

to adults. So a grant like the one we received from ASLO was the base for funding new projects which are allowing us to produce more outreach products. We are producing apps for most activities we have developed so far, aiming to broadening the audience and awareness of water quality.

All the activities were developed as prototype or pilot study for the original school, and were later multiplied for different targets as other schools, science fairs and science exhibitions. We also did activities during Rio +20 United Nations Conference on Sustainable Development. It was called the "Pop Science in the Rio +20". We received visitors from elementary school children to teenagers and adults, including some visitors with visual disabilities. Our Laboratory staff (composed by undergraduate and graduate students) received nearly a thousand and three hundred persons during the event. Another important event was the National Week of Science and Technology, organized by the Ministry of Science and Technology of Brazil. It was conducted throughout the country with the presence of several institutions, including the Federal University of Rio de Janeiro. Our team assisted nearly seven hundred people during the four days event. In addition, our approach was not limited to Guanabara Bay basin, and some schools located in other regions with similar water quality issues were enrolled too. Our staff has been visiting schools since 2008 with activities comprising water analysis and support lectures. These are short visits but they have high impact awareness for people who attend activities, both students and their teachers. Our team at Laboratory of Hidrobiologia (Institute of Biology - UFRJ) are looking towards continue using Guanabara Bay as a model for its didactical activities and experiments. The ASLO Global Outreach Initiative funding was an important stimulus and a good step towards a broader recognition, and we are grateful to ASLO for supporting our initiative in work with outreach activities related to water pollution.

BACHOK MARINE RESEARCH STATION (MALAYSIA) OUTREACH PROGRAM ON MARINE MICROBIAL ECOLOGY

Choon Weng Lee, Institute of Ocean and Earth Sciences, Bachok Marine Research Station, University of Malaya

This project was organized jointly by IOES, UM and ASLO (Association for the Sciences of Limnology and Oceanography). On 17 November 2012 (9 am to 5 pm) 30 secondary school students (Form 4) visited Bachok Marine Research Station. The objectives of the activity were to introduce the Bachok Marine Research Station, introduce the role of oceans and microbes in global climate change scenarios, allow students the use of research microscopy with digital imaging system for the observation of phytoplankton and zooplankton in nearby aquatic habitats, and allow the students the use of spectrophotometer and apparatus for some basic marine chemistry.

Although we wanted to carry this out earlier, delays to the setting up of instruments at the station prevented this. However, we were still able to carry this out before the monsoon started. Only one school principal was enthusiastic about the program, and whole-heartedly supported it. Initially we received about



Top: Students using the microscope and imaging system for microbial observation. **Bottom:** Tour and explanation of equipment at the station.

33 names but on the day itself, only 30 students turned up. They were all from Secondary Four (16 years old), and all did not have any knowledge on marine science and oceanography.

An introductory lecture on marine food webs, and its importance in the context of global warming and climate change was given to the students. Then, the students were given a tour around the building and its facilities. After sampling, the students were taught to handle high end research microscopes with digital imaging system, and to look for phytoplankton and zooplankton within their samples. They were also asked to carry out ammonium, silicate and phosphate analyses, and compare estuarine and coastal samples.

At the end of the day, a simple analysis of their results were carried out (using Student's t-test), and some conclusions that could be made. Every student was presented with a Certificate of Participation. To ascertain the program effectiveness, a survey form was also given out. Generally, most of the participants gave positive remarks on the program and its contents. This was a good opportunity for the students to have hands on session with research grade microscopes and it was enjoyable to see their reaction and enthusiasm when finding different microbes. We have also created a Facebook page (<http://www.facebook.com/groups/BachokOutreach/>) for this group, and hope to continuously post marine related topics on it.

Thank you, ASLO for giving me a chance to carry this out.