stable or declined over the same period, with only those in western Scotland increasing. This hiatus followed a period of rapid warming from 1980 to 2000 when many range shifts occurred."

Nevertheless, we have seen range extensions or increases in abundance of warmer water species in the past few years. They include:

Golden kelp *Laminaria ochroleuca* has increased in abundance and expanded its distribution into more wave-exposed conditions. (Moore & Smale, 2020).

Some species breached previous biogeographic barriers (mainly habitat quality/hydrography) and are doing well in the central and eastern channel (toothed topshell, *Phorcus lineatus*). (Steve Hawkins, pers. comm.)

Patella depressa is now the dominant limpet from Porth Gaverne to Duckpool on mid shore habitats. (Steve Hawkins, pers. comm.)

The Black-faced blenny *Tripterygion delaisi* has been present in the Portland Harbour area since at least 1972, was first recorded in Plymouth Sound in 2004 and then in the region of Falmouth (Cornwall) in 2011. It is now widespread in isolated pockets.

The anemone shrimp *Periclymenes sagittifer* was first reported in Britain from Swanage (Dorset) in 2007, from Babbacombe (South Devon) in 2015 and from Falmouth (Cornwall) in 2019.

The ring-necked/variable blenny *Parabennius pilicornis* was first recorded in Britain in 2007 in Plymouth Sound, where numbers vary from year-to-year, and at Wembury Bay (South Devon) in 2019.

The red blenny, *Parablennius ruber*, a 'west coast' species common in warmer parts of Europe has been recorded from several locations in the Isles of Scilly and at three locations off the south coasts of Devon and Cornwall since the first record in England in 2002 (Picton and Goodwin, 2007).

There are puzzles (i.e. changes that might have been affected by climate but, perhaps more likely, by oceanic currents, favourable larval survival or food availability etc.). Some species fluctuations may be episodic in occurrence with high abundances being seen on decadal time scales and for a few years as often revealed by taking account of historical records of occurrence long ago. For instance, recruitment of spiny lobsters (*Palinurus elephas*) throughout the south-west since 2014, of St Piron's crab (*Clibanarius erythropus*) since about 2016, occasional sightings of common octopus (*Octopus vulgaris*) from 2018, a great increase in the abundance of football sea squirts *Diazona violacea* on some reefs near Plymouth since 2008. There are recent arrivals such as the barnacle *Hesperibalanus fallax* particularly on dead parts of sea fans but also on plastic observed since 1995 and especially noted from 2000 to about 2005. There are expected changes that have not happened. For instance, the sea squirt *Phallusia mammilata* occurred in Plymouth Sound and on subtidal reefs near to Plymouth in the 1950s but, after the cold winter of 1962/3, it remains abundant in Portland Harbour but has only been found as far west as Salcombe and off Bolt Tail: if temperature is a key to its survival, why has it not re-colonised? There are 'disappearances' such as the once (very rarely) found purple sea urchins

Paracentrotus lividus, the blue-spot sea-slug *Greilada elegans*. There are some greatly reduced abundances such as small spotted catsharks (*Scyliorhinus canalicula*) inshore since about 2007 and of trigger fish *Balistes capriscus* since about 2010 in Plymouth Sound at least.

Some warmer water non-native species have increased in abundance including the 'Asparagopsis' stage of *Asparagopsis armata*, wakame *Undaria pinnatifida* and Pacific oysters *Magallana gigas*.

(Unattributed observations are from various sources and own observations.)

Records of surface temperature and temperature at 50 m depth are collected at two stations out of Plymouth by the Plymouth Marine Laboratory and are summarised in South-West Marine Ecosystems reports. In 2018, the summary observed "At the surface, E1 [south of the Eddystone reefs] started 2018 slightly above average and quickly became cooler during the 'beast from the East'. July 2018 was very warm, with some of the highest temperatures recorded in the series (approaching 20°C); this warmth then persisted for the remainder of the year."

The paper by Hiscock *et al.* (2004) lists the key environmental factors that determine the distributional range of sea-bed species and effectively 'warns' the reader that many factors need to be taken into account in predicting or accounting for the likelihood of range extensions or reductions

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Strandings (not including free-living ocean drifters ('jellyfish' including *Physalia physalia* and *Velella velella*) but including stalked barnacles)

20th February. Goose Barnacle Stranding with live female Columbus Crab (*Planes minutus*). Giant's Castle, St Mary's, Isles of Scilly. Nikki Banfield.

28th February. Usual winter wash-ups of oceanic debris including gooseneck barnacles with Columbus crabs. Shoresearch Cornwall.

17th March. Six goose barnacles (*Lepas anatifera*) on a piece of polystyrene at the top of Jenny's Cove, Lundy. (A 'super windy' day). Dean Jones.

21st March. Sea Potato (*Echinocardium cordatum*), known locally as Sea Mice, tens if not hundreds stranded on beaches across the Islands (Isles of Scilly). Nikki Banfield.

13th June. c150 *Lepas anserifera* goose barnacles on washed up buoy in Landing Bay, Lundy. Dean Jones.

13th June. Lots of cuttlefish 'bones' washed up in Landing Bay, Lundy. C. 30 below Christie's quay (the old jetty). Dean Jones.

7th September. Hamburger Bean (*Mucuna urens*). Porth Hellick, St Mary's, Isles of Scilly. Nikki Banfield.

5th October. Sea Heart (*Entada gigas*). Old Town, St Mary's, Isles of Scilly. Nikki Banfield

15th September. Three Buoy Barnacles (*Dosima fascicularis*) washed up on piece of plastic next to the Jetty on Lundy. Dean Jones

21st October. Seven buoy barnacles *Dosima fascicularis* and 20 goose barnacles *Lepas anatifera*. Dean Jones.

9. Fish and Reptiles

Edited by Douglas Herdson

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Fish

Overview

2019 continued a number of the trends of the preceding years.

The numbers of basking sharks continued to decline, with the lowest number of reports of recent years. In contrast to the last couple of years, blue sharks observations were low, but this could be related to an algal bloom in late spring. Thresher sharks were evident and a number of large sixgill sharks were caught.

Bluefin tuna were abundant in the second half of the year, while mackerel were scarce from April to July.

Several southern species are increasing including gilthead and Couch's sea bream. However, reports of ocean sunfish and triggerfish declined.

There were probable reports of two species, which if they could have been confirmed, would have been the first records for Britain. However, two species were confirmed as the second occurrences in Britain or Ireland, after gaps of 13 and 29 years.

Records include from the Bristol Channel including South Wales.

Agnaths

A Sea Lamprey (*Petromyzon marinus*) was found on Exmouth Beach in June. [Jamie Hawkins]

Elasmobranchs

Thresher Sharks

In July, four large Common Thresher sharks (*Alopias vulpinus*) of 25 to 70 kg were caught south of Portland

On the 17th September, one of four metres was caught by an angling boat out of Looe.

In late October, a large female common thresher (180 kg) was landed to Plymouth Fish Market, and a few days later a male was caught off Mevagissey. Another was landed in Plymouth on 5th November.

In autumn these fish are invariably swimming with the large shoals of bluefin tuna, which are seen daily from the start of September.

[Kevin McKie; Simon Thomas; Douglas Herdson]

Basking Shark

Reports of Basking Sharks (*Cetorhinus maximus*) are continuing to decline from former maxima of over 400. Fewer than thirty were recorded in the south west in 2019

The first basking shark of the year was 9 m female filter-feeding in Falmouth Bay at the end of March. But, it was another poor year for basking shark numbers with none reported as seen out of Plymouth. The last year when there were 'numbers' was in 2009.

Nine were reported from various sites along the south coast of Cornwall in April and one was seen off the Minnick Theatre in May. In early July one was observed near the Jetty on Lundy Island. Also in July a small (2m) basking shark was feeding close in to Chesil Beach. Later in the season two were seen off St Mary's in the Isles of Scilly on 21st October.

[Seaquest South West, Cornwall Wildlife Trust; AK Wildlife Cruises; Chris Lowe; Weymouth Angling Centre; Natalie Rance/Isles of Scilly Wildlife Trust; John Headon, Isles of Scilly Bird and Natural History Annual Review; Sue Sharkie-Hurrell; Simon Thomas.]

Porbeagle

At the beginning of April a large mature female Porbeagle (*Lamna nasus*) of 250 kg was caught and released by anglers off the north coast of Cornwall. At this time of year, a female of that size (2.5 m) is likely to be pregnant. Subsequently a 55kg specimen was captured off Ilfracombe by the same charter boat. In July, there was a 90 kg porbeagle hooked off Portland Bill.

In August, they were fairly common in the Bristol Channel off the Somerset coast. Whilst in the English Channel there was a steady increase in mostly juvenile Porbeagles sharks from September onwards. They are normally close to certain wrecks and some are obviously year 0 fish. The Marine Management Organisation (MMO) seized a juvenile landed in Plymouth in mid-November.

[Shark Angling Club of Great Britain; Shark Trust; Simon Thomas; Martin Sharp, Douglas Herdson; Sea Angler Magazine]

Blue Sharks



After the abundance of Blue Sharks (*Prionace nasus*) in the last few years, noticeably fewer were encountered in 2019.

Blue sharks were first seen in the west in late May and in Scilly in early June. The first to be landed on Plymouth Fish Market was in mid-June. However, after that the catches fell away. Several angling skippers attributed this to a particularly heavy algal bloom in inshore waters between April and July. It was possibly the worst algae bloom in 10 years, and many shark charters on the South coast suffered with low catches. After this, poor catches continued around Scilly and on the north coast, but picked up off Penzance, Plymouth and Torbay.

Plate 9.1. A blue shark on display at the Plymouth Seafood Festival in mid-September. Image: Keith Hiscock

On 23rd August Charles Hood of Blue Sharks Cornwall reported that "Today we had our biggest blue ever, estimated at around nine feet [2.7m] - a real beauty. Plus a really scarred seven footer [2m] and loads of smaller ones including a baby around 1 foot [30cm] in length." This latter shark must have been recently born (a neonate).

Similarly, catches improved with *M.V. Lo-Kie* out of Penzance catching and releasing 1,112 sharks, mainly blues with some porbeagles, in 56 trips. While off Plymouth *M.V. Size Matters* caught 19 blue sharks on a 23-hour trip and 11 blue sharks on a 12-hour trip, but this was still poor compared to previous years

Towards the end of the season two blues were seen 6 miles SW of St Mary's (IoS) in mid-September. By which time a fair number of blue sharks had been landed at Plymouth Fish Market.

Simon Thomas analysed some of the results:-

"Preliminary catch and release statistics for the Blue Shark (*Prionace glauca*) in the SW of UK for 2019.

The first blue sharks reported this year were on the May 24th from Penzance. Although still present in good numbers compared to those seen from 2000-2010, the Catch per Unit Effort (CPUE (fish/hour) decreased slightly from 1.67 (SE: 0.26) in 2018 to 1.49 (SE: 0.31) in 2019. The median length of fish increased slightly from 151.02 cm in 2018 to 158.52 cm in the current year, which equates to a median age of 3.91 years for 2018 and 4.4 years for 2019.

The blue shark population in the SW was again dominated by female fish (88.27%) which increased from 85.9 % in 2018, continuing the trend seen since large numbers of immature male fish were seen in 2016 and 2017. However, the largest fish reported was an adult male of 274 cm. The percentage of mature fish (length at 95% maturity) fell slightly from 19.01% in 2018 to 15.62 % this year.

The distribution of blue shark this year was patchier and less extensive than seen in previous years, with the majority of fish staying further offshore and to the west of Start Point.”

[It is possible that the CPUE was maintained at a reasonable level, because the charter boats spent less time looking for blues in the middle of the season, thereby reducing the effort as well as the catch. DMH]

[Liam Faisey; Chris Lowe; Paul Whittaker; Simon Thomas; Charles Hood; Kevin McKie, Douglas Herdson; Ross Parham; John Headon, Isles of Scilly Bird and Natural History Annual Review]

Bluntnose sixgill shark

Following his success in catching six large Bluntnose Sixgill Shark (*Hexanchus griseus*) in 2018, Kevin McKie decided to take his angling charter boat M.V. *Size Matters* back to an area about 60 miles west of the Isles of Scilly, with a depth of about 150 m. Here they caught an outstanding twelve sixgill sharks of between 60 and 225 kg. This is a deep-water species and one of the largest predatory sharks in the world, which can grow up to 600kg. Further planned trips were abandoned, due to unsuitable weather conditions. [Kevin McKie]

Other sharks

A large Tope (*Galeorhinus galeus*) of 29 kg was caught in May by an angling boat out of Minehead. They were common in mid Channel in July and there was one of 10.5 kg on the market in Plymouth at the end of November. One was found dead on the shore at St Ives in August.

Most catsharks caught commercially are discarded, and hopefully a reasonable number survive, however increasing numbers are being landed and at the end of November 1400 kg of Small Spotted Catshark (*Scyliorhinus canicula*) were in the chill store at Plymouth Fish Market. These would presumably be used for whelk or crab bait.

Throughout the year, John Hepburn continued his study on the Bull Huss or Nursehound (*Scyliorhinus stellaris*) eggcases in a nursery at Wembury Point. There were 35 laid in 2019, highest number in 5 years. 30 of these in the first half of the year, with 16 hatchings recorded. The total number of unhatched eggcases in gulley was 20 or more (peaking at 29 in June) until September, then declining following storms to low of 11 in November. There were no observations in December.

In July, there were good number of Starry Smoothhounds (*Mustelus asterias*) in the Bristol Channel from the Somerset coast down to Cornwall, with one of 13.25 kg caught off Newquay.

About 80 kg of Spurdog (*Squalus acanthias*) were seen on Plymouth Fish Market at the end of July.

Fishing or angling discards were the most likely source of one unidentified small shark, one bull huss, two small spotted catsharks and three starry smoothhounds (together with a blonde and a small-eyed ray) being found stranded on Cornish shores.

[Kevin McKie; Bristol Channel Fishing News; Douglas Herdson; John Hepburn; Marine Strandings Network, Cornwall Wildlife Trust; Sea Angler Magazine]

Skates and Rays

The North coast ray population seemed to be patchy. While some anglers reported very few Blonde Rays (*Raja brachyura*) and Small-eyed rays (*Raja microocellata*), in stark contrast 2017, and the years before; others were catching good sized blondes up to 11 kg. However, an albino Thornback ray (*Raja clavata*) was caught on Watchet Reef in December.

Several Blue Skate (*Dipturus batis*) were reported to have been caught off Chesil Beach during the year, though usually misidentified as the American Barndoor Skate (*Dipturus laevis*). However, one was subsequently caught and photographed, proving them to be blue skate.

One blue skate was seen in Bouley Bay, Jersey, in February.



A skate found dead in Newquay Harbour in December was originally identified from the photo as *Dipturus* sp., probably *D. batis*. When later re-examined it did not look right and therefore the photo was sent to two ray experts. Both were of the opinion that it could be an immature Sailray (*Rajella linterna*), but could not be certain from the only photo available. This is a species landed in the port of Lorient in France from boats fishing off NW Scotland. It has not previously been included in the British list. How a skate known from deep water to the far north west of Scotland, came to be in a Cornish harbour is unknown.

Plate 9.2. A Sailray found stranded in Newquay Harbour on 26 March. Image: Josh Symes



Marbled Electric Rays (*Torpedo marmorata*) were seen in Moulin Huet Bay, Guernsey in June, Bouley Bay and Icho Bank, Jersey in August and September, and one was photographed in September on the Eddystone reefs.

Plate 9.3. A marbled electric ray at the Eddystone reefs in September. Image: Chris Webb/Devon Seasearch.

A large Common Stingray (*Dasyatis pastinaca*) and a smaller one were caught by a trawler out of Brixham in February. The fishermen believe they have increased in the last few years.

[Bristol Channel Fishing News; Liam Faisey; Hookpoint Fishing Magazine; Samuel Iglesias; Marc Dando; Holger Schuhmann/Seasearch; Sheila Crowsley/Seasearch; Lin Baldock/Seasearch; Kevin McIlwee/Seasearch; Chris Webb/Seasearch Devon; Bert Basset.]

Leucistic Elasmobranchs



Albino or more often leucistic fish, lacking all or most skin pigment occur occasionally, and this year two were photographed from the Bristol Channel. The first was a cream coloured leucistic Small Spotted Catshark (*Scyliorhinus canicula*) caught just north of mid Nash buoy in July, and then an albino Thornback Ray (*Raja clavata*) caught on the Watchet reefs in December. A leucistic Bull Huss or Nursehound (*Scyliorhinus stellaris*) has also been encountered in this area. [Bristol Channel Fishing News]

Plate 9.4. Albino Thornback ray caught at Watchet, Somerset on 16 December 2019 and Leucistic Small-spotted Catshark caught north of Nash Buoy. Images: Bristol Channel Fishing News

Pelagic Species

Large Pelagic Fish

Atlantic Bluefin Tuna

One of the earliest Atlantic Bluefin Tuna (*Thunnus thynnus*) sightings of the year was off Trevoze Head on 28th February, then Mousehole in March. Subsequently one was seen from the SS Scillonian on 25th May and then again in August and September. Around the Isles of Scilly there were 13 sightings from June to October, a few individually, but most either in small or medium sized groups (up to 30+).

In Cornwall, there were over 70 sightings between August and November, principally off the south coast, but also extending up the north coast. Even to the extent of one chasing mackerel in Newquay Harbour at the beginning of August. The majority of sightings were in August and September.

In Devon, bluefin tuna started to appear off Plymouth from August onwards, becoming common around the Eddystone in November and December. One was seen south of Battsborough Island in late October and another breached off Plymouth in mid-December.

On 21st August *Spot On* charters from Brixham accidentally caught on rod and line two bluefins in a single day. Surprisingly a beam trawler out of Brixham netted a small bluefin tuna in the Western Channel in late August.

In Cornwall at the beginning of September a charter angling boat caught and released a tuna of approaching 150 kg whilst fishing for blue sharks and, two weeks later, an angler in a small boat captured two large tunas off the Cornish coast.

A young bluefin tuna was caught by an angler off Chesil Beach in July, but misidentified as an Albacore (*Thunnus alalunga*).

Any bluefin tuna accidentally caught by angling vessels should be kept in the water alongside the boat and must be reported to the MMO.

