GCRMN

GLOBAL CORAL REEF MONITORING NETWORK

Status of Coral Reefs in East Asian Seas Region: 2018

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Front Cover: Shallow coral reef in Sekisei Lagoon, Okinawa, Japan (Ⓒ Tadashi Kimura, 2017)
Back Cover: Shallow coral reef in Sekisei Lagoon, Okinawa, Japan (Ⓒ Tadashi Kimura, 2017)

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2.3. Summary of coral bleaching from 2014 to 2017 in Singapore

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OVERVIEW OF CORAL DISTRIBUTION AND DATA COLLECTION

Coral reefs in Singapore are mainly found skirting the islands south of mainland Singapore and comprise fringing and patch reefs. To date, more than 200 species of hard corals have been recorded.

Bleaching data were contributed by different research groups in Singapore that maintain reef monitoring programmes. All data were standardized to Point Intercept Transect (PIT) at 10 cm intervals where possible, to facilitate analysis. Each colony on the transect was identified to the lowest taxonomic level and assigned to one of the two categories, pigmented or bleached. Data from secondary sources such as scientific publications, blogs, news and social media were also collated, and verified by research observations to ensure validity of the reports.

CORAL BLEACHING DURING THE GLOBAL EVENT OF HIGH WATER TEMPERATURE

There was one reported episode of mild to moderate coral bleaching in 2014 (Taira et al. 2017) and another moderate to severe bleaching in 2016 (Toh et al. In prep). There were no reports of bleaching higher than the average level of bleaching in other years (Chou et al. 2016).

2014

In early May 2014, sea surface temperature (SST) exceeded the maximum monthly mean (MMM, 29.8°C) (NOAA, 2000) lasting two and a half months and peaked at 30.5°C in June. Singapore's subtidal reefs exhibited mild to moderate coral bleaching

with bleaching prevalence ranging from 0% to 11.8% (Bleach Watch Singapore, 2016). Subsequent surveys at the most impacted site indicated bleaching prevalence between 6.2% and 9.7% (Bleach Watch Singapore, 2016)

2015

In early April 2015, the sea surface temperature (SST) exceeded the maximum monthly mean (MMM, 29.8°C) (NOAA, 2000) for three months and peaked at 30.7°C in June. While the duration of thermal stress was longer than in 2014, there were no reports of bleaching at the subtidal reefs.

2016

In early April 2016, the sea surface temperature (SST) exceeded the maximum monthly mean (MMM, 29.8°C) (NOAA, 2000) for three and a half months and peaked at 31.4°C in May. During this period, sea surface temperatures were higher than the bleaching threshold (30.8°C) on ten days. Consequently, Singapore's reefs showed moderate to severe bleaching (42% to 66%) across six subtidal sites and in all 24 intertidal sites surveyed (Toh et al. In prep). Preliminary assessments from one site indicated that the most susceptible genera were *Pocillopora* (89%), *Pachyseries* (86%) and *Fungia* (80%). None of the *Acropora* and *Galaxea* colonies bleached during this period. Analysis is underway to determine the impact of the 2016 coral bleaching event.

2017

In early April 2017, the sea surface temperature (SST) exceeded the maximum monthly mean (MMM, 29.8°C) (NOAA, 2000) for two months and peaked at 30.7°C in May. There were no reports of bleaching on the subtidal reefs.

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