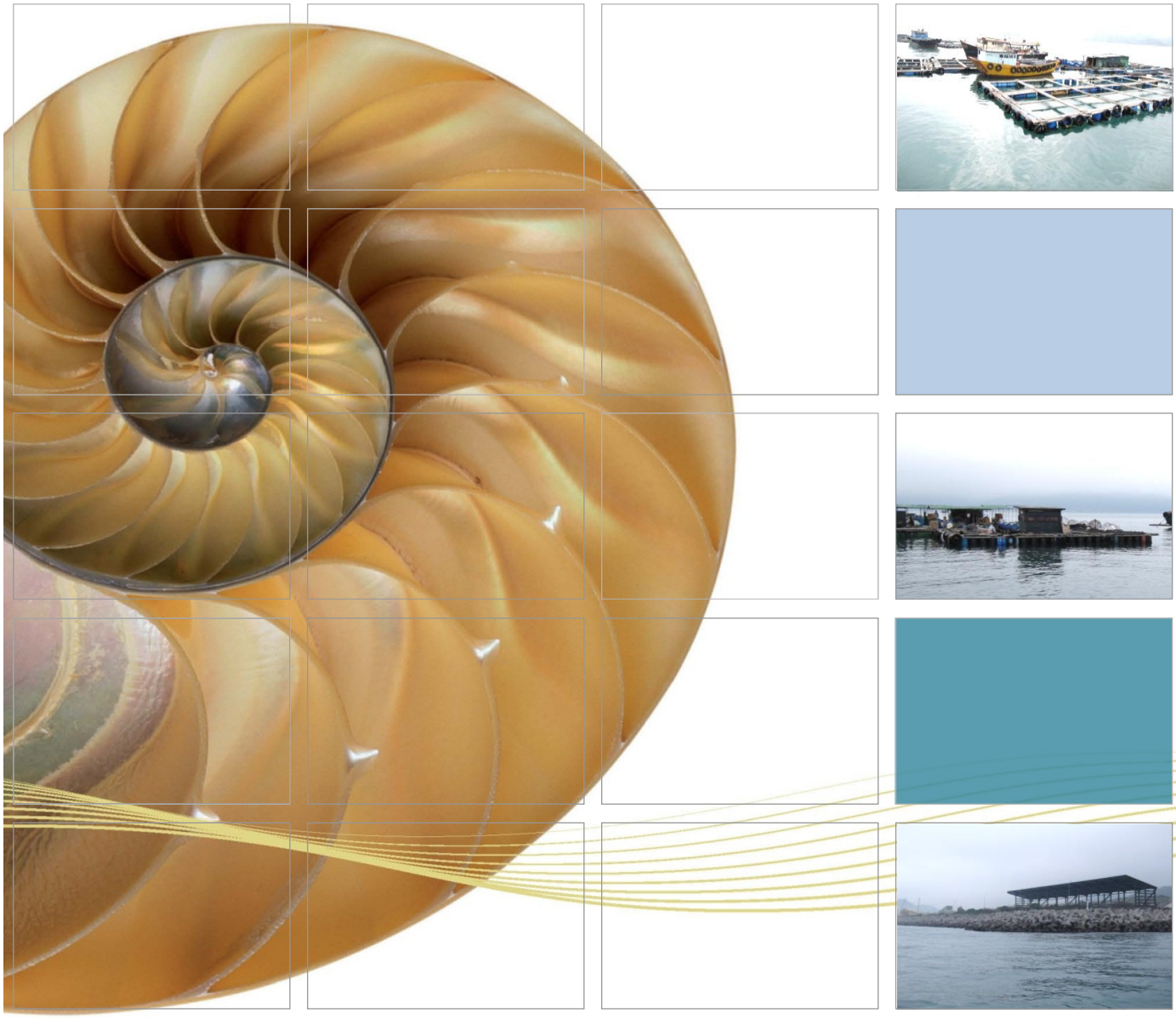
POST PROJECT REPORT



Asia Submarine-cable Express (ASE) – Tseung Kwan O

Post Project Coral Monitoring Survey Report

March 2014

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POST PROJECT REPORT

NTT Com Asia Ltd

Asia Submarine-cable Express (ASE) – Tseung Kwan O
亞洲快線海底光纜系統 - 將軍澳

March 2014
2014年3月

Reference 0223932
檔案0223932

For and on behalf of
ERM-Hong Kong, Limited
香港環境資源管理顧問有限公司

Approved by 批核: Terence Fong

Signed by 簽署: Terence Fong

Position 職位: Partner

Date 日期: March 2014

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Asia Submarine-cable Express (ASE) – Tseung Kwan O
Environmental Certification Sheet
EP-433/2011

Reference Document/Plan

Document/~~Plan~~ to be ~~Certified~~/ Verified:	Post Project Coral Monitoring Survey Report
Date of Report:	4 March 2014
Date prepared by ET:	10 March 2014
Date received by IEC:	11 March 2014

Reference EM&A Manual/ EP Requirement

EM&A Manual Requirement: Section 4

Content: *Coral Monitoring*

"Post Project Survey Report should be submitted within one month after completion of the Project marine installation works and should include, but not be limited to, the following details: basic project information; review of the coral conditions at the monitoring stations and the health status of the corals after the Project marine installation works and comparison with results as presented in relevant Baseline Monitoring Report; and discussion of any detected adverse impacts to coral communities as a result of the cable installation works."

EP Condition: Condition No. 2.4

Content: *Post Project Coral Monitoring Survey Report*

2.4 To monitor the environmental impacts and timely implementation of the recommended mitigation measures, the Permit Holder shall

(ii) submit to the Director four hard copies and one electronic copy of the following, as defined in the approved EM&A Manual:

(c) post project monitoring report within one month after completion of the marine works.

ET Certification

I hereby certify that the above referenced document/~~plan~~ complies with the above referenced condition of EP-433/2011.

Terence Fong, Environmental Team Leader: Date: 10 March 2014

IEC Verification

I hereby verify that the above referenced document/~~plan~~ complies with the above referenced condition of EP-433/2011.

Vincent Lai, Independent Environmental Checker: Date: 12 March 2014

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ANNEXES

1 INTRODUCTION

1.1 BACKGROUND

In January, 2013, NTT Com Asia (NTTCA) installed a telecommunication cable (Asia Submarine-cable Express (ASE) cable) approximately 7,200 km in length, connecting Japan and Singapore with branches to the Philippines, Hong Kong SAR (HKSAR) and Malaysia Marine works for the cable installation was completed in January 2013. The landing site is located at a new Beach Manhole (BMH) and the cable was ultimately connected with a Data Centre in Tseung Kwan O (TKO) Industrial Estate. From Tseung Kwan O, the cable extends westward approaching the Tathong Channel. Near to Cape Collinson, the cable is approximately parallel to the Tathong Channel until north of Waglan Island where the cable travels eastward to the boundary of HKSAR waters where it enters the South China Sea. The total length of cable in Hong Kong SAR waters is approximately 33.5 km. A map of the cable route is presented in *Figure 1.1*.

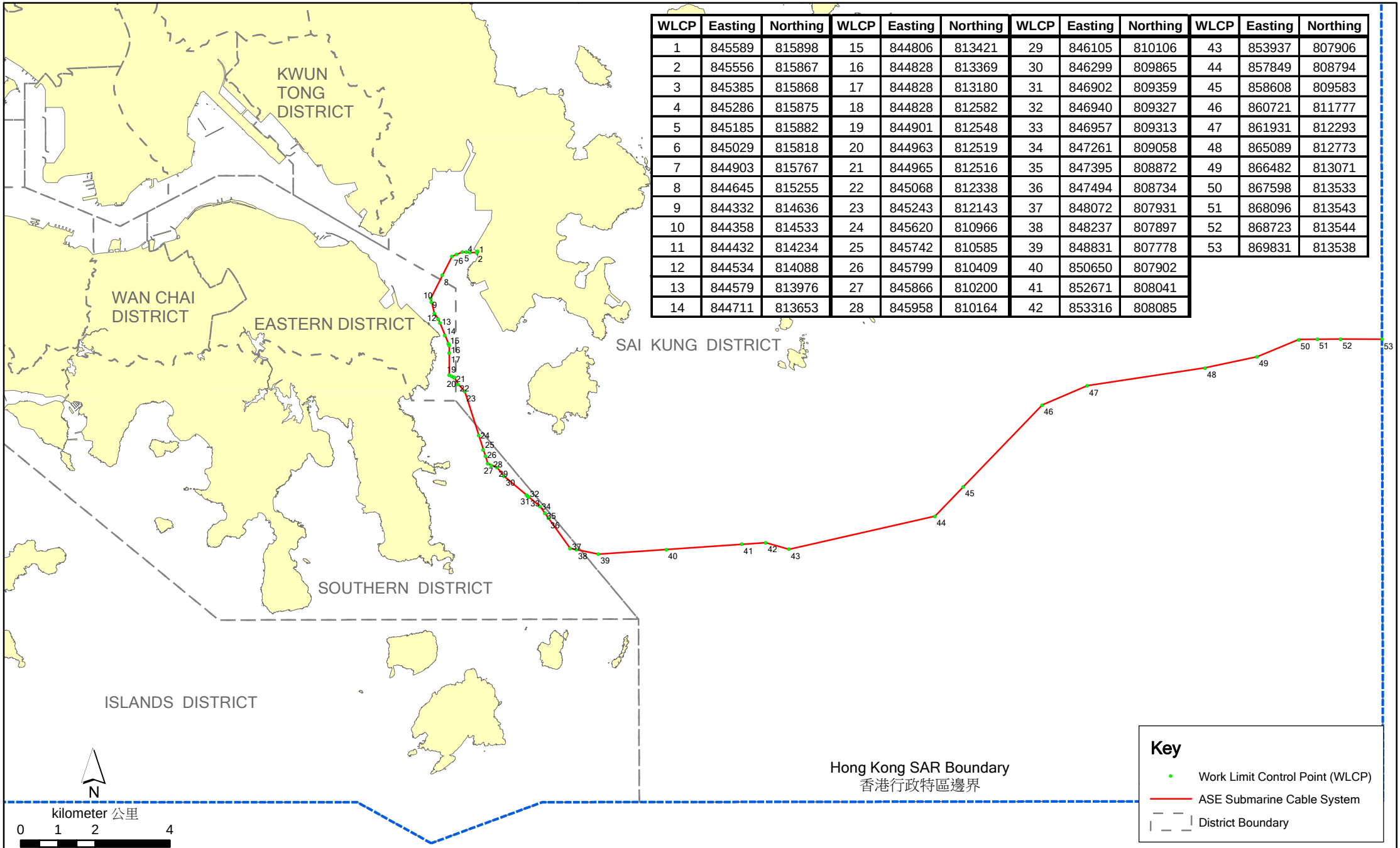
A *Project Profile* (*PP-452/2011*) which includes an assessment of the potential environmental impacts associated with the installation of the submarine telecommunications cable system was prepared and submitted to the Environmental Protection Department (EPD) under section 5.(1)(b) and 5.(11) of the *Environmental Impact Assessment Ordinance (EIAO)* for the application for Permission to apply directly for Environmental Permit (EP). The Environmental Protection Department, subsequently issued an *Environmental Permit* (*EP- 433/2011*) for the Project. In accordance with the EP conditions, an environmental monitoring and audit (EM&A) programme is required to be implemented in order to track the environmental performance of the cable installation works of the Project.

Pursuant to *Condition 2.4* of the *EP*, an environmental monitoring and audit (EM&A) programme, as set out in the *Environmental Monitoring and Audit Manual (EM&A Manual)* [1], was required for this Project. Baseline data were collected prior to the start of cable installation works in 2012 and monitoring and audit were conducted throughout the cable installation and after its completion in early 2013 as required in the *EM&A Manual*.

Upon inspection in October 2013 the ASE cable was found to be damaged and a section within Zone A (see *Figure 2.1*) required re-installation. The EM&A programme was therefore required to resume for the cable installation works in Hong Kong Waters (the "Project") and the *EM&A Manual* was updated to reflect these new repair works. A new coral monitoring baseline survey (Baseline Update) was carried out prior to the installation of the faulty section of cable in November, 2013.

In accordance with the *Updated EM&A Manual*, a Post Project Coral Survey should be conducted within one month after completion of the marine works

(1) ERM (2012) EM&A Manual for Asia Submarine-cable Express (ASE) – Tseung Kwan O.



WLCP	Easting	Northing	WLCP	Easting	Northing	WLCP	Easting	Northing	WLCP	Easting	Northing
1	845589	815898	15	844806	813421	29	846105	810106	43	853937	807906
2	845556	815867	16	844828	813369	30	846299	809865	44	857849	808794
3	845385	815868	17	844828	813180	31	846902	809359	45	858608	809583
4	845286	815875	18	844828	812582	32	846940	809327	46	860721	811777
5	845185	815882	19	844901	812548	33	846957	809313	47	861931	812293
6	845029	815818	20	844963	812519	34	847261	809058	48	865089	812773
7	844903	815767	21	844965	812516	35	847395	808872	49	866482	813071
8	844645	815255	22	845068	812338	36	847494	808734	50	867598	813533
9	844332	814636	23	845243	812143	37	848072	807931	51	868096	813543
10	844358	814533	24	845620	810966	38	848237	807897	52	868723	813544
11	844432	814234	25	845742	810585	39	848831	807778	53	869831	813538
12	844534	814088	26	845799	810409	40	850650	807902			
13	844579	813976	27	845866	810200	41	852671	808041			
14	844711	813653	28	845958	810164	42	853316	808085			

Figure 1.1

Proposed ASE Submarine Cable System (Layout Plan)

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Date: 17/09/2012

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in order to determine any detectable changes in coral conditions which may have been caused by the cable repair works that were only carried out in January and February 2014 in Zone A (Cape Collinson).

1.2 PURPOSE OF THIS REPORT

This Post Project Coral Monitoring Survey Report ("the Report") has been prepared by ERM-Hong Kong, Limited (ERM) on behalf of NTTCA to present the methodology and findings of the Post Project Coral Monitoring Survey conducted in February 2014, after the completion of the marine works for the cable repair works of the Project.

1.3 STRUCTURE OF THE REPORT

The remainder of the report is structured as follows:

Section 2: Post Project Coral Monitoring Survey Methodology
Presents the Post Project Coral Monitoring Survey methodology, parameters monitored, monitoring locations and depth in accordance with the *Updated EM&A Manual*.

Section 3: Post Project Coral Monitoring Survey Results
Reviews the condition and health status of corals at the monitoring station surveyed during the Post Project Coral Monitoring Survey and comparison with previous survey information in order to determine if any detectable changes have occurred between monitoring events.

Section 4: Conclusion
Presents a discussion of the results, comparison to previous surveys and conclusions/recommendations.

2 POST PROJECT CORAL MONITORING SURVEY METHODOLOGY

This section presents the methodology of the Post Project Coral Monitoring Survey conducted in February 2014, which follows that of the original Baseline Survey.

2.1 MONITORING LOCATIONS

The following monitoring locations, shown in *Figure 2.1*, were surveyed during the 2012 Baseline and 2013 Post-Project Monitoring. Only Zone A was surveyed during the 2013 Baseline Update Survey due to the adverse weather condition and surges at sea.

Monitoring Stations:

- Zone A: Cape Collinson; and
- Zone B: Tai Long Pai.

Control Station:

- Zone C: Tung Lung Chau.

During the February 2014 Post Project Coral Monitoring, however, only Zones A and C were surveyed due to adverse conditions. It should be noted that the repair works were only carried out in Zone A (Cape Collinson).

2.2 METHODOLOGY

Subtidal dive surveys were undertaken at Zones A and C, where Zone A lies in close proximity to the Project Area and focusses on the section of cable route to be replaced, and Zone C is considered as the Control Station. The survey included the following two components:

- Semi-quantitative Rapid Ecological Assessment (REA) survey; and
- Coral Colony Monitoring.

Each of these surveys is described further in the following sections.

<u>Rapid Ecological Assessment Survey Method</u>

A standardised semi-quantitative REA survey technique was used to investigate the general conditions of the coral communities--including any scleractinian (hard), alcyonacian (soft) and antipitharian (black) corals found--associated with subtidal hard bottom habitat at survey site. The REA technique allows collection of semi-quantitative information on the ecological attributes of the subtidal habitat in a relatively simple way without compromising scientific rigour. This technique is the standard practice for EIA and EM&A marine ecological surveys in Hong Kong and has been modified from the standardised REA survey technique established for the

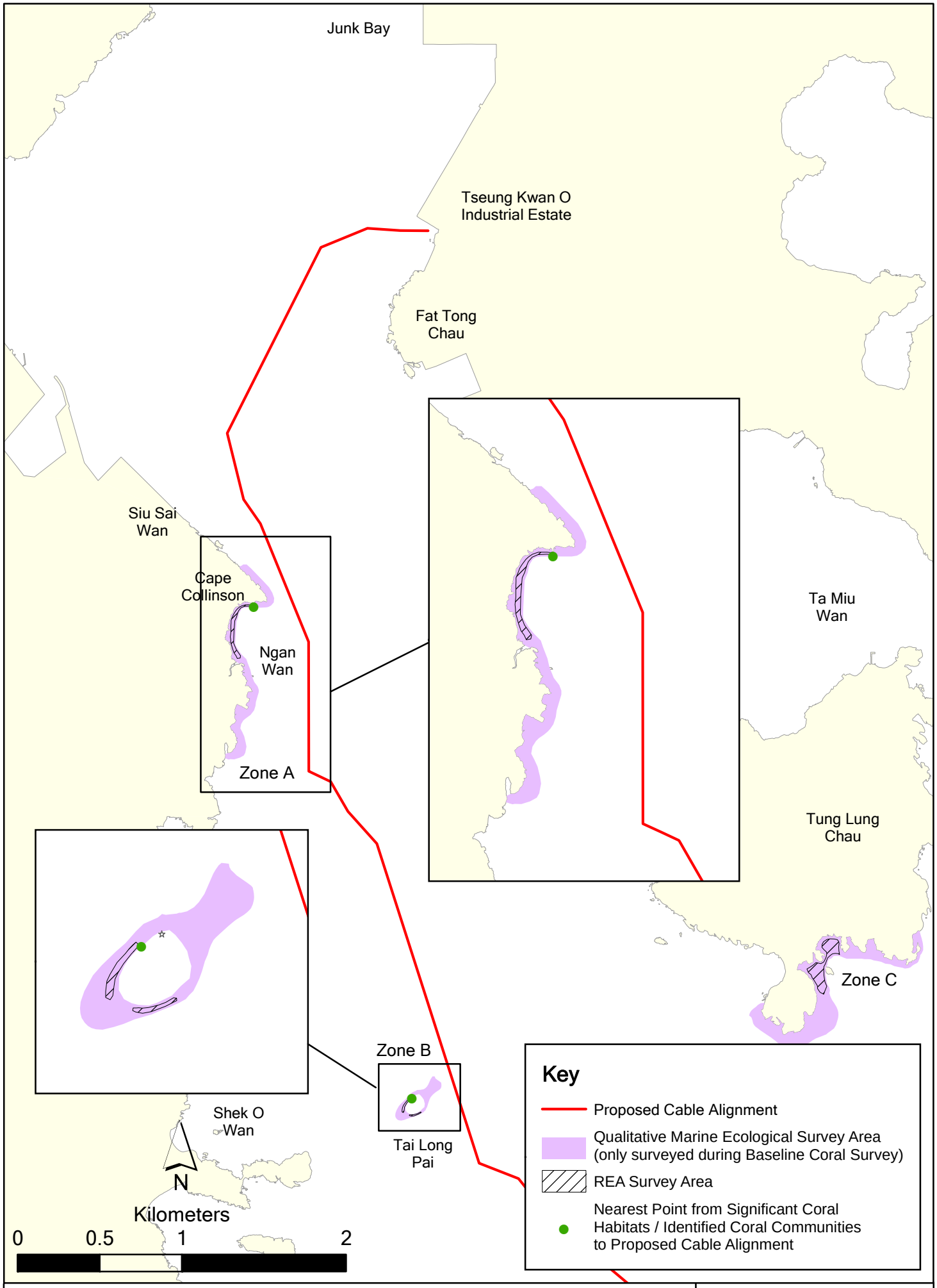

Figure 2.1

Locations of Major Coral Community

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Date: 2/26/2013

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assessment of coral communities on the Great Barrier Reef [1] for marine environment of Hong Kong [2].

The Post Project Coral Monitoring Survey was conducted by the same qualified coral ecologist who was used for the Baseline Update Survey and had been approved by AFCD in advance of undertaking the monitoring work. An REA survey was carried out by means of SCUBA with the aim of recording the condition of existing substratum, estimating the diversity and relative abundance of coral assemblages (ie hard corals, octocorals and black corals) and identification of coral taxa (hard corals identified to species level while octocorals and black corals recorded to genus level). The survey was undertaken along a transect placed onto the seabed following a specific depth contour. Only Zones A and C were surveyed; conditions at Zone B was observed to be too dangerous to conduct the survey work, and thus that site was abandoned. Six transects with length of 100 m each were surveyed at each site, Zone A and Zone C. The twelve transects surveyed were also divided between depth regions:

- Shallow depth region: -2 to -5 m CD (typically the depth range of hard coral colonies associated with subtidal hard bottom habitat); and
- Deep depth region: -5 to -15 m CD.

Following the laying of the transect line, coral specialists swam along the transect and conducted the REA survey. The REA methodology encompassed an assessment of the benthic cover (Tier I) and taxon abundance (Tier II) undertaken in a swathe ~ 1-m wide, 0.5 m either side of each transect, due to visibility limitations. Further explanation of the two assessment tiers implemented during the survey is presented below.

Tier I – Categorisation of Benthic Cover

Upon the completion of observation along each survey transect, five ecological and seven substratum attributes were assigned to one of seven standard ranked (ordinal) categories (*Tables 2.1 and 2.2*).

Table 2.1 Categories used in the REA Surveys – Benthic Attributes

Ecological	Substratum
Hard coral	Hard Substratum
Dead standing coral	Continuous pavement
Soft coral	Bedrock
Black coral	Rubble
Macroalgae	Sand
Turf Algae	Silt
	Large boulders (>50 cm)
	Small boulders (<50 cm)
	Rocks (<26 cm)

(1) DeVantier, L.M., G.De'Ath, T.J. Done and E. Turak (1998). *Ecological assessment of a complaex natural system: A case study from the Great Barrier Reef.* Ecological Applications 8: 480-496.

(2) Fabricius, K.E. and D. McCorry. (2006). *Changes in octocoral communities and benthic cover along a water quality gradient in reefs of Hong Kong.* Marine Pollution Bulletin 52: 22-23.

Table 2.2 ***Categories used in the REA Surveys – Ordinal Ranks of Percentage Cover***

Rank	Percentage Cover (%)
0	None recorded
1	1-5
2	6-10
3	11-30
4	31-50
5	51-75
6	76-100

Tier II – Taxonomic Inventories to Define Types of Benthic Communities

An inventory of benthic taxa was also compiled for each transect. Taxa were identified *in situ* to the following levels:

- Scleractinian (hard) corals to species wherever possible;
- Soft corals, gorgonians, black corals, anemones and conspicuous macroalgae recorded according to morphological features and to genus level where possible; and
- Other benthos (e.g. sponges, ascidians, bryozoans, etc) recorded to genus level wherever possible but more typically to phylum plus growth form.

Each taxon in the inventory was ranked in terms of abundance in the community (i.e. specific to the area surveyed, not within the context of Hong Kong or greater region) (*Table 2.3*). These broad categories rank taxa in terms of relative abundance of individuals, rather than the contribution to benthic cover along each transect. The ranks are subjective assessments of abundance, rather than quantitative counts of each taxon.

Table 2.3 ***Ordinal Ranks of Taxon Abundance***

Rank	Abundance
0	Absent
1	Rare [(a)]
2	Uncommon
3	Common
4	Abundant
5	Dominant

Note: (a) The classification of "rare" abundance refers to low abundance (small quantity) on the transect, rather than in terms of distribution in Hong Kong waters.

A set of environmental site descriptors were recorded for each REA transect as follows:

(A) The degree of exposure to prevailing wave energy was ranked from 1 – 4, where:

1 = sheltered (highly protected by topographic features from prevailing waves);

2 = semi-sheltered (moderately protected);

3 = semi-exposed (only partly protected); and

4 = exposed (experiences the full force of prevailing wave energy).

(B) Sediment deposition on the reef substratum (particle sizes ranging from very fine to moderately coarse) rated on a four point scale, from 0 -3, where:

0 = no sediment;

1 = minor (thin layer) sediment deposition;

2 = moderate sediment deposition (thick layer), but substrate can be cleaned by fanning off the sediment; and

3 = major sediment deposition (thick, deep layer), and substrate cannot be cleaned by fanning.

A suite of representative photographs was taken for each REA transect. All field data were checked upon completion of each REA transect and a dive survey log was completed at the end of the fieldwork day. Photographs were compiled for each REA transect which was then reviewed to verify the REA data. Verified REA data were presented in terms of:

- Site (transect) information (Tier I and II data), depth and environmental descriptors;
- Species abundance data for each transect; and
- Species lists, species richness and mean values for ecological and substratum types were compiled.

Coral Colony Monitoring

Coral Colony Monitoring was undertaken using the same method as during the original Baseline Survey, the first Post-Project Monitoring Survey and the Baseline Update Survey to identify any evidence of sediment stress to corals before and after cable installation works of the Project. At each coral monitoring station, a total of fifteen (15) hard coral colonies and fifteen (15) octocoral/black coral colonies (or all colonies present if less than 15) were selected for monitoring. Priority was given to selecting colonies of horizontal plate-like and massive growth forms which present large stable surfaces for the interception and retention of settling solids. Each of the selected corals was identified to species or genus levels and photographed. The following data were collected:

- Maximum diameter of the identified hard coral and soft coral colonies;
- Maximum height and width of the identified gorgonians and black corals;
- Percentage of sediment cover on the identified colonies and the colouration, texture and approximate thickness of sediment on the coral colonies and adjacent substrate;
- Percentage of bleached area on the identified colonies of which two categories were recorded: a. blanched (ie pale) and b. bleached (ie whitened);
- Percentage of colony area showing partiality mortality; and

- Physical damage to colonies, tissue distension, mucous production and any other factors indicating to corals were noted in the field.

