Restricted distribution

IOC-XXIX/3s Pt.2
Paris, 12 July 2017
Original: English

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION
(of UNESCO)

Twenty-Ninth Session of the Assembly
UNESCO, Paris, 21-29 June 2017

SUMMARY REPORT

Part 2

(Agenda items 5. 5.1, 5.2, 5.3,
6.1.2, 6.1.3, 6.2.1, 6.2.2, 8.1, 8.2, & 9.1)

5. OCEAN RESEARCH

1. Mr Salvatore Aricò, new Head of the Ocean Science Section, introduced the agenda items. He presented briefly his vision.

2. Ocean research and observations represent a continuum, hence the Section will seek very close cooperation with sections working on Ocean Observations, Data and Information, and will also continue contributing to further building a scientifically sound knowledge base for policy-making under Marine Policy. The IOC leadership in ocean and climate research will be maintained through: (i) continued collaboration with WCRP, in particular, with its CLIVAR and CliC core projects; (ii) continued coordination of scientific work informing SDG target 14.3 on ocean acidification, for which IOC is the custodian agency, and the operationalization of the offer of the Co-Chairs of the Global Ocean Acidification Observing System (GOA-ON) made to IOC and IAEA to co-host its scientific and technical secretariat; and (iii) expansion of IOC's participation in the Blue Carbon Initiative, with a focus on contributing to UNFCCC and the implementation of the *Paris Agreement*. The current work on harmful algal blooms, deoxygenation, marine plastics (in the context of GESAMP), and nutrients (with UN Environment and the GEF) constitutes a coherent portfolio for a strong IOC programme on ocean health. A new focus on modelling and predictions will be pursued with WCRP, PICES and other relevant partners, building on relevant IOC expert groups such as IGMETS and TrendsPO. SCOR will continue being a close partner of IOC in several of its ocean science activities. The Ocean Science Section will ensure prompt delivery of its contribution to the capacity development portfolio of IOC, and its role as custodian agency for SDG target 14.a, through the IOC *Global Ocean Science Report* and its Portal, in close collaboration with IODE. Very close coordination in both the design and implementation of the activities will be pursued with the IOC Sub-Commissions. Mr Aricò also informed of the importance of enabling the Ocean Science work at IOC by mobilizing the needed additional in-kind and financial contributions and reported on the generous contributions of several Member States to this end.

3. The Assembly supported the current portfolio of ocean sciences activities. The Assembly emphasized that ocean acidification, de-oxygenation, and the response of organisms and biological communities to climate change were of continued relevance to the challenges posed by sustainable development. The importance of time series, biological observations in the context of climate change research, and support for capacity development in ocean sciences were also stressed. The Assembly expressed interest for further work on modelling and scenarios, in partnership with relevant organizations. The delegate of Spain referred to the excellent cooperation with IOC in relation to the IOC-Spain Canary Current Large Marine Ecosystem project. Spain is committed to fund a third phase of the project, with a focus on climate change.

5.1 GLOBAL OCEAN SCIENCE REPORT: PERSPECTIVES AND DEVELOPMENT

4. Mr Aricò recalled the successful launch of the first edition of the IOC *Global Ocean Science Report* (GOSR) on 8 June 2017 at a dedicated side event of the UN Ocean Conference. The Report assesses for the first time the status and trends in ocean science capacity around the world for generating the knowledge needed to ensure a healthy, sustainable ocean and to fully harness the potential of the ocean for achieving the 2030 Agenda for Sustainable Development. More specifically, GOSR identifies and quantifies the key elements of ocean science at the national, regional and global scales, including workforce, infrastructure, data and scientific outcome. It represents the first collective attempt to systematically highlight opportunities as well as capacity gaps to advance international collaboration in ocean science and technology. GOSR is a resource for policy-makers, academics and other stakeholders seeking to harness the potential of ocean science to

address global challenges. Next steps related to the further development of the Report are highlighted in document IOC-XXIX/2 Annex 10 Rev.

5. The Assembly expressed its appreciation to the IOC Secretariat for the production of the *Global Ocean Science Report*. It was noted that the Report will provide a basis for further collection of data on ocean science capacity on a systematic basis, and making the most of the opportunities provided by a harmonized approach to assessing status and trends in ocean science. It was stressed that systematic indicators and proxy measures will be critical to measure progress towards the achievement of SDG 14, and that GOSR provided a tool to do so with the active participation of Member States. The Assembly also expressed the need for questionnaires better tailored to Member State variability in the context of future editions of the Report. The representative of the Republic of Korea stated its intention to provide further support to GOSR in the form of an in-kind contribution and possibly through a financial contribution.

6. The representatives of 15 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: Australia, China, India, Kenya, Norway, Philippines, Thailand and United Kingdom.

7. The Assembly adopted Decision IOC-XXIX/5.1.

Global Ocean Science Report: Perspectives and Development

The Assembly,

Recalling Decisions EC-XLVII/6.2 and XXVIII/5.1, adopted by the IOC Executive Council at its 47th session (Paris, 1–4 July 2014) and the IOC Assembly at its 28th session (Paris 18–25 June 2015),

Having considered the first edition of the *Global Ocean Science Report*, launched at the UN Oceans Conference in June 2017, at UN HQ, New York, and its perspectives and future development described in document IOC-XXIX/2 Annex 10,

Welcomes the report of the Secretariat and takes note of the progress, challenges and prospects for the achievement of a comprehensive Global Ocean Science Report;

Takes note of the first edition of the *Global Ocean Science Report*;

Expresses its appreciation to the Member States who responded to the GOSR questionnaire and provided in-kind as well as direct financial support for the project;

Recognizes the needs for systematic, continuous and long-term data compilation on ocean science capacity;

Recognizes also the need to address the long-term needs challenges faced by the secretariat in implementing the GOSR with limited financial resources and personnel;

Decides to integrate the global reporting on the implementation of SDG target 14.a and its related indicator agreed by the UN Statistical Commission, as part of future editions of the *Global Ocean Science Report*;

Endorses a step-by-step development of a Global Ocean Science Report Data Portal within the framework of the Ocean Sciences Section and IODE to give users access to data and data products, and to facilitate data compilation for future GOSR editions;

Requests the IOC Executive Secretary to:

(i) invite Member States through a Circular Letter to convey their views on lessons learnt from the implementation of the first GOSR, including areas where the process could be improved; and

(ii) present at the next session of the Executive Council in 2018 a proposed implementation plan for conducting the second edition of the GOSR;

Agrees that the budget for the development of GOSR will be defined within the overall decision on budgetary allocation as part of the overall IOC Programme and Budget Resolution XXIX-2.

5.2 HARMFUL ALGAL BLOOMS: 13TH SESSION OF IPHAB 3-5 May 2017, UNESCO, PARIS

8. The Chair of the IOC Intergovernmental Panel on Harmful Algal Blooms (IPHAB), Gires Usup (Malaysia), introduced this item and presented the report, work plan (subject to the examination by the Financial Committee), resolutions and recommendations of the 13th Session of the IOC Intergovernmental Panel on Harmful Algal Blooms.

9. The IPHAB adopted eight decisions and two recommendations to the Assembly. The Chair IPHAB emphasized the decisions made regarding: (i) the focus of HAB capacity development; (ii) the completion of the first Global HAB Status Report; (iii) further development of an IOC-IAEA-FAO-WHO interagency strategy for ciguatera fish poisoning; (iv) the joint IOC-SCOR research initiative on HABs in a changing world to meet societal needs; (v) initiatives on harmful algae and desalination of seawater and; finally, (vi) the regional HAB programme development. The recommendations concern the IPHAB Work Plan for 2018–2019 and the future operation of the IPHAB.

