**Methods**

* Hydrophones were deployed at 5 sites around Kiritimati in the summer of 2017 and the summer of 2018.
* Hydrophones were set to a duty cycle of 5 minutes of recording for every 15 minutes deployed.
  + Recordings occurred every 15 minutes of the hour (9:00, 9:15, 9:30, etc.)
* While these hydrophones were deployed, at least 3 fish surveys were conducted at each site
  + Fish surveys consisted of belt transect surveys…etc…etc
* At the end of the field season hydrophones were recovered and brought back to the University of Victoria for analysis.

**Analysis Methods**

* Before analysis, several steps were taken to control for any anthropogenic influences to the reef soundscape
* All sites were scanned with a boat detector and any samples involving boat noise were removed
* All dates in which the site was visited by divers were removed

To analyze diurnal patterns in acoustic variability:

* ACI and SPL were calculated for all samples at all sites to determine diurnal patterns
  + ACI and SPL were calculated in 3 different frequency bands:
    - 50 – 22000 Hz – **Broadband**
    - 100 – 1000 Hz – **Low Frequency**
    - 1 – 22 kHz – **High Frequency**
* Four time periods were determined that were representative of the diurnal pattern
  + 3:00 AM – the highest period of SPL
  + 9:00 AM – the “decreasing” period of SPL
  + 3:00 PM – the low period of SPL
  + 9:00 PM – the “growth” period of SPL
* \*\***This pattern was observed in the opposite for ACI**
* Every other day was sampled at these four times.
  + Days in which the boat was present at the site were discarded to avoid any interaction effects between the boat/divers and fish calls
* At each of the four sampling times one 5 minute sample was analyzed:
  + Snaps were quantified using a detector set to a frequency and time threshold
  + Individual fish sounds were quantified (falling between 100 and 1000 Hz)
  + Knock trains were quantified (each train was quantified as 1)
  + Long calls were quantified and identified (each identifiable call was quantified as 1)
    - Identifications only show presence absence as “long call” groups all long calls
    - However, counts are done in 10 s intervals so you can map the number of times it was present within a 5 minute sample

To analyze temporal changes associated with species assemblages at each site:

* Samples were taken \_\_\_\_\_\_\_\_ around fish surveys conducted at the sites
* Samples were analyzed as described above
* Correlations between fish communities and acoustic measures were found using a multivariate analysis