

# **South-West Marine Ecosystems Report**

## **2016**



**Sightings:** Returned / rediscovered after 30 years absence.  
St Piran's crab, *Clibanarius erythropus*, imaged here at Marazion. Image: Keith Hiscock.



**Unusual strandings:** A sperm whale at Perranporth Beach.  
Image: Annabelle Lowe/Newquay Sea Safaris and Fishing.



**New locations:** The glaucus pimplet *Anthopleura thallia*, recorded for the first time on the coast of Somerset in 2016.  
Image: Nigel Phillips.



**New activities / management issues:** Potting for wrasse along south coasts begins to take-off in 2016. This image was taken off Pier Cellars in Plymouth Sound in August 2017.  
Image: Keith Hiscock.

**Edited by Bob Earll & Keith Hiscock and with the lead section editors:**

**Tim Smyth, Peter Miller, Angus Atkinson, Keith Hiscock, Doug Herdson,  
Sue Sayer, Nigel Phillips, Tom Horton, Sarah Clark, Claire Wallerstein**

## **South-West Marine Ecosystem Conference & Activities Objectives**

The Objectives for the SWME conferences and activities have been developed with the delegates and were revised in 2017; they are as follows:

1. **Networking** Through the conferences, website and mailings, to provide a networking opportunity for a wide cross section of people to meet, exchange views and build networks for the south-west's marine ecosystems in order to:
  - Provide active support for existing networks enabling and building citizen science projects;
  - To encourage collaboration between users, researchers/scientists and managers/policy makers;
  - Encourage links between researchers on science projects throughout the region's seas (e.g. the English Channel, Bristol Channel, Celtic Seas and the wider Atlantic Ocean).
2. **Annual Events & Recording** To use the annual conference to record observation on ecological and oceanographic events of the previous year that have affected the south west marine ecosystems and to make the linkages between environmental and biological phenomena. To publish these observations annually. To promote the recording of observations through the year and ongoing regional and national marine recording projects through the SWME website.
3. **Ecology of marine species** To promote research studies that focus on the ecology of marine species, planktonic, benthic and 'mobile' species (fish, birds, mammals, turtles) and the ecosystem that supports them. To understand the status of populations of marine species in the region's seas and how they are responding to environmental and anthropogenic pressures. To enable stories to be told about the ecology of our common species, their distribution, movements and numbers, and importantly to highlight the gaps in our knowledge.
4. **Management of south west marine ecosystems** to encourage strong relationships between policy makers and scientists; to promote science and the evidence base that underpins management of human activities in the coastal and marine environment with a view to supporting and promoting the health of south west's marine ecosystems.
5. **Marine Education and Outreach** To highlight marine education and outreach programmes in the south west. To support the development of new programmes that promote marine management and make use of marine science. To promote good practice in environmental education, interpretation, signage and outreach.

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

# South West Marine Ecosystems Annual Report 2016

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# South West Marine Ecosystems Annual Report 2016

*A collation of presentations made, observations reported at the South-West Marine Ecosystems meeting on 21 April 2017 and supplementary material.*

## Introduction, Interactions and Questions – Making the Links

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This is the third 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 meeting over the last five years which are set on page 2. The report includes notes from the speakers at the 2017 meeting. At 67 pages it is the biggest SWME annual report to date.

***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 but it will also be invaluable in answering the various questions arising from the SWME meetings and this report.

New – this report has broken new ground

- The process of producing this report has encouraged Cornwall Seal Group Research Trust to produce an annual report of their work from 2017
- We have been able to look at how best to report on the seabird section of the report and get a sense of this for the greater south west covering many county reporting efforts
- Dave Fenwick's contributions are fascinating and raises a host of issues about invasive species reaching our shores from the Caribbean and America's eastern seaboard; this is covered in a special section
- There is a much bigger section on plastics based on the work of the Cornwall Plastics Coalition

One other thing that is notable is how many of the sections are using a wide variety of observations from the shore and strandline ranging from jellyfish on the shore to a sperm whale.

There are a host of interesting points that arise from these producing these annual reports including:

1. **Marking events** such as the major winter storms of 2014-15, man-made PIBs pollution (2013-14), the humpback whale in south Devon (2017) which attracted huge numbers of people for a month.
2. **Highlighting significant ecological and population changes** such as the increase in seabirds on islands after rat control, declines of cliff-nesting seabirds, and blooms of barrel jellyfish.

3. **Good years & bad years – relative status** there are a variety of species like basking sharks, sunfish, barrel jellyfish which can have both good and bad years for the scale of observations. For example over the last three or four years the number of basking shark sightings has plummeted, why is that? (See Table 1, p 29 & Table 2, page – thanks to Abby Crosby)
4. **Trends and developing populations** Over the last few years the numbers of sightings of tuna have moved from remarkable to routine and these events are now being studied. Similarly the spiny lobster populations have recovered to become common-place to divers and started to enter the fishery. A fishery for wrasse for cleaner species for the Scottish salmon farming industry has gone from virtually nothing to be major issue of concern.
5. **Remarkable sightings** There are of course remarkable sightings in any one year – the Bowhead whale sighting off Cornwall in 2016 – or the Dalmatian pelican. Some of these species will stick in our minds as one-off events for others they might be the start of a trend, for example, there was a time when the little egret was a novelty in the south-west.
6. **Acting to focus interest** Simply publishing this material can provide the focus for further research around with ideas and research can develop and grow.
7. **Questions and interactions** A new section this year will focus on the emerging questions and interactions between environmental, species and habitat changes (see below).
8. **Making the links to human activities and management** provides a key element of these observations as we can see with our developing understanding of wildlife entanglement, questioning fisheries for crawfish or wrasse or the spatial allocation for developments or protected areas

Do keep your records for 2017, and if you can add numbers to your estimates of ‘good’ or ‘bad’ that really helps to provide a measure of what is being reported, ready to submit your sightings etc. when the next South-West Marine Ecosystems meeting is held on April 13<sup>th</sup> 2018.

### **Interactions and Questions – Making the Links**

Research moves through a number of stages and this report mainly focuses on the first stage - observations and descriptions - but from that one can begin to move on to look at things in more detail. The thing about any research done well is that it raises many more questions and it is the questions that often makes research endlessly fascinating. All of these questions tend to involve looking at the relationship of oceanographic, weather, environmental change and what we observing, that is to say making links between the sections of the report.

Some questions that arise from reading these observations for 2016 include:

#### **Good years & bad years – relative abundance**

How should we assess this? It is clear that for some species like the basking shark and grey trigger fish the sightings are very low compared to recent history. How should we record occurrences across the people making observations? Lots of groups are making systematic observations across the year

- can we join the observations for key species together? Perhaps this should be the subject of a workshop?

#### **Basking sharks**

What is it in the oceanology and planktonic systems that have led to this series of poor years for basking shark sightings? Is it a natural spatial readjustment or is there something wrong? Is this pattern being repeated in other basking shark hot spots? Does this reflect a decline in the population?

#### **Manx shearwater feeding areas**

What is the food source that is attracting Manx shearwater to fly from the South Wales islands to Lyme Bay to feed? The plankton productivity must be significant to attract hundreds of birds, but what is happening?

#### **Barrel jellyfish**

The astonishing numbers of barrel jellyfish of 2013 – 15 seems to have waned in 2016. Is there any obvious reason or link to weather or oceanography? Who will discover the seabed scyphistoma of this species or small (newly released) jellyfish and where they come from? Probably too deep for SCUBA divers – we should have found them by now – but what about deep sea video work?

#### **Spiny lobsters**

Spiny lobsters are doing well after many years of no recruitment – why? The changes probably started at least 4 or 5 years ago. Do some species exhibit ‘episodic recruitment’: a ‘boom-and-bust’ scenario where conditions are just right for a few years to encourage reproduction and then the ‘bust’ occurs with little or no recruitment and a wane in numbers as natural mortality and/or fishing activity occurs?

#### **St Piron’s crab**

Not seen since the mid 1980’s, this small hermit crab was re-discovered early in 2016 on the coasts of Cornwall. Another example of episodic recruitment? Have conditions been especially favourable for survival of larvae and were there accelerated oceanic currents that brought larvae across the Channel? Will the populations be sustained by larval recruitment or will the arrivals simply live-out their natural life spans and the population again die-out?

#### **Tuna**

Tuna are doing well – why? What is bringing them into our waters? Food? But which species and why?

#### **Range extensions and increased abundance of warmer water species**

There are several NE Atlantic species that, in the past few years, have been reported for the first time in British waters, and several more that seem to be being seen more often or in larger numbers. Are we seeing the effects of seawater warming, are they hitch-hiking on ships and debris or are we just being more observant?

# Background Oceanography – Western Channel Observatory

Tim Smyth, Peter I. Miller

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## Western Channel Observatory

The Western Channel Observatory (WCO) is an oceanographic time-series and marine biodiversity reference site in the Western English Channel (Figure 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 – 2016

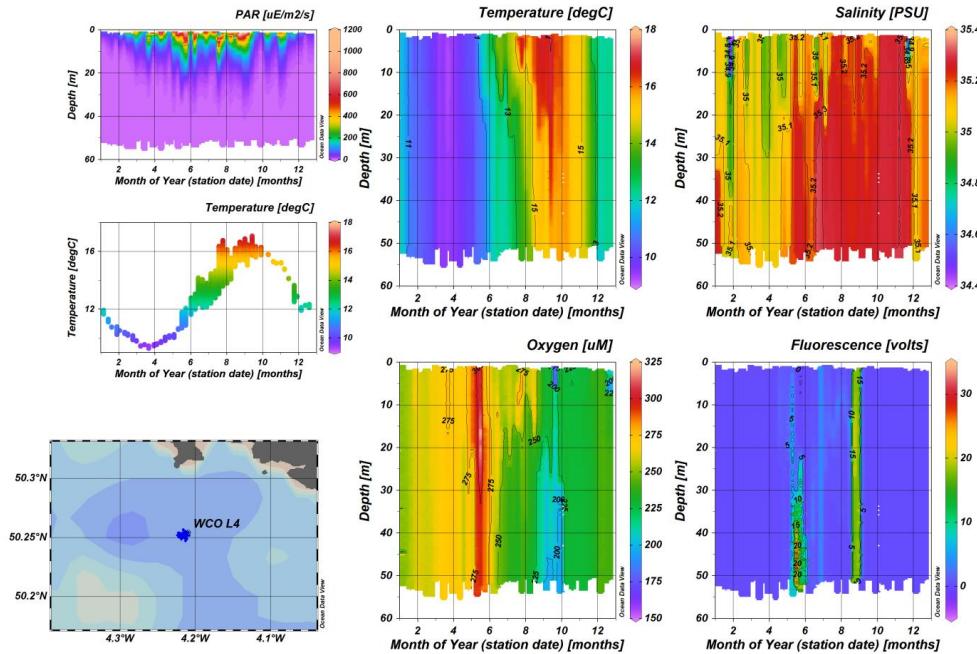


Figure 2: Conditions throughout the water column at station L4 during 2016 from 50 individual profiles taken using a rosette sampler with multi-parameter “CTD”, deployed from the RV Plymouth Quest.



Figure 1: Stations of the Western Channel Observatory

Vertical profiles for multiple parameters are taken using the RV Plymouth Quest on a weekly basis at station L4 (Figure 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 2016 as a decrease in salinity below the background value of 35.2 PSU. These were particularly marked in late January and November. The maximum in the oxygen was during May ( $>300 \mu\text{M}$ ), with an oxygen minimum ( $\sim 200 \mu\text{M}$ ) following the autumn bloom in September. Two marked phytoplankton blooms occurred during May (propagating from the bottom upwards) and late August / early September (throughout the water column).

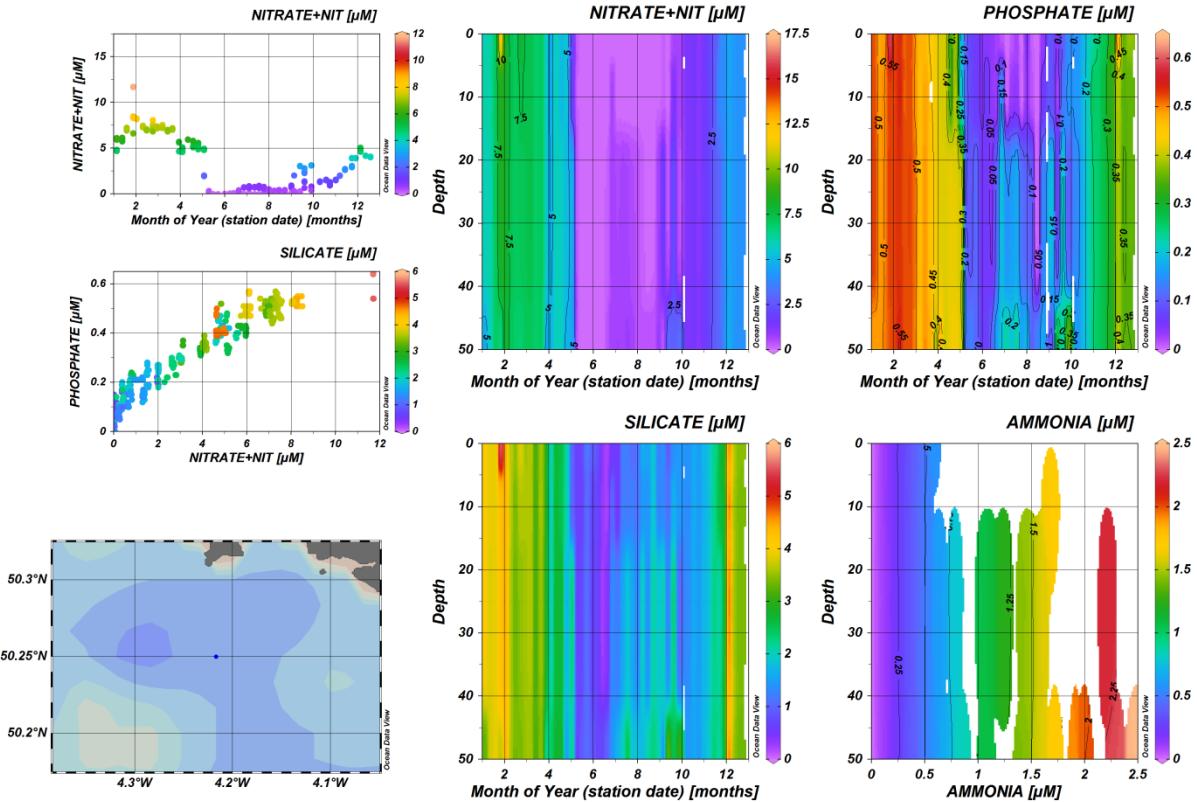


Figure 3: Inorganic nutrient observations from station L4 during 2016.

Samples for inorganic nutrients are taken on a weekly basis from station L4 (Figure 3) and returned to PML for generally same-day laboratory analysis. Following the onset of the spring bloom in April / May the water column nitrate is rapidly depleted such that, at the beginning of June the concentrations are below the limit of detection. This remains the case until October when significant wind mixing occurs, coinciding with the breakdown in thermal stratification. There may also be inputs from the nearby River Tamar. The recharge of nutrients usually takes until February / March when the maximum in nitrate is  $\sim 8 \mu\text{M}$ . The water column in general is never depleted in phosphate, indeed during 2016 there were interesting features in July when a pulse of higher phosphate ( $\sim 0.2 \mu\text{M}$ ) was apparent near the seafloor.

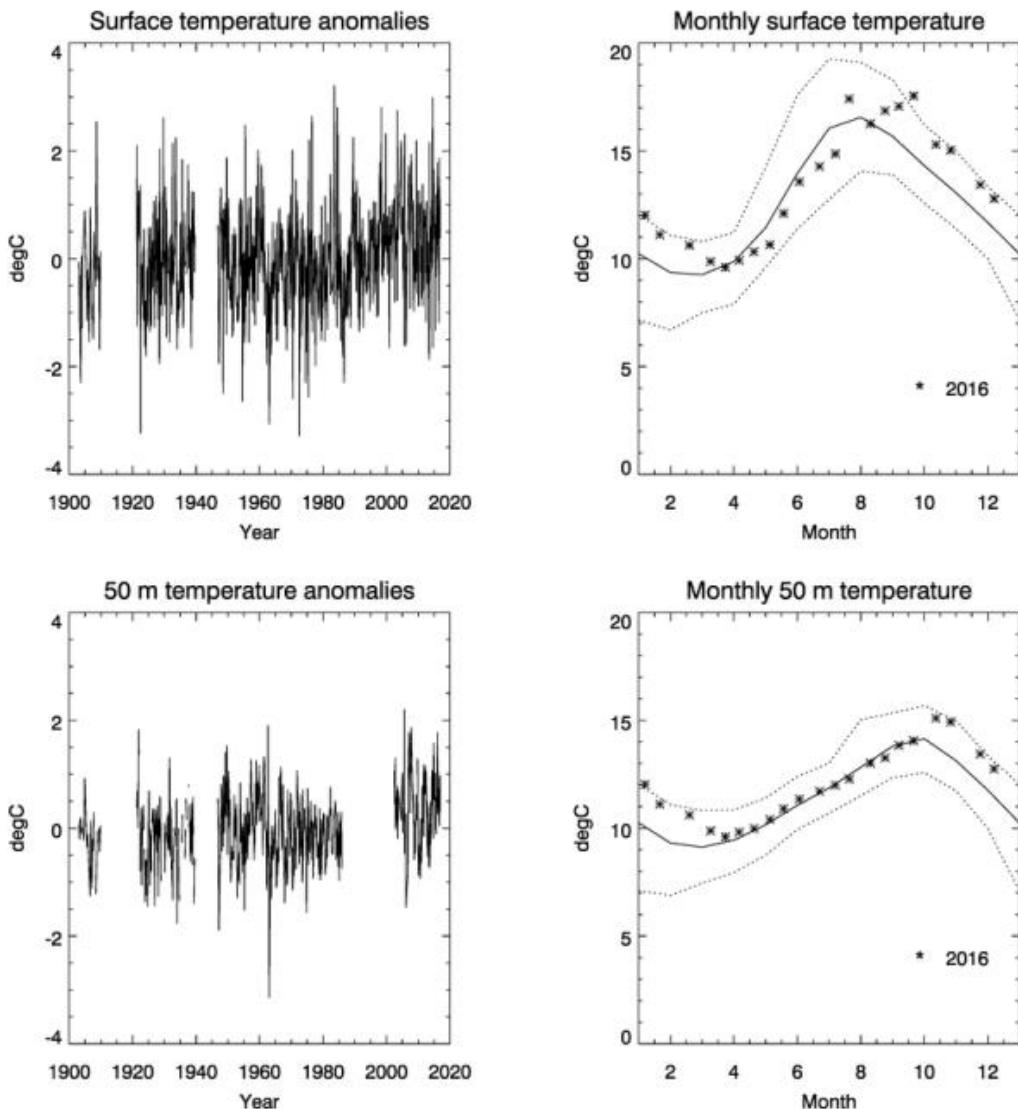
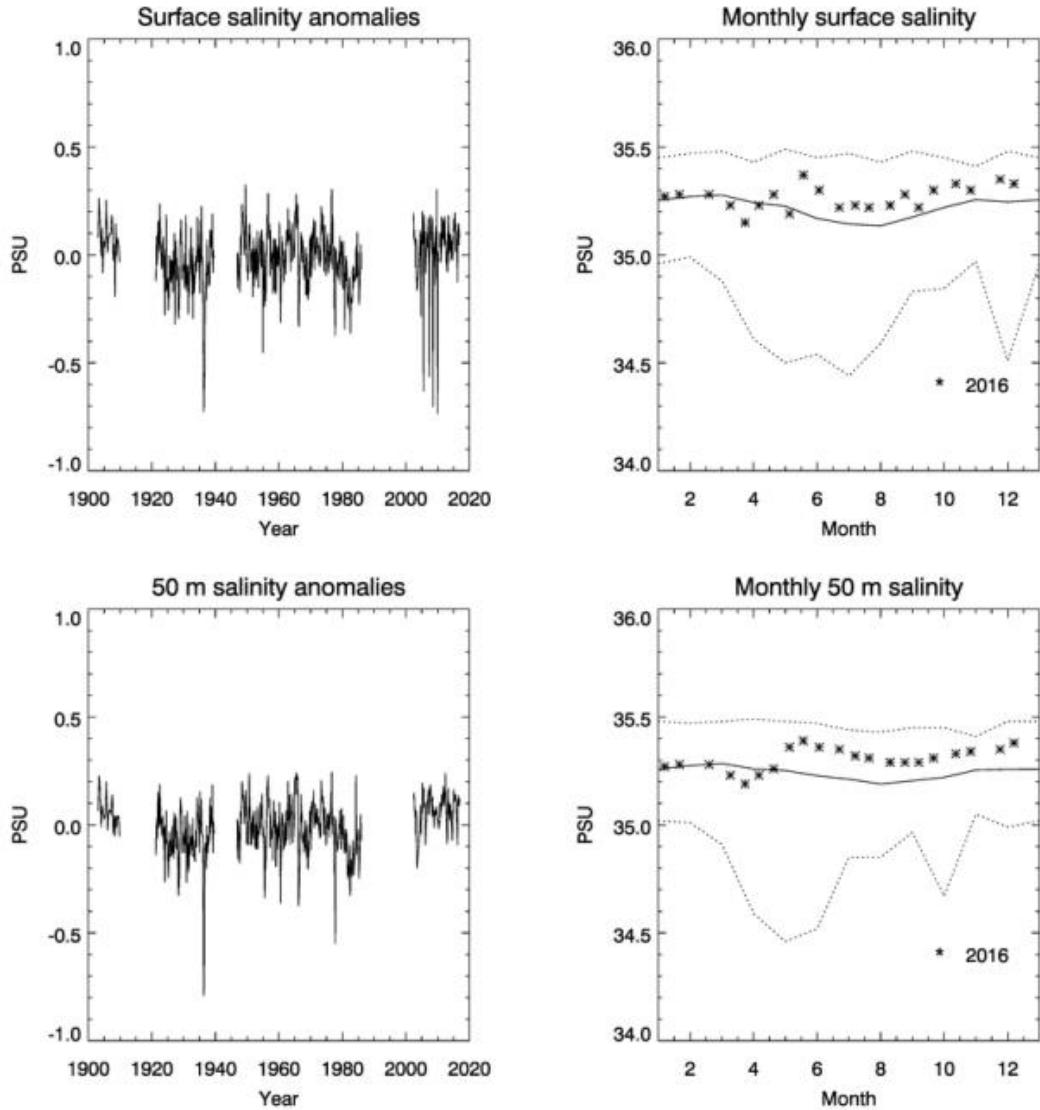


Figure 4: E1 temperature time-series and anomaly analysis. Solid lines show mean monthly temperatures, with dashed lines giving the standard deviation around the mean. Asterisks represent individual observations (21) made by the RV Plymouth Quest.

