Report of the Sixth Workshop of the second round of regional workshops held under the auspices of the United Nations in support of the second cycle of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects

Accra, Ghana, 3 – 4 December 2018

I. Summary of discussions

The present document provides a summary of the discussions, and information emanating from the regional Workshop in support of the second cycle of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects (Regular Process), covering the region of the South Atlantic (between the African and American coasts) and the wider Caribbean (the "South Atlantic"). The Workshop was held in Accra, Ghana from 3 to 4 December 2018.

The presentations, discussions, as well as the Co-Chair's summary of the Workshop are synthesized under the following overarching topics: (a) Presentation on the outline for the second world ocean assessment and the preliminary timetable and implementation plan for the preparation of the second world ocean assessment; (b) Presentation on the review of the outcome of the Workshop for the South Atlantic, held in Camboriú, Brazil, in November 2017; (c) Consideration of the intended structure of the various chapters (and sections of chapters) of the second world ocean assessment; (d) Consideration of selected chapters and sections of chapters in the light of the structure of the outline for the second world ocean assessment, including possible chapter frameworks; (e) Consideration of important issues in other chapters; and (f) Consideration of learning points/needs and resources that may be relevant to the inventory of capacity-building opportunities relevant for the Regular Process being compiled and maintained by the secretariat, and to the multi-stakeholder dialogue (case studies of good practices) and capacity-building partnership event, to be held in early 2019. The annexes to the present summary provide other details of the Workshop and its outcomes, including the agenda and list of participants.

II. Background

The programme of work for the period 2017-2020 for the second cycle of the Regular Process, developed by the Ad Hoc Working Group of the Whole on the Regular Process (Ad Hoc Working Group of the Whole)[1] and endorsed by the General Assembly,[2] includes in the activities for 2018 the holding of a second round of regional workshops to, *inter alia*, support the development of the second world ocean assessment by enabling the collection of regional-level data and the meeting of relevant members of writing teams.[3] The "Guidelines for the second round of Workshops in 2018 to Assist the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects" developed by the Group of Experts of the Regular Process provide guidance on the arrangements of the workshops. The Guidelines provide for, *inter alia*, the

[1] See the attachment to A/71/362.
[2] See General Assembly resolution 71/257, paragraph 299.
[3] See paragraph 8 (h) of the Programme of Work 2017-2020, attachment to A/71/362.

purpose, objectives, participants and outputs of the workshops, as well as for the various operational and administrative considerations on their implementation. The Guidelines are provided in Annex 1 to the present report.

In accordance with the Guidelines, the objectives of the second round of workshops are to:

(a) Support the development of the second world ocean assessment by enabling the collection of regional-level information and data for the preparation of the second world ocean assessment and to enable relevant members of writing teams for specified chapters to meet, and to interact with experts from the region in the fields covered by those chapters;

(b) Enable the regional experts to better understand the approaches of the Regular Process and to develop their skills in integrated assessment, covering environmental, social and economic aspects;

(c) Enable the writing teams for the chapters selected for the workshop with the help of the Joint Coordinators and the members of the Group of Experts of the Regular Process ("the Group of Experts") who are present, to discuss the structure of their chapter, its relationship with the other chapters of the outline for the second world ocean assessment ("the outline") and responsibilities for developing the chapter text;

(d) Provide opportunities for the members of the Group of Experts present to highlight important issues within the outline other than those of the selected chapters, in order to broaden understanding of the entire Regular Process;

(e) Consider what learning points / needs and resources may be relevant to the inventory of capacity-building needs and opportunities relevant for the Regular Process being compiled and maintained by the secretariat, and to the multi-stakeholder dialogue (case studies of good practices) and capacity-building partnership event, to be held in early 2019;

(f) Consider what capacity-building steps might be taken, both at global and regional levels, in relation to the issues covered by the selected chapters.

III. Conduct of the Workshop

The Workshop was held under the auspices of the United Nations, represented by the Division for Ocean Affairs and the Law of the Sea of the Office of Legal Affairs, which also serves as the secretariat for the Regular Process, and hosted by the Republic of Ghana. It was held at the Tomreik Hotel in Accra, Ghana. The Workshop was conducted in accordance with the draft agenda (Annex II).

The Workshop was chaired by Mr. Kwasi Appeaning Addo, Director of the Institute for Environmental and Sanitation Studies, University of Ghana, Legon. It was attended by the Joint Coordinator of the Group of Experts of the Regular Process, Mr. Renison Ruwa (Kenya). Participants also included representatives from the following States: Angola, Argentina, Bangladesh, Benin, Brazil, Cameroon, People's Republic of China, Colombia, Côte d'Ivoire, Democratic Republic of Congo, France, Gambia, Ghana, Guinea, Haiti, Italy, Jamaica, Lebanon, Mauritania, Nigeria, Republic of Korea, Saint Vincent and the Grenadines, Senegal, Togo, United Kingdom of Great Britain and Northern Ireland, Uganda, Uruguay, United States of America, Venezuela and Viet Nam. Participants reflected a broad diversity of

expertise including from government, regional scientific bodies, universities and academic research institutes (see Annex 2, List of Participants). Overall, the Workshop was attended by 86 participants, (24 females, 62 males). The participants included six proposed members of writing teams for the second world ocean assessment and two members of the Group of Experts who are Lead and Co-Lead Members for relevant chapters of the second world ocean assessment. The United Nations was represented by the Secretary of the Ad Hoc Working Group of the Whole on the Regular Process, who also serves as the Programme Management Officer of the secretariat of the Regular Process.

The Workshop was opened by Mr. Ebenezer Appah-Sampong, the Deputy Executive Director of the Environmental Protection Agency (EPA), Ghana. while the opening address was delivered by Mr. John A. Pwamang, Acting Executive Director of the EPA, on behalf of the Minister for Environment, Science, Technology and Innovation. Participants were reminded of the importance of the ocean and its role in regulating the water cycle and climate system. Further, the critical role of the ocean in the survival of humankind by serving as a carbon sink, holding mineral deposits, and supporting humanity in the field of medicine and commerce, was emphasized. Experts were challenged to contribute to the knowledge that will promote the reduction in anthropogenic pressures on the ocean, as evidenced in, inter alia, the increase in commerce and industrialization as well as urbanization. This, they said, had led to the intensification of activities such as fishing, shipping, hydrocarbon extraction, ports development, and conversion of sensitive marine and coastal habitats, among other things.

Reference was made to the United Nations General Assembly, which in the preambular paragraphs of its resolution 63/111 recalled that “marine science is important for eradicating poverty, contributing to food security, conserving the world’s marine environment and resources, helping to understand, predict and respond to natural events and promoting the sustainable development of the oceans and seas, by improving knowledge, through sustained research efforts and the evaluation of monitoring results, and applying such knowledge to management and decision-making”. It was noted that this statement by the Assembly simply underscored the expectations of the Regular Process.

Brief remarks were provided by Ms. Joana Akrofi, representing the United Nations Environment Programme (UNEP). She noted that UNEP had been supporting the Regular Process since its start-up phase and that the Workshop for the South Atlantic region was being held with technical support from one of UNEPs regional seas Conventions – the secretariat of the Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region (Abidjan Convention). She elaborated that UNEPs support throughout the first as well as during the second cycle of the Regular Process, included technical and scientific support through its regional seas programmes (e.g., the Abidjan Convention and the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Western Indian Ocean (“Nairobi Convention”) which had also hosted regional workshops, as well as conducting outreach and awareness-raising. She informed participants that, consistent with its mandate to keep the environment under review, UNEP would be launching Global Environment Outlook6 (which had taken WOA I into account) in 2019.

The representative of the United Nations also delivered opening remarks. The draft agenda for the Workshop was subsequently adopted, with the agreement that issues, such as fisheries, marine pollution and maritime security, which were particularly relevant for the region, could also be discussed in breakout groups.

The opening segment was followed by the consideration of the items on the agenda, in plenary sessions, breakout groups as well as discussions and feedback from participants.

The Workshop concluded with a presentation by the Chair of a summary of the main elements that emerged during the discussions. The Chair, *inter alia*, noted that there was a need for participants to be familiar with the Drivers, Pressures, State, Impacts, Responses (DPSIR) framework, and that data collection, sources, and collation were critical to the analysis of trends that the second world ocean assessment would undertake. The need for reasonable timeframes and assigned roles and responsibilities for writing teams (under the coordination of the Lead members for each chapter) was emphasized. It was noted that Lead members should drive the composition and coordination of their chapters, and that experts interested in contributing to the preparation of a chapter should reach out to the relevant Lead members. Closing remarks were made by the representative of the United Nations.

IV. Summary of plenary and breakout group discussions

The discussions which took place under the various agenda items provided an important opportunity for members of the writing teams as well as experts from the region to discuss the outline for the second world ocean assessment, as well as the relevant chapters of the second world ocean assessment that were the focus of the Workshop. These discussions have been summarized below.

A. Presentation on the outline for the second world ocean assessment and the preliminary timetable and implementation plan for the preparation of the second world ocean assessment

Mr. Renison Ruwa gave a presentation on the outline for the second world ocean assessment and the preliminary timetable and implementation plan. The presentation covered the history of the preparation of the outline, including its adoption at the tenth meeting of the Ad Hoc Working Group of the Whole. Mr. Ruwa noted that the outline was based on the DPSIR framework.

