

South West Marine Ecosystems Report 2017



Blue fin tuna continued to be seen often in 2017. School of blue fin tuna – Tom Horton



Strandings of the Portuguese Man O'War *Physalia physalis* in summer were very common in 2017; these were on the Isles of Scilly Thomas Porth



Sightings of the humpback whale inshore off South Devon in the Spring for several weeks raised huge interest
Photographer BDMLR



The seaslug *Felimida krohni* was recorded for the first time on the north side of the English Channel in 2017; here at Porthkerris. Image: Des Glover / Kennack Diving

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2. The Objectives of South West Marine Ecosystems

The objectives of South West Marine Ecosystems (SWME) have been updated following delegate feedback from SWME 2017 conference and are as follows:

1. Networking To provide, through the conferences, website and mailings, an 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;
- 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 linkages between environmental and biological phenomena;
- publish these observations annually, and
- 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;
- understand the status of populations of marine species in the region's seas and how they are responding to environmental and anthropogenic pressures;
- 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;
- 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;
- support the development of new programmes that promote marine management and make use of marine science;
- promote good practice in environmental education, interpretation, signage and outreach.

...and to come together to celebrate being part of the SWME!

South West Marine Ecosystems Annual Report 2017

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4. The Objectives of the South West Marine Ecosystems Annual Reports

Why produce the South West Marine Ecosystems Annual Report?

The overall purpose of the report is to support the objectives of the conference, collecting observations, supporting recording and science, helping to build networks and provide feedback to everyone involved and to help make a difference in protecting and managing our marine environment. In more detail it 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 2014-15 or the PIB incident
3. **Highlighting significant ecological and population changes** - including:
 - **Trends** - e.g. blooms of barrel jellyfish and the decline in basking shark sightings
 - **Good years & bad years** - e.g. for species like jellyfish, basking sharks, sunfish, bottlenose dolphins etc.
 - **Noting new records for the south west**
 - **Recording recovery** - e.g. seabird populations after rat eradication on islands
4. **Highlighting remarkable sightings** - e.g. bowhead whale, Cornwall in 2016 or the Dalmatian pelican
5. **Acting to focus interest** - publishing the report provides a focus for further year-on-year research 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

Reports from previous years can be accessed from the SWME website:

<http://swmecsystems.co.uk/annual-reports>

Annual South West Marine Ecosystems Report 2017

A collation of presentations made, observations reported at the South West Marine Ecosystems meeting on 13th April 2018 and supplementary material.

5. Introduction

Editors: **Bob Earll, Keith Hiscock & Richard White**

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This is the fourth in the series of annual reports on the observations of species, ecology and ecosystems for a specific year. Understanding these elements has been at the core of the SWME meetings since its outset. The purpose of the report is to support the objectives that have underpinned the conference, but we have also refined the objectives of the report – see Section 4. The report includes the speaker notes from the 2018 SWME conference.

As editors we would like to thank the section editors and all the people who have contributed their observations, views and images.

This is a great collaboration illustrating how we can all learn more from working together. This idea of collaboration is illustrated in many parts of this report, and it will be invaluable in answering the various questions arising from the SWME meetings and the report itself. It is our policy with the work on this report to get as many people involved as possible and this year we welcome: Alex Banks in editing the Bird Section, Richard White with the Management and Development Section and Colin Speedie with Cetaceans.

This report structure and preparation is settling into a pattern. Although its content is uneven in many ways the format and inputs are evolving. New additions in this report include:

- A set of objectives for the SWME Reports (page 4)
- Alex Banks has contributed a major section on birds which tabulates seabird monitoring counts and breeding productivity results for the south west's coastal birds
- Observations from Joe Pender on the Scilly Isles shows what people can see in their routine work
- A section on management issues by Richard White (Section 15) covering development and planning
- The remarkable work of Dave Fenwick on winking out a host of new and difficult species records (Section 8).

Highlights of 2017

The report is proving to be a useful vehicle for helping us understand different aspects of what is happening in the south-west. There were some standout observations recorded during 2017 including:

- At least two species recorded that were new to the south-west including the spectacular sea slug, *Felimida kronhi* (Section 8) and the crocodile shark [*Pseudocarcharias kamoharai*](#) with its fearsome teeth (S9).
- A massive stranding of the Portuguese Man 'O War *Physalia physalis* in the late summer, and despite the huge blooms of previous years no comments on the barrel jellyfish *Rhizostoma octopus*.
- Continued success of spiny lobsters, attracting the attention of divers and fishermen
- Continued presence of bluefin tuna prompted comment and a major study.
- The presence of the humpback whale in south Devon for over a month attracted huge crowds
- Mass common dolphin strandings with very high numbers - a bad sign.
- MCZ implementation continued apace.

- BBC's Blue Planet series in the autumn further increased the concern over plastic pollution in the marine environment and encouraged huge public and institutional efforts.

Your observations & records - reporting nearer to real time

There are a wide variety of sources of information in this report arising from many professional and volunteer citizen science projects. These are reported via well-developed schemes many of which are highlighted on the [SWME website](#). Many individuals contribute a great deal to marine recording in their own way and are providing sources of information. The original prompt for this report was the collection of observations at the conferences that delegates were encouraged to contribute. But preparing this report so long after the year in question is a problem and we are actively seeking ways to bring publication of the results nearer to the end of the year in question.

During 2018 we have taken two steps to make the compilation of the annual report faster. A few of us are sending Richard White (richard@richardhwhite.co.uk) our observations each month so that he can compile these into a listing. Similarly, Bob Earll (bob.earll@coastms.co.uk) is preparing a monthly report of the south west's weather. The weather is what often ties in with the events and observations you report. *If you would like to help us with this by sending your observations, contact us by email.*

So, if you have any records or observations for 2018 do send them to Richard White as soon as you can, and from now on in real time, especially for observations which have no recording scheme

We will still have our interactive sessions South-West Marine Ecosystems meetings. The next will be held on **Friday 12th April, 2019**. This all keeps alive the spirit of marine recording pioneered by Stella Turk who inspired a generation and who died in 2017.

Stella Turk has passed away – David Fenwick (April 2017)

'It is with great sadness that I have to bring the group this news about a member and an avid supporter of the Conchological Society of Great Britain and Ireland. I have copied and pasted the following from an e-mail I have just received from Ian Benallick of the Cornwall and Isles of Scilly Federation of Biological Recorders (CISFBR). Stella Turk MBE passed away at home on Monday evening. For some of you who didn't know Stella well, in 2010 Simon Naylor and Shaun Pimlott of the University of Exeter produced a short film - A Life in Natural History - about her.

The film can be seen on YouTube - <https://www.youtube.com/watch?v=uAv-esHdadU>. In the film is the Stella that many recorders will like to remember Stella as - her enthusiasm about wildlife, recording and natural history is clear. Stella was a CISFBR member from the start and as a leading light in the recording community in Cornwall and the Isles of Scilly, made many contacts, not just locally but worldwide. If you know someone who may have known, worked or corresponded with Stella please pass on the news of her passing.'

Questions – making the Links

Research moves through several stages and this report mainly focuses on the first of these - observations and descriptions. But from these, one can begin to move on to look at things in more detail. Any research that is done well raises many more questions than it answers, and it is this that makes research endlessly fascinating. All these questions tend to involve looking at the relationship of oceanographic, weather, environmental change and what we are observing; making links between the different sections of the report.

Just a few of the questions include:

- The continuing decline of basking shark sightings is also marked by the decline of copepods recorded at L4 and more widely in the Atlantic (Section 7). Does this begin to explain the lack of sightings we are experiencing (Section 9)?
- What exactly is behind the increase in blue fin tuna sightings in the south west and, indeed the huge rise in spiny lobsters?
- Why was there a ‘boom’ in the abundance of cuttlefish and possibly other cephalopods? Will it happen again and, the other side of the coin, will the large quantity caught mean less in 2018?
- There seemed to be a ‘standstill’ in the arrival of non-native species – are biosecurity measures working or have we run-out of likely new arrivals?
- Another poor year for trigger fish – don’t they like British waters any more or has there been some change in currents that bring them to our shores.
- Are oceanic colonial hydrozoans (Portugese man-o-war; by-the-wind sailors) brought to us by oceanic currents or wind direction?
- Resident warm-water inshore fish that are newish arrivals or have been spreading along the coast (variable blennies, black-faced blennies), have, perhaps not been so abundant in 2017 as in previous years. Has the temperature dropped enough to make life difficult for them?
- Where have all the small spotted catsharks gone – much less abundant in inshore waters than, say, ten years ago?

Next steps for the 2018 report

Our goals for the SWME 2018 report and our work in 2019 include:

- To prepare a section on monthly ‘weather’ (including seawater conditions: wave intensity, temperature, salinity, turbidity etc.)
 - To bring the process of bringing reporting of observations and developments more routinely into real time
 - Get more people involved in helping prepare the report and, in particular, find somebody to do a section on Ocean Advocacy, Education and Outreach
 - Develop a section on integration which pulls the observations from the different sections together
- Of these goals the last is perhaps the most important because all of these observations are inter-related, and we need to do better at understanding these interactions. A quote from some of observations by Hannah Jones perfectly sums this up and beautifully describes the inspiring elements of what we are doing.

‘Summer 2017 saw a constant procession of low-pressure systems coming across the Atlantic, which resulted in very challenging conditions for wildlife watchers and sailors in the South West of England. Apart from two isolated and short-lived spells of fine weather (the second half of June, and the August bank holiday weekend) it seemed that whenever the south west wind abated for a while, it rained heavily instead. While this resulted in horrible sea conditions for much of the summer, at the same time we recorded some extraordinary wildlife encounters. Aside from the bluefin tuna which will be discussed elsewhere, cetacean

and seabird activity in Mount's Bay was phenomenal. Most numerous were the frequency of common dolphin encounters - these were spotted almost every day we were out on the water during July and August. Rorqual whale activity was unprecedented in the twelve seasons we had been running trips, with regular minke whale sightings including multiple animals in the same encounter. Amongst them we also recorded juvenile fin whales on three occasions in August.

Almost always accompanying rorqual activity would be large numbers of Manx shearwaters also feeding, and amongst the Manxies would be species we have never recorded in great numbers before - that is, Great and Cory's shearwaters, as well as Balearic and Sooty shearwaters. Sometimes all five were seen on the same day. Wilson's petrels were also seen amongst the European storm petrels, along with Great, Arctic and Pomarine Skuas. It was certainly the most intense period of feeding from a diverse range of species we have ever witnessed. The most memorable trip was on the afternoon of the 7th August, which was like being in a wildlife documentary - five minke and two juvenile fin whales feeding amongst common dolphins and hundreds of shearwaters. The minke lunge fed a little more carefully, but the fin whales looked like they were simply ploughing through the dolphins and barging them out of the way. Dolphins and seabirds scattered, and small baitfish could be seen writhing through the air above the lunges. It was like having front seats in a David Attenborough wildlife programme.'

6. Oceanography Background conditions – Western Channel Observatory

Tim Smyth

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Figure 6.1: Stations of the Western Channel Observatory

The Western Channel Observatory (WCO) is an oceanographic time-series and marine biodiversity reference site in the Western English Channel (Figure 6.1). 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.

Overall conditions for the year – 2017

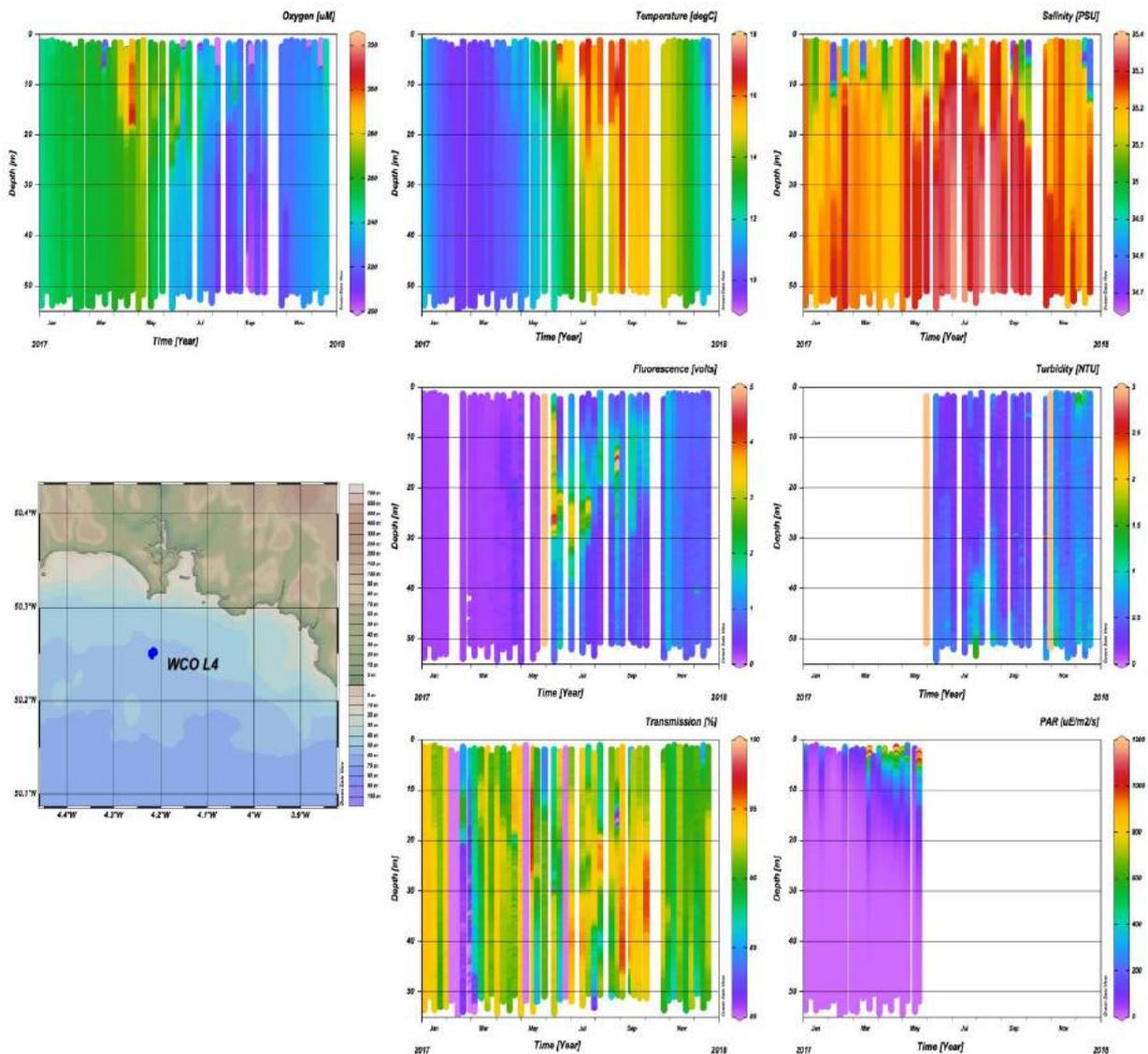


Figure 6.2: Conditions throughout the water column at station L4 during 2017 from individual profiles taken using a rosette sampler with multi-parameter “CTD”, deployed from the RV Plymouth Quest.

Vertical profiles for multiple parameters are taken using the RV Plymouth Quest on a weekly basis at station L4 (

Figure 6.2). 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). Several surface freshening events (see salinity plot) were observed in 2017 as a decrease in salinity below the background value of 35.2 PSU. These were particularly marked in February, March, September and December. The maximum in the oxygen was during April ($>300 \mu\text{M}$), with an oxygen minimum ($\sim 200 \mu\text{M}$) following the autumn bloom in September. Interpretation of the fluorescence signal is difficult during 2017 as there was a change in instruments mid-way through the year (May). The summer phytoplankton bloom is clearly shown at around 25 m in June and July, followed by a weaker late summer, early autumn bloom in August / September around 15 m. During 2017 a turbidity sensor was mounted on the rosette sampler, replacing the PAR sensor. This shows some evidence of higher turbidities being mixed up from the sea-floor during July, with some elevated levels in the early winter (Nov/Dec) due to riverine inputs.

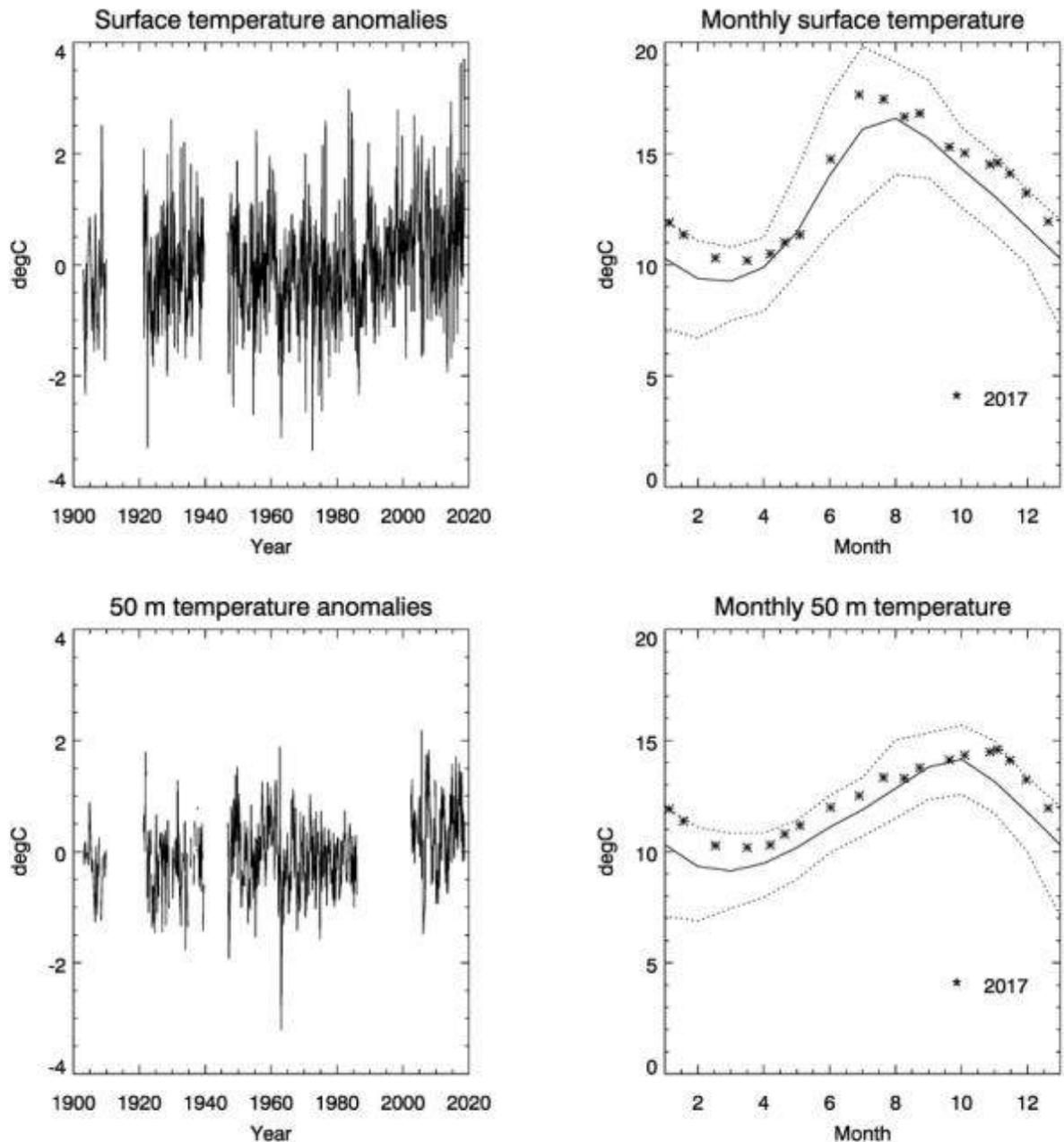


Figure 6.3: E1 temperature time-series and anomaly analysis. Solid lines show mean monthly temperatures, with dashed lines giving the standard deviation around the mean. Asterisks represent individual observations (19) made by the RV Plymouth Quest.

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 2017 markedly warm with temperatures in January being some of the warmest during the observational period. However, by early spring and until late summer, the temperatures were close to the long-term average (1903 -). This changed at the surface during August and the year end (autumn and early winter) was notably warm with temperatures around 1.5 °C above the long-term mean. A similar pattern was observed at 50 m (always below the seasonal thermocline at E1). The warmer temperatures in the autumn were not apparent until the breakdown in thermal stratification in October.

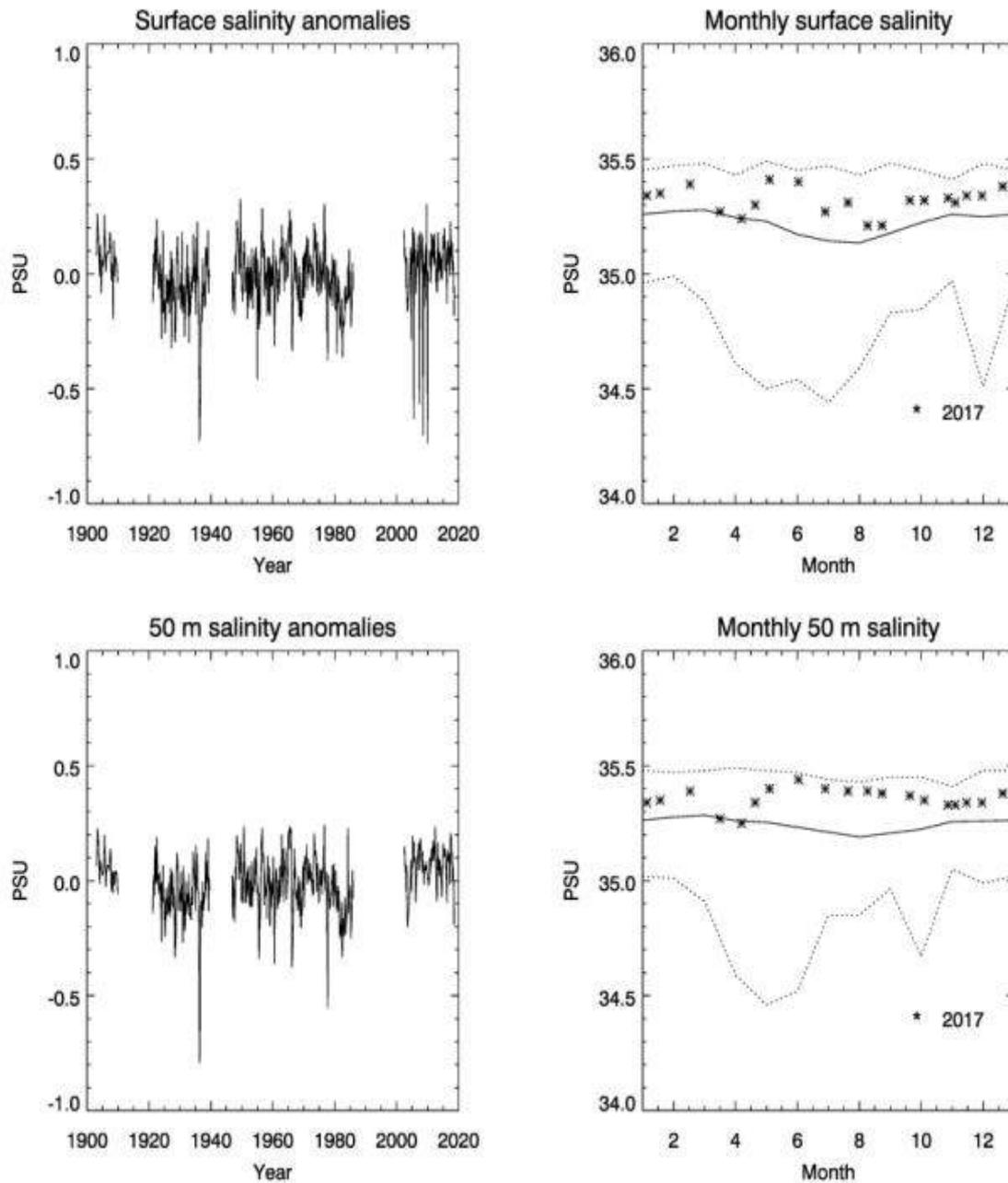


Figure 6.4: E1 salinity time-series and anomaly analysis. Solid lines show mean salinity, with dashed lines giving the standard deviation around the mean. Asterisks represent individual observations (19) made by the RV Plymouth Quest.

Figure 6.4 shows the salinity time-series made using the CTD profiler at station E1. In general the waters at E1 were markedly more saline during 2017 than the long-term mean (+0.05 – 0.2 PSU) which is likely indicative of low rainfall totals during the year and the influence of waters of a more oceanic than coastal origin.

7. Plankton Observations

Angus Atkinson, Keith Hiscock, Claire Widdicombe, Andrea McEvoy and Paul Rooks

Contact person: Angus Atkinson aat@pml.ac.uk

Introduction

The plankton observations in the 2017 report are based on recorded observations submitted at the SWME meeting, from the monitoring of the Western Channel Observatory sites L4 and E1 by Plymouth Marine Laboratory. We have divided them into “Phytoplankton” (capturing all single-celled organisms) and zooplankton, which includes the recorded observations of larger species such as jellyfish.

Phytoplankton Observations

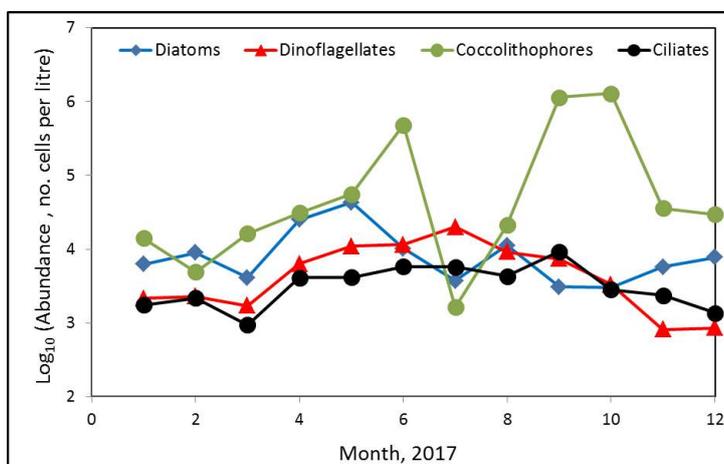


Fig. 7.1 Monthly average concentrations of major phytoplankton functional groups from 10m depth at the E1 site 40 km SSW of Plymouth. This illustrates the spring diatom bloom and autumn coccolithophore bloom.

