Methods:

**Determining received level (RL)(dB) in relation to number and distance of ships**

Calculate Received Level

Calculate Transmission Loss (TL) =log10(range) \*range of ships on AIS from Gato

Use RL and TL to calculate SL= RL + TL

AIS screen shot at start of every recording (picks up ships within a 26 nm range)

 Count all ships with defined Nav Status as “Underway”

 Record the name, type, and range

 \*The error in not counting ships that are “undefined” is that they could still be motoring or contributing to the noise level with motors on, even if not underway. However, there is no way to know, so for the purpose of this study vessels with undefined nav status’s will not be counted. This could lead to loss of the SL from these ships.

AIS data will be used to determine distance from ships and #of ships in acoustic range.

**SRKW Acoustic Recording Analysis**

Calculating echolocation click rate

This study will utilize Pamguard (insert technological information) to auto detect the echolocation click rate produced by the killer whales.

 Correlating click rate to observed surface behaviors’

 🡪 foraging state?

Behavioral budgets of whales when we were with them

**Calculating potential masking effects of echolocation clicks from ship SL’s**

Average time whales spend in these locations

**Interpretation: What does this mean for the killer whales?**