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**INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION**

**(of UNESCO)**

**Thirtieth Session of the Assembly**

UNESCO, Paris, 26 June-4 July 2019

**DRAFT SUMMARY REPORT**

**Part 3**

(Agenda items 2.4 *(2nd part)*, 3.4, 4.2, 5.1, 7, 8, 10.1, 11, 12.4, 12.7)

*Decisions will be published separately in document IOC-XXX/Decisions   
at the end of the session*

**2. ORGANIZATION OF THE SESSION**

*[ cf. Part 1 ]*

2.4 INTRODUCTION OF DOCUMENTATION, TIMETABLE AND MEMORIAL LECTURES *[ Continuation ]*

1. The IOC Anton Bruun Memorial Lecture on ‘Time Series and their Contribution to the Prediction of the State of the Ocean’ was delivered by Professor Peter A. Thompson (CSIRO, Australia). The IOC N.K. Panikkar Memorial Lecture on the theme ‘Science Capacity Development in support of Societal Goals in Western Africa’ was delivered by videoconference by Dr Jacqueline Uku, President of the Western Indian Ocean Marine Science Association (WIOMSA). Following their presentations, Professor Thompson and Dr Uku were awarded the IOC Anton Bruun Medal and the IOC N.K. Panikkar Medal, respectively.

**3. IOC MATTERS AND REPORTS**

*[ cf. Parts 1 & 2 ]*

3.4 REPORT OF THE IOC ACTIVITIES (2018–2019)   
TO THE FORTIETH GENERAL CONFERENCE OF UNESCO

1. The Executive Secretary briefly introduced this item, considering that the essence of the information contained in the draft report presented for the consideration of the Assembly has already been covered in his presentation under item 3.2.

4.2 ENHANCED COHERENCE, IMPACT AND FUTURE ORIENTATIONS   
OF THE IOC IN SUPPORT OF THE UN DECADE OF OCEAN SCIENCE   
FOR SUSTAINABLE DEVELOPMENT AND 2030 AGENDA

1. The Executive Secretary presented the efforts made by the IOC Secretariat in the intersessional period to inform IOC expert networks and groups about the developments related to the Decade. These efforts aimed to collect input to the science plan of the Decade, with a view to stimulate discussions, including at the first Planning Meeting in Copenhagen in May 2019. Contributions from IOC expert networks also assisted in the alignment and cross-fertilization of IOC programmes and activities with the societal and strategic objectives of the Decade. This synergy-oriented exercise also allows to mobilize the expertise and optimize efforts of the IOC Secretariat in coordinating the Decade preparations.
2. The representatives of two Member States took the floor. They confirmed the importance to discriminate between the coordinating role of the IOC and its substantive contribution vis-à-vis the Decade. It was suggested that efforts should focus on science-based solutions in support of the objectives of the Decade. WMO referred to the relevance of joint efforts between WMO and IOC in support of the Decade, such as the World Climate Research Programme.
3. WMO chose to provide records of its plenary intervention for the informational annex to the meeting report.

**5. UNITED NATIONS PARTNERSHIPS**

5.1 COOPERATION WITH WMO

1. Dr Sarah Grimes, Acting Chief of the Marine Meteorology and Ocean Affairs Division of the World Meteorological Organization (WMO), introduced decisions by the 18th World Meteorological Congress (3-–14 June 2019), on behalf of Prof. Petteri Taalas, Secretary-General of WMO, whose travel was interrupted by a heat wave. The decisions include adoption of a WMO Strategic Plan and reform of WMO constituent bodies, in order to achieve more effectiveness and efficiency of the use of the resources of WMO Members, with a minimal level of bureaucracy and without disrupting partnerships. She emphasized that the WMO Strategic Plan took an Earth Systems approach to observations and forecasting, and that ocean observations, data, forecasting systems and research, and therefore a great part of the work of the IOC, were important in achieving WMO objectives.
2. Mr Ariel Troisi, Vice-chairperson of IOC (Group III), recalled IOC Decision EC-LI.5.1 which created a Joint WMO-IOC Consultation Group on the reform of JCOMM, which he co-chaired along with Dr Louis Uccellini (Permanent Representative of the USA with WMO). He noted that weather, water, ocean, and climate linkages require us to foster interdisciplinary and collaborative work. In particular, more comprehensive models of the whole Earth system are needed, including coupling between the ocean and atmosphere, to advance scientific understanding, prediction, and services. IOC and WMO must position themselves to address these future challenges and opportunities that will require greater collaboration between them.
3. The Joint WMO-IOC Consultation Group worked on a tight timeline and with excellent synergies between the two organizations. It proposes the creation of a Joint WMO-IOC Collaborative Board, which will maximize opportunities to co-design, co-develop and implement joint scientific and technical work, across oceanography and meteorology, which ultimately will improve the provision of information and services for societal benefit. The Board will have the mandate to provide strategic advice to the governing bodies of IOC and WMO focussing on joint collaborative strategies, advise on joint work to achieve relevant objectives, and prepare coordinated draft resolutions and decisions for final decision by the IOC and WMO governing bodies.
4. The Consultation Group also made recommendations about the continuation of the cooperative work developed under JCOMM in the domains of observations, data management, forecasting systems and services. Members of the Joint WMO-IOC Collaborative Board are proposed to be designated by the IOC Chairperson and WMO President, in order to ensure an overall balance and representation across IOC and WMO activities and geographic regions. The Board will be co-led by an IOC Vice-Chairperson and a WMO Vice-President. All recommendations of the Board will be subject to final decision by IOC and WMO governing bodies.
5. Mr Troisi noted that as the WMO had already adopted a parallel version of this resolution, and that since it concerns a joint body, any changes would also need to be adopted by the WMO President on behalf the WMO Executive Council.
6. Following the recommendation expressed at a joint meeting of the IOC Officers and WMO Bureau in 2018, the Secretariats of the two organizations have been working on a Draft WMO-IOC Memorandum of Understanding for cooperation. In this context, during the UN-Oceans meeting, held at WMO Headquarters in February 2019, the WMO Secretary-General and the IOC Executive Secretary signed the Letter of Intent included in IOC-XXX/Inf.3.
7. The Draft MOU presented to the Assembly in the same document, in line with the IOC status as a body with functional autonomy within UNESCO, underwent an extensive review by the relevant services of both organizations. In accordance with Article XI.1 of UNESCO’s Constitution, which requires that formal arrangements with specialized intergovernmental organizations and agencies be subject to the approval of UNESCO’s Executive Board, the Draft MOU will be presented to the fall 2019 session of the Board, prior to signature.
8. Germany presented the Draft Resolution as co-submitter along with Argentina, emphasizing the advantages of the new arrangements: intensified cooperation between oceanography and meteorology, faster decision timescales with yearly meetings of the Joint WMO-IOC Collaborative Board, and increased Member State control with final decisions being made by WMO and IOC governing bodies.
9. The representatives of 8 Member States and the IODE took the floor. The following Member States chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: Australia, Brazil, Côte d'Ivoire, Japan, Spain, UK, USA.
10. Member States congratulated the Joint WMO-IOC Consultation Group for its work, and supported the creation of the Joint WMO-IOC Collaborative Board. They emphasized the importance of cooperative partnership in the Earth System approach, welcomed a focus on societal delivery, and considered that previously-raised concerns about the reform were addressed. Many Member States identified the transition period as critical, asking for open and active communication and consultation.

