

#### **CONSTRUCTION HYDROACOUSTIC MONITORING**

#### Lessons from the field

Environmental Managers Association of BC

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May 19, 2021

#### **OVERVIEW**



#### Monitoring equipment



Hydrophone deployment



Data collection and processing



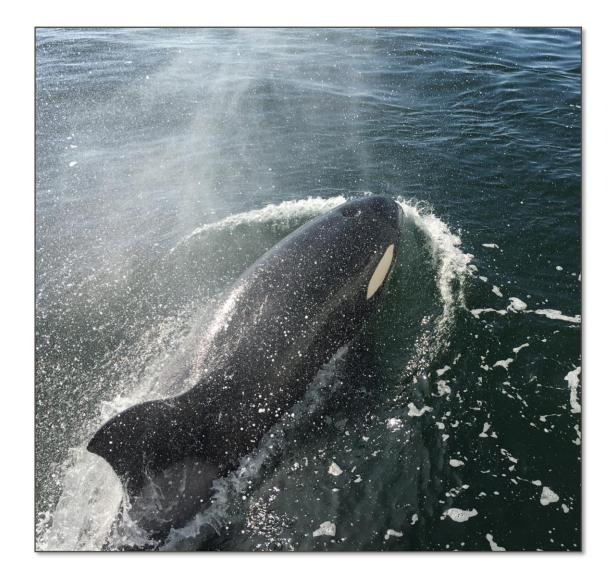
Questions





### **KEY THEMES**

- Hydroacoustic monitoring is critical to avoiding impacts of high-noise construction activities on fish and marine mammals.
- Hydroacoustic monitoring and compliance is a priority for regulators.
- Technical guidance is evolving, but currently limited. Differences exist in the sound thresholds presented in literature vs permit conditions. Thresholds must consider location, species and life stages of local fauna in defining an appropriate monitoring program.
- Field monitoring is often more challenging than expected.
- Knowledge sharing is crucial to effective underwater noise management and monitoring.







# EQUIPMENT

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#### EQUIPMENT

- Regulatory requirements:
  - Real time processing of Peak SPL, Cumulative SEL and RMS
- Field requirements:
  - Rugged Able to withstand field conditions
  - User friendly Reliable, portable, easy to use and troubleshoot



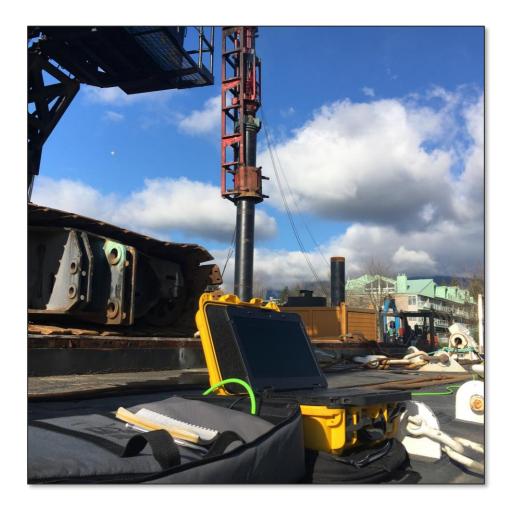




### HYDROPHONE DEPLOYMENT

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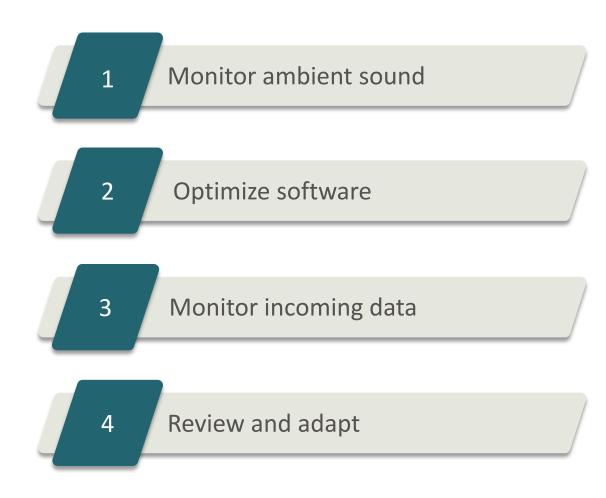
- Proximity and orientation to pile
- Water depth
- Deployment challenges
  - Current
  - Debris
  - Bubble curtain
  - Safety
- What works?
  - Rigid frames
  - Anchor lines



