

Introduction

Approximately 44% of Chondrichthyans are oviparous, with their eggcases often being distinctive enough to identify down to species level. Running since 2003, The Great Eggcase Hunt (GEH) has received reports of over 440,000 eggcases from around the world. With 87% of these eggcases being verified by a photo, expert ID or a specimen, this dataset provides a useful tool to help us better understand eggcase morphology, species diversity and range, and possible key areas of use.

This project continues to grow and spread both in the UK and internationally, with project partners and sister projects across Europe, South Africa and Australia, with records regularly coming from the USA. Identification materials have also been developed for several regions and languages, with more in development.

Project Results (2003 - 2023)

The growth of the project

Starting from just 127 eggcases reported in 2003 from around 50 people, the GEH has had over 40,000 eggcases reported in the first half of 2023 alone, from nearly 5,000 people! As of August 2023, the GEH has received over 440,000 eggcase records (from nearly 30,000 submissions) from over 30 countries.

With digital cameras and smart phones becoming more and more common, a greater proportion of our records have been coming through with images attached – 87% of our records so far have been verified. Once the data has been verified, that means we can trust these records enough to be used in scientific research and reports.

As well as the number of eggcases being reported over time increasing, the number of submissions per year and the number of people taking part each year has also been increasing.

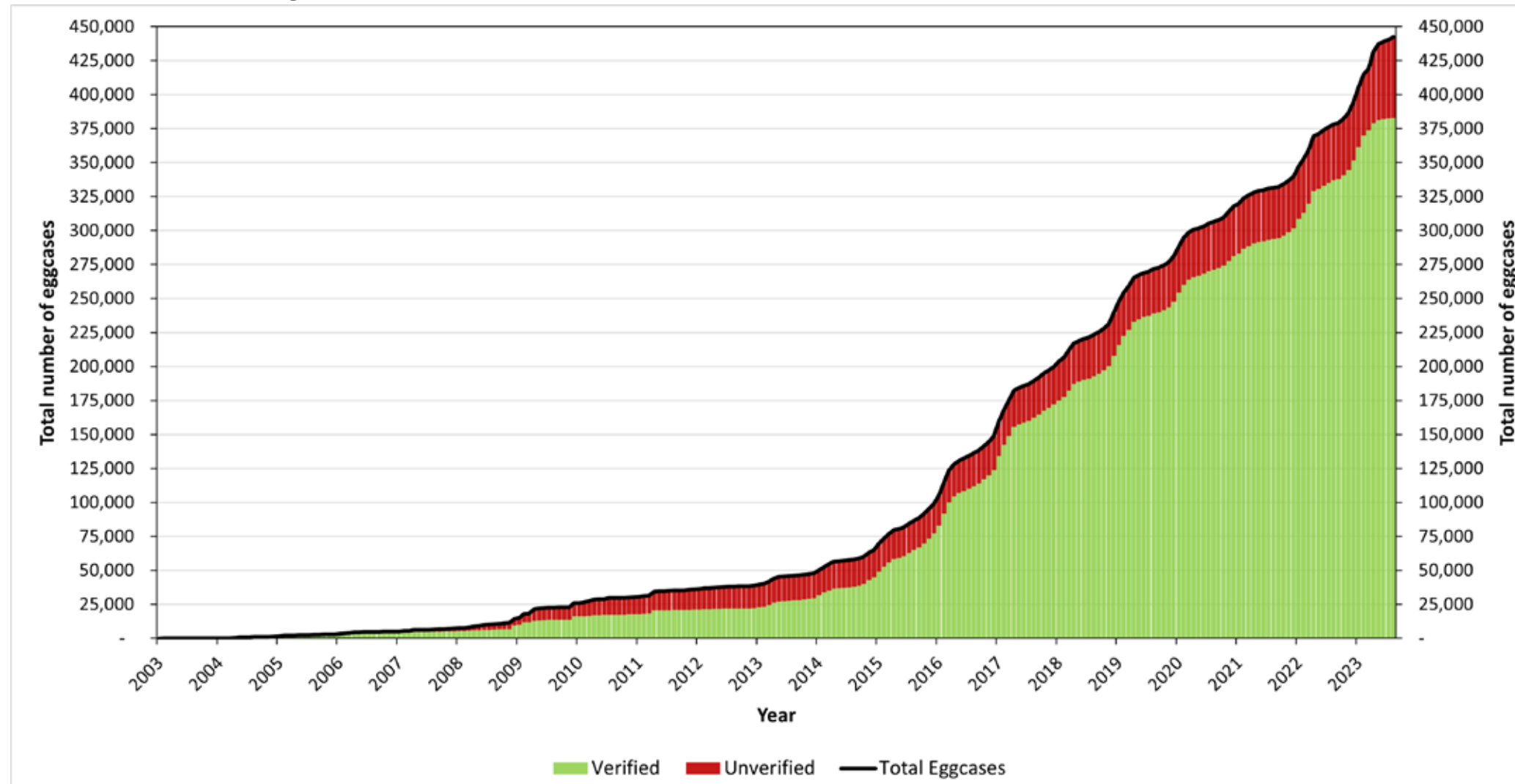


Figure 1: The cumulative count of the total number of eggcases in the Great Eggcase Hunt database from 2003-2023, showing the proportional split between verified and unverified records.

