

An octopus invasion of Welsh beaches: now some facts



The curled octopus, Eledone cirrhosa. Pic: Bernard Picton, © JNCC.

A crazy octopus story flew around the world recently, featuring a 'mysterious' beach invasion in Wales, by a squad of octopodes. There was no explanation or investigation. Here is a clearer picture of what was going on, with some fascinating facts and analysis of records about this clever, cryptic creature.

A video on social media, matched to curiously creepy music, showed an octopus in very shallow water on the strandline of a Welsh beach one October night, being prodded unkindly by a bemused onlooker. Media reports said: 'Lots were seen crawling from the sea...' and: 'It was like the end of days,' whilst: 'No-one knows why' this 'rare' event happened.

The reports portrayed the phenomenon as a freaky invasion, more akin to monsters or aliens than a natural history event. So what was really going on? Some interesting evidence suggests this encounter was not so peculiar.

The curled octopus, *Eledone cirrhosa*, also called the horned octopus, has always lived right under our seaside noses. Yet it guards an elusive life story, with us Brits clearly knowing little about it, even though it regularly loiters right beside us in the surf. That's because we need to be in the right place, at the right time, to spot this amazing animal.

How often do we creep along a Welsh or Scottish shoreline at night, during autumn, after strong storms and currents? This is when we are most likely to find it. Sea canoeists, crabbers, surfers and walkers who venture out in the quiet, dark hours will sometimes spot this species close to the tideline of beautiful beaches in Wales, if they've looked carefully.

SIGHTINGS

In fact, there have been 744 UK records of casual sightings since 1990, logged by the Ocean Biogeographic Information System (Fig 1).

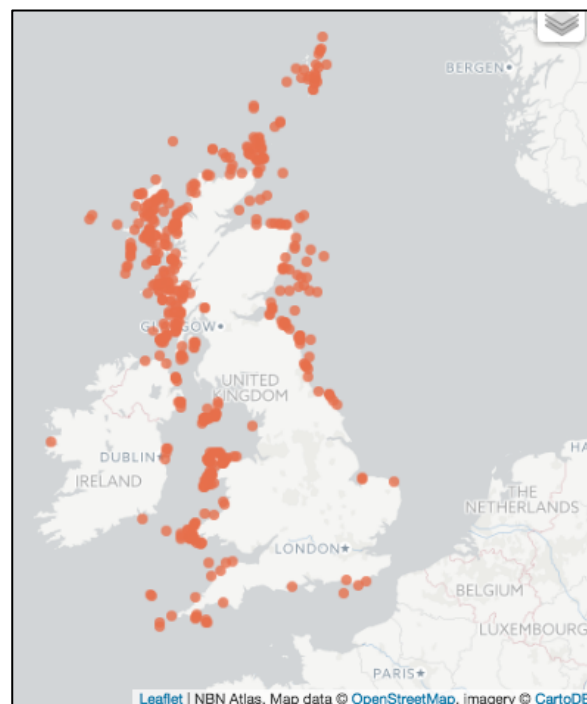


Fig 1. Distribution of curled octopus sightings around the UK since 1990.
Source: NBN Atlas 2017.

