Ocean Affairs and the Law of the Sea

Contribution of the Intergovernmental Oceanographic Commission of UNESCO to the Report of the Secretary-General

June 2024

DEVELOPMENTS IN THE FIELD OF OCEAN AFFAIRS AND THE LAW OF THE SEA

Pursuant to United Nations General Assembly Resolution 76/72: Oceans and the law of the sea as of 9 December 2021, entitled "Oceans and the law of the sea" the information below represents the contribution of the Intergovernmental Oceanographic Commission of UNESCO (IOC) to the report of the Secretary-General. The work of the Commission of UNESCO is structured around the following functions, each of which is reported on in this submission:

- Function A – Ocean Research
- Function B – Observing Systems and Data Management
- Function C – Early Warning and Services
- Function D – Assessment and Information for Policy
- Function E – Sustainable Management and Governance
- Function F – Capacity Development

SUMMARY OF KEY ACHIEVEMENTS

- Coordinated by IOC since 2021, the United Nations Decade of Ocean Science for Sustainable Development (2021–2030), the largest global ocean science initiative ever undertaken, currently counts 52 endorsed global Decade programmes and over 300 Decade projects led by partners in over 60 countries, and close to 100 in-kind and financial contributions. Twelve regional and

FUNCTION A: OCEAN RESEARCH
Foster ocean research to strengthen knowledge of ocean and coastal processes and human impact upon them

Understanding climate change and its effects on the world ocean

1. The World Climate Research Programme (WCRP) underpins the work of the Intergovernmental Panel on Climate Change (IPCC), which in turn supports decision-making by the UN Framework Convention on Climate Change (UNFCCC). IOC brings the oceanographic constituency to WCRP, as the ocean is an integral part of the climate system. IOC's co-sponsoring of WCRP, therefore, represents an example of climate change science in action, through a value-chain approach, going from research to decision-making. IOC invested considerable effort in the WCRP Open Science Conference (OSC) 2023 'Advancing climate science for a sustainable future' in October 2023 in Kigali, Rwanda.

2. Through decision EC-LI/4.2, the IOC convened the current main players in ocean carbon research and systematic observations under the umbrella of an expert Integrated Ocean Carbon Research (IOC-R) initiative. This initiative federates: the IOC; the International Ocean Carbon Coordinating Project (IOCCP); the Surface Ocean-Lower Atmosphere Study (SOLAS); the Integrated Marine Biosphere Research Project (IMBeR); the Climate and Ocean Variability, Predictability and Change (CLIVAR) core project of the WCRP; and the Global Carbon Project (GCP). The goal of this initiative is to design an integrated research and observation agenda in the next decade in support of relevant efforts by the G7, GOOS, the UNFCCC and its SBSTA (Subsidiary Body for Scientific and Technological Advice) and of course the Ocean Decade. Since the delivery of the first Summary of Ocean Carbon Research and Vision of Coordinated Ocean Carbon Research and Observations for the Next Decade, published as IOC Technical Series, 158, new science and observation technologies have been developed, important to provide guidance to national and international research efforts and funders. A new document 'Integrated Ocean Carbon Research – a vision primied for implementation' will be published in 2024. The focus will be on knowledge gaps and ways to close them.

3. Over the course of the reporting period IOC coordinated the preparation of the document and highlighted IOC-R together with other ocean carbon efforts supported by IOC (OARS and GO-BC) at the 2024 Ocean Decade Conference in Barcelona in a Satellite event on 12 April 2024.

4. IOC continued to provide active support to Member States in developing capacity to act towards, and to report on, SDG Indicator 14.3.1, which focuses on ocean acidification (cf. Function D). As the custodian agency for the indicator, the Commission developed the methodology providing guidance to scientists and countries on how to carry out measurements following the best practices established by the ocean acidification (OA) community. In this way, IOC and its networks, including the Global Ocean Acidification Observing Network (GOA-ON), directly contribute to the achievement of SDG Target 14.3. 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 , 638 stations in 42 countries in 2024

needs assessment and bilateral consultations with IPBC Partners carried out by IOC, an online knowledge exchange session on blue carbon in NDCs was planned and held in 2023, and at least three more are expected to be held in 2024. Additional learning and guidance materials were developed in collaboration with Partners and made available through a new online catalogue of resources, including a policy brief on actionable blue carbon ecosystems for climate mitigation and

Programme is to provide data, knowledge and best practices to enable society, stakeholders, and

