

## Report on the 2022 POGO-SCOR Fellowship Programme

**Context:** *The programme jointly funded by the Partnership for Observation of the Global Ocean (POGO) and the Scientific Committee on Oceanic Research (SCOR) is designed to promote training and capacity building leading towards a global observation scheme for the oceans. The Programme has been a success for over 20 years, with more than 180 fellowships awarded since 2001.*

*The fellowship program is open to scientists, technicians, postgraduate students (preferably of PhD level) and post-doctoral fellows of developing countries and countries with economies in transition and involved in oceanographic work. The main purpose of the program is to advance sustained ocean observations and their applications by supporting training in oceanographic observations. Selected fellows are offered the opportunity to visit other oceanographic centre for a short period (1 to 3 months) for training on any aspect of oceanographic observations, analyses, and interpretation.*

*There is tremendous interest in the fellowship programme at all levels, both in the oceanographic institutions of the developing nations, as well as among leading scientists who are eager to contribute to this initiative. It is seen to be filling a niche in capacity building through specialised training that is not filled by intensive courses or by participation in scientific meetings. It helps improve the esprit de corps among oceanographic institutions around the world, and serves as a stepping stone to building collaborations.*

*Furthermore, the POGO-SCOR fellowship scheme is increasingly seen by other organisations as a model in capacity development, and similar schemes have been set up by other programmes based on the success of the POGO-SCOR model (e.g. EU projects, the Europe-Africa Marine Network, EAMNet; and the EUROMARINE consortium of European Networks of Excellence). The POGO Secretariat is often approached for help/advice on setting up similar fellowship schemes, or proposals to partner up with other organisations.*

### Selection process in 2022

The 22<sup>nd</sup> round of the POGO-SCOR fellowship programme was announced in 14 April 2022 with an initial deadline for 8 May 2022, postponed to 18 May 2022. The call was announced via mailing list (see [here](#)) and social media (see [here](#)). The application documents required consisted of an application form, quotes for flights, and letters of support from the parent institute (where the applicant is located) and from the prospective host institute.

A total of 29 valid applications were received this year (less than the average of 45 applications/year), with 45% female and 55% male candidates. Applications were received from 13 countries from Latin America (41%), Africa (28%), Asia (28%) and Europe (3%). Applicants proposed trainings of one, two or three months in oceanographic centres in all continents.

Applications were evaluated independently by a committee of five, with representatives of SCOR and POGO Secretariats and two independent reviewers (former host supervisors). Each application was reviewed by three member of the Review Committee and received scores according to: quality of applicant, quality of proposal, adequacy of host institute/supervisor, relevance to POGO-SCOR and priority areas identified in the call for proposals, and potential for sustained capacity development in the parent institute/country. The scores are then totalled and the budget for top-ranked applicants are calculated. The six top-ranked applicants were selected according to the budget available.

