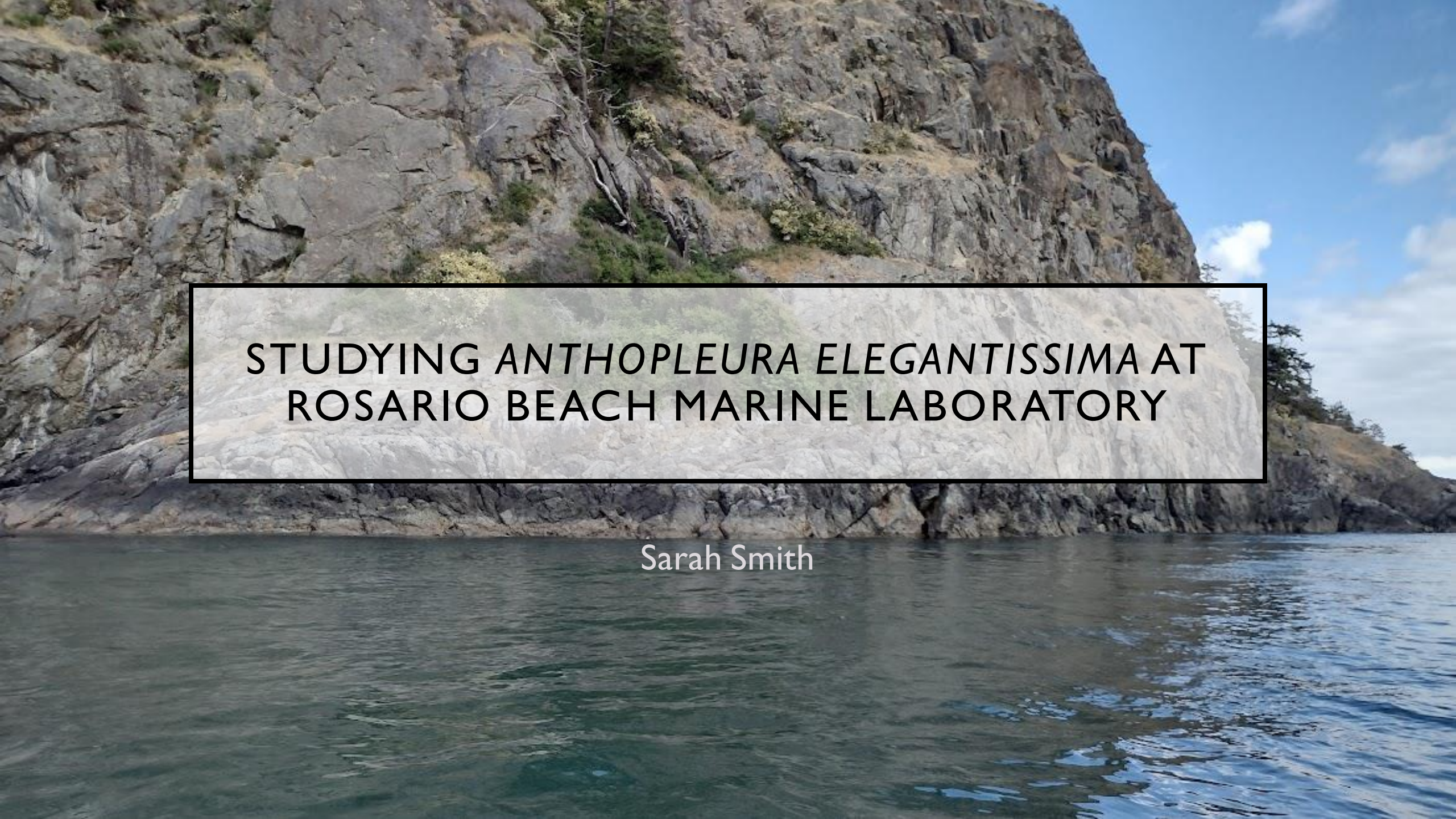


STUDYING *ANTHOPLEURA ELEGANTISSIMA* AT ROSARIO BEACH MARINE LABORATORY

Sarah Smith

WHAT IS *ANTHOPLEURA ELEGANTISSIMA:*

- Small intertidal anemone
- Can be found from Alaska to California
- Often hosts symbiotic algae

ANTHOPLEURA ELEGANTISSIMA IS SOMEWHAT UNIQUE BECAUSE IT CAN HOST BOTH GREEN AND BROWN ALGAE

- Anemones living in warmer sunnier areas often host predominantly brown algae
- Anemones living in darker cooler areas tend to host predominantly green algae
- Anemones exposed to little light often contain little to no symbiotic algae
- Studies have shown that brown algae provides more energy to the host anemone than the green algal symbionts

A. Elegantissima hosting green algae

A. Elegantissima with little algal symbionts

A. Elegantissima hosting brown algae

THE QUESTION:

Because brown algae provides more energy in the form of carbon products to the host than green algae, do anemones with predominantly brown algae recover from asexual division faster than those with green algae and no algae? Is this healing rate impacted by the light intensity?