Microscopic examinations of the weekly L4 and bi-monthly E1 water samples (collected from 10m) and 20µm plankton net hauls (40m-surface) is illustrated for the E1 site, 40 km SSW of Plymouth in Fig 7.1. Winter conditions at these sites were relatively “normal”, comprising larger diatom species plus coccolithophores, dinoflagellates and ciliates in relatively low numbers. The previously unknown “Pringle” diatom, which has since been described as new species *Plagiolemma distortum* Nézan, sp. nov persisted in low numbers at L4 until March when a shift in diversity of diatoms from *Thalassiosira* to *Guinardia* heralded the onset of the spring bloom. The *Phaeocystis* bloom peaked in May but was relatively short-lived

and was succeeded by large numbers of the chain-forming small diatom *Leptocylindrus minimus*. Summer stratification and warming sea temperatures enabled diatom succession to change to the “needle plankton” followed by an increase in dinoflagellate diversity. By the end of the summer coccolithophores, especially *Emiliania huxleyi*, flourished until the October storms brought an abrupt change, mixing the water column and introducing rare species from the shelf break. The E1 buoy registered maximum wave heights over 10 m in two major storm events (ex-hurricanes Ophelia and Brian) spanning 16-22 October. Such storms can severely disturb the system, bringing benthic taxa into the water column and transporting plankton long distances horizontally. Their likely impact in transporting species is illustrated for Portuguese Man O War sightings. The small diatom (22 µm in size) *Asteromphalus sarcophagus* had not been previously identified in the L4 time-series but was regularly recorded in samples from both L4 and E1 for the rest of the year.

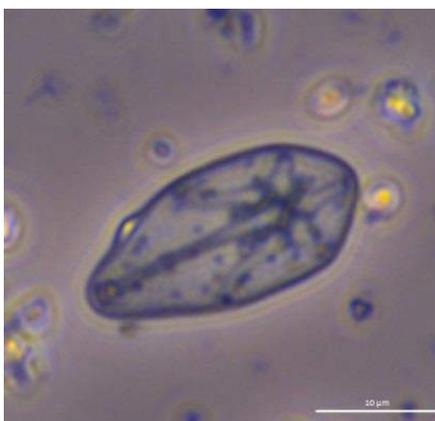


Fig. 7.2. The aptly named small diatom *Asteromphalus sarcophagus* which persisted in low numbers at Station L4 and E1 during the Autumn/Winter months in 2017

Zooplankton Observations

Fig 7.3 depicts the average seasonal breakdown of biomass of the main functional types of biomass at the Plymouth L4 site. March 2018 marked the 30th anniversary of its weekly resolution sampling, so this 2017 report provides a good opportunity to take stock and present the 2017 plankton data in the context of the previous 29 years. Fig 7.4 shows that results in any given year need to be interpreted in the context of year to year fluctuations, longer-term cycles and multi-decadal trends. Some of the fluctuations show irregular periodicity, with sequences of several successive years showing positive and negative anomalies.

Thus despite the lack of a noticeable change in total plankton biomass over the whole time period (Fig. 7.4 A), its composition has shown change, with evidence for a general increase in some carnivorous gelatinous taxa such as chaetognaths and a general decline in total copepods.

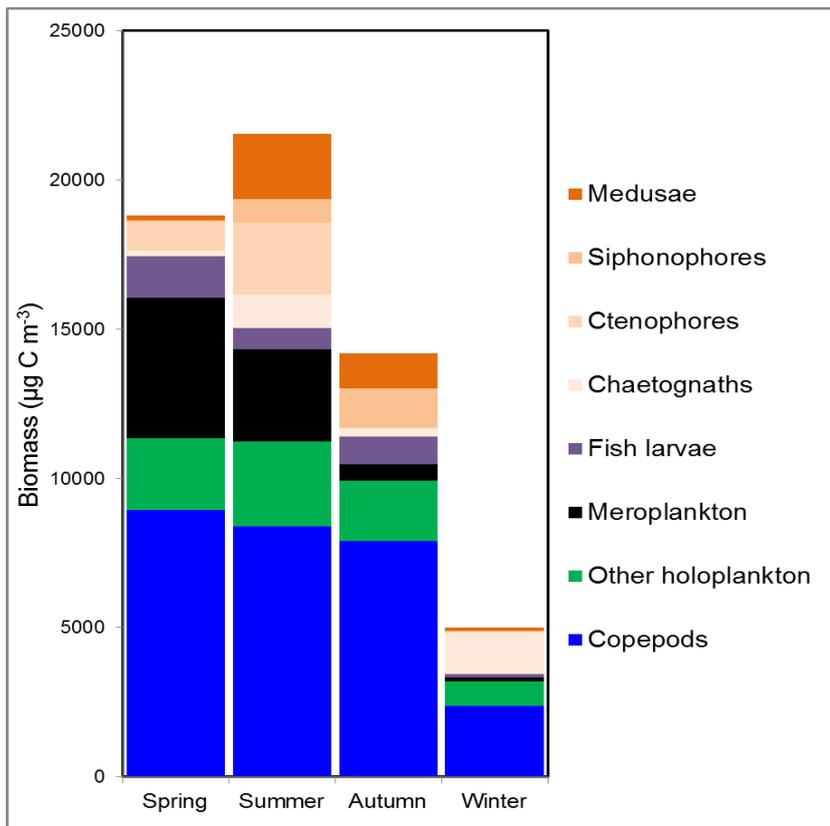


Fig. 7.3 A multi-season average picture of the relative biomasses of the main zooplankton taxa at the Plymouth L4 site. These values are based on catches with a 57 cm diameter, 200 µm mesh nets. Seasons are defined in successive 3-month blocks with “spring” corresponding to March-April-May. The plot shows the strong contribution of crustaceans, chiefly copepods, with meroplankton (pelagic larvae of benthic species, chiefly barnacles, bivalve larvae, decapods and polychaetes) featuring mainly in spring. Shades of orange depict gelatinous taxa.

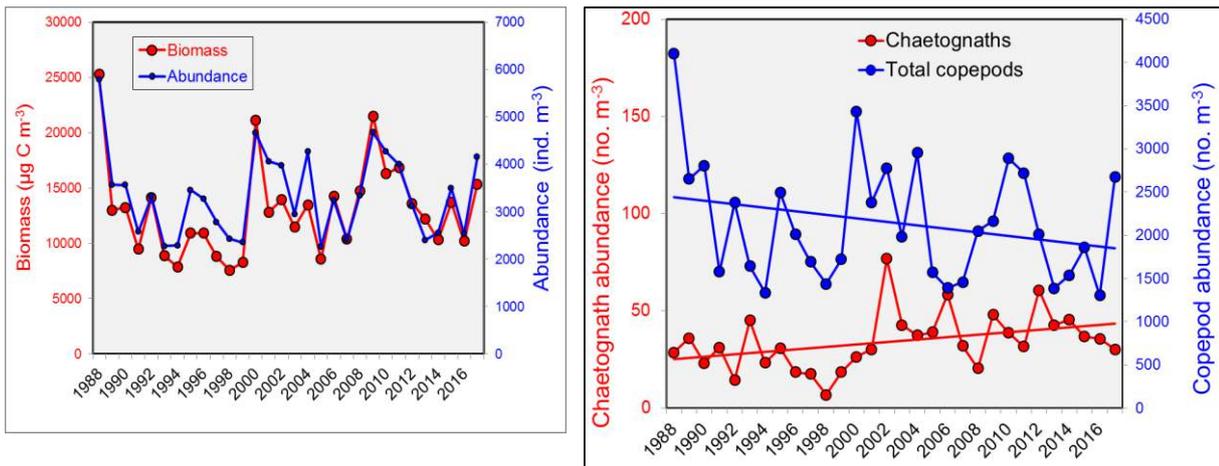


Fig 7.4. 30 year time series of weekly resolution observations at the Plymouth L4 site, with all available data averaged into annual means. The 2017 data are at the extreme right of the plot. Fig 7.4 A. (left) Abundance and biomass of total zooplankton. The tendency for the trajectories for abundance and biomass to converge over the last 10 years reflects an increase in the mean size of the zooplankton. Fig 7.4.B. This increase in mean size reflects an increasing proportion of larger, gelatinous and semi-gelatinous (mainly carnivorous taxa). This illustrated here by the trajectories of Chaetognaths (arrow worms) and copepods.

Looking at copepods in more detail, the decline in overall abundance reflects declines in a couple of the key species (Fig. 7.5). This decline in copepods over a similar time period has been found across larger areas of the NE Atlantic (<http://igmets.net/>) and we are currently examining causes for this.

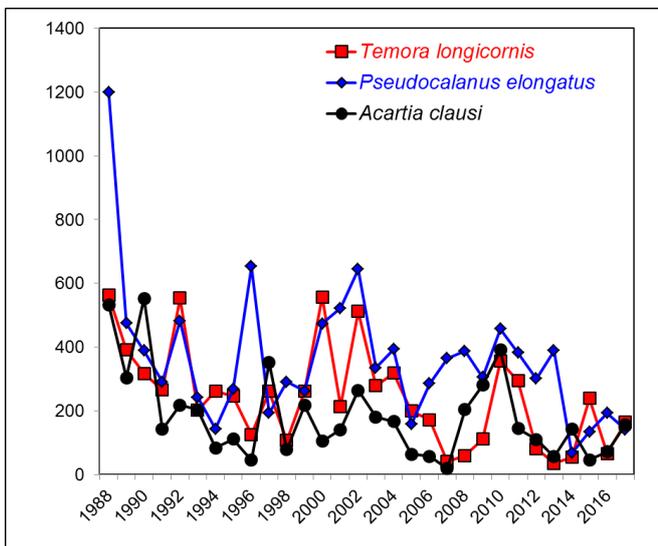


Fig 7.5. Several copepod species, important contributors to both biomass and abundance, have shown high variability but a general decline in abundance over the whole time series

One of the largest abundant copepods, *Calanus helgolandicus*, has been under particular study at L4 given its important contribution to biomass and as food for commercially important fish. In picking out *Calanus* for egg production and other experiments at PML, scientists at PML have noticed that they are particularly rare in the summer months – often too rare to set up egg production experiments. This species is not showing an overall decline (Fig. 7.6), and indeed seem remarkably stable in its annual average abundance. However summer abundances have dropped considerably over the last 4 years, to levels not seen since the 1990s. Whether this reflects temperature effects on phenological timing or increasing pressure; perhaps from gelatinous predators is unclear, and another topic for study.

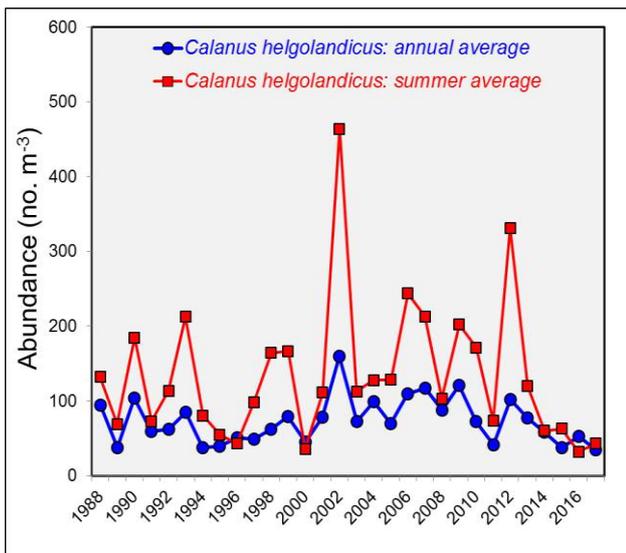


Fig. 7.6 *Calanus helgolandicus* population densities at Plymouth L4 seem to be more stable than those of many other taxa, but nevertheless decadal-scale cycles might be apparent. 2017 marks part of a period of lower abundances, particularly over the summer months

In contrast to the low abundances of copepods at L4 in recent years, the gelatinous taxa have been abundant in summer. Narcomedusae (Illustrated by *Solmaris corona*; Fig 7.7 – below) have been linked to mass mortalities of salmon in Scotland. Although possessing small stinging cells the main issue when they are present in large numbers is that they pass into the gills of fish and cause suffocation. In August there were high numbers of another small species *Liriope tetraphylla* and unusually the larger and more familiar compass jellyfish *Chrysaora hysoscella* on 31 May and 12 June – rare records of this larger species being caught in the vertically hauled nets at L4.

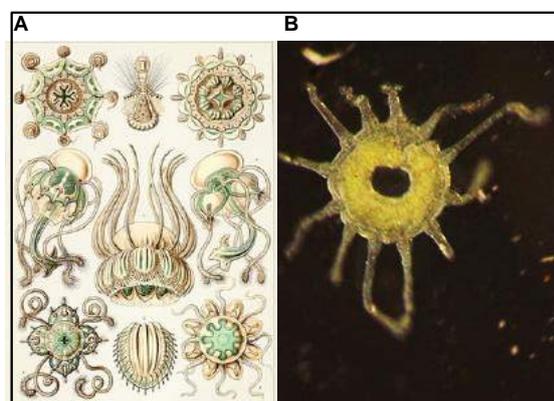


Fig 7.7. Most gelatinous taxa are small (<20 mm bell diameter), one good example being *Solmaris corona*, which were sampled at L4 during 2017. This member of the order Narcomedusae illustrated by Ernest Haeckel (panel A). *Solmaris corona* is an oceanic species. They are considered holoplankton as they spend all of their lives in the plankton because they do not have a polypoid stage. They can grow up to 15mm but the ones found at L4 (B) are generally smaller than this. They are very fragile. As the photo shows they do not arrive on our shores in such good condition as in the beautiful illustrations.

Reported plankton observations from the 2017 SWME meeting

Portuguese Man O'war (*Physalia physalis*) & By-The-Wind sailors (*Velella velella*)

Keith Hiscock: The 'invasion' by from early August onwards was remarkable. More than 10,000 individuals were reported to Cornwall Wildlife Trust (Matt Slater). The strandings were concentrated in the far south-west but extended to North Devon and Dorset. These were often associated



Fig 7.8 Strandings of the Portuguese Man O'War *Physalia* in summer were very common in 2017; these were on the Isles of Scilly Thomas Porth

Velella velella stranded at Thomas Porth in the Isles of Scilly on 14th September.

Matt Slater: (*Physalia physalis*) - Portuguese Man O' War - unprecedented quantity of live strandings in Cornwall > 10k individuals logged on CWT (MSN)

Dan Jarvis: The significant influx in Portuguese Man O' War around the coast this winter (also of By the Wind Sailors) was notably interesting and sparked a lot of media interest that was used well by Cornwall Wildlife Trust to educate people

Meg Hayward-Smith – Falmouth Marine Conservation: Portuguese Man O' War – high numbers of PMOW wash up on the Cornish coast

Pennie Lindeque: Increase of Portuguese Man O' War observations in Bigbury Bay, Devon – autumn 2017

Nigel Mortimer: Surface plankton – Portuguese Man O' War in large numbers between Salcombe Estuary, and Start Point, Devon & *Velella velella*

“Influx of Portuguese Man O War and By-the-Wind-Sailors into UK waters 2003-2017” The topic of Portuguese Man’O War and By-The-Wind sailors was presented at the SWME April 2018 meeting by **Victoria Hobson**, Peter Richardson, and Matthew Witt. The presentation clearly shows the seasonality of the strandings of these species in the south west.

See the [SWME 2018 Conference Archive](#) and her talk for more details and results. The brief Abstract is below

The occurrence in the autumn of 2017 of a large number of *Physalia physalis* L. strandings on the south-west coast of the British Isles has prompted an interrogation into records of its appearance on the Atlantic coasts of the UK during the past 15 years. MCSUK records for reported strandings for Portuguese Man O War and By-the-Wind-Sailors (*Velella velella*) are considered in detail in conjunction with environmental data for the period involved.

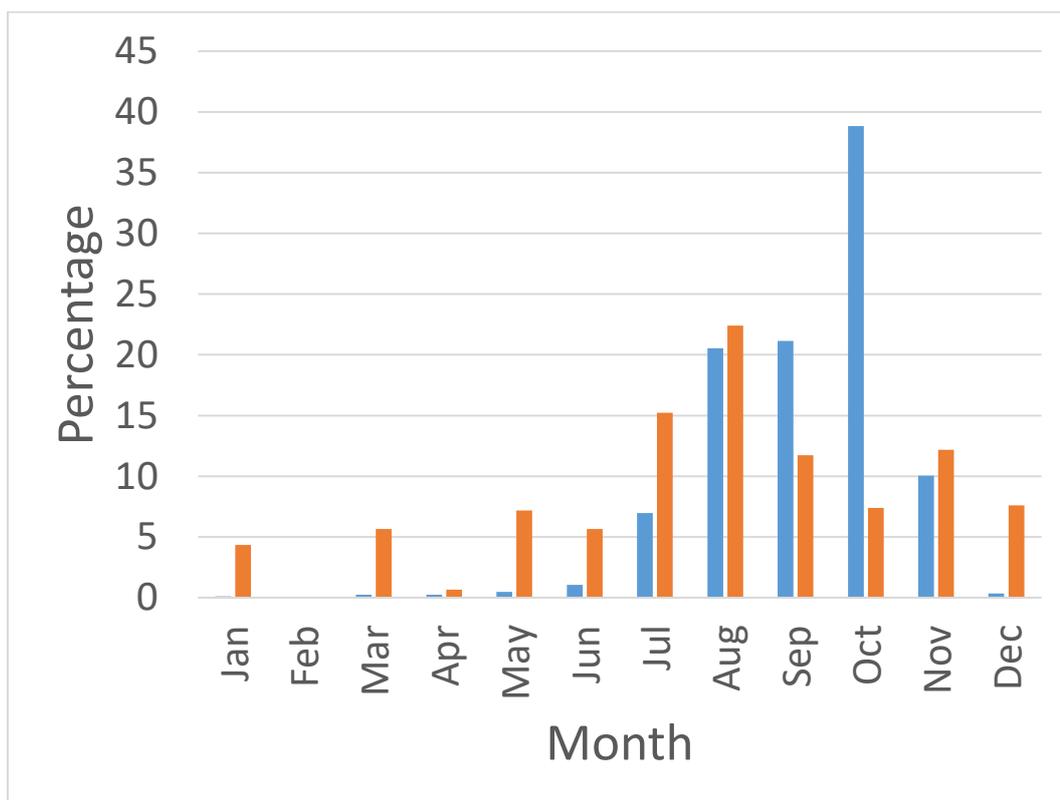


Fig.7.9 Taken from the presentation at the conference this figure illustrates the seasonality of the sightings of Portuguese Man O War and By-the-Wind-Sailors (*Velella velella*). Please consult the authors above before using this figure.

Mauve Stingers *Pelagia noctiluca*

Loads of records in October/November – CWT (MSN). Very mild autumn/winter – strong May bloom off North Coast May/June

Nikki Banfield – IOS Wildlife Trust: 1000’s of Mauve Stingers stranded on Scilly’s beaches during November 2017. Not seen anything like it on the Islands’ during my lifetime (30+ years)

No mentions of the barrel jellyfish *Rhizostoma!*

8. The Seashore and Seabed

Editor: **Keith Hiscock**

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Introduction

Overall, seashore and seabed marine life was much as in 2016.



Fig 8.1 Cuttlefish *Sepia officinalis* in a fishbox at Lyme Regis. Image: Keith Hiscock

It was a remarkable year for cephalopods with cuttlefish numbers creating a 'black gold rush'. The Plymouth Herald reported on 24 September 'This week, a record £700,000 was rung through the tills at Brixham fish market with 90 per cent stacked into freezer vans and transported to foreign markets.' Mating and egg laying seemed earlier than usual (end of April start is usual) (Fig.8.2).



Fig 8.2 Eggs of *Sepia officinalis* at Firestone Bay, Plymouth Sound on 9th April. Image: Keith Hiscock

The increased abundance (sightings) of curled/northern octopus *Elodne cirrhosa* continued from 2016 when Charlotte Bolton reported "There were significantly more sightings of curled octopus (*Elodne cirrhosa*) along the south coast of Devon and off Dorset compared with previous years. Trend started in 2015". Large numbers of were washed-up or even seen crawling up beaches in late October after storm 'Brian' hit the coast. More on <http://www.beachstuff.uk/octopus> .

Crawfish (*Palinurus elephas*) continued to recruit and those that had outgrown the holes in boilers and crevices could often be found nearby in more open ledges. Increasing numbers (Charlotte Bolton, Matt Slater, Keith Hiscock, and Chris Wood)



Fig. 8.3 Three Spiny lobsters (*Palinurus elephas*) on the wreck of the Volnay. Image: Micky Love.

Decreased catches of edible crabs *Cancer pagurus* reported to the Cornwall IFCA (David Muirhead). Many divers report 'not much marine life', by which they mean few crabs and lobsters on dives.

Evidence that native oysters at all six sites of the Solent oyster restoration project spawned in summer releasing millions of larvae into the water column. Now roughly 23,000 native oysters have been reintroduced (Vicki Gravestock, Catherine Whitley)

Mass strandings of common starfish *Asterias rubens* in Dorset (and elsewhere in Britain). Could this be related to 'star balling' behaviour co-occurring with strong tide & onshore wind? See: <https://www.youtube.com/watch?v=n4kVWMFxxvq4>

David Fenwick reports on 23 November: "Looks like we have a new species of sea slug for the UK in *Hermaea cantabra*. I found six individuals in 2015 on *Ceramium* at Great Hogus, Marazion."



Fig. 8.4 The nudibranch *Felimida kronhi* was recorded at Porthkerris by David Rogers and Sue Gates. Image: Des Glover/Kennack Diving

The nudibranch *Felimida kronhi* was recorded at Porthkerris by David Rogers and Sue Gates on 4th October. There were three individuals on the seaward side of Drawna Rocks in about 14 meters of water. The following day the same individuals were seen and more were spotted in the main gully by the pinnacle on the reef, this time much shallower at around 8 metres -the gully is more than 100 metres from the original sighting. Bernard Picton believes that 2017 was the first year in which they were reported on the north side of the English Channel. The species that have been reported as 'new' to the south-west in previous years persist although I am finding it more difficult to see black-faced blennies in Plymouth Sound (Keith Hiscock).

Strandings of NE Atlantic gorgonians - Seafangles

[E.V.Sheehan](#), [A.Rees](#), [D.Bridger](#), [T.Williams](#), [J.M.Hall-Spencer](#)

[Emma Sheehan and her colleagues published a paper which came out in March 2017 about 'sea fangles' seafans caught up in netting.](#) This is the abstract. 'Northeast coral gardens provide vital breeding and feeding habitats for fishes of conservation and commercial importance. Such habitats are increasingly at risk of destruction as a result of over fishing, ocean warming, acidification and marine litter. A key cause for concern regarding the vulnerability of coral gardens to damage from any source is their slow growth rate, and thereby their ability to recover from damage. Hence protected areas are being put in place, which exclude the use of towed demersal fishing gear. Citizen scientists observed that gorgonian coral (Pink Sea Fans) skeletons were stranding on beaches entangled in marine debris (sea fangles) across southwest England. Further, SCUBA divers reported that gorgonian corals were being caught up and damaged in lost fishing gear and other marine litter. To determine the cause of the damage to coral gardens, sea fangles were collected and analysed. The sea fangles were made up of a diverse range of litter from fishing and domestic sources, however, the majority comprised of fishing gear ($P < 0.05$). Marine Protected Areas can protect coral gardens from direct fishing pressure, but risks still remain from ghost fishing pressure, demonstrating the need for sources of litter into the environment to be reduced and existing litter removed.'

Non-native species



Fig.8.5 Pacific oysters are taken from the Yealm by some for consumption. Bob said they were very tasty! Image: Keith Hiscock

Increased spread of Pacific oysters around the coasts of Devon & Cornwall (David Muirhead). The extensive and often dense populations of Pacific oysters in the Yealm continue to be monitored and were much as in

2016. There are occasional collections for consumption. 'Taking over' the Fowey Estuary & Fal Helford. Huge recruitment in the intertidal (Matt Slater).

There were no records submitted of additional non-native species occurring or of spread of other than Pacific oysters.

Records from Dave Fenwick in 2017

David Fenwick Snr [<mailto:davidfenwicksnr@googlemail.com>]

A pretty lean year but the find of *Perophora japonica* in North Devon was predicted. I was talking to the Bristol Co-Coast team in 2016 and supplied images to them so they could turn it into a poster and I said that there was a real possibility it would turn up. Little did I know it would be me who would find it. I guess *Perophora japonica* and I have the same taste in habitat.

February 2017 - Probably my best ever find: the nemertean *Lineus grubei* found in Mounts Bay. The species is quite similar to *Lineus longissimus* but has a white bar across the front of its head. The species is a Mediterranean species and has been confirmed by Spanish experts. It has only been found a handful of times since it was described by Hubrecht in 1879, a very rare thing. The nearest record to the UK appears to be from the Morocco side of the Straights of Gibraltar.

Numerous small algae were identified for the purpose of recording in 2017. Some were very under-recorded, or reported from just one place, but some were found to be quite common. The species include *Microspora ficulinae*, a green algal parasite of three species of sponge; others include *Tetraselmis marinus*, *Rhodophysemma georgii* on Eelgrass, *Stylonema alsidii* and *Ostreobium quekettii* which was found running through Devonshire Cup Coral.

Feb. - March 2017, the spider crab *Macropodia deflexa* is being recorded on the south coast of Cornwall from Newlyn to Hannafore, and appears to be more common than *M. rostrata*.

The new nudibranch *Rubramoena sp. nova*. found in Mounts Bay between March and September in Mounts Bay. The new species is currently being described and will be published soon, see 2018 for update.