10. The Chair requested the assistance of the Assembly in ensuring participation in IPHAB sessions and programme of Member States that are not yet members and with regard to recognition of IPHAB in the appropriate national agencies and institutions.

11. The Chair IPHAB urged the IOC Member States to carefully match the HAB Programme Work Plan with national priorities and potential funding in order to actively interact with and support its implementation.

12. The Assembly welcomed the report of the Chair IPHAB and responded with a strong support to the proposed IPHAB Work Plan for 2018-2019. Member States from all regions expressed how they continue regularly to be negatively impacted by HABs and how HAB events appear to have become more frequent, impacting living resources with major economic consequences and a challenge to sustainable fisheries. The impact of HABs on desalination of seawater was also recognized as an important issue. The Assembly noted the relevance of the HAB issue and the work under IPHAB to both the WOA and SDG 14 and the relevance of HAB occurrences as an Essential Ocean Variable.

13. The Assembly took note of the linkage between eutrophication and subsequent blooms as of concern due to the associated impacts on public health and seafood safety and that public awareness is an area still requiring more attention. As a consequence of the impacts of HAB events, several Member States referred to increased national investment in research and monitoring of HABs in coastal seas.

14. The Assembly strongly supported the initiatives to systematically share data on HAB events and occurrences in OBIS components HAEDAT and OBIS/HAB and the progress in developing the first GlobalHAB Status Report (GHSR).

15. The Assembly welcomed the launch of the decadal IOC-SCOR GlobalHAB research programme as an important and targeted effort. The Assembly took note of the problems with *Sargassum* in West Africa requiring attention, as the region lacks technical capacity to advise decision-makers and develop mitigation measures.

16. The Assembly also welcomed the progress on the initiative for an IOC-IAEA-FAO-WHO interagency strategy on Ciguatera Fish Poisoning (CFP). The Assembly recognized that the CFP problem was of substantial nature both in tropical, subtropical and temperate areas as a consequence of increased inter-regional trade in tropical and sub-tropical fish.

17. Several delegates recognized with appreciation the capacity development their institutions had received through regional or global IOC HAB training courses and the value of inter-calibration for monitoring purposes. Malaysia and Viet Nam re-confirmed their willingness to host regional training and research centres on HAB and marine toxins in the context of IOC/WESTPAC initiated activities on IOC network of training and research centres.

18. The delegates of Portugal and India expressed their intent to become members of IPHAB and to continue to cooperate actively in regional and global activities on HAB.

19. The Assembly emphasized the importance of IPHAB to continue to coordinate efforts by all relevant organizations to strengthen capacity to mitigate HABs.

20. The representatives of 15 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: Egypt, India, Indonesia, Ireland, Malaysia and Viet Nam.

21. The Assembly adopted Decision IOC-XXIX/5.2.

Harmful Algal Blooms

The Assembly,

Having considered the Executive Summary Report of the 13th Session of the IOC Intergovernmental Panel on Harmful Algal Blooms (IPHAB), its eight Decisions and two Recommendations and the work plan for 2018-2019 at the Session (IOC/IPHAB-XIII/3s);

Endorses the Executive Summary Report of IPHAB-XIII and the recommendations contained therein IOC/IPHAB-XIII/3s);

Agrees to the HAB Work Plan for 2018-2019 (Recommendation IPHAB-XIII.1) and to consider it in the overall IOC Programme and Budget Resolution XXIX-2.

5.3 REPORT OF AND UPDATE ON THE WMO-IOC-ICSU WORLD CLIMATE RESEARCH PROGRAMME (WCRP) AND ITS REVIEW BY ITS SPONSORS

22. Mr Aricò, Head of the Ocean Science Section, introduced this item. He referred to IOC's role in supporting the World Climate Research Programme (WCRP), which constitutes the most inclusive and authoritative platform for international collaborative research on climate and climate variability and change, and provides direct support to the work of IPCC. He recalled the ongoing process for an independent review of WCRP, including the terms of reference of the WCRP Review Panel, and recollected briefly the current status of the review (IOC/INF-1342 Prov.). Mr Aricò informed the Assembly of consultations with the WCRP Secretariat and the Co-Chairs of relevant WCRP core projects and focal areas on future collaboration between the Ocean Science portfolio at IOC and WCRP. Identified avenues for expanded collaboration include the further integration of the strong foci on biological sciences and biogeochemistry at IOC with WCRP's CLIVAR; a new IOC focus on ocean science and polar regions in collaboration with WCRP's CliC; and collaboration between IOC and WCRP-CLIVAR's focus areas on upwelling systems. These options for expanded future cooperation between IOC and WCRP are also presented.

23. The representative of WCRP, Dr Michael Sparrow, took the floor and stated that WCRP sees its relationship with IOC as crucial with regards to its ocean and climate related activities. IOC and WCRP are currently working together on a number of science initiatives, for example the WCRP-CLIVAR Regional Sea-Level Changes and Coastal Impacts Conference, New York, 10–14 July 2017 and the Polar Challenge, as well as actively exploring additional synergies in our science activities, particularly with regards to polar regions, biogeochemical processes and ecosystems. The IOC and WCRP look forward to co-designing such initiatives. Dr Sparrow thanked IOC for the financial support provided this year, which is crucial to WCRP's science activities. He stated that WCRP looks forward to the outcomes of the WCRP

review, particularly with regards to the development of a new WCRP Strategic plan. Finally, he stated that there were a significant number of WMO activities that are of relevance to the IOC, such as the Year of Polar Prediction, greenhouse gas measurements over the oceans, the Global Cryosphere Watch as well as WMO's engagement with policy fora such as the Antarctic Treaty and the Arctic Council.

24. The Assembly expressed support for IOC's cooperation with WCRP in their shared interest in the role of the ocean in the climate system, including upwelling systems.

25. The representatives of three Member States and one organization took the floor. The following Member States and organization chose to provide records of their plenary intervention on this agenda item for the informational annex to the meeting report: China, Republic of Korea and WCRP.

26. The Assembly adopted Decision IOC-XXIX/5.3.

World Climate Research Programme (WCRP)

The Assembly,

Recalling that IOC joined WMO and ICSU as sponsors of the WCRP in 1993,

Having considered the terms of reference of the Review Panel of WCRP and information on progress in the review process (IOC/INF-1342),

Expresses its satisfaction with the comprehensiveness and transparency of the review process;

Reiterates that the main role and responsibility of IOC vis-à-vis WCRP is to mobilize the active participation of the ocean science community in the definition of, and contribution to, the research agenda aimed at elucidating the role of oceans in the climate system;

Recalls that WCRP provides a direct contribution to the work of the Intergovernmental Panel on Climate Change (IPCC) and indirectly to the work and deliberations of the United Nations Framework Convention on Climate Change;

Praises the continuous cooperation between IOC, WMO and ICSU in providing, through WCRP, a platform for integrated climate research;

Calls upon the Review Panel of WCRP to suggest practical modalities for a better integration of WCRP with relevant programmes and activities of IOC; and

Calls upon the Executive Secretary of IOC to pursue the avenues for increased cooperation with WCRP as presented in document IOC/INF-1342, in particular, integration of the IOC ocean science portfolio with WCRP-CLIVAR, a new focus on polar regions in collaboration with CliC, and collaboration with WCRP-CLIVAR's focus areas on upwelling systems.

