Ocean Training Partnership

Annual Report (2024-2025)

Report compiled by POGO Secretariat

1. Introduction

The Ocean Training Partnership (OTP) is an initiative launched in 2016 by NF-POGO in partnership with the Strategic Marine Alliance for Research and Training (SMART) and the Alfred Wegener Institute for Polar and Marine Research (AWI) to enhance the existing NF-POGO programme (Centre of Excellence and Regional Training Programme). The need for ship-board training had been highlighted by several international and regional bodies, such as the Intergovernmental Oceanographic Commission, the European Commission and the European Marine Board, however there was still a lack of opportunities for such training, particularly in developing countries (but also in the developed world). POGO, SMART and AWI identified an opportunity to provide training that takes advantage of the spare capacity that is often available on ships, i.e. when ships are on passage between research expeditions, and when they sail with spare berths.

The OTP is a coordination mechanism designed to harness this spare capacity and utilise it to provide a sustainable platform for ocean research teaching, whilst simultaneously increasing ocean observations in data-poor areas. It takes advantage of POGO's connections to institutions that run research vessels and can provide information on spare ships/berths, as well as to scientists who can provide the training. It also builds on POGO's and SMART's extensive collective experience in capacity building.

The Ocean Training Partnership has been supported by several of the POGO members, including Japan Agency for Marine-Earth Science and Technology (JAMSTEC) in Japan, British Antarctic Survey, Plymouth Marine Laboratory and National Oceanography Centre in the UK, Alfred Wegener Institute (AWI), and the GEOMAR Helmholtz Centre for Ocean Research Kiel in Germany, Woods Hole Oceanographic Institution (WHOI) in the United States, the Instituto Español de Oceanografía (IEO) in Spain, and the Nigerian Institute of Oceanography and Marine Research (NIOMR) in Nigeria. In addition, POGO partners with other organisations and projects dedicated to developing shipboard training such as Eurofleets+, @SeaNetwork, OceanQuest and OceanX. The POGO Secretariat, partners and members are committed to expanding the network of participating institutions and broadening the support of POGO member institutions.

The present report summarises the activities completed in the Ocean Training Partnership training programmes during the period August 2024 – July 2025.

2. Open Call for Shipboard Training

Apart from the regular shipboard fellowship opportunities, the POGO Secretariat launches annually the Open Calls for Shipboard training. The objective of the Open Call is to keep a database of qualified candidates that can take part in shipboard training programmes offered at shorter notice. As training opportunities become available, shortlists suitable for a particular project on offer are created.

Since 2019, annual Open Calls target early career scientists, technicians, postgraduate students (PhD or MSc) and Post-doctoral fellows, nationals from and involved in oceanographic work at centres in developing countries and countries with economies in transition. The application form asks about the candidate's specific training interests, including geographical areas and research/training topics, as well as the candidate's travel availability during the year. The annual Open Calls receive applications during ~10 months and unsuccessful candidates are encouraged to reapply, updating their application for the following year.

The 2024 Open Call was launched in February 2024 and received a total 87 valid applications (52 male and 35 female candidates), predominantly from Africa (43%), Asia (25%), and Latin America (19%). Most candidates were in their early career stage as shown by their age (45% were 25 to 29 years old) and qualifications (70% indicated BSc or MSc as their highest degree). More than half of the candidates (60%) indicated that they would be interested in receiving the training in any ocean basin. In terms of training subject, all four areas (Physical, Geology/Geophysics, Biogeochemistry and Biology/Ecology) were frequently mentioned (see Figure 1). The 2024 call was closed on 30 December and eight applicants were selected for shipboard training in 2025.

The 2025 NF-POGO Open Call for Shipboard Training was launched in May 2025 and until July 2025 received 60 applications (39 male and 21 female candidates), more than half of them from Africa (40 applications), but including 13 applications from Asia, 6 from Latin America and 1 from Oceania. These applications will be under consideration for any training opportunities that come up throughout the second semester of 2025 and early 2026.