**7. OBSERVING SYSTEMS AND DATA MANAGEMENT**

7.1 OBSERVING SYSTEMS

**7.1.1 GOOS: Strategy, Implementation and Governance**

1. Dr Toste Tanhua, co-chair of the GOOS Steering Committee (SC), introduced this item.
2. He recalled that a draft Global Ocean Observing System 2030 Strategy (IOC/EC-LI/2 Annex 8) was presented to the IOC Executive Council at its 51st session in 2018, and Member States were asked to provide comments on it through IOC Circular Letter 2726 (8 August 2018). The revised strategy, now presented for final approval as IOC-XXX/2 Annex 4, has a broad vision for a fully integrated global ocean observing system that delivers the essential information needed for our sustainable development, safety, wellbeing and prosperity. The strategy details a more focused mission to lead the ocean observing community and create the partnerships to grow GOOS. Eleven Strategic Objectives provide guidance on priorities for the work of GOOS at global and regional levels, and in interactions with national ocean observing activities.
3. GOOS continues to develop an Implementation Plan (IOC/INF-1376) against the Strategic Objectives, which will be an evolving document focused on GOOS programme and partner actions. In accordance with IOC Resolution XXVI-8 (2011), this draft implementation plan (IOC/INF-1376) is presented for approval as the GOOS workplan for 2020–2021, and is focused on priority strategic objectives.
4. Building on existing close links between GOOS and the JCOMM Observations Coordination Group, GOOS stands ready to incorporate appropriate JCOMM functions and activities on observation and operational ocean forecasting systems. In the context of the reform of WMO constituent bodies including JCOMM (item 5.1) and an ocean observing community-wide reflection on the organization of ocean observations at global, regional, and national levels at the OceanObs'19 Conference (16-20 September 2019, Honolulu, USA), and recognizing the challenges in achieving the ambitious strategic objectives outlined in the GOOS 2030 Strategy, the GOOS Steering Committee is preparing to engage in a broader reflection on the governance of GOOS with its co-sponsors, to be brought to future IOC governing body meetings for decision.
5. Dr Tanhua noted two GOOS-related projects: the EC H2020 funded AtlantOS project and the Tropical Pacific Observing System in 2020 (TPOS 2020) project. AtlantOS has contributed to the development of a vision for an All-Atlantic Ocean Observing System as a contribution to GOOS, and is seeking to develop mechanisms to engage with Member State agencies and organizations around the Atlantic Basin. The TPOS 2020 Second Report (GOOS reports, 234) focused on design recommendations, engaging with funders and implementers, and trailing new technology for tropical Pacific observations, with the primary goals of improving climate outlook and forecasts, as well as detecting climate change and its consequences.
6. Dr Tanhua then highlighted three resolutions adopted by the 18th World Meteorological Congress. The first is focused on GOOS: approves the GOOS 2030 Strategy, subject to its parallel approval by this Assembly; decides to contribute to implementation of the strategy; and supports establishment of a node of a distributed GOOS Office located within the WMO Secretariat. It also supports the recommendations of the Second Report of TPOS 2020. The second resolution reaffirms the importance of marine meteorological observations, including those in Exclusive Economic Zones (EEZs), used operationally by WMO Members to provide services in support of safety of navigation and the protection of life and property in coastal and offshore areas, and clarifies the legal regime under which the Voluntary Operating Ship Scheme and surface observing platforms operate. The third notes a 20-year history of work by the IOC to develop a cooperative framework regarding the sharing of ocean data in EEZs (IOC Resolutions XX-6 and EC-XLI.4, and IOC Decision EC-LI.4.8), recognizes that WMO's operational forecast models and services increasingly rely on sustained global data streams of subsurface observations, and decides to identify the requirements for subsurface ocean variables to improve the quality of these forecasts and services, work closely with IOC in order to explore mechanisms that make the highest-impact subsurface ocean data freely available, and build the capacity of all WMO Members to use the resulting forecast systems and services. He also noted work by the JCOMM Observations Coordination Group and GOOS that surveyed ocean observing networks on the impediments they faced in taking observations within EEZs in full compliance with the provisions of UNCLOS.
7. The representatives of 20 Member States and WMO took the floor. The following Member States chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: \_\_\_\_\_\_\_\_\_\_\_.
8. All Member States and WMO strongly supported the ambitious Global Ocean Observing System 2030 Strategy. It was viewed as major achievement and necessary to better coordinate and govern ocean observing over the next decade, as well as providing an important guide for national activity. A stronger GOOS, which would serve the international community, was anticipated. The accompanying Implementation Plan also received strong support.
9. Member States noted national activities in support of the 2030 Strategy, through all of the current GOOS components. Several Member States noted intentions to expand their commitments to the work of GOOS, in support of the Strategy.
10. Member States emphasized:

* the Strategy's aim to connect end-to-end along the value chain, a potential launch pad for further investment,
* that a key challenge to address will be improving the resilience of key elements of GOOS, as well as expanding its scope to embrace a wider range of variables and the coast,
* the value of inclusivity, encompassing gender, indigenous peoples and young people, and
* the importance of connection to industry.

1. Member States could see clear links between the 2030 Strategy and the UN Decade of Ocean Science for Sustainable Development, with a suggestion that ocean observing and Decade work should be coordinated at a national level.
2. Australia and Argentina noted that the 2030 Strategy, along with new responsibilities for GOOS following the disbandment of JCOMM, will require urgent attention to how GOOS is resourced, with the need to develop a business case.
3. WMO reaffirmed its co-sponsorship of GOOS and the important contribution of sustained ocean observations to achieving WMO Strategic Objective 2.1, which is about optimizing the acquisition of Earth system observation data through the WMO Integrated Global Observing System (WIGOS). It was also noted that WMO engagement with ocean observing from community from local to national and global was important.
4. The work of TPOS 2020 and AtlantOS was commended and strongly encouraged by Member States. It was suggested that they could be viewed as the first pilots under the 2030 Strategy. The second review of the sustainable ocean observation system for the Indian Ocean (IndOOS-2) and plan for observing system development in the Indian Ocean were also noted.

**7.1.2 WMO-ISC-IOC-UNEP Global Climate Observing System (GCOS) Workplan**

1. Dr Carolin Richter, Director of the WMO-ISC-IOC-UNEP Global Climate Observing System (GCOS), introduced a status report and work plan for GCOS (IOC/INF-1377). This GCOS work plan is based on meeting the needs of climate scientists and the assessments produced by the Intergovernmental Panel on Climate Change (IPCC), adaptation planners, and policymakers like those in the UN Framework Convention on Climate Change (UNFCCC).
2. In order to meet these needs, GCOS works towards climate observations being enhanced and continued into the future to provide the empirical evidence needed to understand and predict the evolution of the climate, to guide mitigation and adaptation measures, to assess risks and enable attribution of climatic events to underlying causes, and to underpin climate services. GCOS will need to encourage integrated observations of the physical, chemical and biological properties and processes across the atmospheric, oceanic and terrestrial domains, in order to more fully monitor the Earth’s water and carbon cycles and energy. GCOS as an integrator focused on climate, depends on strong atmospheric, oceanic and terrestrial observing systems, and therefore on GOOS, with which it shares an expert panel.
3. GCOS operates through a cycle of specifying needs; providing support; observations (performed by independent systems and networks); monitoring performance of observations; and back to specifying needs. In the past, this sequence has been unfolding on a roughly 10-year cycle (with an update mid-way). From now on, GCOS will aim to synchronise this cycle on the dates of the Paris Agreement’s Global Stocktake, the first of which is in 2023.
4. Dr Richter welcomed the support of IOC Member States in the global observing system for climate, and the specific activities undertaken by GOOS and its expert panels. She called for continued assistance in reviewing GCOS proposed implementation actions, in promoting the inter-comparison and assessment of datasets, in supporting efforts to sustain in situ observing networks for climate, and in its direct support to GCOS.
5. The representatives of 2 Member States and the WMO took the floor.

