Confirmed Minutes of the 241st Meeting
of the Advisory Council on the Environment (ACE)
held on 7 September 2020 at 2:30 pm

Present:
Mr Stanley WONG, SBS, JP (Chairman)
Prof Nora TAM, BBS, JP (Deputy Chairman)
Ir Cary CHAN, JP
Ir Samantha KONG
Ms Julia LAU
Dr Michael LAU
Prof Albert LEE
Mr Andrew LEE
Prof Kenneth LEUNG, JP
Ir Prof Irene LO, JP
Ir MA Lee-tak, SBS
Mr Simon WONG, JP
Ir Conrad WONG, BBS, JP
Ms Carmen CHAN, BBS, JP
Ms Sylvia CHAN, MH
Miss LAM Chung-yan
Dr Winnie LAW
Dr SUNG Yik-hei
Ms Christina TANG

Absent with Apologies:
Mr Adam KOO
Prof LAU Chi-pang, JP
Prof WONG Sze-chun, BBS, JP
Mr Owin FUNG (Secretary)

In Attendance:

Ms Fanny HUI	Chief Information Officer, Environmental Protection Department (EPD)
Mr Patrick LAI	Assistant Director (Country and Marine Parks), Agriculture, Fisheries and Conservation Department (AFCD)

Ms Maggie CHIN	Assistant Director of Planning / Technical Services (Acting), Planning Department (PlanD)
Ms Becky LAM	Chief Executive Officer (CBD), EPD
Miss Dora CHU	Executive Officer (CBD) 1, EPD
Miss Ingrid SUEN	Executive Officer (CBD) 2, EPD

In Attendance for Item 3:

Mr Anthony HO	Senior Environmental Protection Officer (Mega Project) 1, EPD
Ms Thebe NG	Senior Administrative Officer (Nature Conservation), EPD
Mr Dick CHOI	Senior Marine Conservation Officer (West), AFCD

Project Proponent Team

Airport Authority Hong Kong	Mr Kevin POOLE, Executive Director, Third Runway Mr Peter LEE, General Manager, Sustainability Mr Martin PUTNAM, Senior Manager, Biodiversity
Mott MacDonald Hong Kong Ltd.	Mr Eric CHING, Head of Advisory Ms Julia CHAN, Associate Director
Environmental Resources Management – Hong Kong, Limited	Dr Jasmine NG, Partner

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The Chairman welcomed Members to the ACE meeting held on Zoom, taking into account the latest situation of the coronavirus disease (COVID-19), and informed Members that apologies of absence had been received from Mr Adam Koo, Prof Lau Chi-pang and Prof Wong Sze-chun.

Item 1 : Confirmation of the draft minutes of the 240th meeting held on 11 May 2020 (Closed-door session)

2. The draft minutes were confirmed without amendments.

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Item 2 : Matters arising (Closed-door session)

3. There were no matters arising from the minutes of the last meeting.

Item 3 : Expansion of Hong Kong International Airport into a Three-Runway System (3RS) - Update on the Implementation of Marine Ecology Mitigation and Enhancement Measures in association with the 3RS Project
(ACE Papers 8/2020 and 9/2020)

4. The Chairman informed Members that *ACE Paper 8/2020* updated Members on the progress of the implementation of Marine Ecology Mitigation and Enhancement Measures in association with the 3RS Project and sought Members' views on the SMART goals for the proposed 3RS Marine Park (3RSMP). A background note on the subject matter, i.e. *ACE Paper 9/2020*, prepared by the Secretariat had been circulated to Members for reference before the meeting.

5. Upon the invitation of the Chairman, a Member declared that he was the Chairman of the Fisheries Enhancement Fund Management Committee set up by the Airport Authority Hong Kong (AAHK). Another Member declared that his construction company had provided minor works and services to AAHK. A Member declared that she was a Member of the Marine Ecology Enhancement Fund Management Committee set up by the AAHK. The Chairman advised that a Member had informed him before the meeting that she was a Member of the Aviation Development and Three-runway System Advisory Committee. The Chairman agreed that all four Members mentioned above could stay on and continue participating in the discussion.

[The presentation team joined the meeting at this juncture.]

Presentation cum Question-and-Answer Session (Open session)

6. Mr Kevin Poole made the opening remarks and briefed Members on the latest progress of the 3RS Project. Mr Peter Lee, Ms Julia Chan and Dr Jasmine Ng updated Members on the implementation of marine ecology and fisheries enhancement measures with the aids of a PowerPoint presentation.

