



**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (Of
UNESCO)**

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**EIGHTEENTH INTERGOVERNMENTAL SESSION OF THE
UNESCO-IOC SUB-COMMISSION FOR THE CARIBBEAN AND
ADJACENT REGIONS (IOCARIBE-XVIII)
(Brasilia, April 23-25, 2025)**

Agenda item 6.1.2. Ocean acidification

Provided by the IOC Ocean Science Section

Introduction

The activities described below outline the activities coordinated by IOC over the recent biennium focused on ocean acidification, including those conducted by the IOC in its capacity as custodian of the Sustainable Development Goal 14.3.1.

The Global Ocean Acidification Observing Network

IOC provides one third of the distributed secretariat of the Global Ocean Acidification Observing Network (GOA-ON). This includes providing technical support, organising annual meetings and related workshops, and outreach. IOC also has a seat on the GOA-ON Executive Council. As of 2025 GOA-ON has more than 1,500 members, from 116 countries, growing over the last decade from 150 scientists in 31 countries. Of its membership, scientists from 14 IOCARIBE countries contribute. GOA-ON has a [Caribbean Hub](#), established in 2023. The Steering Committee consists of members from Dominica, Cuba, Puerto Rico, Belize and the US Virgin Islands. The **28 members** in the Hub come from 16 countries (Antigua and Barbuda, Belize, Colombia, Cuba, Dominica, Guatemala, Honduras, Iran, Jamaica, Mexico, Netherlands, Nigeria, Puerto Rico (US), St. Kitts and Nevis, Trinidad and Tobago, Turks and Caicos (UK), United States and US Virgin Islands (US)). IOCARIBE countries also contribute to the GOA-ON Latin American Hub and the North East Atlantic Hub.

GOA-ON continues to host a webinar series providing a platform for presenting scientific findings and new developments to researchers from around the world. To ensure continuing engagement of the OA community throughout the year, IOC supported the organization of a third and fourth edition of GOA-ON Ocean Acidification week in 2023 and 2024, respectively. The latest edition of OA Week featured 19 sessions, including community discussions on a range of topics from communication to technology, research updates from the Regional Hubs, and the GOA-ON early career network ICONEC. Within GOA-ON, IOC co-chairs the biological working group, which met for the third time in person 26-28 February 2025 in Helsingør, Denmark. This meeting, supported by IOC, was organized to advance action to achieve GOAL 2 of GOA-ON - Improve our understanding of ecosystem response to OA. Specifically, the meeting provided guidance to a

new IOC/Velux Fonden project. Under this funding, a postdoc, guided by the working group will focus on developing and comparing approaches to linking chemical and biological changes to evaluate the strength of OA signal, and assessing the impact of ocean acidification on marine biodiversity. The working group is also planning a series of workshops to assess capabilities and interest in ocean acidification impact studies.

Since 2021, IOC, together with GOA-ON, co-chairs the Ocean Decade Programme “Ocean Acidification Research for Sustainability” (OARS). The programme is structured around seven transformative outcomes and aims at providing systematic evidence of the impacts of ocean acidification on the sustainability of marine ecosystems, enhance research capacity, increase observations of ocean chemistry changes, improve communication to policymakers and communities by providing the information needed to mitigate and adapt to ocean acidification and to facilitate the development and evaluation of strategies to offset future impacts. Over the reporting period IOC co-coordinated the preparation of seven Outcomes’ white papers, outlining the implementation strategy for OARS. These papers were published as IOC Technical Series, [185](#) in April 2024. Different working groups, supported by IOC, have formed to implement the OARS outcomes, focusing on co-designing and co-locating ocean acidification measurements with aquaculture stakeholders, and ocean acidification quality assessments. In addition, IOC supports the alignment of metadata and data requirements for inorganic carbon data by different databases worldwide to increase the interoperability across and the utilization for ocean acidification products. This initiative is integrated in the IOC data infrastructure.

Together with partners from GOA-ON and OARS, IOC co-organized one of the discussion tables during the Earth Information Day World café, focusing on ocean acidification and deoxygenation as well as four events during UNFCCC COP28. The events helped to increase awareness of the impacts of ocean acidification on ocean and human health and to engage with new partners to advance the mission of OARS.

The Sustainable Development Goals

IOC is identified as the UN custodian for the SDG [Target 14.3](#): “Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels”, and the associated SDG Indicator 14.3.1 (“Average marine acidity (pH) measured at agreed suite of representative sampling stations”). IOC collates national submissions of data and provides reporting on these indicators for inclusion in the UN Secretary General's Progress Report towards the SDGs.

As the custodian agency for the indicator, IOC has facilitated the development of the methodology associated with the indicator, providing guidance to scientists and countries on how to carry out measurements following the best practices established by the ocean acidification community. 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, 765 stations in 44 countries reported in 2025). The IOCARIBE countries submitting to the SDG 14.3.1 Indicator are Brazil, Colombia, Cuba, France, Mexico, The Netherlands, United Kingdom and USA.

Although the number of countries reporting on the indicator have been increasing, there are, however, still strong inequalities in the distribution of these global ocean acidification observations: gaps in observations and data remain in many areas, especially in coastal Asia and Africa and the open waters of the South Atlantic, Pacific and Indian Ocean as well as the Southern Ocean. In the absence of data on ocean acidification permitting predictions of future scenarios and impacts, these regions remain particularly vulnerable. The latest results from the IOC SDG

14.3.1 reporting will be published on the UN Department of Economic and Social Affairs (DESA) website in July 2025, as well as in the UN Secretary General's Progress Report.

In order to further advance SDG 14.3.1 related measurements and data reporting, IOC is working with experts to improve methodology and data collection. This includes engaging experts from the GOA-ON. IOC convened expert working groups consisting of data managers and representatives of global ocean carbon data products and databases, including The European Marine Observation and Data Network (EMODnet), Integrated Carbon Observation System (ICOS), Global Ocean Data Analysis Project (GLODAP), National Centers for Environmental Information (NCEI), and Surface Ocean CO₂ Atlas (SOCAT), as well as several National Oceanographic Data Centres (NODCs) to develop an automated exchange of data towards the SDG 14.3.1 indicator from other databases already hosting and collecting relevant datasets. These expert working groups are contributing to the automated and regular exchange of relevant datasets through the implementation of a federated data system, in close collaboration with IODE and ODIS. Additionally, IOC is working with GOA-ON to develop a data visualisation tool for the SDG 14.3.1 data on the GOA-ON Data Explorer. This SDG App will highlight the data providers, national agencies, and give access to the datasets submitted to wards the Indicator.

IOC supported several Ocean Teacher Global Academy (OTGA) ocean acidification courses hosted by the OTGA Regional Training Centre at Invemar. Furthermore, an OTGA online curriculum on ocean acidification is now undergoing translation to French, to facilitate broader application. The OTGA Ocean Acidification course will next be used in training in Africa as part of IOC capacity development efforts in the region, bolstered by NORAD funding. The course is expected to be available as an open self-paced course in 2025. IOC further works with partners to align and further advance ocean acidification capacity development activities and participates in a new effort to define an ocean acidification capacity development strategy with indicators of success, such as number of countries contributing to SDG 14.3.1. The product is expected be available end of 2025.