## 2022 POGO-SCOR Fellowship Programme

Valid applications

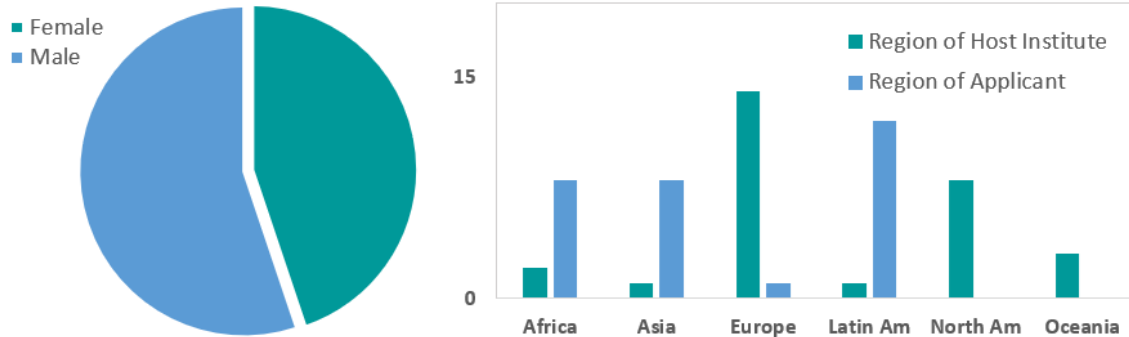


Figure 1 – Demography of 2022 POGO-SCOR Fellowship Programme applications

POGO and SCOR commend the efforts from all the supervisors and colleagues at the various host institutions who agreed to devote time and energy required for the training. The programme would not have been viable without such efforts from prominent scientists and their teams.

### Reports from 2022 Fellows and their Host Supervisors

#### Report from fellow: Brendon Damini



Country of Origin:



Host Country:



**Parent Supervisor and Institute:** Dr Rodrigo Kerr, Federal University of Rio Grande, Brazil.

**Host Supervisor and Institute:** Dr Rob Hall, University of East Anglia, UK.

**Training topic:** Physical, biological, and biogeochemical sensors on floats and gliders

**Training dates:** 18<sup>th</sup> October - 19<sup>th</sup> November 2022

#### Please provide a brief description of activities during the training period.

The training was a 30-day intensive course, in which I learned how Seagliders work and how to deploy and pilot them. Moreover, I used a Seaglider data set (physical and biogeochemical) processed to understand the processes which occur in coastal Antarctica regions (e.g., the Amundsen shelf region). The sea glider data set used during my fellowship program was provided by the TARSAN project, which was sampled in February of 2022.

#### What applications of the training received do you envision at your parent institution?

First, I will transfer my knowledge to my work group (GOAL), and my lab co-workers. Thus, strengthening and bringing up-to-date data analysis techniques and methodologies. After, this fellowship gave to me the opportunity to do my Ph.D. (which I start now in my parent institution) in partnership with the University of East Anglia. Further strengthening the ties

between the two institutions and enable for a long-term collaboration between FURG, Brazil and the University of East Anglia, UK.

**Please provide your comments on the Fellowship Programme.**

I would like to be grateful for everything during the fellowship period. I was very well received and I felt so welcomed. Also, even in a short period, I could learn a lot from Rob and Seaglider team at the University of East Anglia. The personal and professional growth which I had during this training period is incalculable. I was introduced to a world of possibilities, including the opportunity to do my Ph.D. thesis in collaboration with both institutions. Finally, I got to know and experience other cultures, which is another great possibility offered by the POGO SCOR program. Hence, I am very grateful for all this golden opportunity that POGO has given me.

**Report from Host Supervisor: Dr Rob Hall, University of East Anglia**

**Please provide your comments on the performance of the trainee**

I was very impressed with Brendon's performance during the five weeks of his training fellowship. To give him a head start on Seaglider data analysis I provided a gridded in-situ dataset from one of our Seagliders from the recent TARSAN/ARTEMIS field campaign. This allowed Brendon to go straight into the analysis and interpretation of this unique dataset. With minimal direct assistance Brendon: (a) calibrated the dataset against concurrent CTD profiles; (b) corrected the glider dive-averaged currents using an Antarctic tide model; (c) calculated apparent oxygen utilisation and meltwater content; then (d) presented various hydrographic sections from the dataset in the context of the local currents. In addition, Brendon took part in our Seaglider piloting training programme to learn how to setup a new mission on the UEA glider piloting website and how to pilot Seagliders remotely. Altogether, this is huge amount of work for five weeks!

**Is this exchange likely to lead to future collaboration with the trainee's parent institution? If so please give example(s) of how this collaboration may be pursued.**

Yes, I will continue to work with Brendon and his PhD supervisor, Dr Rodrigo Kerr, on ocean dynamics in the Amundsen Sea and around the Antarctic Peninsula. Brendon has invited me to be a formal external supervisor of his PhD research and we hope that he will be able to return to UEA for a more extended period during the later stages of his PhD studentship to further build the collaboration.