6. OBSERVING SYSTEMS AND DATA MANAGEMENT

6.1.2 WMO-ICSU-IOC-UNEP Global Climate Observing System (GCOS)

27. The Director of the WMO-ICSU-IOC-UNEP Global Climate Observing System (GCOS) Secretariat, Dr Carolin Richter, introduced this item. GCOS responds to the needs of Member States for comprehensive, continuous, reliable climate and climate-related data and information for climate monitoring, research, and projections; and increasingly to assess climate impacts, monitor the effectiveness of mitigation, support adaptation, develop climate information services, and promoting sustainable development.

28. GCOS covers atmospheric, oceanic, and terrestrial domains. The GOOS is an important contributor to GCOS of expertise in its cycle of evaluation and planning. The strong link is evident in the joint sponsorship of the GCOS-GOOS-WCRP Ocean Observations Panel for Climate (OOPC), which for GOOS is the Physics and Climate Panel. The secretariat for OOPC has been hosted by GCOS since 2013. The OOPC now draws on the work of its sister

GOOS panels (Biogeochemistry, Biology and Ecosystems) in the definition of requirements, coordination of observations, and evaluation of outputs for biogeochemical and biological Essential Climate Variables (ECVs), in complement to the definition of Essential Ocean Variables (EOVs).

29. Dr Richter presented the new implementation plan, *The Global Observing System for Climate: Implementation Needs* (GCOS-200, GOOS-214), approved by the GCOS Steering Committee at its 24th Session (October 2016, Guayaquil, Ecuador). Parties at the 22nd session of the UNFCCC Conference of the Parties noted in decision 19/CP.22 the important role of GCOS in meeting the need for climate observation and climate services under the Convention; welcomed the new implementation plan submitted by the GCOS secretariat and prepared under the guidance of the GCOS Steering Committee; encouraged Parties to the Convention to work towards the full implementation of the plan and to consider what actions they can take to contribute towards its implementation and; invited United Nations agencies and international organizations to support the full implementation of it, as appropriate. This provides a strong statement of global consensus on scientific requirements for sustained observations to support the goals of the Parties of the UNFCCC.

30. Dr Richter noted that in accordance with the GCOS implementation plan, the secretariat has coordinated an action to identify a core set of climate change indicators to be used as a basis for reporting climate change to the public (Indicators of Climate Change, GCOS-206). There are in general two types of indicator: those describing the physical state and history of the climate system and, those looking at future impact, risk and adaptation designed to inform future policy decisions. Climate indicators should meet the following criteria: relevance, representativeness, traceability and, timeliness. The number of historical indicators should be limited. The proposed indicators can be grouped as follows: temperature and energy; atmospheric composition; ocean; cryosphere; land use/vegetation change; extremes and; human impacts.

31. Another important action in the GCOS implementation plan is adaptation. The Subsidiary Body for Scientific and Technological Advice of the UNFCCC also invited GCOS to collaborate with relevant partners to continue enhancing access to, and understanding and interpretation of data products and information to support decision-making on adaptation and mitigation at national, regional and global scales. GCOS, in collaboration with the UNFCCC and other partners, is planning a series of regionally focussed workshops to develop an understanding of the observations needed for different regions. These workshops will prepare plans for improving the regional observational capacities. One important initial topic will be water: extreme rainfall, floods and droughts.

32. Member States expressed their appreciation for the work of GCOS, and the importance of the free dissemination of the results.

33. The representatives of four 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: Ireland, Oman and Republic of Korea.

34. The Assembly adopted Decision IOC-XXIX/6.1.2.

WMO-ICSU-IOC-UNEP Global Climate Observing System (GCOS)

The Assembly,

Welcoming the new implementation plan, *The Global Observing System for Climate: Implementation Needs* (GCOS-200, GOOS-214);

Recognizes that ocean-related actions will need to be implemented by JCOMM and GOOS, and that actions addressed to the satellite agencies will be brought to the attention of the Committee on Earth Observation Satellites and the Coordination Group for Meteorological Satellites;

Endorses actions pertaining to IOC and its programmes;

Urges all IOC programmes to address relevant actions in their work plans;

Invites Member States to contribute to the implementation of actions as discussed in the GCOS implementation plan;

Requests the GCOS Secretariat to:

(i) provide guidance to Member States and IOC programmes on actions pertaining to the systems and networks coordinated by IOC to monitor and review progress in implementation;

(ii) continue promoting a single minimal set of indicators that describes climate changes and to further refining them; and

(iii) engage Member States and relevant mechanisms in regional implementation of the GCOS implementation plan.

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

35. The Co-President of JCOMM, Dr Nadia Pinardi (oceanography), introduced this item in presence of the other JCOMM Co-President, Dr Johan Stander (meteorology). JCOMM is a Primary Subsidiary Body of the IOC Assembly and reports under IOC Rule of Procedure 48.3. It is also a WMO Constituent Body, the only one of its eight Technical Commissions with co-sponsorship.

36. Dr Pinardi emphasized the role of JCOMM in enhancing the work between meteorological and oceanographic institutions in Member States, for mutual benefit. Recent achievements include work to connect ocean data systems to the WMO Information System, new tools developed by the JCOMM *in situ* Observing Programme Support centre (JCOMMOPS) to create maps, analysis tools, and key performance indicators of the performance of the observing system, supporting GOOS; agreement to work on the transition of the Tropical Pacific Observing System in 2020 project to a permanent structure engaging both IOC and WMO constituencies; and the development of operational ocean forecasting systems.

37. Indonesia and the Co-Presidents invited IOC Member States to be represented as part of integrated meteorological and oceanographic delegations at the Fifth Session of JCOMM (25–29 October 2017, Bali, Indonesia). The Session will review the work of the Commission, adopt a JCOMM data management strategy in complement to the strategies of IODE and the WMO Information System, adopt work plans for its Observations, Data Management, and Services and Forecast Systems Programme Areas, and reconfigure Expert Teams to deliver against the work plans. It will also revise the Terms of Reference of the JCOMM *in situ* Observing Programme Support centre (JCOMMOPS).

38. Dr Pinardi emphasized as a matter of importance that each IOC Member State should name a JCOMM National Contact Point for the IOC, in complement to JCOMM Members designated by WMO, to improve communication about and national engagement in JCOMM activities, and to promote cooperation between oceanographic and meteorological institutions at the national level; as well as the importance of nominating experts to serve on expert teams that will be appointed at JCOMM-5.

