ASCLME NEWS

Agulhas and Somali Current Large Marine Ecosystems Project

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Partnerships and piracy

As the ASCLME Project enters its third year, it is gratifying to see how many initiatives and partnerships that have taken months, or even years, to develop are operating smoothly and growing in depth and scope.

The ASCLME Project is working with nine countries in the western Indian Ocean, and France, to introduce an ecosystem approach to the management of the region's marine and coastal resources. Over the past year, the countries have demonstrated their commitment to achieving this goal by establishing and supporting National Coordination Groups and working steadily towards the production of a Marine Ecosystem Diagnostic Analysis, or MEDA. The MEDAs are national reports that will provide each country with comprehensive, up-to-date information on the state of the marine environment. Each MEDA will include a scientific, economic, societal and policy perspective. Collectively, they will lay the foundation for the compilation of a Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP).

Collective regional action

The SAP, that is the primary objective of the ASCLME Project, will be signed by each of the nine countries and will set out a strategy for collective, regional action towards the introduction of an ecosystem approach.

Therefore, the progress made by the individual countries towards the preparation of their MEDA reports represents an important step forward for the ASCLME Project. And the work that is taking place on the ground is strengthened by the commitment demonstrated at the policy level; political ownership of the project is growing and ties with the African Union and the New Partnership for Africa's Development (NEPAD) have been established or strengthened.

Equally important to the success of the ASCLME Project is the capturing of essential information about the oceanography of the region and its interaction with, and influence on, the biodiversity and economies of the western Indian Ocean. With this in mind, the Project has supported the design and implementation of two regional oceanographic expeditions in partnership with the FAO's Ecosystem Approach to Fisheries (EAF-Nansen) project.

In 2008, the research ship, *Dr Fridtjof Nansen* provided a platform for 83 scientists from 27 research institutions to carry out fundamental oceanographic research across a wide swathe of the western Indian Ocean. The scientists paid particular attention to the physical, chemical and biological oceanography of the remote Mascarene Plateau, an isolated and completely unexplored marine ecosystem.

Presently, the *Dr Fridtjof Nansen* is engaged in a 106-day voyage that aims to improve understanding of the physical, chemical and biological characteristics of the Mozambican shelf, the southern and west Madagascar shelf, the Comoros Gyre and the seamounts of the southern Indian Ocean.

It is expected that the 40-day cruise on the seamounts of the southern Indian Ocean will be a highlight of the 2009 voyage. The partnership between the ASCLME Project, the EAF-Nansen project and the support of the International Union for the Conservation of Nature (IUCN) and a number of other organisations will make it possible for scientists to investigate five seamounts, ensuring that pioneering science continues aboard the *Dr Fridtjof Nansen*. The planning and implementation of the Southern Indian Ocean Seamounts Cruise presents another example of how the ASCLME Project is working constructively with a range of organisations at the cutting edge of ecosystem and oceanographic science.

Principal among these partnerships is an evolving and mutually valuable relationship with the National Oceanic and Atmospheric Administration (NOAA) of the United States. This partnership developed in 2008 with the deployment of ocean moorings and associated equipment from the *Dr Fridtjof Nansen*. Work is now focused on establishing an effective early warning system for monsoons, ecosystem variability and climate change prediction that will assist the nine countries participating in the ASCLME Project to adequately plan their response to a warming world. Specific mention should be given to the close relationship between the ASCLME Project and the South African Institute for Aquatic Biodiversity (SAIAB) and the African Coelacanth Ecosystem Programme (ACEP). Logistical and administrative support from SAIAB and ACEP is a clear demonstration of the commitment by the government of South Africa to the ASCLME Project.

Piracy

Without doubt, the greatest constraint currently facing the ASCLME Project is the issue of piracy and the growing problem of security in the western Indian Ocean. The piracy threat has prevented the Project from collecting important data for the Somali and East African currents and parts of the southern Equatorial Current. However, the ASCLME Project is trying to see this difficulty as an opportunity. For example, it may be possible to review project finances and direct them towards coastal studies. And it might be feasible to survey the northern ecosystems by utilising remote sensing capabilities – either satellite technology or autonomous underwater vehicles.