**Please provide your comments on the Fellowship Programme.**

Overall the fellowship visit went very smoothly and I will be keen to host other POGO-SCOR trainees in the future.

**Report from Fellow: Maria Emília Bravo**



**Country of Origin:** 

**Host Country:** 

**Parent Supervisor and Institute:** Alejandro Tassone, National Scientific and Technical Research Council, Argentina

**Host Supervisor and Institute:** Prof. Greg Rouse, Scripps Institution of Oceanography, USA.

**Training topic:** Molecular phylogenetic and taxonomy of deep sea Annelida from off Argentina.

**Training dates:** 2<sup>nd</sup> November 2022 – 5<sup>th</sup> January 2023

**Please provide a brief description of activities during the training period.**

As a benthic ecologist this experience was very valuable for me to have a first approach to the molecular biology discipline. I received training to perform the basic steps for sample preparation for DNA sequencing. I learned how to perform DNA extractions, PCR, PCR gel-check, exosapit and plate preparation for CO1 sequencing of several polychaete families. In addition, I learned the basics of processing the sequence data that we acquired using tools such as Geneius and the global open access database GenBank. Having the sequence CO1 for ecological analysis is a great first step to put together the biodiversity and ecological aspects of the chemosynthetic ecosystems.

In total we acquired 41 CO1 sequences from cold seep polychaetes from Argentina. This is very valuable data for this poorly sampled area of the region. Furthermore, these 41 CO1 sequences are the first for the deep sea chemosynthetic ecosystems from Argentina and the few available for the continental slope.

I also received training for future shipboard sample acquisition and will continue to receive training for statistical analysis of the data that we acquired during my stay. Prof. Rouse also taught me the basic tools for morphological analysis of different polychaete groups so that I can continue to work independently. He provided me with all the state-of-the-art equipment to carry out both molecular and morphological analysis of my samples.

The whole working group in Prof. Rouse's lab was very friendly and helpful to carry out my training. They are expert in various disciplines concerning benthic invertebrate phylogenetic studies and I learned a lot from all of them both by sharing work time at the lab and during the lab meetings.

The stay was a fruitful collaboration, and I am very grateful to have had this opportunity.

**What applications of the training received do you envision at your parent institution?**

Thanks to the 7 GTGM-YTEC oceanographic campaigns we have conducted from 2017 to 2022 we mapped in high resolution a significant fraction of the ocean floor surface of the Argentine continental slope. In these interdisciplinary oceanographic campaigns we acquired the samples analyzed during my stay at Scripps Institution of Oceanography. This stay was useful for me to acquire basic training in molecular analysis for biodiversity studies of polychaetes, which are a dominant group in our samples of chemosynthetic ecosystems. The POGO-SCOR funded stay

was instrumental in strengthening our collaboration with Prof. Greg Rouse's lab for future work. We plan to continue collaborating with analysis of the data acquired during my stay as well as by acquiring new samples in future campaigns. This means a real international scientific collaboration in which both institutions (CONICET and Scripps Institution of Oceanography) will be able to advance deep ocean observations in a poorly explored region of the Southwest Atlantic.

**Please provide your comments on the Fellowship Programme**

The fellowship program was appropriate and indispensable to my stay at Scripps Institution of Oceanography, as it covered my round-trip flight and lodging expenses. It also provides a framework that will help strengthen future collaborations within the POGO-SCOR scientific network. I am very thankful for the opportunity that this Fellowship Program provides.

**Report from Host Supervisor: Prof. Greg Rouse, Scripps Institution of Oceanography**

**Please provide your comments on the performance of the trainee.**

Dr. Bravo worked very hard and picked up many new skills in her time here. She used her short time here in my lab very well.

