

Hong Kong Reef Check 2019

Results Summary

(I) Background

There has been a growing attention and support from the public on Hong Kong Reef Check since the Agriculture, Fisheries and Conservation Department (AFCD) took up the coordinating role in 2000. In 2019, a total of 88 dive teams, involving over 900 volunteer divers took part in the event and this represents a 20-fold increase in divers as compared with that in 1997 (only 40 divers).

(II) Objectives

The Hong Kong Reef Check is part of the global programme to promote sustainable management of coral reefs. Reef Check in Hong Kong serves 2 major functions: (a) to raise public awareness on the ecological importance of corals and the need for coral conservation and (b) to provide updated information on local corals for conservation and management.

For further details of Reef Check, please visit the below website:
http://www.afcd.gov.hk/english/conservation/con_mar/con_mar_cor/con_mar_cor_hkrc/con_mar_cor_hkrc.html.

(III) Reef Check 2019

Same as past few years, we organized technical seminar for team members on standard survey method and data collection prior to the Reef Check survey. We also invited marine ecologists to share knowledge and experience on taxonomic identification of coral and other indicator species. This helps improve the quality and accuracy of the field data and enhance understanding of team members on marine ecology and the need of marine conservation.

(IV) Reef Check sites

The water areas covered in Reef Check 2019 are extensive and many of them are of ecological important. The 4-month exercise from June to September covered the best coral growing sites known in the eastern part of Hong Kong waters extending from Tung Ping Chau in the north to Ninepin Groups in the south. A total of 33 sites were successfully surveyed, the locations of which are given in Figures 1 and 2. Out of the 33 survey sites, nine of them are within Marine Parks.

(V) Major findings

(a) Coral coverage

- A variation in coral coverage (ranging from 10% to 82.5%) was recorded among 33 survey sites. The percentage of coral coverage for each survey site is shown in Table 1.
- Out of the 33 sites surveyed, 15 of them recorded high coral coverage (i.e. >50%). These sites included A Ma Wan of Tung Ping Chau, Au Yue Tsui of Yan Chau Tong, West and South of Crescent Island, Coral Beach, Pier and Gruff Head of Hoi Ha Wan, Siu Long Ke, Pak Lap Tsai, Pak A, Tai She Wan, Tai Mong Tsai, East and North of Sharp Island and Bluff Island.
- Sharp Island North was the site with the highest coral coverage (82.5%).
- 5 out of 9 survey sites within Marine Parks (i.e. Hoi Ha Wan, Yan Chau Tong and Tung Ping Chau Marine Parks) recorded high coral coverage (i.e. >50%).
- Out of the 33 sites surveyed, corals at 13 sites were identified up to genus level by the team scientists. This reflects the increased interest of team members on coral identification and the success of the technical training we offered.

(b) Species diversity

- 20 out of the total 20 assigned indicator species were recorded in the survey. Most of the survey sites record high species diversity.
- A correlation was observed between coral coverage and species diversity, indicating sites with high coral coverage tend to support more fauna groups in close association with corals.
- Out of the 20 assigned indicator species, wrasses, groupers, butterfly fish, sea urchins, sea cucumbers and cowries are species commonly found in the survey sites.
- Most of the groupers, wrasses, sweetlips, and snappers were found in survey sites at Port Shelter and North-eastern waters including the three Marine Parks.

(c) Change in Coral Coverage and Indicator Species

- Change of coral cover and indicator species were examined and compared. This helps to assess the coral condition and fauna diversity of a coral reef ecosystem over time.

- The growth and condition of corals at the 33 sites are stable with some sites showing slight variation. The change of coral cover in 2018 and 2019 is shown in Figures 1 and 2.
- Long-term change of indicator species was examined. Results from past survey indicated that they are very stable and the species diversity remains on the high side.

(d) Other Observations

- No signs of destructive fishing practices were observed at all sites. However, we have recorded abandoned nets at 10 sites. The impacts were minor.
- Coral bleaching was observed at 2 sites. The impacts were minor and localised.
- Marker buoys were installed at Bluff Island, Port Island and Sharp Island west since 2002 and South Ninepin Island, Shelter Island and Sharp Island East since 2015 for coral protection. Monitoring results from Reef Check indicate that there has been an overall improvement in coral coverage of these 6 sites following installation of the marker buoys. This may have been related to the success of coral marker buoys and continued effort in education and publicity on coral conservation. The coral coverage is being monitored.

