

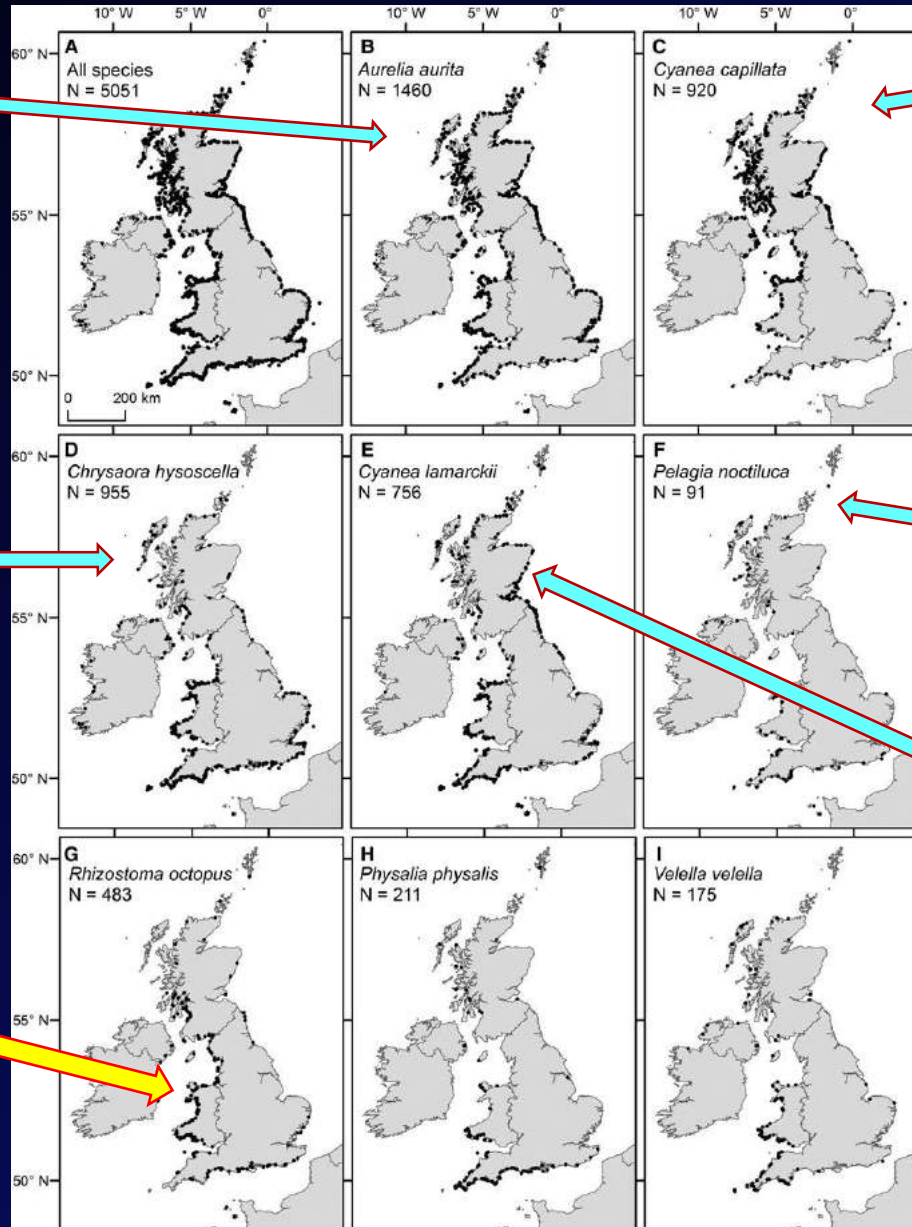
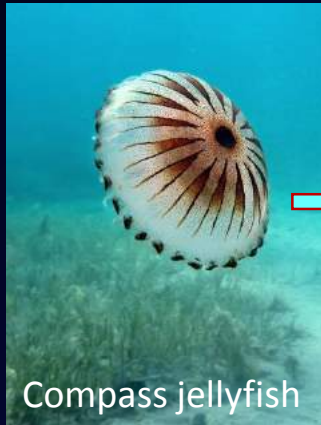
The barrel jellyfish, *Rhizostoma octopus* – what we do and don't know about its ecology.



