Ocean Literacy Case Studies

Ocean Literacy Training Courses

With the support of: Sweden Sverige
Community Engagement Projects
Gender Equality at Sea

Gender Equality at Sea (Igualdad de Género en el mar) is a program launched by COBI in 2017 that seeks to achieve the equal participation of women and men in the decision-making about marine conservation and sustainable fishing. To reach this objective, four main activities were implemented:

- a Community Leadership Program;
- a website to share information;
- the establishment of a methodology to assess the participation of women in fisheries;
- the creation of dialogues with experts to achieve equal participation in the management of fishery resources.

Three years after its implementation, the initiative has become a benchmark in Latin America for gender equality in fisheries.

Neyra Solano
Gender Equality Specialist at COBI

Mexico and Latin America

www.igualdadenelmar.org
@igualdadenelmar

WITH THE SUPPORT OF:
Collective action for the Implementation of the SSF Guidelines

Costa Rica

CoopeSoliDar R.L has supported small-scale fishery communities’ collective action promoting a human rights-based approach to ocean conservation to improve just and equitable distribution of benefits derived from the use of marine resources. This project, launched in 2010, has accompanied the Marine Areas for Responsible Fishing and Marine Territories of Life Network that aggregates 22 coastal communities whose livelihoods depend on the sustainable use of marine resources. The Network has supported inputs from the fisherfolk to promote the implementation of SSF Guidelines, seeking to achieve an equilibrium between marine conservation objectives and the improvement of living conditions and culture of IPLC in coastal territories.

Vivienne Solís Rivera
Associate and member of the Administrative Board of CoopeSoliDar R.L.

www.coopesolidar.org
@coopesolidar
@coopesolidar
Mainstreaming sustainable fisheries and marine conservation through collective action and science

María José Espinosa-Romero
Conservation and Fisheries Programs
Director at COBI

The strategy adopted by COBI has four components:

- "strengthening fishing leaders and organizations" promotes legality, competitiveness, robust finances and collective actions at individual and group level;
- "sustainable fisheries" that seeks to demonstrate that IS for sustainable fishing can be adopted in developing countries, in both, small scale and industrial fisheries;
- "marine reserves" focuses on the design, implementation, and assessment of no-take zones for the recovery of fisheries and marine ecosystems;
- "public policies" looks at ensuring a legal framework for sustainability and to have impact on the international agenda.
Thailand's shy sea cows

To prevent dugongs disappearing from Thailand’s coastal waters, biologist Pisit Charnsnoh has engaged local people to protect the shy sea mammal and revive the coastal ecosystem so crucial to their own economic survival. By promoting activities to engage local communities and educational initiatives in local schools, people started to feel motivated to protect the coastal habitat of seagrass meadows and mangroves.

Pisit Charnsnoh
Co-Founder and Director of Yad Fon (Raindrop Association)

Today, local villages are involved in community-based resource management activities, targeting especially the region’s underwater seagrass meadows, the primary dugong habitat. Ecological improvements of coastal marine areas ultimately led to associated economical benefits for the local communities whose livelihoods depend on the marine resources.
Climate and Ocean Support Program in the Pacific

The aim of this project is to enhance the capacity of Pacific Islands to manage and mitigate the impacts of climate variability and tidal events. Molly Powers-Tora and her team of experts are working with stakeholders in the Islands to build tools that can forecast and report on climate, tides and the ocean. They also work to determine how efficiently communicate this information to communities, businesses and Governments. The COSPPac program carries on the legacy from previous phases of support for NMSs in sea-level monitoring and climate prediction with the inclusion of capacity development and communication, information technology services, and ocean services. The project also aims to improve the accessibility and relevance of ocean data, delivering ocean data analysis directly to users in different maritime and policy sectors who need it to inform decision-making.

Molly Powers-Tora
Team Leader, Ocean Intelligence
Symphony

Jonas Pålsson
Senior Analyst at the Swedish Agency for Marine and Water Management

Symphony is a method developed by the Swedish Agency for Marine and Water Management (SwAM), to quantitatively weigh ecosystems and environmental pressures. With Symphony, the cumulative environmental impact from different marine spatial planning (MSP) options can be objectively compared. Cumulative environmental impact refers to the combined pressure from different kinds of human activities on the marine ecosystems. This cumulative impact indicates the consequences for the environment. In this way, marine spatial plans can be developed with an ecosystem approach. Symphony has been used in the Swedish national marine spatial planning from autumn 2017 during the planning-, dialogue-, and evaluation phases. This scientific method is transparent, easy to understand, and easy to interpret.
Ocean Literacy Networks
Network for marine and limnic educators

Sweden

This group was born to meet the desire of having a network and a digital platform for sharing material. The network started in 2019 and it gathers many actors, from local to national authorities, aquariums, science centers, teachers, nature schools, researchers, students, artists, writers and seniors. Within the network, participants are encouraged to share their experiences and ideas concerning marine and freshwater education.