**7.1.3 Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM)**

1. Prof. Nadia Pinardi, Co-President of JCOMM, introduced this item.
2. The JCOMM Management Committee at its 15th meeting (31 October–3 November 2018, Paris) made a series of recommendations on the future cooperation between oceanography and meteorology and between IOC and WMO that were then taken up by the Joint WMO-IOC Consultation Group on the Future of JCOMM. Dr Pinardi emphasized the opportunities created by the new proposed structure adopted under item 5.1.
3. Recalling Decision 19 (JCOMM-5) "Joint World Meteorological Organization and Intergovernmental Oceanographic Commission Strategy for Marine Meteorological and Oceanographic Data Management (2018–2021)", which authorized the JCOMM Co-Presidents to recommend that an updated draft Strategy (JCOMM Technical Report No. 40, Revision 5) be adopted by the WMO and IOC governing bodies, and the outcomes of the 25th session of the IODE (item 7.2.1), Prof. Pinardi introduced the vision and mechanism of the joint strategy. The vision is assuring the collection, processing, integration, dissemination and archiving of as much as possible fit-for-purpose relevant data of known quality, to deliver to current demands for integrated oceanographic and marine meteorological information to the research and operational communities.
4. Prof. Pinardi presented the results of a review of the JCOMM in situ Observation Programmes Support Centre (JCOMMOPS). The Review found that JCOMMOPS has generated a high level of interest and support from its stakeholders, all of whom view JCOMMOPS as important to the success of their own activities. As a direct consequence, expectations across the various stakeholders are on the increase. Overall, the cumulative demand for JCOMMOPS services far exceeds its current capacity. Key findings of the review are as follows: given the strategic directions of both WMO through WIGOS and IOC through GOOS, there is a clear and growing need for an in situ Observing Programmes Support Centre. It requires a system-level focus, rather than a sum-of-networks approach. The distinctive role of JCOMMOPS does however need to be more clearly defined. The expectations of various stakeholders, and the JCOMMOPS team itself, need to be more actively managed and matched to available resources. Stable funding and staffing of the small core JCOMMOPS team needs to be secured in the long term. The financial situation is urgent as JCOMMOPS expenditure continues to exceed revenue, and its trust-fund balances are close to being exhausted. Skills of the JCOMMOPS team need to be matched to a clearly defined scope.
5. The representatives of 7 Member States, WMO, and IODE took the floor. The following Member States chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: \_\_\_\_\_\_\_\_\_\_\_.
6. The cooperation between the oceanographic and meteorological communities that JCOMM has accomplished was applauded, and Member States noted their support for new Joint WMO-IOC Collaborative Board, to enhance cooperation and coordination in the implementation of a fully integrated marine observing, data management and services system.
7. Member States also supported the Joint Data Management Strategy, and the need for this to be developed with IODE and the relevant bodies of WMO. WMO confirmed that the Strategy was approved by the 18th World Meteorological Congress, subject to parallel approval of the IOC Assembly.
8. Member States noted the increasing role of JCOMMOPS as an observing community resources, and called for improved sustainability of this vital component. France, as the host country for JCOMMOPS, noted that it would like to extend the role of JCOMMOPS. WMO expressed continued support to JCOMMOPS, and that it is taking steps to establish JCOMMOPS also as a WMO Office based in France.

7.2 DATA MANAGEMENT

**7.2.1 International Oceanographic Data and Information Exchange:   
25th Session of IODE, Tokyo, Japan, 18–22 February 2019**

