Item 3.2 of the Provisional Agenda

REPORT BY THE HEAD OF THE WESTPAC OFFICE ON THE WORK ACCOMPLISHED SINCE THE 12TH INTERGOVERNMENTAL SESSION (2-5 APRIL 2019, MANILA, THE PHILIPPINES)

Summary

This report presents a summary of the key activities and accomplishments achieved by the Sub-Commission and WESTPAC Office since the 12th session of the Sub-Commission (2-5 April 2019, Manila, the Philippines) up to late March 2021.

The Sub-Commission is invited to consider, with a view of adopting, the Report as is or amended at the present session, and further provide strategic guidance on the future efforts, programme development and implementation.
Introduction

1. Since the last intergovernmental session (WESTPAC-XII, 2-5 April 2019, Manila, the Philippines), the IOC Sub-Commission for the Western Pacific (WESTPAC) continued to assist IOC Member States in the region to enhance their ocean governance by strengthening science-policy interface, and concerting the joint actions of research communities to address critical challenges for sustainable development.

2. The UN Decade of Ocean Science for Sustainable Development (2021-2030) offers a grand opportunity for IOC and its Sub-Commission to accelerate the development of science-based solutions. In addition to implementing its core programme activities, the Sub-Commission also took a lead in the preparations and promotion of the Decade in the region.

3. Undoubtedly the pandemic caused huge impacts on our lives and work. A lot of planned workshops, trainings, field surveys and demonstration activities had to be cancelled or postponed, including the 11th WESTPAC International Marine Science Conference (originally scheduled for 25-28 August 2020, Indonesia).

4. The WESTPAC Office had to telework for a couple of months from March-May 2020, but took immediate actions to remedy the negative impacts of the pandemic on the Sub-Commission’s work. Since February 2020, significant efforts have been made to develop and implement all WESTPAC programmes/projects/working groups in a virtual or hybrid mode, despite its limited effectiveness and efficiency in developing cooperation and collaboration, particularly for the Sub-Commission, a regional body required to deliver its supports on the ground.

5. It was estimated that more than 100 virtual consultations/meetings were organized since early 2020. These efforts focused not only on programme implementation, but also on mobilizing actions for the UN Decade of Ocean Science for Sustainable Development. I would like to thank all WESTPAC colleagues and friends, particularly our officers, advisory group and staff in the Office for their great efforts under this very difficult and stressful conditions of the pandemic.

6. Over the intersessional period, continued support was generously provided by many Member States in the region for the development and implementation of WESTPAC programmes and activities. The office has been hosted by the Department of Marine and Coastal Resources, Thailand, with the provision of office space, facilities and operational cost. The Sub-Commission received extrabudgetary support in cash from China via its voluntary contribution to the IOC Special Account, from Japan via the UNESCO/Japanese Funds-in-Trust, and from the Republic of Korea via the UNESCO/Korea Funds-in-Trust. A significant in-kind support was also provided by most Member States for various WESTPAC activities. Meanwhile, the support from various international partner organizations, including PICES, SEAFDEC, PEMSEA shall be acknowledged.

Key accomplishments

7. Despite the negative impact of covid-19, limited financial resources and the extremely overstretched situation of the WESTPAC Office, the Sub-Commission has been endeavoring to continuously advance marine science development and cooperation, to promote and advocate the UN Decade, and align or further develop potential Decade programmes/projects for the Decade.

8. The Sub-Commission’s work has been forming concrete regional components of IOC or its co-sponsored global programmes and efforts addressing global objectives, including GOOS, IPHAB, GOA-ON and OA data portal, as well as its Capacity Development Strategy (2015-2021).

9. The Sub-Commission has been co-designing and co-implementing its programmes/activities, with Member States in the region to address their ocean sustainability challenges. Its current programmes and activities, which are structured around three key regional priority areas: ocean and
climate, marine biodiversity and seafood security, and health of ocean ecosystems. These programmes include two regional GOOS (NEAR-GOOS and SEAGOOS), fourteen programmes/projects, one regional network of training and research centers on marine science (RTRCs), and two Working Groups respectively on Marginal Seas and Ocean Oxygen Network.

