



Assessing the role of kelp forests in modifying seawater chemistry.

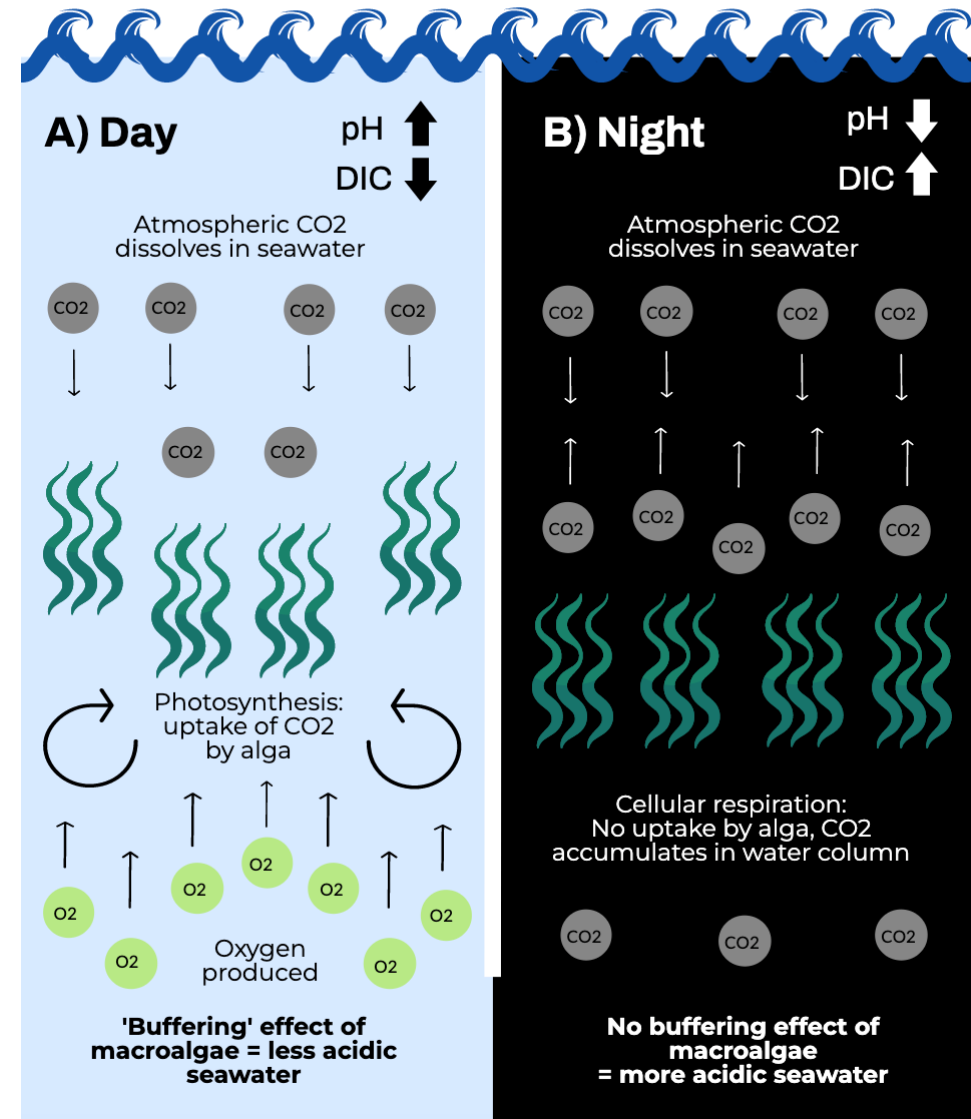
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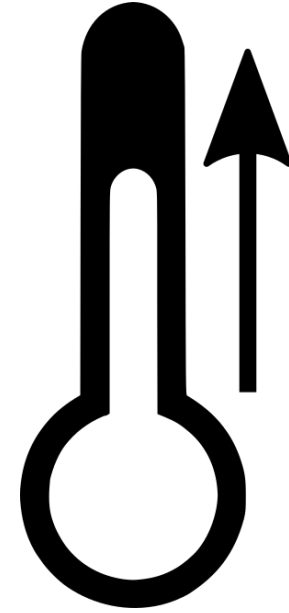
What happens to water chemistry in the presence of macroalgae?