During the period covered by this report, seven trainees participated in the NF-POGO Shipboard Training Programme, and a further twenty-six were selected for training opportunities scheduled for the second semester of 2025. The following sections present the fellowship completion reports and a brief overview of the upcoming trainings and appointed fellows.
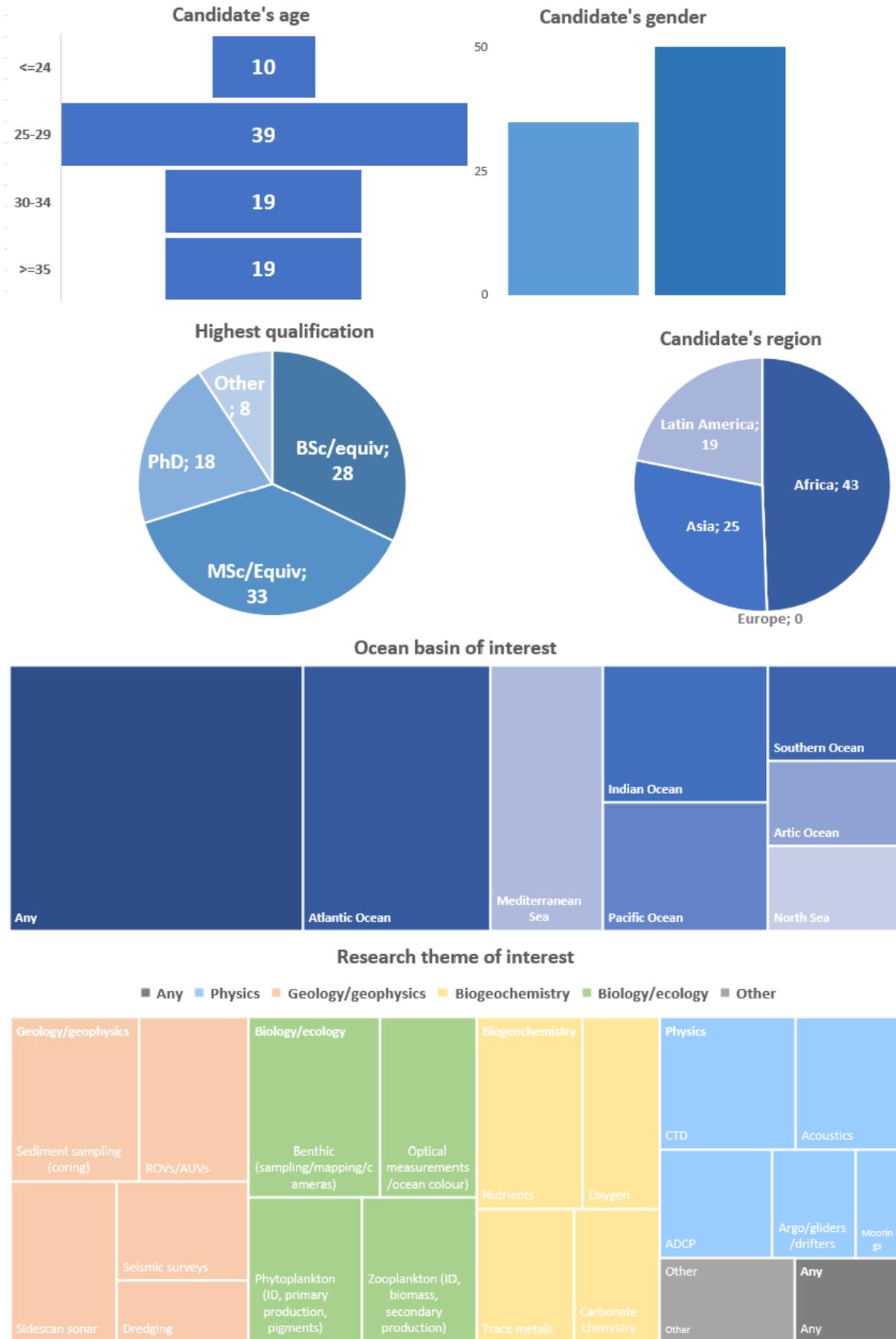
Figure 1 – 2024 Open Call for Shipboard Training candidate's profile.

3. Trainees' reports and testimonials

3.1. 2024 NF-POGO-PML Shipboard Training on the AMT cruise.

Francielle Nogueira de Lima Holtz Santos (Brazil), MSc student at the Alfred Wegener Institute, was awarded a fellowship for shipboard training on the RRS James Cook (21 November to 30 December 2024)*.

* The AMT fellowship was initially planned to include both pre- and post-cruise training sessions at the Plymouth Marine Laboratory (UK), focusing on learning molecular techniques before the cruise and analysing collected samples afterwards. However, due to restrictions and complications related to UK visa procedures, the trainee was only able to travel to the UK to complete the cruise requirements (sea survival course and medical examination) before participating in the on-board component.

Please provide a brief description of activities during the training period:

I received specialized training in eDNA sampling using Sterivex filters, chlorophyll-a sampling with three different pore-sized filters, and chlorophyll-a measurement using a fluorometer. Additionally, I was trained in bio-optical LAB-Staff equipment maintenance, including cleaning procedures and software operation. The training was highly multidisciplinary, providing me with an overview of additional techniques such as aerosol deposition and radiometer cleaning and setup. Throughout the training period, I actively contributed to the team's daily routine, taking on responsibilities as an engaged team member.

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

I plan to give talks and share my knowledge with students about the techniques I have learned, as well as introduce them to the POGO programs to inspire and encourage them to apply for similar opportunities. I will collaborate with the Oceanography Junior Company, Tétis, at the Federal University of Santa Catarina to organize these events in the coming months.

Please provide your comments on the Fellowship Programme.

I believe this was an invaluable experience, and I am truly grateful for the opportunity. It has significantly broadened my background and filled some important knowledge gaps. I am excited to share what I have learned with my fellow students and to apply these skills in my future research.

Figure 2 – Francielle during the AMT cruise (Credits T Jordan, PML).

3.2. 2025 NF-POGO-NOC Shipboard Training on the CarTRidge JC275 cruise.

Lowin Anand David Kanagaraj (India), PhD research scholar at the Centre of Advanced Studies in Marine Biology Annamalai University, was awarded a fellowship for shipboard training on the RRS James Cook, with pre- and post-cruise training periods at the National Oceanography Centre in the UK (pre-cruise visit and cruise: 27 January to 1st April 2025; post-cruise training: 30 June to 15 July 2025).

Please provide a brief description of activities during the training period:

During the pre-cruise training period, I had the valuable opportunity to engage in discussions with Dr. Sari Giering regarding the scientific activities planned for the cruise. I was also grateful for the chance to discuss my Ph.D. research topic with her, which provided insightful feedback and helped strengthen the direction of my thesis while in NOC.

Onboard the RRS James Cook, I received hands-on training in deploying various marine instruments aimed at estimating carbon export over the Mid-Atlantic Ridge. These included the Marine Snow Catcher (MSC), Red Camera Frame (RCF), and Bongo net. Initially, I was trained to deploy the MSC and collect samples for the analysis of particulate organic carbon (POC), particulate inorganic carbon (PIC), and chlorophyll-a. Following that, I worked with a team of experts who trained me in deploying and recovering the RCF, as well as in using associated software tools to process the captured data.

All sampling activities were carried out with strict safety protocols in place. I had the opportunity to interact with esteemed scientists from various institutions, including Dr. Jonathan Sharples, Dr. Richard Williams, and Dr. Alex Poulton. Engaging in discussions with them deepened my understanding of oceanic carbon export, particularly from the perspectives of physical, chemical, and biological oceanography. The sampling schedule was well-structured and efficiently coordinated, allowing all teams to collect their samples smoothly and without confusion.