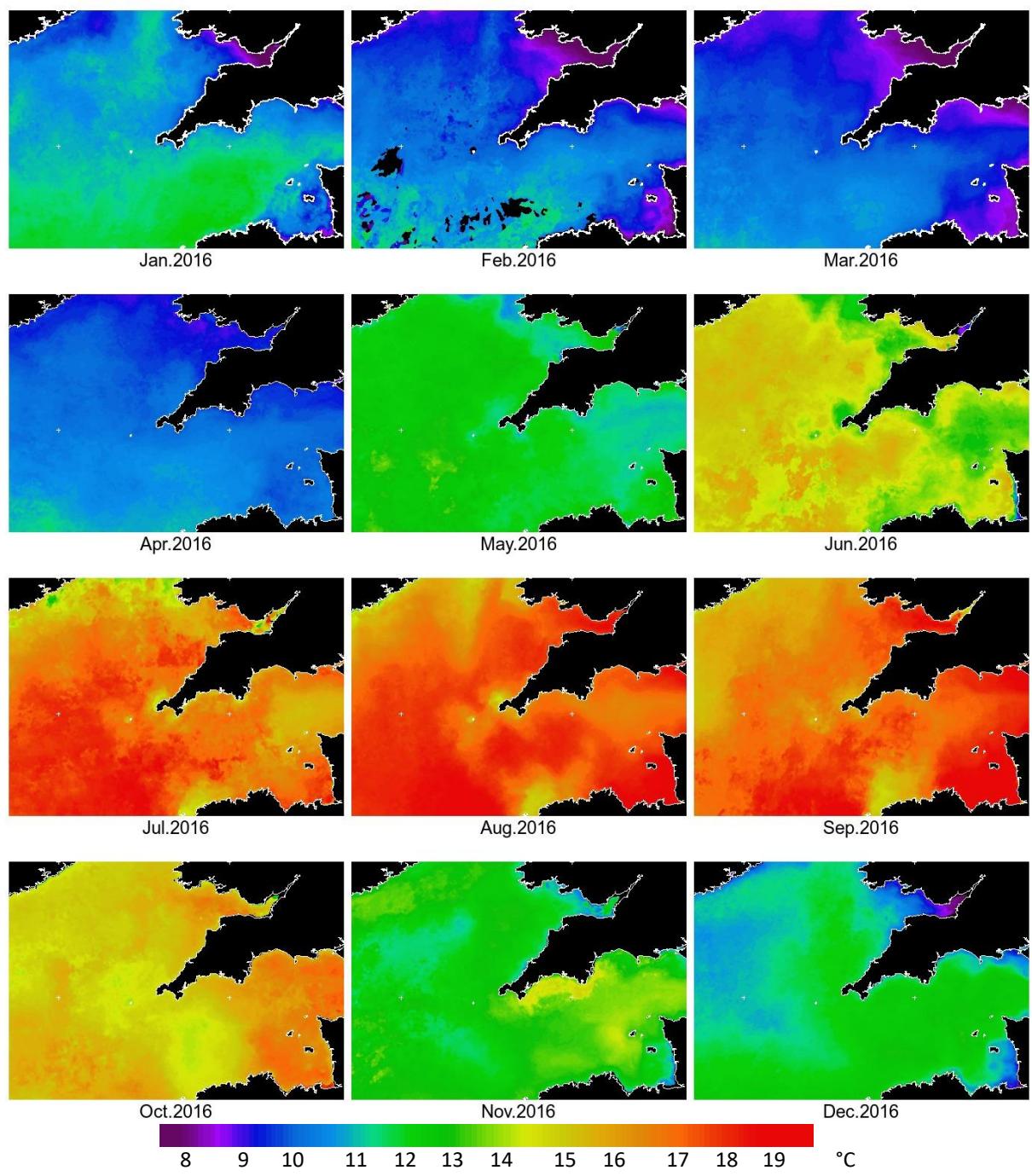
Figure 4 shows the temperature time-series anomalies made at station E1, which is one of the longest hydrographic series in the world. At the surface, E1 started 2016 markedly warm with temperatures in January being some of the warmest during the observational period. However, by early spring and until late summer, the temperatures were close to or slightly below 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  $1.5^{\circ}\text{C}$  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.



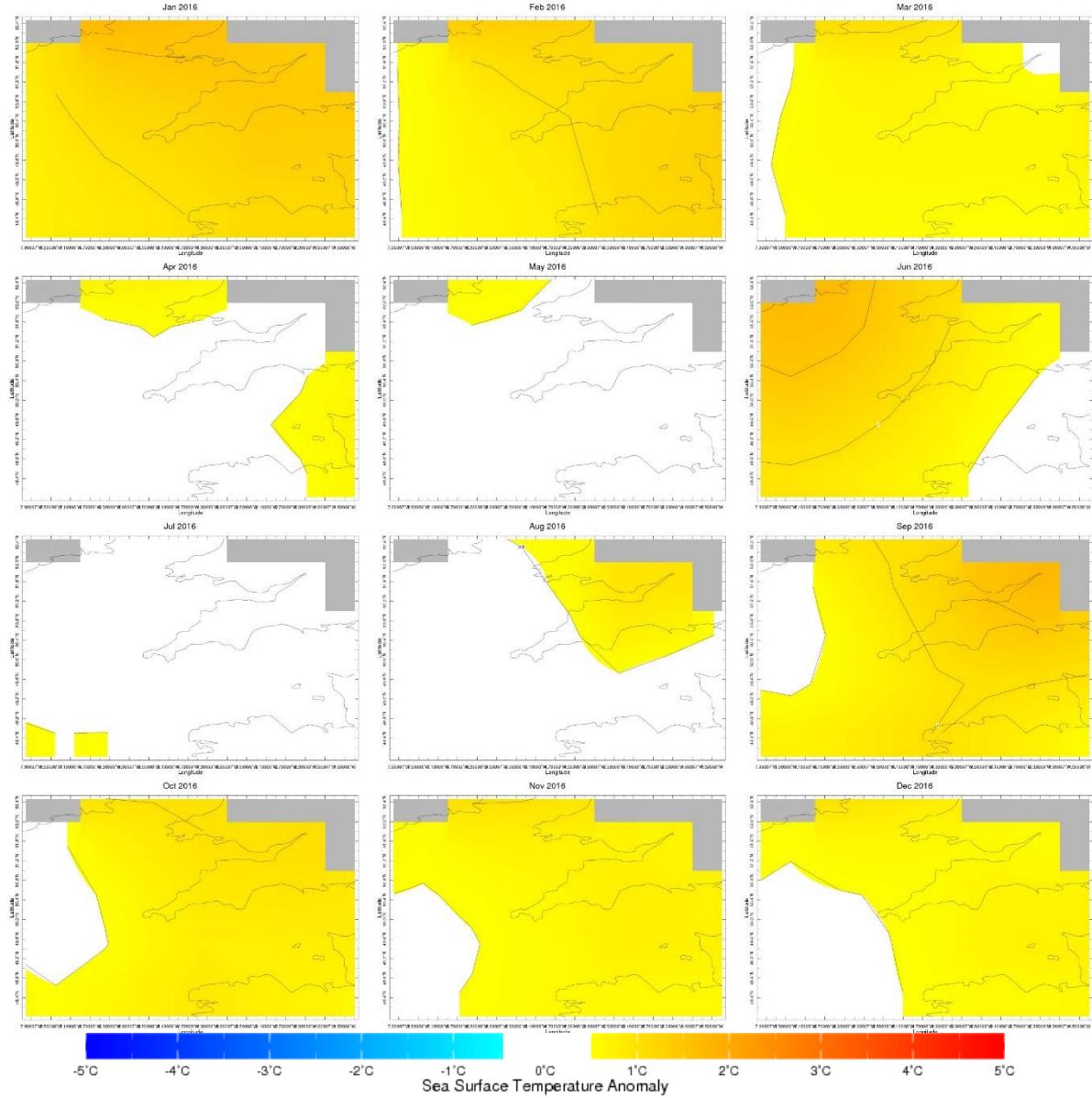
**Figure 5: E1 salinity time-series and anomaly analysis.** Solid lines show mean salinity, with dashed lines giving the standard deviation around the mean. Asterisks represent individual observations (21) made by the RV Plymouth Quest.

Figure 5 shows the salinity time-series made using the CTD profiler at station E1. In general the waters at E1 were slightly more saline during 2016 than the long-term mean (+0.05 – 0.1 PSU) which is likely indicative of low rainfall totals during the year and the influence of waters of a more oceanic than coastal origin.

Figure 6 uses satellite remote sensing to provide average monthly sea-surface temperature (SST) maps for the wider southwest UK region during 2016. Analysis of the shelf-sea fronts based on SST data (not shown here) indicated weaker stratification and weaker upwelling during summer than a typical year. Both of these factors can hinder the sustained growth of phytoplankton, which will be explored in the next section. Figure 7 depicts the monthly SST anomaly for 2016, though based on coarse 1 degree resolution data: January indicates an atypically warm 2015/16 winter; and a majority of months are between 0.5 and 1.5°C higher than the long term average.



**Figure 6. Monthly median sea-surface temperature maps for 2016, derived from NOAA AVHRR 1km resolution data (NEODAAS-Plymouth).**



**Figure 7. Monthly SST anomaly maps for 2016, based on Reynolds and Smith OISST data relative to 1971-2000 period on a  $1.0^{\circ}$  grid (International Research Institute for Climate and Society, Columbia University)**

## Plankton Observations

Compiled/Edited by: **Angus Atkinson, Claire Widdicombe, Andrea McEvoy, Paul Rooks, Peter I. Miller, Keith Hiscock**

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### Introduction

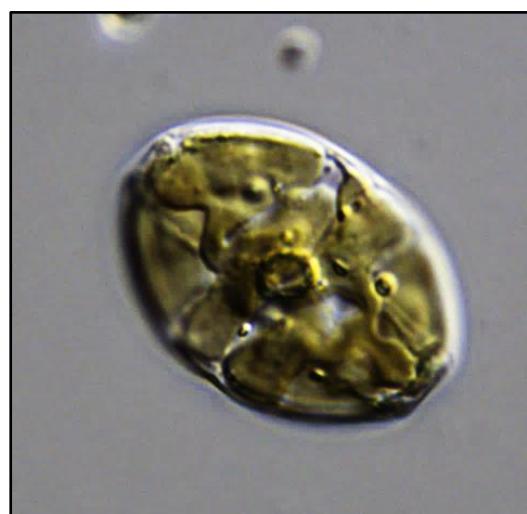
Observations of plankton in the West Country come from three sources. Firstly they come from space, with satellite images of ocean colour being converted to various proxies, chiefly of phytoplankton. They have enormous advantages in temporal-spatial coverage, with drawbacks in the interpretation and calibration of the signal, plus the detection of hidden peaks in phytoplankton at depth. Second, various scientific monitoring surveys provide better taxonomically-resolved information on zooplankton and phytoplankton, but these are either single survey snapshots (e.g. the annual autumn Cefas surveys of the West Country waters) or high resolution surveys of fixed points (Plymouth Western Channel Observatory (Fig. 1, see [www.westernchannelobservatory.org.uk/](http://www.westernchannelobservatory.org.uk/)), or combined spatial and temporal coverage but only of the surface layer (Continuous Plankton Recorder, CPR, surveys (<https://www.sahfos.ac.uk/>)). The third alternative is the sustained reporting of visible plankton “signs”, for example of jellies or unusual blooms by interested and often highly knowledgeable enthusiasts. This reporting, for example via these South West Marine Ecosystems reports, provides excellent, year-round observation that focusses on unusual and interesting events. With obvious caveats associated with patchy coverage, lack of consistency etc., this provides a good complement to remote sensing and scientific surveys.

### Phytoplankton observations

At the Plymouth Marine Laboratory's (PML) L4 and E1 stations (Fig. 1) Water samples from 10 m depth are routinely analysed for a suite of over 250 taxa. Winter storms brought in a new unknown species referred to as the “Pringle” as its shape represents the crisp (Fig. 8). This new species was recorded at E1 and L4 in January and it was regularly found at concentrations of up to 100 cells per

litre. Subsequent recordings in the English Channel and southern North Sea suggest this may be an introduced species from the North Atlantic. The fact it has not been seen in the northern North Sea suggests it has been transported via the English Channel into the North Sea. PML are collaborating with colleagues at the Helgoland Roads time-series (Germany) to identify which genus or even Kingdom this taxon belongs to.

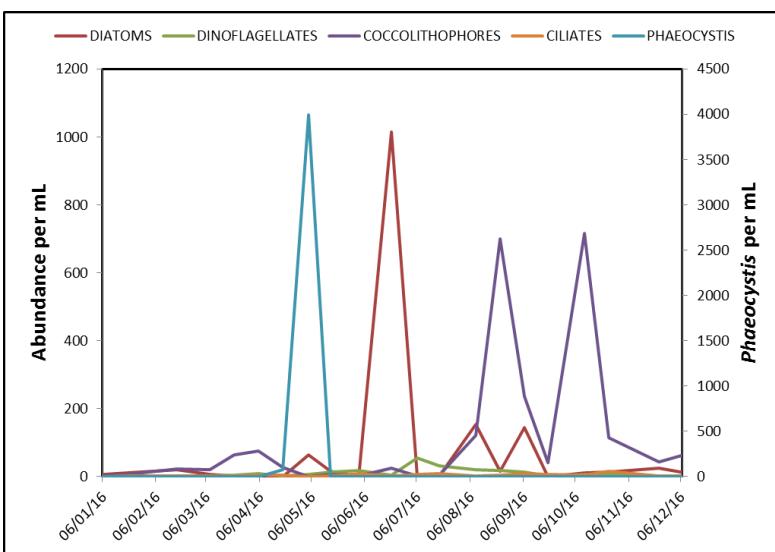
Benthic and planktonic foraminifera were also found in water samples during the winter, likely stirred up/transported by the numerous storm events that battered the south west. Professor Malcolm Hart and colleagues have been collaborating with PML to identify the origin of this enigmatic species.



**Fig. 8.** Unknown, enigmatic species known as the “Pringle”, recorded during early 2016 at the Plymouth L4 and E1



A divers-eye view of a *Phaeocystis* bloom. Image Keith Hiscock

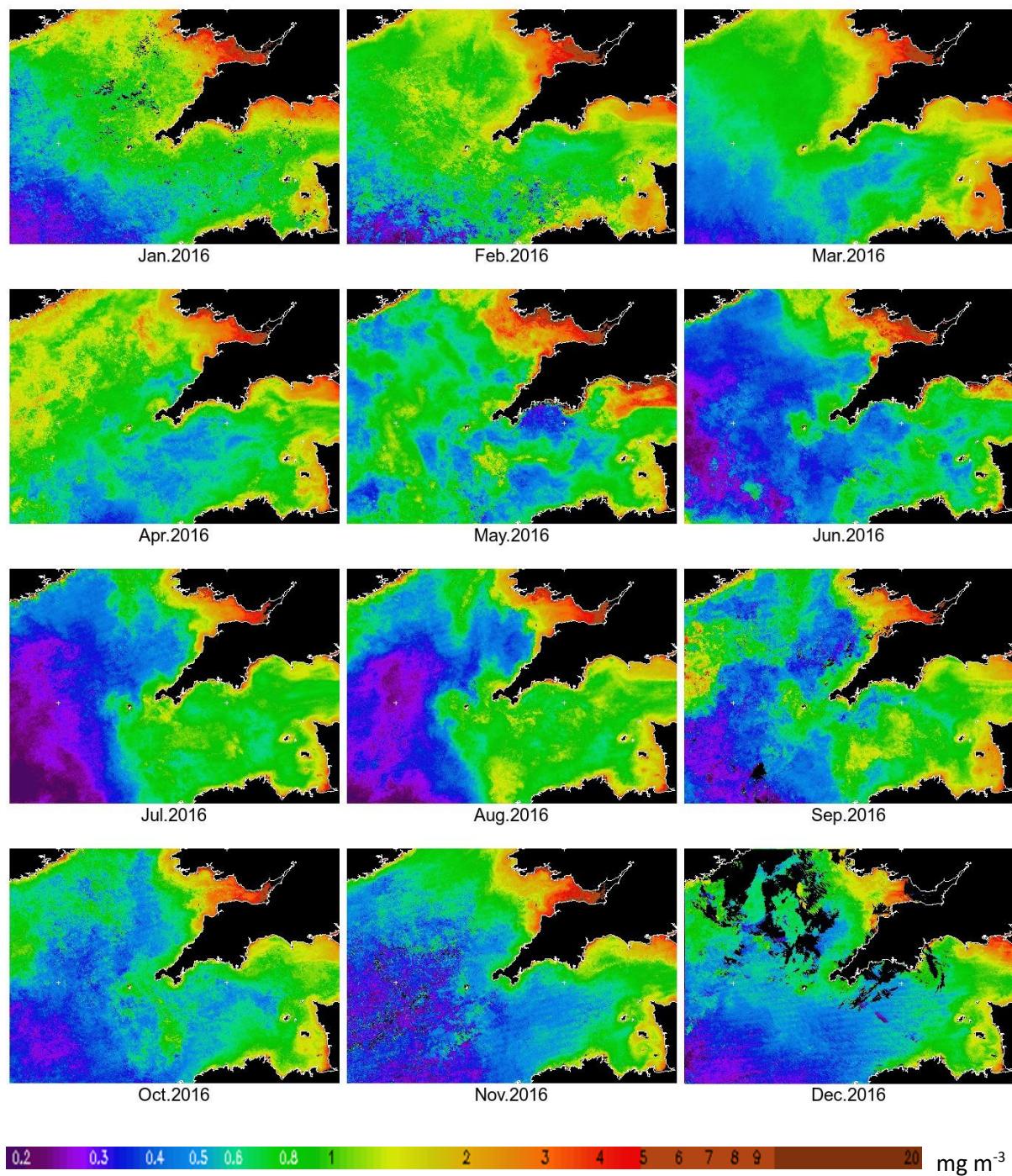


**Fig. 9.** Seasonal succession of phytoplankton at the Plymouth E1 station throughout 2016. This is the outermost of the two Western Channel Observatory Monitoring stations, 40 km SSW of Plymouth; see Fig. 1)

