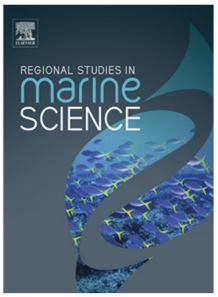
Accepted Manuscript



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PII: S2352-4855(18)30224-X
DOI: https://doi.org/10.1016/j.rsma.2018.09.001
Reference: RSMA 420

To appear in: *Regional Studies in Marine Science*

Received date : 9 June 2018
Revised date : 23 July 2018
Accepted date : 5 September 2018

Please cite this article as: Neo M.L., et al., Thriving populations with low genetic diversity in giant clam species, *Tridacna maxima* and *T. noae*, at Dongsha Atoll, South China Sea. *Regional Studies in Marine Science* (2018), https://doi.org/10.1016/j.rsma.2018.09.001

Thriving populations with low genetic diversity in giant clam species, *Tridacna maxima* and *T. noae*, at Dongsha Atoll, South China Sea

Mei Lin Neo[1,2,*], Li-Lian Liu[3], Danwei Huang[1,2], Keryea Soong[3]

[1]Department of Biological Sciences, National University of Singapore, 14 Science Drive 4, Singapore 117543, Singapore

[2]Tropical Marine Science Institute, National University of Singapore, 18 Kent Ridge Road, Singapore 119227 Singapore

[3]Department of Oceanography, National Sun Yat-sen University, 70 Lien-hai Road, Kaohsiung 80424, Taiwan

*Corresponding author e-mail: tmsnml@nus.edu.sg

ABSTRACT

Giant clams provide valuable functions to the coral reefs and traditional fisheries in the South China Sea (SCS), but many populations face escalating threats of overexploitation and habitat loss. To provide critical biodiversity data for development of protection and sustainable utilisation strategies, we examine the status of wild tridacnine population at Dongsha Atoll, the largest northernmost atoll of the SCS. This study also examines the genetic patterns of *Tridacna maxima* and *T. noae*, based on partial mitochondrial COI gene sequences. We found four species at Dongsha Atoll with an overall density of 3.14 per 100 m^2. Over-harvesting may have depleted populations of *T. squamosa* and *Hippopus hippopus*, and they may no longer be reproductively viable. Populations of *T. maxima* and *T. noae* appear to be thriving and replenished by recruits, but species showed low levels of mitochondrial genetic diversity that could reduce its adaptability and may become further impacted by exploitation