

**17<sup>th</sup> POGO Plenary Meeting (POGO-17)**  
**26-28<sup>th</sup> January 2016**  
**Minatomirai 21 Queen Mall Conference room**  
**Yokohama, Japan**

**MINUTES**

**Tuesday 26<sup>th</sup> January**

**Inauguration (Chair: Karen Wiltshire)**

Dr. Asahiko Taira, President of JAMSTEC, opened the meeting by welcoming the participants. The Director General of the Policy Bureau, Yokohama City, Mr. Kazumi Kobayashi, then addressed the delegates and added his welcoming remarks to those of Dr. Taira.

Dr. Yoshihisa Shirayama, Executive Director of JAMSTEC, provided some information on the meeting logistics. The participants then introduced themselves.

Karen Wiltshire then went through the Business items on the agenda. The Minutes of the 16<sup>th</sup> annual meeting of POGO were approved. The POGO-17 Agenda was adopted. Sophie Seeyave then announced that Karen Wiltshire had been reappointed for a second term as Chair of POGO, since she was nominated/seconded by several of the POGO members. There had been no other nominations so there had been no need for an election. The members of the Finance Committee (FC) present were introduced by the FC Chair, Nick Owens. They were Gilles Lericolais and Erlend Moksness. Apologies had been received from the other members, Ranadhir Mukhopadhyay and Graham Shimmield.

**Showcase of Japanese oceanography and observing technology (Chair: Yoshihisa Shirayama)**

Presentations<sup>1</sup> were provided on the following topics by speakers from JAMSTEC:

*In situ hydrographic observations in Japan:* Dr. Takeshi Kawano

*Seafloor/sub-seafloor technology toward understanding and mitigating subduction zone geohazard:*  
Dr. Shuichi Kodaira

*Submersibles for deep-sea biology at JAMSTEC:* Dr. Katsunori Fujikura.

**Update on POGO activities (Chair: Jan Mees)**

Presentations were provided on the following topics related to POGO activities:

*Highlights:* Karen Wiltshire

*Progress Report (incl. Action Items, WGs and training initiatives):* Sophie Seeyave

*Report on SAMOC Working Group:* Edmo Campos

*Update on “Oceans and Society: Blue Planet”:* Sophie Seeyave

*Update on International Quiet Ocean Experiment:* Jesse Ausubel (via Skype)

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<sup>1</sup> All presentations are shared with the delegates via a Dropbox folder, rather than made public via the POGO website.

### **Presentations by new/selected members (Chair: Richard Coleman)**

Presentations were provided by POGO members on the following topics:

*Introduction of new member: Harbor Branch Oceanographic Institute, Florida Atlantic University:* Megan Davis

*Introduction of Qingdao National Laboratory for Marine Science and Technology (QNLN):* Gongke Tan

*Ocean observations at the Institute of Marine Research (IMR):* Erlend Moksness

*Marine Data and Observations in VLIZ, Flanders Marine Institute:* Jan Mees

*Ocean observations at the Institute of Oceanography, University of São Paulo, Brazil:* Edmo Campos

The Plenary was closed for the afternoon, and the POGO members convened for the Partners' Meeting (see separate minutes).

### **Wednesday 27<sup>th</sup> January**

#### **Keynote presentations introducing parallel workshops (Chair: Margaret Leinen)**

##### **Ocean observations and Marine Protected Areas (Yoshihisa Shirayama)**

A comment was made on the interesting use of the word “blessings” from the ocean as opposed to “value” (translated from Japanese). It would be interesting to know how many countries have enough data to work out the ecological value –this would be a discussion point for the workshop.

Dr Shirayama agreed to share his slides, which were open access and would be useful to many members.

##### **Engaging with industry (Katsumoto Kinoshita, Kimoto Electric Co., Ltd.)**

Kimoto has been developing various instruments for ocean observations since 1985. They work closely with scientists (e.g. JAMSTEC) to develop instruments that are required by them and tailored to their needs.

