Regional Marine and Coastal Projects in the Western Indian Ocean; an overview

WORKING DOCUMENT
DATE: 27 May 2009

The purpose of this document is to provide a reference for coastal and marine-related institutions and projects in the Western Indian Ocean region.

Content has been included as provided by regional projects or institutions active in more than one country in the Western Indian Ocean. The body of the text describes the activities of 25 projects, but a longer list may be found in Appendix I. Twelve chapters are presented on a thematic or geographic basis, to allow interested projects and parties to interact and coordinate activities around their particular areas of interest. The order of projects is in the order of information received; they are not listed alphabetically or reformatting would have been required after every addition. Sections for which information is pending, or sections that are not applicable have been left blank, also to avoid formatting problems. Much of the text has been extracted from other documents, websites and reports, and no claims are made to originality.

This reference document should be used as a guide only. Some information has been based on online sources or project documents that may be outdated. For the most up-to-date, verified and accurate information about any project, please contact them directly.

We hope to improve this draft, and so further comments or contributions of any kind are welcome.

Compiled by Lucy Scott (ASCLME), with contributions from Tommy Bornman, Juliet Hermes, Johann Lutjeharms, Meaghen McCord, Magnus Ngoile, Chris Reason, Mike Roberts, Peter Watt-Pringle, David Vousden, the NEPAD/COSMAR Projects database developers, and each of the projects and their representatives listed below:

1	WIO-LaB	**Addressing land-based activities in the Western Indian Ocean (WIO-LaB)**	GEF/ UNEP	Mwangi Theuri and Peter Scheren	http://www.wiolab.org
2	ASCLME Agulhas and Somali Current Large Marine Ecosystem Project	**Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project**	GEF/ UNDP	Lucy Scott	http://www.asclme.org
3		**Nairobi Convention Clearinghouse Mechanism (CHM)**	UNEP	Mwangi Theuri	http://gridnairobi.unep.org/CHM Portal
4	ODINAFRICA Ocean Data and Information Network for Africa	**Ocean Data and Information Network for Africa – ODINAFRICA**	IOC/ UNESCO, FUST	Mika Odido	http://www.odinafrica.org
5	ReCoMaP INDIAN OCEAN	**Regional Programme for the Sustainable Management of the Coastal Zones of the Indian Ocean Countries (ReCoMaP / ProGeCo)**	EU/COI	Jim Anderson	http://www.progeco-oi.org
6	COMMISSION DE L'OCEAN INDIEN INDIAN OCEAN COMMISSION	**Marine Protected Areas Network of the Indian**	WWF/ COI	Rémi Ratsimbazafy	http://www.amp-coi.org/

		Ocean Commission Countries (RAMP-COI)		and Denis Etienne	
7		**African Monitoring of Environmental for Sustainable Development (AMESD)**	EU/COI	Francois Carnus	http://www.amesd.org/
8		**South-West Indian Ocean Fisheries Project (SWIOFP)**	GEF/WB		http://www.swiofp.net/
9		**Improving Emergency Response to Ocean-based Extreme Events through Coastal Mapping Capacity Building in the Indian Ocean (COAST-MAP-IO)**	IOC/ UNESCO		http://www.ioc-cd.org/index.php?option=com_content&task=view&id=20&Itemid=43
10		**WIO Cetacean Conservation and Research**	COI	Denis Etienne	-
11		**Transboundary networks of marine protected areas for integrated conservation and sustainable development: biophysical, socio-economic and governance assessment in East Africa (TRANSMAP)**	EC FP6		http://transmap.fc.ul.pt/
12		**Western Indian Ocean Marine Highway Development and Coastal and Marine Contamination Prevention Project**	GEF/WB/ COI		http://www.iwlearn.net/iw-projects/Fsp_112799471087
13		**WIOFISH**	WB/ORI		http://www.wiofish.org/
14		**Long-Term Ocean Climate Observations (LOCO)**		Will P.M. de Ruijter	http://www.nioz.nl/nioz_nl/f735db6e3e756f6909ed6918967bb8f3.php
15		**Intergovernmental Oceanographic Commission (IOC/UNESCO) and the Capacity Development Programme in the Western Indian Ocean Region**	IOC/ UNESCO	Stefano Mazzilli	http://www.ioc-cd.org
16		**IUCN (Eastern and Southern Africa Office)**		Jerker Tamelander	www.iucn.org/esaro http://www.iucn.org/about/union/secretariat/offices/esaro/our_work_drylands/esaro_marine_coastal/index.cfm