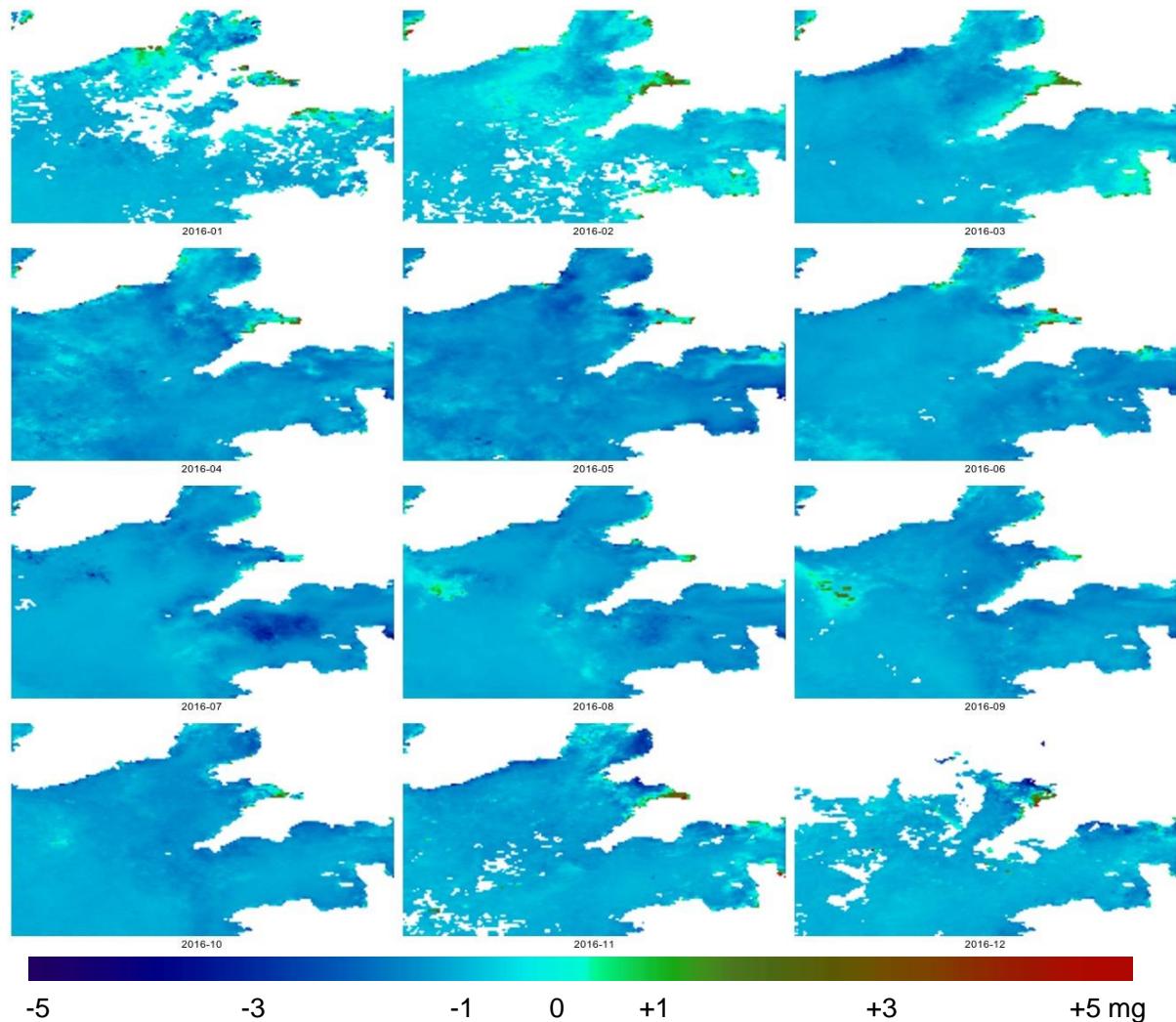
Typical spring, summer and autumn peaks in phytoplankton were observed at stations E1 and L4 (Fig. 9). The spring diatom bloom was overshadowed by the intense (and possibly unprecedented) *Phaeocystis* bloom (*P. pouchetii* and *P. globosa*) which peaked in May. Dinoflagellates thrived when water temperatures peaked in late summer/early autumn and were followed by an autumn bloom of *Emiliania huxleyi* and diatoms.

In addition to the annual update from the Western Channel Observatory described above, a series of other phytoplankton records were submitted for this 2016 SWME Report. Gerald Boalch (Marine Biological Association, Plymouth) describes a weaker spring bloom in SW seas than is typical, based on satellite ocean colour. He observed very few diatoms in the spring but a massive autumn bloom, suggesting that it reflects the availability of plentiful silica left in the water. He describes weaker, summer dinoflagellate blooms than is normal in July-August in the mid-channel south of Plymouth, with possibly weaker stratification than usual. Gerald Boalch also mentions the first record for the English Channel of *Ceratium carraensis* (in autumn)

Peter Miller compiled satellite Earth observation data to show the monthly spatial distribution of phytoplankton (based on chlorophyll-a concentration) across the southwest region (Figure 10). These maps show the spring bloom in May mainly affecting the Dorset coast and Bristol Channel, and not as widespread over the whole region as is typical. It is extremely unusual not to observe dense dinoflagellate blooms that usually occur south of Devon and Cornwall from late July through to September. The monthly chlorophyll anomaly maps for 2016 (Figure 11) emphasise these and further points of interest: higher abundance of phytoplankton in February; widespread lower abundance during the typical spring bloom period of Apr.-May; extremely low off the south Devon and Cornwall coasts that usually experience late summer blooms; and a late summer bloom south of Ireland. These satellite-based maps correlate well with Gerald's *in situ* observations.



**Figure 10.** Monthly median chlorophyll-a concentration maps for 2016, estimated from NASA/NOAA Suomi-VIIRS ocean colour sensor at 1km resolution (NEODAAS-Plymouth)



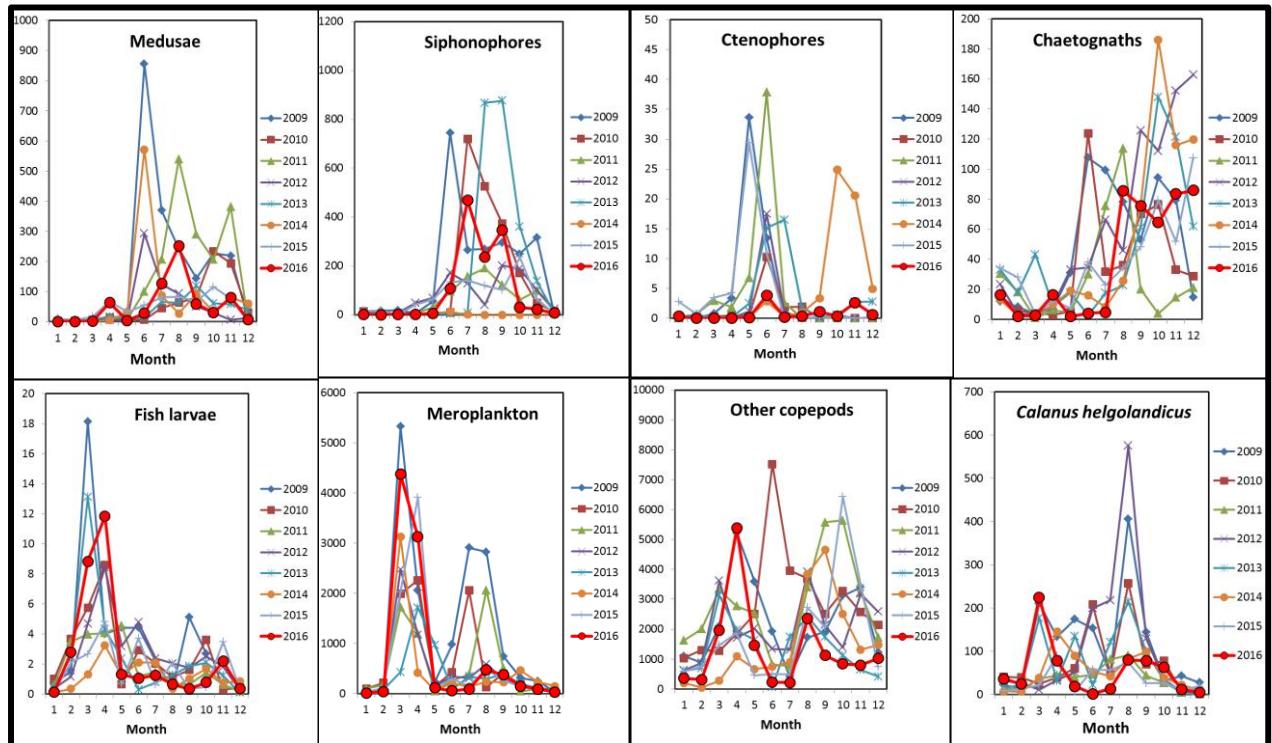
**Figure 11.** Monthly chlorophyll-a anomaly maps for 2016, relative to ESA Climate Change monthly climatology (v2.0, 1997-2013 data at 4km resolution).

Other reports include “an extremely thick plankton bloom Torbay/Salcombe, in May (thicker than usual), comprised of large diatoms” (Rachel Cole); “a bloom of mainly *Phaeocystis* sp. in May/early June - in Dorset” (Sarah Hodgson); and “a prolonged (~5 weeks) plankton bloom through May 2016, where visibility was 0-1m all along SW coastline from Portland to the Lizard” (Olivia Langmead)

### Zooplankton observations

The routine weekly zooplankton sampling at the Plymouth L4 station continued its standardised method of hauling a pair of 57 cm diameter nets from 50 m to the surface every week, with 2016 marking its 28<sup>th</sup> year of sampling. By detailed taxonomic identification of these samples, it allows us to gauge the extent of natural variability in both the overall amounts and the seasonal timing (phenology) of the plankton (Fig.12). Thus 2016 was not an anomalous year at this site, well within the natural bounds of variability. However, several interesting seasonal trends were apparent, chiefly in the low abundance of copepods during the mid-summer months. Copepods are important contributors to the overall biomass of zooplankton at L4, and their low abundance throughout mid-summer parallels the pattern that we observed in 2015. We monitor the egg production rate of the

large copepod species, *Calanus helgolandicus*, and it sustained high rates of egg production well into the autumn of 2016; a continuation of a recent trend for this species.



**Fig. 12.** Abundance (number per  $\text{m}^3$ ) of major zooplankton groups at the Plymouth L4 station, 13 km SSW of Plymouth (see Fig. 1). Results are presented for 2016 (red) for comparison with previous recent years. A record 50 weekly samplings with a replicate pair of nets were completed during 2016, with the results here averaged into monthly means

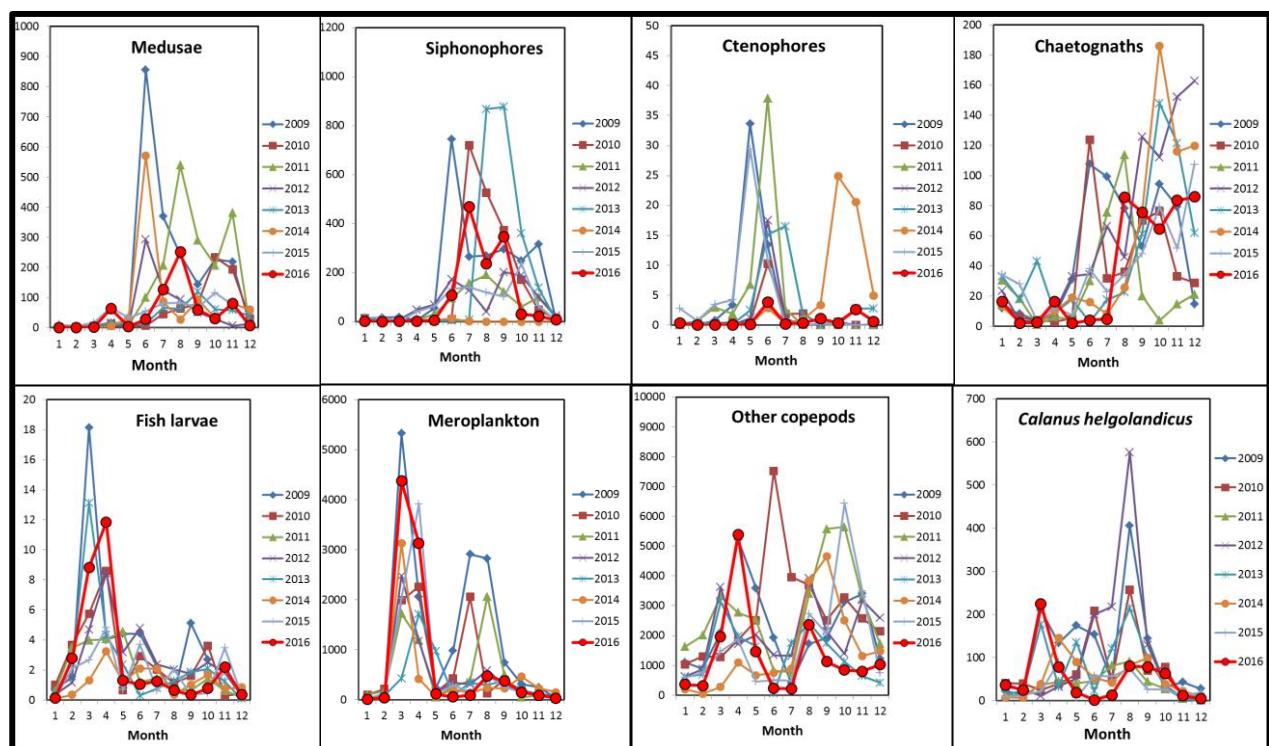
In January/February an unusual entoproct larvae appeared at L4. These are tiny, mostly sessile marine forms that attach to organisms that produce feeding currents. They have been seen before but not identified and were more noticeable than before. Also *Bolinopsis infundibulum* (Ctenophora) appeared in June. This was a new record for the L4 database as was *Proboscidactyla stellata* (Hydrozoa).

The station L4 receives a larger influence of riverine signals than its offshore sister station E1, and this is particularly noticeable after heavy rainfall and discharge from the rivers Tamar and Plym. Thus January saw the appearance of large numbers of mystery fibres at L4. These were later identified as rayon, a non-toxic fabric material, and traced by PML to single large “pollution” event emanating from the river Plym.

Based on reported observations of large, mainly gelatinous plankton in the West Country, we surmise that 2016 was a relatively quiet year for the barrel jellyfish which were particularly numerous in 2015. Jellyfish are a perfectly normal component of the plankton, and so we particularly welcome reports that set observations of strandings and at-sea observations into a context, for example whether numbers are higher or lower than previous years, or where numbers were higher or lower in any particular area. Submitted reports include Esther Hughes who recorded “much fewer barrel-, lions mane- and compass jellyfish in 2016 compared to 2015, and likewise Elizabeth Bailey reported “not nearly as many jellyfish overall, no barrel jellyfish and only a few compass jellies in the Cawsand area”. This view was echoed around the coasts “A lot less barrel

jellyfish - Mount's bay "(Zara Botterell); "Fewer barrel jellyfish around than in 2015" (Danielle Bridger); "Very few barrel jellyfish (*Rhizostoma pulmo*) in 2016" (Charlotte Bolton) "Quiet year for oceanic things washing up, bad weather in August – storms (Rachel Green)

However, there were several reports of jellies, sometimes numerous in strandings, but mainly of other species rather than barrel jellyfish. These include; "Large amounts of Compass jellyfish in Falmouth, seen them regularly throughout the summer period" (Meg Hayward); " Large numbers of Jellyfish on South Devon coasts" (Eamon Crowe) "July-Aug - huge blooms of various jellies - compass, blue, moons. Some *Rhizostoma* still" (Hannah Jones) "Last year approx August, whilst coasteering saw salps in abundance on right hand side of Mullion Harbour" (Claire Eatock); Large amounts of Compass jellyfish in Falmouth, seen them regularly throughout the summer period (Meg Hayward).



By the wind sailors (*Velella velella*) have been frequently reported at variety of locations during 2016. " Big strandings in North Cornwall in the Feb-March 2016"; " hundreds washed up on Rocky Shore Newquay (Fistral Beach Rockpool)" (Abigail Outred); "By the wind sailor mass strandings on various Newquay beaches Feb/March time (Anthony Scales) " Hundreds of *Vellela* washed up on Widemouth Bay (North Cornwall) over the past month" (Jessica Taylor). " *Vellela* - reported from Whitsand Bay in fairly large numbers but few reports in SW generally" (Esther Hughes); "Large amounts of by the wind sailors washed up on strandings" (Meg Hayward).

## The Seashore and Seabed

Editor: **Keith Hiscock**

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### Introduction

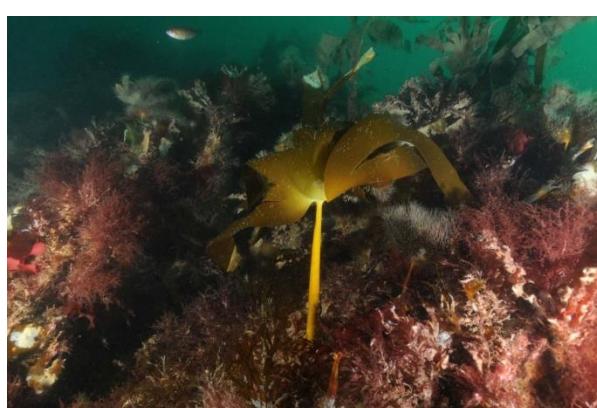
2016 was notable for a lack of unusual events, unusually high abundances or signs of change in the benthos – except for the re-appearance of the warm water hermit crab *Clibanarius erythropus*, which became known as ‘St Piran’s crab’ following a competition, run by BBC *Springwatch*, to provide a vernacular name. St Piran, the patron saint of Cornwall where the crab was first re-found, was a hermit who survived being thrown into the sea.



The first specimen of *Clibanarius erythropus* recorded in recent years – found on a Cornwall Wildlife Trust Shoresearch Survey at Castle Beach, Falmouth by Adrian Rowlands on Sunday 12<sup>th</sup> March 2016. Image: Matt Slater.

*Seasearch* continues to add to our knowledge of seabed habitats and species recorded by diving. At the time of writing this report, the Devon summary for 2016 had been published (<http://www.seasearch.org.uk/downloads/Devon-2016-summary.pdf>) and more will doubtless follow on the *Seasearch* downloads.

### Observations



*Laminaria ochroleuca* amongst other kelps at Hilsea Point Rock in August 2013. Image: Keith Hiscock.

Proportions of kelps that are *Laminaria ochroleuca* (warm-water species first recorded in Britain in 1948 at Salcombe) have increased on reefs out of Plymouth (Sally Sharrock).

Seagrass (*Zostera marina*) beds in the Isles of Scilly decreasing in density and increasing in patchiness (Chris Wood).



Image: Nigel Phillips Glaucus pimplet (*Anthopleura thallia*) records for Somerset are 'new' (not on the NBN Atlas). They were first recorded by Nigel Phillips in September 2016 at St Audries Bay found high up the shore in very shallow rock pools. Around 200 individuals were found at the site. Several were also found at Watchet, to the east of the harbour. Comment by Keith Hiscock: Typically, this anemone is found in crevices amongst sand in rock pools and emerges sporadically meaning it is, it is easily overlooked.

There appeared to be an increase in sightings/numbers of stalked jellyfish especially along the Cornwall coast (Adele Morgan, Cornwall WT; Liz Bailey, Natural England).

There were significantly more sightings of curled octopus (*Eledone cirrhosa*) along the south coast of Devon and off Dorset compared with previous years (Charlotte Bolton).

*Clibanarius erythrops* had been known from the coast of Cornwall and at Wembury in south Devon from the early 1960s through until the mid-80s (Southward & Southward, 1988). It's 'reappearance' was most likely the result of favourable currents bringing larvae from continental Europe. Finding individuals led to searches on a wide range of shores and it is now recorded from many locations in Cornwall and at Wembury.



The large recruitments of spiny lobsters, *Palinurus elephas*, reported since 2014, continued with as many as six being seen on a dive – and the earlier settlements are growing in size (various observers). Being fished with tangle nets off the north Cornwall coast (Matt Slater). The largest numbers off the south coast were being seen inshore with an occasional individual offshore. This one was photographed at Hatt Rock (11 nm south of Looe) on 17 April. Image: Keith Hiscock.

High chameleon prawn (*Hippolyte varians*) recruitment in Falmouth Bay area (Sarah Mynott, Exeter University).

As in 2015, football seasquirts, *Diazona violacea*, continued to recruit after their initial ‘outburst’ in 2008 (Keith Hiscock).

There were more records of gooseneck barnacles *Pollicipes* in south-west Cornwall. At Tater Du, the ‘original’ two from 2007 were still in the fissure that was inspected then and there was a recruit attached to one of the originals. At Sennen Cove, numbers were about the same as in previous years but some individuals were no longer present and there were new recruits.



There was some media coverage of moulting mounds of spiny spider crabs, *Maja brachydactyla*, although occurrence was probably much as always. Babbacombe on 21 September. Image: Keith Hiscock.

