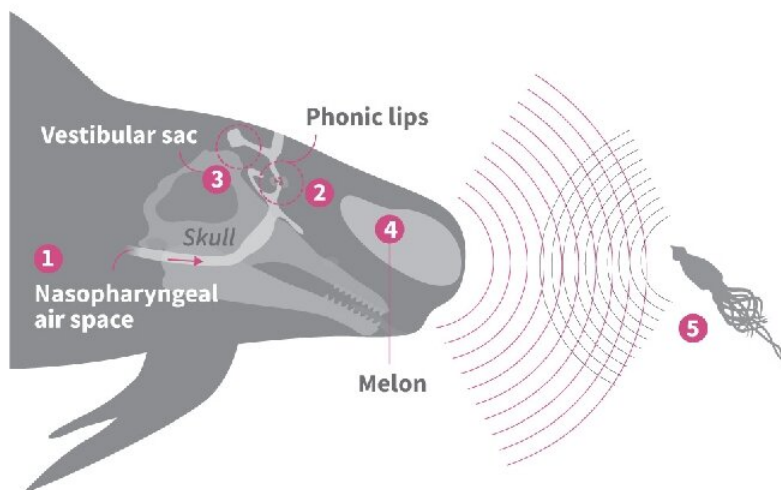


# Whale strandings: Five questions answered


September 22 2022

## Whale sonar navigation

Like other toothed whales, pilot whales use echolocation to find their way



- |   |  |  |
|---|--|--|
| <p><b>1</b> Whale pushes compressed air through the narrow passage</p> <p><b>4</b> Mass of wax and fat called the <i>melon</i> helps to modulate calls and clicks</p> | <p><b>2</b> Like vocal chords, the <i>phonic lips</i> shape the sound of the sonar clicks</p> <p><b>5</b> The whale “sees” by reading the sound waves that bounce back</p> | <p><b>3</b> The clicked air ends up in the cavity known as a <i>vestibular sac</i></p> |
|---|--|--|

AFP  Source: [Sciencenewsforstudents.org/nzgeo.com/nature.com](https://www.sciencenewsforstudents.org/nzgeo.com/nature.com)

### What goes wrong in beachings?

Still a matter of debate, several theories are prominent

*Including*

- **Sickness**  
Diseased individuals have been known to beach themselves. In social pods, groups could be following
- **Predators or prey**  
A pod could be forced into danger by predators, or else by following prey
- **Extreme weather**  
Bad conditions could scramble sonar, even bubbles caused by raindrops could muddy the data
- **Noise pollution**  
Oceans are filled with human-made noises, including shipping and high-frequency anti-submarine sonars
- **Long gently sloping beaches**  
Very shallow inclines of some beaches could make it difficult for whales to “see” the danger as their sonar fails to detect any obstructions

Graphic looking at how pilot whales use echolocation to navigate underwater, and listing various theories about what could go wrong to lead to strandings.

The death of about 200 pilot whales at a Tasmanian beach has renewed questions about what causes such mass strandings and whether they can be prevented.

With the help of Karen Stockin, a whale stranding expert at New Zealand's Massey University, here are the answers to five key questions:

## **What causes mass strandings?**

Scientists are still trying to work that out. They do know that there are multiple types of [stranding](#) events, with several explanations that can overlap. The causes can be natural, based on bathymetry—the shape of the ocean floor—or they can be species-specific.

Pilot whales and several smaller dolphin species are known to regularly mass strand, especially in the southern hemisphere, according to Stockin. In some instances, a sick whale headed towards shore and a full group unwittingly followed them.

## **Does it happen in certain areas?**

There are a few global hotspots. In the [southern hemisphere](#), Tasmania and New Zealand's Golden Bay have seen several instances, and in the [northern hemisphere](#), the United States bay of Cape Cod, Massachusetts, is another hotspot.

In those areas, there are similarities between the topography of the beaches and environmental conditions. For example, Cape Cod and Golden Bay share a prominent narrow coastal land feature and shallow water with large tidal variations. Some people call such areas "whale traps" because of the speed at which the tide can recede.



The death of about 200 pilot whales at a Tasmanian beach has renewed questions about what causes such mass strandings and whether they can be prevented.

### **Are strandings becoming more common?**

Possibly. Strandings are [natural phenomena](#) and have been documented since the days of Aristotle. The health of the oceans has, however, deteriorated in recent decades.

Strandings could become more common as human use of the seas, shipping traffic and chemical pollution all increase.

Epizootic diseases—outbreaks of sickness that affect a specific animal

species—could also lead to more. But there is still much to understand about the phenomenon, Stockin said.

## **Is climate change a factor?**

Research on how [climate change](#) is affecting marine mammals is still in its infancy. Experts know that climate change can give rise to changes in prey and predator distribution. For some species, this may result in whales coming closer to shore.

For example, recent research based on current climate prediction models suggests that by the year 2050, the distribution of sperm whales and blue whales in New Zealand could vary considerably.

## **Can strandings be prevented?**

Not really. As strandings occur for a multitude of reasons, there is no one-size-fits-all solution. But Stockin said that by better understanding whether and how human-induced changes are causing more mass strandings, solutions could be found.

© 2022 AFP

Citation: Whale strandings: Five questions answered (2022, September 22) retrieved 27 June 2024 from <https://phys.org/news/2022-09-whale-strandings.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.