The presentation noted that the introduction to the second world ocean assessment would restate the main principles governing the Regular Process. The focus would be on scientific and policy developments since the collection of the data on which the First Global Integrated Marine Assessment (first World Ocean Assessment or WOA I) was based and, where possible, the second world ocean assessment would focus on trends (critical ocean processes and human driven activities that affect the oceans).

Mr. Ruwa also explained the milestones, preliminary timetable and implementation plan for the second world ocean assessment, such as the approval of the Lead and Co-Lead members for the chapters of the assessment (drawn from the Group of Experts) as well as the constitution and approval of the writing teams. He highlighted that the drafting of the assessment would be followed by a review process by the Group of Experts, followed by peer review, and then two rounds of review by States in 2020. He informed participants that the expectation was that the Group of Experts would finalize the document and then submit the assessment to the Ad Hoc Working Group

of the Whole in the second quarter of 2020, following which it would be submitted to the General Assembly in the third quarter of 2020.

In the ensuing discussions, in response to a query regarding known information gaps, Mr. Ruwa noted that data and information may not be adequate and that some information gaps may be due to gaps in policy. He observed that the second world ocean assessment intended to produce science to assist policy-makers adopt or improve management approaches, and that there would need to be harmonized methodologies for gathering and analyzing relevant data and information. Ms. Onwuasoanya, responding to another query, noted that the review process for the second world ocean assessment would be a two-stage review process – peer review in the third quarter of 2019 after the first draft had been prepared, and States' review in 2020 after the second draft had been prepared.

A participant highlighted the need for an effective communication strategy to be in place to promote and disseminate the assessment, while another participant noted the importance of the Regular Process learning from the experiences of other relevant processes.

In response to a query regarding how to join the Pool of Experts of the Regular Process, as well as how gender and geographical balance in the Pool was ensured, Ms. Onwuasoanya noted that a mechanism for the appointment of experts to the Pool had been developed by the Bureau of the Ad Hoc Working Group of the Whole on the Regular Process, and that following the review of the current composition of the Pool, the Joint Coordinators of the Group of Experts would carry out an analysis to identify the gender and geographical gaps (both in regional representation as well as distribution of expertise among the regions). Ms. Onwuasoanya also provided information on the institutional arrangements for the Regular Process including the participation in and mandate of the Ad Hoc Working Group of the Whole on the Regular Process and its Bureau and the membership and functions of the Group of Experts, as well as information on the designation of National Focal Points and the constitution of writing teams.

B. Presentation on the review of the outcome of the Workshop for the South Atlantic, held in Brazil in November 2017

Mr. Renison Ruwa, in his capacity as Co-Chair for the South Atlantic Workshop, held in Brazil in November 2017, gave a presentation which reviewed the outcome of the Workshop including a consideration of regional information sources identified in that Workshop and progress in making them available for the second world ocean assessment; consideration of further information sources that might be made available, and a discussion of other aspects of the report of the outcome of the Workshop.

Mr. Renison Ruwa noted that the Workshop considered the available assessments and sources of information; it was noted that there was considerable data and information collected in the territorial seas of the countries of the region, and that deep-sea data was mainly collected by ships during their research expeditions and regional projects especially in oceanography and fisheries. One of the main challenges was observed to be coordinating and collecting as well as integrating relevant data. Structural changes to the proposed outline for the second world ocean assessment were suggested, as well as the consideration of regional priorities, such as ocean

acidification and microplastics; coastal erosion and restoration of coral reefs, seagrass, mangroves and estuaries; hazardous wastes; physical, chemical and biological oceanography, i.e., primary and secondary production; biodiversity and deep sea habitats; ocean atmosphere and the impact it has on the regional climate; data on river flows (landscape to seascape approach) and marine spatial planning in the context of the "blue economy"; fisheries; aquaculture; tourism; mining and maritime transport including socioeconomic aspects; and carbon sequestration and invasive species.

C. Consideration of the intended structure of the various chapters (and sections of chapters) of the second world ocean assessment

The presentation on the review of the outcome of the Workshop for the South Atlantic region was followed by a presentation by Mr. Joshua Tuhumwire (Co-Lead Member for chapter 13 "Changes in erosion and sedimentation") on the intended structure of the various chapters (and sections of chapters) of the second world ocean assessment. The presentation highlighted the following proposed structure: (a) a one-paragraph abstract of the chapter or section; (b) a very short summary of the situation recorded in WOA I which provided a baseline; (c) a description/overview of environmental changes between 2010 and 2020; (d) a description of the economic and social consequences and/or of the other economic or social changes (including, where appropriate, changes in global distribution of benefits and disbenefits and issues relating to concepts of natural capital); (e) a description of the main (remaining) information gaps in relation to the subject matter (which he noted had been highlighted in the previous regional workshop during the first round of workshops); and (f) a description/assessment of the main capacity-building gaps in the field (as well as new solutions that need capacity etc). Regarding the abstract, it was noted that a template for chapters (9 pages, 3000 words, tables and figures, had been developed, bearing in mind that some chapters due to subject matter would have more information than others. It was noted that the template would be a living document subject to revision to accommodate the different challenges of the respective writing teams in drafting their chapters. Each chapter would include a section on how the issues in it are contributing to the achievement of the Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development.

He highlighted that clear, simple language would be essential. Each chapter was expected to include a summary of relevant parts of WOA I and would address environmental changes between 2010 and 2020 (mindful that some observations in 2017 to 2020 will not be available). It was noted that a key challenge would be the ability to provide enough information to enable new readers to understand what was in WOA I in a succinct and engaging manner.

As regards the relevant economic and social consequences and/or other economic or social changes, it was noted that each chapter should answer questions, such as what (if anything) has happened to date and whether there have been independent economic or social changes that have had environmental impacts.

On the main remaining information gaps, it was noted that WOA I summarized information gaps that needed to be filled, both for assessments and management. The second world ocean assessment would therefore need to look at any changes or improvements, as well as any new information sources. Finally, it was noted that chapters in the second world ocean assessment would need to consider the main

remaining capacity-building gaps - what has changed since WOA I, whether there are new solutions that need enhanced capacity to support them, and whether there are new problems where capacities do not yet exist. It was noted that the multi-stakeholder dialogue and capacity-building partnership event to be held in January 2019 could be an important information source in this regard.

During the ensuing discussions, in response to a question as to whether macro plastics would be considered, it was observed that chapter 31 (Developments in the understanding of overall benefits from the ocean to humans) would address this, particularly from the socioeconomic perspective. It was pointed out that some recent relics and sunken ships may contain dangerous materials, and that this should be considered in the chapter. The importance of including the socioeconomic aspects of the marine environment in the assessment was noted by participants, who, highlighted illegal, unreported and unregulated fishing as well as land-based activities, such as artisanal fisheries, ballast water, dumping of wastes and agricultural activities, that were impacting the marine environment and contributing to degradation of the coastal areas in the region, as well as relevant gender perspectives. A participant observed that stressors are all interacting and that, in preparing the second world ocean assessment, there would be a need to identify the interactions between global and local stressors as well as solutions to increase the resilience of systems.

The Joint Coordinator, Mr. Renison Ruwa, noting the importance of fisheries for the region, including the socioeconomic aspects, suggested that fisheries experts among the participants from the region could form an additional breakout group during the Workshop to discuss these issues. Mr. Tuhumwire noted that chapters 19 and 20 cover seabed mining and hydrocarbons, which was also an issue of interest for the region and observed the need for more experts from the region to join the writing teams for these chapters.

A participant, noting that in WOA I, information from the Workshop region was not well reflected, reiterated the importance of having regional representation in the preparation of assessments under the Regular Process, especially given the need for regional information and data as well as sources. The same participant underlined the importance of the regional Workshop in ensuring that relevant experts contributed to the process. Ms. Joana Akrofi (UNEP) expressed her organization's readiness to recommend additional experts from the region on fisheries to join the Pool of Experts. She noted that UNEP was undertaking assessments that were relevant to the Regular Process and underlined the importance of ensuring that different assessments were not duplicating of each other. She also highlighted the work being undertaken under the Abidjan Convention regarding national marine environment assessments.

Another participant noted the importance of preparing the assessment in a language that is easy to read and follow, that would help to communicate the science to policy-makers. Regarding the importance of Regular Process support to other on-going ocean-related intergovernmental processes, the point was made that the final sessions of the Intergovernmental Conference on an international legally binding instrument 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 (Intergovernmental Conference) should inform the preparation of assessments under the Regular Process, and that likewise, the preparation of the assessments should inform the science available to the Intergovernmental Conference including on area-based management tools and cumulative impacts. The importance of reflecting sub-regional dynamics, including the points raised during the regional Workshop for the

South Atlantic region during the first round in 2017, was also highlighted. In this regard, the Joint Coordinator, Mr. Renison Ruwa, noted that the second world ocean assessment would have a chapter dealing with the Sargasso Sea as a key sub-regional area.

