



INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

**SIXTEENTH SESSION OF THE IOC SUB-COMMISSION
FOR THE CARIBBEAN AND ADJACENT REGIONS (IOCARIBE-XVI)**

online
3 – 5 May 2021

EXECUTIVE SUMMARY

In accordance with Rule of Procedure 48.3 ([IOC/INF/1166](#)), IOCARIBE, as a primary Subsidiary Body of IOC, is required to report to an IOC Governing Body on its sessions.

The IOC Assembly at its 31st Session (14 – 25 June 2021) will be invited to consider the Executive Summary as presented in the Action Paper (IOC-XXXI2 Prov.) and by the Chairman of the Sub-commission in plenary as well as the recommendations contained in this document.

1. The Sixteenth Session of the IOC Sub-Commission for the Caribbean and Adjacent Regions (SC-IOCARIBE-XVI) Online Session was held from 3 to 6 May, 2021. The session was attended by 143 participants from 20 countries of the Caribbean Region, 3 countries from outside the region (Argentina, India and the Republic of Korea) and 9 UN, International and regional organizations. At this session, IOCARIBE reviewed progress made during the Intersessional period 2019–2021 and adopted 13 recommendations.

Main outcomes of the session

2. The Sub-Commission expressed its appreciation to the IOCARIBE Member States for accepting to meet online due to the Covid-19 Pandemic and referred to the limited time for the agenda on this occasion mainly due to the multiple challenges related to conducting sessions of an intergovernmental body such as the IOCARIBE Sub-commission online. Preparations for this meeting have been done in close consultation with the IOCARIBE Board of Officers to ensure addressing all agenda items allowing the decision-making process to be inclusive, transparent, and effective and maintaining the quality of the debate complying with all our Rules of Procedure.

3. The Sub-Commission conveyed thanks to the government of Colombia for their continuous support. The Sub-Commission also thanked the government of Flanders (Kingdom of

¹ The Executive Summary is available in Spanish

Belgium), European Union, Barbados, Mexico, Panama, Korea, Sweden and the USA, and other cooperation partners such as WMO and UNEP for their support and funds.

4. The Sub-Commission acknowledged the support it received from the Government of Colombia for hosting the IOCARIBE Secretariat in the city of Cartagena since its initial establishment in 1986 and for the secondment of two officers working at the Secretariat for the reinforcement of the scientific programmes of the Sub-Commission.

5. Member States acknowledged the progress of the work of the Sub-Commission and IOC in the region in the marine environment and biodiversity. The Secretariat capitalized on virtual technology capacity to grow regional awareness of the UN Decade of Ocean Science for Sustainable Development (therein the Decade) and the possibility of partnerships throughout the region to strengthen science-informed resilience and recovery.

6. The Sub-Commission welcomed the high participation of Member States in this first virtual session of the Sub-Commission.

7. The Sub-Commission recognized the importance of working on the Decade, and acknowledged The High Level Panel for a Sustainable Ocean Economy, noting the synergies between the High Level Panel and the Ocean Decade.

8. The Sub-Commission requested Member States to participate in the Capacity Development Survey and identify their National Focal Point for Capacity Development.

9. The Sub-Commission acknowledged the importance of working at the national level to build connectivity between national and regional ocean science and management networks and underscored the value of creating national committees for the co-design and implementation of the Decade. Working with enhanced and existing regional networks IOCARIBE could strengthen interdisciplinary engagement across the region to support co-design in IOCARIBE and the Decade. Such collaboration will generate the shared intellectual foundation to prepare fundable proposals for donors to address regional priorities and national requirements.

10. The Sub-Commission agreed on the need to update the IOCARIBE Medium Term Strategy Science Plan. It will provide a guiding framework for engaging the Sub-commission in the UN Decade of Ocean Science for Sustainable Development (2021-2030) aligned with region's priorities. The Plan will take into consideration existing Environmental Agreements in the region to provide necessary science and capacity development for IOCARIBE Member States to contribute to the achievement of proposed goals of the Agenda 2030.

11. The Sub-Commission welcomed the IOC Assembly's consideration of the Draft Medium-Term Strategy for 2022-2029 including the addition of a high level objective on a sustainable ocean economy.

12. The Sub-Commission acknowledged the progress achieved during the intersessional period, and in particular, the outcomes of the global consultation meetings, Western Tropical Atlantic Regional Workshop, the workshops on Co-designing the Ocean Science for the Western Tropical Atlantic and Eastern Tropical Pacific, and the emerging IOCARIBE International Hydrographic Organization – Meso-American Caribbean Sea Hydrographic Commission (IHO-MACHC) partnership on Seabed 2030.

13. The Sub-Commission expressed its appreciation to Mexico, Universidad Nacional Autónoma de México (UNAM), and the United States for their support to the convening of the Western Tropical Atlantic Regional Workshop on the Decade.

14. The Sub-Commission expressed confidence in the IOCARIBE Secretariat's ability to continue coordinating the Decade during its implementation phase (2021–2030) in consultation

with Member States, specialized agencies, funds, programmes, and bodies of the United Nations, as well as other intergovernmental organizations, non-governmental organizations and relevant stakeholders within IOCARIBE Member States' Tropical Western Atlantic and Eastern Pacific regions.

15. The Sub-Commission requested the IOCARIBE Secretary to: (i) facilitate Member State participation in the Decade through empowering their creation of National Decade Committees; (ii) facilitate the work of the Western Tropical Atlantic Decade Regional Planning Group (WTA RPG) whose vision is to catalyse co-design processes in the region to facilitate and empower the emergence of inclusive partnerships for regional transformative Decade Actions; (iii) encourage Member States (particularly Small Island Developing States (SIDS)), the UN, and non-UN stakeholders to participate actively in the regional co-design processes of the WTA RPG Working Groups to leverage capabilities to apply science to implement the Sustainable Development Goals; (iv) inspire a solution-oriented Decade ocean literacy campaign that is inclusive, equitable, and empowering and engaging for youth, gender balance, and local and indigenous knowledge; and, (v) continue IOCARIBE's catalytic role in encouraging emerging collaborative Decade potential partnerships on sargassum and harmful algal bloom (HABs) monitoring and management, regional oil spill detection, mapping the IOCARIBE/IHO-MACHC region (Seabed 2030), marine and coastal hazard forecasting including tsunamis, improvement of hurricane observing forecasting capacity, and marine spatial planning and sustainable ocean economy.