1. Dr Sergey Belov, IODE Co-Chair, introduced this item and informed the Assembly on the outcome of the 25th session of the IODE Committee and draft decisions submitted to the Assembly regarding the revision of the IOC Oceanographic Data Exchange policy, and the establishment of the IOC Ocean Best Practices System project.
2. During its 25th session the Committee focused its attention mainly on the possible contribution of IODE to the United Nations Decade of Ocean Science for Sustainable Development (2021–2030). The Decade was also the main theme of the Scientific Conference held on 18–19 February 2019, which was attended by 150 participants from 40 countries. The conference concluded with the recommendation that it is critical for IODE to be further strengthened and expanded for it is to play an essential role in supporting the flow from data to information to knowledge. The oceanographic community needs to build a global ocean forecasting system delivering society relevant services, by focusing on managing the data streams of essential ocean variables, both in the climate, operational services and ocean health space. To realize this, IODE and GOOS will need to continue their strong partnership and engage with regional bodies and stakeholders including the private sector. Important steps have been taken by the development of a prototype global Ocean Data and Information System (ODIS).
3. The Committee welcomed the continued growth of the IODE network that now includes 67 National Oceanographic Data Centres (NODCs) (3 added), 29 Associate Data Units (ADUs) (9 added) and 3 Associate Information Units (AIUs). Within the framework of the IODE Quality Management Framework implementation, an additional 6 NODCs had successfully applied for accreditation: BODC (United Kingdom), Flanders Marine Institute – VMDC (Belgium), INOS (Malaysia), JODC (Japan), KODC (Republic of Korea), Marine Institute (Ireland).
4. The Committee continued the reform of IODE towards ensuring that all NODCs, ADUs and AIUs comply with the IODE Quality Management Framework (QMF) and adopted a decision on the establishment of an inter-sessional working group on the review of NODC health status within the IODE network. The Committee also adopted a decision to further improve the management of IODE. In addition, taking into account that the current IOC Strategic Plan for Data and Information Management will expire in 2021, the Committee adopted a decision to establish an inter-sessional working group to revise the Plan.
5. The Committee welcomed the increasing IODE cooperation with IOC Ocean Science (GOSR, HAEDAT, Ocean acidification), GOOS biology, Marine Policy and Regions, and its contribution to SDG indicator reporting and the SPINCAM project. Several of these make use of OceanExpert, OBIS and the OceanTeacher Global Academy. In addition, cooperation has started between GOOS and IODE on the Ocean Best Practices System project. The Committee welcomed the existing cooperation and called on other IOC programmes to collaborate with IODE for their ocean data and information management requirements.
6. Regarding the reform of WMO and the future of JCOMM, the Committee, referring to the ongoing development of WMO WIS 2.0 and IOC ODIS, remarked that many changes are taking place, which challenges the long-term strategic planning regarding collaboration between WMO and IOC/IODE. The Committee entrusted the IODE Management Group to reflect the comments by the Committee in the discussions of the Joint WMO-IOC Consultation Group on the reform of JCOMM. The Committee recommended: (i) continued collaboration between IOC and WMO regarding data management and capacity development activities; (ii) to assure that activities related to interoperability of IOC ODIS and WMO WIS 2.0, both under development, will be maintained in the proposed future structure of JCOMM; and (iii) that IOC Member States promote the IODE OceanExpert database as a joint pool of experts within IOC and invite WMO to contribute to it. Regarding cooperation of IODE in the JCOMM Marine Climate Data System (MCDS) the IODE Committee invited JCOMM to jointly elaborate on MCDS structural elements, such as DACs, noting that they could be functional elements of IODE. The IODE Committee urged the Joint WMO-IOC Consultation Group on the Reform of JCOMM to take into consideration the MCDS when discussing the future of JCOMM.
7. The IODE Committee welcomed the Vision, Mission, Outcomes and Activities outlined in the draft Joint WMO and IOC strategy for marine meteorological and oceanographic data management for the period 2018 to 2021. It decided to: (i) assist JCOMM to develop the implementation Plan responding to the Data Management Strategy and to collaborate in the implementation of the Strategy; (ii) promote the Strategy and its implementation within IODE projects, activities and members; (iii) assist DMPA to review and update the strategy and the implementation plan as necessary; (iv) endorse the Strategy and invited JCOMM to submit it to the 30th Session of the IOC Assembly (2019) for approval.
8. The IODE Committee welcomed the progress achieved by the Ocean Biogeographic Information System (OBIS) and specifically in supporting the development of scientific applications and global and regional assessments, through projects such as OBIS-Event-Data and DIPS-4 Ocean Assessments. The Committee stressed the importance to create a regular programme post for the OBIS data manager to secure the continuation of OBIS beyond 2019 and invited the Government of Flanders (Kingdom of Belgium) through the FUST, as well as other Member States and donor agencies, to consider providing financial support to OBIS (and its community network) to ensure OBIS can facilitate the co-development of a data and analytics platform for policy relevant applications, involving relevant partners, as well as to create specific training packages in collaboration with the OceanTeacher Global Academy.
9. The Committee welcomed the positive results obtained by the (OceanTeacher Global Academy) Regional Training Centres and the growing collaboration with other IOC programmes using the OTGA. However, the Committee noted that other IOC Programmes making use of OTGA should also contribute to the related Secretariat tasks. The Committee invited IOC regional subsidiary bodies to jointly, with OTGA, plan and implement courses through the RTCs in their region. The Committee thanked the Government of Flanders (Kingdom of Belgium) for the substantial support provided to the OTGA project. The Committee welcomed the planned submission of a new proposal to FUST.
10. The IODE Committee, (i) considering the need to derive the greatest benefit from the observations collected and information from the UN decade of the ocean science; (ii) considering the complexity and use of international observing systems during the UN decade of the ocean without overarching data and information access and use, recommended to the IOC to include, as part of preparatory process, the formulation of common guidelines/principles on flow, discovery, access, and re/use of data collected during the decade. The IODE Committee offered its assistance in this regard. The Committee also established an inter-sessional working group to propose a strategy on ocean data and information stewardship for the UN Decade.
11. The Assembly thanked the outgoing IODE Co-Chairs, Ms Cynthia Chandler (USA) and Prof. Yutaka Michida (Japan) for their leadership of IODE during the past four years, and welcomed the new IODE Co-Chairs Dr Sergey Belov (Russian Federation) and Mr Taco de Bruin (The Netherlands).
12. The Assembly urged the IODE to continue active collaboration with the WMO through the new Joint WMO-IOC Collaborative Board, in particular with regard to achieving the goals of, updating and implementing the Joint WMO-IOC Strategy for Marine Meteorological and Ocean Data Management, but also continuing the work carried out under the (now former) Data Management Programme Area (DMPA).
13. Several Member States expressed their appreciation to IODE for its active Capacity Development programme activities including the OceanTeacher Global Academy and establishment of OTGA Regional Training Centres, noting that these had contributed substantially to building the necessary national capacity in ocean data and information management.
14. The Assembly expressed its appreciation to the Government of Flanders (Kingdom of Belgium) for the considerable support provided to IODE in the past and for the decision to continue support through FUST. The Assembly further expressed its appreciation to the Russian Federation for its support through the hosting of the Partnership Centre for the IODE Ocean Data Portal in Obninsk and the Government of Japan for providing an intern. Similarly Member States were invited to provide interns or seconded staff to IODE.
15. The Assembly proposed that the IOC planning process for the UN Decade convene a broad meeting on all data issues, involving IOC’s IODE but also other organizations and related programmes, to address the full breadth of data issues and needs related to the UN Decade. The Decade provides an opportunity to set a course of consistency and universal availability of ocean data, from those who observe, those who are stewards, and those who need to use the data**.** In this regard, it was noted that WMO was planning a similar meeting. The Assembly recommended looking into collaboration on both events.
16. The Assembly noted that data management forms the basis of all the work undertaken in the ocean space, but urged IODE to focus more on product development to deepen the impact of the UN Decade.
17. Several Member States offered expertise to assist with the implementation of the IODE-XXV work plan, and in particular with IODE activities related to the UN Decade.
18. Belgium informed the Assembly that the Government of Flanders had decided to build the “InnovOcean Campus” as a campus for ocean-related innovation. It is envisaged that the IOC Project Office for IODE will move to the new facilities in 2022. Belgium further informed the Assembly that the Government of Flanders had decided to renew Flanders-UNESCO Trust Fund for Science for another five years and has invited UNESCO Science programme and IOC to submit new proposals by September 2019 (for implementation starting 2020).
19. The representatives of 17 Member States and 2 organizations/programmes took the floor. The following Member States and organizations chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: Belgium, Colombia, South Africa, United Kingdom, United States of America, and WMO.

**7.2.2 Draft Concept for an Ocean Data and Information System (ODIS)**

1. Mr Taco de Bruin (The Netherlands), IODE Co-Chair, introduced this item referring to Document IOC-XXX/2 Annex 6. He recalled that IODE at its 24th session in 2016 adopted Decision IODE-XXIV.4 by which it established the Inter-sessional Working Group to develop a concept paper for the Ocean Data and Information System, with deadlines in June 2017 for a brief introductory to the IOC Assembly in 2017 and February 2019 for submission of the Concept Paper to the 25th session of IODE.
2. IODE-XXV reviewed and approved Document IOC/IODE-XXV/5.2 as the revised concept paper. It furthermore adopted Recommendation IODE-XXV.5.2.1 (Establishment of the IOC Ocean Data and Information System Catalogue of Sources Project – ODISCat) as well as Decision IODE-XXV.5.2.3 (Establishment of the Inter-Sessional Working Group to develop the Implementation Plan and cost-benefit analysis for the IOC Ocean Data and Information System).
3. Mr de Bruin introduced the ODIS concept statement as follows: “The IOC Ocean Data and Information System (ODIS) will be a framework in which existing ocean data and information systems, products and services will be promoted and where connections between these systems will be promoted and possibly developed by relevant stakeholders”. IODE will work with existing stakeholders, linked and not linked to the IOC, to improve the accessibility and interoperability of existing data and information, and to contribute to the development of a global ocean data and information system, to be referred to as the IOC Ocean Data and Information System, leveraging established solutions where possible. The IOC ODIS will target scientists, government agencies/policy-makers, IOC global and regional programmes, IODE National Oceanographic Data Centres, Associate Data Units, Associate Information Units, UN agencies, IGOSs, and Industrial and commercial enterprises.
4. The cost benefit analysis reveals that the most realistic option for implementing ODIS will be the stepwise development of ODIS leveraging existing infrastructures (ODISstep). This option will build on the proposed ODIS Repository of Sources (ODISCat). The stepwise approach will aim at identifying and bringing together communities that each have existing activities related to one or more of the 16 content/source types that are currently covered by ODISCat. As such ODIS will be able, to a large extent, to build upon existing investments, infrastructure and expertise already committed (including private sector) to developing products and services related to the 16 content/source types. It is important to note that this option will leverage work already in progress in the ocean community, rather than imposing new requirements or tasks. This is in keeping with the emerging paradigm of distributed but interoperable informatics, in aid of robustness and sustainability. A prototype of ODISCat has been developed over the period 2018–2019 and the system has been launched on 1 February 2019 (https://catalogue.odis.org). Mr de Bruin noted that, using ODISCat as a basis, additional products and services can be developed for most of the content (knowledge) types described in ODISCat. Mr de Bruin referred to Recommendation IODE-XXV.5.2.1 (Establishment of the IOC Data and Information System Catalogue of Sources Project (ODISCat)) submitted to the Assembly under Agenda Item 7.2.1.
5. Mr de Bruin noted that collaboration with the IT industry may provide assistance with the development of ODIS. This could, and should, be deeper than simply making use of infrastructure and the donation of development time. IODE is not the global technical leader in search and discovery of data and information but is in an excellent position to coordinate linkage between existing, community-built infrastructures and private industry. ODIS could make use of the lightweight standards promoted by commercial search engines for the structured representation of discovery metadata and the emerging encodings for data themselves. Mr de Bruin noted that, even though IOC ODIS is being designed in the most efficient and modular way leveraging existing resources, it is fair to inform the Assembly at this stage of the process that the envisaged full functionality of IOC ODIS cannot be achieved without adequate resources both in manpower as well as in additional funding.
6. Mr de Bruin concluded by stating that the first steps towards an IOC Ocean Data and Information System (ODIS) had now been made and invited the Assembly to consider the next steps.
7. The Assembly expressed its strong support for the proposed development of the IOC Ocean Data and Information System (ODIS) and welcomed the prototype ODIS Catalogue of Sources (ODISCat).
8. The Assembly stressed the need to develop ODIS with involvement from the widest possible range of stakeholders, ensuring active participation from IOC Member States but also from other UN agencies, NGOs, national and regional programmes and projects, as well as the private sector.
9. The Assembly noted that the IOC ODIS would form a solid and scalable basis for a UN Decade data system.
10. The Executive Secretary, while thanking Member States for the wide support of the proposed development of ODIS, called on Member States to assist IOC through providing staff, financial and in-kind support to enable the development of ODIS.
11. The representative of the WMO welcomed the development of ODIS and expressed his Organization’s desire to actively collaborate and participate.
12. The representatives of 8 Member States and 1 organization took the floor. The following Member States chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: \_\_\_\_\_\_\_\_\_\_\_.