10.04.17 Yelland near Barnstaple, bacterial parasite on tentacles of *Cirratulus cirratus*. This appears to be a 200µm long sulphur bacteria, it was found in Mounts Bay in 2018 and has been sent off to France for sequencing to determine what it is, and be described if there's a need.

27.04.17 Gunwalloe Fishing Cove - The parasitic red algae *Rhodymeniocolax* was found. The parasite is far rarer than its host, the common epiphyte of kelp stipes, Rosy Fan Weed, *Rhodymenia pseudopalmata*. Surprisingly, no one wanted it for study, despite the species not having a specific name.

May - July 2017 Numerous records of the Lagoon Sea Slug, *Tenellia adspersa* in Mounts Bay.

A new *Eulalia sp.*, has now, with the NHM, been given the appropriate name *Eulalia sp.* "Emits yellow mucus A". Specimens were found at Newlyn and Wherry Rocks, Penzance, June and August. This species description will potentially be published by David Fenwick and Arne Nygren in the next year or so. Its final species name has now been agreed and it'll refer to the very obvious yellow mucus.

23.06.17 Battery Rocks, Penzance - Potentially a new species of *Entobius* discovered. *Entobius* is a copepod parasite, here of the intestine of the polychaete *Polycirrus*.

03.07.17 Newlyn Marina - New species of polychaete *Amblyosyllis* discovered. *Amblyosyllis* is currently under review and data will be published later in 2018.

Numerous *Pruvotfolia pselliotes* found in Newlyn Harbour in August and September 2017, this nudibranch has thought to have spread from France, in places via commercial fishing e.g. Brixham, Devon.

05.09.17 Penzance Harbour - *Grateloupia turuturu* present under road bridge, also large numbers of *Magallana gigas* present in the harbour. 06.09.17 Wherrytown n Lariggan - *Grateloupia turuturu* present on middleshore, sea and beach red with *Antithamnionella ternifolia*.

13.09.17 Sennen Cove - Unusual stranding of 20+ stalked jellyfish, *Craterolophus convolvulus*, found as blobs on the sand, on checking with a microscope, all were too badly damaged to survive. Numerous Portuguese Man-o-war washed ashore.

19.09.17 Barricane (North Devon) - *Perophora japonica* found at the back of a gulley around level of water in the gulley.

20.09.17 Lee Bay (North Devon) - *Perophora japonica* on lowest part of the shore on a spring tide, quite frequent on the east side and centre of the bay.

22.09.18 Lee Bay Bioblitz (North Devon) - *Rubramoena sp. nova.*, turned up, the species previously recorded at Newlyn, Mounts Bay and Portugal.

06.10.17 The NNS Pacific red algae *Pikea californica* was found at Battery Rocks, Penzance. This is the first record since it was recorded at Newlyn Harbour. The species has since been found north of Mousehole and a very large amount at Godrevy Point.

08.10.17 Helford - *Perophora japonica* found at Teeth

09.10.17 Penzance. A small fragile valve of *Barnea candida*, White Piddock, suggesting there is still a live colony in Mounts Bay. Previously only dead valves had been found. The species is rare in Cornwall.

19-12-17 Nudibranch *Fjordia chriskaugei* and two juvenile *Pleurobranchus membranaceus* in Mounts Bay

[Presentations at the meeting – slides can be seen on the SWME Website in the Archive section.](#)

Seasearch – local to regional perspective

The *Palinurus elephas* population revival in the South-West

Charlotte Bolton Seasearch & **Matt Slater**, Cornwall Wildlife Trust

Since 2015 divers in the south west have been recording a veritable population explosion of the spiny lobster/crawfish, *Palinurus elephas*, after they were exploited to virtual extinction in the 1960s and 70s. Seasearch have been encouraging divers to send in their records to inform Natural England and the local IFCA's and to assist with the management of the re-emerging *Palinurus* fishery and the Marine Conservation Zones that list this species as a Feature of Conservation Interest. We will present the sightings data and show how all divers can get involved with this project.

Matt Slater, Marine Awareness Officer and Cornwall Seasearch Coordinator, Cornwall Wildlife Trust, Five Acres, Allet, Truro (www.cornwallwildlifetrust.org.uk)

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Charlotte Bolton, National Seasearch Coordinator, Marine Conservation Society, Overross House, Ross on Wye (www.seasearch.org.uk) Email: info@seasearch.org.uk, 07776 142096

Is sticky ecology protecting our sandy beaches?

Robyn Samuel, Plymouth University

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As part of the BLUECoast project with Plymouth University, we are investigating the role of ecology on sediment dynamics. Perranporth beach on the north coast of Cornwall is a site where extensive research has been undertaken to understand the physical mechanism for sediment transport and now we are starting to look at the role of ecology there. This research looked at 2 factors:

- 1) The amount of extracellular polymeric substance (EPS), a sticky carbohydrate matrix produced predominantly by diatoms, which has been shown have a significant role in sediment cohesion.
- 2) And the abundance and distribution of macrofauna.

By measuring these factors across the intertidal and out to -30m, in the winter and summer we found:

- EPS across Perranporth was significantly greater in the winter survey and some samples contained quantities of EPS that have been shown to play a role in sediment stabilization.
- An increase in macrofauna abundance and diversity was identified in all but the shallowest depths during the summer survey
- The intertidal and seaward of the inner depth of closure (-15m) are the area's most likely to have sediment transport affected by ecological factors.

Biofluorescence and rocky-shore organisms

Rebecca Allen Centre for Applied Zoology, Cornwall College Newquay

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Biofluorescence – the unseen disco on the sea shore: a brief exploration of this phenomenon which shows appearances can be deceiving in even the humblest occupants of the Cornish coastline.

[Presentations at the meeting – slides can be seen on the SWME Website in the Archive section.](#)

9. Fish & Turtles

Edited by **Doug Herdson**

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Fish

Overview

Continuing the trend of the last few years the numbers of basking sharks and triggerfish reported has declined, and sunfish sightings were below average. The quantities of sharks seen by charter boats reached a high for recent years, but well below the figures from the 1960s. These were primarily blue sharks, but with a significant number of porbeagles. There was also Britain's first recorded 'unprovoked shark attack', which fortunately resulted in no significant injury to either party. Once again, bluefin tuna were common in the second half of the year, probably correlated with abundances of small pelagic fish. Further highlights were the first British record of a pompano dolphinfish; and the first British, and probably European, occurrence of a crocodile shark.

Elasmobranchs

Basking Sharks

It was another lean year for sightings of basking sharks (*Cetorhinus maximus*) around south west England. The decline in sightings of recent years continued with one of the fewest number of sightings of baskers for many years with only 17 recorded by Seaquest SW during 2017. The pattern was the same all over. Marine Discovery saw only five throughout the period mid-May to mid-June; AK Wildlife Cruises sighted one off Nare Head; whilst, most unusually, none were seen during the M.V. Scillonian III surveys or the Scilly pelagic trips, and similarly none were observed by Seasearch divers in South Devon. It was the worst year for records in more than a decade. The last year in which significant numbers were seen out of Plymouth was 2009. In April, the corpse of a large (7.5m) basking shark was washed inshore near Mevagissey.

[Keith Hiscock; Sally Sharrock; Brian Craven; Joe Pender: AK Wildlife Cruises; Marine Discovery; Cornwall Wildlife Trust, Seaquest SW; Cornwall Wildlife Trust, Marine Strandings Network.]

Species	2011	2012	2013	2014	2015	2016	2017	2011-2016
Ocean sunfish	160	264	289	84	163	154	119	1233
Basking shark	76	419	237	72	34	28	17	883

Fig 9.1 Table from the CWT Seaquest Reports on the sightings of ocean sunfish & basking sharks

Porbeagles

In April and May three large porbeagle sharks (*Lamna nasus*) of 100kg to 200kg were caught by anglers from Hartland to Falmouth. While from late July to late August, another three porbeagles were found off Scilly. In December large dense shoals of mackerel in the inshore waters of West Cornwall attracted numbers of feeding porbeagles. Ten were caught and released in two days by a St Ives charter boat, and some were caught from kayaks. In early December, a small porbeagle (c.1.5m TL) was found stranded near Hayle.



Fig 9.2 Small porbeagle *Lamna nasus* found near Hayle in December. Pirate FM/ Glen Cromar

[Douglas Herdson; Liam Faisey; Joe Pender; Cornwall Wildlife Trust, Marine Strandings Network.]

Crocodile Shark

In mid-February, a one-metre shark was found on a beach at Hope Cove, south Devon (Fig 9.3 below). It was photographed and returned to the sea before it was realized that it was dead. Unfortunately, the specimen was lost; however, a number of good photos do exist and the finders sent these to the National Marine Aquarium.



Its proportions appeared strange and it had distinctive prominent teeth. James Wright circulated these photos, and it was soon recognised that it was not a shark normally seen in British coastal waters. Fortunately, Marc Dando, who has illustrated a number of shark books, was able to identify it as a crocodile shark (*Pseudocarcharias kamoharui*). This was confirmed by the international shark expert David Ebert.



Crocodile shark, *Pseudocarcharias kamoharai*, Hope Cove, 18 February 2017, Ross Spearing (Fig 9.4 above)

Its rather remarkable features include a white patch forward of its long gill slits, its distinctive teeth and shape of the caudal fin. This fish, which is the smallest of the mackerel sharks, is normally found in tropical waters down to depths of 590 metres. It is seldom found north of 37°N. It was certain that this extraordinary find was a new record for British and Irish waters, but further enquiries suggest that it has never previously been reported in Europe.

[James Wright; Marc Dando; FishBase; Wikipedia; Patrick Louisy.]

Catsharks

Six small-spotted catshark (= lesser spotted dogfish) (*Scyliorhinus canicula*) and one nursehound (*Scyliorhinus stellaris*) were found dead on the shore. Some were probably the result of anglers' or fisheries discards. In fact two were found entangled in a net; possibly victims of 'ghost fishing'. Photographs of a nursehound taken several months apart in Wembury Bay showed it was the same individual, revealed by denticle pattern around eye (making it possible to use photography to identify individual fish) [Paul Naylor; Cornwall Wildlife Trust, Marine strandings Network.]

Tope

At the beginning of January, one juvenile tope (*Galeorhinus galeus*) was found dead on a beach near Bude. From May to July, there were good numbers of tope on the north coast of Cornwall and North Devon. These were nearly all male fish weighing up to 15kg. One fish caught on 9th July had been tagged by Inland Fisheries Ireland. It had first been captured off Cahore, Ireland in June 2014, with 1133 days at liberty since first marked and a straight-line distance of 260km between initial tagging and its subsequent recapture near St Agnes. Between tagging and recapture, the fish had increased in total length by 12cm, from 128cm to 140cm, with no change in girth.

[Liam Faisey; Cornwall Wildlife Trust, Marine Strandings Network.]

Blue Shark

From mid-May well into October large numbers of blue sharks (*Prionace glauca*) were caught from Plymouth to Penzance. This was the best year in recent records for a number of angling charter boats. By the end of 2017, one vessel out of Penzance had caught and released 1780 sharks, sometimes catching more than sixty in a single day. In the Isles of Scilly 93 were found from the end of May until late September. Several of these sharks were large, and one, taken 10 miles off Penzance in late July, was a female of 2.7m from snout to the fork in its tail, and with a girth of 1.1m, which was estimated to weigh 113kg. This makes it the biggest blue shark ever caught on rod and line in British waters. The previous record for a blue shark was 97kg, caught off Looe, Cornwall, in 1959. [Liam Faisey; Douglas Herdson; Joe Pender; Marine Discovery; BBC Online]

Spurdog

The anglers' catches of spurdog (*Squalus acanthias*) off the north coasts were up on recent years. (Commercial fishermen are not permitted to land this, now endangered, species and so there is no information on their catches.) In the early part of the year, several large spurdogs were caught, including a BRFC record fish from shore. This 8.0kg fish beat the existing record from Chesil beach, which had stood for 53 years. Large spurdogs were also being caught in the Bristol Channel at the end of the year. [Liam Faisey; Mike Spiller, Angling Trust; Douglas Herdson.]

No reports were received of thresher sharks (*Alopias* sp.) being caught or seen in the area in 2017.

Rays

Anglers in West Cornwall captured good numbers of blonde ray from August to December. Three thornback rays were found dead on shore; one had been winged and discarded. [Liam Faisey; Cornwall Wildlife Trust, Marine Strandings Network.]

First British 'unprovoked' shark attack

On 18th June, Mr. Thomson was bitten on the leg by a one-metre shark while surfing at Bantham, South Devon. The shark, which may have been a starry smoothhound (*Mustelus asterias*), left him with a bruise on his thigh. He cut his finger whilst hitting the shark on the head (Fig 9.5 a & b).



Fig 9.5 a

& b First British shark attack June 2017 [BBC/PA Wire]

Pelagic species

Large Pelagic Fish

Bluefin Tuna

Throughout the latter half of the year large numbers of Atlantic bluefin tuna (*Thunnus thynnus*) were to be seen from Lyme Bay to the west of Land's End. Large groups were reported from south of the Eddystone, Falmouth Bay, West Cornwall and Sennen Bay.

These tuna were seen feeding on 'bait balls' of small pelagic fish in August and December, allowing underwater photographers to get some outstanding pictures.



Fig 9.6 Bluefin tuna attracted to 'chum' put into the water to bring in blue sharks on 28th August. Image: Simon Rogerson.





Fig 9.7 & 9.8 Bluefin Tuna hunting pilchards, off Penzance, 21 August 2017, Henley Spiers,

In the Isles of Scilly at least 130 were seen between early August and late September.

During the CEFAS Peltic Cruise in October, the numbers of tuna observations increased again from 2016, even considering the larger survey area coverage in 2017. Over 500 tuna were seen in more than 40 different feeding observations.

Tom Horton writes - "In 2017 Atlantic bluefin tuna, once again, arrived off the coast of southwest England towards the end of July and remained until at least the end of December. Large aggregations of 100s of individuals were observed on numerous occasions from the Eddystone to offshore Land's End and even on the north coast of Cornwall. Sightings and reports were concentrated in areas off the south coast of Cornwall. At the end of the 2017, in response to elevated sightings, the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) and the University of Exeter began a two-year scientific study, supported by the Department for Food, Environment and Rural Affairs (DEFRA) and the European Maritime and Fisheries Fund, to deploy state of the art animal tracking devices to find out where Atlantic bluefin tuna in UK waters go. Scientists will work with stakeholders including commercial fishers, recreational anglers, wildlife watchers, and NGOs, to share knowledge, and to deploy around 40 state-of-the-art satellite tracking devices. The work will help scientists to understand:

- where and when Atlantic bluefin tuna are found in British waters;
- long-distance migrations, and where Atlantic bluefin tuna go when they are not in UK coastal waters;
- where Atlantic bluefin tuna found in UK waters go to breed;
- interactions between Atlantic bluefin tuna and both commercial and recreational fisheries.

The information will improve knowledge on Atlantic bluefin tuna, ultimately aiding in the conservation of these remarkable animals into the future. To find out more visit www.thunnusuk.org"

In early December, a boat fishing for sprats accidentally caught a huge Atlantic bluefin tuna. The 2.3-metre fish was captured 12 miles off Brixham.

[AK Wildlife Cruises; Marine Discovery; Henley Speirs; Liam Faisey; BBC News Online; Joe Pender; CEFAS Peltic; Tom Horton; Andy Giles; Matt Smitheran; A Blonden]

Dolphinfish



Fig. 9.9 Pompano Dolphinfish *Coryphaena equiselis*, Chesil Beach, 7 September 2017. Mark Padfield

Dolphinfish are large pelagic fish growing up to two metres and found in tropical and subtropical waters around the world. On 7th September 2017, a pompano or lesser dolphinfish (*Coryphaena equiselis*) was caught by rod and line from Chesil Beach. This is the smaller and less common of the two species. The fish was examined at the Natural History Museum and confirmed to be the first discovered in British and Irish waters, making it a BRFC record; and is probably the first confirmed record of *C. equiselis* from NW Europe (north of Galicia).

(Two of the better known common dolphinfish (*Coryphaena hippurus*) were caught to the south and west of Ireland in 1993, and one stranded alive on a beach in Co Cork (Ireland) during September 2014. It has never been recorded in British waters.) [Oliver Crimmen; Declan Quigley]

Billfish and Swordfish

There were no reports of billfish and swordfish in 2017

Bonito

A few of the small tuna, the bonito, (*Sarda sarda*) were caught out of Mevagissey in July. [Douglas Herdson]

Small pelagic fish

The 2017 CEFAS Peltic cruise gave an overview of autumn distribution small pelagic fish in the Bristol Channel, western English Channel and their western approaches.

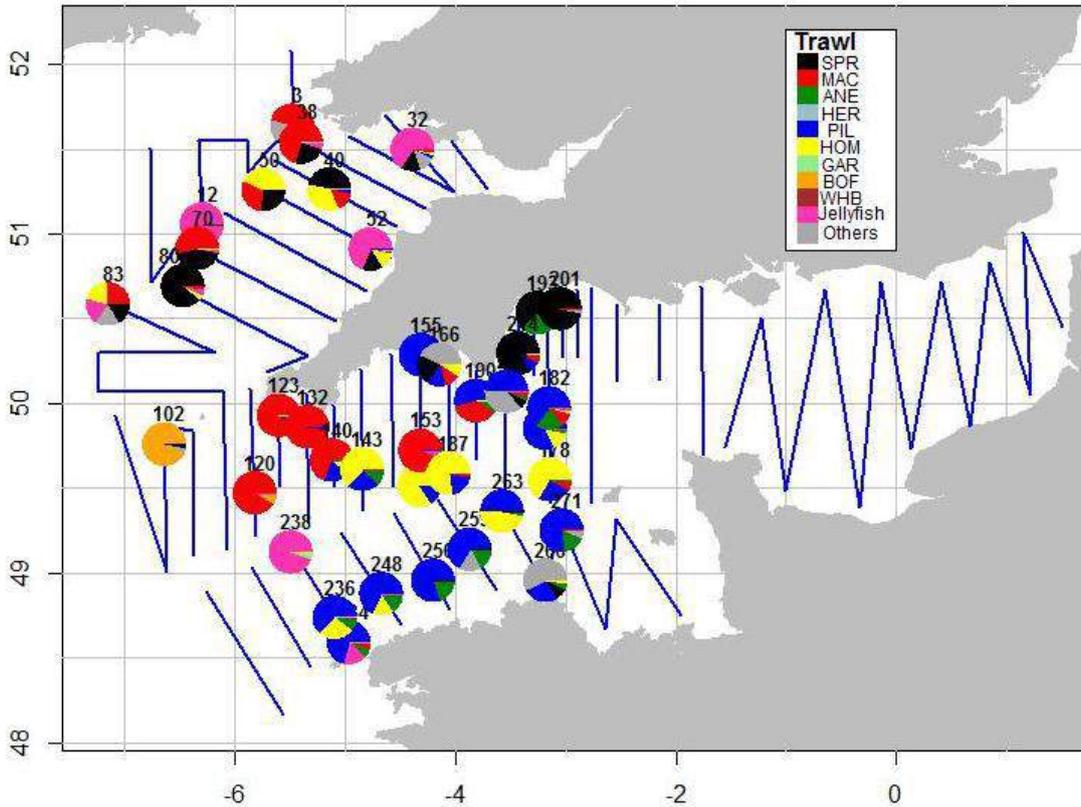


Fig.9.10 Trawl catches (pies) with relative catch composition by key species. Three letter codes: SPR=sprat, MAC=mackerel, ANE=anchovy, HER=herring, PIL=sardine, HOM= horse mackerel, GAR=garfish, BOF=Boarfish, WHB=Blue whiting MAC=mackerel, ANE=anchovy, HER=herring, PIL=sardine, HOM= horse mackerel, GAR=garfish, BOF=Boarfish, WHB=Blue whiting (© CEFAS)

In August, shoals of small pelagic fish were common with some forming bait balls of fish close to shore.

Around the same time, lots of small mackerel (*Scomber scombrus*) were showing in Mount’s Bay and Sennen Bay. There were also hundreds of sardines (*Sardina pilchardus*) stranded on east shore of Mount’s Bay, and thousands of small herring (*Clupea harengus*) stranded in pools around the Albert Pier reef, Penzance. There were huge amounts of mackerel and other commercial species around the coast through the autumn and most of the 2017-18 winter. These supported many flocks of feeding gannets and other seabirds in West Cornwall in particular; and there were even sightings of Minke whales coming inshore to feed here and in the Isles of Scilly. Fishermen said there were similar large amounts of fish around much of the coast, and that some boats were catching their full capacity in less than two hours within St Ives Bay and surrounding area week after week, worth tens of thousands of pounds per day.

Sprats

There were more sprats (*Sprattus sprattus*) encountered during October’s Peltic cruise than in 2016. Large ones were dominant in Lyme Bay and some smaller ones in the outer Bristol Channel.

Sardines (Pilchards)

In mid-August, hundreds of sardines (*Sardina pilchardus*) were stranded on east shore of Mount’s Bay. In October, they were mainly found in the eastern and southern regions of the Western Channel. While in December thousands washed up at Marazion (Mount’s Bay) and St Austell Bay (see below).

Anchovies

European anchovy (*Engraulis encrasicolus*) were quite plentiful in January in Mount’s Bay, and were being caught by boats for a number of weeks. In October, large anchovies (16 to 18 cm total length) were found in

Lyme Bay, and smaller ones in French waters. However, the biomass was noticeably less than in 2016. By November and December, a few anchovies were being caught off Plymouth among the mackerel, but hardly any were landed to Plymouth Fish Market.

Mackerel

Mackerel (*Scomber scombrus*) were in abundance within the Fal estuary over the winter (December through to March), including many larger individuals. This has only been noticed over the last five years or so. Very few over-wintered within the estuary in years prior to that. As noted previously, small mackerel were abundant around West Cornwall in August. By the end of October, the large quantities of mackerel in St Ives Bay had depressed prices. The large, dense shoals of mackerel inshore in West Cornwall in December attracted a number of porbeagles in to feast on them.

Boarfish

The October CEFAS cruise had a large catch of boarfish (*Capros aper*) west of Scilly.

NOTE Locals blamed a freak electrical storm in late December for killing hundreds of fish, a dolphin and a gull in Cornwall. They are convinced a lightning strike during Storm Dylan caused the deaths of the creatures, which washed up on Marazion beach, near Penzance.

Read more: <https://metro.co.uk/2017/12/30/freak-electrical-storm-kills-hundreds-fish-cornwall-7192294/?ito=cbshare>

[Liam Faisey; Joe Pender; CEFAS Peltic; Andy Giles; David Fenwick snr.; Chris Oates; Rebecca Allen; Liz Bailey; Dan Jarvis; Metro]

Sunfish

Around Cornwall the numbers of sunfish (*Mola mola*) seen were below average; with 119 reports to Seaquest SW (six-year mean = 192) (Fig.91). However, there was a large increase in the quantity of ocean sunfish seen to the west of Scilly during wildlife trips in 2017. Sunfish were seen weekly, whereas only seen once or twice in a season in previous years.

22 were also seen on 15 occasions, singly or in twos or threes, from late May to late August from the pelagic trips around Scilly. While regular wildlife trips out of Penzance encountered 73 in a similar period, with greatest numbers in June and August. One or two were seen around Lundy.

The first record was from the Western Approaches on 20th May, and the last was one of at least 1.5m off Portreath on 10th October.

There were several reports in August from Portreath round to Mount's Bay, mainly singly but at times up to three.

No reports were received from Devon, Somerset, or Dorset.

There was one live stranding and two washed up dead.

A juvenile sunfish of about 70cm was found in a pool on the shoreline at Mawgan Porth by a member of the public on 19th August 2017 and reported via the RNLI Lifeguards. Fortunately, staff from the Blue Reef Aquarium and volunteers from British Divers Marine Life Rescue were able to maintain it in good condition and subsequently release it from a boat.

A further two juvenile sunfish were found dead in mid-September. One stranded on Crantock Beach at mouth of the Gannel river, and the other on Hayle Beach.

[Nikki Banfield, Isle of Scilly Wildlife Trust; Joe Pender; Liam Faisey; Rob Durrant; Ian Jepson; Marinelife; British Divers Marine Life Rescue; Marine Discovery; Cornwall Wildlife Trust, Seaquest SW; Cornwall Wildlife Trust, Marine Strandings Network.]

Demersal species

Numbers of large cod (*Gadus morhua*) were caught off north coast of Devon and Somerset in January and February. While there was excellent haddock (*Melanogrammus aeglefinus*) fishing during December off Penzance. [Liam Faisey; Douglas Herdson]

Seahorses

Thirteen seahorses were recorded throughout the year, with both species being found in both Dorset (7) and Devon (6), all but one on the south coast. Of these four were spiny seahorses (*Hippocampus guttulatus*) and nine short-snouted seahorses (*Hippocampus hippocampus*). There were no reports of seahorses from Cornwall or the Isles of Scilly in 2017.

Individual spiny seahorses were seen off Dartmouth in February; in Studland Bay in June; in Poole Bay in October and in Poole Harbour in December.

There was one short-snouted seahorse in Weymouth Bay in February; in April three were found in Poole Bay; one at Dawlish in July; while in Torbay there were two in August and one in October. The dry and partially decomposed remains of a of *H. hippocampus* were found at mouth of Tawe/Torridge in March. [Seahorse Trust; Rosemary Madgett]

Gurnards

Tub gurnard (*Chelidonichthys lucerna*), red gurnard (*Chelidonichthys cuculus*), and grey gurnard (*Eutrigla gurnardus*) are relatively common, but streaked gurnard (*Chelidonichthys lastoviza*) are generally found deeper and are less well known. Therefore, it is interesting to note a number of sightings by divers, generally as part of Seasearch surveys. There were two sightings around the Lizard in May and August, with further reports from Chesil Cove and Poole Bay in October and November.

[Sarah Bowen; Janet Dallimore; Charlotte Bolton]

A scorpionfish (*Scorpaena scrofa*) of around 30cm was caught south west of the Eddystone lighthouse in November. [Lee West]

Carangids

During the year two large horse mackerel (*Trachurus trachurus*) were caught, one of 500g from Sennen Bay in August, and the other of 36 cm off Portland.