17		**African Coelacanth Ecosystem Programme (ACEP)**	DST/NRF	Tommy Bornman	http://www.saiab.ac.za/index.php?pid=136
18		**Peri-urban mangrove forests as filters and potential phytoremediators of domestic sewage in East Africa (Pumpsea)**	EC FP6		http://www.pumpsea.icat.fc.ul.pt/main.php
19		**The Research Moored Array for African-Asian-Australian Monsoon Analysis and Prediction (RAMA)**			http://www.pmel.noaa.gov/tao/doc/RAMA_BAMS2608_final.pdf
20		**Indian Ocean Observing System (IndOOS)**			http://www.incois.gov.in/Incois/iogoos/home_indoos.jsp
21		**Argo Programme**		Gregory Johnson	www.argo.net
22		**Climate Variability and Predictability (CLIVAR)**	IOC/ UNESCO, ICSU, WMO		www.clivar.org
23		**Global Ocean Observing System (GOOS) Africa**			http://ioc.unesco.org/goos/africa/GOOS-AFRICA.htm
24		**Applying an ecosystem-based approach to fisheries management: focus on seamounts in the southern Indian Ocean (Seamounts: EAF Fisheries Project)**	GEF/ IUCN	Sarah Gotheil	
25		**Western Indian Ocean Marine Science Association (WIOMSA)**			http://www.wiomsa.org
26		**Western Indian Ocean Projects of the Institut de Recherche pour le Développement (IRD) ; in particular MESOBIO**		Jean-François Ternon	http://www.ird.fr
27		**Thermocline Ridge of the Indian Ocean (TRIO)**		Jérôme Vialard, Jean-Philippe Duvel	http://www.lmd.ens.fr/jpduvel/trio/TRIO_science_plan_oct08.pdf
28		**EAF Nansen Project**			http://www.eaf-nansen.org/nansen/about/1/en
29		**Agulhas Current Transport**		Lisa Beale	

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TRANSMAP	1	2	3.11	4.11	5.11	6.11	7.11	8.11		10.11	11.11	12
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WIOFISH	1	2	3.13	4.13	5.13	6.13	7.13	8.13		10.13	11.13	12
LOCO			3.14	4.14	5.14	6.14	7.14	8.14		10.14	11.14	12
IOC/UNESCO CD	1	2	3.15	4.15	5.15	6.15	7.15	8.15		10.15	11.15	12
IUCN	1		3.16	4.16	5.16	6.16	7.16	8.16		10.16	11.16	12
ACEP	1		3.17	4.17	5.17	6.17	7.17	8.17		10.17	11.17	12
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1. PARTICIPATING COUNTRIES

	Wio-LaB	ASCLME	NC-CHM	ODINAFRICA	ReCoMaP	RAMP-COI	AMESD	SWIOFP	COAST-MAP-IO	WIO Cetacean Conservation and Research	TRANSMAP	Marine Highway Project	WIOFISH	IOC/UNESCO Capacity Development	IUCN	ACEP	PUMPSEA
Comoros	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes		Yes	Yes	No	No
Kenya	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	Yes
Madagascar	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes		Yes	Yes	No	No
Mauritius	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes		Yes	Yes	No	No
Mozambique	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
France (Reunion)	No	No	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes		No		No	No
Seychelles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No
Somalia	No	Yes	Yes	No	Yes	No	No? ?	No	No	No	No	No		No	Yes	No	No
South Africa	Yes	Yes	Yes	Yes	No	No	No? ?	Yes	No	No	Yes	Yes	Yes	No	Yes	Yes	No
Tanzania	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes

