

Contract Reference No. AFCD/SQ/57/13/C

**Mai Po Inner Deep Bay Ramsar Site
Waterbird Monitoring Programme
2013 - 14**

Monthly Waterbird Monitoring

Biannual Report 2

October 2013 to March 2014



Submitted by
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Mai Po Inner Deep Bay Ramsar Site Waterbird Monitoring Programme 2013-14

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Report available for public information

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**Mai Po Inner Deep Bay Ramsar Site
Waterbird Monitoring Programme**

**Monthly Waterbird Monitoring
Biannual Report 2 (October 2013 to March 2014)**

Report



The Hong Kong Bird Watching Society



Agriculture, Fisheries and Conservation Department

Mai Po Inner Deep Bay Ramsar Site Waterbird Monitoring Programme

Monthly Waterbird Monitoring Biannual Report 2

1. Introduction

Long-term monitoring of waterbirds provides an insight into the health of wetlands; it concerns not only the waterbird community, but also the entire ecosystem in the Deep Bay area. Waterbird Monitoring Programme provides important baseline information for the management of Mai Po Inner Deep Bay Ramsar Site. This was administered and executed by the Hong Kong Bird Watching Society (HKBWS) under subvention from the Agriculture, Fisheries and Conservation Department (AFCD) from December 1998 to March 2004. Starting from April 2004, the Waterbird Monitoring Programme was arranged under service contracts funded by AFCD.

The Waterbird Monitoring Programme comprises three major components, namely, monthly waterbird counts, shorebird counts and egretty counts. The monthly waterbird counts are conducted in the Deep Bay area including the Mai Po Inner Deep Bay Ramsar Site, fishpond areas and mudflat adjacent to the Ramsar Site; the shorebird counts are conducted at the key feeding and loafing sites in the Mai Po Marshes Nature Reserve and intertidal mudflat during the migration seasons; and the egretty counts are conducted all around Hong Kong during the breeding season. This report focuses on the results of the monthly counts of waterbirds during the winter period from October 2013 to March 2014 under the contract reference number AFCD/SQ/57/13.

2. Methodology

The coordinated mid-monthly counts of wintering waterbirds in Hong Kong were carried out by accredited waterbird surveyors of the HKBWS, with support rendered by reserve staffs of the Hong Kong Wetland Park on 20 October 2013, 17 November 2013, 8 December 2013, 19 January 2014, 16 February 2014 and 16 March 2014. The survey area included the Mai Po Inner Deep Bay Ramsar Site (the 'Ramsar Site') and wetland areas around the Ramsar Site (the 'Deep Bay area'). The Deep Bay area covered the Ramsar Site and surrounding area included mudflat between Tsim Bei Tsui to Lau Fau Shan, fishpond areas at Ma Tso Lung, Sam Po Shue, San Tin, Mai Po San Tsuen, Tam Kon Chau, Tai Sang Wai, Lut Chau, Luen Hing Wai, Wing Kei Tsuen, Nam Sang Wai, Tsim Bei Tsui and Tin Shui Wai. Besides, the survey also

covered the Hong Kong Wetland Park at Tin Shui Wai, and the Futian National Nature Reserve at Shenzhen Special Economic Zone in mainland China. Maps 1, 2 and 3 show the location of each of the survey sites within the survey area, together with the boundary of the Mai Po Inner Deep Bay Ramsar Site. Figures collected from the monthly waterbird counts were grouped and presented with respect to two main areas: (1) Ramsar Site and (2) Deep Bay area.

This monitoring programme involved the counting of waterbirds in the above survey area. Habitat types included fishponds, *gei wais*, storm water channel, streams, intertidal mudflat, mangroves, reedbed and marshes. The survey sites, in particular the intertidal areas of Inner Deep Bay, were surveyed simultaneously so as to avoid double-counting as far as possible.

During the winter months, substantial numbers of waterbirds were present in the Deep Bay intertidal area. However, there were only a few days with diurnal tides high enough to force all waterbirds off the mudflat to the roosting sites in Mai Po and/or close to the floating bird watching hides for the high-tide counts. All counts were conducted on dates with rising tide, preferably 1.7 m or above. High-tide counts of individual species conducted within one week from the scheduled survey date were included if they were considered to provide more accurate counting result than those gathered on the counting day. This methodology has been described in details in the Waterbird Count Handbook (Carey 2002, Map 1 to 3).

Low-tide counts were conducted in the mid-winter period (i.e. December to February) on the same dates scheduled for high-tide counts in order to provide supplementary information on the number of some waterbird species including ducks and gulls. Ducks may scatter at river channel and gulls float on the bay far away from the boardwalk birdwatching hide during high tide but they prefer to stay in the intertidal area during low-tide. Therefore, the low-tide count would sometimes be more accurate than the high-tide count for these groups. The counts were conducted in a synchronous manner at the jetty outside the police station at Tsim Bei Tsui and at the Futian National Nature Reserve in Shenzhen in December, January and February. Results from low-tide count were treated and combined with that of high-tide count to produce the monthly figures.

Besides, additional voluntary surveys on Great Cormorants were conducted from December to February at their known evening roosting site in Mai Po Marshes Nature Reserve and Nam Sang Wai in order to obtain more accurate information on

their wintering population.

3. Results and discussion

3.1. Results of winter waterbird counts

All areas within the Deep Bay area and the Ramsar Site were covered during this survey period in the winter months. Table 1 shows a comparison of the peak counts over five winters from 2009-10 to 2013-14. The peak count of waterbirds recorded in the Deep Bay area in 2013-14 winter was 43,874 individuals in January 2014, which has decreased by 21% from the previous winter and this is the second lowest figure since the commencement of this programme in 1998. In the Ramsar Site, the peak count was 26,861 individuals in February 2014, which showed a decrease of 14% from the previous year. The January count has long been used for comparing the long-term trend of waterbird numbers, it showed a decrease of 21% in the Deep Bay area while a decrease of 15% in the Ramsar Site from the previous winter. A full data set of the survey of the waterbird monitoring programme is provided in the Appendix 1.

Low-tide count has been proven as an effective method to acquire additional information of ducks and gulls which prefer to stay in the intertidal area of the Deep Bay (Anon 2011). Results collected in the low-tide counts could serve as supplementary information for high-tide counts as species including Common Pochard, Tufted Duck, Eurasian Coot, Black-winged Stilt, Pacific Golden Plover, Kentish Plover, Black-tailed Godwit, Whimbrel, Common Redshank, Wood Sandpiper and Black-headed Gull could have better observation during low-tide periods. Results of low-tide counts of different waterbird groups are listed in Table 2 and details are shown in Appendix 2.

The combined result of high-tide and low-tide counts in January showed that the wintering 'shorebirds' was the largest waterbird group with 17,573 individuals, 40% of the total number, followed by the 'gulls and terns' at 9,216 individuals (21%). As the January count was also the peak count in this winter, waterbird groups including 'shorebirds' and 'gulls and terns' also showed their highest numbers in this winter during this count (Table 3). The waterbird group 'cormorants' had the peak count of 8,761 individuals and 'ardeids' had peak count of 2,728 individuals recorded in February, 'ducks and grebes' had the peak count of 9,550 individuals recorded in the November and 'rails and coots' had a peak count of 199 individuals recorded in December.

Compared to the results of the previous year, there were increases in the peak counts of 'cormorants' and 'gulls and terns', while the peak counts of 'ardeids', 'ducks and grebes', 'rails and coots' and 'shorebirds' were decreased. The increase of 'gulls and terns' returned to the range of 8,500-14,000 individuals recorded from 2002 to 2010 (Table 4).

Table 1. Comparison of the number of waterbirds recorded at the Deep Bay area and the Ramsar Site from winter 2009-10 to winter 2013-14. The Ramsar Site covers part of the Deep Bay area, with details shown in Maps 2 and 3.

		Winter 2009-10*	Winter 2010-11*	Winter 2011-12	Winter 2012-13*	Winter 2013-14*
Winter peak monthly count [^]	Deep Bay	76,882	68,635	68,080	55,871	43,874
	Ramsar Site	39,000	42,699	45,744	31,171	26,861
January count	Deep Bay	76,882	68,635	49,202	55,871	43,874
	Ramsar Site	39,000	42,699	34,561	30,012	25,467

[^] Winter peak monthly count refers to the highest count between December to February in the winter period.

* Counts of the whole Deep Bay area peaked in January for the winters in 2009-10, 2010-11, 2012-13 and 2013-14.

Table 2. Number of waterbird groups recorded at the Deep Bay area during low-tide counts in mid-winter 2013-14. Number in parenthesis represents the results recorded within the area of the Ramsar Site.

	December 2013	January 2014	February 2014
Cormorants	1,012 (560)	181 (0)	605 (573)
Ardeids	437 (199)	373 (84)	307 (71)
Ducks, grebes and pelicans	8,259 (547)	6,687 (1,976)	2,981 (1,871)
Rails and Coots	55 (0)	74 (0)	29 (1)
Shorebirds	10,261 (697)	10,858 (2,649)	3,757 (2,047)
Gulls and terns	2,943 (1,740)	1,304 (1,003)	1,168 (853)
Total	22,967 (3,743)	19,477 (5,712)	8,847 (5,416)
High-tide count total	30,617 (18,626)	43,803 (25,467)	34,289 (26,161)
Aggregate total from low-tide count	33,092 (18,818)	43,874 (25,467)	34,989 (26,861)

Table 3. Number of waterbirds counted in winter 2013-2014 by groups and sites. Bold figures are the highest in this winter period.

Group	Site	Oct	Nov	Dec	Jan	Feb	Mar
Cormorants	Deep Bay area	1,508	6,372	7,832	8,142	8,761	7,496
	Ramsar Site	885	5,042	3,842	5,002	6,085	6,746
	Starling Inlet	0	0	13	46	44	118
Ardeids	Deep Bay area	2,584	2,069	2,665	2,347	2,728	2,293
	Ramsar Site	1,334	1,218	1,134	1,208	1,408	998
	Starling Inlet	104	95	110	96	138	138
Ducks and grebes	Deep Bay area	1,677	9,550	8,259	6,438	5,566	8,315
	Ramsar Site	127	7,442	5,821	4,806	4,011	3,621
	Starling Inlet	1	34	8	14	10	3
Rails and Coots	Deep Bay area	120	113	199	158	180	147
	Ramsar Site	37	57	76	75	67	51
	Starling Inlet	7	27	28	26	20	10
Shorebirds	Deep Bay area	2,698	9,757	11,156	17,573	12,911	10,686
	Ramsar Site	1,556	6,473	6,167	8,384	11,669	6,417
	Starling Inlet	1	10	11	2	19	1
Gulls and terns	Deep Bay area	0	230	2,981	9,216	4,843	3,518
	Ramsar Site	0	138	1,778	5,992	3,621	2,464
	Starling Inlet	10	0	0	0	0	0
Total	Deep Bay area	8,587	28,091	33,092	43,874	34,989	32,455
	Ramsar Site	3,939	20,370	18,818	25,467	26,861	20,297
	Starling Inlet	123	166	170	184	231	270

Table 4. Peak number of different waterbird groups in the Deep Bay area during the mid-winter period (i.e. December to February) from 2002 to 2014.

Winter	Cormorants	Ardeids	Ducks and Grebes	Rails and Coots	Shorebirds	Gulls and Terns
2002-03	7,959 (Jan)	4,702 (Jan)	20,203 (Jan)	219 (Dec)	9,849 (Feb)	13,191 (Jan)
2003-04 [^]	8,964 (Jan)	3,963 (Dec)	16,856 (Feb)	362 (Jan)	12,856 (Jan)	8,469 (Dec)
2004-05	9,552 (Jan)	6,425 (Dec)	22,521 (Jan)	384 (Feb)	9,806 (Feb)	9,346 (Dec)
2005-06	10,347 (Jan)	4,345 (Jan)	19,657 (Feb)	597 (Dec)	13,695 (Feb)	14,417 (Feb)
2006-07	10,081	4,396	33,779	798	19,054	12,000

Winter	Cormorants	Ardeids	Ducks and Grebes	Rails and coots	Shore-birds	Gulls and Terns
	(Jan)	(Dec)	(Feb)	(Feb)	(Feb)	(Jan)
2007-08	11,144 (Jan)	3,549 (Jan)	35,066 (Jan)	866 (Jan)	27,720 (Jan)	11,787 (Jan)
2008-09	8,736 (Jan)	4,384 (Feb)	38,099 (Feb)	460 (Jan)	24,069 (Feb)	11,212 (Dec)
2009-10	10,758 (Feb)	3,357 (Jan)	28,700 (Jan)	523 (Jan)	23,926 (Jan)	11,331 (Jan)
2010-11	10,023 (Feb)	3,006 (Dec)	30,628 (Dec)	332 (Jan)	20,708 (Jan)	9,393 (Jan)
2011-12	9,636 (Feb)	3,384 (Dec)	25,739 (Feb)	206 (Jan)	25,299 (Feb)	5,128 (Jan)
2012-13	10,569 (Jan)	2,773 (Jan)	13,169 (Dec)	163 (Jan)	22,320 (Jan)	7,955 (Jan)
2013-14	8,761 (Feb)	2,728 (Feb)	8,259 (Dec)	199 (Dec)	17,573 (Jan)	9,216 (Jan)

^ Counts in mid-winter period of 2003-04 were modified by incorporating the results of additional counts. Details are referred to in Part II: additional counts of waterbirds in Deep Bay Intertidal area in January and February 2004 in Yu (2004) and Anon. (2005).

