OceanX + OceanQuest - Around Africa Expedition 2025

Leg 3, Walvis Bay, NA – Mindelo, CV

Weekly Report 1 (06 – 13 March 2025)

Leg 3 began on 06 March, marking a milestone for our joint expedition with OceanX and the Partnership for Observation of the Global Ocean (POGO), involving 15 early career ocean professionals (ECOPs) from various African countries. This leg represents a new experience for the OceanX team, as the student participants are slightly more senior than a typical OceanX Young Explorers group. Also, the leg lasts 18 days, making it the longest training program delivered by OceanX. Everyone was excited to kick off the program and meet the 15 ECOPs, who had been carefully selected for the program by OceanQuest, OceanX, and POGO. This leg of the Around Africa Expedition features an intensive curriculum covering oceanography, marine ecology, ocean acidification, data visualization, environmental DNA (eDNA), ocean optics, and innovative science communication techniques.

Before that, we participated in a four-hour pre-departure workshop in Walvis Bay on 04 March. During this workshop, the students met each other, which meant that after that, they boarded the vessel as a team. This was of great advantage during the first three turbulent days of the leg when many students experienced significant seasickness and did their best to support one another, and the crew of the OceanXplorer graciously provided each cabin with a first-aid kit containing some beverages.

On day one, the OceanXplorer team warmly welcomed us and gave us an overview tour of the ship. We also learned that the food on a ship can be good and even exquisite. However, we could not do much that day, as most ECOPs struggled with seasickness. Our primary curriculum would start the next day.

So, on 07 March, we began the first three-day block of the curriculum. Each day features a morning meeting at 8:00 am to discuss the day's plan, address some housekeeping questions, and invariably share in one word how each of us was feeling that morning. We would chat and enjoy coffee with a crew member at 8:30 am. On the program's first day, the Science Program Director at OceanX, Mattie Rodrigue shared the amazing story of

her professional journey, encouraging the ECOPs to discuss it during the many lunch and dinner conversations.

During these three first overview days of the curriculum, between 9:00 am and 4:00 pm, the ECOPs would get lectures on ocean-related topics such as oceanography and ocean conservation. Friday (day 2 of the leg) was opened with a talk on the Atlantic Ocean and its characteristics by Kailani Acosta, Science Program Associate at OceanX. We took a break for a daily CTD cast at 10:30 am, which we do every day at the same time. Additionally, a Bongo net tow was performed for a project of two of our ECOPs - Rouane (SAR) and Phyllis (Ghana), who study zoo- and phytoplankton. After this short science break, we continued with a workshop on metadata visualization lectured by our guest faculty, Carla Berghoff, and one on data management with the OceanXplorer science team, where we learned what types of data is collected on the ship and where/how to access it.

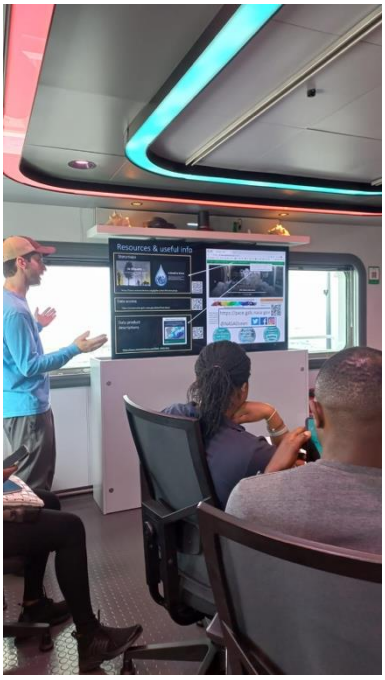
A highlight of the second day was a group picture we took on the helideck, afterward enjoying the sunset over the ocean together.

On 08 March, we continued our schedule: an early morning meeting and then a coffee chat with Annie Withington, the Purser on OceanXplorer. Our guest faculty on board, Nathan Hubot, delivered a lecture and a hands-on workshop on eDNA and DNA extraction techniques. We extracted strawberry DNA, and this was a very exciting moment for many of the students!

Later in the day, we had a safety drill on the aft deck, after which we attended a talk by a research assistant at NASA Ocean Ecology Lab, Harrison Smith, on the optics of the ocean. The NASA team on board of the OceanXplorer is working on validating the NASA PACE satellite ocean optics data with field samples, and we got to hear the story behind it and learn some interesting details on measuring ocean optics remotely and in situ.

We finished the intense day by gathering in the mess to watch an episode of Keanu Reeves' show *Visionaries* starring Mattie and the OceanXplorer with a foreword from Mattie.