The ship's crew, kitchen staff, and technical team were incredibly kind and supportive throughout the expedition. We also had enjoyable ice-breaking sessions, including quizzes and a BBQ, which helped build camaraderie among everyone onboard. Although I was the only participant from a very different background, I was made to feel welcome and at home from the very beginning.

During the post-expedition training, I gained hands-on experience using the FlowCam, which was particularly interesting for observing plankton species collected from the Mid-Atlantic Ridge. In addition, I received training on processing EcoTriplet (backscattering) data to estimate the vertical distribution of particulate organic carbon (POC) both on and off the ridge. This included learning data processing and analysis techniques in R Studio, which greatly enhanced my ability to assess carbon export at different ocean depths.

I am especially grateful to Dr. Sari Giering, Dr. Marika Takeuchi, and Will Major for their guidance, support, and trust, which gave me the opportunity to carry out instrument deployments independently. I would also like to sincerely thank the POGO team for awarding me this NF-POGO fellowship, which has greatly enhanced my confidence, enabling me to deliver presentations more boldly and respond to scientific questions with greater clarity and assurance.

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

The training I received during the fellowship has equipped me with valuable hands-on experience in deploying oceanographic instruments, sampling techniques, and data analysis related to carbon export processes with different aspects including physical, chemical and biological oceanography. I plan to apply these skills at my parent institution by incorporating advanced sampling methods, engaging in designing protypes for samplers and data interpretation techniques into ongoing research projects and upcoming cruises. Additionally, the knowledge gained on biogeochemical interactions and interdisciplinary collaboration will enhance the quality of my Ph.D. work and support capacity-building activities, such as training junior researchers, fellow colleagues and students in field sampling and data handling. I have been sharing my fellowship experience with undergraduate, postgraduate, and Ph.D. research scholars at my institution, aiming to inspire and inform future researchers. Additionally, I am

exploring the possibility of initiating a collaborative project with NOC that applies similar research strategies to the Indian coastal region.

The post-cruise training has provided me with valuable technical and analytical skills that I can apply at my parent institution. The experience gained in processing FlowCam and EcoTriplet backscattering data will support ongoing research on plankton community structure, particulate organic carbon estimation, carbon dynamics and carbon export in coastal and open-ocean environments. In addition to the technical training, the expedition experience—working alongside diverse scientific teams during sampling operations and engaging in discussions with experts—greatly broadened my scientific understanding and perspective in my area of specialization. Furthermore, my stay at the National Oceanography Centre in the UK offered opportunities for cultural exchange and professional growth. These experiences will enable me to guide and inspire emerging researchers at my home institution to pursue international fellowships and gain exposure to collaborative global oceanographic research.

Please provide your comments on the Fellowship Programme.

The NF-POGO Fellowship Programme has been an incredibly enriching and transformative experience. It allowed me to participate in international research at sea, work alongside world-class scientists, and receive hands-on training with advanced oceanographic instruments. The opportunity to engage in interdisciplinary collaboration and explore different scientific perspectives has significantly strengthened my research skills and boosted my confidence.

The Fellowship Programme has been an exceptional opportunity for both professional and personal growth. It provided a comprehensive platform to gain practical experience in oceanographic research, from field sampling during the expedition to advanced data processing and analysis at the National Oceanography Centre. The mentorship, scientific discussions, and interactions with experts from different disciplines significantly enriched my knowledge and research perspective. Moreover, the programme fostered international collaboration and cultural exchange, which are vital for building a global scientific community. This fellowship not only imparted valuable scientific knowledge but also served as a turning point in my career, being well recognized both in my home country and internationally. It is truly an important and impactful programme for emerging scientists, and I sincerely wish that more young researchers will have the opportunity to be awarded this fellowship in the future. I am deeply grateful to the NF-POGO and NOC teams for their guidance, support, and for providing such a well-structured and inspiring training experience.

I strongly encourage every research enthusiast to apply for this fellowship. It opens doors to new scientific ideas, cross-cultural experiences, and a deeper understanding of oceanographic research

across regions. This programme is truly a stepping stone for early-career researchers seeking global exposure and meaningful contributions to marine science.

Figure 3 – Lowin during the CarTRidge cruise (credits W Major, NOC).

3.3. 2025 NF-POGO-IRD Shipboard Training on the PIRATA F-35 cruise.

Victor Ebolo Nkongo (Cameroon), MSc student at the University of Douala, was awarded a fellowship for shipboard training on the RV Thalassa (26 February to 3 April 2025).

Please provide a brief description of activities during the training period:

The PIRATA-FR35 oceanographic mission provided me with hands-on training at sea aboard the R/V Thalassa, as part of the Prediction and Research Moored Array in the Tropical Atlantic (PIRATA) program, launched in 1997 by the United States, Brazil, and France. PIRATA is based on a network of 18 metocean buoys (ATLAS/TFLEX) designed to study ocean-atmosphere interactions and improve climate forecasting in the tropical Atlantic. The French component of the program (SNO PIRATA) is responsible for the annual maintenance of six metocean buoys and three current meter moorings located along the equator.