**Is this exchange likely to lead to future collaboration with the trainee's parent institution? If so please give example(s) of how this collaboration may be pursued.**

Dr. Bravo has begun to gather valuable sequence data and we have discussed further collaboration to facilitate its eventual publication.

**Please provide your comments on the Fellowship Programme.**

Thankful for the opportunities this provides!

**Report from Fellow: Isabelle de Oliveira**



**Country of Origin:**



**Host Country:**



**Parent Supervisor and Institute:** Prof. Dr. Doris Veleda, Federal University of Pernambuco, Brazil

**Host Supervisor and Institute:** Prof. Dr. Noel Sebastian Keenlyside – Geophysical Institute Bjerknes Centre for Climate Research, University of Bergen, Norway.

**Training topic:** Ocean-Atmosphere processes in response to climate change in the tropical South Atlantic.

**Training dates:** 2<sup>nd</sup> December 2022 – 27<sup>th</sup> February 2023

**Please provide a brief description of activities during the training period.**

Through the POGO-SCOR fellowship 2022, I spent three months at the Bjerknes Center for Climate Research (BCCR), Geophysical Institute in Bergen University, to work with my supervisor from the host institution, Prof. Dr. Noel Keenlyside, his team, and Dr. Shunya Koseki.

The overall objective is to investigate the long-term variability and trends of Northward Heat Transport (NwHT) due to AMOC, temperature, and precipitation for historical and future

projections from CMIP6. Under their guidance, I was able to use supercomputers to download and analyse data from CMIP6 models. I got training with the models ACCESS-CM2, ACCESS-ESM1-5, CNRM-CM6-1, CNRM-CM6-1-HR, CNRM-ESM2-1, EC-Earth3, EC-Earth3-CC, EC-Earth3-Veg, EC-Earth3-Veg-LR, GISS-E2-1-G, GISS-E2-2-G, HadGEM3-GC31-LL, HadGEM3-GC31-MM, IPSL-CM6A-LR, MRI-ESM2-0, UKESM1-0-LL output analyses.

During this training, I also used the observations and reanalyses data to qualify the models' consistency. I analysed sea surface temperature (SST), zonal and meridional winds, precipitation, vertically integrated moisture divergence, and ocean currents. I applied the Empirical Orthogonal Functions (EOF) method and Cross-Wavelet on the data. Throughout these analyses, it was possible to understand more about the relationship between NwHT due to AMOC, SST in the tropical Atlantic, and precipitation in the Eastern Northeast of Brazil. Therefore, I have learned more about the behaviours of the dynamic and thermal systems in the South Tropical Atlantic Ocean, relating their variability in space and time with the role of climate change and extreme events. Besides that, I attended many Climate Dynamics Group meetings with supervisors and colleagues to join discussions about Climate Change.

**What applications of the training received do you envision at your parent institution?**

I will disseminate knowledge through the publication of scientific articles, transfer my skills to colleagues at the parent institution, and be able to assist fellow students in statistical analysis as well as application techniques for output data models to research in the Physical Oceanography Laboratory of the Federal University of Pernambuco.

To avoid causing harm to society and the environment in Brazil, I envision contributing to the development of the Global Ocean Observing System and predicting extreme weather events in Brazil through research.

**Please provide your comments on the Fellowship Programme**

As a young researcher from a developing country, the POGO-SCOR Fellowship Programme provided an excellent opportunity for me to gain essential skills for diagnosing the processes of future climate change at the Bjerknes Center for Climate Research (BCCR), the most renowned climate research center in the Nordic countries as an international institute that is leading the way in ocean-atmosphere science to becoming one of the world's leading centers. Thus, I am very grateful to POGO-SCOR for the opportunity to greatly expand my knowledge by discussing with world-class scientists the relevant scientific and technological developments in climate change.