2. FOCAL POINT INSTITUTIONS (and contact details as of June 2008)

	Comoros	Kenya	Madagascar	Mauritius	Mozambique	Reunion	Seychelles	South Africa	Tanzania
Nairobi Convention Clearinghouse Mechanism & Wio-Lab	Mr F. Anasse (Manager, Department of GIS) MAPE	Dr J. Kazungu (Director) KMFRI	Mr J.R. Rakotoarijaona (Director of Environmental Information) O.N.E.	Mr M. Beebeejaun (Deputy Director) MMS	Ms A.M. Alfredo (Information Manager) INAHINA	-	Mr J. Prosper (G.I.S. Unit, Policy Planning and Services Division) MENRT	DEAT	Dr A.M. Dubi (Director) Dr D.CP. Masalu IMS/UDSM
ASCLME Steering Committee*	Mr F. Anasse MAPE	Mr H. Onganda KMFRI	Mrs H. Razafindrainibe SAGE	Dr M. Bhikajee (Director) MOI	P. Napica IIP	-	R. Renaud SCMRT-MPA	Dr J. Augustyn DEAT-MCM	Ms R. Sallema NEMC
ODINAFRICA	Dr A. Boina (Comoros UNESCO Commission Secretary General) CNDRS	Mr H. Onganda KMFRI	Dr M. Edoaurd IH.SM/UT	Mr M. Beebeejaun (Deputy Director) MMS. A.F.R.C.	Mr S. Mundlovu (Director) INAHINA	-	R. Payet (Managing Director) SFA	Ms A. Hiader DEAT-MCM	Dr D.CP. Masalu (IMS/UDSM)
ReCoMap	INRAPE (Mr M. Halifa, Director General)	NEMA (Mrs C. Anyango, Senior Coordinator, Marine Programs) (Mr M. Otieno, Provincial Director of Environment, Coast Province)	MEEFT (Mr F.R. Randrianantenaina, Coordinating Director)	Ministry of Environment & NDU Mrs C.S. Lan Ng Yun Wing (Director) Mr J. Seewoobaduth (Divisional Environment Officer) Ms N. Soogun (Environment Officer)	-	DIREN (Mr L. Gardes, Officer in Charge of Marine Affairs and IFRECOR Nature Protection Service and Sustainable Installation)	MENRT (Mr W. Agricole, Policy Planning and Services Division) Ministry of Foreign Affairs (Mrs B. Nageon de l'Estang) Principal Secretary of Environment (Mr D. Dogley)	-	Mrs L. Lukambuzi (Senior Environmental Management Officer) NEMC Mrs A.A. Khatib Department of Environment (Zanzibar)
RAMP-COI	Mr A.S. Said Mohamed (Project Coordinator) Activités Habilitantes	-	Mrs H. Razafindrainibe SAGE Mr M. Andriantsoa (Director General of Agiculture, Livestock and Fisheries) MEEFT	Mrs Y. Basant Rai (Acting Divisional Scientific Officer) Mrs D. Hurbangs (Scientific Officer) AFRC	-	Mr Lionel GARDES Direction Régionale de l'Environnement (DIREN) Service Protection de la Nature et Aménagement Durable 23, rue de Paris 97400 St Denis de La Réunion	Mr Ronny Renaud Seychelles Centre for Marine Research & Technology Marine Parks Authority		
AMESD	CNDRS MAPE??	KMFRI	IH.SM/UT MEEFT???	MOI Ministry of					

				Environment & NDU					
SWIOFP	F. Ali Abdallah MAPE?	R.K. Ruwa KMFRI	-	S. Soondron AFRC	A.P. Baloi D. Gove IIP	F. Marsac IRD	R. Payet (Managing Director) SFA	A. Cockroft DEAT-MCM	I.K. Katonda TAFIRI
COAST-MAP-IO (project status unknown**)**			Mr V. Andriampanana (general Director) FTM Cf L.A.P. Ranainoseheno (Navy Commander) Prof. G. Rambolamanana IOGA N. Raelinera (Director General) DGM AMPF	Mr Roojee (Chief Surveyor) Hydrographic Unit, MHL Dr M. Bhikajee (Director) MOI NCG MOA	Mr S. Mundlovu (Director) INAHINA Mr M.F.G. Ferràо CENACARTA Mr H. Sueia INAM	?	Mjr M. Rosette (Officer-in-charge) Hydrographic Brigade, Seychelles Coastguard Mr P. Lablache (Principal Secretary) GD-MLUH SCMRT	-	-
WIO Cetacean Conservation and Research									
TRANSMAP	-	-	-	-	H. Pacule CDS-ZC Mr A. Macia UEM			Prof. R.P. van der Elst (Director) ORI Prof. T.J. Stewart (Department of Statistics) UCT	Mr J. Francis WIOMSA Mrs N. Jiddawi IMS/UDSM
Marine Highway Project	Mr S. Salim (Director of Maritime Affairs) Mr A. Mouigni (Ministry of Transport) Mr S. Salim Dahalane (Port Authority)	Mr P. Thuo	Mr B. Andriamparantsoa ENEM	Mr P. Bhowon (Secretary for Shipping Development) Ministry of Public Infrastructure , Land Transport and Shipping MOI		Mr E. Banel (Director of Maritime Affairs) Maritime Affairs	Cpt. W. Ernesta (Director of General Maritime Safety) Mr F. Joubert (Advisor) MENRT	B. Zulu SAMSA	K. Mosoi
WIOFish	-	KMFRI	-	-	IIP		SFA	ORI	IMS/UDSM
IOC Capacity Development	Commission Nationale des Comores pour l'UNESCO	Kenya Marine and Fisheries Research Institute P.O. Box 81651 Mombasa	Centre National de Recherches sur l'Environnement BP: 1739, 101	Mauritius Meteorological Services (MMS) P.O. Box 445 Saint Paul	Eduardo Mondlane University P.O. Box 257,		State House Victoria, Mahe, SEYCHELLES		Institute of Marine Sciences (IMS) University of Dar es Salaam