Although coral tagging is a common practice for repeated monitoring of individual colony, this technique was not employed in this monitoring programme due to difficulties in re-locating the exact transect placement and the tagged corals given the generally low visibility in the area and low light conditions in deep water. Instead, colonies of similar growth forms and size were selected.

3 POST PROJECT CORAL MONITORING SURVEY RESULTS

3.1 INTRODUCTION

This section presents findings of the Post Project Coral Monitoring Survey. Marine works for the cable repair works were completed on Thursday 6 February 2014 and final confirmation after testing of the cable was given on Tuesday 4 March 2014.

Based on experience from the Updated Baseline survey (2013) and previous surveys, coral monitoring is very weather sensitive for this Project, only being possible across *all* of Zones A to C when the wind is under force 2-3. After marine works completed, the weather forecast was therefore checked and predictions indicated 18 February as the best date to conduct coral surveys, with the weather looking to deteriorate subjequently. To ensure post-project coral monitoring was carried out within three weeks of the marine works completing, the survey was undertaken as soon after marine works completion as the weather would allow.

The Post Project Coral Monitoring Survey was therefore attempted in Zones A, B and C on 18 February 2014, being the most suitable date for the dive survey as explained above. Weather conditions were mainly cloudy and foggy, with moderate (Force 3) southeast winds. Mild to moderate swell, surface chop and moderate below-surface surge were experienced. Underwater visibility was relatively high (~7 to 8 m) along the northeast face of Cape Collinson in Zone A and at the southern side of Tung Lung Chau in Zone C. According to the previous survey experience at Tai Long Pai in Zone B during 2013 Baseline Update Survey and 2013 Post-Project Coral Monitoring Survey, coral monitoring at Zone B could only be carried out when the wind force is below 2-3. Moreover, since the above-surface visibility was extremely poor (< 600 m) and strong current was initially experienced at Tai Long Pai in Zone B, this area was considered too dangerous to continue the survey and was abandoned due to concerns for diver safety. Weather conditions were monitored closely for another two weeks after 18 February to find another window to attempt to carry out monitoring survey at Tai Long Pai in Zone B, however, continuous strong northeasterly or easterly wind (Force 5 to 6) were recorded making it unsuitable for any dive survey at Tai Long Pai in Zone B.

It should also be noted that Tai Long Pai in Zone B is located at least 5 km from the cable repair works area and being so far away, would not be expected to be affected by the Project works.

A detailed description and discussion of the monitoring results from Zone A and Zone C, collected on 18 February 2014, are presented below.

3.2 REA SURVEY RESULTS

Seabed composition along the monitored transects within Zone A and Zone C are presented in *Table 3.1.* Each taxon in the inventory was ranked in terms of relative abundance in the community and results recorded during the Post Project Coral Monitoring and Updated Baseline Surveys are shown in *Table 3.2* and *3.3,* respectively. Findings of the REA surveys are discussed below.

Tier I Results

Zone A – Cape Collinson

During the Post Project Coral Monitoring Survey conducted on 18 February 2014, the degree of exposure within Zone A, along the northeast face of Cape Collinson was (3) – semi-exposed, while the south side was (4) – exposed, thus creating moderate surge conditions nearshore. Sediment deposition on the substrate (referring to hard substrates only) was rated as (1) – minor, with only a thin layer of sediment.

The seabed along the transects sampled in Zone A was mainly composed of bedrocks, large and small boulders in the shallow depth region (2-5 m CD), with some patches of sand (*Table 3.1*). The deep depth region of Zone A (A-D1) (beyond 5 m CD) was mainly composed of sand and small boulders. At transects A-D2 and A-D3, it was mainly composed of bedrocks, large and small boulders. Some hard and octocoral colonies were present but accounted for less than 5% cover in shallow depth zone, whereas less than 5% hard coral cover and 6 to 10% octocoral cover were recorded in deep depth zone. Moderate cover by crustose coralline algae was also observed at both depth zones. Tier I results for Zone A are presented in *Table 3.1*.

The estimated percentage covers of the major benthic attributes were similar between the 2013 Baseline Update Survey, 2013 Post-Project Coral Monitoring Survey and 2012 Baseline Survey, which recorded less than 5% hard coral cover in both depth zones, less than 5% octocoral cover in shallow depth zone and 6 to 10% octocoral cover in deep depth zone of Zone A.

Zone C – Tung Lung Chau

During the Post Project Coral Monitoring Survey conducted on 18 February 2014, the degree of exposure within Zone C, along the southern face of Tung Lung Chau was (3) – semi-exposed, however due to the southeasterly wind on the survey day, moderate surge was experienced at the monitoring site. Sediment deposition on the substrate (referring to hard substrates only) was rated as minor (1), with only a thin layer of sediment.

The seabed of both shallow and deep depth zones sampled in Zone C was mainly composed of bedrocks. Hard coral colonies were present, accounting for less than 5% in both depth zones. Octocoral cover in shallow and deep depth zones were less than 5% and 6 to 10%, respectively. Moderate cover by crustose coralline algae was also observed. Tier I results of Zone C are presented in *Table 3.1*.

The estimated percentage covers of the major benthic attributes were similar between the 2013 Post-Project Coral Monitoring Survey and 2012 Baseline Survey, which recorded less than 5% hard coral cover, less than 5% octocoral cover in shallow depth zone and 6 to 10% octocoral cover in deep depth zone of Zone C.

Table 3.1 Seabed Attributes along the Semi-Quantitative Survey Transects during the Post-Project Coral Monitoring on 18 February 2014

Zone	A (Cape Collinson)						C (Tung Lung Chau)					
Depth [(a)]	S1	S2	S3	D1	D2	D3	S1	S2	S3	D1	D2	D3
Seabed attributes [(b)]												
Bedrock	0	5	4	1	5	5	6	4	4	5	6	4
Boulders – large	3	2	3	2	3	3	0	3	3	2	2	2
Boulders – small	3	2	3	3	3	2	0	3	3	2	0	3
Rock	1	1	1	1	1	1	1	2	1	1	0	1
Rubble	3	2	1	2	1	1	1	2	1	2	0	2
Sand	2	1	1	4	1	1	1	1	1	1	1	1
Silt	0	0	0	0	0	0	0	0	0	0	0	0
Ecological attributes [(b)]												
Hard coral	1	1	1	1	1	1	1	1	1	1	1	1
Dead standing coral	0	0	0	0	0	0	0	0	0	0	0	0
Octocoral	1	1	1	2	2	2	1	1	1	2	2	2
Black coral	0	0	0	0	0	0	1	0	0	0	0	0
Turf algae	0	0	0	0	0	0	0	0	0	0	0	0
Macroalgae	0	0	0	0	0	0	0	0	0	0	0	0
Coralline algae	1	1	1	1	1	1	1	1	1	1	1	1

Notes: (a) s = shallow water; m = mid water; d=deep water
(b) 0= none recorded, 1=<5% Cover, 2= 6-10% Cover, 3 = 11-30% Cover, 4 = 31-50% Cover, 5 = 51-75% Cover, 6 = 76-100% Cover.

Tier II Results

Zone A – Cape Collinson

Hard coral coverage along the REA transects was less than 5% in both shallow and deep depth zones, while less than 5% and 6 to 10% octocoral cover was recorded along the REA transects in shallow and deep depth zones, respectively. The hard coral coverage recorded during this February 2014 Post-Project Coral Monitoring Survey is similar to that observed during the 2013 Baseline Update Survey, 2013 Post-Project Coral Monitoring Survey and 2012 Baseline Survey. Twelve hermatypic hard coral species (*Cyphastrea serailia, Favia favus, Favia rotumana, Goniopora planulata, Favites pentagona, Goniopora stutchburyi, Oulastrea crispata, Plesiastrea versipora, Porites lutea, Psammocora profundacella, Psammocora superficialis* and *Turbinaria peltata*), one ahermatypic hard coral species (*Tubastrea* sp.) and twelve octocoral species (*Anthogorgia* sp., *Dendronephthya* sp., *Dichotella* sp., *Echinogorgia* sp., *Echinomuricea* sp., *Ellisella* sp., *Euplexaura* sp., *Menella* sp., *Paraplexaura* sp., *Scleronephthya* sp., *Sinularia* sp. and *Viminella* sp.) were recorded in this February 2014 Post-Project Coral Monitoring Survey, compared with the five hermatypic hard coral and twelve octocoral species recorded in the 2013 Post-

Project Monitoring. The higher number of hermatypic hard coral species recorded might be due to the higher underwater visibility (~ 7 to 8m) during the current dive survey compared to the lower water clarity (~3 to 5m) during the previous 2013 Post-Project Monitoring, meaning that they were more readily identified in this current survey. Moreover, the placement of transects is not exact in every monitoring event since the conditions at the sites do not allow for permanent transects or any coral colony markers to be placed, so transects may not cover the exact space or the same coral colonies in each survey.

Goniopora stutchburyi and *Psammocora superficialis* were the dominant hard coral species recorded, while *Dendronephthya* sp., *Echinomuricea* sp. and *Paraplexaura* sp. and *Euplexaura* sp. were the dominant octocoral species found. Results of the Tier II Survey conducted during this February 2014 Post-Project Coral Monitoring for Zone A are presented in *Table 3.2*.

Zone C – Tung Lung Chau

Both hard coral and octocoral coverage were less than 5% along the REA transects in shallow depth zone (2-5 m CD), whereas in the deep depth zone (beyond 5m CD), hard coral coverage was less than 5% and the octocoral coverage was between 6 to 10% along the REA transects surveyed. These results are similar to that observed during the 2013 Post-Project Coral Monitoring Survey and 2012 Baseline Survey.

Eleven hermatypic hard coral species (*Cyphastrea chalcidium*, *Cyphastrea serailia, Favites chinensis, Favia favus, Goniopora stutchburyi, Montipora peltiformis, Montipora venosa, Oulastrea crispata, Plesiastrea versipora, Porites lutea* and *Psammocora superficialis*), one ahermatypic hard coral (*Tubastrea* sp.), twelve octocoral species (*Acanthogorgia* sp., *Dendronephthya* sp., *Dichotella* sp., *Echinogorgia* sp., *Echinomuricea* sp., *Euplexaura* sp., *Leptogorgia* sp., *Menella* sp., *Paraminabea* sp., *Paraplexaura* sp., *Scleronephthya* sp., and *Verrucella* sp.) and two black coral species (*Antipathes* sp. and *Cirrhipathes* sp.) were recorded during this February 2014 Post-Project Coral Monitoring Survey, compared with the nine hermatypic hard coral species, nine octocoral species and two black coral species recorded in the 2013 Post-Project Coral Monitoring Survey. The higher number of hermatypic hard coral and octocoral species recorded in this dive survey might be due to the higher underwater visibility (~ 7 to 8m) during the current dive survey compared to the lower water clarity (~3 to 5m) during the previous 2013 Post-Project Monitoring, meaning that they were more readily identified in this current survey. Moreover, the placement of transects is not exact in every monitoring event since the conditions at the sites do not allow for permanent transects or any coral colony markers to be placed, so transects may not cover the exact space or the same coral colonies in each survey.

Montipora venosa, *Psammocora superficialis* and *Porites lutea* were the dominant hard coral species recorded, while *Dendronephthya* sp. was the dominant octocoral species found (*Table 3.2*). Results of the Tier II Survey during this

February 2014 Post-Project Coral Monitoring for Zone C are presented in *Table 3.2*.

Table 3.2 Results of REA Tier II Survey, Post-Project Coral Monitoring conducted on 18 February 2014

	Zone A (Cape Collinson)						Zone C (Tung Lung Chau)					
Taxon	S1	S2	S3	D1	D2	D3	S1	S2	S3	D1	D2	D3
Scleractinian (hard) Corals												
Cyphastrea chalcidium							2	2	2			1
Cyphastrea serailia	1		1				2	2	2			
Favites chinensis								1				
Favia favus	2						2	2				
Favia rotumana	1											
Favites pentagona	2											
Goniopora planulata	2											
Goniopora stutchburyi	3	2	2				1	2	2		2	1
Montipora peltiformis								2				2
Montipora venosa							3	3	3			
Oulastrea crispata	3	1	2	1			3				2	2
Plesiastrea versipora			2				3	2	2			
Porites lutea	2	2	2				3	1	2			2
Psammocora profundacella	1											
Psammocora superficialis	3	1					3				2	1
Tubastrea/ Dendrophyllia sp.		1					3	2	2			
Turbinaria peltata	1											
Alcyonacean (soft) Coral												
Acanthogorgia sp.											1	
Anthogorgia sp						2						
Dendronephthya sp.	3	2	4	1	1	4	2	2		3	3	2
Dichotella sp.					1		1					
Echinogorgia sp.	2				2							1
Echinomuricea sp.	2	3	3	4	3	3			2		2	
Ellisella sp.	1	1	1									
Euplexaura sp.	2	2	2	2		2				2	1	1
Leptogorgia sp.							2					
Menella sp.		2		2			2				1	
Paraminabea sp.												2
Paraplexaura sp.	2	2	2	1	1	2	2			1		
Scleronephthya sp.			1			3	2			2	2	2
Sinularia sp.				1		1						
Viminella sp.	1		1		1							
Verrucella sp.							1					
Antipatharian (Black) coral												
Antipathes sp.												1
Cirrhipathes sp.							1					1
Other Fauna												
Anemones	1	1	1	0	0	0	3	3	2	0	0	0
Anthocidaris crassipina	3	3	3	2	2	2	2	2	2	2	2	2
Barnacles	4	4	4	2	2	2	2	2	2	1	1	1
Bryozoans	2	2	2	2	0	1	2	2	2	1	0	0
Colochirus quadrangularis	1	1	1	1	1	1	2	2	1	1	1	1
Cowrie	1	0	0	0	0	0	2	2	2	1	2	0
Crinoids	3	3	2	1	0	0	0	0	0	0	0	0

	Zone A (Cape Collinson)						Zone C (Tung Lung Chau)					
Taxon	S1	S2	S3	D1	D2	D3	S1	S2	S3	D1	D2	D3
Diadema sp.	3	3	3	2	2	2	2	2	2	2	2	2
Holothuria leucospilata	1	1	1	1	0	0	0	0	0	0	0	0
Perna viridis	2	2	1	0	0	0	2	1	2	0	0	0
Saccostrea cucullata	4	4	4	4	4	4	2	2	1	0	0	0
Sponges	3	3	3	3	3	3	2	2	2	2	1	2
Tunicates	1	1	1	1	1	1	2	1	1	2	2	2
Zoanthids	3	3	3	3	3	3	3	3	3	2	2	3

Note: *Abundance rating (refer to *Table 2.3*): 0 = absent; 1 = rare; 2 = uncommon; 3 = common; 4 = abundant; 5 = dominant.
The classification of "rare" abundance refers to low abundance (small quantity) on the transect, rather than in terms of distribution in Hong Kong waters.

Due to the low water clarity and the strong surge experienced during the attempts for the Baseline Update Survey on 7 November 2013, only 75 m of the Zone A-S2 transect was surveyed. Results of REA Tier II Survey conducted during the 2013 Baseline Update Survey, the 2013 Post-Project Coral Monitoring Survey and the 2012 Baseline Survey are presented in *Tables 3.3*, *3.4* and *3.5*, respectively.

Table 3.3 Results of REA Tier II Survey, Baseline Update (November 7, 2013)

Taxon	Ordinal Rank*	Abundance
Scleractinian (hard) Corals		
Cyphastrea serailia	1	Rare
Favia sp.	1	Rare
Goniopora stutchburyi	2	Uncommon
Oulastrea crispata	1	Rare
Plesiastrea versipora	1	Rare
Porites lutea	2	Uncommon
Alcyonacean (soft) Coral		
Dendronepthya sp.	2	Uncommon
Euplexaura sp.	2	Uncommon
Paraplexaura sp.	2	Uncommon
Other Fauna		
Anemones	1	Rare
Anthocidaris crassipina	5	Dominant
Barnacles	4	Abundant
Bryozoans	2	Uncommon
Colochirus quadrangularis	1	Rare
Holothuria leucospilata	1	Rare
Perna viridis	2	Uncommon
Saccostrea cucullata	4	Abundant
Tunicates	1	Rare

Notes:

*Abundance rating (refer to *Table 2.3*): 0 = absent; 1 = rare; 2 = uncommon; 3 = common; 4 = abundant; 5 = dominant.

The classification of "rare" abundance refers to low abundance (small quantity) on the transect, rather than in terms of distribution in Hong Kong waters.

Table 3.4 Results of REA Tier II Survey during the 2013 Post Project Coral Monitoring (February 2013)

Species	Zone A (Cape Collinson)						Zone B (Tai Long Pai)				Zone C (Tung Lung Chau)					
Depth	S1	S2	S3	D1	D2	D3	S1	S2	D1	D2	S1	S2	S3	D1	D2	D3
Scleractinian (hard) Coral																
Cyphastrea chalcidicum	1							1			2	2	2			1
Favites chinensis												1				
Goniopora stutchburyi	2		1					2			2	2	2		2	1
Montipora mollis											3					
Montipora peltiformis												2				2
Montipora venosa											3	3	3			
Oulastrea crispata	3	1	2	1												
Psammocora superficialis	1	1						1			2				2	2
Plesiastrea versipora			1								2	2	2			
Porites lobata											2	1	2		2	
Tubastrea/ Dendrophyllia sp.		1					3	3			2	2	2			
Alcyonacean (soft) Coral																
Acanthogorgia sp.									1						1	
Anthogorgia sp.						2			1							
Dendronephthya sp.		2	4	1	1	4	3		3	3	2	2		3	3	2
Dichotella sp.					1											
Echinogorgia sp.					2											1
Echinomuricea sp.	2	3	3	4	3	3		2	2	2			2		2	
Ellisella sp.	1	1	1													
Euplexaura sp.		2	2	2		2	2	2	2					2	1	1
Menella sp.		2		2			2		2	2					1	
Paraminabea sp.																2
Paraplexaura sp.	1	1	2	1	1	2	2	2	1					1		

Species	Zone A (Cape Collinson)						Zone B (Tai Long Pai)				Zone C (Tung Lung Chau)					
Depth	S1	S2	S3	D1	D2	D3	S1	S2	D1	D2	S1	S2	S3	D1	D2	D3
Scleronephythya sp.			1			3					2			2	2	2
Sinularia sp.				1		1										
Verrucella sp.									1							
Viminella sp.	1		1		1											
Antipatharian (black) Coral																
Antipathes sp.					1				1	1						1
Cirrhipathes sp.					1				1	1						1

Notes:

* Abundance rating (refer to *Table 2.3*): 0 = absent; 1 = rare; 2 = uncommon; 3 = common; 4 = abundant; 5 = dominant.

The classification of "rare" abundance refers to low abundance (small quantity) on the transect, rather than in terms of distribution in Hong Kong waters

Table 3.5 Results of REA Tier II Survey during the 2012 Baseline Survey (September 2012)

Species	A	A	A	A	A	A	B	B	B	B	C	C	C	C	C	C
Depth [(a)]	S1	S2	S3	D1	D2	D3	S1	S2	D1	D2	S1	S2	S3	D1	D2	D3
Scleractinia (Hard) Coral																
Cyphastrea chalcidicum	1							1			2	2	2			1
Favites chinensis												1				
Goniopora stutchburyi	2		1					2			2	2	2		2	1
Montipora peltiformis												2				2
Montipora mollis											3					
Psammocora superficialis	1	1						1			2				2	2
Oulastrea crispata	3	1	2													
Tubastrea/ Dendrophyllia sp.		1					3	3								
Plesiastrea versipora			1								2	2	2			
Porites lobata											2	1	2		2	
Alcyonacean (Soft) Coral																
Acanthogorgia sp.														1		
Anthogorgia sp.									1							
Astrogorgia sp.																
Dendronephthya sp.		2	4	1	1	4			3	3				3		2
Echinogorgia sp.																
Echinomuricea sp.	2	3	3	4	2	1			2	2						
Ellisella sp.	1	1	1													
Euplexaura sp.		2	2			2			2					2	1	1
Menella sp.									2	2					1	
Muricella sp.						1										
Paraplexaura sp.	1	1	2	1	1	2			1					1		
Scleronephythya sp.			1											2		
Sinularia sp.						1										

Species	**A**	**A**	**A**	**A**	**A**	**A**	**B**	**B**	**B**	**B**	**C**	**C**	**C**	**C**	**C**	**C**
Depth [(a)]	S1	S2	S3	D1	D2	D3	S1	S2	D1	D2	S1	S2	S3	D1	D2	D3
Antipatharian (Black Coral)																
Antipathes sp.									1							
Cirrhipathes sp.									1							

Notes:

* Abundance rating (refer to *Table 2.3*): 0 = absent; 1 = rare; 2 = uncommon; 3 = common; 4 = abundant; 5 = dominant.

The classification of "rare" abundance refers to low abundance (small quantity) on the transect, rather than in terms of distribution in Hong Kong water

3.3 RESULTS OF CORAL COLONY MONITORING

Coral Colony Monitoring was also undertaken along the REA transect. Coral colonies with similar growth forms (horizontal plate-like and sub-massive corals which present on large stable surfaces for the interception and retention of settling solids) and size (< 60cm in diameter) to those monitored during the 2012 Baseline Survey, the 2013 Post-Project Coral Monitoring Survey and the 2013 Baseline Update Survey were selected and measured during the February 2014 Post-Project Coral Monitoring Survey. Data collected for each hard and soft coral colony during this Post-Project Coral Monitoring Survey are summarized in *Tables 3.6* and *3.7*. Photographic records of fauna recorded during this survey are provided in *Annex A1 & A2* and of the assessed coral colonies are provided in *Annex A3 & A4*. Data including photographic records from the previous surveys (i.e. the 2013 Baseline Update Survey, the 2013 Post-Project Coral Monitoring Survey and the 2012 Baseline Survey) are shown in *Annexes B*, *C* and *D*, respectively.

The average maximum diameter for hard coral colonies assessed at Zone A during the February 2014 Post-Project Coral Monitoring Survey was 22.2±14.7 cm, compared with an average of 15.9±8.3 cm for the 2013 Baseline Update Survey, 11.3±6.1 cm for the 2013 Post-Project Monitoring Survey and 12.9±11.8 cm for the 2012 Baseline Survey (*Tables 3.6* and *3.12*). Average octocoral height recorded during the February 2014 Post-Project Coral Monitoring Survey was 35±10.8 cm, compared to 23.9±22.6 cm for the 2013 Baseline Update Survey, 18.1±8.8 cm for the 2013 Post-Project Coral Monitoring Survey and 16.4±6.4 cm for the 2012 Baseline Survey.

The majority of hard coral colonies assessed were recorded as having one percent sediment coverage of less than 1 mm thickness. This is comparable to sediment coverage during the 2013 Baseline Update Survey, the 2013 Post-Project Coral Monitoring and the 2012 Baseline Survey, which ranged between 1 and 5 percent (*Tables 3.6* to *3.12)*. Octocorals were generally free of sediments.

Selected coral colonies in the survey area did not exhibit any sign of bleaching, partial mortality or any physical damage during any of the surveys.

