

Abalone Industry Reinvestment Fund (AIRF)

Updated: March 2023

Effect of Temperature on Abalone Condition as a Function of Seasons, Location and rate of Change

Lead Agency: Institute for Marine and Antarctic Studies (IMAS)

Funding: \$375,476

Start Date: 1 September 2021 End Date: 30 June 2023

Status: IN PROGRESS

Aims and Objectives:

The principal aim of this project is to determine the primary factors contributing to the seasonal decline in condition of blacklip abalone on eastern Tasmanian rocky reefs. A secondary aim is to determine the effect of sub-lethal exposure to elevated temperatures as potential cause of recruitment failure.

Specific objectives are:

- Quantify change in physiological status of abalone across seasons in relation to maximum temperature and rate of change in temperature.
- Determine whether re-conditioning of abalone is feasible prior to live export.
- Determine the effect of sub-lethal physiological response to key organism functions (growth, reproductive output).
- If time permits, use abiotic conditions (temperature, swell) as predictors of stress in population dynamic predictive models under future climate change scenarios.

PROJECT PROGRESS AGAINST PROJECT OBJECTIVES

Project objectives:

1. Quantify change in physiological status of abalone across seasons in relation to maximum temperature and rate of change in temperature.
2. Determine whether re-conditioning of abalone is feasible prior to live export.

3. Determine the effect of sub-lethal physiological response to key organism functions (growth, reproductive output).

4. If time permits, use abiotic conditions (temperature, swell) as predictors of stress in population dynamic predictive models under future climate change scenarios.

All field collections, experiments and laboratory analysis for metabolomic profiles are now complete.

Data have been compiled and analysed which form the basis of the draft report chapters. We are still waiting on some outstanding transcriptomics analysis to complete the final data chapter which are due by mid-May 2023.

PROGRESS AGAINST MILESTONE DETAIL:

Milestone 5 (Due date: 1/03/2023):

Draft Report

Data analysis for most components of the project has now been completed and the results have been prepared in the draft data chapters. Some preliminary introductory text and discussion has been included and are currently being edited for the final report. We are awaiting the laboratory results of the final transcriptomics samples to form the basis of the final data chapter however are still on schedule to deliver a final report by the end of June 2023.