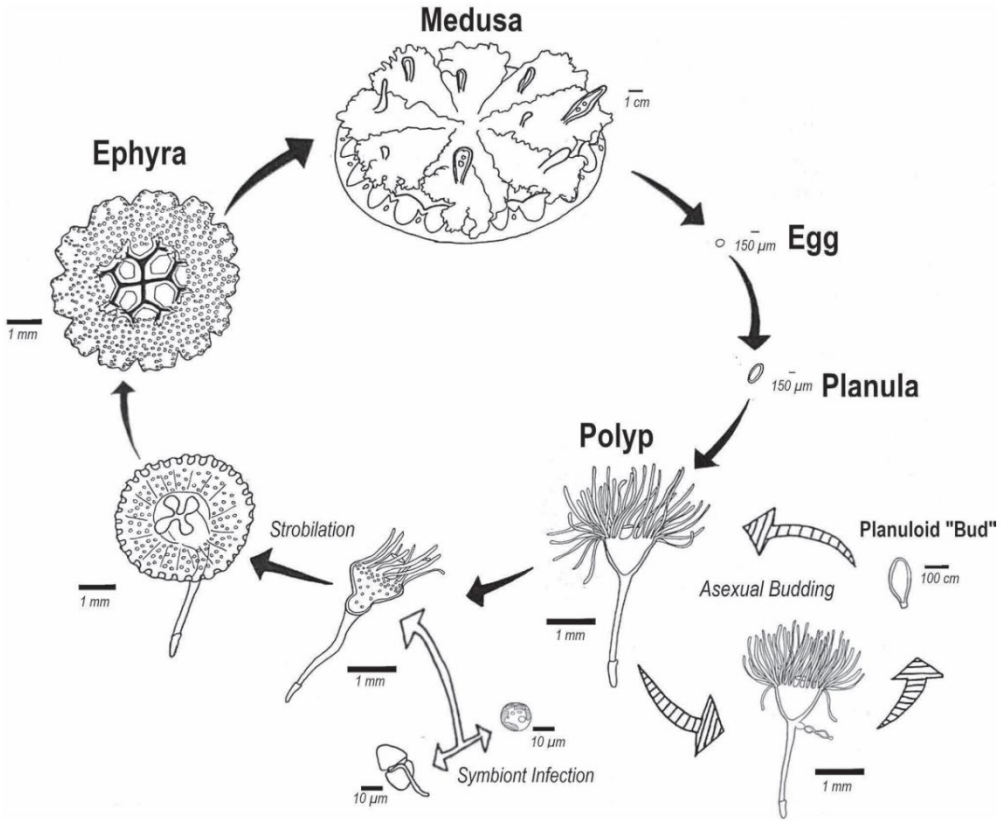
Background

Model organism

- *Cassiopea xamachana*
    - “Upside-down jellyfish”
    - Benthic, tropical jellyfish
    - Symbiotic algae
    - Have 3 life stages

