

Report on 2017 activities of the POGO Working Group on the International Quiet Ocean Experiment

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The POGO Working Group on the International Quiet Ocean Experiment (IQOE) held its first meeting in London on 31 March – 1 April 2016 and its second meeting in Boston on 24 June 2017. Our aim is to emphasize the importance of acoustics in observing and understanding the physical and biological properties of the ocean. The physics of underwater sound favors the use of sound by humans who want to communicate or sense objects in or under the sea. Of the global ocean volume, 95% is aphotic, and sound fulfills the role of being the primary sense for many organisms in that huge biosphere. In reviewing the goals proposed for the working group, we prioritized two topics as the best aligned with POGO:

1. Development of an Essential Ocean Variable (EOV) on Ocean Acoustics
2. Creation of a web-based database of ocean acoustic observatories.

In spite of the importance of using sound to measure many oceanographic phenomena, the Global Ocean Observing System (GOOS) framework does not include an acoustic EOV. The POGO IQOE WG decided to develop an acoustic EOV for submission to the GOOS Biology and Ecosystems expert panel; a WG consensus draft of the acoustic EOV was finalized during our Boston meeting. This draft was reviewed by 2 independent reviewers selected by the GOOS Biology and Ecosystems expert panel. Tyack revised the draft and the final version is currently under review by the panel. The broader GOOS steering group is assessing which panel is best for the acoustic EOV. While the time series of acoustic pressure measurements is a physical variable, it is used to estimate many critical biological and ecological parameters. In part because of its physical basis, ocean acoustic measurements are at a more mature readiness level than most biological EOVs and we hope that an acoustic EOV will help the integration of ocean acoustics into observing systems commensurate with its importance to many oceanographic disciplines. Once the acoustic EOV is accepted, the next step will be to develop an implementation plan as part of the GOOS process. Our expectation is that once it reaches this phase, the project will not require further support from POGO.

The IQOE Science Plan has an appendix that contains a matrix of acoustic capabilities of existing ocean observing systems. This matrix generated interest from a broad audience and we learned that few other sites aggregate this kind of data, which is of great interest to potential users of ocean acoustic data. The matrix is several years out of date at this point. The WG initially planned simply to update the printed appendix, but during the 2016 meeting, we decided that an updateable web page would be more useful. During our 2017 meeting, we scoped the structure for a web-based database where owners of each ocean observing system can enter/update data on their acoustic capabilities, and where anyone can search by time and space for specific ocean acoustic data. This structure was passed to the IQOE Strategy Group which agreed in its meeting in July 2017 to support integrating the database into the IQOE web site.

The web design team for the IQOE web site reports the following progress:

The IQOE website redesign is near completion. The new site has been built on a content management system (Drupal) to provide functionality and ease of update. The new design is modern and mobile friendly, and content has been organized to make information more accessible.

In addition to content currently located at IQOE.org, the new website incorporates the Aquatic Acoustic Archive Library directly. It will also include sortable and searchable tables of acoustic observatory capabilities with the ability for new records to be entered by users.

The website is ready to launch after final content review, except for the acoustic observing systems tables, which can be launched at a later date. To complete this section requires a review of current entries, determination of search needs, addition of search capability, and creation of forms and work flow for new submissions.

Members of the POGO IQOE WG and of the IQOE will work on the review of the acoustic observing tables, search capabilities and forms, ideally for use as soon as the website goes public. The IQOE project will provide support for all components of the website, including the database of acoustic observatories through 2018-2019. IQOE will seek a more permanent funding source from 2020 and beyond.