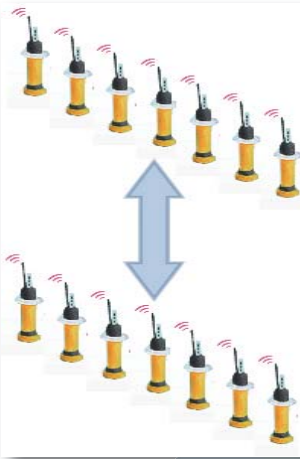


News from the POGO members

Strategic Observation at the Western North Pacific for Global Change



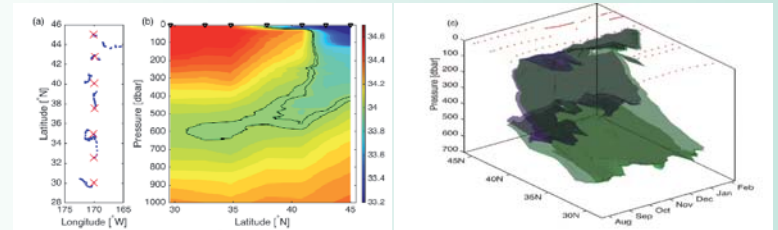
Schematic of the virtual mooring. 7 floats are diving to 2,000m-depths and coming up to the surface simultaneously. Two-way communication equipment enables us to control the floats even after the deployment. Image credit: JAMSTEC

Japan Agency for Marine-Earth Science and Technology (JAMSTEC) has contributed to the International Argo Project (<http://www.argo.net/>) through deployments of Argo-type floats since 2000.

In August 2014, we set up a special sampling scheme called “the virtual mooring” by deploying 7 Argo floats along 170°W. Although each float only provides spot information, they have been carefully controlled to synchronize their profiling intervals, thereby allowing us to monitor a temporal variation of the meridional structure of the upper ocean.

The virtual mooring has been successfully providing data on a 3-dimensional oceanic state, i.e. temporal change of temperature and salinity distribution, through two winter seasons. Such consistent winter-time observation under severe weather conditions is a major advantage of an autonomous profiler.

The time series of the meridional section leads to some scientific findings. In particular, we can make seasonal horizontal maps of inferred vertical diffusivities for the North Pacific based on the 7 Argo floats’ data in combination with global Argo array data. This map may provide an essential element to uncover how the global energy budget could be closed and would be referred when simulating surface oceanic changes.



(a) Trajectory of the float array before January 2015. (b) The first salinity cross section observed by the virtual mooring on 10 August 2014. The inverted triangles at the top show the latitudinal positions of the floats and black contours indicate salinity of 33.97 and 34.0. (c) Time series of the meridional extension of isohaline surfaces (blue 33.97 and 34.0 green) between 10 August 2014 and 31 January 2015. Red dots indicate the meridional positions and dates when profiling was conducted.

Image credit: JAMSTEC

The details of the results are published online at Journal of Physical Oceanography, July 2017 (<http://journals.ametsoc.org/doi/abs/10.1175/JPO-D-16-0218.1>).

This article was provided by Ryuichiro Inoue, Research and Development Center for Global Change, JAMSTEC.

125 years of oceanographic research on Helgoland

125 years ago, the Royal Biological Institute was founded on Helgoland – and oceanography has been a fixture on the island ever since. It would later become the Biological Institute Helgoland (Biologische Anstalt Helgoland (BAH)), which joined the Alfred Wegener Institute in 1998. Generations of BAH scientists have conducted research on the ecology of coastal and shelf-sea systems – first on Helgoland and, since 1924, at BAH’s additional facilities in List on the island of Sylt. Combining this proud heritage with forward-thinking research objectives, the scientists’ work enjoys a prominent standing in the area of European oceanographic research.

In this regard, the unparalleled long-term time series are of particular importance. The daily collection of water samples from the North Sea began in 1962 and the time series “Helgoland Roads” has grown into a veritable treasure trove of data, enabling researchers to more precisely analyse climate changes and anthropogenic impacts in the North Sea.

