

Appendix J White Bellied Sea Eagle Survey Report

**Shek Kwu Chau White Bellied Sea
Eagle Pre-Construction Phase
Monitoring Report**



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1. Introduction

Among the 27 species of raptors recorded in Hong Kong, Whitebellied Sea Eagle (*Haliaeetus leucogaster*, 白腹海鷗) (WBSE) is one of the few that breed here. White-bellied Sea Eagle is a monotypic species, with a world distribution stretching from India and Sri Lanka through Southeast Asia and the Philippines to Australia and Tasmania (Mayr and Cottrell, 1979; del Hoyo *et al.*, 1994). The major habitats favoured by White-bellied Sea Eagles include inshore seas, islands, coasts, estuaries and terrestrial wetlands (Robson, 2000).

On Shek Kwu Chau Island, a nest of WBSE is located about 60 m above ground within a hillside shrubland habitat, 130 m in-land from shore, about 550 m away from the proposed reclaimed land, with no human access. 3 phases monitoring programme will be comprise including: pre-construction phase, construction phase and operation phase.

2. Methodology

In order to verify the presence of White-bellied Sea Eagles in Shek Kwu Chau area, boat surveys (8 m x 3.5 m work boat), together with landbased surveys (not less than 100 m away from the nest) will be carried out before any construction work. Information to be collected will include feeding, perching/roosting, preening, soaring, flying, nesting and territorial guarding and the time spent on each activity. Other disturbances such as weather condition, or invasion by other fauna species will also be recorded.

Field surveys will be conducted once per week for a duration of three months during their breeding season (between December to May) immediately before the commencement of works. The monitoring frequency will be increased to daily during the first week of nestling period in order to collect information about their utilization of the proposed construction site as a foraging ground. Weekly monitoring will be continued for another ten weeks with daily monitoring at first week. Monitoring equipment is list in Table 2.1.

Table 2.1 List of equipment will be used during Construction Phase Monitoring

Equipment	Quantity
Swarovski EL 8.5 x 42 Binocular	1

Swarovski EL Range 8 x 42 Binocular	1
Swarovski ATX 25-60 x 85 Spotting Scope	1
Canon 1Dx Mark II Camera	1
Canon EF300mm F2.8 Lens with Canon 2x Teleconverter	1
Canon PowerShot G7X Camera	1
Garmin GPSMAP 64S	1

3. Results

The weekly monitoring was started on 30 January 2018 (Table 3.1) to locate the nest and check if there is any chick inside the nest (Photo Plate A). After a few weeks survey, the location of WBSE nest was confirmed on 21st February 2018 and it is located at the western part of SKC Island (Figure 1). Since there is no landing point long the western part of SKC, boat survey were used for the weekly monitoring survey. In order to increase the chance of find the adults and chicks, monitoring surveys were carried out at early morning around 7 am. The weather condition of monitoring survey were shown in Table 3.2.

Two adults and two chicks were recorded on 5th March 2018 survey and according to EM&A manual, a 10 weeks monitoring schedule was started on 6th March 2018 followed a 7 days daily monitoring in first week. Both chicks and adults were recorded during the daily and weekly monitoring surveys. In order to have a better time to observe the chicks and the adults in the nest, most of the monitoring surveys were conducted in early morning (within one hour after sunset). On 23rd March 2018 survey, juveniles were recorded to leave the nest and stand on the tree branches next to the nest. On 24th Apr 2018 survey, juveniles were recorded to start learning flight around the nest area. The last monitoring day was 15th May 2018 and juveniles were still sighted and they started to fly a longer distant away from the nest. Some representative photos were shown in Photo Plate A.

The WBSE nest was located at the western part of SKC Island (Figure 1) which is quite away from the Shek Kwu Chau Treatment and Rehabilitation Centre. Any disturbances from anthropogenic activities on the island were not recorded during the monitoring period. However, fishing boat moving close the shore was occasionally recorded but not serious. Since the nest is about 160m away from the shore and it is not accessible, fishing boat activities

didn't show any direct disturbance to the WBSE nest. Besides, the location of the nest is facing to the west, it was protect from strong winds such as winter and summer monsoons, therefore no obvious disturbance from bad weather was recorded during the monitoring period. No invasion of other fauna species was recorded as well.