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Coral Transplantation

7. A Member enquired about the key factors contributing to the success of the second coral transplantation exercise. Mr Peter Lee advised that the team had learned from the first coral transplantation exercise and transplantation techniques had been improved. For example, the team had focused on whole coral colonies with no coral fragments transplanted, and had ensured recipient sites were carefully selected with transplanted corals dispersed along a transect running parallel to the natural shoreline in a location with higher water currents, which were more suited for gorgonian corals survival. Mr Lee added that after 18 months of post-transplantation monitoring, the transplanted coral was found to be surviving together with the healthy control corals in the same location. The experts would summarize and document the experience and techniques of the second exercise for reference in future.

Fish Restocking Pilot Test

8. In response to a Member's remarks that only fish species of commercial importance were released in the pilot test, Mr Peter Lee explained that AAHK had consulted fishermen and relevant green NGOs about the suitable species to be released. The Member suggested that consideration be given to introduce more varieties of fishes in the next test with a view to enhancing marine biodiversity.

9. As regards a Member's enquiry about the reason for the small number of released fish being detected under the first pilot test, Dr Jasmine Ng advised that only about 200 fishes were affixed with acoustic tags with individual identification in the test. During the six-month monitoring period, a large percentage of tagged fish was detected and observed to have dispersed along the natural coastline. Mr Peter Lee supplemented that AAHK was the pioneer in Hong Kong to deploy fish tagging and conduct post-release monitoring by acoustic telemetry. The monitoring results would facilitate the planning of the next round of fish restocking exercise as well as future fish stocking exercises in the 3RSMP.

10. In response to a Member's question on the number of detected fish, Mr Peter Lee advised that a large percentage of the tagged fishes was detected in the pilot test. Dr Jasmine Ng agreed to provide the exact figure to ACE after the meeting. AAHK

[Post-meeting notes: AAHK informed that about 72% of the tagged fishes were detected on the day of release. About 22% of the tagged fishes were detected once or multiple times during the period of one day to six months after the release. The above information was passed to Members for reference on 18 September 2020.]

11. A Member asked whether the tagged fish being detected were dead and Dr Jasmine Ng replied that whilst this possibility could not be ruled out, the surveys detected the same tags with individual identification multiple times at different monitoring stations which suggested the tagged fishes could survive for quite some time.

12. In reply to the Chairman's enquiry on whether more acoustic tags could be deployed in the next batch of fish release, Mr Peter Lee explained that the acoustic tags could not be used too extensively because of the high cost involved. Nevertheless, AAHK would review the need for and extent of acoustic tagging in the next batch of fish release. The Chairman suggested AAHK explore other efficient and cost effective means to monitor the effectiveness of fish restocking.

Artificial Reef (AR) Deployment Pilot Test

13. In reply to a Member's question on the monitoring of marine organisms in addition to dolphins and tagged fishes, Dr Jasmine Ng advised that as part of the artificial reef (AR) pilot test, AAHK would also carry out post-deployment ecological monitoring on other fishes and the benthic community with a view to assessing the ecological performance of different types of AR. Mr Peter Lee added that the deployment of AR would be conducted in the first half of next year and AAHK would make reference to the results of post-deployment ecological monitoring in the planning and designing of the 3RSMP.

Eco-enhancement Seawall Design

14. A Member expressed disappointment with the design of the vertical seawall which consisted of concrete blocks that appeared artificial. She appealed to AAHK to explore ways to improve the aesthetics of the seawall and create a more natural-looking shoreline.

Action

15. Mr Peter Lee explained that it would be very difficult to use other design/materials to replace the large concrete blocks used for constructing the vertical seawall. He advised that the final appearance might be different as there were longer sections of sloping seawalls yet to be constructed. Other types of eco-enhanced seawall blocks featured with rough surfaces, pits, holes and rock pools would also be installed along the sloping seawalls. He added that AAHK would carry out post-installation monitoring to assess the performance of the vertical seawall eco-enhancement features.

16. A Member pointed out that it would be feasible to incorporate certain features to create a more natural setting for the seawall. He shared his experience in testing various fixtures that could be attached to seawalls under a government-funded project, and suggested AAHK consider the deployment of oyster baskets which was effective in attracting marine organisms and enhance biodiversity and fisheries resources.

17. Mr Peter Lee thanked the Member for the suggestion and advised that similar suggestions had been received during consultations with stakeholders on the design and management plan of the 3RSMP. AAHK had been proactively exploring the feasibility of different options with a view to further enhancing the ecological performance of the seawalls at the reclamation boundary.