Fig. 9.11 Pilot Fish *Naucrates ductor*, Scilly, 19 June 2017, Joe Pender

After a number of years without any sightings, three pilot fish (*Naucrates ductor*) were reported. The first in June was accompanying a 35kg blue shark 6 miles south of St Mary's, Isles of Scilly. In late September a fishing boat caught one halfway between St Ives and south west Ireland. Another one was seen alongside a blue shark whilst fishing off Falmouth in October.

[Aaron Warr; Liam Faisey; Joe Pender; Fishing News]

Sea Breams

In May and June regular small quantities of gilthead (*Sparus aurata*), Couch's (*Pagrus pagrus*) and red sea bream (*Pagellus bogaraveo*) were landed to Plymouth Fish Market from several different boats. Gilthead breams were being seen from Weymouth to Helford. Numbers of Couch's sea bream were caught in Helford and Fal estuary by anglers in June and July. With good numbers of Couch's Bream in the 350-650g size range being caught by anglers in the Fal and Helford estuaries in September. This species is certainly increasing in numbers within these estuary systems and now seem to be more commonly caught than gilthead bream. These are particularly notable as up until 1997 no more than a dozen had been caught in British waters. Regular small amounts of Couch's bream were seen on Plymouth Fish Market from September through to October.

[[Kyle Waterhouse](#); [Clive Hodges](#); Liam Faisey; Douglas Herdson; Gary Bowden; John Munday; Mike Spiller; Andy Giles; Alison Pessel.]

In June several red band fish (*Cepola macrophthalma*) were caught (and released) within Plymouth Sound. Some of the sites were ones from which *Cepola* was not previously known.
[Liam Faisey]

A Baillon's wrasse (*Symphodus bailloni*) was caught from shallow reefs within Swanage Bay during May.
[Liam Faisey]

(There was a 62cm and 2.0kg Atlantic wolffish (*Anarhichas lupus*) on Plymouth Fish Market in April. This is a northern deepwater species not normally seen in the south or west. However, since it was landed by a Scottish registered trawler, it cannot be known where it was captured.)

Blennies

Paul Naylor's long-term studies of tompot blennies (*Parablennius gattorugine*) continued to give further insights into their behaviour and biology.

'Sneaker' fertilisation behaviour by a male tompot representing itself as a female is reported for the first time.

One male in Wembury Bay retained the same crevice for egg-guarding for a 4th consecutive year – 2014-2017.

Quick (within 15 minutes) colour changes by both male and female tompot blennies were observed, that appeared to correlate with the individuals' roles in interactions, darker when dominant, paler when submissive or laying eggs.

[Paul Naylor]

Gobies

In June, two Steven's gobies (*Gobius gasteveni*) were caught (and released), close to Mountbatten Breakwater, in Plymouth Sound.

Another Steven's goby was photographed in 25 m on Tennant's Reef in Lyme Bay in July.

[Liam Faisey; Nick Owen.]

A Cornish blackfish (*Schedophilus medusophagus*) was caught by a vessel out of Padstow.

[Simon Porter]

Triggerfish

There were few reports of grey triggerfish (*Balistes capriscus*) in 2017, either sightings or catches during the summer, or washed up dead on the beaches in the winter season. (Is this due to a lower population or increased familiarity leading to less reporting?)

The first grey triggerfish of the year was seen among *Sargassum* algae off Eastern King Point in Plymouth Sound, in early July.

In August, two were caught in a lobster pot off Chapel Porth, near St Agnes, Cornwall.

Small numbers were seen around West Cornwall from Sennen to Portreath in late August and September. In the autumn, divers observed triggerfish in Portland Harbour and off Chesil Beach.

A surprisingly low total of seven triggerfish were found dead during the winters (twelve in 2016), most from the north coast.

Two were discovered at Perraporth in January.

In December, there was one at Perran Sands, Mount's Bay; one at Hayle, St Ives Bay; and one adult with two juveniles at Widemouth Bay near Bude.

[Cornwall Wildlife Trust, Marine Strandings Network; Tracey Williams; Martin Palmer; Charlotte Bolton (Seasearch); Liam Faisey; James Coggan, Fowey Aquarium.]

Stranded on beaches

A number of fish were found stranded on beaches, including a garfish at Hayle in January, ballan wrasse at Penzance and Newquay in February and September and a conger at Whitsand Bay in November.

[Cornwall Wildlife Trust, Marine Strandings Network; Tracey Williams; Judy Harrington]

Fishy notes

Studies showed how many species of fish can change in colour in response to, apparently, different stimuli. Such changes can occur surprisingly rapidly.

[Paul Naylor]

Lasers and Labridae in Lyme Bay; exploring a novel method to investigate territoriality in wild fishes

The extent of animal territory and 'home-range' are key considerations when designing spatial conservation measures, such as marine protected areas. In Lyme Bay, southwest England, territorial wrasses have frequently been observed pursuing a laser projected onto the seabed during towed video surveys. Pete Davies investigated this 'laser-chasing' behaviour, to reveal aspects of wrasse territoriality and territory size. Using this novel, opportunistic method, fascinating behavioural differences were found within and between species, which may be related to their reproductive biology. This method has the potential to be applied more widely to study fish territoriality.

[Pete Davies Bournemouth University]

First proof of fish larvae ingesting microplastics in natural environment was published in a PML paper.

[Pennie Lindeque]

Fishing and Fishery Management

Wrasse of all sizes are being landed at Newlyn.

They are being hammered a bit, good large fish go straight to London for sushi, but they have to be in premium condition; other large ones go for crab pot bait. So we are losing small, medium and large fish! Ten years ago I'd never have said Ballan Wrasse would ever be fished commercially. [David Fenwick Snr] Smaller wrasse are despatched to salmon farms as cleaners. [Douglas Herdson]

The fishery for wrasse (to supply Scottish fish farms as a lice cleaner fish) 'took off' in the summer with much concern being expressed about possible impacts and the need for management of the fishery. [Keith Hiscock] Kayak anglers noting a severe lack of small wrasse (ballans, corkwings, rock cooks, goldsinneys) within Plymouth Sound compared to previous years. Their absence assumed to be due to several Plymouth commercial fisherman now fishing with 'wrasse traps' to supply Scottish salmon farms. [Liam Faisey]. The Devon Wildlife Trust is making efforts to raise the profile on the wrasse harvesting. [Emma Magee]



Fig. 9.12 A wrasse pot off Pier Cellars in Plymouth Sound on 11th August 2017. Image: Keith Hiscock

Marazion, Cornwall, dead fish, MMO, sardines - discarding for safety reasons - for a second time The Mystery of the dead fish on the Marazion beach solved - Bob Earll

Links

Whilst the [MMO web post on the Dec 19th 2016](#) left the reason for the fish on the beach as unknown the fishermen involved have owned up ...

[Mike Kaiser wrote a piece on the 22nd also attributing strandings to a local fisherman](#)

[Mystery of hundreds of thousands of dead fish on Cornish beach solved](#)

While some blamed bad weather or predation for beaching at Marazion at St Michael's Mount, the fish were in fact dumped by a trawler for safety reasons. The mystery of why hundreds of thousands of fish were found washed up on a Cornish beach over the weekend has been solved: they were dumped by a trawler that caught too many sardines in shallow water. After a photographer [happened on the huge shoal of dead fish](#) on Marazion at St Michael's Mount beach, various explanations were offered for her eerie discovery – just two weeks after a similar sighting on another Cornish beach. Bad weather out at sea and attempts by the fish to escape large predators were both suggested as explanations. However, according to Gus Caslake, the chairman of the Cornish Sardine Management Association, one of its member vessels was responsible. It had been following shoals of fish that were closer to the shoreline than normal this winter, and was forced to release large numbers after it caught too many to safely pull aboard. The [Cornwall](#) Inshore Fisheries and Conservation Authority (Cifca) and the UK government regulator, the Marine Management Organisation (MMO), have launched investigations into the two incidents.

Simon Cadman, Cifca's principal enforcement officer, told the Guardian that "it's likely that the fishing in that area has been the cause of the problem" in both cases.

[Click here to read more](#)

Turtles



Fig 19.13 A & B Kemp's Ridley Turtle, Holywell Bay, 8 December 2017, © Dave Hudson

Although nationally the number of turtles reports from Great Britain and Ireland increased in 2017, from 33 in 2016 to 37 (but 46 in 2015), the number of records in the south west went down from 15 to 13 (see Table 1 below)

These were eight leatherback turtles, one loggerhead, one Kemp's Ridley and three unidentified. There was no significant pattern of distribution with six on the north coast, four along the south coast, two around south west Cornwall and one off the Isles of Scilly. Of these, five were seen alive at sea and one stranded alive; two were seen dead at sea and five were washed up dead on the shore.

In January an unidentified turtle was seen swimming in Plymouth Sound. The carapace of a decayed leatherback turned up at Newquay in mid-March. In April an unidentified turtle was seen dead close to the shore at Mawgan Porth. In July the species of one seen swimming 25 miles south of Brixham could not be determined. In August leatherbacks were seen swimming south of Falmouth, and off the Isles of Scilly, and a loggerhead off Exmouth. In September Storm Aileen hit the south west coasts of Britain and around this time five dead leatherbacks were found at Portreath, the Lizard, Kenneggy Sands, Porthtowan Beach and Woolacombe. Right at the end of the year a juvenile Kemp's Ridley was washed up alive on Holywell beach (but despite the efforts of Blue Reef Aquarium died four days later).

A further leatherback seen on the CEFAS Peltic cruise on 27th October, but in French waters at the northern edge of Bay of Biscay.

[British Isles & Republic of Ireland Marine Turtle Strandings & Sightings, Annual Report 2017. R.S. Penrose & L.R. Gander. May 2018. Marine Environmental Monitoring
[http://www.strandings.com/Graphics%20active/2016%20Turtle%20Annual%20Strandings%20Report.pdf](http://www.strandings.com/Graphics%20active/2016%20Turtle%20Annual%20Strandings%20Report.pdf;);

[Dave](#) Hudson; Ross Parham; Joe Pender; Marinelife; and Cornwall Wildlife Trust, Marine Strandings Network]

Table 19.14 Turtles of the South West 2017

Date	MT record no.	Turtle species	Location	Status	Comment
27/01	T2017/002	Unidentified	Plymouth Sound	Alive at sea	Observed from boat at 50m. MTR
12/01		Leatherback	Watergate Bay, Newquay	Stranded dead	Carapace found. MSN
29/04	T2017/003	Unidentified	Off Mawgan Porth	Dead at sea	Possibly entangled in net. MTR
July		Unidentified	25 miles south of Brixham	Alive at sea	Ross Parham, Spot
15/08	T2017/006	Leatherback	4 miles off Falmouth Bay	Alive at sea	Seen 20 m from fishing boat. MTR
27/08	T2017/007/8	Loggerhead	1 mile off Exmouth	Alive at sea	Seen close up by 2 boats. MTR
27/08		Leatherback	Off the Isles of Scilly	Alive at sea	seen by MV Sapphire, Joe Pender
03/09	T2017/014	Leatherback	Kenneggy Sands, Mount's Bay	Stranded dead	Decomposing. MTR & MSN
08/09	T2017/021	Leatherback	Portreath, Cornwall	Stranded dead	Stranded in harbour. MTR & MSN
10/09	T2017/017	Leatherback	Polpeor Cove, Lizard	Dead at sea	Decomposed and missing head. MTR & MSN
12/09	T2017/012	Leatherback	Putsborough Sands, Woolacombe	Dead at sea	Floating close to coast, possibly entangled. Washed ashore later. MTR
20/09		Leatherback	Porthtowan Beach, Cornwall	Stranded dead	Very decomposed. MSN
08/12	T2017/027	Kemp's Ridley	Holywell Bay, Newquay	Stranded alive	Taken to Blue Reef Aquarium, but died a few days later. BRA & MSN
October		Leatherback	NW of Brittany	Alive at sea	Seen in French waters during the CEFAS Peltic 2017 cruise.

MTR - British Isles & Republic of Ireland Marine Turtle Strandings & Sightings, Annual Report 2017. R.S. Penrose & L.R. Gander. May 2018. Marine Environmental Monitoring MSN – Cornwall Wildlife Trust, Marine Strandings Network BRA – Blue Reef Aquarium

2017 sightings from the Sapphire off Scilly – Joe Pender 22/10/2018 From: Joe Pender

No basking sharks!

29.05.17 1x Sunfish 1 x Blue Shark
15.06.17 1x Sunfish 2x Blue Sharks 6x Common Dolphins
19.06.17 6x Blue Sharks 1x Pilot fish
22.06.17 3x Blue Sharks
03.07.17 3x Sunfish 2x Blue Sharks 6x Common Dolphins
06.07.17 2x Sunfish 4x Blue Sharks
10.07.17 2x Blue Sharks 6x Common Dolphins
13.07.17 1x Blue Sharks 6 x Common Dolphins
17.07.17 2x Blue Sharks 10x Common Dolphins
24.07.17 3x Blue Sharks 15 x Common Dolphins
27.07.17 1x Porbeagle Shark 20 x Common Dolphins
31.07.17 2 x Blue Sharks
01.08.17 3x Blue Sharks 30x Common Dolphins
03.08.17 1x Blue Shark 20 x Bluefin Tuna 2 x Sunfish
06.08.17 2 x Blue Sharks 2x Minke whales 1 x Sei Whale
07.08.17 1 x Fin Whale 1 x Sei Whale
08.08.17 4x Blue Sharks 2 x Sunfish
10.08.17 2x Blue Sharks 1 x Sunfish
12.08.17 1 x Blue Shark 12 x Bluefin Tuna 1 x Minke Whale
13.08.17 5 X Minke Whales 20 X Offshore Bottlenose Dolphins 100 x Bluefin Tuna 1 x Blue Shark 1 x Sunfish
14.08.17 1 x Minke Whale 1x Sunfish 3x Blue Sharks
15.08.17 20x Common Dolphins 5x Blue Sharks
17.08.17 6x Blue Sharks
18.08.17 6x Common Dolphins
19.08.17 100 x Common Dolphins 1x Sunfish 1x Blue Shark
20.08.17 1x Blue Shark 1x Sunfish
21.08.17 1x Blue Shark
22.08.17 20 x a Common Dolphins 6x Blue Sharks
24.08.17 20 x Common Dolphins 3x Minke Whales
25.08.17 30x Common Dolphins
26.08.17 1x Porbeagle Shark 2xBlue Sharks 2xSunfish
27.08.17 3x Sunfish 20 x Common Dolphins 1 x Porbeagle Shark 7 x Blue Sharks 1x Leatherback Turtle
28.08.17 40x Common Dolphins
29.08.17 4x Blue Sharks 40 x Common Dolphins 1x Sunfish
31.08.17 8 x Blue Sharks 30 x Common Dolphins
04.09.17 30 x Common Dolphins 1 x Blue Shark
06.09.17 20 x Common Dolphins
07.09.17 1x Minke Whale 3x Blue Sharks
14.09.17 20x Common Dolphins
18.09.17 1x Bluefin Tuna 1 x Blue Shark
21.09.17 20 x Common Dolphins. 1 x Blue Sharks
25.09.17 1x Blue Shark
04.09.17 20 x Common Dolphins
17.09.17 1 x Minke Whale 20 x Common Dolphins
25.09.17 2 x Minke Whale

Joe Pender, St Mary's Boatmen's Association The Elms, Church Road, St Mary's, Isles of Scilly TR210NA
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10. Marine and Coastal Birds South West

Editor: **Alex Banks**

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Nesting seabirds

Seabirds Count

Various coastal and inland stretches around the south west were surveyed for seabirds in 2017, under the auspices of the national seabird census 2015 – 2019, Seabirds Count. The majority were counted from boat surveys funded by Natural England and led by the same organisation or Cornwall Bird Watching & Preservation Society. The latter also collaborated with the Cornwall Seal Group to survey birds from seal surveys.

Nearly 18,000 birds or nests were recorded, the most abundant species being guillemot *Uria aalge* with 50% of the total. Counts entered into the Seabird Monitoring Programme (SMP) database for Cornwall, Devon and the Isles of Scilly are summarised in Table 10.1. No data were received from Dorset or Somerset.

Plans for comprehensive surveys of Manx shearwaters on Lundy, led by RSPB with support from Natural England, were disrupted by storms in late May and early June. Efforts were re-scheduled for 2018.

Anecdotally, guillemot numbers at sites surveyed seemed healthy in comparison to previous counts. Once all data are collected for the census, we expect to see large declines in herring gulls nesting at 'natural' coastal sites. Similarly, black-legged kittiwakes are faring very poorly in the south west. Boat surveys of Torbay and the south Devon coast confirmed (as expected) that all of the colonies formerly occupied at Start Bay are now abandoned.

Table 10.1. Count data for south west counties held by SMP database for 2017. PU: Atlantic puffin; BH: black-headed gull; GU: 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; BH, CN, BG, CA, HG, KI, LB – Apparently Occupied Nests; F. – Apparently Occupied Sites; GU, RA – individuals.

	PU	BH	GU	CN	TM	F.	GB	CA	HG	KI	LB	MX	RA	SA	Total
Cornwall	5	7	1,373			1,017	150	62	2,091	695	13		509	379	6,301
Bodmin Moor		7													7
Bounds Cliff - North Cornwall			20			74		3	72				48	2	219
Cadgwith - Helford River (East Lizard)						19	3	0	76		2			3	103
Carnweather Point, North Cornwall						25			9				2		36

Chapel Porth to Perranporth	2		132			72	6	1	474		5		153	52	897
Church Cove 2 - Cadgwith						16	3		26		1			1	47
Com Head - North Cornwall						23			9						32
Delabole Point - North Cornwall						19			39						58
Doyden Point, North Cornwall									2						2
Falmouth Bay (North Helford to Falmouth)									3						3
Gulland Rock - North Cornwall			580				2		55					12	649
Gunwalloe Fishing Cove to Kynance Cove						39	7		154		2			34	236
Hayle - Chapel Porth								1	0						1
Ligger Point to Porth			4			97	7		83		1		16	36	244
Newland Island, North Cornwall									24						24
North Cornwall Coast			216			113			208	694			148	9	1388
Pentire Point - North Cornwall									6						6
Plymouth - Falmouth			300			74	104	57	217		2		18	115	887
Port Isaac, North Cornwall						60			104						164
Ramparts - North Cornwall						5			5						10
Reedy Cliff, North Cornwall						17			13				10	5	45
Tregonnick Tail						1			8					2	11
Trerubies Cove - North Cornwall						15			28				13		56
Tresungers Point, North Cornwall			38			96			47				70		251
Trevan Point, North Cornwall						13			8						21
Trevelgue Head to						148			326					39	513

Merope Rocks															
West Penwith	3		83			91	18		95	1			31	69	391
Devon	375		7,682			352	35	6	180	238			1,760	89	10,717
Clovelly to Hartland Quay						22			33						55
Berry Head			1,145												1,145
Lundy	375		6,198			227				238			1,735	55	8,828
North Devon Coast						60			23						83
Northern End of Torbay			339			0	30	4	27				25	17	442
Sharkham Point to Start Point (South Hams)						40	2	2	92	0				17	153
Welcombe Mouth to Hartland Quay						3			3						6
Mew Stone & Cod Rock							3		2						5
Rockham Bay						0									0
IoS				27	146	52	224		53	30	304	59	5	76	976
Annet				27	132	41	222		12		7		5	74	520
Great Crebawethan Island									0		0			0	0
Gugh				0	3	3	2		20	30	296	36		2	392
St Agnes Island				0	11	8	0		7	0	1	23		0	50
Hugh Town									14						14
Grand Total	380	7	9,055	27	146	1,421	409	68	2,324	963	317	59	2,274	544	17,994

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Productivity monitoring

Very little productivity monitoring occurs at seabird sites in the south west, but the most important seabird islands are usually watched to some extent. For 2017, the SMP database holds data from a handful of sites on the Isles of Scilly, and Lundy, as well as data from Looe Island (Table 10.2).

Table 10.2. Productivity data (chicks per pair) for south west counties held by SMP database for 2017.

	PU	GU	TM	F.	HG	KI	LB	MX	CA	SA
Lundy	0.7 5	0.72				0.66				
Isles of Scilly										
Gugh			1.00			0.30	0.80	0.92		

Hugh Town					1.36			0		
Menawethan Island				0.24						
Samsone Island					0.45					
St Agnes Island			0.18					0.43		
St Martin's Island				0.26						
Looe Island				1.00					1.88	2.22

In addition, monitoring by RSPB continues at the little tern colony at Chesil Beach. In 2017, 38 pairs produced up to 73 fledglings, giving a productivity estimate of 1.92 fledged chicks per pair. This fine result is testament to the 24-hour wardening and management by professionals and volunteers at the site.

Breeding seabird sightings away from nesting areas

Manx Shearwater gathering/rafting & feeding in the middle of the day in their 100's if not 1000's, off the coast of St Agnes. Again seen on a regular basis during 2017 when only seen one or two times in a season previously – Nikki Banfield, IoS Wildlife Trust.

Non-breeding coastal and marine bird sightings

Spoonbills present on River Dart & local area (not strictly marine) but bird migrations clearly changeable – not seen in > 10 years. Emma Magee.

A good year for large numbers of larger Shearwaters i.e. Great & Cory's & several records of Wilson's Petrel – West Cornwall -> Scillies etc. Brian Craven.

Late 2017 – a very good year for White Gulls – Glaucous & Iceland Gulls. Cornwall (well into 2018 also). Brian Craven.

Last year was an amazing year for great shearwater and Wilson's petrel. Whilst exciting for seawatchers in the south west, on the eastern seaboard of the US there were large numbers of great shearwaters washed up dead on the beaches, apparently starving (e.g. <https://www.nytimes.com/2017/07/14/nyregion/seabird-deaths-long-island.html>). Paul St Pierre, RSPB.

New marine Special Protection Areas (SPAs)

December 2017 saw the classification of the [Falmouth Bay to St Austell Bay SPA](#), the top site in the UK for non-breeding black-throated divers, the top site in England for non-breeding great northern divers, and also offering protection to the Slavonian grebe, increasingly scarce in south west England. It's a shame [the Guardian thought the site was for little terns and hoopoes!](#) Poole Harbour SPA was also extended to include marine waters (above MHW) at the same time. Three new bird features were also added: breeding Sandwich terns, and non-breeding little egrets and Eurasian spoonbills (<http://www.cmscoms.com/?p=12256>). These classifications are the result of years of effort from a variety of statutory and non-statutory organisations.

Changes in seabirds on Lundy – Keith Hiscock

Changes in the abundance of cliff-nesting species from 2008 to 2017 at Lundy recorded by the RSPB-led breeding seabird census. Storm Petrels were found to be nesting at North Light in 2017 with evidence of breeding below the Old Light although successful breeding was not confirmed in 2017 (breeding on Lundy was confirmed for the first time in 2014). The tabulated summary is copied from the Annual Report of the Lundy Field Society for 2017.

Species	2008	2013	2017	% change 2013-2017
Fulmar	170	209	227	+9
Shag	63	112	55	-51
Kittiwake	151	127	238	+87
Guillemot	3,302	4,114	6,198	+51
Razorbill	1,045	1,324	1,735	+31
Puffin	14	80	375	+369

11. Seals

Editor: **Sue Sayer**

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CSGRT are hugely grateful to all the volunteers who contributed to this invaluable work on seals in the SW and to everyone who has provided information and content for this report.

Summary

Cornwall

Seals/Weather – Unprecedented busiest year on record for rescued seal pups in Cornwall by the BDMLR, with over 200 pups going through the BDMLR rehab centre. Seal pup rescue crisis – more seal pups rescued in Cornwall than born in Cornwall (washed in potentially from Isles of Scilly, Skomer, Romsey, and Isle of Man).

Two large severe storms in October 2017 caused huge mortality of grey seal pups across SW England and Wales (losses of 70-75% at some sites in one night) and resulted also in a big increase in the number of pups having to be rescued by BDMLR and rehabbed by CSS and RSPCA. This is further exacerbated by increasing numbers of people and dogs on beaches causing disturbance to weakened/debilitated animals.

The storms then continued again just after Christmas and well into 2018, with seals continuing to be badly affected.

'Ghost' pupped for 16th consecutive year on the exact same beach – we think this is a world record!

Devon

Common Seals – small population in the Exe Estuary

Common (Harbour) seal eating a thick-lipped grey mullet a few metres off the viewing platform to the River Clyst Estuary at Bowling Green Marsh (March 2017? Can supply exact date)

West Sussex

Common & Grey Seal – Chichester harbour x 10 – small population

Cornwall Seal Group Research Trust Research reports out in 2017

Reports were written for all team systematic surveys detailed below.

- 2017 Ghost Gear report
- North Devon Photo ID Project (NODPIP) report 2017
- Roseland Photo ID Project (ROSPIP) report 2009 to 2016
- Census April 2017
- SMRU Bycatch report to DEFRA 2016 – 310 estimated bycaught seals around Cornish coast in 2015 alone – mostly tangle/trammel nets. Increasing trend in across all areas 2012 370; 2013 469; 2014 417; 2015 580 bycaught seals.

CSGRT collaborated with the following research projects:

- University of Exeter MSc student Billy Heaney to assess impact of disturbance
- Falmouth University student Ellie Bearcroft on film production 'Food for Thought'
- University of Portsmouth Darby Bonner - disturbance impact in natural cf human environment
- University of Plymouth Kimberley Lloyd assessing the seasonality and variables of a wild haulout in South Devon.

Cornwall and Isles of Scilly

Species

Common seals

There were a total of 11 common seal sightings at seven different locations in Cornwall – Camel, Fowey, Lizard East, Looe, Looe, Pentire, Roseland and Trevoze. All remaining sightings were Atlantic grey seals.

Grey seals

Seal sightings and highlights

Team systematic surveys completed

- CASPIP (3) Jan, Apr and Oct
- STAPIP (4) Mar, Apr, Jun and Oct in conjunction with Newquay Marine Group
- POLPIP (3) Apr, Aug and Nov in conjunction with Polzeath Marine Conservation Group
- LISPIP (10) All but Feb and Oct in conjunction with Looe Marine Conservation Group

Throughout 2017 CSGRT received 3945 seal records (11 every day) from 285 volunteers (including 45 individual systematic repeat surveyors)

CSGRT processed a staggering 101,017 photos for seal ID and data from 271 locations across Cornwall, Devon and the Isles of Scilly.

