

REPORT ON POGO WORKING GROUPS

Contractor's Report

Title of Working Group: Gulf of Mexico Oceanographic and Meteorological Observation Group (GMOMOG)

Name of Contractor: Dr. Sharon Z Herzka, Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE). Note: Current affiliation as of August 2023: University of Texas at Austin Marine Science Institute (UTMSI). Contact: Sharon.herzka@utexas.edu

Names of Participants: 32

Total expenditure to be reimbursed (please attach a financial report with copies of receipts):

75% of the approved funding was transferred to CICESE as per the agreement. CICESE will request the remaining funds (2,500 Euros) upon receipt of the final report. Those funds will be used to cover the cost of travel of S. Herzka to the POGO Annual Meeting to be held in Ensenada, Baja California 22-25 January. The remainder will be returned to POGO.

1) Please provide a brief description of the activities undertaken by the working group.

The WG held its first online meeting on 14 October 2022. A brief review of POGO and the WG objectives was presented. The project's goals, as included in the proposal were: (1) survey existing monitoring efforts and gauge their permanence through time, (2) evaluate the spatial and temporal scales over which they operate, (3) detect key data gaps and compare present-day measurements with GOOS "essential ocean variables; EOVs" and "essential climate variables; ECVs," (4) prioritize monitoring data needs and identify agencies or sectors that would benefit, (5) outline a plan for engagement of entities responsible for monitoring efforts, stakeholders and users of information.

A working definition of "monitoring" was presented to better define the scope of the survey. For the survey, monitoring refers to "recurrent and structured observations of oceanographic or meteorological variables that include ongoing measurements made through *in situ* or remote sensing." After discussing different variables and ongoing monitoring efforts within the Gulf, we decided to focus the survey on the shelves, the deep-water region, and land-based meteorological stations. Including surveying bays, estuaries, and lagoons was not considered realistic within the scope of a one-year project, given that these are often performed at the state or local level in the USA. In Mexico, monitoring of bays, estuaries, and lagoons is very limited to some regions, there are no public entities that perform monitoring or state and national databases that we could access. Likewise, information for Cuba was limited and the geographic scope of the survey (i.e. the Gulf of Mexico) only included the western part of the island. FAIR data principles and GOOS' essential ocean and climate variables were also reviewed during the first WG meeting.

Three tasks for the WG were agreed upon: (1) define fields for the tabular survey of GoM monitoring efforts, (2) generate a preliminary list of "entities" to survey and identify key missing entity representatives in the WG, and (3) agree on workshop dates and potential (additional) participants. A timeline was also shared with the workgroup.

Chair: Prof. Nicholas Owens

*Director
Scottish Association for Marine Science (SAMS)
Scottish Marine Institute,
Oban, Argyll, PA37 1QA
Scotland
United Kingdom*

*Tel: +44 (0)1631 559272
Email: Nick.Owens@sams.ac.uk*

CEO: Dr. Sophie Seeyave

*POGO Secretariat
Plymouth Marine Laboratory (PML)
Prospect Place
The Hoe
Plymouth PL1 3DH
United Kingdom*

*Tel: +44 (0) 1752 633424
Email: pogoadmin@pml.ac.uk*

A list of agreements and outcomes of the first meeting was compiled and shared during the second virtual meeting held on 6 March 2023. The fields for the tabular survey were presented, and the programs that were in process of being reviewed were briefly described and an online spreadsheet with the survey results compiled to date was shared with the WG. The specific EOVs and ECVs to be considered were also shared with the workgroup. A detailed list of the public monitoring data that were being surveyed was presented, complemented with input from the participants and a list of pending searches elaborated. Lastly, we discussed the dates of the workshop to be held in Ensenada, Baja California (26-27 2023), logistics and a preliminary agenda.