The Biological Institute’s mission remains just as valid today. Researchers on Helgoland are investigating important questions concerning, for example, the consequences of human activities for the North Sea ecosystem, changes in temperature and nutrients, and of plastic contamination.

To commemorate the 125th anniversary of oceanographic research on Helgoland, on 19 May 2017 BAH welcomed invited guests to official festivities in the aquarium building, where they also enjoyed a sneak peek of the BLUEHOUSE-HELGOLAND, a major exhibition planned for the former aquarium. On 20 May there also was a ceremony on Sylt, in the course of which the “List Oyster Path” was officially opened, which provides information concerning research on and the history of the North Frisian oyster. Additionally the institute hosted two open house events - on Helgoland (19 May) and Sylt (20 May) - when the general public had an exclusive opportunity to learn more about the researchers and the work they do.

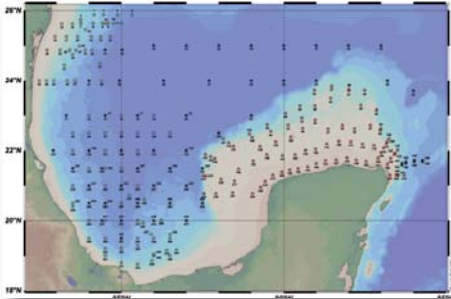
This article was provided by Sebastian Grote, AWI Press Officer.



AWI director Karin Lochte gives a presentation during the celebration of 125 years of marine research on Helgoland. Photo credit: AWI/ Kerstin Rolfes

News from the POGO members (cont'd)

Baseline studies and interdisciplinary research in the southern Gulf of Mexico sets the basis for evaluating the potential impact of oil spills in Mexico's deepwater region



Fixed stations sampled during baseline studies of the CIGoM project. Image credit: CICESE.

After the 2010 oil spill following the explosion of the Deepwater Horizon Platform in the northern Gulf of Mexico, it became evident that implementing mitigation strategies and evaluating impacts in the wake of large-scale oil spills requires extensive baseline studies and integrated data sets. In Mexican waters, the oil and gas industry is expanding from shelf waters into the deepwater region, with the consequent risk of oil spills. As part of an ambitious interdisciplinary and multi-institutional 5-year (2015-2020) project, we are conducting 21 research cruises covering most of Mexico's EEZ. This closely coordinated sampling effort covers a grid of 282 fixed stations that encompass the Yucatan Platform, the entire deepwater region of Mexico's EEZ and the Yucatan Channel using CTD and rosette casts, LADCP measurements, net sampling, deep water trawling and multi-corer sediment sampling.

This ambitious effort is without precedent in Mexican waters. The data produced in over 40 laboratories within Mexico and abroad will be used to establish the baseline for dozens of oceanographic, biogeochemical and ecological variables, and will contribute to the understanding of the processes that modulate the oceanographic behavior of the Gulf of

Mexico. The parameters include hydrographic and current measurements, tracers of carbon cycle processes and carbon sources, nutrient and trace metal cycling, primary and secondary production estimates, hydrocarbon and contaminant concentrations, and the evaluation of the abundance and diversity of bacteria, phytoplankton, zooplankton, macrofauna, meiofauna and fungi through the coupling of traditional taxonomic studies with cutting-edge metagenomics. The project will produce a carefully curated database that is integrative, accessible and validated, and meets international metadata and interoperability standards.

The project is funded through the Hydrocarbon Trust of the National Council of Science and Technology (CONACYT) and the Mexican Ministry of Energy (SENER), and is executed by the Center for Scientific Research and Higher Education of Ensenada (CICESE), the Institute of Marine Sciences and Limnology of the National Autonomous University of Mexico (ICML-UNAM), the Center for Research and Advanced Studies of the National Polytechnic Institute (CINVESTAV) in Mérida, and the Autonomous University of Baja California.