**8. EARLY WARNING AND SERVICES**

8.1 REGIONAL TSUNAMI WARNING SYSTEMS

**8.1.1 Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System: 28th Session of ICG/PTWS, Montelimar, Nicaragua, 2-5 April 2019**

1. Dr Wilfried Strauch (Nicaragua), Chair of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS), introduced this item. He reported on recent progress of the ICG/PTWS, including the full transition to North West Pacific Tsunami Advisory Center (NWPTAC) Enhanced Products as from 28 February 2019 and the proposed starting of full operations of the South China Sea Tsunami Advisory Center (SCSTAC) on 5 November 2019 and trial operations for the Central America Tsunami Advisory Center (CATAC) as from August 2019
2. He then reported on other results of the 28th Session of the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System (ICG/PTWS-XXVIII), Barcelo Montelimar, Nicaragua, 2–5 April 2019. He noted that the Japan International Cooperation Agency (JICA) and the European Union Directorate-General for European Civil Protection and Humanitarian Aid Operations (DIPECHO) provided support towards the Central America tsunami Advisory Center (CATAC) and tsunami preparedness in Central America. He also highlighted the International Tsunami Information Center (ITIC) lead on training activities including the ITP-Hawaii course in Chile in August 2018.
3. Mr Strauch noted the completion and submission of a Community White Paper "Ocean Observations Required to Minimize Uncertainty in Global Tsunami Forecasts, Warnings, and Emergency Response" to the OceanObs19 Conference.
4. He reported that ICG/PTWS decided to establish a Working Group 2 task team to propose minimum competency levels for National Tsunami Warning Centre (NTWC) operations staff, and another task team to propose an optimal multi-instrument sensor network that integrates existing and emerging techniques and sensor technologies, for tsunami detection and characterization. He also noted the decision to organize and conduct the exercise Pacific Wave 2020 (PacWave 2020) in the months September to November 2020, to be conducted as a series of regional exercises organized through the PTWS regional working groups.
5. The representatives of 24 Member States and 2 Observers took the floor. Several Member States mentioned the need to work on non-seismic generated tsunamis, to identify potential non-seismic sources around the world and identify suitable technologies to detect and provide timely warning services for these events. The following Member States chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: Chile, Colombia and Japan.

**8.1.2 Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System: 12th Session of ICG/IOTWMS, Kish Island, Iran (I.R.), 9-12 March 2019**

1. Prof. Dwikorita Karnawati, Chair of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWMS) reported on the key intersessional activities of the ICG/IOTWMS since it last reported to the assembly. She informed that the 12th session of the ICG/IOTWMS was held in Kish Island, Islamic Republic of Iran on 9–12 March 2019, back to back with the Expert Consultation on Scientific Tsunami Hazard Assessment of the Makran Subduction Zone held on 8 March 2019. She highlighted the results of IOWave18 exercise (4–5 September 2018) indicating that all 24 active Member States participated in the exercise involving evacuation of about 116,000 people from 11 Member States, in addition to India and Oman piloting the Indian Ocean Tsunami Ready programme. Capacity development initiatives in the intersessional period included three regional trainings on Tsunami Evacuation Maps, Plans and Procedures (TEMPP) involving 22 Member States, 2 regional workshops on Standard Operating Procedures (SOPs) for Tsunami Warning and Emergency Response involving 21 Member States, a workshop on Indian Ocean Tsunami Ready and a post-IOWave18 lesson-learnt workshop. A survey on Capacity Development of Tsunami Preparedness was completed with 21 Member States submitting inputs to an online survey, leading to the preparation of the IOTWMS Status Report.
2. Palu and Sunda Strait tsunamis of 28 September and 22 December 2018 caused significant loss of lives in Indonesia, emphasising the urgent need to update hazard assessments, strengthen early warning systems and enhancing public awareness and response especially for tsunamis caused by atypical and near-field sources. Towards this, Prof. Karnawati informed that the ICG/IOTWMS set up new inter-sessional Task Teams to work on “Tsunami Preparedness for a near-field Tsunami Hazard” and “Scientific Tsunami Hazard Assessment of the Makran Subduction Zone”. An International Conference on lessons learnt from Palu and Sunda Strait tsunamis in 2019 was also organized. Other plans for the next inter-sessional period include conduct of an IOWave20 exercise, regional trainings on Standard Operating Procedures (SOPs), national-level trainings on Tsunami Evacuation Maps, Plans and Procedures (TEMPP) and implementing the UNESCAP project on “Strengthening Tsunami Early Warning in the North West Indian Ocean region through Regional Collaboration”.
3. The representatives of four Member States (Australia, India, I.R. of Iran, Kenya) took the floor. They complimented the work of the ICG/IOTWMS and the Secretariat. The Member States pledged their continued commitment to the IOTWMS by supporting observing networks, data sharing, facilitating capacity development activities, enhancement of TSP services, etc.

**8.1.3 Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions: 14th Session of the ICG/CARIBE-EWS, Punta Leona, Costa Rica, 8-11 April 2019**

1. Mr Gérard Métayer (Haiti), Vice-chair of the Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS), on behalf of the Chairperson Dr Silvia Chacon (Costa Rica), introduced this item. He highlighted the results of the Caribe Wave 19 exercise that mobilized over 775,000 people on 14 March 2019 and for the first time of these exercises included a volcanic scenario.
2. Mr Métayer reported on other results of the 14th Session of the Intergovernmental Coordination Group for the Tsunami and Other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE-EWS-XIV), hosted in Punta Leona, Costa Rica, 8–11 April 2019, including the planning of the Caribe Wave 20 exercise for Thursday 19 March 2020, which will consist of the following two scenarios: a tele-seismic source off the coast of Portugal and a source near Jamaica. A third scenario might be defined at the Nicaragua rise.
3. He noted that for the ICG/CARIBE-EWS the development of tsunami evacuation maps is a priority. He indicated that high-resolution bathymetry is an important requirement to produce those maps and is a strong need in the region.
4. The representatives of 24 Member States and 2 Observers took the floor. Several Member States highlighted in their interventions the Tsunami Ready pilot program of the ICG/CARIBE-EWS and one Member States applauded the initiative of the IOC to encourage at-risk communities to build their capacity to be “Tsunami Ready", though underlining that completing the programme and being awarded the Tsunami Ready recognition is not the same as certifying readiness. The following Member States chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: Colombia and United Kingdom.

