

Development and application of a low-cost, open-source drifting recorder for passive acoustic monitoring during vessel surveys



Protecting the blue planet

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Motivation

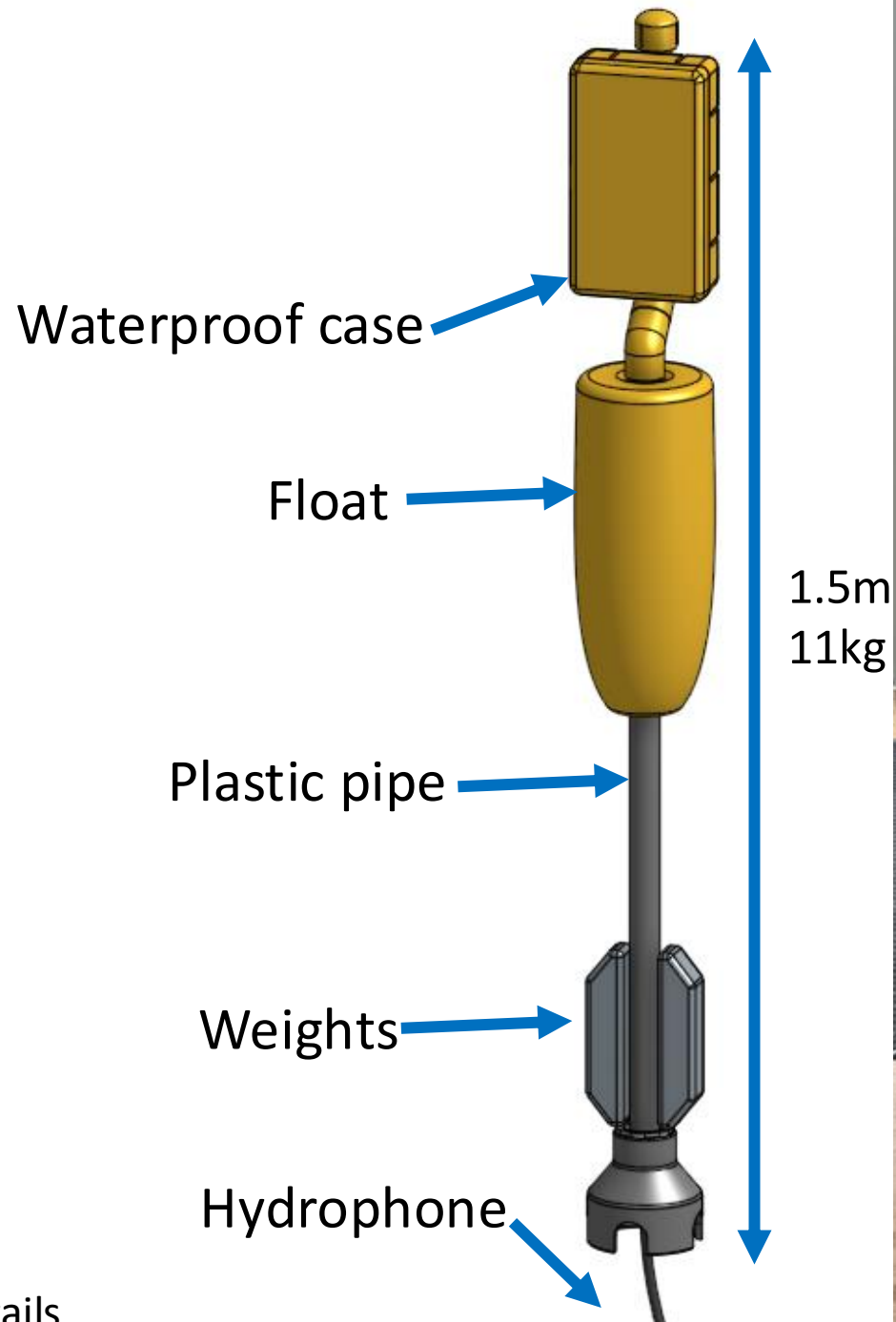
- Our team studies the endangered North Atlantic right whale
- Needed to collect acoustic data during vessel surveys
- Towed/dip systems subject to noise and restrict vessel movement
- Could not find a suitable drifting system, so we decided to build it ourselves