16. The Sub-Commission invited Member States to: (i) engage actively in the WTA RPG thematic workshops in 2021-2023 to expedite the co-design and co-implementation process to collaborate in addressing the Decade Grand Challenges and Actions to achieve the Sustainable Development Goals (SDGs); (ii) work through regional and national networks to communicate about the Decade, identifying critical gaps, impediments and priorities and capacity strengths to address the regional Grand Challenges and Actions; and, (iii) enhance support to IOCARIBE to advance implementation of its biennial work programme and Decade coordination functions through secondments and in-kind and extra-budgetary contributions in order to reinforce Member State capacity to participate in and benefit from the Decade.

17. The Sub-Commission invited UN-Oceans partners, Member States, international scientific and academic organizations, non-governmental organizations, private sector and industry, donors, youth and the education sector at all levels, and other relevant stakeholders to join as partners in the co-design process to create partnerships to address regional science capacity requirements through the Decade and biennial regional programme. ([Recommendation SC-IOCARIBE-XVI.1](#)).

18. The Sub-Commission requested the IOCARIBE Secretary working with Member States and regional partners to enhance science and services needed to support a sustainable ocean economy within the context of the IOCARIBE Biennial Work Programme and co-designed UN Decade of Ocean Science for Sustainable Development 2021-2030 actions.

19. The Sub-Commission encouraged IOCARIBE Member States to collaborate in designing and implementing IOCARIBE programmes to achieve SDG 14 which aims to "conserve and sustainably use the oceans, seas and marine resources for sustainable development." (Recommendation SC-IOCARIBE-XVI.2).

20. The Sub-Commission encouraged IOCARIBE Member States to: (i) nominate national HAB focal points to expand the ANCA group of experts; (ii) continue to expand capacity development opportunities for students and professionals in HABs ecology and related issues in the region; (iii) promote enhanced HAB coordination among universities, research institutes, the government sector, and the industrial-business sector in the wider Caribbean region; (iv) assist in mobilizing financial support to implement workshops on standardization of HAB methodologies and to support regional research projects; and, (v) support the creation of public risk management

policies in the event of HAB events in the wider Caribbean region. ([Recommendation SC-IOCARIBE-XVI.3](#)).

21. The Sub-Commission recommended the IOCARIBE Secretary to work with Member States to: (i) create an IOCARIBE-focused Community of Practice, in collaboration with GOA-ON and the regional network Latin American Ocean Acidification Network. This will strengthen capacity to monitor, investigate, mitigate, and adapt to ocean acidification and its impacts, in contribution to the UN Decade of Ocean Science for Sustainable Development, Including UN Sustainable Development Goal Target 14.3. This community would welcome scientists and representatives from other relevant organizations, institutions, and stakeholder groups such the United Nations Environment Programme Cartagena Convention Secretariat and the Ocean Foundation; (ii) increase understanding of ocean acidification among key stakeholders, targeted audiences, and local communities through ocean literacy, ocean acidification outreach, data management training; and, (iii) encourages identifying and convening ocean acidification activities relevant to the region, such as webinars, conferences, and workshops through relevant IOCARIBE and regional channels to increase regional awareness of ocean acidification. ([Recommendation SC-IOCARIBE-XVI.4](#)).

22. The Sub-Commission took note of the creation in 2020 of two new projects the IODE Ocean InfoHub and OceanTeacher Global Academy and their special attention focused on SIDS. A comprehensive Capacity Development (CD) needs assessment has been undertaken in 2020/2021 and results are available from <https://surveys.ioc-cd.org>. The Sub-Commission took note of the responses received from the region and encouraged Member States to participate in the CD comprehensive assessment.

23. The Sub-Commission acknowledged the adoption, by IODE-XXVI, of Decision IODE-XXVI.4.1.2 (IODE Ocean Data and Information Networks (ODIN's)) which decided (i) to continue ODINs as IODE projects; (ii) to link ODINs more closely to IOC regional subsidiary bodies (IOCARIBE, IOCAFRICA, IOCINDIO, WESTPAC); (iii) to continue the governance of ODINs fully as IODE projects in cases where no IOC subsidiary body exists; (iv) that ODINs are encouraged to collaborate with and strengthen the regional implementation of IODE projects (e.g., OBIS, OTGA, OIH); (v) That NODCs and ADUs are encouraged to publish data to WOD and OBIS (cfr. revised IOC data policy clause 5); and (vi) to establish an inter-ODIN forum to provide closer connections between the ODINs and with other IOC global programmes and facilitate the sharing of best practices.

24. The Sub-Commission invited IOC regional subsidiary bodies to include representatives of ODIN projects (through their Steering Group Chair(s)) in their respective “board of officers”, instructed the IODE Co-Chairs to discuss this IODE decision with the respective regional subsidiary body Chairs, and for each ODIN to submit a detailed project proposal including a work plan and budget to IODE-XXVII, following the instructions for projects provided in IOC Manual and Guides Nr 81 and to take into account opportunities offered by the UN Decade of Ocean Science for Sustainable Development. In addition, the Sub-Commission took note of the establishment of an inter-sessional working group to revise the terms of reference of IODE Ocean Data and Information Networks (ODINs) and develop a strategy for sustainability of the ODINs and to submit its report to the next meeting of the IODE Management Group (2022). Its membership will include representatives of the IOC RSBs, including IOCARIBE. In this regard Mr Pissierssens invited IOCARIBE to designate (a) member(s) of the group.

25. The Sub-Commission expressed appreciation to the Government of Flanders (Kingdom of Belgium) for the financial support provided for the development of the Caribbean Marine Atlas, and Ocean Teacher Global Academy projects.