**8.1.4 Intergovernmental Coordination Group for the Tsunami Early Warning and Mitigation System in the North-Eastern Atlantic, the Mediterranean and Connected Seas: 15th Session of the ICG/NEAMTWAS, UNESCO, Paris, 26-28 November 2018**

1. Mr Gerassimos Papadopoulos, Chair of the ICG/NEAMTWS, introduced this item. He informed about recent developments in NEAMTWS including the application of Portugal for accreditation to become a Tsunami Service Provider (TSP) in 2019. The accreditation process has started. He also informed about the plans for the next regional tsunami exercise (NEAMWave 20) to be organised and conducted during the fourth quarter of 2020.
2. Mr Papadopoulos highlighted that over the last four years several tsunamis have been recorded in the Mediterranean region, e.g. Lithakia (26 October 2018), Aegean Sea (21 July 2017), Alboran Sea (25 January 2016) and lonian Sea (17 November 2015). Although moderate in size, these events highlighted the tsunami threat and challenges in the NEAM region in light of increasing coastal activities, including growing tourism and blue economy activities, and the need to further improve the Tsunami Warning and Mitigation System, in particular for local tsunamis with short travel time. There continue to be gaps in the seismic and sea level network notably in North Africa. Some countries have difficulties sharing observations due to national policy. The implication is sub-optimal performance of the regional tsunami warning systems.
3. He noted the national efforts to increase awareness on tsunami hazards and preparedness in 2018 in line with, and as contributions to, the World Tsunami Awareness Day, 5 November. Mr Papadopoulos highlighted the continued effort in organising workshops in North-African countries to support the further development of national tsunami early warning and mitigation capacities.
4. He also highlighted the commissioned study of the proposed new strategy for revitalising the NEAM Tsunami Information Centre (NEAMTIC). The first phase of the strategy (i.e. updating the NEAMTIC web-page) is now being implemented. He stressed that the future of NEAMTIC is dependent on the commitment of the ICG/NEAMTWS Member States. Without such commitment, NEAMTIC will not be able to develop and evolve into a centre that provides training and awareness as is it the case in the other regional Tsunami Information Centres.
5. The representatives of 7 Member States took the floor. The following Member States chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: France, Italy, Morocco, Portugal, Russian Federation, Turkey and the UK.

8.2 GLOBAL COORDINATION OF WARNING AND MITIGATION SYSTEMS FOR OCEAN HAZARDS

**8.2.1 Working Group on Tsunamis and Other Hazards Related to Sea-level Warning and Mitigation Systems: 12th Meeting of TOWS-WG, UNESCO, Paris, 21–22 February 2019**

1. Mr Alexander Postnov, Chair of the Working Group on Tsunamis and Other Hazards Related to Sea-Level Warning and Mitigation Systems (TOWS-WG) introduced this item. He highlighted progress for the four ICGs He reported on the decisions and recommendations of the 12th meeting of TOWS-WG.
2. The Assembly expressed it condolence to Indonesia for the considerable loss of lives and damage caused by the Palu and Donggale Tsunami of 28 September 2018 and the Sundai Strait Tsunami of 22 December 2018.
3. The Assembly expressed its strong support to the IOC Tsunami programme and its elements including, but not limited to, coordination, training, organisation of Tsunami exercises and facilitating hazard assessment.
4. Many Member States highlighted and detailed their national investments and activities towards building tsunami resilience.
5. Some Member States highlighted the particular challenges towards near field Tsunamis and the need for building and financing Tsunami Warning System capacity and strengthening awareness, education and preparedness.
6. Several Member States highlighted the need to address non-seismic tsunami threats and recommended that tsunami warning systems evolve to address these threats.
7. Several Member States highlighted the opportunities to strengthen the national/ international Tsunami activities in light of the upcoming United Nations Decade of Ocean Science for Sustainable Development (2021–2030).
8. In relation to their efforts to develop Multi-hazard Early Warning Systems, WMO expressed its willingness to participate in Tsunami Warning Service training and exercises in order to further optimise transmission of tsunami bulletins via the WMO Information System/GTS to relevant authorities and follow up on transmission issues.
9. GEBCO highlighted the importance of bathymetry data in order to enhance Tsunami modelling products and highlighted the SeaBed 2030 efforts to this end.
10. The representatives of 25 Member States and two observers (WMO, GEBCO) took the floor. The following Member States chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: \_\_\_\_\_\_\_\_\_\_\_.

**10. SUSTAINABLE MANAGEMENT AND GOVERNANCE**

10.1 IOC RELEVANT ISSUES RELATED TO THE INTERGOVERNMENTAL CONFERENCE ON AN INTERNATIONAL LEGALLY BINDING INSTRUMENT UNDER THE UN CONVENTION ON THE LAW OF THE SEA ON THE CONSERVATION AND SUSTAINABLE USE OF BIOLOGICAL DIVERSITY OF AREAS BEYOND NATIONAL JURISDICTION

1. Mr Ariel Troisi, Vice-Chairperson of IOC, introduced this item. He reported on the recent developments related to the negotiation of a new legally-binding instrument to conserve and sustainably use marine biodiversity in areas beyond national jurisdiction (the High Seas and the Area) under the United Nations Convention on the Law of the Sea (UNCLOS). He recalled that in December 2017, the United Nations General Assembly had decided, through Resolution 72/249, to organize an intergovernmental conference, scheduled over four meetings to be held over a three-year period (2018–2020), with the aim of finalizing the BBNJ legal instrument. Negotiations are to address topics identified in the package agreed upon in 2011, namely environmental impact assessments and area-based management tools, including the establishment of marine protected areas in areas beyond national jurisdiction. They would also provide a governance mechanism that regulated access to and benefited sharing derived from marine genetic resources. Capacity development and the transfer of marine technology were also being considered to serve all future Parties, including developing countries.
2. He also reported on the participation of the IOC Officers and Secretariat in the first two meetings of the Intergovernmental Conference that took place in September 2018 and March-April 2019 at the UN Headquarters, where IOC co-organized several side events. He stressed that many items to be negotiated under the intergovernmental conference touched on areas of IOC’s competency, particularly the use of the best available scientific information as the basis for management decisions and conservation policies, the potential contribution of the Ocean Biogeographic Information System (OBIS) as an effective global platform for the sharing of research data and information, the application of IOC Criteria and Guidelines on the Transfer of Marine Technology (TMT) as a guiding principle, and the establishment of a clearing house mechanism to support capacity development and TMT. Regarding the later, as reported under agenda item 11.1, IOC is advancing with the conceptualisation of clearing house mechanism for TMT and CD under the guidance of the IOC Group of Experts on Capacity Development.
3. Vice-Chair Troisi also drew the attention of the Assembly that the draft text of the future BBNJ Agreement, released at the end of June, and to be considered at the 3rd Intergovernmental Conference, identifies as an option the potential role of IOC to manage the Clearing House Mechanism to be established under such Agreement. He also noted that the functions of such CHM remains to be defined by UN Member States through the BBNJ negotiating process.
4. The Assembly thanked Mr Ariel Troisi for his informative report and expressed appreciation for his active involvement and that of the other IOC officers, the Executive Secretary and the Secretariat in the BBNJ process. The number of side events in which IOC has been asked to be involved illustrates the excellent reputation of the Commission in the BBNJ process.
5. The Assembly highlighted the important role of marine scientific research for a successful BBNJ agreement and called for increased sharing of biodiversity and biogeographic data via the Ocean Biogeographic Information System (OBIS), which will be key to ensure science-based decision-making.
6. The Assembly stressed the importance of a legally-binding instrument to manage and preserve our marine livelihood and referred to the expectations of many Member States and international bodies towards the IOC in playing a role in promoting, coordinating and facilitating international cooperation in the areas of Marine Scientific Research, Capacity Development and Marine Technology Transfer as well as in Data and Information Management.
7. The Assembly called for increased support to the IOC secretariat, both in terms of financial and human resources, in order to be able to play this crucial role and also support the BBNJ instrument in further developing and tailoring the prototype of the IOC CHM/TMT, so it can also meet specific BBNJ requirements and support the needs of all States, and in particular Least Developed Countries and Small Island Developing States. This includes the inclusion of traditional knowledge as well as connecting existing databases and portals and finding efficiencies and avoiding redundancies.
8. The representatives of 12 Member States took the floor. The following Member States chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: Norway\_\_\_\_\_\_\_\_\_\_\_.