The effects of kelp forests on seawater chemistry vary diurnally

Key threats

- Overgrazing by sea urchins
- Rising sea water temperatures
- Increasing storminess



Aims

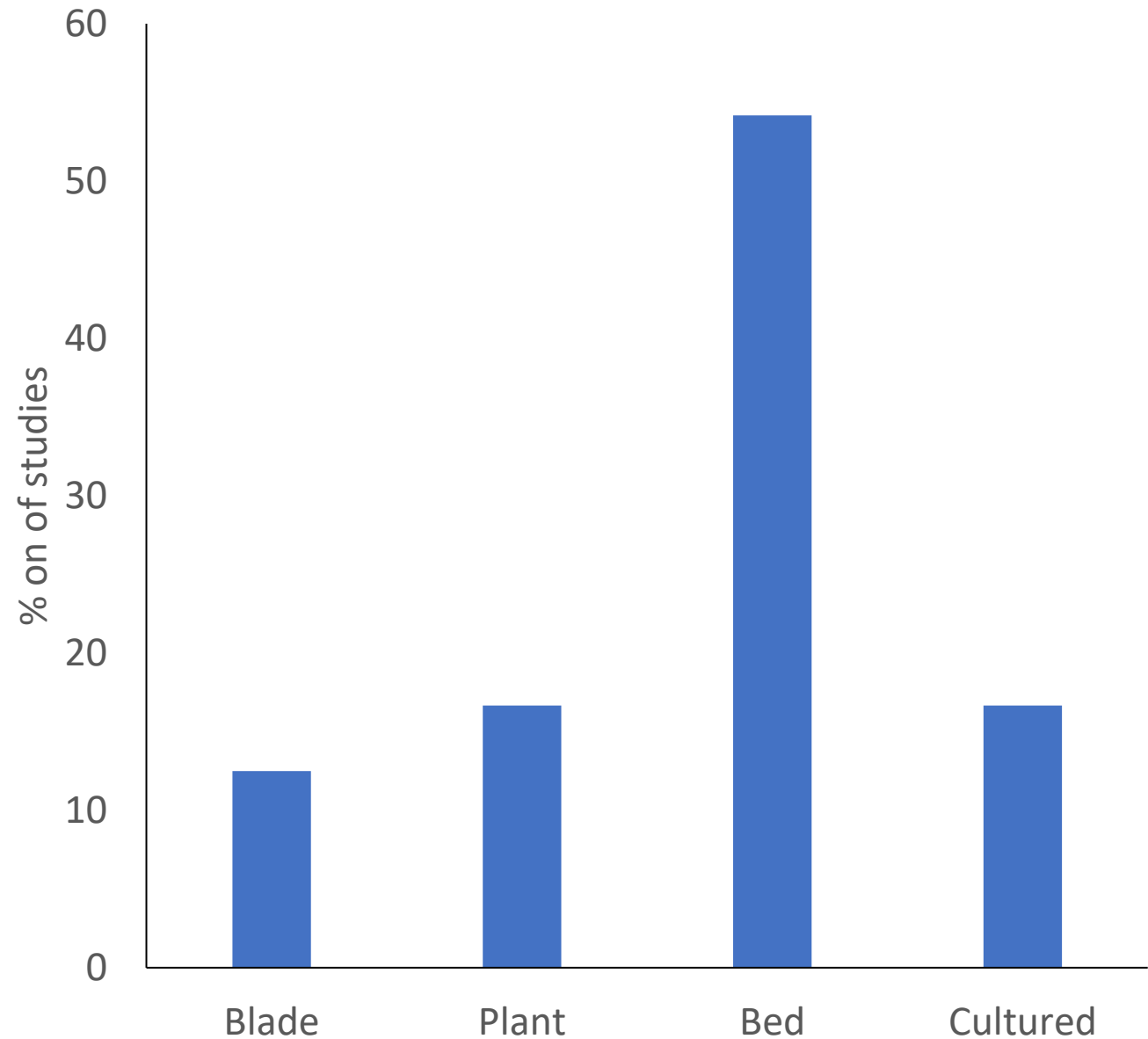
1. Conduct a literature search to assess the effects of kelp forests on seawater chemistry
2. Field measurements of how the effects of *E. radiata* forests in Port Phillip Bay at different densities & environmental conditions

Literature search

- Google scholar & Web of Science:
(kelp* or seaweed* or “canopy-forming”) and
(“seawater chemistry”, “carbon dioxide” or “ocean acidification” or pH).
- 578 papers found 10/03/22 screened for title, abstract and reference list
- Effects of kelp on seawater chemistry & vice versa

