

# What causes whales, dolphins and porpoises to strand around the UK coast?

Marine Objective Theme: State of the Marine Environment

## What's the problem?

For centuries, cetaceans (whales, dolphins and porpoises) have regularly stranded around the coasts of the UK. The underlying causes of these stranding events are not always clear. In particular, the role that human activity may play in either directly or indirectly causing single or mass strandings remains controversial. Information generated on stranded animals can provide a picture of what species are found in UK waters and in many cases we can make a broad assessment on likely cause of death. Strandings that undergo post-mortem examination can also provide unique insight into causes of death, diseases, environmental contaminant levels, reproductive patterns, diet and other aspects of the general health of cetacean populations in the seas around our coasts. This provides important baseline data to help detect any future outbreaks of disease, unusual mortality events or responses to environmental change (e.g. climate change).

## What are the aims of the project?

Since 1990, the collaborative UK Cetacean Strandings Investigation Programme (CSIP) has been funded by UK Government, and more recently, the devolved administrations to record all strandings of cetaceans around the UK coast and to retrieve a proportion for investigation at post-mortem.

This project provides a systematic and coordinated approach to the surveillance of cetacean strandings in the UK and to the investigation of causes of death. Data on UK stranded marine turtles and basking sharks are now also being collected under the project. The project aims to collate, analyse and report data for all cetacean strandings around the coast of the UK; to determine the causes of death in 100 stranded cetaceans each year; and to undertake surveillance on the incidence of disease in stranded cetaceans in order to identify any substantial new threats to their conservation status. It has also been tasked with the development and population of an integrated database which will bring together accurate and geo-referenced information on both strandings and post-mortem data and allow end users to interrogate this data via the internet. A national cetacean tissue archive is also maintained and provides a useful resource for a range of institutions.

The current project commenced in April 2007 and runs until March 2010.



Figure 1. Stranded sperm whale near Kings Lynn, Norfolk (Image: Rob Deaville)

## Which policy areas will the research inform?

The information from this project helps to ensure that the UK complies with a number of national and international agreements/obligations, including the Habitats Directive and the Agreement on the Conservation of Small Cetaceans in the Baltic and North Sea (ASCOBANS). The data generated also facilitates informed management decisions to improve or maintain favourable conservation status in threatened species, through the investigation of important causes of death such as accidental entrapment in commercial fishing gear (by-catch).

Funded by:



Llywodraeth Cynulliad Cymru  
Welsh Assembly Government



The Scottish  
Government  
Riaghaltas na h-Alba



Department for Environment  
Food and Rural Affairs

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### What are the results from the project and how will they be used?

The research conducted under this programme continues to provide long-term and systematic monitoring of UK-stranded cetaceans and now also collects data on UK-stranded marine turtles and basking sharks. The data generated by this long-term programme facilitates the investigation of spatial (geographical) and temporal (time) trends in new and existing diseases, causes of mortality and exposure to environmental pollutants largely inaccessible by other methods.

For example, Figure 2 shows temporal trends in the proportion of the two most common UK-stranded cetacean species diagnosed to have died as a result of accidental entrapment in commercial fishing gear (by-catch) in the south-west of England over the last ten year period (1999-2008). Significant inter-annual variation in the proportion of stranded harbour porpoises (*Phocoena phocoena*) diagnosed as by-catch was observed during this period. In contrast, the proportion of by-caught common dolphins (*Delphinus delphis*) has recently declined from the consistently high levels observed in this region since 1990 and the figure observed in 2008 was the lowest since systematic post-mortem examinations were first undertaken in 1990. The reasons for this apparent decline in stranding rates of by-caught common dolphins are not yet fully understood.

A number of causes of death other than by-catch have also been identified in UK-stranded cetaceans since 1990. These include attack by bottlenose dolphins (*Tursiops truncatus*), live stranding, starvation and a range of mainly parasitic and bacterial infectious diseases including cetacean brucellosis.

Research has also demonstrated a strong link between immunosuppressive pollutants such as polychlorinated biphenyl (PCB) exposure and death due to infectious disease in UK-stranded harbour porpoises, suggesting that current levels of pollutant exposure can indirectly cause mortality. Levels of PCBs in whale and dolphin species listed for priority conservation actions such as bottlenose dolphins are even greater, suggesting that these pollutants continue to pose a serious threat.

The CSIP cetacean tissue archive now contains a large number of samples systematically collected from over 2700

stranded cetaceans examined at post-mortem. Together with data generated during the last 20 years, this valuable resource continues to support a broad range of high quality scientific research publications that help to advance our knowledge about cetaceans, educate the public and inform Government policy.

An integrated web-accessed database has recently been produced, containing both strandings and pathology data collected by the CSIP since 1990. As well as facilitating more efficient and accurate capture of data and allowing stakeholders to access data as required, periodic export of relevant data to the NBN gateway ([www.nbn.org.uk/](http://www.nbn.org.uk/)) will occur, which will enable access to information on strandings and post-mortem data by a much wider audience.

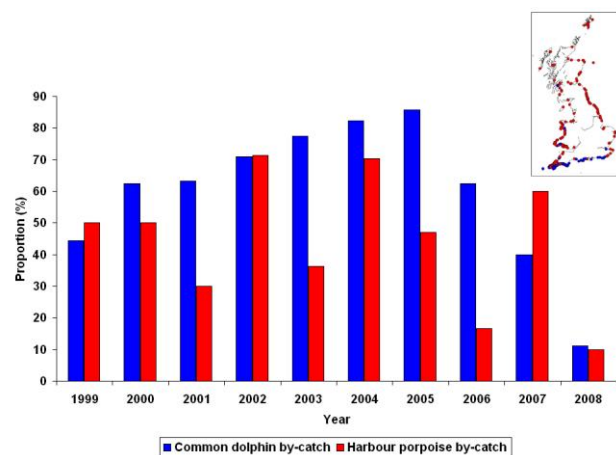


Figure 2. Temporal variation in the proportion of by-catch diagnosed in stranded common dolphins and harbour porpoises in south-west England 1999-2008. Inset map shows UK distribution of by-catch in these two species over the same period (Images: CSIP)

### Where can I find further information about this and related research?

The Institute of Zoology leads the consortium of partner organisations (Scottish Agricultural College- Inverness, Natural History Museum and Marine Environmental Monitoring) making up the CSIP. JNCC also provide day-to-day project management oversight. Further information can be found at [www.ukstrandings.org](http://www.ukstrandings.org)



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