**11. CAPACITY DEVELOPMENT**

11.1 REPORT OF THE IOC CAPACITY DEVELOPMENT GROUP OF EXPERTS

1. Vice-Chair Ariel Troisi, Chair of the IOC Group of Experts on Capacity Development, introduced this item. He referred to Documents IOC/INF-1203, IOC/INF-1332 and IOC/GE-CD-TT-I/3. He recalled that during its 29th session, the IOC Assembly adopted Decision IOC-XXIX/10.1 establishing the IOC Group of Experts on Capacity Development.
2. The main objectives of the Group of Experts are to assist the global and regional programmes with the implementation of capacity development (CD) needs assessments, the development of related workplans, mobilization of resources, and provide advice on relevant methods and tools to deliver CD. The Group also advises the Assembly on implementation of the Transfer of Marine Technology Clearing-House Mechanism (CHM) as requested by the IOC Criteria and Guidelines on the Transfer of Marine Technology (IOC/INF-1203), making use, to the extent possible, of existing IOC data and information systems.
3. Mr Troisi informed the Assembly that the First Session of the Group was held at UNESCO Headquarters, Paris, France on 21–23 March 2018. The meeting was attended by 41 participants including members of the group, representatives of partner projects and organizations, and staff of the IOC Secretariat. The meeting updated the need assessments and gap analyses that had been submitted, in draft form, to the IOC Assembly at its 29th session in 2017. In addition, the meeting split into three regional sub-groups (IOCAFRICA, IOCARIBE, WESTPAC) and one special group on the planned Clearing-House Mechanism (CHM) for the Transfer of Marine Technology (TMT). The three regional sub-groups discussed priority needs, ways how the global programmes can assist the regions, as well as common use of existing IOC methods and tools that can contribute to CD.
4. The Group established two task teams. The Task Team on Implementation of a TMT/CHM portal (TT TMT/CHM) and related activities will seek answers on the questions and issues formulated by the sessional working group on TMT/CHM taking into account the Decade preparations. The Task Team will develop the scoping and need assessment for the CHM, which should be developed, as much as possible, using existing information systems and sources. The Task Team to identify CD Requirements of Member States in relation to the IOC CD Strategy will take into account the work already done and will focus on needs of SIDS, LDCs and the Member States that are currently not member of any of the IOC regional subsidiary bodies.
5. The Task Teams decided to develop a joint online survey to collect the necessary information. IOC Circular Letter 2738 issued on 5 October 2018 also invited Member States to designate an IOC National Focal Point for CD to enable more effective communication with the IOC on CD and CHM issues and to assist Member States with the future implementation of the IOC CD Strategy. A total of 49 responses were received (12 from IOCAFRICA, 12 from IOCARIBE, 12 from WESTPAC and 11 from other Member States not included in IOC regional bodies). Only two responses were received from IOCINDIO Member States, so these were not considered representative of the region in the framework of the analysis. Considering the relatively small sample size, results need to be interpreted with some caution. The survey results were reviewed and analysed during a meeting of both Task Teams, held at UNESCO Headquarters on 13–14 March 2019.
6. Regarding the development of a CHM, all regions reported that such a mechanism would be instrumental to the further development of ocean science capacity in your country. All regions expressed preference for an online central portal integrating the data and information harvested from regional/sectoral CHM portals. The respondents identified the need for a series of nodes rather than one global central node but using technology that allows interoperability between the nodes. The question on marine technologies that should be covered in the CHM resulted in regional differences. IOCAFRICA and WESTPAC ranked “Equipment for in situ and laboratory observations, analysis and experimentation” the highest, while IOCARIBE preferred “Information and data”. The question on the kind of information that should be included in the CHM also showed regional differences: IOCAFRICA listed a “Directory of marine research institutes offering laboratory facilities, equipment and opportunities for research and training” first, while IOCARIBE and WESTPAC ranked first “Universities and other organizations offering study grants and facilities in marine science”.
7. Regarding CD requirements of Member States, the survey revealed the following key results: the question on the most important national CD needs revealed differences between the regions: IOCAFRICA respondents request first of all “Ocean science sampling equipment and instrumentation” while IOCARIBE and WESTPAC place “Advanced professional development training (specific short courses, technical training, etc.)” and “Qualified ocean science professionals” first. The same applies for IOCARIBE SIDS and WESTPAC SIDS.
8. In terms of developing capacity in human resources, respondents from all three regions recommend “Establishment of an internship/fellowship programme” and “Support for organization of training courses, workshops and summer schools relevant to the IOC mandate”. All regions call for reinforcing budgeting of the regional sub-commissions but also for establishing an effective coordination and communication mechanism between the regional sub-commissions and the global programmes. From all IOC “information portals” all respondents identified http://www.goosocean.org as the best known.
9. In the context of priority areas of research and development for the UN Decade of Ocean Science for Sustainable Development 2021–2030, almost all respondents across all regions identified “Capacity development and accelerated technology transfer, training and education, ocean literacy” as top priority.
10. The results obtained by the survey have meanwhile been shared with the IOC regional subsidiary bodies during their 2019 sessions, with the objective of inviting them to take these results into account when drafting their workplans including capacity development. The Task Teams prepared 11 suggestions/recommendations that were forwarded to the Group of Experts for review and further action. The Group of Experts worked on this by email and formulated a draft decision for consideration of Assembly.
11. The Assembly was informed about the publication of the “Draft text of an agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction” and the mentioning of the possible management by IOC of its Clearing-House mechanism.
12. The Assembly congratulated the IOC Group of Experts on Capacity Development, its Chair Mr Ariel Troisi and members of the two tasks teams for the work carried out and results achieved.
13. The Assembly expressed its great appreciation to INVEMAR, Colombia, for the CHM/TMT prototype developed as a working example for the future development of CHM/TMT nodes in other regions.
14. The Assembly welcomed the growing number of Regional Training and Research Centres in the WESTPAC region as well as OceanTeacher Global Academy Regional Training Centres established in 9 countries in 7 regions providing training in a wide range of subjects.
15. Several Member States reported on their national as well as bilateral activities related to capacity development and called for IOC/CD to communicate these widely as they complement and reinforce IOC’s capacity development activities.
16. The representative of Fiji referring to the recommendation to “organize a regional conference on capacity development requirements of the Pacific SIDS involving IOC Member States as well as other stakeholders active in the region” welcomed the initiative as it will assist in identifying the unique needs, priorities and challenges of Member States in the region given their diversity. The representative of Fiji invited IOC to co-organize the conference with the Pacific Community Centre for Ocean Science (PCCOS) given their vast experience and work in this area.
17. The Executive Secretary stressed the unique opportunity offered to the IOC through this new approach to addressing capacity development: the proposed path forward allows addressing the specific and sometimes unique capacity development needs in each region and to address these through a wide variety of tools and methods including RTRCs, OTGA RTCs and the development of CHM/TMT global and regional nodes. Combined with national, bilateral and other initiatives of its Member States, IOC can change the paradigm of capacity development related to the ocean.
18. The representative of the WMO informed the Assembly of a marine services survey which has identified clear gaps in the marine meteorological capacity of WMO Members and IOC Member States. Regarding the IOC proposal for a Pacific SIDS regional conference, WMO wished to collaborate given its current capacity development activities there. WMO expressed its desire to continue collaboration with IOC on capacity development.
19. The representatives of 14 Member States and 2 organizations took the floor. The following Member States and organizations chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: Colombia, Cote d’Ivoire, United Kingdom, United States, WMO.