This article was provided by Sharon Herzka, Department of Biological Oceanography, Center for Scientific Research and Higher Education of Ensenada (CICESE)-Coordinator for Environmental Monitoring and Baseline Studies, Consorcio de Investigación de Golfo de México (CIGoM).

Clockwork copepods: Microscopic marine creatures swim to their own rhythm



The fatty *Calanus finmarchicus* is the main food source for many larger marine species in the Arctic and North Atlantic. Photo credit: SAMS.

An experiment conducted in a Scottish loch has revealed how a microscopic animal – the main food source for many larger marine species – schedules its day using its own genetic clock.

The 'body clock' of the copepod *Calanus finmarchicus* shapes its metabolic rhythms and movement through the water column. This, in turn, has an enormous influence on the entire food web in the North Atlantic and Arctic oceans where *C. finmarchicus* is a central plankton species.

As part of the study, which has been published in the journal *Current Biology*, scientists from the Oban-based Scottish Association for Marine Science (SAMS) carried out research in Loch Etive, Argyll, where one of the only known isolated populations of *C. finmarchicus* is found.

In the world's oceans, countless zooplankton species, like copepods and krill, rise to the surface waters at dusk to gorge themselves on single-celled algae that can only thrive where there is sufficient sunlight. The cover of night offers the zooplankton protection from predators like fish, which need light to hunt. When dawn approaches, however, they sink back into the dark depths where they can hide from their predators throughout the day – completing a cycle that likely represents the largest daily movement of biomass on the entire planet.

Along with colleagues at the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (AWI) and the University of Oldenburg in Germany, the SAMS team showed that *C. finmarchicus* possesses an internal genetic clock, also called the circadian clock, which produces a specific 24-hour rhythm that functions even without a day/night cycle. This could be important during the constantly dark polar winter and in the deep sea where light is limited.

Light is only needed in order to occasionally reset the clock, and work previously carried out by SAMS researchers showed that zooplankton in the Arctic regulated their movements using moonlight during the dark polar winter.

Original paper:

N. Sören Häfker, Bettina Meyer, Kim S. Last, David W. Pond, Lukas Hüppe, Mathias Teschke: Circadian Clock Involvement in Zooplankton Diel Vertical Migration, *Current Biology*, DOI: 10.1016/j.cub.2017.06.025

This article was provided by Euan Paterson, SAMS media and communications.

News from the POGO members (cont'd)

Mission Log: FAU Harbor Branch Leads Exploration of Cuba's Deep Coral Reefs



Group photo of Leg 2 science party.
Image credit: Cuba's Twilight Zone Reefs and Their Regional Connectivity.

The Cooperative Institute for Ocean Exploration, Research, and Technology (CIOERT), based at FAU Harbor Branch, recently led a collaborative scientific expedition to Cuba, exploring never-before-studied mesophotic coral reefs from depths of 30 m to 150 m. After nearly a year and a half of planning, the research cruise, "Cuba's Twilight Zone Reefs and Their Regional Connectivity," (<http://ocean-explorer.noaa.gov/explorations/17cuba-reefs/welcome.html>) circumnavigated Cuba in just one month.

Many of the mission's ROV dives took place in or directly adjacent to Cuba's extensive network of marine protected areas (MPAs), providing an opportunity to explore locations for potential creation of new MPAs or expansion of existing boundaries. Oceanographic data was also collected during the expedition to evaluate carbonate chemistry, patterns of water circulation, and potential connectivity between Cuban reefs and those in the U.S..

Overall, researchers noted that the majority of the mesophotic reefs explored appeared very healthy - nearly pristine - compared to many shallow reefs found in the U.S. Little evidence of coral disease or coral bleaching was present and signs of current local human impacts were limited to small-scale artisanal fishing. The invasive lionfish, which often numbers in the hundreds on mesophotic reefs off southwestern Florida, was present in relatively lower abundance at the Cuban study sites.



Well-developed reef areas in the upper mesophotic zone from 70m to 40m had extensive hard coral cover which were dominated by lettuce corals (*Agaricia* spp.).
Image credit: Cuba's Twilight Zone Reefs and Their Regional Connectivity.



