

U.S. Contribution to Developing Improved Processes for WOA-II  
(Lessons Learned from WOA-I)

The United States (U.S.) commends highly the United Nations (U.N.), which, with the collaboration of scientific experts worldwide, completed in January 2016 the first report in the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, Including Socio-economic Aspects (also known as the World Ocean Assessment). The First World Ocean Assessment, WOA-I, is an important first step towards fulfilling the vision of the Regular Process. The United States applauds the supreme effort of the U.N. Division on Ocean Affairs and Law of the Sea (DOALOS) to bring Phase I of the Regular Process to closure in a timely manner.

The United States recognizes the importance of the ocean to food security, human health, global commerce, global biodiversity, and understanding the global integrated Earth system for improved predictability of natural and anthropogenic hazards, including mitigation of their impacts. The United States is committed to enabling the United Nations achieve success in the Regular Process. The United States contributed one member to the Group of Experts (GoE) and one member to the Bureau of the Ad Hoc Working Group of the Whole. The U.S. scientific community provided 97 volunteers, the largest number of any State, to join the WOA-I Pool of Experts (PoE). The United States is pleased that the GoE enlisted 48 U.S. PoE members, the largest number of any State, for writing and reviewing assignments. The United States contributed 3,000 of the 5,000 review comments on the draft WOA-I.

The United States welcomes the opportunity presented by DOALOS to provide some thoughts on lessons learned from WOA-I to support discussions on the next Phase of the Regular Process, the development of the Second World Ocean Assessment (WOA-II). The United States is pleased to submit the following comments to DOALOS for consideration by the Bureau for the Regular Process in making decisions on the format, design, structure, content and governance of WOA-II. The U.S. comments were prepared from information collected from U.S. reviewers of draft and final versions of WOA-I and U.S. contributors to WOA-I.

- Chapter Length. The chapter lengths varied greatly from 2 to 96 pages. Unless a justification (e.g., insufficient information was available) is provided about the length of a chapter, the range of chapter lengths should be narrower in WOA-II to avoid the appearance that the importance of a topic is related to chapter length.
- Chapter Authors. Lead Authors in 20 chapters were only GoE members. The United States believes that more Lead Authors from the PoE would have been consistent with WOA goals to encourage global participation, build capacity, represent wide range of knowledge, and justify the establishment of the PoE. We recommend that this be taken into consideration when developing the process for identifying Lead Authors for WOA-II.
- Chapter Authors. Seven chapters had only a single author and in each case the author was a member of the GoE. One GoE member had 4 single-authored chapters. The United States believes that more Lead Authors selected from the PoE would have been consistent with WOA goals to encourage global participation, build capacity, represent wide range of knowledge, and justify the establishment of the PoE.

- Chapter Authors, Contributors. Many chapters had no more than two authors. The United States believes that additional authors would have improved the chapter contents and would have been consistent with WOA goals to encourage global participation, build capacity, represent wide range of knowledge, and justify the establishment of the PoE. Experience from groups that prepared other assessments, e.g., the U.S. National Climate Assessment, indicated that a diverse writing team representative of different institutions and sectors strengthened substantially the final document.
- Chapter Reviewers. Only 7 chapters had reviewers/commentators, indicating that the GoE did not follow U.N. guidelines on the internal review process, which were established for preparing WOA-I. The United States believes a robust review process is an important component of the scientific method to produce a science report. The internal review process established by the U.N. was aligned, in principle, with the WOA goals to encourage global participation, build capacity, represent wide range of knowledge, and justify the establishment of the PoE, and we recommend that such a review process be agreed to and followed for the review of WOA-II.
- Internal Quality Control, Proofreading. Poor formatting was illustrated in Chapter 1 where Figure 1 appeared on page 8 and its caption appeared on page 9. A similar disconnect occurred with Figure 2, although Figure 3 was correctly positioned.
- Internal Quality Control, Reviewing/Editing. Poor scientific reviewing/editing was illustrated in the last line of the Figure 2 caption, which is “The question mark of the “5” indicates that this value is certain.” The word “certain” should be “uncertain.”
- Scientific Rigor, Content. The scarcity of references since 2011 indicates that WOA-I did not assess current knowledge and observations, e.g., Chapter 1 has only three such references in a total of 41 references.
- Scientific Rigor, GoE Management Oversight. The distribution of GoE authors was uneven, with 28 author assignments by GoE members from African States, Asia-Pacific States and Eastern European States and 129 author assignments from Latin America and Caribbean States and Western European and Other Group States. The United States believes that the appointment process of GoE-II members should consider, within the constraints of the U.N. system of representation of geographical regions, consider the the overall necessity for GoE-II members to have as much knowledge as possible about the contents of WOA-II.
- Scientific Rigor, Transparency. Because of substantial management oversight provided by the GoE served as attractors for PoE members. PoE members, in considering their volunteer commitment to WOA-I, recognized a need to know the scientific attributes of GoE members. In Phase II of the Regular Process, the United States encourages the GoE to place a biographical sketch of each GoE member on the DOALOS website for the Regular Process to increase the transparency of the WOA-II process.
- Scientific Rigor, Appearance of Duplication. Chapters 32 and 54 have the same references and authors, which is considered unusual for a scientific document.
- Scientific Rigor, Complementary Subject Matter in Different Chapters. Cross-referencing material between chapters is a best practice but was virtually absent in WOA-I.
- Scientific Rigor, Chapter Structure/Design. The PoE authors should have been involved in designing the structure of WOA-I chapters. In Phase II of the Regular Process, the United States believes that chapter authors should be encouraged to have regular teleconference meetings, and to share chapter drafts with relevant chapter authors to ensure consistency in

