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**ACE-NC Paper 4/2019**  
***For discussion on 19 December 2019***

## **Conservation of Wetlands in Deep Bay of Hong Kong**

### **PURPOSE**

This paper provides Members with an updated overview of the wetland conservation measures in the Deep Bay area of Hong Kong.

### **BACKGROUND**

2. The Deep Bay area generally refers to the lowlands in the northwestern New Territories that comprises a mosaic of natural and man-made wetland habitats, including *gei wais* (tidal shrimp ponds), intertidal mudflat, mangals, rivers, freshwater marshes and fishponds. Located at the Inner Deep Bay, the Mai Po Inner Deep Bay Ramsar Site (the Ramsar Site) covers an area of about 1 540 ha and was listed as a “Wetland of International Importance” under the Ramsar Convention in 1995. Over 400 species of birds, representing around 70% of birds in Hong Kong, have been recorded there. The Ramsar Site regularly supports 50 000 – 80 000 waterbirds in winter, including over 50 species that are globally threatened or near-threatened such as Black-faced Spoonbill and Saunders’s Gull, as well as many rare wetland plants and animals.

3. Outside the Ramsar Site in the Deep Bay area is a stretch of commercial fishponds and other wetland habitats. Despite being modified and used by humans, these wetlands are contiguous to those within the Ramsar Site and provide foraging and roosting opportunities to waterbirds and other wildlife. Location of the Ramsar Site and the wetlands outside the Ramsar Site in the Deep Bay area are shown in **Annex 1**.

4. The Government has been implementing a series of measures for the conservation of wetlands and wildlife within and around the Ramsar Site. Designation of Restricted Area, land use and planning control, as well as law enforcement are in place to control access or anthropogenic modification that would adversely affect the ecologically sensitive areas. Meanwhile, active habitat management of the Mai Po Nature Reserve (MPNR), ecological monitoring and Management Agreement (MA) projects are also being implemented for the wise use of wetlands in the Deep Bay area.

## **CONSERVATION MANAGEMENT OF THE DEEP BAY WETLANDS**

### *Restricted Area and Mai Po Nature Reserve*

5. Being the administrative authority of the Mai Po Inner Deep Bay Ramsar Site, the AFCD has formulated and implemented a Ramsar Site Management Plan (RSMP) to guide the conservation management of the Ramsar Site.

6. The RSMP divides the Ramsar Site into four Management Zones with different management objectives based on habitat type, ecological value and land use. The four Management Zones are Core Zone, Biodiversity Management Zone, Wise Use Zone and Private Land Zone. The Core Zone and the Biodiversity Management Zone are the main zones covering key habitats of the Ramsar Site, namely the intertidal mudflat, mangals and *gei wais*. In view of their ecological sensitivity, they are primarily designated as a Restricted Area under the Wild Animals Protection Ordinance (Cap. 170), where access is restricted only to holders of permits issued by the AFCD.

7. The Mai Po Nature Reserve (MPNR), which mainly comprises *gei wais*, falls within the Biodiversity Management Zone. AFCD collaborates with the World Wide Fund for Nature Hong Kong (WWFHK) in taking forward active conservation management in MPNR, and provides funding to support the work of the WWFHK. In 2019-20, AFCD has granted a total of \$3.56 million to WWFHK for habitat and infrastructure management and enhancement through subvention and service contracts. Apart from this, subvention has also been granted to the WWFHK by the Education Bureau to support education activities such as guided tours for students visiting MPNR.

8. The existing RSMP promulgated in 2011 is currently under review and will be updated by 2021.

#### *Ecological Monitoring in Deep Bay*

9. AFCD has been conducting two long-term monitoring programmes, namely the Waterbird Monitoring Programme (WMP) and the Baseline Ecological Monitoring Programme (BEMP) in the Deep Bay area since 1997 and 2002 respectively, with a view to keeping track of any variations in the ecological character of the Ramsar Site and Deep Bay. In general, there were fluctuations in the abundance of waterbirds in winter over the years, with a peak in 2007-08 and a decrease from 2007-08 to 2011-12. The abundance remained relatively stable with some slight fluctuations thereafter. The abundance of waterbirds in winter from 1992 to 2019 is shown at **Annex 2**. For monitoring of water quality, a gradual reduction in biochemical oxygen demand, total Kjeldahl nitrogen and ammonical-nitrogen was observed in recent years, while the levels of nitrite and nitrate remained stable. This indicates a general improvement of water quality in Mai Po Inner Deep Bay. The abundance of benthic fauna was also within range of that in the past three years.

10. AFCD commissioned a “Technical Review and Statistical Analysis of the Datasets of Waterbird Monitoring and Baseline Ecological Monitoring Programme for Mai Po Inner Deep Bay Ramsar Site” for the period of 2002-2011 to identify any temporal and spatial trends in waterbird abundance and environmental baseline parameters. The findings revealed that waterbird abundance in mudflats was significantly higher than that in *gei wais*, which was in turn significantly higher than that in fishponds. On the other hand, the ecological character (e.g. waterbird abundance) could fluctuate over time, yet the reason was not conclusive as it could be influenced by numerous factors beyond the control of the management of the wetland habitats alone.