The ROV sample collection skid, including the manipulator, was key to successful specimen sampling during our mission. Sponges were abundant from 125m up to 60m, including this yellow *Halichondridae* sponge.
Image credit: Cuba's Twilight Zone Reefs and Their Regional Connectivity.

Through daily remotely operated vehicle (ROV) dives from the UM Research Vessel F.G. Walton Smith, the cruise focused on discovery and characterization of mesophotic coral reefs all along the Cuban coast by documenting the geomorphology, biological zonation, and diversity of marine biota. Prior to this expedition, there were very little data describing reefs beyond the shallow reef zone (0 m to 40 m).

The 43 ROV dives and 9 snorkel sampling efforts yielded over 500 samples of marine plants and animals, 100 hours of HD video, and more than 20,000 underwater photographs. Data analyses will provide documentation of the density and percentage cover of corals, sponges, algae and fish. The team will also determine the genetic connectivity of corals collected from Cuba with corals from Central America and the U.S. Flower Gardens Bank and Florida Keys National Marine Sanctuaries, further supporting the Sister Sanctuaries (<https://sanctuaries.noaa.gov/news/nov15/us-and-cuba-to-cooperate-on-sister-sanctuaries.html>) initiative to improve coral reef management in U.S. and Cuban waters.

The project is a collaboration of three CIOERT partners (FAU Harbor Branch, the University of Miami Cooperative Institute for Marine & Atmospheric Studies, and the University of North Carolina at Wilmington), and four organizations in Cuba (the Cuba National Center for Protected Areas (CNAP), the University of Havana Center for Marine Studies, the Cuba Institute of Marine Sciences, and the National Aquarium of Cuba). Funding for the expedition was awarded by NOAA to CIOERT.

This article was provided by Carin Campbell Smith, Associate Director of Communication, FAU Harbor Branch Oceanographic Institute.

News from the POGO members (cont'd)

New research reveals impact of seismic surveys on zooplankton

Marine seismic surveys used in petroleum exploration could cause a two to three-fold increase in mortality of adult and larval zooplankton, new research published in *Nature Ecology and Evolution* (<http://www.nature.com/articles/s41559-017-0195>) has found.

Scientists from the University of Tasmania's Institute for Marine and Antarctic Studies (IMAS) and the Centre for Marine Science and Technology (CMST) at Curtin University in Western Australia studied the impact of commercial seismic surveys on zooplankton populations by carrying out tests using seismic air guns in the ocean off Southern Tasmania.

The research found that the air gun signals, commonly used in marine petroleum exploration, had significant negative impact on the target species, causing an increase in mortality from 18 per cent to 40-60 per cent.

Impacts were observed out to the maximum 1.2 kilometre range tested, 100 times greater than the previously assumed impact range of 10 metres, and all larval krill in the range were killed after the air gun's passage.

Lead author Associate Professor Robert McCauley from Curtin University said the results raise questions about the impact of seismic testing on zooplankton and the ocean's ecosystems more widely.

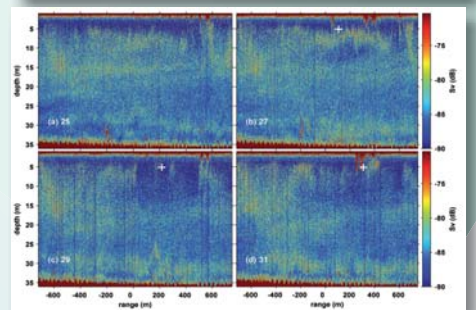
"Zooplankton underpin the health and productivity of global marine ecosystems and what this research has shown is that commercial seismic surveys could cause significant disruption to their population levels."

IMAS Associate Professor and research co-author Jayson Semmens said a series of sonar lines run perpendicular to the air gun line were monitored prior to, and immediately after, the air gun run.

"These sonar runs 'imaged' the zooplankton, and showed a lowered zooplankton presence starting 15 minutes after the air gun passed, with a large 'hole' in the zooplankton evident 30 minutes after the air gun pass."