Height of tide, human disturbance and visibility are important factors affecting the counts of waterbirds in the low tide period. Waterbirds follow tidal movements to utilize different parts of mudflats. They usually spend more time to feed during low-tide along water edge and rest more either on water surface or in the higher area of mudflat during high-tide. High-tide could bring waterbirds close to Mai Po Boardwalk Birdwatching hides and therefore counts conducted during high-tide period provide figures of each waterbird species in good accuracy. However, some individuals might choose to stay on water surface during high-tide and so they could still be far away from the hides and difficult to count. Counting of these waterbirds might need to be conducted in low-tide period as these birds could gather in big flock after feeding. Though the distance between birds and surveyors would be too long in low-tide period for waterbird species identification and surveyors also cannot access in the mudflat area during low-tide, the low-tide count could still provide a broad figure of the total waterbird abundance, still an important information for this programme. In this winter, fishermen were still seen working in the Deep Bay mudflats (including both Hong Kong and Shenzhen sides) during the low-tide count. This might cause disturbances to the waterbirds and affect the

counting. Low-tide count needs to be conducted in days with reasonably good visibility and days with thick fog are not suitable. All the low-tide counts were conducted under good visibility and so this factor did not affect the counts in this winter.

In order to avoid stochastic biases for solely adopting the January count (which has been widely used internationally for population estimate) and to acquire a more accurate profile of the number of waterbirds that were dependent on Deep Bay as their habitat for at least a period in the winter, the total peak count (i.e. sum of peak numbers of each waterbird species) in the mid-winter period (December to February) was extracted to show the maximum number of waterbirds that utilize the Deep Bay area, in other words, supported by the area in the 2013-14 winter. The total peak count for 2013-14 winter was 51,573 birds (Table 5 and Appendix 3). That was a decrease of 16% compared to 61,674 individuals recorded in last winter. A comparison of the total peak counts in the winters in the last five winters from 2009-10 to 2013-14 was shown in Table 5. The comparison on the difference of using total peak count and January count to present the waterbird population was shown in Figure 1. There was a decreasing trend of waterbird population from the high count of 90,986 individuals in winter 2007-08, but the number of waterbird species remains at around 70. The number of species recorded in 2013-14 winter was similar to that of the last winter (i.e. 69 species).

Table 5. Total peak counts in the winters of past five years

	Winter 2009-10	Winter 2010-11	Winter 2011-12	Winter 2012-13	Winter 2013-14
Total peak count	87,379	76,679	72,492	61,674	51,573
Total no. of positively-identified waterbird species	75	67	64	69	69

The ten most numerous waterbird species recorded in the Deep Bay area in mid-winter (December to February) were shown in Table 6. These ten waterbird species together made up a total of 43,454 individuals, constituting 85% of all the total peak count of the waterbirds recorded in the mid-winter period. This figure was similar to the previous winters (winter 2012-13: 84%, winter 2011-12: 74%, winter 2010-11: 78%, winter 2009-10: 86%, winter 2008-09: 84%, winter 2007-08: 84%). Moreover, the number of waterbirds recorded at Hong Kong side was higher than that at the Futian National Nature Reserve during the high tide period. Regular movement of wintering waterbirds in the Deep Bay area from Mai Po during the

high tide period to Futian during the low tide period was also observed.

Table 6. The ten most numerous wintering waterbird species recorded at Deep Bay in Hong Kong and Shenzhen, Deep Bay in mid-winter (December to February)..

Species	Number of birds at Hong Kong side	Number of birds at Futian (i.e. Shenzhen)	Total number
Pied Avocet	4,638	7,156	11,794
Black-headed Gull	5,800	3,200	9,000
Great Cormorant	8,761	0	8,761
Dunlin	4,192	0	4,192
Northern Shoveler	2,560	215	2,775
Eurasian Wigeon	1,760	9	1,769
Tufted Duck	5	1,580	1,585
Northern Pintail	1,335	75	1,410
Eurasian Curlew	1,297	0	1,297
Great Egret	842	29	871
Total	31,190 (71.7%)	12,264 (28.2%)	43,454

3.2 Species of conservation significance

Some waterbird species that recorded in the Deep Bay area were of conservation significance. This was attributable to their globally threatened status as classified by BirdLife International (2014), or the Deep Bay area supported at least 1% of their regional or flyway population. The data of '1% of the regional or flyway population' was adopted from Wetlands International (2014). Brief reviews of the important waterbird species recorded in winter 2013-14 are shown below.

Great Cormorant *Phalacrocorax carbo*

Coordinated counts at evening roosting sites of Mai Po Marshes Nature Reserve and Nam Sang Wai in December 2013, January and February 2014 recorded 7,832, 8,142 and 8,761 individuals respectively. This peak count (February 2014) showed a decrease of 23% from that of the previous winter (i.e. 10,569 individuals). Applying 1% regional population at 1,000 individuals (Wetlands International 2014), Deep Bay wintering population of this species constituted nearly 9% of the regional population in winter 2013-14.

Black-faced Spoonbill *Platalea minor*

Endangered

The highest count of the wintering Black-faced Spoonbills (i.e. from December

to February) was 266 recorded in the February count which showed a decrease of 23% from that of the previous winter (i.e. 344 individuals). The International Black-faced Spoonbill Census in mid-January 2014 recorded a total of 2,726 individuals in the East Asia region, of which 252 were recorded in the Deep Bay area (HKBWS 2014). The Deep Bay area supported 10% of the known world population of this species in 2013-14 winter.

Falcated Duck *Anas falcata*

Near Threatened

Seven individuals were recorded in February 2014, having an increase of two birds from the peak count of five individuals recorded in the previous winter. This species was usually recorded in small numbers (fewer than 10 birds) in recent winters.

Northern Pintail *Anas acuta*

The 1% regional population level of this species was set at 2,400 individuals (Wetlands International 2014). The peak count was only 1,410 individuals recorded in January 2014 and therefore this winter result could not meet the 1% level. It also has a decrease of 19% from that of the previous winter and apparently the Deep Bay wintering population is decreasing.

Northern Shoveler *Anas clypeata*

The 1% regional population is set at 5,000 individuals (Wetlands International 2014). The peak count of this species is 2,775 individuals recorded in December 2013 and therefore the 2013-14 winter result could not meet this level. This result also showed to have a decline of 25% from that of the previous winter, this is also the fourth consecutive winters to record declining numbers since a peak count of 20,008 individuals in winter 2009-10.

Baer's Pochard *Aythya baeri*

Critically Endangered

A single individual of Baer's Pochard was recorded at Mai Po Marshes Nature Reserve in February 2014 (c.f. two recorded in the previous winter). This species is now listed as "Critically Endangered" (BirdLife International 2014) from rapid decline of its population. This species also showed a drastic decline of wintering population in the Deep Bay area over the last two decades.

Tufted Duck *Aythya fuligula*

The peak count of this winter period was 2,752 individuals recorded in November 2013, a significant decrease of 54% from the peak count of the previous year (i.e. 5,987 individuals in winter 2012-13). The highest figure in the mid-winter

period was only 1,585 individuals recorded in December 2013. Almost all the birds in 2013-14 winter were recorded within Shenzhen side (i.e. 1,580 individuals). The 1% regional population level is set at 2,400 individuals (Wetlands International 2014), hence this mid-winter result could not meet the 1% level.

Pied Avocet *Recurvirostra avosetta*

A total of 11,794 individuals counted in January count was the peak count of this winter, a large increase of 20% from the peak count of the previous year. Applying the criterion of 1% regional population at 1,000 individuals (Wetlands International 2014), this winter peak count constituted nearly 12% of the regional population in winter 2013-14.

Black-tailed Godwit *Limosa limosa*

Near Threatened

A total of 700 individuals were recorded at Futian during the low-tide period of the February count, a peak count of winter 2013-14 which had an increase of 13% from the peak count of the previous winter (620 individuals). This species was more frequently presented at Futian during the mid-winter period. The 1% regional population was 1,400 individuals (Wetlands International 2014).

Eurasian Curlew *Numenius arquata*

Near Threatened

The winter peak count of this species was 1,297 individuals recorded in January 2013, a decrease of 10% from the peak of the previous winter (i.e. 1,440 individuals). As the 1% regional population was 1,000 individuals (Wetlands International 2014), this winter peak count constituted 1.3% of the regional population in winter 2013-14.

Common Greenshank *Tringa nebularia*

The peak count of this species was 836 individuals recorded in January 2014, a decrease of 10% from the peak count of the previous winter (930 individuals). As the 1% regional population is set at 1,000 individuals (Wetlands International 2014), this winter result cannot meet this 1% level.

Nordmann's Greenshank *Tringa guttifer*

Endangered

One individual was recorded in November 2013 and February 2014. The global population was estimated at 400-600 individuals and the 1% global population was set at 5 individuals (Wetlands International 2014).

Great Knot *Calidris tenuirostris*

Vulnerable

The peak count was 14 individuals recorded in November that may involve of passage individuals. The highest number in the mid-winter period is 12 recorded in

the January count, a 57% decrease from the peak count of 28 birds of the previous winter. The world population is estimated to 290,000 individuals and so the 1% global population was 2,900 individuals (Wetlands International 2014). This species is having a rapid population decline due to habitat deterioration (BirdLife International 2014).

Saunders's Gull *Chroicocephalus saundersi* Vulnerable

The peak count was 37 individuals recorded in February 2014, a decrease of 18% from the peak count of the previous year (45 individuals). The global population is estimated at 14,000 individuals and the 1% global population was 140 individuals (Wetlands International 2014).

3.3 Other notable counts

Greater Crested Grebe *Podiceps cristatus*

The peak count of this species was 103 individuals recorded in November 2013 and the highest figure in the mid-winter period was only 69 birds in February 2014. Both counts were very low comparing to the peak count of the previous winter (515 individuals) and this winter results have at least 80% decrease of that of the previous winter. As the 1% regional population was set at 350 individuals (Wetlands International 2014), this peak count could not meet this 1% level.

Great Egret *Ardea alba*

The peak count was 871 individuals recorded in December 2013, an increase of 21% from that of the previous winter (720 individuals). The 1% regional population is set at 1,000 individuals (Wetlands International 2014) and this winter result cannot meet this 1% level. Numbers of this species have been decreasing in recent years and the Deep Bay wintering population of this species met this 1% level several years ago.

[Common Shelduck *Tadorna tadorna*

This species was not recorded in the winter 2013-14 and there was only a single individual recorded in the previous winter. This species has been undergoing a drastic decline from a peak count of 4,011 individuals in January 1998 (Carey *et al.* 2001) to only singles in recent years.]

Common Teal *Anas crecca*

The peak count of this species was 311 individuals recorded in February, with a significant decrease of 39% from the peak count of the previous winter (i.e. 512

individuals). This species was once one of the commonest ducks in the Deep Bay area with a peak count of 5,348 individuals in February 1996 (Carey *et al.* 2001), but its numbers continued to fall in recent years as 2,332 individuals in 2008-09 winter, 1,459 individuals in winter 2010-11, 937 individuals in winter 2011-12 and 512 individuals in winter 2012-13.

Eurasian Coot *Fulica atra*

The peak count was 48 individuals recorded in February, having an increase of 55% from the peak count of 31 birds in the previous winter. However, this peak count is still far lower than that in the past and this species has the highest count of 3,245 individuals in January 1992 (Carey *et al.* 2001).

Grey Plover *Pluvialis squatarola*

The peak count was 833 individuals recorded in January 2014, a new high figure for this species in the Deep Bay area. The previous high figure was 751 individuals recorded in January 1994 (Carey *et al.* 2001). The 1% regional population of this species is set at 1,000 individuals (Wetlands International 2014). Therefore, result from this winter did not meet the 1% level.

Little Ringed Plover *Charadrius dubius*

The threshold of 1% regional population was set at 250 individuals (Wetlands International 2013) and the population in the Deep Bay area occasionally met this threshold level (e.g. 315 individuals in February 2009). The peak count was only 68 individuals in this winter, having a decrease of 24% from that of the previous winter and hence this winter result cannot meet the 1% level.

Kentish Plover *Charadrius alexandrinus*

The mid-winter peak count for this species was only 549 individuals, an 83% decrease from the peak count of 3,221 individuals in the previous winter. The annual mid-winter peak count of this species showed some fluctuations in recent years (4,303, 720, 2,640, 3,221, 549 individuals in the past five winters). The 1% regional population is set at 1,000 individuals (Wetlands International 2014) and so this winter result cannot meet this 1% level.

Spotted Redshank *Tringa erythropus*

The peak count was 117 individuals in January 2014, a significant decrease of 54% from the peak count of 263 individuals in the previous winter. This species is still suffering from a drastic decline from the historical peak count of 2,500 individuals in 2002. The 1% regional population is set at 250 individuals (Wetlands

International 2014), this winter result cannot meet this 1% level.

Marsh Sandpiper *Tringa stagnatillis*

The peak count of this species was only 240 individuals in February 2014, a 67% decrease from the peak count of the previous winter (728 individuals). This species was also common in the Deep Bay mudflat area five winters ago, e.g. 1,710 and 2,884 individuals recorded in February 2010 and January 2011 respectively. A rapid decline of this species in the Deep Bay area is of local conservation concern but reason of this decline was not fully understood.

Black-headed Gull *Chroicocephalus ridibundis*

The peak count was 9,000 individuals recorded in January 2014, an increase of 15% from the peak count (7,817 individuals) in the previous winter. This increase showed a good sign of the recovery of the wintering population of this species. This species was one of the most abundance waterbird species once with the highest count of 20,629 individuals in winter 1995-96 (Carey *et al.* 2001) but its numbers have subsequently declined since then and the recent winter results usually fell in a range of 5,000 to 10,000 individuals.