(e) Coral Watch

- The health condition of corals was assessed using specially designed Coral Health Monitoring Chart. The colour intensity of corals reflects the amount of the symbiotic algae (zooxanthellae) inside the corals, which in turn indicates the health status of the corals. The deeper the colour, the healthier is the corals.
- The Coral Health Monitoring Chart has four sample colours and 6 degrees of darkness (Code 1 to 6) for each sample colour representing different stage of coral health condition. Code 1 is the lightest and Code 6 has the darkest colour.
- Corals at 9 sites were assessed using Coral Watch tool in Reef Check 2019. The average health index is 3.96 (ranging from 3.3 to 4.5). The results are similar to last year (4.04). The average health index is well above the general average value (3), indicating corals were in healthy and stable condition.

(VI) Measures taken by AFCD on coral conservation

Coral reefs are highly productive systems, which support a high diversity of marine life. AFCD has put in place a series of measures and programmes to protect and conserve the coral communities in Hong Kong. Key areas include:

(a) Designation of marine protected areas

We have designated five Marine Parks and one Marine Reserve for the conservation of marine environment and protection of corals. A plan is underway to designate more marine parks to better conserve the seascape feature and ecological resources.

(b) Education and publicity

We have organized a range of educational and publicity activities including public lectures, seminars and exhibitions to enhance public understanding of the importance of protecting the marine environment and coral communities.

(c) Monitoring and studies

We actively monitor the status of coral communities of Hong Kong through annual “Reef Check”. Results of the Reef Check are publicised to raise public awareness of the current status of our marine environment and to seek their cooperation in protecting our precious marine resources.

In addition to Reef Check, we also undertake comprehensive coral studies to provide information for sound and adaptive management.

(d) Coral restoration

In view of the partial mortality and bioerosion event of brain corals (*Platygyra* sp.) observed at Moon Island of Hoi Ha Wan Marine Park in 2015 and 2016, we have commenced a hard coral restoration study in the site mentioned. Some severely eroded *Platygyra* colonies with healthy living tissues were selected for trial experiment. The initial result is encouraging that positive growth of the restored corals have been observed.

(e) Reduce coral damage caused by boating and recreational activities

To protect coral communities from anchor damage, mooring and marker buoys have been installed in Marine Parks where recreation pressure is high.

Also, specially-designed marker buoys were installed at Sharp Island,

Sharp Island East, Port Island, Bluff Island, South Ninepin and Shelter Island for better protection of coral from anchor damages. Long-term monitoring results at Sharp Island, Port Island and Bluff Island indicate that there has been an overall increase in live coral cover in the marker area and damaged corals had shown signs of recovery.

Leaflets and posters on “No-anchoring area” at Bluff Island, Port Island, Sharp Island West, Sharp Island East, South Ninepin and Shelter Island and stickers on “Codes for visiting coral areas” have been published and distributed to the boaters and divers through various channels.

(f) Scientific database

Currently a total of 84 hard coral species, from 28 genera of 12 families have been found in Hong Kong waters. A total of 67 species of octocorals (29 species of soft corals and 38 species of gorgonians) and 6 species of black corals were also recorded in Hong Kong waters.

A “Field Guide to Hard Corals of Hong Kong”, “Field Guide to Common Corals of Hong Kong”, “Field Guide to Common Reef Fishes of Hong Kong”, “Field Guide to Indicator Fishes of Hong Kong Reef Check” and “Field Guide to Indicator Fishes of Hong Kong Reef Check II” were published to document the diversity and unique features of our local corals.

We have completed a consultancy study of coral bleaching and bioerosion in Hong Kong. The study provided updated and scientific data and recommended appropriate management measures and long-term monitoring.

Marine Conservation (East) Division
Country and Marine Parks Branch
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Table 1: Hard coral coverage at 33 sites

Site	Coral Cover (%)
1. A Ma Wan, Tung Ping Chau	60.0
2. A Ye Wan, Tung Ping Chau	42.0
3. Wong Ye Kok, Tung Ping Chau	43.0
4. Kai Kung Tau, Kat O	19.4
5. Tau Tun, Kat O	20.6
6. Lai Chi Wo, Yau Chau Tong	44.0
7. Au Yue Tsui, Yau Chau Tong	57.5
8. Ngau Shi Wu Wan	28.3
9. Wu Pai, Crescent Island	43.1
10. Crescent Island West	60.3
11. Crescent Island South	68.1
12. Tung Wan, Double Island	18.1
13. Wong Chuk Kok Hoi	10.0
14. Port Island	14.6
15. Moon Island, Hoi Ha Wan	24.4
16. Coral Beach, Hoi Ha Wan	55.0
17. Pier, Hoi Ha Wan	68.8
18. Gruff Head, Hoi Ha Wan	56.2
19. Long Ke Wan	39.4
20. Siu Long Ke	51.9
21. Pak Lap Tsai	53.1
22. Pak A	58.8
23. Tai She Wan	59.4
24. Tai Mong Tsai	76.3
25. Town Island	45.5
26. Sharp Island East	73.8
27. Sharp Island North	82.5
28. Sharp Island South	50.0
29. Pak Ma Tsui	38.1
30. Shelter Island	31.2
31. Bluff Island	81.3
32. East Dam	44.8
33. Ninepin	24.4