26. The Sub-Commission encouraged the continuing and new collaboration among the Regional Training Centers RTC and Specialized Training Centers STC to facilitate the delivery of the trainings of interest to the IOCARIBE Member States and recommended that the RTC at

INVEMAR in Colombia continues participating in the co-designing the ocean science we need for the Western Tropical Atlantic (WTA), supporting the design and implementation of a Capacity Development Strategy. (Recommendation SC-IOCARIBE-XVI.5).

27. The Sub-Commission welcomed the expansion of pilot observing projects in the Western Tropical Atlantic, including Dominican Republic, Bahamas, and United States, and the inclusion of new Member State partners in the Lesser Antilles, to address the collection and sharing of marine data to improve hurricane forecasting; and the participation of new partners.

28. The Sub-Commission invited Members States to: (i) develop a framework to facilitate joint ocean observing missions among IOCARIBE Member States to measure the changing state of the ocean and atmosphere related to severe weather forecasting and climate trends; (ii) collaborate in developing this joint ocean observing framework, including capacity development, as part of the United Nations Decade of Ocean Science for Sustainable Development co-design process to develop proposals for regional implementation through the relevant Western Tropical Atlantic Regional Planning Working Groups (WTA WGs); and, (iii) support and participate in the Coastal Inundation Forecasting Initiative which will develop and disseminate an operational system to forecast coastal inundation and flooding to help save lives and protect property, especially in low lying coastal areas. [[Recommendation SC-IOCARIBE-XVI.6](#)]

29. The Sub-Commission requested IOCARIBE Secretariat to continue to work with partners to further develop: (i) the Sargassum Information Hub, as a centralized location for information sharing related to sargassum; (ii) regular and sustained Atlantic-wide monitoring products and inundation reports; (iii) comprehensive guides on best management practices for sargassum management; and, (iv) trans-Atlantic collaboration between IOCARIBE of IOC, IOCARIBE GOOS, GEO Blue Planet and IOCAFRICA, UN Environment, Cartagena and Abidjan Convention Secretariats, AtlantOS, the AIR Centre and other partners to create a sargassum community of practice.

30. The Sub-Commission urged Member States to contribute information, including in situ data and user needs, to the Sargassum Information Hub and invited other Organizations and programmes. [[Recommendation SC-IOCARIBE-XVI.7](#)].

31. The Sub-Commission acknowledged in kind contributions of NOAA's Satellite Analysis Branch to provide training on satellite oil-spill monitoring to Trinidad and Tobago's Institute for Marine Affairs (IMA), Ministry of Energy and Energy Industries (MEEI) and Environmental Management Authority (EMA).

32. The Sub-Commission requested IOCARIBE of IOC, GEO Blue Planet, AmeriGEO and other partners to continue efforts to: (i) develop a region-wide information system for oil spills; and, (ii) continue regional training for satellite oil spill detection as required.

33. The Sub-Commission requested Member States to openly share data and feedback for the oil spill information toolkit. [[Recommendation SC-IOCARIBE-XVI.8](#)].

34. The Sub-Commission noted that ICG/CARIBE EWS appreciates the Decade as an opportunity to address and potentially fill capability gaps by leveraging novel sensing platforms, techniques and/or infrastructures in order to more quickly detect, measure, forecast and warn for tsunamis, even from the near-instant they form, and to enhance the preparedness of coastal communities for tsunamis through the UNESCO/IOC Tsunami Ready Programme.

35. The Sub-Commission welcomed the decision of the ICG to recommend its ICG/CARIBE EWS Task Team on the Decade to provide advice and support ICG/CARIBE EWS and its Member States in the implementation and monitoring of the 10-year Research, Implementation and Development Plan for the Decade Tsunami Programme. [[Recommendation SC-IOCARIBE-XVI.9](#)].

36. The Sub-Commission recommended the enhancement of the cooperation with the MACHC and other regional partners in joint priority areas such as: (i) support the joint IOCARIBE-MACHC Seabed 2030 Project Annual Work Plan, which includes the use a gap analysis tool to increase and monitor existing and future regional bathymetric data contributions to the Seabed 2030 Project in partnership with the Seabed 2030 Regional Data Assembly and Coordination Center for the Atlantic Ocean and the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (IBCCA); (ii) assess whether bathymetric data is available for water depths of up to 100m to the shoreline for optimal tsunami and other coastal inundation risk assessments and threat forecasting; (iii) identify respective capacity building training offerings and consider co-sponsoring those of common interest to avoid duplication of effort and maximize impact; and, (iv) expand the sharing, delivery and management of marine spatial data holdings jointly with national Maritime Authorities, national Hydrographic Offices and institutions of marine sciences, and through collaborations with partners such as the MACHC Marine Spatial Data Infrastructure Working Group (MMSDIWG), Caribbean Geospatial Development Initiative (CARIGEO), International Oceanographic Data and Information Exchange (IODE), and the Caribbean Marine Atlas (CMA). [[Recommendation SC-IOCARIBE-XVI.10](#)].

37. The Sub-Commission took note of the ending of the project Caribbean Marine Atlas (CMA) financed by the Flanders government and the expression of interest of the country partners and the coordination project in the continuity of the platform with the INVEMAR technical support.

38. The Sub-Commission welcomed the continued and expanding cooperation of CMA and invited Member States, programs, projects, and other partners in the Region to actively use CMA and share their national/local ocean spatial data & information.

39. The Sub-Commission acknowledged the important role ocean literacy could play in the context of the UN Decade of Ocean Science.

40. The Sub-Commission requested the IOCARIBE Secretary to collaborate with Member States and stakeholders, including marine and coastal education networks, to enhance ocean literacy in the Latin American and Caribbean region through sharing of information, educational materials and best practices, and developing collaborative activities and co-designing Decade actions of cultural relevance in the region. [[Recommendation SC-IOCARIBE-XVI.11](#)].