Finally, it has been gratifying to see that in spite of the complexity and geographic scope of the ASCLME Project, and the high levels of poverty that characterise the region, we have made considerable progress over the past two years. Knowledge of the Project has grown considerably over this period, both within the region and internationally. It has been particularly exciting to see how the ASCLME Project has evolved into a flagship LME project and is becoming a model for the development of governance strategies at the LME level.

This issue of ASCLME News is intended to provide a brief glimpse of some of the important work that the ASCLME Project is involved in. More comprehensive progress reports have been posted to the Project website so please follow the easy-to-use links on the following two pages.

David Vousden
Director: ASCLME Project

ASCLME News: A prog

The Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project is supporting nine African countries in their efforts to collectively introduce an ecosystem approach to the management of the marine and coastal resources of the western Indian Ocean.

Project deliverables are grouped into five "outcomes" and a short progress report for the four key outcomes is presented here.

Outcome 1: Information

This outcome focuses on the capture of information for the development of a Transboundary Diagnostic Analysis (TDA) for the Agulhas and Somali LMEs.

- The 2008 voyage of the *Dr Fridtjof Nansen* was highly successful, with four months of oceanographic sampling carried out by more than 80 scientists and trainees, most from the countries of the region. A wide range of information about the physical, chemical and biological oceanography of the ASCLME region was collected. It is expected that, in time, this information will provide a much clearer picture of the oceanographic characteristics of the Agulhas and Somali LMEs. The 2008 voyage of the *Dr Fridtjof Nansen* also provided the Pacific Marine Environmental Laboratory (PMEL) of the USA's National Oceanic and Atmospheric Administration (NOAA) with an opportunity to deploy two ATLAS moorings and a number of Argo floats. ATLAS moorings and Argo floats provide key data for on-going oceanographic research and forecasting.
- The 2009 voyage of the *Dr Fridtjof Nansen* began in Pemba, Mozambique on 6 August 2009. Since then the ship has surveyed the Mozambican shelf and the south and west Madagascar shelf. It is currently engaged in a 28-day survey of the Comoros Gyre, an anti-cyclonic eddy located between north eastern Mozambique and northern Madagascar. During each phase of the voyage, ASCLME-sponsored scientists and trainees have worked side-by-side with their SWIOFP counterparts, who have concentrated on determining the fisheries potential of small pelagic fishes for Mozambique, Madagascar and Comoros.
- The 40-day South Indian Ocean Seamounts Cruise is expected to reveal new discoveries about the seamounts of the Indian Ocean and help to improve the management of marine resources. Between 11 November and 20 December, a team of the world's leading experts, paired with scientists from the region, will study the pelagic ecosystems around the seamounts. This cruise is led by the IUCN, funded by the GEF and supported by the ASCLME Project and six other organisations.
- The developing partnership between the ASCLME Project and NOAA promises to provide the countries of the ASCLME region with a very effective early warning system for climatic events. A supplementary partnership between NOAA and the South African government, through its Department of Environmental Affairs, is also very promising because it reinforces the move towards the establishment of a long-term agreement for monitoring and early warning data collection.
- The Project has contracted a regional coordination team to manage its coastal livelihoods and coastal habitat mapping activity. This activity will focus on collecting vital data on near-shore artisanal and subsistence fisheries and tourism. Ultimately, the data will be translated into an economic resource assessment that highlights the benefits of the ecosystem approach.

www.asclme.org/update/info

Outcome 2: Data

This outcome focuses on the establishment of long-term LME data collection, management and distribution.