	Centre National de de Documentation et de Recherches Scientifiques (CNDRS) BP 169, Moroni, Comoros Dr Aboubakari Boina Secrétaire Général , E-mail1: aboubakarboina@yahoo.fr ; comnat.comores@comorestelecom.km	Kenya Dr. J. Kazungu Director, Email: director@kmfri.co.ke,	Antananarivo, MADAGASCAR Dr Pierre Ravelonadro Director, Email: phravelona@yahoo.com , dircnre@wanadoo.mg	Road, Vacoas Mauritius Mr. Mohamadally Beebeejaun Deputy Director Email: mbeebeejaun@mail.gov.mu	Maputo, Mozambique Dr Antonio Hoguane Coordinator, UNESCO Chair in Marine Sciences and Oceanography Email : hoguane@yahoo.com.br		Dr. Rolph Payet Special Advisor to the President Email: rolph@statehouse.gov.sc rolph@intelvision.sc		PO Box 668, Zanzibar Prof. Alfonse M. Dubi Director Email: director@ims.udsm.ac.tz

INRAPE – Comoros National Institute for Research of Agriculture, Fishing and the Environment
CNDRS – National Centre for Documentation and Scientific Research (Comoros)
MAPE – Ministry of Agriculture, Environment and Fisheries (Comoros)
NEMA – National Environmental Management Authority (Kenya)
KMFRI – Kenya Marine and Fisheries Institute
MEEFT – Ministry of Environment, Water, Forestry and Tourism (Madagascar)
IH.SM/UT – Marine Science and Fisheries Institute/ University of Toliara (Madagascar)
O.N.E. – National Office for the Environment (Madagascar)
SAGE – Environmental Management Support Services Agency (Madagascar)
FTM – National Institute for Cartography and Hydrography (Madagascar)
IOGA – Antananarivo Geophysical Institute and Observatory (Madagascar)
DGM – Direction of Meteorology and Hydrology (Madagascar)
AMPF – National Ports Authority (Madagascar)
NDU – National Development Unit (Mauritius)
MMS – Mauritius Meteorological Services
MOI – Mauritius Oceanography Institute
AFRC – Albion Fisheries Research Centre (Mauritius)
MHL – Ministry of Housing and Lands (Mauritius)
NCG – National Coastguard (Mauritius)
MOA – Ministry of Agro Industry and Fisheries (Mauritius)
INAHINA – Mozambique National Institute of Hydrography and Navigation
IIP – Fisheries Research Institute (Mozambique)
CENACARTA – National Centre for Remote Sensing and Cartography (Mozambique)
INAM – National Meteorological Institute (Mozambique)
CDS-ZC – Centre for Sustainable Development of the Coastal Zone (Mozambique)
UEM – Edwardo Mondlane University (Mozambique)

The ASCLME has a Steering Committee with a representative from each participating country. In addition, each country has appointed a Technical Coordination Group (COG). Each COG will have representatives to coordinate i) Data and Information Synthesis and Management ii)Training and Capacity building, and iii) Cruise Coordination. In addition, the Coordination Groups will include technical representatives to address specific issues within the Transboundary Diagnostic Analysis (TDA), such as i) Fish and Fisheries ii) Productivity iii) Ecosystem Health and Pollution iv) Socioeconomics v) Governance as well as Climate Change and Environmental Variability.