41. The Sub-Commission recognized the active participation of the IOCARIBE Secretariat in the “Interim Coordination Mechanism for the Sustainable Management, Use and Protection of Shared Living Marine Resources in the Caribbean and North Brazil Shelf Large Marine Ecosystems”, created in 2017 through the CLME+ Project as a predecessor for the aforementioned “Ocean Coordination Mechanism” and hereinafter also referred to as “Interim Coordination Mechanism.”

42. The Sub-Commission instructed the IOCARIBE Secretary to continue engaging in the “Interim Coordination Mechanism” until the “Ocean Coordination Mechanism” becomes operational.

43. The Sub-Commission recommended Member States to take appropriate actions to mobilize their government’s support for the proposed UNDP/GEF PROCARIBE+ Project Concept, and to actively engage in the subsequent development of the detailed Project Proposal. [[Recommendation SC-IOCARIBE-XVI.12](#)].

44. The Sub-Commission adopted its biennial budget for 2021–2023, and adopted its biennial budget framework 2022–2023, noting that the budget will be revised to incorporate funding available from the IOC Regular Budget 2022–2023, following its adoption by the UNESCO General Conference.

45. The Sub-Commission expressed its concern about that the Regular Budget and Extrabudgetary funding are not compatible with the increasing responsibilities of the Sub-Commission and in particular regarding the implementation of the Sustainable Development Goals of the 2030 Agenda and the Decade. The Sub-Commission encouraged Member States to support the expanding biennial IOCARIBE program and co-design and implementation of the regional Decade initiatives by providing extra-budgetary and in-kind support, including secondments, meeting sponsorship, and sharing technical capabilities such as data and information as appropriate. [[Recommendation SC-IOCARIBE-XVI.13](#)].

46. The Sub-Commission requested the IOCARIBE Secretary to collaborate with Member States and other public and private sector donors, to seek extra-budgetary funding to implement the adopted programme initiatives for the biennium. The Sub-Commission also requested the IOCARIBE Secretary to work with IOCARIBE Board of Officers three months in advance of the Seventeenth session of IOCARIBE in preparing the biennial budget 2024–2025.

47. The Sub-Commission elected the new Board of Officers for the next intersessional period 2021 - 2023: Mr Arnulfo Sanchez (Panama) was re-elected as Chairperson, Ms. Claudia Alves de Magalhaes (Brazil), elected as Vice-Chairperson; Mr. John Victor Cortinas (United States) elected as Vice-Chairperson; and Mr. Leo S.F. Brewster (Barbados) elected as Vice-Chairperson. The new Board of Officers was elected by acclamation.

48. The Sub-Commission took note that the candidates provided an equitable sub-regional representation and diversity.

49. The Sub-Commission decided to hold its Seventeenth Intergovernmental session during the first quarter of 2023. No proposals were received from Member States for hosting the Sub-Commission’s next Session pending on the developments of the Covid 19 pandemic.

50. The Sub-Commission adopted thirteen Recommendations as follows:

No.	Agenda Item	Title
1	5.	Implementation of the United Nations Decade of Ocean Science for Sustainable Development (2021–2030) Recommendation SC-IOCARIBE-XVI.1_UN Decade
2	5.6	IOCARIBE UN Decade and Sustainable Ocean Economy Recommendation SC-IOCARIBE-XVI.2_Ocean Economy
3	6.1	Harmful Algae in the Caribbean and Adjacent Regions (HAB-ANCA) Recommendation SC-IOCARIBE-XVI.3_HAB-ANCA
4	6.2	Ocean Acidification Recommendation SC-IOCARIBE-XVI.4_Ocean Acidification
5	6.4	Ocean Teacher Global Academy OTGA Recommendation SC-IOCARIBE-XVI.5_OTGA

6	6.6	Initiatives to Improve Member States Hurricane and Coastal Inundation Observing Forecasting Capacity Recommendation SC-IOCARIBE-XVI.6_Hurricanes & Coastal Inundation
7	6.7	Sargassum in the Tropical Atlantic Recommendation SC-IOCARIBE-XVI.7_Sargassum
8	6.7	Oil Spills in the Western Tropical Atlantic Recommendation SC-IOCARIBE-XVI.8_Oil Spills
9	6.8	Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS) Recommendation SC-IOCARIBE-XVI.9_ICG/CARIBE-EWS
10	6.9	The Nippon Foundation-GEBCO Seabed 2030 Project and the Meso American - Caribbean Sea Hydrographic Commission Recommendation SC-IOCARIBE-XVI.10_GEBCO
11	6.13	Ocean Literacy Recommendation SC-IOCARIBE-XVI.11 _Ocean Literacy
12	6.14	CLME+ SAP, CLME+ and PROCARIBE+ Projects and Ocean Coordination Mechanism Recommendation SC-IOCARIBE-XVI.12_CLME+ PROCARIBE+
13	8.1	Programme and Budget for 2021–2023 Recommendation SC-IOCARIBE-XVI.13_Programme & Budget

ANNEX

RECOMMENDATIONS

Recommendation SC-IOCARIBE-XVI.1

Implementation of the United Nations Decade of Ocean Science for Sustainable Development (2021–2030)

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Recalling IOCARIBE Sub-Commission Recommendation XV.2 which requested the IOCARIBE Secretary to facilitate participation of IOCARIBE Member States and their scientific and stakeholder community in UN Ocean Decade events;

Noting the proclamation by the UN General Assembly (UNGA) at its 72nd session of the United Nations Decade of Ocean Science for Sustainable Development (2021–2030), through Resolution [A/RES/72/73](#) (therein the Decade);

Further noting that the UNGA through Resolution [A/RES/75/239](#) welcomed the steps taken by IOC in the preparation of the Implementation Plan and took note with satisfaction of that Plan;

Welcomes the progress achieved during the intersessional period, and in particular, the outcomes of the global consultation meetings, Western Tropical Atlantic Regional Workshop, the workshops on Co-designing the Ocean Science for the Western Tropical Atlantic and Eastern Tropical Pacific, and the emerging IOCARIBE International Hydrographic Organization – Meso-American Caribbean Sea Hydrographic Commission (IHO-MACHC) partnership on Seabed 2030;