Eggcases around the British Isles and Ireland

To date, 98% of our records come from around the British Isles, totalling over 430,000 eggcases - 87% of which have been verified by either an image, a specimen or expert ID.

Though there are around 30 egg-laying species that occur around the British Isles and Ireland, many of these species are offshore or deeper water species. Our ID guide for the Northeast Atlantic contains the eggcases from species that are most likely to wash ashore, resulting in 13 key species for this region. Although the Starry Skate (*Amblyraja radiata*), Blue Skate (*Dipturus batis*), White Skate (*Rostroraja alba*) and Blackmouth Catshark (*Galeus melastomus*) are rarely reported, there have been beach finds for each of these species.

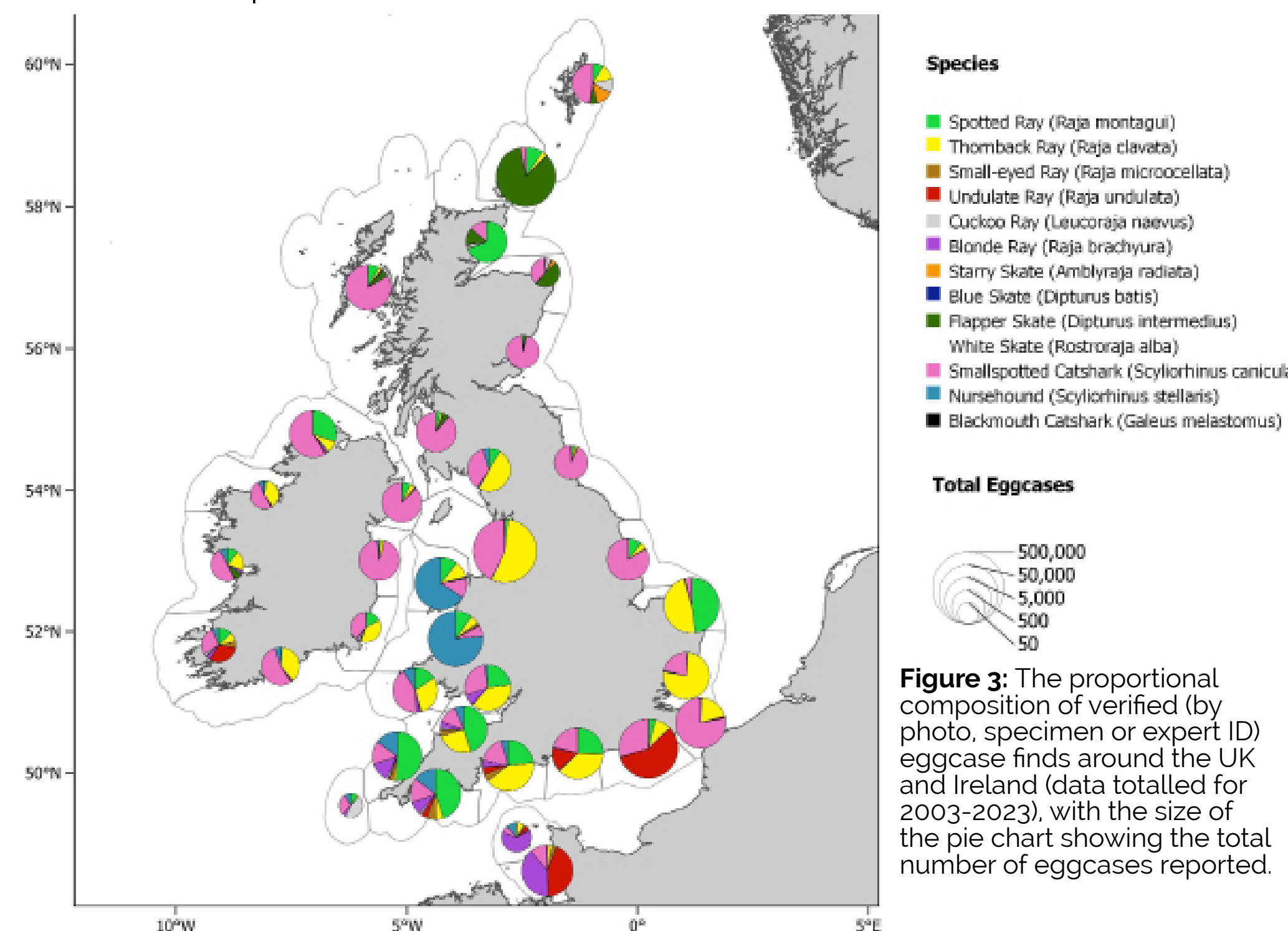


Figure 3: The proportional composition of verified (by photo, specimen or expert ID) eggcase finds around the UK and Ireland (data totalled for 2003-2023), with the size of the pie chart showing the total number of eggcases reported.