Air gun test, Storm Bay, Tasmania.
Photo credit: Rob McCauley.



Sonar image showing growth of a 'hole' in zooplankton after air gun discharge in panel b at point +. Photo credit: IMAS.

This article was provided by Andrew Rhodes Communications Manager, IMAS (Institute for Marine and Antarctic Studies) University of Tasmania.

Capacity Building updates

NF-POGO Shipboard Training Fellowship: Porcupine Abyssal Plain Cruise



Jessica Song preparing to process samples during the PAP cruise.
Photo Credit: Claire Evans/NOC.

Jessica Song, a PhD candidate studying Environmental Microbiology at the Swinburne University of Technology in Sarawak, Malaysia was the recipient of a NF-POGO Shipboard Training Fellowship. The fellowship (18th March-31st May 2017) enabled Jessica to participate in a research cruise to the North Atlantic focused on the Porcupine Abyssal Plain cruise for training. She was working under the supervision of Dr. Claire Evans of the National Oceanography Centre, Southampton, on a project focusing on the determination of the growth and mortality rates of the different *Prochlorococcus* ecotypes found throughout the water column in the Atlantic Ocean.

As reported by Dr. Evans "During this cruise Jessica completed a research project to study the growth and mortality (viral lysis and microzooplankton grazing) of the biogeochemically important and ecologically relevant pico- and nano-phytoplankton abundant in these regions. She also investigated whether micro plastics altered rates of microzooplankton grazing on the phytoplankton. As such, Jessica participated in all activities pertaining to the cruise from the preparation of chemicals to the packing of consumables and installation of equipment on the moving platform of the RRV Discovery. She learnt a variety of practical skills such as how to conduct dilution experiments, taking care to replicate in situ conditions using light screens and flow through incubators. She also mastered the enumeration of eukaryotic and prokaryotic cells via flow cytometry on both fresh and stained samples. Jessica was also able to interpret the results she gained in spreadsheets constructed together which examined the growth of the target organisms in her experiments."

Jessica commented that "As I am currently pursuing a PhD in Environmental Microbiology, many of the skills acquired during this training period are translatable to my research. During my training I was also afforded the opportunity to engage in discussions with other scientists, well-established in their respective fields, which has helped sharpen my perspective and approach to research as a whole."

Jessica's parent supervisor, Dr. Moritz Mueller, added "The training received proved to be very useful in equipping Jessica with a comprehensive set of skills, not only in large scale field sampling, but also in setting up and carrying out extensive experiments independently to better understand the fundamental processes that play into overall marine primary production in surface waters. This exchange is likely to lead to future collaboration with the host institution and discussions have been initiated to continue with the experiments started during the cruise."

Capacity Building updates (cont'd)

The 4th Year of scholars at the NF-POGO Centre of Excellence hosted by the Alfred Wegener Institute successfully complete their training

The ten scholars from Bangladesh, Brazil, Cameroon, Egypt, Iran, Indonesia, India, Sudan, Tunisia and Turkey have successfully completed their training at the NF-POGO Centre of Excellence hosted by the Alfred Wegener Institute.

The graduation ceremony of the 4th batch of scholars was attended by many of the staff who taught and mentored them over the past ten months, as well as distinguished guests, including Dr. Ernst Dieter Rossmann, German Member of Parliament. Messages of congratulations were also sent by representatives of the Nippon Foundation, Mr. Mitsuyuki Unno (Executive Director) and Mr. Kentaro Ogiue.

The next batch of scholars will commence their training at the end of September.



The 4th Year scholars at the NF-POGO CoE at AWI receive their certificates at their graduation ceremony pictured with (L-R) Prof. Karin Lochte, Prof. Gotthilf Hempel, Dr. Ernst Dieter Rossmann, Prof. Karen Wiltshire, Dr. Eva Brodte, Dr. Vikki Cheung.
Photo Credit: Uwe Nettleman/AWI

Nippon Foundation-POGO Centre of Excellence Scholars at the Alfred Wegener Institute for Polar and Marine Research for 2017

The programme consists in 10 months of training at AWI's well-equipped training and teaching facilities in marine and oceanographic science. The first half of the training will take place on the UNESCO reserve Waddensea island of Sylt, where shelf/basin interactions will be the topic of study, and the second part of the training will take place on the island of Helgoland focusing on the study of open-ocean sciences.