During this campaign, I carried out various activities, which I grouped into three main areas:

a. Laboratory Activities in Hydrology and Physics

As part of this, I participated in:

- *Acquiring hydrological and current profiles (CTDO2/LADCP stations);*
- *Conducting bathythermographic profiles using XBT probes;*
- *Deploying SVP-type drifting buoys and ARGO profilers;*
- *Sampling seawater at the surface and at depth for chemical parameter analysis;*
- *Recovering and deploying metocean buoys and an ADCP mooring.*

b. Laboratory Activities in Chemistry

I took part in an onboard exercise in the chemistry laboratory on pH measurement by spectrophotometry and alkalinity determination by potentiometry, allowing me to gain additional expertise in the carbonate system. This enabled me to validate the estimation of total alkalinity in the absence of direct total carbon measurements, which I would have preferred to use to estimate air-sea CO_2 fluxes.

c. Volunteer Activities and Additional Training

- *Aboard the Thalassa, my main volunteer activity involved collecting tissue samples from tuna caught around the buoys. We gathered 55 samples for LEMAR in Brest.*
- *I also took part in safety drills covering procedures in case of shipwreck, pirate attacks, and precautions to be observed during an oceanographic campaign to prevent workplace accidents and health issues at sea.*
- *In my free time, I helped clean sensors and buoys and began drafting my first article.*

Additionally, I presented my Master's thesis to the entire crew, titled: "Study of Air-Sea CO_2 Fluxes Derived from Satellite and In Situ Data in the Gulf of Guinea." Furthermore, through the supervision of laboratory activities and the utilisation of PIRATA datasets, I significantly enhanced my proficiency in Python and MATLAB programming, while deepening my understanding of physical oceanography. I focused in particular on the validation of the LIAR estimator developed by Carter et al. (2016), which enables the estimation of total alkalinity (TA) from sea surface temperature, salinity, latitude, longitude, and depth. This work required a solid grasp of key oceanographic principles, notably the spatial variability of seawater properties and their links to ocean circulation. The results obtained in the tropical Atlantic revealed a spatial distribution of total alkalinity that aligns well with regional ocean dynamics, such as salinity-driven water mass formation and surface current patterns. The consistency between high TA estimates and areas of elevated surface salinity further demonstrates a sound understanding of the physical processes influencing carbonate chemistry in the tropical Atlantic.

This campaign has strengthened my skills in:

- *Physical and chemical oceanography;*

- *Data analysis with Python;*
- *Interpretation of hydrographic profiles;*
- *Validating a predictive regression model applied to a large set of real-world data.*

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

Firstly, this training allowed me to complete the activities related to my master's degree, which I recently defended. It enabled me to finish writing my scientific paper on CO_2 fluxes and the variability of the carbonate system in the Gulf of Guinea, with a particular focus on the seasonal influence of the Harmattan and the African monsoon. For this project, I used data collected by PIRATA, in collaboration with LOCEAN (Laboratoire d'Océanographie et du Climat: Expérimentations et Approches Numériques), to validate FCO2v2 (Victor Ebolo, 2024), a MATLAB function I developed to calculate air-sea CO_2 fluxes. I now feel ready to pursue a PhD in physical oceanography and/or biogeochemistry, particularly focused on air-sea dynamics. This training has provided me with a solid foundation of knowledge and skills, which I plan to apply to further my research in this field.

Please provide your comments on the Fellowship Programme.

This programme provides a solid foundation for the scientific development of early-career researchers, particularly in developing countries. Through this programme, I was able to expand my network by interacting with experienced researchers and engineers, which allowed me to learn immensely. It marks the beginning of an exciting journey with the PIRATA-FR35 scientific team. Additionally, it gave me the opportunity to present my research and further refine my work. It was also a valuable opportunity to share experiences with students and senior researchers from diverse backgrounds, making this training enriching both scientifically and personally. Furthermore, thanks to the crew members, both scientific and non-scientific, I gained insights into various aspects of marine life and the environment.

Figure 4 – Viktor during the PIRATA cruise (Credits A M'hamdi and J Llido).

3.4. 2025 NF-POGO-JAMSTEC Shipboard Training on the GO-SHIP P4W Expedition.

Johana Ermelinda Lucero (Argentina), PhD student at the Centro para el Estudio de los Sistemas Mariños, was awarded a fellowship for shipboard training on the RV Mirai, which included a pre-cruise short visit to JAMSTEC facilities (30 March 2025 to 16 May 2025).

Please provide a brief description of activities during the training period:

I participated in the GO-SHIP P04W expedition aboard the R/V Mirai from 3ʳᵈ April to 11ᵗʰ May 2025, which aimed to collect high-quality data along 10ºN in the western tropical North Pacific. This expedition is part of the international GO-SHIP program and targets long-term changes in ocean circulation, water mass properties and biogeochemical fluxes.

During this cruise, I was a member of the sampling team. We worked from 2 a.m. to 2 p.m. and were responsible for the following activities:

- *CTD setting: At each station, I assisted with the preparation and deployment of the CTD-rosette system. This involved checking that each Niskin bottle was correctly set: the caps had to be open, with the air vents tightly closed, and the lanyard hooks positioned outward to allow correct triggering at depth. We also cleaned the bottles and the external surfaces of the sampling*

frame with acetone to prevent contamination. These procedures were essential to guarantee accurate and reliable water sampling throughout the cruise.

- *Basket preparation: Before each CTD cast, we prepared 36 sampling baskets, each containing the bottles and materials required for the analysis of specific parameters (e.g., pH, D.O, nutrients, salinity, TA, and others). One basket was prepared for each Niskin bottle, clearly labelled to indicate the type of sample to be collected at the corresponding sampling depth. This approach ensured an efficient and organised sampling process.*

- *Routine sampling: Once the CTD rosette was back on deck, we participated in the collection of water samples for multiple parameters, following strict protocols and order of priority. My first responsibility was to collect and handle samples for dissolved oxygen (D.O.). For this parameter, we first performed a leak check of each Niskin bottle, followed by the measurement of temperature during D.O. sampling. Once sampling from all Niskin bottles was completed, we started with the collection of samples for chlorofluorocarbons (CFCs), and we finished with the routine basket.*

  The routine sampling included 20 different parameters, each with its specific handling requirements: D.O., CFCs, Methane (CH_4), Salinity/Density, pH, Urea, Total dissolved inorganic carbon (TC), Radiocarbon ($14C$), Total alkalinity (TA), Organic alkalinity, Chlorophyll-a (Chl-a), Total Iodine-129, Nutrients, nitrate-silicate (NO3-SI), Microbial abundance, Dissolved organic carbon (DOC), Fluorescence dissolved organic matter (FDOM), Coloured dissolved organic matter (CDOM), Tritium and Microbial analysis.