18. In response to a Member's question on the ecological performance of the seawalls, Mr Peter Lee advised that given safety concerns associated with the on-going construction activities around the eco-seawall, AAHK would carry out post-installation monitoring later this year to assess the performance of the eco-enhancement features of the vertical seawalls.

Size and Extent of 3RSMP

19. With reference to the monitoring data of Chinese White Dolphins (CWDs), a Member pointed out that CWDs were moving to the waters to the south of the proposed 3RSMP near Tai O. She suggested that the Government should consider expanding the size and extent of the 3RSMP to cover those waters. Mr Peter Lee remarked that the size and layout of the 3RSMP was discussed and confirmed in the environmental impact assessment (EIA) stage with the required size and layout stipulated in the Environmental Permit. Mr Anthony Ho advised that the proposed

3RSMP of 2,400 hectares would link to the Sha Chau and Lung Kwu Chau Marine Park and The Brothers Marine Park to form a larger marine park matrix. Mr Patrick Lai added that the marine park matrix would also connect to the Pearl River Estuary Chinese White Dolphin National Nature Reserve. He anticipated that the 3RSMP could conserve the marine ecology in the vicinity of the airport and protect it from various anthropogenic threats such as dredging and reclamation. The Government would continue to explore other options for conserving the CWDs including the feasibility of designating more protected area for the species. The Member supported the actions taken by the Government. The Chairman raised that there was a need for the Government to closely monitor the threats to CWDs posed by the marine traffic in the South Lantau waters.

SMART Goals for the proposed 3RSMP

20. A Member considered that the provision of feeding opportunities and enhancement of marine safety were the keys to attract dolphins to the proposed 3RSMP. He pointed out that the fish fingerlings released during the fish restocking pilot test, including green grouper, yellowfin seabream and black seabream, were not the common diet for dolphins. He suggested that AAHK should focus on enhancing benthic marine environment to increase the stock of prey fish for dolphins. Given that the 3RSMP would be connected to the core site for CWD protection in the Lingding Channel, the Member suggested that the Government should strengthen the protection of CWDs from vessel collision by further imposing time restrictions for the use of the 3RSMP area by marine vessels on top of speed limits, with a view to expanding the conservation site for dolphins. He further pointed out that the Government and / or AAHK should also make reference to the control on fishing activities and marine traffic by the Mainland authorities within the core site when devising the management plan for the proposed 3RSMP.

21. Dr Jasmine Ng advised that AFCD had commissioned a consultancy study to review the existing fisheries management strategy in marine parks to devise enhancement measures which would promote effective conservation in marine parks and sustainable fisheries development in Hong Kong. Based on the results of the study, various core areas had been / would be established in the wider marine park matrix, for instance, the entire Sha Chau and Lung Kwu Chau Marine Park, where commercial fishing would be restricted.

22. In response to a Member's enquiry on whether population analysis of CWDs could be conducted to provide insight into their survival and recruitment rates apart from their abundance and density, Mr Peter Lee replied that it would be preferable to use the same set of parameters to facilitate the comparability of data given that Hong Kong had been conducting vessel line-transect surveys all along which had provided historical trends of the abundance and density of CWDs. He added that AAHK had also voluntarily deployed four C-POD stations for conducting underwater acoustic monitoring earlier this year within / in the vicinity of the proposed 3RSMP area in order to collect supplemental information on CWD activities.

23. Apart from the abundance and density of CWDs, a Member considered that there was a need to include the monitoring of the behaviour and health conditions of CWDs, as well as their habitat in terms of the water quality and the marine ecology, as part of the SMART goals. In particular for the monitoring of marine ecology, she considered that the monitoring data could provide insight into the ecological function of the proposed 3RSMP as well as the food supply for dolphins.

24. Dr Jasmine Ng explained that the feeding and social behaviour, as well as the health conditions of CWDs were being observed when conducting vessel line-transect surveys. As these indicators were less tangible for quantitative tracking, they were not suggested to be included as part of the SMART goals. She added that the water quality of 3RSMP would be monitored regularly as part of the AFCD's monitoring programme. As for the monitoring of marine ecology, she advised that this would be conducted upon the implementation of enhancement initiatives, such as AR deployment, within / in the vicinity of the 3RSMP area.