10. Some highlights in the reporting period can be concisely summarized as follows:

**Mobilizing actions for the UN Decade of Ocean Science for Sustainable Development (2021-2030)**

11. One of the Sub-Commission’s focus has been on the preparations of the UN Ocean Decade. WESTPAC has been taking a lead in the region in the promotion of, and engaging individuals, institutions, and countries into the preparations of the Decade.

12. Shortly after the closure of the last session, WESTPAC, in collaboration with PICES and other partners in the region, led the organization of the **Decade regional planning workshop (31 July-2 August 2019, Tokyo, Japan)**, which culminated in a catalog of knowledge gaps and scientific priorities/questions that need to be addressed in the region, as well as a list of concrete recommendations in support of the Decade. The planning workshop received overwhelming interests with more than 160 participants from 18 countries, spanning communities from ocean policy and management, ocean science and technology, business and industry, NGOs and civil society, donors and foundations, and various intergovernmental and international bodies/programmes. The generated outputs informed the preparation phase of the Decade and the development of the implementation plan.

13. In line with the overall preparations for the Implementation Plan, WESTPAC had been motivating experts, institutions, and governmental agencies into the two major peer-reviews of the Decade Implementation Plan, until the final version was submitted to the 75th Session of UN General Assembly for considerations.

14. Central to the Ocean Decade is the transformation of ocean science into solution-orientated research that responds to existing and emerging societal needs, WESTPAC convened the **Decade Regional Dialogue on “co-designing the ocean science we need for the ocean we want” (virtual, 10 November 2020)**, engaging a wide range of ocean stakeholders to explore the region’s opportunities and challenges and discuss best practices to deliver co-designed, solution-oriented research that could respond to the needs for sustainable development in the region. There were 185 attendees from 35 countries including 10 LDCs (Least Developed Countries) and 14 SIDS (Small Island Developing States). The panelists represented a wide range of stakeholders, which included the private sector, industry, early career ocean professionals, policy community, and both natural and social science research community.

15. The Sub-Commission did not only promote in the region and engage in the preparations of the Decade, but was also expected to make a strong contribution to its programme of work. The importance of the regions for the UN Decade has been emphasized by IOC Executive Secretary in his report to the 54th Session of IOC Executive Council (virtual, 3-9 Feb 2021). In response to the call for Decade Actions, WESTPAC has been mobilizing actions from various stakeholders, and developing potential proposals for Decade Programmes/Projects, while capitalizing on its existing programmes and networks. This will be reported in detail under the Agenda Item 6: **Contribution to the UN Decade of Ocean Science**.

16. To further catalyze partnerships and initiate co-design of transformative solutions amongst diverse stakeholder groups in the region, WESTPAC will organize a **Decade Regional Kick-off event (24-25 August 2021)**, hosted by Thailand, and develop the **Decade Regional Conference Series in conjunction with its triennial International Marine Science Conference**. Meanwhile,
the Sub-Commission has also been assisting our MS in planning for the Decade by providing strategic and technical support for their decade related activities at national level.

**Delivering knowledge and services to serve the needs of our Member States to address ocean sustainability challenges**

- **Developing operational ocean forecasting services to support decisions**

  17. The new version of the SEAGOOS Ocean Forecasting System has been providing, on a 24 x 7 basis, 5-day forecasting products and downloadable archived data for surface wave height, wave period, sea level, three-dimensional ocean current, sea temperature and salinity. In addition to developing higher-resolution OFS, the Sub-Commission took initiatives to apply the System to various maritime activities, as demonstrated through the WESTPAC workshop on “Delivering Ocean Forecasting Services for Coral Reef Conservation” (11-13 September 2019, Phuket Thailand). A trial version of the Thai Coral Bleaching Alert System was developed as its initial phase. The path from requirements to development to operations demonstrates the close links between research and development, production, and operational applications.