- *Special cast sampling: In addition to routine sampling, we conducted special casts dedicated to extended biogeochemical and isotopic analyses. These included Bio-SCasts, which involved the collection of samples for up to 16 different parameters related to biological and microbial processes. We also supported sampling efforts from external research groups. For example, we occasionally collected samples for the University of Tokyo, targeting isotopes such as I-129, U-236, and Th-220/230. Similarly, we performed specific casts for researchers from the University of Denmark, focusing on U-233, U-236, Cs-135, and Cs-137.*

- *Control and transport of samples: After collection, we ensure the safe handling of all samples by thoroughly cleaning each bottle and transporting them to the appropriate laboratories. Samples were processed or stored under specific temperature and light conditions, depending on the requirements of each parameter.*

- _Extra activities in laboratories:_ In addition to my sampling duties on deck, I participated in various laboratory tasks such as labelling the sampling materials, cleaning glassware, assisting with radiosonde sampling, and performing basic analysis such as NO_3. I also had the opportunity to learn about other analyses in laboratories such as CFC, FDOM, and CDOM from technicians and researchers.

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

The training I received during the MR25-02 cruise was highly valuable and directly applicable to both current and future research at my parent institution in Argentina. Firstly, the hands-on experience with CTD-rosette operations, strict sampling protocols, and contamination control measures will enhance the methodological rigour of our sampling efforts in Patagonian and South Atlantic coastal environments.

One of the most important aspects I aim to incorporate into my research is the application of detailed, parameter-specific protocols. I was trained to pay close attention to critical factors such as the proper rinsing of sample bottles, the elimination of air bubbles in certain samples (e.g., dissolved oxygen, pH), and the appropriate time to let the water flow before beginning to fill a container. These procedures - often overlooked- are essential to ensuring data quality. I intend to implement these seemingly minor, yet fundamental, practices consistently in all future sampling activities.

Furthermore, this fellowship introduced me to several parameters that I had not previously considered, but now recognize as potentially valuable for my research objectives. I am considering the incorporation of them into my routine sampling and analytical workflows in the near future.

Please provide your comments on the Fellowship Programme.

The NF-POGO Fellowship Programme provided an outstanding opportunity for both professional and personal development. Participating in the GO-SHIP P04W cruise aboard the R/V Mirai was an enriching experience that allowed me to engage in high-level oceanographic research while learning from leading scientists and technicians from around the world.

The training was hands-on, comprehensive, and well-organized, covering both technical and methodological aspects of oceanographic sampling. Working side by side with experienced professionals allowed me to strengthen essential skills such as sampling precision, contamination control, time management, and effective teamwork under demanding conditions. I also had the opportunity to contribute meaningfully to the sampling process and to understand the broader scientific goals behind each measurement.

Beyond the technical training, the programme fostered an environment of collaboration, cultural exchange, and scientific dialogue. The support provided by both NF-POGO and JAMSTEC was exceptional, from logistical coordination to onboard mentoring. This fellowship has not only deepened my knowledge and confidence in oceanographic fieldwork but has also inspired me to adopt and promote international best practices in my future research.

I am sincerely grateful for having had the opportunity to be part of this initiative, and I highly recommend the NF-POGO Fellowship Programme to other early-career researchers looking to expand their skillsets and strengthen their engagement with the global scientific community.

Figure 5 – Johana during the GO-SHIP cruise.

3.5. 2025 NF-POGO-@SeaNetwork-UCT Shipboard Training Fellowship SEAmester cruise.

Khouloud Boltane (Tunisia), PhD student at the University Tunis El Manar, was awarded a NF-POGO-SeaNetwork-UCT fellowship for shipboard training on the SEAmester training cruise (17 to 27 June 2025).

Please provide a brief description of activities during the training period:

During the SEAmester VIII training programme aboard the SA Agulhas II, I engaged in a variety of hands-on oceanographic research activities. These included field sampling using Neuston nets for microplastics, Bongo nets for zooplankton, and CTD rosettes for profiling water temperature, salinity, and depth. I also participated in wet lab chemical analyses, acoustic monitoring sessions, spatial mapping with QGIS, and geological work in the Geo Lab. One of the highlights of the training was conducting dissection experiments on seals and seabirds to quantify ingested plastics. Daily lectures and team debriefs also deepened our understanding of ocean dynamics, marine biodiversity, and environmental challenges. At the end of the training, we selected a topic and worked closely with passionate researchers who guided us and shared valuable insights. For me, I collaborated with two other students on a poster entitled Trash Collectors: Nets vs Birds, the project focused on microplastics, which is also the main topic of my PhD research. This opportunity allowed me not only to deepen my understanding of microplastics in water samples, but also to explore their impact on birds, a new dimension for me, highlighting dual methods of microplastic monitoring. This hands-on experience significantly enhanced my technical skills and enriched my PhD research on marine science.

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

The SEAmester VIII training has provided me with valuable technical, analytical, and interdisciplinary skills that I plan to apply in several ways at my home institution, especially in the context of marine pollution research. I plan to use the Neuston net and CTD for field sampling, apply QGIS for data visualization, and share what I have learned through workshops with students and colleagues. The seabird-based monitoring approach also gave me new ideas to complement laboratory analysis. Overall, this experience will help improve my research practices in ocean science.

Please provide your comments on the Fellowship Programme.

Through this fellowship, I was able to participate in SEAmester VIII, a unique training programme that combined fieldwork, lectures, and interdisciplinary collaboration. The support provided by NF-POGO, both logistical and personal, made the experience smooth and enriching. I especially appreciated the sense of belonging to a global scientific community. This fellowship has had a strong and lasting impact on both my research and my motivation to contribute to ocean science and marine conservation. Also I would like to express my sincere gratitude to Sophie and POGO team for generously offering me the Secchi disk as a gift. This valuable tool will be integrated into my upcoming field sampling campaign to assess water transparency, contributing directly to the monitoring and analysis efforts of my research.