Expresses appreciation to Mexico, Universidad Nacional Autónoma de México (UNAM), and the United States for their support to the convening of the Western Tropical Atlantic Regional Workshop on the Decade;

Expresses confidence in the IOCARIBE Secretariat's ability to continue coordinating the Decade during its implementation phase (2021–2030) in consultation with Member States, specialized agencies, funds, programmes, and bodies of the United Nations, as well as other intergovernmental organizations, non-governmental organizations and relevant stakeholders within IOCARIBE Member States' Tropical Western Atlantic and Eastern Pacific regions;

Requests the IOCARIBE Secretary to:

- a. Facilitate Member State participation in the Decade through empowering their creation of National Decade Committees;
- b. Facilitate the work of the Western Tropical Atlantic Decade Regional Planning Group (WTA RPG) whose vision is to catalyse co-design processes in the region to facilitate and empower the emergence of inclusive partnerships for regional transformative Decade Actions;
- c. Encourage Member States (particularly Small Island Developing States (SIDS)), the UN, and non-UN stakeholders to participate actively in the regional co-design processes of the WTA RPG Working Groups to leverage capabilities to apply science to implement the Sustainable Development Goals;

- d. Inspire a solution-oriented Decade ocean literacy campaign that is inclusive, equitable, and empowering, and that engages youth, gender balance, and local and indigenous knowledge; and
- e. Continue IOCARIBE's catalytic role in encouraging emerging collaborative Decade potential partnerships on sargassum and harmful algal bloom (HABs) monitoring and management, regional oil spill detection, mapping the IOCARIBE/IHO-MACHC region (Seabed 2030), marine and coastal hazard forecasting including tsunamis, improvement of hurricane observing forecasting capacity, and marine spatial planning and sustainable ocean economy.

Invites Member States to:

- f. Engage actively in the WTA RPG thematic workshops in 2021-2023 to expedite the co-design and co-implementation process to collaborate in addressing the Decade Grand Challenges and Actions to achieve the Sustainable Development Goals (SDGs);
- g. Work through regional and national networks to communicate about the Decade, identifying critical gaps, impediments and priorities and capacity strengths to address the regional Grand Challenges and Actions; and
- h. Enhance support to IOCARIBE to advance implementation of its biennial work programme and Decade coordination functions through secondments and in-kind and extra-budgetary contributions in order to reinforce Member State capacity to participate in and benefit from the Decade;

Invites UN-Oceans partners, Member States, international scientific and academic organizations, non-governmental organizations, private sector and industry, donors, youth and the education sector at all levels, and other relevant stakeholders to join as partners in the co-design process to create partnerships to address regional science capacity requirements through the Decade and biennial regional programme.

Recommendation SC-IOCARIBE-XVI.2

IOCARIBE UN Decade and Sustainable Ocean Economy

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Noting that over a third of the world's population lives within 100 kilometers of the ocean. Despite this, the ocean's role in sustaining human life and the global economy is often underappreciated and overlooked. The ocean not only provides us with oxygen, food, and energy, and fuels the global economy, enabling the exchange of goods and services across vast distances. The health of the ocean, and its ability to continue providing vital services, underpins the global economy but also much of human life;

Noting that marine tourism is a main economic driver for many islands in the Caribbean. On some islands, total economic impacts (direct, indirect, and induced) from tourism can be responsible for more than 90% of GDP and total employment. On many islands, revenue from tourism is used to pay for essential imports—including food and fuel—and has raised the island's quality of life, as measured by the Human Development Index;

Noting that transdisciplinary ocean science can improve public and private sector decision making and deliver significant economic benefits;

Aware that serious challenges such as increasing levels of plastic and chemical pollution, GHG emission, overexploitation of resources and covid-19 impacts will require that we plan a science-based recovery to achieve a sustainable ocean economy;

Recognizing that IOCARIBE's biennial programme currently addresses elements of a sustainable ocean economy through such programmes as marine spatial planning, the Caribbean Large Marine Ecosystem Project, and IOCARIBE GOOS;

Requests the IOCARIBE Secretary to coordinate with other UN agencies, Member States, regional initiatives and other partners to promote science -based sustainable marine economy practices;

Requests also the IOCARIBE Secretary, working with Member States and regional partners to enhance science and services needed to support a sustainable ocean economy within the context of the IOCARIBE Biennial Work Programme and co-designed UN Decade of Ocean Science for Sustainable Development 2021-2030 actions; and

Encourages the IOCARIBE Member States to collaborate in designing and implementing IOCARIBE programmes to achieve SDG 14 which aims to “conserve and sustainably use the oceans, seas and marine resources for sustainable development.”

Recommendation SC-IOCARIBE-XVI.3

Harmful Algae in the Caribbean and Adjacent Regions (HAB-ANCA)

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Noting with appreciation the report of the IOCARIBE-ANCA activities and the progress achieved by the ANCA group during the last biennium;

Being aware of the increasing number of harmful algal events across a wide range of ecosystems, habitats, and times of the year; noting that their impacts affect ecosystem services, human health, and several areas of society;

Welcomes the IOC Recommendation to endorse the proposed activities and priorities of the IPHAB regional groups and projects ([IOC/IPHAB-XV/Inf.2](#); [IOC/IPHAB-XV/Inf.6](#); [IOC/IPHAB-XV/Inf.13](#); [IOC/IPHAB-XV/Inf.16](#)) for 2022–2023 subject to availability of funding; adopted at the 15th Session of the IOC Intergovernmental Panel on Harmful Algal Blooms' (IPHAB);

Expresses concern for the potential global increase in Ciguatera and other seafood poisoning for the Caribbean region, due to climate change, eutrophication, coastal developments, and globalized seafood trade;

Encourages IOCARIBE Member States to:

- (i) Nominate national HAB focal points to expand the ANCA group of experts;
- (ii) Continue to expand capacity development opportunities for students and professionals in HABs ecology and related issues in the region;
- (iii) Promote enhanced HAB coordination among universities, research institutes, the government sector, and the industrial-business sector in the wider Caribbean region;

- (iv) Assist in mobilizing financial support to implement workshops on standardization of HAB methodologies, and to support regional research projects; and,
- (v) Support the creation of public risk management policies in the event of HAB events in the wider Caribbean region.