3.4 Other information collected

Additional field surveys were conducted in December 2013 to collect more information on fishpond condition for waterbirds. Out of 563 surveyed fishponds, a total of 125 ponds were recorded with wires set up across fishponds (Map 4) and 464 ponds were actively managed (Map 5).

Table 7. Number of wired fishponds and managed fishponds

Location of surveyed fishponds	No. of fishponds surveyed	Wired ponds	Managed ponds
Shenzhen River 'B'	109	48	81
Shenzhen River 'A'	34	0	26
San Po Shu	43	15	40
San Tin	48	1	45
Mai Po Sun Tsuen	42	0	40
Tam Kon Chau	51	21	50
Lut Chau	28	23	28
Tai Sang Wai	31	1	31
Luen Hing Wai and Wing Kei Tsuen	56	2	37
Nam Sang Wai	38	0	20
Tsim Bei Tsui	83	14	66
<i>Total</i>	563	125	464

4. Conclusion

In the period from October 2013 to March 2014, the peak winter count of waterbirds at the Deep Bay area was 51,573 individuals, including 22,188 shorebirds, 9,226 gulls and terns, 8,761 cormorants, 8,207 ducks and grebes, 2,957 egrets and herons and 234 rails and coots. This peak count was lower than the same figure of the previous winter, indicating that the winter waterbird abundance in the Deep Bay area continued to decline from an all-time peak count of 90,986 individuals in winter 2007-08. It also showed a decrease of species diversity as 67 waterbird species were recorded in this winter while 69 species of waterbirds were recorded in the previous winter. The ten most numerous waterbird species constituted 85% of the total peak count in 2013-14 winter, same as that of the 2012-13 winter.

The low-tide count conducted in this winter showed again to provide supplementary information of many species such as Tufted Duck, Black-tailed Godwit and Black-headed Gull. Many of these species utilize mudflats more than other habitats such as *gei wais*. Therefore, the low-tide count helped to increase survey accuracy for some species which prefer more in the Deep Bay intertidal mudflat area at low tide.

A total of 8 globally threatened or near-threatened waterbird species (i.e. Black-faced Spoonbill, Falcated Duck, Baer's Pochard, Black-tailed Godwit, Eurasian Curlew, Nordmann's Greenshank, Great Knot and Saunders's Gull) and a total of four species with at 1% regional populations (i.e. Great Cormorant, Black-faced Spoonbill, Pied Avocet and Eurasian Curlew) were recorded at the Deep Bay area in 2013-14 winter. Northern Pintail, Northern Shoveler, Common Teal, Little Ringed Plover and Marsh Sandpiper showed strong decreases in recent winters. The winter abundance of Chinese Spot-billed Duck, Great Egret, Spotted Redshank and Black-headed Gull showed a short term decline (10 years), while Falcated Duck, Common Shelduck and Eurasian Coot showed a long term declines (about 20 years). These species were once common in the Deep Bay area. However, the reasons for the declines of these species were not fully studied and understood. It is suggested to obtain more information, where possible or when data is available, on the number of wintering waterbirds at wintering sites along the coastal area and inland wetlands of Mainland China.

Cross-border fishermen were still sighted in the Deep Bay intertidal area at Futian side, and they did cause disturbance to the waterbirds on mudflat. Although at Hong Kong side, there were some reports about the fishermen setting traps on the

mudflat of catching fishes, shrimps and crabs (HKBWS unpublished data), such activities have been kept under control through regular patrol and enforcement by AFCD. Before more information is available to understand the decline of waterbirds in Hong Kong, such enforcement effort is important to avoid disturbance to waterbirds and for achieving better accuracy for the count.

5. Acknowledgements

I would like to thank the following surveyors who participated in the counts: Geoff Carey, Bonnie Chan, K.H. Chan, Gary Chow, Camille Chung, Johnson Chung, Forrest and Emily Fong, Helen Fong, Vivian Fu, Mike Leven, Martin Hale, John and Jemi Holmes, W.M. Hung, Aaron Keung, N.Y. Lai, Alan Lam, Shirley Lam, Roger H. Lee, R.W. Lewthwaite, Austin Ng, C.C. Pang, Y.K. So, Y.H. Sung, Graham Talbot, Ivan Tse, Captain Wong, H.K. Ying, Shenzhen Bird Watching Society. I also thank the reserve staff of the Hong Kong Wetland Park for their contribution in collecting waterbird data.

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**Mai Po Inner Deep Bay Ramsar Site
Waterbird Monitoring Programme**

**Monthly Waterbird Monitoring
Biannual Report 2 (October 2013 to March 2014)**

Figure

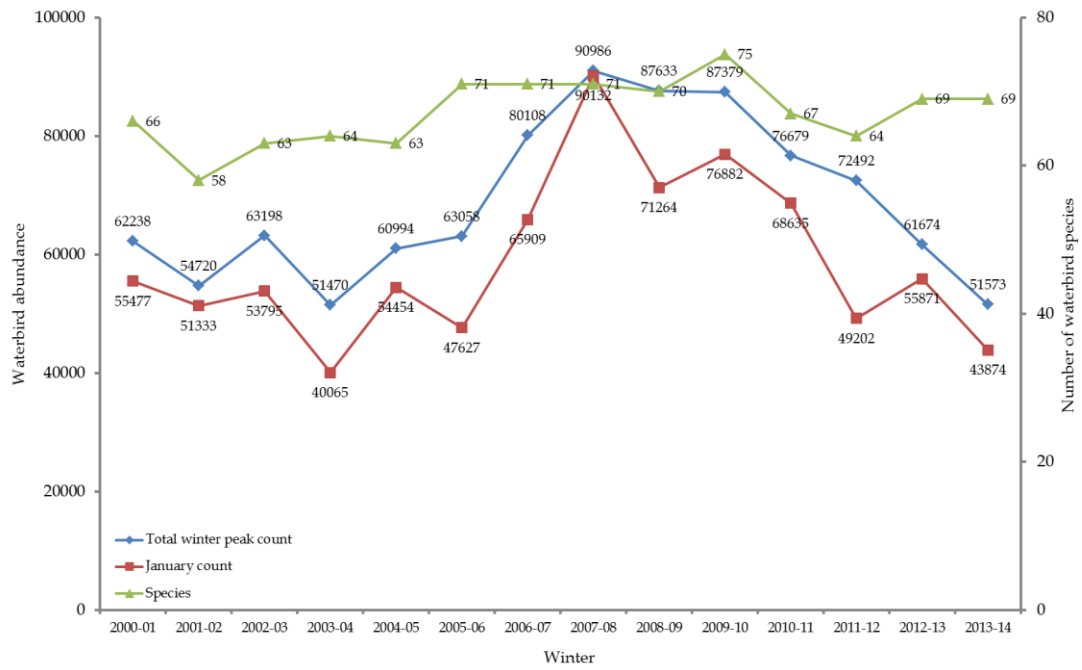


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Figure 1. Total winter peak counts and January (mid-winter) counts, from 2001/02 to 2013/14.



Note: number of waterbirds in winter 2003-04 was modified and details are referred to Anon (2005). Statistics for 2005-06 have also been revised.

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Maps

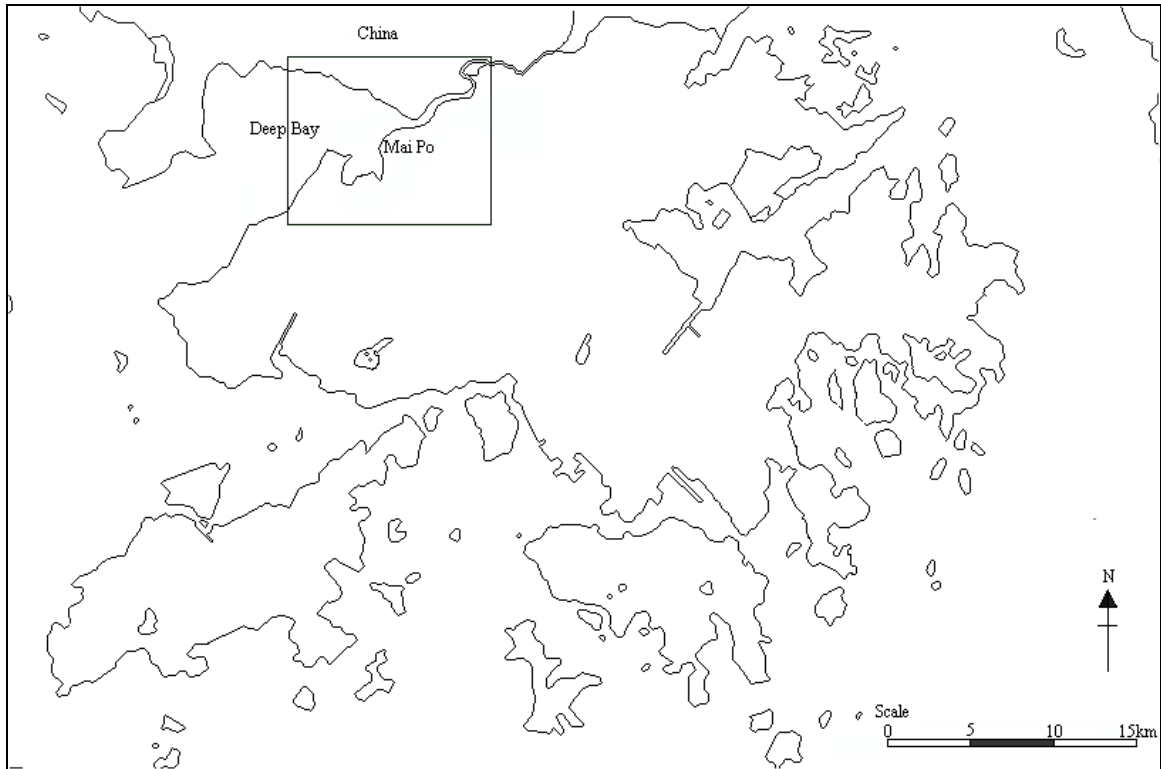


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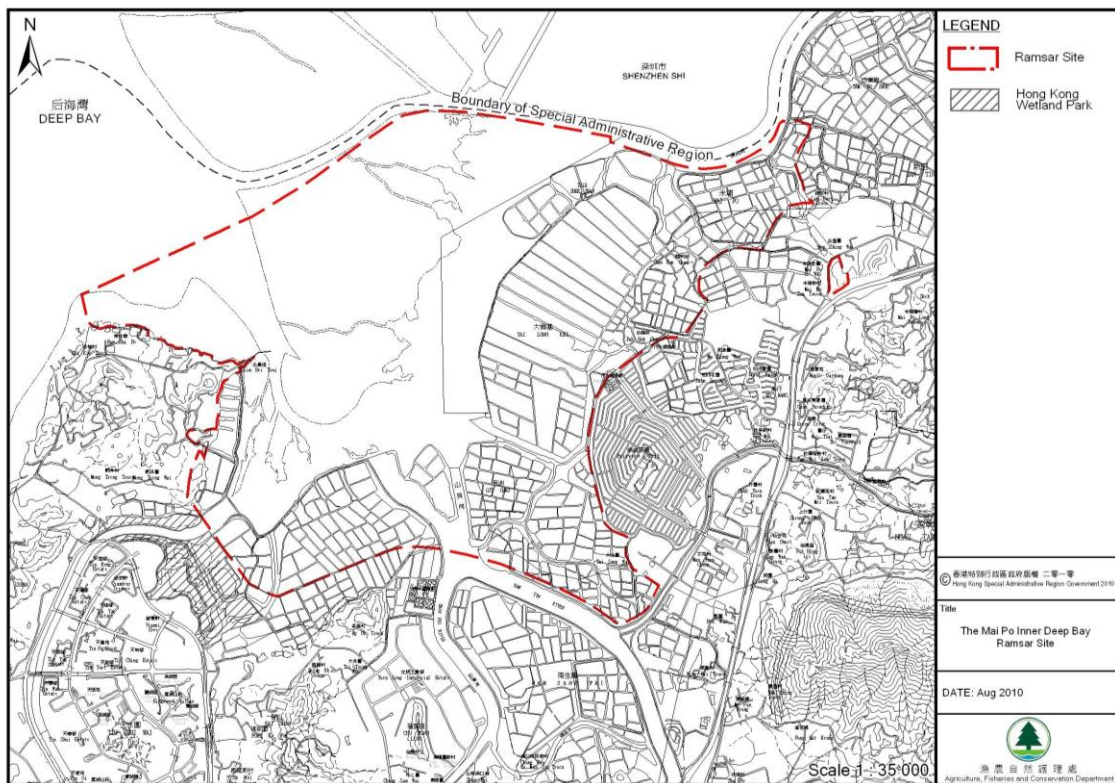


Agriculture, Fisheries and Conservation Department

Map 1. Map of Hong Kong showing location of the Mai Po Inner Deep Bay Ramsar Site