31. Advocacy for ocean observing has continued by the GOOS management team. This includes on observation and data needs for climate through the UNFCCC, biodiversity through the CBD and BBNJ, as well as within the Ocean Decade. The GOOS Steering Committee co-chairs presenting at the Earth Information Day organized under the UNFCCC Subsidiary Body for Scientific and Technological Advice to advise negotiations on research and systematic observation at COP27 in November 2022 and COP28 in December 2023. The IOC/GOOS team raised the profile of the ocean and the critical need for observations and advancing observing technology by contributing, with its partners, to the 2023 Informal Consultative Process on Oceans and the Law of the Sea, on the topic of Marine Technology, highlighting the GOOS-MTS-NOAA Dialogues with Industry as well as presenting at a number of international events and conferences, including Ocean Business 2023 and Oceanology International 2024. In November 2023, the GOOS management team presented an update of GOOS to the G7 Future of the Seas and Oceans Initiative Working Group, whose efforts to "sustain and enhance the Global Ocean Observing System (GOOS)" were endorsed by the G7 Science and Technology Ministers' Communique Sendai, May 12–14, 2023.

32. Drawing on the internal GOOS Communications Plan, which currently aims to both connect with the ocean observing community and to advocate for the critical need for ocean observing to government, policy, science, private sector, and coastal communities, in 2023 a total of 16 original GOOS articles were published and shared by GOOS and UNESCO-IOC news, 10 of which were published in external media (*Meteorological Technology International*, *ECO Magazine*) and resulted in follow-up interviews with journalists (*Marine Technology Reporter/New Wave Media, Meteorological Technology International*), or were published on partner/sponsor websites (World Meteorological Organization, Marine Technology Society). On social media channels, GOOS has 1,200 new followers on LinkedIn in 2024 and 717 new followers on X. Furthermore, The Ocean Observing System Report Card 2023 continues to be recognized as a key source of information on the status of the Global Ocean Observing System.

GOOS Strategic Goal 2: System integration and delivery

33. The Observations Coordination Group (OCG) is expanding to support three new 'emerging' networks: Smart Cables, the Fishing Vessel Observing Network (FVON) and SOCONET (Surface Ocean CO_2 Reference Observing Network). It is interesting to note that these new networks are taking advantage of existing infrastructure to expand ocean observing capacity. The USV (Unmanned Surface Vehicles) network is also developing towards 'emerging' status with support from the Ocean Decade OASIS Programme. Coordination and expansion of SOCONET, which provides the measurements used to produce ocean carbon flux estimates. The latter is also a key

Secretary to oversee the Joint WMO-IOC Collaborative Board self-evaluation review of performance, and report back with the findings to IOC Executive Council in 2024. Current and former members of the JCB met virtually in February 2024 to complete a self-review, guided by an online survey, as well as consider joint priorities moving forward. The review of performance is available in IOC/INF-1536.

The IODE Network

58.

and guidance on access to resources on ocean data sharing. The Data Helpdesk and demonstrations attracted a continuous stream of interested participants both looking for support on how to share their data and information as well as guidance on where to find existing open data in the currently very fragmented ecosystem of local and thematic ocean data repositories. Direct connections were made between a number of Decade Actions seeking support with data management and IODE Actions mentioned above, including OGTA, OBIS, and Ocean Data 2030.

63. IODE Secretariat staff and Member State experts have also contributed to the Vision 2030 process and more particularly to White Papers 2 and 8. The resulting paper entitled 'Challenge 2: Protect and Restore Ecosystems and Biodiversity – Understand the effects of multiple stressors on ocean ecosystems, and develop solutions to monitor, protect, manage and restore ecosystems and their biodiversity under changing environmental, social and climate conditions' proposes the volume of data in IODE/OBIS as a Decade indicator and calling on every National Decade Committee or regional group to identify a process or strategy for collecting and publishing data on core marine life and ecosystem variables through existing, interoperable, international information systems, such as the IODE/OBIS. The resulting paper entitled 'Challenge 8: Creating a Digital Representation of the Ocean – Through multi-stakeholder collaboration, develop a comprehensive digital representation of the ocean, including a dynamic ocean map, which provides free and open access for exploring, discovering and visualizing past, current and future ocean conditions in a manner relevant to diverse stakeholders'. It refers specifically to the Ocean InfoHub (OIH) and Ocean Data and Information System (ODIS) and for coordination with the IODE network of ocean data centres.

