PAME II-2019: Annotation to agenda 6.5(a)

DRAFT Statement of Work

Developing Acoustic Intensity Maps for Shipping in the Circumpolar Arctic

This draft Statement of Work is submitted by Canada and WWF to PAME for consideration and outlines the scope, timelines and deliverables for a specific segment of work - underwater noise mapping - as part of the 2019-21 PAME project: *Underwater Noise in the Arctic – Understanding Impacts and Mitigation Strategy Options*.

This draft is based on a series of interviews with experts in the field of underwater noise. Accordingly, the outcomes of these interviews shape the much of the language, methods and deliverables contained in the document.

The following experts were consulted:

- Dr Kevin Heaney, CEO of Applied Ocean Sciences, Washington DC USA
- Dr. William Halliday, Wildlife Conservation Society, Victoria Canada
- Dr. Christine Erbe, former JASCO and DFO now professor at Curtin University, Perth Australia
- Dr. Christ Dejong and Niels Kinneging with the Joint Monitoring Programme for Ambient Noise North Sea (JOMOPANS), Netherlands

The following questions were posed:

- What information is needed in order to accurately measure underwater noise levels from ships in the Arctic? Is there must have data versus nice to have data?
- Does AIS ship track data need to be processed in a certain way to lend itself to supporting this research? What format does this data need to be in and what are the key pieces of information needed?
- Is there a specific season, and/or should we be looking at historical data (past 5 years) for this model?
- Are there standard or widely accepted models for this type of work? And, what are some of the agreements and disagreements among experts about these models?
- Are there simple (less expensive) and more complex (expensive) approaches to modeling noise propagation from ships?
- Is it ideal to model in an area where real time hydrophone data is available to corroborate the modelling? What level of effort is involved in comparing real time versus modelled results?
- Which areas in the Arctic should we focus on, if the entire Arctic is too broad?
- What should the end product look like? Maps, tables, graphs, narrative explanations?
- How long can we reasonably expect the modelling to take, starting with a case study, or specific region within the Arctic?
- Can you recommend experts (maybe yourself!) that can do this work or others we can talk to?

PAME II-2019 recommendations/actions:

This draft will be discussed both during the SEG pre-meeting and during plenary under agenda item 6.5 (a). This document sets out the framework within which a contractor will complete his/her work pursuant to Phase I of the Canada/WWF underwater noise project. The hope is that during the PAME II-2019 meeting, participants will offer up their suggestion from the floor on how to improve the document, which will also be complemented by the SEG meeting presentation by Bill Halliday