D. Consideration of selected chapters and sections of chapters in the light of the structure of the outline for the second world ocean assessment, including possible chapter frameworks

The discussions under this item (item 6) of the agenda were preceded by a brief introduction of the respective chapters by the Lead members or Convenors, followed by the participants being divided into parallel breakout groups to review the substance of chapters and related capacity-building needs, where possible. The breakout group sessions were followed by a plenary session during which each group's rapporteur reported on the discussions in the group. Participants discussed chapter 24 (Developments in tourism and recreation activities) in plenary, since both the Lead and Co-Lead members for the chapter were not present at the Workshop. Despite a suggestion to do so, there was insufficient time to discuss in great depth the chapters on fisheries and marine pollution, which had been identified as regional priorities. The following is a brief summary of the introduction, presentations and discussions.[4]

(i) Chapter 3 "Scientific understanding of the ocean" and "Trends in the state of biodiversity in marine habitats" (Renison Ruwa)

Mr. Renison Ruwa, the Lead member for the chapter introduced the key issues to be covered under the chapter.

Breakout group report and plenary discussions

The breakout group was chaired by Mr. Renison Ruwa and the group's report was presented by Ms. Bing Qiao. As an overall comment, she noted that the chapter would cover the importance of marine scientific research; recent improvements in understanding the ocean, including physical and chemical properties of the ocean, ocean bathymetry, ocean circulation; the effects of anthropogenic noise on biota; and sources of marine debris.

With regard to documenting changes in the state of the ocean, Ms. Qiao observed that developing trends for the second world ocean assessment, taking into account the baseline of WOA I, would not be easy since there were some changes in the outline and chapters of the second world ocean assessment. Related to this, it was noted that connecting or linking chapters would be challenging. However, the group believed the most relevant chapter(s) of WOA I would be cross-referenced as necessary in the second world ocean assessment. Regarding how the topic is affected by and affects other components of the marine system (and where there might be relevant linkages with other chapters), the group noted that the chapter had linkages to WOA I chapters on physical and chemical state, biodiversity, climate change, input, fisheries,

4 It is noted that the level of detail for the summaries varies depending on, inter alia, the chapter topic, chapter size (number of sub-chapters), the level of detail in the presentations and the number of experts available to provide input in the groups.

shipping, mining, etc.). The group also noted the importance of developing capacity for bathymetric mapping of the ocean.

In the ensuing discussions, the central role of the chapter as being fundamental to the scientific understanding of the entire assessment was emphasized. It was noted that drafters of the chapter would need to consistently make the connections between WOA I and the second world ocean assessment. It was also pointed out that case studies, lessons learned and/or success stories should be included in the second world ocean assessment and that it would need to consider how much progress had been made since WOA I regarding the scientific understanding of the ocean.

Regarding key region-specific changes and consequences, it was noted that it would be ideal for each ocean region to receive the same type of attention despite data differences. The group observed that there were some good downscaled climate models that might be used to infer changes in distributions and extent of populations combined with expected changes in drivers, presses, impacts and states globally and regionally.

In response to a query regarding the possibility of changing the chapters of the second world ocean assessment, Mr. Ruwa noted that it would be possible to add content to chapters, but that the outline was already approved. It was noted that the group hadproposed a list of contributing members to the chapter, some of whom would need to be nominated to the Pool of Experts.

(ii) Chapter 10: Changes in inputs to the marine environment of nutrients (Ca Vu Thanh on behalf of Juying Wang)

Mr. Thanh gave a brief presentation of chapter 10 on behalf of the Lead member, Ms. Juying Wang, who was unable to be at the Workshop.

Breakout group report and plenary discussions

Mr. José Ernesto Mancera presented the discussions from the breakout group. It was noted that in WOA I, eutrophication was the main issue considered, as well as harmful algal blooms. He noted that the increase in nutrients inputs continued to be a problem in the Atlantic Ocean, particularly with regard to iron, nitrogen and phosphorous. He observed that phosphorous discharges were a limiting factor of primary production. The group observed that the relationship between nutrient increase and *Sargassum* is not well understood.

The group discussed inputs into the marine environment from land-based sources, from ships and offshore installations, the consequent levels of eutrophication and problems in the marine environment, including harmful algal blooms.

Agriculture was identified as one of the main sources of nutrients for the ocean. Therefore, it was considered important to understand how clean technology fertilizer industries are reducing this source and cover this topic in the second world ocean assessment. Other sources of nutrient pollution that were observed comprised domestic surges of inputs as a result of rapid urbanisation and over population in coastal zones, as well as from industrial surges, livestock, offshore aquaculture, groundwater, mining, erosion and dry deposition by wind transport. The group considered whether bottom disturbances and hydrothermal vents could be nutrient sources.

Inputs from ships and offshore installations were identified as an emerging source of nutrient inputs. It was noted that there were a lot of fishing vessels discharging organic matter into the sea, as well as from offshore aquaculture and oil and gas production installations and platforms. The impact of ballast water was noted to represent a knowledge gap, while ship waste and other discharges also contribute to nutrient inputs. The group agreed to include it in the second world ocean assessment.

The group considered the influence of carbon dioxide and nutrient exchange including the consequent levels of eutrophication problems in the marine environment and harmful algal blooms. Nutrient pollution was identified as the main driver of eutrophication, which in turn can drive harmful algal blooms, changes in community structure, and reduction of species habitat, among other factors. Related to this, it was recognized that harmful algal blooms can reduce water quality by producing hypoxic and anoxic conditions and can also release toxins that are transferred to humans through the consumption of seafood products, such as mussels, oysters, crustaceans and fish, Marine phycotoxins threaten both human health and food safety.

Different syndromes caused by microalgae were identified, the most relevant for the Latin American and Caribbean region being paralytic shellfish poisoning, diarrheic shellfish poisoning, amnesic shellfish poisoning, and ciguatera fish poisoning. Thus, harmful algae blooms cause ecological, aesthetic, and public health adverse impacts, including mass mortalities of wild and farmed fish and shellfish; alterations of marine food webs through adverse effects on larvae and other life history stages of commercial fish species; the noxious smell and appearance of algae accumulated in nearshore waters or deposited on beaches; and mass mortalities of marine mammals, seabirds, and other animals.

Mr. Mancera informed participants that the group had noted that both global warming and nutrients increase microbial consumption of oxygen and reduces the supply of oxygen to the open ocean and coastal waters by increasing stratification and decreasing the solubility of oxygen in water. Nutrient pollution could expand oxygen minimum zones which are places in the ocean where oxygen saturation in the water column is at its lowest.

It was further noted that deoxygenation affects marine biogeochemical cycles, phosphorus availability, hydrogen sulphide production and micronutrients. Additionally, finfish and crustacean aquaculture could be particularly susceptible to deoxygenation due to entrapment in nets or other structures that prevented escape to highly-oxygenated water masses. The group suggested that the second world ocean assessment could explore the potential positive consequence of nutrient increase related to carbon sequestration.

In the ensuing discussions, participants considered the use of guidelines to support the focus of the trend analyses in the second world ocean assessment. It was suggested that there should be a reference to guide the work of the experts, based on sound data. The issue of Sargassum was agreed to be one of importance for the region.

It was suggested that the chapter should cover not only coastal, but also urban areas so that the increase in urban population as an impact should be reflected, and that it should also consider industrial waste, in addition to sewage. A point was also made that bottom disturbances should be qualified. An observation was made regarding the increase in aquaculture in the region and the rising use of antibiotics in this regard. Participants felt that the chapter should also include some solutions to the problems identified.

(iii) Chapter 13: Changes in erosion and sedimentation (discussion led by Ca Thanh Vu)

Mr. Thanh provided an overview of the issues to be considered in chapter 13. By way of introduction, he noted that about 60 % of people were presently living in the coastal environment. This environment is faced with the menace of coastal erosion emanating from wave forcing, human activities and, generally, sediment starvation. The coastal environment is faced with significant challenges and capacity gaps.

He also noted that chapter 26 of WOA I on "Land-Sea Physical Interaction", particularly section 2 (Natural coastal erosion and property damage) and section 5 (Impacts of catchment disturbance), briefly addressed coastal erosion and damage to coastal properties due to coastal erosion. Additionally, section 5 discussed the issue of sediment starvation due to upstream dams and other river management methods, and consequent coastal erosion at a number of coasts, as well as the increase in sedimentation due to catchment disturbances, such as land clearing and soil disturbances. Other issues discussed in that chapter included modelling coastal sedimentary processes and impacts of increased sediment input on coastal habitats, gaps in capacity to assess land/sea physical interactions, which includes the gaps in capacity to assess changes in erosion and sedimentation. Mr. Thanh observed that the increase in coastal erosion due to coastal protection structures and the impacts of coastal erosion resulted from sediment starvation on coastal ecological systems; habitats, especially mangrove; and capacity in modelling and forecasting coastal erosion and sedimentation, were not discussed.

It was noted that chapter 13 of the second world ocean assessment would provide a brief abstract summarizing the key results from the chapter, followed by an introduction, documented changes in coastal erosion (divided into segments covering changes in river management, changes in land use resulting in changes in erosion patterns, beach nourishment) and consequences of the change on human communities, economies and well-being; key region-specific changes and consequences; outlook and remaining knowledge and capacity-building gaps.