## *Development Control in Deep Bay*

11. To strike a balance between conservation and development, appropriate zonings<sup>1</sup> such as Conservation Area, Coastal Protection Area, Site of Special Scientific Interest” etc., were designated on the statutory Outline Zoning Plans (OZPs) under the Town Planning Ordinance (TPO) to provide development control and guidance for the Deep Bay Area.

12. To ensure due consideration will be given to conservation of fishponds and wetlands in the Deep Bay area while considering development proposals, the Town Planning Board has promulgated a set of planning guidelines amongst other efforts to control planning and land use in the area since 1993. In the Town Planning Board Planning Guidelines No. 12C - Application for Developments within Deep Bay Area under Section 16 of TPO (TPB Guidelines No. 12C), a two-pronged approach in terms of land use and planning control is adopted through the demarcation of and restrictions imposed on Wetland Conservation Area (WCA) and Wetland Buffer Area (WBA).

13. The WCA covers existing fishponds within and around the Ramsar Site which should all be conserved as a general principle. The WBA is a 500m-wide strip of land along the landward side of the WCA (see **Annex 3**). The WBA is designated with the planning intention to protect the ecological integrity of the WCA and prevent development that would have a negative off-site disturbance impact on the ecological value of fish ponds and wetlands. The WBA mainly comprises fish ponds, green areas, vacant land, open storages, villages and some existing developments.

14. According to the TPB Guidelines No. 12C, development proposals in WCA and WBA in the Deep Bay area should observe the “precautionary approach” and comply with the “no-net-loss in wetland” principle to ensure there will be no decline in wetland or ecological functions and no net increase in pollution load to the Deep Bay due to the development proposal. New development within WCA would not be allowed unless it would support conservation of the ecological value of the area, or the development is an essential infrastructural project with overriding public interest. Any such development should be supported by an ecological impact assessment to

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<sup>1</sup> The conservation zonings in the Deep Bay Area include “Conservation Area” (CA), “Coastal Protection Area” (CPA), “Country Park” (CP), “Site of Special Scientific Interest” (SSSI), and “Other Specified Uses” (OU) annotated “Comprehensive Development and Wetland Protection Area” (OU(CDWPA)) / “Comprehensive Development with Wetland Restoration Area” (OU(CDWRA)) / “Comprehensive Development to include Wetland Enhancement Area” (OU(CDWEA)).

demonstrate that the development would not result in a net loss in wetland function and negative disturbance impact.

15. In addition, development proposals within WCA and WBA are not only subject to statutory requirements under the TPO by land use and planning control, but also requirements under the Environmental Impact Assessment Ordinance (EIAO) to protect the local ecological environment.

16. Under the EIAO, a residential or recreational development other than New Territories Exempted House within Deep Bay Buffer Zone 1 or 2 constitutes a Designated Project. The proponent shall follow the statutory procedures under the EIAO and obtain from Director of Environmental Protection an Environmental Permit for the construction and operation of the proposed development. Potential ecological impacts should be avoided, minimised and compensated through implementation of appropriate mitigation measures.

#### *Policy on Nature Conservation*

17. It has been the Government's policy that land resumption would not be adopted for nature conservation *per se* in view of the enormous financial and read-across implications. Noting that a number of sites of high ecological value are under private ownership, to encourage nature conservation efforts, the Government promulgated the New Nature Conservation Policy (NNCP) in 2004 with two conservation measures, namely the MA scheme and the Public-Private Partnership (PPP) scheme, with an aim to enhancing conservation of ecologically important sites which are mostly in private ownership. 12 Priority Sites with high ecological value were identified for enhanced conservation, including the Ramsar Site and Deep Bay Wetland outside Ramsar Site (see **Annex 1**).

18. Under the MA scheme, non-governmental organisations (NGOs) can apply for financial support to enter into MA with landowners or tenants for enhancing conservation of the concerned sites. Since 2012, MA projects have been undertaken by the Hong Kong Bird Watching Society (HKBWS) to conserve the active fishponds through collaboration with local fishpond operators within the Ramsar Site and Deep Bay Wetland outside Ramsar Site. Under the two MA projects, the fishpond operators have to conduct drain-down of ponds after harvest, leaving behind trash fish which will provide foraging opportunities for waterbirds. In return, the fishpond operators will receive a management fee as a financial initiative.