Table 3.6 Monitoring Data for Selected Coral Colonies in Zone A (Cape Collinson) during the Post Project Coral Monitoring Survey (February 2014)

Coral No.	Family	Genus	Species	Max. diameter (cm)	Max. height (cm)	Max. width (cm)	Sediment cover (%)	Sediment color	Sediment Texture	Sediment thickness (cm)	Bleached area (%)	Partial mortality	Physical damage
Hard Corals													
1	Poritidae	*Goniopora*	*stutchburyi*	11	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
2	Poritidae	*Goniopora*	*stutchburyi*	20	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
3	Siderastreidae	*Psammocora*	*profundacella*	40	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
4	Siderastreidae	*Psammocora*	*superficialis*	13	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Poritidae	*Goniopora*	*stutchburyi*	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Dendrophyllidae	*Turbinaria*	*peltata*	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Poritidae	*Porites*	*lutea*	16	N/A	N/A	<1	Light yellow	Fine	<1mm	N/A	N/A	N/A
8	Poritidae	*Goniopora*	*planulata*	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Poritidae	*Goniopora*	*planulata*	46	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
10	Faviidae	*Oulastrea*	*crispata*	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	Faviidae	*Plesiastrea*	*versipora*	16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Faviidae	*Favia*	*rotumana*	28	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
13	Faviidae	*Favia*	*favus*	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Faviidae	*Cyphastrea*	*serailia*	23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	Faviidae	*Favites*	*pentogona*	15	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
Octocorals													
1	Plexauridae	*Paraplexaura*		N/A	38	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Plexauridae	*Paraplexaura*		N/A	55	22	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Plexauridae	*Echinogorgia*		N/A	45	20	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
4	Plexauridae	*Paraplexaura*		N/A	29	23	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
5	Plexauridae	*Paraplexaura*		N/A	45	13	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Plexauridae	*Paraplexaura*		N/A	25	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Plexauridae	*Euplexaura*		N/A	43	20	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
8	Plexauridae	*Echinogorgia*		N/A	38	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Plexauridae	*Paraplexaura*		N/A	30	13	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Plexauridae	*Paraplexaura*		N/A	40	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	Plexauridae	*Paraplexaura*		N/A	42	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Plexauridae	*Paraplexaura*		N/A	35	31	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Plexauridae	*Echinomuricea*		N/A	25	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Nephtheidae	*Dendronephthya*		N/A	19	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	Nephtheidae	*Dendronephthya*		N/A	16	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.7 Monitoring Data for Selected Coral Colonies in Zone C (Tung Lung Chau) during the Post Project Coral Monitoring Survey (February 2014)

Coral No.	Family	Genus	Species	Max. diameter (cm)	Max. height (cm)	Max. width (cm)	Sediment cover (%)	Sediment color	Sediment Texture	Sediment thickness (cm)	Bleached area (%)	Partial mortality	Physical damage
Hard Corals													
1	Acroporidae	*Montipora*	*venosa*	11	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
2	Acroporidae	*Montipora*	*venosa*	6.5	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
3	Acroporidae	*Montipora*	*venosa*	5	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
4	Siderastreidae	*Psammocora*	*superficialis*	26	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
5	Siderastreidae	*Psammocora*	*superficialis*	22	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
6	Siderastreidae	*Psammocora*	*superficialis*	42	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
7	Siderastreidae	*Psammocora*	*superficialis*	52	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
8	Poritidae	*Porites*	*lutea*	60	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
9	Poritidae	*Porites*	*lutea*	24	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
10	Poritidae	*Porites*	*lutea*	64	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
11	Poritidae	*Porites*	*lutea*	22	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
12	Faviidae	*Cyphastrea*	*serailia*	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Faviidae	*Favia*	*favus*	16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Poritidae	*Goniopora*	*stutchburyi*	28	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
15	Faviidae	*Cyphastrea*	*serailia*	16	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
Octocorals/ Antipatharidae													
1	Antipatharidae	*Cirrhipathes*		130	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Plexauridae	*Menella*		16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Nephtheidae	*Dendronephthya*		N/A	5	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Nephtheidae	*Dendronephthya*		N/A	5	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Ellisellidae	*Dichotella*		N/A	5	9	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
6	Plexauridae	*Menella*		6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Gorgoniidae	*Leptogorgia*		N/A	17	7	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
8	Plexauridae	*Paraplexaura*		N/A	23	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Nephtheidae	*Dendronephthya*		N/A	14	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Gorgoniidae	*Leptogorgia*		N/A	16	32	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
11	Nephtheidae	*Dendronephthya*		N/A	6	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Nephtheidae	*Dendronephthya*		N/A	15	20	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Nephtheidae	*Dendronephthya*		N/A	8	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Ellisellidae	*Verrucella*		N/A	14	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	Nephtheidae	*Dendronephthya*		N/A	20	30	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.8 Monitoring Data for Selected Coral Colonies in Zone A (Cape Collinson) during the 2013 Baseline Update Survey (November 7, 2013)

Coral No.	Family	Genus	Species	Max. diameter (cm)	Max. height (cm)	Max. width (cm)	Sediment cover (%)	Sediment color	Sediment Texture	Sediment thickness (cm)	Bleached area (%)	Partial mortality	Physical damage
Hard Corals													
1	Poritidae	*Porites*	*lutea*	22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Poritidae	*Porites*	*lutea*	18	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
3	Poritidae	*Porites*	*lutea*	30	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
4	Poritidae	*Goniopora*	*stutchburyi*	15	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
5	Poritidae	*Goniopora*	*stutchburyi*	19	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
6	Poritidae	*Goniopora*	*stutchburyi*	6	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
7	Poritidae	*Goniopora*	*stutchburyi*	16	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
8	Faviidae	*Oulastrea*	*crispata*	3	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
9	Poritidae	*Goniopora*	*stutchburyi*	17	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
10	Poritidae	*Goniopora*	*stutchburyi*	10	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
11	Poritidae	*Goniopora*	*stutchburyi*	15	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
12	Poritidae	*Goniopora*	*stutchburyi*	9	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
13	Poritidae	*Goniopora*	*stutchburyi*	18	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
14	Faviidae	*Cyphastrea*	*serailia*	33	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
15	Faviidae	*Cyphastrea*	*serailia*	8	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
Octocorals/ Antipatharidae													
1	Nephtheidae	*Dendronephthya*		N/A	6	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Plexauridae	*Euplexaura*		N/A	38	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Nephtheidae	*Dendronephthya*		N/A	9	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Nephtheidae	*Dendronephthya*		N/A	6	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Nephtheidae	*Dendronephthya*		N/A	9	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Plexauridae	*Paraplexaura*		N/A	65	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Plexauridae	*Paraplexaura*		N/A	34	24	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.9 Monitoring Data for Selected Coral Colonies in Zone A (Cape Collinson) during the 2013 Post-Project Monitoring Survey (February 2013)

Coral No.	Family	Genus	Species	Max. diameter (cm)	Max. height (cm)	Max. width (cm)	Sediment cover (%)	Sediment color	Sediment Texture	Sediment thickness (cm)	Bleached area (%)	Partial mortality	Physical damage
Hard Corals													
1	Poritidae	*Goniopora*	*stutchburyi*	23	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
2	Poritidae	*Goniopora*	*stutchburyi*	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Poritidae	*Goniopora*	*stutchburyi*	14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Poritidae	*Goniopora*	*stutchburyi*	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Poritidae	*Goniopora*	*stutchburyi*	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Poritidae	*Goniopora*	*stutchburyi*	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Poritidae	*Goniopora*	*stutchburyi*	12	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
8	Siderastreidae	*Psammocora*	*superficialis*	16	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
9	Poritidae	*Gonipora*	*stutchburyi*	16	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
10	Poritidae	*Gonipora*	*stutchburyi*	19	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
11	Poritidae	*Gonipora*	*stutchburyi*	12	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
12	Poritidae	*Gonipora*	*stutchburyi*	10	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
13	Faviidae	*Oulastrea*	*crispata*	4	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
14	Faviidae	*Oulastrea*	*crispata*	2	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
15	Faviidae	*Oulastrea*	*crispata*	3	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
Octocorals/ Antipatharidae													
1	Plexauridae	*Echinomuricea*		N/A	17	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Plexauridae	*Echinomuricea*		5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Plexauridae	*Echinomuricea*		9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Plexauridae	*Echinomuricea*		21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Plexauridae	*Echinomuricea*		N/A	15	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Acanthogorgiidae	*Anthogorgia*		N/A	23	23	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Plexauridae	*Echinogorgia*		N/A	10	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Plexauridae	*Echinogorgia*		N/A	14	16	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Ellisellidae	*Viminella*		7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Plexauridae	*Paraplexaura*		N/A	28	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	Plexauridae	*Paraplexaura*		N/A	30	18	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Plexauridae	*Echinomuricea*		N/A	25	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Plexauridae	*Paraplexaura*		N/A	31	27	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Plexauridae	*Euplexaura*		10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	Ellisellidae	*Dichotella*		N/A	26	17	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.10 Monitoring Data for the Selected Coral Colonies in Zone C (Tung Lung Chau) during the 2013 Post Project Coral Colony Monitoring (February 2013)

Coral No.	Family	Genus	Species	Max. diameter (cm)	Max. height (cm)	Max. width (cm)	Sediment cover (%)	Sediment color	Sediment Texture	Sediment thickness (cm)	Bleached area (%)	Partial mortality	Physical damage to colonies
Hard Corals													
1	Siderastreidae	*Montipora*	*venosa*	5	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
2	Poritidae	*Goniopora*	*stutchburyi*	6	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
3	Siderastreidae	*Montipora*	*venosa*	3	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
4	Siderastreidae	*Montipora*	*venosa*	9	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
5	Siderastreidae	*Montipora*	*venosa*	8	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
6	Poritidae	*Goniopora*	*stutchburyi*	6	N/A	N/A	5	Light yellow	Fine	1mm	N/A	N/A	N/A
7	Poritidae	*Goniopora*	*stutchburyi*	14	N/A	N/A	5	Light yellow	Fine	1mm	N/A	N/A	N/A
8	Siderastreidae	*Montipora*	*venosa*	8	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
9	Siderastreidae	*Montipora*	*venosa*	8	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
10	Siderastreidae	*Montipora*	*venosa*	8	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
11	Poritidae	*Goniopora*	*stutchburyi*	14	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
12	Siderastreidae	*Montipora*	*venosa*	9	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
13	Poritidae	*Goniopora*	*stutchburyi*	40	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
14	Poritidae	*Goniopora*	*stutchburyi*	24	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
15	Siderastreidae	*Montipora*	*venosa*	6	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
Octocorals													
1	Plexauridae	*Echinomuricea*		N/A	6.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Alcyoniidae	*Paraminabea*		N/A	7	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Plexauridae	*Echinogorgia*		N/A	16	9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Plexauridae	*Echinomuricea*		N/A	*1.5*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Nephtheidae	*Dendronephthya*		3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Nephtheidae	*Scleronephthya*	*gracillicum*	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Nephtheidae	*Scleronephthya*	*gracillicum*	*5*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Nephtheidae	*Scleronephthya*	*gracillicum*	*12*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Nephtheidae	*Scleronephthya*	*gracillicum*	*5*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Nephtheidae	*Dendronephthya*		6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	Nephtheidae	*Dendronephthya*		15.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Plexauridae	*Echinomuricea*		N/A	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Antipathidae	*Cirrhipathes*		135	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Nephtheidae	*Dendronephthya*		5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	Plexauridae	*Paraplexaura*		N/A	9.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.11 Monitoring Data for Selected Coral Colonies in Zone A (Cape Collinson) during the 2012 Baseline Survey

Coral No.	Family	Genus	Species	Max. diameter (cm)	Max. height (cm)	Max. width (cm)	Sediment cover (%)	Sediment color	Sediment Texture	Sediment thickness (cm)	Bleached area (%)	Partial mortality	Physical damage
Hard Corals													
1	Poritidae	*Goniopora*	*stutchburyi*	15	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
2	Faviidae	*Oulastrea*	*crispata*	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Faviidae	*Oulastrea*	*crispata*	2	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
4	Faviidae	*Oulastrea*	*crispata*	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Faviidae	*Oulastrea*	*crispata*	1	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
6	Poritidae	*Goniopora*	*stutchburyi*	14	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
7	Faviidae	*Oulastrea*	*crispata*	2	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
8	Faviidae	*Oulastrea*	*crispata*	4	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
9	Siderastreidae	*Psammocora*	*superficialis*	15	N/A	N/A	5	Light yellow	Fine	<1mm	N/A	N/A	N/A
10	Faviidae	*Plesiastrea*	*versipora*	15	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
11	Faviidae	*Favia*	*rotumana*	33	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
12	Acroporidae	*Montipora*	*mollis*	12	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
13	Dendrophyllidae	*Turbinaria*	*peltata*	19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Dendrophyllidae	*Turbinaria*	*peltata*	18	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
15	Poritidae	*Goniopora*	*stutchburyi*	40	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
Octocorals/ Antipatharidae													
1	Plexauridae	*Paraplexaura*		N/A	10	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Plexauridae	*Echinomuricea*		N/A	26	22	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
3	Plexauridae	*Echinomuricea*		N/A	26	25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Plexauridae	*Echinomuricea*		N/A	25	13	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Ellisellidae	*Viminella*		N/A	23	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Ellisellidae	*Ellisella*		N/A	16	7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Nephtheidae	*Dendronephthya*		*12*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Nephtheidae	*Dendronephthya*		14	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Nephtheidae	*Dendronephthya*		7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Ellisellidae	*Ellisella*		N/A	11	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	Plexauridae	*Echinomuricea*		N/A	13	4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Nephtheidae	*Scleronephthya*	*gracillicum*	12	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
13	Acanthogorgiidae	*Muricella*		N/A	20	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Alcyoniidae	*Sinularia*		14	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
15	Antipathidae	*Antipathes*	*curvata*	N/A	110	50	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.12 Monitoring Data Recorded for the Selected Coral Colonies in Zone C (Tung Lung Chau) during the 2012 Baseline Survey

Coral No.	Family	Genus	Species	Max. diameter (cm)	Max. height (cm)	Max. width (cm)	Sediment cover (%)	Sediment color	Sediment Texture	Sediment thickness (cm)	Bleached area (%)	Partial mortality	Physical damage to colonies
Hard Corals													
1	Siderastreidae	*Psammocora*	*superficialis*	16	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
2	Siderastreidae	*Psammocora*	*superficialis*	21	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
3	Siderastreidae	*Montipora*	*venosa*	9	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
4	Siderastreidae	*Montipora*	*venosa*	18	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
5	Siderastreidae	*Montipora*	*venosa*	22	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
6	Siderastreidae	*Montipora*	*mollis*	10	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
7	Faviidae	*Plesiastrea*	*versipora*	24	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
8	Faviidae	*Plesiastrea*	*versipora*	4	N/A	N/A	5	Light yellow	Fine	1mm	N/A	N/A	N/A
9	Siderastreidae	*Psammocora*	*superficialis*	11.5	N/A	N/A	5	Light yellow	Fine	1mm	N/A	N/A	N/A
10	Siderastreidae	*Montipora*	*venosa*	9	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
11	Faviidae	*Plesiastrea*	*versipora*	18	N/A	N/A	5	Light yellow	Fine	1mm	N/A	N/A	N/A
12	Poritidae	*Goniopora*	*stutchburyi*	13	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
13	Faviidae	*Plesiastrea*	*versipora*	6	N/A	N/A	1	Light yellow	Fine	1mm	N/A	N/A	N/A
14	Poritidae	*Goniopora*	*stutchburyi*	11	N/A	N/A	5	Light yellow	Fine	1mm	N/A	N/A	N/A
15	Poritidae	*Goniopora*	*stutchburyi*	40	N/A	N/A	5	Light yellow	Fine	1mm	N/A	N/A	N/A
Octocorals													
1	Plexauridae	*Euplexaura*		40	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Nephtheidae	*Dendrophthya*		4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Nephtheidae	*Dendrophthya*		8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Nephtheidae	*Dendrophthya*		3.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5	Nephtheidae	*Dendrophthya*		3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Nephtheidae	*Dendrophthya*		5	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
7	Nephtheidae	*Dendrophthya*		3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Nephtheidae	*Dendrophthya*		7	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
9	Nephtheidae	*Dendrophthya*		5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Nephtheidae	*Dendrophthya*		12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	Nephtheidae	*Dendrophthya*		12	N/A	N/A	1	Light yellow	Fine	<1mm	N/A	N/A	N/A
12	Nephtheidae	*Dendrophthya*		8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Acanthogorgiidae	*Acanthogorgia*		N/A	9	6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Nephtheidae	*Scleronephthya*	*gracillicum*	15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	Nephtheidae	*Scleronephthya*	*gracillicum*	12	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

4 CONCLUSION

In accordance with the *Updated EM&A Manual*, a Post-Project Coral Monitoring Survey was undertaken on 18 February 2014 within one month of completion of the marine works for the cable repair works. An REA survey and coral colony monitoring were conducted at two designated monitoring zones, including one impact monitoring station at Cape Collinson (Zone A), and one control station at Tung Lung Chau (Zone C) using the same methodology used during the 2012 Baseline and the 2013 Post-Project Coral Monitoring. Due to adverse weather conditions experienced at Zone B (Tai Long Pai) during the monitoring, a survey was not conducted there, as it was deemed hazardous for divers to collect field data.

The data collected were comparable to that collected previously, with similar cover and composition of major abiotic and biotic attributes. In addition, results of coral colony monitoring indicated the condition of coral colonies assessed during the February 2014 Post-Project Coral Survey were similar to those assessed during last baseline update monitoring survey (November 2013). Sediment cover was low, and selected coral colonies did not exhibit any sign of bleaching, partial mortality or physical damage.

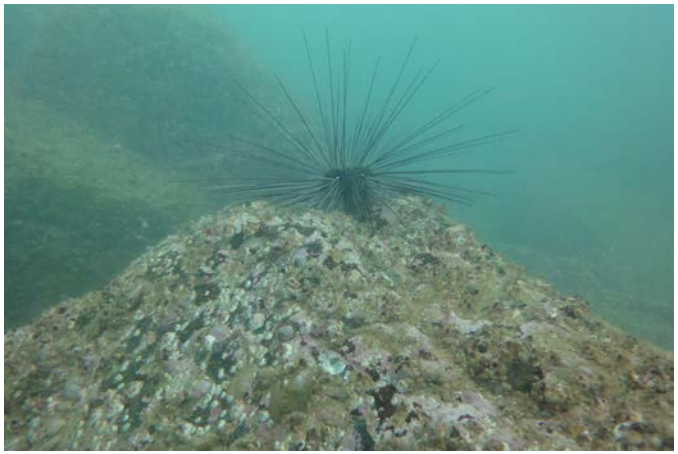
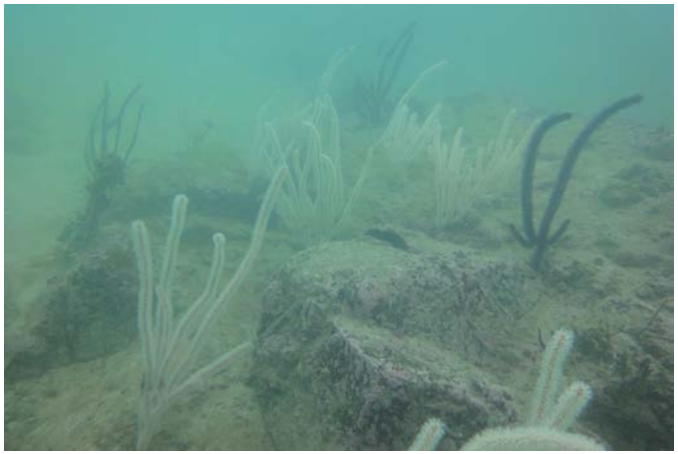
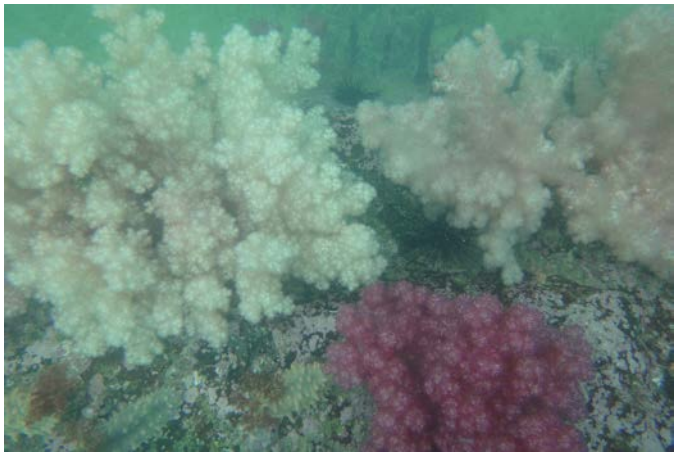
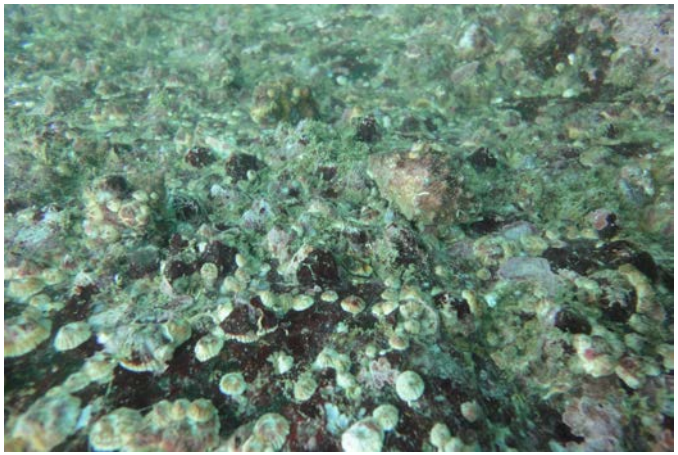
The results of the February 2014 Post-Project Coral Monitoring Survey do not indicate any significant differences from data collected during the 2013 Baseline Update Survey, the 2013 Post-Project Coral Monitoring and the 2012 Baseline Survey.

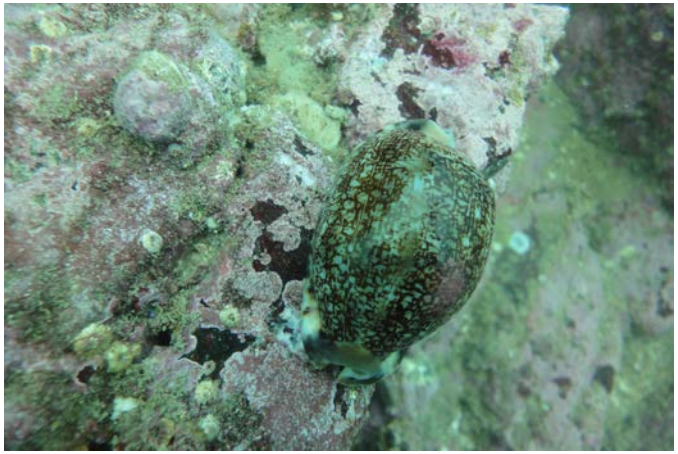
Overall, there did not appear to be any unacceptable impacts to corals as a result of the ASE cable repair works.

Annex A

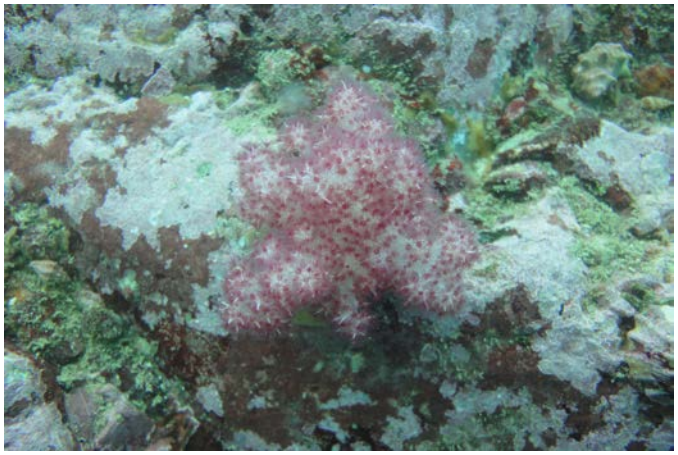
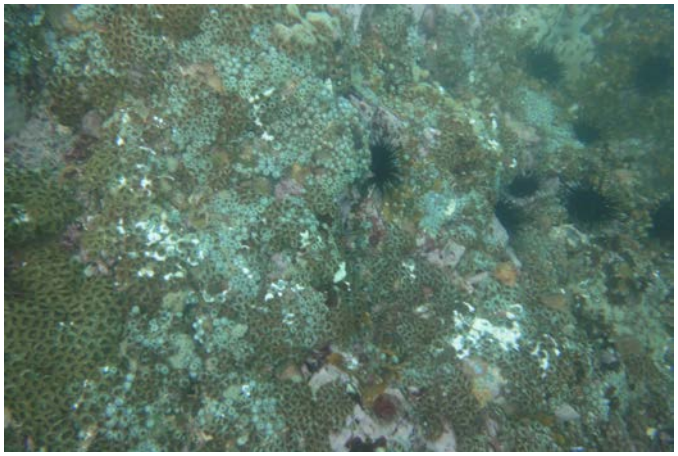
Photographic Records from the Post-Project Coral Monitoring conducted in February 2014

Annex A1 Photographic Records of Fauna Observed at Zone A – Cape Collinson during the REA Survey for the February 2014 Post-Project Coral Monitoring Survey

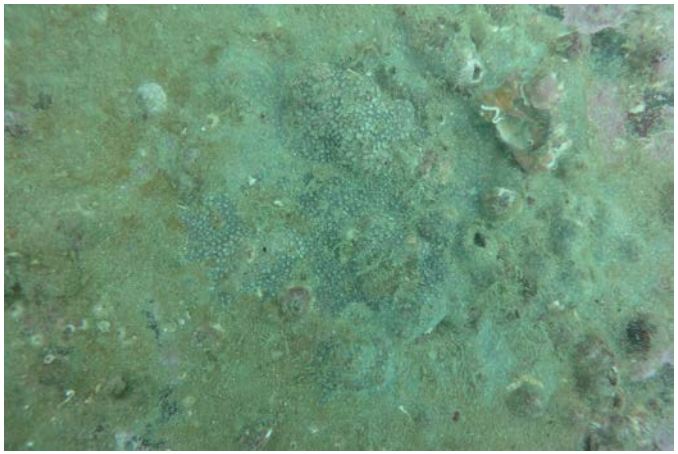
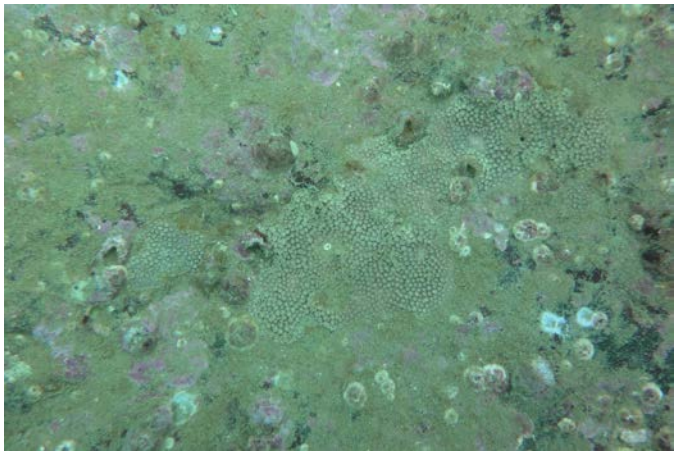
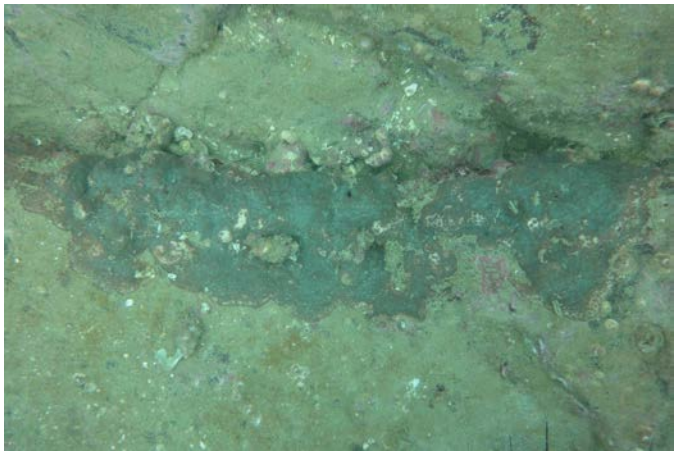
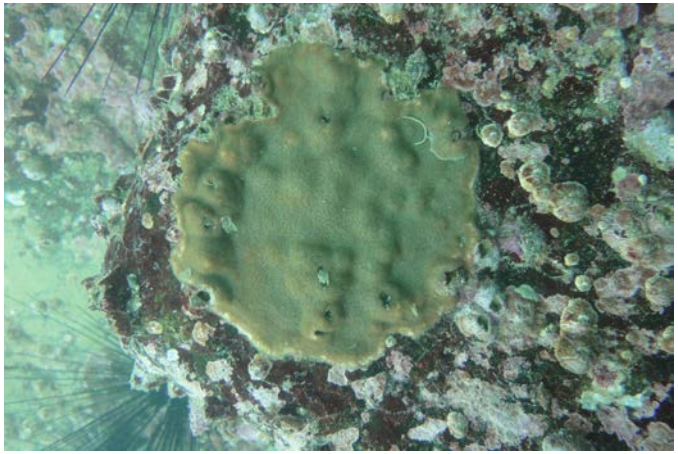
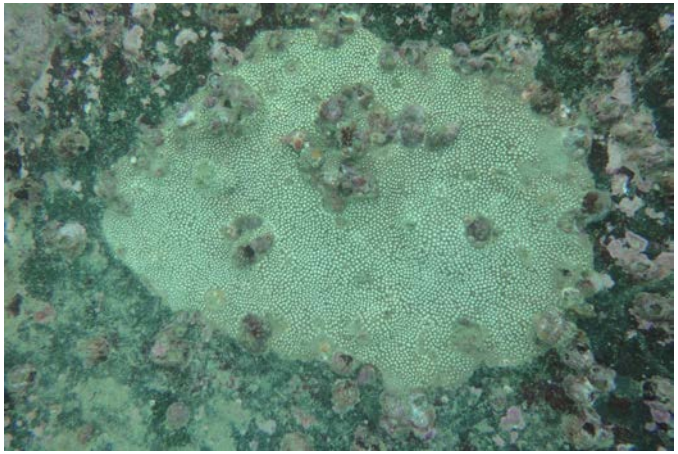
Barnacles and *Diadema sp.*	**Zoanthids**	**Soft Coral Community**
		