We had our third online meeting on 27 March 2023. The group received a summary of the previous meeting's agreements and an update on the tabular survey and plans for data analysis were described. During this meeting, we decided to exclude remote sensing from our survey since the data's nature, source, and spatiotemporal scales differ substantially from *in situ* measurements. The main agreements from that meeting were that Dr. Jorge Brenner (Executive Director of GCOOS) would share the IOOS document regarding mooring data for ecosystem assessment to use as a guideline, and that we would check for synergies between the WG's efforts and ongoing UGOS efforts; people involved with those programs agreed to share the information with the group during the workshops. Further logistics regarding travel to and from Ensenada for the workshop were discussed and the agenda was updated.

The workshop was held in Ensenada on 26-27 April 2023. The full workshop report is submitted as complementary to this report. The agenda is presented in Appendix A of the workshop report. We had 27 participants from 3 countries at the workshop (20 from Mexico, 4 from the US and 1 from Cuba) and two online (1 from the US and 1 from Mexico). In addition, 5 other WG participants were unable to attend. The list of workshop participants, remote attendees, and the remainder of the WG members are presented in Appendix B of the workshop report.

2) Please describe the milestones and deliverables achieved.

- a) **Tabular summary of monitoring efforts, responsible entities, variables and associated metadata, data storage and data-sharing platforms (when applicable), as well as information on whether the data are public (with access links), and a diagnostic of whether they meet FAIR data principles.**
- b) **Workshop report with the analysis of key data gaps that were identified and prioritized, government agencies or economic sectors that would benefit from implementing the monitoring efforts identified in the gap analysis, the engagement plan and a list of potential funding agencies.**

The tabular survey of our monitoring effort, the WG presentations at the workshop, the final report and other workshop materials are available online for POGO's review ([POGO WG Folder](#)). The tabular survey of our monitoring effort (Full inventory.xlsx) and the final workshop report (POGO Final Report.docx) are submitted with this report.

The tabular survey and workshop report includes responsible entities and variables, and links to each specific platform or effort from which data are served. Although we include a field in the database that specifies whether data are public or not (most of our survey efforts focused on public data), we were unable to rigorously determine whether each source of data complied with FAIR data principles due to overwhelming amount of information we had to compile and the lack of metadata in some cases.

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The workshop report includes a workshop overview, survey methods and results, key points from the discussion that ensued as part of the gap analysis, WG recommendations for priority monitoring, key challenges, a summary of the sectors that would benefit from implementing additional monitoring in the GoM (for US and Mexico only, as documents were not provided for Cuba), and a preliminary list of potential funders. The next steps for the WG are also outlined.

3) Is this Working Group likely to continue to meet beyond the dates outlined in the original proposal?

At this time, the next step is to develop the workshop report into a manuscript to be submitted for publication. The WG considers that publishing the survey results in the peer-reviewed literature would be essential to future efforts toward obtaining monitoring funding. This will necessitate interaction between the WG's participants, which I expect to be virtual.

The WG recognizes that we had to limit the survey scope due to the high effort it took to conduct the survey and the project's limited time (1 year). It was deemed impossible to survey inshore waters, for example. We discussed the logical next steps: surveying inshore (bays, estuaries, and lagoons), and/or focusing on biological surveys (which we started and decided it was too ambitious given that the efforts are dispersed and differ substantially from each other and in terms of their spatial and temporal coverage). Whether or not we can build on the accomplishments to date depends on our ability to pursue and obtain further funding.

4) Please provide your comments on the POGO-funded Working Group Initiative (e.g. has the funding made a significant difference in the progress of this Working Group?).

The funding provided by POGO made the formation of the workgroup possible and covered much of the cost of the workshop. CICESE provided complementary funds, and some participants (Dr. Jorge Brenner) covered their airfare. **It would have been impossible to convene the participants, compile the survey, and especially carry out the workshop without the funding provided by POGO.** We are extremely grateful to POGO for the funding and the opportunity to perform this work.

Please return completed form by e-mail to pogoadmin@pml.ac.uk and enclose a copy of the Workshop report, if applicable.

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