Recommendation SC-IOCARIBE-XVI.4

Ocean Acidification

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Aware of the significant threat ocean acidification poses to marine resources and ecosystem services, and the potential socio-economic impacts of ocean acidification on the Caribbean economy including food security, jobs, and tourism;

Recalling IOCARIBE Recommendation SC-IOCARIBE XV.5 which recognized that ocean acidification monitoring and mitigation is a Sustainable Development Goal target 14.3 that if addressed could help safeguard community livelihoods in the region;

Recommends the IOCARIBE Secretary to work with Member States to:

- (i) create an IOCARIBE-focused Community of Practice, in collaboration with GOA-ON and the regional network Latin American Ocean Acidification Network. This will strengthen capacity to monitor, investigate, mitigate, and adapt to ocean acidification and its impacts, in contribution to the UN Decade of Ocean Science for Sustainable Development, Including UN Sustainable Development Goal Target 14.3. This community welcome scientists and representatives from other relevant organizations, institutions, and stakeholder groups such the United Nations Environment Programme Cartagena Convention Secretariat and the Ocean Foundation;
- (ii) increase understanding of ocean acidification among key stakeholders, targeted audiences, and local communities through ocean literacy, ocean acidification outreach, data management training; and,
- (iii) encourages identifying and convening ocean acidification activities relevant to the region, such as webinars, conferences, and workshops through relevant IOCARIBE and regional channels to increase regional awareness of ocean acidification.

Recommendation SC-IOCARIBE-XVI.5

OceanTeacher Global Academy OTGA

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Thanks the Government of Flanders (Kingdom of Belgium) for its continued support of OceanTeacher Global Academy at the International Oceanographic Data and Information Exchange (IODE);

Welcomes the continued and expanding capacity development through the Regional Training Centers (RTC) for the Latin America and Caribbean (LAC) Region;

Invites Member States, programmes, projects and other partners to participate and promote the new topics;

Encourages the RTC for LAC to identify collaborative UN Decade of Ocean Science for Sustainable Development training actions that can be coordinated and followed not only by RTC-Colombia, but also through collaboration with the other three RTCs in the Region;

Notes the establishment of Specialized Training Centers (STC) for Tsunami in the International Tsunami Information Center and Badan Meteorologi, Klimatologi, dan Geofisika (BMKG) Indonesia that will develop training modules that are relevant to the region;

Encourages the continuing and new collaboration among the RTCs and STCs to facilitate the delivery of the trainings of interest to the IOCARIBE Member States; and

Recommends that the RTC at INVEMAR in Colombia continues participating in the co-designing the ocean science we need for the Western Tropical Atlantic (WTA) supporting the design and implementation of a Capacity Development Strategy.

Recommendation SC-IOCARIBE-XVI.6

Initiatives to Improve Member States Hurricane and Coastal Inundation Observing Forecasting Capacity

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Recalling the IOCARIBE Recommendation SC-IOCARIBE-XV.8 Initiatives to Improve Member States Hurricane Observing Forecasting Capacity;

Aware of the urgency to mobilize a regional effort to enhance hurricane forecasting in the wider Caribbean region to save lives and protect property;

Concerned that the gap in current coastal inundation forecasting puts the Western Tropical Atlantic community at risk due to rising sea level, nuisance flooding, storm surge, hurricane intensification, severe weather, and other environmental hazards;

Recognizing that upper ocean measurements of temperature and salinity are needed to improve hurricane intensity forecasts, particularly in cases of rapid intensification;

Welcomes the expansion of pilot observing projects in the Western Tropical Atlantic, including Dominican Republic, Bahamas, and United States, and the inclusion of new Member State partners in the Lesser Antilles, to address the collection and sharing of marine data to improve hurricane forecasting; and the participation of new partners;

Invites Members States to:

- (i) Develop a framework to facilitate joint ocean observing missions among IOCARIBE Member States to measure the changing state of the ocean and atmosphere related to severe weather forecasting and climate trends;

- (ii) Collaborate in developing this joint ocean observing framework, including capacity development, as part of the United Nations Decade of Ocean Science for Sustainable Development co-design process to develop proposals for regional implementation through the relevant Western Tropical Atlantic Regional Planning Working Groups (WTA WGs); and
- (iii) Support and participate in the Coastal Inundation Forecasting Initiative which will develop and disseminate an operational system to forecast coastal inundation and flooding to help save lives and protect property, especially in low lying coastal areas.

Recommendation SC-IOCARIBE-XVI.7

Sargassum in the Tropical Atlantic

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Recalling SC-IOCARIBE XV.9 Recommendation for IOCARIBE of IOC, GEO Blue Planet and other partners to develop a region-wide information and forecasting system for sargassum and develop a guide on best management practices for sargassum events in the coastal environment;

Requests IOCARIBE to continue to work with partners to further develop:

- (i) the Sargassum Information Hub as a centralized location for information sharing related to sargassum;
- (ii) regular and sustained Atlantic-wide monitoring products and inundation reports;
- (iii) comprehensive guides on best management practices for sargassum management; and,
- (iv) trans-Atlantic collaboration between IOCARIBE of IOC, IOCARIBE GOOS, GEO Blue Planet and IOCAFRICA, UN Environment, Cartagena and Abidjan Convention Secretariats, AtlantOS, the AIR Centre and other partners to create a sargassum community of practice.

Urges Member States to contribute information, including in situ data and user needs, to the Sargassum Information Hub;

Invites other organizations and programmes active in the region to contribute to the Sargassum Information Hub and monitoring products.