39. Wenjian Zhang, the Assistant Secretary-General of WMO, recalled the joint creation of JCOMM by the World Meteorological Congress (Resolution 14, Cg-XIII) and IOC Assembly (Resolution XX-12) in 1999. For both WMO and IOC, it remains a unique joint Constituent Body (WMO) / Primary Subsidiary Body (IOC). Dr Zhang reported on an ongoing WMO governance review, a WMO Member-driven process decided by the Seventeenth World Meteorological Congress (2015). Its purpose is to introduce specific improvements to WMO processes and practices, and to undertake a holistic review of the Organization, providing recommendations to the Eighteenth Congress (2019) on constituent body reform, including

possible new structures for technical commissions, regional associations and the Executive Council, in order to enhance efficiency, effectiveness and good governance. Dr Zhang stressed that this process will be an opportunity to improve cooperation between WMO and IOC, enhancing ocean programmes, if risks for continuity present cooperative arrangements are mitigated. A WMO Executive Council Working Group on Strategic and Operational Planning is making recommendations for changes. The composition of this group at present includes WMO Executive Council Members, representatives of WMO regional associations and technical commissions, with the support of the Secretariat. It made initial recommendations to the WMO Executive Council at its 69th Session (EC-69, May 2017) that included changes to JCOMM. EC-69 adopted a decision that:

- agreed that "change should be implemented through a phased approach ensuring smooth and effective transformation,
- emphasized the need to maintain interfaces with relevant bodies of other specialized agencies such as ... UNESCO and its IOC,
- requested WG-SOP to develop, for consideration by the 70th session of the WMO Executive Council [June 2018] a set of recommendations for WMO Constituent Body reform; and to prepare a communication strategy, including consultations with ... relevant external constituencies such as IOC/UNESCO."

40. With feedback from WMO Members, the Working Group will continue its work and report again to the WMO Executive Council at its 70th session in June 2018, with the goal of presenting final recommendations for adoption by the World Meteorological Council in 2019.

41. The Assembly expressed its appreciation for the important work of JCOMM in observations, data management, and service provision, including its strong contribution to GOOS. The Assembly recognized the importance of capacity development and regional implementation of the work of JCOMM to ensure full benefits for all of IOC.

42. The Assembly noted the ongoing process of WMO Constituent Body reform. While appreciating its intent to enhance the efficiency and effectiveness of delivery against strategic priorities, the Assembly expressed concern that the WMO reform: (i) do no harm to the work of better integrating oceanographic and meteorological communities, considering opportunities as well as risks, and (ii) ensure that IOC Member States and their diverse constituencies have an equal voice to WMO Members in any reform of JCOMM, as a joint body. Dr Zhang expressed his appreciation for the Member State comments and agreed to bring them to the attention of the WMO Secretary-General and President.

43. The representatives of 13 Member States and Dr Johan Stander 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: Canada, China, Indonesia, Norway, South Africa and United Kingdom.

44. The Assembly adopted Decision IOC-XXIX/6.1.3.

Joint WMO-IOC Technical Commission for Oceanography and Marine Meteolorogy (JCOMM)

The Assembly,

Having examined IOC-XXIX/2 Annex 12, *Future perspectives for JCOMM*,

Notes with appreciation the financial and in-kind support provided to JCOMMOPS by Member States; and urges Member States to continue their support to JCOMMOPS;

Urges Member States to ensure oceanographic agency representation in their national delegations to JCOMM-5 (October 2017, Bali, Indonesia);

Agrees to consider an overall JCOMM programme and budget as a part of the IOC Programme and Budget Resolution XXIX-2; and

Requests the Executive Secretary and IOC Officers to represent the interests of IOC Member States in the WMO Governance Review for matters that touch on JCOMM.

6.2 DATA MANAGEMENT

6.2.1 International Oceanographic Data and Information Exchange: 24th Session of IODE, 28-31 March 2017, Kuala Lumpur

45. Prof Yutaka Michida (Japan), IODE Co-Chair, introduced this item and informed the Assembly on the outcome of the 24th Session of the IODE Committee and recommendations to the Assembly regarding an IOC Communication and Outreach Strategy for Data and Information Management and an IOC Strategic Plan for Data and Information Management for 2017–2021 to be discussed under item 6.2.2.

46. The Committee continued to focus its attention on the re-structuring of IODE. In this regard, the Committee adopted two decisions: (i) on a new IODE management structure that takes into account the gradual abolishment of Groups of Experts; and (ii) on the establishment of the IODE project and activity performance evaluation. This will bring into IODE the concept of Results Based Management (RBM) allowing well-documented procedures for the setting up, regular performance evaluation and metrics, and closing of projects. It was expected that this would allow for improving overall efficiency and prioritization amongst more than 20 IODE projects (global and regional).

47. The Committee also recommended the establishment of IODE Associate Information Units (AIUs) as a structural element of IODE, as parallel elements for marine information management to the IODE Associate Data Units (ADUs) which had already proven to be successful with 20 units established since 2013. The AIU should enable the development of a new large community of marine information professionals, which will be essential in providing the information component in SDG 14 (and others). In this regard, collaboration between IODE and IAMSLIC (International Association of Aquatic and Marine Science Libraries and Information Centers) will be continued and expanded.

48. The Committee expressed great satisfaction with the work done by the Ocean Biogeographic Information System (OBIS), including the OBIS-ENV-DATA pilot project. It noted the high-level visibility and public awareness it received through its contribution to Marine Scientific Research at the United Nations General Assembly (A/RES/70/235 and A/RES/71/227), and the recent request from the Convention on Biological Diversity (Decision COPXIII/12, December 2016) to: (i) establish a partnership with OBIS to facilitate training opportunities for incorporating new information and new consideration of existing information in future description of areas meeting the Ecological and Biological Significant marine Area (EBSA) criteria, including both scientific and traditional knowledge; and (ii) provide links from the EBSA repository to the data and information from EBSA areas in OBIS.

49. The Committee welcomed the collaboration agreement between Group on Earth Observations Marine Biodiversity Observation Network (GEO BON/MBON), GOOS Biology and Ecosystems Panel (GOOS BioEco) and OBIS in which the three initiatives agree on the key and central role of OBIS in fostering wider data sharing, data curation and aggregation in order to streamline the feeding of integrated and quality controlled datasets into models and forecasts. However, considering the challenges for IODE/OBIS to respond to the increasing demands on OBIS to support several international processes with the current limited resources it has, the Committee strongly encouraged IOC Member States to increase their support to the OBIS secretariat and the national, regional and thematic OBIS Nodes, which they host, that contribute data, technical infrastructure and scientific expertise. It also called on its members to inform their national UN representatives about IODE and its OBIS to ensure better awareness and support.

50. Prof Michida regretted that only about half of the 148 IOC Member States have established a National Oceanographic Data Centre (NODC) or ADU. He strongly advocated

for the development of NODCs or ADUs, as well as AIUs, reminding the requirement for reliable data and information within the framework of the SDGs.

51. Prof Michida further called the attention of the Assembly to the increasing role of IODE as a cross-cutting programme, servicing the data and information needs of a variety of IOC programmes and projects.

52. The Committee expressed its great appreciation to the Government of Flanders (Kingdom of Belgium) for its continued support to IODE through the IOC Project Office for IODE in Ostend, Belgium. Noting that the MoU (2012–2016) between the IOC and the Government of Flanders had expired in December 2016, the Committee called on the parties concerned to renew it.

53. Regarding regional activities, the Committee welcomed the renewed interest for IODE in the WESTPAC region and formally established the ODINWESTPAC (Ocean Data and Information Network for the Western Pacific region) project. In this regard, the Committee thanked China for its active role in the development process and for the considerable support provided to various meetings in the region. Noting the termination of ODINAFRICA, the Committee invited African Member States to develop project proposals to ensure that the expertise, products and services developed during the past ODINAFRICA projects are not lost and continue to contribute to the sustainable management of Africa coastal areas. The Committee welcomed progress made by the ODINBLACKSEA and ODINCARSA-LA projects. Regarding the latter, the Committee welcomed the progress made by the Caribbean Marine Atlas (Phase 2—CMA2) in building a regional marine atlas and its sharing of expertise and infrastructure resources, thereby adhering to the IOC Capacity Development Strategy. In addition, CMA2 shared its expertise with the African Coastal and Marine Atlas (ACMA). Regarding the IOCINDIO region the Committee recommended the re-activation of the ODINCINDIO project and invited the Islamic Republic of Iran to take the lead in this effort.