##### **Observations in estuaries (Antonio Baptista, Our Global Estuary)**

Possible collaboration with POGO could include developing synergies with ongoing/planned institutional research (e.g. inventory of estuarine assets, estuarine/shelf observation networks, modelling systems, cross-estuary comparative studies, educational collaborations); and/or integrating into existing POGO educational activities e.g. student/postdoc exchanges and training programmes.

A comment was made about the use of the word “estuaries”. Antonio responded that OGE used a liberal definition of the word, which in fact includes deltas and lagoons, i.e. any interface between land and ocean that includes an element of freshwater.

He was also asked what connections existed with other groups, and responded that OGE was reaching out to LOICZ and the Global Estuary Initiative, as they do not want to duplicate work that is already being done.

## **Polar observations** (Paul Overduin, via Webex)

Paul presented the changes that have taken place in observational science over the last 25 years, and addressed the question “What observational science do we need?”. He covered in particular the topics of permafrost and coastal dynamics.

**Thursday 28<sup>th</sup> January**

## **Reports from workshops (Chair: Mike Meredith)**

### **Ocean observations and Marine Protected Areas:** Margaret Leinen

The group highlighted that more care should be taken with respect to the spectrum of designations that might require observations, i.e.:

- a. Ecologically and Biologically Significant Areas (EBSA) – not necessarily protected
- b. Marine Reserves (not necessarily no-take)
- c. Marine Protected Areas -different types of no-take. e.g.:
  - i. No take areas
  - ii. Seasonal closures
  - iii. Closures to specific methods of take
- d. Marine Spatial Planning (MSP)

There are areas in which there are strong political concerns and scientists need to be careful about associating with the different stakeholders involved –e.g. conservation advocacy organisations wanting to limit access; resource users (fisheries, mining...), and governments trying to manage areas to meet a wide variety of goals.

There is a wide range of scientific bases for establishing protected areas. Some governments consult with scientists, in other cases areas are designated more arbitrarily (e.g. following the boundaries of a country’s EEZ).

Many areas are part of or adjacent to nations without strong oceanographic capabilities (academic or technological).

The group discussed high seas and EBSAs, i.e. how to protect biodiversity beyond national jurisdiction (BBNJ).

Mike Meredith gave a presentation on the involvement of British Antarctic Survey (BAS) in the special case of the first high seas MPA around the South Orkneys, which involved CCAMLR. In this case, scientific measurements were made in advance and research and monitoring were used to inform the MPA review processes. This area is better known now than when it was first set up. It was expensive, therefore having partners was important. The cost shouldn’t be used as a reason not to set up an MPA. New techniques were important to include.

The group discussed the problem of observations being prohibited in MPAs. This is a special concern for the POGO community. Conflicts have already occurred over the ability to sample in some reserves and MPAs, and there is concern about the extension of rights related to seabed mining

licenses up into the water column – requiring permission for oceanographic study in the area. This has been the case for Japan in the Indian Ocean, where seabed mining licences restricted deep-sea research. As genomic information becomes more valuable (unique molecules) there may be even more concern and restrictions by governments about taking any kind of samples, including water samples.

Finally, it was concluded that MPAs are just one available tool, and the challenge is how to best use them for sustainable management.

A number of recommendations were made for POGO:

- 1) Establish a working group to watch the issue of restrictions or prohibition of sampling
  - a. Group should include individuals knowledgeable about Law of the Sea and related international regulations – e.g., members of government ministries responsible for UNCLOS, as well as POGO members.
  - b. WG to report back to next POGO meeting, perhaps with a presentation by a knowledgeable individual.
  - c. Keep a watching brief on this topic to keep POGO up to date.
- 2) Hold a workshop at POGO-18 on innovative biological sampling, including eDNA (liaise with EMB group), since many of the sensors are being developed by POGO members (there is also a sensor development session/focus planned by the industry group for POGO-18).
  - a. Many of the pressures on us to deliver observations are focused on biological/biogeochemical needs:
    - i. Conservation
    - ii. Fisheries management
    - iii. Climate impacts on marine ecosystems
    - iv. Novel molecules/biotech private sector economic opportunity
  - b. We are not well aware of the state of the art in this area and could use a workshop on this topic for information, much as we learned from the workshop on DeepARGO.
  - c. Sponsor a community workshop on observations for EBSAs, MPAs: Make our interest in this topic known and see whether the community proposes a workshop on technology for observation in this space. This should address what is needed and how can POGO help.

