INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

INFORMATION DOCUMENT

UPDATE ON IOC CUSTODIANSHIP ROLE
IN RELATION TO SDG 14 INDICATORS, 2019

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 and measurement of these SDG indicators at 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.

This information document provides an overview of the progress of the indicators 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 other UN entities.
Introduction

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 ‘converse 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.

The IOC Executive Council at its 49th session through decision EC-XLIX, Dec.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’.

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.

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) 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.

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**: Proportion of national exclusive economic zones managed using ecosystem-based approaches.

Progress with the development of methodologies under IOC custodianship

The technical support provided by IOC includes the development of agreed methodology to populate respective SDG indicators 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 visualisation, and reporting aspects.

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

In 2017, based on the methodology tested through the *Global Ocean Science Report* and following Decision XXIX/9.1, the IOC Assembly welcomed the proposed methodology for Indicator 14.a.1
Subsequently, IOC requested the IAEG-SDGs to move up this indicator to 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). The IAEG-SDG agreed to the reclassification of this indicator at its 6th meeting in November 2017.

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.

The IOC Secretariat, in close cooperation with the Editorial Board of GOSR, developed a new online questionnaire for the second edition of the Global Ocean Science Report (GOSR 2020), to which Member States were invited to report on the current status report of ocean science (Circular letters, 2729 and 2744). New topics addressed in the questionnaire included ocean science capacity building and national infrastructures/activities related to the 2030 Agenda for Sustainable Development, with particular focus on SDG 14.

The GOSR Editorial Board produced detailed outlines for all chapters of the GOSR 2020 during its 2nd Meeting in Zanzibar in May 2019, which was organized with financial support by the Western Indian Ocean Marine Science Association (WIOMSA) and Belgium (Flanders). The GOSR 2020 will provide the baseline information to track progress made to build capacities all over the world to reverse the cycle of decline in ocean health and create improved conditions for sustainable development of the ocean, seas and coasts over the period of the UN Decade of Ocean Science for Sustainable Development (2021–2030), as requested by the IOC Member States.

In addition to delivering information on SDG Target 14.a, the GOSR 2020 will also present an overview of the location of ocean sciences hotspots and details on who is involved in ocean sciences. By providing information on the gender of research personnel, the GOSR 2020 links SDG 14.a with SDG Target 5.5 (‘Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life’) and supports IOC’s commitment to gender equality.

Financial support provided by the Republic of Korea for the development of the GOSR 2020 data portal and the bibliometric analysis, as well as support in kind, and the financial support by the United Kingdom for bibliometric research has enabled the progress of the GOSR 2020 this far. Continued and additional financial support is requested to allow for further work required and for the publication of the GOSR 2020.

Looking forward, the GOSR 2020 is scheduled to be released in 2020 at the High-Level UN Conference to Support the Implementation of SDG 14 (UN Ocean Conference) in Lisbon, Portugal. The GOSR data portal will provide a full overview of the information presented in the Report. For more details on the progress of the GOSR 2020 please refer to IOC/INF-1366.

Indicator 14.3.1 Average marine acidity (pH) measured at agreed suite of representative sampling stations

The Global Ocean Acidification-Observing Network (GOA-ON) and other ocean acidification experts have provided technical advice in the development of the SDG 14.3.1 Indicator Methodology. A dedicated expert meeting held in January 2018 at IOC resulted in the preparation of a draft methodology. Further expert reviews took place between March and May 2018, with the Global Ocean Acidification Observing Network (GOA-ON) Executive Council validating the methodology before its finalisation in June 2018.
The Methodology was presented to and welcomed by the IOC Executive Council during its 51st session in Paris in July 2018 (Decision EC-LI/4.4). The Executive Council recommended the presentation of the SDG 14.3.1 Indicator Methodology to the UN Inter-agency and Expert Group on SDG indicators (IAEG-SDGs) to apply for an upgrade from Tier III ("No internationally established methodology or standards are yet available for the indicator, but methodology/standards are being (or will be) developed or tested") to Tier II. The upgrade to Tier II in November 2018 formally recognizes the "conceptual clarity" and international standards of the Methodology and data-gathering approach for SDG Indicator 14.3.1.

The SDG Indicator 14.3.1 Methodology provides the necessary guidance to researchers and Member States on how to conduct ocean acidification observation, using different types of technology and measuring different variables and provides support on how to and what kind of data sets to submit. In addition, the methodology provides guidance on how to submit the collected information to IOC/UNESCO for annual reporting purposes in a transparent and traceable manner. The methodology developed in collaboration with IODE (International Oceanographic Data and Information Exchange) will allow us to share ocean acidification data particularly beneficial for Least Developed Countries (LDCs) and small island developing States (SIDS) which have currently limited capacity in this area.

IOC has registered a Voluntary Commitment with the Communities of Ocean Action on Ocean Acidification. This Voluntary Commitment (#OceanAction31374), entitled "Measure and Report Ocean Acidification - Sustainable Development Goal 14.3.1 Indicator Methodology", highlights the scope of the Methodology and provides a platform for regular updates to the community.

Due to the novelty of collecting and assessing ocean acidification at the global scale, a survey to review the capacity of National Oceanographic Data Centres (NODCs) to store and serve data submitted towards SDG Indicator 14.3.1 was conducted by IOC in cooperation with IODE. The results of the survey indicated a disconnect between data managers and data providers, potentially leading to gaps in the collection of relevant data towards the indicator. The experts supporting the methodology development recognized that to achieve the respective Target 14.3 it would be essential to develop and maintain global data collection, related quality assessments and quality control capabilities. This requires the development of new infrastructure. A dedicated data portal and server for the data submitted towards Indicator 14.3.1 is being developed by and will be hosted at IODE. The data collected through the portal will also be used for visualization products, such as maps to visualize the rate of change on ocean surface pH, which will be part of the IOC submission to the SDG Report.