- **Monitoring ocean acidification and researching its impacts**

  18. The Sub-Commission has been fulfilling its voluntary commitments to the UN Ocean Conference, with one focusing on ocean acidification monitoring (#OceanAction15274). Core activities include, but not limited to, regular regional programme development workshops and symposia, the development of Standard Operating/Monitoring Procedures (SOPs) and their demonstrations, capacity development and the transfer of technology among institutions and countries.

  19. Based on the survey conducted in March 2020, with the knowledge transferred via the WESTPAC OA programme, most of countries have already established their monitoring programmes and been conducting sustained observations, while others have been sparing no efforts in improving their research infrastructure and deploying relevant monitoring equipment in the pilot sites. The Sub-Commission is convening a regional webinar series on OA and going to conduct an inter-calibration exercise among interested laboratories in the region. Meanwhile, efforts have been initiated to understand the OA status in the region, and to conduct a pilot research on its impacts on mariculture.

- **Establishing ocean hypoxia research and monitoring network**

  20. Ocean deoxygenation, a decline in oxygen concentration in ocean, causes a variety of impacts on ocean ecosystems which require oxygen for productivity and provide services that sustain people’s livelihoods. WESTPAC initiated an Ocean Oxygen Network in a bid to facilitate interactions and communication among researchers studying various aspects of deoxygenation and help inform policymakers on the issue of declining oxygen in their coastal and open waters. The heated discussions at the WESTPAC workshop on Ocean Oxygen (20-22 November 2019, Manila, the Philippines), finally led to the formulation of a plan of joint actions, which include reviewing all published papers related to eutrophication and ocean hypoxia in the region and establishing a one-stop website or database containing all relevant information and technical guidelines for dissolved oxygen measurement.

  21. To advance the understanding of ocean deoxygenation, participants also identified several WESTPAC hypoxia pilot sites where eutrophication, harmful algal blooms, and massive fish mortalities frequently occurred over the recent years. Building on their existing capacities, joint research, monitoring, inter-comparison, and assessment will be pursued in a concerted manner, with a view to clearly understanding the ocean deoxygenation process in these pilot sites.
• **Combatting marine plastic pollution**

22. The Sub-Commission has been endeavoring to develop research capacity of its member states for combating marine plastic pollution, since the establishment of a new programme on microplastic research and monitoring (WESTPAC-XI, 21-23 April 2017, Qingdao, China). Building on its first and second regional workshops (respectively on 20-22 September 2017 in Phuket, Thailand, and 15-17 October 2018 in Shanghai, China), the Sub-Commission convened the WESTPAC Scientific Symposium and 3rd WESTPAC workshop on microplastic research and monitoring (6-8 November 2019, Shanghai China), co-organized and supported by the Plastic Marine Debris Research Centre, East China Normal University (ECNU) of China, the host institution of the Regional Training and Research Centre (RTRC) on Marine Plastic Debris and Microplastics.

23. The first day’s scientific symposium saw a broad range of ongoing research activities on marine microplastics in the region, marking great progress of the WESTPAC scientific communities and demonstrating the value of WESTPAC in initiating the network in microplastic research and monitoring. Expert from Bangladesh presented the first scientific finding on microplastic in the Bay of Bengal, which was published owing to the knowledge transfer via the WESTPAC established research network.

24. A steady progress was made in these pilot sites monitoring microplastics in beach sediments based on the WESTPAC harmonized method. Participants also considered the need for a comparative study on the river flux of marine plastic litters and micro-plastics in the region, and decided to form an open-ended working group for further deliberations. To meet the demands for enhancing national and regional capacity for microplastic research and monitoring, the Regional Training and Research Centre, hosted in ECNU, developed and scheduled professional hands-on trainings for 2020, which was unfortunately postponed due to the COVID-19. Furthermore, a set of harmonized Standard Operating Procedures (SOPs) in the region for sampling and analysis for MPs in beach, water column and marine biota were drafted and put into trials in Yangzi river. The SOPs will be finalized soon.