CSGRT Seal census 2017 for the first time ever, CSGRT extended our annual census from just April to taking place across all four quarters of the year. So, surveys were completed in Apr, Jul and Oct (along with Jan 2018)

Anthropogenic impacts

Disturbance at all sites (including West Cornwall onshore)

Recorded by 33 (9) different volunteers, there were 1105 (615) seals disturbed into the sea (so worst level disturbance only with considerable physiological consequences for the individual seals) at 24 different locations from 27 (10) different land (4); air (3) sea (2) and unknown (1) disturbance stimuli in 129 (63 making up 44% of all surveys) incidents which is 1 every 3 days. The worst survey for disturbance was recorded at West Cornwall involving 8 stampedes in one survey (01/09/17).

Compared to previous years for all sites this was the worst level of disturbance in terms of both incidents and number of seals entering the sea since CSGRT records began in 2011. Five months (Jan, Apr, Sep, Oct, and Nov) had worse disturbance incidents than the seven year mean. Eight months (Jan, Feb, Mar, Jun, Jul, Aug, Nov and Dec) had higher numbers of seals disturbed into the sea than the seven year mean. In comparison the West Cornwall site was only the fifth highest for disturbance incidents and third highest for the number of seals disturbed into the sea out of the seven years of records.

Entanglement at all sites

In 12 months a total of 102 different seals were identified with evidence of current or previous entanglement at 15 different locations across the north and south coasts. Most at the two big haul out sites of West and North Cornwall (91) but also at Pentire (11); Lizard South (2); Roseland (2); South Devon (2) and Gurnards Head, Isles of Scilly, Bude, North Devon, Porthtowan, Portreath, St Austell Bay, Trevoze and West Penwith North (1) (NB Some of the entangled seals were seen at more than one site.

Out of 102, 24 seals had visible entangling material: two were hooked, 20 were entangled in monofilament net and two with trawl net; 21 with small amounts of entangling material and three with large quantities of entangling material. Eight were adult males, 12 were adult females and four were juveniles. 22 had deep constrictions and two still had their skin intact.

Of the remaining 78 seals with no the entangling material visible:

- 33 were males and 45 females
- 65 had deep constrictions and 13 had their skin still intact
- All had been entangled around their necks apart from three who were injured around their abdomens
- Six were rescued by British Divers Marine Life Rescue (BDMLR)

At all sites, on days that entangled seals were observed, they formed 4% of all seals recorded. From CSGRT's long term research monitoring and identification project at West Cornwall during the survey period all entangled seals comprised a mean of 3% (compared to 3% in 2014/15 and 2015/16) of all seals sighted on all surveys, with a minimum of zero and maximum 12 different entangled seals observed at one time on 17/02/17 (compared to 22/01/15 and 25/01/16).



Fig 11.1 One seal surveyor was able to photograph a seal interacting with a trawl net. Seals are inquisitive animals and will investigate ghost fishing gear. A seal's panic response is to spin which is dangerous in proximity to floating ghost gear. As a result, this seal appeared to roll itself up in the trawl net but it was lucky enough to be able to free itself, others have not been so lucky. Seal with trawl net *Photos: M Stephens*

Ghost Gear

Effort (visits)

- 210 surveys; 842 new item records; 89 raw sites (36 standard sites); 39 volunteers, 4 organisations and 4 photo ID teams (2015/16: 334 surveys)

Ghost gear amounts (items, volume and types)

- 842 items; 10050 litres or 10 tonnes
- 32% of the items were rope with all other types being between 4% and 17% of the total.

Ghost gear spatial distribution

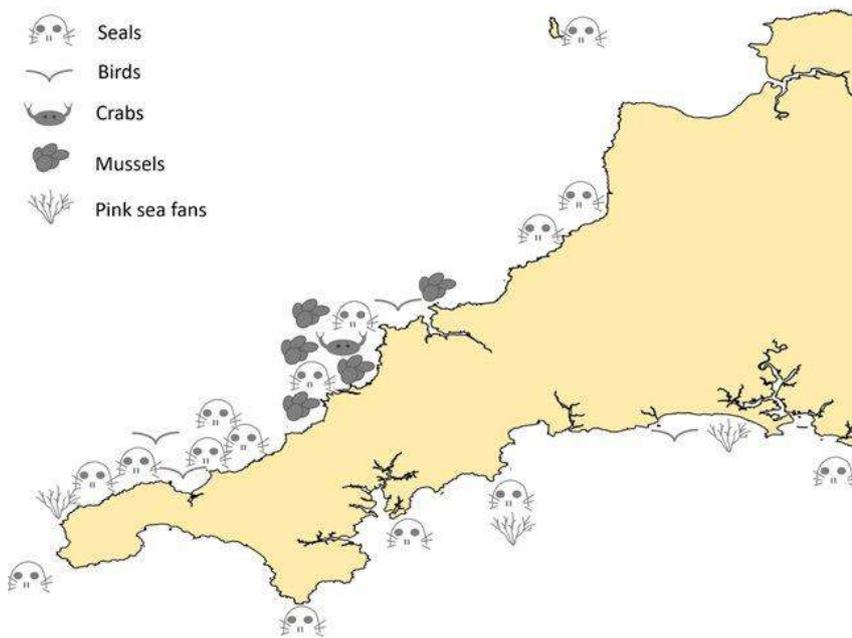


Fig 11.2 Other marine life was recorded entangled including birds (6); Crabs (2); Lobsters (1); Mussel clumps (15) and Pink Sea Fans (3).

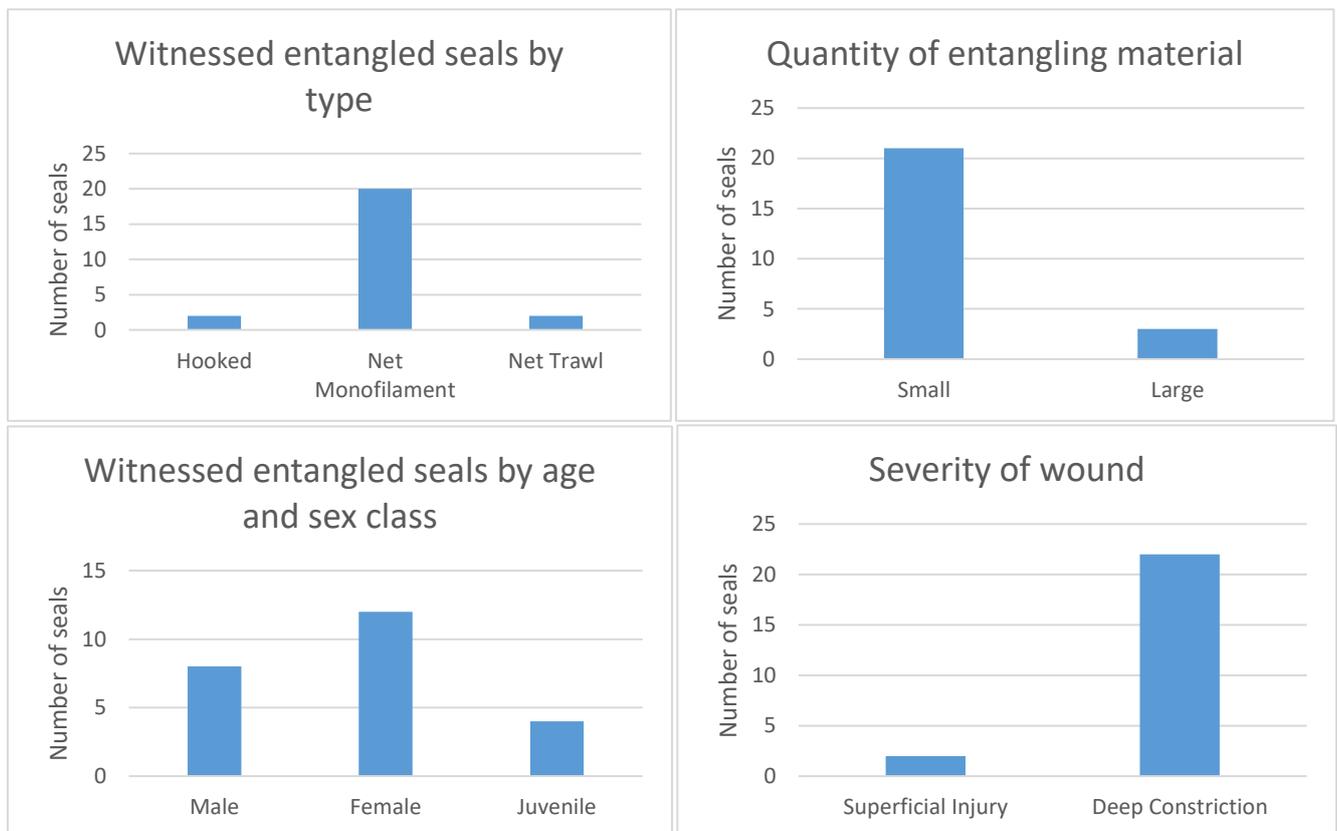


Fig 11.3 Where the entangling material was visible on seals, most were females entangled in small amounts of monofilament net causing a deep constriction around their necks

- Ghost gear found at 36 standardised sites right around the Cornish coast.
- A greater number of items were found on the south coast, but greater volumes of ghost gear were found on the north coast
- More monofilament net and line were found on the south coast and more trawl net on the north coast
- More items per visit were found in south central (SC) standardised area of Cornwall (mostly small volume monofilament line).

418 items (50%) and 3988 litres or four tonnes (40%) of ghost gear were removed by recorders reducing the risk of serious interaction and entanglement by 2% at all sites and by 5% at seal sites, making a positive difference to levels of risk posed by ghost gear.

Rescues and rehabilitation (sources Dave Jarvis British Divers Marine Life Rescue; Paul Oaten RSPCA West Hatch)

BDMLR (2017/18 season)

Data provided by BDMLR National Welfare Development and Field Support Officer Dan Jarvis and Veterinary Clinical Director and Manager Darryl Thorpe

BDMLR responded to 420 seal related call outs, resulting in 202 rescues (48%).

Of these 121 (60%) were treated at BDMLR holding facilities in Cornwall. Most were:

- Less than 20kg (80%)
- Male (54%)
- Moulded (83.5%)

The destination outcome for these pups were

- Relocated and released after assessment 11%
- Cornish Seal Sanctuary 23%
- RSPCA West Hatch Wildlife Hospital 56%
- RSPCA Mallydams Wildlife Hospital 3%
- Hunstanton Sea Life Centre 1%
- RSPCA Stapley Grange 5%

Of these 9% died during treatment at the various holding or destination centres.

Strandings and Post Mortem Examinations (PME) (data from Cornwall Wildlife Trust's Marine Strandings Network (CWT MSN and post mortem summaries from James Barnett, veterinary pathologist)

Summary of post mortem findings in grey seals in Cornwall, 2017

14 grey seal pups stranded on the coasts of Cornwall and one grey seal pup picked up offshore were subjected to post mortem examination at the Environment and Sustainability Institute on the University of Exeter's Penryn Campus. Of these, 10 were found alive and died or were euthanased at rescue or in the first week of rehabilitation.

The findings in five pups were consistent with infectious disease, conditions seen including parasitic and bacterial pneumonia, peritonitis, hepatitis, purulent arthritis and septicaemia. In two pups, lesions suspicious of bycatch were seen (moderate to good body condition, persistent froth in the trachea, pulmonary congestion and oedema with no other significant findings) and one pup, found offshore, was entangled in a net (although this animal also had severe parasitic bronchopneumonia). Three pups had

other forms of trauma; two had intracranial haemorrhage associated with blunt trauma to the head and one had an irreparable tear to the abdominal wall. Three pups with miscellaneous conditions also were seen; one with brain pathology of unknown origin (vasogenic oedema with neuroparenchymal necrosis), one with a developmental defect of the mandible and one with gastric impaction and perforation due to ingesting feathers.

Two adult grey seals also were subjected to post mortem examination. One male had lesions suspicious of bycatch as described above but also had a linear indentation in the pelage of the neck, fore flipper webbing abrasions, hyphaema and haemorrhages in some joints, muscles and the renal capsules. The second was a severely malnourished female with aphakia resulting in blindness and severe gastric ulceration associated with ascarid parasitism.

Notable seal highlights

- **Trevoise site:** in six months was linked by 12 seals with 44 links to 12 sites from SW Wales to West Penwith North, North Devon and Lundy – including 2 European Marine Sites.
- **Common seals:** Juvenile female in Camel – ex rehab seal from Gweek.
- **South Devon:** First re-ID BRXF4.
- **Interesting injuries / conditions being monitored:** Ellis on Roseland, Yogi on Lizard, Pox at W Cornwall, follicle infection, broken jaw, and adaptive behaviour in response to injury/pain. Cleft palet example in Cornwall used to advise about young seal with similar condition in Holland.
- **Lizard South:** Yogi wound development – not fully healed in 12 month and now beachmastering on north coast; DP2 ex beachmaster reappeared after year's absence at Lizard South in retirement!
 - **Septimus skeleton:** 2.3m – third longest dead seal in Cornwall - exhumed.
 - **Lucky bunting:** sighted 12 months after her rescue from entanglement in trawl net back at WC.
 - **Holland:** 27 year old grey seal female (branded on Isle of May in 2000).
 - **Skomer:** Ex rehab seal (Snowdrop) from West Hatch and CSS in 2009/10 was released Gwithian, pupped on Skomer at age of six in 2015; Firedragon pupped and Horns beachmastered in 2015.
 - **France:** Sate seal back in France 2017 (left there 2013) after sightings in Cornwall 2013/15/16 and 17
 - **Birds:** Kittiwake tracked from Suffolk by CBWPS from STAPIP survey; Kingfisher on Looe survey.
 - **Rescues:** Entangled seal (1) – was resighted 20 days later looking partially healed and first white coat pup rescue to CSS and starving 2 week old to CSS.
 - **Strandings:** ID of young adult male 'Fork' at Sennen retrieved for post mortem – COD bycatch.



Fork bycaught approx. aged 8

Fig 11.4 *Fork*, a young adult male around 8 years old was found to have been bycaught during post mortem

- **Porthtowan site:** Linked by 72 seals to 11 other standardised sites including two SACs and two SSSIs.

- **Pups 2017:** First born NC 11/08/17.
- **New sites surveyed:** East Fal and Lizard East.
- **Common seals:** Serena Lowen returned to Fowey from Looe; Fal juvenile.
- **North Devon:** Dave Jenkins and Kate Williams identified 34 different seals (Sep) 13 (Oct) 8 (Nov) and 0 (Dec); Ex rehabbed and ex entangled seal MPF256 ‘Slipper’'s calendar demonstrated attendance at the West Cornwall site in Jan-Mar 2013-2017 and sightings in North Devon Apr-Oct 2014-2017;
- **LP382 Multi nettie:** Juvenile entangled seal was alive 31/07/17 and confirmed dead 16/10/17.
- **Skomer:** Ex rehab seal (Trixie) from West Hatch was identified on Skomer in Pembrokeshire.
- **Birds:** 2 red necked grebes on Nov Looe survey.
- **Seal site links ups:** 3 of 111 seals in Sept Ille (northern France) catalogue were identified from West Cornwall, Dorset to Roseland (returner!), North Cornwall to Looe, Gurnards Head to West Cornwall. Trevoise to North Devon (Circle smiley); Gwennap to Lizard South (Splat); Gurnards to St Ives (Box Desk); Longships to Scilly and West Cornwall (2 - Double back scar and Screwdriver); Lizard and WC (DP2); Porthgwarra to Gwennap (Hickey Ned); Lizard East to Lizard South; Cudden to Gwennap (White cross); WC and NC (H and Reindeer); Roseland to N Devon (L and Lewis). First identified adult female hauled on Pendeen beach, previously identified at West Cornwall; Cudden linked to Lizard South (LIZ173); Skomer and West Cornwall (S700); North Devon linked to West Cornwall (LP389 and S587); Gulland and West Cornwall (S1638); Trevoise and Lizard South (LIZ146); Trevoise and West Cornwall (S1739); North Cornwall and West Cornwall (numerous seals); Manacles and Lizard South; West Cornwall and Lizard South (LIZ247, S355 and S35); West Penwith North and West Cornwall (numerous seals); Looe and Roseland (LF1, LF3 and LF125); North Devon and North Cornwall; Roseland and St Austell Bay (numerous seals); Pentire and North Cornwall; Pentire and West Cornwall.
- **Mums and pups 2017:** S262 Ghost 2 returned from North Devon to pup at West Cornwall for 9th time; S112 Ghost returned to pup for the 15th consecutive year – thought to be a world record for a grey seal; LIZ33 Celtic Cross from Lizard South pupped at West Cornwall possibly for the first time; LIZ227 Buttons returned to pup at Lizard South (pup 2017Z); LIZ15 Key pupped for third year running at Lizard South and mated twice with same beachmaster LIZ177 Tom Harts; LIZ4 Archer Lady pupped at Lizard West; Large numbers of pups lost in Ophelia (Isle of Man), Brian (SW Wales) and Eleanor and in unknown numbers from Isles of Scilly beaches leading to a seal pup rescue crisis being heroically managed by BDMLR, RSPCA and CSS.
- **Beachmasters 2017:** LIZ14 Yogi from Lizard South beachmastering at Porthtowan having been injured by LIZ177 Tom Harts last year. LIZ14 returned to Lizard South with three new injuries. Next Porthtowan Beachmaster was NM7 Medallion Man from Newquay.
- **Aging females:** Two four year old tagged females (Shuttle and Orion) were photographed next to adult female Panda who is at least 11 years old (but much smaller!)
- **Interesting behaviour:** Shag (4) and seals (0) interaction, hauling out repeatedly on fishing tender on Lizard and repeating a few months later. Rocket adult male aged 10 beachmastering on the beach he was born on; Woody hauling out on boat for second season and then tracking SUPs Lizard East. Adult female S112 Ghost filmed protecting her own and another pup during a rough high tide and using the ‘stick followed by carrot’ method of getting her pup further up the beach – both pups survived! A moulted pup was filmed making a considerable effort to climb rocks just to avoid passing an unmoulted pup; White coated pup filmed suckling underwater; In Nov and Dec 2017 24 seals were identified that had not been identified at West Cornwall since 2014 or before (one had not been identified at West Cornwall for for nine years!)

- **Common seals:** Adult male Ellis continues to be resighted despite apparently spreading back wounds; juvenile (possibly two) identified on Camel in Dec by Adrian Langdon and BDMLR.
- **Portugese man o war** sightings on pupping beaches at West Cornwall raised some concern.
- **West Hatch:** Innovated with very effective seal pup enrichment using driftwood and seaweed.
- **CSGRT Quiz team:** won the Cornwall Mammal Group christmas Quiz!

South Devon

Species

Common seal 1 rescued South Devon and two recorded on the Exe Estuary

North Devon mainland

Species Grey seals

Seal sightings and highlights

There are now eight full years of survey data for the key mainland site in North Devon (NODPIP) mostly submitted by Dave Jenkins alongside other volunteer surveyors.

A summary report for 2017 has been prepared by data manager Kate Williams.

Survey effort

Survey effort was amazing at 240 days (66% of the year). This demonstrates a real commitment to the NODPIP project, this commitment now ongoing for more than nine years.

Seal counts

Seal numbers observed ranged from zero to a maximum of 23 (04/07/17) seals with a mean of 5 seals. Whilst seals were observed all year round they only began hauling out in June.

Part of the haul out on 04/07/17 – see image below

Of the 126 seals identified in 2017:

- 79 were new additions to the catalogue
- 50 of the 126 seals were only identified once (probable migrant seals)
- 32 seals were identified more than 10 times (eleven of these being probable semi residents)

The vast majority of the seals photographed were adult females, there were a few adult males seen, mostly in July, August and September. A few juvenile seals were observed this year.

Fig 11.5 North Devon site photo ID work by Dave Jenkins and Kate Williams enables all seals on the haul out to be identified and labelled with their ID code (MPF is the code that denotes the site name)

The frequently observed seal in 2017 was MPF6 'Starfish' who was identified on 72 different days (30% of visits). Six seals were identified at this site over 35 times in 2017. They were all adult females:

- MPF6 'Starfish' 72 times



- MPF12 'Smiling monster' 62 times
- MPF258 'Dribble C Snaggle tooth' 43 times
- MPF248 'Circle Smiley' 42 times
- MPF8 'Bat boxes' 40 times
- MPF83 'Puppet' 39 times

In the past, adult male seals have been quite a rare sight at the North Devon site but in 2017 there were 12 different adult male seals recorded. Some stayed one day but others made several visits up to a maximum of 15 for MPM235, Battlefield X. Lewis (ID Code DP193) (Fig 11.6 below) travelled from south Cornwall to north Devon.

DP193 StABM159 Lewis

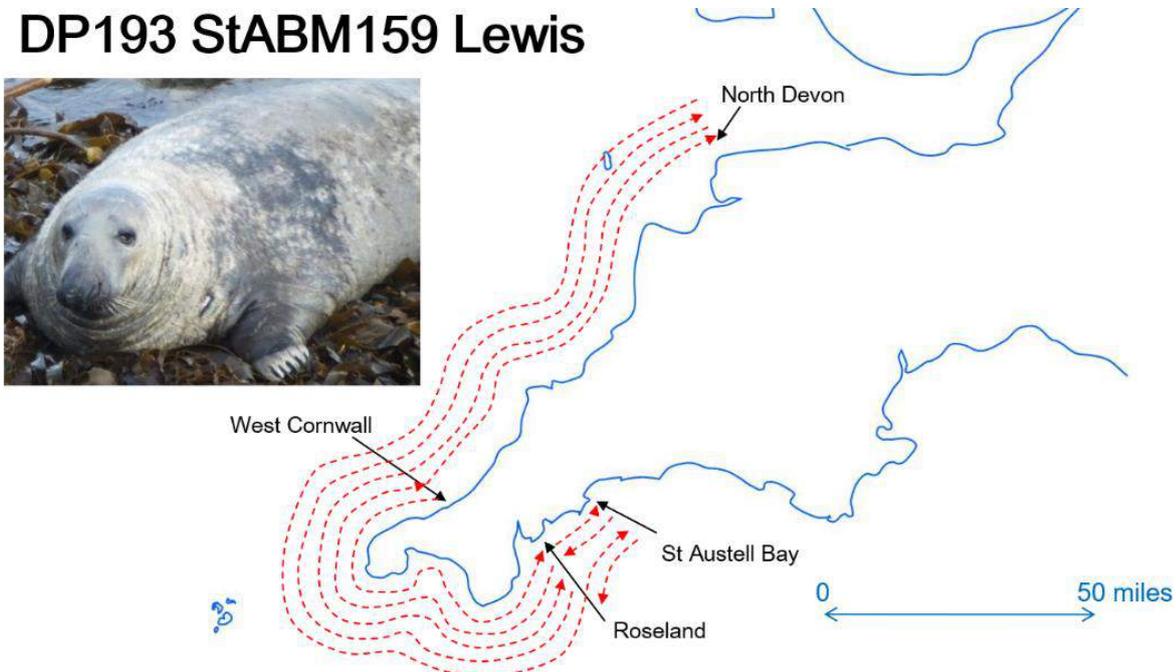


Fig 11.6 Movements of adult male 'Lewis' as generated from his photo ID sightings around Cornwall.

Anthropogenic impacts

Entanglement: One previously entangled seal – ex rehab seal 'Slipper' was observed

Disturbance

2017 was a busy year for trip boats visiting the North Devon location but, on the whole, they kept their distance and did not disturb the seals. However, 12 disturbance events were observed during surveys:

Five were caused by trip boats:

- a large rib arrived at the site at a faster speed than is usually observed,
- a trip boat arrived but there was also a large group of walkers on the coast path,
- trip boat came too close,
- trip boats didn't come close but the engine noise was loud on a still day,
- jet skis followed five different trip boats to the area.

Two events were caused by search and rescue helicopters. Two events by kayakers paddling through the area. One event by coast path walkers shouting. One by jet skis. One by a potting boat.

Strandings

Strandings were reported from Lynmouth west to Clovelly from several recorders. During the period 12/9/2017 to 28/11/2017, there were 11 dead white coat seal pups plus an adult male on 28/11/2017 and a juvenile on 10/12/2017.

It should be noted that virtually no grey seal pups were thought to have been born on this stretch of the north Devon coast. This suggests that many of these strandings could have washed in from elsewhere – most likely Lundy.



Fig 11.7 a stranded white coated seal pup from North Devon. Image Dave Jenkins

Lundy, North Devon: Dean Woodfin Jones and Mel Parker

'The following information is from the report Jones, D.W. 2017a. Atlantic Grey Seal (*Halichoerus grypus*) population and productivity studies, Lundy 2017. Published by the Landmark Trust and Natural England. The information is also summarised in Jones, D. W. 2017b. Atlantic Grey Seal *Halichoerus grypus* population and productivity studies, Lundy 2017. *Annual Report of the Lundy Field Society* 67, 131-137.

The Atlantic Grey seal population has been monitored annually on Lundy since 2011 to a varying degree and intermittently beforehand. 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. Lundy’s coastline has been divided into 46 subsections (Figure 11.10) which are easily viewed from a boat.

The highest abundance of Grey Seals around Lundy during the study period was on the 6th Oct, when a total of 176 animals were noted along the east - observed from the charter boat ‘Obsession 2’.

At the start of the survey period, the majority of animals around the island were females with some of those, from observational notes, showing obvious signs of pregnancy in some of the popular haul out areas. From here the numbers of females dropped rather dramatically, possibly due to some of the pregnant females moving off into the island’s inaccessible coastal caves to pup. The number of females reduced further though at a more gradual pace up until the 20th October where another marked decrease in numbers was noted (see Figure 1). Shortly before this drop in abundance, the number of males present around the island increased as the pupping season got well underway, possibly to patrol beaches and females in order to conceive next year’s pups. The number of juvenile animals varied throughout again dropping off somewhere between the 6th and 20th October. Adverse weather conditions and the onset of the end of the peak pupping season could be the reason for this drop in abundance, though without detailed meteorological data and observations during this period, this is hard to tell.