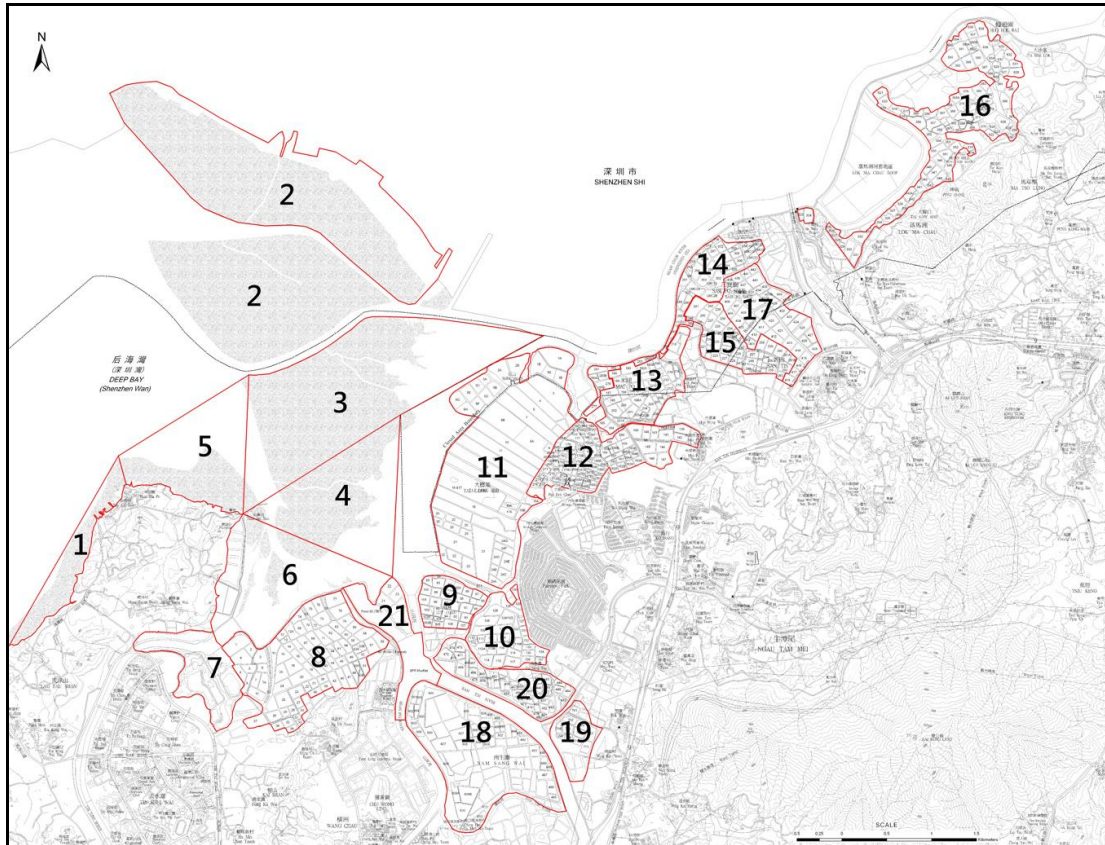


Map 2. Boundary of Mai Po Inner Deep Bay Ramsar Site.



Source of map: AFCD

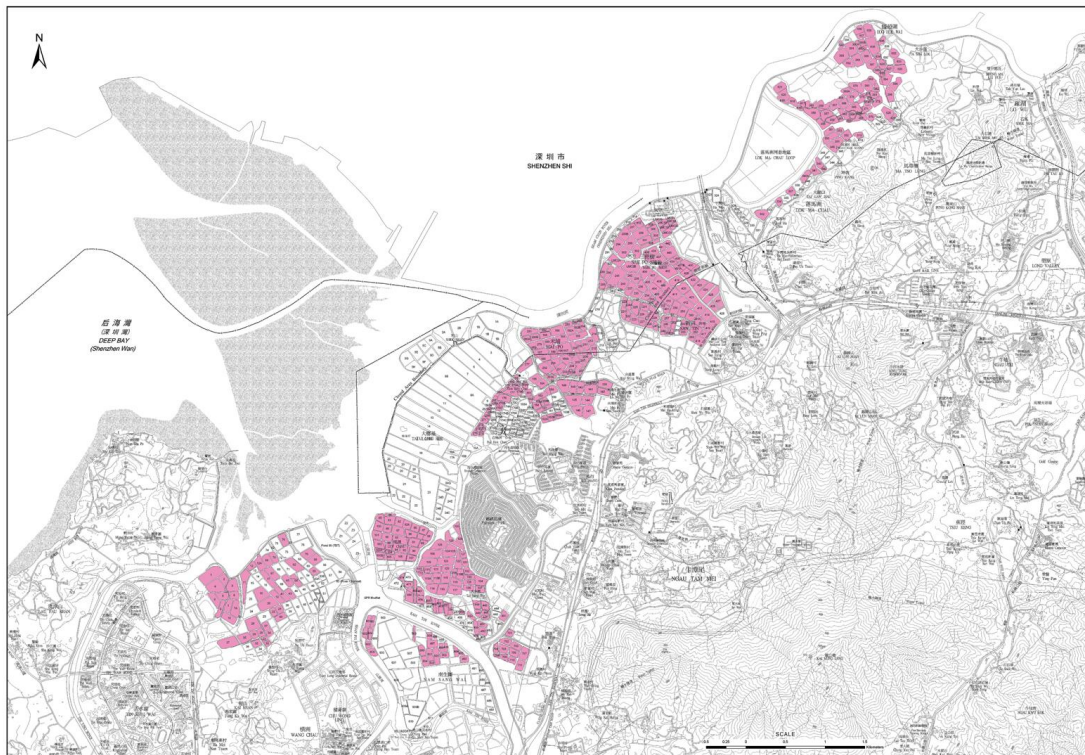
Map 3. Location of survey area of the Waterbird Monitoring Programme
 (1: Tsim Bei Tsui to Lau Fau Shan; 2: Deep Bay 'A'; 3: Deep Bay 'B'; 4: Deep Bay 'C';
 5: Deep Bay 'D'; 6: Deep Bay 'E'; 7: Hong Kong Wetland Park; 8: Deep Bay 'F' (Tsim
 Bei Tsui fishpond); 9: Lut Chau; 10: Tai Sang Wai; 11: Mai Po Marshes Nature
 Reserve; 12: Tam Kon Chau; 13: Mai Po San Tsuen; 14: Shenzhen River 'A'; 15: San
 Tin; 16: Shenzhen River 'B'; 17: Sham Po Shue; 18: Nam Sang Wai; 19: Wing Kei
 Tsuen; 20: Luen Hin Wai; 21: Shan Pui River north.)



Map 4. Distribution of wired ponds (in blue) in fishpond area in the Deep Bay area, surveyed in December 2013



Map 4. Distribution of managed ponds (in red) in fishpond area in the Deep Bay area, surveyed in December 2013



**Mai Po Inner Deep Bay Ramsar Site
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Appendix 1



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Agriculture, Fisheries and Conservation Department

Summary of Waterbird Count, October 2013

SPECIES	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW / LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet	
Little Grebe	5	21						19		3	12				21	1	13	19	10	16	6	59		65	146	1	
Great Crested Grebe																								0	0		
Great Cormorant	79	104	10	76				30		167	20	37			84		1		93	112	695	114	76	885	1508		
Dalmatian Pelican																								0	0		
Grey Heron	41	31	32	10	16	5	2	40	42	151	10	37		4	15		1	30		6	115	85	56	256	588	25	
Purple Heron	1											1												0	2		
Great Egret	6	114	37	204	14	11	1	101	12	80	4	5	3	4	14	6	4	8	5	19	170	87	236	493	822	37	
Intermediate Egret				4			1					1		1	5						3	5	5	13	15	1	
Little Egret	9	71	58	143	12		2	143	9	70	12	4	6	14	84	11	30	26	19	10	50	225	163	438	783	38	
Swinhoe's Egret																								0	0		
Pacific Reef Egret																								0	0		
Cattle Egret		6													17		17		7			34		34	47		
Chinese Pond Heron	25	28	27	3			4	9	3	19	11	10		4	30	8	6	22	14	27	6	74	8	88	256	3	
Striated Heron																								0	0		
B-c Night Heron		5								2							1	1				2		2	9		
Yellow Bittern	1																	1				1		1	2		
Cinnamon Bittern																								0	0		
Great Bittern																								0	0		
Black Stork																								0	0		
Black-headed Ibis																								0	0		
Eurasian Spoonbill			1																					0	1		
Black-faced Spoonbill			49		8							1									1		8	9	59		
Common Shelduck																								0	0		
Eurasian Wigeon			410	16														3				3	16	19	429		
Falcated Duck																								0	0		
Gadwall																								0	0		
Baikal Teal																								0	0		
Common Teal										1		22												0	23		
Mallard																								0	0		
Spot-billed Duck																								0	0		
Chinese Spotbill																								0	0		
Burmese Spotbill																								0	0		
Northern Pintail			21																					0	21		
Garganey			2						30			6										30		30	38		
Northern Shoveler			720									27										13		13	760		
Common Pochard																								0	0		
Baer's Pochard																								0	0		
Tufted Duck			260																					0	260		
Greater Scaup																								0	0		
Red-breasted Merganser																								0	0		
Duck sp.																								0	0		
Slaty-breasted Rail																								0	0		
Water Rail																								0	0		
White-breasted Waterhen	8	8	1	2				3		3	4	2		1			2	2	4	4	8	8	2	18	52		
Watercock																								0	0		
Common Moorhen	1	5	30	1				14		2		2			6				1	2		4	14	1	19	68	7
Eurasian Coot																								0	0		

Pheasant-tailed Jacana																					0	0				
Greater Painted Snipe																					0	0				
Black-winged Stilt	6	27	76			7	51	106		6			1		1	26	7	2	72	86		158	388			
Pied Avocet			15																			0	15			
Oriental Pratincole													1									0	1			
Northern Lapwing																						0	0			
Grey-headed Lapwing			4																			0	4			
Pacific Golden Plover			203																			0	203			
Grey Plover				1									3								1	1	4			
Common Ringed Plover																						0	0			
Little Ringed Plover	3	14	2			8						1	6			13	6	2		19		19	55			
Kentish Plover																						0	0			
Lesser Sand Plover																						0	0			
Greater Sand Plover																						0	0			
Black-tailed Godwit				1															430		1	431	431			
Bar-tailed Godwit																						0	0			
Whimbrel			2									44										0	46			
Eurasian Curlew			4	33																	33	33	37			
Far Eastern Curlew																						0	0			
Spotted Redshank								7		1									1			1	9			
Common Redshank			68																			0	68			
Marsh Sandpiper								3		23		3				3			671			671	703			
Common Greenshank		2	56			123	101			35	45		1			1	1		81	124		205	446			
Nordmann's Greenshank																			1			1	1			
Green Sandpiper	3	7				1				4		1	1		1					3	2	1	3	21		
Wood Sandpiper	20	26	94				2			4					4	6	2				10	10	158			
Terek Sandpiper																						0	0			
Common Sandpiper	3	20	16			1	8			7	1			1	9	2	1		8	14	10	20	1	21	101	1
Grey-tailed Tattler																						0	0			
Ruddy Turnstone																						0	0			
Red-necked Phalarope																						0	0			
Pintail Snipe																						0	0			
Swinhoe's Snipe																						0	0			
Pintail/Swinhoe's Snipe																						0	0			
Common Snipe		2																				0	2			
Snipe sp.																1	2	1			1	1	4			
Long-billed Dowitcher																						0	0			
Asian Dowitcher																						0	0			
Red Knot																						0	0			
Great Knot																						0	0			
Sanderling																						0	0			
Red-necked Stint																						0	0			
Little Stint																						0	0			
Temminck's Stint																1					1	1	1			
Long-toed Stint																						0	0			
Pectoral Sandpiper																						0	0			
Sharp-tailed Sandpiper																						0	0			
Dunlin																						0	0			
Curlew Sandpiper																						0	0			
Spoon-billed Sandpiper																						0	0			
Broad-billed Sandpiper																						0	0			
Ruff																						0	0			
Small wader spp.																						0	0			

Wader sp.																								0	0			
Black-tailed Gull																								0	0			
Heuglin's Gull																								0	0			
Yellow-legged Gull																								0	0			
Slaty-backed Gull																								0	0			
Pallas's Gull																								0	0			
Large Gull spp.																								0	0			
Brown-headed Gull																								0	0			
Black-headed Gull																								0	0			
Saunders's Gull																								0	0			
Whiskered Tern																								0	0	10		
White-winged Tern																								0	0			
Gull-billed Tern																								0	0			
Caspian Tern																								0	0			
Total	211	491	2198	494	50	17	10	382	271	724	74	228	98	31	301	28	82	172	186	212	2327	1004	608	3939	8587	123		
	Deep Bay Area	%	Ramsar Site	%	SI	%																						
Cormorants	1508	18%	885	22%	0	0%																						
Ardeids etc	2584	30%	1334	34%	104	85%																						
Ducks, grebes, pelicans	1677	20%	127	3%	1	1%																						
Rails, Coot etc	120	1%	37	1%	7	6%																						
Shorebirds	2698	31%	1556	40%	1	1%																						
Gulls and terns	0	0%	0	0%	10	8%																						
TOTAL	8587	100%	3939	100%	123	100%																						
Date of count: 20 Oct 2013																												
n/c = site not counted																												
# indicates count consists of or includes a count made up to one week either side of the count date																												
% = count made at evening roost																												
Wetland-dependent species																												
Species	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW / LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet		
Osprey		1	1	4																	3			3	9	1		
Black Kite		2						14							1	2			1	2	3	10		13	25			
White-bellied Sea Eagle																								0	0			
Eastern Marsh Harrier																		2				2		2	2			
Common Buzzard											1											1		1	1			
Greater Spotted Eagle		1																						0	1			
Imperial Eagle																								0	0			
Peregrine Falcon																								0	0			
Pied Kingfisher		5								1		1			1			3			6	4		10	17			
Common Kingfisher	5	13	1							1	5	1			8	1	2	4	3	2	3	14		17	49	1		
White-throated Kingfisher	1	2	2	1				4		1		1			1		1		1		3	5	1	9	18	1		
Black-capped Kingfisher			1																					0	1	3		
Red-billed Starling																								0	0			
Collared Crow	1	3									1				2	3	1	7	2	1	9	14		23	30	1		