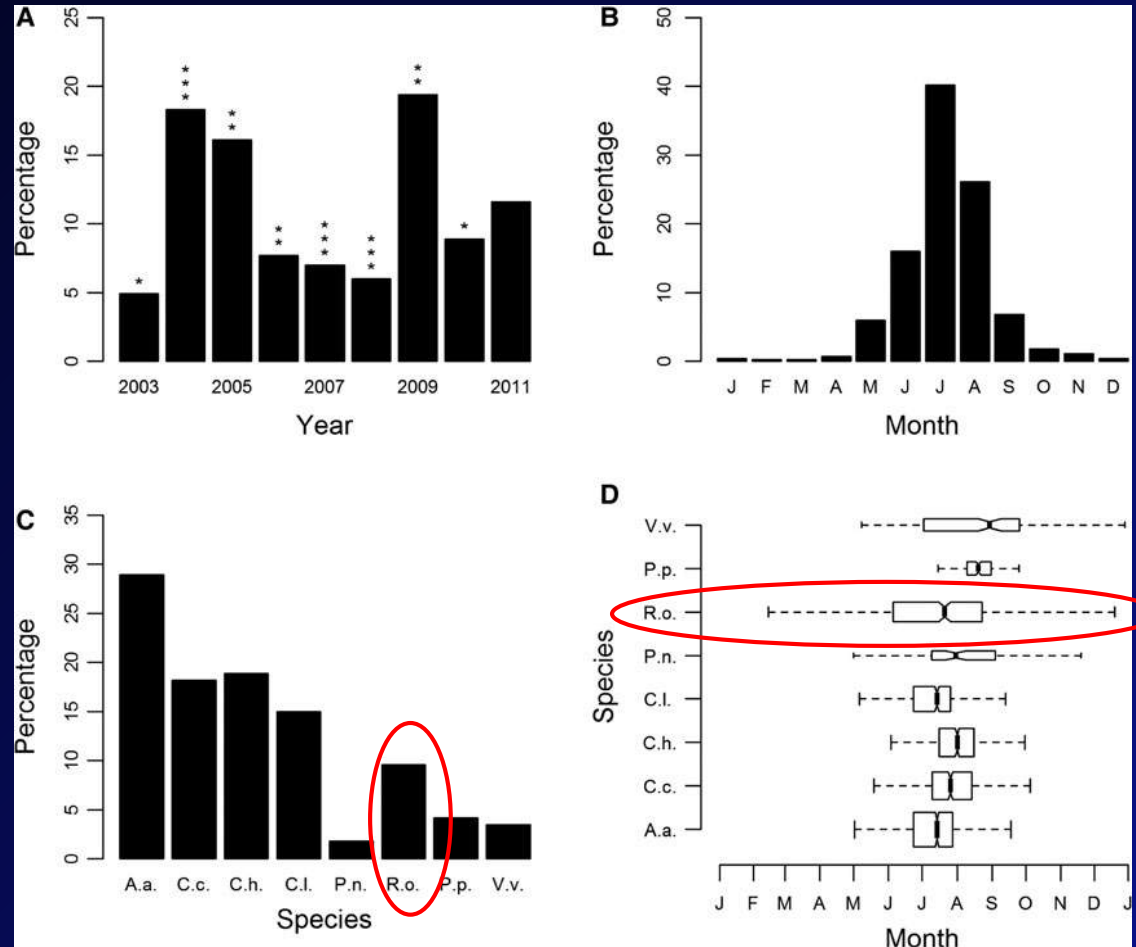
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Dr Cathy Lucas

One of six true jellyfish in UK coastal waters



MCS-based observations for 2003-2011



[A] All species by year (2003-2011); [B] All species by month
[C] Species-specific sightings; [D] Species-specific by month