Colochirus quadrangularis	***Dendronephthya* community**	**Barnacles**
		

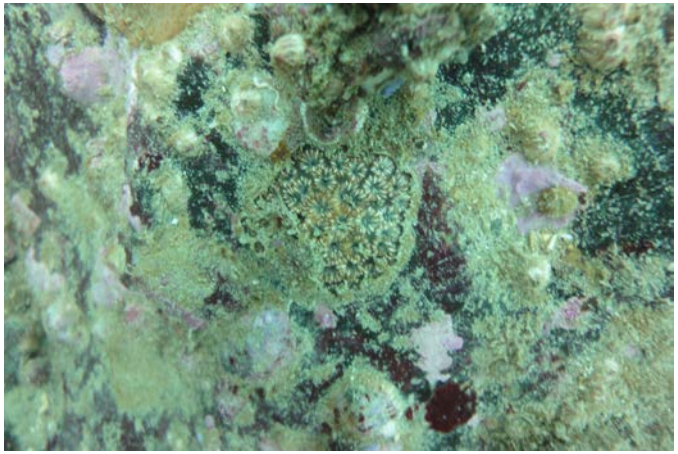
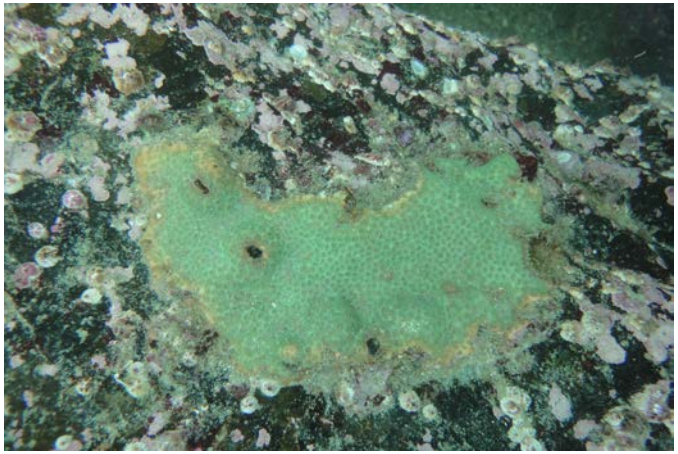
Hingebeak Shrimp (***Rhynchocinetes rugulosa)***	**Encrusting sponges**	**Cowrie** ***(Cypraea arabica)***
		

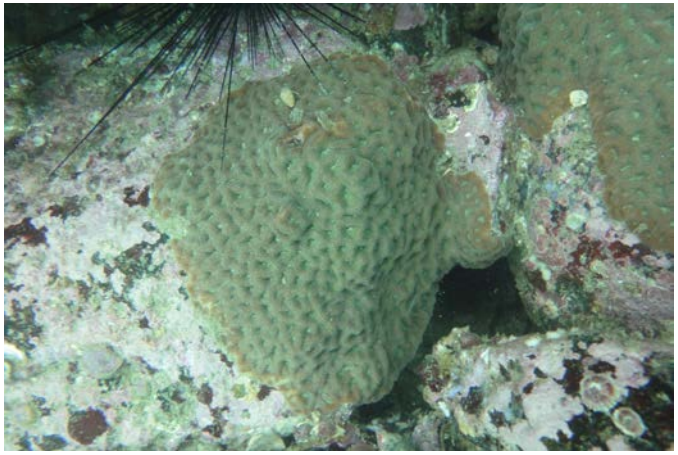
Annex A2 Photographic Records of Fauna Observed at Zone C – Tung Lung Chau during the REA Survey for the February 2014 Post-Project Coral Monitoring Survey

***Tubastrea* sp.**	**Zoanthids, Sea anemones, Sea urchins (*Anthocidaris crassipina*)**	***Dendronephthya* colony on boulder with encrusting coralline algae**
		
Nudibranch	**Zoanthids**	
		

Annex A3 Photographic Records of Hard Coral Colonies Assessed at Zone A – Cape Collinson during the Coral Colony Monitoring for the February 2014 Post-Project Coral Monitoring Survey

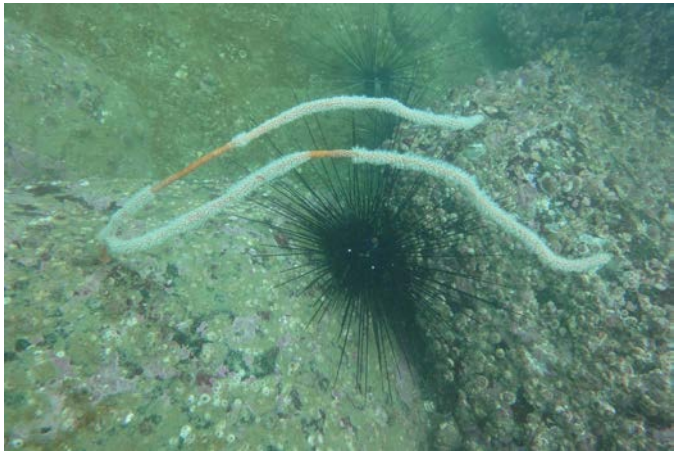
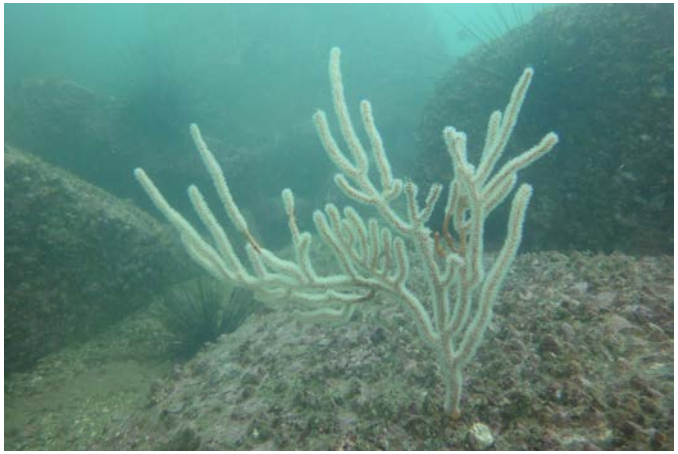
Colony No. 1 –*Goniopora stutchburyi*	**Colony No. 2–*Goniopora stutchburyi***	**Colony No. 3 – *Psammocora profundacella***
		
Colony No. 4 – *Psammocora superficialis*	**Colony No. 5 – *Goniopora stutchburyi***	**Colony No. 6 – *Turbinaria peltata***
		

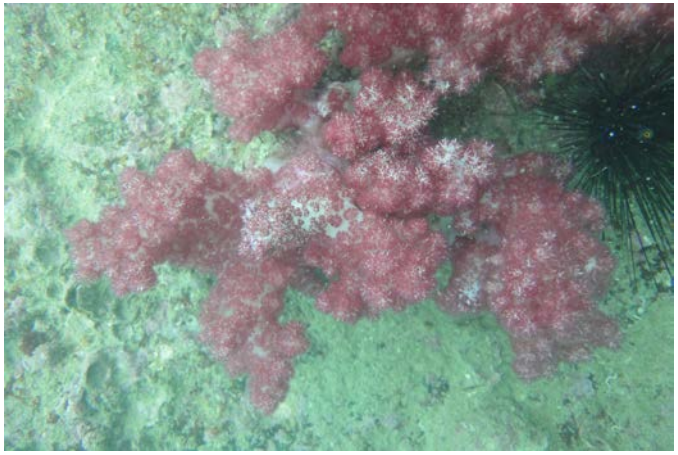
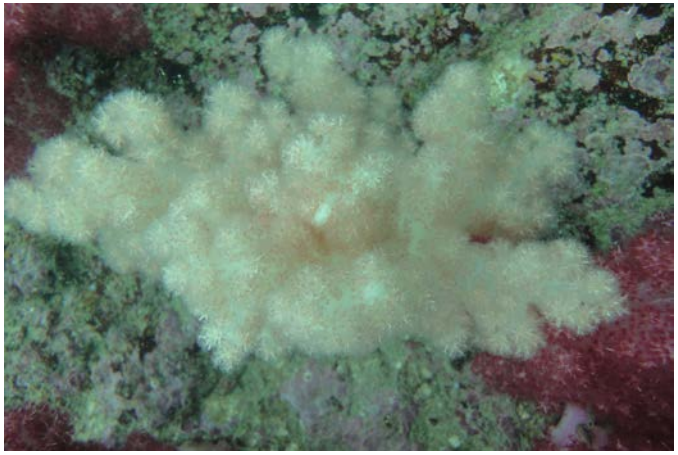
Colony No. 7 – *Porites lutea*	Colony No. 8 – *Goniopora planulata*	Colony No. 9 – *Goniopora planulata*
		
Colony No. 10 – *Oulastrea crispata*	**Colony No. 11 – *Plesiastrea versipora***	**Colony No. 12 – *Favia rotumana***
		

Colony No. 13 – *Favia favus*	Colony No. 14 – *Cyphastrea serailia*	Colony No. 15 – *Favites pentogona*
		

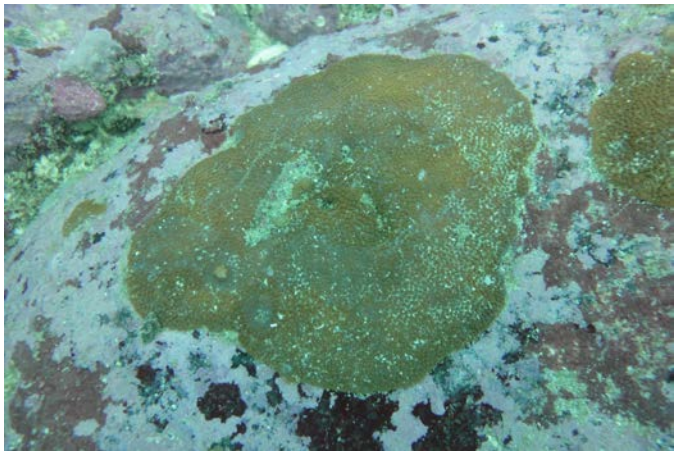
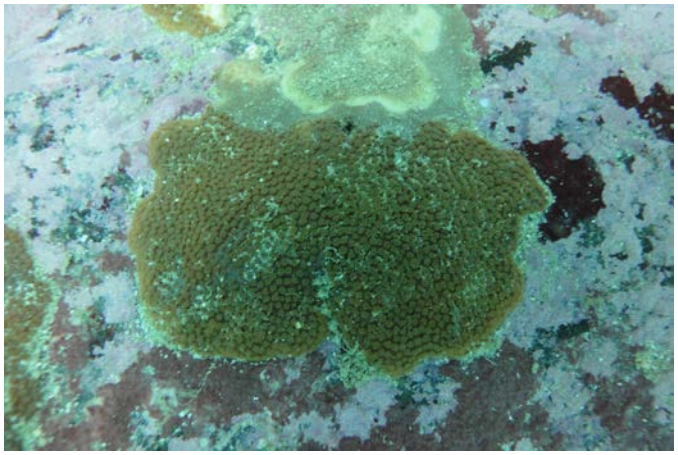
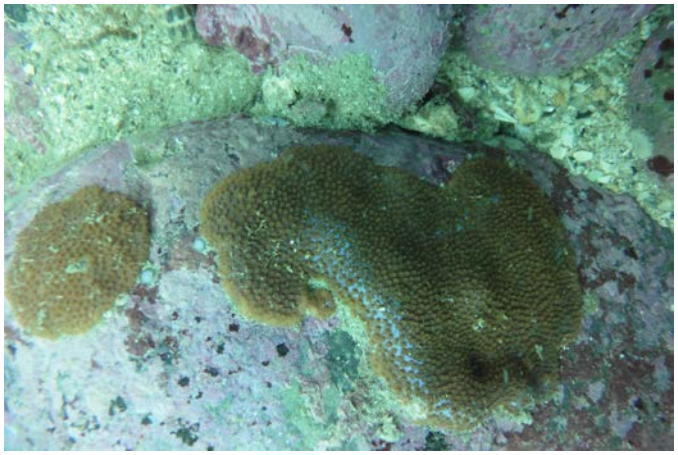
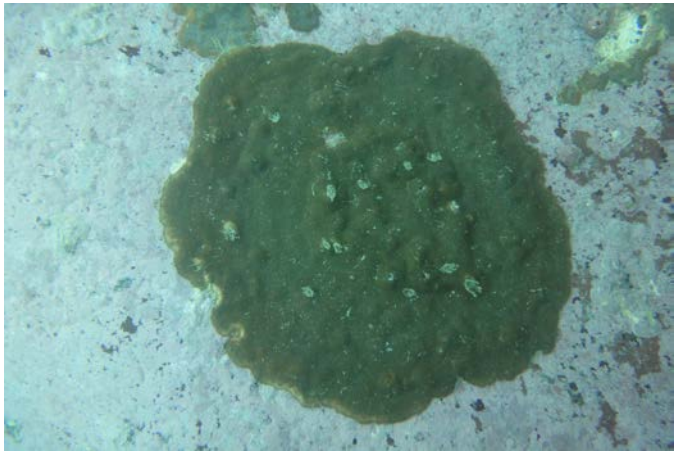
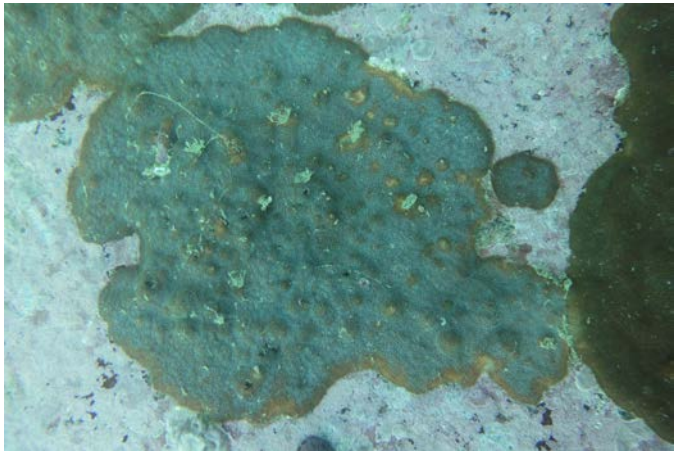
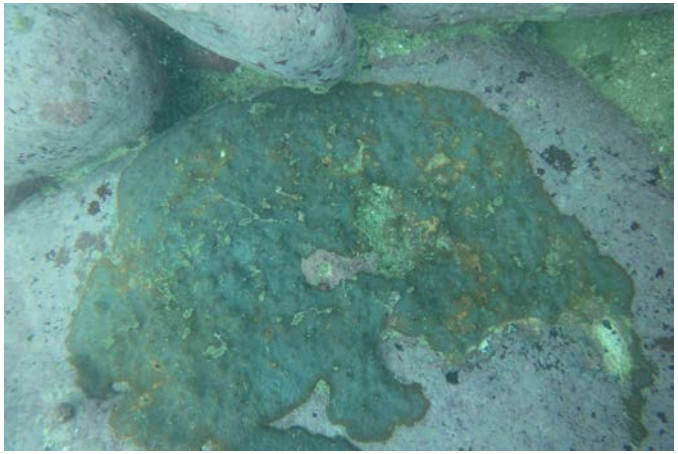
Annex A4 Photographic Records of Octocoral/ Black Coral Colonies Assessed at Zone A – Cape Collinson during the Coral Colony Monitoring for the February 2014 Post-Project Coral Monitoring Survey

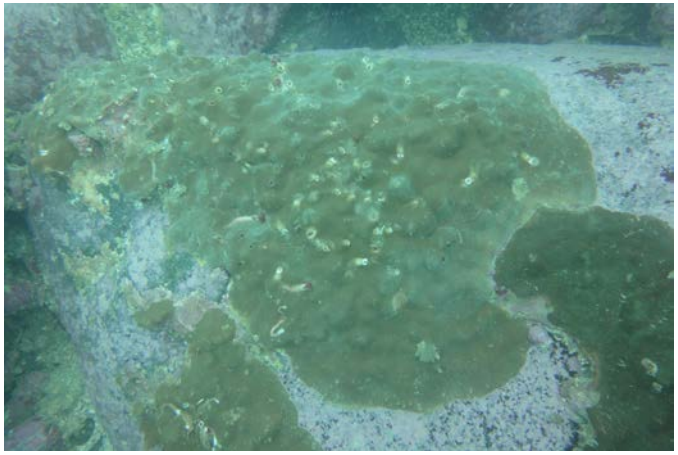
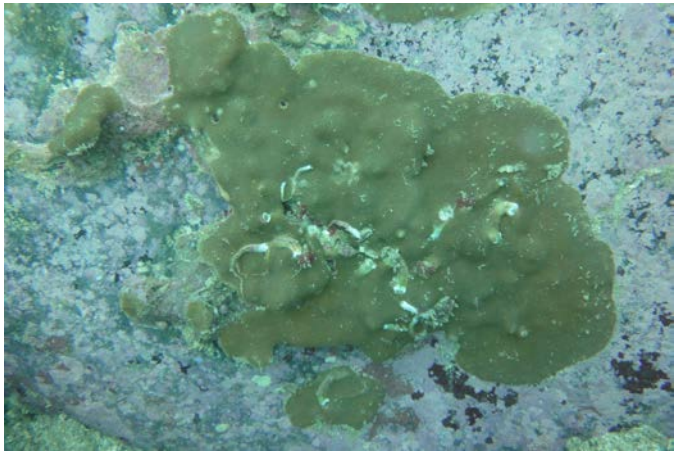
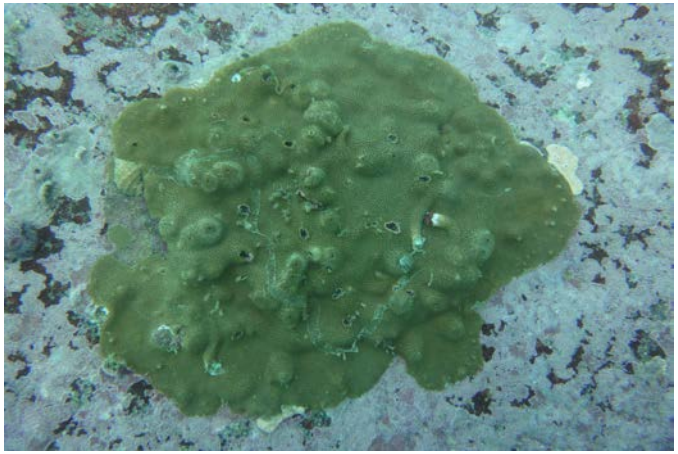
Colony No. 1 – *Paraplexaura*	**Colony No. 2 – *Paraplexaura***	**Colony No. 3 – *Echinogorgia***
		
Colony No. 4 – *Paraplexaura*	**Colony No. 5 – *Paraplexaura***	**Colony No. 6 – *Paraplexaura***
		

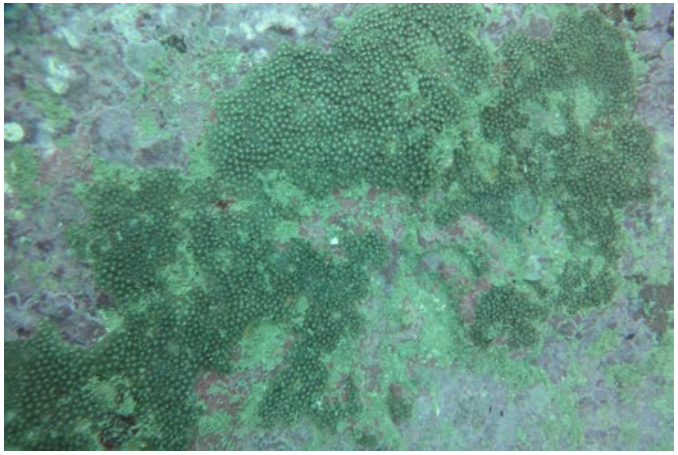
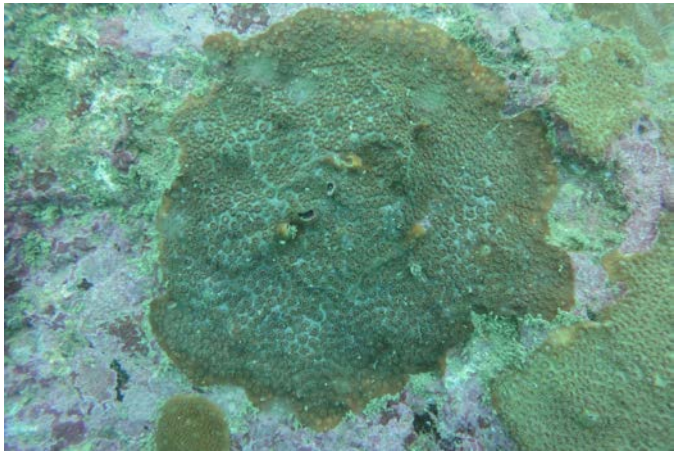
Colony No. 7 – *Euplexaura*	Colony No. 8 – *Echinogorgia*	Colony No. 9 – *Paraplexaura*
		
Colony No. 10 – *Paraplexaura*	**Colony No. 11 – *Paraplexaura***	**Colony No. 12 – *Paraplexaura***
		

Colony No. 13 – *Echinomuricea*	Colony No. 14 – *Dendronephthya*	Colony No. 15 – *Dendronephthya*
		

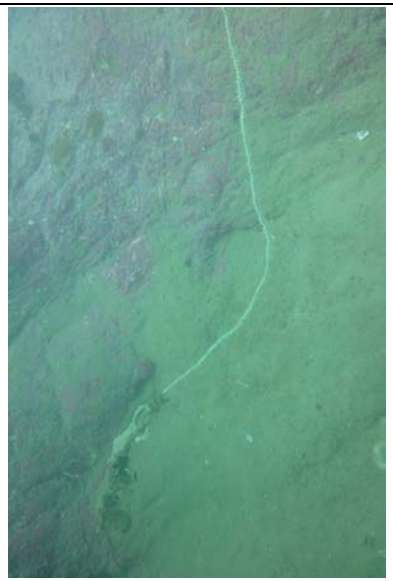
Annex A5 Photographic Records of Hard Coral Colonies Assessed at Zone C – Tung Lung Chau during the Coral Colony Monitoring for the February 2014 Post-Project Coral Monitoring Survey

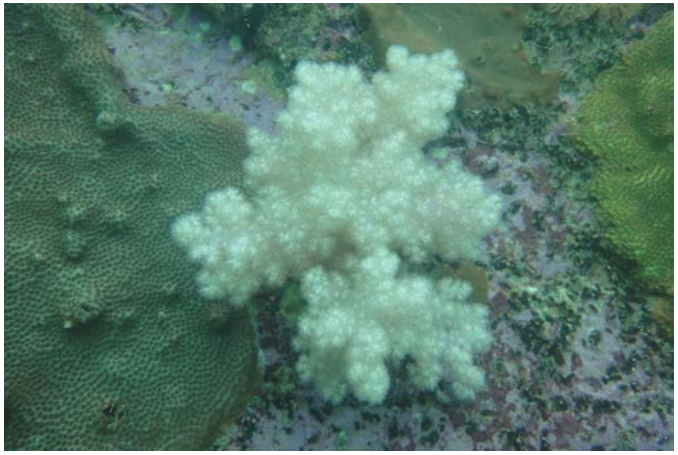
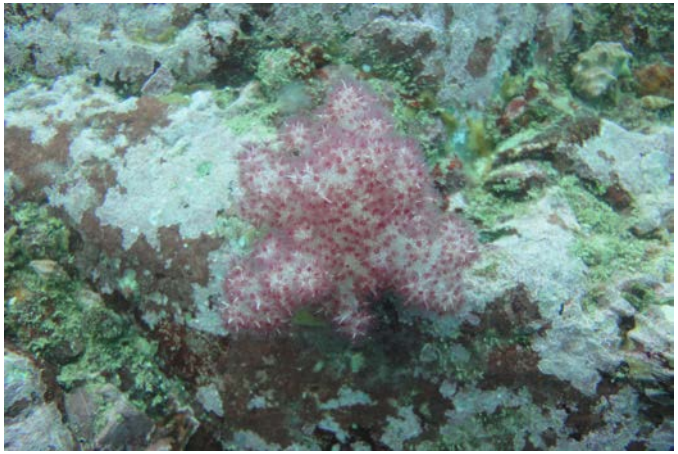
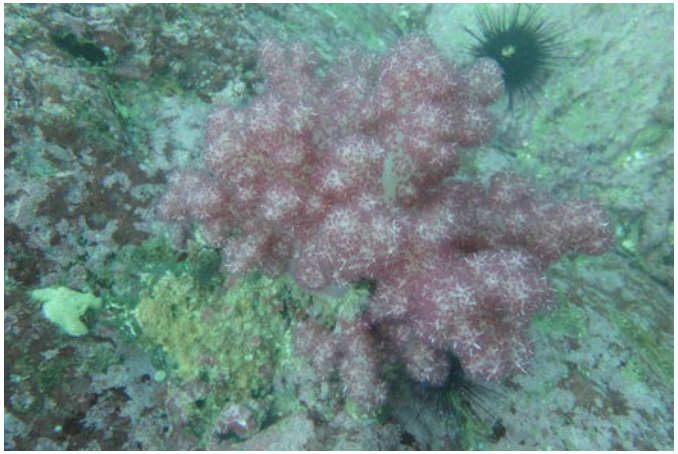
Colony No. 1 – ***Montipora venosa***	**Colony No. 2 –** ***Montipora venosa***	**Colony No. 3 –** ***Montipora venosa***
		