**Report from Host Supervisor: Prof. Dr. Noel Sebastian Keenlyside – Geophysical Institute Bjerknes Centre for Climate Research, University of Bergen**

**Please provide your comments on the performance of the trainee.**

Ms. Isabelle Vilela is a working-hard and enthusiastic student for science. In meetings, she raises her new ideas and makes discussions very active and fruitful. Not only with host supervisors, she also discusses very proactively with scientists in the Bjerknes Centre for Climate Research and enhances her ideas and plans of research. In addition, she learns proactively new technical things to demonstrate her research more efficiently. Thanks to these attitudes she works productively and independently.



**Is this exchange likely to lead to future collaboration with the trainee's parent institution? If so please give example(s) of how this collaboration may be pursued.**

Apart from her research topic, Dr. Shunya Koseki, host co-supervisor, has started investigating a heavy rainfall event over Eastern Northeast Brazil that happened in May, 2022. This new collaborative research is initiated by a meeting between Ms. Vilela and Dr. Koseki. Some observational data of regional rainfall are provided by her parent supervisor, Prof. Doris Veleda and the new collaboration is currently on-going in a good shape. Combining this research activity and previous ones, Dr. Koseki is planning to build a research proposal collaborating closely with Federal University of Pernambuco.

**Please provide your comments on the Fellowship Programme.**

We appreciate greatly the POGO-SCOR program that has allowed Ms Vilela to visit UiB and to do interesting joint research (on AMOC impacts on Brazilian rainfall).

**Report from Fellow: Maya Eria Sinurat**



**Country of Origin:** 

**Host Country:** 

**Parent Supervisor and Institute:** Dr Jonson Lumban Gaol, IPB University, Indonesia

**Host Supervisor and Institute:** Dr Stefano Vignudelli, Institute of Biophysics Operating Unit, Italian National Research Council, Italy

**Training topic:** Altimetry Data Processing Training for Sea Level Trend and Variability Studies.

**Training dates:** 15<sup>th</sup> January - 16<sup>th</sup> March 2023

**Please provide a brief description of activities during the training period.**

During the training period, altimetry data were processed directly on case studies in several locations representing different water conditions in Indonesia. The altimetry data processing focuses on the coastal area, with employing several algorithms developed by researchers and coastal altimetry products available as an effort to improve the accuracy of sea level altimetry in complex area. The process consists of accessing and downloading altimetry data, followed by data processing, which includes reading data, applying algorithms, and adding corrections to produce sea level data. The algorithms applied were MLE4 and Ice (Bamber 1994) from the Sensor Geophysical Data Records (SGDR), Offset Center of Gravity (OCOG) (Wingham 1986), Threshold (Davis 1995; 1997), Improved Threshold (Hwang et al. 2006), and Modified CAWRES (Idris et al. 2017; Permana et al. 2020). The coastal altimetry products extracted were PISTACH (Prototype Innovant de Système de Traitement pour les Applications Côtières et l'Hydrologie) (Dufau et al. 2012), ALES (Adaptive Leading-Edge Subwaveform) (Passaro et al. 2014), and X-TRACK/ALES from the Climate Change Initiative+ (CCI+) (Cazenave et al. 2018).

The sea levels from those algorithms were then evaluated by comparing to geoid data and some available overlapping tide gauge measurements in Indonesia. Comparison with geoid heights was intended to finding the data precision, meanwhile comparison with tide gauge was aimed to find both the precision and accuracy.

I also had many discussions with my host supervisor, not only about altimetry data but also scientific writing. In parallel to this program period, I attended the 13th Coastal Altimetry Workshop for four days, thanks to the encouragement and support of my host supervisor Dr. Stefano and my parent supervisor Prof. Jonson. Dr. Stefano is one of the organizing committees for that workshop since the beginning. Attending this workshop was a good opportunity for me to interact with the community. At the workshop, I conveyed several preliminary results as a poster presentation and received a lot of positive feedback and suggestions. I really appreciated the fact that I was able to attend the workshop thanks to the POGO-SCOR Fellowship.