Kajsa Tönnesson
Director of Swedish Institute for the Marine Environment

The two sections within the network work close together to increase the collaboration between actors, to inspire the members and to highlight good examples. Lectures and workshops are arranged to enhance the collaboration and exchange experiences on a local, national and regional level. The main purpose of the Swedish network for marine and limnic educators is to enhance Ocean Literacy from a source to sea perspective.
OneOcean is a collective of over seventy NGOs, promoting the urgent need to enhance human wellbeing through ocean protection, safeguarding the key services which the ocean performs for our planet. Informed by the work of scientists and other experts, the initiative provides a unified platform for ocean groups and aligns effort around four major needs for the ocean. The OneOcean Response Room is a regular briefing of legacy and social media conversation around the ocean in English language international media. It considers what issues are being reported, how, and analyses trends in coverage. The briefing is used to inform recommendations for the ‘flotilla’ (the NGO collective) around how best to communicate effectively and impactfully around ocean issues in the current media landscape.
Citizen Science Projects
The charismatic whale shark is one of the most endangered species in the world. The ultimate goal of this monitoring project was to identify where whale shark breed and important areas for their survival, in order to protect them. Thanks to the help of brilliant scientists, an algorithm used to map the stars in the night sky was adapted, enabling Norman and his collaborators from the non-for-profit group ECOCEAN to map the distinctive markings on the skin of whale sharks, identifying individuals. Through Citizen Science, any divers can play a part in this monitoring programme, sending pictures of individuals spotted all around the world. More than 7,000 individual whale sharks have been photographed and recorded by divers in 54 countries, helping to create one of the most comprehensive monitoring programmes of a wild animal in the world.
Incorporating whale-watch photographs into a 5-decade aerial photo ID

The Instituto de Conservación de Ballenas and Ocean Alliance’s long-term database of southern right whale sighting histories, built up through annual aerial surveys on their calving ground at Península Valdés since 1971, has become a sensitive indicator of the population’s health and dynamics. However, the database still represents a relatively small sample of whale life histories occurring in Valdés. The project aims to enhance the database by integrating photographs taken throughout the whale season by professional whale-watch photographers. Boat-based photographs are taken almost daily during the seven months of the year when the whales are present. Recently, the whale-watching operators contributed 460,000 photos of whales taken between 2003 and 2016. The resulting expanded database will help to improve conservation strategies and boost citizen science in this region.

Florencia Vilches
Researcher at Instituto de Conservación de Ballenas

Argentina

www.ballenas.org.ar
@icb.argentina
@ICB_Argentina

© Whale watching operations / Instituto de Conservación de Ballenas
© Photo ID aerial survey / Instituto de Conservación de Ballenas
Scientific Research Projects and innovative technologies
Professor Block and her team monitor the movements of large fish, such as tuna and white sharks, through buoys, electronic tags, and wave gliders. Such technology allows to detect a tagged animal whenever it is in their proximity and send signals back to a data centre at Stanford University’s Hopkins Marine Station, in California, where an elaborate picture of their movements is gradually emerging. Students and members of the public can now follow the adventures of individual sharks and fish via an app known as Shark Net, developed to get people making a direct personal connection with the animals that the team is studying. Selecting any buoy on the digital map, people can take a look at the pictures of sharks that were detected in that area. This technology will engage the public on the plight of marine predators that roam along the west coast of North America.
Hot-spots of Coral Resilience on the Great Barrier Reef

Doctor Emma Camp
Research Fellow, Lecturer at the University of Technology Sydney (UTS)