Breakout group report and plenary discussions

Mr. Donatus Angnuureng presented the report from the breakout session. He noted that the chapter would build upon chapter 26 of WOA I. The group approached the chapter by looking at the general vulnerability of all coastal areas and the resources therein. The group had further considered the structure of the chapter by analysing what has changed over the years and why, possible methodology and gaps. The use of published or unpublished data to support the assessment was considered very useful in addressing the challenge of information availability. Mr. Angnuureng noted that it was important to establish the trend (increasing or decreasing) in erosion and sedimentation occurring along the beach or coast. References were also made to research on the eastern coast of Ghana and the availability of data for the Nigerian coast on storm surges until 2001. Another possible source of information was a study being done in Togo through an internship for students established in 2010 which assesses geographical trends regarding the coastline and calculates how much the coastline is receding. It was noted that examples from other countries, including in the Caribbean, could also prove useful.

Participants were informed that the group discussions considered the issue of increased land use changes which were increasing the trapping of sediment. Mining of minerals, such as gold, sand in the river beds, especially along the Elmina coast, was noted to be contributing to erosion, together with mangrove removal (e.g., along the eastern coast of Ghana) and population growth. It was noted, for example, that the population in Lagos, Nigeria, had increased from 8 to 15 million and that there were an increasing number of unplanned settlements along the beach. Mitigation measures considered by the group included mangrove restoration, downstream construction, brine, and harbours. It was noted, however, that some solutions could result in the transfer of the problem to another area. It was also observed that overall beach management required a holistic, ecosystem-based management approach. Beach management was generally identified as an area requiring awareness-raising, public education and capacity-building

In presenting the gaps that were considered relevant to the chapter and to the preparation of the second world ocean assessment, Mr. Angnuureng highlighted the possibility for countries to contribute reports on the various thematic areas as had been done in the case of the Intergovernmental Panel on Climate Change (IPCC) reports.

The need to develop capacity to use modelling tools in order to predict occurrences, and thereby help address coastal erosion was also highlighted. It was noted that States knowledge of different coastal structures and developments, as well as knowledge regarding predicted recovery periods after extreme storm events, could mitigate coastal erosion.

In the ensuing discussions, it was noted that long-term prediction was harder than short-term forecast, and that though some developing countries have very good real-time weather forecasting, they had little capacity for real-time storm surge forecasting.

Ocean acidification was identified as an influence on biogenic reefs and other stressors. The interplay between stressors was also noted e.g., ocean acidification which was not only impacting, but also creating, the need for mitigation measures. It was noted that there was insufficient data regarding the acidification of coral reefs, although there was a project in the wider Caribbean on this issue which had some data. Apart from acidification, the impact of sea level rise was considered a point that needed to be factored in, based on the experience of Brazil. It was noted that in Ghana, a project had demonstrated that there had been over 80% coastal degradation as a result of sea level rise. The point was made that for many areas, there has been a need to get an average permanent level on the coast in order to have a baseline against which to measure the rise in sea level. It was also suggested that data sources from the Caribbean and South America on erosion and sea level rise could be useful in understanding global dynamics.

Regarding mitigation measures, it was noted that forest development could provide a buffer e.g., seagrass beds and biogenic reefs. It was further noted that the restoration of mangroves, seagrass beds and reefs were good solutions for policy makers.

(iv) Chapter 31: Developments in the understanding of overall benefits from the ocean to humans (presented by Joshua Tuhumwire)

Mr. Joshua Tuhumwire, presented the overview for the chapter on behalf of the Lead Member, Mr. Essam Mohammed, who was unable to attend the Workshop. He noted that the chapter would focus on the understanding of overall benefits from the ocean to humans, including the distribution of those benefits, and the role in safeguarding those benefits and of improved implementation of international law as reflected in the United Nations Convention on the Law of the Sea. He also noted that the expertise identified for chapter 28 (Cumulative impacts), namely, coastal and ocean management, including the assessment of environmental services and other benefits from the ocean) was relevant here. He observed that relevant baseline information was available in a number of chapters in WOA I, namely: Part III. Assessment of major ecosystem services from the marine environment (other than provisioning services); chapter 3: Scientific understanding of ecosystem services; chapter 4: The ocean's role in the hydrological cycle; chapter 5: Sea-Air Interaction; chapter 6: Primary production, cycling of nutrients, surface layer and plankton; chapter 7: Calcium carbonate production and contribution to coastal sediments; chapter 8: Aesthetic, cultural, religious and spiritual ecosystem services derived from the marine environment; chapter 9: Conclusions on major ecosystem services other than provisioning services; Part IV. Assessment of the cross-cutting issues: food security and food safety; chapter 10: The oceans and seas as sources of food; chapter 11: Capture fisheries; chapter 12: Aquaculture; chapter 13: Fish stock propagation: chapter 14: Seaweeds; chapter 15: Social and economic aspects of sea-based food and fisheries; chapter 16: Synthesis of Part IV. Food security and safety; Part VII. Overall assessment; and chapter 55: Overall value of the oceans to humans.

Breakout group report and plenary discussions

Mr. Antonio Di Natale presented the group's discussions. He noted that the group observed the need for chapter 31 to consider the outcomes of a number of chapters of WOA I.

The group considered that the level and diversity of expertise required by this chapter was very high, noting that, generally, there was an ongoing progressive reduction in experts having a broad knowledge of the ocean systems, as well as of specialists in taxonomy who are essential for describing and understanding biodiversity and complex oceanic processes. It was further noted that this dearth of expertise was reflected in the participants in the workshops as there were very few experts in this field amongst the participants. The group noted it would be important to take into account the latest reports produced by various relevant international organizations, commissions and Convention secretariats, including at the regional level, with the objective of having a good overview of the existing knowledge in each field covered by chapter 31.

The group noted the main points emanating from WOA I regarding various components of ecosystem services, such as provisioning e.g., food, water, fibres and fuel; regulating e.g., water regulation, water and diseases; cultural e.g., spiritual, aesthetic, recreation and education; and supporting e.g., primary production and soil formation. The group noted that whenever it was necessary to consider the provision of different facilities to humans, these elements were particularly important, because

each assessment is based on the available knowledge. Therefore, assessments are to be considered always in a precautionary manner.

The group considered that this list was incomplete and that the examples neither reflected the priority nor the importance or relevance of these services. The group also noted that because of the close linkages among the various components of the oceanic system, existing knowledge in each field was currently not enough to sufficiently describe the huge complexity of the marine environment. The group was of the view that models could help, to a certain extent, in simplifying these linkages.

The group emphasized the importance of improving the knowledge of the many components of the ocean systems and their interactions, including a strong support for research activities, particularly in those fields where knowledge was more limited, and support for historical data mining for better understanding of long-term changes in the various components of the ocean systems. It was observed that data in general were particularly poor for effectively managing the resources in the Central and Southern Atlantic and that investments in capacity-building in the above-mentioned fields were necessary.

The need to reform regulations to avoid conflicts over use of the benefits of the ocean was noted. It was also noted that both illegal, unregulated and unreported (IUU) fishing and illegal transhipment were able to seriously affect both transparency in trade and the sustainable use of marine resources, which could directly impact the shared use of those resources. Tools, such as marine spatial planning, as well as the use of agreed “Codes of Conduct” for addressing various issues for better managing the marine resources and environment were considered useful by the group.

Regarding cultural benefits, the group considered that the list in WOA I could be retained, but that it would be important to consider that the current approaches for using the ocean were strongly impacting the already existing maritime/marine culture in all parts of the ocean. It was emphasised that the ancient and historical culture of both sailors and fishermen was a very important heritage that should be preserved for future generations.

As concerns the support to the ocean systems, the Group took into account the two examples provided by WOA I, namely that

(a) Primary production is mostly studied in coastal areas, where data are more available and collected, while more data are needed for open ocean areas, where some oceanic phenomena should be better studied (i.e., the upwelling areas), particularly taking into account the modifications caused by climate change; and

(b) Soil formation was extremely important in all coastal areas, because it had direct and indirect effects on the socioeconomic aspects. Additional studies on the sedimentary regimes were particularly needed and the causes which affect the distribution and accumulation of sediments in the various areas should be better detected.

The group noted that anthropogenic harm to the coastal marine environment, including through pollution, could be limited considerably through the application of a precautionary approach. This would entail, for example, leaving some parts of the coast free from construction to accommodate any sea level rises. The impacts of climate change were also noted as a contributing factor to the continued access to cultural and other benefits, though this could create not only new problems for communities, but also opportunities. In this regard, it was suggested that the

Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis approach could be a tool for identifying the most important concerns and opportunities.

In the ensuing discussions, a point was made that the SDGs, such as SDG 14 "Conserve and sustainably use the oceans, seas and marine resources for sustainable development", should be highlighted in the chapter. It was noted that, apart from the fisheries chapter (chapter 15), it would be important for chapter 31 to highlight the exploitation of fish due to long-distance fishing vessels that use illegal fishing methods that deplete stocks and contribute to the destruction of habitats, and which was negatively impacting the livelihoods of traditional artisanal fishers in addition to the impacts of sea surface temperature rise on fish migration. It was pointed out that, within the context of fisheries, forced labour ought to be considered.

An observation was made that apart from fisheries, there were other benefits that were cross-cutting issues, which, if necessary, could also be discussed in chapter 31. It was noted that this could be done through proper cross-referencing to ensure coherence.

