

Abalone Industry Reinvestment Fund (AIRF)

Updated: September 2023

Restoration by Harvest Pilot Program: Fortescue Bay

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

Funding: \$299,622.00

Start Date: 1 May 2023 End Date: 1 December 2024

Status: CURRENT

Aims and Objectives:

Aim: To restore kelp habitat along a 5km stretch of coastline in Fortescue Bay, providing valuable insights into the efficacy of expanded control programs in priority abalone habitat areas and guide the Regional *Centrostephanus* Strategy development.

The specific objectives are:

1. Implement a pilot 'Restoration by Harvest' program
2. Assess the effectiveness of the program to restore habitat
3. Assess the efficacy to expand the program to priority abalone habitat areas.

Progress Report:

Initial dive and video surveys were conducted in early May 2023 prior to the Phase 1 take-all commercial harvest, with estimates showing approximately 70 tonnes (n=230,000) of urchins along the 5 kms of coastline between the Fortescue Ramp and Cape Huay. Over 7 kms of towed underwater video identified urchin barrens impacting 37% of the reef (barrens Type I-IV), with the planar percentage barren coverage (i.e. bare rock) totalling 8% (Figs 1a-c, 2).

Five days of intense harvest (51 diver days; 173 harvest hours) was conducted along the coastline by Tasmanian Commercial Dive Association (TCDA) divers, resulting in an estimated 22.3 tonnes (n=73,000) landed, or 32% of the estimated biomass. Post-harvest dive surveys indicated similar results, with the biomass estimated to be reduced by 25.1 t (36%). In the processing factory a sub sample of 300 urchins from each divers take was measured with a mode size of 90 mm. A total of 78% (17.3 t) of the harvest biomass was above 85 mm, the size threshold deemed profitable to process under normal operations, with 90% (20.0 t) being larger than 80 mm.

Changes in *Centrostephanus* abundance in the inner, mid and outer sections of the target area are shown in Figure 4 (see full [Progress Report](#)). The impact of the take all harvest can be seen, particularly to 18 m in the inner and mid regions, and to 28 m in the outer region. The post harvest survey showed urchins still present across all sections of reef and at most depth ranges.

The threshold urchin abundance for kelp recovery from a barren state is defined as 70g/m² (Ling et al., 2008), which equates to a density ~0.2 urchins/m². The abundance of urchins following the Phase 1 harvest are at or above this threshold within many of the depth bins in each zone (Figure 4), indicating that further urchin removals are required for kelp recovery.

The take-all harvest Phase 2 is scheduled for when the 2023/24 *Centrostephanus* season commences.