Figure 6 – Khouloud during the SEAmester training (credits M Nkosi and K Occeña).

Kristel J Occeña (Philippines), BSc student at University of the Philippines, was awarded a NF-POGO-SeaNetwork-UCT fellowship for shipboard training on the SEAmester training cruise (17 to 24 June 2025).

Please provide a brief description of activities during the training period:

During SEAmester VIII, I participated in the "Oceans in a Changing Climate" module aboard the R/V SA Agulhas II. The program combined daily lectures, research support tasks, and practical shipboard training. I observed the deployment and recovery of oceanographic equipment including CTDs and plankton nets, helped subsample and process water and biological samples, and engaged in small group data analysis sessions. We also worked on mini-projects that align with the objectives of the Agulhas System Climate Array (ASCA) research cruise. This encouraged critical thinking and collaboration. Throughout the cruise, we were immersed in the full workflow of ship-based research, from planning and sampling to data interpretation.

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

The training significantly improved my technical skills in oceanographic sampling and instrumentation, which I can now apply during local cruises and fieldwork conducted by my home institution. I intend to support ongoing and future research activities by sharing best practices in onboard operations, sample handling, and at-sea collaboration. I also aim to contribute to the design of better onboard workflows for multidisciplinary projects and help mentor students new to shipboard science. More broadly, I hope

to use this experience to advocate for stronger ship-based training programs and promote international collaboration within my local marine science community.

Please provide your comments on the Fellowship Programme.

The SEAmester Fellowship Programme is a rare and transformative opportunity for young scientists. It creates a truly immersive learning environment where classroom theory meets real-world research. The balance between lectures, hands-on work, and collaborative projects was well designed, and the program fostered both scientific curiosity and community-building. I'm grateful to the organizers, lecturers, and crew for creating such a welcoming and intellectually stimulating environment. This experience has not only deepened my knowledge and skills but also inspired me to contribute more actively to ocean science in the Philippines and beyond.

Figure 7 – Kristel during the SEAmester cruise (credits K Occeña)

3.6. 2025 NF-POGO-DTU Aqua Shipboard Training on the HERAS cruise.

Motaher Hossain Bhuyian (Bangladesh), Onboard observer at the Marine Fisheries Office of the Government of Bangladesh, was awarded a fellowship for shipboard training on the RV Dana (30 June 2025 to 14 July 2025).

Please provide a brief description of activities during the training period:

During my NF-POGO–DTU Aqua shipboard training on the R/V DANA IV (HERAS cruise), I participated in both acoustic survey operations and fish laboratory work in the North Sea. The training began with safety briefings and a practical demonstration of emergency procedures. For the first part of the voyage, I worked with the acoustic team located near the bridge, using Simrad echosounders with two transducers to detect and monitor herring (Clupea harengus) and sprat (Sprattus sprattus) schools. I learned to operate the acoustic software, interpret echograms, identify species signatures, and mark potential fishing areas on survey maps. Once fishing sites were selected, the crew deployed midwater or bottom trawls, sometimes with buoyancy balls for depth control. I assisted in plotting trawl positions, managing survey data, and preparing visual summaries from trawl-door and net sensors. In the fish laboratory, I helped sort the catch by species, separate herring and sprat into size classes, and record length–weight measurements. Selected samples were preserved for later analysis at DTU Aqua (e.g., otolith ageing, DNA work). I also took part in CTD casts to measure conductivity, temperature, and depth, identifying thermocline layers, and in WP2 plankton sampling, followed by microscopic examination of the collected plankton. This hands-on training provided me with practical experience in modern fisheries survey techniques, data handling, and biological sampling, which will be directly applicable to my professional work in Bangladesh.

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

At my parent institution, the Marine Fisheries Office under the Department of Fisheries, Bangladesh, I can apply the knowledge and skills gained in several ways:

- *Introducing advanced acoustic survey techniques for assessing pelagic fish stocks in the Bay of Bengal, including interpreting echograms and detecting fish schools using echo-sounder technology. I have a plan to join to research voyages on our national research vessel R/V Meen Sandhani, operated by the Department of Fisheries, to apply the methods learned on R/V DANA in our local marine environment.*
- *Improving data collection and processing protocols by adopting standardised survey mapping, trawl sensor data analysis, and sample documentation methods used on R/V DANA. Consulting and training colleagues in the use of international survey protocols, contributing to capacity building within the national fisheries monitoring programme.*
- *Enhancing biological sampling practices for small pelagic species, including size-based sorting, length–weight recording, and otolith preservation for age determination.*
- *Incorporating environmental parameters (e.g., thermocline depth from CTD data) into stock assessment and management recommendations.*

This will help strengthen Bangladesh's capability to sustainably manage marine resources, particularly pelagic fish stocks, by adopting best practices learned during the HERAS survey.

Please provide your comments on the Fellowship Programme.

The NF-POGO–DTU Aqua Shipboard Training Programme was an outstanding professional development opportunity. The hands-on experience aboard R/V DANA allowed me to work directly with advanced acoustic survey systems, modern sampling techniques, and experienced international scientists.

The training was well-structured, combining practical at-sea operations with clear explanations of theory, and the host supervisor ensured that I was involved in a variety of activities throughout the voyage. Living and working alongside a diverse scientific and technical team was highly enriching, both professionally and culturally.