- In each country, National Coordination Groups have been convened and good progress has been made towards the development of Marine Ecosystem Diagnostic Analyses or MEDAs. Once complete, the MEDAs will update each country on the state of their marine environment and provide a conclusive set of policy guidelines for each country. The MEDAs will also provide the basis for the Transboundary Diagnostic Analysis that is to be developed for the Agulhas and Somali LMEs and which will lay the foundation for the Strategic Action Programmes that are the primary objective of the ASCLME Project.
- Each country has appointed an ASCLME Project coordinator from a focal institution in their country to set policy and define activities for Data and Information management. The coordinators will oversee the collation and synthesis of information for their national MEDA.
- A template has been developed for the national MEDA reports so that the content produced by each country is relatively consistent.
- The ASCLME Project has worked closely with its sister projects, SWIOFP and WIO-LaB, as well as other agencies in the region responsible for marine and coastal data management, notably the Nairobi Convention and the Intergovernmental Oceanographic Commission of UNESCO.

www.asclme.org/update/data

MEDAs

The ASCLME Project has developed an innovative new tool to understand the inter-relationships between countries, their people and the marine environment. The Marine Ecosystem Diagnostic Analysis (MEDA) is an integrated tool to gather a comprehensive state-of-the-environment report, combining information on the environment, socio-economics, legislation and environmental threats.

The MEDAs will also provide the basis for the Transboundary Diagnostic Analysis that is to be developed for the Agulhas and Somali LMEs.

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Outcome 3: TDAs and SAPs

This outcome is concerned with the adoption of a Strategic Action Programme (SAP) for the Agulhas and Somali LMEs, and the implementation of associated sustainability mechanisms in support of an LME approach.

- All of the countries participating in the ASCLME Project have signed a contract to deliver their MEDAs and most countries are meeting their MEDA workplan targets. Therefore, the MEDA and TDA processes are on track.
- At the financial and political sustainability level, the Project is focusing on building political ownership, as well as long-term financial and in-kind commitments, both within the region and globally.
- In 2008, 10 young oceanographers from the national institutions, universities, fisheries and environment ministries of five participating countries took part in an intensive training course hosted and facilitated by the Marine Research Institute at the University of Cape Town. The Ecosystem Assessment Training Programme was repeated in 2009, with a further 11 trainees attending the course. The goal of the training is to equip young oceanographers and biologists in the region with the knowledge and experience to fully participate in the research cruises of the *Dr Fridtjof Nansen* and other offshore research vessels. It has been very pleasing to observe the high quality and commitment of the trainees who have participated in these highly beneficial courses.
- A purpose-built coastal research boat has been purchased by the South African National Research Foundation (NRF) and it is expected that the boat will greatly enhance the ASCLME Project's efforts to equip regional scientists and technicians with the skills necessary to carry out regular oceanographic surveys in coastal waters, using small boats and basic equipment. The boat is to be based in Port Elizabeth and operated by SAIAB and ACEP staff.
- An underwater remote vehicle (ROV) has also been purchased by the NRF with a view to helping researchers to observe and monitor the undersea environment to a depth of 300m. Although the inshore research vessel and the ROV are owned by South Africa, the country's commitment to regional initiatives like the ASCLME Project is such that these resources are likely to be of immense benefit to the region in the future. The ASCLME Project has already received a number of requests from participating countries to make use of this equipment. For example, the Seychelles is eager to make use of the ROV around the coral atoll of Aldabra. The atoll was to be surveyed from the *Dr Fridtjof Nansen* this year, but the island is now off limits to the *Nansen* because of the piracy threat.

www.asclme.org/update/tdasap

The inshore research vessel, *uKwabelana*

The 13m catamaran, *uKwabelana*, which was purchased by South Africa's National Research Foundation as a platform for conducting inshore research, is expected to play a key role in the ASCLME region.

uKwabelana, which means "to share" in isiXhosa (the indigenous language of the Eastern Cape) will be utilised as a training vessel by the ASCLME Project, allowing young oceanographers to learn about the simple but effective sampling techniques that can be carried out on a small boat. *uKwabelana* will provide a platform for a Seaeye Falcon ROV that features high quality lighting and television cameras. It is expected that the ROV will help researchers to learn more about the undersea environment, both off South Africa and in other parts of the ASCLME region.

The boat is equipped with an Acoustic Doppler Current Profiler (ADCP) to measure ocean currents; an integrated Global Positioning System (GPS) and echo sounder to map the sea floor; a davit and winch system to launch and retrieve scientific instruments; plankton sampling nets; and a Van Veen grab to collect sediment samples from the sea floor. A compressor is also fitted, for the purpose of re-filling SCUBA cylinders.