It was further observed that ocean governance is important and that the second world ocean assessment should highlight trends that can impact peace and security especially where they are very critical for a region and could lead to disturbances and conflicts between coastal communities and governments. An observation was made in this regard that such issues or threats could be captured in the SWOT analysis that had been proposed by the breakout group. The need to be careful not to discuss policy issues and only provide data to reflect the present situation (policy relevant, not policy prescriptive), was emphasized.

E. Consideration of important issues in other chapters

Having noted that it had not been possible for the issues of marine pollution, fisheries and maritime security to be discussed in breakout groups, the Chair decided that these issues (relevant to chapters 11 (Changes in liquid and atmospheric inputs to the marine environment from land (including through groundwater), ships and offshore installations), 15 (Changes in capture fisheries and harvesting of wild marine invertebrates), and 23 (Developments in marine transportation), would be discussed under this item in plenary. Participants also discussed chapter 24, whose Lead and Co-Lead member could not attend the Workshop.

(iv) Chapter 24: Developments in tourism and recreation activities (plenary discussion led by Renison Ruwa on behalf of Alan Simcock) [considered in plenary]

Mr. Renison Ruwa introduced the chapter on behalf of the Lead Member, Mr. Alan Simcock. It was noted that it would build upon chapter 27 of WOA I. Relevant pressures were identified as follows: coastal construction/infrastructure; waste and sewage; beach and shore usage; enjoyment of wildlife (general marine diving, coral viewing, bird-watching, whale and dolphin watching, shark watching and recreational fishery); and boating and personal leisure transport. Mr. Ruwa observed that the chapter had linkages to the following other chapters: 8 (Trends in the state of human society in relation to the ocean); 10 (Changes in inputs to the marine environment of nutrients); 11 (Changes in liquid and atmospheric inputs to the marine environment from land (including through groundwater) ships and offshore installations); 14 (Changes in coastal and marine infrastructure); 15 (Changes in capture fisheries and harvesting of wild marine invertebrates), and 23 (Developments in marine

transportation) – in particular cruise ships. He noted that in preparing the chapter, the following required consideration: what additional issues need to be covered and what information sources could be utilized. He urged experts that were interested in contributing to the chapter to contact the Lead Member.

In the ensuing discussions, the benefits and impacts of tourism in the region were considered. It was noted that in some countries, tourism was a major contributor to the gross domestic product, while in others e.g., in West and Central Africa, marine tourism was not as developed as in other regions. In this regard, a point was made that the education of local communities and building of capacity was very important for them to learn how to protect and conserve the marine environment and wildlife in order to promote tourism, e.g., sea turtle watching. With regard to building capacity, it was noted that the International Whaling Commission had developed a whale-watching handbook which provides best practices that could be adapted to other marine activities, and that Argentina had a capacity-building programme for whale-watching in the region.

Participants considered the inclusion of cultural landmarks along the coasts in tourism programmes important, including financing their refurbishment and maintenance. A participant noted that special interest cultural tourism could include coastal features, such as lighthouses, ancient harbours, traditional fishing towns, historic shipwrecks, etc. It was noted that underwater cultural heritage tourism was growing alongside the growth of cultural tourism in general, as well as scuba diving and snorkeling. In this regard, it was further noted that since people may be more inclined to connect with their own culture, their history and ancestors, than with ecosystems, coastal and underwater cultural heritage could be a good means for creating awareness of the need to preserve the ocean.

In addition, a participant observed that underwater archaeological research and environmental impact studies on submerged cultural heritage could provide useful data for other marine sciences and vice versa, and that marine archaeology could contribute to the better understanding of climate change through time and its impact on humans.

Participants suggested that the chapter should address both the negative impacts of tourism as well as the ways in which tourism could help to protect and conserve marine life and habitats, so as to identify ways for both tourism and other activities to be undertaken in a sustainable manner.

The need for more eco-tourism in order to maximize ways to conserve and sustainably use the resources e.g., through education and empowerment of users of the space was observed. It was suggested that this chapter should draw upon the experiences from successful countries practicing eco-tourism. An observation was made that the chapter should include some best-practices and case studies e.g., community and local involvement in managing marine habitats including hotels (waste management). An example was provided of Kenya, where there were greater efforts towards promoting eco-tourism and including the community as part of the revenue or co-sharing arrangements resulting from that.

An observation was made that the chapter should also address issues that negatively impact tourism e.g., maritime security, since the security of the ocean and seas was a key contributing factor to tourism, as well as ship-beaching which destroys vegetation and impacts the attraction of tourist areas.

Mr. Gonzalo Rodríguez Prado gave a presentation on “Underwater cultural heritage”, noting that it had enormous potential for sustainable tourism and the development of sustainable ocean-based economies, but that it was often undervalued by authorities. In the context of various events organized by the United Nations Educational Science and Cultural Organization (UNESCO) related to the 2001 Convention for the Protection of Underwater Cultural Heritage, a participant noted the need to develop a closer interaction with UNESCO, and its Intergovernmental Oceanographic Commission (IOC) and with other organizations focused on ocean matters, particularly in view of SDG 14 and other relevant SDGs. It was noted that UNESCO had been working to develop cultural education e.g., in North Africa.

Mr. Rodríguez Prado also gave a presentation on “Shipwrecks and artisan fishermen: expanding the sustainable blue economy scope” in relation to chapter 31 (Developments in the understanding of overall benefits from the ocean to humans). The presentation focused on the preservation of maritime cultural heritage, as an important, yet undervalued ocean service. His presentation highlighted the importance of shipwrecks as essential archaeological and anthropological sites with considerable ecological and economic benefits. He indicated that wrecks act as a reef that provides shelter for numerous species of fish and crustaceans resulting in increased biodiversity. This benefit had improved the connection between these prolific seabed ecosystems and fishermen who rely on the catch near these wrecks for food. He also highlighted the importance of underwater cultural heritage in preserving traditional knowledge and for the achievement of the SDGs e.g., SDG 4 "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"; SDG 8 "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all”; SDG 11 "Make cities and human settlements inclusive, safe, resilient, and sustainable” and SDG 14 "Conserve and sustainably use the oceans, seas and marine resources for sustainable development", as well as for the implementation of the United Nations Convention on the Law of the Sea and UNESCO treaties.
Mr. Rodríguez Prado noted that in certain areas, there was increasing community involvement in the protection and management of fishing and vessel traffic activities and that this was key to ensuring marine ecosystem health. It was suggested that marine protected areas should be established including to protect cultural aspects, and that there should be diversification of livelihoods for coastal communities in that regard. In that regard, reference was made to a programme in Uruguay to promote park rangers, catching of invasive species, cultural guides, traditional cooking, which had contributed in an increased economic benefit through visits to the many marine parks and eco-tourism sites as well as improved employment opportunities.[5]

Mr. Colin Moffat gave a presentation on “Making an Impact” which highlighted the importance of communication as an essential tool for drawing attention to the issues that could influence policy change (in behaviour, allocation of funds, resource management, etc.). He emphasized the need to ensure that the preparation of the second world ocean assessment had an impact on the SDGs and influenced policy. “Blue Planet 2” produced by Sir. David Attenborough on plastic pollution, which has raised awareness about the issue, was cited as an example. The words in the second world ocean assessment would need to be simple (non-technical), but effective, pictorial and graphic for easy understanding to ensure effective communication and

[5] See discussion in section (iv) above on chapter 31: (Developments in the understanding of overall benefits from the ocean to humans).

the ability to reach a variety of stakeholders, ranging from schools to politicians. Simple, clear messages and images were used in the OSPAR Intermediate assessment 2017. Word messages were supported by data evidence in graphics. This was a result of a dedicated communications discussion and development of a strategy with specialists, including graphics artists. Each chapter lead must develop key messages as the chapters are being drafted. The assessment should be web-based and accessible to all (and needing a different writing format to reach each target audience). It would be an important contribution to the United Nations Decade of Ocean Science for Sustainable Development. He also noted that an effective communications strategy would require the involvement of the scientists working in collaboration with other experts (especially those from the social sciences) to effectively communicate issues and identify solutions.

In the ensuing discussions, the importance of having a common format to communicate science to policy-makers was emphasized, bearing in mind the need for scientists to be able to speak in a language that politicians could understand. It was suggested that the second world ocean assessment could benefit from the preparation of a chapter or a summary for policy makers. It was also suggested that the chapter could address the impacts of activities from landlocked States as well as information on the safety of fishers at sea. It was noted that in Ghana, information on the safety of fishers at sea was collected through an on-going project that promotes citizen science by using text messages from the fishers themselves regarding their conditions.

Mr. Jose Ernesto Mancera gave a presentation on "Harmful Algal Blooms in Latin America and the Caribbean". In his presentation, he noted that harmful algal blooms (HAB) have huge impacts on the health of fish and people e.g., it affects public health, the economy, and the environment. He indicated that a joint database of HABs (Harmful Algae Event Database or HAEDAT) is being developed as part of the International Oceanographic Data and Information Exchange (IODE) of the Intergovernmental Oceanographic Commission (IOC) of UNESCO. He noted that HAEDAT, provides information on HABs derived from the analyses of ocean colour data collected by space-borne sensors and other in situ measurements.