19. With some 90% of eligible fishponds engaged in the MA scheme (over 600 hectares in 2017-2019), the projects helped enhance the ecological value of commercial fishponds. Ecological monitoring data indicated that after engaging in the MA scheme, the mean abundance of waterbirds at fishponds has increased 20-fold during drain-down, with the most significant increase found in ardeids (egrets and herons) and shorebirds, and that the fishponds has played an important role in supporting a rich biodiversity. Moreover, a wide range of public education activities was conducted to raise awareness of the ecological and cultural value of fishponds and local aquaculture. In general, the two MA projects engaged local stakeholders and showcased the wise use of wetland resources in the Deep Bay area, which is a win-win situation.

20. Under the PPP scheme, developments at an agreed scale would be allowed at the ecologically less sensitive portion of the Priority Site, provided that the developer undertakes to conserve and manage on a long-term basis the rest of the site that is ecologically more sensitive. According to the funding and land arrangement endorsed by the Advisory Council on the Environment (ACE) in 2011 (ACE Paper 9/2011), developers are required to contribute an upfront lump sum sufficient to support the pledged conservation programmes to the Environment and Conservation Fund (ECF). To ensure that the conservation work will be properly conducted, the developer is also required to identify a competent body (e.g. green group) as the conservation agent to manage the ecologically sensitive portions of the concerned site through application for funding from the ECF.

#### *Advisory Body*

21. To ensure the smooth implementation of the Ramsar Convention in Hong Kong and the management of the Ramsar Site in the initial stage, the Wetland Advisory Committee (WAC) was established in 1999 as recommended in the first RSMP published in 1998 to provide advice to the Government on issues related to wetland conservation. Two sub-committees namely Scientific Sub-committee and Management Sub-committee were also set up under WAC. As the requirement of Ramsar Convention had been smoothly implemented, the function of the WAC was subsumed in the Nature Conservation Sub-committee (NCSC) of the ACE in 2004 with a view to strengthening the role of the ACE on nature conservation matters upon promulgation of the NNCP. Since then, various issues on wetland conservation were discussed in NCSC meetings on a need basis.

### *Conclusion*

22. Various measures have been implemented to protect and conserve the important wetland habitats in the Deep Bay area. Concerted efforts are required to maintain the integrity of the ecological value of the Deep Bay area, whereas development is strictly controlled to avoid potential adverse impacts on the wetland habitats and wildlife.

### **ADVICE SOUGHT**

23. Members are invited to note the measures for conservation of wetlands in the Deep Bay area.

**Agriculture, Fisheries and Conservation Department**  
**Environmental Protection Department**  
**December 2019**

## Mai Po Inner Deep Bay Ramsar Site (Ramsar Site) and Wetlands outside the Ramsar Site in Deep Bay Area

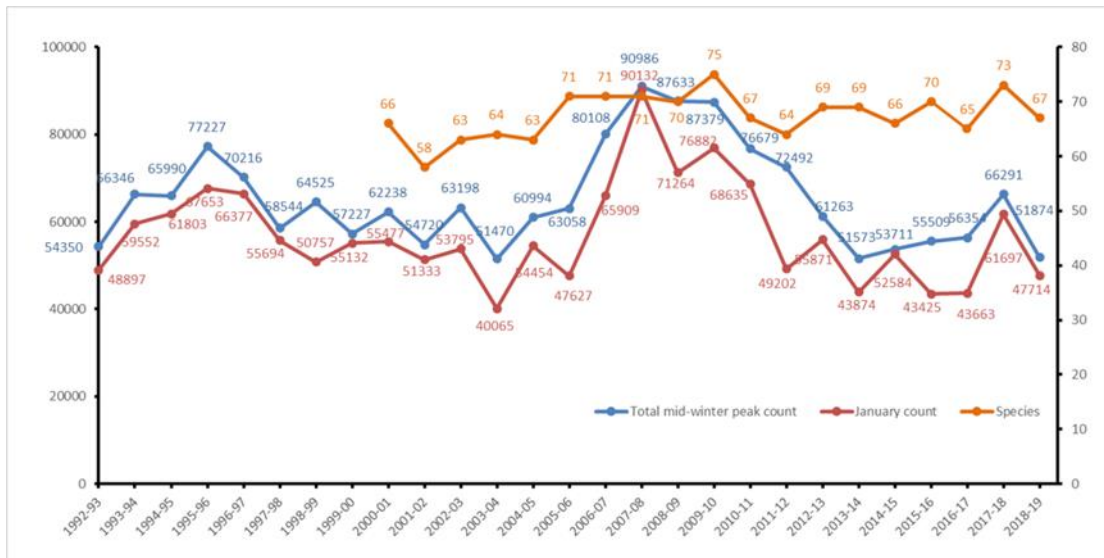
These two areas are listed as “Ramsar Site” and “Deep Bay Wetland outside Ramsar Site” Priority Sites under the NNCP.





## Abundance of Waterbirds in Winter in Deep Bay from 1992 to 2019

(Data from the Hong Kong Bird Watching Society and Waterbird Monitoring Programme by the Agriculture, Fisheries and Conservation Department)



# Wetland Conservation Area (WCA) and Wetland Buffer Area (WBA)