**What applications of the training received do you envision at your parent institution?**

After all of these experiences and trainings, I am eager to continue the analysis and exploration of altimetry data particularly in coastal areas for sea level studies in Indonesia. Ongoing work includes the evaluation of altimetry sea level at several locations in Indonesia and writing a paper under the supervision of Dr. Stefano as well as my doctoral supervisors.

For contribution to sustained capacity building, I envision to transfer the knowledge I have gained during this program period to my parent institution as a teaching assistant in related subjects, compiling modules or creating video tutorials on altimetry data processing in my native language. If there is opportunity or event in the future, I intend to give altimetry data processing training to students and researchers in Indonesia. Together with scientists and other interested parties, it would be beneficial for students in our country to plan a translation of Coastal Altimetry into our native language. I understand that international language is essential for academic, but in the case of knowledge transfer in certain countries with low levels of English proficiency, I realize that delivery or teaching knowledge, modules, tutorials, and books in mother tongue is crucial. Moreover, coastal altimetry field is still relatively unexplored in my country, with few mother-language references.

**Please provide your comments on the Fellowship Programme.**

The POGO-SCOR Fellowship is an excellent program to provide training for the next generation of ocean scientists in support of advanced long-term ocean observations. This program is extremely beneficial that allows me to receive training and capacity development in developed country. In my country, there are currently no experts in the field that I am working on, so getting knowledge from experts in other countries is essential.

Through this program I can know the the most recent developments and international standard directly. I believe that receiving training and having direct discussions with experts differs from simply communicating virtually since there are several things that are not feasible virtually. I am grateful for the opportunity to meet and learn from Dr. Stefano. He was extremely helpful, encouraging, and supportive of me.'

From this fellowship program, I gained wealth of experiences and lessons, not only altimetry training but also about social life, the environment, and many other things. I would like to express my deep gratitude to the entire POGO-SCOR Fellowship team for having given me this opportunity and all the tremendous supports.

**Report from Host Supervisor: Dr Stefano Vignudelli, Institute of Biophysics Operating Unit, Italian National Research Council**



**Please provide your comments on the performance of the trainee.**

It was a pleasure to host Maya supported by POGO-SCOR. Although the visit was relatively short, we had a very busy work plan with two main goals: 1) presenting poster at Coastal Altimetry workshop in Cadiz, Spain; 2) preparing data analyses and start writing for a paper to be submitted in International journal. Maya showed high interest in learning details about processing of altimeter data in the coastal zone. She had the privilege to also know the new scientific directions in coastal altimetry. We focused on her native region (Indonesia) that is an important laboratory to assess the set of techniques we use to get more and better data near coasts. Indonesia is also strongly impacted by sea level rise, so the Maya's work has also a direct exploitation in providing better estimates of the trends estimate using satellite radar altimetry. Maya came very motivated and worked hard to achieve objectives. She also met other students and enjoyed life in Pisa. I am very happy to have hosted Maya at CNR. Back home Maya will be able to put in practice the scientific knowledge gained during the visit. She will remember this time and POGO-SCOR fellowship will be one of the milestones of her academic career.

**Is this exchange likely to lead to future collaboration with the trainee's parent institution? If so please give example(s) of how this collaboration may be pursued.**

I have been cooperating with Maya's parent institution since long time. We had an important joint project funded by APN. There is common interest in developing and exploiting coastal altimetry. I am vice-president of PORSEC association and every two years we organize workshop in Asia. Maya will have the opportunity to show her scientific progress at next event in 2024. We have plan to submit a paper that follows results from the work done during the POGO visit. We will be in touch via e-mail and Skype.

**Please provide your comments on the Fellowship Programme.**

The POGO-SCOR Fellowship gave Maya a unique opportunity to go abroad and receive training in state-of-the-art and future directions of coastal altimetry. Students in developing country do not have often the same chances as in western countries. Visiting other laboratories is also important to know different practices and cultures in order to follow international standards. We were also lucky as during the visit Maya could attend the coastal altimetry workshop to meet the whole community. This is important if Maya would like to have post-doc experience abroad. I strongly support the POGO-SCOR effort. I also suggest POGO-SCOR to follow-up students in their career in the native countries showing "champions" example of scientific success in the work life as these students represent examples for future generations.