In the ensuing discussions, participants recognized that there was a huge gap in technical know-how for the monitoring of HABs in the region, noting instances of algal blooms, including those from macroalgae, were a serious problem in the region. It was pointed out that along the coast of West Africa, there were incidences of non-harmful algal blooms – e.g., *Sargassum* and *Enteromorpha* between Ghana and Côte d'Ivoire, but that these also had negative impacts since they could be found in shallow water up to depths of one to one and a half meters, obstructing fishing and other activities in the marine environment.

Ms. Qiao Bing gave a presentation on "Capacity Building in Pollution Prevention in China". In her presentation, she underlined the importance of the ocean and the resources we derive from it and emphasized the need to expand on the existing capacity for monitoring pollution in the ocean from all sources. She noted that in China, for example, the high volume of shipping activities off the coast contributed to air pollution, oily waste and discharge of ballast water, sewage, garbage, and oil spills, among other things, and that this pollution had an adverse impact on the societal benefits derived from the ocean. In order to curb these adverse effects, China, as a member of the International Maritime Organization (IMO) and the IMO International Convention for the Prevention of Pollution from Ships (MARPOL), had adopted institutional reforms to regulate shipping operations. Additionally, it had

dedicated financial allocations to enhance capacity in the area of science and engineering, and support for local governments to develop strategies for oil spill management as well as air pollution emission control.

In the ensuing discussions, it was noted that pollution prevention was an important issue for the Workshop region (e.g., in Brazil, mud/landslides had transported large volumes of harmful chemicals into the ocean). It was noted that landslides may also be relevant to nutrients (e.g., in Ghana research had revealed a massive landslide on the continental shelf), and research was trying to determine how this impacted the introduction of metals to the ocean. It had been observed that there was metal contamination further out at sea.

In response to a question regarding the criteria for designating air pollution emission control areas, Ms. Bing noted that it was based on some of the identified pollutants. The need to have a strong message in the second world ocean assessment regarding prevention of pollution, including the need for capacity-building to mitigate and remedy it, was noted.

F. Consideration of learning points/needs and resources that may be relevant to the inventory of capacity-building opportunities relevant for the Regular Process being compiled and maintained by the secretariat, and to the multi-stakeholder dialogue (case studies of good practices) and capacity-building partnership event, to be held in early 2019

With regard to the multi-stakeholder dialogue and capacity-building partnership event (the "Event"), Ms. Vita Onwuasoanya provided information on the progress in the preparations for the Event. Participants were informed that the Event aimed to increase awareness of the Regular Process and more generally the science-policy interface at all levels and to highlight the importance of capacity-building in support of the Regular Process, including regarding the preparation of integrated assessments which are aimed to inform decision-making by policy-makers and other relevant stakeholders. The Event would allow for in-depth multi-stakeholder dialogues on current opportunities, gaps and needs in capacity, and would seek to foster cooperation and coordination amongst stakeholders to address these. Participants were informed that a draft concept note and draft agenda for the Event were available on the website of the Division. Ms. Onwuasoanya also encouraged the designation of National Focal Points by States that had not already done so, as well as participation in the Pool of Experts of the Regular Process,

In the ensuing discussions, in response to a query regarding funding for participation in the Event, Ms. Onwuasoanya noted that there were limited funds for a number of experts from developing countries, subject to the approval of the Bureau of the Ad Hoc Working Group of the Whole on the Regular Process.

With regard to ownership of WOA I, it was observed that the uptake of the assessment was not very evident, and that as work progressed on the preparation of the second world ocean assessment, ways to publicize and raise awareness about WOA I would need to be factored in.

A point was raised as to how to engage the media and journalists in the preparation of the second world ocean assessment, it being noted that there was a need to build

their capacity in contributing to a communications strategy and helping to communicate science to policy makers and other target audiences.

Ms. Onwuasoanya noted that outreach and awareness-raising was part of the mandate for the second cycle of the Regular Process, and informational materials were being developed to facilitate uptake of WOA I as well as of the second world ocean assessment.

Regarding cooperation between the Regular Process and other organizations, in particular the regional seas Conventions, it was suggested that the Abidjan and Nairobi Convention need to be empowered in order to promote their visibility and involvement in the Regular Process to experts in the region. It was also suggested that regional development banks could be approached to support the work of experts from these regional seas Conventions. It was noted that although UNEP hosts the secretariat for the Conventions, the Conventions were in the hands of the Parties thereto, thus member States would have to take the lead. Ms. Onwuasoanya and the representative from UNEP noted that the Abidjan Convention had been involved in the Regular Process since its first cycle, and that both conventions had hosted regional workshops for the Regular Process. The importance of taking into account the African Union Agenda 2063 was also raised, as well as the recently launched West African Coastal Areas Management Programme.

ANNEX 1: Guidelines for the second round of Workshops in 2018 to Assist the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects

Purpose and objectives

1. The programme of work for the period 2017-2020 for the second cycle of the Regular Process, developed by the Ad Hoc Working Group of the Whole on the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects,[6] and endorsed by the General Assembly,[7] includes in the activities for 2018 the holding of a second round of regional workshops to, *inter alia,* inform the collection of regional-level information and data for the preparation of the second world ocean assessment, to build capacity and to facilitate outreach and awareness-raising.[8] These Guidelines apply to the second round of regional workshops and are intended to give guidance for the arrangements for such workshops.

2. The objectives of each of these workshops should therefore be to:

(a) Support the development of the second world ocean assessment by enabling the collection of regional-level information and data for the preparation of the second world ocean assessment and to enable relevant members of writing teams for specified chapters[9] to meet, and to interact with experts from the region in the fields covered by those chapters;

(b) Enable the regional experts to understand better the approaches of the Regular Process and to develop their skills in integrated assessment, covering environmental, social and economic aspects;

(c) Enable the writing teams for the chapters selected for the workshop, with the help of the Joint Coordinators and the members of the Group of Experts of the Regular Process ("the Group of Experts") who are present, to discuss the structure of their chapter, its relationship with the other chapters of the Outline for the second world ocean assessment ("the Outline") and responsibilities for developing the chapter text;

(d) Provide opportunities for the members of the Group of Experts present to highlight important issues within the Outline other than those of the selected chapters, in order to broaden understanding of the full range of the Regular Process;

(e) Consider what learning points / needs and resources may be relevant to the inventory of capacity-building inventory of needs and opportunities relevant for the Regular Process being compiled and maintained by the secretariat, and to the multi-stakeholder dialogue (case studies of good practices) and capacity-building partnership event, to be held in early 2019.

(f) Consider what capacity-building steps might be taken, both at global and regional levels, in relation to the issues covered by the selected chapters.

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6 See the attachment to A/71/362.

7 See General Assembly resolution 71/257, paragraph 299.

8 See, inter alia, paragraphs 9 (c) and 13 (b) of the Programme of Work 2017-2020, attachment to A/71/362.

9 Where a separate writing team is established for a section of a chapter, this section may be treated as a chapter for the purpose of these guidelines.

3. The Group of Experts will inform the Bureau of the Ad Hoc Working Group of the Whole ("the Bureau"), for its consideration, of the chapters which will be the focus of each regional workshop.

Number and locations

4. States, relevant organizations, bodies, funds or programmes within the United Nations system and intergovernmental regional organizations are invited to offer to host workshops in 2018 for the following ocean areas:

(a) The North Pacific;

(b) The South Pacific;

(c) The Indian Ocean (including the Arabian Sea and the Bay of Bengal), the Red Sea and Gulf of Aden and the ROPME/RECOFI area;[10]

(d) The North Atlantic, the Baltic Sea, the Mediterranean Sea and the Black Sea; and

(e) The South Atlantic (between the African and American coasts) and the wider Caribbean.

5. Separate workshops will not be held for the Arctic Ocean or the Southern Ocean. Instead, correspondence which was initiated during the first round of regional workshops in 2017, will continue between the relevant international bodies and forums for those areas (in particular, the Antarctic Treaty System and the Arctic Council) and the Group of Experts of the Regular Process to enable those bodies and forums to contribute their views on the issues relevant to the workshops. If requested, members of the Group of Experts and Pool of Experts will make themselves available for consultation.

6. To the extent that resources permit, one or two further meetings of writing teams may be held during the first half of 2019 where the Bureau considers it desirable to do so. The themes of such meetings will be determined by the Bureau on the basis of recommendations from the Group of Experts.

Timing

7. Seven possible time-slots have been identified for workshops to be held between June and December 2018:

(a) 25 – 29 June, 2018;

(b) 2 – 27 July, 2018;

(c) 30 July – 10 August, 2018;

(d) 24 – 28 September, 2018;

(e) 15 – 26 October, 2018;

(f) 5 – 9 November, 2018;

(g) 26 – 30 November, 2018.

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10 Regional Organization for the Protection of the Marine Environment (ROPME) Members: Bahrain, Iran (Islamic Republic of), Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. Regional Commission for Fisheries (RECOFI) Members: Bahrain, Iran (Islamic Republic of), Iraq, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates.

These Guidelines will be supplemented by details regarding the format of the workshops and the proposed composition and structure of the meetings of the writing teams.

8. Potential hosts are invited to indicate within which of these time periods they would wish to host a workshop.

Activities of workshops

9. The agenda of a workshop to support the Regular Process should reflect the objectives set out in paragraph 2 above. The activities of a workshop should take full account of the principles for the Regular Process recommended by the Ad Hoc Working Group of the Whole and endorsed by the United Nations General Assembly in 2009 and reaffirmed by the United Nations General Assembly in 2016,[11] and the various recommendations of the Ad Hoc Working Group of the Whole.

