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Item 4.11 of the Provisional Agenda

**UPDATE ON IOC CUSTODIANSHIP ROLE IN RELATION TO
SDG 14 INDICATORS, 2023**

Summary

In Decision XXIX/9.1, the IOC Assembly at its 29th session in 2017 took note of the assignment of IOC as a custodian agency for specific SDG 14 indicators, particularly under Targets 14.3 and 14.a. This means that the IOC is responsible for the methodological development, measurement of these SDG indicators, and their reporting at the global scale. In [Decision EC-LI/4.3](#), the IOC Executive Council at its 51st session in 2018 endorsed the implementation of the second edition of the *Global Ocean Science Report* and its role as the main mechanism for reporting towards the SDG Target 14.a. At the same session, the IOC Executive Council, in [Decision EC-LI/4.4](#), welcomed the methodology for Indicator 14.3.1 as presented in document [IOC/EC-LI/2 Annex 6](#).

The present document provides an overview of the progress regarding the indicators for Targets 14.3 (ocean acidification) and 14.a (marine scientific research) for which the IOC is identified as custodian agency, as well as for the SDG 14 indicators 14.1.1 and 14.2.1 for which the IOC is providing technical support to UNEP, encouraging Member State engagement and data submissions.

Financial and administrative implications: paragraph 29.

The proposed decision is referenced Dec. A-32/4.11 in the Action Paper (document IOC-32/AP Prov.)

Introduction

1. In 2015, the Member States of the United Nations adopted the 2030 Agenda and a set of Sustainable Development Goals (SDGs), including a dedicated goal on the ocean, SDG 14, which calls to 'conserve and sustainably use the oceans, seas and marine resources for sustainable development'. This constitutes an essential point of reference for IOC's engagement with its Member States as well as for its programmes at the global, regional and country levels.

2. The IOC Executive Council at its 49th session, through decision EC-XLIX/4.1, decided that IOC should 'provide normative support to countries to establish, implement, monitor and report on implementation of the Ocean SDG 14 and its related targets'.

3. On 6 March 2015, the United Nations Statistical Commission (UNStats), at its 46th session, created the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs) composed of Member States with the task to: (i) develop an indicator framework for the follow-up and review of the goals and targets of the 2030 Agenda at the global level; (ii) provide technical support for the implementation of the approved indicator and monitoring framework over the 15-year period towards 2030; and (iii) regularly review methodological developments and issues related to the indicators and their metadata.

4. In 2016, the IAEG-SDG agreed on a list of indicators for all SDGs, which was approved by the UN Statistical Commission. IOC was identified as the custodian agency for two SDG 14 targets and related indicators, i.e. ocean acidification (Target 14.3) and marine scientific research (Target 14.a). A tier Classification for Global SDG Indicators was also put in place in order to assess the degree of operationality for each indicator of the SDGs, ranging from Tier III (no internationally established methodology), through Tier II (whereby the Indicator is conceptually clear, has an internationally established methodology and standards are available, but data are not regularly produced by countries), to Tier I (indicator conceptually clear, with internationally agreed methodology and data regularly collected for at least 50% of countries). The two indicators under IOC custodianship are:

- Indicator 14.a.1: Proportion of total research budget allocated to research in the field of marine technology.
- Indicator 14.3.1: Average marine acidity (pH) measured at agreed suite of representative sampling stations.