Colony No. 4 – ***Psammocora superficialis***	**Colony No. 5 –** ***Psammocora superficialis***	**Colony No. 6 –** ***Psammocora superficialis***
		

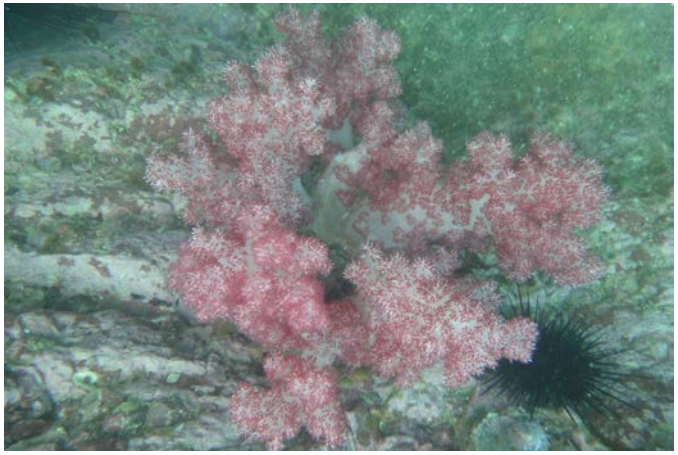
Colony No. 7 – *Psammocora superficialis*	**Colony No. 8 – *Porites lutea***	**Colony No. 9 – *Porites lutea***
		
Colony No. 10 – *Porites lutea*	**Colony No. 11 – *Porites lutea***	**Colony No. 12 – *Cyphastrea serailia***
		

Colony No. 13 – *Favia favus*	**Colony No. 14 – *Goniopora stutchburyi***	**Colony No. 15 – *Cyphastrea serailia***
		

Annex A6 Photographic Records of Octocoral/ Black Coral Colonies Assessed at Zone C – Tung Lung Chau during the Coral Colony Monitoring for the February 2014 Post-Project Coral Monitoring Survey

Colony No. 1 – *Cirrhipathes*	**Colony No. 2 – *Menella***	**Colony No. 3 – *Dendronephthya***
		
Colony No. 4 – *Dendronephthya*	**Colony No. 5 – *Dichotella***	**Colony No. 6 – *Menella***
		

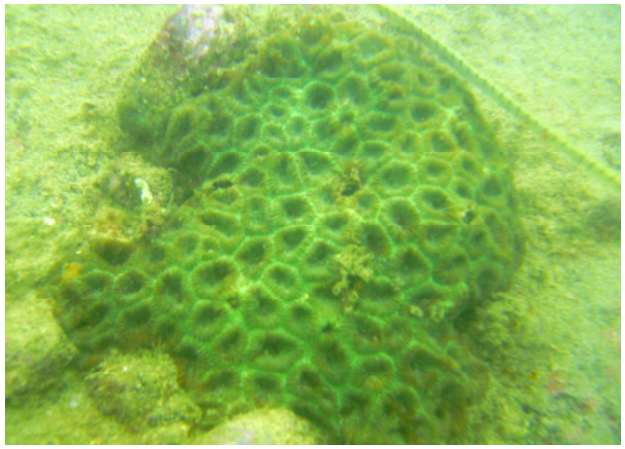
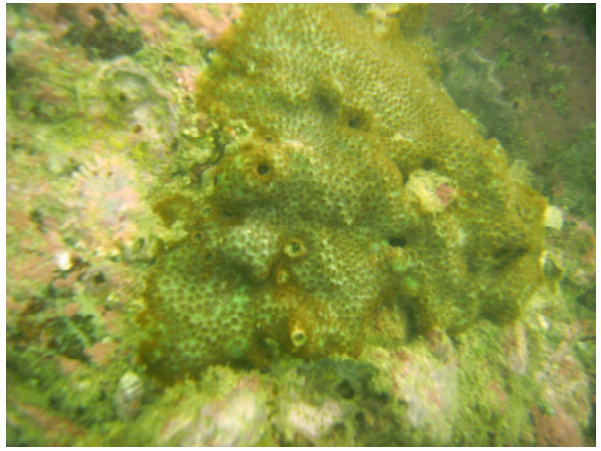
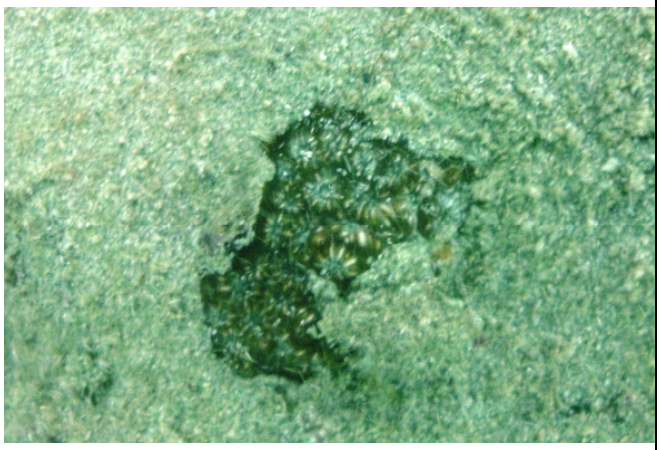
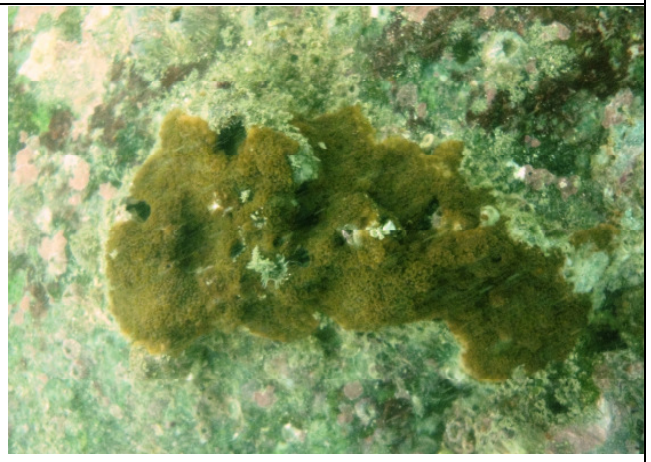
Colony No. 7 – *Leptogorgia*	Colony No. 8 – *Paraplexaura*	Colony No. 9 – *Dendronephthya*
		
Colony No. 10 – *Leptogorgia*	**Colony No. 11 – *Dendronephthya***	**Colony No. 12 – *Dendronephthya***
		

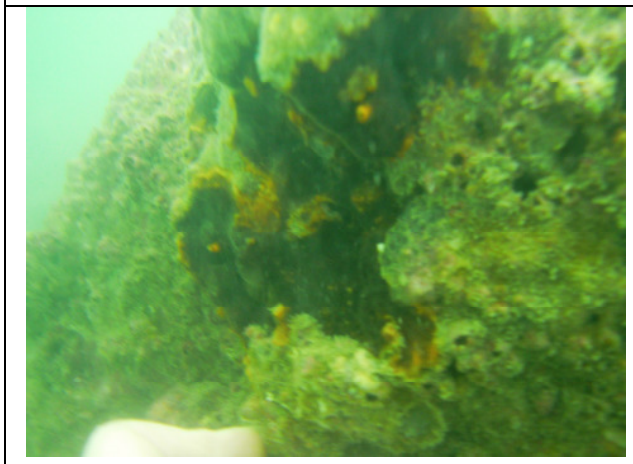
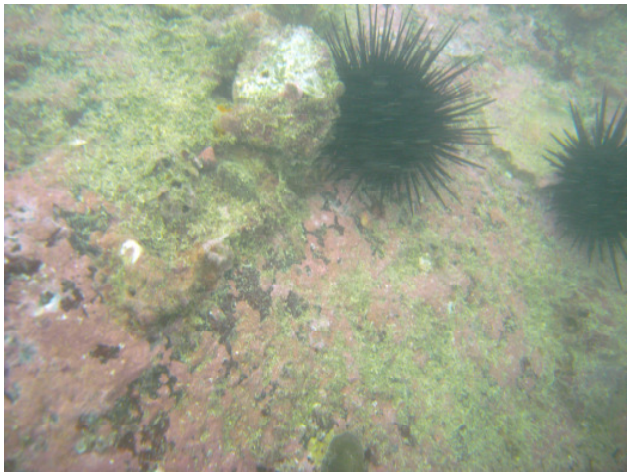
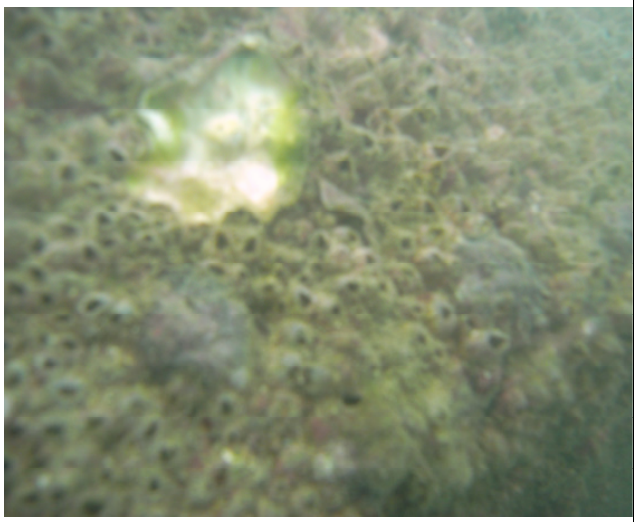
Colony No. 13 – *Dendronephthya*	**Colony No. 14 – *Verrucella***	**Colony No. 15 – *Dendronephthya***
		

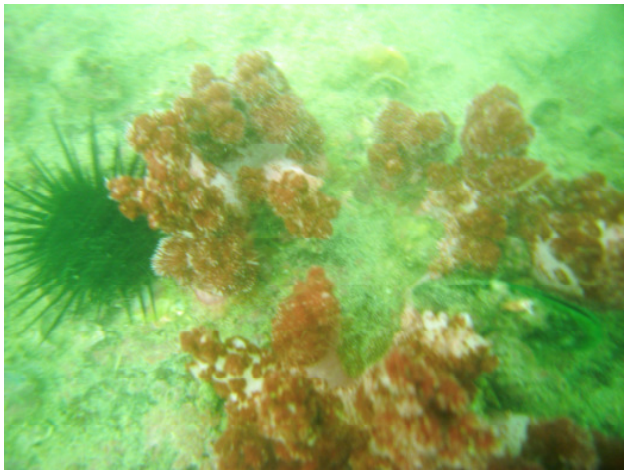
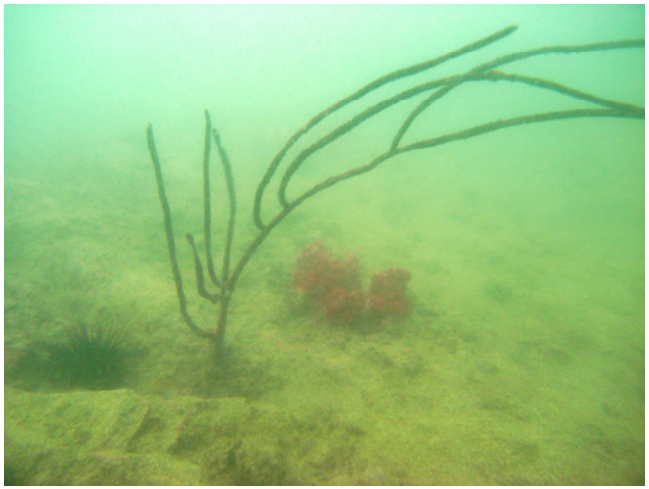
Annex B

Photographic Records from the 2013 Baseline Update Monitoring conducted in November 2013

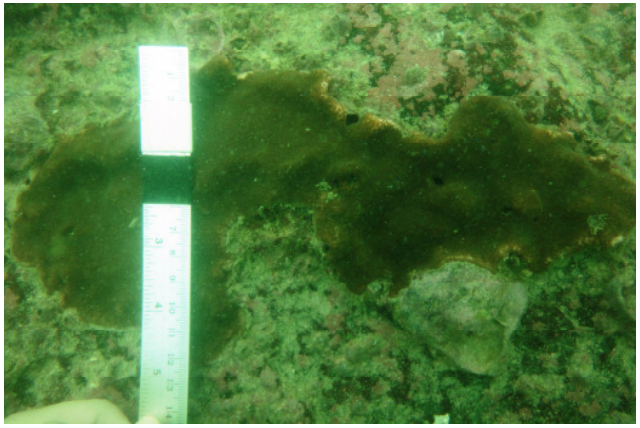
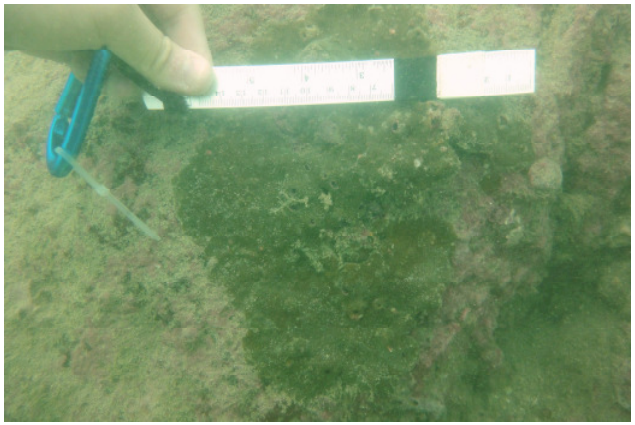
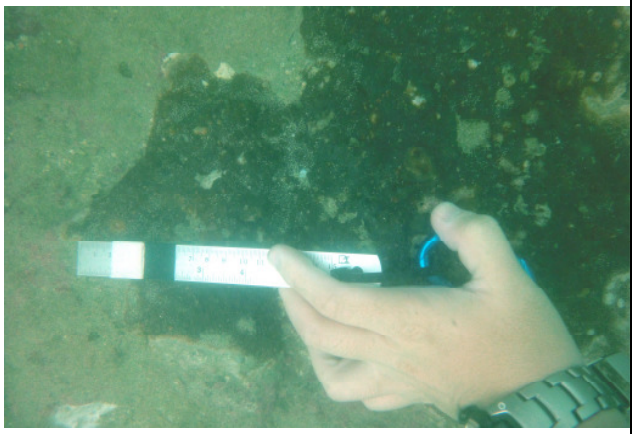
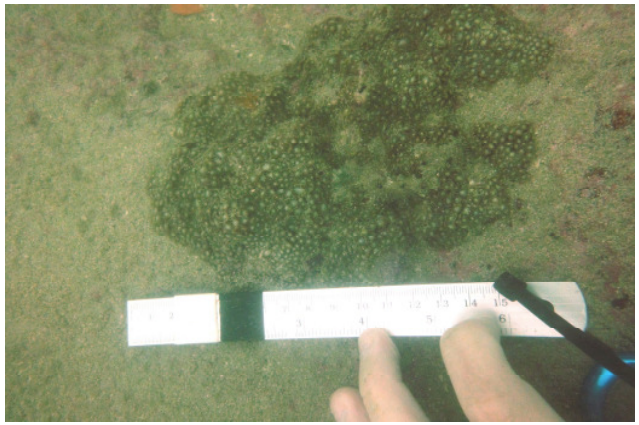
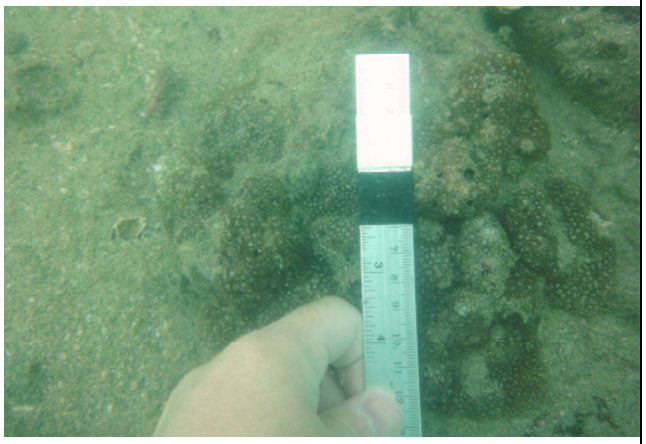
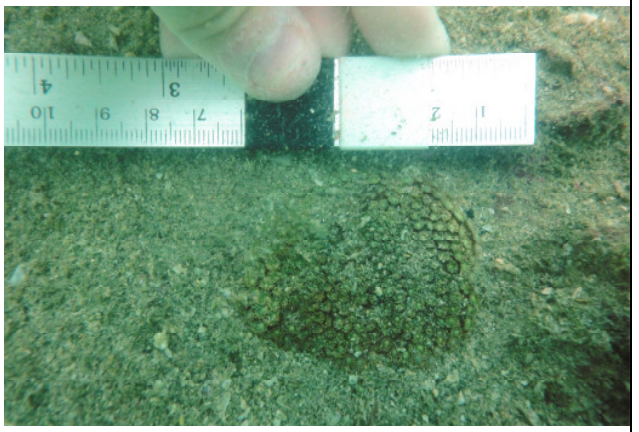
Annex B1 Photographic Records of Fauna Observed at Zone A – Cape Collinson during the REA Survey for the November 2013 Baseline Update Survey

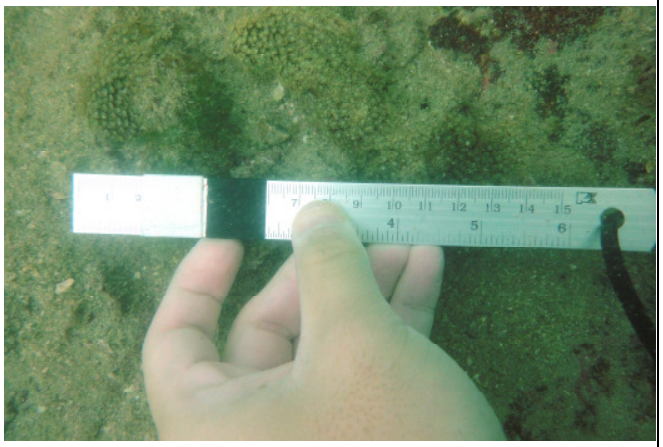
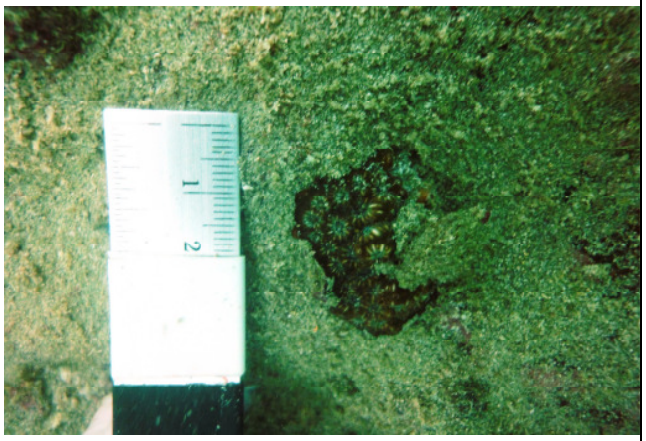
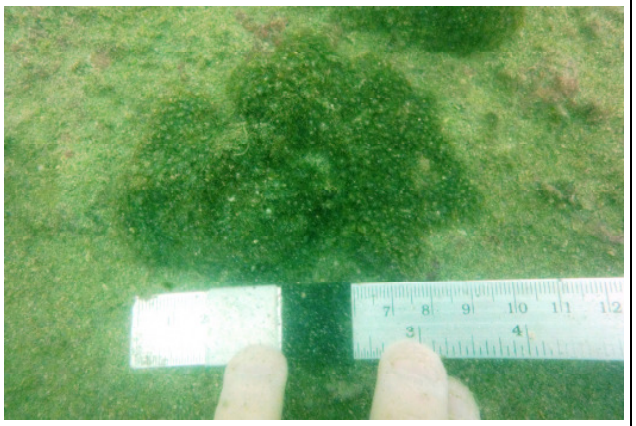
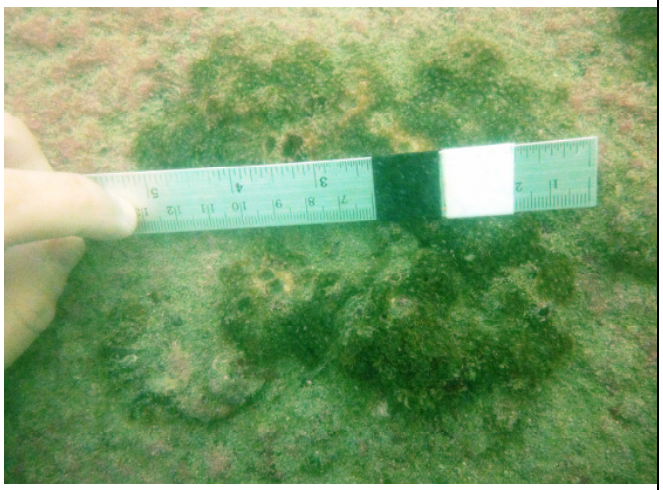
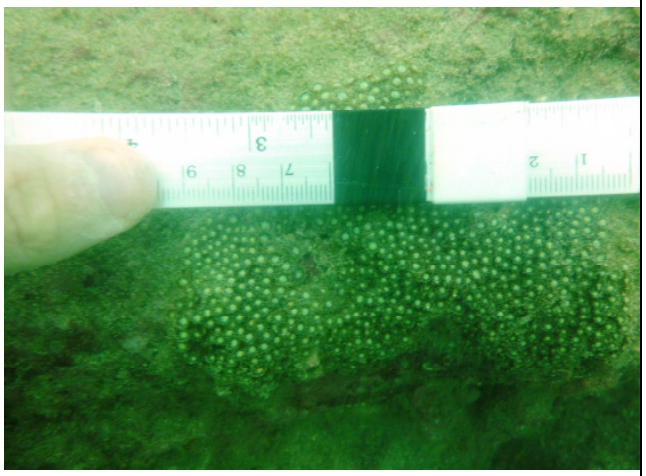
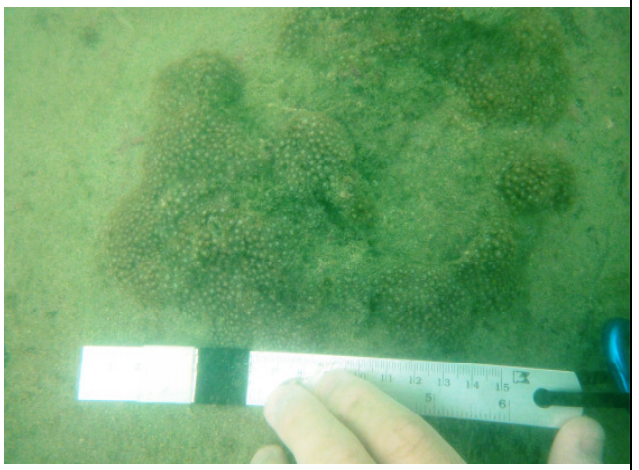
Porites lutea **surrounded by crustose coralline algae**	*Favia* **sp.**	*Plesiastrea versipora*
		
Goniopora stutchburyi	*Oulastrea crispata*	*Cyphastrea serailia*
		

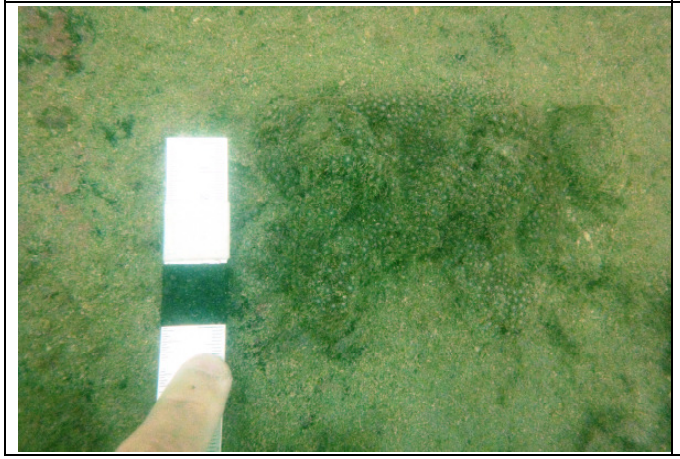
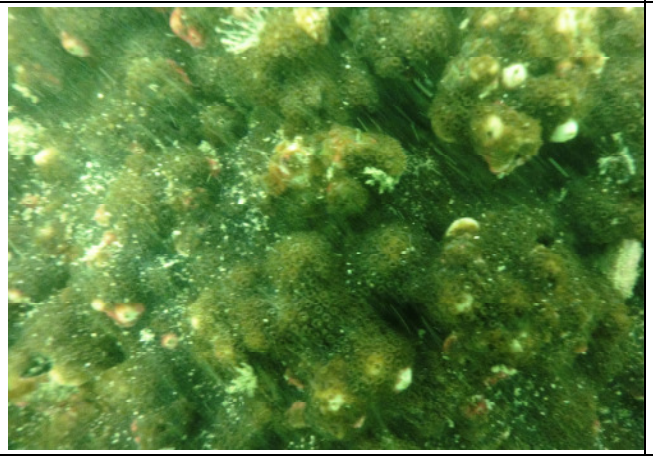
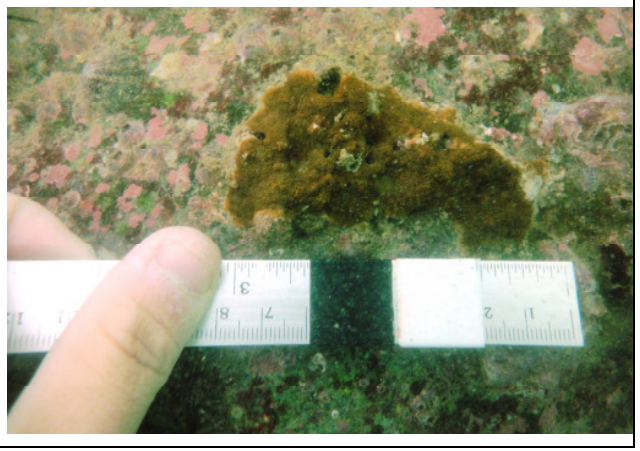
Encrusting Bryozoan	*Crustose coralline algae and sea urchin (Anthocidaris crassipina)*	*Green mussel (Perna viridis)*
		