In recent years the bluefin tuna turned up in abundance around the south west, along with the mackerel, herring and other baitfish from August onwards. This recent surge in bluefin tuna sightings has been put down to seawater warming and the Atlantic Multidecadal Oscillation, which switches from positive to negative phases every 60 to 120 years. In the middle of the 20th century, there was a commercial fishery in the North Sea. However, from the 1940s, the species began to decline and by the early 1960s had all but disappeared. A paper on this topic has been published <https://advances.sciencemag.org/content/5/1/eaar6993>.

[Mark Harrison/Seasearch; Paul Whittaker; Ian Oakley; Ross Parham; Seaquest South West, Cornwall Wildlife Trust; Ben Lowe; John Headon, Isles of Scilly Bird and Natural History Annual Review; Natalie Rance/Isles of Scilly Wildlife Trust; Dom Robinson; Nick Collins; Penzance Fishing; Liam Faisey; Alan Letcher]

Small Tunas



9.5. A Skipjack Tuna stranded on Par Beach, Cornwall on 9th June 2019. Image: Ashley Wright

Whilst bluefin tuna are now relatively common off the coasts, the smaller Skipjack tuna (*Katsuwonus pelamis*) is surprisingly rare. Hence one found stranded on Par Beach in south east Cornwall in June was most noteworthy. I am only aware of three previous British records, Mevagissey, Cornwall, in 2006, Pembrokeshire in 2012 and Budleigh Salterton, Devon, in 2013.

There is a report of one of the commercial bass anglers working off the South Devon coast catching two Albacore (*Thunnus alalunga*) of around 2 kg on the same day this year.

The Bonito (*Sarda sarda*) is found around the south west of England in late summer almost every year; sometimes just the odd one and other years in significant numbers. 2019 was certainly a year of scarcity after the reasonable numbers seen the previous year. A juvenile specimen of this small tuna was caught off the Isles of Scilly in August. This is the first report that I am aware of this fish from Scilly. In October a young one was caught off Penzance; and small numbers were being sent to Plymouth Fish Market, most having been caught off Mevagissey.

[Alison Pessel/Plymouth Trawler Agents; John Locker; Paul Whittaker; Douglas Herdson; Philip Croxton; Ashley Wright; Simon Thomas; Kevin McKie; John Locker; Chris Bird]

Swordfish

On the 8th July, a 2.5 m long Swordfish (*Xiphias gladius*) was washed up dead on the extensive sandy beach at Berrrow, between Brean and Burnham-on-Sea, Somerset.

About 10 swordfish were caught off the Channel Islands this year, and in October one was captured 70 miles north west of Land's End by a Newlyn trawler.

[Graham Parker; Keith Kemp; Michael Sharp]

Dolphinfish

While watching birds from Porthgwarra in August, Rick Goater saw through his telescope a large fish jumping out of the sea in the middle of his view. The view was, of course, for about a second but he noted the following: It was about 6' long and powerful-looking, possessed a large rayed dorsal fin along its back, and had a strikingly melon-shaped, blunt forehead.

The view was too short for him to take in anything else but he thought the animal was quite colourful. In the books he consulted, only dolphinfish fitted.

His description does closely match a Common Dolphinfish (*Coryphaena hippurus*), which has never been positively recorded in Britain. Dolphinfish are large pelagic fish growing up to two metres and found in tropical and subtropical waters around the world. Two were caught to the south and west of Ireland in 1993, and one stranded alive on a beach in Co. Cork in 2017. In September 2017, a smaller and less common Pompano or Lesser Dolphinfish (*Coryphaena equiselis*) was caught on Chesil Beach.

[Rick Goater; Declan Quigley]

Small Pelagic Fish

Ten Twaite Shad (*Alosa fallax*) tagged in the River Severn in 2018 were recorded on Plymouth University acoustic receivers in the sea off the coast of North Devon between July and November. These receivers are positioned at the mouth of the Taw-Torridge Estuary. Apart from the odd sea angling report this is some of the first evidence on where Severn shad go during the rest of the year when they are at sea.

At the end of October 2019 a ring-netter caught 18 tonnes of large Anchovies (*Engraulis encrasicolus*) in Whitsand Bay. These were almost entirely anchovies with a few medium sardines and were the first of the winter season off Plymouth. They continued to turn up in small quantities of up to 50kg in most weeks through the winter.

Atlantic Mackerel (*Scomber scombrus*) were very scarce again this year in the Isles of Scilly. While in Cornwall, the mackerel were in abundance inshore over winter but seemed to almost disappear between April and July. A particularly strong algal bloom in inshore waters was noticed during this time. Similarly, around Plymouth, anglers were catching large mackerel in early March, but they then became scarce until early August. Then the mackerel turned up in massive shoals with some over 1 kg.

From mid-July onwards, there were a fair number of Atlantic Chub Mackerel (*Scomber colias*).

There were small numbers of Atlantic Skipper or Saury (*Scomberesox saurus*) around this year, from early July, but not the number found last year. They were seen off Plymouth and off west Cornwall.

A Pacific Saury (*Cololabis saira*) was found dead on Flushing beach. Since these are imported as anglers' bait fish, it was probably discarded or lost bait.



Plate 9.6. A garfish stranded at Watergate Bay. Image: Tracey Williams

In Scilly, and possibly other areas, Garfish (*Belone belone*) seemed scarce. Two were found at Marazion on dates in January, and one was stranded in Watergate Bay in March.

[Unlocking the Severn; Douglas Herdson, Alison Pessel/Plymouth Trawler Agents; Paul Whittaker; Liam Faisey; Phil Guy; Kevin McKie; Simon Thomas; Danny Poulding; Tracey Williams; Marine Strandings Network, Cornwall Wildlife Trust.]

Sunfish

Sunfish (*Mola mola*) numbers were very low compared to previous years. The CWT Seaquest SW project only recorded 57 sunfish, just over half of its 5-year average.

The first of the year was one found dead on the beach at St Ives on 5th May.

All the live sightings were between late May and early October with a peak in July and August. (This does of course also reflect the peak period of recreational water use and calmer conditions, when the likelihood of sightings is greatest.)

Four were seen off Bull Point, North Devon, and three were observed around Lundy in July and August. They were reported from both the north and south coasts of Cornwall and along to the Salcombe area of Devon. Two were spotted from boat trips in Mount's Bay and two from the Scillonian. There were 15 reports around the Isles of Scilly, all singletons except one group of 15+.

The one seen off South Devon was a mere 50 cm, and two of the Scilly fish were similarly small at around 75 cm. These two were both in very shallow water in Portcressa Bay.

[Marine Strandings Network, Cornwall Wildlife Trust; Seaquest South West, Cornwall Wildlife Trust; Atlantic Adventures; Natalie Rance/Isles of Scilly Wildlife Trust; Phil Guy; Dave Jenkins; Beth French; John Headon, Isles of Scilly Bird and Natural History Annual Review; Simon Thomas; Kevin McKie]

Demersal Fish

Sturgeon

A 4 m sturgeon was caught, measured, photographed and returned alive five miles south of Beer Head in June. It was probably a European Sturgeon (*Acipenser sturio*), but it could have been the American Atlantic Sturgeon (*Acipenser oxyrinchus*).

In November a sturgeon was found on a North Devon beach and photographed. The photo was examined by Jorn Gessner, the top European expert on sturgeon. He has identified it as the Russian sturgeon (*Acipenser gueldenstaedtii*), also known as the Diamond Sturgeon or Danube Sturgeon. There is a caviar farm on nearby Exmoor, but apparently it does not keep this species.

[Vicky Mitchell; Steve Colclough]

Pearlsides

This small midwater fish, Pearlsides (*Maurolicus muelleri*), is thought to be abundant in the Western approaches, but is seldom seen around our coasts. However, small numbers do get stranded on the shores of the Isles of Scilly. In 2019 three were found on St Martin's in January and some tens at Porth Minick on St Mary's in December, of which some were still alive.

[Nikki Banfield, Isles of Scilly Wildlife Trust.]

Gadoids



A large Three-bearded Rockling (*Gaidropsarus vulgaris*) of 1.42kg was caught in the Bristol Channel in August and there was another large one (58 cm) amongst the landings in Plymouth at the end of November.

There were catches of good-sized Cod (*Gadus morhua*), of up to 9 kg, and pollack (*Pollachius pollachius*), from the Bristol Channel.

A Tadpole Fish (*Raniceps raninus*) found dead on the coastal path at Carn Morval on St Mary's. Presumably dropped by a scavenging gull.

[Nikki Banfield, Isles of Scilly Wildlife Trust; Bristol Channel Fishing News; Douglas Herdson]

Plate 9.7. A Three-bearded Rockling, Bristol Channel, 30 August 2019 [Bristol Channel Fishing News]

Grey Mullet



A belated report is of a recently dead Flathead Grey Mullet (*Mugil cephalus*) found in Swanpool, Falmouth, in October 2018. Photos were taken and sent to the National Mullet Club and then to Oliver Crimmen at the Natural History Museum for confirmation. At a weight of 5.0 kg the mullet was too large to be either Thin-lipped (*Chelon ramada*) or Golden (*Chelon auratus*) grey mullets, and other characteristics separated it from the Thick-lipped Grey Mullet (*Chelon labrosus*).

Plate 9.8. A flathead grey mullet from Swanpool in Cornwall on 26 November 2018. Image: Andrew Burt

This is only the second flathead grey mullet recorded in Britain or Ireland. The first was a 29mm juvenile captured in the Camel Estuary in October 1989, 29 years before.

It has even been suggested that the Camel and Swanpool fishes could have come from the same, spawning event in 1989 - the one killed in its infancy, the other reaching 29 years in a productive, protected environment.

[Andrew Burt; Peter Reay]

Sticklebacks



In May two male Sea or Fifteen-spined Stickleback (*Spinachia spinachia*) were found with their nests entangled in the green seaweed *Codium* sp. on the jetty piles on Lundy. The white threads are kidney secretions used to stick branches of the seaweed together.

[Tim Mountjoy/Appledore Sub-Aqua Club via Keith Hiscock]

Plate 9.9. One of the Sea Sticklebacks and part-built nest at Lundy. Image: Tim Mountjoy

Seahorses

The year started badly for seahorses, when between mid-February and mid-April four were found dead along the Dorset coast from Kimmeridge to Chesil Beach. These were one Spiny Seahorse (*Hippocampus guttulatus*) and three Short-snouted (*Hippocampus hippocampus*) and all were subadults. Whilst there was no "obvious reason for the deaths," it was suggested that "It may be that they struggled to find enough food early in the year or were caught out by some rough sea conditions and accidentally washed up on the beach".



All other spiny seahorse reports were from seagrass beds in Dorset. In May, a pregnant male was found, and a juvenile female spiny seahorse (c. 5cm) was seen during a night dive over seagrass in early June. A female and a pregnant male spiny seahorse were filmed under licence in July. Whilst in November three, including a pregnant male, were filmed on one dive.

A female short-snouted seahorse was found, photographed and promptly returned unharmed to the sea, after it was found during the annual survey of the Fal Estuary oyster beds in early March.

In May, a short-snouted seahorse was seen at Babbacombe on two consecutive days.

Plate 9.10. Spiny seahorse *Hippocampus guttulatus* photographed in Portland Harbour. Image: Steve Trehwella.

In August, in the Grève De Lecq area of Jersey, a male short-snouted seahorse was brought up in a lobster pot, and then another was encountered the next day.

It is illegal to actively seek or photograph seahorses in the UK without a license under the Wildlife & Countryside Act. The MMO will consider applications for licences for scientific or education purposes [including] to allow seahorses to be photographed using flash photography on a case-by-case basis.

[BBC Online News; Dorset Wildlife Trust; Julie Hatcher; Seahorse Trust; Matt Slater; Avril Rimeur; Tamsyn Mann/Seasearch; Georgie Bull and Steve Trehwella]

Scorpionfish



In November, a Red Scorpionfish (*Scorpaena scrofa*) of 0.88kg was landed in Plymouth by a vessel that was probably fishing off South Devon. [Douglas Herdson]

Plate 9.11. A Red Scorpionfish, Plymouth Fish Market, 29 November 2019. Image: Douglas Herdson

Gurnards

A 685g Streaked Gurnard (*Chelidonichthys lastoviza*) was caught in the Helford River in August, and was a new British rod-caught record. The fish is now a specimen in the National History Museum. [Liam Faisey]

Bass and relatives

Bass (*Dicentrarchus labrax*) were common around the Eddystone reefs until about November/December when bluefin tuna numbers built up, and were not seen again until after February.

A Wreckfish or Stone Bass (*Polyprion americanus*) weighing 3 kg was caught in late August about 15 miles south of Penzance. A similar sized one was on the market in Plymouth in September, landed by a vessel that normally fishes to the west or south west of Cornwall.



Plate 9.12. A comber from the north coast of Cornwall on 13 September. Image: Ben Lowe

A Comber (*Serranus cabrilla*) was brought up on a hand line off the north coast of Cornwall in mid-September.

[Nick Collins; Liam Faisey; Douglas Herdson; Ben Lowe]

Jacks and Trevallies

A Pilot Fish (*Naucrates ductor*) was seen alongside a hooked adult female Blue Shark in August, 20 miles SSW of Looe.



In mid-December an Amberjack (*Seriola* sp.) of 1 kg, was caught in gill-nets by a boat in the Bristol Channel out of Milford Haven. From the photos it appears to be an Almaco Jack (*Seriola rivoliana*). This would be about 50th for Britain and Ireland.

Plate 9.13. An Amberjack caught in the Bristol Channel on 16 December. Image: Mark Heslop

[Dan Margetts; Simon Thomas; Beshlie Pool; Sara Wordley]

Tripletail



2nd September 2019, a Tripletail (*Lobotes surinamensis*) was caught in set nets on the Stert Flats off Stolford in Bridgewater Bay. It was caught by Mr Adrian Sellick, who is the last mud horse fisherman in Britain. This species is of worldwide distribution in tropical and subtropical waters, but seldom occurs north of Gibraltar in the East Atlantic. Only three records are known for the Atlantic coast of France, in 2010, 2013 and 2018.

Plate 9.14. A Tripletail, *Lobotes surinamensis* from Stolford, Somerset on 2nd September 2019. Image: Carl Sellick

The only other occurrence in British and Irish waters that I am aware of was a few miles away, when in September 2006, a specimen, which is now in the National Museum of Wales, was caught near Newport. Amazingly, that the previous one was caught in a fyke net on the mudflats at Peterstone, just around 30 km north of this latest fish.

[Carl Sellick; Robin Somes; Sam Iglesias]

Sea Breams

In mid-September, a Ray's Bream (*Brama brama*) was sold on Plymouth Fish Market. These turn up in large numbers for a few years, especially in the North Sea, and are then not seen for some years. There were a few in 2005. Then they were common from 2007 to 2010, but since then I am only aware of one at St Austell Bay in 2014.

Bogue (*Boops boops*) are semi-pelagic sea breams that turn up occasionally on the south west coast. One of 40 cm landed at Brixham in October was particularly large for this species.

A number of small fish caught in shallow water in Jersey in September proved to be juvenile White Sea Bream (*Diplodus sargus*).

Over the last couple of years there has been an expansion of the range of Couch's Bream (*Pagrus pagrus*) and they are now found all around the south west. They occur regularly on Plymouth Fish Market and have been caught by anglers in Dorset. They have also been found in Guernsey.

Young fish are regular in Plymouth Sound and the Yealm estuary, while several large bream of more than 2.25 kg have been caught off south west Cornwall. In September, the outstanding Couch's bream was hauled in about 16 miles south west of Penzance. At 4.21 kg it would have been a British rod-caught record if it had been retained, but it was returned alive to grow even larger.

Red sea Bream (*Pagellus bogaraveo*) are regularly landed in Plymouth in small numbers,

Gilthead Sea Bream (*Sparus aurata*) have increased their population and distribution in the last few years.

A gilthead of around 40 cm caught in Falmouth was found to have four rubber 'O' rings in its stomach.

Black Sea Bream (*Spondyliosoma cantharus*) were fairly common in areas off the Dorset coast, with one charter boat out of Weymouth catching over 100 in a day in October. They are not so common in the Bristol Channel, but in late August a boat from Minehead caught one of 2.3 kg. This would have beaten the current Bristol Channel record that stands at 2.0kg., but the fish was released to fight another day.

[Charlotte Bolton; Annika Whitford; Craig Baldwin; Peter Mark Crowther; Adrian Kruger; Douglas Herdson; Lin Baldock; Sea Angling News; Sally Ann Charters; Bite Adventures.]

Wrasses

In July, a University of Plymouth video survey showed a Scale-rayed Wrasse (*Acantholabrus palloni*) in 36 metres south west of the Seven Stones Reef, off Isles of Scilly. This is probably the 11th record for Britain and the first for Scilly.

Baillon's Wrasse (*Symphodus bailloni*) was considered a rarity, but as underwater identification has improved, it is now known to be more widespread. In 2019, it was found in 10 or 12 locations along the Dorset coast and in Jersey.

[Bethany Reed; Mike Markey; Charlotte Bolton; Lin Baldock; Nick Owen; Hugh Waite; Amy Robinson; Fiona Ravenscroft]

Blennies

Yarrell's Blenny (*Chirolophis ascanii*) is a northern species, which seldom occurs in the south west. Two were recorded from wrecks, in the MV Robert on Lundy in June and the Warrior II in Dorset in August.

The Red or Portuguese Blenny (*Parablennius ruber*) was first found in the British Isles in NW Scotland and Ireland. They are now known to be more widespread, including Scilly, but reports from English coastal areas are rare, however, in the summer one was seen at Drawna rocks on the Lizard Peninsula. This is the second successive year that one has been found in Cornwall.



The first British Variable or Ringneck Blenny (*Parablennius pilicornis*) was discovered near Plymouth in 2007. They have since been found in Plymouth Sound, Babbacombe and sites from Cornwall to Dorset. This year one was observed at Les Banquiers de Fermain, Guernsey. They appear to be resident in Firestone Bay, Plymouth Sound, and one was seen on the drop-off reef south of Plymouth Sound Breakwater. For the first time one was discovered at nearby Wembury Bay, where it appeared to hold territory at least from August to October.

[Mike Markey; Hugh Waite; Yvonne Oates; Holger Schuhmann/Seasearch; Sam Naylor; Paul Naylor; Lin Baldock]

Plate 9.15. A Variable or Ringneck Blenny in Wembury Bay on 27 August. Image: Paul Naylor

Gobies

There are two small gobies that lack pigmentation. They are possibly quite common but seldom reported. The Transparent Goby (*Aphia minuta*) was seen at two sites at Babbacombe in April, and in May three Crystal Gobies (*Crystallogobius linearis*) were brought up on lobster pots from 65 m off Land's End.