64. IODE continued to support the GOOS BioEco panel (BioEco portal), GOOS/IODE Ocean Best Practices System (OBPS), GOSR, StoR, HAB (HAEDAT, Toxin DB, HAIS, GHSR), GO_2DAT and SDG Indicator 14.3.1 (OA portal); as well as more broadly the implementation of the *IOC Capacity Development Strategy* through its OceanTeacher Global Academy (OTGA) project (see also below and under Function F). Cooperation has also been enhanced with the regional sub-commissions with the co-design and implementation of activities that respond to the regions' work plans.

<u>The Ocean Biodiversity Information System (OBIS)</u>

65. The IODE/OBIS database has continued to grow, now incorporating one new dataset daily and 1 million new marine species observations each month. OBIS presently integrates over 5,000 datasets, encompassing more than 125 million observations representing 180,000 marine species (constituting 75% of all described species). Of these, 23 million records are based on DNA sequences. These data have been provided from over 1,000 institutions across 99 countries, including 16 from Africa and 21 Small Island Developing States (SIDS) with SIDS alone contributing 1 million records in 2023. The OBIS network comprises 33 national, regional, and thematic nodes, as either IODE NODCs or ADUs.

66. The Republic of Korea OBIS node was reactivated in 2023 and is now hosted by the National Marine Biodiversity Institute of Korea, which also hosted the 12th session of the IODE Steering Group for OBIS, 25–29 March, 2024. During this session, the SG-OBIS agreed on a new priority strategy and management structure to align with the new Rules of Procedure for IODE Programme Components, Programme Activities, or Projects. Accordingly, OBIS has decided to concentrate on two thematic areas: a) data mobilization; and b) data application, establishing a data coordination group and a product coordination group to address these priorities, respectively. For data application (Area B), OBIS is developing a data products portal comprising an online virtual laboratory and a products catalogue. Additionally, a nodes coordination group has been formed to facilitate discussion among OBIS nodes on ongoing activities, priorities, and challenges, while the OBIS steering group will concentrate on business and strategy. OBIS nodes have been given a broader mandate extending beyond data publication, encompassing a mentoring role for data holders in their respective areas, enabling them to directly publish biodiversity data into OBIS and GBIF but potentially needing support in adhering to marine-specific data requirements. An OBIS All Hands meeting will convene biennially to unite the extensive OBIS community of practice. These

86. An online ICG/PTWS Steering Committee meeting took place in March 2024, and two ICG/PTWS Officers Meeting were organized in December 2023 and April 2024, respectively.

87. The seventh Meeting of the Regional Working Group for Central America of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS) was held in Managua, Nicaragua, on 10 May 2024.

88. Both in the Pacific and the Caribbean, Member States were invited through Circular Letters to nominate experts to the Working Groups and Task Teams of both ICGs, with the principal aim of better facilitation of Technical Secretarial support to them by the IOC Tsunami Resilience Section.

Tsunami Preparedness Exercises

89. Tsunami exercises and drills help to increase tsunami preparedness and awareness of coastal communities. Regular exercises are essential to maintain operational readiness of response agencies and exercises test communications, review agency standard operating procedures, and promote emergency prepare4.6(tP10.5Tc 41 Td [(pr)-6(om)-5.9(o)10.5(t)-2(.)4.3(R)-2(is)-6.6(002 Tw 11.04 -0

reported. Additionally, there appears to be a coastal landslide triggered by the earthquake but their possible contribution to the observed tsunami requires further scientific investigation. According to the central government, tsunami waves swept across some 190 hectares of land in three municipalities. Chief Cabinet Secretary Yoshimasa Hayashi said at a press conference that breakwaters were damaged at least in seven beaches hit by tsunami waves. A Team of Kyoto University's Disaster Prevention Research Institute estimated tsunami at least 4.7 metres high hit the Misakimachijike district of Suzu, which is close to the tip of the Noto Peninsula. Almost all homes in that district were damaged, some totally. But while a tsunami as high as 5.1 metres reached the

98. Cannes Municipality (Alpes Maritimes, France) and the Municipality of Büyükçekmece, (Türkiye) have

had 22 participants and included a session at the conference on how to integrate the qPCR method into HAB monitoring. The workshop outcome will provide the basis of a peer-reviewed white paper on how to integrate the qPCR method into HAB monitoring.

