Appendix 13-12
Analysis of recent bird records within the Deep Bay area.

Waterbirds
The baseline surveys of birds were undertaken between January 2001 and January 2002, which means they are now (in May 2007) more than 5 years old.

In order to determine the continued validity of these data, reference has been made to the results of the Mai Po and Inner Deep Bay Ramsar Site Waterbird Monitoring Programme (publicly available through the website of the Hong Kong Bird Watching Society).

The results of surveys undertaken during the summer period (defined as the months of April – September) and winter period (October – March) have been extracted and are summarised in Tables 1 and 2 respectively. The results are shown as maximum counts during either summer or winter period for both the Deep Bay area and the Ramsar Site area. These areas are defined in Anon (2006).

Table 1. Maximum summer counts of waterbirds recorded within the Deep Bay area and Ramsar Site area during the period 2000 to 2005. Refer to Anon (2006) for definitions of survey areas

Year	Deep Bay	Ramsar site
2000	8,049	7,826
2001	12,858	11,638
2002	10,399	8,319
2003	9,019	7,595
2004	13,681	11,748
2005	10,067	8,823

Table 2. Maximum winter counts of waterbirds recorded within the Deep Bay area and Ramsar Site area during the period 2000/01 to 2005/06. Refer to Anon (2006) for definitions of survey areas

Year	Deep Bay	Ramsar site
2000/01	55,477	36,750
2001/02	51,333	39,249
2002/03	53,795	40,272
2003/04	N/A	N/A
2004/05	54,454	34,623
2005/06	56,889	42,943

The data in Tables 1 and 2 do not indicate any significant increase or decrease in overall bird numbers since 2000/01. Since 2002 more detailed counts are available for the survey sector that is particularly relevant to Fung Lok Wai which is referred to in Anon (2006) as "DBF". As winter is a key period for waterbirds in Hong Kong, the winter maxima of a selection of key waterbird species and raptors previously recorded from Fung Lok Wai have been extracted. These data are summarised in Table 3.

Table 3. Maximum winter (Oct – Mar) counts of key waterbird species within the DBF recording sector

Species	2002/03	2003/04	2004/05	2005/06
Great Cormorant	155	102	264	161
Grey Heron	98	77	249	111
Great Egret	159	106	238	104
Little Egret	558	512	515	312
Cattle Egret	77	58	34	12
Chinese Pond Heron	34	24	28	39
Black-faced Spoonbill	42	100	5	8
Red-billed Starling	81	35	265	300

For comparison the data for the same species during the same period have been extracted from the HKBWS reports for the Deep Bay recording area (Table 4).

Table 4. Maximum winter (Oct – Mar) counts of key waterbird species within the Deep Bay recording sector

Species	2002/03	2003/04	2004/05	2005/06
Great Cormorant	7959	8964	9552	10347
Grey Heron	1087	1146	1202	1050
Great Egret	1421	1429	2058	1185
Little Egret	1653	2151	3212	2345
Cattle Egret	144	175	104	69
Chinese Pond Heron	341	240	274	324
Black-faced Spoonbill	234	266	319	350
Red-billed Starling	438	428	3281	1563

In Table 5 the data from the DBF area (in Table 3) are shown as a proportion (%) of the concurrent Deep Bay counts (Table 4).

Table 5. Maximum winter (Oct – Mar) counts of key waterbird species within the DBF recording sector expressed as a proportion (%) of concurrent counts within the Deep Bay recording sector

Species	2002/03	2003/04	2004/05	2005/06
Great Cormorant	2%	1%	3%	2%
Grey Heron	9%	7%	21%	11%
Great Egret	11%	7%	12%	9%
Little Egret	34%	24%	16%	13%
Cattle Egret	53%	33%	33%	17%
Chinese Pond Heron	10%	10%	10%	12%
Black-faced Spoonbill	18%	38%	2%	2%
Red-billed Starling	18%	8%	8%	19%

The counts of birds within the DBF sector are illustrated graphically in Table 1 which shows the maximum winter count in this area between 2002/03 and 2005/06 and in Table 2 which shows the same counts as a proportion of the counts (during the same periods) within the wider Deep Bay area.