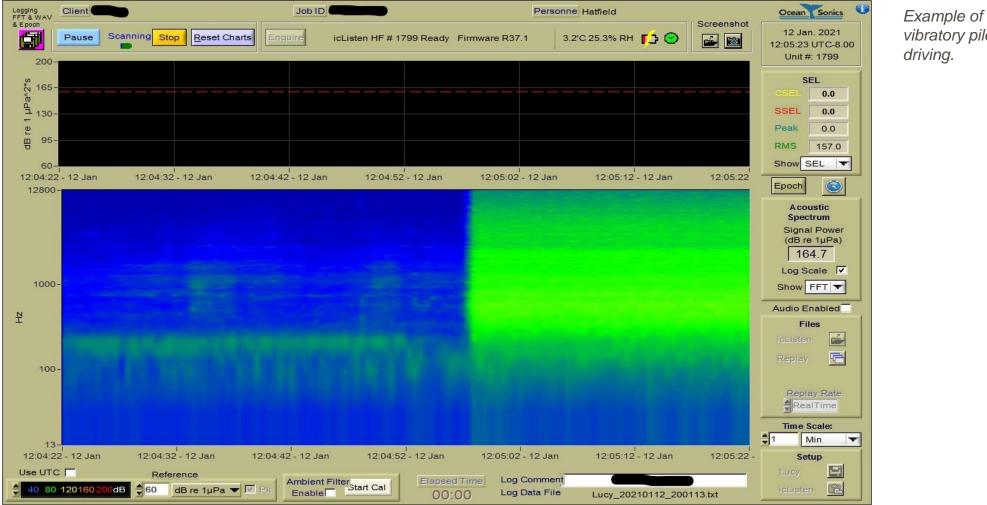




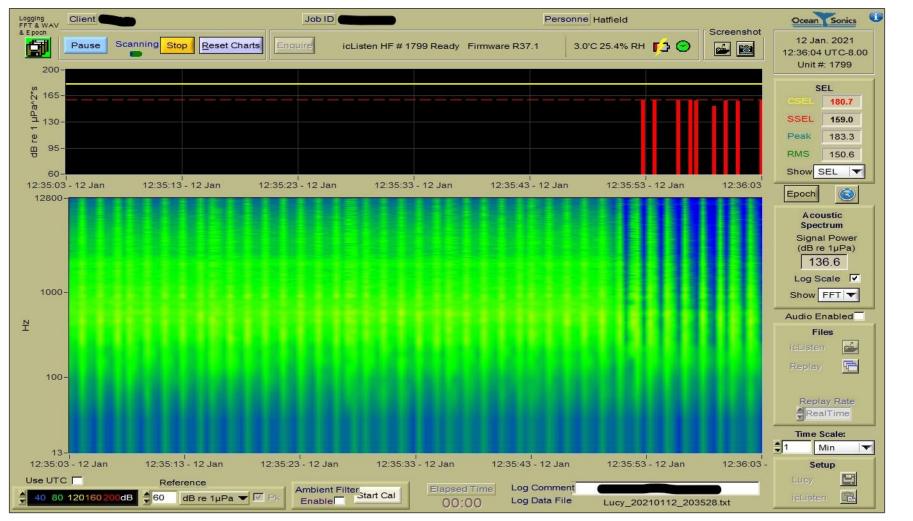
# DATA COLLECTION AND PROCESSING



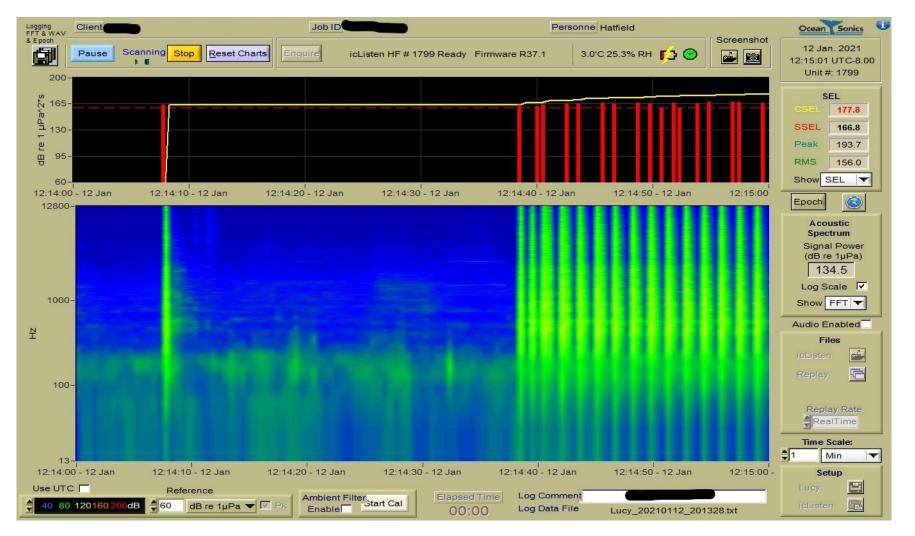




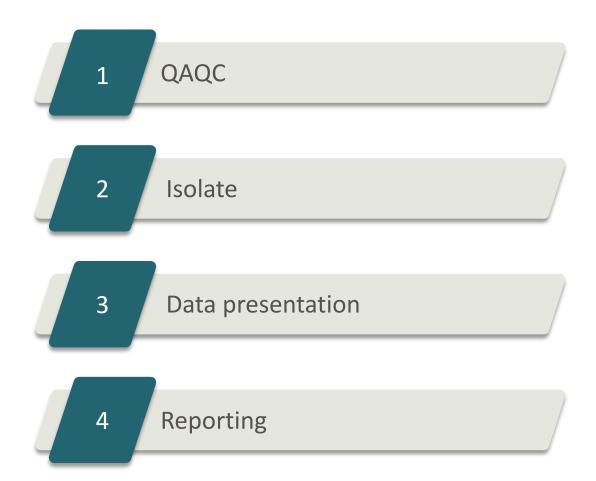