Hosts

10. Workshops are to be hosted by Member States, members of United Nations specialized agencies and relevant organizations, bodies, funds or programmes within the United Nations system. They are to be organized under the auspices of the United Nations,[12] in coordination with the secretariat of the Regular Process and with the assistance of members of the Group of Experts and Pool of Experts, as appropriate. For the organization of such workshops, as they affect these regions, hosts may request the cooperation of relevant regional intergovernmental organizations and/or that of relevant national scientific institutions.

Participation

11. Member States of the United Nations, members of United Nations specialized agencies and relevant organizations, bodies, funds or programmes within the United Nations system, shall be entitled to participate in any workshop that they consider relevant to them, up to the number of available places. Relevant regional intergovernmental organizations in the region are encouraged to participate, including regional seas organizations, regional fisheries management organizations and arrangements, relevant regional intergovernmental marine science organizations and intergovernmental organizations and arrangements undertaking work in relation to large marine ecosystems. For practical reasons, the logistics and the number of invitees will need to be managed by the host in consultation with the secretariat of the Regular Process, as well as in consultation with the Bureau, as appropriate. Member States should consider arranging for their National Focal Points for the Regular Process to assist with identification of participants for regional workshops and the organization of such workshops as required, and where possible, to participate in relevant workshops.

12. Non-governmental organizations in consultative status with the Economic and Social Council or with Convention secretariats, relevant non-governmental organizations which accredited to the United Nations Conference on Sustainable Development ("Rio + 20")or which participated in the United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development ("United Nations Oceans Conference") in accordance with General Assembly

11 See A/64/347, annex, and paragraph 285 of General Assembly resolution 71/257.

12 Such workshops will require the conclusion of a host country agreement.

resolution 70/303: Modalities for the United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development, relevant scientific institutions and organizations representing major groups as defined in Agenda 21 may request invitations to participate in the workshops. Relevant regional marine science institutions and organizations and relevant regional arrangements undertaking work in relation to large marine ecosystems are particularly encouraged to participate. The organizations, arrangements and institutions referred to in this paragraph should be those active in ocean affairs and marine science whose participation can help advance the work and objectives of the Regular Process. Hosts may reserve a number of places in the workshop to be filled by such invitations.

13. Each workshop should include at least one member of the Group of Experts, one member of the Pool of Experts, as appropriate, and one member of the secretariat of the Regular Process, which will be coordinated with the secretariat of the Regular Process. The Joint Coordinators of the Group of Experts will be invited to participate in all the workshops. If possible, all members of the Group of Experts from States in the area covered by the workshop should participate. The Lead Members from the Group of Experts for the chapters selected for the workshop as well as relevant members of the writing teams should also be invited to participate. The participation of the members of the Group of Experts and of the Pool of Experts, as appropriate, from developing countries from the region and the Joint Coordinator from the developing country, as well as that of the relevant members of the writing teams, will be supported within the provision made in the regular budget of the United Nations for 2018/2019.

14. Hosts may, as appropriate, encourage the participation of relevant members of the Pool of Experts, including their attendance in the regional workshops and seeking their input on organization, networking, and substantive input to the preparation and review of the outcome of the workshops. Preference should be given to experts in the fields covered by chapters selected for the workshop.

Chair and secretariat

15. Hosts should designate a chair (or co-chairs) of the workshop, who will be expected to take responsibility for summarizing the outcomes of the workshop with the aid of the workshop support staff and members of the Group of Experts. Hosts may consider inviting a member of the Group of Experts and, as appropriate of the Pool of Experts, to be the chair, or a co-chair, of the workshop. Hosts may provide guidance, where needed, on what the priorities for the region are, as well as on potential participants and other modalities for the workshops.

16. Hosts should provide support staff to organize proceedings in consultation with the secretariat of the Regular Process and the members of the Group of Experts and, as appropriate, of the Pool of Experts, who are taking part, and to help the chair(s), the member(s) of the Group of Experts and the secretariat to provide a summary of the outcome.

Output of workshops

17. The output of the workshop should take the form of:

(a) Notes by the writing teams on the issues discussed in relation to each of the chapters selected for the workshop. To deliver these, each writing team should be

asked to designate one of its members to take responsibility for the production of these notes;

(b) A summary of other discussions and presentations taking place in the workshop. The member(s) of the Group of Experts, of the Pool of Experts, as appropriate, and the secretariat of the Regular Process will help to produce this summary. Provision should be made for the participants to comment on a draft of the summary and for the final version to be revised by the chair(s) and representative(s) of the Group of Experts and of the Pool of Experts, as appropriate, in the light of such comments.

18. The secretariat of the Regular Process will play an important role in ensuring that the output of each workshop is captured and presented in a way which will support the work of the second cycle of the Regular Process.

19. Those functions would include capturing the relevant information presented (directly and indirectly) during the workshops, including regional/national informational needs with respect to the Regular Process and its outputs.

20. The secretariat would also assist in the preparation of the summary of discussions. It would also be responsible for the development and adaptation of the outreach materials relevant to the Regular Process and its outputs.

21. The division of work in preparing the written output of each workshop should be agreed between the host and the secretariat of the Regular Process, in consultation with the member(s) of the Group of Experts and of the Pool of Experts, as appropriate.

Follow-up to the workshops

22. The final version of the summary of discussions, which could include (subject to the discretion of the relevant writing team) the notes on specific chapters, should be made publicly available on the Regular Process website.

23. The secretariat of the Regular Process should ensure that liaison continues after the workshop with bodies that have contributed to it and with National Focal Points in the region. In particular, the secretariat should seek to facilitate follow-up on capacity-building possibilities identified by the workshop both with respect to the further clarification of needs as well as the identification of best practices.

ANNEX 2: Draft Agenda

REGULAR PROCESS FOR THE GLOBAL REPORTING AND ASSESSMENT OF THE MARINE ENVIRONMENT, INCLUDING SOCIOECONOMIC ASPECTS

Workshop to Assist the Second Cycle of the Regular Process

Accra, 3 – 4 December 2018

1. Welcome and opening remarks by representatives of the Government of the Republic of Ghana, the secretariat for the Regular Process (Division for Ocean Affairs and the Law of the Sea), and the Chair of the Workshop.

2. Adoption of agenda for the Workshop.

3. Presentation by one of the Joint Coordinators of the Group of Experts of the Regular Process of the Outline for the second world ocean assessment and the Timetable and Implementation Plan, and discussion of general issues related to them.

4. Review of the outcome of the Workshop for the South Atlantic (between the African and American coasts) and the Wider Caribbean, held in Camboriú, Brazil, in November 2017:

(a) Introduction by the Chair of the Workshop;

(b) Consideration of regional information sources identified in that Workshop and progress in making them available for the second world ocean assessment;

(c) Consideration of further information sources that might be made available;

(d) Discussion of other aspects of the report of the outcome of the Workshop.

5. Presentation by one of the Joint Coordinators of the intended structure of the various chapters (and sections of chapters) of the second world ocean assessment, namely:

(a) A one-paragraph abstract of the chapter or section;

(b) A very short summary of the situation recorded in the First Global Integrated Marine Assessment (World Ocean Assessment I);

(c) A description of environmental changes between 2010 and 2020;

(d) A description of the economic and social consequences and/or of the other economic or social changes (including, where appropriate, changes in global distribution of benefits and disbenefits and issues relating to concepts of natural capital);

(e) A description of the main information gaps in relation to the subject matter;

(f) A description of the main capacity-building gaps in the field.

6. Consideration, in the light of this structure, of selected chapters and sections of chapters of the Outline for the second world ocean assessment, including possible chapter frameworks. These discussions may take place in parallel groups and should review the substance of the following chapters and related capacity-building needs:

I. Break-out groups on:

(a) Chapter 3: Scientific understanding of the ocean (discussion led by Renison Ruwa);

(b) Chapter 10: Changes in inputs to the marine environment of nutrients (discussion led by Juying Wang);

(c) Chapter 13: Changes in erosion and sedimentation (discussion led by Ca Thanh Vu);

(d) Chapter 24: Developments in tourism and recreation activities (discussion in plenary led by Antonio di Natale); and

(e) Chapter 31: Developments in the understanding of overall benefits from the ocean to humans (discussion led by Joshua Tuhumwire).

II. Presentations to the plenary by a representative of each of the break-out groups.

7. Presentation on important issues in other chapters that members of the Group of Experts present wish to emphasize and discussion of issues on other chapters that the members of the Workshop wish to raise.

8. Consideration of what learning points/needs and resources may be relevant to the inventory of capacity-building opportunities relevant for the Regular Process being compiled and maintained by the secretariat, and to the multi-stakeholder dialogue (case studies of good practices) and capacity-building partnership event, to be held in early 2019.

