Source : www.thehindu.com Date : 2019-01-31

SONAR MAY PROVOKE SUICIDAL BEHAVIOUR IN SOME WHALES: STUDY

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

Helping hand: A file photo of volunteers helping a Beaked whale that got stranded on a West Australian beach . | Photo Credit: JOHN EVANS

Scientists have long known that some beaked whales beach themselves and die in agony after exposure to naval sonar, and now they know why: the giant sea mammals suffer decompression sickness, just like scuba divers.

The explanation was laid out on Wednesday by 21 experts in the *Royal Society journal Proceedings B*.

Evolution has turned whales into perfectly calibrated diving machines. The heart rate slows, blood flow is restricted, oxygen is conserved.

So how could the they wind up with nitrogen bubbles poisoning its veins, like a scuba novice rising too quickly to the surface?

Short answer: beaked whales — especially one species known as Cuvier's — get really, really scared.

"In the presence of sonar they are stressed and swim vigorously away from the sound source, changing their diving pattern," lead author Yara Bernaldo de Quiros said.

"The stress response, in other words, overrides the diving response, which makes the animals accumulate nitrogen," she added. "It's like an adrenalin shot."

One type of sonar developed in the 1950s — mid-frequency active sonar (MFAS), — in particular, throws these whales off balance. It is used today by Navies.

Starting around 1960, ships began emitting underwater signals in a range of about 5 kilohertz (kHz).

That is when the mass beaching of beaked whales, especially in the Mediterranean, began.

The most deadly episode, in 2002, saw 14 stranded in the Canary Islands during a NATO naval exercise.

Outwardly, the whales showed no signs of disease or damage: they had normal body weight, and no skin lesions or infections.

Internally, nitrogen gas bubbles filled the veins, and their brains were ravaged by haemorrhaging.

Autopsies also revealed damage to other organs, as well as to the spinal cord and central nervous system.

As with altitude sickness, reactions — in humans, and probably in whales — to nitrogen bubbles

in the blood vary in type and intensity.

A 2003 study in Nature on the link between sonar and whale deaths led Spain to ban naval exercises around the Canary Islands in 2004.

The drugs disrupt biofilm formation by bacteria, thereby rendering them vulnerable

END