



Vanuatu's progress report on the integration of broodstock replenishment with community-based management to restore trochus fisheries: An ACIAR-funded project

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Introduction

This article reports on the progress made in the Vanuatu node of the ACIAR Trochus Broodstock Enhancement and Community-based Management Project FIS/2001/085. The Vanuatu node has six study sites (three seeding treatments and three controls) spread over three islands: Epi, Malekula and Pentecost. The following is a summary of the activities and achievements made.

Site selection and seeding

Site selection and seeding work were completed in May 2003. Initial contacts with communities were made through the radio, requesting people to apply should they be interested in the project. Following on from community requests, preliminary surveys were carried out to identify suitable project sites. In each area, a local coordinator, nominated by the community concerned, was appointed by the project team to oversee the establishment of the project work in that area. The cage construction and seeding of 400 adult trochus in each of the three seeding sites were successfully carried out between April 2003 and May 2003.

Monitoring research work is carried out on a quarterly basis by project staff and local coordinators at each site. Other volunteers involved in assisting project staff with the fieldwork include high school dropouts and high school students from the communities. Their involvement is useful as it allows them to gain basic training on stock assessment surveys as well as being involved in the project. Such involvement also enables project staff to pass on vital information on work progress to the respective communities.

Marine protected areas

Since May 2004, the project, with the approval of the communities, has established marine protected

areas (MPAs) for all seeding and control sites used in the study. This action was in line with one of the three broad development objectives of the project. Declaration of the treatment site in Malekula Island (Crab Bay area) as an MPA has successfully been achieved with the collaboration of Vanuatu's International Waters Program (IWP), which uses the area as a pilot site for the Vanuatu component of their activity.

Results and discussion

Preliminary results based on the change in trochus density per hectare (ha) between treatment and control sites 12 months after the seeding are given in Figures 1 and 2. In the juvenile habitat (Fig. 1) at the treatment site, trochus density increased from 22 trochus ha⁻¹ to 508 trochus ha⁻¹ 12 months after enhancement. The increase in density may be due to immigration and/or recruitment of trochus into the juvenile habitats. In the control site, trochus density only increased from 105 to 178 trochus ha⁻¹. This indicates that recruitment is occurring, but at a slower rate than at the treatment sites. Some of the improvement in trochus density between t_0 (April 2003) and t_1 (October 2003) could also be attributed to improved searching skills of staff.

In the adult habitat (Fig. 2), there has been an increase in density on both treatment (from 100 to 1044 trochus ha⁻¹) and control sites (from 64 to 233 trochus ha⁻¹). This indicates recruitment on both sites. In the case of the treatment site, seeded broodstock may account for some of the observed increase. There has been a notable decline in density in the treatment sites between t_1 (October 2003) and t_3 (May 2004). Some of this decline may be due to the emigration of adults outside of the survey site.

Breeding and cultivation of trochus in the land-based holding tanks has always sparked great curiosity among rural communities. However,

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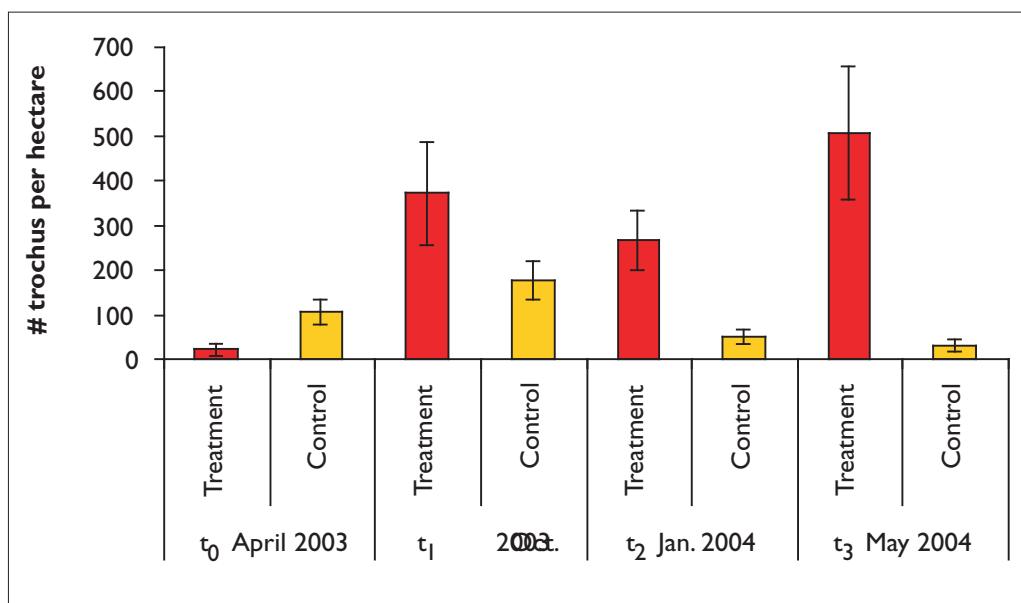