5. IOC is also identified as a technical support agency for two additional SDG targets indicators, namely Target 14.1 on marine pollution and Target 14.2 on marine and coastal ecosystems, both under UN Environment custodianship. The indicators for these two targets are:

- Indicator 14.1.1: Index of coastal eutrophication and floating plastic debris density.
- Indicator 14.2.1: Number of countries using ecosystem-based approaches to managing marine areas

Progress with the development of methodologies under IOC custodianship (Indicators 14.a.1 and 14.3.1)

The technical support provided by IOC includes the development of agreed methodologies to populate respective SDG indicators with data, as well as underpinning data standards to collect data from Member States and report these globally to the UN Statistical Division. For each indicator the methodology is addressing the following: definitions, sampling approach, guidelines for measurement, data quality control, data analysis, data visualization, and reporting aspect ***Indicator 14.3.1: Average marine acidity (pH) measured at agreed suite of representative sampling stations***

6. IOC developed the methodology for the SDG Indicator 14.3.1 and is now collecting relevant data from Member States and sending annual reports to the United Nations. The [methodology for](#)

[SDG Indicator 14.3.1](#) provides the necessary guidance on how to conduct ocean acidification observations, using different types of technology and measuring different variables, including pH, carbon dioxide partial pressure [$p\text{CO}_2$], total dissolved inorganic carbon [CT/DIC], and total alkalinity [AT/TA], as well as salinity and temperature. It further provides support on how to and what kind of data sets to submit to IOC, to ensure the production of quality controlled global and possibly regional products, as requested by the Inter-agency Expert Group on SDG indicators (<https://unstats.un.org/sdgs/iaeg-sdgs/>). The methodology was developed in collaboration with IOC's International Oceanographic Data and Information Exchange Programme (IODE), international ocean acidification experts (including data managers) and the Global Ocean Acidification Observing Network (GOA-ON).

7. In July 2018, the IOC Executive Council at its 51st session endorsed the methodology ([IOC/EC-LI/2 Annex 6 rev.](#)), and, with the upgrade to Tier II granted by the IAEG-SDG in November 2018, the Indicator is now recognized as 'conceptually clear, has an internationally established methodology and standards are available, but data are not regularly produced by countries.'

8. IOC Member States and experts in the respective countries, as well as National Oceanographic Data Centres (NODCs) have been invited since 2019 to contribute to the data collection for the SDG 14.3.1 through IOC Circular Letters.

9. IOC Members States are strongly encouraged to submit the relevant data for the SDG Indicator 14.3.1. The data submitted should be validated as 'national data submissions from the Member States of IOC'. All data submissions should follow the instructions and guidelines laid out in the methodology and follow the format of the associated data and metadata files.

10. To facilitate data submission, IOC has developed an online portal (<https://oa.iode.org/>) based on the methodology for SDG Indicator 14.3.1 and the associated data and metadata files, in cooperation with the IODE. The online data submission interface allows for the uploading of the completed data and metadata files, with some additional information. Open data access is encouraged. It is expected that data and metadata contributions will be shared and used under one of three Creative Common licences. The data submission process through the portal includes detailed information explaining and outlining all the steps outlined above.

11. The IOC Secretariat continues to work closely with data managers and representatives of national and international databases hosting ocean carbonate chemistry data relevant to SDG 14.3.1 to further improve and simplify the data collection process by implementing a federated data system linking the databases and enabling the automated exchange of relevant datasets. The system is expected to be in place in time for the next call for data submissions towards the SDG 14.3.1 Indicator in late 2023.

12. Since 2019, information provided to the SDG [14.3.1 data portal](#) was used for the annual (each February) submission to the office of the UN Secretary-General for publication in July of the same year. The data submitted towards the SDG 14.3.1 Indicator is also published annually in the Sustainable Development Goals Report. Since the launch of the SDG 14.3.1 data portal in December 2019 an increasing number of ocean acidification observations have been reported to IOC and are included in the annual 14.3.1 assessment (308 stations in 35 countries reported in 2022 to 539 stations in 41 countries in 2023). However, the current global coverage of ocean acidification remains inadequate, with gaps in observations and data in all areas of the ocean. The rate of change in ocean acidification, its pattern and scale, show great regional variability and therefore require observations with high spatial and temporal resolution.

13. IOC also contributes the latest findings and data collected towards the SDG 14.3.1 Indicator for the chapter on ocean acidification to the World Meteorological Organization's (WMO) annual *Statement on the State of the Global Climate*. This report informs the Conference of Parties of the United Nations Framework Convention on Climate Change (UNFCCC) and the *IOC State of the Ocean Report*.