Outcome 4: Communication

This outcome is concerned with LME coordination, communication and participation

- A Distance Learning and Information Sharing Tool (DLIST) is being designed for the ASCLME region with a view to facilitating two-way communication between the ASCLME Project and coastal communities.
- The ASCLME Project has put considerable effort into communicating the aims and objectives of the project to stakeholders in the region, and internationally. An annual newsletter, ASCLME News, which showcases the work of the ASCLME Project has been very well received. Other methods of communication, such as quayside receptions, media liaison and the circulation of striking displays and promotional items, are also having a positive impact.
- The ASCLME Project website has provided a very useful platform for disseminating information and coordinating the many activities of the project.
- Two films about the ASCLME Project and the GEF Western Indian Ocean LME Programme, are nearing completion. One is a 25-minute educational film that was made in partnership with our sister project, WIO–LaB. The second film is a much shorter policy briefing film which will be circulated to decision-makers in the region. The intention of the policy film is to communicate succinctly at the policy level around the burning issues facing the ASCLME region, and promote the role of the ASCLME Project in resolving these issues.
- The ASCLME Project has begun working with experts at SAIAB and Rhodes University to formulate a strategy for educational outreach. Strategies for improving stakeholder participation will be defined in a comprehensive Communications Strategy which is currently being prepared.
- Coordination with our sister projects, WIO–LaB and SWIOFP, as well as with other marine projects in the region is good. Following the success of the Regional Project Coordination Forum, which was held in Mauritius in November 2008, it has been agreed that the ASCLME Project will initiate similar forums in the future.

www.asclme.org/update/communication

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ASCLME

BUILDING AN ECOSYSTEM APPROACH TO MANAGING AFRICAN MARINE RESOURCES

Predicting ecosystem variability and managing climate change

Long-term oceanographic studies will help the countries of the ASCLME region to better understand the impacts of climate change and help them plan for a warmer future.

Within the next 10 to 20 years, global climate change is expected to have a significant effect on marine ecosystems and the coastal communities that depend on them. Scientists believe that biophysical changes – such as increased flood frequency, erosion, rising water tables, and increased saltwater intrusion – will have significant socio-economic implications, resulting in a general decline in the quality of life, health and well-being of coastal communities.

Predictions like these are particularly serious for the western Indian Ocean, where coastal populations are considered to be extremely vulnerable to the impacts of climate change.

However, the countries of the region stand to benefit from the long-term monitoring network that is being established by the ASCLME Project.

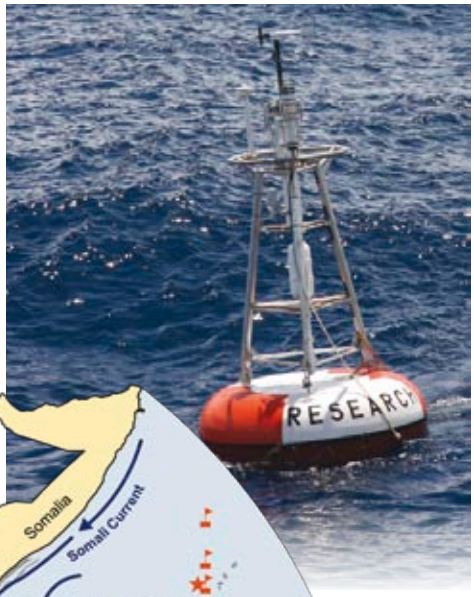
The map shows the planned distribution of oceanographic equipment that will monitor ecosystem variability in real-time, and provide the foundation for a western Indian Ocean "early warning system" for climate change impacts and ecosystem variability. The offshore system consists of underwater temperature recorders (UTRs), Autonomous Temperature Line Acquisition System (ATLAS) moorings and Acoustic Doppler Current Profilers (ADCPs). These instruments provide permanent recordings of atmospheric parameters (wind speed, air temperature, humidity, precipitation) and sea surface and seabed temperatures, salinities, carbon flux, seawater pH, and current direction and velocities. Many of these instruments are already in place, with further deployment and maintenance planned for 2010 and beyond.