Summary of Waterbird Count, November 2013

SPECIES	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW/LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet	
Little Grebe	14	13	1					10		3	22	2			38		21	7	7	9	13	69		82	160	9	
Great Crested Grebe			99				3						1										3	3	103	17	
Great Cormorant	624	193	104	2267				183	134	147	30	85			103				124	8	35	2335	321	2386	5042	6372	
Dalmatian Pelican																						2			0	0	
Grey Heron	83	28	45	1	6	7	28	18	100	13	11	26		8	15		3	8	1	5	82	47	140	269	488	18	
Purple Heron																						4			4	4	
Great Egret	15	40	59	54	24	12	9	43	38	3	8	3		3	4	1	49	12	8	9	25	114	136	275	419	62	
Intermediate Egret	1			1					1			1										3		2	5	7	
Little Egret	9	41	68	84	19	8	3	13	34	2	16	4	5	14	89	17	8	19	34	16	60	144	148	352	563	9	
Swinhoe's Egret																										0	
Pacific Reef Egret																										0	
Cattle Egret	0	4																	9			9		9	13		
Chinese Pond Heron	35	29	17	7				3	29	8	28	2		2	17	3	3	30	5		5	78	36	119	223	2	
Striated Heron	0																									0	
B-c Night Heron	1	32	3												1					6	2	7		7	45	4	
Yellow Bittern	0																1					1		1	1		
Cinnamon Bittern																										0	
Great Bittern																										0	
Black Stork																										0	
Black-headed Ibis																										0	
Eurasian Spoonbill				1																				1	1	1	
Black-faced Spoonbill	1		49	7	1		56	4	31	1	1	78									76	5	95	176	305		
Common Shelduck																										0	
Eurasian Wigeon	8	9	194	1390		2	85	6					5						1	8	7	7	1477	1491	1715	3	
Falcated Duck																										0	
Gadwall																						1		1	1		
Baikal Teal																										0	
Common Teal	125	16		14			60		59	4		9								5	146		133	279	438		
Mallard																										0	
Spot-billed Duck																										0	
Chinese Spotbill																						4		4	4		
Burmese Spotbill																										0	
Northern Pintail	1		133	305		92							65						1		81	1	397	479	678		
Garganey	1		3						1												6		1	7	11		
Northern Shoveler	1		803	675	600	15	37		97	37		24		1					17		851	17	1424	2292	3158	5	
Common Pochard																										0	
Baer's Pochard																										0	
Tufted Duck		8	1300*	94		1500	1150																2744	2744	2752		
Greater Scaup																										0	
Red-breasted Merganser																										0	
Duck sp.			470																	60		60		60	530		
Slaty-breasted Rail																										0	
Water Rail																										0	
White-breasted Waterhen	0	2	1					2	8	3	3	3		2	4		3	3			1	10	8	19	35	18	
Watercock																										0	
Common Moorhen	14	3	11					4	4	2		1			14					3	1	13	21	4	38	70	9
Eurasian Coot		1	7																							8	

Pheasant-tailed Jacana	1																				1			
Greater Painted Snipe																					0			
Black-winged Stilt			164				133	17		11				3	11	15			14	133	147	354		
Pied Avocet		3	1021	186	19		142	18				1			1			2	1	347	350	1393		
Oriental Pratincole																						0		
Northern Lapwing											5											5	1	
Grey-headed Lapwing			7																				7	
Pacific Golden Plover#				430																	430	430	430	
Grey Plover			1	243																	243	243	244	
Common Ringed Plover																							0	
Little Ringed Plover	0	16						4	5		32	10				3					11	11	70	
Kentish Plover		2		1423							26										1423	1423	1451	7
Lesser Sand Plover				6																	6	6	6	
Greater Sand Plover				19																	19	19	19	
Black-tailed Godwit			791																				791	
Bar-tailed Godwit				6																	6	6	6	
Whimbrel			1	1																	1	1	2	
Eurasian Curlew				118				1													119	119	119	
Far Eastern Curlew																							0	
Spotted Redshank		3		9	1																1	1	13	
Common Redshank			168	1			40			5								1			41	42	215	
Marsh Sandpiper			104	21	1		6	28						1	1				2		27	29	162	
Common Greenshank			98	674	9		30	19		32	19	22		1		6	3	1	1		704	706	914	
Nordmann's Greenshank				1																	1	1	1	
Green Sandpiper	0	5							1			2	2	2	1					6		6	13	
Wood Sandpiper	0	8	48					3	2	2				4	3	8				17		17	78	
Terek Sandpiper																							0	
Common Sandpiper	1	6	8	1			7	2	1		1	2	7	5	1	4	7	5		13	8	21	58	2
Grey-tailed Tattler																							0	
Ruddy Turnstone																							0	
Red-necked Phalarope																							0	
Eurasian Woodcock		1																					1	
Pintail Snipe																							0	
Swinhoe's Snipe																							0	
Pintail/Swinhoe's Snipe																							0	
Common Snipe		5													1					1		1	6	
Long-billed Dowitcher																							0	
Asian Dowitcher																							0	
Red Knot				18																	18	18	18	
Great Knot				14																	14	14	14	
Sanderling																							0	
Red-necked Stint				1																	1	1	1	
Little Stint																							0	
Temminck's Stint		4		1																	1	1	5	
Long-toed Stint																							0	
Pectoral Sandpiper																							0	
Sharp-tailed Sandpiper																							0	
Dunlin				2860																	2860	2860	2860	
Curlew Sandpiper																							0	
Spoon-billed Sandpiper																							0	
Broad-billed Sandpiper																							0	
Ruff																							0	
Small wader spp.																							0	

Summary of Waterbird Count, December 2013

SPECIES	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW / LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet		
Little Grebe	14	12						16		3	11	2			24	3	18	19	18	32	30	64		94	202	7		
Great Crested Grebe	1				2	50	11			4													63	63	68			
Great Cormorant%	146*	168*	17*	480*				181*	42*	3990	23*	104*			65*				131*	61*	96*	3842	198*	522*	3842	7832	13	
Dalmatian Pelican																								0	0	0	0	
Grey Heron	19	57	46	11	3	1	24	10	36	48	7	26		32	13	2	6	32	7	10	137	55	75	267	527	27		
Purple Heron												1									1			1	2	2		
Great Egret	100	254	29	51	18	3	8	23	15	6	3	1	7	17	61	2	2	93	24	135	19	149	94	262	871	68		
Intermediate Egret		11														1					5	1		6	17	17		
Little Egret	30	125	68	69	12		1	19	18	56	12	5	4	24	72	2	8	76	6	37	70	151	100	321	714	12		
Swinhoe's Egret																								0	0	0	0	
Pacific Reef Egret																								0	0	0	0	
Cattle Egret								4									23	12				35		35	39	39		
Chinese Pond Heron	20	32	8	4				6	11	8	10	1		2	17	2	4	32	12	32	11	61	14	86	212			
Striated Heron																								0	0	0	0	
B-c Night Heron	4	15								2					1					2	5			5	29	2		
Yellow Bittern																								0	0	0	1	
Cinnamon Bittern																								0	0	0	0	
Great Bittern																						1		1	1	1		
Black Stork																								0	0	0	0	
Black-headed Ibis																								0	0	0	0	
Eurasian Spoonbill																								0	0	0	0	
Black-faced Spoonbill			41		1		42	8	5	8		34								12	102		48	150	253			
Common Shelduck																								0	0	0	0	
Eurasian Wigeon	10	25	9	1120	175	115	3		3			16								15	278		1416	1694	1769			
Falcated Duck																								0	0	0	0	
Gadwall																						9		9	9	9		
Baikal Teal																								0	0	0	0	
Common Teal	52			11	2		28		39	1		23						60	7		85	60	80	225	308			
Mallard																								0	0	0	0	
Spot-billed Duck																								0	0	0	0	
Chinese Spotbill																						11		11	11	11		
Burmese Spotbill																								0	0	0	0	
Northern Pintail			31	190	88	68	36											4			167		382	549	584			
Garganey			6						1												4		1	5	11	11		
Northern Shoveler	7		215	245	3	18	4		85	90		157					1	16			1934		355	2289	2775			
Common Pochard																						17		17	17	17		
Baer's Pochard																								0	0	0	0	
Tufted Duck			2		102		1	5										18		1	744	18	103	865	873	1		
Greater Scaup																								0	0	0	0	
Red-breasted Merganser																								0	0	0	0	
Duck sp.			420																					0	420	420		
Slaty-breasted Rail				1																				1	1	1	1	
Water Rail																						1		1	1	1	1	
White-breasted Waterhen		3	2						2	1							3	4	3	3	3	3	5	2	10	24	1	
Watercock																								0	0	0	0	
Common Moorhen	7	7	59					8	8	2	2	5			4			2	5	6	43	8	8	59	158	27		
Eurasian Coot	1	1																				5		5	7	7		
Pheasant-tailed Jacana																								0	0	0	0	

Greater Painted Snipe																			0	0					
Black-winged Stilt		10	118					39	43					13	10	4	4			39	39	241			
Pied Avocet	2	14	3529	1580	24		6	76	161		8		2	1		5		79	3	1686	1768	5487	9		
Oriental Pratincole																					0	0			
Northern Lapwing																					0	0			
Grey-headed Lapwing																					0	0			
Pacific Golden Plover																					0	0			
Grey Plover				214																	214	214	214	1	
Common Ringed Plover																					0	0			
Little Ringed Plover		2							2				15	1	1		8	2		10		10	31		
Kentish Plover																					0	0			
Lesser Sand Plover				4																	4	4	4		
Greater Sand Plover																					0	0			
Black-tailed Godwit			400																		0	400			
Bar-tailed Godwit																					0	0			
Whimbrel							1														1	1	1		
Eurasian Curlew			28	283			14		3			1									297	297	329		
Far Eastern Curlew																					0	0			
Spotted Redshank								4													4	4	4		
Common Redshank								1													1	1	1		
Marsh Sandpiper			2					15	21												15	15	38		
Common Greenshank			7	362				17	15		15		2	2		1		1	1	6	2	379	387	429	
Nordmann's Greenshank																					0	0			
Green Sandpiper		7										2		1	1	5	1	5		7		7	22		
Wood Sandpiper		13							2		6		5		3	9	11		17		17	49			
Terek Sandpiper																					0	0			
Common Sandpiper	3	10	5		3		1	2	3	1	4		1	4	4	4	11	10	14		23	5	28	80	1
Grey-tailed Tattler																					0	0			
Ruddy Turnstone																					0	0			
Red-necked Phalarope																					0	0			
Pintail Snipe																					0	0			
Swinhoe's Snipe																					0	0			
Pintail/Swinhoe's Snipe				1																	1	1	1		
Common Snipe		1	1								2										0	4			
Long-billed Dowitcher																					0	0			
Asian Dowitcher																					0	0			
Red Knot																					0	0			
Great Knot																					0	0			
Sanderling																					0	0			
Red-necked Stint																					0	0			
Little Stint																					0	0			
Temminck's Stint																					0	0			
Long-toed Stint																					0	0			
Pectoral Sandpiper																					0	0			
Sharp-tailed Sandpiper																					0	0			
Dunlin																					0	0			
Curlew Sandpiper																					0	0			
Spoon-billed Sandpiper																					0	0			
Broad-billed Sandpiper																					0	0			
Ruff																					0	0			
Small wader spp.				3300																	3300	3300	3300		
Wader sp.			200		30		44														74	74	274		
Black-tailed Gull																					0	0			
Heuglin's Gull																					0	0			

Yellow-legged Gull																					0	0				
Slaty-backed Gull																					0	0				
Pallas's Gull																					0	0				
Large Gull spp.			38																		38	38				
Brown-headed Gull																					0	0				
Black-headed Gull			353	1520	10	3		1							14						14	1534				
Saunders's Gull																					0	0				
Whiskered Tern																					0	0				
White-winged Tern																					0	0				
Gull-billed Tern																					0	0				
Caspian Tern																					0	0				
Total	270	599	5579	9004	460	268	226	100	378	4469	46	306	11	96	206	31	89	411	116	309	7609	683				
	Deep Bay Area	%	Ramsar Site	%	SI	%																				
Cormorants	7832	26%	3842	21%	13	8%																				
Ardeids etc	2665	9%	1134	6%	110	65%																				
Ducks, grebes, pelicans	7047	23%	5821	31%	8	5%																				
Rails, Coot etc	191	1%	76	0%	28	16%																				
Shorebirds	10909	36%	6167	33%	11	6%																				
Gulls and terns	1939	6%	1586	9%	0	0%																				
TOTAL	30583	100%	18626	100%	170	100%																				
Date of count: 08 Dec 2013																										
n/c = site not counted																										
# indicates count consists of or includes a count made up to one week either side of the count date																										
% = count made at evening roost																										
* = count not included in the total																										
Wetland-dependent species																										
Species	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW / LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet
Osprey			2	3		1	1								3	7	1	2	1		1	14		1	8	1
Black Kite		3	4					2		7	3										5			19	38	
White-bellied Sea Eagle																								0	0	
Eastern Marsh Harrier				1																				0	1	
Common Buzzard		1																			1			1	2	
Greater Spotted Eagle		1																		1	2			2	4	
Imperial Eagle	2								1															0	3	
Peregrine Falcon		1																						0	1	
Pied Kingfisher		3	3				1								3		1	2	1	1	1	6	1	8	16	
Common Kingfisher	2	8		3				1	1	2	1	2			2	3	3	6	5	7	3	14	4	21	49	4
White-throated Kingfisher		1	2	1				2				1			2	1		1		1	1	3	1	5	13	1
Black-capped Kingfisher			1	1																			1	1	2	6
Red-billed Starling		103							230	11					232	870	154	86	209		80	367	230	677	1975	30
Collared Crow		3					1	1	1						3	3	4	2		1	2	12	2	16	21	