54. The Committee expressed its great appreciation for the work carried out by the OceanTeacher Global Academy (OTGA) project and in particular the establishment of OTGA Regional Training Centres (RTC) in Belgium, Colombia, Senegal, Kenya, Mozambique, India and Malaysia (with a few more to be established in the near future) allowing training at the regional level, involving local lecturers, using relevant languages and reaching a higher number of learners. The Committee noted with appreciation that several of the new RTCs were already invited to host courses on behalf of other projects and organizations.

55. Prof Michida further informed the Assembly of the proposed “IOC (IODE) Communication and Outreach Strategy for Data and Information Management” which aims at improved communication of IODE activities to partners and stakeholders by defining a robust framework for communication and outreach activities, placing the global and regional presence of IODE at the forefront of coastal and marine knowledge management.

56. Prof Michida also informed the Assembly about the discussions held by the Committee regarding the follow-up to the audit of the IOC, in particular audit recommendation 15 “to construct a universal information system and ocean data portal, along with a cost-benefit analysis prepared in advance by the IODE project.” Through Decision IODE-XXIV.4, the Committee will work with existing stakeholders to improve the accessibility and interoperability of existing data and information and 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. In this regard, the newly established IODE inter-sessional working group, tasked with finalizing the concept paper for the Ocean Data and Information System, welcome feedbacks from this Assembly on the draft concept paper (IOC-XXIX/2 Annex 3 Add. II).

57. The Assembly expressed strong support for the IODE programme and its importance for data and information sharing as well as its services to other IOC programmes.

58. The Assembly thanked the Government of Malaysia for successfully hosting and supporting the 24th Session of the IODE Committee.

59. The Assembly expressed its great appreciation to the Government of Flanders (Kingdom of Belgium) for its continued support of the IOC Project Office for IODE, hosted by the Flanders Marine Institute (VLIZ) in Ostend, Belgium, as well as for the considerable financial support to the Caribbean Marine Atlas and the OceanTeacher Global Academy projects.

60. The Assembly called for Member States to establish National Oceanographic Data Centres (NODC), IODE Associate Data Units (ADU) and/or IODE Associate Information Units (AIU), if such facilities were still lacking, to further complete the IODE global data and information exchange network. The Assembly, noting the IODE Quality Management Framework (QMF), further called for existing NODCs and ADUs to apply for formal accreditation.

61. The Assembly further called on Member States to further develop and support Ocean Data and Information Networks (ODINs) to enhance communication, sharing of data and information and to share capacity at the regional level.

62. The Assembly expressed its support for the proposed development of an Ocean Data and Information System (ODIS) concept paper and stressed that ODIS should focus on leveraging existing efforts. While noting that the final document is planned to be submitted to it at its 30th session in 2019, the Assembly requested delivery of a progress report at the 2018 Session of the Executive Council as well. The Assembly also stressed the need to involve GOOS, JCOMM and other IOC programmes, both at the global and regional levels, in the ODIS concept paper development process.

63. The Assembly, while noting the impressive achievements of OBIS since it was adopted by IOC/IODE in 2009, noted that both human and financial resources were insufficient to allow OBIS to further develop as needed, and called on Member States to provide extra-budgetary support.

64. The Assembly welcomed the lead role of IODE in the development of the IODE Communication and Outreach Strategy, and called on other IOC programmes to follow this example.

65. The Assembly welcomed the hosting of Regional Training Centres (RTCs) by Member States within the framework of the OceanTeacher Global Academy project as these will considerably increase IODE and partner programme training opportunities in the regions and further promote regional collaboration.

66. The representatives of 18 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: Argentina, China, Japan, Republic of Korea and Tanzania.

67. The Assembly adopted Decision IOC-XXIX/6.2.1.

International Oceanographic Data and Information Exchange

The Assembly,

I. 24th Session of IODE, 24–28 March 2017, Kuala Lumpur, Malaysia

Having examined the Executive Summary and Report of the 24th Session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE-XXIV) (28–31 March 2017, Kuala Lumpur, Malaysia), the recommendations and the decisions contained therein (IOC/IODE-XXIV/3s),

Agrees to the IODE Work Plan for 2018–2019 (Recommendation IODE-XXIV.6) and to consider it in the overall IOC Programme and Budget Resolution XXIX-2;

Endorses the Report of the 24th Session of the IOC Committee on International Oceanographic Data and Information Exchange and the recommendations contained therein;

II. IOC Communication and Outreach Strategy for Data and Information Management

Recalling Decision IODE-XXIII.3 for the Establishment of an Inter-sessional Working Group to Create an IOC Communication and Outreach Strategy for Data and Information Management,

Acknowledging the importance of the need for greater visibility and understanding of its activities and achievements for the management of data and information,

Noting the growing number of international marine science related organizations and the importance to clearly state IODE's unique role in data and information management,

Recognizing that:

(i) IOC must work with Member States, governments, partner organizations, academia and industry, to articulate the global benefits to society and required funding to build and sustain the ocean observing data and information system,

(ii) IOC has a strong mandate for communication and outreach with a variety of stakeholders, including the general public,

(iii) IOC needs to communicate regularly with its community as well as having a strategy on how to be engaged in ocean community data and information activities, cooperate and expand its membership,

Endorses the IOC Communication and Outreach Strategy for Data and Information Management as given in document IOC/IODE-XXIV/6.3;

Agrees that the Plan should be:

(i) published and distributed widely and used as a framework for communication and outreach activities throughout the programmes and projects of the IOC, and

(ii) regularly reviewed and revised by the IODE Committee, in close consultation with all IOC programmes;

III. Draft Concept for an Ocean Data and Information System

Recalling Recommendation 15 of the IOC External Audit that called for a universal information system and ocean data portal, and Decision IODE-XXIV.4 that established an inter-sessional working group to finalize the concept paper of the IOC Ocean Data and Information System and draft a "cost-benefit analysis" document which expresses the advantages/benefits of such a global system,

Having considered the draft concept paper submitted by IODE at its 24th session and contained in document IOC-XXIX/2 Annex 3 Add. II,

Requests Member States to provide comments and suggestions to the IODE Secretariat, not later than December 2017;

Instructs the IODE inter-sessional working group to further develop the concept paper for the IOC Ocean Data and Information System, taking into account, *inter alia*, the results and functioning of the IODE Ocean Data Portal as well as comments and suggestions received from Member States, and submit the final document to the Assembly at its 30th session in 2019 together with a draft implementation plan, supported by a cost-benefit analysis as feasible.

6.2.2 Strategic Plan for Ocean Data Information Management

68. Prof. Yutaka Michida (Japan), IODE Co-Chair, introduced this item. He recalled that the previous "IOC Strategic Plan for Oceanographic Data and Information (2013–2016)" had expired. An IODE inter-sessional working group established in 2015, chaired by Dr Lesley

Rickard (UK) and Mr Greg Reed (Australia), was tasked with updating the Strategic Plan for the coming years.