**Report from Fellow: Awnesha Ghosh**



Country of Origin:



Host Country:

**Parent Supervisor and Institute:** Prof Punyasloke Bhadury, Indian Institute of Science Education and Research, Kolkata, India.

**Host Supervisor and Institute:** Prof Stephen Widdicombe, Plymouth Marine Laboratory, UK.

**Training topic:** Integrating coastal observations to explore the biological impacts of climate change.

**Training dates:** 1<sup>st</sup> March - 29<sup>th</sup> May 2023

**Please provide a brief description of activities during the training period.**

The training involved field work, hands-on laboratory-based work and analysing big data. Water samples were collected from the long-term time series station of L4 and filtered through a 0.22µm sterivex filter to extract total eDNA and RNA. The filters were stored in -80°C until further downstream processing. Total eDNA and RNA was extracted from the sterivex filters using QIAGEN DNA/RNA extraction kits as per manufacturer's protocol. The eDNA was sequenced on an Illumina MiSeq platform to generate 16S rRNA and 18S rRNA reads. The sequence reads were processed to elucidate the bacterial and eukaryotic community structure of station L4.

Water samples were also collected to estimate the phytoplankton community structure using brightfield microscopy. The phytoplankton communities were concentrated using gravity centrifugation, which allowed the phytoplankton to settle at the bottom layer of the collection tube. Samples were then viewed under a bright field microscope to identify the abundance and taxa of the phytoplankton communities. Microscopic counts were expressed as phytoplankton/mL and the identified groups included diatoms, dinoflagellates, flagellates, ciliates and coccolithophorids. This data was added to information collected for the last three decades to estimate phytoplankton succession. Using harmonic regression and Mann-Kendall coefficient on each of the identified phytoplankton taxa, succession patterns over the year were plotted. This information can provide key insights into influence of climate change on the microbial communities and water quality of station L4.

**What applications of the training received do you envision at your parent institution?**

The training has provided me with an opportunity to analyse long-term time-series data to obtain meaningful observations. Long time-series data usually have a lot of noise generated from changes in handling procedures and estimation methods over the years. It is important to tease out the real ecological trends from this noise to understand real-time ecological phenomena. This training would be crucial to execute the time-series program running in my parent institution.

**Please provide your comments on the Fellowship Programme.**

The fellowship was an excellent opportunity to not only learn the work but also to interact with leading scientists from my field of research. My mentors went out of their way in teaching me important analyses techniques, statistical methods and spend time in long discussions from which ideas have evolved. Prof. Steve Widdicombe met with me once a month to follow-up with the work progress, answered every email and made me feel welcome. Dr. Karen Tait and Dr. Paul Somerfield helped me learn stats, sometimes even ran the analyses step-wise to show me exactly what was being done at each step. They must have answered hundreds of emails sorting out queries. Dr. Claire Widdicombe showed me how to handle the microscopes and do phytoplankton counts. Dr. Helen Perry stayed hours working with me during lab work. Being at the Plymouth Marine Laboratory further allowed me to interact with scientists who were not directly involved with my work but still took out time to speak with me. I had a weekly session with Dr. Gemma Kulk who taught me remote-sensing from scratch. I had long discussions with Dr. Mahasweta Saha and Dr. Shubha Sathyendranath on water borne diseases and use of remote-sensing as a way to track these. Each of these discussions was an enriching experience and helped me gain a better perspective of my own work. None of this would have been possible without the funding support from the POGO-SCOR Fellowship.