Recommendation SC-IOCARIBE-XVI.8

Oil Spills in the Western Tropical Atlantic

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Aware of the significant impacts of oil spills on the environment and economies of the Wider Caribbean and the lack of coordinated data system or satellite surveillance program;

Recalling SC-IOCARIBE XV.9 Recommendation for IOCARIBE of IOC, GEO Blue Planet and other partners to develop a region-wide information and forecasting system for oil spills, environment;

Recognizing the collaboration between IOCARIBE of IOC, GEO Blue Planet, RAC/REMPEITC-Caribe and AmeriGEO to develop a GIS-based oil spill information toolkit;

Acknowledging the in kind contributions of NOAA's Satellite Analysis Branch to provide training on satellite oil-spill monitoring to Trinidad and Tobago's Institute for Marine Affairs (IMA), Ministry of Energy and Energy Industries (MEEI) and Environmental Management Authority (EMA);

Requests IOCARIBE of IOC, GEO Blue Planet, AmeriGEO and other partners to continue efforts to:

- (i) develop a region-wide information system for oil spills; and
- (ii) continue regional training for satellite oil spill detection as required;

Urges Member States to openly share data and feedback for the oil spill information toolkit.

Recommendation SC-IOCARIBE-XVI.9

Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS)

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Notes that ICG CARIBE EWS appreciates the United Nations Decade of Ocean Science for Sustainable Development (therein the Decade) as an opportunity to address and potentially fill capability gaps by leveraging novel sensing platforms, techniques and/or infrastructures in order to more quickly detect, measure, forecast and warn for tsunamis, even from the near-instant they form, and to enhance the preparedness of coastal communities for tsunamis through the UNESCO/IOC Tsunami Ready Programme;

Welcomes the decision of the ICG to recommend its ICG/CARIBE-EWS Task Team on the Decade to provide advice and support to ICG/CARIBE-EWS and its Member States in the implementation and monitoring of the 10-year Research, Implementation and Development Plan for the Decade Tsunami Programme.

Recommendation SC-IOCARIBE-XVI.10

The Nippon Foundation-GEBCO Seabed 2030 Project and the Meso American - Caribbean Sea Hydrographic Commission

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Acknowledges the progress achieved by the cooperation between IOCARIBE and the International Hydrographic Organization's Meso American - Caribbean Sea Hydrographic Commission (MACHC) during the last biennium;

Noting

- (i) the importance of the Nippon Foundation-GEBCO Seabed 2030 Project for the United Nations Decade of Ocean Science for Sustainable Development;
- (ii) the establishment of the IOCARIBE-MACHC Seabed 2030 Strategy for 2021-2030;
- (iii) the requirement for high resolution bathymetry from the 100 meters depth to the shoreline in order to develop inundation maps and forecast coastal flooding from storms, tsunamis, and other coastal hazards;

Recognizing that:

- (i) Hydrography provides the fundamental backdrop for almost everything that happens on the sea surface, in the water superjacent to the seabed, on or under the seabed and the MACHC is the authoritative source for navigation products and related data in the region;
- (ii) Less than 20% of the global ocean has been mapped with direct measurement;
- (iii) Less than 50% of the world's coastal waters remain unsurveyed and the MACHC and IOCARIBE have a role in increasing regional data contributions to the Seabed 2030 initiative;
- (iv) Data collected for Nautical Charts (bathymetry, shoreline, shape of seafloor, sea level information and currents, navigation routes and much more) can be used to develop the Sustainable Ocean Economy and is important for numerous non-navigation uses, such as marine environment protection and management, coastal zone management, marine resources exploitation, disaster preparedness and response, regional and national marine spatial planning, scientific research and many others; and Resources are scarce for capacity building and the MACHC, IOCARIBE and other global and regional partners could benefit by leveraging training opportunities of common interest;

Recommends the enhancement of the cooperation with the MACHC and other regional partners in joint priority areas such as:

- (i) Support the joint IOCARIBE-MACHC Seabed 2030 Project Annual Work Plan, which includes the use a gap analysis tool to increase and monitor existing and future regional bathymetric data contributions to the Seabed 2030 Project in partnership with the Seabed 2030 Regional Data Assembly and Coordination Center for the Atlantic Ocean and the International Bathymetric Chart of the Caribbean Sea and the Gulf of Mexico (IBCCA);
- (ii) Assess whether bathymetric data is available for water depths of up to 100m to the shoreline for optimal tsunami and other coastal inundation risk assessments and threat forecasting;

- (iii) Identify respective capacity building training offerings and consider co-sponsoring those of common interest to avoid duplication of effort and maximize impact; and
- (iv) Expand the sharing, delivery and management of marine spatial data holdings jointly with national Maritime Authorities, national Hydrographic Offices and institutions of marine sciences, and through collaborations with partners such as the MACHC Marine Spatial Data Infrastructure Working Group (MMSDIWG), Caribbean Geospatial Development Initiative (CARIGEO), International Oceanographic Data and Information Exchange (IODE), and the Caribbean Marine Atlas (CMA).

Recommendation SC-IOCARIBE-XVI.11

Ocean Literacy

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Recalling IOCARIBE Recommendation XV.3 which underscored the value of culturally relevant ocean science for the public, and educational system;

Requests the IOCARIBE Secretary to:

Collaborate with Member States and stakeholders, including marine and coastal education networks, to enhance ocean literacy in the Latin American and Caribbean region through sharing of information, educational materials and best practices, and developing collaborative activities and co-designing Decade actions of cultural relevance in the region.