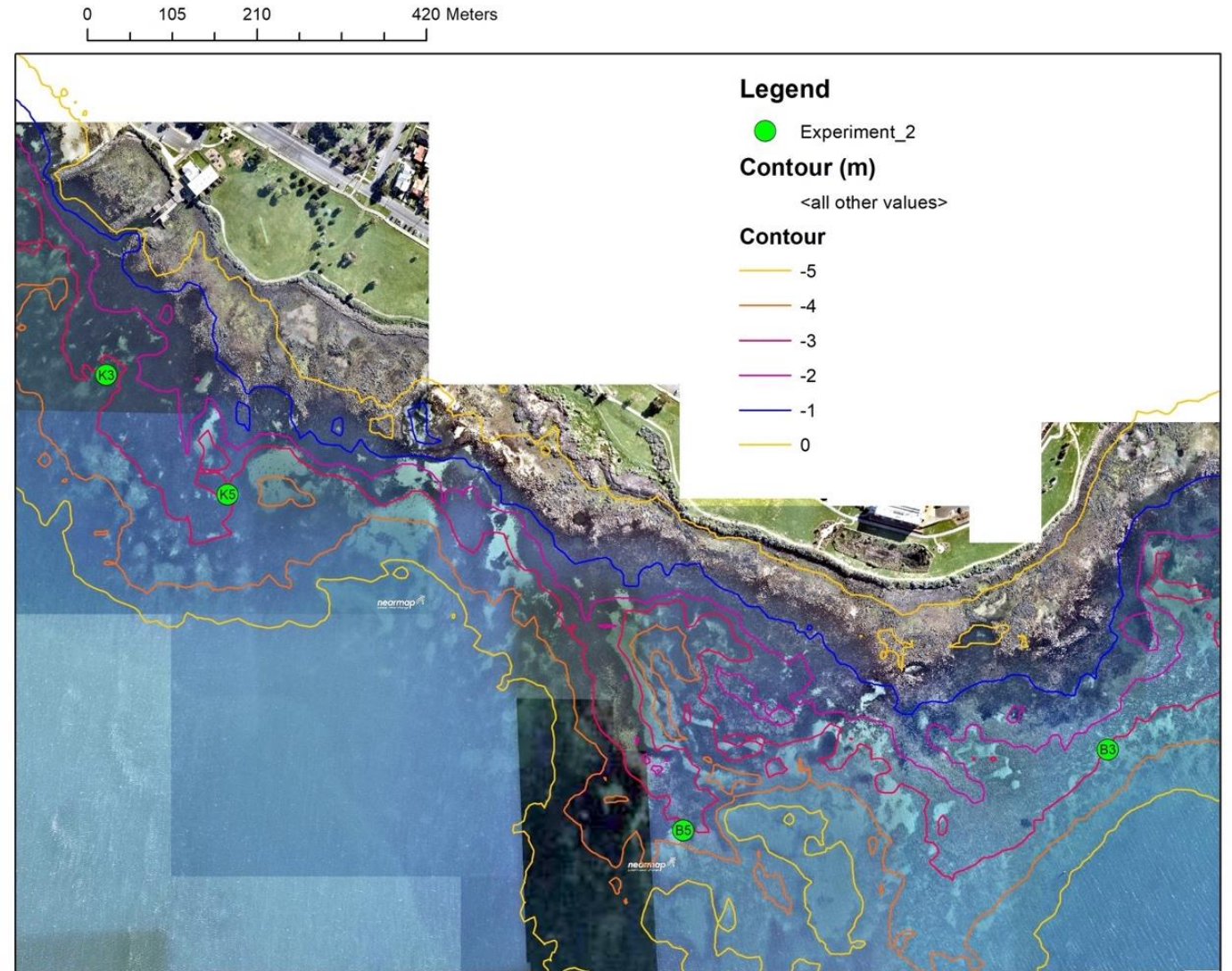
Literature search

- Only 25% assess the benefits of kelp in buffering pH
- Large variation between effect sizes, but only 3 studies considered the effects of other key drivers