There are efforts underway to assess the size of population of Giant goby (*Gobius cobitis*), a BAP species in Devon and Cornwall. Although more are being reported, this may be due to more effort. Giant gobies in 2019 were recorded at Prisk Cove, Helford, and a new site at Cargurrel on the Roseland. There is not enough research to say whether distribution is increasing, it is more likely that it is a very under-recorded species – the most northern record is from Polzeath 2018.

The rare sheltered shallow water Couch's Goby (*Gobius couchi*) was found in Castle Cove, Portland Harbour, in July.



Steven's Goby (*Gobius gasteveni*) were found around the Falmouth area. In January, when at the Bizzies they were seen at a little patch of gravel with flat rocks, nearly every rock had one of these living under it, darting out every now and then, before darting back. In May, one was seen in Falmouth Channel. Another group were living beneath an old tyre in the deep water pit (16 m) in the central channel of Helford estuary in September

Plate 9.16. Steven's Goby in the Helford on 8th September. Image: Matt Slater

[Dawn Watson/Seasearch; Jon Ashworth; Matt Slater/Shoresearch Cornwall; Lin Baldock/ Seasearch; Janet Dallimore.]

Flatfish

In November, the beam trawler F.V. Margaret of Ladram landed 7.5 tonnes of Common or Dover Sole (*Solea solea*). The fish sold for £125,630 at auction, making it the biggest grossing catch in the history of Brixham port.

[Adam Cowan-Dickie]

Triggerfish

In general, Grey Triggerfish (*Balistes capriscus*) were scarcer than most years.

The first record of a live triggerfish of the year was one at Chesil beach on 4th August. Later in the month, singles were seen in Dorset at the Fleur Barge wreck, a wreck in Swanage Bay and two at a reef in Poole Bay.

A large one of 2.4 kg caught and released within Mounts Bay, about 3 miles south of Penzance in September, was the only one caught on that boat this year.

Three were seen in Cawsand Bay and several of 1 to 1.5 kg were observed in Sutton Harbour (Plymouth). At least three were landed in Plymouth from commercial vessels in October and November.

There were far fewer reports of dead triggerfish stranded on beaches than in previous years. Five were found washed up along the North Cornwall coast in January, and a further three in December.

[Stephen Fuller; Douglas Herdson; Mike Markey; Lin Baldock/Seasearch; Marine Strandings Network, Cornwall Wildlife Trust; Dan Smale.]

Pufferfish

Pufferfish are not recorded in British waters every year but the Oceanic Pufferfish (*Lagocephalus lagocephalus*) can occur in double figures in some years.

Two were reported in the first few days of September, one caught by a ring netter in St Austell Bay. The other trawled up 10 miles north east off Brixham near the mussel farm.

[Andy Giles; Chris Howell]

Turtles

Nationally in the United Kingdom the British & Irish Marine Turtle Strandings & Sightings Annual Report 2019 recorded 18 turtles; being 13 Leatherbacks (*Dermochelys coriacea*), three Loggerhead Turtles (*Caretta caretta*), one Kemp's Ridley (*Lepidochelys kempii*) and unusually a Green Turtle (*Chelonia mydas*). Of these nine were from the south west region or Bristol Channel. Further investigation uncovered an additional six reports from our region.

Of these fifteen turtles, one was a loggerhead found dead at Bude in January.

The number of leatherbacks at 13, was fewer than last year when 17 or 18 were recorded. Three were stranded dead and ten were seen at sea.

The beached leatherbacks were found all around Cornwall with one at Hayle in March, another at Roseland in September and one further in Newquay Harbour in mid-December.

The first live report of the year was a possible sighting in the upper Bristol Channel, near Flatholm Island in June. While in July, one was seen from the M.V. Scillonian to the west of Wolf Rock, and then a further report from off Porthcurno. The height of the season was in August when, on two occasions, leatherbacks were seen from an angling charter boat south of Penzance, another off Pendennis Point (Falmouth), one in St Austell Bay, and individuals near Portland Bill and off Bude. Also across the Bristol Channel one was observed swimming off the Gower coast. The final live sighting was off the Lizard in early September.

[British & Irish Marine Turtle Strandings & Sightings Annual Report 2019, by R.S. Penrose & L.R. Gander. February 2020: Cornwall Wildlife Trust, Marine Strandings Network and Seaquest SW; Environment Record Centre for Cornwall and the Isles of Scilly; John Headon, Isles of Scilly Bird and Natural History Annual Review; and Liam Faisey.]

Turtles of the South West 2019

Date	Record no.	Turtle species	Location	Status	Comment
23/01/2019	MSN_13835 T2019/03	Loggerhead	Crooklett's Beach, Bude 50° 50.1'N 04° 33.3'W	Stranded dead	MSN
02/03/2019	MSN_13942 T2019/04	Leatherback	Black Cliff, Hayle 50° 11.9'N 05° 25.8'W	Stranded dead	MSN
09/06/2019	T2019/05	Leatherback	Off Lavernock Point, between St Mary's Well Bay and Flatholm 51° 23.5'N 03° 09'W	Alive	Possible sighting
09/07/2019		Leatherback	West of Wolf Rock	Alive swimming	Scillonian Crossing, at 11:35, just off Eastern Isles. IoSWT
27/07/2019	iBRC11039832	Leatherback	Porthcurno 50° 01.7'N 05° 37.5'W	Alive swimming	ERCCIS
August 2019		Leatherback	Approx. 10mile south of Penzance	Alive swimming	Seen by Kieren Faisey, skipper of Lo Kie, angling charter boat
August 2019		Leatherback	Approx. 18 mile south of Penzance	Alive swimming	Seen by Kieren Faisey, skipper of Lo Kie, angling charter boat
13/8/2019	iBRC11587927 T2019/06	Leatherback	Off Pendennis Point, Falmouth 50° 08.7'N 05° 02.3'W	Alive swimming	Seen by kayaker James Adger, ERCCIS
20/08/2019	T2019/08	Leatherback	Porthpean 50° 19.3'N 04° 45.5'W	Alive swimming	Swimming around boat on mooring off the beach.
23/08/2019	T2019/12	Leatherback	Off Bude	Alive swimming	Observer by kayaker, in conversation with American tourist Whitney Ball.
25/08/2019	T2019/10	Leatherback	c. 4 km off Grove Point, near Shambles Bank, Portland 50° 33'N 02° 19.5'W	Alive swimming	Seen by Mike Lewis and Keith Moore. 1.5 to 2 metres, probably feeding on large <i>Rhizostoma</i> .
26/08/2019	T2019/09	Leatherback	Off the Gower coast, between Oxwich and Rhossili 51° 31'N 04° 12'W	Alive swimming	Observed feeding on barrel jellyfish from Gower Coast Adventures RIB "Sea Serpent".
06/09/2019	iBRC12737585	Leatherback	Lizard Point 49° 57'N 05° 12'W	Alive swimming	ERCCIS
24/09/2019	MSN_14278 T2019/14	Leatherback	Pendower Beach, Roseland 50° 12.3'N 04° 57'W	Stranded dead	ERCCIS
18/12/2019	MSN_14537	Leatherback	South Fistral Beach, Newquay 50° 24.9'N 05° 06.1'W	Stranded dead	ERCCIS

ERCCIS – Environment Record Centre for Cornwall and the Isles of Scilly; MSN – Cornwall Wildlife Trust, Marine Strandings Network; IoSWT – Isles of Scilly Wildlife Trust

10. Marine and Coastal Birds

Edited by Alex Banks

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Introduction

As top predators, trends in seabird abundance and breeding success will be directly linked to changes in key environmental predictors (e.g. dissolved oxygen, chlorophyll A, sea surface temperature, and, crucially, prey (especially sand eels, sprats, and other small forage fish). Links between sections covering these variables and seabirds are likely to be revealing.

Nesting seabirds

As the national seabird census, Seabirds Count, entered the final stretch, fewer data on nesting seabird abundance were received than in recent years when the major south west colonies were comprehensively surveyed. Repeat monitoring of regionally important kittiwake and guillemot colonies in Cornwall, Devon and Dorset made up approximately half of the total number of 4,135 nests / breeding adults reported in 2019 (Table 10.1). The newly revamped Seabird Monitoring Programme database, from which the data presented here are drawn, allows people to volunteer to count 'inactive' sites; it would be very valuable for interested readers to check for sites they regularly visit and consider inputting data into the scheme, so we can capture as much of the seabird monitoring effort across the south west as possible, and enhance its power to reveal environmental trends.

On the Isles of Scilly, Annet showed moderate increases from 2018 in shags and great black-backed gulls, rising from 81 pairs to 103 pairs and 170 to 199 pairs respectively. Shag numbers on Annet are still way below the 1999 total of 209 pairs and great black-backed gulls are below the 235 pairs recorded in 2015/16 (Heaney & St Pierre 2017), so there is no cause for celebration just yet. Both of these species are new features of the proposed marine extension to the Isles of Scilly Special Protection Area; future management decisions will need to ensure these upward trends are maintained and replicated across the other sub-colonies within the archipelago.

A focus for the final phase of the seabird census is urban nesting gulls. Herring and lesser black-backed gulls are now a prominent and vociferous presence in human habitations, choosing to make their homes amongst, and sometimes upon, our own. An updated understanding of the conservation status of these gulls is wholly reliant on robustly estimating both their urban and 'natural' nesting distribution and abundance. Herring gulls are red-listed and lesser black-backed gulls are amber-listed, at least in part because of rapid declines in well-monitored rural colonies. We need to establish the extent to which urban nesters offset this trend, and the Seabird Monitoring Programme partners have devised a ground-based method based on surveying 1 km squares. A separate project is trying to develop correction factors from combined aerial and ground surveys, offering the tantalising possibility of a future-proof ground-based monitoring method for these gulls. In 2019, 58 1 km squares across the south west were surveyed by volunteers, returning (uncorrected) counts of 848 herring gull, 25 lesser black-backed gull and six great black-backed gull nests / territories (Table 10.2).

Table 10.1. Count data for south west counties held by SMP database for 2019. PU: Atlantic puffin; GU: common guillemot; CN: common tern; TM: European storm petrel; F: Northern fulmar; GB: great black-backed gull; CA: great cormorant; HG: herring gull; KI: black-legged kittiwake; LB: lesser black-backed gull; MX: Manx shearwater; RA: razorbill; SA: European shag. PU, TM, MX – Apparently Occupied Burrows; CN, CA, GB, HG, KI, LB, SA – Apparently Occupied Nests; F. – Apparently Occupied Sites; GU, RA – individuals (Different species are recorded differently, so this is showing the units for each group. For instance, PU, TM, MX is showing puffin, storm petrel and Manx shearwater are recorded as apparently occupied burrows, and fulmar as apparently occupied sites – etc.)

	PU	GU	CN	TM	F.	GB	CA	HG	KI	LB	MX	RA	SA	Total
Cornwall		59			59	71	47	83	773			64	11	1167
Mullion to Predannack Cliff						71	47							118
North Cornwall 3		59			59			83	773			64	1	1039
Treyarnon - Merope													10	10
Devon					23	7	29	207	148	1			31	446
Ashprington							0							0
Babbacombe 1					5			1						6
Babbacombe 3					5			1						6
Babbacombe 4					7			3						10
Beer Head					0	0	9	22						31
Bolt Tail 1					1	2		7					4	14
Brandy Head to Chiselbury Bay					3			29						32
Chiselbury Bay to Ladram Bay					1	1		65						67
Landcross							8							8
Otterton Ledge to Brandy Head					1		12	33					11	57
Ravens Cove								0						0
Soar Mill Cove - Bolt Head						4		39					16	59
South Start Point								7		1				8
Straight Point									148					148
Dorset	16	1104			53	6	22	93	17			132	23	1466
Ballard Cliffs					4	4	21	14					1	44
Burton Cliff 2					16		1	4						21
St Aldhelm's Head - Durlston Head	16	1104			12	2		65	17			132	22	1370
Westbay, Eastcliff					21			10						31
Isles of Scilly	42		0	13	54	202		32	20	442	125	2	104	1036
Annet	42		0		46	199		10		19		2	103	421
Gugh			0	11	2	3		14	20	422	42		1	515
St Agnes			0	2	6	0		8	0	1	27		0	44
St Helen's											56			56
Somerset							20							20
Shapwick Heath							20							20
Grand Total	58	1163	0	13	189	286	118	415	958	443	125	198	169	4135

Seabird productivity

Data for various species were collected at the key south west seabird sites of Lundy and the Isles of Scilly. Away from these flagship islands, only Straight Point near Exmouth returned data on seabird productivity. The continued lack of

detailed information on how seabirds are responding to inter-annual changes in conditions is an obstacle to enhanced understanding of south west marine ecosystem function – perhaps one of the universities could develop a student programme around this?

Table 10.2. Urban gull count data (Apparently Occupied Nests / Territories) for south west counties held by SMP database for 2019. Abbreviations are as in Table 10.1.

	GB	HG	LB	Total	Squares
Devon	6	848	25	879	58
Brixham		154	1	155	5
Budleigh Salterton		33		33	3
Dartmouth		39		39	1
Dawlish Town	1	19		20	2
Exeter	1	253	21	275	23
Exmouth	1	103	1	105	12
Newton Abbot		25	1	26	4
Plymouth		48	1	49	3
Teignmouth	3	129		132	4
Totnes		45		45	1

Table 10.3 shows that kittiwakes fared comparatively well at Straight Point and Lundy in 2019, though only the former exceeded national average productivity, in contrast to the remnant colony on Gugh which fledged just one chick from 20 nests. On the same island, Manx shearwater productivity remained above the national average, reflecting the continued absence of rats following eradication in 2013. Fulmar productivity was improved at monitored sites compared with 2018, which seems to have been a poor year for fulmars in these locations. Puffin and guillemot productivity was similar to 2018 on Lundy, though it can be notoriously difficult to accurately monitor cliff burrows for the former.

Table 10.3. Productivity data (chicks per pair) for south west counties held by SMP database for 2019. Where >1 measure from a site, average is presented. Green cells show rates exceeding national average values, red below national averages, orange at (or very near) average values (Horswill & Robinson 2015). No data for storm petrel (TM). Abbreviations are as in Table 10.1.

	PU	GU	TM	F.	HG	KI	LB	MX
Isles of Scilly								
Bryher								0
Gugh			0.45			0.05	0.56	0.76
Hugh Town					1.47			
Menawethan				0.53				
Samson					0.39			
St Agnes								0.48
St Martin's				0.38				
Devon								
Lundy	0.51	0.69		0.48		0.59		
Straight Point						1.1		

Noteworthy sightings of non-breeding seabirds

- Choughs came to Scilly 15/11/19 (Nikki Banfield): http://www.rarebirdalert.co.uk/RealData/gallery_show.asp?galleryid=68630

- Pair of Eider ducks diving at Hannafore Point, Looe on 2nd March 2019– Not seen eiders down here before (Martin Attrill) [AB: eiders are typically thinly distributed around the south west coast in the non-breeding season, with relative abundance highest in Torbay and around Portland (Balmer *et al.* 2013)]



Plate 10.1. Brown Booby, St Ives Bay, 31 August 2019. Image: Mashuq Ahmad

- First sighting of Brown Booby *Sula leucogaster* in UK waters 28/08/19. From BBC: “Twitchers flocked to St Ives in Cornwall to see the bird whose more regular habitats are Mexico and the Caribbean. Keith Jennings, who photographed the bird off Porthgidden Beach, said it was an 'amazing spectacle. Cornwall Bird Watching & Preservation Society (CBWPS) said it was believed to be the first sighting in the UK.”

- Just a few days later, a second (different) brown booby was recorded at Kynance Cove: <https://www.birdguides.com/articles/rare-birds/rarity-finders-a-second-brown-booby-in-cornwall/> A third bird was later located off France. [AB: August 2019 saw several Atlantic storm systems reaching the UK and Ireland, which may explain the proliferation of these birds].
- American royal tern *Thalasseus maximus* on the Hayle Estuary 3/6/19: <https://www.cbwps.org.uk/cbwpsword/tag/american-royal-tern-in-cornwall/>

Sightings of seabirds at sea from the *Scillonian*

Table 10.4. Numbers of seabird species recorded from ferry crossings between Penzance and St Mary's.

Species	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	No. of Sailings
Gannet	427	1466	371	432	346	1309	721	1078	74	22
Guillemot	450	510	63	114	48	5	30	68	3	22
Kittiwake	83	128	224	34	54	26	117	88	12	21
Great Black-backed gull	43	69	72	71	61	76	62	103	53	20
Fulmar	12	56	29	29	18	48	12	3	-	19
Manx Shearwater	532	7690	1466	1463	398	3826	3552	3	-	19
Shag	5	172	197	29	24	50	24	241	18	16
Razorbill	66	109	5	15	1	1	1	62	1	16
Sandwich Tern	1	12	1	5	5	6	2	9	-	12
Arctic Skua	-	-	1	2	-	1	1	3	-	5
Balearic Shearwater	-	-	-	1	-	2	1	14	-	5
Cory's Shearwater	-	-	-	-	-	-	-	-	-	0
Great Shearwater	-	-	-	-	-	-	-	-	-	0
Great Skua	1	6	-	3	-	6	6	8	1	14
Grey Phalarope	-	-	-	-	-	-	-	4	-	2
Pomarine Skua	-	-	-	-	-	-	-	-	-	0
Puffin	7	30	4	7	1	-	-	12	1	13
Sooty Shearwater	-	-	-	-	1	1	1	-	-	3
Storm Petrel	-	-	-	9	-	8	-	1	-	4
Wilson's Petrel	-	-	-	-	-	-	-	-	-	0

Thanks to Paul St Pierre (RSPB) for sharing these data recorded from ferry crossings between Penzance and St Mary's (Table 10.4).

2019 in contrast to 2018 was extremely poor, possibly because there were few fish in Cornish waters until quite late in the year. As a consequence, there were no sightings of Great Shearwater, Cory's Shearwater or Pomarine Skua from the guided crossings. Only three Sooty Shearwater were seen, and very few Balearic Shearwater which were mainly in October. Storm Petrel were seen in June, August and one in October. No Wilson's Petrel were seen. Puffin were quite numerous early in the year with April being the best month. More Great Skua seemed to be found in 2019 but Arctic Skua were difficult, seen on only five days.