I greatly appreciate the support provided by NF, POGO, DTU Aqua, and the ship's crew in making this training possible. The skills and knowledge gained will contribute directly to my work in marine fisheries management in Bangladesh and will also help foster future collaboration between our institutions.
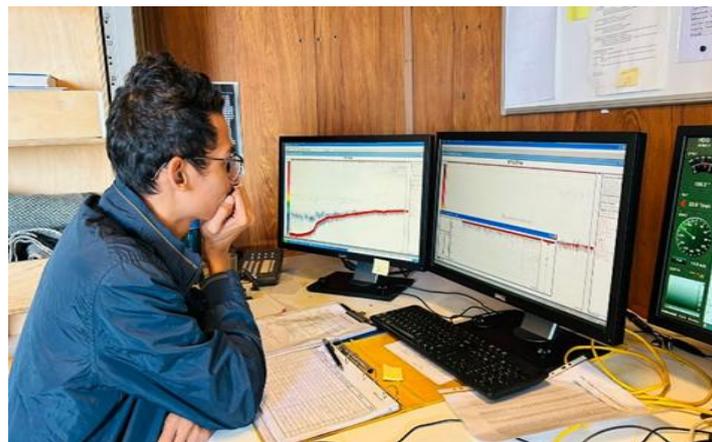

Figure 8 – Motaher during the HERAS cruise.

4. Upcoming trainings and appointed fellows

4.1. 2025 NF-POGO-DTU Aqua Shipboard Training on the IBTS cruise.

Raida Kadir (Bangladesh), MSc student at Shahjalal University of Science and Technology, was awarded a fellowship for shipboard training on the RV Dana (25 August to 14 September 2025).

The National Institute of Aquatic Resources (DTU Aqua) is responsible for the Danish contribution to the International Bottom Trawl Survey (IBTS) and the Baltic International Trawl Survey (BITS), surveys conducted in the North and Baltic seas, respectively, with the objective of assessment of commercial fish stocks. IBTS and BITS campaigns are carried out periodically onboard the R/V Dana, a versatile multi-purpose research vessel managed by DTU Aqua. During the campaigns, deep-stratified demersal trawls for fish stocks are conducted during the day and are paired with other measurements (e.g., hydrographic, physico-chemical, biological) at night-time. The database provides essential data that supports analyses of fish stocks in the North and Baltic Seas.

The 2025 DANA IBTS cruise will involve bottom trawl fish monitoring and CTD casts at designated fishing stations. Ms Kadir was selected from 54 eligible applications and will work under supervison of Chief Scientist Dr Kai Wieland (DTU-Aqua). She will join the scientific crew for the entire duration of the cruise, participating in sampling activities involving up to 80 different fish and shellfish species from the North Sea, and will learn how to derive quantitative data on abundance and biodiversity from trawl catches.

4.1. 2025 OceanCApX North-South Atlantic Training Transect (NoSoAT25).

The 2025 OceanCapX/NoSoAT expedition starts on 13 November in Bremerhaven, Germany, concluding on 12 December in Walvis Bay, Namibia. The expedition's goal is to bolster the capacity of oceanography and climate science by offering specialised, hands-on training to 25 fellows, primarily from nations with emerging economies. Out of more than 800 applicants they have been selected in a highly competitive process. The programme is organised and funded by POGO and the Nippon Foundation, and conducted by the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (AWI), the University of Galway, and Trinity College Dublin. This training is the fifth on the AWI's largest research vessel, the RV Polarstern, offering access to cutting-edge instrumentation and infrastructure. The programme offers early-career scientists a unique opportunity to gain hands-on experience in observational techniques and data analysis, which are crucial for understanding the ocean's role in the climate system.

Twenty of the fellows (Table 1), 12 females and 8 males, have limited or no prior experience of working on research ships, and they will benefit from intensive practical training designed to prepare them for future ocean research activities. This year, for the first time, the programme also includes five junior teachers (3 female, 2 male) (Table 1). These participants already have substantial experience at sea and are now receiving specific training to prepare them for teaching and mentoring roles, particularly during future ship-based training programmes. Their participation represents a significant step

towards developing sustainable teaching capabilities and empowering future educators within the global ocean science community.

Five fellowships are allocated to early career scientist affiliated with @SeaNetwork members and Irish institutes, further strengthening international collaboration and knowledge exchange. The programme is led by a team of highly experienced international instructors, enabling a diverse group of talented scientists to develop their skills, expand their networks and contribute to advancing ocean and climate research worldwide.

Table 1 – Selected trainees and junior teachers for the NoSoAT25

Given name	Last Name	Affiliation	Gender	Nationality
Trainees				
Aisling	Oflynn	University College Cork	Female	Ireland
Floor H. G.	van der Marck	n.a.	Female	Netherlands
Ana	A. Wasielesky	Istituto Nazionale di Oceanografia e di Geofisica Sperimentale	Female	Brazil
Ankit	Swara	University of Galway	Male	India
Benjamín A.	P. López	n.a.	Male	Chile
Brenna M.	Concolis	Helmholtz-Zentrum hereon	Female	Philippines
Emmanuel O.	Ewusi	Fisheries Commission Fisheries Scientific Survey Division	Male	Ghana
Esraa	Arafat	Port Said University	Female	Egypt
Guillaume	Hug	n.a.	Male	France
Maria M.	Fragueiro	SGS-Ecotecnos Biological Oceanography	Female	Argentina/Italy
Md Shabit	Hossain	Shahjalal University of Science and Technology	Male	Bangladesh
Olfa	Sayari	Center of Biotechnology of Borj-Cedria Laboratory of Bioactive Substances	Female	Tunisia
Marko	Terzin	Australian Institute of Marine Science and James Cook University	Male	Serbia
Priskilla	Nghaangulwa	Namibia Nature Foundation	Female	Namibia
Sarah S.	D. dos Santos	Universidade Técnica do Atlântico	Female	Cape Verde
Sergio	M. Cardenas	Universidade Federal do Rio Grande do Sul	Male	Colombia
Tomas A.	G. Ortiz	Alfred-Wegener-Institut	Male	Venezuela/Mexico
Ana F.	Duarte	University of Lisbon	Female	Portugal
Fahima	Bellabad	Ecole Nationale Superieure des Sciences de la Mer et de l Amenagement du Littoral ECOS	Female	Algeria
Douglas	S. Rodrigues	Fundação Universidade do Rio Grande	Male	Brazil
Junior Teachers				
Coffie G. F.	Zinzindohoue	n.a.	Male	Benin
Alejandra	C. Ramirez	Autonomous University of Baja California	Female	Mexico
Ximena A.	A. Vega	University of Stirling	Female	Mexico
Caio C.	Ribeiro	Universidade de Algarve	Male	Brazil
Cristina	Claver	AZTI Foundation Biotechnology and Molecular Ecology	Female	Spain

As in previous NoSoAT/SoNoAT editions, the NoSoAT25 will include an outreach component including activities with schools in different countries, as well as science communication actions.