Indicator 14.a.1: Proportion of total research budget allocated to research in the field of marine technology

14. In 2017, based on the testing through the Global Ocean Science Report and following Decision XXIX/9.1, the IOC Assembly welcomed the proposed methodology for Indicator 14.a.1.

15. The IOC Executive Council in July 2018 in its Decision IOC/EC-LI/4.3 reaffirmed the importance of the *Global Ocean Science Report* (GOSR) as the main mechanism to measure progress towards the achievement of Sustainable Development Goal (SDG) 14, Target 14.a (SDG Indicator 14.a.1) and recognized that investments in ocean science are key to developing sustainable ocean economies, however as the next full edition of the GOSR is expected to be published in 2025, IOC Secretariat, in consultation with the GOSR 2020 Editorial Board, launched via Circular Letter [2919](#) in January 2023 the Global Ocean Science Report Tracker (GOSR tracker) questionnaire to collect basic information on current ocean science capacity in a given country, including SDG 14.a.1 data. The updated information submitted to UN DESA includes data from 39 Member States and will be also published in July 2023.

16. The 2023 SDG 14.a.1 submission concluded the following statement:

Overall, the portion of gross domestic expenditure on research and development (GERD) devoted to ocean science is noticeably small given that the ocean covers more than 70% of the surface of our planet. On average, only 1.1% of national research budgets are allocated for ocean science, with percentages ranging from around 0.01% to 9.5%, with the biggest economies also investing the greatest absolute amounts. Nevertheless, the ocean science budget remains a small proportion compared to the modestly estimated US\$1.5 trillion contribution of the ocean to the global economy in 2010 and the 2.5% of world gross value added... And while the number of countries contributing to the assessment is not consistent for all years, it can be stated ocean science budgets have varied significantly between 2013 and 2021 within the individual countries. The lowest global averages were recorded for 2019 and 2020, which might be the result of changing priorities, particularly in 2020 possibly due to the global sanitary crisis of COVID-19. Future assessments will provide the necessary information to verify the detected trends and related assumptions in ocean science funding as well as the impact of the UN Decade of Ocean Science for Sustainable Development.

17. In addition to the submission of SDG 14.a.1 to UN DESA, the full analysis of the GOSR tracker questionnaire will be presented in the GOSR Tracker publication meant to provide key up-to-date numbers, e.g. human and technical capacity in addition to some preliminary assessments of the effects of COVID-19 on Ocean Science.

18. The preparation of the GOSR 2025 is expected to start during the third quarter of 2023.

Progress with the development of methodologies benefiting from IOC technical support (Indicators 14.1.1 and 14.2.1)

Indicator 14.1.1: Index of coastal eutrophication and floating plastic debris density

19. The IOC is identified as a technical advisory agency to support the work to develop the Index for Coastal Eutrophication Potential (ICEP) as the indicator for Target 14.1 on nutrient pollution of coastal marine ecosystems.

20. The development of the ICEP to the next tier is carried out under the coordination of the IOC, while UNEP is the custodian agency for Indicator 14.1.1. To implement ICEP, it is required to develop a component on a dissolved silica model and evaluate the effectiveness of ICEP in predicting coastal impacts at the global scale. To promote and increase the understanding of the potential of ICEP as indicator, the IOC in 2019 produced an animation for YouTube: <https://youtu.be/qW2nV2bsyCs>. The

detailed plan of work was elaborated by the IOC N-CIRP Group of Experts in 2017. The work required funding for two postdoctoral scholars and an expert workshop to validate models. Identifying funding proved to be a hard challenge but was solved in late 2021 as a combination of funds from UNEP via a UN to UN agreement as well as Norwegian (NORAD) funding. The work is ongoing and will be completed in second quarter 2024.