System design: float

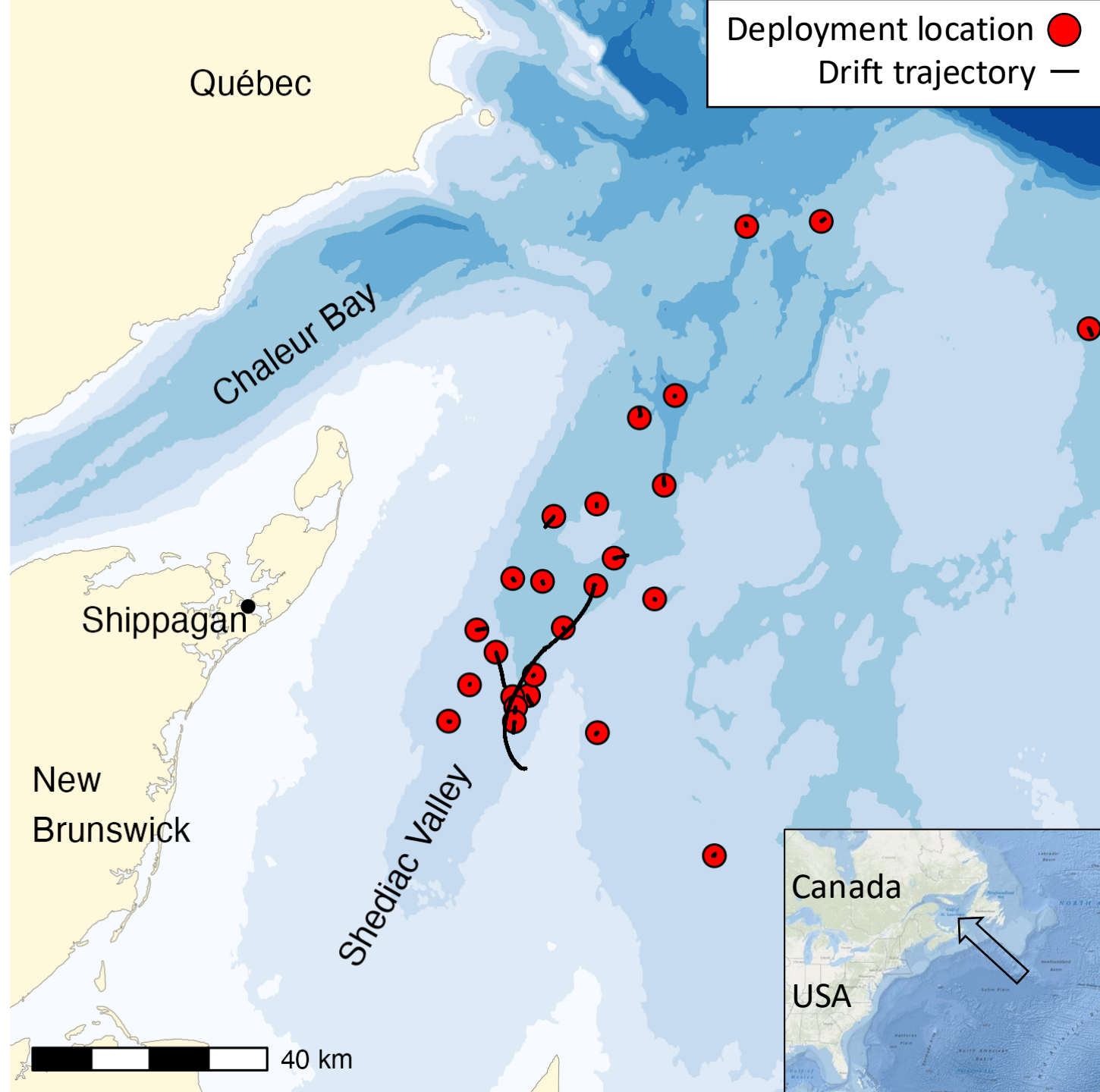
GOAL

Easy-to-use, low-cost, and customizable drifting recorder capable of logging **position** and **audio** for at least **24 hours**



Deployments

- Right whale surveys in the Gulf of St Lawrence, Canada
- 25 deployments
- >60 h of recordings
- Associated visual survey data
- Interesting calling from social groups and lone males