Figure 1 Reef Check site location & hard coral coverage comparison (2018 vs 2019)

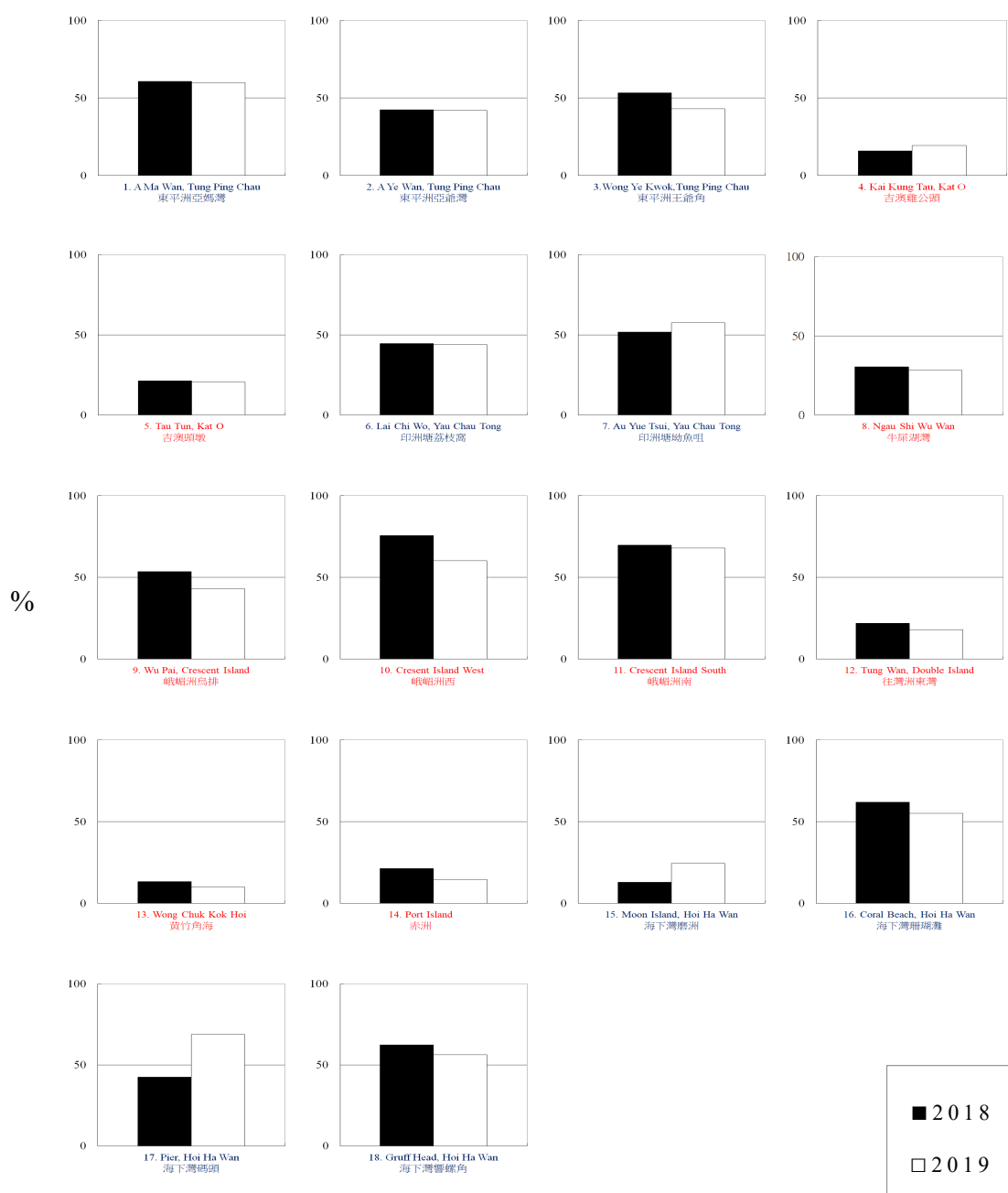


Figure 2 Reef Check site location & hard coral coverage comparison (2018 vs 2019)