vibratory pile driving.



Example of vibratory pile driving occurring simultaneously with impact hammering.

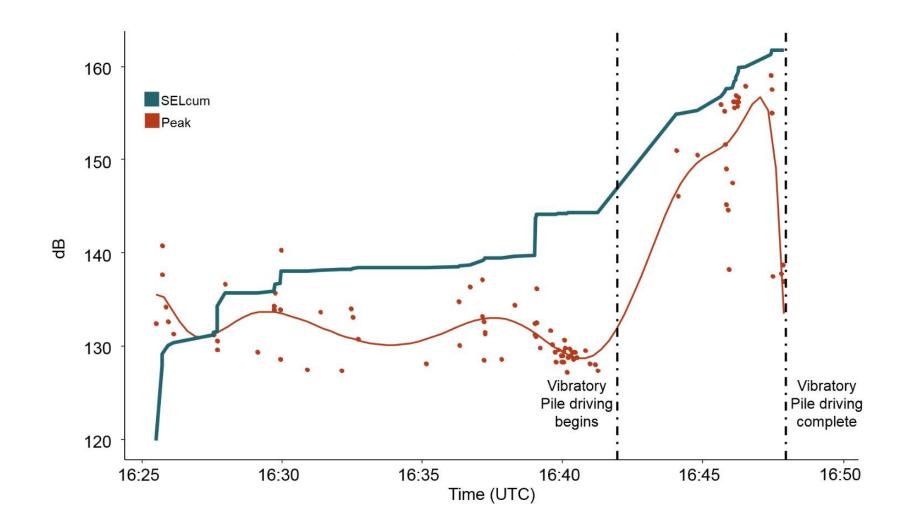


Example of impact hammering with proper detection threshold settings.