UTS started this research project in 2016 intending to study corals that found a way to survive under extreme conditions to understand how they have adapted, and ultimately exploring if they can be used in active reef management initiatives, e.g. by growing and transplanting them to degraded reef areas. Findings from this project are directly feeding into the Coral Nurture Program on the Great Barrier Reef. While the activities of the work are tailored to locating and studying local scale pockets of coral resilience, the project includes undertaking scientific research and disseminating scientific findings to the broader community, activities that contribute to the challenge of “One Ocean, Many Countries.”
There are large areas of the Arctic and Antarctic glaciers and ice sheets that are colourful and dark. The research of British glacial microbiologist Joseph Cook focuses on understanding why glaciers and ice sheets are getting darker as the climate warms and how that is going to contribute to sea level rise. Until now, the influence of biology on the rate of melting has been largely unknown. With the help of drones, planes, and satellites, Joseph Cook and his team are trying to understand what processes are causing the darkening, intending to build a model to have insights into that darkening caused by microscopically small life activity. The ultimate goal of this research project is to find ways to mitigate or reduce that risk. All the software, data and models produced by Cook's research are all completely openly available to the public, to enhance sharing and future advances in Science.
Sea birds nesting colonies on islands throughout the world have experienced devastating destruction due to human persecution and attacks from animals. Hunters and fishermen almost eradicated Atlantic puffins from Maine’s offshore islands in the 19th century. This project, launched in 1973 aims to attract seabirds back to their former homes off the state of Maine, USA. Througout the years, an innovative approach using decoys, mirrors, and recordings was developed and tested by Dr. Kress and his colleagues to attract birds to suitable nesting sites. The technologies developed have also helped to restore rare and endangered seabirds worldwide. The project has grown steadily over the years, and today puffins are once again flourishing along the coast of Maine.
Chilean Patagonia is a windswept maze of fjords, channels and islands. German and Chilean biologist and marine explorer Vreni Häussermann has dedicated her life to exploring and protecting this biodiversity hotspot. Performing expeditions to key sites with a ROV (remotly operated vehicle), the team of experts could have a look at animals found below diving depth, at approximately 500 m and exploring the secrets of the twilight zone. The sharing of information found to other scientist, policy makers and the general public is a key aspect of Vreni Häussermann’s research project, who is involved in many international interdisciplinary cooperations. By doing so, more and more people becomes aware that Chilean Patagonia is a biodiversity hotspot and it definitely needs protection.
Pinovo Zero
Emission Sand Blasting

Pinovo has developed, patented, proven and commercialized clean blasting technology from its headquarters in Bergen in Norway. Pinovo estimates that between 1.5 m and 2.25 m tonnes of paint microplastics emissions enter the ocean every year. Pinovo’s technology can significantly reduce this. Currently, paint microplastic emissions enter the ocean during surface maintenance - removal of old paint and rust from corroding steel assets before repainting - as a result of using traditional surface treatment methods of open grit blasting and water jetting.

By using Pinovo’s vacuum blasting technology, we can protect ocean health and biodiversity. As “clean” vacuum blasting becomes an industry standard over time, it will contribute to ocean sustainability worldwide by eliminating paint microplastic emissions.

Declan Mc Adams
Chairman of the Board of Directors at PINOVO AS
OCEAN LITERACY TRAINING COURSES

Educational projects for schools

© Shutterstock
The Educational Passages Miniboat Program offers an extraordinary way for people of all ages to learn crucial STEM skills, discover maritime careers, and build connections that will last a lifetime. Students work together to prepare, deploy, and track their very own miniboat while learning about ocean currents, weather, technology, and more. Each 5-foot long unmanned miniboat has a satellite transmitter, allowing everyone to track it as it sails across the ocean. The program introduces participants to sailing, engages them in collaborative learning through international cultural experiences, and increases the understanding of the value of water on our planet as a shared resource through ocean literacy. Since 2013, the Educational Passages Miniboat Program has engaged thousands of people from over 28 countries and 6 continents.
The Ultimate Field Trip Project is an educational initiative carried out by Digicel IMAX Cinema and sponsored by Atlantic LNG. The project uses 3D documentaries to entertain and educate the kids on the environment, giving them an actual mirror experience of life beneath water. Coexistence Expeditions have partnered with IMAX since 2015 on the World Environment and the World Ocean Day to educate the students and engage them in activities that will help them get a better understanding of the importance of environmental conservation. Such activities encourage the kids to learn more about the ocean and start individual projects in their schools. Changemakers for the Environment also conducts a short presentation on the theme on both observed days and encourage youngsters to get involved in the protection of the environment and the ocean.

