

Cornwall Wildlife Trust Seaquest Southwest Project

Review of Land Based Effort Data 2010-2020



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Introduction

Seaqwest Southwest (SQSW) is a citizen science marine recording project run by Cornwall Wildlife Trust's Marine Team. It is one of the Trust's flagship marine projects aimed at better understanding, conserving, and protecting marine wildlife and wild places for future generations.



The seas in the Southwest are one of the UK's four hotspots for cetacean (dolphins, porpoises, and whales) activity. Effective monitoring of these species is essential, as it can inform conservation measures that ensure their protection in our waters.

The SQSW project collects data on marine and coastal wildlife and enhances our understanding of the abundance and distribution of marine megafauna around the Cornish coast. Data is collected via ad-hoc records from public land and water users, and through land-based effort surveys carried out by trained volunteers.

The purpose of this report was to review our land-based effort survey data, concentrating on the most frequently sighted marine megafauna species, to describe any key trends and enable Cornwall Wildlife Trust to make suggested recommendations for the future development of SQSW effort-based surveys and research.



Seaqwest Southwest Aims;

- P To engage people with the marine environment.
- P To collect data on marine wildlife.
- P To better understand and conserve marine wildlife.

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Methods

Seaqwest Southwest (SQSW) land-based effort surveys

Shore based sea watch surveys provide an extremely valuable platform to collect effort-based data on marine megafauna with a multitude of benefits. These effort-based survey are cost effective, non-invasive (reducing disturbance which can occur from boat surveys or drone/airplane footage) and can be carried out over a long period of time by trained and supported citizen scientists.

SQSW land-based effort surveys follow an established methodology and can be conducted from any elevated site with a good view over the coast by trained volunteers. Our training consists of a full day course combining a morning of theory with an afternoon practical sea watch.

Once the training day has been completed, volunteers are required to complete two practice surveys with associated forms which are checked and validated by the SQSW team before they are accepted as a fully trained surveyor.

The structure of our data collection is designed to provide all essential information whilst still being practical to complete in the field. At the beginning and end of each survey, we collect information on survey methods, location, weather, and sea conditions. Once starting the survey, the presence or absence of a sighting is recorded every 15 minutes. If wildlife is seen, the number of individuals, species, compass bearing from the observer, distance from the observer, and animal's behaviour is recorded.

Our SQSW long term land-based effort surveys increase the quantity and quality of marine data from all around the Cornish coast and have been identified as one of the most effective ways to measure change. Long term data sets are used to influence policy, legislation and used to assess the impact of conservation management on precious marine and coastal wildlife.



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Key Results

The current database includes land-based effort survey data as far back as 2008, however it is only since 2010 that methodologies were formalised and made consistent. This report therefore reviews the effort-based data from 8th March 2010 to 26th December 2020.

For the purpose of this report, we concentrated on reviewing the most frequently sighted marine megafauna species in Cornwall including cetaceans (dolphins, porpoises, and whales), basking sharks, tuna, barrel jellyfish and ocean sunfish.



Figure 1: Summary of land-based effort survey hours between 8th March 2010 and 26th December 2020

Atlantic Grey Seals

Although we record many grey seal sightings and the occasional common seal sighting during SQSW effort-based surveys, we have chosen not to include seal sightings in this report. We share all seal sightings data with the Cornwall Seal Research Trust (CSRT) <https://www.cornwallsealgroup.co.uk/> who conducts extensive research of seal populations in Cornwall and therefore their outputs provide excellent information on the abundance and distribution of these species and should be referred to.

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Key Results : Sightings



Figure 2. Summary of SQSW land-based effort surveys sightings data from 2010-2020. Total figure of individual animals at 20607 includes seal records and unidentified cetacean species records in addition to those highlighted in the figure.