Lundy highlights

The following are highlights for seabirds at Lundy copied from the 2019 Annual Report of the Lundy Field Society:

- Record numbers of Red-throated Divers and Kittiwakes offshore in early February.
- Early arrival of Puffin seen in late February.
- A July count of 468 Puffins.
- A series of exceptionally late Manx Shearwaters in November & December.
- A record number of Mediterranean Gull sightings through the year.

11. Seals across the South West

Edited by Sue Sayer

Contact: sue@cornwallsealgroup.co.uk

Introduction

The report published here summarises a longer report – now on the SWME website (<http://swmecsystems.co.uk/wp-content/uploads/2020/07/WEB-2019-SEALS-by-Sue-Sayer-V3062020.pdf>). The longer report has accounts from ‘counties’ around the south-west compiled by different authors as follows:

- Cornwall and the Isles of Scilly – Sue Sayer
- Somerset – Sue Sayer with data submitted by Vanessa Lloyd, Sea Watch Foundation
- North Devon: Lundy - Dean Woodfin Jones, Lundy Warden
- North Devon: Mainland - Kate Williams with data collected by Dave Jenkins
- South Devon - Sarah Greenslade, ‘The Seal Project’
- Dorset - Sarah Hodgson of Dorset Wildlife Trust
- Channel Isles: Alderney - Dr Mel Broadhurst-Allen, Alderney Wildlife Trust
- Ireland - Sam Brittain, Animal Care Manager, Seal Rescue Ireland

This is an important step in the way we report our understanding of the seals in the south-west and all the authors and their teams of volunteers are to be commended for a fantastic effort. This report provides a summary for seals in the south-west, followed by short descriptions from each of these regions.

Common seals

CSGRT had 82 reports of 88 common seal sightings from 12 different locations. These were reported by 26 different individual volunteer recorders and as well as one of CSGRT’s systematic Photo ID Project in Looe.

Grey seals

All other records were grey seals

Cornwall Seal Group Research Trust

CSGRT continues to grow in all respects.

We ended 2019 with four paid rangers fully funded until end of July/August 2020 all thanks to money from the Heritage Fund, People’s Postcode Lottery (Postcode Local Trust), Natural England, TEVI, LUSH cosmetics, TESCOS Bag of Help, Seal Protection Action Group, World Animal Protection, National Trust, Polzeath Marine Conservation Group, Aspects Holidays, Mungo Lils on the Hill, the Bowgie Inn, SeaChangers, Three Bays Wildlife, Hayle Lions and our incredible volunteer fundraising efforts and donations.

Our Rangers are:

- Amazement and Discovery/Photo ID Ranger (Marion Beaulieu)
- Creativity and Activity Ranger (Emily Pollitt)
- Sanctuaries at Sea Ranger (Sarah Millward)
- Research Ranger (Katie Bellman)

We hope to sustain our Rangers into the future by making our Business Plan targets a reality, through our online shop (gifts and clothing), our Wild Seal Supporter Scheme, donations and further grant funding applications.

Huge thanks to everyone who has contributed to this incredible achievement.

Our recording base grew to 376 volunteers, all of whom submitted at least one survey (with the Lizard team managing daily surveys for yet another year!). We received a total of 4459 discrete surveys in 2019 (that’s over 12

each and every day) including 9 Looe Photo ID Project surveys, 9 boat Photo ID Project transects and our quarterly seal census, all of which covered 399 different seal locations. Our 20 Photo D (PID) Hubs processed a truly gobsmacking 120,743 photos in 2019 into 3284 survey albums resulting in 8722 seal identifications.

Seal advocacy informing management

All this data provides CSGRT with a robust evidence based from which we wrote 13 major reports, 9 public consultations submissions, designed 3 public signs at coastal locations and delivered input for 93 meetings with volunteers, partner organisations, business networks and statutory agencies. This included 2 meetings with the DEFRA policy advisor for seals and seabirds – in Truro and at the Home Office in London and we hope these will lead onto the creation of a Seal Network UK.

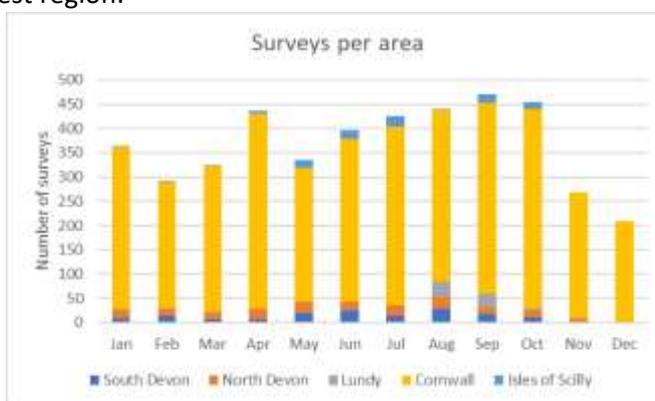
A key report on seal disturbance around the UK was compiled by Research Ranger Katie Bellman on behalf of the Seal Alliance NGO. She also collated a Ghost Gear literature review. As in previous years we continue to share evidence, information and advice with 4 global partners – World Animal Protection, the Global Ghost Gear Initiative, the Pinniped Entanglement Group and the 5 Gyres Trawlshare Microplastics Project.

SW regional seal data summary

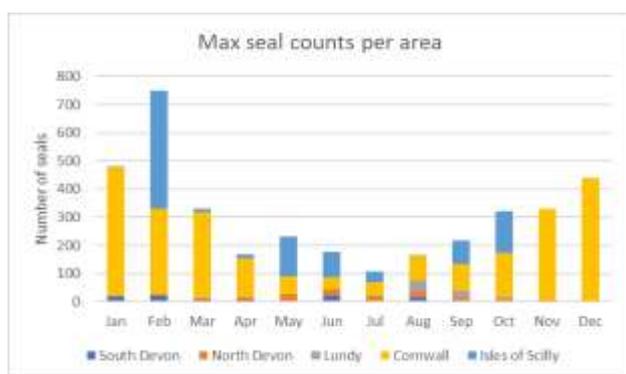
There are five main areas for seals within the southwest region:

- North Devon
- Lundy
- Cornwall
- Isles of Scilly
- South Devon

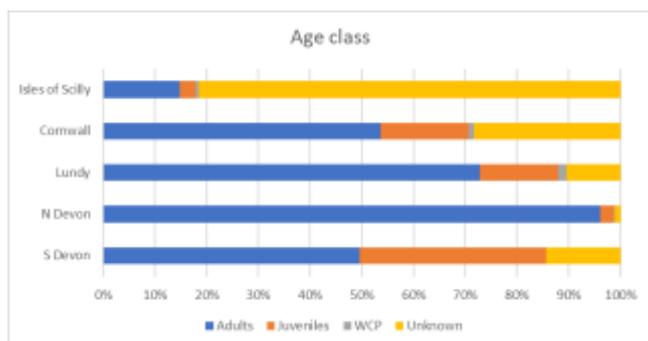
From these five areas, CSGRT received a total of surveys in 2019, all through the year with the least surveys conducted in December and the most conducted in September.



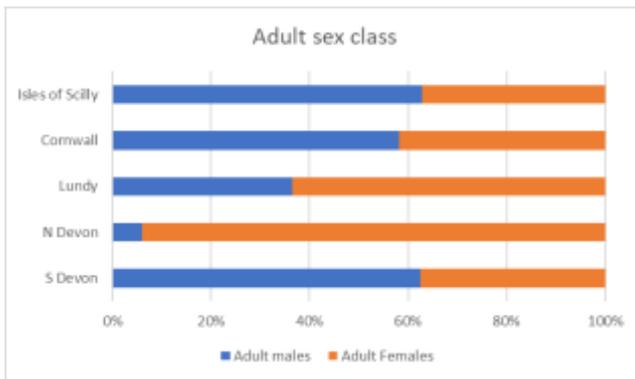
4415



There was considerably more seasonal variation in the max counts of seals numbers across the year than survey effort. Seal counts peaked in the winter between December and February and was lowest during July, April and August.



Surveyor ability to age and sex class the seals observed varied across the region with a high proportion of seals being recorded as unknown on the Isles of Scilly (82%) and least number of seals of unknown age and sex being in North Devon (1%), where the vast majority of seals were adults (96%). In contrast, a much higher proportion of juveniles were recorded in South Devon (36%). Similar proportions of juveniles were recorded in Cornwall (17%) and Lundy (15%).



Where it was possible to age and sex the adult seals, their proportions were calculated and show considerable variability across the region, with proportionally more adult males being recorded in the Isles of Scilly (63%), South Devon (63%) and in Cornwall (58%). In contrast a higher proportion of adult females were recorded in North Devon (94%) and Lundy (64%). This suggests there may be a degree of spatial segregation by adult seals of different sexes.

Seal sightings and highlights

In January, five-year-old ex-entangled 'Lucky Bunting' grabbed our attention with the six boyfriends she had: finally choosing to mate with nine-year-old 'Three Scars'. We tracked her progress all year and saw her in early September, but we have yet to find out where she chose to pup. Adult female 'Legs', who pupped at West Cornwall in 2018 suddenly became entangled in monofilament net in January and by the end of the month we were devastated to see that it had cut right through the skin encircling her neck. We also recorded a young male with the first deformed flipper we have ever seen. He was re-identified throughout the year so is thriving despite this. Through February and March, we had new evidence of links made by travelling seals identified at both Cudden Point and the Lizard 'Monkey wrench' and our first seal link ever with the offshore lighthouse at Wolf Rock as the Lizard's adult male 'Splat' turned up snoozing there. On 25th March, we were gobsmacked to discover during a single survey, at a single site on one day, seals that had previously been identified across Cornwall, Devon, Dorset and Somerset, England, Wales, France and Ireland! This emphasised the importance of a network of joined-up sites being essential for the survival of this species.

In April, to put a smile back on our faces, ex-entangled adult male 'Kettle' who we have known since 2003 returned to West Cornwall and was seen sparring with the much younger adult male 'Cat' after a longer than usual absence. In May a Welsh satellite tagged seal was photographed at North Cornwall where he seems to have journeyed from Pembrokeshire, before surprising us all by swimming straight back there. Two new seal links were discovered between mainland Cornwall and the Isles of Scilly in the form of 'Frog Mouth' and tagged seal 'Wolf'.

June was celebrated with two great IDs – adult female 'Cable car' (an entangled seal) still going strong. She has only been identified 23 times across 4 sites in the 16 years we have known her since her first ID in 2003. For the first time our volunteers have been able to effectively survey offshore islands at Pendeen and were rewarded by an ID of adult male 'White ring teddie stripes' – his 5th ID site. In July, adult male seal 'Flying bird' put in only his fourth appearance on Cornwall's south coast in 18 years! He seems to prefer it there now, as he has not yet returned to his usual haunts on the north coast. Beautiful adult female 'Angel' was identified at an offshore site near Trevoze, which was her 21st appearance in 6 years. This is the fourth time she has stopped off here to rest on her commute between the West and North Cornwall sites.



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Jan												2	2	4	2	1	1	2	5	19	
Feb	West Cornwall								2	1				2	2	2	1	1	2		13
Mar	West Penwith North							1				1	2	1				1	3		9
Apr	Isle of Man							1	1					1			2		2	1	8
May							1									1					2
Jun								1						1							2
Jul										1	1										2
Aug							2	2	3							1			1		9
Sep								2	1			1				1			2		5
Oct												2	2			3			7		0
Nov	1												2								1
Dec																					0
	1	0	0	0	0	0	5	8	5	1	1	6	11	8	4	10	3	19	6	70	

‘Tulip belle’ (images above) is a stunner and in August she amazed the seal world as we discovered not only had we known her since 2001, (see the sightings calendar) but that she had routinely visited the Isle of Man 450km away, where she had pups in 2012, 2013, 2016 and 2018!

But it was back to reality with a bump, as we had photographs of adult female ‘Trunk’ being hooked for the fourth time just this summer, as an indirect result of people feeding her in Newquay Harbour. September’s highlights of our Lundy visits included identifying adult female ‘Hedge’ and 3 adult males – ‘Cat’, ‘Wolf eyes’ and ‘Heart BB’ – all from West Cornwall. Despite her painful entanglements, we were delighted to finally discover where ‘Trunk’ (who we’ve known since 2003) has her pups. There was another shock in store for us in October as Rupert Kirkwood photographed a common seal in the Fowey – this turned out to be an ex rehabilitated seal called ‘Micky’ from Holland! In peak pupping season, we celebrated the return of adult female ‘Ghost’ (after her worrying absence in 2018) as she returned to have her 16th pup in 17 years on exactly the same beach. Still a world record breaking achievement to the best of our knowledge! Other highlights included the entertaining juvenile male ‘Nudger’ originating on the Lizard, moving onto Looe and now the Roseland. Adult female ‘Lightning’ who has mostly been identified in Looe and who had pupped on the north coast in 2009, suddenly appeared after a storm with a pup in Mullion Harbour on the south coast – she has obviously not read her pupping handbook!

We had more excitement as Dorset Wildlife Trust revealed that adult female ‘Gambolling lamb’ had returned to Portland from Cornwall. In November and December, ex rehab young adult female ‘Orion’ was videoed demonstrating adolescent ‘crazy girl’ behaviour that we think might be linked to hormonal changes as she matures. Sadly, we lost adult male ‘Arc dot’ who was found dead at Widemouth, but we took some solace from the fact that ‘Tulip belle’ had become a national celebrity seal!

Disturbance at all sites across the SW

We started the year with a serious disturbance incident at West Cornwall, part of a Site of Special Scientific Interest where seals are a special interest feature. This was reported to, and followed up successfully, by the Police and Natural England. During the peak season, Katie Bellman coordinated an incredible 82 systematic seal and human interaction surveys across four sites. From these dedicated disturbance surveys, 392 different disturbance incidents were recorded with 1956 individual seal reactions, all of which were likely to impact their metabolisms and physiology. High levels of disturbance occurred at all 4 sites with on average disturbance once every 14 to 29 minutes.

Entanglement at all sites across the SW



There were 707 sightings reported of entangled seals with a maximum of 16 different entangled seals being recorded on a single survey at West Cornwall on 05/12/19. Over 10 different entangled seals were recorded on 14 discrete surveys (all at West Cornwall). A total of 104 different entangled seals were observed and identified in 2019 (including LP517 adult female 'Severe nettie J' shown in the main photo below and juvenile 'Sad spikey' inset, who is unlikely to survive through to adulthood).

British Divers Marine Life Rescue (BDMLR) activity across the SW

Across the UK, BDMLR had the highest number of call outs on record in 2019 – a total 1916, largely driven by rapidly increasing awareness of BDMLR, along with increasingly frequent, severe Atlantic winter storms driven by climate change, and apparently poor health in the East England common seal population.

Regional Reports

Cornwall and the Isles of Scilly – Sue Sayer

Common seals. CSGRT had 55 sightings of common seal (all just of one common seal at a time although multiple individuals were seen across the sites) from seven different locations. These were reported by 21 different volunteer recorders as well as by one of CSGRT's systematic Photo ID Project in Looe.

Grey seals. All other records were grey seals. With huge public support, in 2019 alone, CSGRT received 4007 seal records from 319 different volunteer recorders and four systematic PIP teams (nine LISPIP; in addition to two STAPIP, four CASPIP and three POLPIP boat surveys across a 115km stretch of Cornwall's north coast). Disturbance and entanglement were key issues and more seals were recorded dead in 2019 than ever before.

Somerset –Vanessa Lloyd, Sea Watch Foundation

2019 had a total of 5 casual sightings of grey seals and 4 effort-based sightings of grey seals recorded as part of the Sea Watch Foundation land watches. All sightings were recorded between May and August from Hurlstone Point, and all seals were in the water.

All seal sightings were collated as part of a Sea Watch Foundation Regional Coordinator volunteer role for Somerset & Exmoor which started in 2014. Overall, sightings records and survey effort have been low along Somerset's coast, except for at one sighting hotspot at Hurlstone Point. For 2020, in collaboration with the Somerset Wildlife Trust, effort surveys have been organised every month at a different location to help boost sightings data and to provide a clearer picture of abundance and distribution of marine mammals along Somerset's coast. In addition, several training days in survey methodology and marine mammal identification will take place with the aim to help increase the number of regular volunteer observers completing effort surveys independently.

North Devon: Lundy - Dean Woodfin Jones, Lundy Warden

The Atlantic Grey seal population has been monitored annually on Lundy since 2011 and to a varying degree beforehand. Previously, the surveys have been carried out by the Conservation Team throughout the breeding season in order to understand the distribution, population dynamics and productivity of this iconic Lundy mammal (Jones, 2017). In 2016 the survey method was reviewed to enable the data collected at Lundy to contribute to wider seal population assessments, such as the Sea Mammal Research Unit (SMRU) national seal surveys. It was not possible to undertake observations by boat in 2019 therefore all results have come via land-based observations.

The highest count of seals within the survey period was 206 animals (125 females, 34 males, 29 juveniles, three weaners, seven white-coat pups and nine adults of unknown sex) on September 15th, 17 fewer animals than the highest count of 2018, 30 more than the highest count of 2017 and 35 more animals than the mean highest counts since 2006. Similar to the surveys of 2018 & 2017, the majority of animals around the island within each survey were females with some of those, from observational notes, showing obvious signs of pregnancy in some of the popular haul out areas, especially at the start of the land-based surveys. 14 seals were re-identified in 2019 at Lundy.

North Devon: Mainland - Kate Williams with data collected by Dave Jenkins

Surveying of grey seals around the North Devon coast continued through 2019 producing the tenth year of survey data for this area. Numbers were consistent with previous years with most seals recorded being adult female and seen in peak numbers through the summer months before dispersing to pup. Nursing mothers were surveyed on Lundy Island from August through to November but no photo ID matches were made to seals recorded along the North Devon coast suggesting that the North Devon coastal seals do not use the island to pup on. Seals that spend their summer months in North Devon have been recorded with pups in West Cornwall and also recorded there post pupping.

As at the end of 2019, 82% of the different seals in the North Devon photo identification catalogue were female. The number of seals in the catalogue and the number added to the catalogue each year does not indicate population size. This site is part of a network of sites connected by seals across the Celtic Sea so the numbers vary because different seals are identified each year.