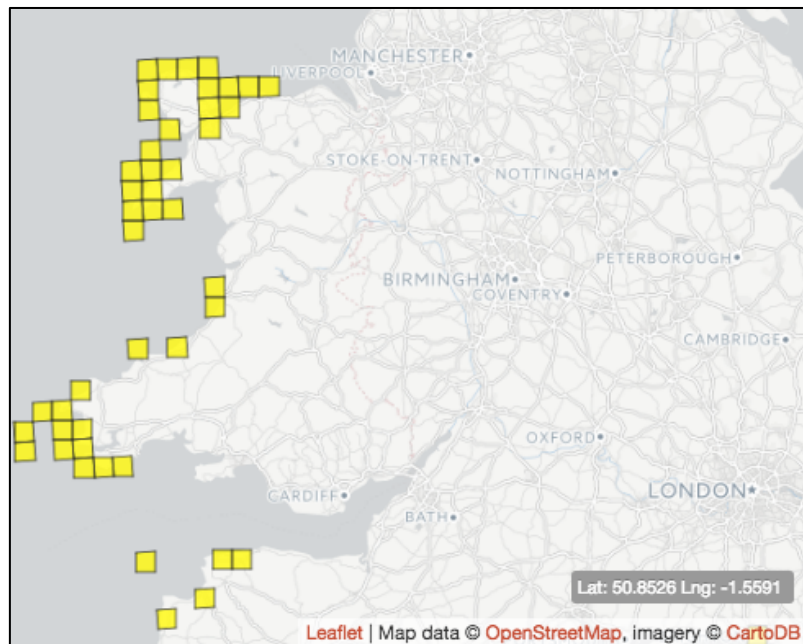


Fig 2. Distribution of curled octopus sightings across Wales and north Devon since 1990. Source: *NBN Atlas 2017*.

The highest frequency of curled octopuses was seen in Scotland, but they have been found regularly around much of Britain's coastline too.

On the Welsh coast, curled octopus sightings were reported nearly every year from 1972 onwards (Fig 2). There were 212 sightings in total, but the frequency fluctuated wildly from year to year, and the reports were also highly seasonal (Fig 3). The data do not give precise enough locations to determine how many of them were near, or on, the strandline and how many were alive or dead.

Whilst it might be assumed that most of these sightings were probably not on the beach, it is likely that plenty of the late summer reports were at least very close to the strand line, because of this species' life cycle, where it lives and the method of biological recording that is used by many citizen scientists - i.e. from the beach or shallow waters.

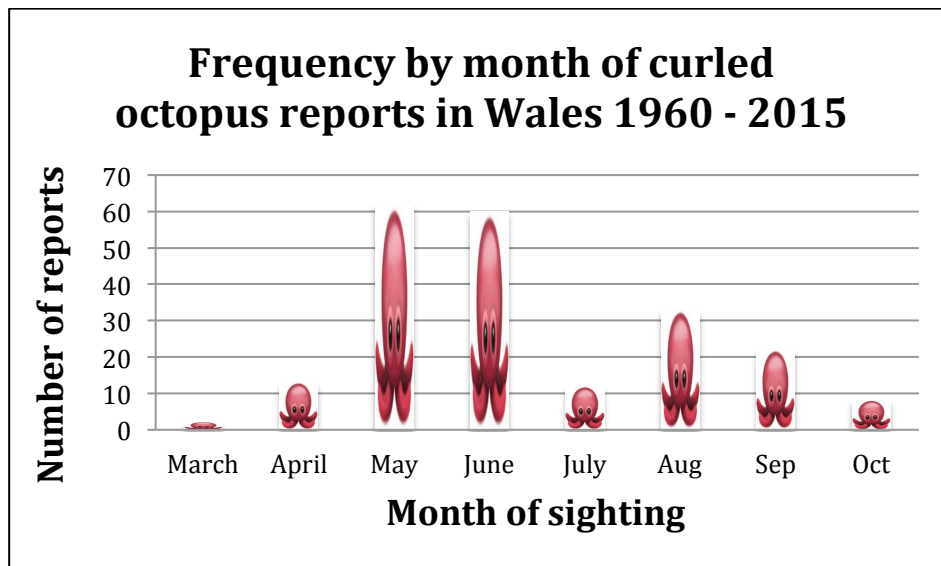


Fig 3. There have been 212 sightings of curled octopus in Wales since 1960, between March and October, peaking in the summer, and gradually tailing off and disappearing after October each year. The animal's life cycle explains the seasonal skew but there could also be some sampling bias, with more sightings in summer potentially because more people are likely to be out looking during finer weather, and longer daylight hours. *Raw data adapted from the NBN Atlas.*

LIFE CYCLE

So why do some of us find this octopus, but mostly miss it? Its life cycle explains a lot. This cephalopod usually lives in shallow seawaters, most often at depths of 50-200 metres, but also very commonly down to zero metres at certain times. It dwells close to the seabed among stones, sand, mud and rocky shores.

The octopus is highly intelligent and will hide with swift efficiency, being able to squeeze into tiny gaps, mimic the shape of other sea creatures, wriggle down into the substrate and rapidly change that flush of rusty red colour when camouflage is called for.