Barnacles	*Encrustation of oysters and crustose coralline algae*	*Paraplexaura sp.*
		

Dendronepthya sp.	*Euplexaura sp.*	
		

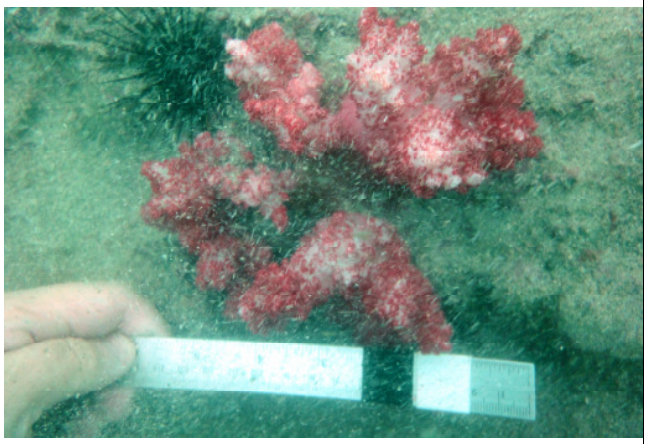
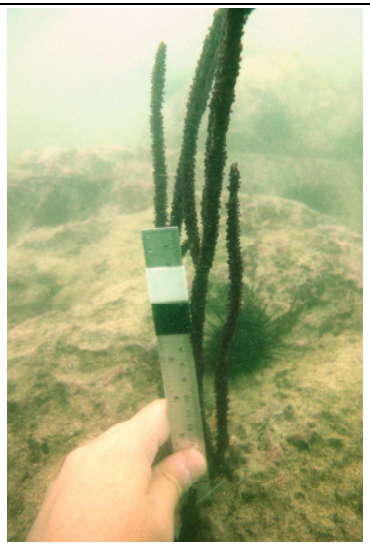
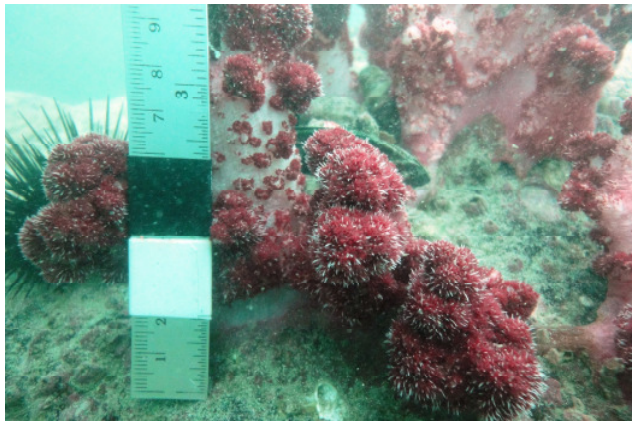
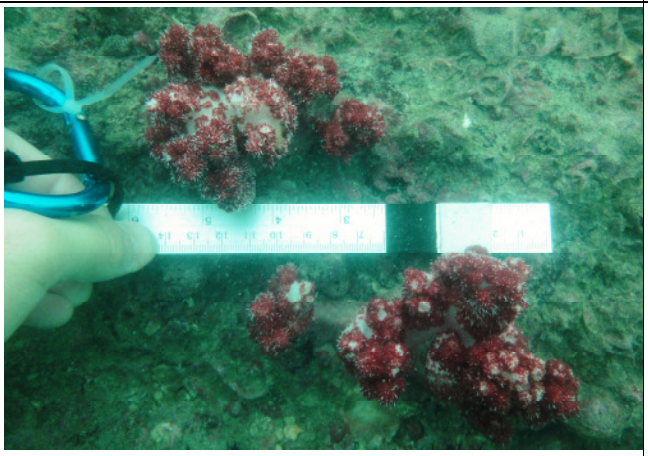
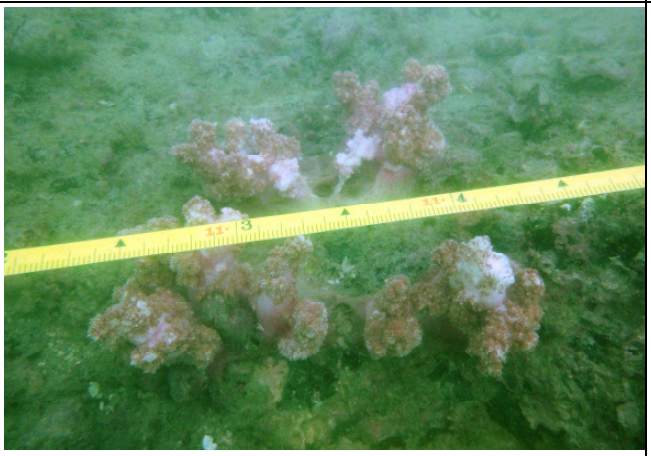
Annex B2 Photographic Records of Hard Coral Colonies Assessed at Zone A – Cape Collinson during the Coral Colony Monitoring for the November 2013 Baseline Update Survey

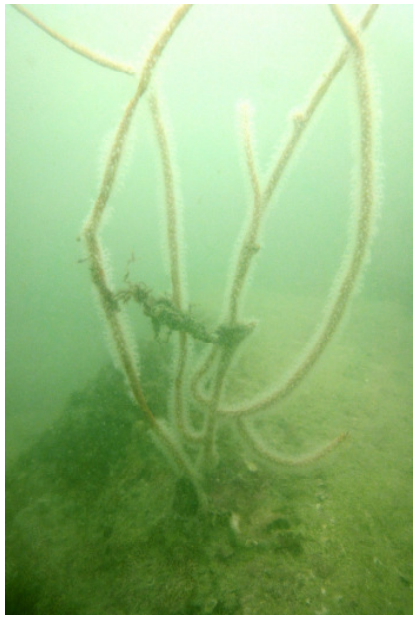
Colony No. 1 – *Porites lutea*	**Colony No. 2– *Porites lutea***	**Colony No. 3 - *Porites lutea***
		
Colony No. 4 – *Goniopora stutchburyi*	**Colony No. 5 – *Goniopora stutchburyi***	**Colony No. 6 – *Goniopora stutchburyi***
		

Colony No. 7 – *Goniopora stutchburyi*	Colony No. 8 – *Oulastrea crispata*	Colony No. 9 – *Goniopora stutchburyi*
		
Colony No. 10 – *Goniopora stutchburyi*	**Colony No. 11 – *Goniopora stutchburyi***	**Colony No. 12 – *Goniopora stutchburyi***
		

Colony No. 13 – *Goniopora stutchburyi*	Colony No. 14 – *Cyphastrea serailia*	Colony No. 15 - *Cyphastrea serailia*
		

Annex B3 Photographic Records of Octocoral/ Black Coral Colonies Assessed at Zone A – Cape Collinson during the Coral Colony Monitoring for the November 2013 Baseline Update Survey

Colony No. 1 - *Dendronepthya*	Colony No. 2 - *Euplexaura*	Colony No. 3 - *Dendronepthya*
		
Colony No. 4 - *Dendronepthya*	**Colony No. 5 - *Dendronepthya***	**Colony No. 6 - *Paraplexaura***
		

Colony No. 7 - *Paraplexaura*		
		

Annex C

Data including Photographic Records from the 2013 Post-Project Monitoring conducted in February 2013

Table* 1** ***Description of the Seabed Composition Recorded along Each REA Survey Transect during the Post-Project Coral Monitoring Survey [1]

Transect	Depth (-m CD)	Description
Zone A - Cape Collinson (Monitoring Site)		
Transect 1		
Shallow	~5	The seabed was composed of rubbles and small boulders. The hard coral cover was low (< 5%) with 4 hard coral species *Oulastrea crispata, Goniopora stutchburyi, Psammocora superficialis* and *Cyphastrea chalcidicum* recorded. The octocoral cover was low (< 5%) with four species (*Paraplexaura* sp., *Echinomuricea* sp., *Viminella* sp. and *Ellisella* sp.) recorded.
Deep	~9	The seabed was mainly composed of sand (~50%). No hard coral colonies were found. The octocoral cover was low (between 6-10%) with gorgonians growing on sand. Seven species of octocorals (*Echinomuricea* sp., *Paraplexaura* sp., *Menella* sp., *Euplexaura* sp., *Muricella* sp., *Sinularia* sp. and *Dendronephthya* sp.) were recorded.
Transect 2		
Shallow	~5	The seabed was mainly composed of bedrocks (~60%). The hard coral cover was low (< 5%) with 2 hard coral species *Oulastrea crispata* and *Psammocora superficialis* recorded. The octocoral cover was low (< 5%) with 6 species (*Dendronethphya* sp., *Ellisella* sp. *Echinomuricea* sp., *Euplexaura* sp., *Paraplexaura* sp. and *Menella* sp.) recorded.
Deep	~8-9	The seabed was mainly composed of bedrocks (~50%). No hard coral colonies were found. The octocoral cover was low (between 6-10%) with 6 species (*Dendronethphya* sp., *Dichotella* sp., *Paraplexaura* sp., *Echinomuricea* sp. and *Euplexaura* sp. and *Viminella* sp.) recorded. Two species of black corals, *Antipathes curvata* and *Cirrhipathes* sp., were recorded.
Transect 3		
Shallow	~5	The seabed was mainly composed of bedrocks (~60%). The hard coral cover was low (< 5%) with 3 hard coral species *Oulastrea crispata, Goniopora stutchburyi* and *Plesiastrea versipora* recorded. The octocoral cover was low (< 5%) with 7 species (*Dendronethphya* sp., *Scleronephthya gracillicum, Ellisella* sp. *Echinomuricea* sp., *Viminella* sp., *Paraplexaura* sp., *Euplexaura* sp. and *Menella* sp.) recorded.
Deep	~9	The seabed was mainly composed of bedrocks (~60%). No hard coral species was found. The octocoral cover was between 6-10% with 6 species (*Paraplexaura* sp., *Echinomuricea* sp., *Euplexaura* sp., *Anthogorgia* sp., *Dendronephthya* sp. and *Scleronephthya gracillicum*) recorded.
Zone B – Tai Long Pai (Monitoring Site)		
Transect 1		
Shallow	~2-5	The seabed was mainly composed of bedrocks (> 80%). No hermatypic hard coral species was recorded while 1 species of ahermatypic hard coral (*Tubastrea/Dendrophyllia* sp.) was recorded. The octocoral cover was about 5% with 4 species (*Dendronephthya* sp., *Menella* sp., *Euplexaura* sp., *Paraplexaura* sp.) recorded.
Deep	~5-15	The seabed was mainly composed of bedrocks (> 80%). No hard coral species was recorded. The octocoral cover was between 11-30% with 8 species (*Dendronephthya* sp., *Menella* sp., *Euplexaura* sp., *Paraplexaura* sp., *Anthogorgia* sp., *Acanthogorgia* sp., *Verrucella* sp. and *Echinomuricea* sp.) recorded. Black coral colonies, *Antipathes curvata* and *Cirrhipathes* sp. were observed.

[1] Since conditions of major biotic and abiotic attributes are similar between the Baseline and Post Project Coral Monitoring Surveys, the descriptions of seabed composition provided in this table are based on data recorded from both surveys.

Transect	Depth (-m CD)	Description
Transect 2		
Shallow	~2-5	The seabed was mainly composed of bedrocks (> 80%). The hard coral cover was extremely low (< 5%) with 3 species *Goniopora stutchburyi*, *Cyphastrea chalcidicum* and *Psammocora superficialis* recorded. Colonies of ahermatypic hard coral *Tubastrea/ Dendrophyllia* sp. were found. The octocoral cover was about 5% with 3 species (*Euplexaura* sp., *Paraplexaura* sp. and *Echinomuricea* sp.) recorded.
Deep	~5-15	The seabed was mainly composed of bedrocks (> 80%). No hard coral species were recorded. The octocoral cover was between 11-30% with 7 species (*Dendronephthya* sp., *Menella* sp., *Euplexaura* sp., *Paraplexaura* sp., *Anthogorgia* sp., *Verrucella* sp. and *Echinomuricea* sp.) recorded. Black coral colonies, *Antipathes curvata* and *Cirrhipathes* sp. were observed.
Zone C – Tung Lung Chau (Control Site)		
Transect 1		
Shallow	~5	The seabed was mainly composed of bedrocks (~80%). The hard coral cover was low (< 5%) with 7 hermatypic hard coral species *Goniopora stutchburyi, Psammocora superficialis, Cyphastrea chalcidicum, Plesiastrea versipora, Porites lobata, Montipora mollis* and *Montipora venosa* recorded. One species of ahermatypic hard coral *Tubastrea/ Dendrophyllia* sp. was recorded. The octocoral cover was very low (< 5%) with *Dendronephthya* sp. and *Scleronephthya gracillicum* recorded.
Deep	~10	The seabed was mainly composed of bedrocks (~60%). The hard coral cover was low (<5%). The octocoral cover was low (< 10%) with *Euplexaura* sp., *Paraplexaura* sp., *Dendronephthya* sp. and *Scleronephthya gracillicum* recorded.
Transect 2		
Shallow	~5	The seabed was mainly composed of bedrocks (~40%). The hard coral cover was low (< 5%) with 7 species *Montipora peltiformis, Porites lobata, Cyphastrea chalcidicum, Favites chinensis, Goniopora stutchburyi, Montipora venosa* and *Plesiastrea verisipora* recorded. One species of ahermatypic hard coral *Tubastrea/ Dendrophyllia* sp. was recorded. The octocoral cover was very low (< 5%) with only a few small colonies of *Dendronephthya* sp. recorded.
Deep	~8	The seabed was mainly composed of bedrocks (~80%). The hard coral cover was low (< 5%) with 3 species *Plesiastrea versipora, Porites lobata* and *Psammocora superficialis* recorded. The octocoral cover was low (< 10%) with *Acanthogorgia* sp., *Echinomuricea* sp., *Euplexaura* sp., *Menella* sp., *Dendronephthya* sp. and *Scleronephthya gracillicum* recorded.
Transect 3		
Shallow	5	The seabed was mainly composed of bedrocks and small boulders. The hard coral cover was low (< 5%) with 5 species *Montipora venosa, Porites lobata, Goniopora stutchburyi, Plesiastrea verisipora* and *Cyphastrea chalcidicum* recorded. One species of ahermatypic hard coral *Tubastrea/ Dendrophyllia* sp. was recorded. The octocoral cover was very low (< 5%) with *Echinomuricea* sp. recorded.
Deep	~9	The seabed was mainly composed of bedrocks (50%). The hard coral cover was low (< 5%) with 4 species *Montipora peltiformis, Goniopora stutchburyi, Cyphastrea chalcidicum* and *Psammocora superficialis* recorded. The octocoral cover was low (< 10%) with *Paraminabea* sp., *Euplexaura* sp., *Echinogorgia* sp., *Dendronephthya* sp. and *Scleronephthya gracillicum recorded*. Two species of black corals, *Antipathes curvata* and *Cirrhipathes* sp., were recorded.

Table 2 ***Ordinal Rank of Percentage Cover of Seabed Attributes along the REA Survey Transects during the Post-Project Coral Monitoring***

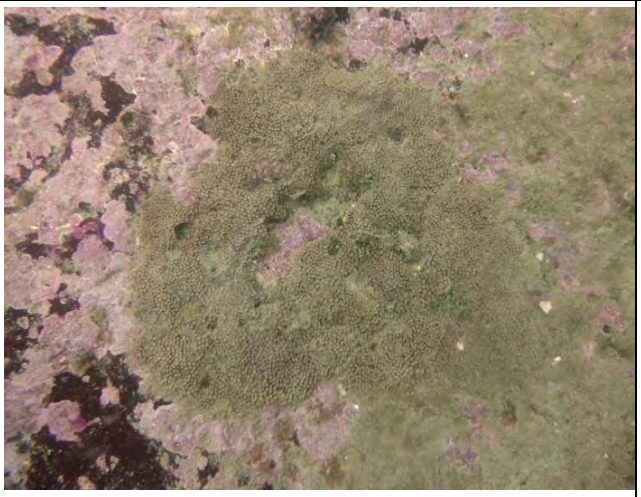
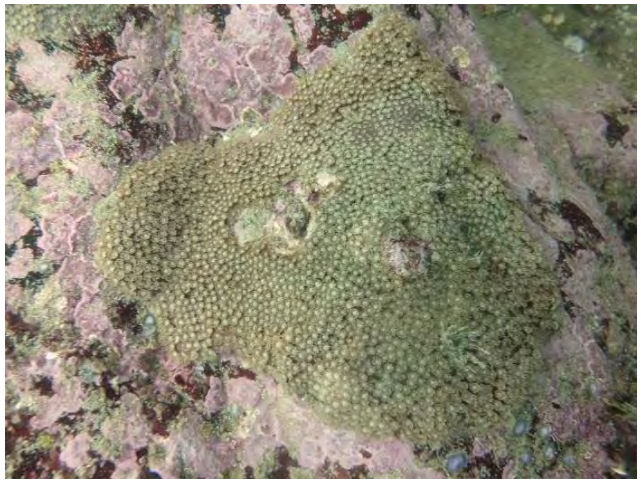
Zone	**A**						**B**				**C**					
Depth [(a)]	S1	S2	S3	D1	D2	D3	S1	S2	D1	D2	S1	S2	S3	D1	D2	D3
Seabed attributes [(b)]																
Bedrock	0	5	4	1	5	5	6	6	6	6	6	4	4	5	6	4
Boulders – large	3	2	3	2	3	3	1	2	3	3	0	3	3	2	2	2
Boulders – small	3	2	3	3	3	2	1	1	2	2	0	3	3	2	0	3
Rock	1	1	1	1	1	1	0	0	0	0	1	2	1	1	0	1
Rubble	3	2	1	2	1	1	1	1	1	1	1	2	1	2	0	2
Sand	2	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1
Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ecological attributes [(b)]																
Hard coral	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dead standing coral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Octocoral	1	1	1	2	2	2	1	1	3	3	1	1	1	2	2	2
Black coral	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Turf algae	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0
Macroalgae	1	1	1	1	1	1	1	1	2	2	0	0	0	1	1	1
Coralline algae	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

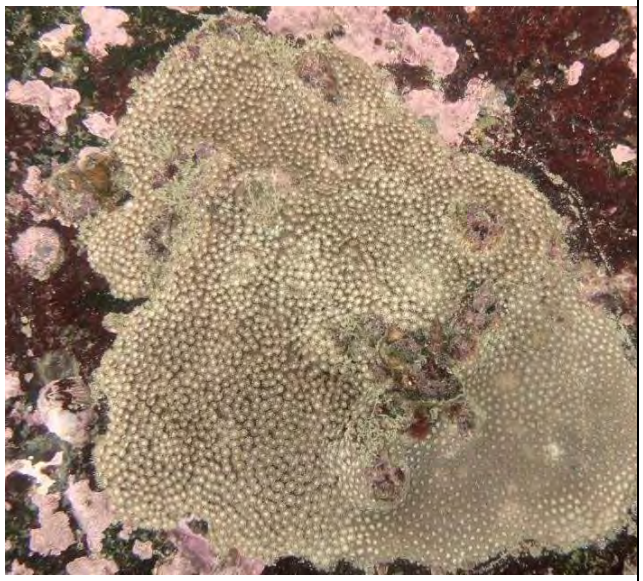
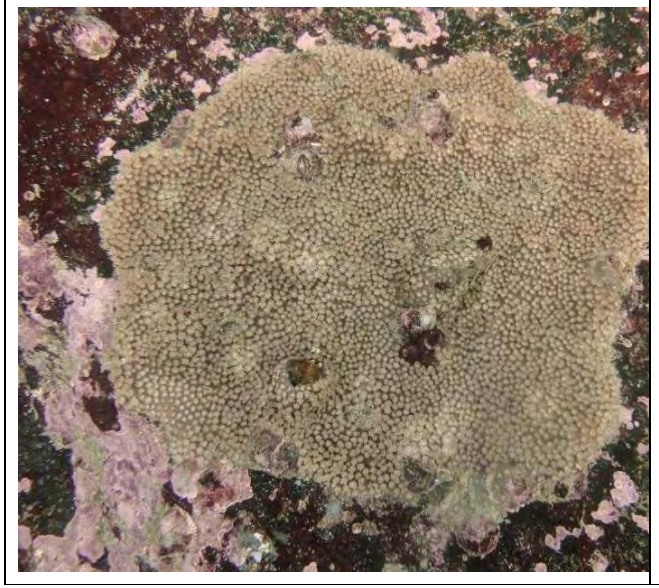
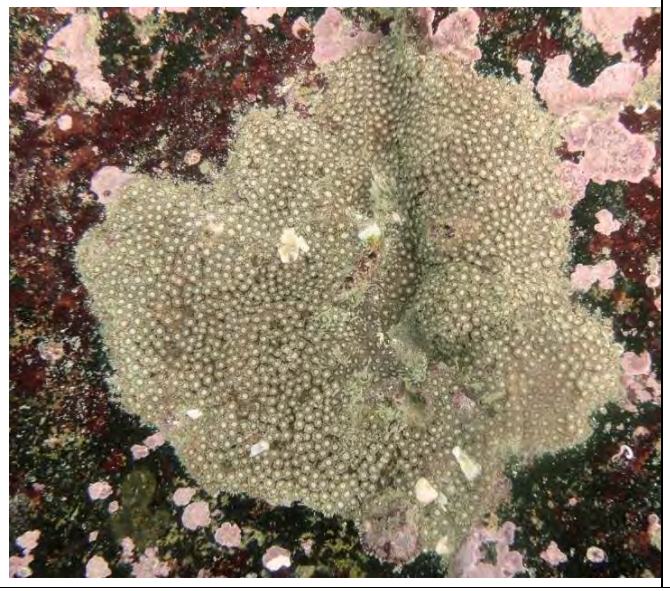
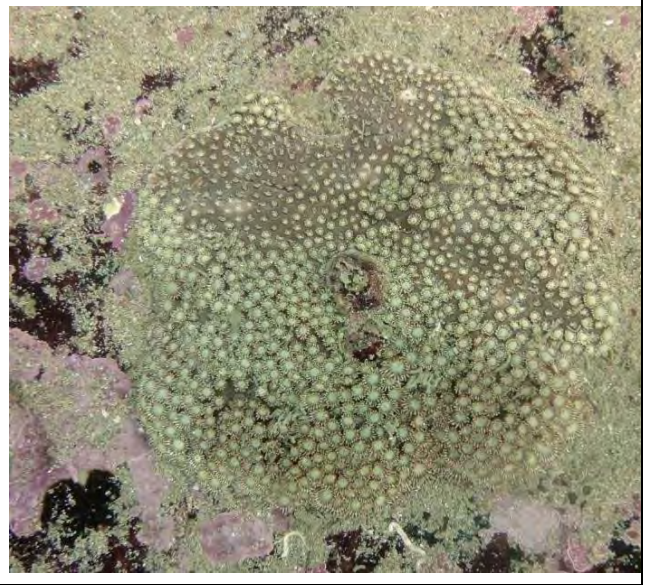
Notes:

(a) s = shallow water; m = mid water; d=deep water

(b) 1=<5% Cover, 2= 6-10% Cover, 3 = 11-30% Cover, 4 = 31-50% Cover, 5 = 51-75% Cover, 6 = 76-100% Cover. Also refer to *Table 2.2.*

Annex C1 Photographic Records of Hard Coral Colonies Assessed at Zone A - Cape Collinson during the Coral Colony Monitoring for the Post-Project Coral Monitoring Survey

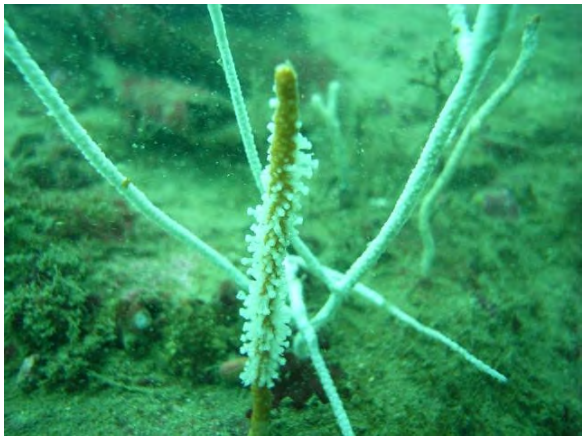
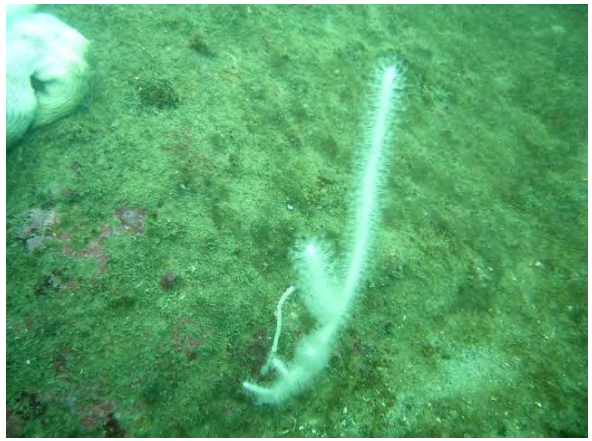
Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