This year, 76 eligible applications were received. The applications were reviewed by a panel of 8 representatives from the AWI and POGO.

The ten successful candidates for the 2017-18 programme have now been selected and notified. The scholars are from Bangladesh, Brazil, Cameroon, Chile, Egypt, India, Indonesia, Malaysia, Philippines and Sudan.



Md Monzer Hossain
SARKER - Bangladesh



Felipe AMORIM
Brazil



Willy Karol ABOUGA
BODO - Cameroon



Josselyn Nathaly
CONTRERAS ROJAS
Chile



Marwa BALOZA
Egypt



Ajin Ambika
MADHAVAN
India



Shahasrakiranna
SAMBODJO
Indonesia



Yet Yin HEE
Malaysia



Gay Amabelle
Gultiano GO
Philippines



Kamal Aldien Ibrahim
ALAWAD
Sudan

Capacity Building updates (cont'd)

NF-POGO Centre of Excellence Phase 3

Following the call for proposals to host the next phase of the NF-POGO Centre of Excellence in Observational Oceanography, three excellent proposals were received by the POGO Secretariat. The proposals were evaluated by a committee comprising of members without bias who reviewed and scored them. The proposals were ranked on the scores from the review committee and the final decision was made by the Nippon Foundation to award the Centre of Excellence to the Alfred Wegener Institute for a second term.

The Alfred Wegener Institute has hosted the Phase 2 of the NF-POGO Centre of Excellence since 2013 with the 4th year of scholars having just completed their training. Following the next batch of scholars (year 5), Phase 3 of the NF-POGO CofE will commence in 2018.

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POGO-SCOR Visiting Fellowships 2017

This year 28 applications were received from 16 countries. Four POGO-SCOR Visiting Fellowships are being offered this year. The successful fellows are from Chile, India (two candidates from different institutes) and Nigeria. The applications were screened independently by a committee of six, with representation from SCOR, POGO and partners of POGO (including host supervisors of fellows from 2016).

In making their selection, the committee consider the following factors:

- quality of the application;
- relevance of the application to the priority areas identified in the fellowship announcement;
- evidence that the training will lead to improved sustained observations in the region, or improved applications of such data;
- evidence that the training would lead to capacity-building with potential lasting impact on regional observations, and
- the need to maximise regional distribution of the awards.



Luis Antonio Cuevas

From University of Concepción, Chile visiting the University of Bergen, Norway.
"Data Management and Analysis for the Essential Ocean/Climate Variable Inorganic Carbon/Carbonate System Parameters".



Olusegun A. Dada

From Federal University of Technology, Akure, Nigeria visiting the Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS), France.
"Coastal evolution of the Gulf of Guinea and its ocean forcing".



Ankita Misra

From Indian Institute of Technology, Bombay, India visiting the Institut Français de Recherche pour l'Exploitation de la MER (IFREMER), France.
"SAR based bathymetry estimation for utilization in coastal models".

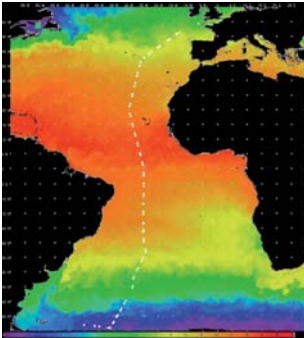


Divya David Thresyamma

From ESSO-National Centre for Antarctic and Ocean Research, Goa, India, visiting the The Scottish Association of Marine Science, (SAMS), UK.
"Regional Ocean Modelling System (ROMS)".