crosscutting issues. The United States believes each chapter's authors could self-organize the teleconference meetings under the leadership of the Lead Author.

- Scientific Rigor, Chapter Organization. After the PoE was established, very little work was requested of many PoE members over a long time interval of inactivity. Then, too much work was requested in too short a time interval, including a pattern of changing instructions from GoE Lead Members to PoE members. In some chapters, PoE authors experienced an absence of Lead Author leadership. In some chapters, PoE authors experienced conflicting schedules and many changes in team membership. The United States believes an organized work plan implemented linearly, more or less, would retain the interest and commitment of PoE authors, improve the intellectual content in each chapter, and would be imperative in ensuring the effective development of WOA-II.
- Scientific Rigor, Workshops. The United States hosted a WOA-I workshop in Miami on the Wider Caribbean Region. Because no knowledge-based reference arising from the Miami workshop could be found in WOA-I, the United States believes that the Miami workshop, and perhaps other workshops, provided, at best, only minimal support to the contents of WOA-I. Furthermore, Chapter 2 of WOA-I provides no indication of the value of any WOA workshop. The United States believes that the potential value of similar workshops for WOA-II be examined relative to the added value of face-to-face meetings of Chapters' authors, which could be hosted by States. Also, face-to-face meetings of WOA-II authors would, through public lectures, promote capacity building.
- Scientific Rigor, Review Process. The United States believes that a WOA-II best practice review process would be to: (1) conduct the External Peer Review; (2) adjust the draft WOA-II in accord with the External Peer Review; and (3) conduct the States Review. Insufficient time prevented this best practice in WOA-I, in which both reviews were conducted concurrently.
- Scientific Rigor, Clarity. The United States agrees with the U.N. intent for WOA reports to appeal to a diverse community, including scientists, governmental decision-makers, industry, and the general public. While individual chapters may be prepared for the scientific community and other marine specialists, the United States believes that the WOA-II Technical Summary Chapter and the WOA-II summary chapters associated with major themes be written for an audience of non-marine science specialists. Also, the United States recommends that the WOA-II Technical Summary Chapter focus on significant results of WOA-II and not be a detailed summary of each chapter. The United States suggests that the WOA-II Technical Summary Chapter be limited to about 20 pages, including references to the peer-review literature. Clarity of significant policy-relevant results will improve the usefulness of WOA-II for governmental decision-makers, including those at the United Nations.
- General, Transparency. To improve openness and transparency throughout the WOA-II process, the United States believes that a summary of discussions and a record of actions of all meetings of the GoE-II should be distributed by DOALOS to the Bureau soon after meetings of the GoE have occurred. Such summaries would strengthen intellectual connections between the GoE and PoE contributors to a chapter. Also, such summaries would enable improved decision making within the Bureau. Furthermore, the GoE-II should issue a status report on the progress of WOA-II at frequent times in the period between GoE-II face-to-face meetings.

- General, Public Engagement. Not many scientists in the United States and elsewhere knew about the Regular Process and WOA-I; similarly, the public was not aware of the Regular Process, which was not unusual because of the newness of the Regular Process beginning with WOA-I. The United States distributed announcements about the Regular Process, including opportunities to join the PoE, to approximately twenty national and international scientific organizations and learned societies. In addition, the United States described aspects of the Regular Process in two articles published in *Eos, Transactions of the American Geophysical Union*, which is read by 60,000 researchers throughout the world.
- General, Public Engagement. The United States believes that the publication of WOA-I was a very substantial accomplishment of the Regular Process, which should be announced widely throughout the United Nations and elsewhere. The United States believes that public knowledge about WOA-I would improve the recruitment process for the PoE for WOA-II.
- General, Timeline/Size/Budget. The United States believes that the length or size of WOA-II should be determined in association with timeline and budget, including translations.