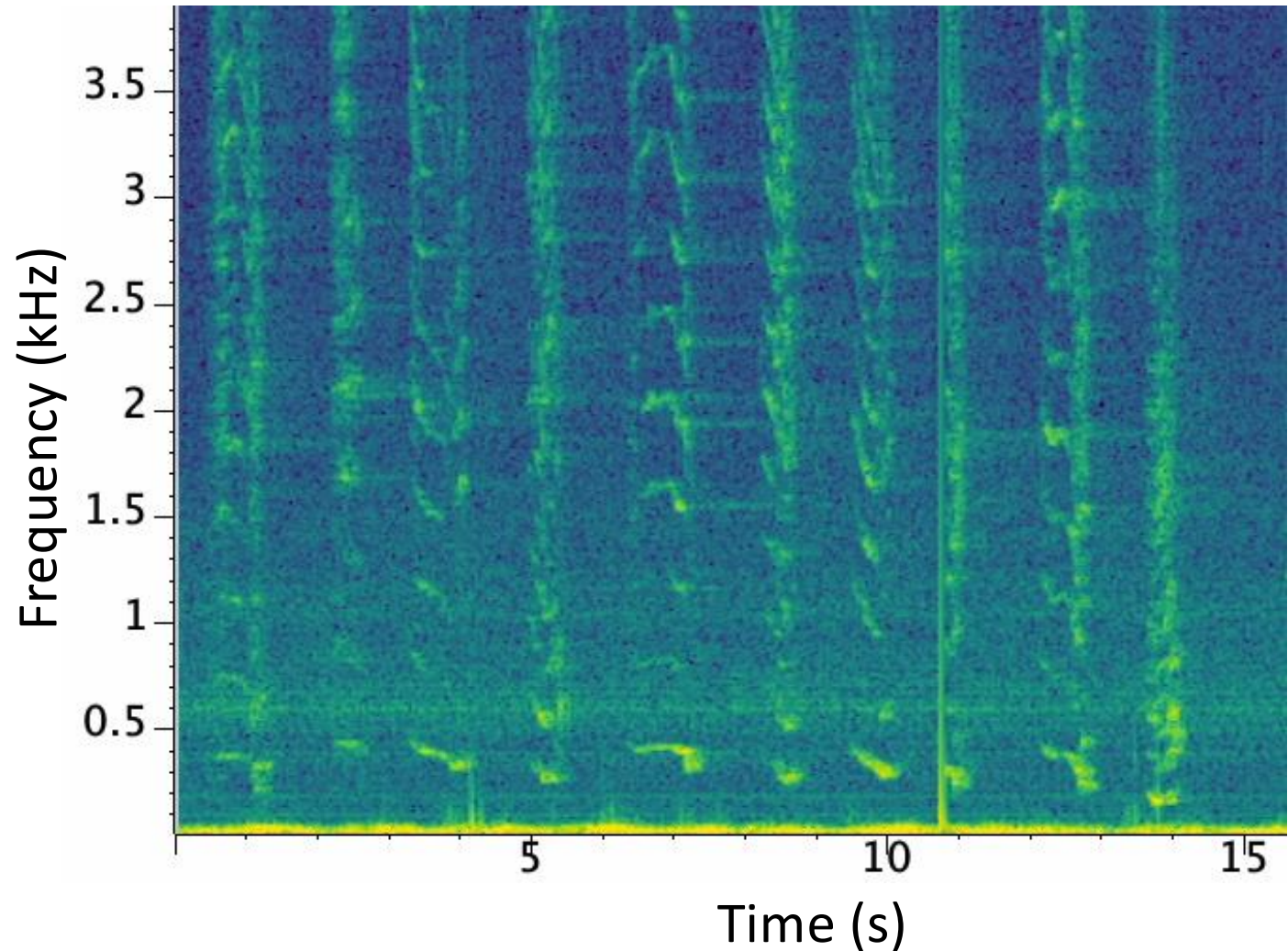
The drifter in action!