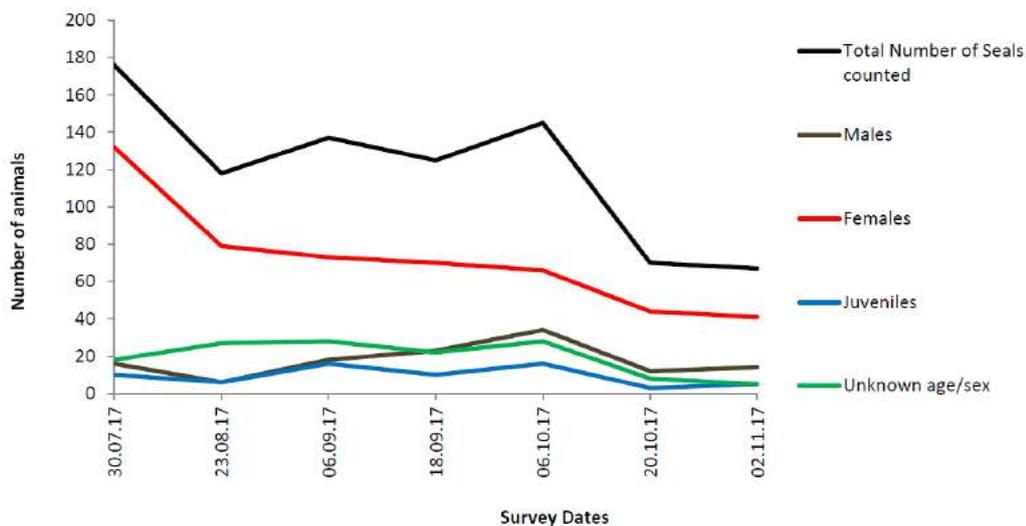


Figure 1: A graph showing the variations in seal abundance from seven surveys spanning from the end of July to the start of November.

Fig 11.8 Abundance of seals around Lundy Island

Unsurprisingly the distribution of seals around Lundy is heavily influenced by both weather and sea state. From observations at times when the winds came directly from either the north or south, animals seemed to disappear and move off from some of the more popular haul outs e.g. Rat and Mouse Island either to areas away from the island or to some of the caves or more sheltered bays on the island (3/4 Wall Bay). The two most popular haul outs during the study were Mouse and Rat Island, during times of settled weather and/or some of the north eastern bays, namely ¾ Wall Bay and Frenchman’s landing. The highest number of animals recorded from within the 46 sub-sections was from within ¾ Wall Bay on the 18/09/17 where 49 individuals were counted (See Figure 11.9).

On average, 82.26% of the seals throughout the study were recorded to be hauled out onto the shore at low tide rather than in the water.

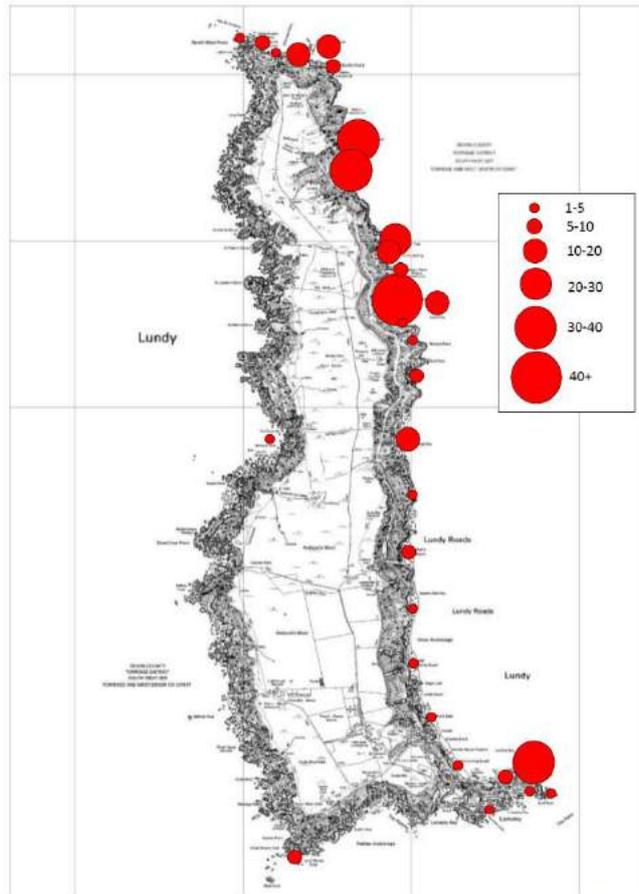


Figure 2: Grey Seal haul out distribution. Figures show the highest numbers of animals found in each section of coastline throughout the study period.

Fig 11.9 46 survey subsections of Lundy coastline Map reproduced with permission of Ordnance Survey. © Crown Copyright. All Rights reserved. 2017

Productivity

A total of 26 pups were recorded from August 28th – November 20th, only seven of which were found during the surveys (see table 2). White Beach proved the most popular for pups this season with a total of 5 pups being recorded here through the study period.

Numerous other larger weaner pups were noted during the latter part of the season (outside of the survey dates) but were not included here as the origin of these individuals were unknown and it is known that young pups are very able to travel vast distances at very young ages.

Mortality

Regrettably at least seven of these pups perished, all at very young ages. Unfortunately all the pups which were born around the Lamentor and Mermaids Hole area (SE point) all disappeared during a period of very strong winds and swell created from Storm Ophelia. Another pup was found in Lametry Bay shortly after Storm Ophelia but again was lost after a second bout of stormy weather during storm Brian. The reasons and birthing locations for the other three corpses are unknown.

Anthropogenic impacts

Entanglement Only two records of entanglement were recorded during the survey periods, both of which involved the same individual

Disturbance Instances of disturbance were recorded on three out of the eight surveys. Although the seal code of conduct was adhered to during each survey, two of these disturbances occurred due to the presence of the survey vessel.

- 30th July: 15 animals were disturbed into the seal due to the presence of the survey boat. (Charter Boat, Obsession 2).
- 06th September: 10 animals were disturbed by a walker present on the low shore of Brazen Ward (Land based).
- 02nd November: 6 animals were disturbed into the sea by survey boat (Island RIB).

For a copy of the full Lundy Seal report, please contact the warden at warden@lundyisland.co.uk

Dorset - report submitted by Sarah Hodgson of Dorset Wildlife Trust)

Species

Grey and common seals were both recorded

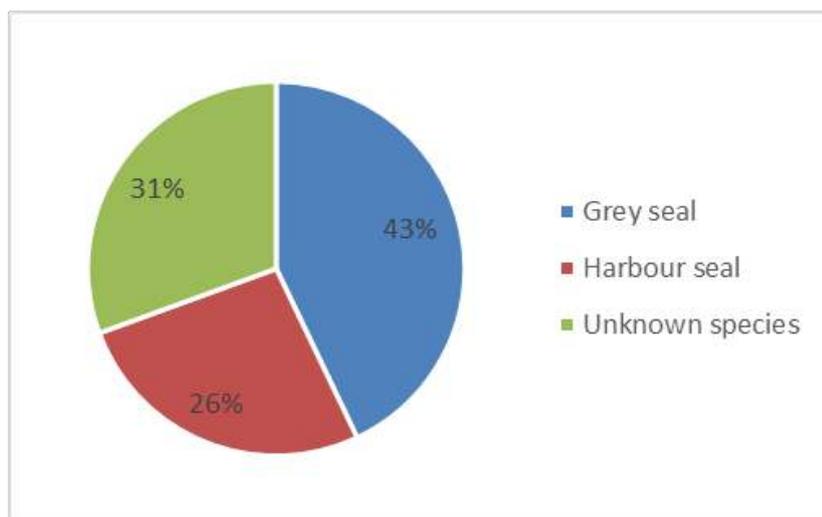


Fig 11.10 Seal species recorded in Dorset by Dorset Wildlife Trust

Seal sightings and highlights

In 2017, a total of 170 seal sightings were recorded. This figure has gone up from 151 sightings during 2016, an increase of 13%. Grey seals were spotted most frequently, 73 times. Common seals were recorded on 45 occasions and the remaining 52 sightings were unconfirmed species.

Seals were recorded from the Dorset coast throughout the year, although more were spotted in August (23%) than any other month of the year. Otherwise, the sightings were fairly evenly spread throughout the year except for April, September & October which received significantly fewer sightings.

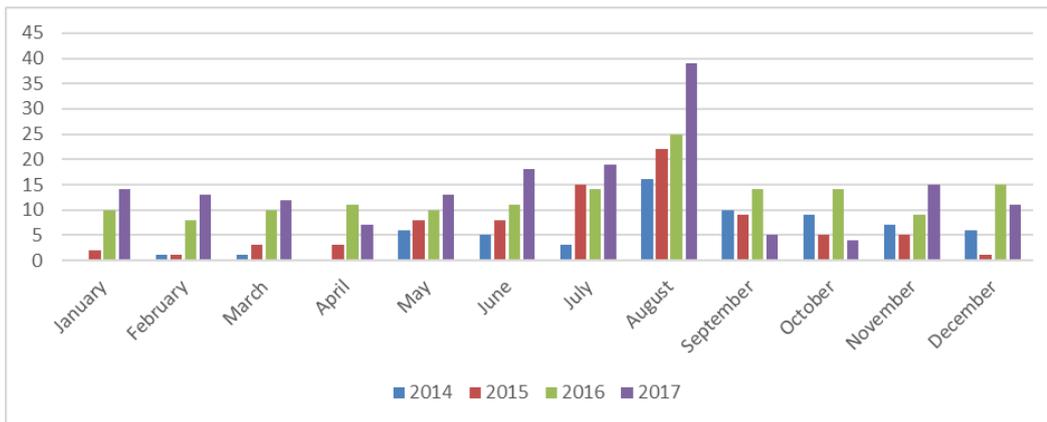


Fig 11.11 Seasonal distribution of seals recorded along Dorset coast

The Dorset Seal photo id catalogue increased to 40 individuals and includes both grey and common seals.

The first seal to be added to the Dorset seal photo ID catalogue in 2014, 'Fiver', was positively matched a further 4 times during 2017 and has now been recorded 24 times over 4 consecutive years.

Rescues and rehabilitation

During the 2017, 4 common seal pups that had been rescued and rehabilitated at RSPCA West Hatch were released in Poole Harbour. The first, Bongo, was released in August, followed by Enzo, Kit & Dodge, 2 male & 1 female harbour seals in November. Both Enzo & Dodge were rescued from Portland Harbour during August, with Kit joining them from South Devon. Since their release, we have had 1 photo id catalogue match for Kit, who was spotted in Poole harbour in December. There have been no confirmed re sightings of Dodge.



Fig 11.12 Bongo, the pup released in August received a lot of attention from members of the public. For her own safety and wellbeing and that of the public, it was decided that she would be relocated.

Strandings and Post Mortem Examinations (PMEs)

Unfortunately, one of the pups released in Poole Harbour in November, Enzo, was discovered dead on a beach on the Isle of Wight on 28th December. It is believed that he suffered a boat strike, due to the traumatic nature of his injuries.

Seal watching code of conduct infographic Thanks to a grant from Sea Changers, a seal watching code of conduct infographic was designed to educate people on how to behave when encountering a seal.

Seal Watching CODE OF CONDUCT



Both grey seals and harbour seals are spotted around the Dorset coast. Encounters with seals are exciting but remember they are wild animals and protected by law, so their wellbeing is the top priority.



If you spot a seal, you can avoid disturbance by following this code:

ON LAND

Seals need to come ashore to rest, however they are more vulnerable on land. Disturbance can cause them stress, to waste precious energy & even lead to injuries.



100m

← →

Observe from a distance - 100 metres.

Be quiet and try to remain out of sight.





Use binoculars and limit your viewing time to 10 minutes.

Use a zoom lens for photography.





Never touch or feed a seal. Seals have sharp teeth and a nasty, infectious bite requiring medical treatment.

Keep children and dogs well away.





Make sure the seal has a clear access route to water.

IN THE WATER

Seals are much more agile in the water than they are on land but care still needs to be taken as they can be startled or injured.

Motorised vessels - if a seal appears close by, slow down or stop to avoid propeller strikes.



100m

← →

Keep your distance, at least 100 metres.

Explore in small groups (maximum 2 vessels). Do not crowd, chase or intimidate the seal.





Juveniles can be inquisitive and may come closer - let them decide how close. Remain calm and don't swim with them or touch them.

Keep noise to a minimum and move away after 10 minutes.






Photos © Sarah Hodgson & Julie Hatcher



Part of a nationwide network of Wildlife Trusts

Please report seal sightings including photos to Dorset Wildlife Trust
seals.dorsetwildlifetrust.net ☎ 01929 481044 or ✉ Kimmeridge@dorsetwildlifetrust.org.uk

If you are concerned about the welfare of a marine mammal contact British Divers Marine Life Rescue
 ☎ 01825 765546 or 07787 433412 (out of hours)

Protecting **Wildlife** for the Future

Fig 11.13 Seal watching infographic produced by Dorset Wildlife Trust

12. Cetaceans

Edited and compiled by Dan Jarvis, Duncan Jones & Colin Speedie

Dan Jarvis - dan@bdmlr.org.uk, Duncan Jones duncoliver@yahoo.co.uk & Colin Speedie colin@wave-action.com

Introduction & Highlights

This section is compiled from the observations and presentations from the meeting.

Baleen whales

Dan Jarvis

Data contributed by Niki Clear (Environmental Records Centre for Cornwall and the Isles of Scilly/Cornwall Wildlife Trust); Ellie Knott (Devon Biological Records Centre); Sarah Hodgson (Dorset Wildlife Trust); Duncan Jones (Marine Discovery Penzance); Annabelle Lowe (Newquay Sea Safaris and Fishing); Jenny Simpson (Padstow Sea Safaris); and Dan Jarvis (British Divers Marine Life Rescue).

Minke whale (*Balaenoptera acutorostrata*)

2017 saw a relatively good number of minke whale sightings, with 46 sightings in total collected for this report, all of them from around Cornwall. Most of the sightings were of lone animals, but there were three reports of pairs and one sighting of a group of four. The latter of these sightings is of particular interest as minke whales are rarely seen in groups, and this one consisted of three adults and a juvenile that were foraging together. Most of the observers reported that the whales they saw were either feeding/foraging or travelling. Another noteworthy sighting involved a loosely associated pair of minke whales, one of which was being closely accompanied by a mixed group of common dolphins and blue fin tuna as they departed an earlier feeding frenzy that also involved dozens of gannets.



12.1 Minke whale

Image: Dan Murphy

It is notable from the temporal data that there appeared to be peaks in sightings during April and August, which may potentially indicate some form of seasonality and/or be linked to increased prey availability in certain areas. Spatially, most of the sightings were reported from the South and West of Cornwall, particularly between Gwennap Head and Mount's Bay, but there were also smaller concentrations around the Newquay – Padstow area. However, it must be pointed out that these are areas with relatively high observer effort.

There were no strandings of minke whales in South West England in 2017.

Fin whale (*Balaenoptera physalus*)

Seldom seen close to the coast, there are typically very few sightings of this species each year, and 2017 was no different. There were five sightings altogether, four individuals and one pair, all of which were seen in Cornwall during August and in the vicinity of Gwennap Head. Three sightings occurred on one day, so are likely to be of the same animal rather than three different animals. These sightings coincided with the peak in minke whale sightings in this area and appear to have been related to abundant prey availability.

There was a single stranding of a fin whale at Hartland Quay, North Devon, during March (Fig 12.2). It was a moderately decomposed carcass that was unsuitable for post mortem examination. Photographs and other information were forwarded to the Cetacean Strandings Investigation Programme.



Fig 12.2 North Devon Fin whale - you get an idea of the scale from the two gulls above. Image Steve Threlkeld, Devon Wildlife Trust

Humpback whale (*Megaptera novaeangliae*)

There were three sightings of humpback whales in 2017, down on 2016. One unconfirmed sighting was made by birdwatchers off St Anthony's Head in April, while there was a confirmed sighting of a young animal captured on film and reported widely in the media in Falmouth Bay at a similar time.



Fig 12.3 Untangling the humpback whale
Image: Annabelle & Chris Lowe BDMLR

The third sighting was of a 45' long individual in Start Bay, South Devon that arrived in early March and remained in the area almost consistently until early April. It was widely reported in the media and on social media, which drew large crowds to see it due to its ease of being sighted from nearby vantage points and from its habit of staying relatively close to the coast. There was strong evidence of high prey availability in the area for much of the time it remained in the area and it may well have stopped off here during its migration for that reason. Fortunately, there was very little in the way of disturbance being caused by people attempting to approach the animal despite the very public nature of this

animal's extended visit. Several organisations repeatedly publicised codes of conduct when dealing with the media.

On 22nd March the whale became entangled in whelk pot ropes (Fig.12.3), requiring intervention from a combined rescue team from British Divers Marine Life Rescue (BDMLR), HM Coastguard team at Dartmouth, the RNLI Lifeboats at Dartmouth (Inshore) and Salcombe (All Weather) and the fisherman whose ropes it had accidentally become caught in. It took several hours to cut the animal free. Unfortunately, the whale became entangled a second time on 1st April in a twisted mass of ghost gear whelk pots that fully immobilised it. BDMLR, the Coastguard and the Salcombe RNLI Lifeboat (All Weather) were once again called upon to rescue the creature, this time taking just a couple of hours to free it.

There were no humpback whale strandings in South West England in 2017.

Toothed whales

High level of early year strandings – as reported at the 2017 SWME meeting

‘A total of 250 cetacean strandings were recorded in Cornwall during 2017, making this year the second highest for stranded cetaceans in Cornwall since records began. Short-beaked common dolphins (*Delphinus delphis*) represented the majority of strandings (54.6%, n=136), followed by harbour porpoises (*Phocoena phocoena*) (20.9%, n=52). Due to decomposition, 49 stranded cetaceans could not be identified to species level.

The vast majority of cetacean strandings in 2017 occurred during January to March along the South Cornish coast. These were predominantly common dolphins with 70 common dolphins reported during January alone. This is the second highest rate of cetacean strandings during one month in 15 years; the highest monthly rate was January 2003 (n=82).

In total, 250 cetaceans were reported to, and examined by, CWT Marine Strandings Network in 2017, a continuation of the high numbers seen during 2016 (n=205). 2017 was the second highest annual total since stranding records began in Cornwall, following the peak in 2003. The high total number of recorded cetacean strandings per year in the last two years is similar to the high annual totals recorded during the early 2000’s, which were associated with high numbers of bycaught animals. ‘

Marine Strandings In Cornwall and the Isles of Scilly 2017 annual report, Cornwall Wildlife Trust, Marine Strandings Network), by Rebecca Allen and Matt Slater

Miscellaneous species - as reported at the 2018 meeting

‘A large male **bottlenose dolphin** spent most of August and September 2017, accompanying Newquay Sea Safaris catamaran on sea safaris (sometimes up to five 2-hour trips in a day). The dolphin would wait outside the harbour while the boat dropped off/picked up passengers then follow us all day, disappearing after the final daily trip and reappearing the next morning. The dolphin did not track any other boats and we did nothing to encourage him. He had quite large rake marks along the dorsal side and we think that he may have been ostracised from his pod, maybe a hierarchy issue. The dolphin was sighted around Penzance during the winter and has not yet been seen back in Newquay this season [2018].’ – Nicola Dewey, Cornwall College, Newquay

‘Two **Atlantic white beaked dolphins**. My first sighting of this species. Approximately 6 miles off Fowey, followed the boat for 20 minutes.’ – Dave Curno

‘**Harbour porpoises** off Slapton at the time the Humpback was around (March – April 2017). Porpoises were obvious at Slapton at the time of the 2017 meeting even when the humpback was absent! This is the first time I have seen porpoises off the South Devon (South Hams) coast in many years of seawatching.’ – Doug Herdson

‘A stranded (dead) **harbour porpoise** on the beach adjacent to Hope Cove in August’ – Bob Earll

‘**Harbour porpoises**, large number (50+) on one day between Fowey and Falmouth’ – Dave Curno

England’s only resident bottlenose dolphin population: Introducing the south west community

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Bottlenose dolphins (*Tursiops truncatus*), have been recorded regularly in the southwest region of the UK since 1991. However, the degree of residency for this population remained poorly understood. Citizen science data was used to analyse the social structure, distribution and abundance of bottlenose dolphins in southwest waters. A total of 193 photo-identified encounters from 2008 to 2016 were acquired from various sources throughout the region. [Evidence for a discrete coastal community restricted to waters <50 m is presented](#), along with the existence of other pelagic animals and lone individuals, who appear to be spatially and behaviourally segregated. Although kernel density methods demonstrated that the community appeared to have two distinct core areas of use, ranging behaviour determined that individuals travelled appreciable distances and were not confined to these core areas. Seasonal distribution indicated that dolphins within the coastal community are year-round residents, with an increase in sightings during the summer. Mark-recapture analysis produced an estimate of only 28 (± 4) individuals within the resident population. Therefore, until demographic isolation can be fully determined a precautionary conservation approach should be applied. It is clear that this population requires specific measures of protection, such as the designation of a Special Area of Conservation (SAC) or Marine Conservation Zone (MCZ) in southwest waters. [A factsheet prepared by Rebecca Dudley can be accessed at this link](#)

Distribution of small cetaceans along the SW coast using passive acoustic & visual surveys

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The southwest of the UK has one of the highest diversities of cetaceans in the UK, with high numbers of small cetaceans including harbour porpoises (*Phocoena phocoena*), common dolphins (*Delphinus delphis*) and the small vulnerable population of coastal bottlenose dolphins (*Tursiops truncatus*). The southwest also has one of the highest fisheries bycatch rates of small cetaceans in UK waters, making these populations particularly at risk. However, we know very little about cetacean populations along the SW coast except in localised areas. We have therefore recently started carrying out systematic broad scale visual-acoustic surveys of the SW coast of Cornwall from the university sailing yacht (*Take the Helm*) to gain a better understanding of the distribution and relative abundance of small cetaceans in the area. Acoustic surveys are particularly useful for detecting harbour porpoises, which are difficult to spot visually in poor sea states. We report on the first survey carried out in August 2017, surveying the coast from Plymouth to the Lizard Peninsula out to the 6-mile limit. There was a total of 116 harbour porpoises, 47 common dolphins, and 3 minke whales detected visually, with highest densities of harbour porpoises found off Whitsand Bay, Fowey, and the Lizard Peninsula. This forms the first of a series of regular surveys of cetaceans off the SW coast to inform conservation management of these populations and help understand and mitigate bycatch rates.

13. Management Issues: Fisheries, MPAs & Marine Spatial Planning

Editor: Sarah Clark

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- Fisheries
 - Bass research
 - Wrasse fishery
 - Crawfish research
 - Marine Pioneer and fisheries projects
 - Biosecurity plans for estuaries and harbours
- Marine Protected Areas Management
 - Marine Conservation Society's MPA reality checker
 - Devon and Severn IFCA
 - Management of European Marine Sites
 - Management of Marine Conservation Zones
- Project UK
- EUROHAB
- Southern IFCA

Fisheries

Bass Research

Devon and Severn IFCA (D&SIFCA) started co-funding a PhD project with Plymouth University entitled: The ecology and distribution of European sea bass (*Dicentrarchus labrax*) in the South West UK. The PhD student (Thomas Stamp) is working with Emma Sheehan at Plymouth University and IFCA officers. The PhD is now in its second year, and has three defined research chapters; 1) Acoustic tracking of juvenile European Seabass, 2) Assessing the quality of juvenile fish habitat within Managed Re-alignment Schemes, 3) Static netting review:

1) Acoustic tracking of juvenile European Seabass

Plymouth University and the Devon Severn IFCA submitted a successful funding application to the European Maritime and Fisheries Fund, for the amount of £241,685.40. The grant will be used to track 150 juvenile European Bass across 3 Bass Nursery Areas (BNAs) of the southwest UK; the Dart and Taw/Torridge estuaries, and Salcombe Harbour. The tracking system will work by implanting a small acoustic transmitter within the abdominal cavity. The transmitters will emit a unique ping which can be detected and recorded by strategically placed acoustic receivers. Receivers will be placed at and adjacent to boundaries, as well as at major confluence and pinch/narrow points within BNA. Specifically, 2 age classes will be targeted within the project; 20-30cm & 31-42cm (total length). These age classes have been selected due to their potential vulnerability from capture in commercial and recreational fisheries. The data will have high relevance to management of coastal European bass fisheries in the southwest UK, as well as wider relevance within northwest Europe.

The project has involved obtaining various licences and dispensation from statutory nature conservation bodies. To date permission has been secured from the Environment Agency, Natural England and the Marine Management Organisation. Permission has also been granted from relevant port authorities and the Crown Estate to fix acoustic receivers throughout each estuary. Due to the implantation of transmitters within live seabass, Home Office licensing is also required for the project. In this regard, six staff members from Plymouth University have been trained and have successfully gained personal Home Office licences. An application for a Home Office project licence has also been written and is currently being assessed by

Plymouth University ethical review board; following this the project license will be assessed by the Home Office. Currently it is hoped the acoustic receivers will be deployed from June 2017 and fish tagging will begin in July. Once setup the system will continuously monitor fish movement for a period of 1.5-2 years.

The project has also attracted additional funding from interested parties, who aim to monitor other fish species which use the same habitats as European seabass. CEFAS have provided additional funding for 20 transmitter tags which will be used to monitor gilthead bream (*Sparus aurata*) in Salcombe Harbour. The Environment Agency has also provided additional funding to monitor sea trout (*Salmo trutta*) movement in the Dart and Taw/Torridge estuaries.

2) Assessing the quality of juvenile fish habitat within Managed Re-alignment Schemes

This chapter aims to quantify the quality of juvenile fish habitat within managed re-alignment schemes (man-made saltmarshes) when compared to natural saltmarsh. There will be emphasis on Steart marsh, the largest managed re-alignment scheme in the UK. However, samples will also be collected from Medmerry Nature Reserve (Sussex) and Wallasea Island (Essex). Fyke and seine nets will be used to record fish diversity, and a sub-sample of juvenile bass will also be retained to analyse diet and growth. Juvenile bass growth, identified using otolith growth rings, will be recorded when they have accessed managed re-alignment schemes. Stomach contents and stable isotope analyses will be used to measure if there is any difference in diet when seabass exploit managed re-alignment vs natural saltmarshes. In 2017, permission has been granted from the Environment Agency, Natural England, the Marine Management Organisation, and land owners. Sampling for this project began in May and continued until September.

