Size distribution of male and female top shell *Trochus niloticus* Linné in relation to depth and substrate

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The study was conducted at Baki Island Water, Pangkep Regency, South Sulawesi. Baki Island has both sandy shore and coral reef flats. *Trochus niloticus* is rare on the island. The distribution of 49 males (34.5-81.4 mm shell diameter) and 46 female (54.3-105.3 mm shell diameter) was studied in relation to depth and dead coral substrate. Regression analysis showed that both male and female distribution had a positive correlation to depth and substrate.

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INTRODUCTION

The distribution of *Trochus niloticus* is limited to specific zones of coral reefs. Rao (1937) found that the distribution of shells was correlated with age. There were many top shells < 30 mm in diameter in the intertidal zone where they lived in coral reef creeks or attached to seagrass leaves. *T. niloticus* with shell diameters of 30-50 mm occurred subtidally, while the largest specimens > 60 mm had the deepest occurrence.

The aim of this research is to check previous findings of a relationship between shell diameter and depth and substrate. In this study we add information on the distribution according to sex of *T. niloticus*.

MATERIAL AND METHODS

T. niloticus was sampled by SCUBA at Baki Island, Pangkep Regency, South Sulawesi, from December 1999 to February 2000. Sampling occurred in 5 zones between 0 and 10 m depth (at 2 m intervals). The exact depth was recorded for each individual. The percentage of dead coral per unit area was estimated based on visual observations. Regression analysis of data was performed according to Sokal & Rohlf (1991) and Sudjana (1989).

RESULTS

Males. - The shell diameter of 49 specimens ranged from 34.5-81.4 mm. Specimens were collected from 0.5 to 10 m depth. Regression analysis showed a positive linear correlation between shell diameter and depth expressed by equation: $y = -4.972 + 0.120 x$ ($r = 0.732$; $p < 0.001$) (Fig. 1). A positive linear correlation was also calculated for shell diameter and dead coral substrate expressed by the equation $y = 152.368 + 0{,}340 x$ ($r = 0.615$; $p < 0.05$) (Fig. 2).

Females. - The shell diameter of 46 specimens ranged from 54.3-105.3 mm. They were collected at the same depths as males. Regression analysis resulted in similar relations expressed by the equations $y = 10.015 + 0.1898 x$ ($r = 0.845$; $p < 0.001$) for shell diameter and depth (Fig. 3) and $y = -56.134 + 1.3137 x$ ($r = 0.663$; $p < 0.05$) for shell diameter and substrate (Fig. 4).