Summary of Waterbird Count, January 2014

SPECIES	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW / LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet	
Little Grebe	12	7	3				4	10		2	6	2		7	13		6	20	11	46	34	41	4	79	183	6	
Great Crested Grebe			20		4	5	9						7	10									18	18	55	7	
Great Cormorant%	383*	227*	153*					359*	0*	3140	44*	155*			46*	0*	0*	126*	63*	146*	5002			5002	8142	46	
Dalmatian Pelican																								0	0		
Grey Heron	115	51	29	12	12	14	31	28	3	43	1	38		12	19	2	3	33	7	28	126	75	71	272	607	30	
Purple Heron																					1			1	1		
Great Egret	19	140	22	173	26	2	2	41	1	16		5	1	7	11	1	92	31	19	22	24	170	203	397	655	61	
Intermediate Egret	7			15								2						1		1	3	1	15	19	29		
Little Egret	7	136	40	14	5		2	150		12	2	2	4	25	41	2	35	33	15	19	38	254	22	314	582	5	
Swinhoe's Egret																								0	0		
Pacific Reef Heron																								0	0		
Eastern Cattle Egret	3							1							1		16	10		5		28		28	36		
Chinese Pond Heron	11	14	7	4	3		1	1		6	1			6	24			28	17	56	2	42	9	53	181		
Striated Heron																								0	0		
B-c Night Heron	3									2														0	5		
Yellow Bittern												1												0	1		
Cinnamon Bittern	1																							0	1		
Eurasian Bittern	1																							0	1		
Black Stork																								0	0		
Black-headed Ibis																								0	0		
Eurasian Spoonbill																								0	0		
Black-faced Spoonbill	56	3	20	5		17		52		11		28		3	1			7	1	2	42	60	22	124	248		
Common Shelduck																								0	0		
Eurasian Wigeon	256		76	457	8	72	10			2		9	4					3			356	3	547	906	1253		
Falcated Duck																						2		2	2		
Gadwall																								0	0		
Baikal Teal																								0	0		
Eurasian Teal	30	3		5		2	4			24		15						16	26		127	16	11	154	252		
Mallard																								0	0		
Spot-billed Duck																								0	0		
Chinese Spot-billed Duck																						7		7	7		
Indian Spot-billed Duck																								0	0		
Northern Pintail			75	1050	200		28					29									28		1278	1306	1410		
Garganey						2						23									3		2	5	28		
Northern Shoveler	22		185	464	151	1		19	31	232	2	20					4	19	6		699	42	616	1357	1855		
Common Pochard			12							3											1			1	16		
Baer's Pochard																								0	0		
Ferringinous Duck																				1				0	1		
Tufted Duck	1		215		18	91	112	30	4	98		29									22	750		221	971	1370	1
Greater Scaup																								0	0		
Red-breasted Merganser																								0	0		
Duck sp.																								0	0		
Slaty-breasted Rail																								0	0		
Eastern Water Rail																								0	0		
White-breasted Waterhen	3							1		1		2			1			2	1	1	2	4		6	14	2	
Watercock																								0	0		
Common Moorhen	4	2	43					7	1	2		5			1			4	2	10	44	8		52	125	24	
Eurasian Coot	1							1														17		17	19		

Pheasant-tailed Jacana																					0	0	
Greater Painted-snipe																					0	0	
Black-winged Stilt	1		22					103					4		4	21	4				25	155	
Pied Avocet	20	4	7156	4217	5	15	3	282	26				1		4	65		4241	4306	11794			
Oriental Pratincole																					0	0	
Northern Lapwing																					0	0	
Grey-headed Lapwing								3													0	3	
Pacific Golden Plover				448														448	448	448			
Grey Plover				833														833	833	833		1	
Common Ringed Plover																					0	0	
Little Ringed Plover	1	24		25			5				4	2	2	4		1		11	25	36	68		
Kentish Plover				100							6								100	100	106		
Lesser Sand Plover																					0	0	
Greater Sand Plover																					0	0	
Black-tailed Godwit			600																		0	600	
Bar-tailed Godwit				6															6	6	6		
Whimbrel								1													0	1	
Eurasian Curlew#			200*	1297				1*											1297	1297	1297		
Far Eastern Curlew																					0	0	
Spotted Redshank				112				5											112	112	117		
Common Redshank			354						48								4				4	406	
Marsh Sandpiper			2	2													2			2	4	6	
Common Greenshank	1		30	655		1		27	112	3						1	6		656	662	836		
Nordmann's Greenshank																					0	0	
Green Sandpiper	2	2				1					1	1		2	2	5				4	4	16	
Wood Sandpiper	2	6						8					1	6	4	3				7	7	30	
Terek Sandpiper																					0	0	
Common Sandpiper	1	6	10					2	4	5	1	3	6	1	1	3	6	4		13	13	53	
Grey-tailed Tattler																					0	0	
Ruddy Turnstone																					0	0	
Red-necked Phalarope																					0	0	
Pintail Snipe																					0	0	
Swinhoe's Snipe																					0	0	
Pintail/Swinhoe's Snipe																					0	0	
Common Snipe		1														1					0	2	
Long-billed Dowitcher																					0	0	
Asian Dowitcher																					0	0	
Red Knot				5																5	5	5	
Great Knot				12																12	12	12	
Sanderling																					0	0	
Red-necked Stint																					0	0	
Little Stint																					0	0	
Temminck's Stint#				10												4				10	10	14	
Long-toed Stint																					0	0	
Pectoral Sandpiper																					0	0	
Sharp-tailed Sandpiper																					0	0	
Dunlin				500																500	500	500	
Curlew Sandpiper																					0	0	
Spoon-billed Sandpiper																					0	0	
Broad-billed Sandpiper																					0	0	
Ruff																					0	0	
Small wader spp.																					0	0	1
Wader sp.			200																		0	200	
Black-tailed Gull																					0	0	

Heuglin's Gull	1																							0	1	
Caspian Gull																								0	0	
Slaty-backed Gull																								0	0	
Pallas's Gull																								0	0	
Large Gull spp.				188																			188	188	188	
Brown-headed Gull																								0	0	
Black-headed Gull			3200	4205		275				23					1121	176						1297	4480	5777	9000	
Saunders's Gull				27																			27	27	27	
Whiskered Tern																								0	0	
White-winged Tern																								0	0	
Gull-billed Tern																								0	0	
Caspian Tern																								0	0	
Total	581	399	12321	14841	432	497	206	347	40	4048	16	401	20	84	121	1127	340	223	118	235	7406	2080	15981	25467	43803	184
	Deep Bay Area	%	Ramsar Site	%	SI	%																				
Cormorants	8142	19%	5002	20%	46	25%																				
Ardeids etc	2347	5%	1208	5%	96	52%																				
Ducks, grebes, pelicans	6432	15%	4806	19%	14	8%																				
Rails, Coot etc	158	0%	75	0%	26	14%																				
Shorebirds	17508	40%	8384	33%	2	1%																				
Gulls and terns	9216	21%	5992	24%	0	0%																				
TOTAL	43803	100%	25467	100%	184	100%																				
Date of count: 19 Jan 2014																										
n/c = site not counted																										
# indicates count consists of or includes a count made up to one week either side of the count date																										
% = count made at evening roost																										
Wetland-dependent species																										
Species	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW/LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet
Western Osprey			3	3																			3	3	6	1
Black Kite	0	1	4		27					1	1	1			1	8	3	1	3	5	5	10	27	42	61	1
White-bellied Sea Eagle																									0	0
Eastern Marsh Harrier			1	1																			1	1	2	
Eastern Buzzard			1						1												2			2	4	1
Greater Spotted Eagle	0	0					1										1			1		1	1	2	3	
Eastern Imperial Eagle	0	0													1									0	1	
Peregrine Falcon																								0	0	
Pied Kingfisher	2	3	1						1	1					1			1				2		2	10	1
Common Kingfisher	2	2						1		2	2				8	1	1	5	1	5	1	16		17	31	3
White-throated Kingfisher	0	0	2	3				1		1					1	1		1	1	1	2	4	3	9	14	1
Black-capped Kingfisher	0	0		2						1													2	2	3	2
Red-billed Starling	0	169								37	196				5		22	33	61	56	21	177		198	600	20
Collared Crow	11	5	1			1		1									2		1		3	2	1	6	25	

Pheasant-tailed Jacana																					0	0		
Greater Painted-snipe	1																				0	1		
Black-winged Stilt	31		45						1						1						0	78		
Pied Avocet	6	10	317	4075					35	2		1				16	133				4075	4208	4595	
Oriental Pratincole																					0	0		
Northern Lapwing																					0	0		
Grey-headed Lapwing		6	8																		0	14		
Pacific Golden Plover				1																	1	1	1	
Grey Plover				506																	506	506	506	
Common Ringed Plover																					0	0		
Little Ringed Plover		20							1		11	1			5	3				5	5	41		
Kentish Plover				549																	549	549	549	8
Lesser Sand Plover				18																	18	18	18	
Greater Sand Plover				41																	41	41	41	
Black-tailed Godwit																					0	0		
Bar-tailed Godwit				2																	2	2	2	
Whimbrel				1																	1	1	1	
Eurasian Curlew			5	859							1										859	859	865	
Far Eastern Curlew																					0	0		
Spotted Redshank			30						26												0	56		
Common Redshank			91	2																	2	2	93	
Marsh Sandpiper			157	1					82												1	1	240	
Common Greenshank		1	81	534					128	42						1	2				534	536	789	
Nordmann's Greenshank#				1																	1	1	1	
Green Sandpiper		6							3			4			1	3				4	4	17		
Wood Sandpiper	6	5	2				9		6				1		3	5	2			4	4	39		
Terek Sandpiper				1																	0	1		
Common Sandpiper		5	3				1	2	5	3		5	4	1	5	5	4	4	1	17	18	48	1	
Grey-tailed Tattler																					0	0		
Ruddy Turnstone																					0	0		
Red-necked Phalarope																					0	0		
Pintail Snipe																					0	0		
Swinhoe's Snipe																					0	0		
Pintail/Swinhoe's Snipe																					0	0		
Common Snipe		1														1					0	2		
Long-billed Dowitcher#				1																	1	1	1	
Asian Dowitcher																					0	0		
Red Knot				3																	3	3	3	
Great Knot				9																	9	9	9	
Sanderling																					0	0		
Red-necked Stint																					0	0		
Little Stint																					0	0		
Temminck's Stint																					0	0		
Long-toed Stint																					0	0		
Pectoral Sandpiper																					0	0		
Sharp-tailed Sandpiper																					0	0		
Dunlin				4192																	4192	4192	4192	
Curlew Sandpiper																					0	0		
Spoon-billed Sandpiper																					0	0		
Broad-billed Sandpiper				8																	8	8	8	
Ruff																					0	0		
Small wader spp.																					0	0	10	
Wader sp.																					0	0		
Black-tailed Gull																					0	0		

Heuglin's Gull				96																	1		96	97	97			
Caspian Gull																								0	0			
Slaty-backed Gull																								0	0			
Pallas's Gull				1																			1	1	1			
Large Gull spp.																								0	0			
Brown-headed Gull																								0	0			
Black-headed Gull			10	1876				200	320	1407					2	453	435	2	3			1090	2396	3486	4708			
Saunders's Gull				37																			37	37	37			
Whiskered Tern																								0	0			
White-winged Tern																								0	0			
Gull-billed Tern																								0	0			
Caspian Tern																								0	0			
Total	252	200	2228	14842	329	14	136	405	363	4346	182	545	50	103	142	486	581	426	160	343	8156	2123	15882	26161	34289	231		
	Deep Bay Area	%	Ramsar Site	%	SI	%																						
Cormorants	8761	26%	6085	23%	44	19%																						
Ardeids etc	2728	8%	1408	5%	138	60%																						
Ducks, grebes, pelicans	5566	16%	4011	15%	10	4%																						
Rails, Coot etc	180	1%	67	0%	20	9%																						
Shorebirds	12211	36%	10969	42%	19	8%																						
Gulls and terns	4843	14%	3621	14%	0	0%																						
TOTAL	34289	100%	26161	100%	231	100%																						
Date of count: 16 Feb 2014																												
n/c = site not counted																												
# indicates count consists of or includes a count made up to one week either side of the count date																												
% = count made at evening roost																												
* = count not included in the total																												
Wetland-dependent species																												
Species	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW / LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet		
Western Osprey				4			1												1		3		5	8	9	1		
Black Kite	1	1	2					5		4		1			3			3	2	11	1	11	5	17	34			
White-bellied Sea Eagle																								0	0			
Eastern Marsh Harrier																								0	0			
Eastern Buzzard																								0	0			
Greater Spotted Eagle																			1	1				0	2			
Eastern Imperial Eagle		1																			2		2	3				
Peregrine Falcon		1																			1		0	2				
Pied Kingfisher		3	2					1		1	2							1	4	3	1	2	3	18	2			
Common Kingfisher		2						1			1							4	3	2	1	5	6	14	2			
White-throated Kingfisher	1			1				1										2				2	1	3	5	1		
Black-capped Kingfisher				1																			1	1	2			
Red-billed Starling	30	13									20				3		1508	5	10	479		1516	1516	2068	40			
Collared Crow		4	1					1		2					1	5				6	3	6	9	23				