Photo credits: Niki Clear, Doug Perrine, Matt Slater, Dan Murphy, Ross Wheeler, Jax Keenan

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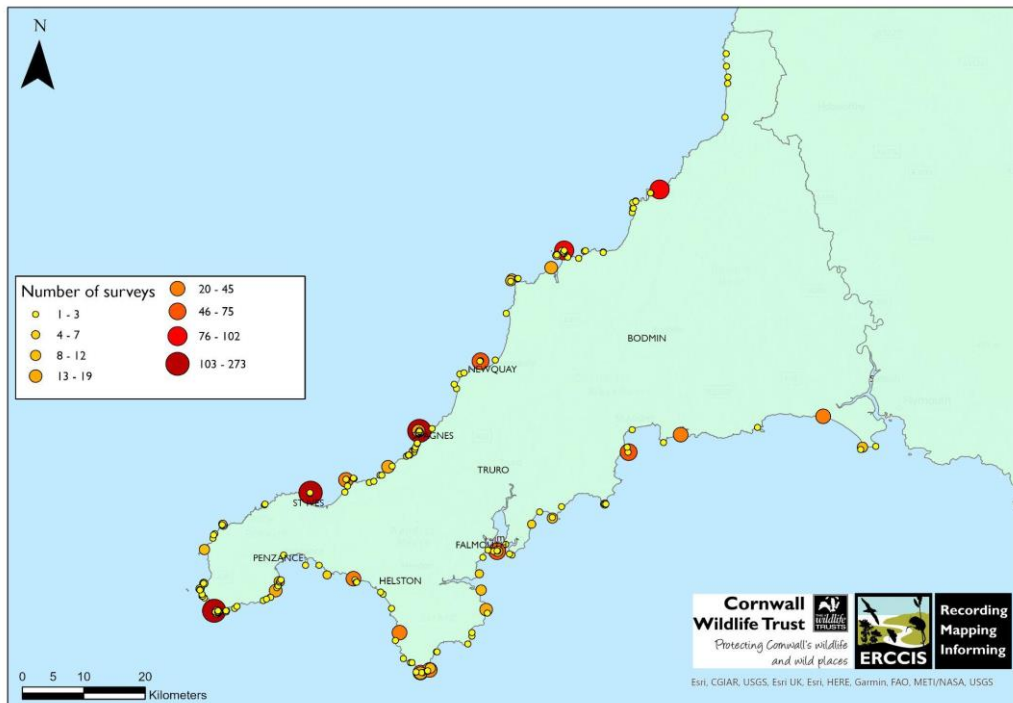


Figure 3. Locations of Seaquest effort-based surveys. Point size and colour represents the number of surveys conducted at each location.

Land-based effort surveys were carried out around the entire coast of Cornwall, although with a significantly lower level of effort in Southeast Cornwall (Figure 3). Marine megafauna sightings occurred all around the Cornish coast although there is a significant lack of sightings in southeast Cornwall and the far north (Figure 4).