Hit the headlines in 2014 and 2015

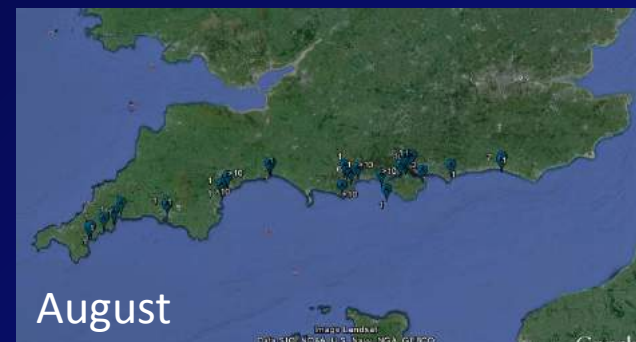
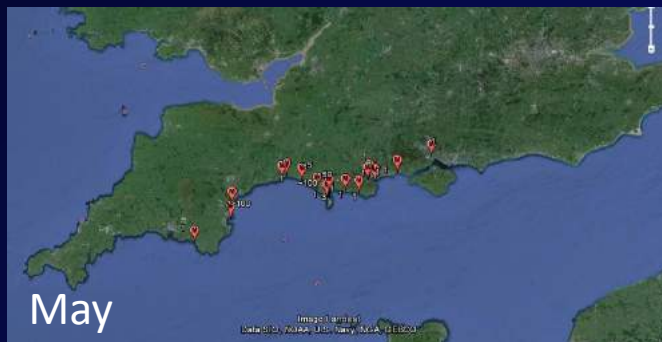
"Plague of the giant jellyfish: Tens of thousands of 5ft stingers mass off south-west coast of Britain"
Mailonline, 25th May 2015



"Massive barrel jellyfish descending on the UK in record numbers"
Independent, 20th August 2015



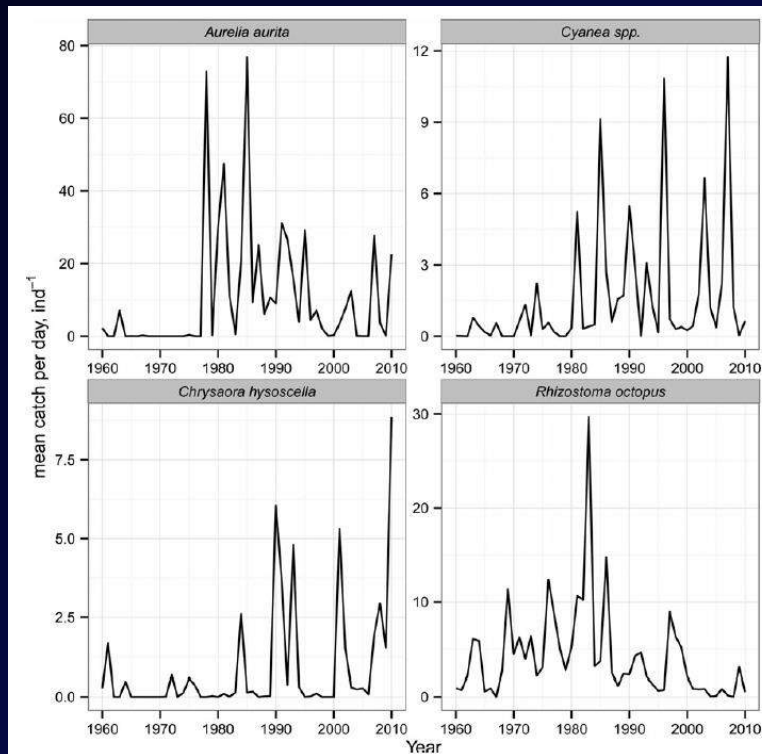
Public sightings in 2015



Question....

➤ Were the 2014 and 2015 sightings unique?

