Antarctic tour vessels help solve killer whale mystery

"Scientists finally come face to face with elusive mammals after years of research into theory about ‘Type D’ killer whale in sub-Antarctic waters"

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Photographs taken aboard International Association of Antarctica Tour Operators (IAATO) vessels since the 1990s have supported research which, this year, has brought scientists face-to-face with a mysterious and potentially new species of killer whale.

An international research team led by Dr Bob Pitman, a researcher from NOAA Fisheries’ Southwest Fisheries Science Centre in California, has been compiling and cataloguing killer whale images as part of a project to monitor their distribution, movements and abundance.

The ‘Type D’ killer whale is characterised by a more rounded head, sharply pointed dorsal fin and much smaller eye patch than those of killer whales elsewhere in Antarctic waters; and has been at the centre of a mystery spanning decades. Was it a different species of whale, or simply a genetic abnormality of a single, family pod?

In January this year, during a three-week research voyage near Cape Horn off Southern Chile aboard the 24m IAATO research vessel S/Y Australis operated by Ocean Expeditions, Pitman finally came face to face with the elusive animals that he has spent 14 years searching for. The Australis encountered a group of approximately 30 whales which approached the vessel several times allowing the international team of scientists to capture vocalisations, underwater images and, most importantly, three biopsy samples; tiny bits of skin collected harmlessly using a dart.

With support from an anonymous donor through IAATO associate member Cookson Adventures and in collaboration with Centro de Conservación Cetácea, Chile, Dr Pitman’s international team of experts included Professor Lisa Ballance from the United States, John Totterdell and Dr Rebecca Wellard from Australia, Dr Mariano Sironi from Argentina and Jared Towers from Canada. Unravelling the secrets of these enigmatic animals now moves from the Southern Ocean to the laboratory, where NOAA scientists will analyse DNA from the skin samples.

“These samples hold the key to determining whether the Type D represents a distinct species of killer whale” Pitman said.
Although three other types of Antarctic killer whale have been well documented, good sightings of the elusive Type D are rare. From their data, Pitman and his team surmise that the Type D killer whale is distributed around the entire continent of Antarctica, but avoids the coldest waters; leading them to suggest a common name: ‘Sub-Antarctic killer whale’.

Given that these waters are in some of the most inhospitable latitudes on the planet, it is no wonder it is almost unknown to science. However, scientists and tourists aboard IAATO vessels have been recording whale sightings in the Southern Ocean since the organisation’s inception in 1991, especially after digital cameras became more accessible in the late 1990s.

Amanda Lynnes, Head of Communications and Environment for IAATO, said: “This is really exciting news. IAATO members have been supporting whale research for decades in Antarctica, a region where data on these large mammals are still surprisingly scarce and much needed to ensure their continued protection.

“Visitors can often get involved too; in this case their holiday snapshots really contribute to scientists’ understanding of whales. The IAATO community eagerly awaits further news from the NOAA scientists about the Type D killer whale.”

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Issued by the International Association of Antarctica Tour Operators.

For IAATO information contact: Amanda Lynnes, Tel: +44 (0)7879777036; email: alynnes@iaato.org

For NOAA and further Type D information contact: Dr Bob Pitman, Tel: +1(858) 546-7092; email: Robert.pitman@noaa.gov

Notes for Editors:

- NOAA Footage of the Type D killer whale discovery and sampling is available here: https://vimeo.com/322082139
- The first record of the unusual Type D killer whales came in 1955, when 17 animals stranded on the coast of Paraparaumu, New Zealand. Initially, scientists speculated that the unique look might have been a genetic aberration only seen in with those stranded whales. Then, in 2005, a French scientist showed Bob Pitman photographs of odd-looking killer whales that had taken fish from commercial fishing lines near Crozet Island in the southern Indian Ocean. They had the same tiny eye patches and bulbous heads. The location, a quarter of the way around the world from New Zealand, suggested that relatives of the stranded whales might in fact be widespread.
• In addition to its own bylaws and requirements for membership, IAATO requires its members to abide by the Antarctic Treaty System and other international regulations. All IAATO and scientific activities must be covered by a relevant permit.

Images and captions:

**Figure 1.** Left. A ‘regular’ killer whale showing typical head shape and eye patch size. Photo: NOAA Fisheries/R.L. Pitman. Right. A Type D killer whale with a more bulbous head and tiny eyepatch. Photo: P. Tixier.

![Figure 1](image)

**Figure 2.** A rare photo of type D killer whales from South Georgia Island, showing their blunt heads and tiny eyepatches. Photo J.-P. Sylvestre, courtesy of NOAA.

![Figure 2](image)

**Additional photos:**

**Figure 3.** Left. An adult male ‘regular’ killer whale – note the size of the white eye patch, less rounded head and dorsal fin shape. Right. An adult male Type D killer whale – note the tiny eye patch, more rounded head, and more narrow, pointed dorsal fin. Illustrations by Uko Gorter, courtesy of NOAA.
About IAATO

IAATO is a member organization founded in 1991 to advocate and promote the practice of safe and environmentally responsible private-sector travel to the Antarctic. IAATO Members work together to develop, adopt and implement operational standards that mitigate potential environmental impacts. These standards have proved to be successful including but are not limited to: Antarctic site-specific guidelines, site selection criteria, passenger to staff ratios, limiting numbers of passengers ashore, boot washing guidelines and the prevention of the transmission of alien organisms, wilderness etiquette, ship scheduling and vessel communication procedures, emergency medical evacuation procedures, emergency contingency plans, reporting procedures, marine wildlife watching guidelines, station visitation policies and much more. IAATO has a global network of over 100 members.