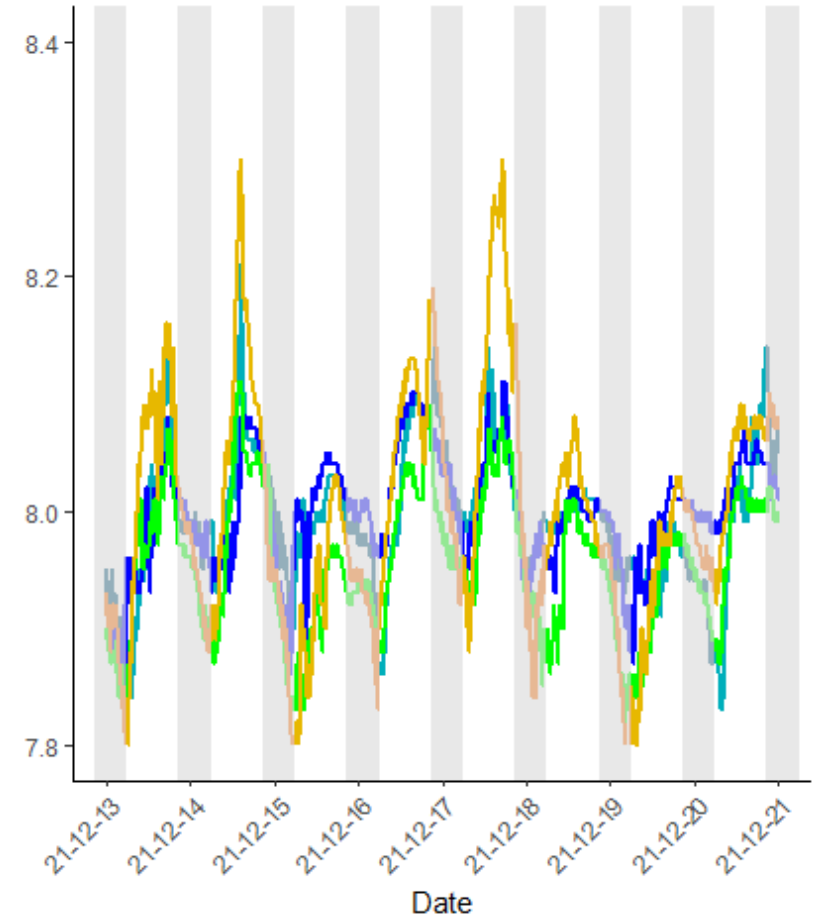
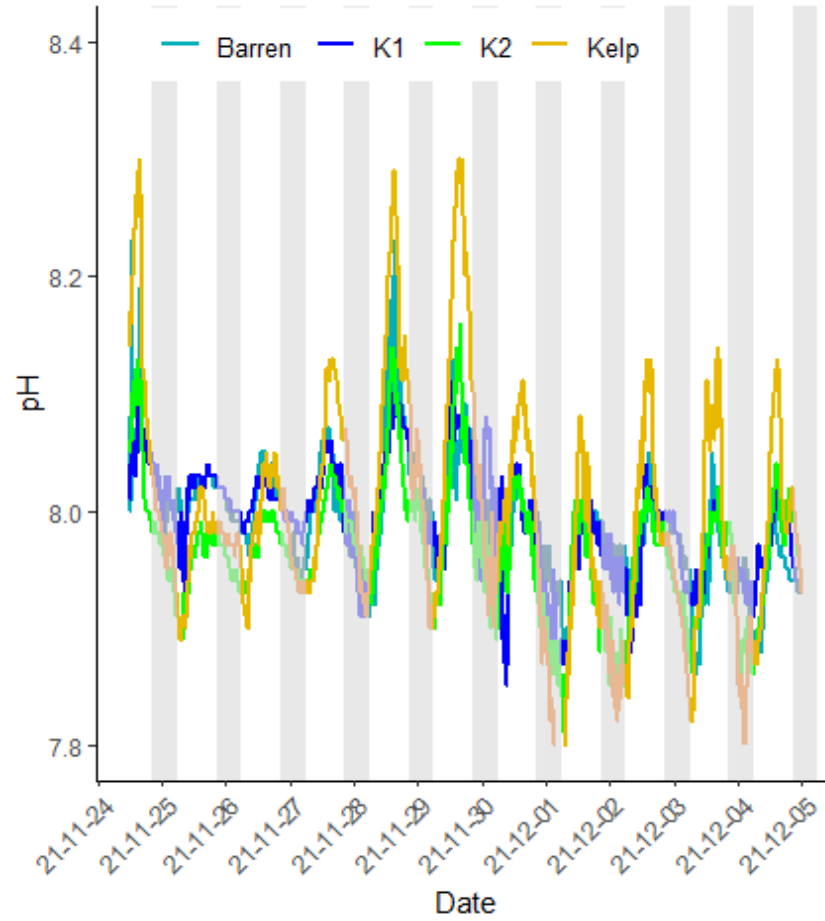