5. Communications

5.1. Website and social media

In April 2025, the [Ocean Training Partnership](#) (OTP) portal was migrated to the POGO website ecosystem, providing greater flexibility in managing the application system and facilitating seamless integration of content with other POGO-managed websites, particularly the POGO and NANO websites. It has been continually maintained and added to, with the details of cruises that have hosted or will host [training fellowships](#), information about the participating [fleet](#), and [fellows](#). In addition to the OTP, calls for hosts and candidates for NF-POGO shipboard trainings are regularly announced in POGO and NANO communication channels.

Besides using POGO's mailing list to advertise shipboard training opportunities, the POGO Secretariat dedicates efforts on social media advertisement as this is often indicated as the main source of knowledge about training opportunities. The Ocean Training Partnership, which has over 640 followers on X and Bluesky, posts calls (reshared by POGO and NANO social media channels) that receive greater interaction from the public and are re-shared by the general public and organisations related to marine sciences.

5.1 Publications

The publication "All aboard! Providing shipboard technical skills while building capacity in ocean observations" has been published in the Oceanography Special Issue "Vision for Capacity Sharing in the Ocean Sciences". The manuscript, led by the POGO Secretariat, counted with the collaboration of frequent partners of NF-POGO shipboard training programme from Plymouth Marine Laboratory (UK), Alfred Wegener Institute (Germany) and University of Galway (Ireland). The publication, which includes description of outreach activities implemented and a quantitative analysis of trainees' feedback on the training impact, is available [here](#).

A manuscript entitled "The Polarstern Atlantic Transect as a concept for shipboard training on ocean science" has been submitted to the ICES Journal of Marine Science. Led by the NoSoAT coordinators at the Alfred Wegener Institute, the paper was developed in collaboration with the POGO Secretariat and aims to present an adaptable framework for shipboard training that is inclusive, international, intercultural, and transdisciplinary in nature.

An abstract on POGO Shipboard Training Programme is being prepared for submission to the Ocean Sciences Meeting, to be held in Glasgow UK, in early 2026.
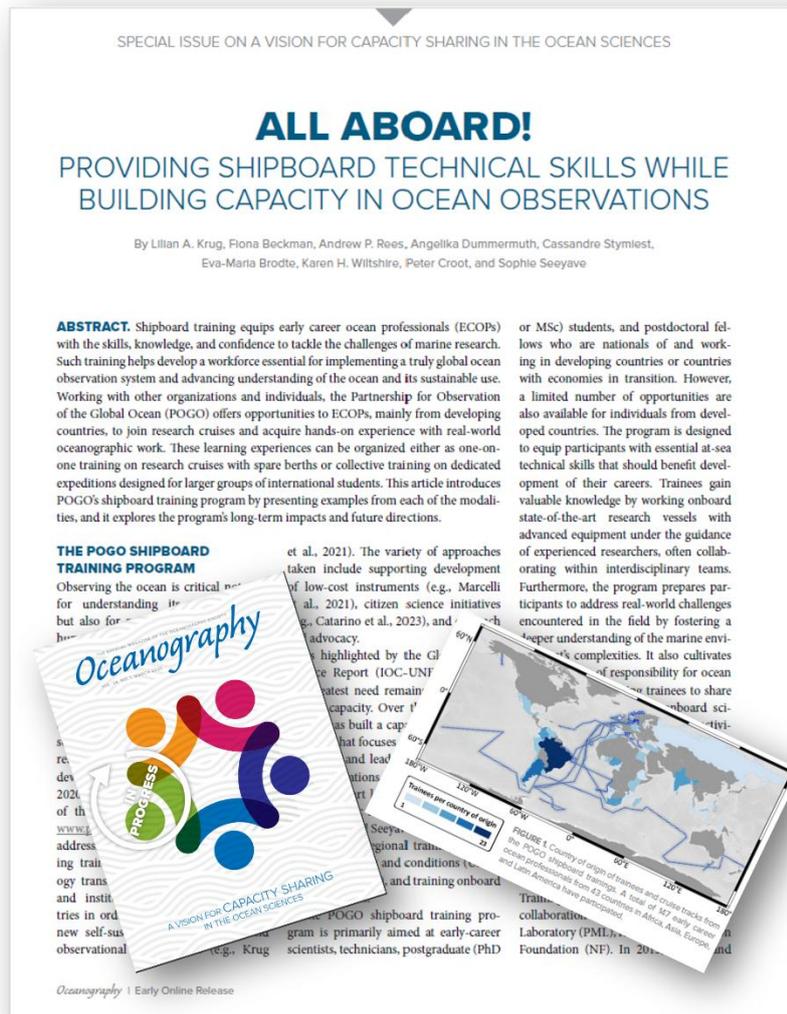

Figure 9 – Publication on the POGO Shipboard Training programme.

4.3 Partnerships

POGO's collaboration with a range of partners continues to strengthen and expand the opportunities available for shipboard training. During this period, the partnership with @SeaNetwork—a network of training providers established under the EU-funded AANChOR initiative—secured two berths on the SEAMester training cruise. POGO was also invited to collaborate with OceanQuest and OceanX in organising shipboard training for 28 early career researchers from Africa as part of the Around Africa Expedition. In addition, negotiations are currently underway with BAS (UK), GEOMAR (Germany), IRD (France), and IEO (Spain) to secure further training opportunities aboard their research expeditions scheduled for early 2026.