## Report from Host Supervisor: Prof Stephen Widdicombe, Plymouth Marine Laboratory

### Please provide your comments on the performance of the trainee.

It has been a pleasure to host Anwasha at PML and I have been very impressed by her enthusiasm, her knowledge, and her ability to work effectively with everyone she has met. The specific piece of work that she undertook as part of her fellowship has developed very nicely and we are hopefully it will result in a publication. I have been particularly impressed in how Anwasha has taken additional opportunities to build new connections and collaborations beyond those initially involved in her fellowship. In particular the interactions with the Earth Observations group are particularly pleasing. I very much hope Anwasha will visit PML again in the near future and continue to grow some of the collaborations this fellowship has supported.

### Is this exchange likely to lead to future collaboration with the trainee's parent institution? If so, please give example(s) of how this collaboration may be pursued.

It is highly likely that there will be more collaborations with Anwasha, and others from her parent institution. Ongoing links through the Global Ocean Acidification Observing Network, especially between the NE Atlantic and SAROA hubs are already in place. The shared ambitions in sustained observations between the Plymouth Marine Laboratory (PML) and the Indian Institute of Science Education and Research (IISER), Kolkata, make future collaborations and exchanges extremely likely.

For example, there may be opportunities for staff/students from IISER to make use of other fellowship funding (e.g. Trevor Platt Fellowship, GOA-ON Pier2Peer) to visit PML. In addition, IISER are actively seeking opportunities for PML staff to visit Kolkata.

### Please provide your comments on the Fellowship Programme.

The POGO-SCOR Fellowship programme is a hugely important mechanism to support capacity building, collaborations and knowledge exchange. I thank POGO & SCOR for the opportunity to host Anwasha and look forward to this fellowship being the start of many future joint activities

### Summary of fellowship: Sangeeta Naik



Country of Origin:



Host Country:

**Parent Supervisor and Institute:** Dr Harilal Menon, Goa University

**Host Supervisor and Institute:** Dr Aditee Mitra, Cardiff University

**Training topic:** Bacterial farming by mixoplankton in the global oceans; an integrated in vivo & in silico training programme

**Training dates:** 30<sup>th</sup> January - 31<sup>st</sup> March 2023

### Summary of activities during the training period.

This training involved in-depth discussion and research orientation in the subject of Dynamic Ecological Modelling, with the primary objective of enhancing the trainee skill sets in integrating ecological modelling into marine plankton ecology studies. During the training period, the trainee learned how to construct, simulate, and troubleshoot plankton food-web models using Powersim Studio software, enabling her to understand the relationship between the physicochemical and biological factors in the aquatic ecosystem. The training also enhanced her understanding of the challenges and the potential of modelling and identifying prospective research areas that need further investigation. In addition, the trainee received training on state-of-the-art instruments, including Walz PhytoPAM (for generating RLCs), Pyroscience Firesting (for acquiring oxygen and temperature data), Zeiss epifluorescence microscope and Leica inverted microscope (for counting cells in predator-prey bacterivory experiments), and access to Powersim modelling software.

During the Fellowship, Dr Naik also had an opportunity to work with PhD and postdoctoral researchers of MixoHUB to plan and deliver an outreach event at a Science Café on the importance of the mixoplankton paradigm in marine systems. Dr Naik was an enthusiastic and valuable member of the team helping in planning and delivery of this event.

The range of training activities given during the Fellowship provided Dr Naik with an insight into the challenges of systems dynamics modelling, the importance of the different plankton players in the food-web, the necessity of using the correct currency for model parameterisation and also how to translate the complexity of the science for a non-specialist audience.

According to the trainee, students and early-career researchers from Goa University will benefit from this partnership, allowing for a greater understanding of marine microbial ecology in the long run. Both, trainee and host supervisor agreed there is scope for further collaborations to up-skill the research and teaching portfolios of staff at Goa University and that the POGO-SCOR Fellowship Programme is an excellent opportunity for an Early Career Researcher to gain training in a new skill to enhance their teaching and/or research portfolios.