Field study

- pH, DO, waves:
 1. Different densities of kelp
 2. Kelp vs. Barrens

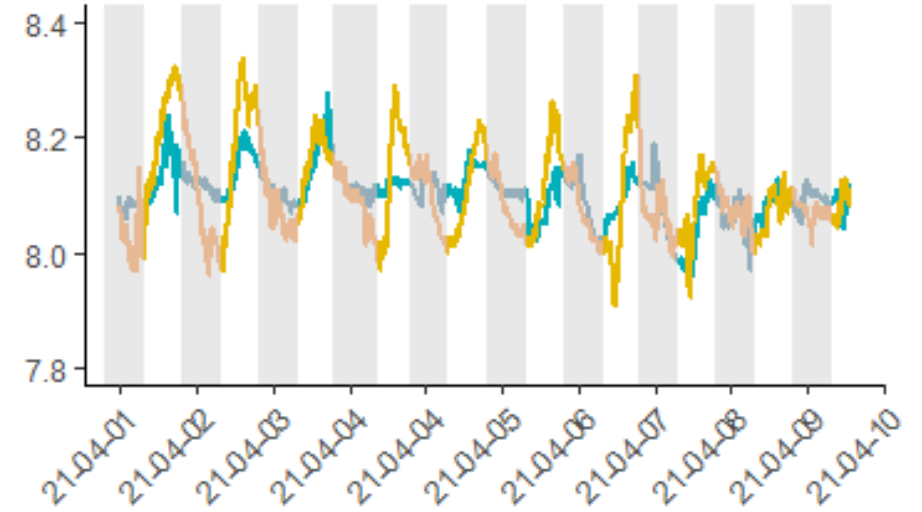
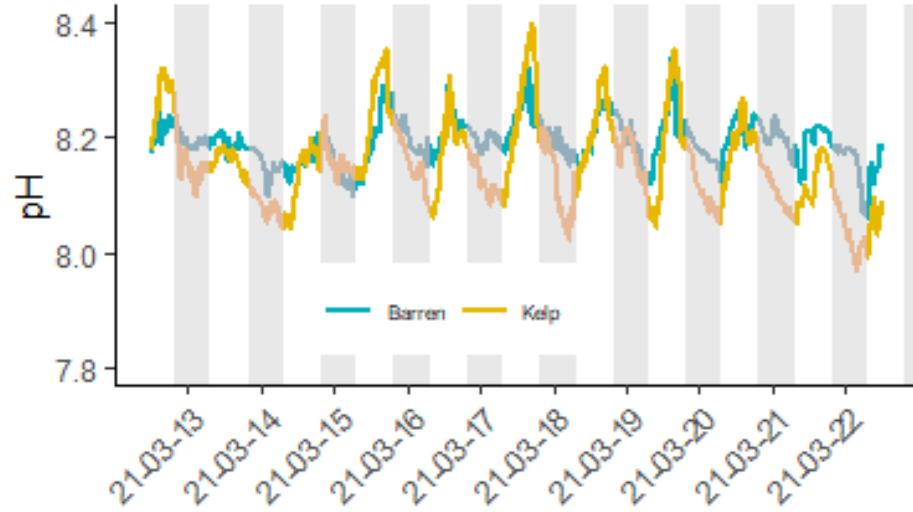


Field study

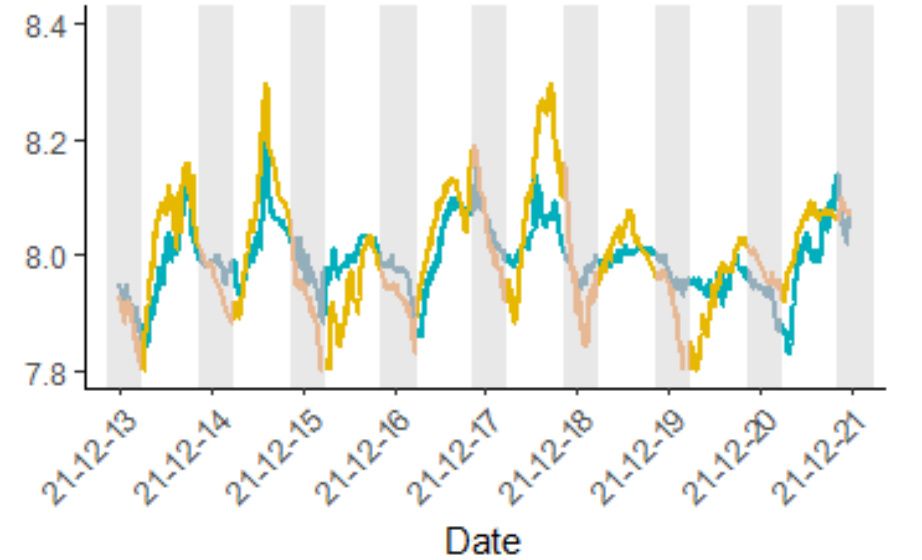
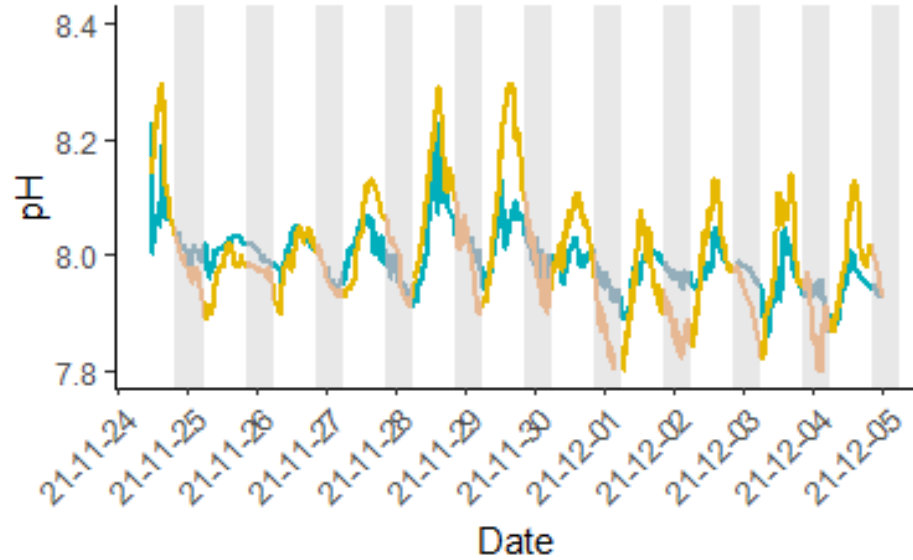