Following consultation with the ocean acidification research community and the relevant expert working groups, the need for more detailed guidance and explanations on how to use both the SDG Methodology and the associated data and metadata files was identified. In response, an IOC Manual and Guideline with specific guidance for data originators, data managers and IOC focal points on the SDG 14.3.1 Indicator methodology is being written. It is expected that the manual will be particularly useful to those researchers beginning new measurements, thereby strengthening the capacity development in ocean acidification research.

As the custodian agency for the SDG 14.3.1 Indicator, IOC has contributed chapters on ocean acidification to the WMO Statement on the State of the Global Climate in 2018 (WMO-No. 1233), the UN Sustainable Development Goals Report and the Ocean Observing System Annual Report Card 2019, to be published later this year.

A request to all Member States for data collected according to the SDG Indicator 14.3.1 Methodology will begin in August 2019. IOC will assure the collection and quality control of the data, and report on the results of the first data collection towards this indicator in its SDG Report.
In preparation for the data collection request to Member States, the SDG Indicator 14.3.1 Methodology and the associated data and metadata files for data collection are being disseminated and introduced to researchers and data managers during workshops and capacity building trainings. The 5th IOC-WESTPAC Workshop on Research and Monitoring of the Ecological Impacts of Ocean Acidification on Coral Reef Ecosystems (November 2018, Xiamen, China) and the Latin American and Caribbean Regional Symposium and Advanced Training on Ocean Acidification Monitoring (January 2019, Santa Marta, Colombia) and the Regional Education and Research Centre on Oceanography for West Asia (RCOWA) Ocean Acidification workshop: developing regional capacity for ocean observations in support of SDG Target 14.3 (June 2019, Tehran, Iran) were the first of many upcoming trainings, where participants are learning how to apply the methodology.

Continued financial support by Member States to the IOC Secretariat will be required to further develop, improve and maintain the 14.3.1 data portal, to build the capacity of Member States to successfully implement the SDG 14.3.1 Indicator methodology and to ensure IOC’s leadership in the field of ocean acidification research and observation.

Progress with the development of methodologies with IOC technical support

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

The IOC also directly supports the work to develop the Index for Coastal Eutrophication Potential (ICEP) and Floating Plastic debris Density as the indicator for Target 14.1 on nutrient pollution of coastal marine ecosystems.

Combining information about land-based nutrient loading with information about the ratio of land-derived nutrients (ICEP) would make it possible to assess the risk of problems such as coastal hypoxia/anoxia, toxic blooms etc. Using ICEP as an indicator of coastal eutrophication would also make it possible to use nutrient loading models to fill gaps in data spatially (e.g. by estimating ICEP for LMEs where no nutrient data has been collected) and to explore future scenarios and potential nutrient mitigation measures. This would allow for better and more complete regional and global overviews than are currently possible and thus better and more informative reporting under Indicator 14.1.1.

The development of the ICEP to the next tier is carried out under the coordination of the IOC for UN Environment, which is the custodian agency for Indicator 14.1.1. Without this work, it will not be possible to develop ICEP for global application for national reporting on SDG 14. A workshop was held in December 2017 to define the work required to fully develop ICEP during the period 2018–2019 subject to funding availability.

An Experts’ Workshop on Marine Pollution Indicators for SDG Target 14.1, held on 12-13 September 2018 at UNESCO Headquarters, Paris, brought together the task force charged to work on the science of marine pollution indicators, data capture and dissemination and to advance the global methodology on eutrophication and plastic debris assessment. A review of existing indicators and methodologies currently used highlighted three main approaches for monitoring coastal eutrophication and marine litter, and four main types of indicators for coastal eutrophication: (a) indicators for the cause of eutrophication (nutrient input and concentrations); (b) indicators for the direct effects of eutrophication (e.g. Chlorophyll-a concentrations, biomass growth, water clarity/turbidity); (c) indicators for the indirect effects of eutrophication (e.g. dissolved oxygen levels) and; (d) modelled indicators of the potential for coastal eutrophication (the Index of Coastal Eutrophication Potential (ICEP)).

The core focus of UNESCO/IOC, in its role as technical advisory agency, is to contribute to the development of the Index of Coastal Eutrophication (ICEP). Currently, the development of the indicator is on hold, while UNESCO/IOC together with UN Environment is soliciting for funding to support the implementation of the Index.
Indicator 14.2.1: Proportion of national exclusive economic zones managed using ecosystem-based approaches

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

The development of the methodology for the SDG 14.2 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 are a number of existing indicators for integrated management and planning strategies for socio-ecological systems. It also includes indicators based on the implementation status of marine-area based, integrated planning and management approaches, such as marine spatial planning or integrated coastal zone management.

In line with these methodological developments, UNESCO/IOC and the European Commission adopted on 24 March 2017 a "Joint Roadmap to accelerate Maritime/Marine Spatial Planning (MSP) processes worldwide". This will contribute to sketching out a vision and a role for MSP in implementing 2030 Agenda for Sustainable Development and, in particular, the dedicated goal SDG 14, in a comprehensive, consistent and holistic way, both within the European Union and beyond at the international level with the objective to triple the area of territorial waters benefiting from marine spatial planning by 2030.

The Joint Roadmap was presented as a voluntary commitment by IOC/UNESCO and European Commission (#OceanAction15346) at the UN Ocean Conference.