During the whole monitoring period, adult WBSE feeding the chick was recorded, however there is no sign of using the proposed construction site as a foraging ground were not recorded. Sighting of WBSE adults flying back from the direction of Soko Islands were occasionally recorded.

Table 3.1 Survey Schedule of WBSE Monitoring

Date	Schedule	Notes	No. of Adult (A)/ Chick (C) Recorded
30-Jan-18	Weekly Monitoring	No nest record	A:1, C:0
6-Feb-18	Weekly Monitoring	No nest record	A:2, C:0
13-Feb-18	Weekly Monitoring	No nest record	A:1, C:0
21-Feb-18	Weekly Monitoring	Nest located at the western part of SKC	A:2, C:1
28-Feb-18	Weekly Monitoring	Suspected checks/juveniles were records inside the nest	A:2, C:1
5-Mar-18	Weekly Monitoring	Confirmed chicks inside the nest	A:2, C:1
6-Mar-18	Daily Monitoring	Started 7 days daily monitoring	A:2, C:1
7-Mar-18	Daily Monitoring	Chicks fed by adults	A:2, C:2
8-Mar-18	Daily Monitoring	Chicks stay inside the nest	A:2, C:1
9-Mar-18	Daily Monitoring	Chicks stay inside the nest	A:2, C:1
10-Mar-18	Daily Monitoring	Chicks stay inside the nest	A:2, C:2
11-Mar-18	Daily Monitoring	Chicks fed by adults	A:1, C:2
12-Mar-18	Daily Monitoring	Chicks fed by adults	A:1, C:1
23-Mar-18	Weekly Monitoring	Juveniles left the net and stand on the tree branches	A:2, C:2
29-Mar-18	Weekly Monitoring	Juveniles stayed inside the nest	A:0, C:2
4-Apr-18	Weekly Monitoring	Juveniles stayed inside the nest	A:1, C:2
9-Apr-18	Weekly Monitoring	Juveniles left the nest and stand on the tree branches	A:1, C:2
17-Apr-18	Weekly Monitoring	Juveniles left the nest and stand on the tree branches	A:2, C:2
24-Apr-18	Weekly Monitoring	Juveniles learning flight with adult	A:2, C:2

Date	Schedule	Notes	No. of Adult (A)/ Chick (C) Recorded
2-May-18	Weekly Monitoring	Juveniles learning flight with adult	A:1, C:2
11-May-18	Weekly Monitoring	Juveniles learning flight with adult	A:1, C:2
15-May-18	Weekly Monitoring	Juveniles learning flight with adult	A:2, C:2

Table 3.2 Weather Conditions during the WBSE Monitoring

Date	Condition	Air Temperature °C
30-Jan-18	- Northeast wind force 5 to 6 - Cloudy	10
6-Feb-18	- North wind force 5 to 6 - Sunny period	11
13-Feb-18	- Northeast wind force 3 to 4 - Sunny Period	13
21-Feb-18	- Northeast wind force 4 to 5 - Cloudy with a few showers	18
28-Feb-18	- Northeast wind force 3 to 4 - Cloudy with a few showers	21
5-Mar-18	- Southeast wind force 3 to 4 - Sunny Period	25
6-Mar-18	- Northeast wind force 5 to 6 - Cloudy with a few showers	20
7-Mar-18	- Northeast wind force 5 to 6 - Cloudy with a few showers	19
8-Mar-18	- North wind force 5 to 6 - Cloudy with showers	14
9-Mar-18	- North wind force 4 to 5 - Sunny Period	15
10-Mar-18	- East wind force 4 to 5 - Sunny Period	16
11-Mar-18	- East wind force 4 to 5 - Sunny Period	18
12-Mar-18	- East wind force 3 to 4 - Sunny Period	20
23-Mar-18	- East wind force 3 to 4 - Sunny Period	20
29-Mar-18	- Northeast wind force 3 to 4	23

