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# Whale Track: Expanding community-based cetacean monitoring on the west coast of Scotland using a smartphone app



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Whale Track is a community-based species monitoring project, supported by a smartphone application. Here we present the first 5 years of data from Whale Track (2017–2021) to demonstrate the value of utilizing a smartphone application to expand the quality and quantity of cetacean monitoring which communities undertake.

## RESULTS

Over 3000 people registered to use the Whale Track app, and half of those registered users (51%, n=1540) submitted records for 18 cetacean species, totalling 21713 sightings of 138963 animals (Fig 1). Of this data 44% of sightings were collected during 1914 effort-based excursion surveys (Fig 2).

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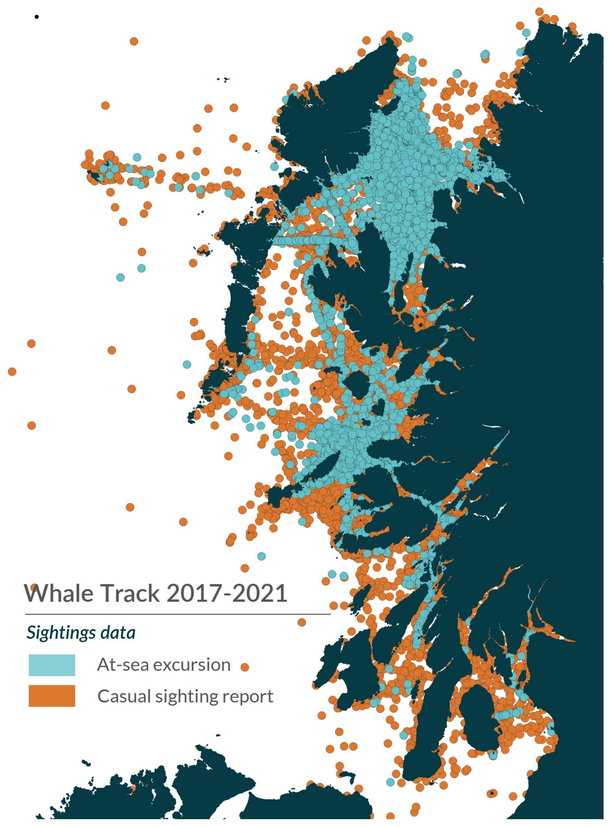


**Figure 1.** Whale Track effort based, at sea excursion, and casual sightings 2017-2021.

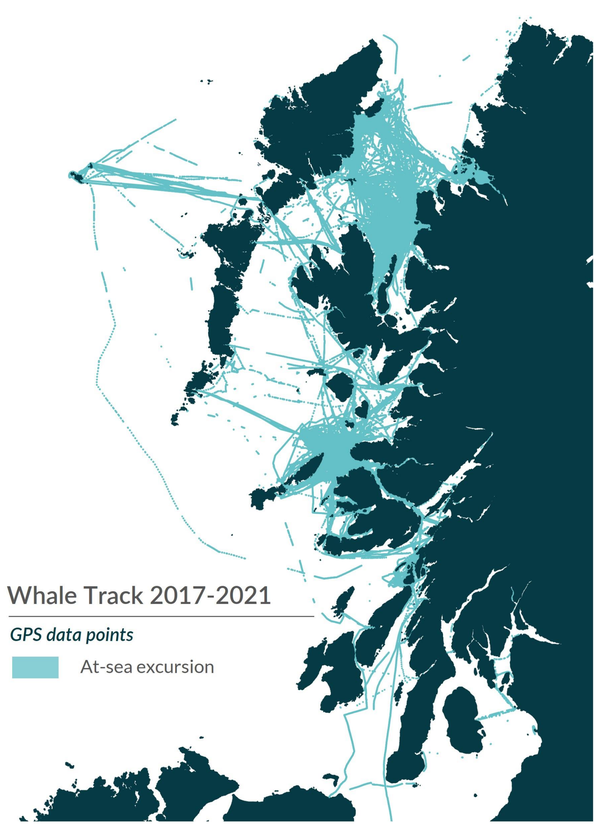


**Figure 2.** Whale Track effort based, at sea excursion, track line GPS data points 2017-2021.

Harbour porpoise, *Phocoena phocoena*, was the most sighted species, 45% of sightings reported (n=9672) (Fig 3), whereas common dolphin, *Delphinus delphis*, was the most numerous species, 62% of total animals reported (n=86573) (Fig 4).