25. A Member suggested that a Photo Identification (ID) library of CWDs recorded in the 3RSMP should be maintained in order to distinguish dolphins that had never been observed within the 3RSMP area, as well as to gauge the interest and support of the local community.

Monitoring Data of CWDs

26. In response to the Chairman's enquiry regarding the surveillance data of

CWDs in Lingding Bay, Mr Peter Lee advised that the numbers were extracted from a two-year study funded by the Marine Ecology Enhancement Fund carried out by Mainland researchers in Lingding Bay area with an approach similar to the vessel line-transect survey. The study used photo ID of dolphins to identify individual dolphins by distinctive features on their dorsal fins, and results of the study indicated that around half of the dolphins sighted in the 2018-19 survey had not been previously sighted in Hong Kong waters.

27. Given that CWDs had a large range of movement, a Member considered that the sharing of photo ID library of CWDs would be beneficial for researchers to understand the movement and migration patterns of dolphins. Mr Peter Lee advised that the Mainland researchers had access to the photo ID library of CWDs found in Hong Kong waters. He added that the study had already been completed and the report was available for public inspection on the dedicated website of the 3RS Project.

28. In reply to a Member's question on the changes of CWD numbers as a result of reduced cross-border marine traffic over the past eight months, Mr Peter Lee advised that there was no remarkable trend in the changes of CWD abundance associated with the decline in cross-border marine traffic. He suggested that the route diversion of high speed ferries (HSFs) of SkyPier and imposition of a speed limit on SkyPier HSFs might have already minimised the impact of cross-border HSFs marine traffic on CWDs in North Lantau waters.

29. In response to a Member's enquiry on any observed changes in CWD abundance, Mr Peter Lee advised that the CWD abundance remained stable for the past few years since the commencement of the construction of the 3RS project. A decline in the number of CWDs recorded between 2018 and 2019 within the project area aligned with the prediction made by the dolphin experts in the EIA stage that CWDs would move away from the project site upon the commencement of marine works, and the designation of the 3RSMP was aimed at attracting CWDs to return to North Lantau waters.

30. While appreciating the efforts of AAHK in taking heed of the suggestions raised by ACE in past meetings, a Member drew the meeting's attention to the disparate monitoring data of CWDs collected by AAHK and AFCD despite using the same methodology. For example, in 2018, AAHK's estimate of overall

abundance was 77 dolphins, which was higher than AFCD's estimate of 32 dolphins. In 2019, AAHK's estimate was 40 dolphins, which was lower than AFCD's estimate of 52 dolphins. With such discrepancy in abundance and trend, The Member was concerned that the methodology being adopted to monitor CWDs could not provide an accurate and conclusive picture as to the abundance and status of CWDs, which was important for assessing the effectiveness of conservation measures and devising future planning and management strategies for the 3RSMP. He was supportive of the use of passive acoustic monitoring (PAM) to provide supplementary information on CWD activity in North Lantau waters during daytime and night-time. He enquired about the feasibility of increasing the number of devices and thereby expanding the coverage of monitoring on CWDs. In order to establish meaningful correlations and provide insights on the changes in CWD abundance, he further suggested that AAHK should start measuring other variables and parameters, such as the water quality, marine vessel traffic and fisheries resources.

31. Mr Peter Lee suggested that the inconsistencies in the estimates could be attributed to the fact that AAHK and AFCD collected data on different days. Despite the inconsistencies, AFCD's data fell into the 95% confidence interval of AAHK's data, which demonstrated comparability of the two data sets. He explained that dolphin numbers fluctuated from year to year, and thus it would be undesirable to draw conclusions based on data of any given year. As regards underwater acoustic monitoring, he advised that AAHK had deployed four C-POD stations across the proposed 3RSMP area since early 2020. The suitability of the C-POD locations would be reviewed when the data collected by the C-PODs were available. AAHK would also take into account the locations of C-PODs deployed by AFCD in the future planning of the C-POD network.

32. From the perspective of public perception, a Member opined that there was a need to address the issue of inconsistencies between the data collected by AAHK and AFCD, and suggested that AAHK should provide information on the expected timing and extent of the rebound in CWD's usage of North Lantau waters subsequent to the designation of 3RSMP.

33. Mr Peter Lee acknowledged the Member's concerns and advised that the dolphin experts engaged in the 3RS project were looking into the feasibility of enhancing the data analysis to improve the credibility of the CWD abundance

estimates. As regards two Members' enquiries concerning the rebound in CWD's usage of North Lantau waters subsequent to the designation of 3RSMP, Mr Lee shared that records have shown that dolphins had returned to the waters at and near Sha Chau and Lung Kwu Chau Marine Park, which was designated subsequent to the installation of aviation fuel pipelines at the existing airport island.