The next day, Sunday, was Captain Roger's birthday, which we celebrated with a morning coffee chat with him, and our chef celebrated with a big cake for everyone in the mess. The hard work continued according to the schedule: we learned about ocean acidification and seafloor mapping. We complemented that with a fantastic workshop on playful learning offered by AnnMarie Thomas, a member of the OceanX Education team. The task was to use a certain amount of LEGO parts to model the ocean of 2050 in 15 minutes.




Our ECOPs took that task very seriously and were incredibly creative at the same time. Everyone presented their concept of Ocean 2050, and the stories were so creative and engaging that the OceanX media team decided to make short videos of all of them.

10 March was the last day of our first intense curriculum block and the last day dedicated to an introduction to various topics. After a coffee chat with Petra Topic, the Chief Stewardess of OceanXplorer, we deep dived into media topics for the whole day. Thanks to the expertise of Adam Wolffbrandt, Director of Photography at OceanX, the ECOPs learned about making documentaries and what tools needed to succeed. The workshop's highlight was Adam's hands-on exercise teaching how to set for an interview. The ECOPs participated in setting the camera, light, and sound to ensure a good video.

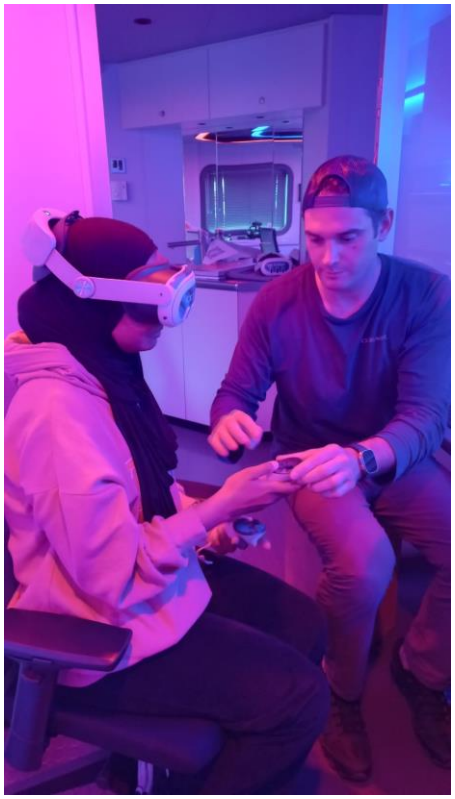
After lunch, Mario Tadinac, Media Technical Officer at OceanX, and Kavi Kumar from Mages introduced the students to the concepts of extended reality and how they can be used to amplify science communication. Most of the ECOPs tried virtual reality headsets for the first time, and it was definitely a memorable experience for them! Before dinner

that day, the ECOPs were split into groups for the upcoming four days of group work on three topics: ocean carbon, eDNA, media, and extended reality. The group assignments remained a surprise for the ECOPs until the last moment, creating excitement and prompting everyone to guess who would end up in each group. Later in the evening, they exchanged expectations and emotions about the upcoming group work.



The following three days were dedicated to lab work, with students spending the entire day in their respective labs. The eDNA lab was focusing on eDNA extraction, processing, and identification techniques for an additional day. The ocean carbon lab investigated current methods for measuring seawater total alkalinity and the concentration of dissolved organic carbon (DIC). The media lab was exploring various formats of science communication; students would each produce 1-2 short documentaries and experiment with virtual reality for science communication using the Unreal Engine, a powerful, widely used software platform, primarily known for creating immersive and realistic 3D environments.

A nice addition to the daytime lab program were ECOPs presentations of their work and research in the evenings. Every evening, except for the last day of the week, Thursday. On 13 March, we gathered to listen to five presentations in one evening, inviting everyone on the ship to join us. These evenings have been very rewarding for the students and those who have joined us for these 1.5 hours. The ECOPs come from a wide range of backgrounds: climate science, chemistry, zoology, marine ecology, and the biomedical field, which has made these presentations exceptionally diverse and interesting.



As a highlight of the entire week, on Wednesday the 12th, as we were approaching a seamount, some of us were lucky to spot a swordfish very close to the ship, and then later that day - several pods of whales, who remained unidentified despite our attempts with binoculars and being out on the deck for a good hour. Before that, we only invariably spotted flying fish, so this was a memorable encounter with ocean life for all of us.

In the upcoming week, we will finish the lab block and proceed to the final part of the onboard curriculum, the 10 days during which the students will work on projects of their choice and design with the support of our guest faculty and OX science team on board. We expect very exciting outcomes from a colorful mix of projects and look forward to seeing which projects the students decide to dedicate themselves to. More details will come in the report next week!

Greetings from OceanXplorer!

Olga Mironenko