69. Prof. Michida informed the Assembly that the IOC Strategic Plan for Data and Information Management is for all data collected in IOC programmes. The vision is to achieve "A comprehensive and integrated ocean data and information system, serving the broad and diverse needs of IOC Member States, for both management and scientific use." The concept of delivering a data and information service for the "global ocean commons" (i.e. global public good) is central to this vision. The objectives of the Strategic Plan are to: (i) facilitate and promote the exchange of oceanographic data and information in compliance with the IOC Oceanographic Data Exchange Policy (IOC Resolution XXII-6); (ii) deliver a comprehensive distributed data system that can receive data collected by all IOC programmes and projects and deliver them in a uniform and transparent way to all users; (iii) deliver a system that can collect bibliographic and factual information from all IOC programmes and projects and deliver them in a uniform and transparent way to all users; and (iv) ensure alignment with, and contribution to, both the IOC's Medium-Term Strategy, 2014–2021, and with the UN's 2030 Agenda for sustainable development, in particular SDG 14 on the ocean.

70. Five expected requirements are identified on the long-term: (i) improved ability to integrate national, regional and global data systems; (ii) improved capability and functionality of systems in the centres managing oceanographic data and information; (iii) promotion of free and open access to oceanographic data and information and adherence to the IOC Oceanographic Data Exchange policy; (iv) improved access to quality data and information needs of both the scientific users and society at large; and (v) strengthened capacity to manage oceanographic data and information.

71. The JCOMM Co-President welcomed the development of the ODIS concept paper and informed the Assembly that JCOMM-5 will adopt the JCOMM data management strategy, which will draw value from the IOC Data and Information Management Strategy.

72. The representative of one Organization took the floor.

73. The Assembly adopted Decision IOC-XXIX/6.2.2.

IOC Strategic Plan for Data and Information Management, 2017–2021

The Assembly,

Recalling:

(i) IOC-XXVII/Dec.5.3.4 which adopted the IOC Strategic Plan for Oceanographic Data and Information Management (2013–2016) and also agreed that the Plan should be regularly reviewed and revised by the IODE Committee, and

(ii) Resolution XXII-6 which adopted the IOC Oceanographic Data Exchange Policy,

Recognizing that:

(i) the IOC Oceanographic Data Exchange Policy is compatible with other international relevant data-exchange policies that promote free and open access to data, such as WMO Resolution 40,

(ii) IODE has developed a global network of National Oceanographic Data Centres, Associate Data Units, information centres and related networks, representing a considerable pool of expertise in data and information management and sharing,

(iii) many IOC Member States have developed distributed networks of data management facilities involving IODE, as well as other centres, to deal with a wide variety of ocean observations,

(iv) IOC and WMO have established close, efficient and effective collaboration in ocean data management, and

(v) the IOC Committee for IODE and JCOMM have established a number of joint mechanisms to advance ocean data management.

Noting with appreciation that the IOC Data and Information Management system resulting from this strategy will deliver:

(i) assembled, quality controlled and archived data on a diverse range of variables according to scientifically sound and well-documented standards and formats,

(ii) timely dissemination of data on a diverse range of variables (observations and model outputs) both on real-time and delayed modes depending on the needs of user groups and their technical capabilities (automatic dissemination as well as "on demand"), and

(iii) easy discovery and access to data and information on a diverse range of variables and derived products (including forecasts, alerts and warnings) by users who have a broad range of capabilities.

Considering that the objectives of the IOC Strategic Plan for Data and Information Management for 2017–2021 are to:

(i) facilitate and promote the exchange of oceanographic data and information in compliance with the IOC Oceanographic Data Exchange Policy,

(ii) deliver a comprehensive distributed data system that can receive data collected by all IOC programmes and projects and deliver them in a uniform and transparent way to all users,

(iii) deliver a system that can collect bibliographic and factual information from all IOC programmes and projects and deliver them in a uniform and transparent way to all users, and

(iv) ensure alignment with, and contribution to, both the IOC's Medium-Term Strategy 2014–2021, and with the UN's 2030 Agenda for sustainable development, in particular the dedicated sustainable development goal for the ocean (Conserve and sustainably use the oceans, seas and marine resources for sustainable development),

Endorses the IOC Strategic Plan for Data and Information Management 2017–2021 as given in document IOC/IODE-XXIV/6.2;

Agrees that the Plan should be:

(i) published and distributed widely and used as a basic data strategy throughout the programmes and projects of the IOC; and

(ii) regularly reviewed and revised by the IODE Committee, in close consultation with all IOC programmes.

8 ASSESSMENT AND INFORMATION FOR POLICY

8.1 REPORT OF THE IHO-IOC GEBCO GUIDING COMMITTEE

74. Mr Shin Tani, Chair of the GEBCO Guiding Committee, presented a report of activities for the period 2015–2017 (IOC/INF-1345). He reviewed the various activities undertaken by GEBCO and in particular highlighted the outcomes of Forum for Future Ocean Floor Mapping organized by the GEBCO Guiding Committee (GGC) supported by The Nippon Foundation of Japan, held in Monaco on 15–17 June 2016. The 150 participants attending the Forum concluded that the task of mapping the ocean floor required stronger global coordination of mapping activities and gathering of all available depth measurements into a database for the compilation of a coherent bathymetric portrayal of the world's ocean floor. Thus, bathymetric post-processing and analysis software, database technology, computing infrastructure and gridding techniques should be brought into the equation along with the latest developments in seafloor mapping methods. In response to these needs, the Chair of GEBCO Guiding Committee informed the Assembly of the development of a major GEBCO project entitled "Seabed 2030" aimed at boosting ocean mapping activities globally, hence ensuring that all undersea features larger than 100 meters are mapped by 2030. At the UN Ocean Conference in New York, 5–9 June 2017, The Nippon Foundation pledged to fund this initiative. Finally, the Chair informed the Assembly that the GEBCO GC welcomed the outcome of the IOC

GEBCO review, ultimately resulting in the re-engagement of IOC in GEBCO. He identified possible GEBCO activities to be funded through the IOC regular programme funds for the biennium 2018–2019.

75. Julian Barbière, Head of Marine Policy and Regional Coordination, informed the Assembly about the steps undertaken to establish an IOC Working Group on User Requirements and Contributions to GEBCO Products as instructed by Executive Council Decision EC-XLIX/4.4. He also highlighted that following the GEBCO review process conducted in 2015–2016, and the decision of IOC Member States to strengthen IOC's contribution to GEBCO, a budget line has been created in the draft programme and budget of the Commission.

76. The IHO Representative highlighted areas of cooperation with IOC, including under GEBCO, and informed that IHO Member States adopted at the 1st meeting of the IHO Assembly a resolution on improving the availability of bathymetric data worldwide. He also welcomed the IOC budgetary allocation foreseen for GEBCO as a renewal of the fruitful and long-lasting cooperation between IOC and IHO. He also informed the Assembly that the IHO supports the IOC proposal to establish an International Decade on Ocean Science for Sustainable Development and welcomes the Decade on Ocean Science's focus on ocean mapping. The Seabed 2030 project, to be implemented through GEBCO, will provide a major contribution to the implementation of the Decade on Ocean Science, as well as to SDG 14.

77. The Assembly welcomed the GEBCO Chair report and expressed its support to the increased IOC engagement in the work of GEBCO. The Assembly also welcomed the new Seabed 2030 Project to be implemented through GEBCO and thanked The Nippon Foundation for funding the project.

78. Several Member States stressed the importance of moving from opportunistic mapping to a more coordinated approach organised around basin-wide campaign mapping exercises such as those in the North Atlantic. The Second International Indian Ocean Expedition also provides a great opportunity to foster cooperation in bathymetric data collection and exchange.

