

## Hong Kong Reef Check 2013 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 2013, a total of 50 dive teams, involving over 580 volunteer divers took part in the event and this represents a 10-fold increase as compared with that in 1997 (only 5 teams).

### **(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](http://www.afcd.gov.hk/english/conservation/con_mar/con_mar_cor/con_mar_cor_hkrc/con_mar_cor_hkrc.html).

### **(III) Reef Check 2013**

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 2013 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 20% to 78.1%) 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, 20 of them recorded high coral coverage (i.e. >50%). These sites included A Ma Wan and Wong Ye Kwok of Tung Ping Chau, Coral Beach, Gruff Head and the Public Pier of Hoi Ha Wan, Lai Chi Wo and Au Yue Tsui of Yan Chau Tong, Wu Pai, South and West of Crescent Island, Port Island, Tai Mong Tsai, Town Island, Pak Lap Tsai, East and North of Sharp Island, Tai She Wan, Shelter Island, Bluff Island and East Dam.
- Coral Beach of Hoi Ha Wan was the site with the highest coral coverage (78.1%).
- 7 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 10 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, sweetlips, snappers and wrasses 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 2012 and 2013 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

- Corals at all 33 sites were in general healthy condition.
- No signs of destructive fishing practices were observed at all sites. However, we have recorded abandoned nets and some coral damages at about 6 sites. The impacts were minor.
- Coral bleaching was observed at 2 sites. The impacts were minor and localised. It may be caused by the extended period of elevated water temperature during this summer.
- Marker buoys were installed at Ung Kong Wan, Port Island and Sharp Island since 2002 for coral protection. Monitoring results from Reef Check indicate that there has been an overall improvement in cover coverage of these 3 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.

(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 8 sites were assessed using Coral Watch tool in Reef

Check 2013. The average health index is 4.23 (ranging from 3.55 to 5). The results are similar to last year (4.13). 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 four 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) 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, Port Island and Ung Kong Wan for better protection of coral from anchor damages. Long-term monitoring results 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 Ung Kong Wan, Port Island and Sharp Island and stickers on “Codes for visiting coral areas” have been published and distributed to the boaters and divers through various channels.

(e) Scientific database

We have updated the taxonomic records of stony corals in Hong Kong waters. Samples of all 84 stony corals were collected and a complete set of which is now housed at the Endangered Species Resources Centre of the department for public education and exhibition. A “Field Guide to Hard Corals of Hong Kong” was also published to document the diversity and unique features of our local corals.

To extend our knowledge on the distribution and diversity of other coral fauna in Hong Kong, we have commissioned Chinese University to undertake a study to update the records of octocorals and black corals within Hong Kong waters. A record of 67 species of octocorals was reported, with 29 species of soft corals and 38 species of gorgonians. Six species of black corals were also recorded in the study.