South Devon, Brixham area - Sarah Greenslade, 'The Seal Project' and Ellie Knott (DWT)

At 'The Seal Project' we record seals in the area on almost a daily basis, with intentions to extend our area of reach. We had a variety of engagements and educational based projects organized, including a variety of talks and collaborations with Fishcombe Cove Café, Operation Cetacean, Duke of Edinburgh Gold Award Students, Brixham College and Plymouth University. We are now recognized within the Brixham area as the 'go to' people to contact if anyone has concerns about seals in the area. We have a good an ongoing relationship with MDL Brixham Marina who allow us free access to the Marina to survey the seals within the wavescreen. This relationship works well, however even they are aware of the ongoing issue of seal awareness in the area. A situation sometimes taken

advantage of. Hence the Marina themselves do not promote seal sightings as this caused some considerable 'rubber necking' water-based traffic over the summer season last year. This was not just from other private vessels but also pleasure boats. This is something we do need to work on, with the local pleasure boat companies. There were sightings of common seals in the Exe and also hauled out in the marina in Brixham.

Dorset - Sarah Hodgson of Dorset Wildlife Trust

In 2019, a total of 85 casual seal sightings were recorded in Dorset. This figure has gone down since 2018 but it's difficult to know whether this is indicative of a decrease in seals in the area as these are casual sightings and no effort-based surveys have been conducted. Grey seals were spotted most frequently, 50 times. Common seals were recorded on 19 occasions and the remaining 16 sightings were unconfirmed species. Seals were recorded along the length of the Dorset coast throughout the year. Last year there was a drop in the number of sightings between June to August. The highest number of seal sightings were in May (n=14) and September (n=12). A further 12 seals were added to the Dorset Seal photo id catalogue during the course of the year bringing the total number of catalogued individuals to 62. There were several re-matches including a large adult male grey seal that was spotted in February, March and April hauled out on pontoons in Lyme Regis.

Channel Isles: Alderney - Dr Mel Broadhurst-Allen, Alderney Wildlife Trust

For 2019, the Alderney Wildlife Trust (AWT) completed monthly land and vessel based observation surveys for marine mammals across Alderney (Channel Islands), throughout the summer. A grey seal population assessment was also completed during their breeding season (October – November). The land-based surveys provided a limited number of marine mammal observations.

The vessel based surveys for 2019, however, produced the largest number of grey seal sightings to date. Approximately 40 sightings of grey seals were spotted, from April – August, with individuals usually seen in groups of approximately 12 around offshore islets, including the Renoquet Reefs. The population assessment was also a success, with several females and our charismatic large male seal hauled out on these islets during each visit (within their breeding season).

Photographs of grey seal individuals were taken during surveys (see below taken on 29/08/19 by Dani Clifford) and also opportunistic sightings to help build a (basic) seal photographic identification catalogue. This is shared with UK, Channel Islands and French seal experts to identify seal movements/visits/group dynamics across the Channel.

The notable highlight for 2019 was good weather and tides (!) for us to be able to complete the regular vessel based surveys, compared to previous years. These surveys are in collaboration with marine conservation bodies across the other Channel Islands and France, such as La Société Guernesiaise. Initial information suggests the abundance of grey seals is highest on Alderney during the breeding season, compared to the other Channel Islands and French survey sites.

Ireland - Sam Brittain, Animal Care Manager, SRI

In Summer 2019, we successfully completed a research project attaching heart rate monitors to our common seals. The aim was to discover what processes of rehabilitation and being in the centre were causing stress to the seals and how we might be able to lower their stress in care. It was determined that practises involving handling causes high heart rates. Having many visitors increased that and caused a longer recovery time. Other problems included loud banging causing heart rate spikes, and it was determined to be metal drain covers being slammed. Sensitivity training has been added for all staff for this issue.

The main project of 2020 is to survey and hopefully gain protections from disturbance on a beach in Co. Wicklow called Limekiln Beach, on Brides Head. The beach is in constant use by grey seals for resting. In Autumn, there are several pups also born here among the haulout and then into late winter it becomes vital as a place for them to rest and moult. We are seeking year-round protections for the beach and thus far in surveying humans visiting the area,

it seems the overwhelming majority are in support of this. The seal numbers vary hugely but there have been reports of up to 120 on the beach at a time but there have been days with as little as two seals. What's important is there is consistently some grey seals using the habitat and the low numbers could be due to unseen disturbances outside of survey times.

2019's overall tally of seals is 111 (30 common seals and 81 grey seals). This is similar in numbers since the previous year's total of 117 seals (34 common seals and 77 grey seals). In Winter/Spring 2020, SRI rescued an additional 35 grey seals and 1 ringed seal. In Ireland, current data indicates there is roughly 5,000 grey seals and 2,500 common seals.

12. Cetaceans

Editors: Duncan Jones, Niki Clear, Dan Jarvis and Jennifer Simpson

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Odontocetes Report 2019

Cornwall

Odontocetes sightings trends observed in Cornwall Wildlife Trust data

There was a notable decline in bottlenose dolphin sightings generally, with a significant dip in 2019 – it's likely bottlenose dolphin are spending more time in other parts of the SW but this will be investigated through the SW bottlenose dolphin consortium project. Common dolphin (52%) was the most commonly reported species, followed by unidentified dolphin species (28%) and harbour porpoise (16%).

Both common dolphin and harbour porpoise sightings have increased again this year. Sightings of both species are well above the 2009 – 2019 averaged, which is interesting because 2019 was a particularly windy year. Weather data from the Newquay Weather Observatory recorded above average wind speeds for every month in 2019. Higher wind speeds generate higher sea states and make cetacean observations tricky.

A growing concern is the elevated numbers of cetacean strandings. Numbers of stranded animals has continued to increase yearly since 2016.

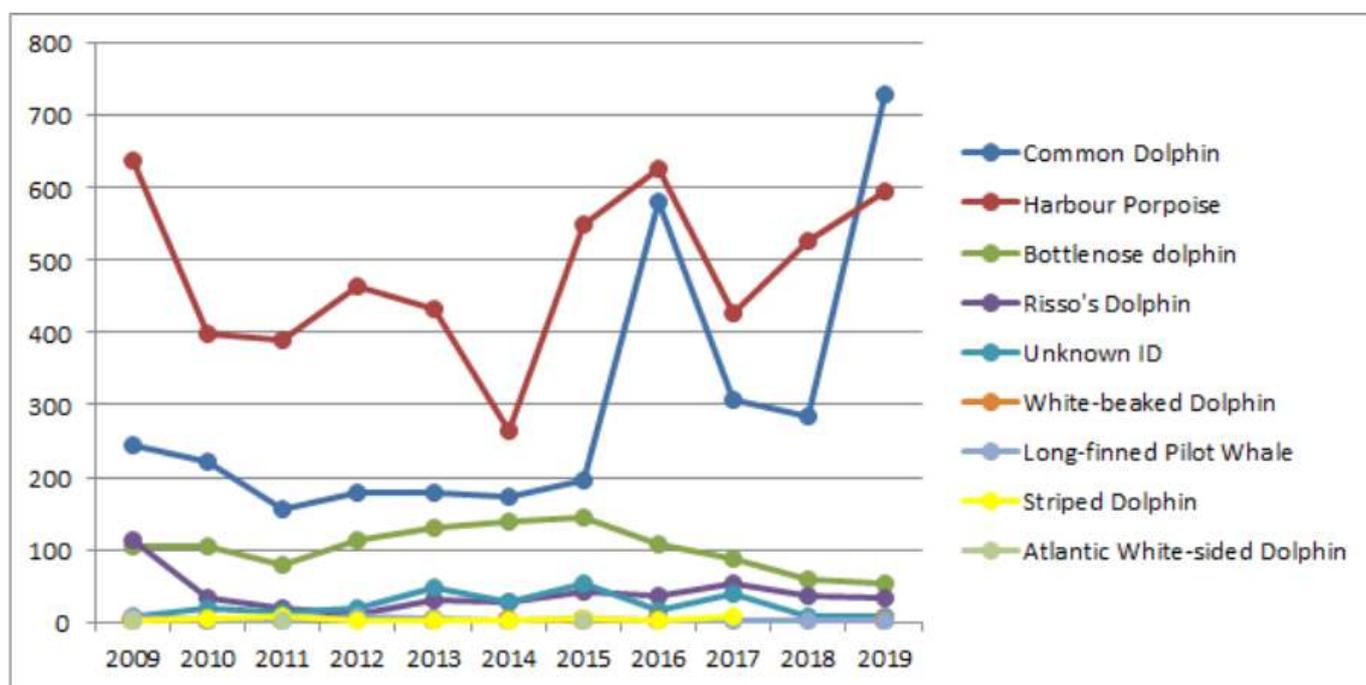


Figure 12.1. Odontocetes sightings in Cornwall and the Isles of Scilly 2009 – 2019. ERCCIS.

Table 12.1. Cetacean strandings in Cornwall and the Isles of Scilly 2019. ERCCIS.

Species	219	Average 2009 to 2018
Harbour Porpoise	594	435.7
Common Dolphin	729	201.2
Bottlenose Dolphin	54	106.1
Risso's Dolphin	30	39.2
Long-finned Pilot Whale	2	2.4
White-beaked Dolphin	3	1.7

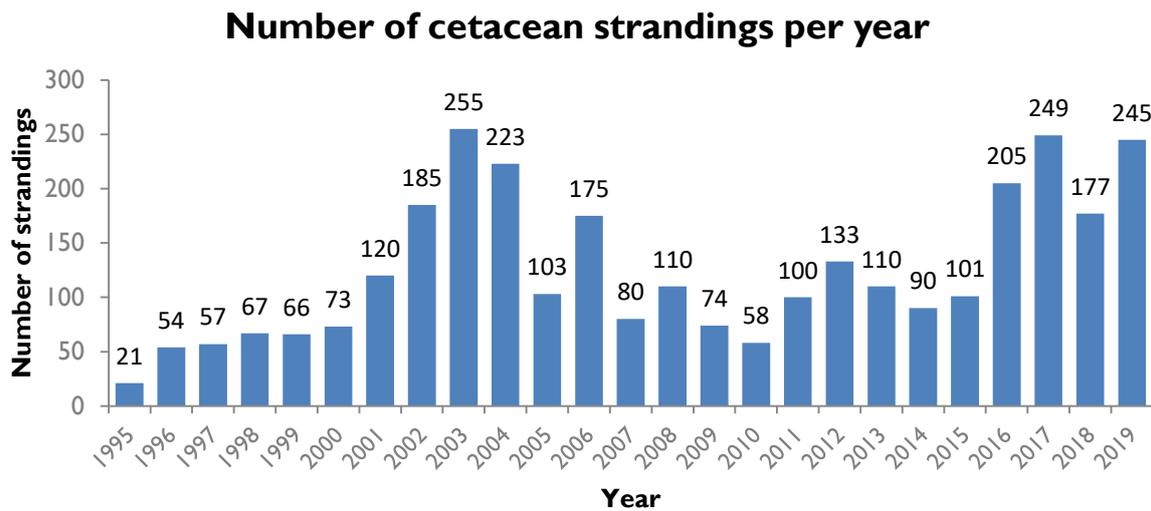


Figure 12.2. Cetacean strandings in Cornwall and the Isles of Scilly 1995-2019. ERCCIS.

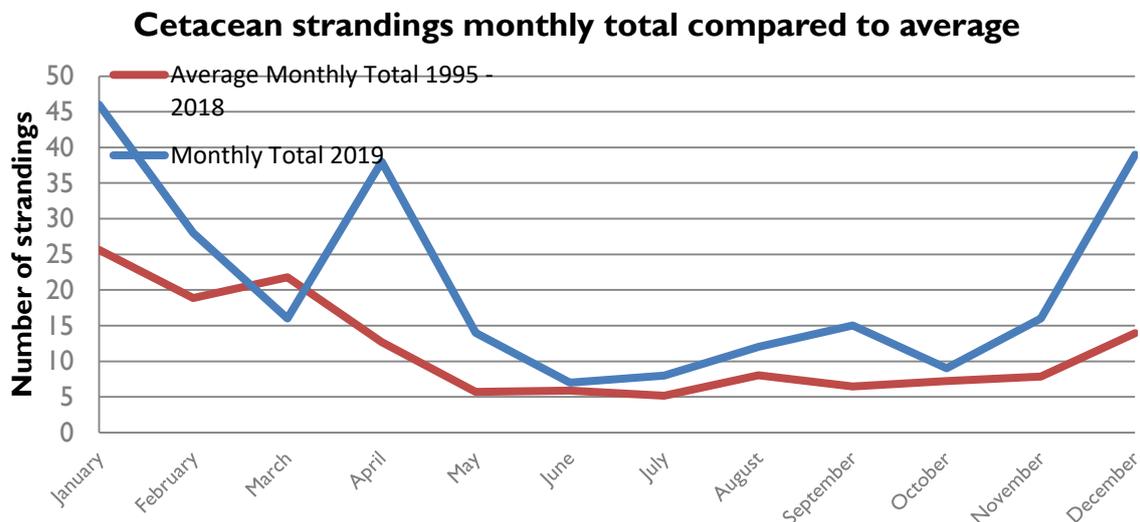


Figure 12.3. Cetacean strandings in Cornwall and the Isles of Scilly monthly in 2019 compared to 1995-2018 mean average. ERCCIS.

British Divers Marine Life Rescue Cetacean Strandings

When it comes to cetaceans, harbour porpoises and common dolphins, being the two most abundant species around the UK, are of course the most frequently reported species. A number of other species were reported though, some

of the rarer ones being Sowerby's beaked and Northern bottlenose whales. It was a notable year for large whale strandings across the country though, including live sperm whale strandings in the Hebrides, Northumberland and North Wales, while the Thames estuary alone saw a minke whale, a sei whale and a humpback whale in the space of three months, which is highly unusual.

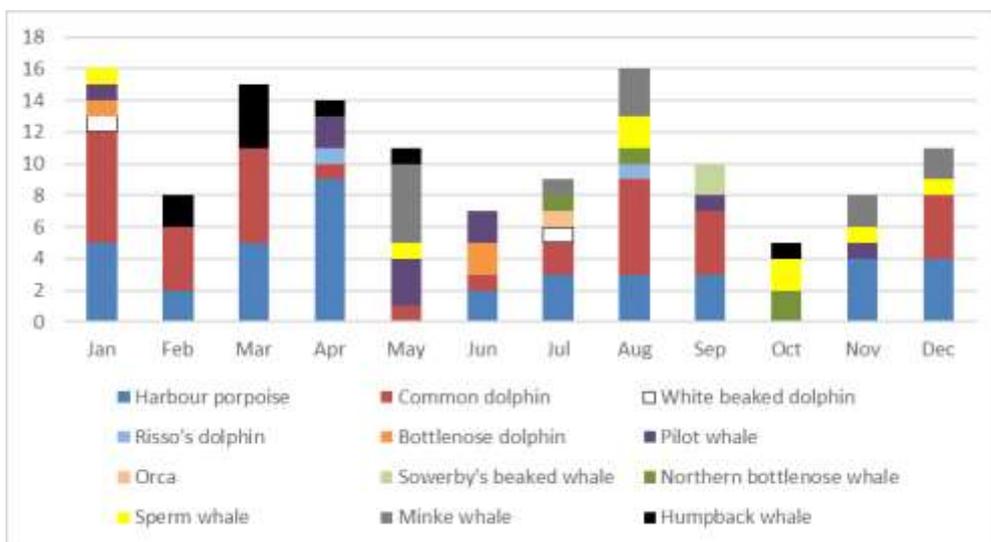


Figure 12.4. Cetacean strandings in Cornwall and the Isles of Scilly monthly in 2019. BDMLR

Cornwall also had an unusually high number of cetacean callouts in 2019, with 17 incidents requiring action ranging from monitoring through to full rescue operation. This seems to have been influenced by the apparently large numbers of common dolphins that were present around the coast for an extended period of time early in the year, and indeed there were a number of incidents involving this species across the same period. Some of these incidents involved pods travelling into the intertidal reaches of the Fal Estuary, which is where we know historically that common dolphins often find themselves getting into difficulty as they are less familiar with tidal ranges and enclosed spaces that can more easily catch them out. Fortunately, most groups managed to find their own way out, but one group of ten, including a calf, had to be herded to safety from Penryn marina by BDMLR Medics and the local harbourmaster using a boat, after they were monitored for hours exhibiting increasingly distressed and disoriented behaviours while the tide went out and were at high risk of becoming stranded on the mudflats. The following day a lone common dolphin in poor health was found at Mylor Bridge and stranded on the outgoing tide, but had to be put to sleep to prevent further suffering, and as this incident ended more Medics were then sent to monitor a pair of common dolphin that, incredibly, were so far up the river they were within sight of Truro city centre!



Plate 12.1. Common dolphin stranding in Cornwall 2019. Images: BDMLR

Aside from these incidents, a common dolphin stranded in Penzance early in the new year died while being assessed by the rescue team, but was found to be ill and also one of the most underweight animals they had ever come across. Another common dolphin live stranded and died at Carbis Bay early one morning just a few days later as the first rescuer arrived on the beach, however another one was then found alive across the bay between Hayle and Gwithian. Despite the best attempts of the team, this animal kept washing back to shore after attempts to refloat it, so unfortunately had to be put to sleep. There were some happier endings though, as a mother and calf pair of common dolphins that stranded at Carbis Bay in April were successfully rescued, and for the sake of variety a harbour porpoise found on Porthmeor beach, St Ives, late on a very stormy day in March was relocated to the harbour for safety and also successfully rescued. Through the rest of the year, a humpback whale that briefly came close in to the surf at Bude raised a lot of alarm in May, but had already moved off before Medics arrived. A common dolphin that live stranded at Hannafore, Looe, was very ill and put to sleep in June. Yet another common dolphin live stranded on Porthkidney beach, Lelant, in July, but died just as the rescue team arrived. In September there was a very unusual live stranding of a pilot whale calf on Hayle beach that died soon after the first rescuers arrived – normally pilot whales are highly social, stay together in large groups, and are well known for beaching together in mass stranding events. However, in this case for whatever reason the calf was alone, there were no sightings of pilot whales around Cornwall at the time. The final incident of the year took place just before Christmas, when a common dolphin live stranded on Hayle beach early in the morning. This time, with the help of Hayle Surf Life Saving Club's beach vehicle, this animal was actually relocated off the beach and taken by car to Carbis Bay where it was successfully refloated in much calmer and safer conditions, as the sea at Hayle was quite rough that day.