**David Fenwick reports notable occurrences:**

1. For some time now I have been working with Dr Arne Nygren on a sequencing project to find cryptic species of the polychaete *Eumida sanguinea*. The project is on-going as there are so many new species being found. Mounts Bay is a haven for about four new species, but a fifth one known at the moment as *Eumida G1* has only ever been found in Penzance and has been found offshore in sediment under *Corallina officinalis*. More specimens were sent off for sequencing later in 2016, the project continues to this day.
2. I have found a polychaete in Mounts Bay that is similar to the true *Eulalia viridis* (N.B. not *Eulalia clavigera*, the Greenleaf worm). Numerous specimens have been collected and sequenced and the worm appears to be the same as a species found by Dr Arne Nygren on the Mediterranean coast of France in 1990. The species was not described on the finding of one worm, but finding the worm across Mounts Bay means that it is now very likely the species will soon be described. It occurs on the lower shore amongst kelp holdfasts and is easily recognized as on disturbance it produces rather a lot of yellow-green slime.
3. An undescribed turbellarian parasite of the opisthobranch mollusc *Runcina coronata* was found at Battery Rocks, Penzance, 15/06/2016. The parasite was found on a number of animals, the only species ever found like it have been recently discovered turbellarian parasites on opisthobranchs from Japan, which were sequenced at the NHM. More on this in the future...
4. Godrevy Point, 08/06/2016. The nemertan *Vieitezia luzmurubeae* was found associated with the tunicate *Dendrodoa grossularia* on the extreme lower shore. This is the first time the nemertean has been discovered away from marinas on the Fal, where it occurs in huge numbers. It may therefore be best to consider the species to be one that is extending its range, being originally found off NW Spain and described in 2010. *Vieitezia luzmurubeae* was originally described as being associated with the tunicates *Ciona intestinalis* and *Phallusia mammillata*, *Dendrodoa grossularia* is a new associate.
5. Penzance Harbour 26/04/2016 and Newlyn Marina 11/08/2016, the parasitic flatworm *Fecampia erythrocephala* was found in *Palaemon* hosts, both *P. elegans* and *P. serratus* were involved. Its usual hosts include *Carcinus maenas* and *Cancer pagurus*. This has been noticed in France before but it is the first time this has been observed in the UK. Most people see *Fecampia erythrocephala* as tiny flasks on the undersides of stones on the middleshore. It could be that the prawns have always been used for dispersal of the parasite, but it is odd that the species has not been observed in prawns before. It is now quite unlikely that *Fecampia* will be considered a biological control method for *Carcinus maenas* where it is an invasive NNS. A paper is to be produced on the subject by myself and Dr Tim Littlewood.
6. Marazion, 22/08/16. The littoral millipede, *Thalassiosabates littoralis*, was found on the strandline near freshwater, on a piece of decaying kelp stipe.

**Non-native species**

**John Bishop** – ‘The ascidian *Botrylloides diegensis* and bryozoans *Watersipora subatra* and *Schizoporella japonica*, all relatively recent non-native arrivals in Plymouth, have spread to additional marina sites in the city. *W. subatra* and an additional non-native bryozoan, *Tricellaria inopinata*, can now also be found on sheltered natural shores in Plymouth Sound. *B. diegensis* has also been

recorded in a Falmouth marina, apparently representing further westward spread of this species on the south coast.'

Mark Higginbottom (MSeis Ltd) reported 'Invasive cast worms in Portishead Marina causing fouling, particularly on metal'. Believed to be *Ficopomatus enigmaticus*, also recorded from Portishead in 2015.

#### Pacific oysters in the South West – David Fenwick

Continued sporadic recruitments of Pacific oysters *Crassostrea gigas*. Pacific oysters on rocky foreshore in St Ives, Mount's Bay and east side of the Lizard peninsula. Forming reefs in the Yealm (Angie Gall). Small spat covering rocks in Whitsand Bay. End of 2016 they were approx 1 year size. Some large adults (1 or 2 per rock). Many small (10's - 100's per rock) (Stephanie Mills, Southampton).

David Fenwick reports on 21/06/2016 at Chyandour Rocks, Penzance, and invasion of the reef by *Crassostrea gigas*. Initially the species was thought to be another alien species but sequencing by CEFAS determined the species to be *Crassostrea gigas*. Importantly neither the National Museum of Wales, NE, CEFAS or leading experts could conclusively determine the species from live or dead shell morphology. *Crassostrea gigas* suddenly appeared in their thousands on the small reef at Chyandour, a first record of the species in Mounts Bay. Also worth noting is that on reporting the species and numbers to NE and the MMO neither organisations were that bothered, or about the potential for spread or the wider potential impacts on the MCZ. Thousands of *Crassostrea gigas* were cut across using a battery Dremel, BUT many survived and the mollusc just closed the slit. I must thank NE and CEFAS for promptly issuing guidance on the destruction of *Crassostrea gigas*, which apparently is best done in the winter as little ovary or sperm release, although if you have to wait all summer when there is ovary and sperm release the waiting seems futile. Possibly best just to remove from the shore 'all year round' and dispose of by composting.

Samples of algae were taken from pools at Chyandour Rocks, oyster spat were observed in these samples, so it looked like the *Crassostrea* issue was here to stay. *Crassostrea gigas* were later found in Mounts Bay MCZ at Great Hogus, Marazion; under pebbles on the middleshore and on the rock outcrop of Great Hogus itself, occupying a zone fairly high up the shore, and also at Lariggan Rocks, Penzance, to the west, 29.12.16. Have these arrived as a result of intensive French aquaculture?



A reef of *Crassostrea gigas* in the Yealm on 15 November 2016.

## **Collaborative Monitoring of the Eddystone Special Area of Conservation (SAC)**

**Mathew Witt, Stephen Pikesley, Colin Trundle, Jean-Luc Solandt**

The Eddystone Reef is part of the Start Point to Plymouth Sound and Eddystone Special Area of Conservation (SAC). In January 2014 management measures were introduced to prohibit bottom-towed fisheries from using key areas within the SAC, thereby creating a mosaic of protected areas that may provide protection to vulnerable reef-associated species. Newly established protected areas should be monitored over time to observe change in biological communities attributable to adopted management strategies and to assess their efficacy. As such, we have established an exciting collaborative partnership between the Marine Conservation Society, Cornwall Inshore Fisheries and Conservation Authority and the University of Exeter; funded by the Pig Shed Trust and Princess Yachts. Drop-down High-Definition camera surveys in 2015 and 2016 at the site have built upon a library of seabed images gathered from primary surveys in 2014. Analysis of over 1000 images highlight a variable community structure. Our work is closely focusing upon the transitions between habitat types that have been released from bottom-towed fishing pressure and makes use of independent reference areas for comparison. The project will fully report in 2020.

## **Response of Benthos to Zoned Exclusion of Towed Demersal Fishing Gear in Lyme Bay; 5yrs After Closure**

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The Lyme Bay reefs (south west UK) have been annually monitored since they were protected from towed demersal fishing in 2008. Following the extreme storm events in 2013/2014 additional research was carried out to assess if the benthos within the Marine Protected Area (MPA) were more resilient than the benthos in areas, which remain open to fishing. While MPAs are thought to be more resilient against natural disturbance, the benthic community in the MPA was significantly affected by the storms. Lessons learnt from this nine-year study will be presented that could be used to inform MPA management measures around the UK, such as in Cardigan Bay.

## **Community Seagrass Initiative**

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The Community Seagrass Initiative (CSI) is a seagrass conservation project based in the South West of England. Jessica Mead, Weymouth project officer, will give a brief overview of the CSI and its work to date. This includes volunteering opportunities for water users, public engagement and awareness raising events and other research being carried out such as seagrass friendly mooring trials, seagrass seed cultivation and monitoring of the seagrass in the Fleet Lagoon.



Photo: Alex Mustard

### Strandings including of non-native species - David Fenwick

According to Paul Gainey, the winter of 2015 and spring of 2016 was the best year in living memory for finding sea beans on the beaches around Cornwall: “I'd not found a single bean before and managed to find 15 myself that winter”. David Fenwick comments: “Many more people go looking for sea beans than plastic drift debris and they are also things that dog walkers regularly find. If we were able to record sea beans we would be best able to determine the potential frequency for possible alien spread from the Gulf of Mexico in any one year, and if we were at some stage able to access real-time recording we'd be best able to prioritise searches for NNS on plastic flotsam. At the present time we have to monitor weather conditions to determine suitability for searches.”

Sadly 2016 carried on from the winter of 2015 for non-native species which continued to be found on fishing gear and household and commercial plastic items from the Gulf of Mexico. I am able to single out Florida as a source for much of this material but Florida has a huge coastline and there is much that washes up on the Florida coast from elsewhere, and gets washed off again and carried on by the Gulf Stream so this is not a single US issue. Some items washing up here are unique in the fact that they have been fishing gear or plastics that have become trapped offshore on the Florida coast before arriving here, some items have benthic species as well as the usual cementing / rafting / pelagic ones. Species here arranged by date found rather than an A-Z of species to show how often non-natives were arriving. Although one species of note was the Florida rock snail, *Stramonita haemastoma*.

*Stramonita haemastoma*, the Florida rock snail, a first record for Cornwall, found by Tracey Williams. I personally found two *Stramonita haemastoma* behind a crack in a man-overboard marker buoy later at Gwithian. Egg-laying examples of the species were found in Dorset by Steve Trewella and the species was even found on a fishing float in Kent. In 2015/16 ten *Stramonita haemastoma* were found around the UK, so just under a third of these from Cornwall. This is a little worrying given the amount of people looking for this type of material and the coverage of the UK coastline, hundreds might have come across from Florida. This is concerning because all the specimens were living and were able to withstand our winter sea temperatures. This species persists in the warmer waters of the Atlantic coast of Spain. The Florida rock snail is mostly found on US fishing floats and appears to bore a hole into styrene floats to make itself at home during its journey here.

14/01/2016 - Gwithian Beach. Numerous *Chama congregata* were found on black fishing rope, this type of rope is associated with US fishing gear.

15/01/2016 - Sennen Cove. Numerous bivalves including *Isognomon bicolor*, *Isognomon radiatus* and *Martesia fragilis* were found in a small round Stone crab trap buoy. This was the second confirmed Cornish record for the piddock *Martesia fragilis*, the first being identified by myself from a coconut found at Newquay by Tracey Williams. It was later found that *Martesia striata* in UK collections was *Martesia fragilis*.

17/01/2017 - Watergate Bay, near Newquay. Alan Alder found a mooring buoy that was covered in fire coral, *Millepora* sp., the green alga common sea kale, *Anadyomene stellata*; and the polychaete *Spirobranchus americanus*.

23/01/2016 - Marazion. The hard coral, *Astrangia* sp., and numerous bivalves of *Ostrea equestris* were found on the side of a plastic Floridan stone crab trap.

24/01/2016 Tob Tieb, Marazion. *Mytilus trossulus*, bay or foolish mussel, confirmed by Simon Taylor (Conch. Soc.), was found on a pail lid with 'Made in Canada' stamped on it. This species is a rare British native and only occurs in a sea loch in Scotland. However, it appears the species can easily drift and remain alive on plastic flotsam from Canada, where it is also found. The other, more common UK mussel species also occur in Canada, so mussels on flotsam needs expert examination. The genetic difference between Canadian *M. trossulus* and our own species is unknown, but this species is also known to hybridise with other native species in the UK, it could also do in Canada. Polyps of the thimble jellyfish, *Linuche unguiculata* were also found on a plastic item.

27/01/2016 Marazion Dunes. Stone crab trap buoy with a number of the bivalve *Isognomon bicolor*, and a fish crate with bivalve *Chama congregata* and polyps of the thimble jellyfish, *Linuche unguiculata*.

29/01/2016 Praa Sands. The bivalve *Pinctada imbricata* was found under the black seal of a US pail lid.

31/01/2016 Par Sands. Prior to a beach clean a search was conducted for NNS on plastics and bivalves *Anomia simplex*, *Isognomon bicolor* and *Isognomon radiatus* were found on a single item of plastic, the latter two species were dead but quite mature. This was a first UK record for *Anomia simplex*, the jingle shell.

08/02/2016. Tob Tieb, Marazion. A black plastic bait or door cleat of an American lobster trap had some fire coral, *Millepora* sp. and polyps of the thimble jellyfish, *Linuche unguiculata* on its surface and crevices.

11/02/2016. Gwithian. The Floridan foraminiferan *Homotrema rubrum* and polyps of the thimble jellyfish, *Linuche unguiculata* were found on plastic items. *Homotrema rubrum* was a first UK record.

11/02/2016. Gwithian. Two bivalves of *Brachidontes exustus* and three *Isognomon bicolor*, and two live gastropods of *Stramonita floridana*, the Florida rock snail were found in a crevice of a broken man-overboard marker buoy. Fourteen bivalve *Dendostrea frons* were found on a long length of American fishing rope, possibly from a stone crab trap.

24/02/2016. Gwynver, West Cornwall. Inspection of what can only be called a clamp of plastic refuse found on the beach. Species included the foramaniferan *Homotrema rubra* from a long-line buoy; *Isognomon bicolor* and *Isognomon radiatus* from a pail lid; *Pinctada imbricata* from an un-identified plastic object; polyps of *Linuche unguiculata* from a long line buoy shaft; a garden sprayer covered in *Isognomon bicolor* and juvenile specimens of what appeared to be *Crassostrea virginia* and *Ostrea equestris* (not verified, un-recorded).

21/06/2016. Chyandour Rocks, Penzance. Another site for the non-native polychaete *Boccardia proboscidea*, which was found under *Crassostrea gigas*.

06/07/2016. Gunwalloe Fishing Cove. The non-native tunicate *Perophora japonica*, was found to be abundant, growing all over Baulk Head frequenting dark overhangs that never get sunlight and rock crevices on the extreme low spring tide level. The species grows in exactly the same habitat at Godrevy Point on the north coast of Cornwall.

30/07/2016. A large 750mm Bigfoot Traffic Cone was brought ashore for disposal on 30.07.16 at Newlyn Marina, it was cut into pieces to look at it under a microscope as it was covered in bryozoans and tube worms. One of the tube worms was very interesting and was identified by two polychaete experts as *Metavermilia*. It looked close to *Metavermilia arctica*, so material was sent to Dr Elena Kupriyanova, Senior Research Scientist at the Australian Museum Research Institute for identification. Dr Elena Kupriyanova authored *Metavermilia arctica*, she looked at the tubes and is fairly sure the species is *Metavermilia arctica* but also said, "Of course, one can only be 100% sure when the specimen is available, not only its empty tube." The species would be a new UK record, but this would also be a record of a species with a known northern distribution.

30/08/2016. Carnsew Pool, Hayle. The non-native serpulid polychaete *Vermiliopsis striaticeps* was found under submerged rocks. An unknown serpulid was seen in an image taken from Carnsew Pool on 15.09.11, species was investigated and re-found. This species is only known from Falmouth.

I'll end the NNS section by thanking those who have helped verify material that has been found around the coast of Cornwall in 2016, there has been rather a lot of it and numerous people with expertise covering a wide area have been involved. Sadly the US government declined to comment or help with the US material.

## Reference

Southward, A.J. & Southward, E.C. 1988. Disappearance of the warm-water hermit crab *Clibanarius erythropus* from south-west Britain. *Journal of the Marine Biological Association of the UK*, 68(3), 409-412. DOI: <https://doi.org/10.1017/S0025315400043307>

## Fish & Reptiles

Edited by **Doug Herdson**

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### Fish

#### Overview

The numbers of basking sharks seen continued their decline of recent years, and live sightings of triggerfish appear to have been low in 2016. There were relatively large shoals of small pelagic fish, which may be linked to the abundance of tuna. The year was notable for the number of rare fish recorded in the region; including Atlantic blue marlin, Spanish ling, sailfin dory, spotted sea bass and scale-rayed wrasse. Another interesting feature is the increase in records of the giant goby, though this is probably due improved awareness and recording, rather than any population change.

#### Elasmobranchs

Following on from the scarcity of basking sharks (*Cetorhinus maximus*) in 2014 and 2015, 2016 was also a poor year for basking shark sightings throughout the region with the lowest number of Cornish reports in the last six years. Numerous trips out of Penzance found only thirteen, with two in April, ten in May and one in August. Seaquest SW received 28 ad-hoc sightings (mainly in May) from around Cornwall, but over 260 hours of dedicated seawatching failed to produce a single sighting ([http://www.cornwallwildlifetrust.org.uk/sites/default/files/2016\\_seaquest\\_report.pdf](http://www.cornwallwildlifetrust.org.uk/sites/default/files/2016_seaquest_report.pdf)) .

One basking shark was found dead stranded on a beach in Cornwall

[http://www.cornwallwildlifetrust.org.uk/sites/default/files/2016\\_summary\\_report\\_final\\_-marine\\_strandings\\_in\\_cornwall\\_and\\_the\\_isles\\_of\\_scilly.pdf](http://www.cornwallwildlifetrust.org.uk/sites/default/files/2016_summary_report_final_-marine_strandings_in_cornwall_and_the_isles_of_scilly.pdf).

As was the case last year, September was one of the best for a number of years for blue sharks (*Prionace glauca*) on both north and south coasts with some angling boats catching 15 - 30 in a day; but also a few very small porbeagles were caught and released along with the blue sharks. It was also a good year for blues in the seas around the Isles of Scilly from mid-June until mid-September, with the majority in August.

Four porbeagles (*Lamna nasus*) were seen in the Scilly area (one in July and three in September); and one was stranded dead Porthpean in September.

Two thresher sharks (*Alopias* sp.) were seen in mid-summer in the Isle of Wight and Portland area. In December a large (430cm TL) thresher shark (*Alopias vulpinus*) was found dead on Widemouth Beach, North Cornwall. This may have been discarded by-catch. It was at one time thought to be a possible bigeye thresher (*Alopias superciliosus*), but expert opinion is that it was *A. vulpinus*.

A marbled electric ray, *Torpedo marmorata*, was caught off Polperro in July.

There were regular sightings of blonde, spotted and undulate rays (*Raja brachyura*, *Raja montagui* and *Raja undulata*) during September in Dorset, including up to 20 on a single dive in September at Chesil Cove. A shagreen ray (*Leucoraja fullonica*) was landed to Plymouth Fish Market in February and some large undulate rays in November and December.

[Brian Craven; Duncan and Hannah Jones/Marine Discovery; Seaquest SW/Cornwall Wildlife Trust; Cornwall Marine Strandings Network; Annabelle & Chris Lowe /MSN; Douglas Herdson; Joe Pender; Mark Oswald/Bryn Dyer/ Shark Trust; Andy Giles; and Julie Hatcher]

Species	2011	2012	2013	2014	2015	2016	2011-2016
Ocean sunfish	160	264	289	84	163	154	1114
Basking shark	76	419	237	72	34	28	866

Table 2: Numbers of ocean sunfish and basking shark sighting records to Seaquest over the past six years.

### Pelagic species

#### Large Pelagics



An Atlantic Bluefin tuna *Thunnus thynnus* in Falmouth Bay on 2 October. Image: Ben Porter ([www.benporterwildlife.co.uk](http://www.benporterwildlife.co.uk)).

Atlantic bluefin tunas (*Thunnus thynnus*) were sighted regularly throughout the Western English Channel (from Plymouth to Mount's Bay) and Celtic Sea from August through to the end of the year, usually in large shoals. Around 70 were seen in small shoals off Penzance from mid-September to the end of October; whilst a total of fourteen in two groups were seen around Scilly in late October. Thirty-seven individuals were recorded as by-catch between October and December. These fish appear to be in the 150–200cm (curved fork length; and ~50 – 135kg) classes, making them between 5 and 8 years old. Whilst there are reports of much larger fish, these are the only empirical measurements, apart from the occasional angler's catch. The University of Exeter is running a research project on bluefin tuna in the northeast Atlantic and would appreciate any records of incidental bycatch or sightings sent to [t.horton@exeter.ac.uk](mailto:t.horton@exeter.ac.uk).

A stranded bluefin tuna was found dead at the Gazzle, Newquay, in March.

Whilst all of the tuna positively identified were bluefin, in November large tuna was photographed off south east Cornwall, which appeared to have larger pectoral fins and bright yellow finlets, suggesting that it could have been a yellowfin tuna (*Thunnus albacares*).

After the high number of bonitos (*Sarda sarda*) seen in previous years, there was only one report in 2016. That was of 13 caught off Polperro in August.

An Atlantic blue marlin (*Makaira nigricans*) was found dead on Porthcurno beach in September. This is the 4<sup>th</sup> British and 2<sup>nd</sup> English report of this species.

[Sally Sharrock; Sangeeta McNair; Zoe Gorrett; Zara Botterell; Ruth Williams; Carolyn Waddell; Ben Porter [www.benporterwildlife.co.uk](http://www.benporterwildlife.co.uk); Douglas Herdson; Duncan and Hannah Jones/Marine Discovery; Tom Horton; Joe Pender; Elizabeth Bailey; Pete Cooper/MSN; and Stephen Bowens/MSN]

#### Small pelagic fish

There were unusually large catches of mackerel (*Scomber scombrus*) in St Ives Bay.

