NoiseSpotter Feedback

Sequim Bay Testing, August 2018

I attended two days of the August 2018 Sequim Bay in-water testing of the NoiseSpotter acoustic measurement platform. On Tuesday 8/28 I observed the NoiseSpotter deployment in Dungeness Bay - a quiescent deep-water site, and on Wednesday 8/29 I observed the deployment at SB2 - a quiescent shallower site. Based on my observations during testing, I've compiled the following feedback for the NoiseSpotter from the perspective of the MHK industry, namely developers and regulators.

Feedback for NoiseSpotter from the perspective of MHK developers

- NoiseSpotter is currently designed for a 2-week deployment. This timeline will likely be problematic for MHK developers. Developers will want a robust/proven system that they can deploy and not worry about for longer than 2 weeks (especially for the continued monitoring of a site).
- Powering the NoiseSpotter with MHK device to extend deployment beyond 2 weeks and demonstrate that MHK device can be used to power instrumentation systems (a target alternative market for the MHK industry) would be a win-win.
- Having a robust hardware/software system is critical to MHK industry because they have enough uncertainty with their own technology, they need a proven solution to meet their EIA needs.
- Plans to modify the design for ease of use and deployment (i.e. rigid structure) will be very important to the MHK industry. Developers will want a robust/proven system that is easy to deploy and does not have additional requirements (i.e. special equipment for deployment).
    - Can the same vessel be used for deployment of the NoiseSpotter?
    - Can the same permit be used to deploy the NoiseSpotter as for the MHK deployment? Are

there special requirements?

- Can the NoiseSpotter be used for MHK device health monitoring and failure identification?
- Can the NoiseSpotter be used to identify protected species in the area and shut down the MHK device until the site is cleared?
- How is the data analysis performed and who performs it? Who will be responsible for modifying the NoiseSpotter software to meet MHK specific needs (i.e. device failure and species detection)?
  - Some developers will want to run the software and analyze the NoiseSpotter data themselves, and potentially feed it back to control their device (i.e. for device failure and species detection). Other developers will want a plug and play system that meets the EIA continued monitoring requirements, but will not want to interface with the software/data at all. The former requires software that is easy to use/modify to meet specific needs, the latter requires outsourcing the data analysis to a third party (i.e. Integral).

Feedback for NoiseSpotter from the perspective of MHK regulators

- An advantage of the NoiseSpotter is that can be used to perform both the baseline site characterization study, and the continued monitoring of a site as required by the EIA. This will ensure consistency in the reporting of acoustic signature for a site.
- Can the NoiseSpotter platform be used to support other instrumentation for the continued monitoring of a site? It would be beneficial to have a platform that could accommodate other sensors as well and a data acquisition system that could save/transmit additional data streams.

General comments and questions

- Once this project is over, who owns the technology? What is the plan for commercializing it? Let's say I am a developer who wants to use this technology, do I buy the NoiseSpotter and pay Integral for processing my acoustic data? Do I buy the NoiseSpotter and a software license? If so, will I be able to modify the software to meet my specific needs? Let's say I know my device has a certain likely failure mode and I know what it sounds like and I want the NoiseSpotter to detect it. Who implements that?
- Will future tests include detection of specific sounds? Let's say the MHK device is in a whale migration path, will the NoiseSpotter be able to detect a whale's proximity to the MHK device and inform the device to power down and stop operating until the whale has passed by? Can there

some kind of feedback into the MHK device to inform its operation (this is also relevant for MHK device health monitoring)? How is information from the NoiseSpotter passed to the MHK device?

- What is the acoustic range of the NoiseSpotter? If the MHK device is deployed on the surface and the NoiseSpotter is on the bottom, will it still be able to sense an MHK device failure (assuming the NoiseSpotter is also being used for MHK device health monitoring)?
- How does sediment type impact acoustics? Will the NoiseSpotter detection software account for sediment type? Does this impact the accuracy of the algorithms?

Submitted to Integral Consulting on September 12, 2018 by Kelley Ruehl