Leah Fuchong
Founder of Changemakers for the Environment
The Pilot Project “SeaCleaner” is a citizen-science and educational project, developed by the Institute of Marine Sciences of the Italian Research Council (CNR-ISMAR) in collaboration with Istituto Nazionale di Geofisica e Vulcanologia (INGV). Since 2013, it has involved environmental NGOs, volunteers, five Italian Marine Protected Areas surrounding the Pelagos Sanctuary, and so far more than 1500 high school students within the Italian program for “work-related learning internships”. The project aims to overcome the lack of current data on beached marine litter—a gap of knowledge that cannot be ignored any longer, according to the last European Union’s ambitious Marine Strategy Framework Directive (MSFD). Citizen science approach in this project serves also as an important instrument for societal/behavioural change.
"The Sea of Science" contest is a nationwide artwork, video, and storytelling contest aimed at primary and secondary school students (from 5 to 17 years old) to share their relationship to the ocean, and their views about the state of the ocean and what does an oceanographer do. It also involves teachers and education centers, families, and the public providing them educational resources. "The Sea of Science" is a joint initiative between SOCIB, the Spanish National Research Council (CSIC), and Marilles, a non-profit foundation working to make the Balearics a world-leading example of marine conservation. "The Sea of Science" provides a unique opportunity for students to immerse themselves in marine sciences through artistic self-expression, thereby allowing them to explore and learn cultivating the aesthetic capacity.
A joint initiative of the Ocean Frontier Institute and the National Film Board of Canada, Ocean School is an inquiry-based learning experience designed to empower students with knowledge and tools to investigate and design innovative solutions for the accelerating challenges that face the global ocean. Although designed for use by classroom learners between the ages of 11 to 15, Ocean School’s story-telling approach and customizable reflection activities make it easily accessible to older and younger learners, both inside and outside of the classroom.

Using cutting edge audio-visual media students join subject matter experts on the front lines of ocean research, science, enterprise and culture as they explore the complexity of the human-ocean relationship.
Two Bays is an Australian marine education project that utilises the Pelican 1, a purpose-built 62-foot catamaran, to conduct marine research, community engagement activities, and provide opportunities for dialogue and information sharing as keys to developing an Ocean Literate society. For the past 15 years Two Bays has been an annual project aboard the Pelican 1 on the two large bays adjacent to Melbourne. Each year in February and March, the vessel has a busy schedule of trips with participants including school groups, bay stakeholders, management agencies and more. There has been a particular emphasis to target and promote participation of groups who may have limited opportunity to experience the marine environment in this unique way. This has included indigenous students, refugee groups, newly arrived migrants, and disadvantaged groups.

Harry Breidhal
Director of Nautilus Educational

Ocean Literacy aboard Pelican 1 © Harry Breidhal
School group participating the Two Bays project/ © Harry Breidhal

www.saltwaterprojects.squarespace.com
Communication projects (Media and Art)
Jacopo Pasotti, with the support of photographer Elisabetta Zavoli, tells the story of problems and solutions about coastal erosion in Indonesia, the impacts of aquaculture, and some case studies on solutions proposed by local communities. Starting from this issues, they tell a new media approach focused on using a positive and constructive narrative approach of solutions to environmental problems to reach out to the general public.

They use a variety of communication languages to reach very different media channels and audiences: pictures, data visualisation, videos, texts, talks, and exhibits. Their project was published in a large number of countries and some pictures are still exhibited in a museum in Italy. After four years from the start of the project, they are still involved in the communication of the project results.
The exhibition “The Art of Marine Sciences - The oceans portrayed by Artists and Researchers” is the result of the collaboration between 24 artists in training from the Academy of Fine Arts, the Venetian District of Research and Innovation as CNR researchers from the Institute of Marine Sciences (ISMAR) and the Institute of Polar Sciences (ISP). Each scientist presented articles, projects, and methodologies to the artists that in turn initiated a process of artistic research to produce an art piece that would channel the scientific information and messages through an experiential/ emotional means. This way even very complex scientific themes could be made available to the general public. The resulting exposition was proposed as a mediated experience during which the artists accompanied visitors and explained each piece both for the artistic and scientific content.

Francesco M. Falcieri
Researcher at National Research Council of Italy - Institute of Marine Sciences
Acqua Mater is the name of the association, as well as Patricia Furtado’s life project and mission: reconnecting people to the Waters and to the Ocean through their own memories and emotions. The core message of all the initiatives within this project is the imperative need of honoring and protect the Ocean of our origin, since all life on Earth originated in its waters. Audiences of all ages are engaged in different activities, such as individual and collective Experiences of Water or Ocean Reconnection, underwater performances, workshops, conferences and long-term Educational Programmes.

Patricia Furtado
Founder & CEO of ACQUA MATER
OCEAN LITERACY
CASE STUDIES