Summary of Waterbird Count, March 2014

SPECIES	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW/LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet	
Little Grebe	21	20	10					5		6	6	1		2	19		2	21	13	51	35	43		78	212	3	
Great Crested Grebe			25	15	1	17							1	35										0	94		
Great Cormorant	133	208	41					243	47	69	44	68			22	1	3	55	22	73	6467	256	23	6746	7496	118	
Dalmatian Pelican																								0	0		
Grey Heron	6	25	55	28	15	2	1	3	28	28	6	32		4	1	1	2			1	5	183	26	58	267	426	12
Purple Heron																								0	0		
Great Egret	23	109	55	99	3	7	20	11	27	25	8	2	2	2	19	2	9	9	26	18	10	42	152	204	486	119	
Intermediate Egret		2	1						11			1			2							10	2	11	23	27	
Little Egret	8	139	243	42	17	2	7	21	2	25	13	5	2	9	59	5	19	166	10	21	49	256	69	374	864	5	
Swinhoe's Egret																								0	0		
Pacific Reef Heron																								0	0		
Eastern Cattle Egret		77													1			14	1	1		15		15	94	1	
Chinese Pond Heron	6	26	23	5			1		4	6	5			2	11			18	10	25	8	33	10	51	150	1	
Striated Heron																		1				1		1	1		
B-c Night Heron		42						2													1	2		3	45		
Yellow Bittern															1							1		1	1		
Cinnamon Bittern												1												0	1		
Eurasian Bittern																								0	0		
Black Stork																								0	0		
Black-headed Ibis																								0	0		
Eurasian Spoonbill	1																							0	1		
Black-faced Spoonbill	3		49		1		11			4		57		6				3	1	18	44	3	12	59	197		
Common Shelduck																								0	0		
Eurasian Wigeon	3		260	520		10	21					12		56							530		551	1081	1412		
Falcatid Duck																								0	0		
Gadwall																						11		11	11		
Baikal Teal																								0	0		
Eurasian Teal	5	16		8			1		4	16		16						6	10	1	255	6	13	274	338		
Mallard																								0	0		
Spot-billed Duck																								0	0		
Chinese Spot-billed Duck																						6		6	6		
Indian Spot-billed Duck																								0	0		
Northern Pintail			307	730	9	2	275					4									12		1016	1028	1339		
Garganey			5	2			1					18									6		3	9	32		
Northern Shoveler	11		453	223	15	2	1	8	24	166		106		4	2		11	10			369	29	265	663	1405		
Common Pochard																								0	0		
Baer's Pochard																								0	0		
Tufted Duck			2370	19			226			6		2			17						186		245	431	2826		
Greater Scaup																								0	0		
Red-breasted Merganser																								0	0		
Duck sp.			600		40																		40	40	640		
Slaty-breasted Rail																								0	0		
Eastern Water Rail																								0	0		
White-breasted Waterhen		15	1					1		8				4	1			3	4	4	4	4		8	45	1	
Watercock																								0	0		
Common Moorhen	5	7	17					6		10	1	7			16			1	2	8	10	21		31	90	9	
Eurasian Coot																						12		12	12		
Pheasant-tailed Jacana																								0	0		

Greater Painted-snipe																					0	0	
Black-winged Stilt			105					114	2						1						0	222	
Pied Avocet	7		1722	3110	114			10	65	306	14	50*			19		79	29	3289	3397	5446		
Oriental Pratincole																					0	0	
Northern Lapwing																					0	0	
Grey-headed Lapwing			7																		0	7	
Pacific Golden Plover			3	2															2	2	5		
Grey Plover				840															840	840	840		
Common Ringed Plover																					0	0	
Little Ringed Plover		15	4					4			8	21			6	32	2		10		10	92	
Kentish Plover				1150															1150	1150	1150		
Lesser Sand Plover																					0	0	
Greater Sand Plover				23								1							23	23	24		
Black-tailed Godwit			1																		0	1	
Bar-tailed Godwit				2															2	2	2		
Whimbrel																					0	0	
Eurasian Curlew				330						6		15*							330	330	336		
Far Eastern Curlew																					0	0	
Spotted Redshank			20					4		1	120							4		4	145		
Common Redshank			358							77											0	435	
Marsh Sandpiper			490							1	44										0	535	
Common Greenshank			33								132	87					2				2	254	
Nordmann's Greenshank																					0	0	
Green Sandpiper	2	10					156		1			1			5	3		162		162	178		
Wood Sandpiper	3	27							6	2	27		1		4	19	6	1	7		8	96	
Terek Sandpiper				1															1		1	1	
Common Sandpiper	5	15	2				2		3	2		2	5	4	10	8	7	1	15	2	18	66	1
Grey-tailed Tattler																					0	0	
Ruddy Turnstone																					0	0	
Red-necked Phalarope																					0	0	
Pintail Snipe																					0	0	
Swinhoe's Snipe																					0	0	
Pintail/Swinhoe's Snipe																					0	0	
Common Snipe			1								2										0	3	
Long-billed Dowitcher																					0	0	
Asian Dowitcher																					0	0	
Red Knot				3															3		3	3	
Great Knot				4															4		4	4	
Sanderling																					0	0	
Red-necked Stint				5															5		5	5	
Little Stint																					0	0	
Temminck's Stint																					0	0	
Long-toed Stint																					0	0	
Pectoral Sandpiper																					0	0	
Sharp-tailed Sandpiper																					0	0	
Dunlin																					0	0	
Curlew Sandpiper			350	453															453	453	803		
Spoon-billed Sandpiper																					0	0	
Broad-billed Sandpiper				3															3		3	3	
Ruff																					0	0	
Small wader spp.																					0	0	
Wader sp.			30																		0	30	
Black-tailed Gull				6															6		6	6	
Heuglin's Gull								1													0	1	

Caspian Gull									1														0	1			
Slaty-backed Gull																							0	0			
Pallas's Gull																							0	0			
Large Gull spp.			26																		26	26	26				
Brown-headed Gull																							0	0			
Black-headed Gull			171	365	15	11	1		700	728					3	1404	61				1465	942	2407	3459			
Saunders's Gull			17																			17	17	17			
Whiskered Tern																							0	0			
White-winged Tern																							0	0			
Gull-billed Tern																							0	0			
Caspian Tern				8																		8	8	8			
Total	242	753	7812	8039	230	53	568	474	912	1613	88	681	94	152	179	1413	107	351	159	244	8291	2432	9574	20297	32455	270	
	Deep Bay Area	%	Ramsar Site	%	SI	%																					
Cormorants	7496	23.1%	6746	33.2%	118	0.43704																					
Ardeids etc	2293	7.1%	998	4.9%	138	0.51111																					
Ducks, grebes, pelicans	8315	25.6%	3621	17.8%	3	0.01111																					
Rails, Coot etc	147	0.5%	51	0.3%	10	0.03704																					
Shorebirds	10686	32.9%	6417	31.6%	1	0.0037																					
Gulls and terns	3518	10.8%	2464	12.1%	0	0																					
TOTAL	32455	100.0%	20297	100.0%	270	1																					
Date of count: 17 Mar 2014																											
n/c = site not counted			High tide measured at TBT: 2.0m																								
# indicates count consists of or includes a count made up to one week either side of the count date																											
% = count made at evening roost			* = count not included in the total																								
Wetland-dependent species																											
Species	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW/LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet	
Western Osprey			2																		4		4	6	1		
Black Kite	1	3	2		1	2			2		1	1			1			2	1	1	3	4	5	12	21		
White-bellied Sea Eagle																								0	0		
Eastern Marsh Harrier							1	1														1	1	2	2		
Eastern Buzzard			1							1										1		2	2	4	5		
Greater Spotted Eagle																								0	0		
Eastern Imperial Eagle																						1		1	1		
Peregrine Falcon																						1		1	1		
Pied Kingfisher		5								2								5	2	6	2	5	7	22			
Common Kingfisher		7	1					1		5	1				1			2	2	2	4	4	8	26			
White-throated Kingfisher		2	2	1				4		2							1			3	1	3	1	5	17	1	
Black-capped Kingfisher						1	1																2	2	2		
Red-billed Starling	4	14	9							12								29	78	45		29	29	191			
Collared Crow	1	1	2			2	1	2		2					2			4	1	2	13	6	2	21	32	1	

**Mai Po Inner Deep Bay Ramsar Site
Waterbird Monitoring Programme**

**Monthly Waterbird Monitoring
Biannual Report 2 (October 2013 to March 2014)**

Appendix 2



The Hong Kong Bird Watching Society



Agriculture, Fisheries and Conservation Department

Low-tide Count, December 2013

SPECIES	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW / LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet
Little Grebe	0	0	3						0	0	0				0	0	0	0	0	0	0	0	0	0	3	
Great Crested Grebe			20																			0		0	20	
Great Cormorant%	0	0	452	560					0	0	0				0	0	0	0	0	0	0	0	560	560	1012	
Dalmatian Pelican																						0		0	0	
Grey Heron	0	0	53	6	2	8			0	0	0				0	0	0	0	0	0	0	0	16	16	69	
Purple Heron																						0		0	0	
Great Egret	0	0	59	55	10	46			0	0	0				0	0	0	0	0	0	0	0	111	111	170	
Intermediate Egret	0	0	1						0	0	0				0	0	0	0	0	0	0	0	0	0	1	
Little Egret	0	0	55	24	10	30			0	0	0				0	0	0	0	0	0	0	0	64	64	119	
Swinhoe's Egret																						0		0	0	
Pacific Reef Egret																						0		0	0	
Cattle Egret	0	0							0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Chinese Pond Heron	0	0	26			2			0	0	0				0	0	0	0	0	0	0	0	2	2	28	
Striated Heron	0	0							0	0	0				0	0	0	0	0	0	0	0	0	0	0	
B-c Night Heron	0	0							0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Yellow Bittern	0	0							0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Cinnamon Bittern																						0		0	0	
Great Bittern																						0		0	0	
Black Stork																						0		0	0	
Black-headed Ibis																						0		0	0	
Eurasian Spoonbill																						0		0	0	
Black-faced Spoonbill			44	6																		0	6	6	50	
Common Shelduck																						0		0	0	
Eurasian Wigeon	0	0	745			74			0	0	0				0	0	0	0	0	0	0	0	74	74	819	
Falcated Duck																						0		0	0	
Gadwall																						0		0	0	
Baikal Teal																						0		0	0	
Common Teal	0	0				24			0	0	0				0	0	0	0	0	0	0	0	24	24	24	
Mallard																						0		0	0	
Spot-billed Duck																						0		0	0	
Chinese Spotbill																						0		0	0	
Burmese Spotbill																						0		0	0	
Northern Pintail			32			56																0	56	56	88	
Garganey																						0		0	0	
Northern Shoveler			1132			8																0	8	8	1140	
Common Pochard																						0		0	0	
Baer's Pochard																						0		0	0	
Tufted Duck			1580	5																		0	5	5	1585	
Greater Scaup																						0		0	0	
Red-breasted Merganser																						0		0	0	
Duck sp.			4200	380																		0	380	380	4580	
Slaty-breasted Rail																						0		0	0	
Water Rail																						0		0	0	
White-breasted Waterhen	0	0	3						0	0	0				0	0	0	0	0	0	0	0	0	0	3	
Watercock																						0		0	0	
Common Moorhen	0	0	37						0	0	0				0	0	0	0	0	0	0	0	0	0	37	
Eurasian Coot			15																			0		0	15	
Pheasant-tailed Jacana																						0		0	0	

Low-tide Count, January 2014

SPECIES	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW / LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet
Little Grebe	0	0	5					0	0	0	0				0	0	0	0	0	0	0	0	0	0	5	
Great Crested Grebe			5																			0		0	5	
Great Cormorant	0	0	181					0	0	0	0				0	0	0	0	0	0	0	0	0	0	181	
Dalmatian Pelican																						0		0	0	
Grey Heron	0	0	96	12	1	7		0	0	0	0				0	0	0	0	0	0	0	0	20	20	116	
Purple Heron																						0		0	0	
Great Egret	0	0	92	19		2		0	0	0	0				0	0	0	0	0	0	0	0	21	21	113	
Intermediate Egret	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Little Egret	0	0	54	37		3		0	0	0	0				0	0	0	0	0	0	0	0	40	40	94	
Swinhoe's Egret																						0		0	0	
Pacific Reef Heron																						0		0	0	
Eastern Cattle Egret	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Chinese Pond Heron	0	0	26			2		0	0	0	0				0	0	0	0	0	0	0	0	2	2	28	
Striated Heron	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
B-c Night Heron	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Yellow Bittern	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Cinnamon Bittern																						0		0	0	
Eurasian Bittern																						0		0	0	
Black Stork																						0		0	0	
Black-headed Ibis																						0		0	0	
Eurasian Spoonbill																						0		0	0	
Black-faced Spoonbill			21	1																		0	1	1	22	
Common Shelduck																						0		0	0	
Eurasian Wigeon	0	0	205	140		132		0	0	0	0				0	0	0	0	0	0	0	0	272	272	477	
Falcated Duck																						0		0	0	
Gadwall																						0		0	0	
Baikal Teal																						0		0	0	
Eurasian Teal	0	0				92		0	0	0	0				0	0	0	0	0	0	0	0	92	92	92	
Mallard																						0		0	0	
Spot-billed Duck																						0		0	0	
Chinese Spot-billed Duck																						0		0	0	
Indian Spot-billed Duck																						0		0	0	
Northern Pintail			332	350		237																0	587	587	919	
Garganey																						0		0	0	
Northern Shoveler			1232	260		56																0	316	316	1548	
Common Pochard			22																			0	0	0	22	
Baer's Pochard																						0		0	0	
Tufted Duck			850	280		29																0	309	309	1159	
Greater Scaup																						0		0	0	
Red-breasted Merganser																						0		0	0	
Duck sp.			2060	400																		0	400	400	2460	
Slaty-breasted Rail																						0		0	0	
Eastern Water Rail																						0		0	0	
White-breasted Waterhen	0	0	3					0	0	0	0				0	0	0	0	0	0	0	0	0	0	3	
Watercock																						0		0	0	
Common Moorhen	0	0	71					0	0	0	0				0	0	0	0	0	0	0	0	0	0	71	
Eurasian Coot																						0		0	0	
Pheasant-tailed Jacana																						0		0	0	