Capacity Building updates (cont'd)

2017 Special POGO Visiting Fellowship for Ship-board Training on an Atlantic Meridional Transect (AMT) Cruise



Cruise track of AMT 26

The Atlantic Meridional Transect (AMT) is a multidisciplinary programme which undertakes biological, chemical and physical oceanographic research during an annual voyage between the UK and destinations in the South Atlantic.

This initiative has been running since 2008 and has proved to be a very successful training programme providing hands-on, sea-going experience to young scientists from developing countries, and the opportunity to be involved in an internationally renowned scientific programme.

Thirty-five applications were received from 16 countries this year. Since two spare berths were available on board of this year's cruise, one fellow was funded via the "POGO Working Groups and Training Initiative" grants, with a second fellow funded via the Nippon Foundation grant.

The selected candidates will have the opportunity to visit Plymouth Marine Laboratory (PML) in the UK, for one month prior to the start of the cruise to participate in cruise preparation and planning; to go on the cruise and help make hydrological, bio-optical and/or ecological observations; and after the cruise to spend approximately one additional month at PML, learning to analyse the results statistically and interpret them.



Cristabel Macrina Fernandes

National Institute of Oceanography (NIO), India



Hashan Niroshana Kokuhenadige

University of Ruhuna, Sri Lanka

Pogo Working Groups & Professional Training Initiatives

Meeting of the POGO Working Group on the International Quiet Ocean Experiment

Co-chairs

Alexander Vedenev, Shirshov Institute of Oceanology, Russia;
Peter L. Tyack, University of St Andrews, Scotland.

Members of the committee:

Olaf Boebel, Alfred Wegener Institute, Germany;
Mike Coffin, University of Tasmania, Australia;
Jennifer Miksis-Olds, University of New Hampshire, USA;
Tomonari Akamatsu, National Research Institute of Fisheries Science, Japan;
George Frisk, Florida Atlantic University, USA;
Brandon Southall, Southall Environmental Associates, USA.



As POGO Working Group on the International Quiet Ocean Experiment (IQOE) we had our first meeting in London on 31 March – 1 April 2016 and our 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.

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 data base of ocean acoustic observatories.

In spite of the importance of using sound to measure many oceanographic phenomena – daylight only reaches 5% of the volume of all the oceans - 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 is currently under review by the panel, with submission of a final draft to the GOOS Steering Committee intended in time for consideration at its September 2017 meeting. 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.

Pogo Working Groups & Professional Training Initiatives (cont'd)

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 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 we decided that an updatable 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 has been passed to the IQOE steering committee which will support integrating the database into the IQOE web site (www.iqoe.org).

This article was provided by Peter L. Tyack and Alexander Vedenev on behalf of the IQOE Working Group.

POGO-led Training Initiatives

Following on from the POGO-18 annual meeting a call was made to the POGO members for Working Groups and Professional Training Initiatives. The following have now been approved and are underway:

- Biological Observations Task Force – led by Margaret Leinen, Scripps
- POGO Industry Liaison Task Force – led by Stephen de Mora, PML
- Observational Oceanography Training in Benin – led by Ursula Schauer, AWI
- Nutrient Analysis Training Workshop – led by Jan van Ooijen, NIOZ and Malcolm Woodward, PML
- Ocean-colour Data in Climate Studies Training – led by Marie-Fanny Racault, PML
- AMT Visiting Fellowship (for 2018) – led by Andy Rees, PML

POGO Representation at International Meetings

3rd Blue Planet Symposium, USA, 31 May-2 June 2017

The 3rd Blue Planet Symposium was held in College Park, Maryland, USA from 31 May to 2 June 2017. The symposium was co-hosted by the National Oceanic and Atmospheric Administration, the University of Maryland and the University System of Maryland Foundation.

The symposium served as a forum for discussion of societal information needs resulting from the important role the oceans play in Earth's life-support system and the challenge of minimizing the impacts of human activities on the oceans while utilizing the resources of the oceans to meet our needs. The symposium also served as a platform for the participating communities to exchange information on their activities and discuss potential pilot and prototype projects for Blue Planet to focus on in the coming years.

