

**DOSITS 20th Anniversary Webinar Outline
November 30, 2022**

Short History of DOSITS

Gail Scowcroft, University of Rhode Island Graduate School of Oceanography, DOSITS Co-PI
Kathy Vigness-Raposa, Principal Scientist at Inspire Environmental, DOSITS Co-PI

Current and Future Directions of Fish Bioacoustics

Joseph Sisneros, Professor of Psychology (Animal Behavior) at the University of Washington

1. Introduction
Who I am and what I study
2. Current Directions of Fish Bioacoustics
Highlighting the current work taking place in our lab:
 - a. The role of the fish inner ear (sacculle, lagena and utricle) in hearing and acoustic communication
 - b. Sound source localization by fishes
 - c. Seasonal and hormone dependent changes in fish hearing
3. Future Directions of Fish Bioacoustics
 - a. What do fish listen to in the natural environment? Ambient sounds as a source of biologically relevant information.
 - b. What are the effects of anthropogenic sounds on fish behavior that can influence survival? and
 - c. Reproduction

DOSITS Links

How fish hear

- [How do fish hear? – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2018/05/01/how-do-fish-hear/)

Effects on fish

- [Potential effects of sound on marine fishes – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2018/05/01/potential-effects-of-sound-on-marine-fishes/)
- [Acoustic Issues Related to Diadromous Fishes – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2018/05/01/acoustic-issues-related-to-diadromous-fishes/)
- [Webinar Archive 2015-2016: Potential Effects of Sound on Fishes – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2018/05/01/webinar-archive-2015-2016-potential-effects-of-sound-on-fishes/)
- [Webinar Archive 2018: Potential Effects of Sound on Marine Fishes – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2018/05/01/webinar-archive-2018-potential-effects-of-sound-on-marine-fishes/)

What are soundscapes

- [What are soundscapes? – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2018/05/01/what-are-soundscapes/)
- [Webinar Archive: Signal Processing 101 & Soundscapes – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2018/05/01/webinar-archive-signal-processing-101-soundscapes/)

The Current State of Knowledge for Invertebrate Underwater Noise Research

Louise Roberts, Lecturer in Marine Biology, Department of Earth, Ocean and Ecological Sciences, University of Liverpool

1. Biological importance of sound/vibration for invertebrates
2. Different 'hearing' capabilities
3. Assessing literature
4. Potential effects of noise: behaviour, physiology, physical
5. New directions

DOSITS Links

- [How do marine invertebrates detect sounds? – Discovery of Sound in the Sea \(dosits.org\)](#)
- [How do marine invertebrates produce sounds? – Discovery of Sound in the Sea \(dosits.org\)](#)
- [What is intensity? – Discovery of Sound in the Sea \(dosits.org\)](#)
- [Snapping Shrimp – Discovery of Sound in the Sea \(dosits.org\)](#)

Future Direction of Acoustics Research with Large Megafauna

Brandon Southall, President and Senior Scientist for Southall Environmental Associates, Inc.

1. Integrating methods in behavioral and physiological response studies
2. New directions and technologies in laboratory hearing studies
3. Cross-disciplinary partnerships in acoustics and ecology to monitor marine mammal populations
4. Coordinating marine mammal response studies with full-scale operational industrial disturbance
5. Application of results and adaptation of response methods to inform population consequences of disturbance models

DOSITS links

How do marine mammals hear

- [How do marine mammals hear? – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/how-do-marine-mammals-hear/)
- [Hearing in Amphibious Marine Mammals – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/hearing-in-amphibious-marine-mammals/)
- [Hearing in Cetaceans and Sirenians, the Fully Aquatic Ear – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/hearing-in-cetaceans-and-sirenians-the-fully-aquatic-ear/)
- [What sounds can animals hear? – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/what-sounds-can-animals-hear/)

Measure marine mammals' reaction to sound (multiple?)

- [Measure marine mammal's reaction to sound – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/measure-marine-mammals-reaction-to-sound/)
- [Hearing Sensitivity Studies – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/hearing-sensitivity-studies/)
- [Visual Observations – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/visual-observations/)
- [Acoustic Monitoring – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/acoustic-monitoring/)
- [Tagging Studies – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/tagging-studies/)
- [Controlled Exposure Experiments – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/controlled-exposure-experiments/)

Animals advanced – population consequence of disturbance

- [Population Consequences of Disturbance – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/2015/05/08/population-consequences-of-disturbance/)

Future Direction of Acoustics Exploration

Alec Duncan, Senior Research Fellow, Centre for Marine Science and Technology School of Earth and Planetary Sciences, Curtin University, Perth

1. How we make long term recordings of sound in the ocean
2. Looking at what is recorded in a spectrogram
3. Sounds from near and far can be used to study marine animals, climate, natural sounds, and anthropogenic sounds
4. Summary of progress in the field of underwater sound recorders
5. Where is the technology going and where can we get data?
6. Keep listening

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Hydrophone receiver

- [How is sound measured? – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/how-is-sound-measured/)
- [Hydrophone/Receiver – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/hydrophone-receiver/)
- [Hydrophone Arrays – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/hydrophone-arrays/)
- [How is sound used to measure global climate change? – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/how-is-sound-used-to-measure-global-climate-change/)
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Tech – Ocean Observatories

- [Ocean Observatories – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/ocean-observatories/)

Hot topic - Glacial Calving in the Arctic Produces Record Source Levels

- [Glacial Calving in the Arctic Produces Record Source Levels – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/glacial-calving-in-the-arctic-produces-record-source-levels/)

-Noise field in Arctic

- [Noise Field in the Arctic – Discovery of Sound in the Sea \(dosits.org\)](https://dosits.org/noise-field-in-the-arctic/)

External link from Alec Duncan

Australian Ocean Data Network - <https://portal.aodn.org.au> (search for passive acoustic observatory)