Indicator 14.2.1: Number of countries using ecosystem-based approaches to managing marine areas

21. Annual refinements of indicators are included in the indicator framework as they occur. In line with the mandate of the group, the IAEG-SDGs proposed 36 major changes to the framework in the form of replacements, revisions, additions and deletions as part of the 2020 Comprehensive Review, which were approved by the Statistical Commission at its 51st session held in March 2020.

22. With regards to Indicator 14.2.1, the indicator was changed as follows: “Number of countries using ecosystem-based approaches to managing marine areas”.

23. UNEP is the custodian agency of this indicator and works in close collaboration with its Regional Seas Conventions and IOC-UNESCO, the technical support agency for this Indicator.

24. The development of the methodology for the SDG 14.2.1 Indicator started with a review of existing indicators and methodologies currently used by Regional Seas Programmes and other key intergovernmental, international and regional bodies that provide for a number of existing indicators for integrated management and planning strategies for socio-ecological systems. Regional Seas Coordinated Indicator 22 ‘Integrated Coastal Zone Management’ (ICZM) was selected as the primary indicator. The methodology also includes indicators based on the implementation status of Marine Spatial Planning (MSP) or other area-based, integrated planning and management in place. This indicator is currently in Tier II status.

25. Contributing to this target, UNESCO-IOC and the European Commission launched in 2017 a “Joint Roadmap to accelerate Maritime/Marine Spatial Planning (MSP) processes worldwide” ([MSProadmap](#)). This initiative contributes to sketching out a vision and a role for ecosystem-based MSP in implementing 2030 Agenda for Sustainable Development and, in particular, the dedicated SDG 14.2, in a comprehensive, consistent and holistic way, both within the European Union and beyond at the international level with the objective to cover at least 1/3 of the global maritime areas under national jurisdiction benefiting from marine spatial plans by 2030. In 2022 an Updated MSProadmap (2022–2027) was launched by both institutions to continue fostering MSP globally.

26. In 2020 and 2022, IOC conducted surveys with its Member States to document progress in the national implementation of MSP. The results of the 2020 survey were updated through desk research and presented in the [IOC State of the Ocean Report 2022 \(Pilot edition\)](#). In the same year, IOC provided inputs about target 14.2.1 to the 2022 UN Conference Interactive Dialogue 2 ([Concept Paper on Managing, protecting, conserving and restoring marine and coastal ecosystems](#)). Answers are still received as the countries advance their MSP processes, thus results are constantly updated and available at <http://www.mspglobal2030.org/msp-roadmap/msp-around-the-world/>.

27. Also in the Pilot StOR, a new typology of MSP, based on 10 criteria (scale, scope, purpose, political commitment, implementation framework, main objectives, spatial allocation, stakeholders involved, participatory process, and funding), was created in order to assess whether there are commonalities, differences and/or trends regarding approved marine spatial plans.

28. As part of the new phase of the MSPglobal project, co-funded by the European Commission, IOC will develop a web tool to monitor the MSProadmap (i.e., to track the proportion of maritime areas under national jurisdictions covered by approved marine spatial plans) and to present the results of the typology analysis, which will be broadly implemented for the first time in 2023. Such initiative will allow IOC to keep providing technical support to UNEP to monitor Target 14.2.1.

Financial and administrative implications

29. The IOC Secretariat, although acknowledging with gratitude the continued financial support by Germany and the Republic of Korea, will require additional funds to further develop, improve and maintain the 14.3.1 data portal and 14.a.1 data collection, to build the capacity of Member States to successfully implement the methodology for SDG 14.3.1 and 14.a.1 Indicator and to ensure IOC's leadership in the field of ocean acidification research and observation as well as knowledge exchange. The expected SDG 14.3.1 portal improvements and increased capacity development by experts and Member States will allow the IOC Secretariat to request that the SDG 14.3.1 Indicator be classified as Tier I (indicator conceptually clear, with internationally agreed methodology and data regularly collected for at least 50% of countries).