#### **Engaging with industry:** Steve de Mora/Andy Steven

A summary was provided of the previous (POGO-16) workshop that had included presentations from Industry. The key questions addressed had been:

- What are the diverse benefits to industry and academic/research institutions that would stimulate the formation of partnerships/collaborations?
- What are the opportunities and barriers in industry partnerships with academic/research institutions?
- What models of partnership or engagement work? Is this nation/institution specific?

- What unanticipated or unintended consequences are associated in partnering with industry?
- What opportunities are there for a POGO relationship with related industries?

The formation of a Business Advisory Council had been suggested to:

- Form a bridge between POGO members and a range of industry sectors
- Produce recommendations (to the POGO membership) on how to promote and optimise collaborative interactions.

There was some discussion of which sectors of Industry POGO is targeting, i.e.:

- Just the Majors?
- SMEs
- Commercial sensor and instrument manufacturers.

There are different types of industry needs regarding observations:

- Meet Government legislation
- Solve a problem
- Operational intelligence
- Stewardship activities.

Some examples of industry interactions were provided:

- Prototype technology development between research and industry (Japan was a good example where scientists were not concerned with intellectual property rights so there were no conflicts/barriers there -unless there was a patent; also there were no large profits and no share of the profits returned to the scientists)
- Instrumenting Commercial vessels for making observations
- O&G Industry Consortia to fund decommissioning studies
- Development and delivery of operational oceanography services
- Regional Resource Assessment and baseline.

### **Key findings and Actions were:**

POGO (in line with 3 elements of Strategy) should focus on industries involved in:

- Making better observations: Industries developing sensors
- Developing better products and services from observations:
  - Encourage industry to have advocacy role in promoting sustainable observations
  - Recognise cultural differences in approaches to engagement with Industry.

The group would form an Industry Liaison Group (cf Advisory Committee) co-chaired by a POGO member (Steve De Mora) and an Industry representative (Ralph Rainer to be invited). Other POGO members would be Yoshihisa Shirayama, Eduardo Balguerias, Jan de Leeuw and Andy Steven.

The plan is to present the POGO strategy at Oceanology conference event on “Marine Technology and Services Sector Role in the Blue Economy” (part of ocean observing session). There will also be a TechnoOcean event in October 2016 back-to-back with the STS Forum in Tokyo.

### **Arctic observations:** Karen Wiltshire/Paul Overduin

The workshop summarised that there is certainly a degree of fragmentation in Arctic observations, due to logistical and political problems and unavailability of older data sets. It is important to recognise the uniqueness of the Arctic in terms of its current geopolitical position (and, for example, the ongoing UNCLOS process) and the rapidity of change occurring there, as well as the relatively poor coverage of monitoring and observational data collected in the Arctic, due to logistic and transnational challenges to circumpolar monitoring activities, and the need for international coordination of observational efforts in the Arctic Ocean.

Organizations such as IASC are working on improving co-ordination and also re-establishment of monitoring programmes in the Arctic. POGO can probably play a role in this process but needs to liaise with organisations and programmes already active in the region to ensure that activities are complementary. One option discussed was the establishment of an online platform of available information on Arctic data, organizations etc (possibly linked to GEOSS).

In summary, POGO should support ongoing Arctic efforts, such as the biennial Arctic Observing Summit (AOS) and the Sustained Arctic Observing Network (SAON), coordinated by the International Arctic Science Committee (IASC), as well as their integration in global scale observing efforts (GOOS and GEOSS), in seeking to create a platform for coordination of monitoring and data collection.