Field study

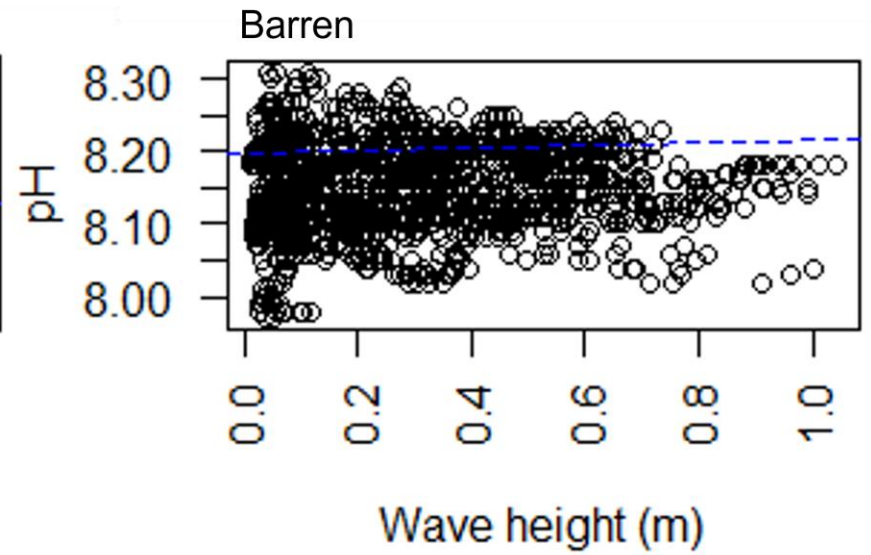
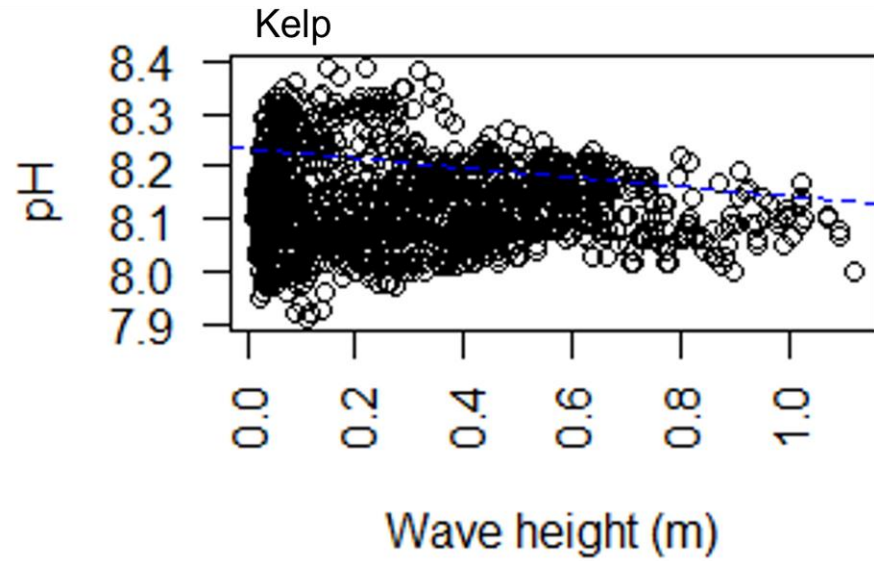
Kelp height = 29.04 cm