• **Transferring and applying remote sensing techniques for marine protected area management**

25. Remote sensing has become an important tool for the management of the marine environment, and for mapping marine habitats. To promote its development and application in the region, the Sub-Commission took “demands driven, and solution oriented” approach to the development and application of remote sensing techniques to serve the needs of Member States. In close communications with national/local authorities, WESTPAC selected three MPAs, Libong Island and Pha-ngang Island in Thailand, and Con Dao site in Vietnam as the pilot sites based on their needs, and started to transfer relevant technology, and assisted in producing seagrass maps for marine protected area management. The first training course for Thai researchers on Google Earth Engine was conducted from 16 December to 18 December 2020.

• **Delivering knowledge on harmful jellyfish for public health**

26. Jellyfish invasion in WESTPAC countries is becoming an emerging threat to human as more and more cases of jellyfish stung and sightings of jellyfish on beaches have been reported. Jellyfish has wrought havoc on tourism industry in coastal areas. Since the establishment of a regional harmful jellyfish research network in 2017, the Sub-Commission has been coordinating the joint research on harmful jellyfish, with “The Field guide to the Jellyfish of Western Pacific” published in early March 2021. To raise public awareness, outreach and awareness activities on jellyfish blooms and emergency response has been conducted for hoteliers, coastal government authorities and school students.
27. Meanwhile, in response to the demands of member states. The Sub-Commission has been doing its utmost to materialize these demands into concrete actions, which include the joint development on the 2nd Cooperative Study of Kuroshio, multidisciplinary studies on interactions between human activities and ocean system over the marginal seas, and rapid detection technologies for harmful algal blooms towards the early warning and mitigation of its negative impact. More details will be presented under the Agenda Item 5 & 6.

**Capacity development**

28. Capacity development has been an integral part of each WESTPAC programme and activity. To assist Member States achieving SDG 14 and contribute to the implementation of the IOC Capacity Development Strategy (2015-2021), WESTPAC adheres to its guiding principle for capacity development: inclusive, adaptive and empowerment; co-design and co-develop its capacity development activities in close cooperation with Member States to suit their needs in the sustainable development of ocean, seas and coasts. For more details, please refer to the WESTPAC Approach to Capacity Development.

29. Over the last intersessional period, the Sub-Commission has been fulfilling its voluntary commitment to the UN Ocean Conference - “Develop research capacity and transfer of marine technology through the UNESCO/IOC Regional Network of Training and Research Centres (RTRCs) on Marine Science” (#OceanAction15266).

30. The Regional Training and Research Centre on Ocean Dynamics and Climate (RTRC-ODC) and Regional Training and Research Centre on Marine Biodiversity and Ecosystem Health (RTRC-MarBEST) have been operating smoothly with annual trainings organized based on the needs of early career ocean scientist. The RTRC-ODC in China conducted the 9th annual international training on Climate Dynamics and Air-sea Interactions (17–28 June 2019, Qingdao, China), and the RTRC-MarBEST in Indonesia organized its 4th annual international training on Assessment of Carbon Stock and Sequestration in Seagrass (4–12 November 2019, Bintan, Indonesia), and 5th on Mangrove Health Index Development (16-21 November 2020, virtual).

31. Meanwhile, other three RTRCs, respectively on Reef Management and Restoration, Marine Toxin and Food Security, and Plastic Marine Debris and Microplastics are being setting up, and hosted by the University of the Philippines, East China Normal University of China, and the Institute of Oceanography, Vietnam, respectively. Once the pandemic ends, the three RTRCs will be ready to receive young scientists from within and outside region. An IOC side event entitled “the Development of an IOC Regional Network of Training and Research Centres (RTRCs) on Marine Science in the Western Pacific and its adjacent regions: as a commitment to the UN Decade of Ocean Science for Sustainable Development (2021-2030)” took place on 27 June 2019, Paris during the 30th Session of the IOC Assembly (26 June-3 July 2019, Paris, France).