#### **Action:**

Assess status of existing co-ordination activities (Nick Owens) to enable POGO to discuss the next steps.

### **Observations in estuaries:** Antonio Baptista/Margaret Leinen

OGE defines estuaries very liberally, to include deltas and coastal lagoons. An estuary extends (a) to the continental shelf as far as the freshwater influences go, and (b) to land as far as the ocean influences go.

The OGE parallel workshop was attended by 24 people – suggesting interest in the topic by the POGO membership. Four talks appropriately illustrated the quilt-like nature of today's estuarine science. A lively discussion ensued, leading to some specific outcomes and raising questions that might deserve further consideration by the POGO membership.

Katie Morrice (PhD student, OHSU, US) discussed the benefits of a graduate education where the student can take immediate advantage of a modern collaborative infrastructure (of observations, simulations, and people) when defining and pursuing her dissertation. Katie is investigating ocean-driven estuarine acidification and hypoxia in the Columbia River, using the CMOP “collaboratory”.

Megan Davis described the Indian River Lagoon Observatory (IRLO), a LOBO-based interdisciplinary observation network that FAU-HBOI (US) has been developing to support research, training and stakeholder engagement in the Indian River Lagoon. She credits community pressure (the “Lost Summer”) for a \$220M+ state investment in 2014 on 17 research projects. She also credits

the Columbia River “collaboratory” and Our Global Estuary for inspiring and offering a conceptual blueprint for IRLO.

Edmo Campos (IOUSP, Brazil) provided a reflection on the connectivity of the multiple scales of the global ocean, crediting a recent discussion about OGE for inspiring him to think about links between estuaries and climate. He also showed preliminary results of his inquiry to selected Brazilian investigators about their activity, interests and assets in estuarine research. He identified 4 researchers (plus perhaps himself) as potentially important players for a Brazilian contribution to OGE, two of whom are already engaged.

Karen Wiltshire (AWI, Germany) talked about the Lena River delta: An Arctic estuary in Siberia, Russia, that is immensely productive despite being frozen most of the year. The west Siberian bog contains 1/4 of all methane stored on the world’s land surface, yet not much more is known about its carbon budget – suggesting the need to study the global ocean “from the ocean to the ocean edge”. Fighting data scarcity, Vera Fofonova (former PhD student) made impressive inroads towards modeling the delta.

The remarkable complexity and importance of estuaries was quickly acknowledged, as was the value of the Our Global Estuary vision, with discussion moving swiftly to topics such as:

- How is OGE connecting and learning from potentially synergistic initiatives, such as LOICZ, Global Estuary Forum and Danubius [http://ec.europa.eu/regional\\_policy/archive/conferences/danube\\_forum2013/doc/ws3/01\\_danubius\\_adrian\\_stanica\\_viorel\\_vulturescu\\_manuela\\_sidoroff.pdf](http://ec.europa.eu/regional_policy/archive/conferences/danube_forum2013/doc/ws3/01_danubius_adrian_stanica_viorel_vulturescu_manuela_sidoroff.pdf). OGE is a non-exclusionary initiative. Engaging other synergistic efforts has been sought proactively (e.g., LOICZ), limited only by practical considerations of time, networking and opportunity.
- What is/should be the goal of workshops in POGO meeting? i.e. to set specific “action items” (including in-between meetings)
- Should estuaries be a topic that POGO addresses?
  - Arguments against:
    - Are estuaries a part of the global ocean?
    - POGO should remain focussed, perhaps coastal zones instead should be the outer-edge limit: Not all members study estuaries.
  - Arguments in favour:
    - Estuaries that reflect ocean influences are a cheap and important tool towards the observation of the global ocean
    - Estuaries are essential buffers between land and ocean, and their buffering capacity is being altered – making estuaries an intrinsic part of what the health of the global ocean is and will become.
    - The ocean-estuary connection is tightly bidirectional
    - Many POGO members study estuaries.
- Does Our Global Estuary fit in the newly approved mission of POGO? Below is a reminder of the Mission, with Antonio’s opinion on the point-by-point fit:
  - **Lead innovation and development of the crucial components of the ocean observing system.** *The OGE fit is excellent (note “innovation”) if we believe that*