3) Static netting review

During the consultation process for the D&S IFCA netting permit byelaw, the Environment Agency (EA) submitted a report to the IFCA suggesting that salmonids were highly associated with the top 0-5m of water depth. The EA recommended that in areas where salmonid bycatch is expected, coastal static net headline depth should be extended from 3 to 5m. It is proposed that static nets be deployed by local fishermen with 0, 3 and 5m headline depths. The catch from each net will then be used to identify if salmonid by-catch is significantly reduced when headline depth is increased to 5m. The catch will also be used to estimate the potential economic impact on individual fishermen if a 5m headline depth was imposed. As mentioned previously, the EA are also interested in tagging seatrout with acoustic transmitters in the Dart and Taw/Torridge estuaries. It is suggested that the EA should tag sea trout with acoustic transmitters with in-built depth sensors. If depth sensors are included within the acoustic tracking, the depth data could complement the static netting review and provide detailed information on sea trout movement in areas where coastal netting operates.

Wrasse Fishery

The live wrasse fishery developed in Cornwall, Devon and Dorset during 2016 and continued through 2017. Wrasse are being targeted in Plymouth Sound for use as a cleaner fish (Fig.13.1). The use of wrasse to remove fish lice from salmon in cages is based on the observations of cleaner fish behaviour and reduces the need for chemicals to control lice infestations within the salmon farms.

A fully documented fishery was implemented through the permit conditions of D&SIFCA Potting Permit Byelaw, to include an intensive data collection program. IFCA officers have undertaken on-board surveys of

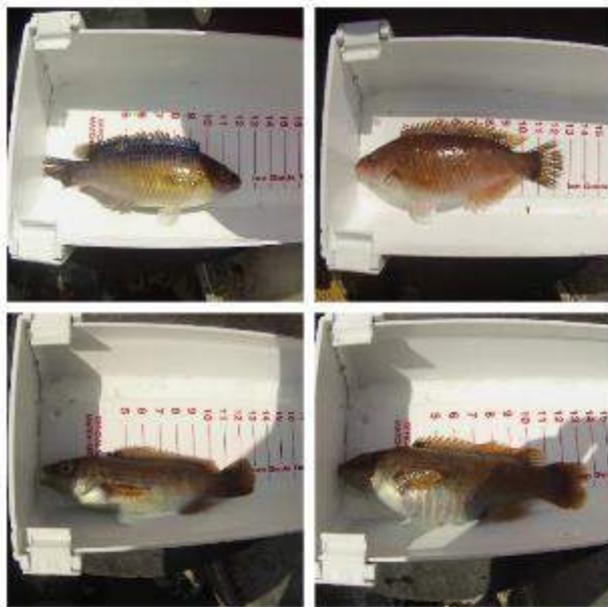


Fig 13.1 Live wrasse caught as cleaner fish

the live wrasse fishery, taking place within the Plymouth Sound in 2017. These surveys gathered information on how the fishery works and collected in-depth data on wrasse including the catch composition, size distribution and breeding season. Data from observer surveys and landings data were analysed and a scientific report was presented to the D&S IFCA Byelaw Sub-committee in November. This report presents the results of the data collection from the first full season of the Live Wrasse Fishery. The two main types of data presented were from landings data recorded by fishers from April to October 2017 and twenty on-board surveys carried out by IFCA Officers. On-board survey effort equated to 7.5% observer coverage of boats surveyed, or 5.5% of the entire fleet. As a result of the wrasse research some suggestions to changes in the management measures for the wrasse fishery were discussed and recommendations will be put before the main authority in December.

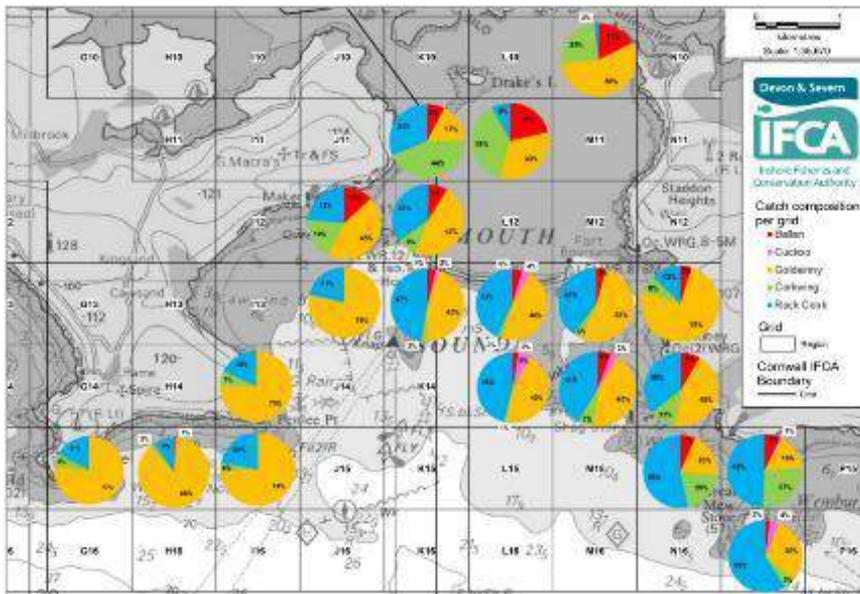


Fig 13.2 Chart showing the catch composition per grid in Plymouth Sound during 2017

There was no consistent decline in Catch per Unit Effort (CPUE) or Landings per Unit Effort (LPUE). There were observed seasonal fluctuations in CPUE and LPUE and these could be attributed to spatial movements of fishers and their pots, fish behaviour or environmental changes. Continued data collection is vital to determine changes in LPUE and CPUE over time and space.

Spatial fishing effort varied over time across the Plymouth Sound area. Goldsinny wrasse and rock cook represented the majority of catch for all vessels. The proportion of species varied considerably spatially, and this

can be attributed to species preference for exposure and depth. For example, corkwing wrasse were found in more sheltered, inshore areas. Most of the observed spawning took place between May to mid-July. The data indicated that the current closed season from 1st April to 30th June covers most of, though not all, the spawning season for goldsinny wrasse and rock cook.

The size frequency histograms illustrated the importance of Minimum (Min) and Maximum (Max) Conservation Reference Sizes (CRS) for wrasse. The Min CRS (12cm) for goldsinny and rock cook allows a significant proportion of the catch to be returned to sea and to spawn. The introduction of the Min and Max CRS (15-23cm) for ballan wrasse demonstrated an increased proportion of the catch returned to the sea from 4% to 28%, protecting both juveniles and mature adults. However, the current Min and Max CRS (12-

23cm) for corkwing is allowing over 90% of the fish caught to be landed. Due to the complex life history of corkwing, and the results of the data analysis, amendments to the slot sizes would be recommended to allow a proportion of immature and mature fish to return to sea.

The results presented in this report highlight the importance of a fully documented fishery and the need to continue data collection to monitor the live-capture fishery for wrasse (Fig 13.3).

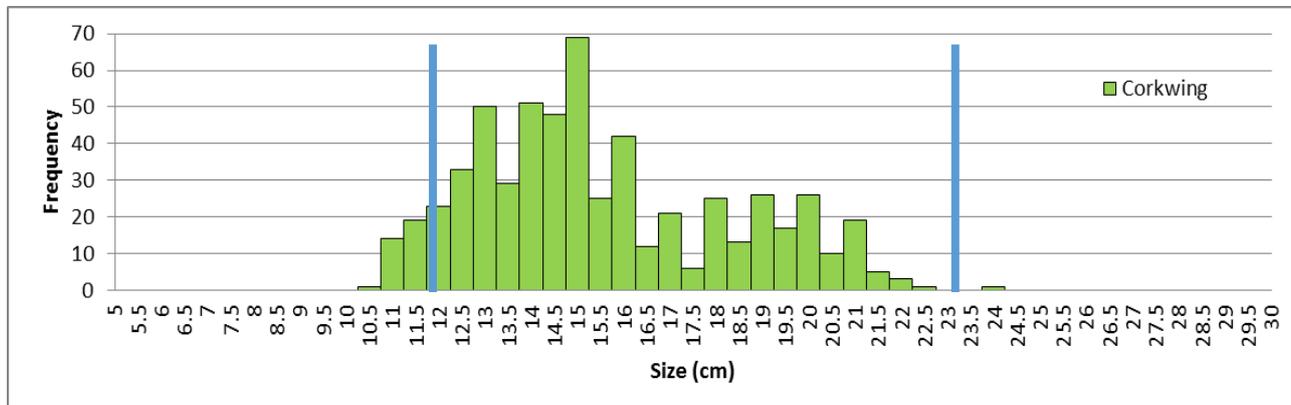


Fig 13.3 Size frequency histogram for all corkwing wrasse caught during surveys in 2017

Devon & Severn IFCA has brought in formal management through its Potting Permit Byelaw – introducing a wide range of measures making the fishery one of the most restricted fisheries in the country. D&S IFCA has also introduced voluntary close areas with the Plymouth Sound. [Devon & Severn IFCA Wrasse Fishery Management Measures can be read here.](#)

Southern IFCA and Cornwall IFCA have also developed voluntary regulations through guidance documents, which are now in place. These guidance documents can be found:

- [Southern IFCA Wrasse Fishery Guidance](#)
- [Cornwall IFCA Wrasse Fishery Guidance](#)

Other wrasse observations

Sally Sharrock of Sea Search made the following observation: Occasional potting for crustaceans has taken place in the Wembury Voluntary Marine Conservation Area for many years but in the last couple of years it has been noticeable that pots are appearing more frequently and much nearer inshore – too shallow for viable crab sizes, so presumable strings of wrasse pots – especially in Wembury Bay itself to the east on Church rocks towards the Tomb eelgrass beds and also across the entrance to Bovisand Harbour. Juvenile wrasse together with nesting adults are well known in these areas and there is video footage of nesting corkwings from April. Although the area is a voluntary conservation zone it seems a shame that the local wrasse fishery targets this area as heavily especially as no studies on stock numbers have yet been done to ascertain if the fishery is properly sustainable. The wrasse do, after all, belong to the snorkelers and divers and anglers just as much as the fishermen!

Emma Magee wanted to highlight the efforts of Devon Wildlife Trust in raising the profile of the wrasse harvesting.

Crawfish Research

Modelling the dispersal of spiny lobster (*Palinurus elephas*) larvae: implications for future fisheries management and conservation measures

There are two species of spiny lobster, *Palinurus elephas* and *Palinurus mauritanicus* that have been recorded in UK landings. Of these, *P. elephas* is by far the more prevalent. It is fished throughout its distribution, along the eastern Atlantic coast from Norway to Morocco and throughout the Mediterranean. The collapse of the population within south west UK fisheries has been attributed to a change in capture gear from pots and traps to the use of less selective tangle and trammel nets. One stock of *P. elephas* that is still being commercially exploited is that from around the Isles of Scilly.

There are no Total Allowable Catch (TAC) limits or quotas applied for this species. No scientific stock assessments have been undertaken, but the long term trends in fishery statistics indicate significant overfishing. *P. elephas* are a species of conservation importance, with a conservation objective of 'recover' within several Marine Conservation Zones (MCZ), including many of the sub-sites around the Isles of Scilly.

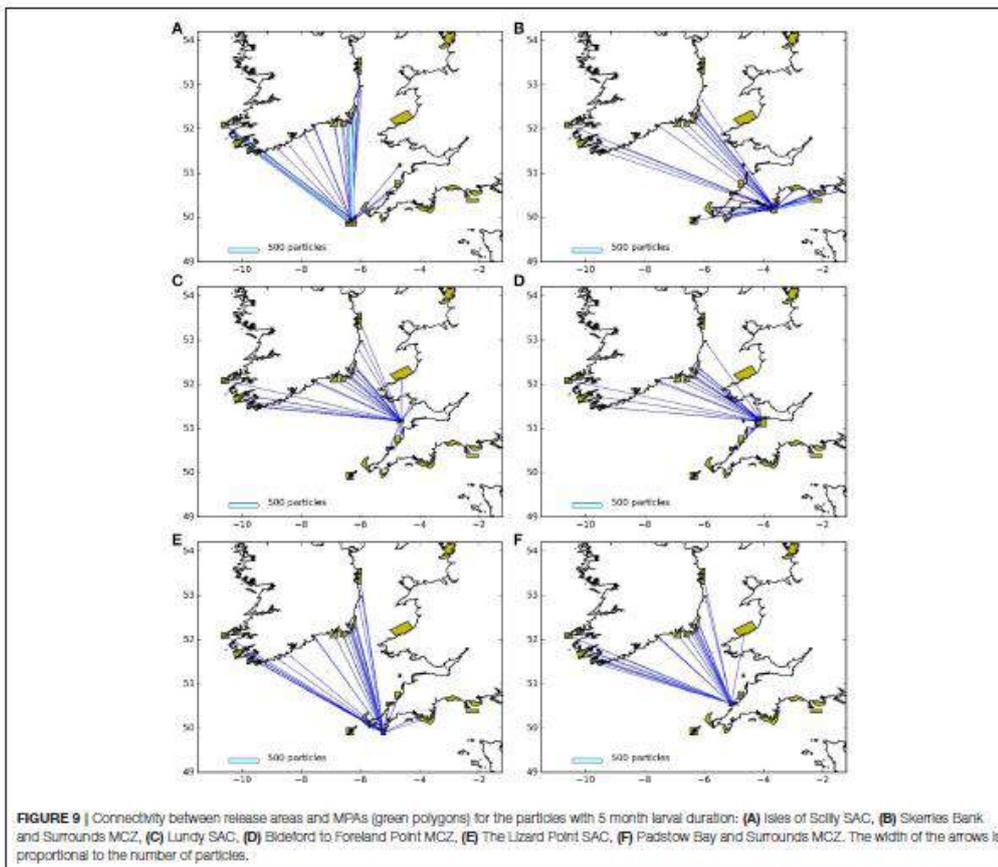


Fig 13.4a – from paper quoted below

In 2017, the Isles of Scilly IFCA in collaboration with Cornwall IFCA, Devon and Severn IFCA and CEFAS, undertook a study to model the dispersal of *P. elephas* larvae and identify the connectivity of key populations around the English Channel and Celtic Sea. A General Individuals Transport Model (GITM) was used to simulate the diffusion of particles around the region. 'Release

locations' within the model included the Isles of Scilly SAC, Skerries Bank and Surrounds MCZ, Lundy SAC, Bideford to Foreland Point MCZ, Lizard Point SAC and Padstow Bay and Surrounds SAC.

The model reinforces how many MCZs have very limited self-seeding and are reliant on recruitment from elsewhere. This highlights the importance of managing fisheries across their full potential geographic range, and the need to manage *P. elephas* in a way that takes into account their whole life cycle, prioritising the stages of the cycle which could have the greatest benefits in terms of future recruitment. Due to this

connectivity, failure to protect a feature or manage an activity at just one key site could have unforeseen effects on the overall conservation network.

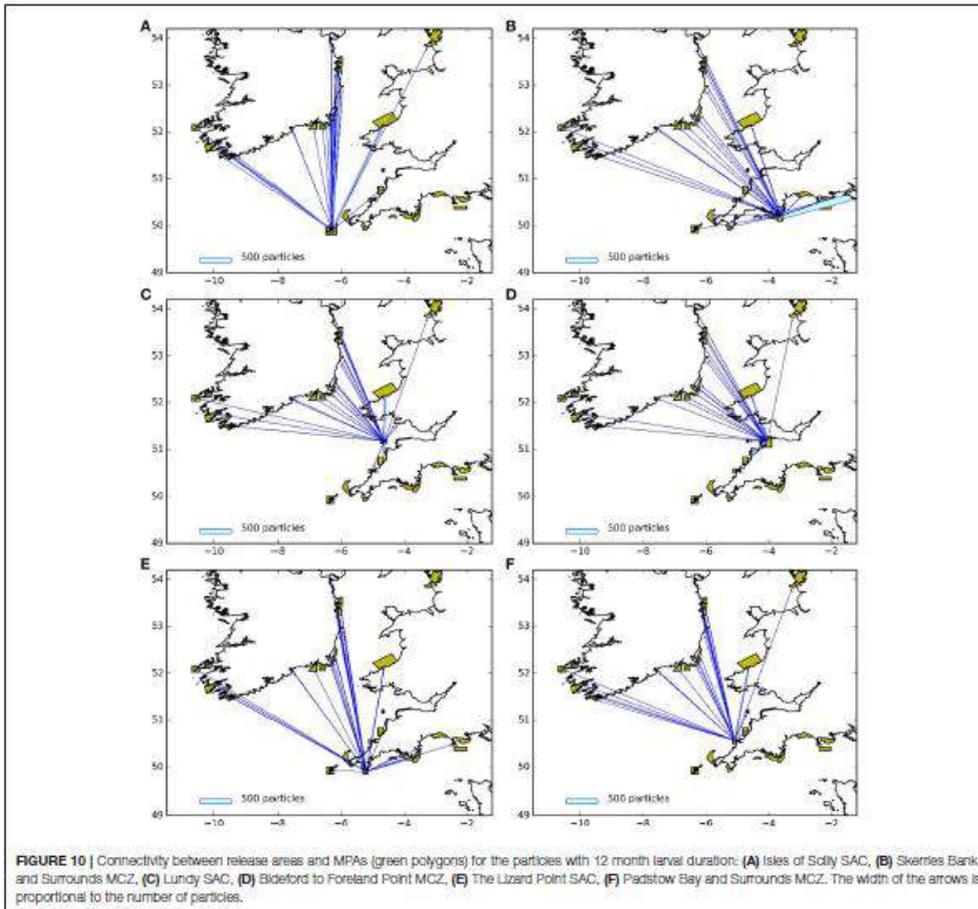


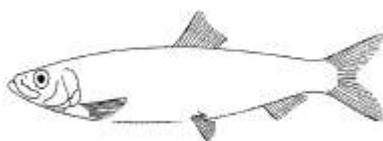
Fig 13.4b – from paper quoted below

Summarised from: Whomersley P, Van der Molen J, Holt D, Trundle C, Clark S and Fletcher D (2018) *Modeling the Dispersal of Spiny Lobster (*Palinurus elephas*) Larvae: Implications for Future Fisheries Management and Conservation Measures.* *Front. Mar. Sci.* 5:58. doi: 10.3389/fmars.2018.00058

Marine Pioneer

The North Devon Marine Pioneer has progressed well during 2017. Meetings with fishermen allowed for sharing of information and concerns and commenced the development of three fisheries projects that will help deliver the Pioneer Programme. The Pioneer fisheries projects include:

- creating Fisheries Research and Management Plans for the key species in North Devon and the Bristol Channel in the first instance, before being extended to cover the whole D&S IFCA's District;
- the Bristol Channel Herring Project, which will trial an ecosystem-based approach to fisheries management of herring in the Bristol Channel and Severn Estuary; and
- a fishermen-science-regulator partnership project that will look at furthering local knowledge of fishing and species ecology which could inform more local management of stocks, where suitable.



The Pioneer project is true collaboration in action, involving the fishing industry, Blue Marine Foundation, IFCAs, WWF, Natural England, Plymouth University and the MMO. Other projects that are part of the Marine Pioneer are:

- investment planning for coastal habitat and biodiversity restoration;
- joint working with the Landscape Pioneer on governance across the land – sea interface;
- better management of Marine Protected Areas;
- producing an integrated marine spatial plan with options for local decision making;
- development of a natural capital decision support tool including geodatabase with value; and
- a risk register.

Biosecurity Plans for Estuaries and Harbours

The effective control and management of marine Invasive Non-Native Species (mINNS) within the marine environment is inherently problematic and at best, hugely expensive in terms of time, resources and cost, not to mention playing catch-up with the science. Hence, the priority for mINNS must be awareness and prevention, rather than cure.

In the South-West, most of our estuaries are rias or post glacial drowned river valleys. Being deep-watered and sheltered, they have a long history as ports and harbours, and more recently with recreational craft ranging from liveboard yachts to trailered dayboats and roof-racked canoes, etc. – all potential vectors of mINNS. [Click here to read the Kingsbridge & Salcombe Estuary Marine Biosecurity Plan](#)

As a last trawl of the formal review of our South Devon AONB Estuaries Environmental Management Plan, we were challenged by the Marine Biological Association to escalate our mINNS awareness action and to prepare an ‘Estuaries Biosecurity Plan’. With a growing political awareness of the wider dangers of mINNS, Natural England secured funding from Defra to assist in the production of local Biosecurity plans and commissioned C2W to help. Early on, we decided that our local biosecurity plans needed to be individual to each of our five estuaries – their geography, ecology, ownership, use and management capacity dictated this and maybe helps the local need to take Biosecurity seriously. In full consultation and partnership with the wider local community through our estuary Forum groups we prepared and completed our suite of Biosecurity plans.

Each plan describes the particular character of the estuary, a description of its top 10 most unwanted mINNS, how these species might spread between estuaries, and simple but effective precautions to take to avoid the spread and where to report sightings. The plans are simply prepared as an illustrated text-document to assist their ease of update. Already for some, the top 10 catchy title has been lost as more mINNS are discovered and identified. The Biosecurity plans are available as downloads from the relevant estuary section of our South Devon AONB website and the estuary’s Harbour Authorities where appropriate. Copies have also been sent out to all relevant marina, boatyard and mooring managers for sending out to their customers for this 2018 boating season.

Marine Protected Area Management

Marine Conservation Society’s MPA Reality Checker

The MPA Reality Check is a website that allows the public and interested stakeholders to see how fisheries management measures are progressing in Marine Protected Areas. We have focused our mapping into byelaws that restrict the most damaging and widely pervasive fishing activities, namely bottom trawling and scallop dredging. The website came about because of the revised approach to managing fishing in MPAs in 2012 that has prompted pro-active management by regulators. The website is available (Fig 13.5) at: <https://map.mpa-reality-check.org/>. MCS and the webpage designer, Tom Mullier of marinemapping are recorded in an online Webinar describing the tool: <https://www.openchannels.org/webinars/2018/mpa-reality-check-chance-see-fisheries-management-english-mpas>.

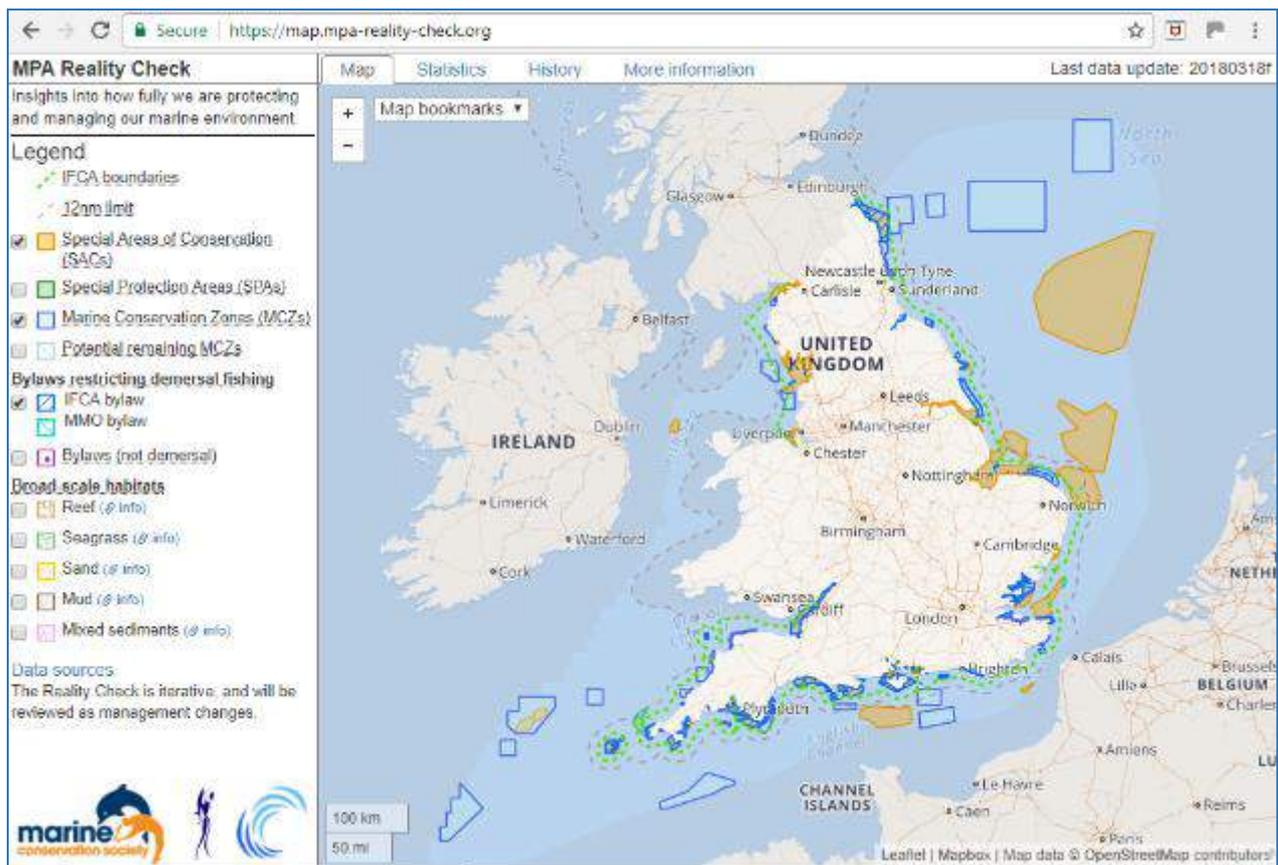


Fig 13.5 <https://map.mpa-reality-check.org/>

Devon and Severn IFCA’s District covers a coastal area of 4,522 km², has two coasts, and in the north of the district extends along the median line with Wales to the tidal limit of the Severn Estuary. Over 42% of the district is designated as Marine Protected Areas (MPAs) due to the diverse range of habitats and species, which are found in these waters. 93% of the MPAs are closed to bottom-towed fishing gear. There are ten European Marine Sites and six designated Marine Conservation Zones (T1 and T2) in the District, most of which are designated for reef features, along with other sensitive features such as seagrass, *Sabellaria* and the spiny lobster.