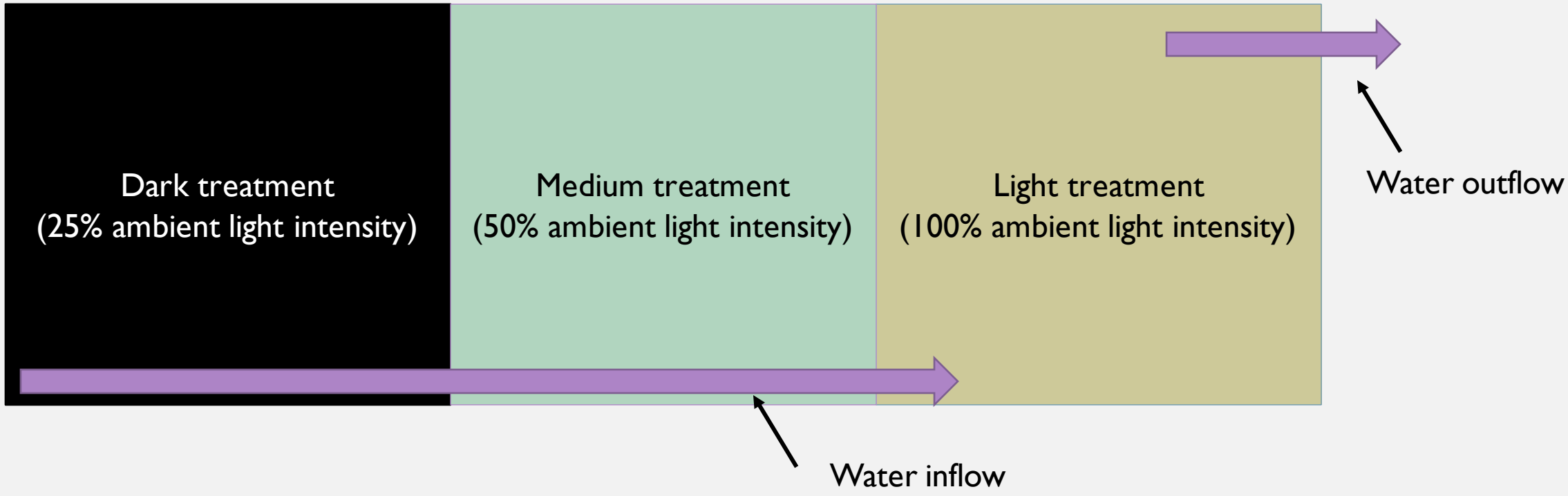
OVERVIEW OF THE METHODS

- Cut each anemone (12 brown, 6 green, 5 with low algal concentrations) into quarters
  - Slicing them simulated asexual division
  - Cutting each anemone into quarters allowed for each anemone to be exposed to the three different ambient light treatments (100% intensity, 50% intensity, and 25% intensity) and initial anemone chlorophyl analysis
- The anemones were photographed each week for 5 weeks to document healing
- After 5 weeks, the anemones were analyzed
  - The algal cell count of each anemone was found using a hemocytometer
  - The anemone protein and algal chlorophyl concentrations were found using a spectrophotometer

Me collecting anemones from Swirl Rock, a small rock south of Lopez Island, WA.

Photo by Alan Verde

THE ANEMONE TANK SETUP



Cleaning the anemone tank. The black mesh covers were used to control the light intensity for each section

Photo by Ron Smith

The photo on the left is an anemone with no symbionts on day zero of the experiment. The photo on the right shows the same anemone after 5 weeks of healing.

5 weeks

The photo on the left is an anemone with green algae on day zero of the experiment. The photo on the right shows the same anemone 5 weeks after healing.

5 weeks

The photo on the left is an anemone with brown algal symbionts on day zero of the experiment. The photo on the right shows the same anemone 5 weeks after healing.

5 weeks

EXPERIENCE GAINED FROM THE RESEARCH

- Setting up and maintaining marine tanks
- Collecting anemones to study
- Using a hemocytometer
- Pipetting skills
- Measuring chlorophyl and protein concentrations using a spectrophotometer

THANK YOU!

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