*many estuaries measurably reflect variability and change in the global ocean, and that the collective of estuaries is critical to the future health of the global ocean;*

- **Identify and contribute to the development of the key skills, capabilities and capacities needed to achieve the vision.** *Workforce training is a key priority for OGE. The estuarine workforce is a sub-set of the ocean workforce.*
- **Work with Governments, Foundations and Industry, to articulate the benefits to society and required funding to build and sustain the system.** *Estuaries and coasts are highly populated zones, the sustainability of which has benefits that are easy to articulate.*
- Should there be normalized metrics to facilitate the contribution of estuary-specific studies to understanding the global role of estuaries?
  - That will definitely be part of the Science Plan. PIRE-OVGE is an attempt in that direction: SIL, carbon and nitrogen budgets were common metrics across all Tier 1 estuaries, and encouraged for Tier 2 estuaries. Classification systems were an aspirational mean towards translation to Tier 3 estuaries;
  - Small-group analogy: the ARGOS program.

#### **Recommendations from the workshop:**

- POGO to externally endorse OGE as appropriate;
- POGO encourages OGE to continue to broadly liaise with synergistic international efforts;
- POGO encourages estuarine parameters/metrics to be developed that contribute to an understanding of global contributions of estuaries;
- POGO will conduct an inquiry on POGO members' activities, assets and priorities in estuarine science and training;
- The OGE team volunteers to create the questionnaire and to synthesize outcomes;
- POGO will encourage participation of individual member institutions across the world in PIRE-OVGE proposal;
- The OGE team sees PIRE-OVGE not as a regular proposal, but rather as a strategic step towards a Science Plan and the further broadening of the OGE international networking.

Some additional questions included:

- To what extent should OGE be a partner activity for POGO, with periodic reporting of progress?
- Should a workgroup on the global role of estuaries be put together? Topics of potential interest:
  - Estuaries as a tool for the observing of the global ocean
  - Role of the collective of estuaries within the global ocean
  - Parameters/metrics that facilitate the thinking of estuaries as a global ecosystem.

#### **Partner organisations and projects (Chair: Steve de Mora)**

Presentations were given on the following topics:

*Introduction to the Committee on Earth Observation Satellites (CEOS):* Chu Ishida



*Introduction to the North West Pacific Action Plan (NOWPAP): Takafumi Yoshida*

*Introduction to the General Bathymetric Chart of the Oceans (GEBCO): Shin Tani*

*Introduction to Tara Oceans: Romain Troublé*

*Update on the Intergovernmental Oceanographic Commission and the Global Ocean Observing System: Albert Fischer*

*Update on the Group on Earth Observations: Douglas Cripe*

*Update on the Joint Programming Initiative (JPI-Oceans): Jacky Wood.*

The Plenary Meeting was then adjourned and a POGO Business session was held for the POGO members only.

## **ACTION ITEMS**

### **Finance:**

Dues for 2016-17 to remain as agreed by members' vote in 2014. Members to discuss at POGO-18 the dues levels for 2018. Action: Secretariat to send invoices to members for 2016 and reminders to those in arrears.

Solicit proposals from suggestions made during POGO-17 for activities in support of POGO Strategy that could be funded using some of the reserves, and establish priorities. Action: Executive Committee and Finance Committee.

Finance Committee for 2016/POGO-18 to consist of Nick Owens (Chair), Erlend Moksness, Jean-Marie Flaud and Ranadhir Mukhopadhyay.

Modify Terms of Reference to include a clause whereby Chair of Finance Committee stays on as member for an additional year. Action: Secretariat to edit and send to members.