Harbour porpoise (*Phocoena phocoena*)

Harbour porpoises were sighted on 16 occasions by Padstow Sealife Safaris in 2019. The majority of these sightings were in the spring between late March and early May which other sporadic sightings between June and October. Pod size was generally between two to six individuals.



Harbour porpoises were once again recorded in every month of the year in Mount's Bay and tour operator Marine Discovery Penzance recorded porpoises in every month they ran tours. They sighted a total of 1293 individuals on 573 occasions. The average group size was 5. Sightings numbers peaked in August. A luecistic porpoise was recorded again this year (Plate 2). The animal was recorded on 10th July The markings on the animal identified it as being a different animal to the one sighted previously. July and August saw high numbers of calves recorded once again demonstrating Mounts Bay as an important calving area.

Plate 12.2. Luecistic harbour porpoise in Mount's Bay 10th July 2019. Image: Hannah Jones Marine Discovery

A porpoise stranded (dead) on Tregonhawk Beach (Whitsand Bay) on 6th February (Rame Peninsula Beach Care Facebook page).

Table 12.2. Sightings of harbour porpoise by month in Mount's Bay, Cornwall

Month	Number of animals sighted	Occasions sighted
March	12	5
April	1	1
May	21	12
June	12	2
July	346	87
August	481	86
September	261	26
October	156	26

Common dolphin (*Delphinus delphis*)

Common dolphins were sighted by Padstow Sealife Safrais on 106 days of operation and were sighted throughout the season. There were often multiple sightings throughout each day but difficult to determine if same pod was encountered each time. Sightings were at their highest in April and June and at their lowest during September and October, but this also correlates with a run of poor weather preventing us from running on multiple days. Average pod size around 20. Pictured is a newborn calf, still with bent dorsal fin and trail of milk in the water from its mother.

Common dolphins were sighted in every month of the year in Mount's Bay and tour operator Marine Discovery Penzance recorded common dolphins in every month they ran tours. They sighted a total of 6258 animals on 294 occasions with 'hundreds' in the Bay reported on 28th March. The average pod size was 40. Sightings peaked in August. Melanistic individuals were observed fairly regularly leading to speculation that this could be a fairly common occurrence among common dolphins. Individuals with the flesh detached from the upper beak were also recorded on a number of occasions. This condition does not seem to effect the animals behaviour. Sightings of calves peaked in July and August and once again Mount's Bay appeared to be an important nursery area for this species.

Table 12.3. Sightings of common dolphins by month

Month	Number of animals sighted	Occasions sighted
March	406	14
April	765	37
May	243	10
June	168	8
July	1167	55
August	1826	91
September	949	46
October	743	33



Plate 12.3. A common dolphin leaps in front of St Michael's Mount, Cornwall. Image: Hannah Jones.



Plate 12.4. Common dolphins off Padstow. Image: Vicki Hall.

On 17th January, a juvenile dead common dolphin was found floating dead off Kingsand Beach in Plymouth Sound by a paddle boarder. This was the day after a pod had made their way seawards out of a shallow creek. (From the Rame Peninsula Beach Care Facebook pages.)

Bottlenose dolphin (*Tursiops truncatus*)

Billy Heaney (@BillyHeaney) tweeted at 3:19 pm on Thu, Mar 28, 2019: Approx. 10 Bottlenose dolphins swimming past Godrevy lighthouse 15 minutes ago.

Padstow Sealife Safaris sighted bottlenose dolphins once last year on the 23rd October 2019, close into shore by the Rumps. Three individuals were briefly sighted, one of which was a large calf.

Bottlenose dolphins were recorded in Mount's Bay at various times throughout the year and tour operator Marine Discovery Penzance recorded them once in May and five times in September. In Mount's Bay both the offshore and inshore variants of this species can be sighted. Table 3 lists all the sightings from 2019 and indicates whether they were considered to be an offshore or inshore pod. Calves were recorded with every group sighted

Table 12.4. Sightings of bottlenose dolphins by Marine Discovery Penzance

Date	Number of animals sighted	Variant
31/5/2019	60	Offshore
8/9/2019	50	Offshore
13/9/2019	20	Inshore
15/9/2019	8	Inshore
15/9/2019	16	Inshore
15/9/2019	30	Inshore

Risso's dolphin (*Grampus griseus*)

Risso's dolphin were sighted on three occasions by Padstow Sealife Safaris. All sightings were in the late summer and occurred between 26th August and 14th September. Pods were spread out but four to six individuals were sighted each time with juveniles.

Risso's dolphins were sighted by tour operator Marine Discovery Penzance on four occasions and a total of 64 animals were sighted. This species was sighted in May, June, August and September. Juveniles and calves were present in all the pods sighted in May and June but not in August and September. In previous years the Bay has been used as a nursery area for this species. There have also been photo identification matches between Mount's Bay and Bardsey Island, Wales and The Isle of Man.

Andrew Barker filmed about twelve Risso's Dolphin on 21st April about 15 miles south west of Looe. Doug Herdson.



Plate 12.5. A Risso's dolphins leaps off Penzance, Cornwall. Image: Hannah Jones, Marine Discovery Penzance.



Plate 12.6. Risso's dolphin off Padstow. Image: Rosie Brown.

Devon

We have received limited records for Devon this year. If you have cetacean records from Devon and would like to contribute to the report please get in touch.

Harbour porpoise (*Phocoena phocoena*)

1st September: a harbour porpoise live stranded at Wembury, Plymouth, but died shortly after Medics arrived.

Common dolphin (*Delphinus delphis*)



Common dolphins were being seen in Plymouth Sound and as far into the Tamar as Millbook (Cornwall) and (I am told) the bridges from early to at least latish January. Said to be feeding on sprats and mackerel. 16 January (Facebook posting on the Rame Peninsula Beachcare pages). Sighting of a significant number (KH counted about 15 on the surface from the video) off Tinside on 20 January (John Newman on the British Marine Life Study Society Facebook page). Keith Hiscock

Plate 12.7. Common dolphin in the Cattewater off Drystack Marina and about 400m seaward of Laura Bridge, Plymouth on 21st January. Image: Peter Holt.

30th March: pod of common dolphins seen from a boat off Torquay - one individual had its upper jaw bent upwards with skin missing, however it appeared to be behaving normally and did not seem to be obviously debilitated or unhealthy.

16th September: a lone common dolphin briefly entered the inner harbour at Brixham, Devon, and was monitored by BDMLR Medics as it is a known dolphin trap. It made its own way back out and was observed feeding in the outer harbour later on before moving offshore.

25th December: a pod of common dolphins came into the outer harbour at Brixham, Devon, and were monitored by the Coastguard until they left again.

Lundy

The following records are extracted from the draft of the Lundy Field Society Annual Report for 2019:

Harbour Porpoise (*Phocoena phocoena*)

There were records on five dates in January from various locations (Dean Jones and Zoë Barton) with the next records during the middle two weeks of July when Chris and Sharron Blackmore made timed observations from Castle Parade and additional observations off the west coast. Porpoise were mostly present in small numbers but a pod of seven was observed off the north end on 2nd August (Dean Jones and Zoë Barton). Sometimes seen with calves. Further observations were made through the rest of the year with the last on 21 December. There were a total of 26 days when observations were logged. Thanks also to John-Paul Healey, Paul Thompson for their observations.

Common dolphin (*Delphinus delphis*)

The first recorded observation in 2019 was on 10th January when ten were seen feeding off the east coast (Dean Jones). On 18th June, large shoals of 'bait fish' were seen along the west coast attracting thousands of seabirds and 60+ common dolphin including many young individuals (Dean Jones). Otherwise, maximum numbers seen from the island on any one occasion were c. 23 (in two pods) on 2nd August (Dean Jones and Zoë Barton) and c. 25-30 off the SW Point moving north on 28th August (Tony Taylor). Timed observations were made from Castle Parade during July by Chris and Sharron Blackmore. There were a total of 14 days when observations were logged in 2019 with the last on 17th October. Thanks also to: Sian Cann, M. Jones, Mandy Dee, Andrew Benguey, Andy Jayne and Tim Jones for their observations.

Bottlenose Dolphin (*Tursiops truncatus*)

12th June – nine off the west side (approximately between Quarter and Threequarter Wall). Some social interaction apparent at the surface: 'labtailing' with occasional upward tail flick flipping some surface water into the air, several high leaps, mainly less high. After initial interest, seabirds ignored the dolphins - maybe suggesting their activity was not related to feeding. Chris and Carol Baillie.

Dorset

We have received limited records for Dorset this year. If you have cetacean records from Dorset and would like to contribute to the report please get in touch.

Bottlenose dolphin (*Tursiops truncatus*)

9th June: a lone bottlenose dolphin was monitored at Green Island, Dorset, as it was lingering close inshore and being approached by swimmers, however it appeared to be healthy and no action was required (likely Danny the social solitary BND but ID not confirmed).

Danny the social solitary bottlenose dolphin has become much more prolific in 2019 after first appearing in 2018. His main range appears to be from Portland Harbour to Poole Harbour. His behavior has increasingly become more focused on human interaction and he has frequently entered harbours following boats and jet skis and remained within them for extended periods of time. He has a Facebook page dedicated to him ('Danny the dolphin') and positive advice and information is being provided via BDMLR and the Marine Connection as it has become a focal point for the local and wider community to find out more about him. Generally, water users are respectful of him and there have been surprisingly few issues with disturbance, so it seems the right messages have gotten through soon enough to get the community on side early, which is significantly positive news. On the other hand, he has now been entangled in boat mooring buoy lines three times in less than six months and been rescued on each occasion. The first time was off Swanage Harbour in rough conditions on 30th October, and then again in Portland Harbour on the 17th December 2019 and 11th February 2020. He has been very lucky to have not been injured, let alone survived his interactions with mooring ropes, but yet again demonstrates one of the key issues with social solitary dolphins that their increasing habituation to human activity puts them at higher risk of incidents like this.

Mysticetes Report 2019

Edited by Dan Jarvis.

Data contributed by Niki Clear (Environmental Records Centre for Cornwall and the Isles of Scilly/Cornwall Wildlife Trust); Duncan Jones (Marine Discovery Penzance); Jenny Simpson (Padstow Sea Safaris); Nikki Banfield (Isles of Scilly Wildlife Trust); Ellie Knott (Devon Biological Records Centre); Dean Woodfin Jones (Lundy) and other observations sent in by SWME members.

Minke whale (*Balaenoptera acutorostrata*)

There were 32 sightings of this species reported to the Environmental Records Centre for Cornwall and the Isles of Scilly in Cornwall during 2019, which is a little above the ten-year average but still down on 2018 (Figure 10). As with previous years, sightings appeared to begin in Spring and peaked in mid-Summer. There were many sightings in the vicinity of Mount's Bay (19 sightings) with smaller clusters on the north coast near Padstow (10 sightings) and Falmouth (at least 4 sightings) as reported by local wildlife watching boat operators (Photo 1). A seawatch at the north end of Lundy, North Devon, also produced a minke whale on 2nd August as it was seen approaching the island from the north before turning and heading off to the west.

All of the encounters in 2019 were of lone individuals, though one was seen feeding in the same area as a humpback whale in August near Mount's Bay. Most of the sightings involved animals that appeared to be feeding or travelling, and no exceptional behaviours (e.g.: breaching) were observed.

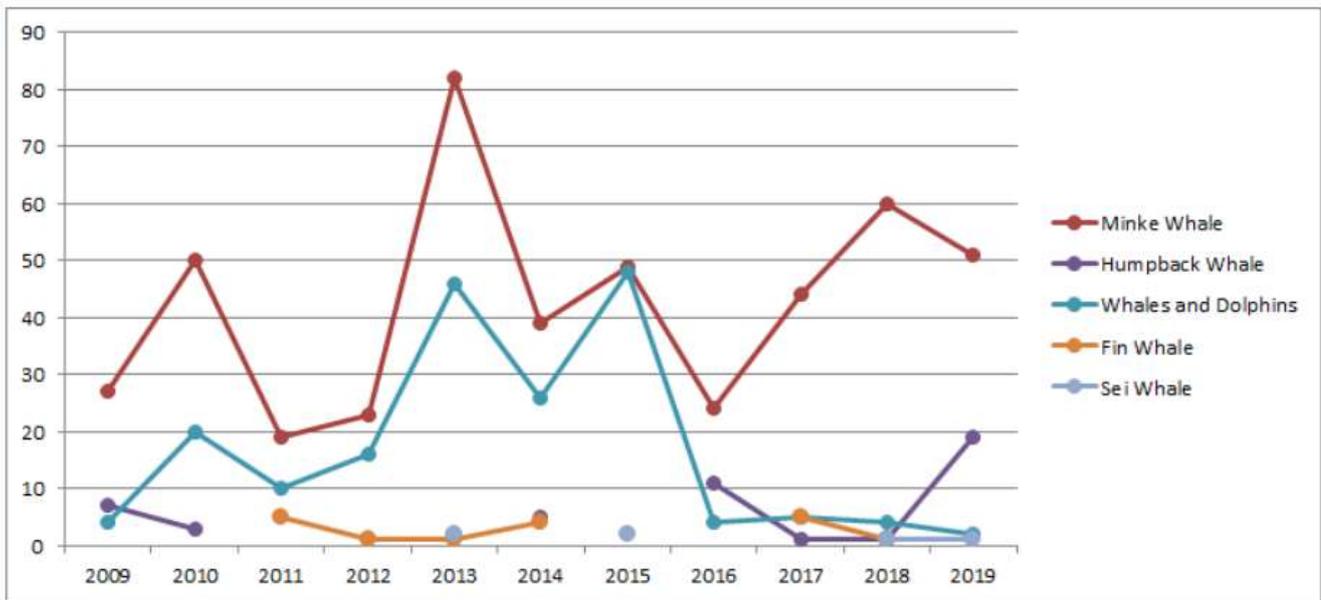


Figure 12.5. Baleen whale sightings in Cornwall and the Isles of Scilly 2009 – 2019. ERCCIS.



Plate 12.8. Minke whale, Land's End. Hannah Jones / Marine Discovery Penzance.

A carcass in an advanced state of decomposition found stranded in a cave on Perranporth beach in October was most likely a minke whale based on its size and few identifiable remaining features (Plate 9). Strandings Volunteers from the Cornwall Wildlife Trust Marine Strandings Network attended with a veterinary pathologist to take measurements, photographs and samples. There was also a report of a dead whale that had become entangled in creel ropes off Land's End shortly before this stranding, but no further information or photographs were forthcoming to confirm species, though again it is suspected to be a minke whale from the details that were given. It is not possible to confirm if these two incidents involve the same carcass.



Plate 12.9. Probable minke whale carcass, Perranporth. Dan Jarvis / Cornwall Wildlife Trust.

Sei whale (*Balaenoptera borealis*)

There was a very unusual confirmed sighting of an individual off the coast near Padstow, Cornwall, on 7th July (Plate 10). Although not particularly rare compared to fin whales, sei whales are very rarely recorded around the UK coast, whereas fin whales are reported in most years.

There were no recorded strandings of this species in South West England during 2019.



Plate 12.10. Sei whale, Padstow. Jenny Simpson / Padstow Sea Safaris.

Fin whale (*Balaenoptera physalus*)

There were no recorded sightings or strandings of this species in South West England during 2019.

Humpback whale (*Megaptera novaeangliae*)



Figure 12.6. Humpback whale sightings distribution in Cornwall February – April 2019. Cornwall Wildlife Trust.

2019 was an exceptional year for humpback whale sightings, with 19 confirmed sightings in total, all from around Cornwall. Most of the sightings came in late winter and spring from St Ives Bay, Fal Bay, Coverack and the Land's End areas, and at least two different individuals were around at the same time owing to sightings being made on the same day from widely different locations (Figure 6). A sighting near Land's End was especially spectacular as it was responsibly captured on film from a drone and showed an individual elegantly navigating close to shore in very clear waters on a very sunny day. In Summer there were two more sightings, one at Bude where a lone animal came very close to the surf break and caused a great deal of concern that it may get stranded, though it quickly moved off and disappeared. The final sighting was also rather spectacular as an individual was witnessed by several observers' lunge feeding off Lamorna in early August (Plate 11).

There were no recorded strandings of this species in South West England during 2019.



Plate 12.11. Humpback whale lunge feeding, Mount's Bay, Cornwall. Hannah Jones / Marine Discovery Penzance.

13. Fisheries, MPAs and management 2019

Editor: Richard White

Contact: richard@richardhwhite.co.uk

Inshore Fisheries and Conservation Authorities

Inshore Fisheries and Conservation Authorities (IFCA) were established by the Marine and Coastal Access Act (2009). Replacing Sea Fisheries Committees, ten IFCAs have a duty to manage the inshore sea fisheries in English waters out to 6 nm while:

- seeking to ensure sustainable exploitation of fisheries
- balancing socio-economic benefits with the protection of, or the promotion of the recovery of, the marine environment from past and present exploitation,
- taking steps to contribute to the achievement of sustainable development, and
- balancing the needs of all persons exploiting the district's fisheries.

There are four IFCAs covering waters around the south-west of England: Isles of Scilly, Cornwall, Devon and Southern¹. They have a key role to play in the management of fisheries and protection of the marine environment and so this chapter focusses on the work of the four IFCAs in the region in the past year.

Marine Conservation Zones

This year saw the designation of the third, and final, tranche of Marine Conservation Zones (MCZs). Also established through the Marine and Coastal Access Act (2009) the initial recommendations for these sites were made by four stakeholder projects around England, with the Finding Sanctuary project covering the south-west. The 22 new MCZs in the south-west are:

- Axe Estuary
- Bembridge
- Camel Estuary
- Cape Bank
- Dart Estuary
- Devon Avon Estuary
- East of Start Point
- Erme Estuary
- Helford Estuary
- Morte Platform
- North East of Haig Fras
- North West of Lundy
- Otter Estuary
- Purbeck Coast
- South of Celtic Deep
- South of Isles of Scilly
- South of Portland
- South West Approaches to the Bristol Channel
- South West Deeps (East)
- Southbourne Rough
- Studland Bay
- Yarmouth to Cowes

and further details of all these sites can be found at:

<https://www.gov.uk/government/collections/marine-conservation-zone-designations-in-england#2019-mcz-designations-and-factsheets>

All public authorities have a duty to ensure that the conservation objectives of MCZs are met, or at the very least not hindered. IFCAs have introduced management measures to protect the earlier MCZs (Tranche 1 and Tranche 2, designated in 2013 and 2016 respectively) and are currently working on assessing risks to designated features in these latest sites.

