INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION  
(of UNESCO)

INFORMATION DOCUMENT

PROPOSED IMPLEMENTATION PLAN FOR CONDUCTING  
THE SECOND EDITION OF THE GLOBAL OCEAN SCIENCE REPORT (GOSR)

Summary

In response to Decision IOC-XXIX/5.1 of the IOC Assembly at its 29th session in 2017, the IOC Secretariat started the preparation of the second edition of the Global Ocean Science Report (GOSR). The first edition of the GOSR was launched on the occasion of the World Oceans Day on 8 June 2017 at the UN Ocean Conference on 8 June 2017 (see IOC-XXIX/2 Annex 10 Rev.).

The GOSR assists local and national governments, academic and research institutions, international organizations and donors, in making informed decisions on ocean science to support the sustainable use of ocean resources. From now on data and information presented in the report include direct submissions from Member States, bibliometric analyses, and findings published by other independent organizations.

The second edition of the GOSR (GOSR-II) will be launched at the second United Nations Ocean Conference in 2020. The report will be framed around and feed into the United Nations Decade of Ocean Science for Sustainable Development (2021–2030), the 2030 Agenda at large, and the Sustainable Development Goal (SDG) 14 in particular. A newly developed online questionnaire and data portal will facilitate Member States data submission. This development is expected to result in an improved spatial coverage of the quantitative and qualitative assessments related to ocean science capacity in IOC Member States and beyond.
Background Information

In Decision IOC-XXIX/5.1, the IOC Assembly requested the IOC Executive Secretary to present a proposed implementation plan for conducting the second edition of the GOSR to the Executive Council at the 51st session (Paris 3–6 July 2018) and to invite Member States through a Circular Letter to convey their views on lessons learnt from the implementation of the first GOSR, including areas where the process could be improved.

As acknowledged by the Inter-agency Expert Group on SDG Indicators of the UN Statistical Commission (IAEG-SDG), part of the information provided in the GOSR contains the data needed to report towards SDG Target 14.A (14.A.1 indicator: Proportion of total research budget allocated to research in the field of marine technology), which deals with increasing scientific knowledge, developing research capacity and the transfer of marine technology. The IAEG-SDG at its sixth session in November 2017 further approved that the related indicator 14.A.1 methodology is tested and upgraded it from Tier III1 to Tier II2 (see also IOC/EC-LI/2 Annex 6).

Since 2014, the IOC has incorporated as part of its mandate the publication of the GOSR based on decisions EC-XLVII/6.2 and XXVIII/5.1 adopted respectively by the IOC Executive Council at its 47th session (Paris, 1–4 July 2014) and the IOC Assembly at its 28th session (Paris 18–25 June 2015).

The GOSR-I, launched on 8 June 2017, assessed for the first time the status and trends in ocean science capacity around the world. The GOSR-I offered a global record of how, where, and by whom ocean science is conducted. The GOSR-I is about generating knowledge, helping to protect ocean health, and empowering society to support sustainable ocean management in the framework of the United Nations 2030 Agenda.

The GOSR-I identified and quantified the key elements of ocean science at the national, regional and global scales, including workforce, infrastructure and publications. It represents the first collective attempt to systematically highlight opportunities as well as capacity gaps to advance international collaboration in ocean science and technology. The GOSR-I is a resource for policymakers, academics and other stakeholders seeking to harness the potential of ocean science to address global challenges.

The GOSR-II will be published in concomitance with the second United Nations Ocean Conference in 2020. The IOC Secretariat aims to expand the national and regional information assessed, analysed and supported by an online questionnaire and data portal.

Moreover, the GOSR-II should be part of a transformative process to provide the needed capacity in ocean science. It is expected to be framed around and to feed into the United Nations Decade of Ocean Science for Sustainable Development (2021-2030), the 2030 Agenda at large, and the Sustainable Development Goal (SDG) 14 in particular.

Progress and prospect related to GOSR-II

As a starting point to develop and discuss the content and scope of the GOSR-II, an Editorial Board conceived as an external and independent panel of international qualified experts with experience and expertise in ocean science and/or science diplomacy, statistics, and evaluation, was established. The Editorial Board functions as the main mechanism to ensure the quality and timely delivery of the GOSR-II by 2020 with the support of the IOC Secretariat.