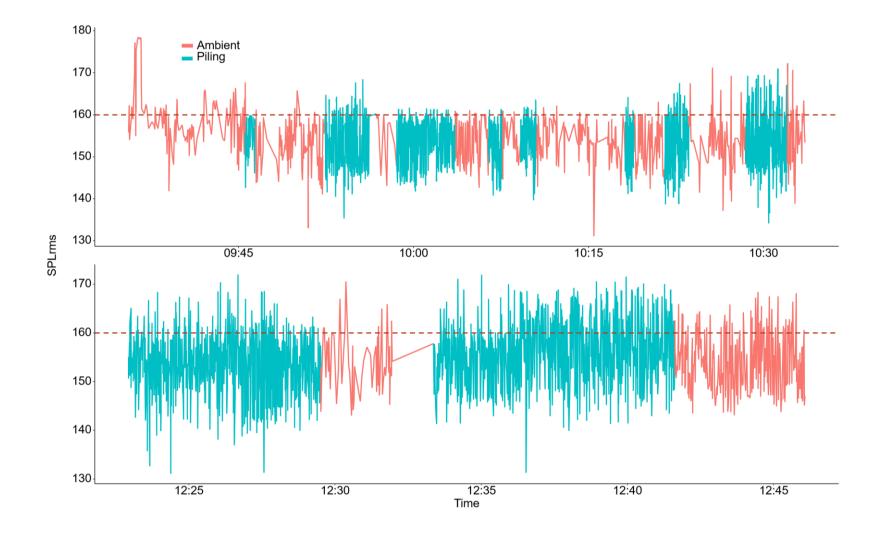


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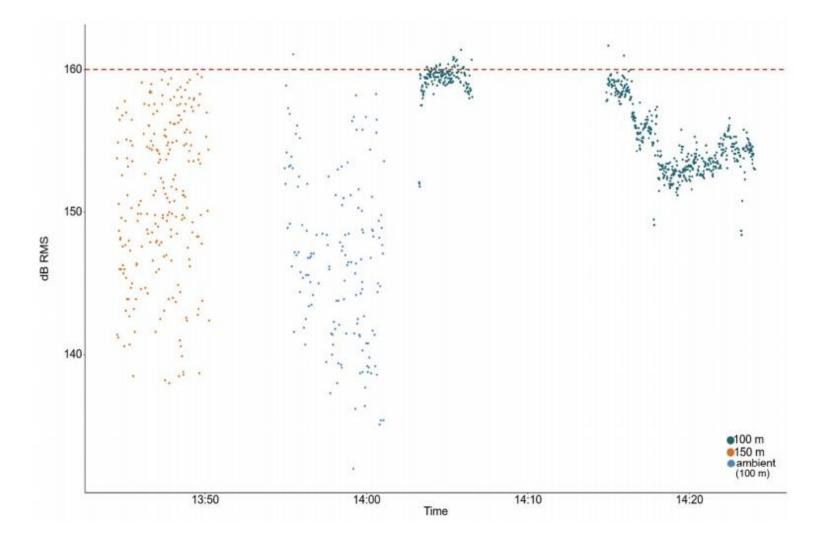














# SUMMARY

- Guidance is limited but evolving.
- Monitoring can be challenging, but effective when done correctly.
- Hydrophone position is important, know what to look for.
- Awareness of ambient noise is crucial.
- Anticipate challenges and adapt.



# **QUESTIONS?**

# Thank you





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