Figure 1. Maximum winter (Oct – Mar) counts of key waterbird species within the DBF recording sector between winter 2002/03 and 2005/06

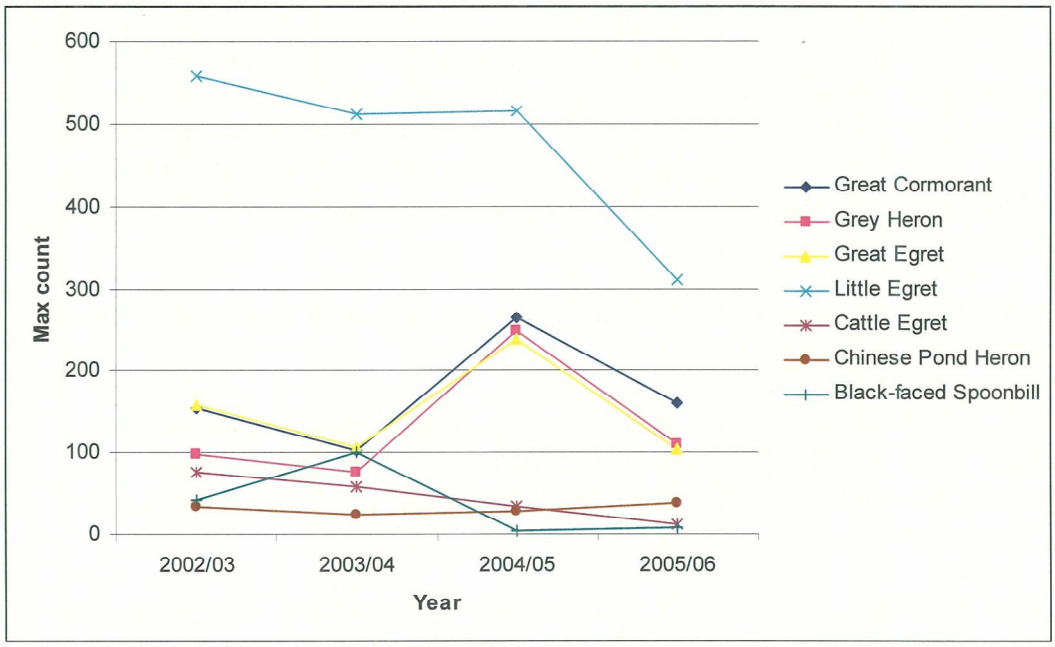
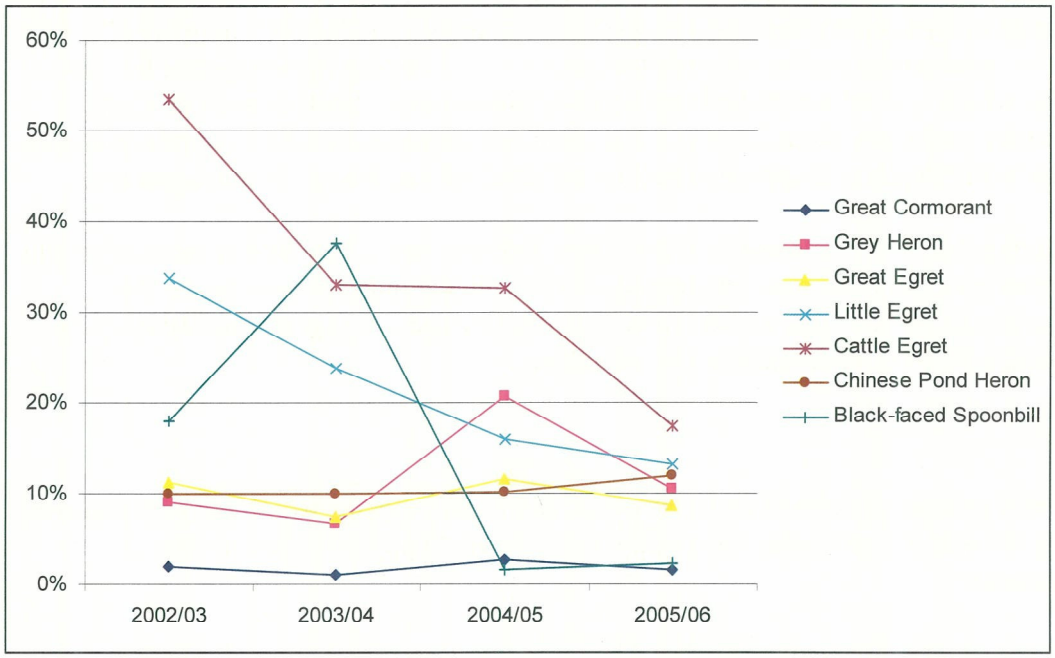