The GOSR-II Editorial Board, composed of 12 members, has been renewed by half compared to the Board that successfully developed the first edition. The Editorial Board, with broader geographical

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1 Tier III: No internationally established methodology or standards are yet available for the indicator, but methodology/standards are being (or will be) developed or tested.
2 Tier II: Indicator is conceptually clear, has an internationally established methodology and standards are available, but data are not regularly produced by countries.
and gender balance, guarantees both continuity and renewal between the first and second editions. It held its first meeting from 24 to 26 April 2018 at UNESCO Headquarters, under the leadership of Co-Chairs Jacqueline Uku (Kenya) and Jan Mees (Belgium).

The goal of the first meeting was to develop and to discuss in detail the content and scope of the GOSR-II. The full report of the meeting (GOSR-II/EB/6) provides a detailed account of the outcomes and recommendations. The discussions resulted in the first sequence and scope of chapters in the GOSR-II as follows:

1. Introduction,
2. Definitions, data collection and analyses,
3. Ocean science funding,
4. Research capacity and infrastructure,
5. Data and information,
6. Research productivity and science impact,
7. Implications and application of ocean science for sustainable development,
8. Conclusions and recommendations.

Each chapter will start with five key messages, including emerging issues and issues addressed in the chapter of particular relevance for the Decade of Ocean Science.

Chapter 1: the introductory chapter will include sections on the motivation, objectives and the importance of ocean science for sustainable development. This chapter will highlight some of the new items addressed in the GOSR-II, such as capacity building, different types of ocean science outputs, emerging technologies, and the relationship between ocean science and human wellbeing.

Chapter 2 will deal with definitions of ocean science and its eight categories, and methodologies in the collection and analyses of the data. The GOSR-II will use a variety of open source and quality-controlled resources, together with targeted questionnaires to be answered by Member States, to collect the data and information for the related analysis. Quality control will be improved based on lessons learned in the first edition of the GOSR, on the assumption that the analyses presented in the GOSR-II will continue to be based on high quality data sets at national, regional and global levels.

Chapter 3 will provide an overview of the issue of funding for ocean science. Besides country specific statistics, a general overview on funding sources and mechanisms at global, regional and local level.

Chapter 4 will show new, more detailed and updated information about national and regional research capacity and infrastructure, in particular human resources and the facilities, such as laboratories available in each nation. A new section in this chapter will focus on ocean science capacity development initiatives.

The different national and regional approaches for oceanographic data and information exchange will be explained in Chapter 5, including quantitative and qualitative assessments.

Chapter 6 will feature ocean science output and research productivity, based on bibliometric analysis of A1 literature and patents. The analyses of two types of ocean science outputs will allow to assess different types of impacts of ocean science, academic and socio-economic.

Chapter 7 will describe implications and applications of ocean science for sustainable development. This chapter will present an analysis of how ocean science contributes to the 2030 Agenda and specifically to the objectives of the Decade of Ocean Science. It is envisaged that this chapter will help to identify existing shortcomings in terms of ocean science resources, knowledge and technology required to achieve the goals and targets of the 2030 Agenda, specifically SDG 14.
Chapter 8 will summarize the previously presented results and conclude with some specific action items and recommendations to close knowledge gaps, to enforce ocean science and broader its impacts.

An executive summary will be presented upfront. The GOSR-II summary will also be published separately in the six official languages of the UN.

The GOSR-II Data portal and Questionnaire

In its Decision IOC-XXIX/5.1, the IOC Assembly endorsed a step-by-step approach for the development of a GOSR Data Portal within the framework of the IOC Ocean Science Section and the International Oceanographic Data and Information Exchange (IODE) programme. The Portal will provide access by all interested users to data and data products, and will facilitate data compilation for future GOSR editions.

In light of the SDG 14 provisions and, in particular, Target 14.A, which is aligned with the IOC Criteria and Guidelines on Transfer of Marine Technology (CGTMT) (IOC/INF-1203) and the related SDG indicator 14.a.1 (Proportion of total research budget allocated to research in the field of marine technology), the GOSR provides the regular process to report the national ocean science/marine technology budget. It should be remembered that IOC is the custodian agency for indicator 14.a.1. The GOSR data portal will provide the possibility to collect and deliver the requested information for the SDG indicator biannually.