¹ <http://www.association-ifca.org.uk/Content/ifca.map.pdf>

Updating the Lundy MPA Zoning Scheme map

The need to update the MPA's Zoning Scheme had been recognised for some time, as the map currently being used dates from 2012. Many of the changes which needed to be included in an updated map related to various new fisheries regulations which had been brought in by the Devon and Severn IFCA. The last of these changes (for the time being), most of which were associated with the introduction of new permitting byelaws, happened towards the end of 2018. One other inclusion that has been made to the map relates to the designation of HMS Montagu, which became a scheduled monument in September 2019, bringing the total number of historic wreck sites within the MPA to three. Collaboration between the IFCA, Natural England, the Lundy Company, the North Devon Biosphere Reserve and the Advisory Group's Secretary allowed for the relevant GIS mapping layers from various organisations to be collated and formed into a single map.

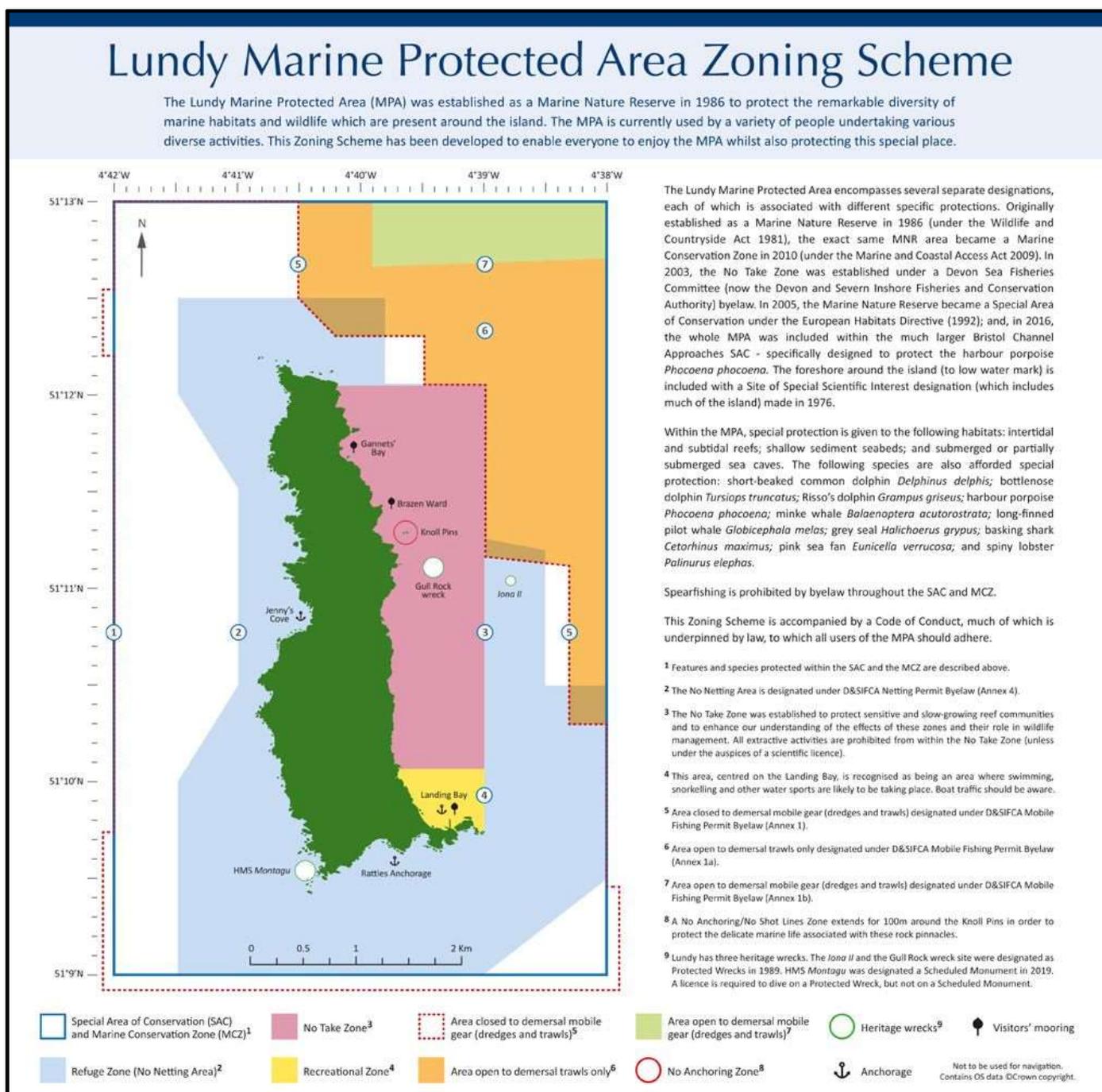


Figure 13.1. Lundy MPA Zoning Scheme. (Copied from the Lundy Field Society Annual Report) (KH notes that the Gull Rock wreck site is displaced from its correct location but is at the co-ordinates given in the designation.)

Review of Highly Protected Marine Areas

During the second half of 2019, Defra conducted a review of Highly Protected Marine Areas (HPMAs), with the possibility of increasing their number in England at least. The review was led by Richard Benyon, a former fisheries minister

Live-caught wrasse fisheries

In recent years, fisheries for live pot-caught wrasse have developed in Cornwall, Devon and Severn, and Southern IFCA districts, providing cleaner fish for Scottish salmon farms. Although small, and taking place in inshore waters only, much work has been carried out to ensure that these fisheries are sustainable. All three IFCAs have introduced either voluntary or statutory measures, including specifying minimum and maximum landing sizes, closed seasons to allow spawning, and limits on the numbers of pots used².

In the absence of stock data, monitoring has focussed on gathering data on the numbers of fish caught and landed in relation to the number of pots used. Trends in these data can tell much about the sustainability of fisheries, with decreases in Catch per Unit Effort (CPUE) and Landing per Unit Effort (LPUE) providing an indication of overfishing. Research carried out by Devon and Severn IFCA, with the support of local fishers, has suggested that catches and landings of rock cook (*Centrolabrus exoletus*) have declined over the past three years³, prompting a proposed amendment of management measures, including the prohibition of the removal of rock cook from the fishery.

Spiny lobster research

Both divers and fishers have reported increasing numbers of juvenile crawfish (*Palinurus elephas*), also known as spiny lobster, in recent years. Fishers expressed concern that there might be a 'boom and bust' fishery for this species once these reached a size that allowed them to be landed. Responding to this, Isles of Scilly, Cornwall and Devon and Severn IFCAs, together with fishers and researchers from the University of Exeter, have been carrying out research to provide data that can support future management measures. Studies have included tagging, detailed size measurements, GIS mapping of landings data and genetic sampling.

A workshop was held in April 2019, bringing together IFCAs, fishers, NGOs, academia, regulators, and other stakeholders to discuss the results of ongoing research and options for future management. Suggestions included measures relating to size, both minimum and maximum landing sizes, temporary or longer-term spatial restrictions, temporal fisheries closures and catch limits based on track record in the fishery though it was recognised that a range of measures for both commercial and recreational fishers would be needed⁴. Measures are already in place in the Devon and Severn IFCA District prohibiting the landing of crawfish from those MCZs where the species is a designated feature.

WWF UK-SEAS Project

Two WWF summary reports are available online: <https://ukseasproject.org.uk>. One outcome the 'Compass Card', an assessment system indicating how well or poorly a Marine Protected Area is being managed, provides a tool for managers.

Another part of the project looked at the role of sustainable finance for MPAs. A figure of £156,000 per annum had been arrived at for a North Devon MPA to be managed effectively. If this figure is then multiplied by the number of MPAs in the UK (175 as of May 2019), this amounts to an annual spend of £27.3 million – a sum that doesn't exist as yet! A further report on this has been published by WWF (available to download at the aforementioned website).

² See measures for [Southern](#), [Devon and Severn](#) and [Cornwall](#) IFCAs

³ <https://www.devonandsevernifca.gov.uk/content/download/5802/39908/version/3/file/Curtin%2C+Henly+and+Stewart+%282020%29.+Three+Year+Comprehensive+Review+of+the+Live+Wrasse+Fishery+V1.6+Final.pdf>

⁴ See summary presentation: <https://www.devonandsevernifca.gov.uk/Resource-library/G-Authority-Communications-Publications/Presentations/Spiny-Lobster/Update-on-Crawfish-Spiny-Lobster-Research-Presentation-August-2019>

The UK-SEAS project was unexpectedly brought to a halt in September 2019 when the main sponsor of the project, Sky Ocean Rescue, decided to withdraw and transfer its sponsorship to tackle plastic pollution in the oceans.

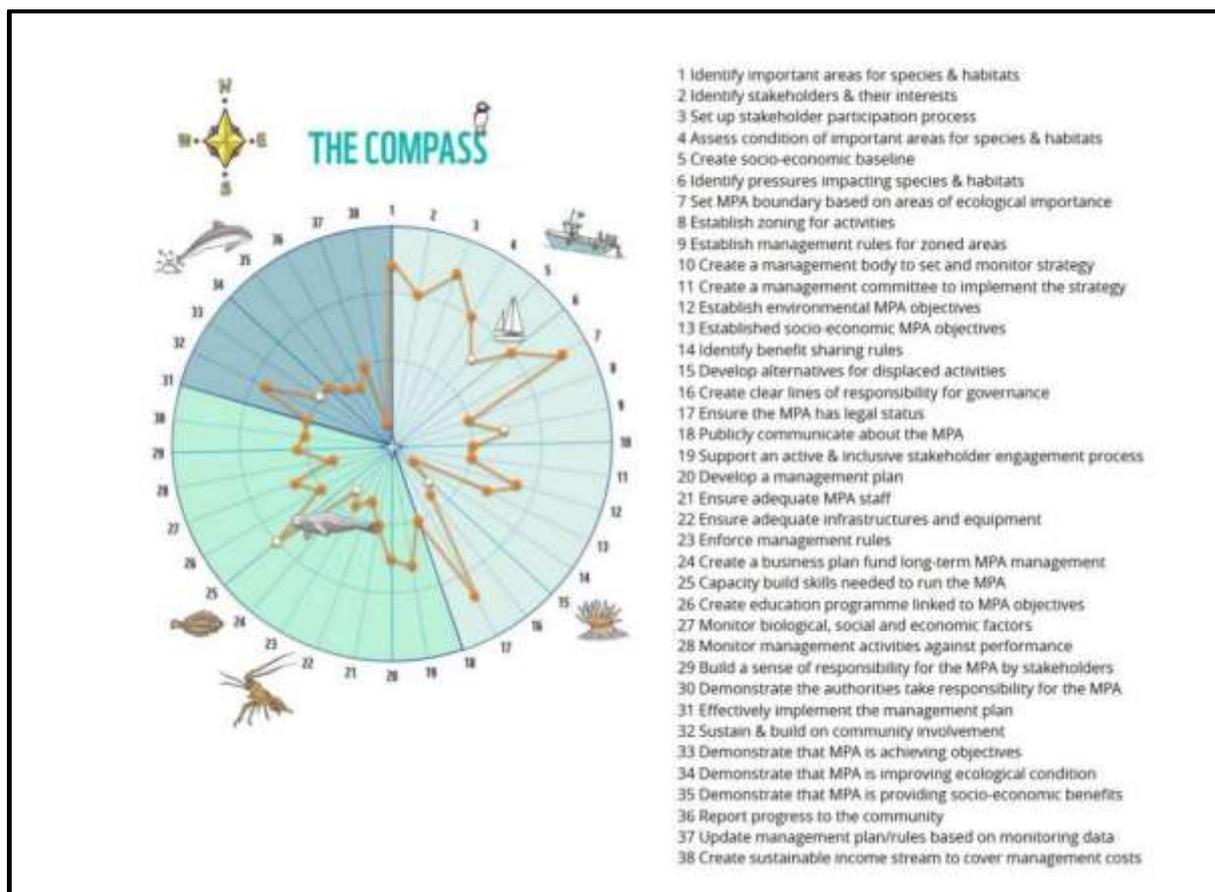


Figure 13.2. The 'Compass card'. Developed as a part of the UK-SEAS project.

Individual IFCA management and research

In addition to the projects highlighted above, each IFCA has an extensive programme of research and management, responding to local fisheries and conservation needs. An overview of key issues are presented below, along with references providing links to further information.

Isles of Scilly IFCA

The Isles of Scilly IFCA is in the process of **reviewing the fishing gear permits bylaw**^{5,6}. To support this, a programme of stakeholder engagement is being carried out and data gathered on the socio-economic value of the local fisheries, and on the vessels, both local and from elsewhere, that operate in Scilly's waters.

Complementing these activities, and providing additional information to support the bylaw review, the IFCA is carrying out an extensive **programme of research into seabed habitats**. This included a sidescan sonar survey, carried out by Cornwall IFCA, to generate data on the different seabed habitat types to be found, with ground-truthing to test the results using video survey⁷, undertaken by the University of Plymouth.

All these studies form part of a wider project, **Site Classification to Inform Sustainable Lives and Livelihoods for Fisheries and Ecosystems (SCILL-E)** project, carried out jointly with the University of Plymouth⁸.

⁵ See <https://www.scillyifca.gov.uk/news-and-press>

⁶ <https://secure.toolkitfiles.co.uk/clients/19937/sitedata/Redesign/byelaws-redesign/Fishing-Gear-Permit-Byelaw.pdf>

⁷ <https://sheehanresearchgroup.com/2019/10/25/scilly-2019/>

⁸ <https://sheehanresearchgroup.com/scill-e/>

Cornwall IFCA

Two **Cornwall IFCA Bylaws** were confirmed by Defra in February. The Whitsand and Looe Bay Marine Conservation Zone (Fishing Restrictions) Byelaw 2018 protects features of the Whitsand and Looe Bay MCZ by prohibiting the use of bottom towed gear in most of the site⁹. The Live Wrasse Fishing (Limited Permit) Byelaw 2018 restricts fishing for live wrasse creating a permit system and setting out several different restrictions on the fishery¹⁰. In addition, an initial informal consultation was carried out to inform the development of byelaw to protect salmon and sea trout from close inshore net fishing. Consideration of this byelaw is ongoing, with a second informal consultation planned.

In addition to sidescan sonar work around the Isles of Scilly, mentioned above, and monitoring of the live-caught wrasse fishery¹¹, Cornwall IFCA carried out surveys for both fisheries and conservation management purposes.

The **Fal Oyster Survey** is carried out each year to inform management of the fishery, the responsibility of the IFCA since 2014. This found that the number of native oysters was higher than in previous years; that there has been a good recruitment of scallops; and that slipper limpets are present in high numbers in some areas, though there has been no increase since 2018. A comprehensive survey of bycatch species in the survey was also carried out¹². A **scallop dredging trial** was also carried out off Portloe, to inform development of future stock assessment work¹³.

Sidescan sonar and drop-down video surveys were carried out on areas within the **Eddystone Reef**, part of the Plymouth Sound to Start Point and Eddystone Special Area of Conservation (SAC), as part of the ongoing monitoring of management of the area^{14,15,16}.

A complete list of all Cornwall IFCA's research reports can be found at: [https://www.cornwall-ifca.gov.uk/Research Environment](https://www.cornwall-ifca.gov.uk/Research_Environment)

Devon and Severn IFCA

Changes were made to the **Diving Permit Byelaw** permit conditions on 1st August 2019 to increase the allowance of recreational divers to take 25 scallops per day, up from 15 scallops¹⁷. These changes also introduced additional measures for the management of spiny lobster in relevant MCZs. Development of a **Handworking Permit Byelaw** continued throughout 2019 with 'A Call for Information' campaign on bait digging and hand gathering to collect baseline information and additional evidence to inform the development of the byelaw and potential permit conditions¹⁸. The inherited **Exemptions Byelaw**, allowing the IFCA to issue derogations for scientific purposes, was reviewed throughout 2019. While the MMO and Defra were reviewing the new Byelaw, the Emergency Exemption Byelaw expired which meant that derogations could not be issued.

2020 update – the new Exemptions Byelaw was finally confirmed in early 2020¹⁹

⁹[https://secure.toolkitfiles.co.uk/clients/17099/sitedata/Byelaws%20and%20orders/Cornwall IFCA/Whitsand-and-Looe-Bay-MCZ-Byelaw-2018.pdf](https://secure.toolkitfiles.co.uk/clients/17099/sitedata/Byelaws%20and%20orders/Cornwall_IFCA/Whitsand-and-Looe-Bay-MCZ-Byelaw-2018.pdf)

¹⁰<https://www.cornwall-ifca.gov.uk/live-wrasse-fishery>

¹¹https://secure.toolkitfiles.co.uk/clients/17099/sitedata/Research_Reports/Wrasse-Fishery-report-2018.pdf

¹²https://secure.toolkitfiles.co.uk/clients/17099/sitedata/Research_Reports/Fal-Oyster-Survey-2019.pdf

¹³https://secure.toolkitfiles.co.uk/clients/17099/sitedata/Research_Reports/Scallop-Trials-Portloe-2019.pdf

¹⁴https://secure.toolkitfiles.co.uk/clients/17099/sitedata/Research_Reports/Eddystone-Reef-Box4-SSS2019.pdf

¹⁵https://secure.toolkitfiles.co.uk/clients/17099/sitedata/Research_Reports/Eddystone-Reefs-Box4-2019.pdf

¹⁶https://secure.toolkitfiles.co.uk/clients/17099/sitedata/Research_Reports/Eddystone-Reefs-project-2019.pdf

¹⁷<https://www.devonandsevernifca.gov.uk/content/download/3767/29005/version/1/file/New+Diving+Permit+Conditions+new+item+July+2019.pdf>

¹⁸e.g. <https://www.devonandsevernifca.gov.uk/content/download/3811/29306/version/1/file/Hand+Gathering+Update+August+2019.pdf>

¹⁹<https://www.devonandsevernifca.gov.uk/content/download/5960/41214/version/1/file/Exemptions+Byelaw+2020+News+Item.pdf>

In addition to the spiny lobster and wrasse monitoring work mentioned above, Devon and Severn IFCA has carried out surveys into a wide range of surveys in 2019:

- **herring spawning grounds** in the Severn Estuary – to identify the spawning areas in the Severn Estuary and to determine the genetic patterns in the populations²⁰
- **Habitats Regulations Assessments** – monitoring of fishing activity using IVMS in Lundy SAC and Torbay MCZ; shad bycatch monitoring in the Severn Estuary SAC²¹ and Plymouth Sound EMS²²; and monitoring of potting activity close to seagrass in the Plymouth Sounds and Estuaries EMS²³
- **Environmental DNA (eDNA)** sampling has been undertaken from sites within Lyme Bay and Start Bay – part of a wider project to identify spatial scales and frequency of sampling that are required to effectively monitor inshore fish communities using eDNA techniques
- **cockle and mussel stock surveys** on the Teign, Exe and Taw Torridge Estuaries²⁴
- working with fishers from Torbay and ABPmer to trial the use of **seal deterrents on nets** deployed within Torbay

Southern IFCA

The **Solent Dredge Permit Byelaw** was sent to Defra for review and confirmation in April 2019. As of December 2019, communication between the IFCA and Defra is still ongoing. Following extensive review and consultation, a **Netting Bylaw**, along with associated impact assessments, Habitats Regulations Assessments and SSSI requirements, is currently being drafted. A new **Potting Working Group** has been established, which will review potting activity throughout the District and make recommendations ahead of informal community consultations²⁵. In line with the **Poole Harbour Dredge Permit Access Policy**²⁶, applications for a new entrant to the fishery were invited²⁷.