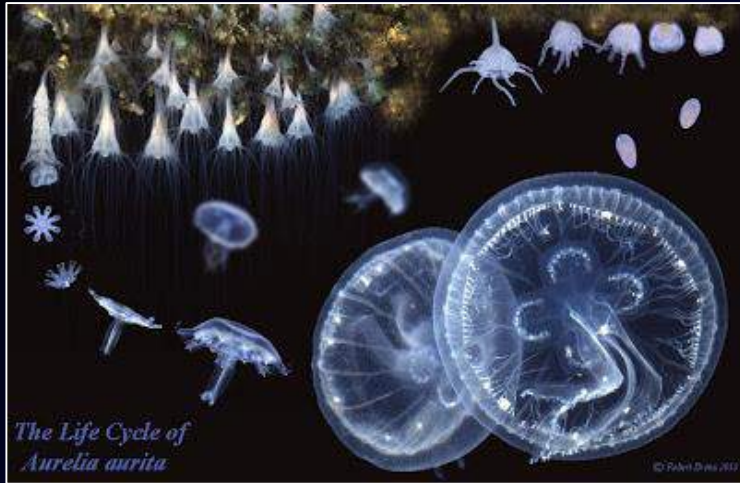
➤ Unlikely



Multi-decadal trends in jellyfish species
in the Dutch Wadden Sea

van Walraven et al. (2014) J Plankton Res

Why do jellyfish form blooms?



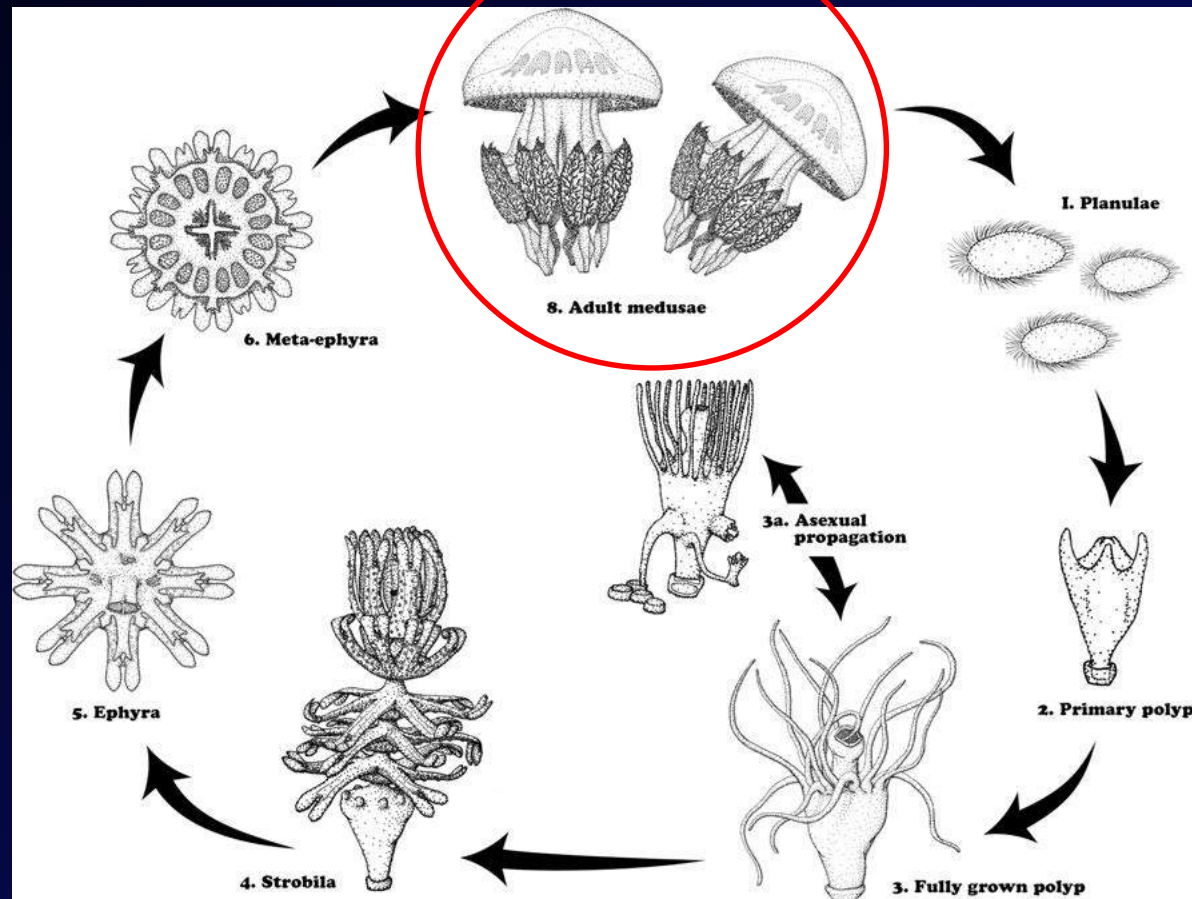
- What do we know about barrel jellyfish.... and what do we still need to know?
- Very little... and lots!

