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Environment  
LINK

Still Delivering the Goods

## Case Study 12



ONGOING

### Hebridean Marine Mammal Monitoring Hebridean Whale and Dolphin Trust



Photo: Hebridean Whale and Dolphin Trust

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<https://www.scotlink.org/publication/still-delivering-the-goods/>



Photo: Hebridean Whale and Dolphin Trust



### Background

The project is led by the Hebridean Whale and Dolphin Trust (HWDT), operating from a specialised research vessel, Silurian, on the Isle of Mull. It is a long-term citizen science project which has been running since 2003 to monitor marine mammals off the west coast of Scotland.

Species monitoring is vital to conserve wildlife. But long-term monitoring seldom gets the attention it deserves. Monitoring enables a fuller understanding of species and habitats and how best to protect them. Widespread, long-term monitoring provides the information on which conservation efforts are based; it improves the effectiveness of conservation efforts and thus the protection for wildlife.



### Project aims

HWDT's mission is to conserve Hebridean whales, dolphins and porpoises through robust science, inspirational education, and meaningful engagement, so that they thrive in harmony alongside coastal communities. The project aims to:

- > Provide long-term visual, acoustic, and photographic monitoring of Hebridean cetaceans to:
  - > Identify significant areas.
  - > Identify emerging threats in our waters.
  - > Track trends and changes in the marine environment.
- > Provide training for volunteers in marine mammal monitoring techniques.
- > Conduct conservation driven and long-term, impactful research studies.
- > Improve the understanding and knowledge of cetaceans in Hebridean waters.
- > Provide evidence to inform marine protection policy and encourage responsible use of the seas.



### Project Timescale

The project launched in 2003. It is a continuous, long-term species monitoring project with no planned end date.



### SBS Objectives

The aims from the *2020 Challenge for Scotland's Biodiversity*:

1

To protect and restore biodiversity on land and in our seas, and to support healthier ecosystems.

Whales, dolphins, and porpoises are key indicators of healthy, biodiverse seas – in protecting them, the whole marine environment is safeguarded.

2

To connect people with the natural world, for their health and wellbeing and to involve them more in decisions about their environment.

This project provides a totally unique opportunity for volunteer citizen scientists to participate in a research programme, which directly contributes to the protection of Scotland's whales, dolphins, and porpoises. The programme connects people with world beneath the waves, inspiring them to care for the marine environment.

3

To maximise the benefits for Scotland of a diverse natural environment and the services it provides, contributing to sustainable economic growth.

Protecting and restoring global marine biodiversity is critical in achieving healthy seas and it has a significant implication for public health, business and industry, ecosystem services, food production and energy. On the west coast of Scotland, tourism is vital for coastal communities and whale-watching can be a sustainable way of contributing to that economy.

Photo: Hebridean Whale and Dolphin Trust



### Project Summary

HWDT operate dedicated research expeditions year-round. It has used the same rigorous survey methodology for the last 18 years ensuring that the data collected are consistent and comparable between years. Doing so provides a wide-scale assessment of cetacean distribution through which HWDT can answer questions about population size, habitat preference, site usage, and through our photo identification work, animal behaviour.

Each year, more than 80 volunteers join the crew of the specialist research vessel travelling thousands of nautical miles to monitor the cetaceans and sharks found off the west coast of Scotland. This pioneering Marine Mammal Monitoring Programme has generated one of the largest coherent databases of its kind for UK waters.

At its core, this is a citizen science project; every single data point has been collected by volunteers who have joined HWDT to survey the waters of western Scotland diligently. It is these people who make the surveys possible, year after year. All these data combined have created a unique and powerful evidence base, which has critically advanced the understanding of species that visit seasonally or are resident in the Hebrides and have led to the identification and designation of marine protected areas – a national and global first for some species.



### Climate Impacts

Protecting and conserving cetacean populations is crucial in our fight against climate change. Not only are cetaceans indicators of healthy seas, but they encourage vertical mixing of nutrients, feeding at depth before returning to the surface to breathe, as well as defecating at the surface. This results in surface waters becoming more fertile and stimulating phytoplankton growth, which helps to regulate climate by absorbing carbon dioxide and producing oxygen.

The long-term monitoring undertaken by HWDT is essential in understanding the effects that climate change is having on the world's oceans. The data that are collected help to detect changes and assess trends in indicator species, which provides an insight into the health of the ecosystem.



### People Information

**Direct employment:** The programme is run by HWDT's Marine Biodiversity Officer, and the vessel is managed by HWDT's Boat Manager. Surveys are delivered with support from crew (Skipper and First Mate) as well as five other members of staff at the Trust who provide operational support for the programme.

**Volunteers:** Each year more than 80 volunteers join the crew of the specialist research vessel, Silurian, to monitor the cetaceans and basking sharks in the Hebrides. On board the volunteers receive training in species identification, how to conduct surveys and identify underwater sounds. Each data point collected on board Silurian has been collected with the help and support of the volunteers who join us on board.



### Successes and achievements

Since 2003 the programme has:

- > Trained more than 900 volunteer citizen scientist's marine mammal monitoring skills.
- > Delivered more than 200 Silurian research expedition surveys to monitor local cetacean populations and individuals.
- > Conducted more than 120,000 kilometres of visual and/or acoustic surveys monitoring Hebridean seas; equivalent of sailing three times around the world.
- > Recorded 40,000 marine animals during 16,000 sightings and compiled more than 9,000 hours of acoustic recordings during which more than 20,000 harbour porpoises have been detected.

As well as species monitoring, these recordings are increasingly called upon to assess the changing soundscape of the marine environment and the impact of acoustic pollution on cetaceans in the region. HWDT data shows **the widespread and increasing use of acoustic deterrent devices (ADDs)** and highlights this as a significant and chronic source of underwater noise.

Data collected have provided the evidence to show where the most important areas are for cetaceans and basking sharks on the west coast of Scotland. These data have been used by the Scottish Government to inform protection measures for minke whales, Risso's dolphins, harbour porpoises, and basking sharks, and have contributed to the identification and designation of Marine Protected Areas (MPAs).





### Issues and challenges

Securing long-term funding for this programme has been the main challenge, yet long-term monitoring is vital to detect trends and changes in cetacean populations and identify emerging threats. The nature of monitoring free-ranging, and highly mobile marine species is also much more challenging and costly, especially in comparison to monitoring terrestrial animals. With the support of our members, donors and funders, our monitoring programme is now entering its nineteenth year.



### Funding

In 2002, with a grant from the Heritage Lottery Fund, HWDT purchased and refitted the motor-sailor, Silurian. Since its inception, the programme has been partly funded by NatureScot, which supports the training of volunteer marine mammal citizen scientists. Volunteers also contribute financially to the long-running monitoring programme.

#### Average annual programme cost:

NatureScot:	<b>£30,000 – 40,000</b>
Volunteer time (in kind contribution):	<b>£47,250</b>
Volunteer participant fees:	<b>£80,000</b>
HWDT:	<b>£52,750 – £62,750</b>
Total:	<b>£220,000</b>

Funding to support the programme from April 2021 is currently being sought.



### Further information

Hebridean Whale and Dolphin Trust (2018), *Hebridean Marine Mammal Atlas, Part 1: Silurian, 15 years of marine mammal monitoring in the Hebrides. A Hebridean Whale and Dolphin Trust Report (HWDT), Scotland, UK 60 pp.*