Seasonality of reporting

January - April tend to be the months with both the most eggcases reported and the highest number of submissions. Although other factors will affect the number of eggcases being reported, winter tends to be stormier, and so this rough weather is more likely to dislodge eggcases which can then wash ashore to be found and recorded. In terms of submissions, people are more likely to be walking the beach in winter rather than sunbathing or going on holiday etc. Furthermore, people don't often report if they don't find an eggcase (a negative record), further reducing the number of submissions.

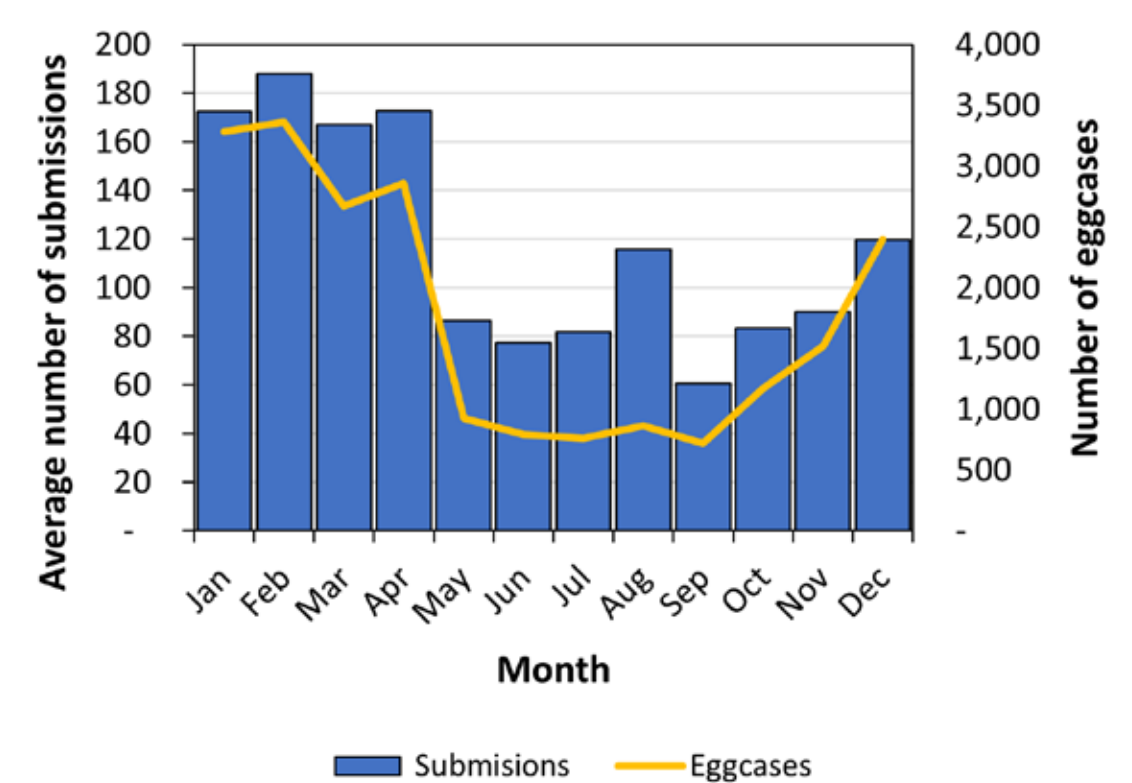


Figure 2: The average number of submissions per month and the average number of eggcases reported per month (averaged 2003-2023).

Global spread

Though established in the UK, GEH has received records from over 30 countries, and it continuing to spread. We regularly get records from the USA and Australia, with records also coming in from Europe, South Africa and other countries further afield.

To date, the GEH has been set up in three other countries with their own online recording form and identification materials. Our International GEH projects are:

- **GEH the Netherlands** with the Dutch Shark Society - 2015
- **GEH Portugal** with APECE - 2018
- **GEH Australia** with CSIRO - 2023

We also have ID materials available for other regions/languages, which have been developed in collaboration with other regional partners.

