

Using acoustic tags and Uncrewed Aerial Systems to study cetaceans
DOSITS Webinar Outline
April 15, 2026

Uncrewed Aerial Systems Aid to Advance Field Studies of Endangered Baleen Whales in New England Waters

Presenter: Susan E. Parks, Bioacoustics and Behavioral Ecology Lab, Professor of Biology, Syracuse University, Department of Biology, Syracuse, New York.

Process of suction cup acoustic recording tag deployment on large whales by vessel

(<https://dosits.org/galleries/technology-gallery/observing-and-monitoring-marine-animals/passive-acoustic-recording-tags/>)

Uncrewed Aerial Systems (UAS) for tag deployment Stellwagen Bank

<https://dosits.org/galleries/technology-gallery/observing-and-monitoring-marine-animals/uncrewed-aerial-vehicles/>

(<https://dosits.org/using-drones-to-deploy-digital-acoustic-tags/>)

New call types and shallow diving behavior indicating high risk for vessel collisions identified from acoustic tags on sei whales

<https://dosits.org/galleries/audio-gallery/marine-mammals/baleen-whales/sei-whale/>
<https://pubs.aip.org/asa/jasa/article/154/6/3543/2925613>

Advantages and Challenges of using UAS for data collection

Presenter: Marc Lammers, Research Ecologist at National Oceanic and Atmospheric Administration's Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS)

Advancing our understanding of Hawaii's humpback whales through drones and bio-logging tags

– Humpback whale tagging research at HIHWNMS

- Tags are used to study humpback whale behavior, acoustic signaling and the effects of anthropogenic noise (<https://dosits.org/galleries/technology-gallery/observing-and-monitoring-marine-animals/passive-acoustic-recording-tags/>)
- Movement data (accelerometer (<https://dosits.org/glossary/accelerometer/>), magnetometer, pressure) are used to study the whale's behavior in 2D or 3D

Behavioral response to vessel noise experiment

- An experiment was designed to examine the behavioral response of whales to vessel noise
- Stationary whales are drone tagged (<https://dosits.org/using-drones-to-deploy-digital-acoustic-tags/>) to minimize disturbance
- Whales are then exposed to playback experiments using recorded vessel noise and social sounds
- Response rate varied among sound types; higher response rate to fast R/V sound and social sound #1
- Response rate also varied among whale pod types; singers were most sensitive to acoustic disturbance

Studying whale hearing with tags

- The hearing abilities (<https://dosits.org/animals/advanced-topics-animals/detection-threshold/>) of large whales is difficult to study and therefore still poorly understood
- In human or captive animal studies the subject can be asked or trained to respond when a sound is heard (<https://dosits.org/animals/effects-of-sound/measure-marine-mammals-reaction-to-sound/hearing-sensitivity-studies/>)
- When training is not possible, electrophysiological methods can be used (e.g. ABR (<https://dosits.org/glossary/auditory-brainstem-response-abr/>)/AEP)
- Is there a way to measure the hearing (<https://dosits.org/science/measurement/what-sounds-can-animals-hear/>) of a free-ranging cetacean?