

## Hong Kong Reef Check 2009 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 2009, a total of 41 dive teams, involving over 410 volunteer divers took part in the event and this represents a 8-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 2009

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 2009 are extensive and many of them are of ecological important. The 3-month exercise from July 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 19% to 74%) 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, 23 of them recorded high coral coverage (i.e. >50%). These sites included A Ma Wan, A Ye Wan and Wong Ye Kwok of Tung Ping Chau, Lai Chi Wo, Ngau Shi Wu Wan, Wu Pai, South and West of Crescent Island, Tung Wan, Wong Chuk Kok Hoi, Port Island, Coral Beach, Gruff Head and the Public Pier of Hoi Ha Wan, Long Ke Wan, Pak A, Tai She Wan, Tai Mong Tsai, Town Island, Shelter Island, East and North of Sharp Island and Bluff Island.
- Public Pier at Hoi Ha Wan Marine Park is the site with the highest coral coverage (74%).
- 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 15 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

- 19 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 19 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 improvement. The change of coral cover in 2008 and 2009 is shown in Figures 1 and 2.
- Long-term change of indicator species was examined. Results from past 8 years 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 8 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 22 sites were assessed using Coral Watch tool in Reef Check 2009. The average health index is 4.31 (ranging from 3.51 to 5.48). The results are similar to last year (4.27). 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. Hong Kong National Geopark was opened in 3 November 2009. It comprises eight geo-sites in the Sai Kung Volcanic Rock Region and Northeast New Territories Sedimentary Rock Region. A plan is underway to designate more marine parks to better conserve the seascape feature and ecological resources including coral communities in the geopark.

(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. Study findings would be useful for conservation and management of local corals.

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

19<sup>th</sup> December 2009

Table 1 Hard coral coverage at 33 sites

Site	Coral Cover (%)
1. A Ma Wan, Tung Ping Chau	72
2. A Ye Wan, Tung Ping Chau	62.5
3. Wong Ye Kwok, Tung Ping Chau	62.5
4. Kai Kung Tau, Kat O	35.6
5. Tau Tun, Kat O	40
6. Lai Chi Wo, Yau Chau Tong	60.6
7. Au Yue Tsui, Yau Chau Tong	49.4
8. Ngau Shi Wu Wan	58.8
9. Wu Pai, Crescent Island	68
10. Crescent Island West	69
11. Crescent Island South	67
12. Tung Wan, Double Island	61.3
13. Wong Chuk Kok Hoi	70
14. Port Island	70
15. Moon Island, Hoi Ha Wan	34.4
16. Coral Beach, Hoi Ha Wan	72.5
17. Pier, Hoi Ha Wan	73.8
18. Gruff Head, Hoi Ha Wan	68.8
19. Long Ke Wan	60
20. Siu Long Ke	29.4
21. Pak Lap Tsai	35.6
22. Pak A	53
23. Tai She Wan	69
24. Tai Mong Tsai	62
25. Town Island	51.3
26. Sharp Island East	68.1
27. Sharp Island North	70
28. Sharp Island South	40
29. Pak Ma Tsui	32.5
30. Shelter Island	59.4
31. Bluff Island	63.8
32. East Dam	42.5
33. Ninepin	19

Figure 1 Reef Check site location & hard coral coverage comparison (2008 vs 2009)

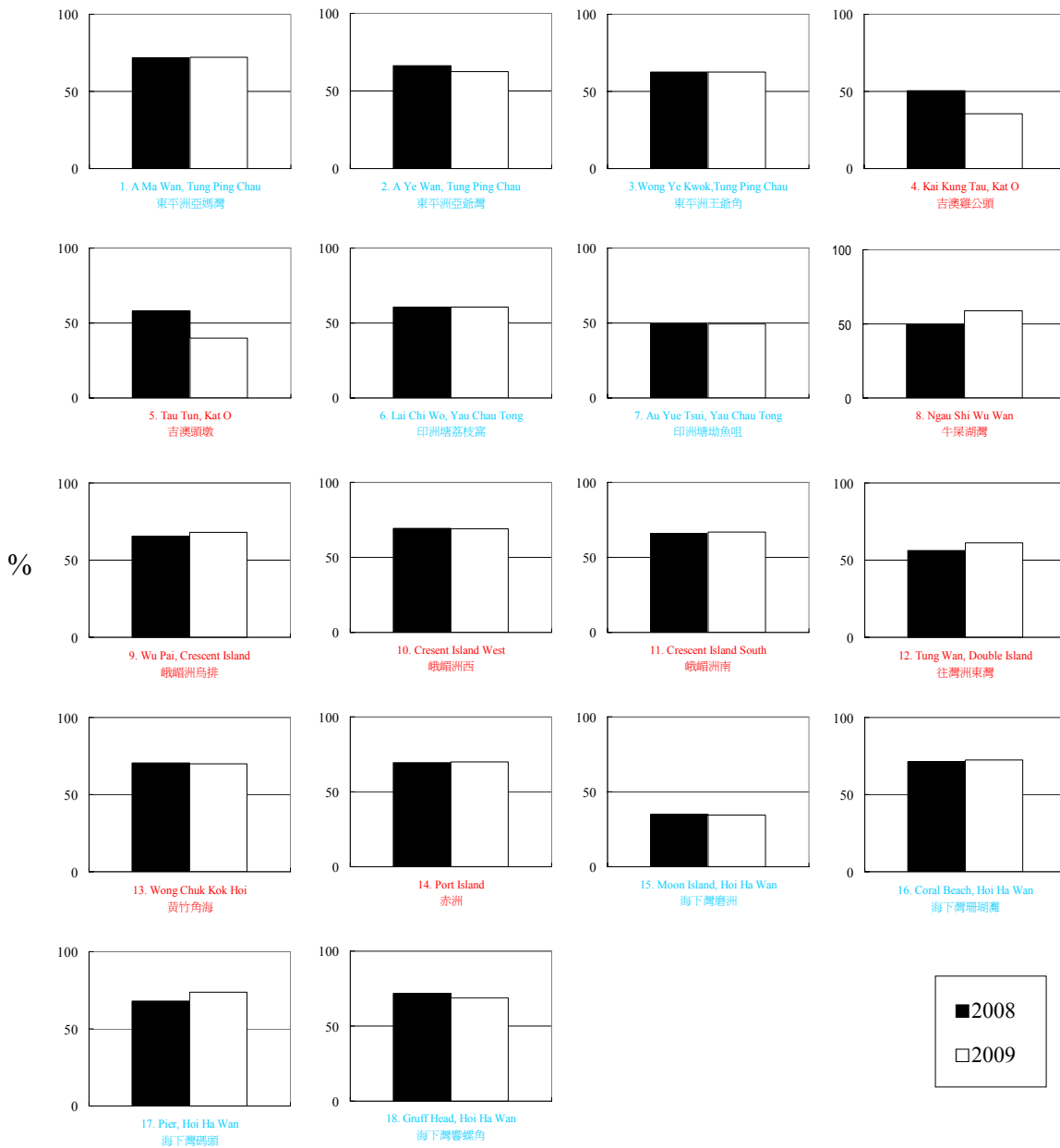


Figure 2 Reef Check site location & hard coral coverage comparison (2008 vs 2009)

