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Listening to Deep Ocean Whales [1]

Submitted by Rory Lattimer Mon, 2013-08-05 00:00

?We can?t get there but our technology can? ~ Kristen Kanes, Co-op student

Passive acoustic monitoring of marine mammals is a growing research theme on both the VENUS and NEPTUNE observatories.

UVic Co-op student Kristen Kanes works with the Ocean Networks Canada Innovation Centre (formerly Centre for Enterprise and Engagement, ONCCEE) to process passive acoustic data from their technology demonstrations. Together with John Dorocicz, Acoustic Systems Developer, the two ?listeners? publicize the highlights from these data within relevant research communities.

Kristen and John are helping promote Canadian technologies, which is part of ONCCEE?s mandate as a national Center of Excellence for Commercialization and Research (CECR), while informing scientists of relevant data they can freely access from ONC for their research.

Recent marine mammal highlights include sperm whales at Barkley Canyon [2] and fin whales in the Cascadia Basin [3] (site formerly referred to as ODP 1027). They were recorded with Ocean Sonics icListen [4] low frequency hydrophones.

?We?ve been listening to sperm whales almost every day for the past month, ? notes Kristen. ?The clips we?ve posted are just a sampling.?

Deep Divers: the Sperm Whales

The sperm whale, so named because of the liquid wax spermaceti in its head, has the largest brain of any known animal. They are the largest of the toothed whales, growing up to 20.5 metres long. Sperm whales live in every ocean, and each sperm whale clan is culturally unique. Highly intelligent and social, these animals are one of several species that some scientists want to legally recognize as non-human persons. This designation would endow them with legal rights and freedoms, including freedom from confinement and the right to live. Research conducted by Dalhousie?s Hal Whitehead has been central to the inclusion of

sperm whales in this legal battle.

For more information on Sperm Whales and the fight for non-human personhood, see this story: "Why Whales Are People Too"

Elusive Ocean Giants: the Fin Whales

At up to 27 metres long, the fin whale is the second largest animal on Earth. They can live for 100 years or more. Their 20-40 Hz calls are some of the lowest-frequency sounds in the animal kingdom. Fin whale populations were depleted by whaling and they are endangered on the IUCN red list. Their low numbers, high speeds and preference for offshore waters makes them difficult to study, and little is known about their population dynamics, ecology or habitat use.

Cascadia Research Collective is conducting a large-scale comparison of photo-identified fin whales from the US and Canada to learn more about these giants, while the University of Washington?s Michelle Weirathmueller is taking advantage of Ocean Networks Canada?s and Cascadia Initiative?s seismometers to localize and track phonating fin whales.

Improving our Listening Capabilities

Low frequency hydrophones are proving to be more sensitive to fin whale calls than seismometers. Ocean Networks Canada may one day further contribute to fin whale research by deploying low frequency hydrophones with Precision Time Protocol (PTP) timing.

With PTP capable hydrophone arrays, the VENUS and NEPTUNE observatories could also help researchers tracking marine mammals with higher frequency calls, such as sperm whales.

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