Photo: CWI/NEAq under DFO SARA permit



Example: vocalizations from a lone male

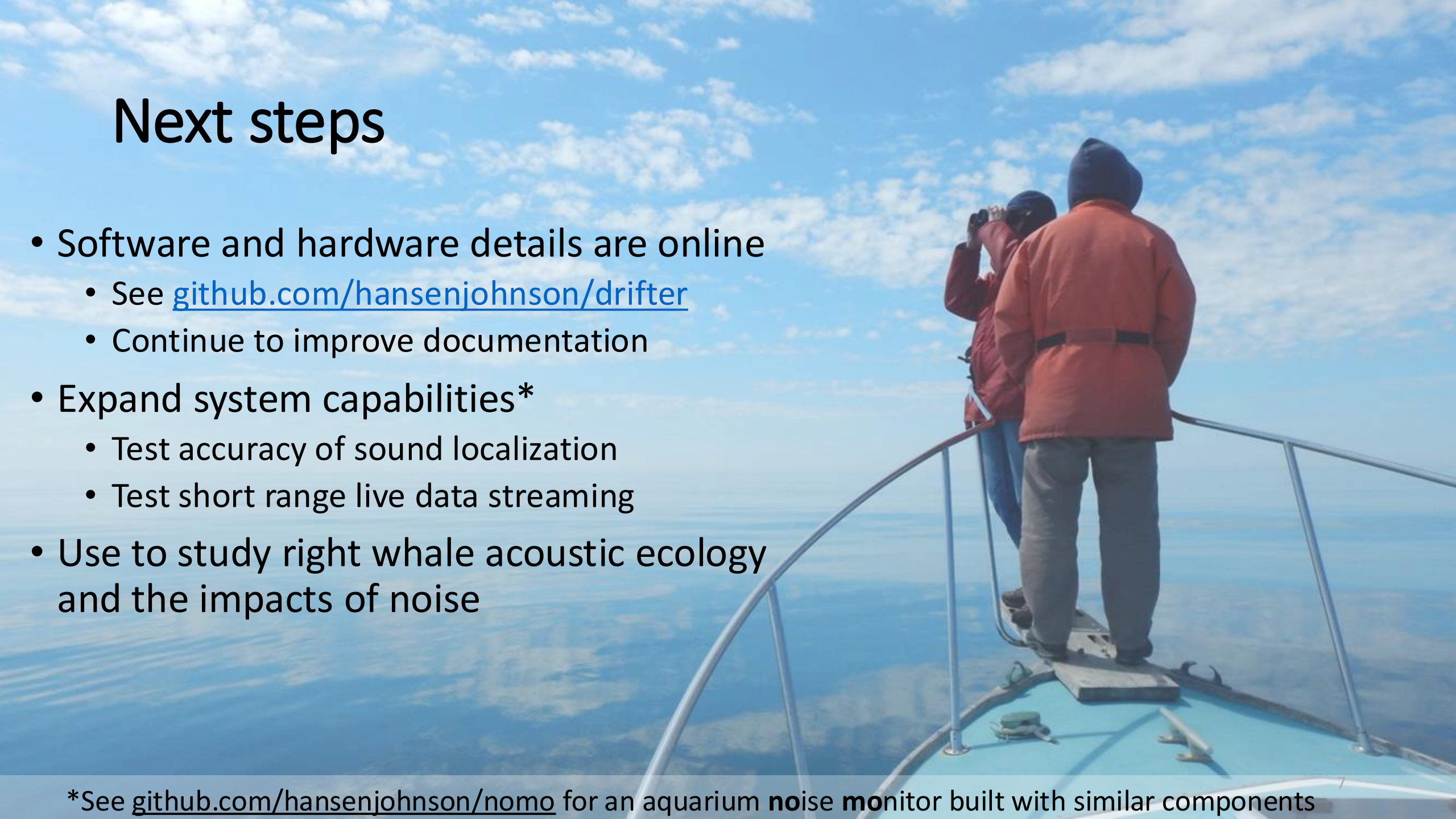
- Recorded on Aug 12, 2025
- Single right whale
 - Peter Rabbit (#2920)
 - 26 y/o male
 - Head pushing and flipper slapping
 - Producing patterned calls
- Observed similar calling from several other lone males



Next steps

- Software and hardware details are online
 - See github.com/hansenjohnson/drifter
 - Continue to improve documentation
- Expand system capabilities*
 - Test accuracy of sound localization
 - Test short range live data streaming
- Use to study right whale acoustic ecology and the impacts of noise

*See github.com/hansenjohnson/nomo for an aquarium **noise monitor** built with similar components



Thank you!

Special thanks to CWI/NEAq research team and the crews of the F/V Jean-Denis Martin and FRC Charlie for assistance with field testing



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For more information, please get in touch with me (hjohnson@neaq.org) or say hello at the meeting!