Greater Painted-snipe																			0			0	0	
Black-winged Stilt			59																0			0	59	
Pied Avocet			4363	1700															0			2096	2096	6459
Oriental Pratincole																			0			0	0	
Northern Lapwing																			0			0	0	
Grey-headed Lapwing																			0			0	0	
Pacific Golden Plover																			0			0	0	
Grey Plover			6																0			31	31	37
Common Ringed Plover																			0			0	0	
Little Ringed Plover	0	0						0	0	0	0			0	0	0	0	0	0	0	0	0	0	0
Kentish Plover																			0			0	0	
Lesser Sand Plover																			0			0	0	
Greater Sand Plover																			0			0	0	
Black-tailed Godwit			350																0			0	350	
Bar-tailed Godwit																			0			0	0	
Whimbrel																			0			14	14	14
Eurasian Curlew			121	65															0			387	387	508
Far Eastern Curlew																			0			0	0	
Spotted Redshank																			0			0	0	
Common Redshank																			0			0	0	
Marsh Sandpiper																			0			0	0	
Common Greenshank			62	28															0			40	40	102
Nordmann's Greenshank																			0			0	0	
Green Sandpiper	0	0						0	0	0	0			0	0	0	0	0	0	0	0	0	0	0
Wood Sandpiper	0	0	82					0	0	0	0			0	0	0	0	0	0	0	0	0	82	
Terek Sandpiper																			0			0	0	
Common Sandpiper	0	0	6					0	0	0	0			0	0	0	0	0	0	0	1	1	7	
Grey-tailed Tattler																			0			0	0	
Ruddy Turnstone																			0			0	0	
Red-necked Phalarope																			0			0	0	
Pintail Snipe																			0			0	0	
Swinhoe's Snipe																			0			0	0	
Pintail/Swinhoe's Snipe																			0			0	0	
Common Snipe																			0			0	0	
Long-billed Dowitcher																			0			0	0	
Asian Dowitcher																			0			0	0	
Red Knot																			0			0	0	
Great Knot																			0			0	0	
Sanderling																			0			0	0	
Red-necked Stint																			0			0	0	
Little Stint																			0			0	0	
Temminck's Stint																			0			0	0	
Long-toed Stint																			0			0	0	
Pectoral Sandpiper																			0			0	0	
Sharp-tailed Sandpiper																			0			0	0	
Dunlin																			0			0	0	
Curlew Sandpiper																			0			0	0	
Spoon-billed Sandpiper																			0			0	0	
Broad-billed Sandpiper																			0			0	0	
Ruff																			0			0	0	
Small wader spp.																			0			0	0	
Wader sp.			3160	80															0			80	80	3240
Black-tailed Gull																			0			0	0	
Heuglin's Gull																			0			0	0	

Low-tide Count, February 2014

SPECIES	SRA	SRB	DBA	DBB	DBC	DBD	DBE	DBF (TBT)	SPR	NSW	LHW	WEP	Sha Kiu	NW / LFS	TKC	LC	TSW	MPST	ST	SPS	MPNR	Ramsar ponds	Ramsar intertidal areas	Ramsar Site	DEEP BAY AREA	Starling Inlet
Little Grebe	0	0	5					0	0	0	0				0	0	0	0	0	0	0	0	0	0	5	
Great Crested Grebe					6																	0	6	6	6	
Great Cormorant	0	0	32		570	3		0	0	0	0				0	0	0	0	0	0	0	0	573	573	605	
Dalmatian Pelican																						0		0	0	
Grey Heron	0	0	39		16	3	1	0	0	0	0				0	0	0	0	0	0	0	0	20	20	59	
Purple Heron																						0		0	0	
Great Egret	0	0	96		24	1		0	0	0	0				0	0	0	0	0	0	0	0	25	25	121	
Intermediate Egret	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Little Egret	0	0	73		18	1	1	0	0	0	0				0	0	0	0	0	0	0	0	20	20	93	
Swinhoe's Egret																						0		0	0	
Pacific Reef Heron																						0		0	0	
Eastern Cattle Egret	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Chinese Pond Heron	0	0	2					0	0	0	0				0	0	0	0	0	0	0	0	0	0	2	
Striated Heron	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
B-c Night Heron	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Yellow Bittern	0	0						0	0	0	0				0	0	0	0	0	0	0	0	0	0	0	
Cinnamon Bittern																						0		0	0	
Eurasian Bittern																						0		0	0	
Black Stork																						0		0	0	
Black-headed Ibis																						0		0	0	
Eurasian Spoonbill																						0		0	0	
Black-faced Spoonbill			26		4	1	1															0	6	6	32	
Common Shelduck																						0		0	0	
Eurasian Wigeon	0	0	58		84	5	64	0	0	0	0				0	0	0	0	0	0	0	0	153	153	211	
Falcated Duck																						0		0	0	
Gadwall																						0		0	0	
Baikal Teal																						0		0	0	
Eurasian Teal	0	0				26	7	0	0	0	0				0	0	0	0	0	0	0	0	33	33	33	
Mallard																						0		0	0	
Spot-billed Duck																						0		0	0	
Chinese Spot-billed Duck																						0		0	0	
Indian Spot-billed Duck																						0		0	0	
Northern Pintail			202		420	24	37															0	481	481	683	
Garganey			10				1															0	1	1	11	
Northern Shoveler			623		70	8																0	78	78	701	
Common Pochard																						0		0	0	
Baer's Pochard																						0		0	0	
Tufted Duck			212		19																	0	19	19	231	
Greater Scaup																						0		0	0	
Red-breasted Merganser																						0		0	0	
Duck sp.					1100																	0	1100	1100	1100	
Slaty-breasted Rail																						0		0	0	
Eastern Water Rail																						0		0	0	
White-breasted Waterhen	0	0	3			1		0	0	0	0				0	0	0	0	0	0	0	0	1	1	4	
Watercock																						0		0	0	
Common Moorhen	0	0	24					0	0	0	0				0	0	0	0	0	0	0	0	0	0	24	
Eurasian Coot			1																			0		0	1	
Pheasant-tailed Jacana																						0		0	0	

Greater Painted-snipe																			0			0	0
Black-winged Stilt			40																0			0	40
Pied Avocet			682		1350	2	183												0		1535	1535	2217
Oriental Pratincole																			0			0	0
Northern Lapwing																			0			0	0
Grey-headed Lapwing			9																0			0	9
Pacific Golden Plover																			0			0	0
Grey Plover							163												0			0	163
Common Ringed Plover																			0			0	0
Little Ringed Plover	0	0					0	0	0	0			0	0	0	0	0	0	0	0	0	0	0
Kentish Plover																			0			0	0
Lesser Sand Plover																			0			0	0
Greater Sand Plover																			0			0	0
Black-tailed Godwit			700																0			0	700
Bar-tailed Godwit																			0			0	0
Whimbrel																			0			0	0
Eurasian Curlew			30		33		92												0		125	125	155
Far Eastern Curlew																			0			0	0
Spotted Redshank			2																0			0	2
Common Redshank			28																0			0	28
Marsh Sandpiper			48			1													0		1	1	49
Common Greenshank			3		180	1	5												0		186	186	189
Nordmann's Greenshank																			0			0	0
Green Sandpiper	0	0					0	0	0	0			0	0	0	0	0	0	0	0	0	0	0
Wood Sandpiper	0	0	3				0	0	0	0			0	0	0	0	0	0	0	0	0	0	3
Terek Sandpiper																			0			0	0
Common Sandpiper	0	0	2				0	0	0	0			0	0	0	0	0	0	0	0	0	0	2
Grey-tailed Tattler																			0			0	0
Ruddy Turnstone																			0			0	0
Red-necked Phalarope																			0			0	0
Pintail Snipe																			0			0	0
Swinhoe's Snipe																			0			0	0
Pintail/Swinhoe's Snipe																			0			0	0
Common Snipe																			0			0	0
Long-billed Dowitcher																			0			0	0
Asian Dowitcher																			0			0	0
Red Knot																			0			0	0
Great Knot																			0			0	0
Sanderling																			0			0	0
Red-necked Stint																			0			0	0
Little Stint																			0			0	0
Temminck's Stint																			0			0	0
Long-toed Stint																			0			0	0
Pectoral Sandpiper																			0			0	0
Sharp-tailed Sandpiper																			0			0	0
Dunlin																			0			0	0
Curlew Sandpiper																			0			0	0
Spoon-billed Sandpiper																			0			0	0
Broad-billed Sandpiper																			0			0	0
Ruff																			0			0	0
Small wader spp.																			0			0	0
Wader sp.					200														0		200	200	200
Black-tailed Gull																			0			0	0
Heuglin's Gull			1																0			0	1

**Mai Po Inner Deep Bay Ramsar Site
Waterbird Monitoring Programme**

**Monthly Waterbird Monitoring
Biannual Report 2 (October 2013 to March 2014)**

Appendix 3



The Hong Kong Bird Watching Society



Agriculture, Fisheries and Conservation Department

Peak counts of each waterbird species, mid-winter period (December to February) 2013-14.

Cormorant

Great Cormorants	8,761
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Ardeids and Ciconiiformes

Grey Heron	707
Purple Heron	2
Great Egret	871
Intermediate Egret	29
Little Egret	795
Swinhoe's Egret	0
Pacific Reef Egret	0
Cattle Egret	39
Chinese Pond Heron	212
Striated Heron	0
Black-crowned Night Heron	29
Yellow Bittern	1
Cinnamon Bittern	1
Great Bittern	1
Black Stork	0
Oriental Stork	0
Black-headed Ibis	0
Eurasian Spoonbill	4
Black-faced Spoonbill	266
Sub-total:	2,957

Ducks, Grebes and Pelicans

Little Grebe	202
Great Crested Grebe	69
Dalmatian Pelican	0
Common Shelduck	0
Eurasian Wigeon	1,769
Falcated Duck	7
Gadwall	9
Baikal Teal	0
Common Teal	311
Mallard	3
'Unidentified' Spotbill	0
Chinese Spotbill	11
Burmese Spotbill	0
Northern Pintail	1,410
Garganey	32
Northern Shoveler	2,775
Common Pochard	22
Baer's Pochard	1
Ferruginous Duck	1
Tufted Duck	1,585
Greater Scaup	0
Smew	0
Red-breasted Merganser	0
Unidentified duck	Not included
Sub-total:	8,207

Rails and Coots

Slaty-breasted Rail	1
Water Rail	1
White-breasted Waterhen	26
Ruddy-breasted Crake	0
Watercock	0
Common Moorhen	158
Eurasian Coot	48
Sub-total:	234

Shorebirds

Pheasant-tailed Jacana	0
Greater Painted Snipe	1
Black-winged Stilt	368
Pied Avocet	11,794
Oriental Pratincole	0
Northern Lapwing	0
Grey-headed Lapwing	14
Pacific Golden Plover	448
Grey Plover	833
Common Ringed Plover	0
Little Ringed Plover	68
Kentish Plover	549
Lesser Sand Plover	18
Greater Sand Plover	41
Black-tailed Godwit	700
Bar-tailed Godwit	6
Whimbrel	29
Eurasian Curlew#	1,297
Far Eastern Curlew	0
Spotted Redshank	117
Common Redshank	406
Marsh Sandpiper	240
Common Greenshank	836
Nordmann's Greenshank#	1
Green Sandpiper	22
Wood Sandpiper	82
Terek Sandpiper	1
Common Sandpiper	80
Grey-tailed Tattler	0
Ruddy Turnstone	0
Red-necked Phalarope	0
Pintail Snipe	0
Swinhoe's Snipe	0
Pintail/Swinhoe's Snipe	1
Common Snipe	4
Long-billed Dowitcher#	1
Asian Dowitcher	0
Red Knot	5
Great Knot	12
Sanderling	0
Red-necked Stint	0
Little Stint	0
Temminck's Stint	14
Long-toed Stint	0
Pectoral Sandpiper	0
Sharp-tailed Sandpiper	0
Dunlin	4,192
Curlew Sandpiper	0
Spoon-billed Sandpiper	0
Broad-billed Sandpiper	8
Ruff	0
Unidentified small-sized Shorebird	Not included
Sub-total:	22,188

Additional counts from shorebird count in mid-winter period.

Gulls and Terns

Black-tailed Gull	0
Common Gull	0
Heuglin's Gull	Not included
Yellow-legged Gull	0
Slaty-backed Gull	0
Pallas's Gull	1

Unidentified large Gull (assumed to be same as Heuglin's Gull)	188
Brown-headed Gull	0
Black-headed Gull	9,000
Saunders's Gull	37
Whiskered Tern	0
White-winged Tern	0
Gull-billed Tern	0
Caspian Tern	0
Sub-total:	9,226

Summary of sub-totals of different waterbird groups, December 2013 to February 2014.

Group	Sub-total
Cormorants	8,761
Ardeids	2,957
Ducks, Grebes and Pelicans	8,207
Rails and Coots	234
Shorebirds	22,188
Gulls and Terns	9,226
Total	51,573