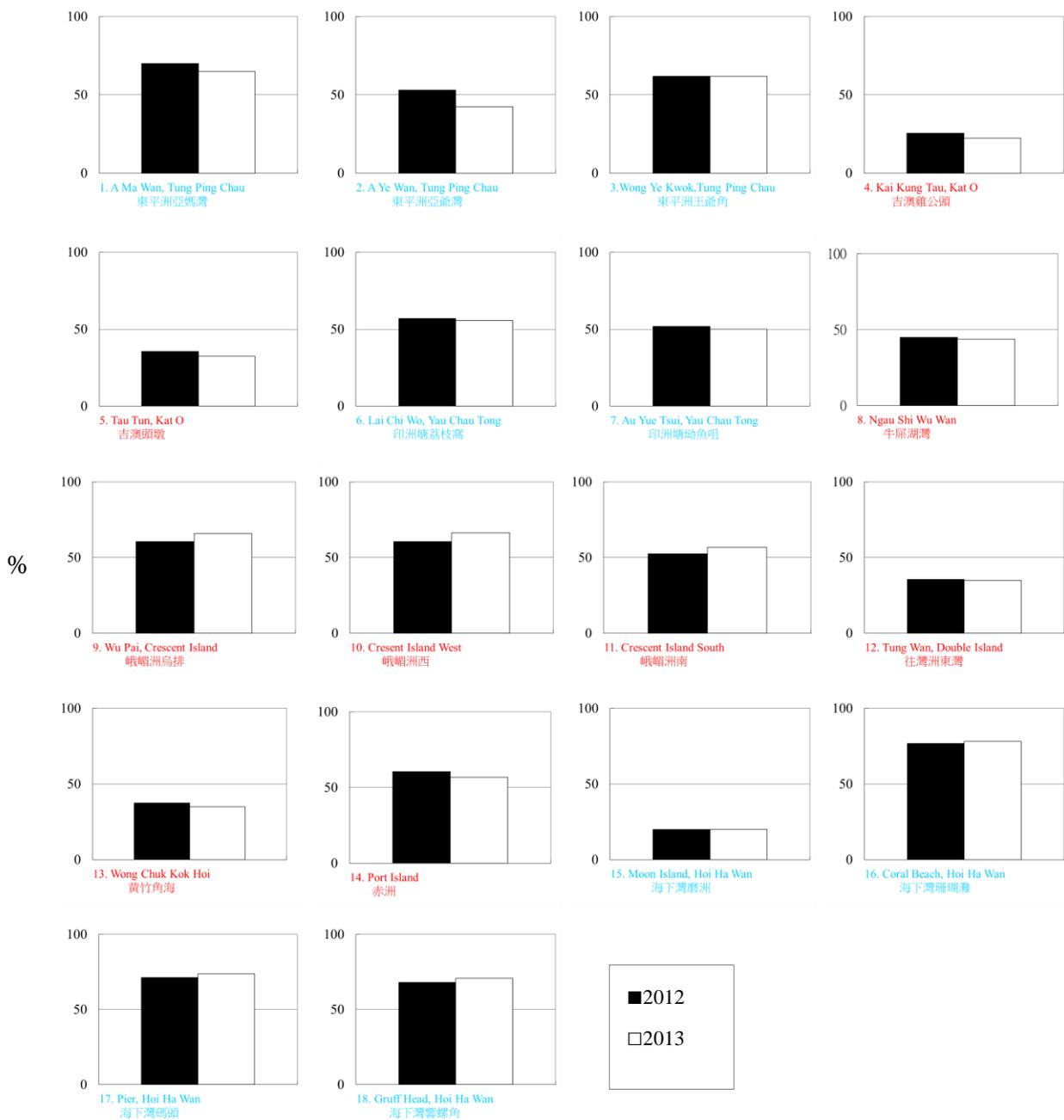
Marine Conservation (East) Division  
Country and Marine Parks Branch  
Agriculture, Fisheries and Conservation Department

30<sup>th</sup> November 2013

Table 1 Hard coral coverage at 33 sites

Site	Coral Cover (%)
1. A Ma Wan, Tung Ping Chau	65
2. A Ye Wan, Tung Ping Chau	42.5
3. Wong Ye Kwok, Tung Ping Chau	61.8
4. Kai Kung Tau, Kat O	22.5
5. Tau Tun, Kat O	32.5
6. Lai Chi Wo, Yau Chau Tong	55.6
7. Au Yue Tsui, Yau Chau Tong	50
8. Ngau Shi Wu Wan	43.8
9. Wu Pai, Crescent Island	65.8
10. Crescent Island West	66.3
11. Crescent Island South	56.9
12. Tung Wan, Double Island	35
13. Wong Chuk Kok Hoi	35
14. Port Island	56.9
15. Moon Island, Hoi Ha Wan	20
16. Coral Beach, Hoi Ha Wan	78.1
17. Pier, Hoi Ha Wan	73.8
18. Gruff Head, Hoi Ha Wan	70.7
19. Long Ke Wan	44.4
20. Siu Long Ke	37.4
21. Pak Lap Tsai	55
22. Pak A	41.3
23. Tai She Wan	51.9
24. Tai Mong Tsai	62.5
25. Town Island	51.9
26. Sharp Island East	68.1
27. Sharp Island North	75.6
28. Sharp Island South	32.5
29. Pak Ma Tsui	48.1
30. Shelter Island	58.8
31. Bluff Island	65
32. East Dam	51.4
33. Ninepin	25.6