11.2 IOC’S CONTRIBUTION TO OCEAN LITERACY IN 2018-2021: ACTION PLAN

1. Ms Francesca Santoro, programme specialist for ocean literacy, introduced the item. She recalled that increased visibility and awareness is one of the foreseen outputs of the IOC Capacity Development Strategy (2015–2021) and fostering the development of an IOC ocean literacy programme to share experience of communities of practice within and across regions is one of the actions to achieve it. Furthermore, she recalled the increasing role of the IOC in ocean literacy in the framework of the UN Decade of Ocean Science for Sustainable Development.
2. She then referred to Decision IOC/EC-LI.4.9 by which the Executive Council requested the Secretariat to develop a plan of action for ocean literacy. She described the main elements of the draft plan that was elaborated in consultation within the Secretariat in order to ensure coherence with the IOC activities and programmes. Through international collaboration, exchange of good practices and creation of partnerships, IOC will assist its Member States to reinforce the work on ocean literacy, so that ocean knowledge is fully leveraged to advance ocean sustainability. Ocean literacy is an evolving concept that is being transformed from being a tool for formal education to a tool that can be used at the interface between science, society and policy. Ocean literacy has the potential to convey the message of the importance of ocean science and knowledge for sustainable development to different segments of the society. Actions will be focussed on reinforcing the presence of ocean science in formal education, in collaboration with the UNESCO education sector, on enhancing the dialogue and the collaboration with different stakeholders, and on enhancing the accessibility to ocean literacy resources. Good practices and tools already existing in different Member States will be taken into account, and the ocean literacy resources to be developed will pay particular attention to different cultural approaches and different target groups, including disadvantaged or under-represented groups.
3. Ms Santoro also presented a progress report on IOC Ocean Literacy activities, implemented both at global and regional levels, as well as in collaboration with other UNESCO Sectors. She informed that through the support of the Government of Sweden it was possible to implement the activities included in the “Ocean Literacy for All” initiative put forward to the 2017 UN Ocean Conference as voluntary commitment. An IOC conference on ocean literacy was held in Venice in December 2017. In addition, the Sea Change project, funded by the European Commission Horizon2020 programme, was successfully completed.
4. The Assembly congratulated the IOC Secretariat for the work carried out in the implementation of the ocean literacy pilot activities.
5. The importance of ocean literacy was recognized as a way to enhance the public understanding of ocean issues, but also as a way to promote citizens’ and stakeholders’ actions towards ocean sustainability. Ocean literacy is also seen as an essential tool for the implementation of the UN 2030 Agenda, with particular reference to SDG 14. The UN Decade of Ocean Science for Sustainable Development offers an opportunity to apply innovative approaches for current and future generations to expand their ocean literacy.
6. Several Member States reported on their national ocean literacy activities, including the development of centres dedicated to marine education, the creation of ocean education programmes and projects. In this context, they proposed to consider, as an element of the development of future ocean literacy activities, the gender equality issues, as well as the inclusion of traditional and indigenous knowledge. Furthermore, the importance of promoting further the exchange of good practices among Member States was stressed.
7. In the context of ocean literacy, several Member States recognized the importance of continuing the collaboration between the IOC and other UNESCO Sectors, and in particular the Education Sector with specific reference to its activities on Education for Sustainable Development.
8. The representatives of 15 Member States and 1 Organization took the floor. The following Member States and Organizations chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: Colombia, Kenya, Portugal, and Ocean Frontier Institute (OFI).

**12. ADMINISTRATION, FINANCE AND MANAGEMENT**

*[ cf. Part 1 ]*

12.4 REPORT BY THE CHAIRPERSON OF THE FINANCIAL COMMITTEE

1. The Chair of the Financial Committee Ariel H. Troisi reported to the Assembly on the results of the Committee’s examination of the items entrusted to it by the plenary in addition to the statutory ones foreseen in the Rule of Procedure 8.1(c). He informed that the Financial Committee’s discussions have been extremely constructive and thanked all Member States that participated in the work of the Committee for their commitment and collaboration. He then proceeded to a detailed presentation of the draft resolution prepared by the Financial Committee for consideration by the Assembly.
2. The Chair of the Financial Committee reminded the Assembly that upon extensive discussions at the 29th session of the IOC Assembly (2017) and in the intersessional period leading to the 51st session of the IOC Executive Council (2018), the IOC Executive Council adopted Resolution EC-LI.2 endorsing the Implementation Plan of the Recommendations of the UNESCO open-ended working group on Governance as Annex 1 to the Resolution. The Guidelines for the Officers and the new referencing for IOC Governing Bodies’ documentation that are presented for adoption by this Assembly in the draft resolution prepared by the Financial Committee stem directly from the Executive Council’s decisions reflected in the Implementation Plan. The Intersessional Financial Advisory Group will be mandated to continue reflecting on ways to further improve our working methods and processes and, should the IOC Governing Bodies so wish, it will be possible to reconsider any of the Implementation Plan recommendations or add new ones moving forward.
3. The Assembly expressed its high appreciation to the Chair of the Financial Committee Ariel H. Troisi for his effective and efficient way of leading the work of the Financial Committee in a truly inclusive and collegial spirit. Once again, this constructive approach allowed the Committee to complete its expanded and challenging mandate in a very limited period of time.
4. The representative of 1 Member State took the floor.

*[ cf. Part 4 ]*

12.7. 31th SESSION OF THE ASSEMBLY AND 53rd   
and 54th SESSIONS OF THE EXECUTIVE COUNCIL

1. Dr Ryabinin reminded the Assembly of the recommendations of the 52nd session of the Executive Council, acting as the Steering Committee for this Assembly, on the dates and duration of the 53rd session of the Council in 2020 and duration of the 31st session of the Assembly in 2021.
2. The Executive Secretary also informed the Assembly of the main events/conferences that will need to be taken into account when choosing the dates for the next sessions, and in particular the dates of the WMO Congress.
3. The representative of 1 Member State and 1 observer took the floor. The importance to avoid conflict with the World Heritage Committee meetings was highlighted to ensure the truly inclusive discussions of the many important items on the agenda of the forthcoming Governing Bodies’ sessions. WMO representative confirmed that the proposed dates do not conflict with the WMO Congress.