Its diet varies according to season, maturity and locality. The animal is a cunning predator, devouring a wide range of fish, marine worms and sea crustaceans, including crabs, lobsters and molluscs found in the intertidal zone at night, amid the ebb and flow of the tides. This hunter often raids rock pools and lobster pots.

It is normal for the curled octopus to come up close to the tideline, especially at night during autumn. This is also when much of its prey is active, but it's not the only reason.

In summer, a large number of maturing adults begin to move to their spawning grounds, often just a few metres offshore. They will die here, soon after reproducing. Many of the octopuses found in the shallowest areas will have arrived during these final few weeks of life.

By late summer, they will be close to the tideline, but of course they are intelligent masters of disguise and active at night. They are not going to sit in the shallows in daylight waiting to be seen by us and other predators, unless they are genuinely stranded or weak.

Cue autumn, and we see the arrival of large numbers of exhausted mothers at the end of their natural lives, feeling and looking a bit washed up. She usually only lives for one or two years, and by now she has invested all her energy into producing that one single brood.

She releases her young in strings of hundreds of eggs, in a shallow nursery area, which is often close to the shore, choosing to deposit them among harder substrate if she can. Her final days will be spent close to her nursery, if she has avoided predation and fishing trawlers. These boats commonly haul in large numbers of octopodes.

WEATHER

In some years the species has been found far more abundantly (**Fig 4**). This is thought to be due to trawling patterns and over-fishing, along with changes in its prey abundance and dramatic weather events.

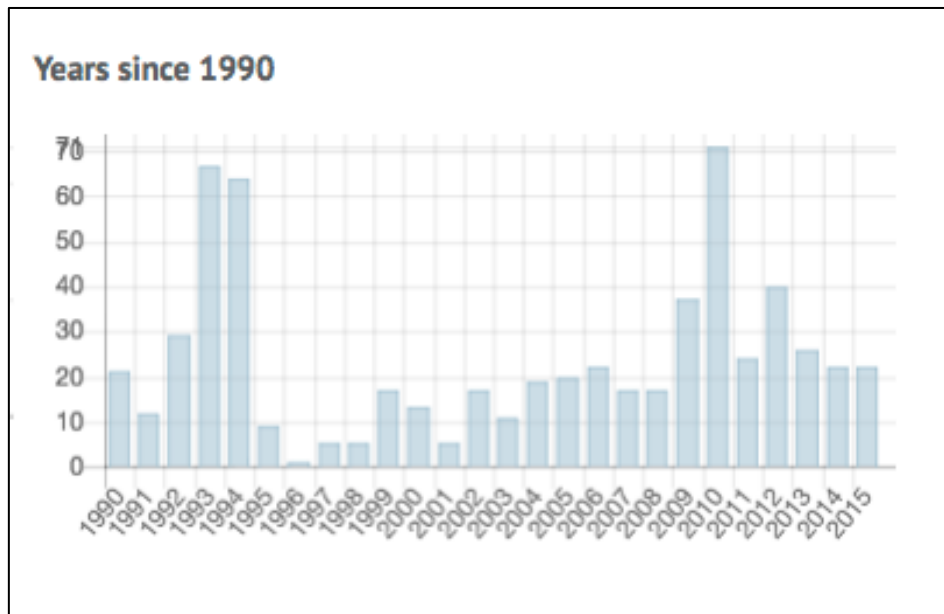


Fig 4. The abundance of octopus sightings has fluctuated widely. This may reflect natural variation, differences in survey effort or other factors such as fishing. *Source: NBN Atlas 2017 and Marine Biological Association.*

Something interesting called the North Atlantic oscillation plays a role too. It causes colliding air currents that create storms and drive wind speed, wind direction, rainfall and temperature changes over the Atlantic. This sometimes brings intense storms towards Britain's west coast, as Iceland's low-pressure atmosphere crashes into high-pressure airflow whooshing up from the Azores.

In 2001, a team of scientists suggested a wide variation in curled octopus numbers could be explained by such oscillation weather events combined with the related movement of prey, along with the impact of fishing trawlers. So it would be typical to find greater curled octopus abundance in some years.

Knowing this life cycle, combined with the coinciding autumn storms we had this year, and the many public sightings of these octopodes in shallow waters or on the strandline in recent decades, we should not believe we are seeing a rare and freaky event, or that something must be terribly wrong.

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