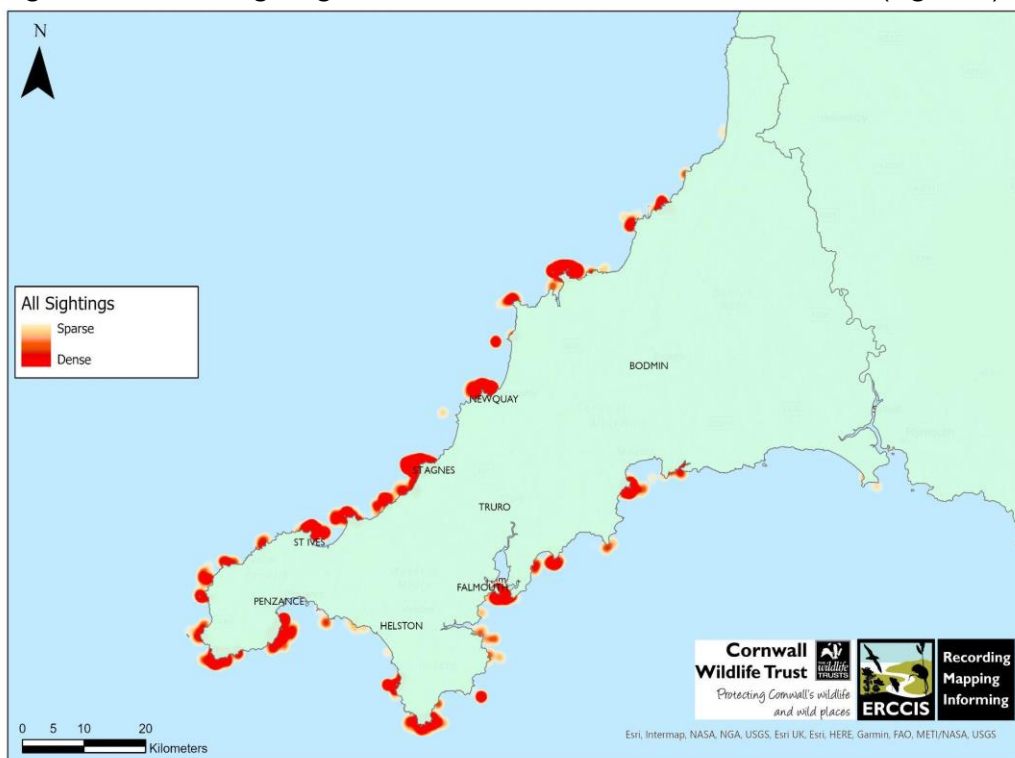


Figure 4. All marine megafauna sightings from Seaquest effort-based surveys conducted between 8th March 2010 to 26th December 2020.

3184 Harbour Porpoise Sightings

Harbour porpoise sightings were distributed around the coast.

Sightings were more concentrated in the locations where more Seaquest effort-based surveys were held - Newquay, St Agnes, Lizard Point, Falmouth and Dodman point, St Austell (Figure 5).

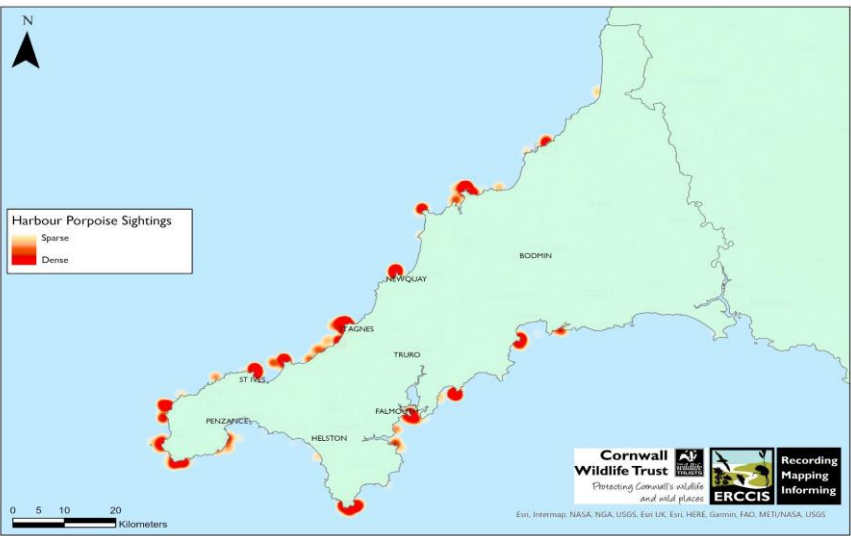


Figure 5. Harbour porpoise sightings from Seaquest surveys 8/03/2010 – 26/12/2020



Credit: Niki Clear, Manx Wildlife Trust



Credit: Niki Clear, Manx Wildlife Trust

725 Basking Shark Sightings

Basking sharks were seen in low numbers around the county, aside from Lands End where high numbers were associated with 2010 – 2012 basking shark surveys which were held by CWT in the area (Figure 6).