32. The Sub-Commission initiated “UNESCO/IOC Regional Network of Training and Research Centres on Marine Sciences in the Western Pacific” was a targeted action to achieve the expected outputs of the IOC Capacity Development Strategy (2015-2021). The initiative has been also recognized as an effective mechanism and best practice in the region for capacity development at the UN Decade Regional Planning Workshop (31 July-2 August 2019, Tokyo, Japan), and the Regional Dialogue on Co-designing Ocean Science for the Ocean We Want (Virtual, 10 November 2020).

33. Operating in the field, the Sub-Commission demonstrated its unique value for IOC in addressing its Member States’ specific needs directly. For instance, WESTPAC has been assisting Viet Nam to enhance its research capacity for ocean acidification and molecular techniques with a national training workshop conducted on 22–23 October 2019, Nha Trang, Viet Nam; and Thailand with a national training course organized on 25-27 November 2020, Phuket, Thailand.
34. To improve the regional and national capacity for molecular techniques for resources management and biodiversity conservation, in late 2019 the Sub-Commission kicked off the third phase of a UNESCO/Korean Funds in Trust project “Enhance the Capacity for Species Identification and Genetic Analysis on Marine Organisms in the Coral Reef Ecosystems in the Western Pacific”. In addition, WESTPAC also started in June 2019 the implementation of another UNESCO/Japanese Funds-in-Trust project aiming to accelerate the transfer of marine technology for marine biodiversity conservation and seafood safety, particularly on coastal habitat conservation, marine toxins and seafood safety, and other hotspot biodiversity related issues, such as the impact of ocean acidification and climate change, and coral reef restoration.

Challenges and perspectives

35. WESTPAC’s work has been forming a concrete regional component of IOC or its co-sponsored global programmes and efforts addressing global objectives, including GOOS, IPHAB, GOA-ON and OA data portal, as well as its Capacity Development Strategy (2015-2021). Even more importantly, the Sub-Commission has been doing its utmost to concert joint actions of research communities with policy communities and other stakeholders.

36. Over the past ten years, WESTPAC has been operating under a significantly tight financial situation, with a limited amount of programme budget allocated from IOC. The WESTPAC Office has been operating with a sole IOC professional responsible for a broad spectrum of IOC high level objectives: developing, overseeing, mobilizing funding, and coordinating all programmes and activities; providing strategic, policy, technical and secretariat support to the Sub-Commission, its various groups and regional governing mechanism. In addition, the Office also responds to the UN, IOC and UNESCO programme oversight, governance, and reporting requirements. The incompatibility of the current size of the secretariat compared to the unprecedented demands is the main risk for positioning IOC in the region as the lead agency for ocean research, and the coordination agency for the UN Decade.

37. Humans cannot survive without nature, but Nature can thrive without humans. The COVID-19 pandemic has proven once again the inextricable link between our survival, prosperity and Nature’s health, and the urgency for us to be united to respond to sustainability challenges. The ocean is an enormous economic asset, and ocean economy will play a critical role, but in a sustainable way. The ocean health and a sustainable ocean economy are vital to “building back better”- a more resilient, equitable, and responsible society in harmony with Nature.

38. Scientific research and monitoring are critical to decision-making and ocean management for a sustainable ocean economy. We need to build literacy and skills, share and apply knowledge, support marine science capacity building, information exchange, collaboration and technology transfer.

39. The UN Decade of Ocean Science for Sustainable Development (2021-2030) provides a timely and much needed opportunity for all ocean stakeholders, and the Sub-Commission to accelerate the development of ocean solutions.

40. We would express our sincere thanks once again to all our officers, groups, as well as our Member States and partners for their ever-growing commitment and support.