Figure 1. Mean trochus density (\pm standard error) in juvenile habitats located on treatment and control sites ($n = 220$).

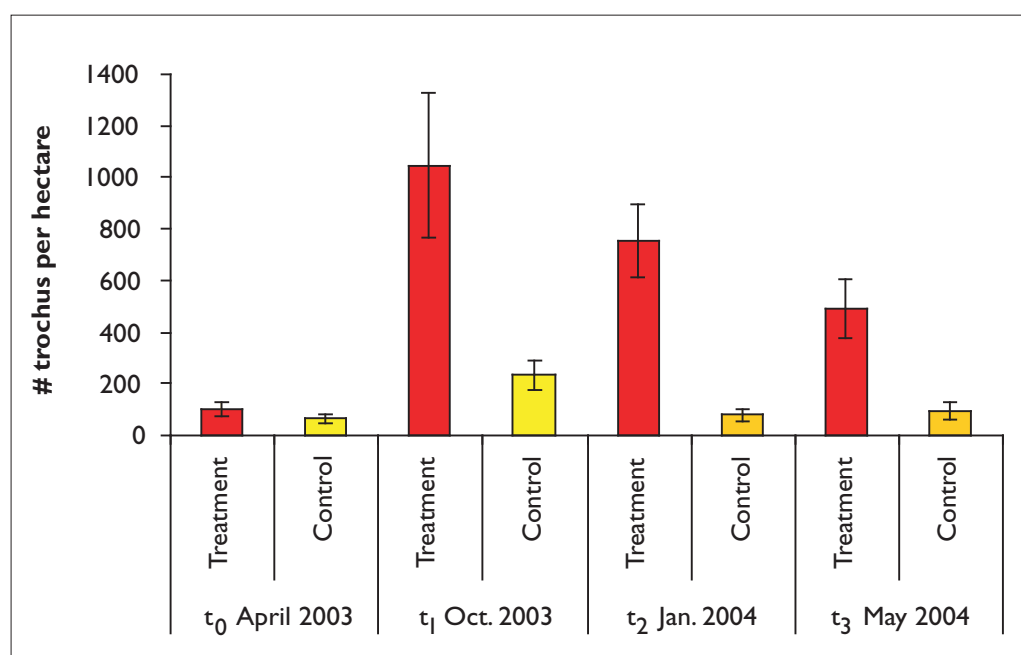


Figure 2. Mean trochus density (\pm standard error) in adult habitats located on treatment and control sites ($n = 220$).

transferring this technology to rural areas remains a problem because of the high establishment and operational costs as well as the level of technical knowledge required. Therefore, the current seeding technique, and particularly the use of cages, seems better suited for local communities who consider it as affordable and accessible as it only requires simple technical skills and basic knowledge of trochus biology.

Overall, it is obvious from the results that recruitment of juveniles is occurring in the treatment sites. The participation of the communities has so far been very good and more so once positive results have been obtained. In addition, community involvement through the local coordinators and volunteers has greatly assisted the project's field work and strengthened the community-based management of marine resources in Vanuatu.