MESOBIO: Principal investigators for the MESOBIO project are from France (JF Ternon, IRD) and South Africa (S. Kaehler, Rhodes University). Most of the scientists involved are from these two countries. Other investigators are from Mozambique, Madagascar, Seychelles, Tanzania and Kenya. Generally speaking IRD / EME has developed partnerships with scientists from Seychelles and South Africa over a long period of time.

Focal points for the Cetacean Conservation and Research Project are as yet unofficial, but these may be:

NOM	FONCTION	INSTITUTION	ADDRESSE POSTALE	Email
Représentant des pays				
M. Ahmed Abdoulkarim	Responsable du Centre National de données	Centre National des Données Océanographiques (CNDRS)	BP 266 Moroni Comores	a_abdoulkarim@yahoo.fr
Fenohery Randrianantenaina	Directeur de la Coordination, de la programmation et du suivi évaluation	Ministère de l'Environnement, des Forêts et du Tourisme	BP 3948 Antsahavola Antananarivo 101 Madagascar	fenohrand@yahoo.fr
Vijay Mangar	Senior Technical Officer	Fisheries Division Ministry of Agro Industry, Food Production and Security	Ramnarain Road Mangar Lane Cottage Mapou Maurice	vmangar@mail.gov.mu
Lionel Gardes	Chargé de mission Patrimoine Naturel Marin	Direction Régionale de l'Environnement (DIREN)	12, Allée de la Forêt, Parc de la Providence 97400 St Denis Réunion	lionel.gardes@developpement-durable.gouv.fr
Wilna Accouche	Senior Conservation Officer	Ministère de l'Environnement et des Ressources Naturelles	Botanical Garden Mont Fleuri Victoria Seychelles	w.accouche@env.gov.sc

3. OBJECTIVES & MAIN THEMATIC AREAS

3.1 Wio-LaB

- Reduce stress to the ecosystem by improving water and sediment quality
- Strengthen regional legal basis for preventing land based (LB) sources of pollution
- Develop regional capacity for sustainable, less polluting development

3.2 ASCLME

The activities within the ASCLME Project are focused on filling the significant coastal and offshore data and information gaps for the Agulhas and Somali Current LMEs by capturing essential information relating to the dynamic ocean-atmosphere interface and other interactions that define the LMEs, along with critical data on artisanal fisheries, larval transport and nursery areas along the coast. The overall objective of this data capture will be to deliver national Marine Ecosystem Diagnostic Analyses (MEDAs) that feed into two Transboundary Diagnostic Analyses (TDAs), and two Strategic Action Programmes (SAPs), one for the Agulhas Current LME, and the other for southern part of the Somali Current LME. The main thematic areas of the project are in five modules, with interventions to build capacity for research, data management and governance being crosscutting.

- Fish and Fisheries
- Productivity
- Ecosystem Health and Pollution
- Socioeconomics
- Governance
- Climate Change and Environmental Variability

The parallel UNEP and World Bank Projects will also feed pertinent information into the TDAs/SAPs formulation process, and identify policy, legal and institutional reforms and needed investments to address transboundary priorities. Collectively, the projects build foundational capacities at regional scale for management of the LMEs.

3.3 Nairobi Convention Clearinghouse Mechanism

The goal of the Clearinghouse mechanism is to improve the coordination and participation of the Western Indian Ocean countries in the management of their coastal and marine resources. The clearinghouse is designed to enable the Nairobi Convention develop a comprehensive information base and access services to quickly provide information to decision makers.

Clearinghouse activities follow a similar pattern in all the participating Eastern African countries.

1. Establishment of a national Working Group
2. Search and collation of existing data and information by the Working group
3. Quality control on data and metadata standards by the Working group
4. Development of the regional and national clearinghouses
5. Regional training on the Clearinghouse architecture to the Working group data managers
6. Capacity building of the lead institutions
7. National outreach activities
8. Support to data and information dissemination via the internet

The regional and national clearinghouse portals act as a central web based system that incorporates the latest Web and related technologies, including (i) an intelligent Web services system, (ii) mapping components, (iii) distributed data mining and (iv) Standard, compliant and interoperable interface protocols, including (v) Internet Mapping Solutions (IMS) to allow for the distribution and exchange of Web-enabled geospatial data, dynamic maps, as well as exchanging data with other online databases.

