

**Using acoustic tags and Uncrewed Aerial Systems to study cetaceans**  
**DOSITS Webinar Q&A**  
**April 15, 2026**

**1) How long do the tags stay on the whales, and are you able to recover them and reuse them?**

The tags stay on from 0 seconds (if they do not attach) up to 48 hours, but the average is 24 hours. We do not want the tags to stay on for a very long time because we want to retrieve and reuse the tags. You can set up some tags for the suction cups to release after a set amount of time to help the retrieval process.

**2) Absolutely amazing research, a quick question, the DTag with the orange 3D printed "sail"... are those recovered? it seems (from what I can see) detaches as the tag makes contact with the whale.**

Yes, typically the 'sail' is recovered shortly after the tag is deployed, as it separates from the tag and floats at the surface at the location the tag was dropped. The tags are recovered separately after they detach from the whales.

**3) Have you noticed any difference in how long they stay on based on whether they are attached with a pole or drone?**

No significant difference with attachment issues between the pole and the drone.

**4) Can the tags monitor orientation of the whale that can be translated to a 3d model of whale movement?**

Yes, the motion sensors can be used to recreate 3d tracks of the whale movement, though with just the movement sensors they provide an estimate based on speed estimates. When we have integrated GPS positions, we can then fit those tracks to reflect more accurate movement that integrates effects from water movement and currents.

**5) Is there any knowledge on whether the height of the drop of the tag (from a drone - 8 meters mentioned in the talk) and associated force on the whale on impact negatively affects the whale?**

Reactions range between no visible response (the most common reaction) to a startle 'flinch' and/or an accelerated dive. However, even when a response is observed, the whale's behavior usually returns to pre-tagging behavior within minutes.

**6) You mentioned using heart rate along with the ABR tag data, what other biometric data can be collected with these tags?**

Heart rate and auditory brain stem responses are currently the only data that have been successfully obtained using this type of tag.

**7) Have you (Dave or Susan) noticed any behavioral changes from the whales, possibly in response to the drones overhead? I'm wondering if the whales are able to hear the sounds of the drone motors. Obviously the noise impacts would be much lower than that of a boat motor, but still curious.**

It's not that there are no behavioral responses, they can have reactions due to how the drone is flown and environmental conditions, but significantly less response to that of an approaching vessel.

**8) Is the tagging now a "proven" method that can be used more readily in the US? Would it be possible to use on North Pacific right whale?**

Acoustic tags themselves are a proven method, and as our speakers mentioned, they are typically attached to the whale with a long pole. You can read more about them here: <https://dosits.org/galleries/technology-gallery/observing-and-monitoring-marine-animals/passive-acoustic-recording-tags/>. The use of Uncrewed Aerial Systems as a delivery method must explicitly be included in permits required to tag whales. Research like this that demonstrates the technique is an important first step in including new methods in permits.

**9) Could this method be applied to smaller whales (ex, minke whales and harbor porpoise)?**

Drone tagging could potentially be applied to smaller baleen whales, but it depends on the whale's behavior and the drone piloting skills. A whale needs to be at the surface with enough of its back exposed to make a workable target for tag deployment. With respect to the ABR tag, it was originally developed for use on harbor porpoises. In theory, it will work better on smaller than larger whales because of the higher brain to body volume ratio.

**10) What are the sei whales feeding on at those shallow depths?**

The sei whales in our study were feeding on aggregation of small zooplankton (copepods) in the location we were studying them.

**11) I may have missed if this was discussed during the talks, but how do you confirm that detected calls are (or aren't) from the tagged individual (rather than a nearby individual) ? I believe this has been an issue in the past.**

Yes, this has been a challenge, as if you have two whales in close proximity, you can not rely on the amplitude of the acoustic signal alone in assignment of the signal. Two approaches we have been using more recently are to 1) use received amplitude, plus additional data streams including accelerometer detection of the signal and angle of arrival from stereo hydrophones on the tag, to increase confidence that calls are from the tagged animal and 2) tag all the whales in the group and use relative amplitude combined with other sensor data streams to have greater confidence of which whale produced the call.

**12) Are and if how are the tags used to prevent vessel collisions?**

The whole purpose is to better understand whale behavior and adjust human behavior, and the data has been used to redesign shipping channels, redesigning fishing gear,

**13) Are drones currently piloted or autonomous?**

The drones have been manually piloted in our use for these studies. We've been highly dependent on excellent pilots to help develop this method of tag deployment.