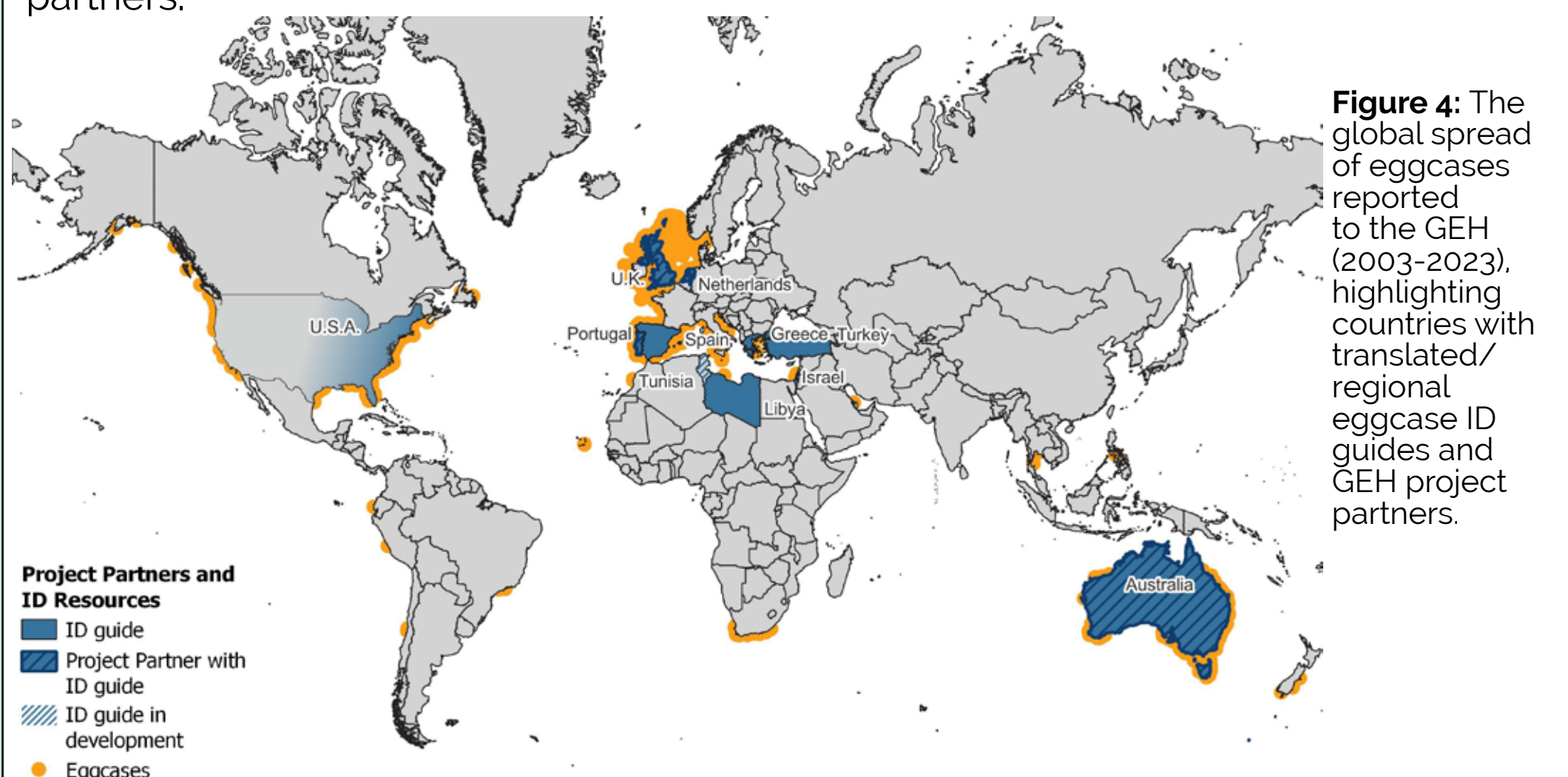


Figure 4: The global spread of eggcases reported to the GEH (2003-2023), highlighting countries with translated/regional eggcase ID guides and GEH project partners.

Wider applications

- Data from the GEH has led to an improved understanding of eggcase morphology (Gordon et al. 2016).
- Data from the GEH has also been used to help identify possible spawning grounds (Ellis et al. in prep.). Understanding where species of commercial interest - or those of conservation concern - spawn, could be used to inform conservation action, such as: providing evidence to support the creation of Marine Protected Areas, or informing proposals for candidate Important Shark and Ray Areas.
- Analysis of this dataset can be used to pick out temporal and seasonal patterns in when eggcases wash ashore: it can allow for a greater understanding of species range and diversity, and hotspots for eggcases can be identified, as well as highlighting locations that are lacking in records and may require focussed effort.
- This dataset also provides a valuable insight into the growth and spread of a global citizen science project over a 20 year timeframe.