© Kat Brown



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Figure 6. Basking Shark sightings from Seaquest surveys 8/03/2010 – 26/12/2020



12846 Common Dolphin Sightings

Common dolphins were seen along the whole Cornish coast, but sightings were higher along the north coast, in Mounts Bay and around the Lizard (Figure 7). As with harbour porpoise, sightings were concentrated in the locations where higher numbers of Seaquest land-based effort surveys occurred.

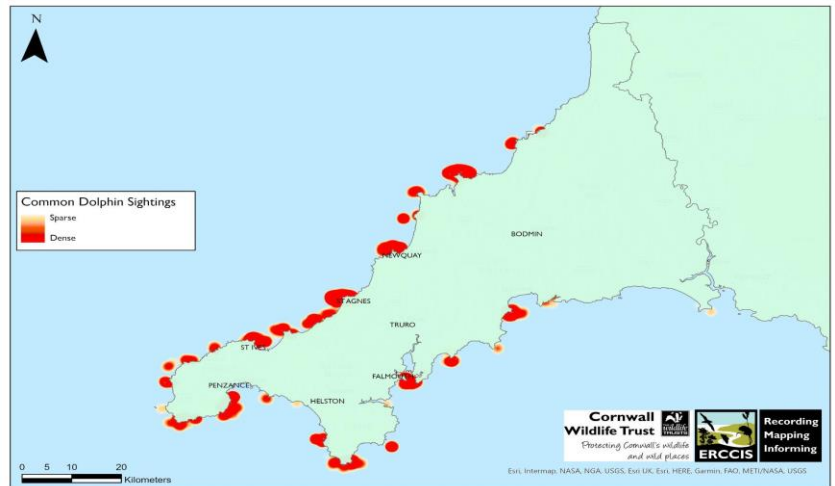


Figure 7. Harbour porpoise sightings from Seaquest surveys 8/03/2010 – 26/12/2020

2222 Bottlenose Dolphin Sightings

Sightings of bottlenose dolphins were distributed across Cornwall, with slightly higher concentrations on the north coast and low numbers in southeast Cornwall (Figure 8).

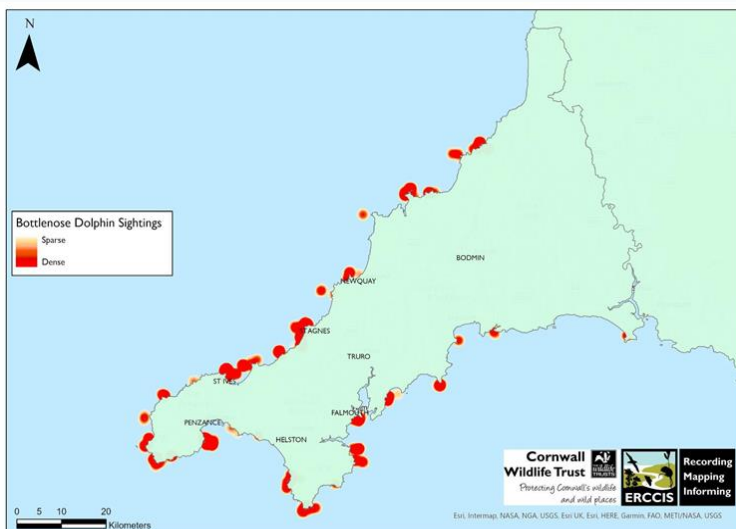


Figure 8. Bottlenose Dolphin sightings from Seaquest surveys 8/03/2010 – 26/12/2020

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Credit: Brian Mellow



Credit: Kerry Froud



Credit: Dan Murphy

58 Baleen Whale Sightings

Baleen whale (minke, fin, humpback) sightings were highest at the Rumps (Polzeath), St Agnes, St Ives, the coastline around Land's End peninsular and Lizard Point (Figure 9).