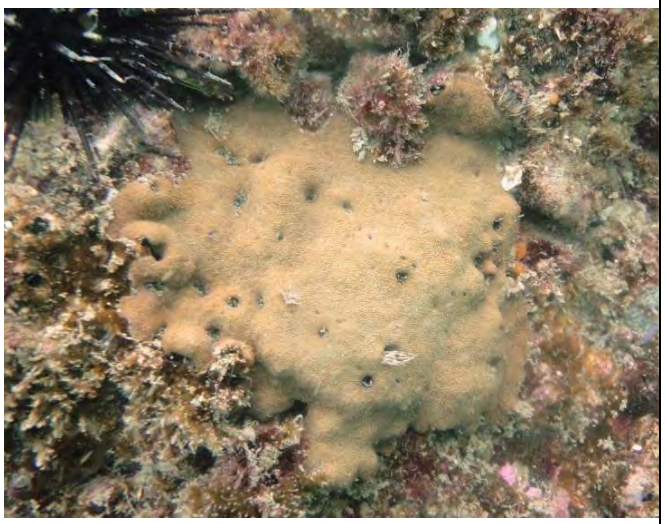
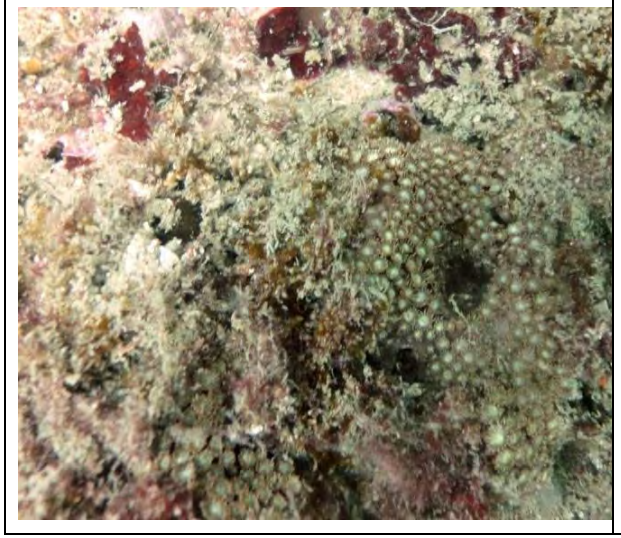
Annex C2 Photographic Records of Octocoral/ Black Coral Colonies Assessed at Zone A - Cape Collinson during the Coral Colony Monitoring for the Post-Project Coral Monitoring Survey

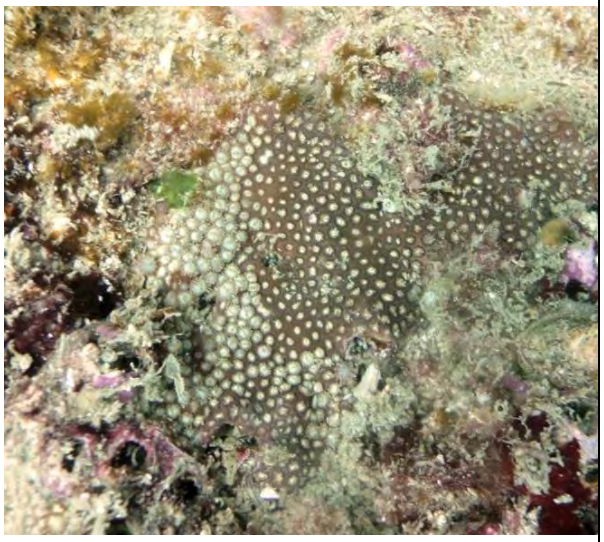
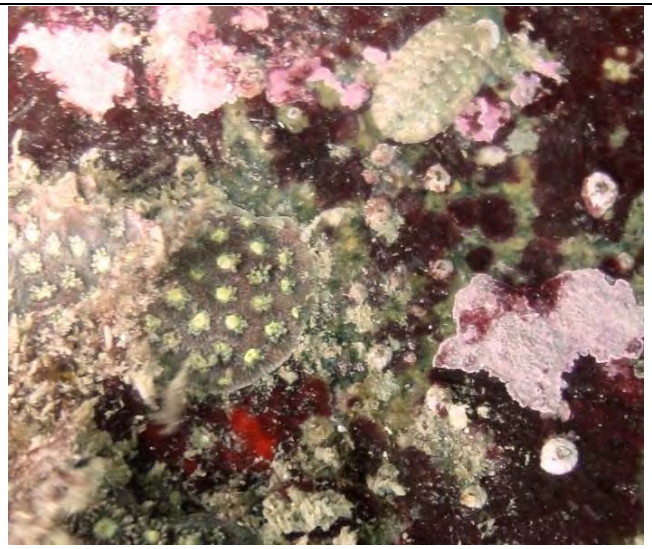
Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

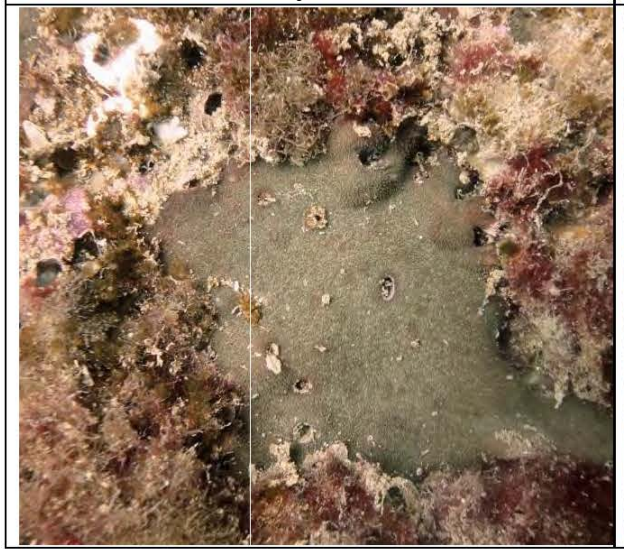
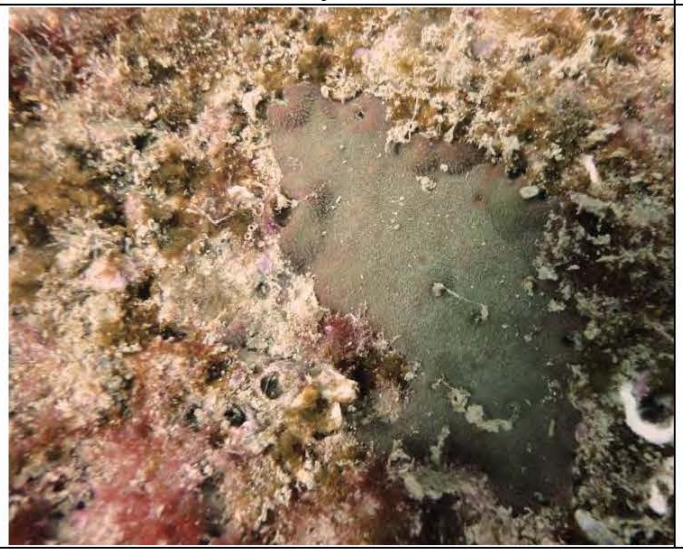
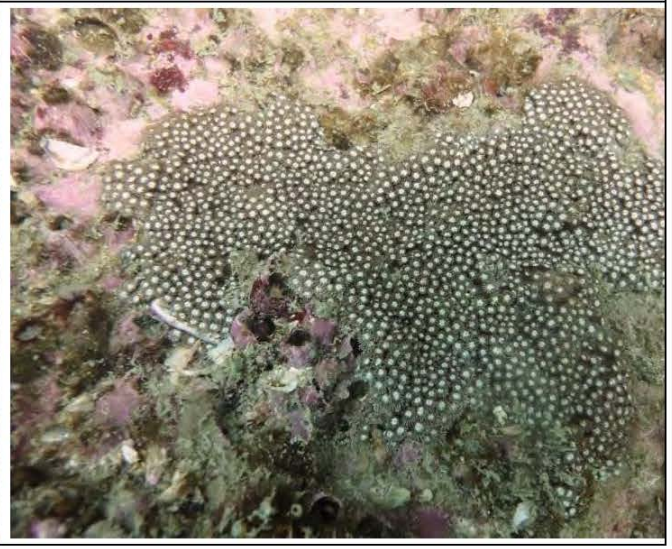
Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

Annex C3 Photographic Records of Hard Coral Colonies Assessed at Zone B - Tai Long Pai, during the Coral Colony Monitoring for the Post-Project Coral Monitoring Survey

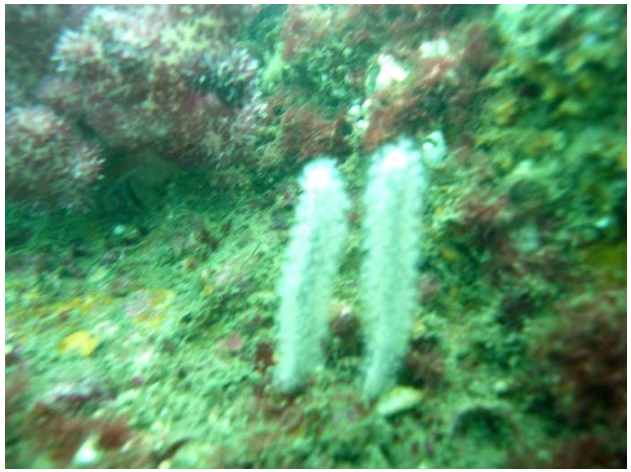
Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

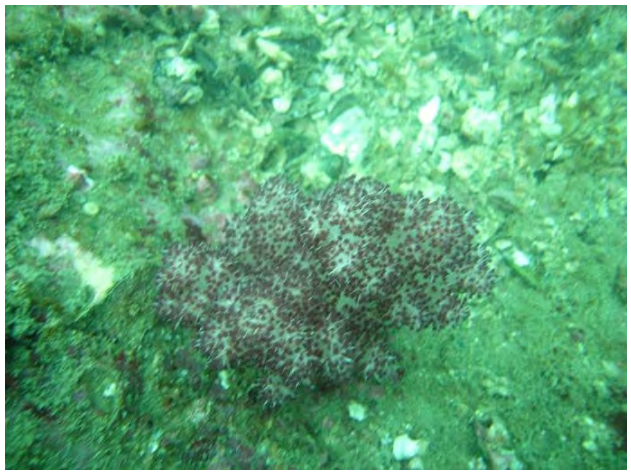
Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

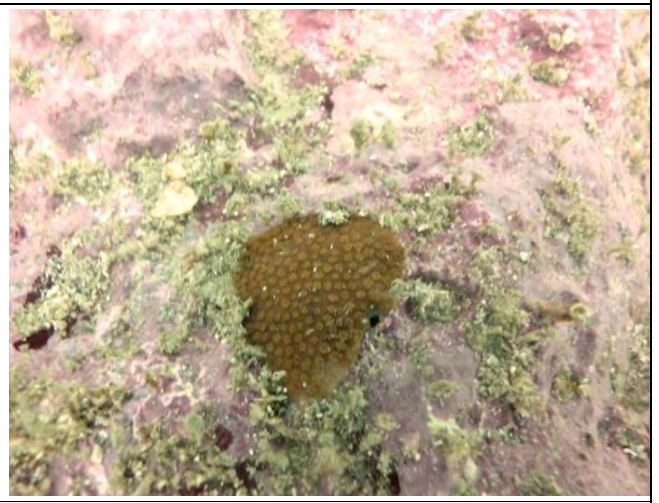
Annex C4 Photographic Records of Octocoral/ Black Coral Colonies Assessed at Zone B - Tai Long Pai, during the Coral Colony Monitoring for the Post-Project Coral Monitoring Survey

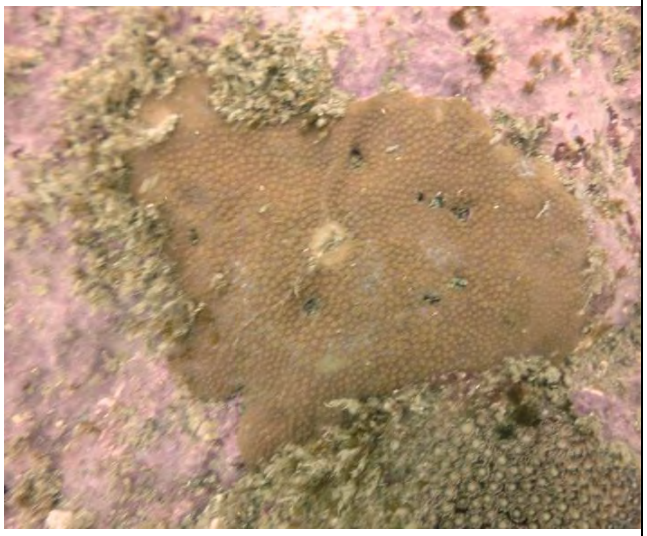
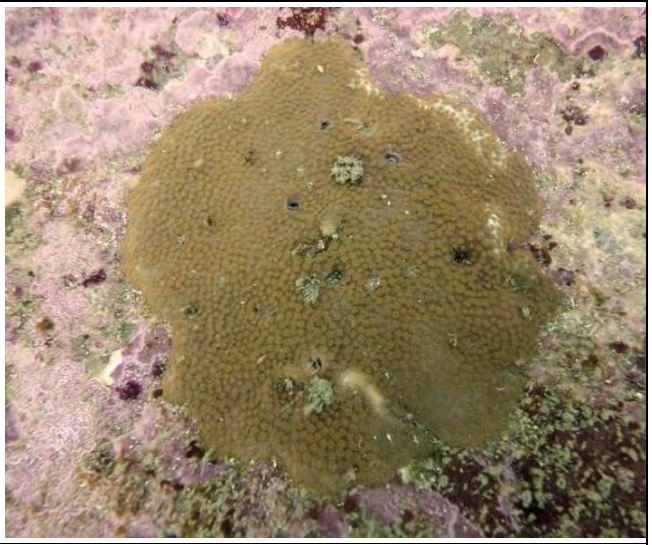
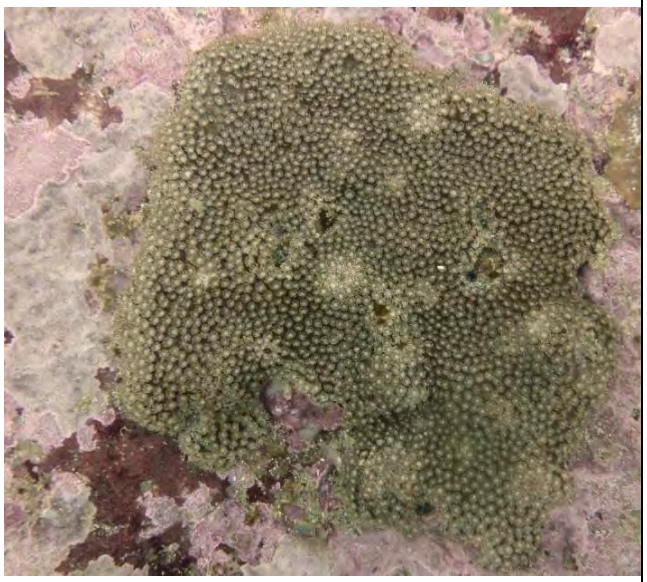
Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

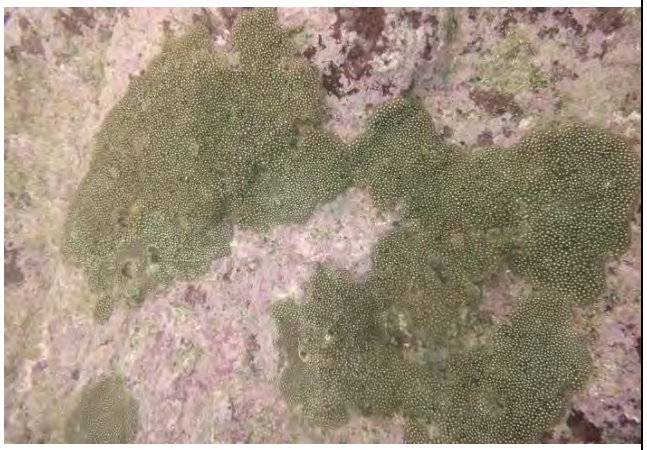
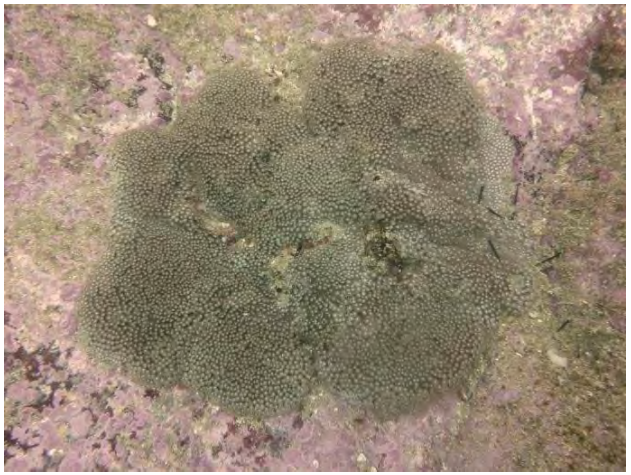
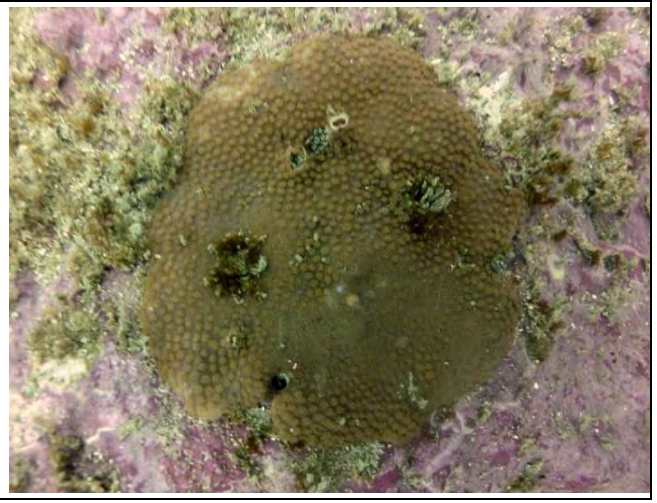
Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

Annex C5 Photographic Records of Hard Coral Colonies Assessed at Zone C - Tung Lung Chau (Control Site), during the Coral Colony Monitoring for the Post-Project Coral Monitoring Survey

Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

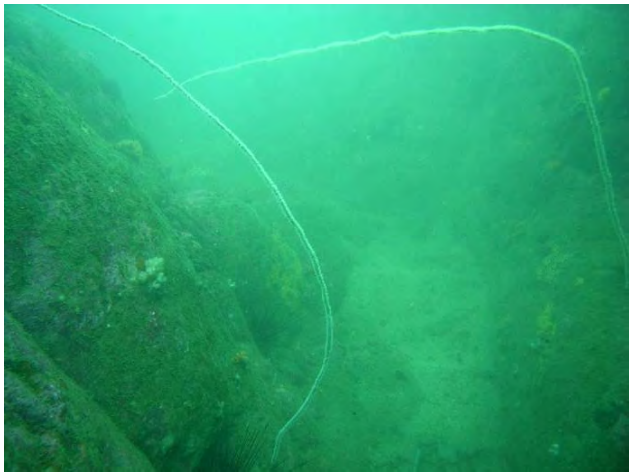
Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

Annex C6 Photographic Records of Octocoral/ Black Coral Colonies Assessed at Zone C - Tung Lung Chau (Control Site), during the Coral Colony Monitoring for the Post-Project Coral Monitoring Survey

Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

Annex D

Data including Photographic Records from the 2012 Baseline Survey conducted in September 2012

Table 1 ***Description of the Seabed Recorded along Each Transect in REA***

Transect	Depth (-m CD)	Description
Zone A - Cape Collinson (Monitoring Site)		
Transect 1		
Shallow	~5	The seabed was composed of rubbles and small boulders. The hard coral cover was low (< 5%) with 4 hard coral species *Oulastrea crispata, Goniopora stutchburyi, Psammocora superficialis* and *Cyphastrea chalcidicum* recorded. The octocoral cover was low (< 5%) with four species (*Paraplexaura* sp., *Echinomuricea* sp., *Viminella* sp. and *Ellisella* sp.) recorded.
Deep	~9	The seabed was mainly composed of sand (~50%). No hard coral colonies were found. The octocoral cover was low (< 6-10%) with gorgonians growing on sand. Seven species of octocorals (*Echinomuricea* sp., *Paraplexaura* sp., *Menella* sp., *Euplexaura* sp., *Muricella* sp., *Sinularia* sp. and *Dendronephthya* sp.) were recorded.
Transect 2		
Shallow	~5	The seabed was mainly composed of bedrocks (~60%). The hard coral cover was low (< 5%) with 2 hard coral species *Oulastrea crispata* and *Psammocora superficialis* recorded. The octocoral cover was low (< 5%) with 6 species (*Dendronethphya* sp., *Ellisella* sp. *Echinomuricea* sp., *Euplexaura* sp., *Paraplexaura* sp. and *Menella* sp.) recorded.
Deep	~8-9	The seabed was mainly composed of bedrocks (~50%). No hard coral colonies were found. The octocoral cover was low (< 6-10%) with 4 species (*Dendronethphya* sp., *Paraplexaura* sp., *Echinomuricea* sp. and *Euplexaura* sp.) recorded.
Transect 3		
Shallow	~5	The seabed was mainly composed of bedrocks (~60%). The hard coral cover was about 5% with 3 hard coral species *Oulastrea crispata, Goniopora stutchburyi* and *Plesiastrea versipora* recorded. The octocoral cover was low (< 5%) with 6 species (*Dendronethphya* sp., *Scleronephthya gracillicum, Ellisella* sp. *Echinomuricea* sp., *Viminella* sp., *Paraplexaura* sp. and *Menella* sp.) recorded.
Deep	~9	The seabed was mainly composed of bedrocks (~60%). No hard coral species was found. The octocoral cover was about 6-10% with 6 species (*Paraplexaura* sp., *Echinomuricea* sp., *Euplexaura* sp., *Anthogorgia* sp., *Dendronephthya* sp. and *Scleronephthya gracillicum*) recorded.
Zone B – Tai Long Pai (Monitoring Site)		
Transect 1		
Shallow	~2-5	The seabed was mainly composed of bedrocks (> 80%). No hermatypic hard coral species was recorded while 1 species of ahermatypic hard coral (*Tubastrea/Dendrophyllia* sp.) was recorded. The octocoral cover was about 5% with 4 species (*Dendronephthya* sp., *Menella* sp., *Euplexaura* sp., *Paraplexaura* sp.) recorded.
Deep	~5-15	The seabed was mainly composed of bedrocks (> 80%). No hard coral species was recorded. The octocoral cover was about 11-30% with 7 species (*Dendronephthya* sp., *Menella* sp., *Euplexaura* sp., *Paraplexaura* sp., *Anthogorgia* sp., *Verrucella* sp. and *Echinomuricea* sp.) recorded. Black coral colonies, *Antipathes curvata* and *Cirrhipathes* sp. were observed.
Transect 2		
Shallow	~2-5	The seabed was mainly composed of bedrocks (> 80%). The hard coral cover was extremely low (< 5%) with 3 species *Goniopora stutchburyi*, *Cyphastrea chalcidicum* and *Psammocora superficialis* recorded. Colonies of ahermatypic hard coral *Tubastrea/ Dendrophyllia* sp. were found. The octocoral cover was about 5% with 3 species (*Euplexaura* sp., *Paraplexaura* sp. and *Echinomuricea* sp.) recorded.

Transect	Depth (-m CD)	Description
Deep	~5-15	The seabed was mainly composed of bedrocks (> 80%). No hard coral species were recorded. The octocoral cover was about 11-30% with 7 species (*Dendronephthya* sp., *Menella* sp., *Euplexaura* sp., *Paraplexaura* sp., *Anthogorgia* sp., *Verrucella* sp. and *Echinomuricea* sp.) recorded. Black coral colonies, *Antipathes curvata* and *Cirrhipathes* sp. were observed.
Zone C – Tung Lung Chau (Control Site)		
Transect 1		
Shallow	~5	The seabed was mainly composed of bedrocks (~80%). The hard coral cover was low (< 5%) with 6 hermatypic hard coral species *Goniopora stutchburyi*, *Psammocora superficialis*, *Cyphastrea chalcidicum*, *Plesiastrea versipora*, *Porites lobata* and *Montipora mollis* recorded. One species of ahermatypic hard coral *Tubastrea/ Dendrophyllia* sp. was recorded. The octocoral cover was very low (< 5%) with *Dendronephthya* sp. and *Scleronephthya gracillicum* recorded.
Deep	~10	The seabed was mainly composed of bedrocks (~60%). The hard coral cover was low (<5%). The octocoral cover was low (< 10%) with *Euplexaura* sp., *Dendronephthya* sp. and *Scleronephthya gracillicum* recorded.
Transect 2		
Shallow	~5	The seabed was mainly composed of bedrocks (~40%). The hard coral cover was low (< 5%) with 6 species *Montipora peltiformis*, *Porties lobata*, *Cyphastrea chalcidicum*, *Favites chinensis*, *Goniopora stutchburyi* and *Plesiastrea verisipora* recorded. The octocoral cover was very low (< 5%) with only a few small colonies of *Dendronephthya* sp. recorded.
Deep	~8	The seabed was mainly composed of bedrocks (~80%). The hard coral cover was low (< 5%) with 3 species *Plesiastrea versipora*, *Porites lobata* and *Psammocora superficialis* recorded. The octocoral cover was low (< 10%) with *Acanthogorgia* sp., *Euplexaura* sp., *Dendronephthya* sp. and *Scleronephthya gracillicum* recorded.
Transect 3		
Shallow	5	The seabed was mainly composed of bedrocks and small boulders. The hard coral cover was low (< 5%) with 4 species *Porites lobata*, *Goniopora stutchburyi*, *Plesiastrea verisipora* and *Cyphastrea chalcidicum* recorded. The octocoral cover was very low (< 5%) with *Echinomuricea* sp. recorded.
Deep	~9	The seabed was mainly composed of bedrocks (50%). The hard coral cover was low (< 5%) with 4 species *Montipora peltiformis*, *Goniopora stutchburyi*, *Cyphastrea chalcidicum* and *Psammocora superficialis* recorded. The octocoral cover was low (< 10%) with *Euplexaura* sp., *Dendronephthya* sp. and *Scleronephthya gracillicum recorded*.