In January some mackerel and pilchard/sardines (*Sardina pilchardus*) were found stranded near Marazion Dunes.

Large numbers of pilchards stranded near Mevagissey and herring (*Clupea harengus*) at Pentewan Sands, St Austell, at the beginning of December. A large catch of pilchards and herrings, which discarded from a fishing vessel were washed up at Marazion in the middle of the month.

After large shoals of anchovies (*Engraulis encrasicolus*) off Plymouth in 2014 and 2015, there were hardly any in 2016; a few boxes in early December and odd ones amongst shoals of pilchards. However, there were shoals of anchovies in Mount's Bay in December 2016 and January 2017

[Lowenna Jones; Douglas Herdson; David Fenwick snr; Bob Earll; Cornwall Marine Strandings Network; and BBC News online]

#### Sunfish

It seems to have been an average year for Ocean Sunfish (*Mola mola*) around the south west. Whilst the numbers are lower than most years and almost half of those seen in peak years, it is probable that they are not significantly so in the overall context. Seaquest SW in Cornwall collected 154 reports, 107 were seen on excursions out of Penzance and 49 around the Isles of Scilly; and other sightings ranged from Bigbury in Devon to the North Cornish coast. They were seen from May to September, but this is probably an artefact reflecting the period when wildlife-viewing trips were operating. Most were seen in July and August; with one being filmed off the Mewstone being cleaned by eight or more rock cooks (*Centrolabrus exoletus*) in July, and several being seen on one day off The Rumps/ Pentire Point, North Cornwall, in August.

Two were found dead in August; one at Marazion and the other in Lelant; and in November a small one was washed up dead and decomposing at Kimmeridge Dorset.

[Becky Gill; Laura Gannon; Ian Hope-Inglis; Julie Hatcher; Joe Pender; Hannah & Duncan Jones/Marine Discovery; Marine Conservation Society; Seaquest SW/Cornwall Wildlife Trust; and Cornwall Marine Strandings Network]

### Demersal species

A number of normally sublittoral species were discovered intertidally at low water in October during repairs to the Newlyn harbour slipway. These were a young conger eel (*Conger conger*), three-bearded rockling (*Gaidropsarus vulgaris*), and topknot (*Zeugopterus punctatus*), along with five-bearded rockling (*Ciliata mustela*), rock gobies (*Gobius paganellus*) and some blennies.



A Spanish ling (*Molva macrophthalmus*) landed at Plymouth Fish Market in April was the fourth (and at 1.6kg the heaviest) recorded from British waters. (This is the southerly counterpart of the blue ling (*Molva dypterygia*) which is fished in northern regions). Image Dough Herdson.



A boat trawling east of the Eddystone Reef in September captured a small sailfin dory (*Zenopsis conchifer*). This fish, about the twelfth for the United Kingdom, was caught by the same fisherman as caught the first confirmed one in 1995. Image: Andy Giles.

15-spined sticklebacks (*Spinachia spinachia*) were nesting around the Penzance area in April. A long-snouted seahorse (*Hippocampus guttulatus*) was found dead at Perranporth beach in February; and a snake pipefish (*Entelurus aequoreus*) was seen Lee Bay, North Devon, in September.

Streaked gurnards (*Trigloporus lastoviza*), a deeper water gurnard which is under-recorded in the south west, were found on Plymouth Fish Market in most months of the year.

One or two spotted sea bass (*Dicentrarchus punctatus*) were caught by an angler in the Salcombe-Kingsbridge estuary during summer. This southern species is rarely encountered in our coastal waters.

Amongst the carangids (jacks and trevallies), no amberjacks were reported but two blue runners (*Caranx cryos*) were found in September and another in November, off Padstow, Brixham and Ilfracombe respectively.

The bogue (*Boops boops*) is a small to medium sized semi-pelagic sea bream, and a large one was caught off Beer in East Devon in January.

Couch's sea bream (*Pagrus pagrus*) is getting more common with a few being seen on Plymouth Fish Market, as are gilthead bream (*Sparus aurata*). A gilthead of 1.5kg was caught in the Hayle estuary in August.

The small group of red band fish (*Cepola rubescens*) that had been present at Firestone Bay for several years and survived the 2013/14 storms had gone in 2016.

Corkwing wrasse (*Syphodus melops*) were nesting around the Penzance area in April.

The warmer water species Baillon's wrasse (*Syphodus bailloni*) was 'common in Poole Bay' (<http://poolerocksmcz.uk/>), whilst in Lyme Bay it was first noticed in 2015 and increasingly in 2016. Plymouth University is carrying out ongoing research using observations, and baited video, and wish to know about records of this species in Lyme Bay - [adam.rees@plymouth.ac.uk](mailto:adam.rees@plymouth.ac.uk).



The seldom seen scale-rayed wrasse (*Acantholabrus palloni*) was photographed at Hand's Deeps north-west of the Eddystone reefs on 26 October by Mike Markey.

The pair of black-faced blennies (*Tripterygion delaisi*) present in 2015 on a large concrete lump at Firestone Bay at about 8 m but not seen in 2016. However, a pair of black-faced blennies were photographed in Falmouth Bay.

Red tompot blennies (*Parablennius ruber*) have now been sighted in suitable habitats along much of the south coast of the peninsula from the Isles of Scilly to Devon.

It was a poor year for rock goby (*Gobius paganellus*) recruitment in the Falmouth Bay area. There were lots of records of giant goby (*Gobius cobitis*), probably due to more recording. They were found south of Newlyn and were abundant at Fistral and Portwrinkle. On one morning in July eight were recorded at Portwrinkle in Whitsand Bay.

[Tracey Williams/MSN; David Fenwick snr; Douglas Herdson; Des Glover/Kennack Diving; Mick Loates; Dave Barham; Marcus White; Keith Hiscock; Adam Rees; Bob Earll; Charlotte Bolton; Mike Markey; Sally Sharrock; Sara Mynott; James Highfield; and Matt Slater]

## Triggerfish

The first report of live grey triggerfish (*Balistes capriscus*) for the year was of two caught in crab pots and taken into Fowey aquarium in August. Subsequently one or two were seen on the wreck of the M.V. Arthur Town, which is off Stepper point (Padstow, North Cornwall). Four were observed on the James Eagan Layne in Whitsand Bay at the end of October and a further one in late November. One dead triggerfish stranded in January at Charmouth, and at least 10 dead were reported from the strandline in January on north coast from Hayle to Bude. The first of the winter was at Perranporth in November.

[Becky Gill; Matt Slater; James Coggan; Kirsty Andrews; Keith Hiscock; Esther Hughes; Andrew Cleave; Cornwall Marine Strandings Network; and Dan Jarvis]

## **Fishy notes**

Realised how many species of fish can change in colour in response to, apparently, different stimuli. Changes also surprisingly rapid. [Paul Naylor]

First proof of fish larvae ingesting microplastics in natural environment in a PML paper. [Pennie Lindeque]

## **TURTLES**



A loggerhead turtle, *Caretta caretta* stranded at Gwithian beach on 6 January (note the growth of *Lepas hillii* goose barnacles on rear of carapace). Image: David Fenwick.

There were a high number of turtle strandings over the winter 2015/2016.

In January Loggerhead turtles (*Caretta caretta*) were found dead on beaches in Cornwall (1), Devon (1) and Chesil Beach in Dorset (2). However, unusually, alive individuals were found and rescued in Cornwall (initially reported as a Kemp's turtle), the Isles of Scilly and Jersey (all were subsequently successfully released). Another loggerhead was found alive in Guernsey in March.

One leatherback turtle (*Dermochelys coriacea*) was found dead in Cornwall in January. However in June one was seen off the Isles of Scilly and in July four turtles were seen swimming off south west Cornwall; three were leatherbacks but the fourth could not be identified. One of these live leatherback turtles was found entangled in pot-rope by a pleasure boat near Porthcurno, Cornwall on 17th July 2016. Crew helped untangle the turtle and it swam free. The last of the season was in late September around Scilly.

An unidentified turtle was stranded dead at Bude in August, but was washed out to sea again before it could be studied.

There were no organisations in UK that can adopt a now recovered, previously injured but sadly now blind turtle from Archelon in Athens due to "not good enough facilities". We need to improve our rescue, rehabilitation and returning networks

Oddest record of all – a Common/Eastern Musk Turtle or Stinkpot (*Sternotherus odoratus*), a non-native freshwater species from SE Canada and the eastern United States of America, was found washed-up alive on the beach at Crantock, near Newquay, Cornwall, during the winter of 2015/16. Presumably, this species was a discarded pet illegally released into the wild.

[British Isles & Republic of Ireland Marine Turtle Strandings & Sightings, Annual Report 2016. R.S. Penrose & L.R. Gander. March 2017. Marine Environmental Monitoring  
<http://www.strandings.com/Graphics%20active/2016%20Turtle%20Annual%20Strandings%20Report.pdf>][Cornwall Marine Strandings Network; Jessica Mead; Gracie Butterworth; Joe Pender; and David Fenwick, Snr]

#### **FISHERIES MANAGEMENT**

Wrasse fishery for the first time (fish farming in Scotland).

## **Marine and Coastal Birds South West**

**Nigel Phillips**

Contact: [nigelphillips@thesomersetcoast.co.uk](mailto:nigelphillips@thesomersetcoast.co.uk)

### **Mainland cliff nesting seabirds**

#### **Kittiwakes in Devon and Cornwall**

We had an anecdotal report of a decline in breeding Kittiwake at Berry Head, South Devon - reported to Doug Herdson (Section editor Fish) by Mike Langman, an artist who lives locally who also reported declines in other seabirds breeding on the south Devon cliffs

Failure of Kittiwake colonies on north coast of Cornwall was reported by Cornwall Bird Watching and Preservation Society. Kate Williams, volunteer Cornwall Wildlife Trust

#### **Guillemots in Devon and Cornwall**

Surveys of 3 SSSIS for seabirds in Cornwall and Devon indicated increases in numbers of guillemots (since late 00's) - no indication that PIB\*/wrecks of 2014 having longer term impact on abundance. Alex Banks Natural England

\* polyisobutene: a lubricant used to improve engine performance that can be legally discharged when ships wash out their tanks.

#### **Balearic Shearwaters**

Apparent hotspot of non-breeding Balearic Shearwaters west of Lundy in October, though more widespread along north Cornwall coast than in 2015. Alex Banks

### **Seabird recovery on islands following rat removal**

#### **Isles of Scilly**

On the Isles of Scilly, St Agnes and Gough have now been declared rat free after two years of rat control. Manx Shearwaters and Storm Petrels are said to be breeding successfully again. As reported by several SWME attendees.

#### **Lundy**

The following extract is from the report of the Lundy Warden (Beccy MacDonald) to the Lundy Management Forum.

'A number of volunteers joined the Conservation Team throughout the summer to assist with puffin productivity monitoring at two sites: Jenny's Cove main colony and St Phillips Stone. The data for this is still being analysed, however initial analysis suggests that both sites were very successful. A full island survey was carried out with the assistance of Obsession II and provided valuable information on the areas that have now been recolonised by puffins. The area now extends from just north of the Battery to north of Long Roost. No puffins were observed on the land elsewhere on the island however rafts of up to 20 puffins were seen at southwest race and off the east coast, particularly at Gannets' Bay and at the northeast corner suggesting that birds are in these areas.'

Monitoring of the guillemot site is becoming increasingly difficult as the number of guillemots using St Mark's stone has increased making it difficult to observe eggs/chicks. The weather (strong southerly winds) also conspired against us so we can only guesstimate the number of fledged at 3-12 chicks from 28 active sites.

The position of the Kittiwake site allowed for the site to be monitored more regularly than the guillemots. 98 nests became active during the season, however 24 nests were abandoned from the end of June to mid-July. 27 chicks fledged overall from the 98 active nests giving a rate of 0.27 which is a decline from the 0.38 in 2015. This decline is worrying, however it is due to factors outside our control and we hope that there may be an increase next year.

Thirty artificial nest boxes for Manx shearwaters (renamed Manxie villas) were made with the assistance of RSPB and LFS volunteers. The boxes have been separated into 5 separate 'villages' and placed across the Old Light colony to assist with research into the life histories of these nocturnal seabirds. Some of the Manxie villas were taken up but used in a way that was unexpected, with tunnels being dug further into the sideland making the nest boxes into elaborate porches.

Record numbers of puffins were on Lundy with 200+ seen on land during the June survey.  
(Beccy McDonald is now with Somerset Wildlife Trust.)



Shearwater nest boxes were built and put into place on the west side of Lundy to aid observation of the now large populations (following rat eradication). Here on 28 April. Image: Keith Hiscock.

### **Seabird sightings away from nesting areas**

Storm-petrels seen from Oldenburg on way to Lundy Island. Ruth Crundwell Natural England.  
A single Dalmatian Pelican was reported on Taw/Torridge estuary, Camel estuary and at Truro. Seen over several months

### **Seabird feeding locations, abundance and type of food taken**

For example; Annually during May/June up to 1,400 Manx Shearwaters appear almost daily in the morning in Porlock Bay Somerset heading east up the Severn Estuary. As recorded by Somerset Ornithological Society. What are they feeding on, how important is this feeding area, where have they come from? Reported by Nigel Phillips Somerset Wildlife Trust.

### **Surveys**

#### **National seabird census 2015 – 2019 Alex Banks, Natural England**

Natural England is one of the Seabird Monitoring Programme partners working to enable the national breeding seabird census 'Seabirds Count'. The census aims to replicate previous periodic

national censuses in counting all seabirds breeding in the UK and Ireland. It will use data collected between 2015 and 2019 – there are three breeding seasons left for data collection

There are opportunities for volunteers and professionals to take part in data collection, either opportunistically or in a targeted way.

Contact: Senior Marine Ornithologist, Natural England, Sterling House, Dix's Field, Exeter EX1 1QA.

E: [alex.banks@naturalengland.org.uk](mailto:alex.banks@naturalengland.org.uk). T: 0208 026 7355 W: <http://jncc.defra.gov.uk/smp/>

## **Seabird Reports from the south-west: recording and reporting**

**Bob Earll & Alex Banks** Senior Environmental Specialist – Marine Ornithology, Natural England

Prompted by the SWME meetings and discussions with Nigel Phillips these questions were posed to

**Alex Banks 1. The challenge, a simple question: Is there a synoptic report or overview for the seabirds for the south-west which looks at the breeding and county records on an annual basis?**

Alex Banks *Not that I know of. The closest thing is possibly JNCC's annual (usually) seabird report (<http://jncc.defra.gov.uk/page-3201>), but once you get to 'England' level you'd be hard-pressed to find anything regional except where they are a speciality of that region. The RSPB produces a periodic 'Seabirds South West' newsletter, but it is usually comprised of news articles about conservation projects. It would probably be possible for JNCC to run off an annual summary of breeding seabird records within the Seabird Monitoring Programme (SMP) database, but it's reliant on regular monitoring (which doesn't happen in many places that I know of – exceptions include Berry Head; Chesil Beach; and one or two sites in Cornwall) and people submitting records to the database (which also doesn't always happen). Big seabird breeding sites like Scilly and Lundy are logically challenging to cover in full, often requiring specific funding and / or professional input and are currently sporadically monitored; however, at both places some volunteer-led monitoring of smaller areas occurs more regularly. There might be an opportunity to improve monitoring at priority sites: if we were collectively able to identify our key sites of interest, perhaps we might find willing volunteers to check them on a more regular basis? This would be massively helpful for all sorts of reasons, but in some places would require viewing from the sea – not always possible for volunteers.*

*Perhaps what makes this most useful as part of SWME is to start to make the links more explicitly with other parts of the marine ecosystem. Seabirds are generally considered to be good indicators of change, being top predators exposed to various pressures at different stages of their lifecycle.*

**2. County bird reports** Nigel Phillips says there are written and electronic birds reports (annual) for all the counties, Cornwall, Devon, Dorset, Somerset, South Wales [Links]

Alex Banks *True, but usually a few years behind (e.g. Somerset's latest report is for 2015) and not systematic – but still potentially useful. Bird Track (BTO's scheme to collate sightings) is another data source (<https://www.bto.org/volunteer-surveys/birdtrack/about>).*

**3. 'Manx shearwater question'** The [famous Scottish MP Tam Dayell identified the West Lothian question](#) ... I think there is a similar SW seabird question you could call it the 'Manx shearwater question'. A Manx shearwater nesting on the Welsh islands decides to feed in Porlock Bay. On its progress it gets recorded in the Welsh, Devon, possibly Lundy, and Somerset bird Reports. A Manx shearwater decides to feed in Start Bay and it is then in Cornish, & Devon bird reports. How is the whole picture pieced together?

Alex Banks *Probably the first step for reporting is to divide into breeding and non-breeding seasons. 'Our' breeding birds would normally be considered those nesting in sites within our region (regardless of where they forage) and are perhaps best monitored through the SMP (counts at the nest). Sightings of birds at sea within the breeding season are perhaps the least useful most difficult to untangle as they will include south west nesting birds, non-breeders, and birds nesting in other regions but foraging in the south west. However, we have a reasonably good idea of where we might expect nesting birds to be feeding, from studies (Bradbury et al 2014, Wakefield et al 2017) and basic principles describing constraints (e.g. foraging ranges – Thaxter et al 2012). So we can make some inferences about patterns of bird distribution at sea. Sightings at sea in the non-breeding season will reveal important passage and wintering areas within the south west, likely with birds of mixed provenance. We may not be able to accurately describe where these birds nest, but may be able to investigate patterns of distribution within 'our' waters as an indicator of change.*

4. This also begs the question of **how you define the south west** since for the seabirds the human geographic boundaries are meaningless. For seabirds in the summer it probably includes South Wales coast and the Welsh islands, Celtic Sea, Western English Channel, including breeding colonies on the French coast.

Alex Banks *No right answer here! Best we can do is be transparent about what we mean? For nesting birds, the location of nest sites might be enough, and we could use some basic definition (typically I suppose Cornwall (incl. Isles of Scilly), Devon, Somerset, Dorset?). My inclination would be to limit sightings to coastal waters of those counties, but there would be nothing to stop us considering data that proves (rather than suggests) linkages between the south west and elsewhere – I'm thinking of ringing recoveries / sightings, tracking studies and the like.*

5. **Recording:** Lots of non birders observe birds when then are looking at seals and whales etc., and pick up on things like the PIB incident. Where do they send their records? Nigel has read these bird reports and says there are lots of cetacean records as well begging the question of whether these are reported and to whom.

Alex Banks *Bird Track seems the most obvious place to me, as its aim is to record non-systematic sightings of birds where they are found by anyone who cares to record their sightings. BTO have confirmed that BirdTrack is completely amenable to marine records, and they are beginning to set up monitoring partnerships with marine users in Scotland. There is also the facility to record data on non-avian marine species, if that is of interest.*

6. **SWME 2018 Conference** The theme of the SWME18 conference is recording and networks. Alex has agreed to present on the issues raised in this report, including more on BirdTrack from BTO.

## **Seals**

### **Sue Sayer**

**Contact** Cornwall Seal Group Research Trust, Copperleaf Cottage, Phillack Hill, Phillack, Hayle, Cornwall, TR275AD T: 01736 754562 E: [sue@cornwallsealgroup.co.uk](mailto:sue@cornwallsealgroup.co.uk)

### **Summary of conference input**

Cornwall Seal Group Research Trust (CSGRT) had a landmark year in 2016 with our core photo ID research and the conservation work that this informs. We haven't just worked to conserve seals in the SW as we've been supporting organisations from northern England and Scotland to help improve the lives of their local seals. We've worked with statutory agencies, NGOs and amazing partner organisations from local marine groups, to colleges and universities and campaign groups.

In the southwest, it's been an extraordinary year with unexpected sightings of species other than grey seals and trials of new technology. We'll be taking the usual whistle stop tour of individual seal stories from exciting pups, through new site links up to celebrities that died in 2016 and there's video footage of new behaviour. CSGRT completed two major contracts for Natural England in 2016 that you might like to learn more about...and new theories are emerging about why seal numbers across Cornwall might not add up! Needless to say, it's a bit more complicated than we first thought!

### **Research reports**

Natural England Commissioned Reports:

- Sayer and Witt. Isles of Scilly Seal Special Area of Conservation Condition Assessment Monitoring 2016.
- Sayer and Witt. Monitoring grey seal pupping sites in Cornwall 2016.

CSGRT reports out in 2016:

- Sayer. CSGRT Census. 2016.
- Sayer and Hockley. West Cornwall Photo ID Project (2015 to 2016).
- Sayer. Lizard Photo ID Project (2014 and 2015).
- Sayer and Wells. Roseland Photo ID Project (2009 to 2016).
- Sayer and Williams. North Devon Photo ID Project (2009 to 2014).
- Sayer and Wells. St Austell Bay Photo ID Project (2013 to 2016).