To inform management a variety of survey work is carried out so that results can feed into MPA assessments and/or inform changes to management measures. For Devon and Severn IFCA, conditions of the permits that sit within the Permitting Byelaws can be amended after consultation and agreement by Authority members. During 2017 several changes were made to permit conditions. For the Potting Permit Byelaw changes were made to conditions relating to the live wrasse fishery. For D&S IFCA Mobile Fishing Permit Byelaw permit condition changes were made to:

- manage trawling in Torbay MCZ and Lundy SAC;
- prohibit scalloping in Torbay MCZ;
- prohibit scalloping on the coarse sediment of the Lundy SAC; and
- prohibit removal of spiny lobster by mobile gear fishing vessels in the Lundy, Skerries Bank and Surrounds and Bideford to Foreland Point MCZs.

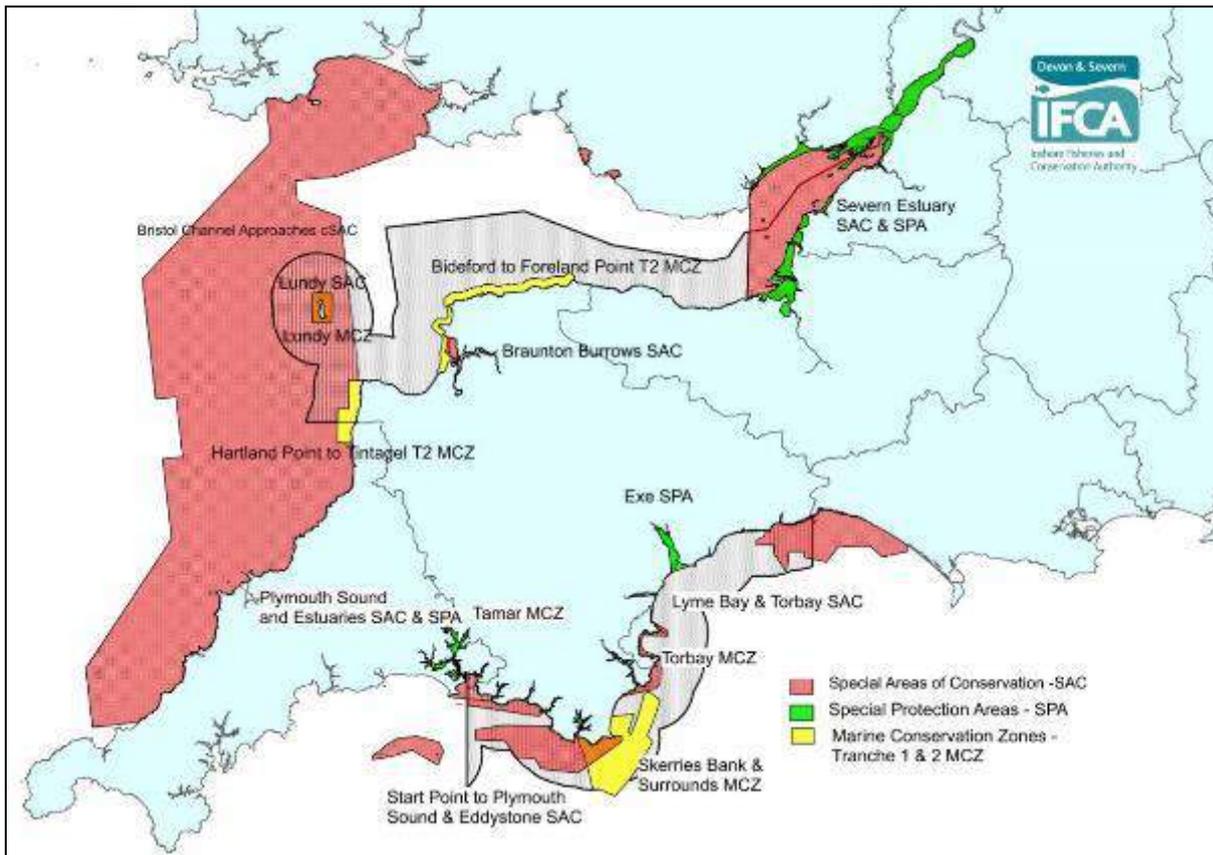


Fig 13.6 MPAs in Devon and Severn IFCA's District

Management of European Marine Sites

Lundy SAC

Partnership work was carried out with NE and the EA to carry out drop-down video surveys and grab survey in the Lundy SAC. This work was part of the MPA evidence gathering programme and the results will be used as a condition assessment of the site. A second component of the survey was the grab surveys in and around the area of the site which is used by the squid fishery. The fishery has not occurred for two years. The results will be part of an impact study if the squid fishery occurs again; this is one of the components of the monitoring and control plan to allow the fishery to continue. Two days were spent on the survey vessel 'Solent Guardian' in Torbay with EA and NE to observe and assist in trials for a new sonar technique for monitoring subtidal seagrass beds. The areas were ground-truthed using a drop-down GoPro camera frame.

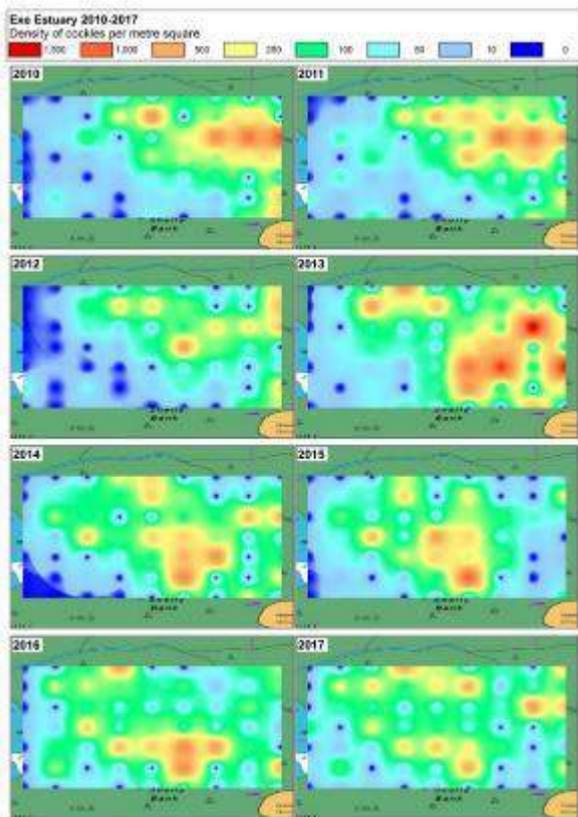


Fig 13.7 Exe Estuary food availability models

Exe Estuary SPA Cockle Survey

The annual cockle survey on the Exe Estuary was conducted in November. The area covered by this survey was extended to include Shelly Bank where hand gathering of cockles has occurred in the past. Data collected are currently being analysed and the stock will be assessed in terms of abundance, density and spread across the beds and compared with previous year's surveys. The results of these data can feed into bird food availability models for the Exe estuary. (Fig 13.7)

Management of Marine Conservation Zones

In Devon & Severn IFCA's District Tranche 1 MCZ include Lundy MCZ, Torbay MCZ, Skerries Bank MCZ and Tamar MCZ.

Torbay MCZ

Torbay MCZ has 12 designated features, three of which have a recover to favourable condition general management approach. These features are subtidal mud, seagrass beds and the long-snouted seahorse.

Seagrass beds have been protected from the impacts of bottom towed gear since 2014 under the D&S IFCA mobile fishing permit Byelaw. As seagrass provides a habitat and ecosystem for the long-snouted seahorse protection has been afforded to this feature as well. D&S IFCA undertakes surveys of the sea grass, which evaluates the location, extent and density of the seagrass beds.

The biennial seagrass survey was carried out in 2017. A drop-down camera was used to carry out transects on the known seagrass beds to determine density of the seagrass, and any changes in the extent. There had been reports of previously unknown beds in Torbay and these areas were also surveyed. Analysis of this survey is currently being carried out and maps of the extent of the beds are being created in Map Info. The results will feed into the management of the MCZ, as the outer limits of the seagrass beds determine the closing line to towed gear fishing.



Fig 13.8 Seagrass in Torbay MCZ

Defra and Natural England provided £40,000 for the IFCA to carry out research to investigate the impact of light otter trawls, used to target cuttlefish in the spring, on the mud feature of the Torbay MCZ. Survey planning was undertaken to identify survey areas and ensure that sampling level was sufficient to for robust analysis. 'Before and after' impact survey work was carried out which involved taking sediment samples, using Ocean Ecology Ltd vessel and grab equipment, and in-house underwater filming of the MCZ benthic habitat. A Torbay cuttlefish fisherman was also involved in the survey and planned trawls tows were undertaken to mimic the fishing effort during the fishery season. SeaFish Authority was also involved in the

survey work undertaking a two-day sea trial to evaluate the area of impact of the single trawl and trawl doors used by the fisherman on the mud habitat in the MCZ. All data collected are currently being analysed.



Fig 13.9 Mud habitat in Torbay MCZ



Fig 13.10 Grab Sampling with Ocean Ecology Ltd

Bait Collection Survey work in Torbay MCZ

Torbay MCZ hand gathering and bait digging surveys took place through 2017, carried out to provide more information on the level of effort occurring in Torbay MCZ which will feed into the relevant MCZ assessments for this site. Bait collection surveys were also carried out on the Tamar, at Ernesettle, to gather more information to fill the gaps on effort levels to inform the HRA and MCZ assessments for the site. The bait collection and hand gathering surveys will help inform the development of a D&S IFCA Hand Working Permit Byelaw.

Tranche 2 MCZs

Two Tranche 2 MCZs lie within the North Devon part of the IFCA district, Bideford to Foreland Point MCZ and

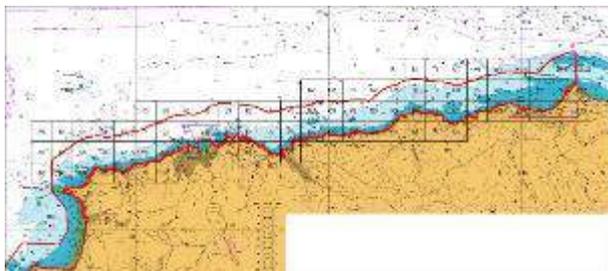


Fig 13.12 Bideford to Foreland Point MCZ grid for fishers to show areas worked.

Hartland Point to Tintagel MCZ. Data gathering is ongoing to have the best evidence to inform management. A questionnaire and gridded maps were developed and sent out to all fishers known to carry out potting, netting and towed gear activities in North Devon to get a better understanding of the level and location of effort within the MCZs. This information will feed into

the MCZ assessments to determine what management, if any will need to be put in place.



Fig 13.11 Bait Digging Goodrington Sands Torbay MCZ

Project UK

Project UK is a project led by Seafish and the Marine Stewardship Council that builds on the success of Project Inshore and aims to work towards an environmentally sustainable future for UK fisheries. It will do this through determining the environmental performance of key commercial fisheries, demonstrate how these can move towards sustainability through Fishery Improvement Projects (FIPs) and ultimately achieve MSC certification where possible. D&S IFCA, Cornwall IFCA and Isles of Scilly IFCA sit on the steering group for the Project UK's South West Crab and Lobster Fisheries Improvement Plan (FIP) and D&S IFCA also sits on Scallop and Monkfish FIP steering. Project Partners include SeaFish, SW IFCAs, Defra, Ocean Fish, Lyons Seafoods, MacDuff Shellfish, Cornish Crab Company, Cefas, FalFish, South Devon and Channel Shellfishermen's Association, Direct Seafood, Tesco and Morrisons.

EUROHAB

D&S IFCA is part of an EU Interreg Project on harmful algal blooms. The project involves several partners including Plymouth Marine Laboratory, Ifremer, EA and University of Southampton and will develop a web-based detection system for harmful algal blooms and water quality associated with eutrophication that will be used by key end-users to monitor, protect and better manage fisheries, aquaculture and the tourism industry in the France- Channel-England area. The kick-off meeting for the project took place in Plymouth in November.

Southern IFCA

In 2017, Southern IFCA introduced additional protection from bottom towed fishing gear for sensitive habitats and species of Marine Protected Areas. Further areas were permanently closed through the amendment of an existing byelaw, Bottom Towed Fishing Gear byelaw 2016, and closing 26% of the Southern IFCA district to bottom towed fishing gear. Further measures were introduced to manage amber interactions, between shellfish dredging and sedimentary habitats, in the Solent Maritime SAC, leading to the introduction of temporal closures, limiting the activity to 4 months of the year. In 2015 the Authority introduced a limited access permit byelaw for a clam and cockle dredge fishery in Poole Harbour SPA. Permit conditions provide protection for designated features through spatial and temporal closures. This type of permit byelaw was the first of its kind in the UK and has delivered significant achievements, including a 95% decline in illegal activity, increased earnings and additional evidence to support management through an annual stock assessment. The successes of this management have been further validated and celebrated by the achievement of an MSC sustainable fisheries certification, the first for a Manila clam in the UK.

14. Plastic Pollution in the Marine Environment

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Plastics General

This was a steady but not significant year for marine plastics. Several beach cleaners reported an apparent decrease in the number of large, more easily-retrievable items. Overall numbers of items remained static or even increased, but the size of the pieces seemed to have become smaller. Pennie Lindeque from PML, for example, reported a visual increase in **microplastic debris** on the strandline at various beaches around the South West. Microplastics were found during plankton trawls (Meg Hayward-Smith, Falmouth Marine Conservation) while the Cornwall Seal Group Research Trust began trawls offshore along coastal transects this year for microplastics and found plenty (Sue Sayer).

Plastiglomerates

Research has started in order to map the prevalence of plastiglomerates, a type of plastic pollution on our beaches that few people would even notice as they look like rocks and pebbles. The Cornish Plastic Pollution Coalition is endeavouring to gather more evidence about these 'plastic rocks', presumed to originate from people burning or incinerating plastic debris on beaches, coastal areas, or at sea, possibly in the misguided belief that this is an effective way of getting rid of rubbish and marine plastic.

Plastiglomerates were first described by Dr Patricia Corcoran (Western Ontario University) in 2014 after she found specimens on beaches in Hawaii. Her research has found that the molten plastic can mix with beach sediments, and other organic matter so forming large agglomerations which often attach to bedrock or boulders. These large lumps are then weathered by the action of the wind, waves, and the climate system, allowing small pieces to break off becoming smoothed and rounded. Colour variations exist depending on the nature of plastic that has been burned – but the spectrum of resulting shades mimics natural rock tones very successfully.



Fig 14.1 The remains of a plastic bonfire, showing melted plastic mixed with stones, sand and wood. Tregonhawke beach, Whitsand Bay, South East Cornwall

The CPPC has so far received reports of this sinister form of marine plastic, which will so often be overlooked by beach cleaners, being found on beaches in Cornwall (North and South Coasts), Devon, Dorset, Guernsey, Wales, Scotland, SW Ireland, Portugal, Canada and the Azores.



Fig. 14.2 A selection of plastiglomerates found on beaches in Mount's Bay West Cornwall



Fig 14.3 Once they have been weathered by the sea plastiglomerates look just like real rocks, but they float

Balloons

Balloons and their associated debris (nozzles, streamers etc.) continue to form a significant proportion of marine litter found washed up on South West beaches, with 2,223 pieces of balloon debris being reported by beach cleaners at 39 locations over a six-month period and published in the January 2017 *Just a Balloon* report compiled by the Cornish Plastic Pollution Coalition. This report was used as a basis for an article by the CPPC in the *Journal of Litter and Environmental Quality* (Vol 2 No 1 May 2018):

http://www.keepbritaintidy.org/sites/default/files/resources/15913_Journal%20of%20Litter%20and%20Environmental%20Quality_v7-online.pdf

Traceable balloons (usually branded corporate promotional balloons) often demonstrate just how far balloons can travel from their source before falling back to Earth.

Despite often being marketed as '100% biodegradable' latex, it seems that balloons, like other supposedly biodegradable materials, biodegrade poorly in the cold, oxygen-poor conditions of the sea, or if they do so this probably takes far longer than most consumers would imagine – and certainly long enough to pose a risk to marine wildlife.

Citizen science experiments by CPPC members (clearly not replicating true environmental conditions) do give some indication of balloons' longevity).



Fig.14.4 A Triceratops 100% biodegradable latex balloon three years after being placed in a jar of seawater with holes in the lid, left outdoors exposed to sunlight.

Researchers at Plymouth University are now starting to investigate the true biodegradability of balloons in the marine environment, using a selection of balloons supplied by the National Association of Balloon Artists and Suppliers. These trials will commence during the summer of 2018 and proceed for approximately 1-2yrs in order to fully establish degradation times. It is hoped that the results of this research will prove useful demonstrating the need for legislation around balloon releases, which are not currently classed as littering.



Fig 14.5 Cornish seal pup with McDonalds Happy Meal balloon Image: Rob Wells



Fig 14.6 A dead shearwater next to a plastic straw and pieces of a red balloon found inside it on North Stradbroke Island, off the coast of Brisbane, Australia. (CSIRO via AP)

Bio-beads

Bio-beads (specially-machined pellets, superficially similar to nurdles, used as biomedica in some South West Water wastewater treatment plants and possibly other industries) have continued to be found in huge numbers on Cornish beaches. On Tregantle Beach (Whitsand Bay, South East Cornwall), volunteers have removed an estimated 10 million mixed pellets from a 100m stretch of beach in seven sessions over the past year, using a dedicated microplastics separation machine. Bio-beads account for over 50% of the pellets removed.

The Cornish Plastic Pollution Coalition's report on bio-bead pollution on Cornish beaches is shortly due to be updated to reflect numerous additional reports of finds.

Since the original report's release in October 2017, analysis carried out by Dr Hideshige Takada of International Pellet Watch at the Tokyo University of Agriculture and Technology interestingly revealed a chemical distinction between bio-beads and regular nurdles (pre-industrial pellets) through the signature of adsorbed contaminants.

Analysis of 200 bio-beads and 200 nurdles found within the same 1m² area on Tregantle Beach, Whitsand Bay, in Cornwall, showed similar levels of PCBs, DDT etc. on bio-beads and nurdles. However, the bio-beads had levels of polycyclic aromatic hydrocarbons (PAH) three to four times higher than those found on the nurdles. Given that PAHs derive from burning hydrocarbons the most logical explanation would be that the PAHs originated in roadwater run-off passing through wastewater treatment plants – strongly suggesting that the bio-beads were lost from such plants, and not from container ship spills during transit to their destinations from the point of manufacture.

Subsequent analysis by Dr Andrew Turner at the University of Plymouth, looking at the additives in black bio-beads compared with regular black nurdles, from a range of sites around the South West as well as Sussex, South Wales, Holland and northern France, has revealed extremely high levels of lead, antimony, bismuth and bromines in the bio-beads, with negligible levels of these additives in the nurdles.

Once again, this strongly suggests a very different source for the bio-beads and nurdles, and that the bio-beads were made from recycled electronics.

For more information or a copy of the updated report please contact Claire Wallerstein on claire.wallerstein@gmail.com

A snapshot of plastic pollution on one beach

Rame Peninsula Beach Care has recently released the results of its three-year, quarterly survey of the same 100m stretch of Polhawn Beach on Whitsand Bay, conducted as part of a nationwide study of 19 sites around the UK for the Marine Conservation Society on behalf of Defra.

A huge amount of work went into collecting, sorting, categorising and counting the waste according to the OSPAR protocol, with a total of 68,739 pieces of manmade debris being picked up over the 12 surveys (an average of 5,728 each time).

Nearly all the items recorded were plastic (the figures do not include microplastics and nurdles, which are too small to be meaningfully collected.)

By far the largest category was found to be simply indistinguishable smashed up fragments of plastic - totalling 34,546 bits, most of which were in the 0 to 2.5cm category.

However, there were also significant amounts in the fishing-related, consumer-related food and drink packaging, and industrial waste categories (probably largely due to the area offshore having historically been used for Dockyard dumping of solid waste).

Some of the more unusual items included a cut-up piece of credit card with an expiry date in 1993, a World War II anti-aircraft fuse, Lego from a 1997 container ship spill off Land's End, a Canadian lobster pot tag from 2009, and HP printer cartridges from a container ship spill in the Atlantic in 2014.

The number of items varied a lot from survey to survey, with no obviously seasonal link, and no clear reduction over time either (with the highest being 10,580 pieces in January 2016 and the lowest 1,929 in September of the same year).

It is hoped that these figures, when combined with those from the other locations, will help to provide a useful set of baseline data about marine plastic on UK shorelines that can be used in future to draw up more effective policy to tackle the marine litter problem.

15. Development & Planning

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Discussions around dredging in the Fal are ongoing. The Marine Management Organisation continues to liaise with the Falmouth Harbour Commissioners and held meetings in early 2017 to discuss the results of the MMO's draft 'shadow' assessment and the implications of the project on designated feature in the Fal and Helford Special Area of Conservation (SAC). An independent report assessing the legal interpretation of case law by both parties has yet to be accepted.

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

Plans for the development of **Dean Quarry** appear to be on hold as the developers, Shire Oak Quarries, are '...reviewing the operational requirements for the quarry...', expressing an aim of working closely with local communities to reduce the project's impact. However, claims and counter-claims regarding possible financial inducements offered suggest that the developers are finding community engagement somewhat challenging.

- Local views: <http://www.cads2015.com/>
- Developer comments: <http://www.cmscoms.com/?p=11612>

The Dean Quarry proposals are linked to ongoing plans for development of a **tidal lagoon in Swansea Bay** by Tidal Lagoon Power. This is seen by the developers as the first of a series of tidal lagoons around the Bristol Channel/Severn Estuary. The scale of these possible developments and their potential environmental and wildlife impacts are causing concern. As part of the ongoing debate, UK Government commissioned the Hendry Review on the future of tidal lagoons which was published in January 2017. The report recognises the potential value of tidal lagoons and proposed that government commission a 'pathfinder' scheme to investigate key issues around their development. UK Government has still to decide whether to approve the scheme.

- Hendry Review: <https://hendryreview.files.wordpress.com/2016/08/summary-of-recommendations.pdf>
- Response from an environmental NGO: <https://www.wildlifetrusts.org/news/hendry-review-tidal-power-published-today>

After many years of research into the impacts of the disposal of dredged material at the **Rame Head disposal site** and because of much local lobbying, a new disposal site, Plymouth Deep, was announced by the MMO in March this year. It is perhaps worth noting that the Rame Head site will not immediately disappear, rather it will fade away, being classified as 'unused' after five years and then as 'closed' after ten.

- MMO announcement: <https://www.gov.uk/government/news/south-west-characterisation-disposal-project-new-site-announced>

Aquaculture has been given a big 'thumbs-up' in the UK Marine Policy Statement, albeit with recognition of the possible challenges and constraints. It is interesting to note therefore that the **Lyme Bay Mussel farm** has moved on from the initial pilot stage to the development of increased-scale production in recent years. The University of Plymouth has been carrying out monitoring for the start of the project, looking at any potential environmental impacts. Initial results suggest an increase in local biodiversity around the rope

installations. As the pressure for developing similar schemes is likely to increase in the coming years, the results of this work will continue to provide important evidence to feed into future planning.

- Developers website: <https://www.offshoreshellfish.com/>
- Monitoring overview: <https://sheehanresearchgroup.com/offshore-mussels/>

Following prolonged '**poor**' **water quality** results at **Instow Beach**, a consultation into removing the beach from the list of designated bathing waters in Spring 2017.

Update 2018 *Despite most respondents being opposed to de-designation, the Environment Agency has concluded that increasing water quality is not technically feasible and the beach has been removed from the list of UK bathing waters (March 2018)*

- Announcement: <https://www.gov.uk/government/consultations/bathing-waters-removing-instow-from-the-list-of-designated-bathing-waters>

Marine planning provides the high-level context for these and future developments. The Marine and Coastal Access Act (2009) charged the Marine Management Organisation (MMO) with developing marine plans for English waters by 2020. These plans aim to:

'...guide those who use and regulate the marine area to encourage sustainable development while considering the environment, economy and society.'

The south-west of England falls into two of the MMO plan areas, South and South-west and these plans are at different stages of their development. Published in November 2016, consultation on the draft **South Marine Plan** closed in February 2017. Initial thoughts on the **South-west Marine Plan** were published in February 2017 to feed into stakeholder consultation events.

- South Marine Plan: <https://www.gov.uk/government/collections/south-marine-plans>
- South-west Marine Plan: <https://www.gov.uk/government/collections/south-west-marine-plan>

Outside the region, but with waters immediately adjacent, the draft **Welsh National Marine Plan** was published for consultation in December 2017.

- Welsh National Marine Plan: <https://beta.gov.wales/draft-welsh-national-marine-plan>

South West Marine Plan

In Spring of 2017, the Marine Management Organisation identified and engaged with stakeholders on common issues that the South West Marine Plan should address. The aim of the engagement was to present our thinking about the causes and effects of issues to targeted groups of stakeholders. The engagement helped validate already identified issues and provided an opportunity to ask stakeholders what they think the causes or effects of issues in the area are. Throughout the summer we began analysing the results of the engagement and validating the issues that were identified. A draft vision for South West Marine Plan was produced for stakeholder engagement in the spring of 2018. The vision gives an overview of how the south west marine plan area is targeted to look in 2041 across the environmental, social and economic sectors. The MMO is now undertaking a stage of policy development in preparation for a series of stakeholder engagement in the spring of 2019.

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Partnership Working

Dafni Sifnioti of Teignbridge District Council observed the importance of partnerships and partnership working. Partnership working between organisations for example:

- RMAs, consultancies and academia that aim to protect and manage the coastal marine environment;
- Dawlish Warren;
- Mount's Bay Blue Coast/SWEEP; and
- Exmouth's tidal station

These are a few examples where partnerships have been developed and are of the utmost importance to achieve the results needed.