120. A Harmful Algal Bloom Solutions (HAB-S) Programme was endorsed as a UN Decade of Ocean Science for Sustainable Development programme early 2024. Lead agencies are UNESCO-IOC and the FAO. HAB-S was presented at the Thirty-second Session of the Assembly of IOC, in Paris, June 22, 2023. The HAB Solutions Programme will conduct the following four initiatives to advance collaborative global initiatives for preventing, controlling, and observing HABs, mitigating HAB impacts, making HAB data equitable and accessible for all, and increasing HAB literacy

121. Close collaboration with ICES and PICES continued in compiling and sharing global data on HAB events in the IODE Harmful Algae Event Database (HAEDAT).

FUNCTION D: ASSESSMENT & INFORMATION FOR POLICY
Support assessment and information to improve the science-policy interface

Sustainable Development Goals (SDG)

122. In the context of the 2030 Agenda for Sustainable Development, several targets of SDG 14 are directly relevant to the work of IOC, particularly in the areas of marine pollution, ocean acidification, ecosystem-based management, as well as marine research capacity and transfer of marine technology. UNESCO-IOC is identified as the UN custodian by the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs) for SDG indicators 14.3.1 (ocean acidification) and 14.a.1 (scientific knowledge and ocean research capacity). IOC has recently provided reporting on these indicators for inclusion in the UN Secretary General's Progress Report towards the SDGs in 2024.

123. Significant progress was made in the collection of new data provided by Member States to IOC towards the SDG Indicators 14.3.1.In February 2024, IOC reported to the IAEG Indicator 14.3.1 Several activities were undertaken to advance the methodology of indicators for Targets 14.3 and 14.a, as well as in relation to Target 14.1 on marine pollution (nutrients).

124. Concern over the impacts of altered nutrient inputs, N, P and Si, to coastal waters led the UN to include an 'Index for Coastal Eutrophication Potential' (ICEP) as indicator for SDG Indicator 14.1.1 on eutrophication: *By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution*. UN Environment is the custodian agency for Indicator 14.1.1, and UNESCO-IOC is responsible to develop ICEP as the indicator. 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 a hard challenge but was solved late 2021 as a combination of funds from UNEP via a UN agreement as well as Norwegian (NORAD) funding. The work is ongoing and will be completed second quarter 2024.

UN World Ocean Assessment (WOA)

125. IOC continues to provide scientific and technical support to the World Ocean Assessment process established under the UNGA. A third cycle of assessment (2021–2025) was initiated under

complete map of the oceans.The GEBCO grid is widely accepted as being the base-layer to support Challenge 8 of the UN Decade of Ocean Science for Sustainable Development: create a digital representation of the ocean. Taking place during the 120th year of GEBCO, this event was the pinnacle of the anniversary celebrations.

134. The 36th meeting of the GEBCO Sub-Committee on Undersea Features Names (SCFUN) took place on 6–10 November 2023 in Wollongong, Australia, whilst the 40th meeting of the GEBCO Guiding Committee took place in Monaco at the IHO on 9–10 November 2023. The GGC finalized the new GEBCO Strategy (IOC/INF-1538) and discuss the preliminary findings of the GEBCO Governance review. The Review provides an in-depth analysis of the entity's governance structures and practices, aimed at enhancing

Sustainable Ocean Planning and Management, which will be discussed under agenda item 4.3 of the Executive Council at its 57th session.

152. Over the period June 2023 to May 2024, IOC participated in several national, regional and international events of initiatives related to MSP, such as those of the Ocean Panel, DOALOS, OECD and the G20 Environment and Climate Sustainability Working Group under the presidency of Brazil.

Sargasso Sea Transboundary Cooperation

153. IOC, working in close collaboration with UNDP and the Sargasso Sea Commission, finalized is executing a GEF project aimed at strengthening the stewardship of an economically and biologically significant high sea area—the Sargasso Sea. The project was successfully submitted to the GEF and started its implementation in August 2022. The overall objective of this 4-year GEF-funded project, with nearly $3 million of funding, is to facilitate a collaborative, cross-sectoral, and sustainable stewardship approach for the Sargasso Sea through improvement of the knowledge base and strengthened frameworks for collaborative management and governance. In 2024, the development of an Ecosystem Diagnostic Analysis (EDA) for a high seas ecosystem was initiated. This EDA will form the technical basis for a stakeholder-endorsed Strategic Action Programme (SAP)

158. Thirty-eight (38) National Decade Committees have been created and are implementing diverse initiatives to catalyze national interest and resources for the Decade, as well as provide a platform for the discussion of national priorities aligned to the Decade. The rate of establishment of new National Decade Committees has slowed in this period and additional efforts are required to support the creation and impact of new National Decade Committees. Notable gaps exist in the global coverage of NDCs, particularly in SIDS and LDCs.