Photo ID survey reports in 2016:

- Sayer and Wheeler. CASPIP – Feb, May, Jun and Oct.
- Sayer and Taylor. STAPIP – Feb, Apr and Jul.
- Sayer and Millward. POLPIP – Feb, Apr, Jun and Nov.
- Sayer and Gregory. LISPIP – Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Nov and Dec.

Sayer. CSGRT Bottlenose dolphin photo ID report (2011 to 2016).

Sayer and Millward. CSGRT Harbour porpoise report (2011 to 2016).

Papers referencing CSGRT research:

- Butterworth. 2016 A review of the welfare impacts on pinnipeds of marine debris. *Frontiers in Marine Science*.

### **Cornwall and Isles of Scilly**

**Species** Vagrant seals - breeding common seals - 4 common seal pups reported and/or rescued on north and south coasts of Cornwall - an exceptional year for unusual records. Common seals were

recorded at ten different locations (the most in any one year on record) from both the north and south coasts, including three different pups and one slightly older. Ellis the common seal injured by possible propeller strike has had his injury monitored over the year.

**Seal sightings and highlights** Changing habitat use of indigenous species - juvenile grey seals on West Cornwall haul out right through entire summer for first time ever. Novel behaviour: a video of seal herding fish was recorded by Halkes family in August on the Isles of Scilly. In November, Alec and Enid Farr along with Terry Thirlaway recorded a juvenile male succeeding in an intelligence test who, after several increasingly successful attempts, hauled out in a small tender without capsizing it.

**Surveys completed** CSGRT had 2941 seal records in 2016 from 190 volunteers (including 24 individual systematic surveyors) and 4 systematic survey teams from 195 locations across the SW. 11 systematic marine life and human activity boat surveys were completed in 2016 – CASPIP (4); STAPIP (3) and POLPIP (4). 10 systematic Looe Island surveys were completed in 2016.

Natural England survey headlines from Cornwall and the Isles of Scilly suggest seal counts appear stable whilst pup numbers are healthy, potentially indicating high mortality or high emigration levels for grey seals.

#### CSGRT Seal census 2016

This took place 7<sup>th</sup> to 11<sup>th</sup> April – 10<sup>th</sup> year of comparable surveys. 25 individual survey teams and two organised surveys (Looe Island and Polzeath Photo Identification Projects) covered 51 seal sites in 38 surveys areas (23 sites had no observed seals).

240 seals were counted (compared to 10 year mean of 276 seals). 81% of seals were hauled out at just ten sites - four on north (84%) and six on south coast (16%). Most seals (62%) were observed at just three sites – two beaches at the North Cornwall site and one at the West Cornwall site.

77% of seals observed were adults and 72% of these were males with 23 individual seals being photo identified (including one common seal).

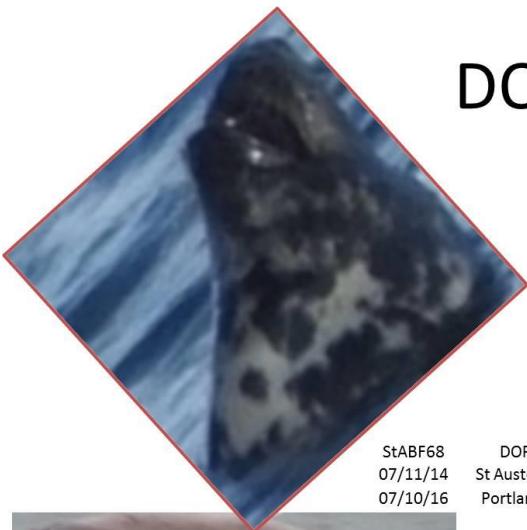
#### West Cornwall 2016

Age and sex data from the one of the three main SW haul out sites shows 68% of seals were adults and 32% juveniles with 69% of adults being male - a consistent feature of this site since 2000.

#### Other notable news:

First photo identified seal link between Cornwall and Dorset – adult female Molar (Oct 2016).

## DOR23 is StABF68 Molar



StABF68  
07/11/14  
07/10/16

DOR23  
St Austell Bay  
Portland Bill

Molar  
Rob Wells  
Sarah Hodgson



Ghost successfully weaned her 14<sup>th</sup> pup in 14 consecutive years on the same beach in West Cornwall and is thought to be a world record breaker in this respect.

Ghost 2 yet again returned from North Devon to have her 6<sup>th</sup> pup in ten years in West Cornwall.

Waves had her fifth pup in ten years at one of her three different known pupping locations on the north coast and was last been sighted on the Roseland on the south coast.

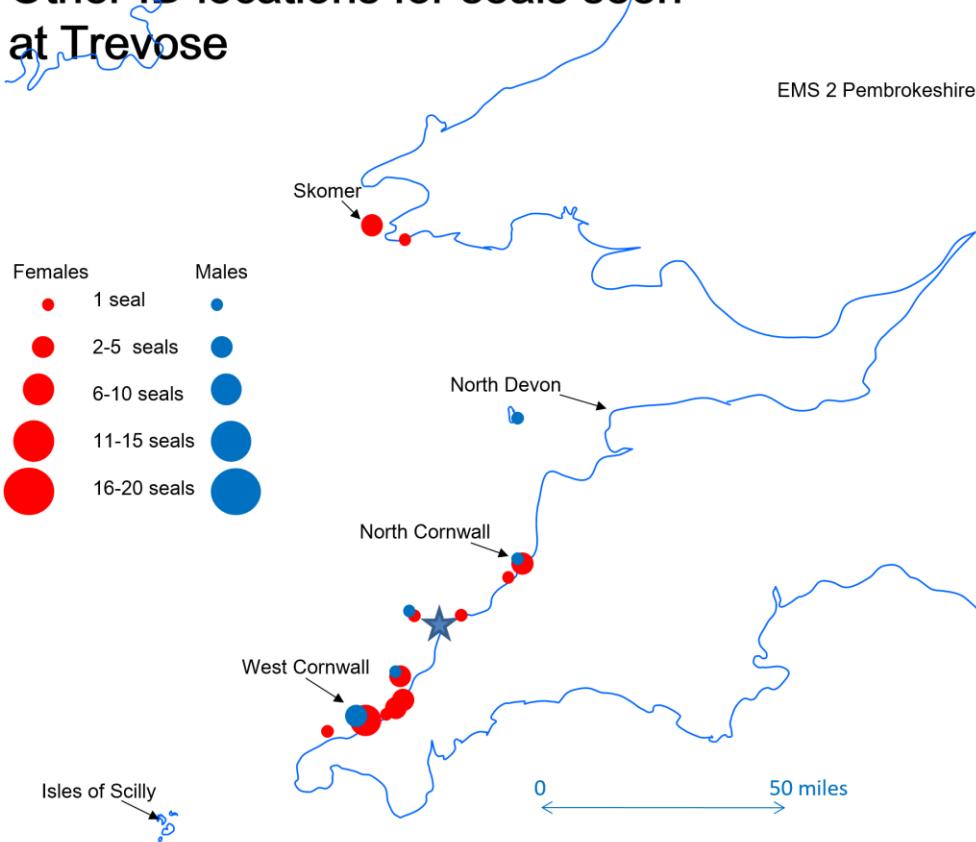
Daily photographic records were kept by Alec and Enid Farr and Terry Thirlaway of Key's third pup at Lizard South. The pup was first seen swimming on day 12, began moulting on day 17 (and had finished moulting by day 21), went exploring the ocean alone on day 19, disappeared on day 20, was back on the beach to rest on day 21, disappeared again for days 22 to 25 before her final sighting on day 26 when she was presumed to go on her post weaning dispersal. Key mated on two consecutive days (16 and 17) with the same beachmaster male and then left the site.

Adult male Yogi was injured on 16/10/16 and the partial healing process of his wound was photographed to the end of the year and beyond.

Thanks to Terry Carne, Trevose is now linked to 13 other sites including two European Marine sites (Lundy and Pembrokeshire Marine).

# Other ID locations for seals seen at Trevose

12/03/17  
Links 43  
Seals 11: 3M 8F  
Sites 13  
EMS 2 Pembrokeshire Marine and Lundy



CSGRT collaborated with the University of Neuchatel hosting a student doing seal pup behaviour research and the University of Exeter (Penryn) on remote camera seal surveillance of disturbance.

## Anthropogenic impacts

### Key points

- A large number of grey seals are being observed with entanglement injuries and nets still tangled around their necks/bodies.
- Big issue of disturbance of haul outs from recreational activities in particular with a record number of seals disturbed at a record number of sites. Increase in wildlife disturbance could be due to more reporting?
- The success of the Cornish plastic pollution coalition in responding to issues and raising awareness
- Addition of fishing two line bins in Newquay run by student led group. Positive feedback so far. 5 more to be placed this April/May (Newquay Coastal Clean-up).

West Cornwall seal disturbance incidents were down in 2016 (compared to high of 2014) but the number of seals disturbed was the highest (over 1200) on record since 2011. Most 2016 incidents occurred in September followed by January, whilst most seals were disturbed in January (more seals around) and September (more people around).

Entangled seals were regularly sighted, amounting to 3% of all seals sighted at the West Cornwall complex and 1% across the entire Cornish coast. This is a very high level, thought to remain the highest level for any phocid seal species anywhere in the world. Rates of 0.4% in Northern fur seals were considered serious enough to have a population level effect.



Lucking Bunting Sue S

Juvenile female Lucky bunting was successfully rescued by BDMLR and CSGRT in July 2016 and within 55 days her extensive and deep wounds had successfully healed. She was re-sighted throughout the year. People feeding of wild seals remains an issue around Looe Island, Newquay, Mevagissey and St Ives Harbours.

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

In total British Divers Marine Life Rescue (BDMLR) medics rescued 87 seals in Cornwall in 2016, including three common seals in 2016.

Of the successfully rescued seals, many were triaged through the BDMLR short term handling facility with the final rehab centre for 64 seals being the Cornish Seal Sanctuary and for 16 seals, the RSPCA's Wildlife Hospital at West Hatch. Four rescued seals were simply relocated to a more suitable site and three did not survive transit.

RSPCA West Hatch Wildlife Hospital admitted 39 seals in total in 2016 of which 39 were grey and three common seals. Nine grey seals were from Devon, 17 from Cornwall and 13 from Wales. The three common seals came from Avon, Dorset and Wales.

There is a data overlap between the pups rescued by BDMLR and the RSPCA.

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

**Record seal strandings in Cornwall**

159 dead grey seals were recorded by the CWT MSN in 2016 all around the Cornish coast (mostly between St Ives and Padstow) peaking in autumn and winter. 33% were recorded as pups. Of particular interest was a dead seal washed up at Holywell Beach on 26/12/16 and recorded again on 04/01/17 with considerable scavenging. The seal was definitively identified as the same animal, resulting in it being a landmark case illustrating that scavenging should not be disregarded as a cause of lesions. Twelve seals were post mortemed by James Barnett at Exeter University, Penryn Campus

in collaboration with the Animal and Plant Health Agency (bacteriology) and Natural England (histopathology) - five from the north and seven from the south coast. Three died of infectious disease, one from starvation and hypothermia and three from unknown causes along with five physical trauma cases, including two definitively bycaught seals post mortemed to reveal the subtle conclusive signs and symptoms of this cause of death. A new Seal Evidence Evaluation Protocol (SEEP) was produced in 2016 to illustrate the photos MSN volunteers should take when recording a seal.

DEFRA published an important paper in 2016 by Northridge et al. estimating 310 bycaught grey seals around the Cornish coast in 2015 alone.

In total, four dead stranded seals (recorded by CWT MSN) were identified from their pelage patterns by CSGRT: Two adult male seals were identified dead on the south coast – Elephant and Flipper Patch. Elephant's skull was retrieved and sanitised for educational purposes.

Elderly adult female Apple Tree was enthused on the south coast by BDMLR and CSS in Dec 2016. She was known to have successfully weaned two pups on West Lizard in 2014 and 2016. Her post mortem revealed a golf ball sized piece of monofilament in her stomach with pebbles and two bits of sweetcorn! Ex rehabbed seal Flax was found dead on Watergate (north coast) in Dec 2016 at the age of seven years old. He had been rescued by BDMLR in 2009 in St Ives, rehabbed at RSPCA West Hatch, released at Woolacombe in North Devon in 2010 and resighted 51 times at West Cornwall every year since. He had looked well at his last live sighting two weeks earlier. For further information on seal stranding data and SEEP please contact CWT's Marine Stranding Network [strandings@cornwallwildlifetrust.org.uk](mailto:strandings@cornwallwildlifetrust.org.uk)

### **Management actions**

Natural England have confirmed that seals at the important North Cornwall and West Cornwall sites are covered by the Special Site of Scientific Interest legislation making it a criminal offence to destroy, damage or disturb the sites.

CSGRT:

- Submitted research findings into consultations for MMO Marine Spatial Planning; JNCC Harbour Porpoise SAC; ABPmer recreational marine activities: GGGI ghost gear; NE MCZ on Padstow Bay/Surrounds and Lands End/Cape Bank; CIOSLNP top ten challenges; Police confirmed a seal shooting in Isles of Scilly.
- Partnered with Cat Lee of the National Trust to deliver three 'witnessing the inevitable' marine disturbance training workshops.
- Had a six-page grey seal article in BBC Wildlife Magazine with BDMLR and CSS.
- Attended two Cornwall Marine and Coastal Code Group (set up in 2015) meetings to represent seals. CWT and CSGRT delivered talks to various harbour authorities, marine groups and local organisations (including the National Trust) about the code toolkit.
- Worked with Cornwall College and Falmouth University students to create short documentaries about the issues of disturbance and seal feeding in harbours and developed an online information package for CBBC's Newsround to support a feature about 'what to do if you find a seal pup'.

- Has been supporting and advising seal related groups in other parts of the country.



## **Devon**

### **Lundy and mainland coast, north and south**

Data for 2016 is still being processed for the North Devon key seal site. At the time of writing, this had been completed for 102 records reported between 01/01/16 to 12/07/16 submitted by Dave Jenkins. The following data is being reported as it is still considered representative of the seals using this site. Almost all the seals were adults (99%) and of these almost all were females (98%).

Data from South Devon is being more frequently submitted with 30 records from nine different recorders in 2016 covering all calendar months at eight different sites. A maximum of 16 seals was recorded at one site, nine of which were hauled out.

CSGRT welcomes new Lundy Warden Dean Woodfin Jones to his new role. He has provided the following information about seals on Lundy for 2016. Seal counts were undertaken on five occasions around Lundy Island from the MS Oldenburg between April and October. With a mean of around 70 animals, the highest counts were recorded in July and October, the latter thought to coincide with the peak pupping season. Most of the seals recorded were adult females (approximately 80%).

Natural England have agreed to fund more in depth seal surveys in 2017, which is great news. CSGRT look forward to some very positive future collaborations with Dean and his Lundy colleagues and volunteers so we can all learn a lot more about seal interactions between Lundy and other SW sites.

**Species** Common seal and pup 'rescued' by member of public from tidal outdoor swimming pool near Brixham - not normally in this area. In November, a common seal was re-identified at a site in north Devon, having been seen there on two previous occasions in 2010 and 2012.

Confirmed re-identification of same adult female pupping in south Devon in 2013 and 2016.

**Rescues** Rescued seals in Devon included a very unusual and exciting ringed seal from Plymouth Harbour.

### **Dorset - report submitted by Sarah Hodgson of Dorset Wildlife Trust**

**Species** There are a small number of common seals which appear to be resident in Poole Harbour. Remote trail cameras were set up to monitor a haul out site, to learn more about how many seals were using it and how often.

**Seal sightings and highlights** There were a higher number of seal sightings, both grey and common, being reported around Dorset. During 2016, a total of 151 separate casual seal sightings were recorded. This figure has gone up from 82 sightings during 2015, an increase of 84%. It is possible that this rise is likely to be showing an increase in public awareness of the project, rather than a reflection of the seal numbers.

Grey seals were spotted most frequently, 89 times. Common or harbour seals were recorded on 23 occasions and the remaining 39 sightings were unconfirmed species. Seals were recorded from the Dorset coast throughout the year, although more were spotted in August (17%) than any other month of the year a trend we have seen each year since recording began.

The Dorset Seal photo ID catalogue continued to grow and the first seal photo ID match outside of Dorset was made during 2016. Molar was spotted at Portland Bill in October 2016 and was a new addition to the Dorset photo ID catalogue. After sharing the images with CSGRT, a match was found. Molar had previously been recorded in St. Austell Bay in 2014 and has since returned to a second site in Cornwall.

Some concern was raised about an adult male grey seal which was acting quite lethargically and appeared to have green algae growing on its back. BDMLR identified it as an individual spotted around the Isle of Wight (Yarmouth and Bembridge) a few days beforehand followed by visits to Poole Harbour, Studland and Swanage. Thanks to photos sent in by a member of the public, a common seal that was often sighted around Poole Harbour was discovered to have a tag on its flipper. Further investigations revealed that the seal, known as 'Bonnemine' was rescued and rehabilitated in France. She was released from Mont Saint Michel bay in 2007 with a satellite transmitter which recorded her crossing the Channel to Dorset. The last known location of the seal was eight years earlier from Poole harbour in 2008, where she is regularly spotted today.

**Rescues and rehabilitation** Seals rescued in Dorset including a common seal pup taken from Chapmans Pool in August and transferred to RSPCA West Hatch. It weighed a mere 8.7 kg and had a badly infected mouth. This pup along with another which arrived from Jersey on the same day were released in Poole Harbour in November. There have been regular sightings of both seal pups since their release, confirmed by photo identification and their flipper tags.

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.

## Cetaceans

**Edited and complied by Bob Earll, with inputs from Tom Horton, Duncan Jones & Dan Jarvis**  
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### Introduction & Highlights

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

#### Bottlenose dolphin photo identification work – SW collaboration

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Bottlenose dolphins in the coastal waters of SW England are under threat and likely in decline. Despite this, these animals have no specific protected area or special protection measures other than via general statutory protection of wildlife and cetaceans in UK waters. In order to ensure the best protection for these vulnerable animals we need to present the best scientific evidence to support and promote conservation action.

Species	2011	2012	2013	2014	2015	2016	2011-2016
Harbour Porpoise	360	327	427	512	580	536	2742
Common Dolphin	176	98	130	149	194	450	1197
Bottlenose Dolphin	34	19	22	57	78	97	307
Risso's Dolphin	33	19	10	39	113	35	249
Minke Whale	50	19	23	49	28	22	191
Grey Seal	222	88	165	252	785	783	2295

Table 2: Top six most commonly reported ad-hoc marine mammal sighting records to Seaquest over the past six years. Note, this is number of reports to Seaquest, not the estimated number of animals sighted.

The SW Bottlenose Dolphin Consortium is a new partnership of various stakeholders throughout the southwest of England sharing a common interest in developing understanding and conservation of the region's bottlenose dolphins. We are currently collating historic data on bottlenose dolphin sightings and photos, working with as many collaborators as we can in the region, so we can analyse this large shared dataset and start to answer the relevant questions needed to better protect this species. Our data is stronger when shared and can address the questions we need to answer and this collaborative project hopes to do this.

### **Acoustic monitoring of SW odontocetes**

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Monitoring top predators in marine ecosystems is often expensive. In many contexts deep declines in predators have gone unrecognised until levels were a tiny fraction of their previous level. In the south west we lost an inshore group of bottlenose dolphins, probably in the 1970s and as an effect of organochlorine pollution. The area has since been recolonised. Porpoise numbers also declined and porpoises were lost from our estuaries where they had once been numerous. Static acoustic monitoring has now been successfully used both in Cornwall and in diverse and challenging contexts elsewhere, and continues to develop. Acoustic monitoring has shown strong seasonal patterns of inshore habitat use in Cornwall by porpoises. There is a strong case for citizen science based long term acoustic monitoring of inshore cetaceans. This could use the new C-POD-F logger and automated data analysis. The key tasks are finding collaborators, identifying suitable long term deployment sites, and methods of deployment. Such monitoring could demonstrate re-colonisation of estuaries by porpoises and trends in inshore bottlenose dolphin numbers.

**A report on the status of bottlenose dolphins in the region** was published during 2016  
Brereton T., Jones D., Leaves K., Davies R., McNie F., Russel, T. (2016) *Population Structure, Mobility and Conservation of Bottlenose Dolphins in South West England from Photo-identification studies 2007 – 2013*  
Natural England ERPO1679: [publications.naturalengland.org.uk/file/4512934852558848](http://publications.naturalengland.org.uk/file/4512934852558848)

### **Baleen whales**

#### **Fin Whale**

Fin whale washed up on Dawlish beach. There could have been more joined up response with Local Authorities to move the whale to harbour before beaching and causing large costs.  
Eamon Crowe, Rachel Cole & Thomas Tangye

#### **Humpback whales**

Humpback whales - south coast February 2016 Emily Adams, Rachel Green & Thomas Tangye  
Possible recovery of humpback whale in SW coastal waters 2016-17 Hannah Jones  
Humpback whale sightings Feb 2016, St Ives bay for several weeks, then travelled to Mount's Bay and up coast as far as Rame Head Matt Slater  
A lone humpback whale was in Start Bay, South Devon, continuously for several weeks in Spring 2017. It had to be rescued by BDMLR, RNLI and Coastguard twice in ten days after becoming entangled in creel ropes.

