Ecosystem Carbon Chemistry Connectivity

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Goals

- Understand lateral connectivity of seagrass ecosystem's role in buffering anthropogenic impacts.
- Determine the response of carbon metabolism to resource availability from the landscape to organismal level.

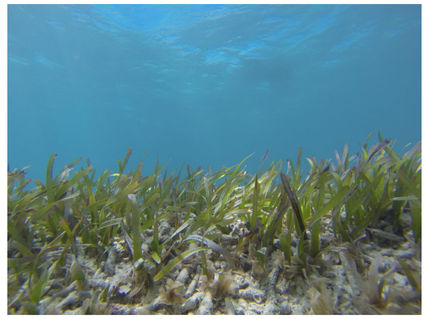


Figure 1. Seagrass beds adjacent to urban development and coral reefs.

Methodology

- Install hydrologic current sensors coupled with sensors of carbonate parameters and dissolved oxygen sensors at three sites along a nutrient gradient to measure metabolic responses.
- Measure production of organic and inorganic carbon and Carbon isotopes of carbon species at multiple locations at each site during seasons of high and low light regimes

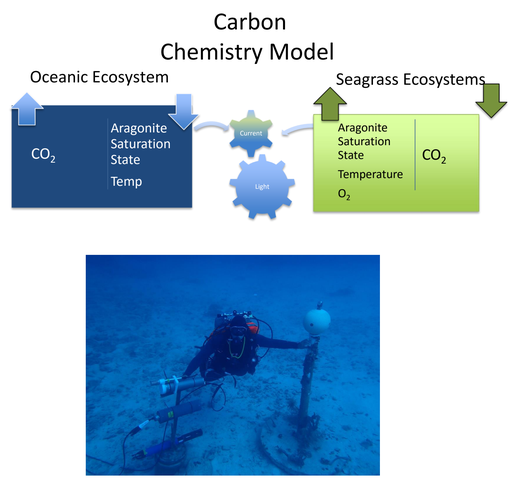
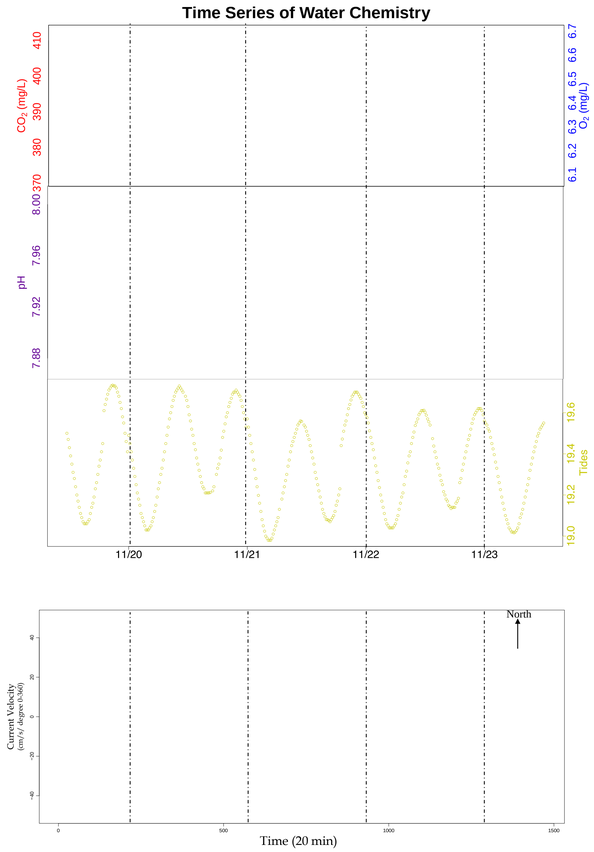


Figure 2. (a)Carbonate metabolism proposed mechanism. (b)Sensor array to quantify the model

Preliminary Results



- Fig 4. If we can identify the environmental variables that influence temporal and spatial variations in carbonate production we can better predict future carbon balance scenarios for these interconnected systems.

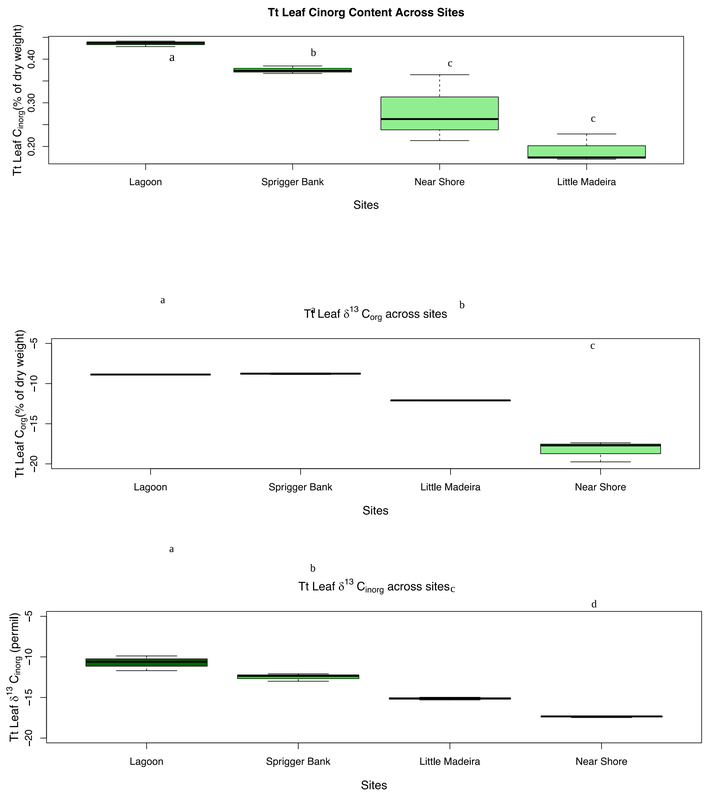


Figure 3. Plant leaf carbon chemistry response to a resource availability gradient.

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