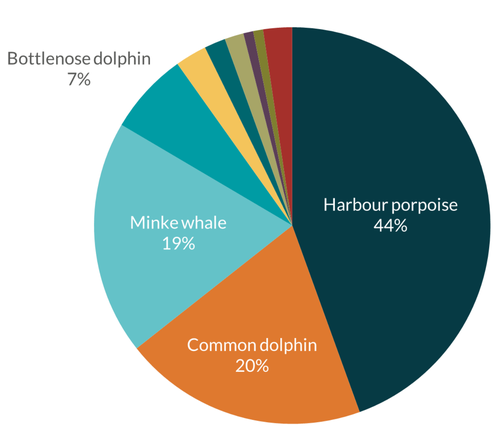


**Figure 3.** Number of sightings by species submitted through Whale Track 2017-2021.

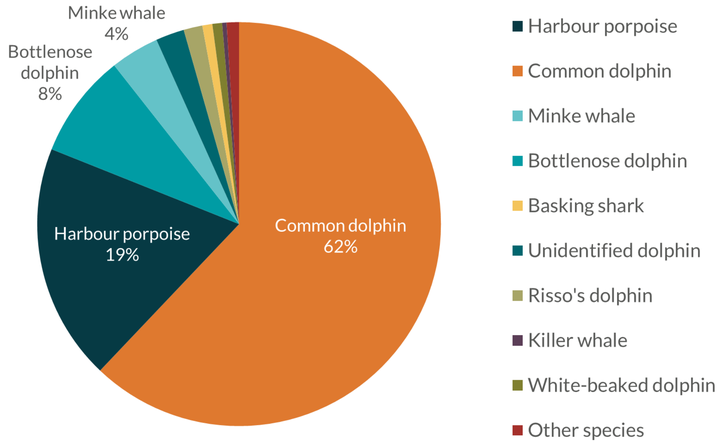


**Figure 4.** Number of animals reported by species submitted through Whale Track 2017-2021.

The number of registered users and number of unique reporters increased year on year (Fig 5).

Overall, survey effort, number of sightings and the geographic coverage of the sightings increased over the 5 years of the project.

The effects of pandemic restrictions were evident with fewer sightings reported and reduced survey effort and geographic coverage. Notably, the number of reporters remained stable in 2020.

In 2021, there was a rapid recovery post pandemic of unique reporters, number of sightings and geographic coverage, which all exceeded pre-pandemic levels.

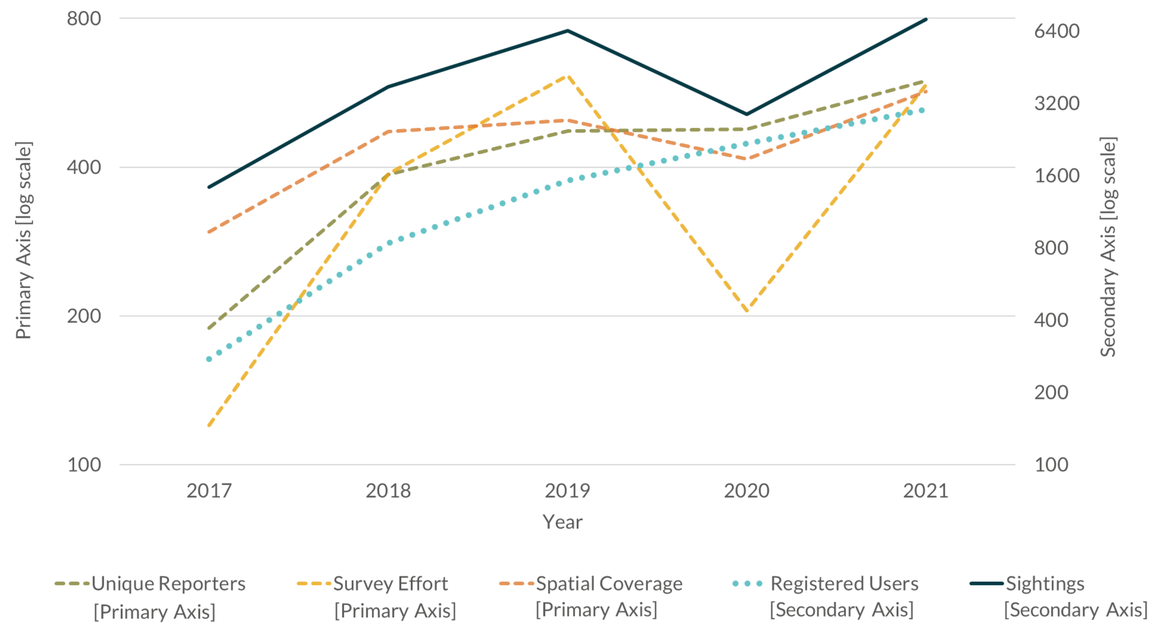


**Figure 5.** Comparative changes in Whale Track reporting trends displayed on Logarithmic scales (log scales) across the years 2017 – 2021. Reporting metrics displayed include: Total number of unique reporters per year submitting to Whale Track (green dashed line - Primary Axis); Total survey effort per year as 'number of excursions' submitted to Whale Track (yellow dashed line - Primary Axis); Total spatial coverage per year as 'number of 50km$^2$ cells' with effort submitted to Whale Track (orange dashed line - Primary Axis); Total annual number of registered users to Whale Track (blue dotted line - Secondary Axis); Total number of sightings records per year submitted to Whale Track (blue solid line - Secondary Axis).

## CONCLUSION

Whale Track is enabling communities to increase the level of species monitoring undertaken, engaging more local stakeholders in efforts to document the presence of cetaceans.

Covid-19 impacted data collection, but Whale Track provided an effective platform for citizen science activities to support HWDT's long-term monitoring efforts when many dedicated boat-based surveys couldn't take place due to restrictions.

Hebridean Whale & Dolphin Trust

**whaletrack.hwdt.org**

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