Influence of summer heatwaves on slow and fast-growing populations of pāua.

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Pāua  *Haliotis iris*

Significant
- Cultural
- Recreational
- Economic
Why?

Chatham Islands
- Largest commercial pāua (*Haliotis iris*) fishery
- Slow growth performance in some individuals and populations
- Need to investigate likely causes and impacts
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Image from: https://www.moanaproject.org/marine-heatwave-forecast
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- Slow growth performance in some individuals and populations
- Need to investigate likely causes and impacts
- Exposed to increasing average sea temperature and heatwaves

Image from: https://www.moanaproject.org/marine-heatwave-forecast
How?

From an initial baseline study looking at 4 sites.

Two were selected for further study.
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This investigation is part of a wider research group.

Tools include: Metabolomics, Microbiomics, Flow cytometry.

Histology is the main tool for this aspect of the research and allows the investigation of the impacts on tissues.
How?

10 adults and 10 juveniles from each site were collected at 6 timepoints: 2020, 2022 and 2023.

They were weighed, measured and dissected.

5mm thick tissue sections collected and fixed for histological examination.
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Preliminary findings

Algal food quality and stomach contents

Food Score Criteria:

- **Grade 1** = 100% Fresh
- **Grade 3** = 50%: 50%
- **Grade 5** = 100% Old
Preliminary findings
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Haplosporidia-like parasite

Apparent higher prevalence at slow-growing site
Preliminary findings
Haplosporidia-like parasite

Currently working on:

- Different observation with different stains
- PCR and sequencing
Preliminary findings

Kidney concretion (kidney stones)

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Apparent higher prevalence at slow-growing site
Conclusions

Further work is required at this stage to tease heatwave effects out.

There are many other variables to consider:

Nutrition
Density
Sedimentation
Recruitment
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- Nutrition
- Density
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Questions

- Will the slow growing populations be disproportionately affected by climate change?
- What is the composition of the kidney stones?
- Is the Haplosporidian-like parasite the same as previously described and if so, what are the future implications?
- Are there differences between the summer and winter periods?
- What is the sea water Temp, pH and turbidity at both sites?
Thanks to:

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Pāua Industry Council

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Any questions