## **Bowhead Whale** in Mounts Bay

May 2016 Duncan Jones and Rebecca Dudley, Ruth Williams, Marion Beaulieu  
Publication - deBoer M., Jones D., Jones H., (2017) Ocean Wanderers: Extralimital Encounters with Bowhead Whales (*Balaena mysticetus*) in Temperate European Shallow Waters. *Aquatic Mammals* 2017, 43(3), 279-288, DOI 10.1578/AM.43.3.2017.279



Photo: Bowhead whale – Ed Hurst

Dan Jarvis: Bowhead Whale in Mounts Bay, South West Cornwall in May 2016 reported to BDMLR as very close to shore and appeared to be in danger of stranding, however it turned out that once identified, that this is normal behaviour for this species. This is the 2<sup>nd</sup> UK and 3<sup>rd</sup> European sighting of this species since one was recorded at the Isles of Scilly in February 2015. The Mount's Bay whale was recorded a few days previously in France, and then a week after in Ireland. Another bowhead whale, unknown if the same one from 2016, has been recorded off Belgium and the Netherlands, with another sighting of possibly the same animal shortly afterward in Ireland during Spring 2017.

## **Toothed whales**

### **Sperm whales**

Sperm whale washed up on Perranporth beach (Sangeeta McNair, Naomi Willows-Rough, Nicola Dewey, Katie Belman, Rebecca Dudley, Rebecca Austin). This was the first female ever recorded in the UK, usually being restricted to tropical latitudes as they are non-migratory (200 years). It was attended by BDMLR but was in very poor condition and died within half an hour. Cornwall Wildlife Trust Marine Stranding Network and the Cetacean Strandings Investigation Programme recorded measurements and conducted a post mortem examination.

North Sea sperm whale strandings - unusual mortality of sperm whales in North Sea over Jan/Feb last year - mainly live strandings and 13-14m sub-adult males with no evidence of disease or trauma. Male sperm whales, unlike females, do migrate to sub-polar latitudes, and it is thought that occasionally when travelling back to the south they sometimes accidentally end up in the North Sea, which is too shallow for their deep-diving nature and are unable to feed, while also becoming disoriented and strand, as illustrated by this incident where animals were found in South East England, North East France, Belgium, the Netherlands, Germany and Denmark over the course of a few weeks.

### **Risso's dolphins**

Pod of 76 risso's dolphins seen from Stoke Beach, Bigbury Bay

### **Porpoises**

White (Albino) Harbour porpoise reported seen off the Rumps (nr Camel Estuary) during April/May 2016 - Pauline McKeogh and Ruth Williams

Pod of 5 porpoise seen in Bigbury Bay from June – September Laura Gannon

Massive increase in the number of harbour porpoise sightings by land based Seaquest SW volunteers. Are there more using coastal waters or are we just getting better at sighting and recording? Kate Williams

Typical Large numbers of harbour porpoises in Mount's Bay. Continued year round presence and feeding aggregations of 50+ animals regularly from late July until March. Duncan Jones

25% of animals sighted in Mount's Bay are calves. This ratio is higher than anywhere recorded in North East Atlantic. Duncan Jones

### **Common Dolphins**

Heavy mortality across the winter 2016-17 – possible connection with a particular fishing activities.

There lots of observations from the SWME17 meeting:

- Been surfing x 3 with a pod of dolphins at Godrevy - between 7 - 10 adults each time (2015 - only seen once) Claire Eatock (Most likely bottlenose dolphins)
- Falmouth Bay - last week of August 2016 (week of 25th) sighting of large pods (50+ individuals) of common dolphins exhibiting unusually social/relaxed/playful behaviour over extended periods of a number of hours on multiple days Paul Ransley
- Much higher number of common dolphin than normal in English Channel summer and autumn 2016 Trudy Russell
- Seven, probable common dolphins and 1 porpoise washed ashore during Feb & March (2016 ? double check ) in Dorset Julie Hatcher
- Common dolphins in small and large groups present for much of year in Mount's Bay Nick Tregenza
- Good year for common dolphins. Continued presence in large numbers from late June right through the winter around Cornish coast pod sizes peaked in the multiple 100s (500+), based on Mount's Bay observations Duncan Jones
- Common dolphin, mother and calf in Brixham harbour on 23rd August 2016. Mother later died and calf rejoined pod waiting just outside harbour Maxine Chavner
- Super pod of common dolphin off Falmouth estimated to be 200 Meg Hayward

### **Bottlenose Dolphins**

It seemed a typical year for bottlenose dolphins in the region (Duncan Jones). **A report on the status of bottlenose dolphins in the region** was published during 2016:

Brereton T., Jones D., Leaves K., Davies R., McNie F., Russel, T. (2016) *Population Structure, Mobility and Conservation of Bottlenose Dolphins in South West England from Photo-identification studies 2007 – 2013*

Natural England ERPO1679: publications.naturalengland.org.uk/file/4512934852558848

## **The influence of tidally driven processes on harbour porpoise *Phocoena phocoena* distribution**

**Duncan Jones**

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Due to its Annex II European Habitats Directive status, the Joint Nature Conservation Committee (JNCC) have recently proposed Special Areas of Conservation (SACs) for the harbour porpoise. In order that SACs are successful it is important that key habitat features are preserved for the species named in the designation. In order to do this it is necessary to understand how animals exploit habitat. Due to low dedicated survey coverage for most of UK waters, predictors for the spatial and temporal use of habitat for harbour porpoise at fine scales are still poorly understood.

A platform of opportunity has been used to collect effort based sightings data for harbour porpoises and other species in Mount's Bay, Cornwall, over the last eight years. All sightings in sea state two and below have been analysed accounting for bias introduced by the opportunistic platform. This analysis has identified several hotspots. A high resolution bathymetry model has been generated for the survey area using the Channel Coast Observatory, GEBCO and Navionics data. The accuracy of this model has been tested using geostatistics. Presence and absence of porpoises in these areas has been modelled in relation to: depth, slope, slope aspect, tide speed, tide direction, tide percentile, water temperature gradient, sea state and time of year. Spatial regression was used to account for autocorrelation followed by a stepwise general additive model to identify significant predictors of porpoise presence. Preliminary results suggest that tidal regime is a key driver for both spatial and temporal presence.

It is hypothesised that turbulence created by tidal flow along the inner shelf between 30 metres depth and 50 metres depth triggers Lagrangian process\*, focusing the occurrence of phytoplankton, zooplankton and in turn clupeid species. The prey availability in these areas attracts high aggregations of harbour porpoises. Developing a better understanding of how harbour porpoises use foraging areas at a fine scale can provide useful information to mitigate conflict with fisheries in the form of by-catch. This type of modelling could be used to control activity within SACs in order to preserve access to key habitat for this species.

\*Lagrange multipliers are used in multivariate calculus to find maxima and minima of a function subject to constraints.

## Management Issues: Fisheries, MCZ's & Marine Spatial Planning

Sarah Clark s.clark@devonandsevernifca.gov.uk 01803 854648

### Fisheries

#### Bass size Regulations:

Rachel Cole asked about bass regulations. The European Commission confirmed fishing restrictions for bass (*Dicentrarchus labrax*) in 2016 and these restrictions can be found [here](#). Restrictions apply to commercial and recreational fishers. Restrictions for commercial fishermen in the south west relate to gear type and ICES Areas. For recreational fisheries in ICES area VIIe, VIIf, VIIg and VIIh (south west) between 1<sup>st</sup> January to 30 June 2016 there is catch and release only, and from 1<sup>st</sup> July and 31<sup>st</sup> December 2016 one bass per fisherman per day. Minimum Conservation Reference Size for bass remains at 42cm.



#### Bass Research

D&S IFCA 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 currently has three main strands:

- 1) Acoustic tracking of juvenile European Seabass – IBASS (Immature Bass Acoustic Stock Surveillance)

Plymouth University and the Devon Severn IFCA submitted a successful funding application to the European Maritime and Fisheries Fund, for the amount of £241K. 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 fish's 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 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 workstream 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 in Somerset, the largest managed re-alignment scheme in the UK, however samples will also be collected from Medmerry Nature Reserve (Sussex) and Wallasea Island (Essex)



### 3) Static netting review

This chapter will investigate catch rates and salmonid bycatch rates in coastal nets with 0, 3 and 5m headline depths to investigate the efficacy of current management measures.

### **Marking of Fishing Gear**

There have been reports that on inshore vessel passages, there are many more sightings of *ad hoc* fishing buoys/markers (Paul Ransley). Whilst this might suggest an indication that there are changes in inshore fishing practices and more static gear on the seabed, there have been changes in management of inshore fisheries which may have resulted in an increase in marked gear. Devon and Severn IFCA introduced a Potting Permit Byelaw in 2015, which included the management measure that all potting gear both recreational and commercial is clearly marked. The IFCA has issued 300 permits for recreational potters and many of these will set single pots that are now marked by buoys or dahns.

### **Scallop Fishery Salcombe Estuary**

A scallop fishery in Salcombe Estuary takes place under the D&S IFCA Mobile Fishing Permit byelaw and conditions of the estuary permit apply. This is a highly restricted fishery with small 1m untoothed dredges being used from vessel less than 7m, during daylight hours, hand hauling the dredges. For several years the fishermen, involved in the fishery, have requested that the fishery area be extended further than the limited area currently fished. Underwater camera work was undertaken and other evidence was included in an assessment of the potential impacts of the fishery on the features of the Salcombe Estuary SSSI. This was considered by the D&S IFCA Byelaw and Permitting sub-committee members. From the evidence the sub-committee recommended that the fishery should not be expanded and that the permit conditions remain unchanged. (Nigel Mortimer)

### **Fish Strandings**

[The two mass strandings of sardines in Mounts Bay](#), at the southern tip of Cornwall. There were large shoals and these strandings were finally attributed to fishermen who had discarded catches for safety reasons.

### **Wrasse fishery**

New emergent live wrasse fishery for fish farms developed in Cornwall, Devon and Dorset during 2016 and there were a lot of observations from the meeting and comments on this fishery in the

local and national press. The use of wrasse to remove fish lice from salmon in cages is based on the observations of cleaner fish behaviour. As usual with new fisheries no EIA or impact assessment has been undertaken before the fishery started (Kaja Curry). The fishermen are reported to have been supplied with traps by the fish farming industry (Keith Hiscock), anecdotally said to be for the Scottish Salmon Fish Forum (Claire Eatock). Locations used have included Heybrook Bay (Olivia Langmead) and around Plymouth Sound European Marine Site. Information included:

- [John Hepburn and others](#) around Plymouth put together a blog
- [The Angling Trust covered the issue](#) and called for an immediate suspension in the activity
- [The Norwegians have used their no-take zone MPAs](#) to compare and contrast the effects of wrasse fisheries on population numbers

Devon & Severn IFCA, Southern IFCA and Cornwall IFCA have been undertaking research through 2016 to understand the biology and ecology of the five species of wrasse and the level of fishing activity. Part of the evidence gathering was to liaise with the fishermen and Salmon farm companies to how the fishery might develop. From these discussions and the better understanding of the level of effort the IFCA have consulted widely and brought in management measures 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](#)



### Recreational Sea Angling

Devon and Severn IFCA have been partners in the EU COSME funded FishTrail project, led by West Country Rivers Trust and partners in Slovenia, Portugal and Ireland. As part of the project D&S IFCA worked with Wiseman productions and the local angling community to produce four videos. The videos encourage good-practice and a conservation approach to fishing to angling tourists as well as promoting angling tourism. D&S IFCA are also helping to develop a 'Fish Planner' which will signpost visiting sea anglers to the relevant legislation. Videos were produced for winter cod fishing off Minehead, summer smoothhound fishing from Bossington in Somerset, flounder fishing in the Taw-Torridge estuary and plaice fishing on the Skerries Bank in south Devon.



Contributions from Sangeeta McNair,  
Nigel Mortimer, Stephanie Davies, Kaja  
Curry, Keith Hiscock, Olivia Langmead,

D&S IFCA worked with the Association of Severn Estuary Relevant Authorities (ASERA) and other member Relevant Authorities to produce bait digging and recreational sea angling codes of conduct to promote sustainable use of the Severn Estuary by recreational users.

### **Marine Protect Area Management**

A new Lundy Marine Management plan was prepared in 2016 and was been published: Lundy Management Forum. 2017. *Lundy Marine Management Plan 2017*. Written by Rebecca MacDonald and revised by Robert Irving. Produced for Natural England by the Landmark Trust, Lundy Island. [https://www.landmarktrust.org.uk/globalassets/lundy\\_marine\\_management\\_plan\\_2017.pdf](https://www.landmarktrust.org.uk/globalassets/lundy_marine_management_plan_2017.pdf)

**Devon and Severn IFCA's** district covers a coastal area of 4522 km<sup>2</sup>, 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 26% of the district is designated as Marine Protected Areas (MPA) due to the diverse range of habitats and species, which are found in these waters. 93% of the MPA are closed to bottomed towed fishing gear. There are nine European Marine Sites and six designated Marine Conservation Zones in the district most of which are designated for reef features, along with other sensitive features such as seagrass, *Sabellaria* and the spiny lobster.

### **Lundy MPA**

Lundy SAC and Lundy MCZ are co-located. The MPA are 30.58km<sup>2</sup>. The SAC has 10 sub features that it is designated for including reef. All of the Annex 1 reef feature, 9.64km<sup>2</sup>, is closed to demersal fishing gear under Devon and Severn IFCA Mobile Fishing Permit Byelaw, brought in in January 2014. Habitat Regulation Assessments (HRA) have taken place for other gear feature interactions within the site. Ninety-two 'Amber' gear feature interactions have been assessed and completed and sent

to Natural England for formal advice. From these assessments and formal advice received, D&S IFCA has introduced further management of demersal fishing gears. Scallop dredging has been prohibited from 29.35km<sup>2</sup> of the SAC with access only allowed in the 1.23km<sup>2</sup> in the top north-eastern corner across the highly mobile sand feature. Trawling, occasionally undertaken by two vessels when squid appear in the area, is allowed in the area to the north and east of the site covering 6.55km<sup>2</sup> under a Monitoring and Plan. This will monitor the trawling effort by the vessels. Data collection will be triggered by the start of the fishery and include days fishing in the area, tracks of the gear, gear footprint and catch. A grab and video survey has been undertaken with Cefas, NE and the EA, to get information on the condition of the sand feature in this area and will inform an impact study should the fishery return to the area.

### **Severn Estuary EMS**

Demersal mobile gear is prohibited from the Severn Estuary SAC under the Mobile Fishing Permit Byelaw. The Severn Estuary covers 468.10km<sup>2</sup>. One area of concern highlighted in the Habitat Regulation Assessments (HRA) is the bycatch of shad from different forms of netting. Historically the bycatch has been very low. The HRA for fixed net fisheries determined that these activities were not

the primary cause of the decline in shad populations and concluded that commercial fixed net-fisheries, relative to other issues affecting the fish stocks, were not likely to be having a significant effect. Separate HRAs for seine/ring nets and drift netting concluded the same. However, with the formal advice from Natural England



on the HRAs, and the fact that the assessments were based on the low level of fishing activity at the time, there are uncertainties and risk identified. Therefore D&S IFCA is currently producing a Monitoring and Control plan for these activities. This will include monitoring fishing effort and shad bycatch. Triggers will be set to review management of these activities, through the D&S IFCA Netting Permit Byelaw.

Bait collection HRAs are underway. Survey work on the distribution and level of effort within the EMS has been undertaken and will inform the HRAs. Members of the IFCA Authority have agreed that the next permit byelaw to be developed is the Hand gathering Permit Byelaw and therefore if, through the HRA process, management is required on these activities it can be introduced as permit conditions under this proposed Byelaw. [Where the pic. from and whose is it?]



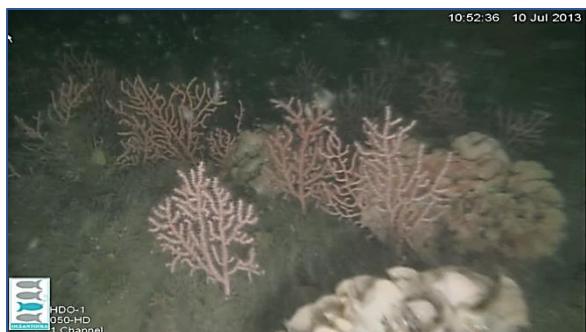
#### **Plymouth Sound and Estuaries MPA**

Three MPA designations - Plymouth Sound and Estuaries SAC; Tamar Estuaries Complex SPA and Tamar MCZ co-locate in the Plymouth Sound and Estuaries area. For the SAC and SPA 412 gear / feature interactions have been assessed under 40 HRAs. Most activities were determined not to have a likely significant effect. Similar to conclusions of the assessments in the Severn Estuary EMS, the accidental bycatch of shad, through various forms of netting, did raise concern and a Monitoring and Control plan is being developed to monitor fishing activity and shad bycatch and encourage reporting of bycatch. Whilst potting on the features of the SAC and SPA was found not to have a likely significant effect, advice from Natural England suggested that the IFCA monitors the location of pots close to the seagrass beds within the site. Currently, there is no interaction between the feature and static pots but monitoring of the location is conducted regularly throughout the year to ensure that the assessment and management remains appropriate.

For the Tamar MCZ 45 gear feature interactions have been assessed under three MCZ assessments. These have received formal advice from Natural England agreeing with the concluding of the assessments. No additional management of activities is required. Bait collection with the MPA is presently being assessed. A great deal of survey work has been undertaken to gather information on the location and level of effort within the site and the results will inform the assessments that are currently underway.

#### **Start Point to Plymouth Sound and Eddystone SCI**

Demersal bottom gear is prohibited from 93% of the site and all the Annex 1 reef (the only feature of the EMS) is protected from trawling and scalloping under the D&S IFCA Mobile Fishing Permit Byelaw. Five HRAs were undertaken on 24 amber gear/ interactions. All of these have had formal advice from Natural England agreeing the conclusion that no significant impact of the gear under



Pink sea fans on rocky reef

assessment on the reef feature. A large proportion of the site has been managed under the Inshore Potting Agreement (IPA) for the past few decades, where large areas are closed to towed gear and further closures to demersal gear, in an area that was previously open for 5 months per year, were introduced in 2014 under

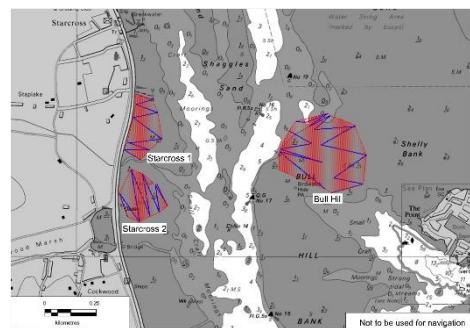
the Mobile Fishing Permit Byelaw. The SCI co-locates with Skerries Bank and Surrounds MCZ.

### Lyme Bay & Torbay SCI

Reefs and sea caves are the two designated features of the Lyme bay & Torbay SCI. The reefs are made up of circalittoral, infralittoral, stony and biogenic reefs and are fully protected from the impact of mobile demersal fishing gears through D&S IFCA Mobile Fishing Permit Byelaw. Forty HRAs were undertaken on the amber risk interactions. All of these have been sent to Natural England and have received formal advice agreeing with the conclusion of no significant impact. Within the Lyme Bay section of the SCI, there are further voluntary measures in place for those fishermen who have signed up to the Lyme Bay Fisheries and Conservation Reserve voluntary code.

### Exe Estuary

A great deal of work including HRAs have been undertaken by the IFCA in the Exe Estuary SPA. Part of this involves annual surveys of the mussel stocks and cockle densities to provide data to determine what the food source and viability is to the overwintering birds using the Exe Estuary, and for which it is designated. Transacts are taken across the mussel beds and the Dutch wand method is deployed to estimate the mussel stock. The 2016 survey showed that the density and tonnage of mussel found intertidally is in huge decline.



### Braunton Burrows SAC

This site, in the North Devon area of the IFCA district, has intertidal mudflats and sandflats as a designate feature. D&S IFCA has assessed the interaction of the few, low-level fishing activities with the feature and has found that they do not have a significant impact on the features or site integrity. Natural England has agreed with these conclusions and no further management measures are required.