It is envisaged that inshore, coastal studies will supplement the information generated by oceanographic equipment, so as to better predict long-term impacts and management needs.

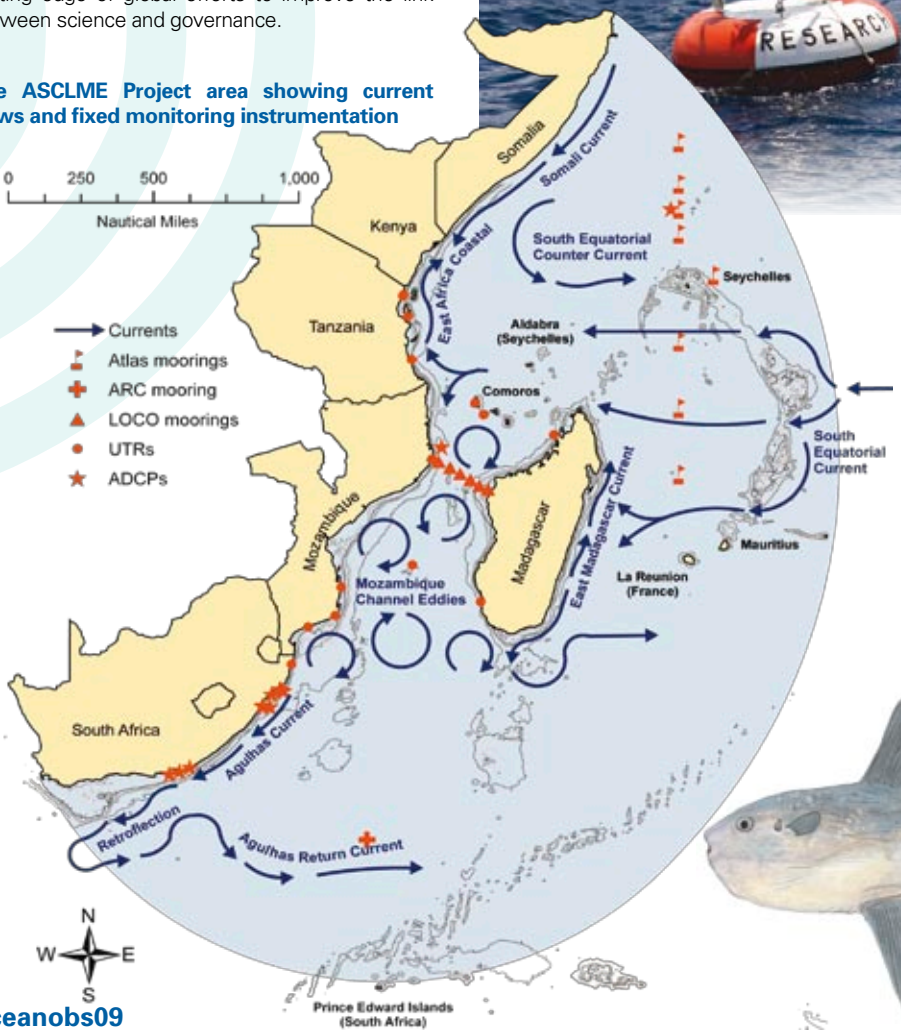
The monitoring system is likely to expand with the addition of remote sensing satellite imagery.

The development of the ASCLME Project's comprehensive monitoring network has been made possible through partnerships with the African Coelacanth Ecosystem Programme (ACEP), the Western Indian Ocean Marine Science Association (WIOMSA), the French research agency, IRD, the Food and Agriculture Organization (FAO) of the United Nations and the Royal Netherlands Institute for Sea Research. The National Oceanic and Atmospheric Administration (NOAA) of the United States is providing much of the physical instrumentation for building the long-term monitoring and early warning network and is also providing valuable assistance with data processing.

With the ultimate goal of better preparing governments of the western Indian Ocean for the impacts that climate change will have on their people, the long-term monitoring network is at the cutting edge of global efforts to improve the link between science and governance.



The ASCLME Project area showing current flows and fixed monitoring instrumentation



For further information: **www.asclme.org/oceanobs09**

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