3.4 ODINAFRICA

The following are the themes for the current phase of ODINAFRICA:

- Coastal Observing Systems
- Data Management
- Information Management
- Development of products for ICAM

The activities under each theme is described in detail under 4.2
The next phase of ODINAFRICA (2009 – 2012) will focus on:

- Expanding and strengthening the network of marine scientists and institutions in the region to foster the sharing of data and information.

- Developing high quality products and tools to support decision making, management and conservation of the marine and coastal environment [forecasts, predictions, models, atlases, scenarios]

- Promoting the use of data, as well as products and services developed by the project [standards based catalogues of data and metadata, and integrated web based portals]

ODINAFRICA-IV will be product and user driven, and will aim to assist decision makers by coordinating the data management and product development using a multi-sectoral approach.

3.5 ReCoMaP

The main thematic areas of ReCoMaP activities to-date are presented according to the 7 Result Areas, as defined in the programme's Logical Framework:

1. Enhanced monitoring, conservation, valorisation & sustainable management of coastal and marine biodiversity & natural resources of the southwest Indian ocean coastal zones
Coastal marine resources information; Coastal livelihoods; Prawn fisheries management planning; Small-scale mariculture planning & development support; GIS; MPAs; Small-scale coastal eco-tourism; Solid-waste management; Coastal erosion

2. Training capacity for coastal and marine technicians is developed and adapted in the region, through Regional Centres of Excellence
ICZM planning Skills; Coastal resources management; GIS/Remote-sensing; Socio-economics/Livelihoods; Coral-reef Monitoring; SEA/EIA

3. Sensitisation on ICZM issues amongst decision makers, the private sector, NGOs and the civil society is strengthened
ICZM; Coastal resources management; Economic evaluation of the coast

4. National ICZM plans are drafted and adopted and ICZM national action plans are available
National policies and strategies; National and local ICZM planning; ICZM Institutions; ICZM Monitoring & Evaluation; SEA and EIA

5. Improved capabilities of focus countries to adopt proactive positions on marine and coastal resources in multilateral negotiations and reporting on MEAs
Multi-lateral Environmental Agreements (MEAs) negotiation and reporting skills

6. Active involvement of non-state actors in implementing ICZM action plans is improved
Sustainable coastal resources management, Upland erosion control; Coastal erosion control; Solid-waste Management; Liquid-waste management; Small-scale mariculture; coastal eco-tourism. For the

Programme's first Call for Proposals 29 non-state actor projects from across the region have been selected, with a total value of Euro2.5million. A second CFP will be launched in December 2008.

7. Improved regional policy consensus on sustainable coastal and marine management and enhanced exchange of information and experiences on marine and coastal resources at the regional level
MPA Managers Network; WIO Cetacean network; ICZM Knowledge Management System (KMS)

3.6 RAMP-COI

The project is organized in four components:

1. Development of a regional strategy for biodiversity and marine resources management
The goal is to identify a network of priority areas for conservation through an eco-regional analysis. This analysis will be carried out through synergy and coordination with key partners (governmental institutions, scientists, managers, private sector, local communities, NGOs) and ongoing regional projects in the region.
Furthermore, an economic evaluation is also planned for two representative MPA sites in the region.

2. Support to existing MPA or the process of creation of new MPAs
The goal is to directly support the development of the network by helping some MPAs with concrete actions: baseline studies, management planning, equipment and infrastructure, training, etc. This component also aims to support initiative for MPA international designation such as Biosphere Reserve status.

3. Settlement of the manager's forum
This component aims to strengthen MPA managers' capacity through the development of experience sharing process, the development of management tools, organization of annual meeting, establishment of a website and promoting exchange visits.

4. Sensitisation and information
The main goal is to mobilise all the stakeholders around the MPAs network, in order to generate active support for the conservation of marine biodiversity and resources. Major target groups for sensitisation include the general public and policy makers.

3.7 AMESD

The three axes of development of AMESD services in the Indian Ocean region are:

1. Space technologies for the management of fisheries resources and fisheries control
2. Monitoring of fisheries and fishery resources in the southwest Indian Ocean
3. Observational data from the ocean, weather and marine safety at sea

3.8 SWIOFP

Objectives of the project are to identify and study exploitable offshore fish stocks within the SWIO and to understand the relationship between environmental and anthropogenic impacts, develop the region's institutional and human capacity in fisheries and marine science through training and career building, and implement a regional fisheries management programme and associated harmonized legislation in collaboration with the FAO- South West Indian Ocean Fisheries Commission. SWIOFP has been structured into six distinct components, each with sub-components, specific activities and action steps. A total of 60 such activities have been identified, allowing for outputs tailored to specific country needs.