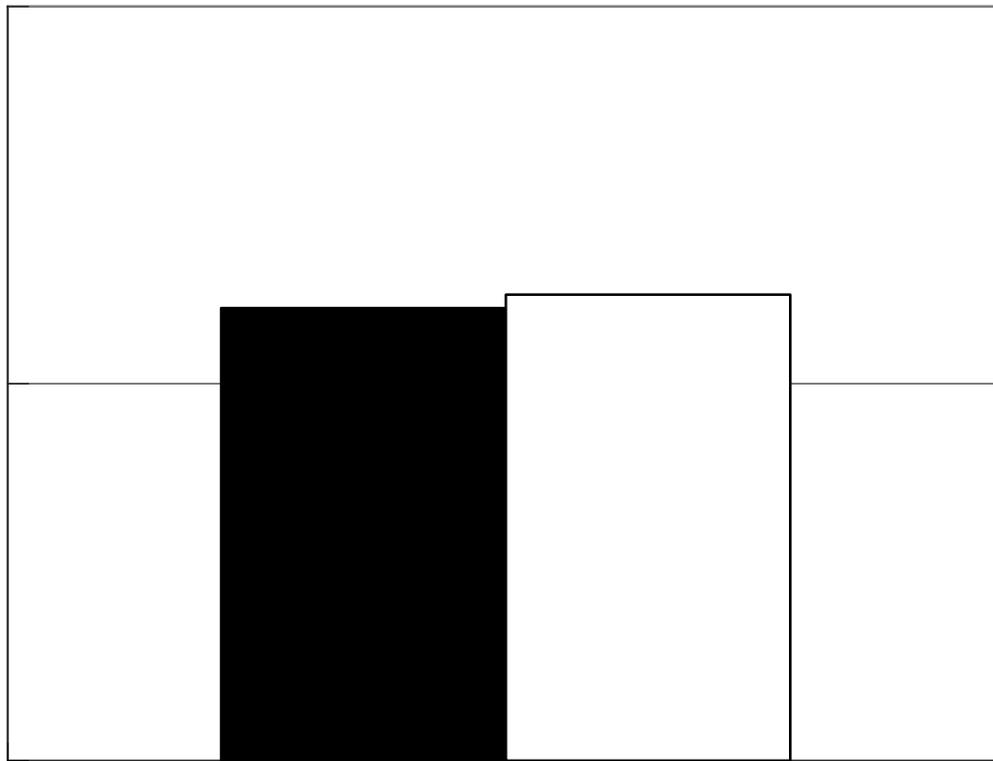
Figure 1 Reef Check site location & hard coral coverage comparison (2012 vs 2013)



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50

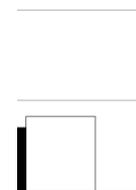
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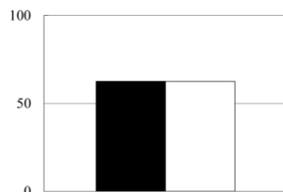
### 3. Wong Ye Kwok, Tung Ping Chau 東平洲王爺角



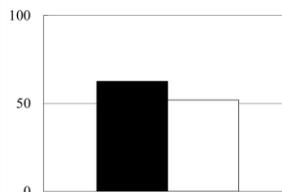
19. Long Ke Wan  
浪茄灣



20. Siu Long Ke  
小浪茄



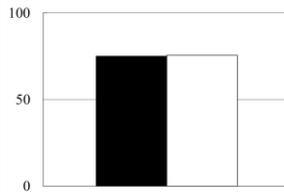
21. Pak Lap Tsai  
白腊仔



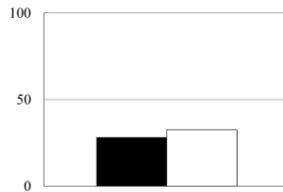
22. Pak A  
北丫



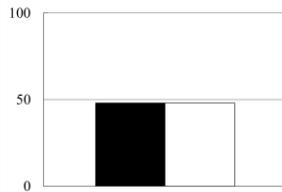
23. Tai She Wan  
大蛇灣



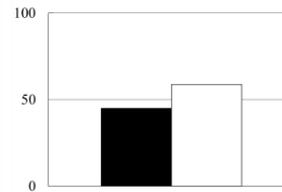
24. Tai Mong Tsai  
大網仔



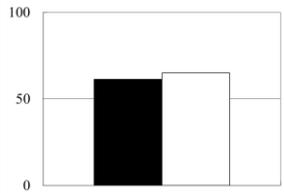
25. Town Island  
伙頭墳洲



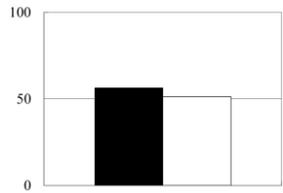
26. Sharp Island East  
橋咀東



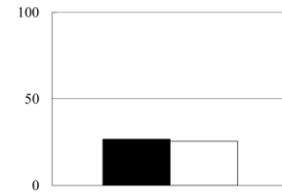
27. Sharp Island North  
橋咀北



28. Sharp Island South  
橋咀南



29. Pak Ma Tsui  
白馬咀



30. Shelter Island  
牛尾洲



31. Bluff Island  
沙塘口山



32. East Dam  
東壩



33. Ninepin  
果洲



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