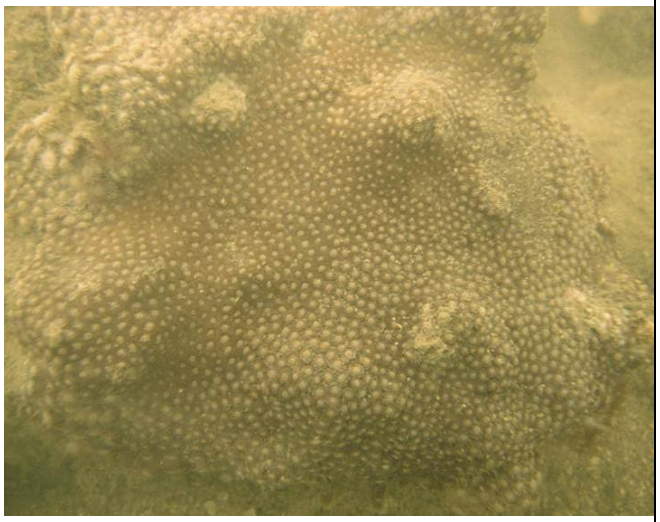
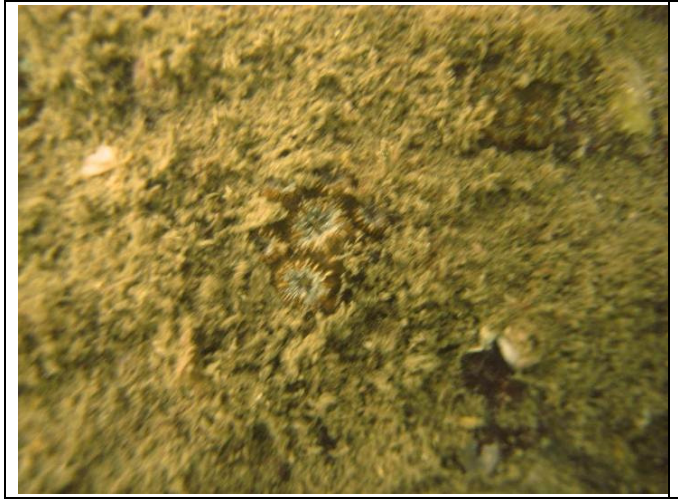
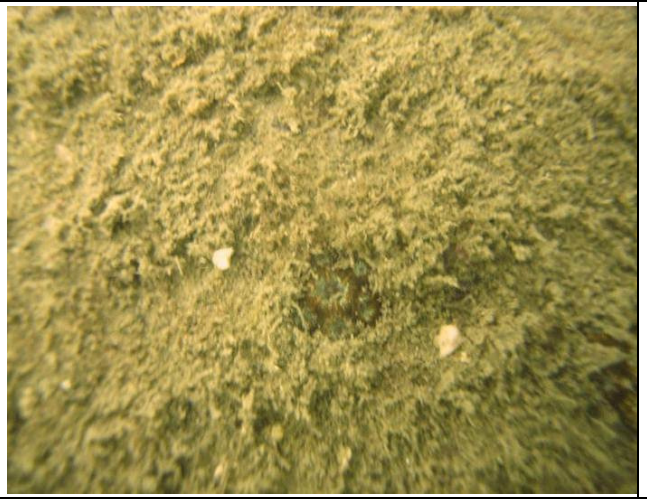
Table 2 *Seabed Attributes along the Semi-Quantitative Survey Transects*

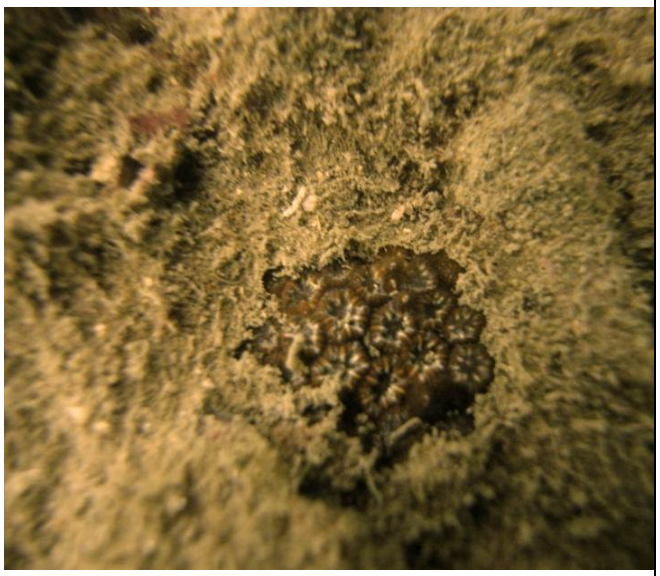
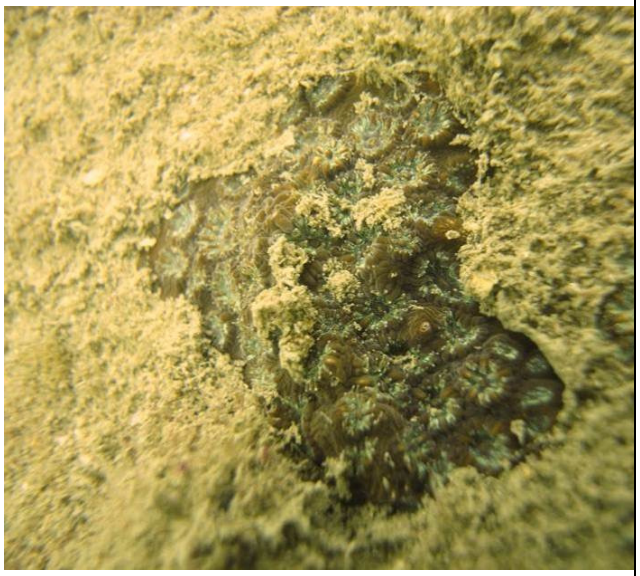
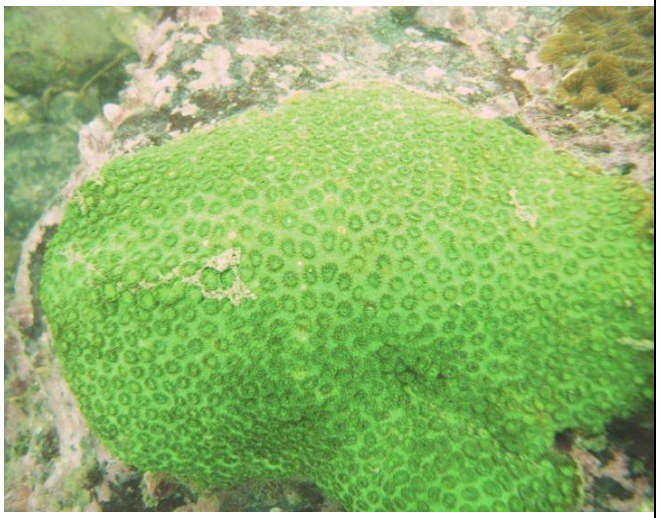
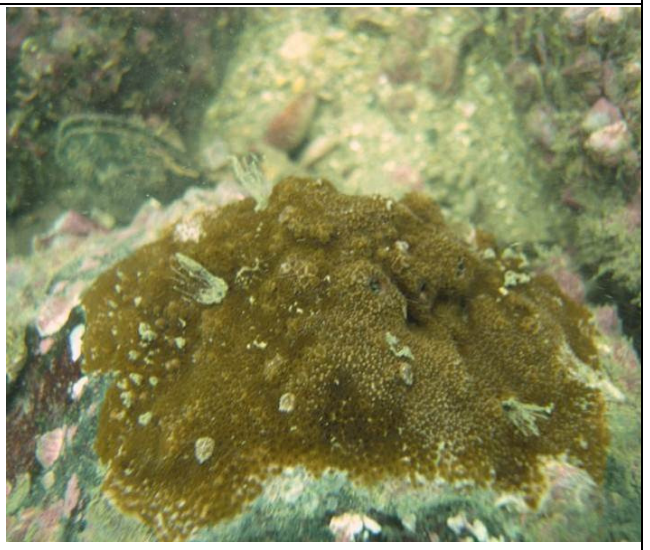
Zone	**A**						**B**				**C**					
Depth [(a)]	S1	S2	S3	D1	D2	D3	S1	S2	D1	D2	S1	S2	S3	D1	D2	D3
Seabed attributes [(b)]																
Bedrock	0	5	4	1	5	5	6	6	6	6	6	4	4	5	6	4
Boulders – large	3	2	3	2	3	3	1	2	3	3	0	3	3	2	2	2
Boulders – small	3	2	3	3	3	2	1	1	2	2	0	3	3	2	0	3
Rock	1	1	1	1	1	1	0	0	0	0	1	2	1	1	0	1
Rubble	3	2	1	2	1	1	1	1	1	1	1	2	1	2	0	2
Sand	2	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1
Silt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ecological attributes [(b)]																
Hard coral	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Dead standing coral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Octocoral	1	1	1	2	2	2	1	1	3	3	1	1	1	2	2	2
Black coral	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Turf algae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Macroalgae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coralline algae	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Notes: (a) s = shallow water; m = mid water; d=deep water

(b) 1=<5% Cover, 2= 6-10% Cover, 3 = 11-30% Cover, 4 = 31-50% Cover, 5 = 51-75% Cover, 6 = 76-100% Cover.

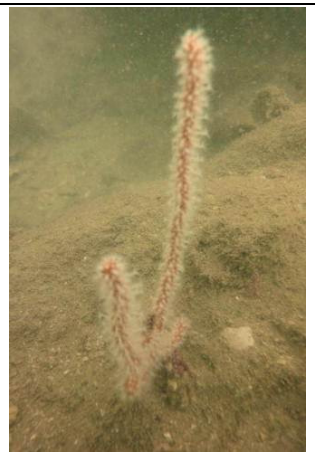
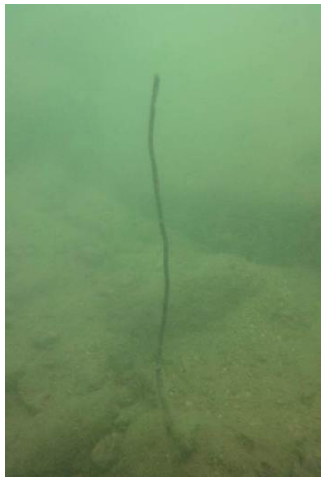
Annex D1 Photographic Records of Identified Hard Coral Colonies at Impact Monitoring Site (Zone A – Cape Collinson) during the Baseline Coral Monitoring Survey

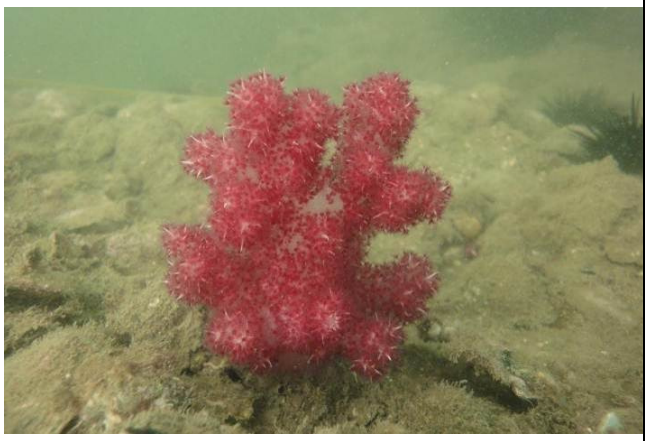
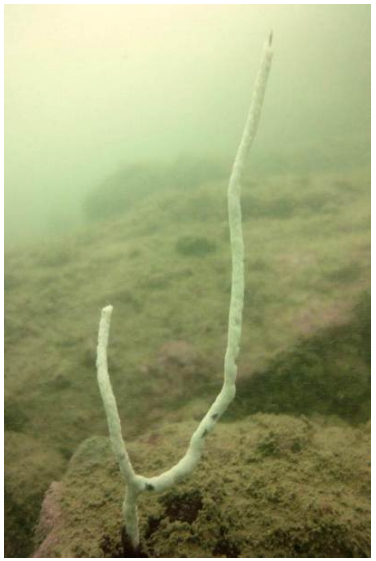
Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

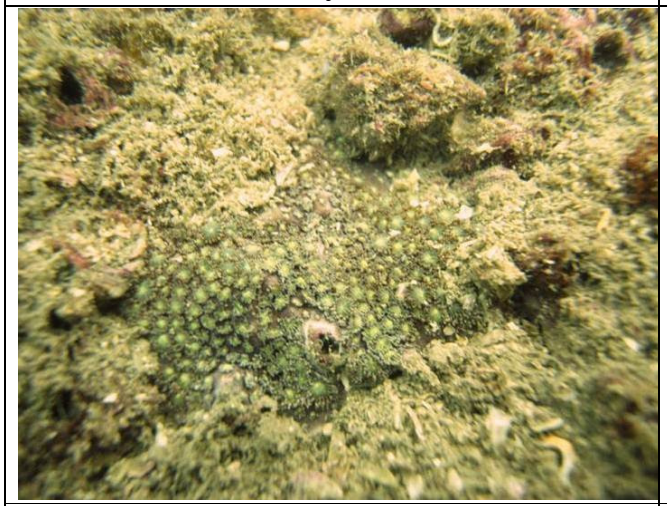
Annex D2 Photographic Records of Identified Octocoral/ Black Coral Colonies at Impact Monitoring Site (Zone A – Cape Collinson) during the Baseline Coral Monitoring Survey

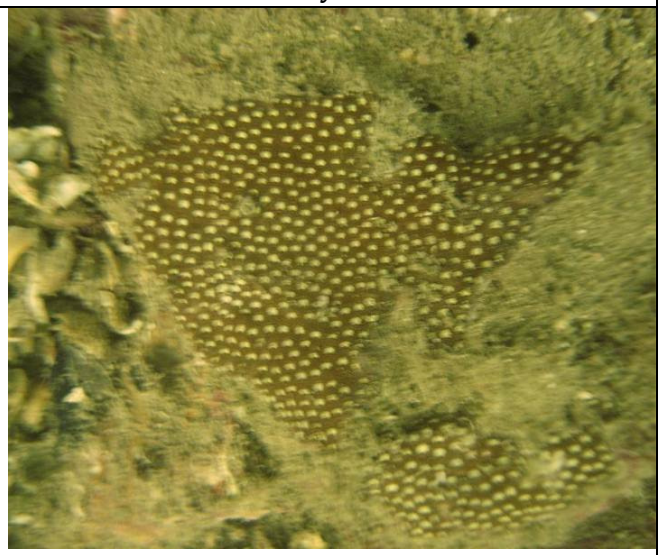
Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

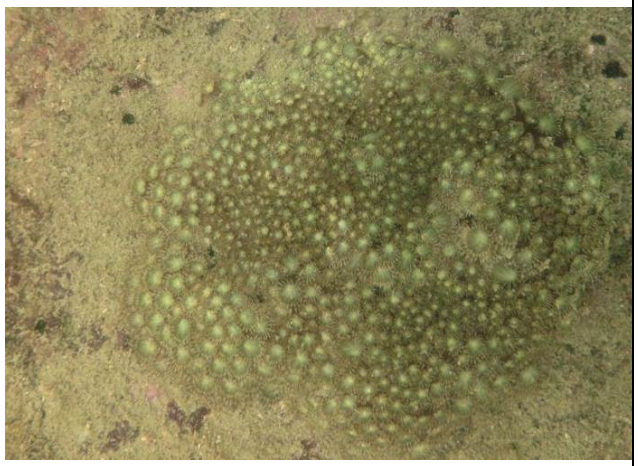
Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

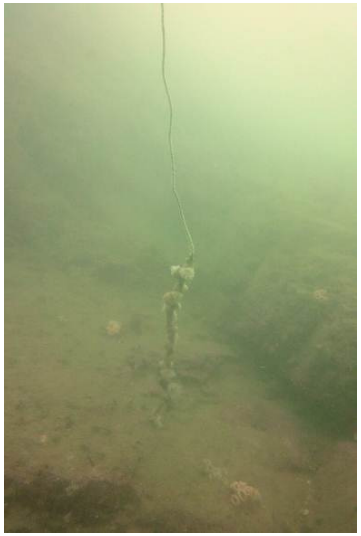
Annex D3 Photographic Records of Identified Hard Coral Colonies at Impact Monitoring Site (Zone B – Tai Long Pai) during the Baseline Coral Monitoring Survey

Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

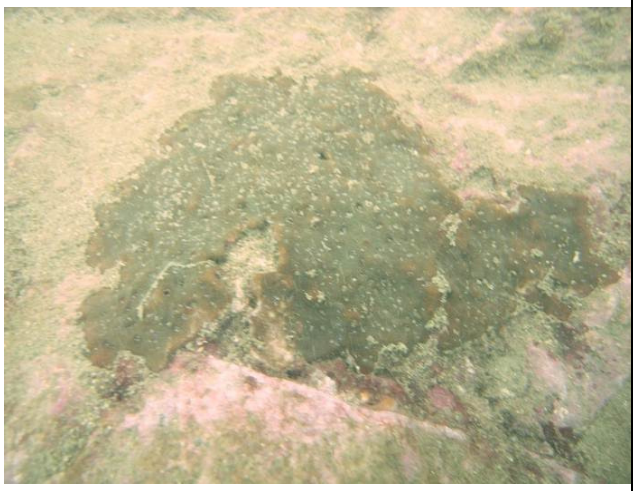
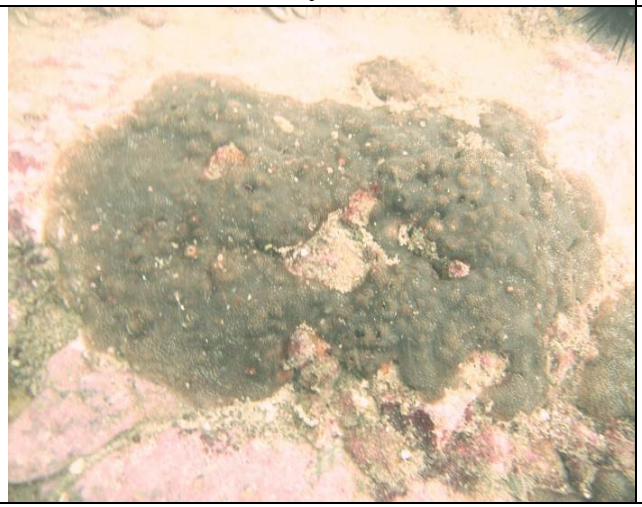
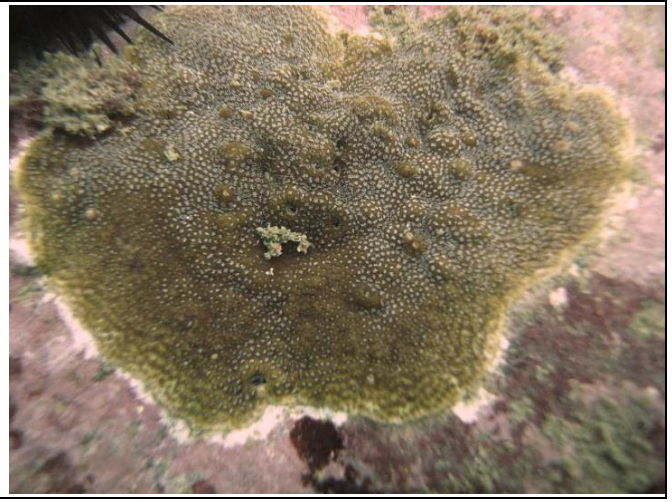
Annex D4 Photographic Records of Identified Octocoral/ Black Coral Colonies at Impact Monitoring Site (Zone B – Tai Long Pai) during the Baseline Coral Monitoring Survey

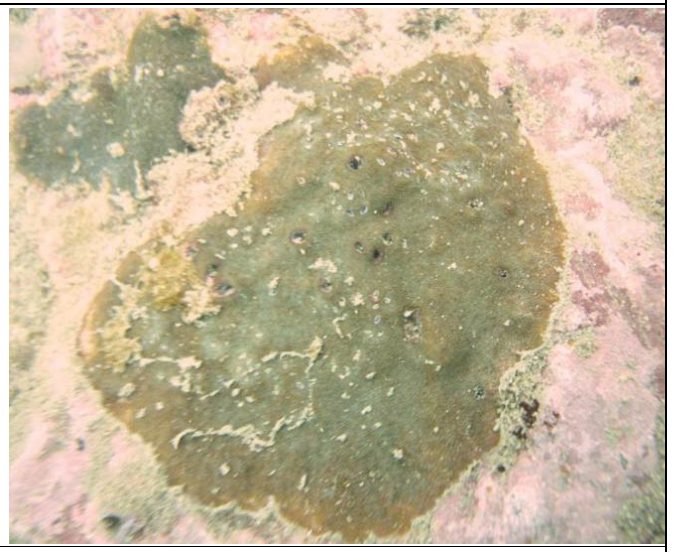
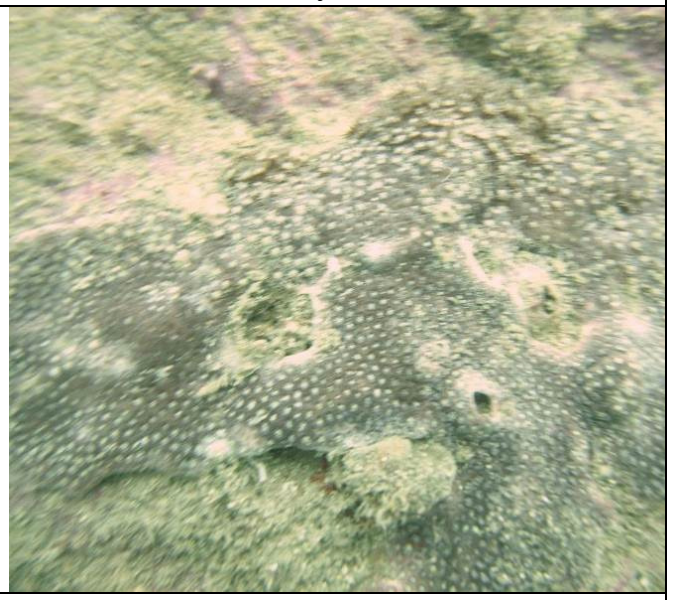
Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

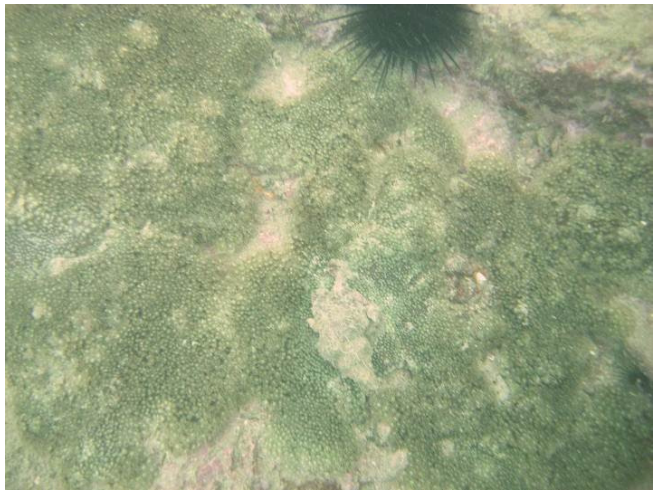
Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

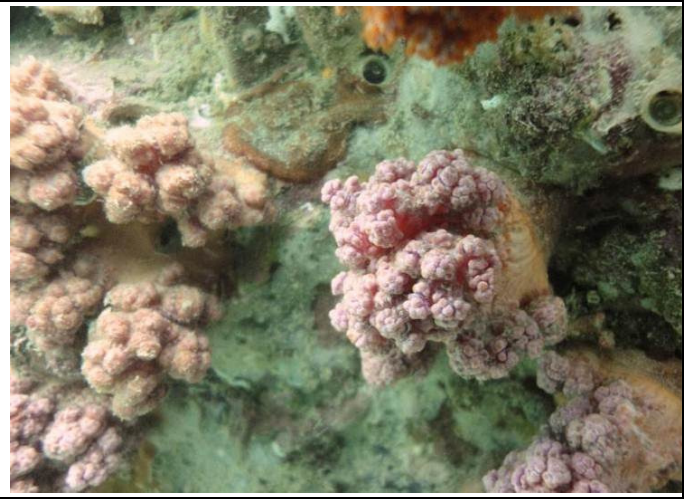
Annex D5 Photographic Records of Identified Hard Coral Colonies at Control Monitoring Site (Zone C –Tung Lung Chau) during the Baseline Coral Monitoring Survey

Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

Annex D6 Photographic Records of Identified Octocoral/ Black Coral Colonies at Control Monitoring Site (Zone C –Tung Lung Chau) during the Baseline Coral Monitoring Survey

Colony No. 1	Colony No. 2	Colony No. 3
		
Colony No. 4	**Colony No. 5**	**Colony No. 6**
		

Colony No. 7	Colony No. 8	Colony No. 9
		
Colony No. 10	**Colony No. 11**	**Colony No. 12**
		

Colony No. 13	Colony No. 14	Colony No. 15
		

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