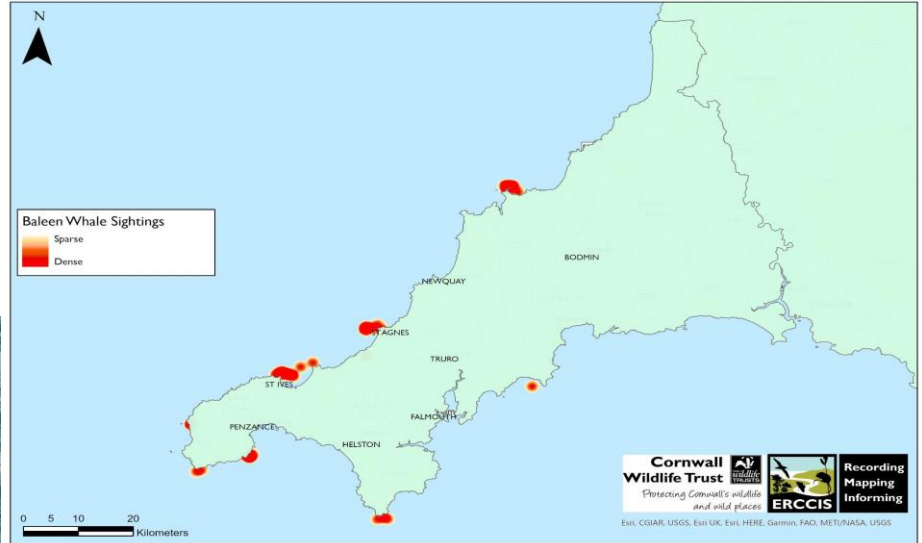
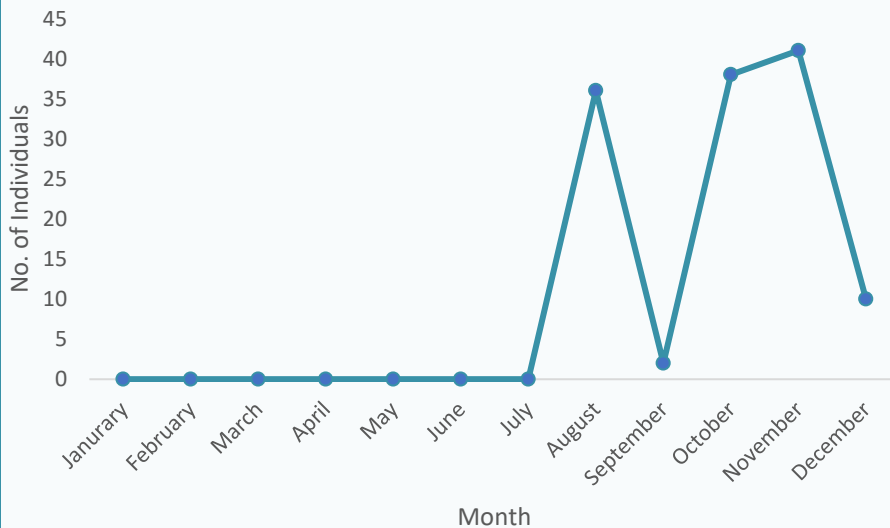


Figure 9. Baleen Whale sightings from Seaquest surveys 8/03/2010 – 26/12/2020

128 Bluefin Tuna Sightings

All tuna sightings were recorded between August 2020 and December 2020. Between the 8th March 2010 and 7th of August 2020 there were no bluefin tuna sightings recorded (Figure 10) although there were ad hoc records of this species reported in recent years.



Credit: Dan Murphy



Figure 10. Line graph of Bluefin Tuna sightings from Seaquest surveys 08/08/2020 – 26/12/2020