9. Overview of the outcome of the Workshop presented by the Chair and the Joint Coordinators.

10. Closure of the Workshop.

ANNEX 3: List of Participants

#	TITLE	FIRST NAME	LAST NAME	COUNTRY / ORGANIZATION
1	Ms.	Francisca	Delgado	Angola / The Intergovernmental Oceanographic Sub-Commission for Africa and Adjacent Island States (IOC Africa)
2	Ms.	Josefina	Bunge	Argentina / Ministerio De Relaciones Exteriores Y Culto De La Republica Argentina
3	Ms.	Dolores	Elkin	Argentina / National Research Council (CONICET)
4	Mr.	Miguel Angel	Iniguez Bessega	Argentina / Fundacion Cethus
5	Mr.	Enrique Ricardo	Marschoff	Argentina / Instituto Antártico Argentino
6	Ms.	Maria Gabriela	Palomo	Argentina / Natural History Museum Argentina
7	Mr.	Mohammad	Chowdhury	Bangladesh / Associate Professor and Director, Institute of Marine Sciences and Fisheries, University of Chittagong
8	Mr.	Cocou Marius Akpe	Loko	Benin / Permanent Mission of Benin to the United Nations
9	Mr.	Paulo	Antunes Horta Junior	Brazil / Universidade Federal de Santa Catarina
10	Ms.	Fernanda	De Oliveira Lana	Brazil / Federal Fluminense University
11	Mr.	Carlos Francisco	Ferreira de Andrade	Brazil / Universidade Federal do Rio Grande - FURG, Instituto de Oceanografia
12	Mr.	Luciano	Hermanns	Brazil / Associação Brasileira de Oceanografia (AOCEANO)
13	Ms.	Qiao	Bing	China / China Waterborne Transport Research Institute
14	Mr.	Jose Ernesto	Mancera Pineda	Colombia / Professor at Universidad Nacional de Colombia
15	Ms.	Constanza	Ricaurte Villota	Colombia / Marine and Coastal Research Institute (INVEMAR)
16	Mr.	Nene	Bi Trace Boniface	Côte d'Ivoire / Ministry of Petroleum, Energy and Renewable Energies

17	Mr.	Koffi Robert	Dappa	Côte d'Ivoire / Chef de Service Opérations de production chez le Nationale d'Opérations Pétrolières de Côte d'Ivoire (PETROCI)
18	Mr.	Djoro Hyacinthe	Gnepa	Côte d'Ivoire
19	Ms.	Aya Odette	Kouakou Epse Coulibali	Côte d'Ivoire / State nominee /Ministry of transports/ General Directorate of maritime and port affairs
20	Ms.	Kida Rose	Ninsemon	Côte d'Ivoire / National Focal Point of Cote d'Ivoire
21	Mr.	Jean Marie	Bope Bope Lapwong	Democratic Republic of the Congo / IOC, South Atlantic Zone
22	Ms.	Kazadi	Jocelyne Mpemba	Democratic Republic of the Congo / South Atlantic Zone
23	Mr.	Bienvenu	Mulwa Gasuga	Democratic Republic of the Congo / South Atlantic Zone
24	Mr.	David	Lusseau	France / University of Aberdeen
25	Mr.	Amadou	Jaiteh	Gambia / Permanent Mission of Gambia to the United Nations
26	Ms.	Esther	Abban	Ghana
27	Mr.	Appeaning	Addo Kwasi	Ghana / University of Ghana, Chair of the Workshop
28	Mr.	Kofi	Agbogah	Ghana / Program Director, Coastal Resources Center
29	Mr.	Kwame	Agyekum	Ghana / University of Ghana
30	Prof.	Denis	Aheto	Ghana / Director, Centre for Coastal Management, University of Cape Coast
31	Mr.	Kamal –Deen	Ali	Ghana / Executive Director, Centre for Maritime Law and Security Africa
32	Mr.	Ebenezer	Appah-sampong	Ghana / Environment Progection Agency
33	Mr.	Donatus	Bapentire Angnuureng	Ghana / University of Cape Coast
34	Ms.	Hawa	Bint Yacoub	Ghana / The Intergovernmental Oceanographic Commission of UNESCO (IOC-UNESCO)
35	Mr.	Samson	Botchway	Ghana / Deputy Executive Director, Environment Protection Agency
36	Ms.	Peace	D. Gbeckor-Kove	Ghana / Government
37	Ms.	Helina	Dodd	Ghana /Government
38	Mr.	Carl	Fiati	Ghana / National Focal Point

39	Ms.	Margaret	Fomebu	Ghana / Government
40	Mr.	Parlass	Frimpong	Ghana / National Petroleum Corporation
41	Mr.	Chris	Gordon	Ghana / University of Ghana
42	Mr.	A Gafaru	Issahaku	Ghana / Government
43	Mr.	Dauda	Kaku	Ghana / Government
44	Mr.	Solomon	Korbieh	Ghana / Permanent Mission of Ghana to the United Nations
45	Mr.	Larry	Kotoe	Ghana / Government
46	Ms.	Jewel	Kudjawu	Ghana / Environment Protection Agency
47	Mr.	Rubby	Mac-Kafui	Ghana / Government
48	Mr.	Adelina	Mensah	Ghana / University of Ghana, the Institute for Environment and Sanitation Studies
49	Mr.	Francis K. E.	Nunoo	Ghana / Professor, University of Ghana
50	Mr.	Nana	Ofosu-Boateng	Ghana / Seamount Group, Regional Maritime University
51	Mr.	John	Pwamang	Ghana / Environment Protection Agency
52	Mr.	Kwamena E.	Quaison	Ghana / Ministry of Environment, Science, Technology and Innovation
53	Mr.	Iddi	Seidu	Ghana / Assistant Commissioner of Police (ACP)
54	Mr.	Michael	Toya	Ghana / Government
55	Ms.	Emelyne	Wright-Hanson	Ghana / Development Planning Officer, Ministry of Environment, Science, Technology and Innovation
56	Mr.	Adisa	Yakubu	Ghana / Ministry of Foreign Affairs
57	Mr.	E. K	Yirenkyi	Ghana / Government
58	Mr.	Sekou Tidiane	Bangoura	Guinea / Centre de Recherche Scientifique de Conakry Rogbane (CERESCOR)
59	Mr.	Getho	Bazelais	Haiti / Service Maritime et de Navigation d'Haïti
60	Mr.	Antonio	Di Natale	Italy / Fondazione Acquario Di Genova Onlus
61	Ms.	Diedre	Mills	Jamaica / Permanent Mission of Jamaica to the United Nations
62	Mr.	Renison	Ruwa	Kenya / Joint Coordinator of the Group of Experts, Kenya Marine and Fisheries Research Institute
63	Mr.	Imad	Saoud	Lebanon / American University of Beirut

64	Mr.	Bouya	M'bengue	Mauritania / Mauritanian Institute for Oceanographic and Fisheries Research
65	Mr.	Sharveen	Persand	Mauritius / Consultant in Coastal and Marine Environment and Marine Affairs
66	Mr.	Francisco	Zivane	Mozambique / National Institute of Fisheries Research Department of Aquatic Environment
67	Ms.	Yetunde	Agbeja	Nigeria / University of Ibadan
68	Mr.	Babajide	Alo	Nigeria / Director, Centre for Environmental Human Resources Development, University of Lagos, Akoka
69	Ms.	Francis Emile	Asuquo	Nigeria / University of Calabar
70	Mr.	Udeme	Enin	Nigeria / University of Calabar, Institute of Oceanography
71	Ms.	Regina	Folorunsho	Nigeria / Nigerian Institute for Oceanography and Marine Research
72	Mr.	Chang-ik	Zhang	Republic of Korea / Pukyong National University
73	Mr.	Diani	Prince	Saint Vincent and the Grenadines / Permanent Mission of Saint Vincent and the Grenadines to the United Nations
74	Mr.	Saliou	Faye	Senegal / Centre de Recherches Océanographiques de Dakar-Thiaroye (CRODT)
75	Mr.	Kouete Koffi	Afachawo	Togo / High Council for the Sea
76	Mr.	Adote Blim	Blivi	Togo / Ministry of Foreign Affairs
77	Mr.	Hoinsoude	Segniagbeto	Togo / Depart of Zoology, Faculty of Sciences, University of Lome
78	Mr.	Joshua T.	Tuhumwire	Uganda / Gondwana Geoscience Consulting LTD
79	Mr.	Colin	Moffat	United Kingdom of Northern Ireland and Great Britain / Marine Scotland, Scottish Government
80	Mr.	John	Walsh	United States of America / Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island

81	Mr.	Gonzalo Fernando	Rodriguez Prado	Uruguay / UN Nippon Alumni, Honorary Legal Advisor to the Maritime Archaeological Unit of the National Heritage Commission of Uruguay, Honorary Advisor of the "Coordination Group for Finding Shipwrecks and Archaeological Material". This is a working team created by Ministry of Defense of Uruguay, which objective (among others) lies in analyze the role of small-scale artisanal fishers as touristic cultural agents to reduce overreliance on their traditional economic activity. Member of the International Law Institute of the University of the Republic
82	Mr.	Aldo	Perfetto	Venezuela / Ministry of Foreign Affairs
83	Mr.	Thi Gam	Pham	Viet Nam / Viet Nam Administration of Seas and Island, Ministry of Natural Resources
84	Mr.	Ca	Thanh Vu	Viet Nam / Department of International Cooperation and Science Technology
85	Ms.	Joana	Akrofi	United Nations Environment Programme
86	Ms.	Vita	Onwuasoanya	Division for Ocean Affairs and Law of the Sea