Recommendation SC-IOCARIBE-XVI.12

CLME+ SAP, CLME+ and PROCARIBE+ Projects and Ocean Coordination Mechanism

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Recalling that to date the 10-year “*Strategic Action Programme for the Sustainable Management of the Shared Living Marine Resources of the Caribbean and North Brazil Shelf Large Marine Ecosystems*” (the “CLME+ SAP”, 2015 - 2024) has been endorsed by 36 Ministers, representing a total of 26 States and 8 Overseas Territories;

Acknowledging the successful implementation to date of the UNDP/GEF Project entitled “*CLME+: Catalyzing implementation of the Strategic Action Programme (SAP) for the Sustainable Management of Shared Living Marine Resources in the Caribbean and North Brazil Shelf Large Marine Ecosystems*” by the Member States and organizations participating in the project;

Noting in particular the success of the Final Regular CLME+ Project Steering Committee Meeting, held in February 2021 with a total of 109 participants representing 31 States and Territories and 13 organizations, in advancing the implementation of CLME+ SAP [Actions 3.2 and 3.3,] by technically endorsing the content of the “*Memorandum of Understanding Enabling the Creation of a Coordination Mechanism to Support Integrated Ocean Governance in the Caribbean and North*

Brazil Shelf Large Marine Ecosystems,” hereinafter also referred to as “*MOU*” and “*Ocean Coordination Mechanism*,” respectively;

Recognizing the active participation of the IOCARIBE Secretariat in the “*Interim Coordination Mechanism for the Sustainable Management, Use and Protection of Shared Living Marine Resources in the Caribbean and North Brazil Shelf Large Marine Ecosystems*”, created in 2017 through the CLME+ Project as a predecessor for the aforementioned “*Ocean Coordination Mechanism*” and hereinafter also referred to as “*Interim Coordination Mechanism*,”

Noting also the ongoing efforts by countries and organizations from the region to mobilize renewed funding from the GEF to support the continued implementation of the CLME+ SAP and the operationalization of the aforementioned “*Ocean Coordination Mechanism*,” through the proposed new UNDP/GEF Project Concept entitled “*PROCARIBE+: Protecting and Restoring the Ocean’s Natural Capital, Building Resilience and supporting Region-wide Investments for Sustainable Blue Socio-Economic Development*,”

Urges Member States to take appropriate actions within their governments to continue supporting the implementation of the CLME+ Project, in particular with the view of adopting the final text of the MOU for the Ocean Coordination Mechanism and its subsequent opening for signature at the Extraordinary CLME+ Project Steering Committee Meeting planned for 28 – 30 June 2021;

Instructs the IOCARIBE Secretary to continue engaging in the “*Interim Coordination Mechanism*” until the “*Ocean Coordination Mechanism*” becomes operational; and

Recommends Member States to take appropriate actions to mobilize their government’s support for the proposed UNDP/GEF PROCARIBE+ Project Concept, and to actively engage in the subsequent development of the detailed Project Proposal.

Recommendation SC-IOCARIBE-XVI.13

Programme & Budget 2021-2023

The IOC Sub-Commission for the Caribbean and Adjacent Regions (IOCARIBE),

Appreciates the continuing support of Colombia to hosting the IOCARIBE Secretariat and for its support to individual programme initiatives;

Thanks Member States who provided extrabudgetary and in-kind contributions in the last biennium;

Notes with appreciation the work of the Secretariat and the engagement of Member States through virtual media to sustain the programmes of IOCARIBE through the Covid-19 pandemic;

Welcomes the continuity in programmatic choices proposed by the Secretary in the draft 2021-2023 IOCARIBE budget;

Takes note of the report of the Chair of the Financial Committee Mr. Arthur Paterson on draft IOCARIBE programme and budget 2021-2023 budget;

Adopts its biennial budget framework 2022–2023, noting that the budget will be revised to incorporate funding available from the IOC Regular Budget 2022–2023, following its adoption by the UNESCO General Conference;

Expresses concern that the Regular Budget and Extra-Budgetary funding are not compatible with the increasing responsibilities of the Sub-Commission and in particular with regard to implementation of the Sustainable Development Goals of the 2030 Agenda and United Nations Decade for Ocean Science for Sustainable Development 2021-2030 (herein the Decade);

Highlights the importance of ensuring that the Sub-Commission has the necessary resources, both in terms of its regular programme budget and voluntary contributions, to fulfill the requirements of the biennial IOCARIBE programmes and its role in the implementation of the Decade;

Encourages Member States to support the expanding biennial IOCARIBE program and co-design and implementation of the regional Decade initiatives by providing extra-budgetary and in-kind support, including secondments, meeting sponsorship, and sharing technical capabilities of data and information as appropriate;

Requests the IOCARIBE Secretary to increase efforts to obtain further extra-budgetary voluntary contributions, including from private sector donors and other partners to fully fund the adopted programme, including its new initiatives and regional Decade coordination.

Requests the IOCARIBE Secretary to work with IOCARIBE Board of Officers three months in advance of the Seventeenth session of IOCARIBE preparing the biennial budget 2024–2025.

IOCARIBE Budget for 2021-2023							
IOCARIBE XVI Proposal 6 May 2021							
#	Programme / Activity	TOTAL	RP	EXB	EXB 1	EXB 2	Funding Gap
1	UN Decade Coordination	160,000					160,000
2	Ocean Acidification	200,000					200,000
3	IODE						0
4	OIH LAC	70,000					70,000
5	HAB-ANCA	45,000					45,000
6	OTGA	50,000					50,000
7	IBCCA	830,000					830,000
8	IOCARIBE-GOOS New Pilot	1,000,000					1,000,000
9	SARGASSUM	250,000					250,000
10	OIL SPILLS	200,000					200,000
11	CIFI-C	80,000					80,000
12	MSP	120,000					120,000
13	OCEAN LITERACY	80,000					80,000
14	PROCARIBE+	300,000					300,000
15	IOCARIBE MACHC SeaBed2030	250,000					250,000
17	IOCARIBE INT CONFERENCE	40,000					40,000
18	OBIS	40,000					40,000
							0
	TOTAL	3,315,000	0	0	0	0	3,315,000

*EXB1	Cash investment by partners. Funds not directly managed by IOC / IOCARIBE
*EXB2	in-kind investment by partners. Funds not directly managed by IOC / IOCARIBE
**REGULAR PROGRAMME 2021-2023	
The IOC REGULAR PROGRAMME BUDGET 2021- 2023 WILL BE PROVIDED AFTER UNESCO BUDGET ADOPTION	