79. Several Member States stressed the importance to their nations of strengthening capacities at national level through IOC capacity development activities and infrastructures, especially in Africa.

80. The Assembly encouraged Member States engaged in research activities to cooperate in basin-scale campaign mapping and accelerate the delivery of GEBCO objectives and general knowledge of the ocean.

81. The Assembly stressed the importance of bathymetry products for the IOC scientific community and that access to high quality bathymetry is critical for tsunami warning and preparedness. Some Member States express their willingness to share bathymetric data being collected at national level with GEBCO.

82. The Assembly noted that crowd sourcing of bathymetry data offers new opportunities for closing the mapping gaps but must be supported by agreed metadata standards and data quality control mechanisms.

83. The Assembly highlighted that significant amounts of bathymetric data are being collected by Member States for the submission to the Commission on the Limits of the Continental Shelf (CLCS) and that efforts should be made to transfer these to GEBCO.

84. The representatives of 16 Member States and one 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: Brazil, Canada, Chile, Egypt, India, Ireland, United Kingdom and IHO.

85. **The Assembly adopted** Decision IOC-XXIX/8.1.

The Assembly,

I. Improving the Availability of Bathymetric Data Worldwide

Recalling Decision EC-XLIX/4.4 on the "IOC Role in Support of the General Bathymetric Chart of the Oceans (GEBCO) Project, State of Progress in the Associated Review",

Noting the adoption of IHO resolution on "Improving the Availability of Bathymetric Data Worldwide" (IHO-A1/PRO-11) by IHO Member States,

Further Noting that the depth of a significant percentage of the world's seas, oceans and waterways has yet to be measured directly,

Stressing that bathymetric knowledge underpins the safe, sustainable, cost effective execution of almost every human activity in, on or under the sea,

Acknowledging the relevance of bathymetry in the maritime aspects of the UN's 2030 Agenda for Sustainable Development Goals, the Paris Agreement under the United Nations Framework Convention on Climate Change and the Sendai Framework for Disaster Risk Reduction 2015–2030,

Recognizing the continued need for bathymetry products by the IOC scientific community and that access to high quality bathymetry is important not only for navigation but also for other purposes including ocean science, tsunami warning and preparedness and climate modelling,

Also noting that significant amounts of bathymetric data is collected by the scientific and commercial sector for purposes other than chart improvement, but is not easily made discoverable or available for secondary purposes,

Welcomes the outcome of the Forum for Future Ocean Floor Mapping, (June 2016, Monaco) and subsequent development by the GEBCO Guiding Committee of the Seabed 2030 proposal for improving bathymetry globally;

Further welcomes the support of IHO to collaborate with IOC in the development and implementation of the International Decade of Ocean Sciences for Sustainable Development, including in areas related to ocean mapping;

Encourages IOC Member States to consider contributing to mechanisms that encourage the widest possible availability of all bathymetric data, so as to support the sustainable development, management and governance of the marine environment, including through:

(i) continued support for the IHO-IOC GEBCO project and the IHO Data Centre for Digital Bathymetry;

(ii) encouraging the scientific and the commercial sector to identify and, wherever possible, make available for secondary use, data collected or being collected for a specific scientific or commercial purpose;

(iii) encouraging supplementary methods for collecting bathymetric data, including, but not limited to, crowd-sourced bathymetry, satellite derived bathymetry, and the use of autonomous vehicles for the collection of environmental data including bathymetry.

II. IHO-IOC GEBCO Guiding Committee

Having examined documents GGS33/12 and IOC/INF-1345 that report on the activity of the GGC during the intersessional period,

Recalling Decision EC-XLIX/4.4 on the "IOC Role in Support of the General Bathymetric Chart of the Oceans (GEBCO) Project, State of Progress in the Associated Review",

Takes note of the report of the Thirty-third Meeting of the GEBCO Guiding Committee and GEBCO Guiding Committee Biennial Report for the period 2015–2017;

Welcomes the establishment of the IOC Working Group on user requirements and contributions to GEBCO products, and requests the Working Group to provide its assessment report to the IOC Executive Council at its 51st session;

Encourages Member States to support GEBCO activities and facilitate GEBCO capacity development including training opportunities.

8.2 CONTRIBUTION TO THE SECOND CYCLE OF THE UNITED NATIONS WORLD OCEAN ASSESSMENT (WOA-II)

86. Mr Alan Simcock, joint coordinator of the Group of Experts of World Ocean Assessment (WOA) briefed the Assembly on the steps undertaken to launch the second cycle of the WOA (WOA-II). The 1st World Ocean Assessment report under the United Nations was finalized in December 2015 and released in January 2016. Hundreds of scientists from many countries, representing various disciplines and steered by a 22-member Group of Experts, examined the state of knowledge of the world's ocean and the ways in which humans benefit from and affect it.

87. IOC contributed to this effort by providing scientific and technical support throughout this five-year process. In December 2016, the UN General Assembly (UNGA) following the recommendations of the Ad Hoc Working Group of Whole decided to launch a new cycle of assessment (2016–2020). The UNGA established a new Group of Experts to carry out the assessment, building on an international pool of experts. It also called for: (i) the appointment of national focal points to facilitate the implementation of the programme of work of the second cycle of the Regular Process, in particular with respect to the nomination process for additional experts to the Pool of Experts; (ii) the swift communication between the scientific community, the Group of Experts, the Pool of Experts, the Bureau and the secretariat of the Regular Process, as well as (iii) awareness-raising activities. In the second half of 2017, under the Regular Process, the organization of five regional workshops is foreseen with a view to building capacity, supporting the development of assessment(s) and facilitating outreach and awareness-raising.

88. Mr Simcock highlighted some of elements of the WOA-II work programme for the period 2016–2020, and in particular, the preparation of three technical abstracts on the results of WOA-I, the establishment of a new pool of experts to support the work of the Group of Experts, and the organization of five regional workshops in the second half of 2017 to gather regional inputs to feed the global scoping process of WOA-II.

89. Mr Barbière, Head of Marine Policy and Regional Coordination section presented an overview of how IOC may continue to provide support to the Regular Process in response to the invitation by the UNGA, *inter alia,* by: (i) engaging IOC Member States and their experts in encouraging new nominations to the dedicated pool of experts; (ii) providing assistance with the information and communication aspects; (iii) co-organizing of regional workshops through IOC's Regional Subsidiary Bodies; (iv) conducting capacity-building activities; (v) providing assessment products, results and data to the Group of experts; and (vi) hosting of the Group of Experts meetings and/or writing team meetings.

90. The Assembly welcomed the report of the Joint coordinator of the Group of Experts and IOC Secretariat and stressed the importance of continuing a strong engagement of the Commission in the activities foreseen under the second cycle of WOA-II.

91. The Assembly welcomed the wider scope of engagement for specialized bodies such as IOC in supporting the Regular Process. Within the scope of the UNGA resolution that defines the type of contribution that specialised agencies may assist with, the Assembly agreed with the proposed IOC activities presented by the Secretariat and called for stronger engagement of regional subsidiary bodies and regional expert networks under the IOC in the Regular Process. The value of IOC programmes such as OBIS and GOOS was also highlighted.

92. The Assembly recalled that the evaluation of the first Regular Process cycle identified the need to promote more data-driven assessments with harmonised and consistent reporting methodologies, bridging ocean observation activities with the development of indicator-based,

quantitative approaches, and that these aspects should be taken on board in the WOA-II activities, and particularly through regional workshops. The Assembly stressed the need to consider the interaction of WOA-II with other global assessment processes such as those under the CBD or IPCC. The Assembly also noted the importance of the regional dimension and subsequent engagement of regional organisations as building blocks to prepare the global scope of the WOA-II report.