Implement budget allocation as agreed during POGO-17 (and reviewed/finalised by the Executive Committee). Action: Secretariat.

Change presentation of projected budget so that the 3 pillars of POGO are clearly reflected. Action: Secretariat.

When legal status issue has been resolved, close bank accounts in Canada and transfer funds to UK. Action: Secretariat in consultation with Finance and Executive Committees.

### **Legal status:**

POGO to register as a Charitable Incorporated Organisation (CIO) in the UK. Action: Secretariat in consultation with Finance Committee and Executive Committee, as required.

### **Executive Committee:**

Eduardo Balguerias to stay on Executive Committee for 2016 and 2017 (proposer Nick Owens, seconder John Gunn).

## **POGO-18:**

Meeting to be held in Plymouth, UK, 24-26 Jan 2017. Action: local organising committee (PML staff + POGO representative). Executive Committee to discuss the format of scientific part of agenda (e.g. plenary vs parallel sessions) and duration of the meeting.

### **Priority activities:**

Form group to work on document supporting the inclusion of ocean observations as a topic for the Science Ministers' Meeting for G7, building on initiatives already taken by e.g. UK, Japan, France. Action: Ed Hill, Yoshihisa Shirayama, Margaret Leinen, Sun Song, Nick Owens, John Gunn. Deadline 5<sup>th</sup> Feb.

Write to partner organisations (SCOR, IOC/GOOS, ICES, GEO, CEOS, PICES, Marine Board, Consortium for Ocean Leadership, SCAR/CCAMLR, IASC, NOWPAP/UNEP, IWC...) and ask them to join POGO in a discussion of ways in which the next World Ocean Assessment could be improved and how to approach the UN about being more engaged in the process. Action: Members to provide feedback to the Secretariat on both the content and the organisations.

POGO to continue to play a central role in Blue Planet. Action: Executive Committee to discuss who will be the POGO representative (i.e. from Secretariat or ExCom/ membership) both within Blue Planet and on the GEO Programme Board.

Issue a call for proposals for working groups, seed funding for coordination of ocean observations, and training initiatives in February. Action: Secretariat.

Continue to evaluate impact of past POGO training programmes and publish the results. Action: Secretariat in consultation with Executive Committee.

### **Outcomes from workshops:**

#### **Industry:**

- Form Business Engagement Group chaired by Steve de Mora + an industry representative. Members: Andy Steven, Yoshihisa Shirayama, Eduardo Balguerias, Jan de Leeuw.
- Prepare A4 leaflet describing the objectives of the group and plans for next Oceanology 2018 (dedicated session?). Action: Steve de Mora and Secretariat.

#### **Estuaries:**

- Externally endorse OGE as appropriate.
- Encourage OGE to liaise with synergistic international efforts.
- Conduct an enquiry on POGO members' activities, assets and priorities in estuarine science and training. OGE team to prepare questionnaire and synthesise results.

Actions: Secretariat to liaise with Antonio Baptista.

**Arctic:**

Assess status of existing coordination observing activities in the Arctic (e.g. Observing Summit, IASC, SAON...) to establish what progress is being made towards improved coordination, data discovery and access, establishment of observatories, etc. Action: Nick Owens and Secretariat.

**MPAs:**

- Establish a working group to watch the issue of restrictions or prohibition of sampling, including individuals knowledgeable about Law of the Sea and related international regulation – e.g., members of government ministries responsible for UNCLOS, as well as POGO members; and report back to next POGO meeting, perhaps with a presentation by a knowledgeable individual.
- Keep a watching brief on this topic to keep POGO up to date.
- Hold a workshop at POGO-18 on biological sampling, including eDNA.
- Apply for POGO funding to sponsor a community workshop on observations for EBSAs, MPAs. Make POGO's interest in this topic known and see whether the community proposes a workshop on technology for observation in this space.
- Establish a working group on Observations and Conservation to engage the conservation community more effectively and to bring POGO more regular information and connection with that community.

Actions: Margaret to coordinate with help from the Secretariat.