### Management of Marine Conservation Zones

Throughout 2016 a great deal of interest and work has been undertaken to develop and implement management in the Tranche 1 MCZs. Tranche 1 sites were designated in late 2013, and management for fishing activities has been introduced where necessary and appropriate, after detailed assessment of the impact of fishing activities. It is important to highlight the continued implementation /selection /lobbying for further Marine Conservation Zones (Jason Birt).

### Cornwall IFCA

Cornwall IFCA has introduced byelaws for Tranche 1 Marine Conservation Zones, for the Manacles MCZ and Whitsand & Looe Bay, to manage fisheries activities in these sites (Sangeeta McNair, Ruth Williams, Carolyn Waddell). For the Manacles MCZ all bottom towed gear has been removed from the site.

### Devon & Severn IFCA

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

### Lundy MCZ

The Lundy MCZ has only one qualifying feature, the spiny lobster, *Palinurus elephas*. The removal of



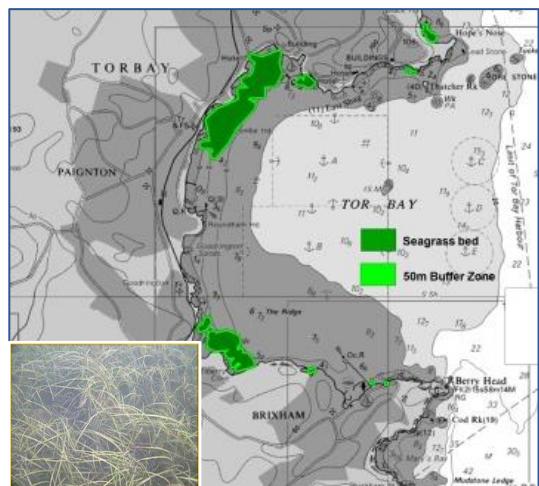
*Palinurus elephas* has been prohibited from the MCZ under the permit conditions of the following D&S IFCA Permit Byelaws: Mobile Fishing; Diving; Potting and, once signed off, the Netting Permit Byelaw. [Whose pic and whaere? – probably Geoff Huelin at Lundy]

### 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, extend and density of the seagrass beds. Surveys took place in 2014, 2016 and 2017. These are undertaken to ensure that the management measures in place for demersal fishing gear is appropriate and that the beds have not extended into areas open to these gear types.

Seagrass is an important fish nursery ground and in particular in Torbay it is a habitat that cuttlefish lay their eggs on – one of the important areas along the south coast of England. The Community Sea Grass Initiative also undertakes dive surveys in Torbay to gather more information on the density and condition of the beds within the Bay. A Monitoring



and Control plan is being developed, which will be implemented in time for the 2018 cuttlefish season, and will gather more evidence on the level of effort of cuttlefish potting in the seagrass areas; the location of the pots and the direct impact on the seagrass. The season is limited to April and June and the plan will be finalised over winter to work with fishermen next year to fill the evidence gaps and reduce uncertainty.

Scallop dredging has been removed from the sub-tidal mud habitat and is now excluded from the whole of the MCZ (and Torbay part of the SCI). Trawling on the mud habitat is subject to a Monitoring and Control Plan which is currently being developed. Otter trawling for cuttlefish only takes place when the cuttlefish come into the Bay, which is usually between April and June. In 2017 D&S IFCA Mobile Fishing Permit conditions have been adapted to remove trawling over the mud habitat (and therefore the whole of the MCZ for 9 months of the year) but is allowed to take place from April to the end of June, subject to the Monitoring and Control Plan. Defra MPA Impact Evidence Group and Natural England are funding £40,000 of research to investigate the impact of the otter trawling for cuttlefish on the mud habitat and the survey work will commence in October 2017. This work will involve collaboration between the IFCA and Natural England, Cefas, Seafish, EA and fishermen.

Bait collection takes place on the intertidal features and survey work has taken place in 2016 and 2017 to gather information on the location and level of effort. The data collected will be analysed and feed into bait collection assessments in 2018.

### Skerries Bank and Surrounds MCZ

The Skerries Bank and Surrounds MCZ co-locates with part of the Start Point to Plymouth Sound and Eddystone SCI and also co-locates exactly with the eastern part of the IPA. There is detailed restricted management in place under the IPA. *Palinurus elephas* is a feature of the site and has a recover objective. D&S IFCA has introduced management under the Potting Permit Byelaw, Diving Permit Byelaw and Mobile Fishing Byelaw to prohibit the removal of spiny lobster from this site. The proposed Netting Permit Byelaw which currently sits with the MMO for QA'ing before it is sent to Defra for signing. Permit condition for this byelaw also prohibit the removal of spiny lobster from the MCZ. The MMO Licence conditions which restrict demersal fishing gear within the IPA applies to the Skerries Bank and Surrounds MCZ.

### **Southern IFCA**

In Southern IFCA's district two Tranche 1 MC were designated, Chesil Beach & Stennis Ledges MCZ and Poole Rocks MCZ.

### **Tranche 2 MCZ**

Designation of Tranche 2 MCZs took place in early 2016 (Eamon Crowe) and for the South West includes including Newquay & The Gannel MCZ ( Katie Bellman, Rebecca Allen), Mounts Bay MCZ, Hartland Point to Tintagel MCZ and Bideford to Foreland Point MCZ. MCZ assessments of the interactions of fishing activities on the features of these site has been undertaken by the IFCA this year and will feed into potential management measures in 2018.

Bideford to Foreland Point MCZ and Hartland Point to Tintagel MCZ are Tranche 2 MCZ and fall fully or partly within the D&S IFCA district. For the Bideford to Foreland Point site there are twenty designated features. One of the features, that has a recover to favourable condition conservation objective, is the spiny lobster. The removal of spiny lobster has been prohibited by D&S IFCA under permit conditions for the Mobile Gear, Potting and Diving Permit Byelaws. Meetings with fishermen will take place to gather further information on the level of effort and location of gear types to inform the MCZ screening assessments for interactions with the other designated features. D&S IFCA has a management mechanism in place, through its permitting byelaw, to introduce appropriate measures to the site on conclusion of the assessments and formal advice from Natural England. For the Hartland Point to Tintagel site discussions between the MMO, Cornwall IFCA and D&S IFCA are taking place to introduce the best and most appropriate management of activities to protect the features of the site through harmonising of the management.

May 2016 Natural England published 'new look' updated MPA conservation advice packages on the designated sites system (click here [DSS](#)) (Jo Zieman)

### **Marine Spatial Planning - South West Marine Plan**

The Marine Management Organisation is continuing to develop marine plans for the North East, North West, South East and South West areas. Marine plans guide what happens in the marine area, making sure activities take place at the right time and in the right place, enabling sustainable growth. The South West marine plans cover the coast from Dartmouth to Gloucester and extend from Mean High Water Spring Tides to the limit of the EZ (200mn or the median line with neighbouring countries or devolved UK administrations).

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# Litter, Plastics, Nurdles and Microplastics

Claire Wallerstein

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## Litter General

### Pink Vanish bottles and other container ship debris

Sometimes when containers get washed off boats entire consignments of single items can arrive on the beaches in huge numbers, making a sometimes significant contribution to marine plastic pollution. In early 2016, thousands of pink Vanish detergent bottles started to wash ashore around the Lizard, thought to be from one of the containers lost from a ship off Land's End in May 2015 and broken open during winter storms in January 2016. Over time they started to appear much further afield around the Cornish coast. Most of the bottles now seem to have been broken up, with now only bright pink plastic fragments to be found. (Jessica Collins)

Four observations including large amounts on Loe Bar. (Emily Adams, Isobella Skelton, Rachel Green, Sarah Mynott.)

HP printer cartridges are still washing up following the Atlantic spill in 2014 (Adele Morgan). The cartridges have been found as far afield as the Azores and the west coast of Ireland.



Clearing up Vanish bottles washed ashore in Cornwall

### 'Seafangles'

Emma Sheehan & co-workers have produced a [paper on seafans entangled with lines and fishing gear](#) which can be found here: <http://www.cmscoms.com/?p=10146>

Large numbers of dead pink seafans have been reported washed up on Portwrinkle beach, tangled in fishing line (Paul Gregory)

Entangled dead seafans also frequently found at the eastern end of Whitsand Bay (Polhawn cove to Boiler beach) (Claire Wallerstein)



Entangled sea fans collected from Whitsand Bay

### Fishing line bins at Newquay

This is an initiative put in place by a student-led group, Newquay Coastal Cleanup. Four bins were installed with plans for a further three. The general reception from both the angling community and in general was very positive. They saw extensive use in certain locations. The major downfall was irresponsible people using them as general litter bins, which stickers clearly said not to. We had members regularly emptying the bin whilst we were running the project and Newquay Marine Group were going to continue that. The recovered line was being taken to the Fishing 4 Litter skip and also plans were in place to send some to Fourth Element, which recycles the material into clothing (Jay Boyle).



### Miscellaneous marine plastic observations

- Fewer plastic bags found on beach clean-ups. The 5p charge, brought in in 2015, seems to be making a difference (Kate Hind, Isobella Skelton)
- MBA Research Vessel 'catching' a lot of marine litter and lost fishing gear in standard trawls (Keith Hiscock)
- I helped on a beach clean – surprised by the number of cable ties! This was on Portwrinkle, where there was more plastic than anything else (Melanie Pritchard). Cable ties are a very common find on certain beaches in Whitsand Bay, particularly Portwrinkle and Polhawn cove (Claire Wallerstein).
- Largest number ever of beach cleans along the Cornish coast this year (courtesy of Surfers Against Sewage SAS) (Lowenna Jones)

- A real highlight for me has been to see people standing up against plastic pollution and a scheme emerging to fight the use of single use plastic. Especially water bottles with "refill" programmes taking place in Bude/Bristol which I would love to see expand to the whole country! (Marion Beaulieu). The ReFILL scheme is gradually spreading further afield, and was launched in Cornwall in September 2017.
- A large navigation buoy from Canada found very late 2015/early 2016 in Pembrokeshire, SW Wales, having made its way across the Atlantic and beached itself there (Ross Bullimore)
- Large amounts of marine plastics washed up on east Cornwall beaches (Paul Gregory)
- French-branded plastic washing up bottle found on Whitsand Bay (Nicola Dewey). Note: this could well have come from a French boat fishing or travelling through much closer to our shores. We frequently find French/ Spanish/ German and other items written in Chinese, Korean, Arabic and Russian at Whitsand Bay. However, we believe it is much more likely they have been lost/discard from foreign ships nearby than floating here from those countries. However, this is not to say plastic items cannot travel huge distances in a relatively short period of time, for instance items that clearly do reach us from across the Atlantic (e.g. North American/ Canadian lobster pot tags and marker buoys, sea beans, etc.). Lego pieces from the 1997 Tokio Express container ship spill off Land's End are now found in Holland (Claire Wallerstein).



Above: different kinds of North American lobster pot tags

### Cornish Plastic Pollution Coalition

The Cornish Plastic Pollution Coalition is a grouping of over 30 environmental and beach-cleaning groups and marine science experts, together representing the interests of tens of thousands of people in Cornwall and beyond. A year ago we decided to join forces, drawing on the particular strengths of each group to give us more clout in campaigning on specific plastic pollution issues. For example, our work on balloon releases has led to us contacting over 20 organisations whose branded balloons have been found on Cornish beach-cleans. Many have now agreed to stop using balloons completely. Our report 'Just a Balloon' details over 2,000 pieces of balloon debris found across Cornwall from July – December 2016.

We also submitted evidence to the Government's Environmental Audit Committee inquiry on microplastics, helping influence the subsequent pledge to ban microbeads in cosmetics by the end of 2017, and are participating in the ongoing consultation on this issue.

We have also carried out investigations that have led to the publication of the report *Biobead pollution on our beaches*, detailing losses of microplastic 'biobeads' from some wastewater treatment plants, where they are used to help filter sewage (this system is used at nine out of the 600+ wastewater treatment plants in the South West Water area, serving around one-third of the region's population). To receive a copy of the report, please contact Claire Wallerstein on [claire.wallerstein@gmail.com](mailto:claire.wallerstein@gmail.com)

We are represented on the Clean Cornwall management body and have even been invited to speak at a parliamentary event to call for evidence-based policy-making. We are proud to be collaborating in this way to put Cornwall at the vanguard of efforts to tackle and bring greater attention to the plastic pollution issue.



A dead guillemot on Whitsand Bay, its legs entangled in a balloon and balloon ribbon

## Nurdles

Overall observations for 2016 were that nurdles and other industrial plastic pellets are present in significant and possibly increasing numbers on South West beaches.

- Nurdles/ pellets were very prevalent on beaches in the south west during the Great Nurdle Hunt in February 2017 (see the Great Nurdle Hunt website at [www.nurdlehunt.org.uk](http://www.nurdlehunt.org.uk) ). Nurdles were found on 73% of 273 UK beaches surveyed during this citizen science initiative, with the largest number of nurdles reported on any beach in the UK at Widemouth Bay, where an estimated 127,500 were collected from a 100m stretch of beach.
- From surveys done to date, the Cornish Plastic Pollution Coalition believes that over 50% of the 'nurdles' found on Cornish beaches are in fact biobeads – a special type of machined pellet with a large surface area for the attachment of a biofilm of bacteria, used at nine wastewater treatment plants in the South West Water area. From Great Nurdle Hunt data, hotspots for biobead pollution seem to be the Cornish coast and Channel coast, particularly around East Sussex. The CPPC would welcome sightings and samples of pellets from beaches not yet surveyed. For more information, or to receive a copy of the CPPC's report *Biobead Pollution on our Beaches* please contact Claire Wallerstein on [claire.wallerstein@gmail.com](mailto:claire.wallerstein@gmail.com)

- Rame Peninsula Beach Care volunteer Rob Arnold has invented a machine that helps to sift microplastics from the sand. In March 2017, during just three sessions on a 100m stretch of beach at Tregantle, Whitsand Bay, over four million nurdles and pellets were removed. (Claire Wallerstein)
- A high density of nurdles was found on Porthtowan beach, Cornwall during our Great British Beach Clean in September 2016 (Jules Agate)
- Big dumps of microplastics (including nurdles/ pellets) have been observed between March and May (Meg Hayward-Smith). It is possible that many of these microplastics build up on beaches and spend most of the year buried under the sand, being reanimated as the sand is shifted during winter/ spring storms (Claire Wallerstein)
- Large numbers of nurdles noticed on Praa Sands – this seems to be particularly bad spot for them (Rebecca Austin)
- There are a lot of nurdles in North Devon, apparently more than in 2015, particularly on Croyde, Woolacombe & Saunton beaches (Catherine Oliver)
- More nurdles are appearing around North Devon beaches including Ilfracombe Harbour and surrounding bays
- Increasing numbers of nurdles are being found off the north coast of Cornwall in blue, black and white colours
- One contributor commented that, in Cornwall, “it's not a case of which beach they're on, but in what quantity they are found on every beach”. However, nurdles and other microplastics are predominantly reported on fine sandy beaches rather than pebble or boulder beaches, which seem to attract much larger pieces of debris. The sea seems to sort manmade debris by size/ density just as it does the substrate of the beach. (Claire Wallerstein)



Huge dump of mixed microplastics and nurdles on the fine sand at Tregantle beach, Whitsand Bay. March 2017

## Microplastics in relation to plankton and benthos

Awareness of microplastics entering the environment from garments and hygiene products gained considerable momentum and there were calls during the year for cosmetics containing microplastic

beads to be banned. Following a public consultation, the sale and production of personal care products containing microbeads is coming into effect in the UK at the end of 2017. While this is a very welcome development, the quantity of microplastics contributed by microbeads is very small in comparison with other sources that are much harder to tackle (for instance synthetic fibres from laundry and the dust released during vehicle tyre wear).

In general, there is a growing awareness of the degradation of plastic products into secondary microplastics, and how this is leading to larger quantities of small plastic particles in sediments and these being ingested by microorganisms.



**An estimated two million tiny plastic beads and flakes in the pot at right, strained from this tube of facial scrub by Plymouth University PhD student Imogen Napper**

Specific observations included:

- First proof of fish larvae ingesting microplastics in the natural environment reported in a paper by PML – *Microplastic ingestion in fish larvae in the western English Channel* Madeleine Steer [Matthew Cole, Richard C. Thompson, Penelope K. Lindeque]
- Microplastics found in association with plankton (zoo) from coastal trawls and some zooplankton entangled in fibres from rockpools (Kelly Haynes)
- Increased amount (or better observation of) microplastics in water column. At station L4 of WCO we found a ratio of 1 fish larvae to 27 microplastics per m<sup>3</sup> of water. At the mouth of river Plym we found >16,000 fibres per m<sup>3</sup> of water in August 2015 (Pennie Lindeque, PML)
- Microplastics found buried in sediment within Plymouth Sound; mouth of Plym and at Rame Head (Pennie Lindeque, PML)



**Above: Fibres found in samples at the mouth of the River Plym in August 2015 (pictures provided by Pennie Lindeque)**

## **Human activities & development**

### **Human activities**

Our understanding of the level of human activities is growing all the time and routine surveys are being undertaken by the Cornwall Seal Group & Research Trust and others. Olivia Langmead's assessments of the impact of mooring is one of the first in the UK. There is no doubt that as schemes like Your Shore and other observation networks grow there will be more focus on human activities and guidance like that for watching larger wildlife which will mitigate disturbance. Paul Ransley

Increase in **wildlife disturbance** - could be due to more reporting - Dan Jarvis BDMLR

### **Anchoring and Mooring in MPAs: Impacts, Risk and Management [talk in 2017]**

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Key to delivering a well-managed and coherent network of MPAs is the implementation of management measures that ensure conservation objectives for protected species and habitats are met. Currently we have limited understanding of how recreational and commercial anchoring and mooring activities affect habitats and species and consequently there is a lack clarity on appropriate management options to reduce potential impacts. Anchoring and mooring differ in terms of their permanence, leading to acute and chronic pressures respectively, but both may abrade, penetrate and change seabed features. In this study we investigated the following areas relevant to the management of anchoring and mooring:

- Sensitivity of UK protected features (41 habitats and 18 species) and identification of MPAs designated for sensitivity features;
- Exposure and level of risk to protected features within MPAs identified through collation and analysis of spatial data on scale, frequency and intensity of anchoring and mooring;
- Risk assessment using exposure, feature sensitivity and footprint of pressures for 190 MPAs in English and Welsh waters with designated features classified as sensitive to anchoring and mooring to identify high risk MPAs (22);
- Management measures and their efficacy (using analysis of contrasting case studies);
- Organisational responsibilities for control of anchoring and mooring – synergies and gaps.

## Your Shore Cornwall

On Sunday the 5th March 120 marine champions from across Cornwall came together for the fifth annual [Your Shore Conference](#) to celebrate the achievements of the voluntary Local Marine Conservation Groups in Cornwall and the South West. Hosted by the Cornwall Wildlife Trust at the brilliant and sustainable Bedruthan Hotel and Spa, the day was made possible thanks to the Your Shore Beach Rangers Project which is funded from the Big Lottery Fund's Our Bright Future movement. The [Your Shore Beach Rangers Project](#), a partnership project between Cornwall Wildlife Trust and [Cornwall College](#) Newquay, hopes to extend this amazing network of local marine groups and volunteers in Cornwall by reaching new communities and people. It will also provide fantastic opportunities for young people aged 16 – 24 to become more involved in marine conservation as well as develop employability skills within a marine environment context. [Click here to read more](#)

## Development

Whilst the **Swansea Tidal Lagoon** project in the Bristol Channel may seem a long way away its implications for the development of **Dean Quarry** near the Manacles MCZ and for local populations is considerable. Seasearch and cetacean monitoring continued in 2016. [The Cornwall Against Dean Quarry group](#) continue to campaign against the development and produced a report on the recent survey work; contact Amanda Waller [amanda@cad2015.com](mailto:amanda@cad2015.com) Ross Bullimore

**Closure of Rame Head disposal site** As a result of public pressure, the MMO undertook research and consultations in 2016 to locate a new site for spoil disposal that would replace the controversial 'Rame Head' site off Whitsand Bay. Kaja Curry and Keith Hiscock.

**Falmouth harbour dredge** The major dredge proposals to allow large tourist liners into the Fal continues to drag on. Pre-application being considered, MMO have said won't be swayed by public pressure. Jules Agate

**Prolonged 'poor' bathing water quality status for bathing at Instow beach - ongoing issue [Is it to be downgraded ... from being a bathing beach in 2017?]** Sophia Craddock

**Biosecurity plans** regarding **non-native species** have been drafted for the Tamar Estuary Complex and for the estuaries in the South Devon Area of Outstanding Natural Beauty (SD AONB), stakeholder workshops held, and the plans revised. The lead stakeholders for the resulting plans are, respectively, the Tamar Estuaries consultative Forum (TECF) the SD AONB John Bishop