Date	Condition	Air Temperature °C
	- Sunny Period	
4-Apr-18	- Southeast wind force 3 - Sunny Period	25
9-Apr-18	- East wind force 2 to 3 - Sunny Period	22
17-Apr-18	- North wind force 4 to 5 - Cloudy with a few showers	20
24-Apr-18	- Southeast wind force 4 to 5 - Cloudy with a few showers	25
2-May-18	- Southwest wind force 4 to 5 - Sunny Period	28
11-May-18	- East wind force 4 to 5 - Sunny Period	24
15-May-18	- Southwest wind force 4 to 5 - Sunny Period	29

4. Discussion

During the 16 weeks (30th January to 15th May 2018) pre-construction monitoring, no abnormal behavior of the adults (such as abandoned of the nest and chicks) and chicks were recorded during the monitoring period. Juveniles started to leave the nest on 9th April 2018. On the last day of monitoring survey (15th May 2018), juvenile were still kept learning flight with the adults. All GI works during the pre-construction monitoring did not show any affects to the WBSE adults and juveniles.

A construction phase monitoring program will followed during the whole construction period in order to monitor if there will have any impact to the WBSE nesting behavior during the nesting period of each year (between December to May).

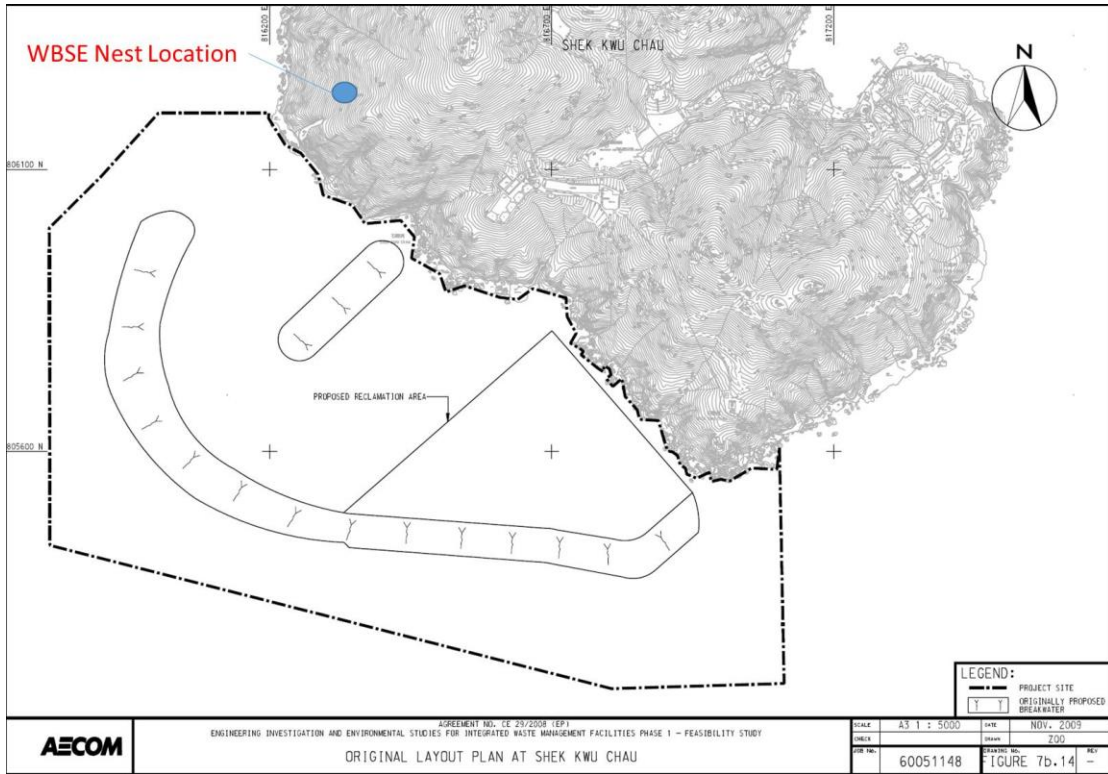


Figure 1 Location of WBSE Nest on SKC

Photo Plate A



Adult feeding the chicks inside the nest



Adult WBSE



Adult WBSE caught a fish



Adult standing next to the nest



Juveniles left the nest and stand at the tree branches next to the nest



Juvenile learning flight



Juvenile learning flight with adult



Adult