Life histories

Life cycle of *Rhizostoma pulmo*

Fuentes et al. (2011) Mar Biol

Lives mainly offshore
Overwinters

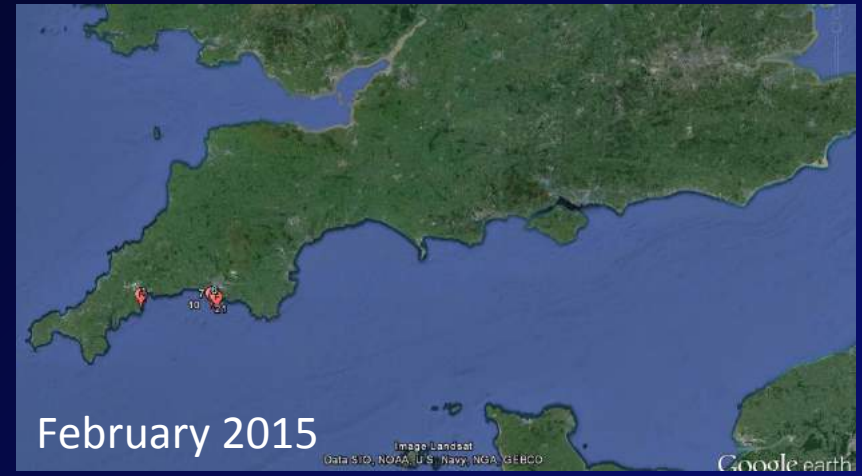
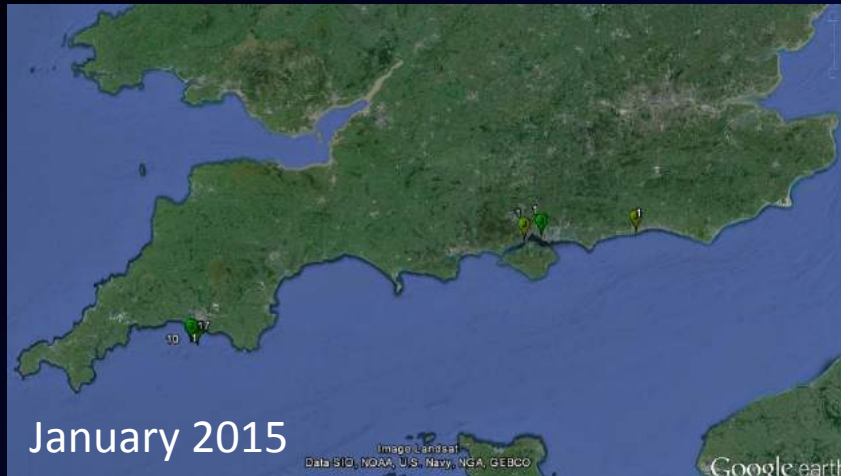


When ?