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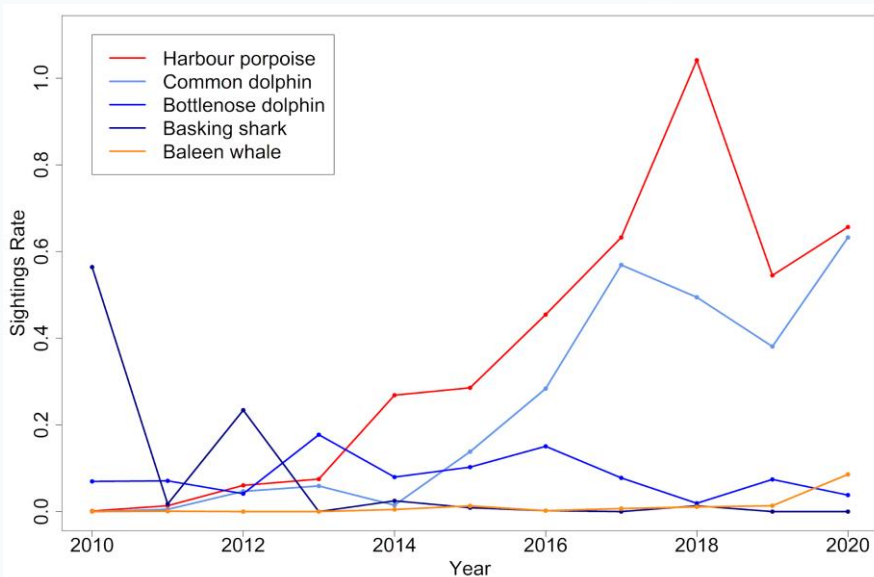
Key Results: Survey effort bias



Sequest Southwest (SQSW) volunteers conduct effort-based surveys from key, accessible and popular locations.

Because survey effort is concentrated where these surveys are based (Newquay, St Agnes, St Ives, Lizard Head, Falmouth and Dodman point, St Austell), our survey data could be biased towards these popular survey locations.

To account for this, a sightings rate was calculated for harbour porpoise, common dolphin, bottlenose dolphin, basking shark and baleen whales across the whole of Cornwall between 2010-2020.



The sightings rate was calculated as:

$$\text{Sighting's rate} = \frac{\text{Number of sightings}}{\text{Effort (hours)}}$$

Figure 11: The sightings rate of harbour porpoise, common dolphins, bottlenose dolphins, basking sharks, and baleen whales each year from 2010 to 2020.

Conclusions



Ross Wheeler

Results from Sequest Southwest land-based **effort surveys** have shown that **sightings** of marine megafauna are **common** around the whole **Cornish coastline** and that our county is an important location for these iconic species.

The **far north** and **south-east coasts** of Cornwall had **less sightings**, because **survey effort** was **lower**. In the **future** we will **improve** Sequest survey effort in those areas by **recruiting local volunteers**.



Ross Wheeler



Ben Porter

Sightings of **harbour porpoise** and **common dolphins** increased **substantially between 2010 and 2020**. This demonstrates the **importance** of Cornwall's coastal waters for **supporting** these species.

There was a **decrease** in **bottlenose dolphin** sightings in Cornwall between 2010 and 2020 - the **cause** of this **decrease** is **unknown** and requires **further investigation**.



George Karbus



Colin Speedie

After **2012** (when CWT species specific surveys in the area finished), **basking shark sightings** remained low and slightly declined until 2020. The reason for this decline is **unknown** and deserves **further investigation**.

Baleen whale sightings have **increased between 2010 and 2020, particularly since 2019**. Further **analysis** of **future** Sequest survey data could be useful to see if this increase shows **long-term population change**.



Elanor Stone



Paul Naylor

Sequest effort based survey data could be used in further investigations to **understand** any **seasonal changes** in abundance of species, or to review the impacts of **physical variations** (such as sea conditions) on **species sightings**.

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For any enquiries in relation to this report, or if you're interested in volunteering with Seaquest Southwest, please email:

seaquest@cornwallwildlifetrust.org.uk

Or visit our website: www.cornwallwildlifetrust.org.uk/seaquest

The data represented in this report is available to external organisations. Please contact ERCCIS via their Wildlife Information Service (WIS) via their email:

WIS@cornwallwildlifetrust.org.uk

Don't forget to record all your marine megafauna sightings via the ERCCIS website:

[ORKS-Share your sightings | Online wildlife Recording for Kernow & Scilly](#)



This report was collated by Abigail Crosby, Clare Owen and Jessie Dermody

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