93. The Assembly appreciated national activities undertaken to support the generation of marine assessments, including through capacity development activities. Activities undertaken by the G7 Group of Science and Technology Ministers are also aimed at strengthening WOA-II activities were noted.

94. Several Member States expressed their interest to nominate experts to the Pool of Experts as well as to the five regional workshops, including on a self-funded basis. The Representative of WESTPAC highlighted a number of workshops co-organised by WESTPAC during the first cycle and expressed interest in co-hosting the Regular Process Workshop for the North Pacific region in cooperation with UN DOALOS. The representative of POGO offered its assistance to contribute to the activities of the Group of Experts, including through the mobilisation of experts to be put forward by IOC Member States as potential nominations to the Pool of Experts.

95. The representatives of 14 Member States, one Sub-commission and one 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: India, Norway, Russian Federation, United Kingdom, WESTPAC and POGO.

96. The Assembly adopted Decision IOC-XXIX/8.2.

Contribution to the Second Cycle of the United Nations World Ocean Assessment

The Assembly,

Having examined IOC-XXIX/2 Annex 13,

Take notes of the invitation of the UN General Assembly to IOC and other UN bodies to assist in the implementation of the second cycle of the Regular Process with regard to the following activities: awareness-raising; the identification of experts for the Pool of Experts; technical and scientific support to the Bureau and the Group of Experts; hosting workshops and meetings of the writing teams; capacity-building and the scoping process for the assessment(s) of the second cycle;

Requests the IOC Executive Secretary to provide technical and scientific support to the second cycle of the Regular Process in accordance with the guidance of the *Ad Hoc* Working Group of the Whole;

Urges IOC Member States to engage in the activities of the World Ocean Assessment, including through participation at the meetings of the A*d Hoc* Working Group of the Whole, and the five regional workshops foreseen in the second half of 2017; and

Encourages the Commission to continue to support the scientific assessments of the ocean as a mean to improve the science-policy interface.

9. SUSTAINABLE DEVELOPMENT AND GOVERNANCE

9.1 OUTCOME OF THE UN SDG 14 CONFERENCE: CONTRIBUTION TO THE AGENDA 2030, UN CONFERENCE ON SDG 14 IMPLEMENTATION, AND THE SDG INDICATORS REVIEW PROCESS

97. Julian Barbière, Head of Marine Policy and Regional Coordination, introduced this item by recalling that the 2030 Agenda for Sustainable Development adopted by UN Member

States in 2015, and in particular the Sustainable Development Goal 14, constitutes an essential point of reference for IOC's engagement with its Member States as well as for its programmatic presence at the global, regional and country levels. He reported on the outcome of the high-level United Nations Conference to Support the Implementation of Sustainable Development Goal 14, convened at United Nations Headquarters in New York from 5 to 9 June 2017. The Conference adopted, by consensus, an agreed declaration in the form of a 'Call for Action' to support the implementation of Goal 14. He stressed that several provisions under the 'Call for Action' support the need for strengthening international cooperation in marine scientific research and observation, ecosystem-based management, as well as capacity development, amongst others. IOC contributed to the Conference through 19 side events, the launch of flagship products such as the *Global Ocean Science Report* and World Ocean Day portal, and the formulation of 11 voluntary commitments related to ocean observation, ocean acidification, capacity development, transfer of marine technology and marine spatial planning.

98. Mr Barbière highlighted that 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, as a cross-cutting element to all SDG 14 targets. SDG 13 related to climate change is also highly relevant to IOC's work.

99. He recalled that the Commission is also playing an active role in the definition of a global SDG indicator framework for specific targets, primarily targets 14.3, and 14.a where it is identified as the UN custodian agency by the Inter-agency and Expert Group on SDG Indicators (IAEG-SDGs). The SDG indicator framework is the mechanism by which Member States will report national implementation of all SDG targets to the UN. Work plans on the development of related indicators have been prepared by IOC and submitted to the IAEG-SDG at its 4th meeting in Geneva, in November 2016. Under this custodianship role, IOC has further developed the indicator methodology and underlying data standards for these two targets. Document IOC-XXIX/2 Annex 14 provides the indicator methodology and work plans for operationalising global reporting under related targets 14.3 and 14.a.

100. The Assembly welcomed the outcomes of the UN Conference and expressed its satisfaction with the level of engagement of the Secretariat in its proceedings, resulting in the high visibility of IOC as an organization and emphasizing the role of science in supporting the Agenda for Sustainable Development under SDG 14.

101. Several Member States highlighted their activities to translate SDG 14 objectives and targets at the national level, including through dedicated national coordination and implementation mechanisms. Member States also presented their Voluntary Commitments that were put forward to the UN Conference in the areas of work of IOC.

102. Some Member States offered technical assistance with a view to building capacity on the monitoring of ocean acidification, in accordance with SDG 14 ocean acidification indicator methodology.

103. The Assembly noted the importance of developing regional dialogues through IOC RSBs to identify regional needs and opportunities for facilitating the implementation of SDG 14 and emphasized the potential contribution of IOC in other SDG areas, for example SDG 13 on climate or SDG 2 on food security.

104. The Assembly welcomed the role of the Commission as a custodian agency for two SDG 14 targets and invited all relevant IOC programmes to contribute to this important work and to bring further refinements to the indicator methodology, particularly for 14.3.1.

105. The Representative of WESTPAC highlighted the work being done in promoting SDG 14 in the WESTPAC region, including the identification of Member States' priority needs and requirements for SDG 14 implementation, co-organization of a regional SDG 14

roundtable with our UN agencies/programmes in the recent Asia-Pacific Forum on Sustainable Development (APFSD) (March 2017 in Bangkok), two voluntary commitments submitted to the UN Ocean Conference, and development of regional programmes relevant to SDG 14 such as ocean acidification and marine microplastics.

106. The representatives of 14 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: Argentina, China, Germany, India, Japan, Malaysia, New Zealand, Republic of Korea, and United Kingdom.

107. The Assembly adopted Decision IOC-XXIX/9.1.

Contribution to the Outcome of the UN SDG 14 Conference and SDG Indicator Process

The Assembly,

Having examined IOC-XXIX/2 Annex 14 and IOC/INF-1346,

Recalling Decision EC-XLIX/4.1 defining strategic contributions of IOC to the implementation of 2030 Agenda and SDG process,

Recognizes the importance of the outcome of the United Nations Conference to Support the Implementation of Sustainable Development Goal 14, held in New York on 5–9 June 2017 and the active participation of IOC Officers and Secretariat in its preparation and proceedings;

Takes note of the 'Call for Action' adopted by the UN Conference, and in particular of the provisions related to marine scientific research and capacity development as a guiding framework for the development of the proposed International Decade of Ocean Science for Sustainable Development;

Further takes note of the assignment of IOC as a custodian agency for specific SDG 14 indicators, particularly under targets 14.3 and 14.a;

Welcomes the proposed methodology for indicator 14.a.1 as presented in document IOC-XXIX/2 Annex 14 and recommends its presentation to the IAEG-SDG; and takes note of the draft methodology for indicator 14.3.1 to be finalized in 2018 and submitted to the IOC Executive Council for its consideration at its 51st session.