Kelp height = 36.52 cm

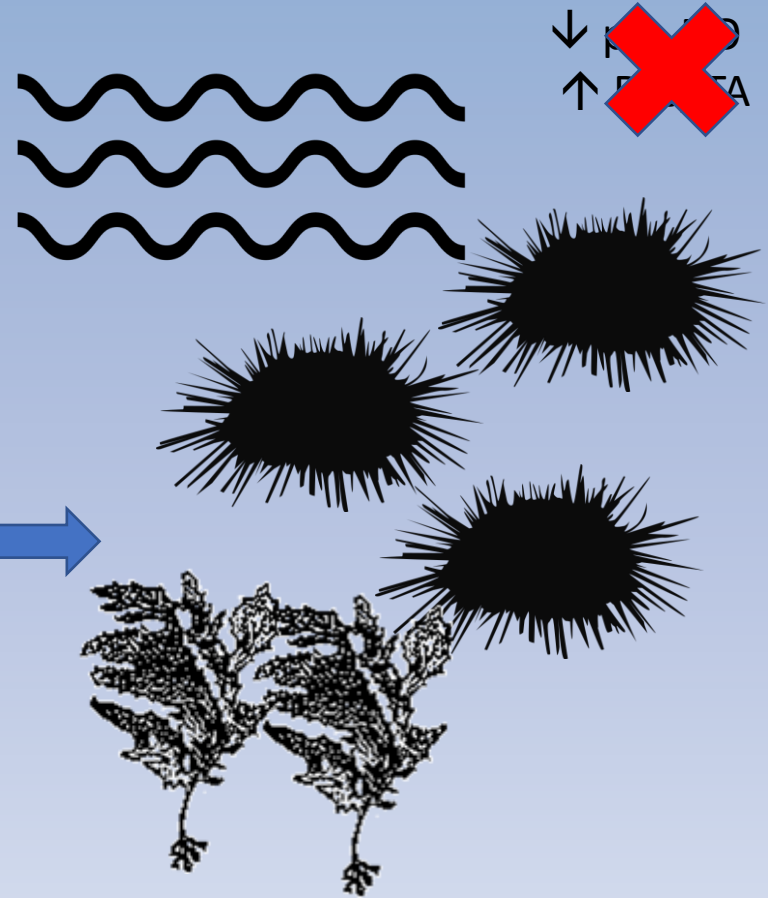
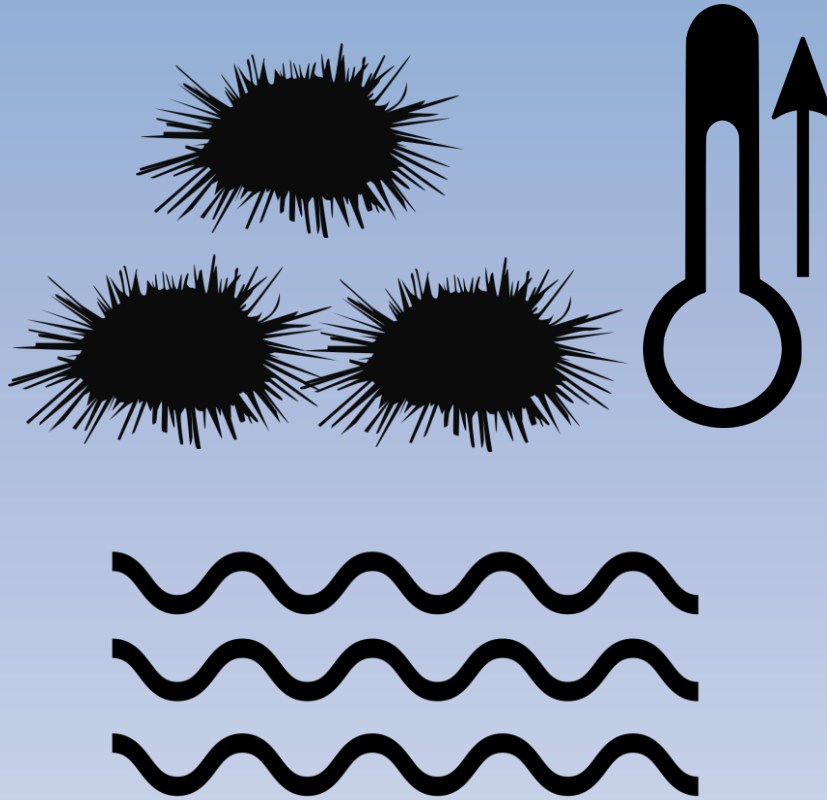
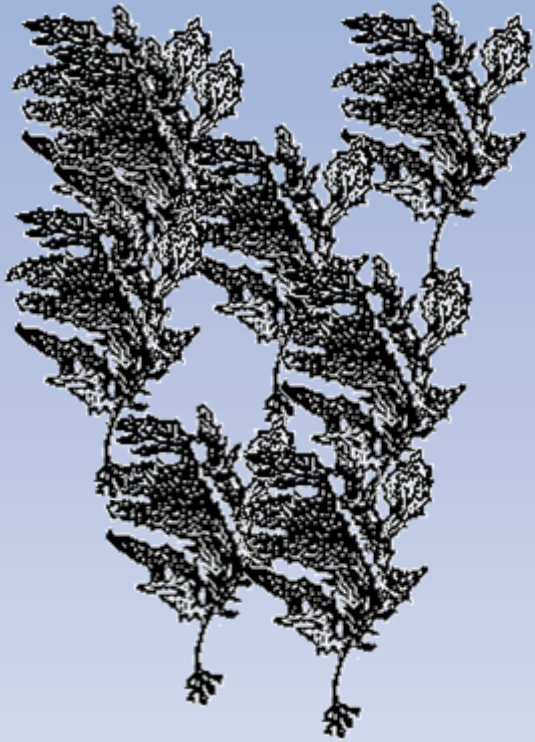