This year saw the final survey within the Solent Bivalve Stock Survey. This initiative aimed to assess the distribution and abundance of clam and cockle populations over time in Southampton Water, Portsmouth Harbour and Langstone Harbour. The data produced will provide a baseline for monitoring of future trends and feed into development and monitoring of management. Ongoing catch data will be gathered through permit conditions once the relevant bylaw is approved and permits, and associated conditions, applied²⁸.

²⁰ See project introduction in:

<https://www.devonandsevernifca.gov.uk/content/download/1451/13277/version/2/file/Breaking+Down+Barriers+to+Regional+Management+of+Fish+Stocks.pdf>

²¹ <https://www.devonandsevernifca.gov.uk/content/download/5440/37307/version/1/file/MCP+Severn+Shad+vs+Nets.pdf>

²² <https://www.devonandsevernifca.gov.uk/content/download/4172/31522/version/1/file/MCP+Plymouth+Sound+Shad+vs+Nets.pdf>

²³ <https://www.devonandsevernifca.gov.uk/content/download/5660/38878/version/1/file/Plymouth+Sound+and+Estuaries+Potting+on+Seagrass+Monitoring+report.pdf>

²⁴ <https://www.devonandsevernifca.gov.uk/Resource-library/H-Environment-and-Research#>

²⁵ See <https://secure.toolkitfiles.co.uk/clients/25364/sitedata/files/Q3-2019-Newletter-.pdf>

²⁶ <https://secure.toolkitfiles.co.uk/clients/25364/sitedata/files/PHDPB-Access-Policy-19.pdf>

²⁷ See <https://secure.toolkitfiles.co.uk/clients/25364/sitedata/files/Newletter-1-2019.pdf>

²⁸ <https://secure.toolkitfiles.co.uk/clients/25364/sitedata/files/Solent-Bivalve-Survey-2019-Report.pdf>

14. Marine Plastics

Edited by: Delia Webb & Claire Wallerstein

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2019 saw a rapid increase in the numbers of people (groups and individuals) carrying out beach-cleans and litter-picks in coastal areas. This can probably be attributed to the 'Blue Planet' effect brought about by David Attenborough's programme, and an increasing awareness across society of the impact of all our lives and activities on the planet.

Partly because of this increase in effort, beaches in general appeared to be slightly cleaner than previous years. However, this is also a continuation of an ongoing declining trend, borne out by the year-on-year statistics compiled by BeachCare (Keep Britain Tidy), showing a steady decrease in overall marine waste volumes and larger items over the past five years.

However, certain problem items are still appearing with worrying regularity and particular 'hotspot' beaches also remain problematic. While the incidence of many consumer plastics has been on the decrease, for example, fishing waste has remained steady, accounting for around 70% of marine debris on many south west beaches. For example, tens of thousands of 'fishermen's kisses' (small offcut sections of trawl net lost during net mending) were collected from Whitsand Bay in SE Cornwall. These remain one of the commonest items of marine litter found on south west beaches.



Plate 14.1. A display of 10,000 discarded net mending offcuts collected over the winter of 2019

Image: Cornish Plastic Pollution Coalition

Microplastics

Nurdles, bio-beads and fragmented plastics below 5mm are still being found extensively around the whole South West. Certain beaches in particular seem to attract very large quantities of microplastics. Around Cornwall these beaches include Tregantle, Watergate Bay, Penhale, and Marazion. Various 'sieving' techniques were used throughout 2019 by different groups to extract these plastics without displacing the organic matter in the strandline.



Plate 14.2. Nurdles & Biobeads collected from Mount's Bay Picture. Image: Beachcombing's Bizarre & Beautiful



Plate 14.3. Microplastics at Tregantle Beach. Image: Cornish Plastic Pollution Coalition

The 'Trawlshare' Project organized by Cornwall Marine Microplastics Research Group (CMMRG) has been conducting extensive research to investigate the amount of microplastics that are floating in the ocean. The project is a collaboration between Newquay Marine Group, Cornwall Seal Group Research Trust, Newquay Sea Safaris & Fishing, St Agnes Marine Conservation Group, Polzeath Marine Conservation Group and Cornwall College Newquay. In a 12 month period they have conducted 16 trawls over five routes which covered two Marine Conservation Zones (Padstow and Newquay) using a 'high speed mini trawl' from 5Gyres. Samples from the trawls were dried, and categorised according to the *Trawlshare* protocol put forward from 5Gyres ('Fragments', 'Pellet', 'Line', 'Film' and 'Foam').

Microplastics were found in every trawl. Mostly from the 'Fragments' category, closely followed by the 'Line' category (this includes fishing line fragments and fibres). Biobeads were also found:

- 3650 particles per km² were found floating from inshore area of St Agnes to Port Quin
- The Park Head trawling route (along Watergate bay) had the largest amount on the surface over an area of 600km²

The project is ongoing with more trawls planned, and they are also looking to work with the University of Exeter on polymer testing to discover more about the plastics they are finding.



Plate 14.4. The mini-trawl being pulled by Newquay Seas Safaris' boat. Image: Sue Sayer



Plate 14.5. Contents of the trawl. Image: Sue Sayer

Meanwhile, four days of cleaning (66 man hours) at a 100m stretch at Tregantle beach (Whitsand Bay, SE Cornwall) yielded 250kg dry weight of microplastics. These were painstakingly sorted by Rob Arnold, who has spent years collecting, studying and making art works from microplastics. He found that 72% of these by weight and volume comprised pellets (nurdles and bio-beads). Around five million pellets were collected from this same stretch over the course of the year. The bio-beads trapped on this beach are believed to have come from the major 2010 spill from the South West Water wastewater treatment plant in Truro, when over five billion beads were lost from a reactor into the Truro river.

Rob also reports a difference in size between the confetti-type microplastic fragments found at the Tregantle hotspot on the south coast of Cornwall and north coast beaches such as Watergate Bay, where the general size of pieces seems to be smaller – possibly as a result of more powerful wave action?

Another particularly worrisome aspect of the microplastics problem is polystyrene. Mechanical microplastic beach hauls always yield vast amounts of crushed polystyrene beadlets. These squash down flat and often go unnoticed to the naked eye as they stick onto organic strandline matter such as seaweed or larger pieces of plastic, but once dried during sorting they become detached and are revealed in huge quantities. Unlike the harder microplastics – already

extremely difficult to remove – the polystyrene is virtually impossible to collect. The squashed beads are so tiny that most of them pass with the sand through the mesh of collection sieves.

'Vintage' plastic and container spill items



Plate 14.6. A 1973 Fisher Price Mail Van section found Portheras Cove in 2019. Image: Delia Webb



Plate 14.7. A 1978 Superhero Ice Lolly stick found Marazion October 2019. Image: Cornish Plastic Pollution Coalition



Some beaches seem to act as ‘traps’ where plastics seem to collect and spend much of the year buried under sand or shingle, only to be temporarily released during stormy conditions.

During the year ‘vintage’ plastic items were found at several locations, like this 1973 Fisher Price Mail Van section (found Portheras Cove 2019) and 1978 Superhero Ice Lolly stick (found Marazion October 2019).

Lego from the 1997 Tokio Express container spill is still being found on beaches across the southwest. Anecdotally there appears to be an interesting correlation between the incidence of microplastics on a beach and the likelihood of finding Lego!

Three cereal toys reliably dated to 1958 were found at Tregantle beach (Whitsand Bay, SE Cornwall), along with a few pieces stamped ‘made in Hong Kong’ from the 1960s, as well as 445 pieces of Lego from the Tokio Express spill.

All these items appear to be in very good condition with remarkably little damage or degradation visible, supporting the theory that old plastics appear as a result of the erosion of dunes or coastal landfill sites, etc., rather than having been adrift on the world’s oceans for several decades.

Plate 14.8. Remember these? Image: Adrian Baldwin



Plate 14.9. A Lego broomstick amongst microplastics. Image: Cornish Plastic Pollution Coalition

A very recent article '*Weathering and persistence of plastic in the marine environment: Lessons from LEGO*' (Turner et al. *Environmental Journal* March 2020) by Dr Andrew Turner at the University of Plymouth suggests that the residence times of these pieces in the ocean can be quantified as between 100-1300 years.

<https://www.sciencedirect.com/science/article/pii/S0269749119364152?via%3Dihub>

Pyroplastics

The Cornish Plastic Pollution Coalition assisted Dr Andrew Turner with his research into plastiglomerates and pyroplastics and the results of this are contained in an article '*Marine Pollution from Pyroplastics*' (Turner et al. *Science of the Total Environment* December 2019). The highlights of the report include the following:

- Pyroplastics are a type of marine litter derived from the burning of manufactured plastics
- They range from angular plastiglomerates to more weather-rounded clasts
- X-ray fluorescence analysis reveals the presence of restricted plastic additives like lead chromate.
- Analysis of fouling worm tubes exhibit evidence of lead accumulation from the plastic.
- With a distinctly geogenic appearance, pyroplastics evade ready detection.

<https://www.sciencedirect.com/science/article/pii/S0048969719335351>

The 250kg of microplastics collected over four days from Tregantle beach also included approximately 10 litres of pyroplastics.



Plate 14.10. Pyroplastic and Plastiglomerate samples from West Cornwall. Image: Cornish Plastic Pollution Coalition

Transatlantic Marine Plastics

Ocean currents and gyres can carry marine plastics large distances over many years. Cornwall (the north coast in particular) receives plastics from across the north Atlantic on an extremely regular basis. Many items are fishing related – particularly lobster tags and buoys that often bear specific details of the date and location from whence they originated.



Plate 14.11. A lobster pot tag from the vessel 'Holly and Alexander'. Image: Friends of Portheras Cove

This distinctive tag was washed ashore at Portheras Cove on 20th February 2020 during storm Dennis. It was found during a beach-clean by the local community conservation group the Friends of Portheras Cove. They recognised the potential to trace its story, and after some considerable internet research, and the assistance of the Newport Daily News in Rhode Island they pieced together the remarkable circumstances of its journey and made contact with its owner Bill Palombo. It had travelled 3,115 miles in 16 years.

In 2003 a fishing vessel called the Holly and Alexander (H & A on the tag), owned by Bill Palombo catastrophically sank whilst out at sea. Thankfully all four crew made it into a life-raft and were rescued, but the boat and its contents (including the lobster pots and tags) were lost.

Bill now owns a shipping company in Newport, and still remembers the boat with incredible fondness as it was named after his children. He has an oil painting and a model of the boat in his office and was amazed to hear how a small piece his family's history has managed to sail on for so many years across the Atlantic to our shores.

Each piece of marine plastic has a story to tell but it's not often we can hear it from beginning to end!



Plate 14.11. Bill Palombo in his Rhode Island Office showing the lobster tags he uses today. Image: The Newport Daily News



Plate 14.12. Oil painting of the Holly & Alexander that hangs in Bill Palombo's office. Image: Newport Daily News

15. Development and Planning

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Update from items in the 2018 report

It is the nature of some large-scale development projects that they continue to be potentially relevant for several years. Schemes which seem to have had the plug pulled can sometimes spring back into life. It is worthwhile, therefore, to begin with an update on issues discussed in the 2018 report.

For the second year running, there seems to be no change with proposals for **dredging in Falmouth Harbour**. It appears that no new, formal marine licence application has been made to the Marine Management Organisation (MMO) by Falmouth Harbour Commissioners (FHC), so the proposals are still in abeyance:

<https://www.gov.uk/government/publications/falmouth-habour--2#history>

Back in June 2018, the then Business and Energy Secretary, Greg Clark, announced that the UK Government had decided against supporting plans for **a tidal lagoon in Swansea Bay**. However, Tidal Lagoon Power, the company behind the proposals, continues to seek investment:

<http://www.tidallagoonpower.com/news/2019/12/04/press-release-4-december-2019/>

<http://www.tidallagoonpower.com/investment/tidal-power-plc/>

*2020 update – Tidal Lagoon Power carried out a consultation on **decommissioning plans** as part of the Development Control Order in April 2020.*

<http://www.tidallagoonpower.com/projects/swansea-bay/planning/consultations/>

As a result of the UK Government decision on Swansea Tidal Lagoon, things have also gone quiet on the related proposal to re-open **Dean Quarry**, proposed as a source of gabbro for the development. It is to be assumed that the future of these proposals will depend on future investment in the tidal lagoon project.

Monitoring of potential ecological impacts of **Lyme Bay mussel farm** continues to be carried out as part of the University of Plymouth's ongoing research programme.

<https://sheehanresearchgroup.com/offshore-mussels/>

The **Marine Management Organisation marine planning** process continues. The South Marine Plan, covering inshore and offshore waters from Folkstone to the River Dart, has already been adopted by Government:

<https://www.gov.uk/government/collections/south-marine-plans>

Workshops were held as part of the third iteration of stakeholder engagement, between January and March 2019, focussing on draft policies and supporting text for the South West Marine plans:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/793205/IT3_eng_summary_final.pdf

2020 update – the Marine Management Organisation published a consultation draft of the South West Marine Plans in January 2020, with the consultation running until 20 April:

<https://consult.defra.gov.uk/mmo/draft-south-west-inshore-and-offshore-marine-plans/>

The **North Devon Marine Pioneer** continues to explore how marine natural capital can best be managed for the benefit of the environment, economy, and people and to test how local interests (environmental, social, business) can play their part in managing, monitoring, and communicating the benefits of a location's marine area and related coastal and terrestrial zones. A list of projects agreed by the project's steering group was published in January 2019:

<https://www.gov.uk/government/publications/marine-pioneer/marine-pioneer-achievements>

and links to all relevant project information can be found on the North Devon Biosphere website:

<https://www.northdevonbiosphere.org.uk/marinepioneer.html>

Further details emerged during 2019 of plans that Guardian Industrial (UK) Limited have for the recently acquired **Drake's Island**, in Plymouth Sound, including the development of a hotel and spa. The new owners are busy developing links with local organisations and local communities:

<https://drakes-island.com/future> and <https://drakes-island.com/island-life>

New plans and developments

The **Lower Otter Restoration Project** aims to restore, enhance, and protect habitats and amenities at the mouth of the River Otter in East Devon:

The Marine Management Organisation have provided a scoping opinion on an Environmental Impact Assessment for the work, which will include breaching some of the existing flood banks to re-connect the river with its natural floodplain.

http://www.lowerotterrestorationproject.co.uk/PDFs/CDE_OtterLeaflet_Sml_v6.pdf

<https://marinelicensing.marinemanagement.org.uk/mmofox5/fox/live/>

Network Rail is seeking to improve the resilience of the south-west main railway line between **Parsons Tunnel and Teignmouth**. A public consultation was held in the early summer of 2019, setting out, and seeking views, on proposals. The results of this initial consultation are summarised as part of a second public consultation held in early 2020.

<https://consultations.networkrail.co.uk/communications/swrrp/>

<https://consultations.networkrail.co.uk/communications/parson-s-tunnel-to-teignmouth-resilience-project-2/>

While supporting the need to improve resilience of the railway, a local group has been set up in opposition to the current plans, asking that alternative solutions are investigated:

<https://www.savethebeach.co.uk/about-the-save-the-beach-campaign>

EDF Energy are planning to seek a 'material change' to the **Hinkley Point C** Development Consent Order granted in 2013 to remove the requirement to install an acoustic fish deterrent at Hinkley Point C. A consultation on the proposed change was held between April and early June in 2019, ahead of a submission to the Secretary of State in 2020.

<https://www.edfenergy.com/energy/nuclear-new-build-projects/hinkley-point-c/about/acoustic-fish-deterrent>

Several local angling and conservation bodies issued a joint statement expressing concerns about this proposal:

<https://www.wwt.org.uk/news/2019/07/22/giant-plughole-threat-to-sea-life-in-uks-largest-estuary/17294>

There has been a renewal of interest in the **development of the Outer Harbour at Looe** (thanks to Ruth Williams for bringing this to our attention). This project, aimed at both flood protection and economic regeneration, has been around for some time, with at least two public consultations in 2015 and 2017:

<https://looeharbour.com/projects/looe-flood-protection-project>

This has received a recent boost, in response to flooding events and as a result of £2.3 million funding from Cornwall Council who aim to work with the community on designs which will form the basis of bids for further funding:

<https://www.cornwall.gov.uk/council-and-democracy/council-news-room/media-releases/news-from-2019/news-from-march-2019/cabinet-agree-4-million-regeneration-plan-for-south-east-cornwall/>

While local response has been mostly positive, concerns were expressed in earlier consultations that the environmental implications of plans had not been fully considered:

<http://looeconservation.org/conservation/looe-outer-harbour-proposal-official-position/>

Finally, the UK's first **National Marine Park** has been established in Plymouth Sound:

<https://www.plymouthchronicle.co.uk/2019/09/12/plymouth-to-be-uks-first-national-marine-park/>

with key partners coming together in September 2019 to sign a Declaration of Intent:

<https://plymouthsoundnationalmarinepark.com/wp-content/uploads/2019/09/NMP-declaration-of-intent-A4.pdf>