Figure 2. Maximum winter (Oct – Mar) counts of key waterbird species within the DBF recording sector expressed as a proportion (%) of concurrent counts within the Deep Bay recording sector between winter 2002/03 and 2005/06



The graphs show that whilst Great Cormorant numbers have increased within DBF there has been a corresponding increase within the wider Deep Bay area and the proportion of birds present in DBF has remained constant at approximately 2%.

Grey Heron number have fluctuated with a slight increase in maximum count within the DBF sector from 98 to 111. The proportion of Deep Bay birds recorded within the

DBF sector has also increased slightly from approximately 9% to 11%, with a short-lived surge in 2004/05 to 21%.

The numbers of egrets (Great Egret, Little Egret and Cattle Egret) all show the same pattern with both the maximum numbers recorded within the DBF sector during the winter periods of 2002/03 – 2005/06 and the proportion of Deep Bay birds recorded within the DBF sector declining. This is particularly pronounced for Little Egret and Cattle Egret where the proportion of Deep Bay birds recorded in the DBF sector has declined significantly.

In contrast the numbers of Chinese Pond Herons recorded in the same period have remained relatively stable.

Although there have been significant increases in Black-faced Spoonbill within the Deep Bay area, the proportion recorded within the DBF sector has declined dramatically both in terms of the maximum winter count and the proportion of the Deep Bay present.

Red-billed Starling numbers have increased within both the Deep Bay area and the DBF sector during the period analysed. Whilst the proportion of Deep Bay birds recorded within the DBF sector declined during the winters of 2003/04 and 2004/05, overall there appears to be little change.

The decline of egrets and Black-faced Spoonbill numbers in the DBF sector is consistent with a decline in the habitat quality of the Fung Lok Wai ponds which comprise a significant proportion of this survey sector. The reduced number of ponds in active production will be imposing a limit on the foraging opportunities for this species which will take fish during periods of draw-down. Species such as Great Cormorant and Grey Heron on the other hand can continue to feed in ponds that have greater water depth and appear to be less affected by the change in management.

Taken together these data confirm that there has not been a significant increase in the importance of the DBF area for Species of Conservation Importance since the conclusion of the baseline surveys and that, for key species (egrets and Black-faced Spoonbill) there appears to be a loss of value.

Raptors

A similar exercise has been undertaken for key raptor species which are also recorded during the Mai Po and Inner Deep Bay Ramsar Site Waterbird Monitoring Programme.

Table 6 indicates the results for the DBF recording sector and Table 7 provides, for comparison, the results within the wider Deep Bay area.

Table 6. Maximum winter counts of key raptor species within the DBF recording sector between 2002 and 2006

	Winter peaks			
Species	**2002/03**	**2003/04**	**2004/05**	**2005/06**
Greater Spotted Eagle	0	0	0	0
Imperial Eagle	0	0	1	0
Osprey	2	2	1	0
Crested Serpent Eagle	0	0	0	0

Table 7. Maximum winter counts of key raptor species within the Deep Bay recording area between 2002 and 2006. Source: Mai Po Inner Deep Bay Ramsar Site Waterbird Monitoring Programme Reports, Hong Kong Birdwatching Society

	Winter peaks			
Species	**2002/03**	**2003/04**	**2004/05**	**2005/06**
Greater Spotted Eagle	3	3	4	3
Imperial Eagle	4	5	5	4
Osprey	10	19	17	26
Crested Serpent Eagle	0	0	0	0

It can be seen that very few raptors were recorded within the DBF recording area during the period 2002-2006 and that with the exception of Osprey this reflects a low abundance in the wider Deep Bay area. Whilst the number of Osprey recorded in Deep Bay appears to have increased during the period reported, the number in DBF has actually declined.

With respect to Greater Spotted Eagle, Imperial Eagle and Crested Serpent Eagle it is concluded that the DBF recording area that there is no indication of significant change since the completion of the baseline surveys. With respect to Osprey it appears that the importance of DBF may have declined in the intervening period.