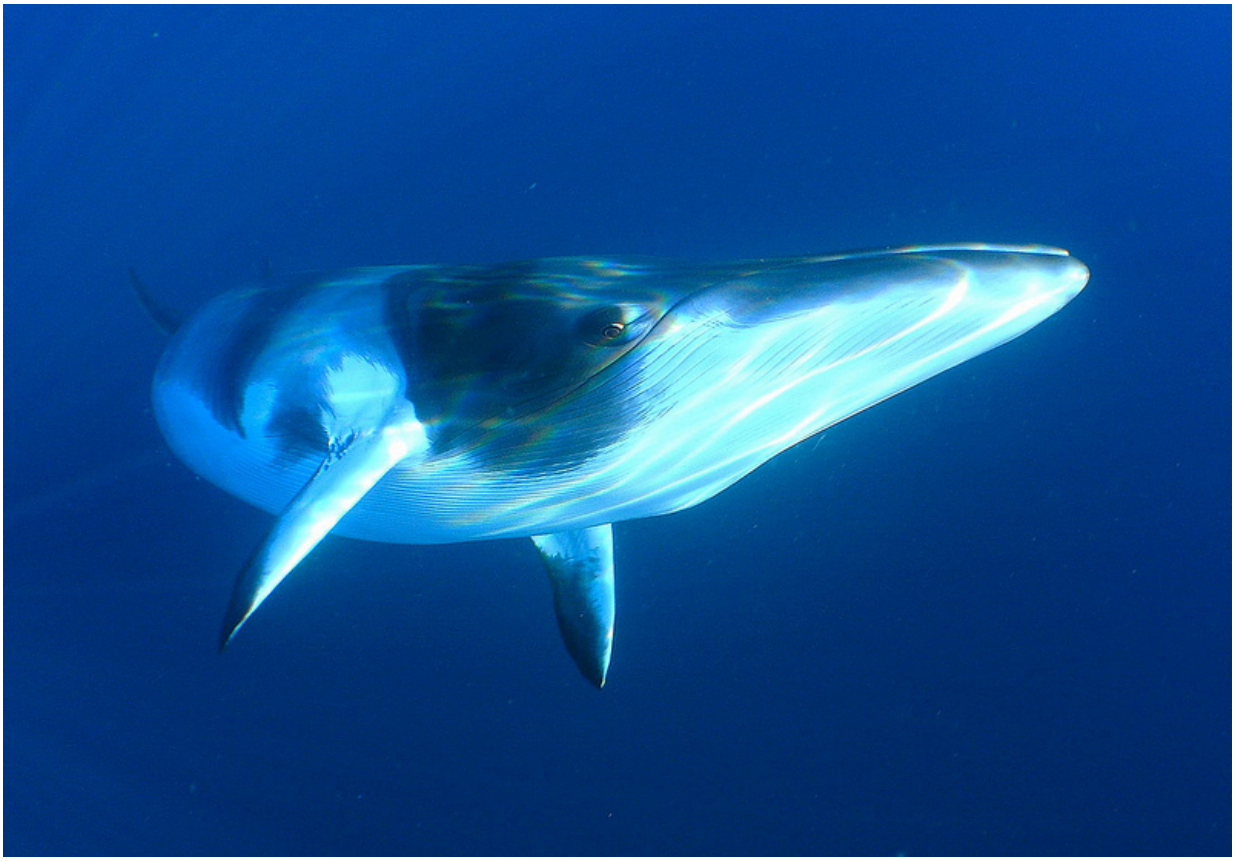
# 'Noisy' Perth Canyon awash with underwater chorus

June 16 2015, by Michelle Wheeler



“For marine mammals we know they communicate for reasons of social cohesion, so there are calls, for example, between mothers and calves identifying each other,” she says. Credit: Len2040

The Perth Canyon—the underwater chasm that is twice as deep as the

Grand Canyon—is teeming with noises made by whales, fish, the weather and passing ships according to a long-running study.

Researchers used acoustic observatories more than 400m deep in the canyon, which is located off Rottnest Island, to monitor the marine soundscape over several years.

They found whale calls seasonally dominate sounds at low and mid-range frequencies, with pygmy blue whales (Balaenoptera musculus brevicauda), fin whales (Balaenoptera physalus), Antarctic blue whales (Balaenoptera musculus intermedia), Antarctic minke whales (Balaenoptera bonaerensis) and humpback whales (Megaptera novaeangliae) all heard in the canyon.

At night, fish or invertebrate choruses dominate sounds at high frequencies, and the wind and rain can also be heard underwater.

Ships can be heard at low frequencies at all times of day and throughout the year, the study found.

Curtin University underwater acoustics expert Christine Erbe, who led the research, says sound travels extremely well underwater.

"From example, when we go out on a boat with students…we put a hydrophone over the side to listen to whales and all you hear is ship noise," she says.

"You look around and you don't see a vessel…it'll be 10-15 minutes later that you suddenly see a large vessel arrive on the horizon."

## Singing used for socialising

There are lots of reasons why marine life make noises underwater, Dr

Erbe says.

"For marine mammals we know they communicate for reasons of social cohesion, so there are calls, for example, between mothers and calves identifying each other," she says.

"Whales—large male whales—they sing and we think it's an advertisement, so a sexual display, they just do it acoustically rather than with colourful feathers.

"With fish, we know that they also sing during the spawning season, and some animals emit sounds to actually actively sense the environment, so all toothed whales have a biosonar system just like a submarine."

Dr Erbe says it boils down to sound being the most sensible cue if you live underwater.

"Light doesn't travel and any olfaction like smell and taste will depend on your currents," she says.

"Really, sound is what evolution gave them to live underwater."

Dr Erbe says any man-made noise can interfere with the acoustic signals animals use and can even result in hearing damage.

But she says shipping noise in the Perth Canyon is relatively quiet compared to many other places in the world, particularly in the Northern Hemisphere.

**More information:** "The marine soundscape of the Perth Canyon," *Progress in Oceanography*, Available online 12 May 2015, ISSN 0079-6611, dx.doi.org/10.1016/j.pocean.2015.05.015

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