159. IOC is leading 16 Decade programmes and projects across a range of themes and is substantively involved in several others. It is also hosting Decade Coordination Offices across several themes and geographies including ocean observations, data sharing, ocean literacy and in Africa, Western Pacific, and the Tropical Americas and Caribbean region. There is a significant potential for the IOC contribution to the Decade to reinforce IOC's core programmatic work and human resources. However, additional resources

Challenges, in the review of Decade programme submissions, and in regular review processes of the Decade.

164. Hosted by Spain

Conference will be launched in late 2024, in anticipation of an announcement of the host country at the 33rd Session of the IOC Assembly.

UN Framework Convention on Climate Change

170. IOC was present at COP28 hosting various side events and discussion panels, participated in a large coalition of partners committed to making the ocean more central to climate negotiations and informing delegates about the potential of the ocean to support climate action.

171. The Ocean Decade teamed up with OceanX to host a pavilion for the entire duration of COP28, providing opportunities for in-depth discussions about the role of science in protecting the ocean, strengthening ocean-climate action, and increasing commitment to developing the knowledge necessary to limit warming to 1.5°C and stabilize the Earth's climate. With curated roundtables focused on the Ocean Decade Challenges and engaging visual media, the pavilion was a hotspot for discussion on ocean-climate solutions.

172. Several flagship Ocean Decade Programmes that are focusing on the generation of ocean-climate solutions were showcased during a half-day event in the Ocean Pavilion. This event also featured high-level keynote presentations on the critical science and knowledge gaps that the Ocean Decade is filling, including via the Vision 2030 process, the links between ocean science and

179. EID 2023 was attended by over 250 participants and fed directly into negotiations on systematic observation under the Subsidiary Body for Scientific and Technological Advice (SBSTA). Parties' conclusionshighlighted the importance of sustained, long-term observations of the Earth system and the need to address data gaps including for the ocean and coastal regions.

180. A targeted dialogue event was held at the OceanX + Ocean Decade pavilion, promoted by UNESCO-IOC, Communications Inc. and the Federal University of Sao Paulo, discussed how we can leverage the power of strategic communication to convey messages related to the importance of the ocean as the centre of the climate solutions discourse. Journalists, activists and influencers

oceanographic expeditions with participation of more than 50 experts from the region, installation of tide gauges at selected locations in the framework of GLOSS and ODINAFRICA, a survey of status of ocean observations along the African coastal and development of a proposal for a comprehensive African Ocean Observing System. In addition, a regional MSP Forum was held in November 2023.

186. The regional node for the Ocean Info Hub (www.odinafrica.org) was developed with information on experts and institutions / organizations, policy documents and legislation, spatial data and maps, research vessels, education and training opportunities, and projects. Case studies on gender and poverty perspectives were carried out in Madagascar, Kenya and Tanzania and the African Coastal and Marine Atlas is under redevelopment using new software. Two Science-Policy interface engagements in partnership with other stakeholders were also held to encourage Member States to develop guidelines and capacity measures to support the integration of Ocean Science and ocean-climate nexus in African Union Maritime Strategy and climate strategies. These were held in September and November 2023 respectively.

187. In terms of the Africa Flagship related to preventing risks, enhancing resilience and adaptive capacity to climate change ans disasters, capacity development initiatives were carried out in relation to ocean acidification and detection and early warning systems for harmful algal blooms. Morocco and Egypt are partners of the IOC-EU CoastWAVE project. The project supports sea level risk

development of observing systems. During May 2024, the Sub-C

design.The joint governance teams of IOCARIBE and the ICG/CARIBE-EWS are

Arab Emirates. The United States of America expressed an interest to be an Observer to the IOCINDIO Sub-Commission. The IOCINDIO Sub-Commission should maintain the current geographic coverage of the Regional Committee limited to the central Indian Ocean[1]; based on the clear understanding, with a consensual agreement, that the IOCINDIO Sub-Commission should not overlap and/or interfere with the geographic coverage, undermine, diminish, or weaken the work and/or responsibilities of existing neighboring IOC Sub-commissions. Adequate coordination mechanisms with adjacent sub-commissions help to avoid overlaps, focusing on cooperation, collaboration, and integration of IOC activities for the benefit of all regions. The IOC Secretariat in consultation with the current IOCINDIO Officers will convene the First Session of the newly established Sub-Commission in the first quarter of 2025 prior to the 33rd Session of the IOC Assembly. The Sub-Commission will elect its Officers at that session.

