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

Mei Lin Neo, Li-Lian Liu, Danwei Huang, Keryea Soong

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2 *T. noae*, at Dongsha Atoll, South China Sea

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4 Mei Lin Neo^{1,2,*}, Li-Lian Liu³, Danwei Huang^{1,2}, Keryea Soong³

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6 ¹Department of Biological Sciences, National University of Singapore, 14 Science Drive 4,
7 Singapore 117543, Singapore

8 ²Tropical Marine Science Institute, National University of Singapore, 18 Kent Ridge Road,
9 Singapore 119227 Singapore

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

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

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14 ABSTRACT

15 Giant clams provide valuable functions to the coral reefs and traditional fisheries in the South
16 China Sea (SCS), but many populations face escalating threats of overexploitation and habitat
17 loss. To provide critical biodiversity data for development of protection and sustainable
18 utilisation strategies, we examine the status of wild tridacnine population at Dongsha Atoll,
19 the largest northernmost atoll of the SCS. This study also examines the genetic patterns of
20 *Tridacna maxima* and *T. noae*, based on partial mitochondrial COI gene sequences. We
21 found four species at Dongsha Atoll with an overall density of 3.14 per 100 m². Over-
22 harvesting may have depleted populations of *T. squamosa* and *Hippopus hippopus*, and they
23 may no longer be reproductively viable. Populations of *T. maxima* and *T. noae* appear to be
24 thriving and replenished by recruits, but species showed low levels of mitochondrial genetic
25 diversity that could reduce its adaptability and may become further impacted by exploitation

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