? Where

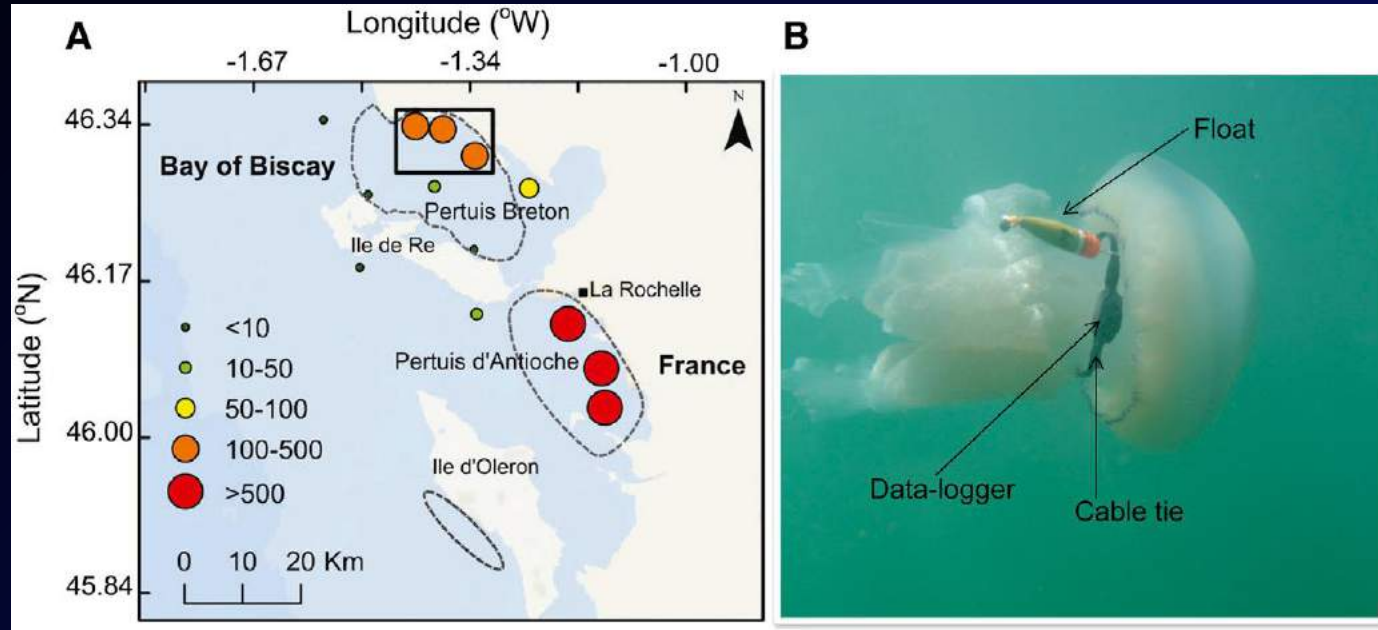
Juvenile and benthic phases of the barrel jellyfish lifecycle are UNKNOWN in UK waters

Overwintering medusae



- Unusual for UK scyphomedusae
- Evidence provided by winter beach strandings
- Thought to overwinter offshore at depth?
- Do mild winters reduce mortality?
- Does this provide source of reproducing adults early in year?

Current-oriented swimming behaviour



- A. Distribution and abundance of *Rhizostoma octopus* estimated from aerial survey
B. Medusa equipped with triaxial acceleration data logger – diving, activity, orientation

- *Rhizostoma* orients its movements with respect to currents
- Enables aggregations to persist
- Coupled behavioural-hydrodynamic model matches observations
- Predicted less beach stranding with active behaviour....

Summary and future directions

Very little is known of the ecology of *Rhizostoma* species:

- Where is the source of the population – i.e. the polyps?
- When does recruitment take place – i.e. ephyrae in the water?
- Do overwintering adults reproduce in spring, or not?
- How do beach stranding observations compare with water column observations?
- What is the role of environmental conditions, e.g. SST on each of the life history stages?
- How does the hydrodynamic regime of WEC affect populations from year to year?

All these questions require regular monitoring of ALL phases of the life cycle AND research on the biology of this genus beyond taxonomic descriptions, so that biological information can be coupled with regional environmental / hydrodynamic conditions.