Sessions on Day 1 reviewed the drivers and pressures on the oceans, the current and predicted states and impacts to the Earth's life support system. These sessions were organized around four subthemes: (1) The changing oceans, (2) Threats from pollution, warming and acidification, (3) Processes and life at the Interfaces with the oceans, and (4) Sustainable use of ocean resources.

The 2nd and 3rd days of the symposium identified and reviewed user information needs, related to the impacts on the oceans discussed on day 1 and presented examples of existing information services. Discussion sessions sought to review the added value and role of GEO Blue Planet to identify potential prototype and pilot projects for the Initiative. These sessions were organized around the four thematic focus areas of GEO Blue Planet: (1) Healthy Ecosystems and Food Security, (2) Coastal Communities, (3) The Blue Economy, and (4) Maritime Awareness.

The symposium brought together a diverse group of participants to discuss the challenges facing the ocean and how Blue Planet can add value to existing ocean observing activities and programmes by highlighting the societal benefits of ocean observations, engaging with end-users and supporting informed decision making. For more information, the Symposium report and presentations, see: <http://geoblueplanet.com/blue-planet-symposiums/3rd-blue-planet-symposium-maryland-usa-2017/>.

The next Blue Planet symposium will be held from July 4-6, 2018 in Toulouse, France. The symposium will be held prior to the EuroScience Open Forum in Toulouse.



Blue Planet Symposium Group Photo.
Credit: Lori Brown /NOAA.

POGO Representation at International Meetings (cont'd)
29th Session of the IOC Assembly in Paris, 21-29 June 2017

Sophie Seeyave (POGO Executive Director) attended the 29th IOC Assembly from 22 to 28 June, to represent POGO and meet with various colleagues from IOC and other organisations, as well as prospective new members of POGO. Sessions that were of particular interest to POGO included the Global Ocean Science Report, the International (UN) Decade for Sustainable Development, the Global Ocean Observing System (GOOS), the International Oceanographic Data and Information Exchange (IODE), the second cycle of the UN World Ocean Assessment (WOA), and capacity development. POGO made interventions on the topics of the International Decade of Ocean Science for Sustainable Development, WOA, GOOS and capacity development (jointly with SCOR, the Scientific Committee on Oceanic Research). Sophie also displayed a poster on the evaluation of POGO's capacity building programme, in collaboration with Ed Urban, Executive Director of SCOR.



The Assembly endorsed the proposal for an International Decade of Ocean Science for Sustainable Development (herein after the Decade), to be established for the period 2021–2030, with the following preliminary objectives:

- (i) stimulate international cooperation regarding marine science requirements needed to support implementation of the 2030 Agenda;
- (ii) understand the impacts of cumulative stressors and seek sustainable solutions for sustaining benefits from the ocean;
- (iii) share knowledge and enhance interdisciplinary marine research capacities leading to benefits for all Member States, particularly for SIDS and Least Developed Countries (LDC);
- (iv) gain a better quantitative knowledge of ocean dynamics, ecosystems and their contribution to society, through the whole ocean column, from the surface to the bottom, and from the perspective of both natural and anthropogenic forcings;
- (v) complete the map of the ocean floor and its resources to support their sustainable management.

The IOC will encourage UN agencies and programmes, international scientific and academic organizations, governments, non-governmental organizations and other stakeholders to join the Decade, to refine the objectives and expected outcomes, and to prepare the draft implementation plan of the Decade, for further consideration by the UN General Assembly in 2019.

Other News



We are very pleased to introduce Fiona Beckman, who joined the POGO Secretariat in May as Communications Officer. She will develop new communication products, meet our advocacy and outreach objectives and generally enhance POGO's visibility and profile.

Originally from the Isle of Man, with stints in York and London, she has been living in Plymouth for about 12 years. Most recently she was Marketing Manager for a law firm, with responsibility for all web, social media and printed communications. However, her background – and passion – is in science communications, with a chemistry degree and several years' experience in a specialist biotech/pharma PR agency.

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