- Component 1 (Kenya)*:* Data Gap Analysis, Data Archiving and Information Technology

- Component 2 (South Africa): Assessment and sustainable utilization of crustaceans
- Component 3 (Tanzania): Assessment and sustainable utilization of demersal fishes
- Component 4 (Seychelles): Assessment and sustainable utilization of pelagic fish
- Component 5 (Mauritius): Mainstreaming biodiversity in national and regional fisheries management
- Component 6 (All partners): Strengthening regional and national fisheries management.

3.9 COAST-MAP-IO

COAST-MAP-IO addresses the need for countries to acquire and utilise coastal bathymetry to develop various products mitigating against ocean-based extreme events. It further proposes maximising benefits from coastal bathymetry by transferring skills to create products for zonation decisions and equitable use of coastal spaces, and is therefore an important factor in meeting IOC Principles of Capacity-building as well as UNEP Key Principles Guiding Coastal Reconstruction. The interventions proposed here are targeted to the needs of individual countries, with the possibility of growing into regional or sub-regional efforts if countries so determine.

The overall project objectives are:

- To enhance available expertise to locally produce accurate bathymetric and topographic maps on either side [–200 to +50 meters] of the high tide-line.
- To provide modelling capacity for inputs to tsunami arrival, run-up and inundation in coastal areas
- To transfer necessary skills to national Disaster Management Preparedness agencies to use bathymetric and terrestrial datasets in developing targeted maps and services, including flooding maps, determination of set back lines, coastal ecosystem mapping, and zonation for coastal users

It is expected that this project will assist participating countries to:

- Identify and network national agencies dealing with coastal bathymetry and coastal zone management, and key people in related national agencies
- Identify national coastal areas most vulnerable to ocean-related hazards
- Collect coastal bathymetry, coastal topographic data and all available ancillary information relevant to the most-vulnerable areas
- Generate, maintain and update topo-bathymetric databases of digital information, and produce maps of most-vulnerable coastal areas
- Train key persons for coastal modelling and integrated coastal management as skills complementary to Disaster Preparedness & Mitigation
- Produce targeted maps and services such as flooding/inundation maps, and decision support products for coastal planning

3.10 WIO Cetacean Conservation and Research

To protect cetaceans and the dugong, improve the scientific knowledge and promote sustainable eco-tourism through actions of conservation, research and education through an efficient network of all stakeholders in the IOC region, in the Indian Ocean Whale Sanctuary and specifically in the IOC countries.

Fields of work

1. Creation of a regional network and institutional guidance
2. Research and capacity building
3. Education, awareness and training
4. Eco-tourism
5. Cetacean-fisheries interactions (depredation, hunting and by-catch)
6. Research and conservation on dugongs in Madagascar, Comoros and Seychelles

3.11 TRANSMAP

The goal of this project is to develop a scientific basis for the creation of transboundary networks of Marine Protected Areas (MPAs) along the coast of East Africa. In particular, the project focuses on the definition of type, size and location of single reserves, which together, and irrespective of political borders, can maintain ecological functions, sustainable resource-uses and expected future socio-economic development. The final product will be options for zonation plans that regulate activities and resource use in two distinct ecoregions, one subtropical and one tropical, which together encompass a significant proportion of the biogeographical range of the East African coastal and marine environment.

1. Baseline Definition: To gather and synthesise existing knowledge in order to identify gaps and avoid duplication by building on existing knowledge, databases and information. The knowledge gained will be incorporated into a geographical information system (GIS) to map existing habitat types and current coastal land- and sea-uses in each of the case study areas to provide guidance for the implementation of the remainder of the project.
2. Biophysical Assessment: To obtain the fundamental biophysical data required to identify specific habitats, particularly those supporting vulnerable species, in order to determine their current condition, restoration needs, conservation value and ecological connectedness. These data will be obtained using a number of standard methods complemented by novel molecular techniques that assess biodiversity, and are a key factor in selecting protected areas and developing the zonation scheme.
3. Socio-economic Assessment: To identify and evaluate the sources of income of human communities in the study areas, especially those derived from using natural resources. Current socio-economic needs and traditional frameworks of these activities will be documented. The socio-economic assessment will be developed by analysing regional, national and local levels.
4. Governance Assessment: The purpose of this Objective is to investigate the international, regional, institutional and legal frameworks that can assist the creation and management of transboundary MPAs in Mozambique, South Africa and Tanzania. The identification of the legal, policy and management instruments, as well as institutional mandates and arrangements, and the assessment of how all these tools can contribute to or constraint the creation of MPAs, will allow the definition of a common strategy for the designation of transboundary MPAs in the region.
5. Options for MPA Zonation: To develop a zoning plan for each case study area that integrates the results of the biophysical and socio-economic assessments and is innovatively adapted to accommodate the local, regional and governance frameworks.