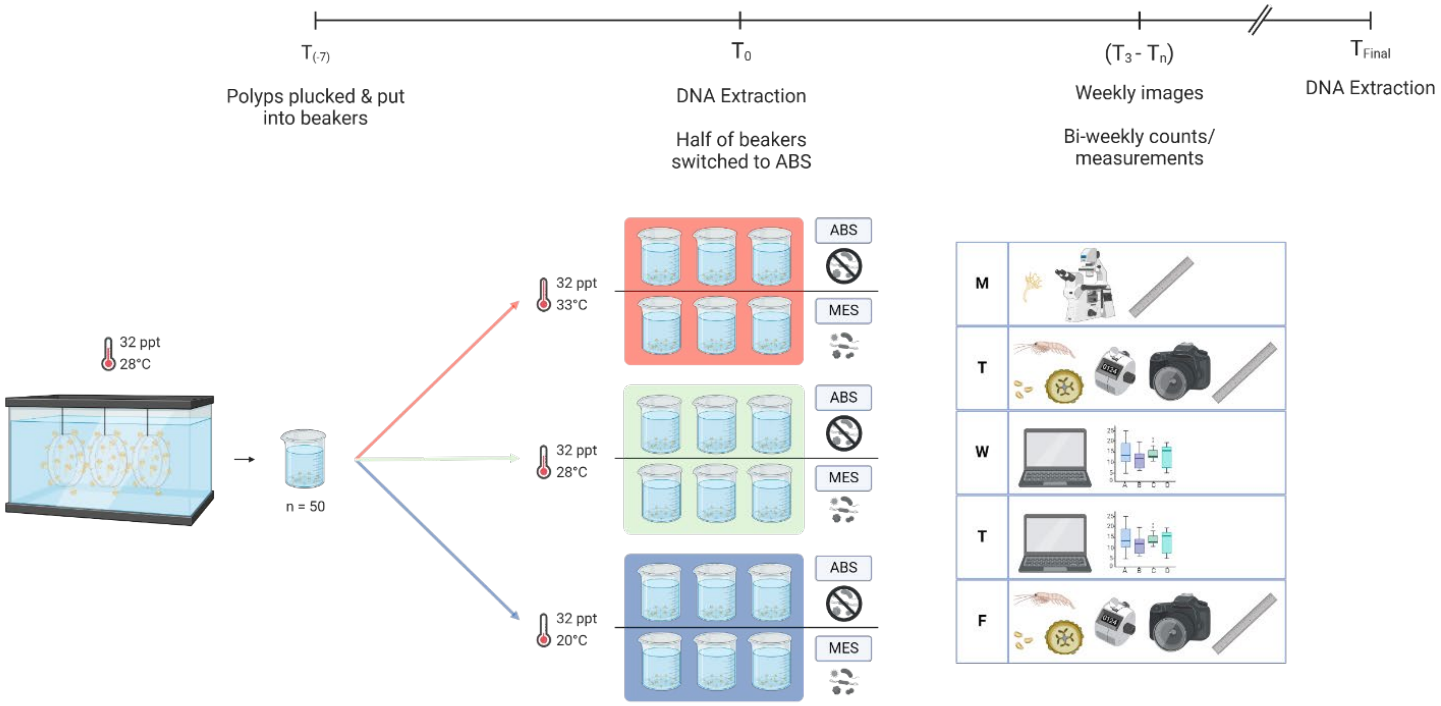


Experimental Design Overview

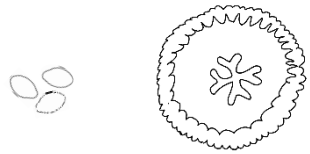
Purpose

To vary temperature and microbial conditions to see how environmental factors impact polyp fitness phenotypes (size, reproduction, mortality).

- 3 temperatures: Low (20), ambient (28), high (33)
- 2 microbial conditions: ASW, sterilized anti-biotic treated ASW
- Note: all polyps came from the same lab population
- Note: polyps were randomly divided among beakers (50/per)
- Note: experiment was run in biological triplicate



Data gathered



- Count data (twice a week)
    - Buds (asexual reproduction)
    - Ephyra (asexual reproduction)
    - Polyps (mortality)
- Measurement data (weekly)
    - Polyp width
    - Ephyra diameter

- DNA samples
    - Polyps
        - T0
            - 6 total samples
            - Combined 5 polyps from each bio rep for 15 total polyps/sample
        - T35
            - 18 total samples
            - Individual samples from every beaker
    - Water
        - T35
            - 18 total samples
            - Individual samples from every beaker

Analyses Goal

- Count data (temporal aspect)
    - Are the trends across temperatures significant?
    - Are the differences within a temperature between microbe treatments significant?
- Measurement data
    - Are there differences between T0 and T35 between temperatures and microbe treatments?
    - Are all the T0 samples the same (not significantly different)
    - Are the T35 samples significantly different from one another across treatments?
- DNA (Bacterial Load)
    - Are the differences between samples (across temperature and microbe) significantly different from one another?
    - Relative and absolute quantification values

Main Questions

- What tests should I use for testing differences?
    - Parametric, non-parametric, post-hoc?
- Do I need to transform my data?
- Are the stats that I have run appropriate?