

## Effect of biomass density, handling stress, and non-fallowing of sediment on the growth and survival of *Holothuria Scabra*

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Trials were conducted over 6 months in 2016, in Tampolove, Madagascar, a site where *H. scabra* have been continuously farmed for over 7 years, to determine the effect of biomass density, handling stress and the number of years the sediment has been farmed, on the growth rate and survival of stocked animals. Six replicate enclosures of 4 m<sup>2</sup>, stocked with 50 animals with a mean weight of 17 g (Range 11-23, SD=3.7), were built within farming pens that had been under continuous high density culture of *H. scabra* for periods of 7, 5, 3 and 0 years respectively, to determine if long term continuous culture affects the carrying capacity or the growth rates of *H. scabra* stocked within these potentially denuded sediments. Stocked *H. scabra* were monitored fortnightly by collection and weighing with scientific scales, during the diurnal spring tide so as to ensure weights were not influenced by stomach contents. Results strongly indicate that successive years of high density culture does not significantly affect the carrying capacity of the farmed sediment, nor does it have significant effect on the growth rates or survival of *H. scabra*, within a period of 7 years. Increasing biomass density was shown to have a strong inverse correlation with growth and also indicates that growth rates are retarded at stocking densities far below the sediments maximum carrying capacity. The research implies the use of fallow periods is not necessary to maintain high levels of growth within farmed sediments, that common monitoring practices do not negatively affect growth rate or survival, and that stocking strategies that result in a biomass density near the maximum carrying capacity result in stunted growth of farmed *H. scabra*. These results will be used to improve the farming practices and increase productivity and income generation potential of community-based *H. scabra* farming