Field study





↑pH, DO
↓ DIC, TA



Kelp forest can buffer the effects of ocean acidification

Key climate threats to kelp forests are rising temperatures, overgrazing & increasing storminess

Low densities of kelp & urchin barrens, and high wave exposure reduced the capacity of kelp k to buffer the effects of ocean acidification



Top

2 m

Bottom



pH, DO, TA, light



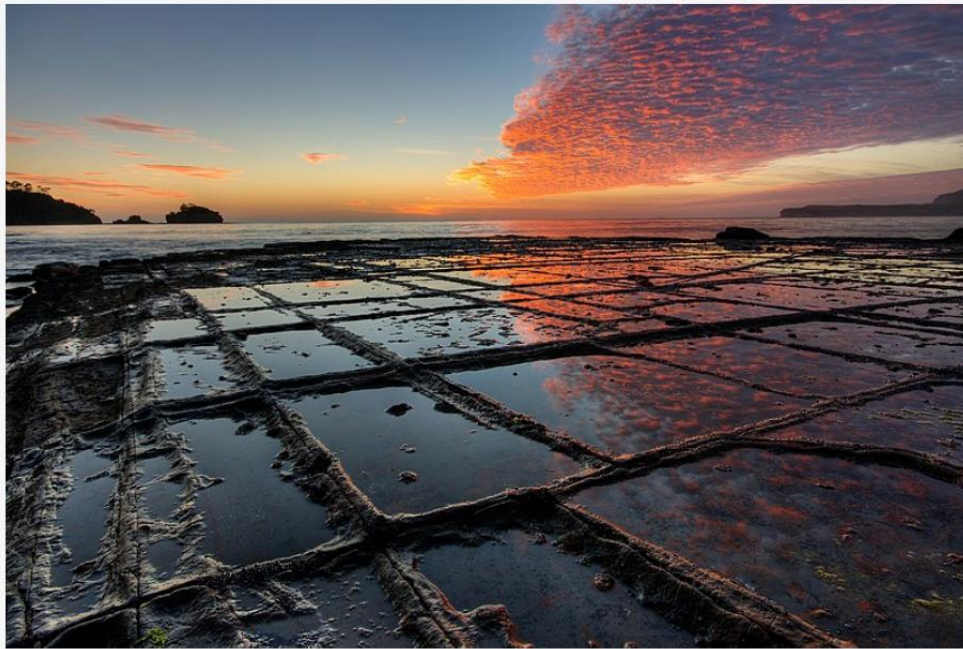
Next steps



Poster presentation: In search of the live bearing seastar: population studies and conservation efforts

POST SYMPOSIUM TESSELLATED PAVEMENT TOUR

FRIDAY 13TH JANUARY 2023 | 7.00 AM



Tour Type

Price per person (AUD inc. GST)

Post Symposium Tessellated Pavement Tour	\$45.00 (to cover the cost of travel)
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Spaces for this trip are strictly limited (**21 spaces only**), make sure you get in quick!

Beth Strain will lead a visit to the intertidal rocky shore at the Tessellated Pavement on the spectacular Tasman Peninsula.

Note that location is weather dependent. If weather conditions rule out a visit to the Tessellated Pavement, then we will select another interesting shore to visit instead – there are plenty to choose from! The trip will take place on Friday 13th of January with the tour starting in the Hobart CBD at 7.00 AM. Please meet underneath the Spirit Super Level 8 sign at 65 Harrington Street, Hobart at 6.55am to pull out at 7.00am.

Please indicate your attendance while registering. If you have already registered and would like to attend please contact mail@conferencedesign.com.au.

For more information on the tessellated pavement see: