

Studies on juvenile *Trochus niloticus* (L.) with a view to using reared juveniles to repopulate reef areas

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Natural stocks of *Trochus niloticus* have been seriously depleted in most countries where *Trochus* has been commercially harvested (Heslinga, 1981; Heslinga and Hillmann, 1981; Nash, 1985; Isa, 1991). Strict fishing regulations have been implemented to allow natural stocks to recover. As well as imposition of a size limit, restricted fishing seasons and the creation of sanctuary areas, management strategies have included translocation of adults.

More recently, effort has been directed to the use of reared juveniles. Because of the relative simplicity of rearing techniques, thousands of individuals can be produced. Survival rates in reseeded experiments have been generally low and have shown great variability among localities (Nash, 1985; Hoffschir, 1990; Amos, 1991; Isa, 1991). This implies a need for further research to understand the process that occur when hatchery-reared juveniles are liberated on a reef.

The overall objectives of my study are to investigate further the possibility of reseeded areas with reared juveniles and to develop a better understanding of the ecological processes involved with juveniles in natural habitats. I will examine the following:

—Comparison of rearing techniques. Rearing in tanks, in hanging baskets and in baskets fixed in the intertidal zone will be compared on the basis of juvenile growth, mortality, survival rates and behaviour;

—Aspects of larval development:

1. Effects of temperature;
2. Importance of parental energy reserves and potential to use external source of nutrients to complete development;

—Laboratory studies of predation on reared juveniles;

—Experimental reseeded with reared juveniles of various sizes under a variety of conditions;

—Ecology of juveniles in natural populations.

Literature cited

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Study of the Aitutaki trochus fishery

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Background

Exports of trochus shell from Pacific Island countries were worth an estimated US\$ 26 million in 1989. Most of this revenue is returned directly to rural communities where the harvesting takes place. *Trochus* fisheries make an important contribution to rural economies in many countries, thereby

helping to mitigate against urban drift and other undesirable effects of centralised economic development. Pacific Island governments recognise the importance of trochus and other marine invertebrate fisheries in maintaining economic and social stability in rural areas, and are keen to ensure that these resources are managed wisely and sustainably.