209. IOCINDIO co-organized with Decade Collaborative Centre for the Indian Ocean Region (DCC-IOR) and the Indian National Centre for Ocean Information Services (INCOIS) of India, the Indian Ocean Regional Decade Conference 2024: Bridging Billions to Barcelona' as an Official Prelude to the Ocean Decade Conference-2024', INCOIS, Hyderabad, 1–3 February 2024. IOCINDIO supported, contributed, and participated in the Conference and organized a dedicated Session on the IOCINDIO.

210. IOCINDIO contributed to the UN Decade 2024 Conference in Barcelona and organized a dedicated Satellite Events: ‘Enhancing coastal resilience in the Indian Ocean Key contributions of ocean and climate sciences to institutional capacity development as a vital solution to coastal vulnerability and climate change’ on the 9 April 2024. The hybrid event was well attended with about 100 participants (50 online and 50 in presence). IOCINDIO also contributed to the onsite event organised by India during the UN Decade 2024 Conference, on 10 April, providing the report on the Indian Ocean Regional Decade Conference 2024: Bridging Billions to Barcelona' as an Official Prelude to the 2024 Ocean Decade Conference. It is worth noting that all three IOCINDIO Officers together with several senior scientists, managers and ECOPs participated actively in the 2024 Ocean Decade Conference.

211. IOCINDIO reinforced cooperation with the IIOE-2 and co-organised the Second Indian Ocean Expedit

schools' kids ensured a wide public awareness in inclusive manner. Along with keynote and panels discussions, the conference through interactive, dynamic and innovative workshops explored and presented latest research and innovations solutions to help reduce greenhouse gas emissions and promote climate resilience. The Conference also offered networking opportunities, exhibitions, and poster sessions promoting collaboration and knowledge-sharing. A full day immersion was organized in Dubai on 6 December at the COP28 venue in Dubai to share knowledge on the current Ocean-related patterns, trends, and innovations in climate change mitigation, and resilience.

FUNCTION F: CAPACITY DEVELOPMENT
Develop the institutional capacity in all of the functions above, as a cross-cutting function

IOC Capacity Development Strategy

213. In June 2023, the IOC Assembly, through Decision A-32/4.3, adopted the *IOC Capacity Development Strategy 2023–2030* (IOC/INF-1433) and its Outreach and Communications Plan.

214. Shortly after the adoption of the IOC CD Strategy, the CD Secretariat, highlighting the need for close collaboration with the regional subsidiaries bodies in implementing the new strategy, co-organized with IOCARIBE Secretariat in November 2023 a regional capacity development webinar

overseas participants from 7 countries (Bangladesh, Guinea, Maldives, Kenya, Sri Lanka, Seychelles, India). The workshop provided tools and understanding to participants on the Geospatial science helping to generate vital information on the sustainable use of the coastal resource and planning. The use of such techniques helped for managing densely populated coastal environs. This course provided an overview of GIS applications pertaining to coastal vulnerability and analysis. It also provided the basic GIS mapping techniques on storm surge vulnerability, and its socio-economic impact using open-source GIS tools. Course integrated data acquisition, processing, analysis, and interpretation of coastal spatial data. In addition, extensive hands-on sessions to use tools for preparation of thematic base maps for coastal vulnerability due to Tsunamis, Storm surges and their impact. Participants gained knowledge on understanding of spatial data: raster and vector models, core tasks involved in the GIS analysis process including data acquisition, management, manipulation and analysis, and presentation and output, the use of QGIS, GRASS tools and Plug-in tools, creating and editing spatial data, basic understanding of coastal and marine GIS data applications.

UNESCO Category 2 Centres (C2C) and Chairs in ocean-related fields

253. The two Category-2 Centres (C2Cs) under the auspices of UNESCO in the fields of competence of the IOC, namely the Regional education and research Centre on Oceanography for West Asia (RCOWA) in Islamic Republic of Iran and the International Training Centre for Operational Oceanography (ITCOOcean) in India and the UNESCO Chairs in Iran, Oman, and Qatar conducted several research and training activities in ocean sciences, operational oceanography, data management and tsunami warning and mitigation. Both C2Cs duly and timely reported to UNESCO through the dedicated online reporting platform and webpage https://en.unesco.org/ocean-category-2-centres-