A fully developed data portal will allow (version controlled) submission and retrieval of ‘raw data’, metadata, and literature. The development of a user-friendly interface and multiple visualization possibilities will allow multiple stakeholders, including scientists, civil society, policy-makers and politicians to utilize and communicate the results of the first and subsequent GOSR editions as well as information not utilized in the GOSR reports themselves. The data portal will address the data collection and data visualization. It will provide access to full survey data and data sources such as bibliometrics.

The GOSR-II Editorial Board considered the suggestions on the GOSR Data Portal developed by the IOC Secretariat and agreed on the main criteria and elements that will guide its development.

Based on the GOSR questionnaire and IODE survey that were used for the first edition of the GOSR, the IOC Secretariat prepared an improved draft questionnaire, which was presented to the GOSR-II Editorial Board for consideration. The draft questionnaire also benefited from feedback by two IOC Member States from two IOC regions, and the UNESCO Institute for Statistics. The finalized GOSR-II questionnaire (online survey) is expected to be sent to the IOC Member States in autumn 2018, after a prototype data portal will have been developed and the online survey be made available. Moving from a static word document questionnaire to an online questionnaire will allow Member States to consult more actively internally and will provide the possibility to have multiple data submitters. However, each country will be asked to designate one validator per country in order to ensure that the GOSR only contains national authorized data.
Time schedule
The intended time schedule for the production of GOSR-II is presented below.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Actions</th>
</tr>
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<tbody>
<tr>
<td>1Q 2018</td>
<td>Decision concerning endorsement of the GOSR &amp; Fundraising. Invitation of Editorial board &amp; Online survey development.</td>
</tr>
<tr>
<td>2Q 2018</td>
<td>Collection of information with regard to the approved outline. Editorial Board meeting (confirmation of questionnaire).</td>
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<tr>
<td>3Q 2018</td>
<td>Circular Letter and Launching online survey.</td>
</tr>
<tr>
<td>4Q 2018 ~ 1Q 2019</td>
<td>Submission of questionnaire and analysis. Designing GOSR data portal and development. Identification of co-authors and writing of individual chapters.</td>
</tr>
<tr>
<td>2Q ~ 3Q 2019</td>
<td>Draft of the first text elements.</td>
</tr>
<tr>
<td>3Q-4Q 2019</td>
<td>Writing and improving of text elements.</td>
</tr>
<tr>
<td>1Q 2020</td>
<td>Finalization of discussions by e-mail and teleconference. Review of conclusions and recommendations. Completion of the structure.</td>
</tr>
<tr>
<td>2Q 2020</td>
<td>Finalization of the report and executive summary. Preparation of the presentation.</td>
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However, the limited financial and in-kind resources currently available to prepare GOSR-II may cause delays in the preparation of the report. The IOC Secretariat has therefore estimated such additional costs related to the production of the GOSR-II, including those related to the meetings of the Editorial Board, improved data analysis and finalization data portal, as reported below.

<table>
<thead>
<tr>
<th>Overall scope</th>
<th>Activity and means of implementation</th>
<th>Funds required (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>Communication activities aimed specifically at linking the GOSR Data Portal with the renewed IOC website.</td>
<td>15.000</td>
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<tr>
<td>Communication</td>
<td>Interactive and static infographics.</td>
<td>5.000</td>
</tr>
<tr>
<td>Editorial Board</td>
<td>Editorial Board meeting related expenses.</td>
<td>35.000</td>
</tr>
<tr>
<td>Production costs</td>
<td>Proof-reading; graphic layout; translation of the executive summary into the other 5 UN languages; printing (limited number of copies); USB keys.</td>
<td>120.000-140.000</td>
</tr>
<tr>
<td>Data mining</td>
<td>Additional data mining for ocean science funding, ocean science infrastructure, ocean science related patents (Consultant).</td>
<td>20.000</td>
</tr>
<tr>
<td>Global Ocean Science Report Data portal</td>
<td>Development of online features, including data visualization, search functions, comparison tools. Support to MS response analysis (Consultant).</td>
<td>60.000</td>
</tr>
</tbody>
</table>
It should be noted that the IOC Secretariat will provide an in-kind contribution to the production of GOSR-II (staff time, meeting facilities and related running costs, and services of the UNESCO Central Services such as the Department of Public Information) corresponding to approximately 100,000 US dollars.