Information Sharing

34. Given that many measures relating to marine ecology mitigation and enhancement were adopted for the first time in Hong Kong, a Member suggested and Mr Kevin Poole agreed to properly document their consultation and implementation experience and share them with the public.

Conclusion

35. The Chairman summarised the views made by Members and thanked the representatives of AAHK for their update and detailed clarifications.

[The presentation team left the meeting at this juncture.]

Internal Discussion Session (Closed-door session)

CWD Monitoring

36. A Member reiterated that the water quality and status of the marine ecosystem in the proposed 3RSMP should be closely monitored given that they were the basic but critical factors for dolphins to thrive, and suggested that AAHK should consult AFCD on the specific parameters to be monitored. She stressed that there was a need to address the inconsistences and fluctuations in CWD data and ensure the rebound in dolphin usage of North Lantau waters, with a view to managing public expectation.

37. A Member concurred and suggested that various variables and parameters should be monitored, including the disturbances caused by marine traffic, presence of organic pollutants, availability of fisheries resources, etc., in order to account for the fluctuations in CWD abundance. As regards the inconsistencies between the data collected by AAHK and AFCD, he considered that there might be a need to

review the existing monitoring methodology, i.e. the use of vessel line-transect surveys, and identify possible reasons for the inconsistencies. He further suggested that the two sets of data for analysis should be combined, and the concerned parties should explore alternative monitoring methodologies that could yield more accurate results and / or require less resources, such as the use of satellite tracking which could provide data on the movement and migration patterns of dolphins.

38. Albeit there were inconsistencies between the two sets of data as they were collected by AAHK and AFCD on different days respectively, Mr Patrick Lai advised that the difference between the two sets of data was not significant, with 95% confidence interval. He pointed out that while the two sets of data could be combined for analysis, such arrangement might defeat the purpose of establishing two independent monitoring studies in the first place. He opined that obtaining monitoring data over a longer period would reveal a clearer trend on CWD abundance and density. As regards the cross-boundary movements of dolphins, Mr Lai said that AFCD had regular contacts with its counterpart in Guangdong Province. With the sharing of the photo ID library which enabled the identification of individual dolphins, AFCD had preliminary assessment on the movement patterns of CWDs across the administrative boundary.

39. The Chairman considered that the independence of the studies would not be compromised as long as AAHK and AFCD maintained their own database and standalone analysis could be conducted as necessary. He and another Member supported combining the two sets of data for analysis. The Member pointed out that inconsistencies between the two data sets could be due to inadequate sampling frequency, and combining the data sets might be an effective way to increase the sample size without putting in extra resources.

40. Mr Dick Choi advised that AFCD had retrieved the 3RS data from AAHK and had combined it with AFCD's data for analysis. Based on the combined data, the estimate of overall abundance from 2016 to 2019 was 49, 51, 44 and 49 dolphins respectively, indicating a relatively stable dolphin abundance between 2016 and 2019. On top of the analysis of AFCD data, AFCD would continue to analyse the combined data of AAHK and AFCD in the coming years to better discern the temporal changes in dolphin abundance.

Action

Marine Ecology and Fisheries Enhancement Measures

41. The Chairman concurred with a Member that on top of commercially important species, AAHK should consider releasing species better suited to the diet of dolphins in the next fish restocking exercise.

42. A Member considered that it was most important to enhance the marine ecology of the proposed 3RSMP to provide an optimal habitat for dolphins in the long term. From his experience, he advised that the deployment of oyster baskets at seawalls had a more dispersed effect in attracting marine organisms as compared with AR deployment which had only localised effect. As such, he suggested that AAHK should review the enhancement measures for the entire shoreline of the 3RSMP.

43. A Member expressed disappointment towards the design of the 3RS vertical seawalls, which appeared rigid and were visually obtrusive to the surrounding natural environment.

44. A Member considered that it was technically feasible to mount oyster baskets on the precast concrete blocks that constituted the vertical seawall, with a view to creating a more natural-looking surface.

Item 4 : Any other business (Closed-door session)

45. There was no other business for discussion at the meeting.

Item 5 : Date of next meeting (Closed-door session)

46. The next ACE meeting was scheduled for 5 October 2020 (Monday). Members would be advised on the agenda in due course.

ACE Secretariat
October 2020