3.12 Marine Highway Project

Component A: Development of a regional marine highway and institutions, including six subcomponents:

1. Production of nautical charts and publications incorporating information on environmental assets, where this is possible and information is available
2. Maintenance of these charts and publications
3. Survey and rehabilitation of the main aids to navigation on the route of the marine highway
4. Establishment of an automatic information service
5. Support to search and rescue activities
6. The evaluation of the demonstration phase and preparation of the second phase if the demonstration phase proves to be feasible and sufficiently beneficial to justify costs.

Component B: Capacity building for prevention of coastal and marine contamination, including four subcomponents

1. Conducting comprehensive capacity building program to include seminars, workshops and training of trainers on, inter alia, promote safe marine navigation, development and implementation of national contingency plan, prevention of marine and coastal pollution , risk assessment and development of appropriate responses strategies enforcing of fisheries regulations, and related matters

2. Supporting the development of the site specific pollution prevention and contingency management plans for coastal and marine biodiversity hotspots with high risk profiles
3. Supporting the development of a methodology to carry out baseline studies to identify key environmental resources
4. Supporting the development of a regional database and geographical information system on marine and coastal resources

Component C: Capacity building for regional oil spill response, which will in particular assist Kenya, Mozambique, South Africa and Tanzania by:

1. Provision of advisory services to participating states for the adoption and implementation of International Maritime Organization conventions
2. Carrying out activities to assist participating states to develop or update national oil spill contingency plans and support the development of the marine ecosystem sensitivity map
3. Assessing needs and preparing specifications for oil spill response equipments
4. Carrying out activities to facilitate the regional integration for monitoring environmental conditions and causes of environmental degradation and damage

Component D: Port state control, fisheries monitoring, and project coordination and management, including four subcomponents:

1. Promotion of port state control, supporting increased involvement of all neighbouring countries and the widening of this regional agreement to include Madagascar and Comoros
2. Support for monitoring of fisheries activities, supporting the development of an action plan for fisheries monitoring, a key element of the project being its commitment to coordinate and collaborate with other projects in the region that are working to protect the marine and coastal environment
3. Coordination with other GEF-supported projects, supporting activities to facilitate such coordination and collaboration
4. Supporting activities of the national project coordinators, and financing technical assistance and studies as needed during project implementation

3.13 WIOFish database

The main objective of the WIO Fisheries Database is to provide a better understanding of biological and socio-economic aspects of fisheries in the WIO region, including lesser known “non-traditional” species. This in turn will provide a regional overview of inshore, especially small-scale fisheries (and associated offshore fisheries that impact on them), including their problems and specific management needs. In turn this will enable comparisons of policy and management strategies among these fisheries. The database will provide semi-quantifiable indicators of the status of, and progress in, the management of these fisheries which will increase the understanding of the threats to biodiversity of the WIO fisheries.

The database was initiated in 2004 with data from five countries: Kenya, Mozambique, Seychelles, South Africa and Tanzania. It is anticipated that information from other countries in the WIO, including, but not limited to, Madagascar, Mauritius, Comoros and Reunion (France) will be included within the next two years. The database is designed to be dynamic, live and evolving, and accessible through the worldwide web **(www.wiofish.org)**. It will be managed and updated by a regional node, in close collaboration with the national nodes. Presently, the regional node is the Oceanographic Research Institute (ORI) from South Africa who has led the development of the database, in collaboration with IUCN-EARP. The database will also provide a useful forum for addressing fishery stocks that transcend international boundaries, and will provide a useful scientific base for the WIO Coastal Fisheries Commission that is currently being set up by the Food and Agricultural Organisation (FAO). It is intended that the database will provide a strong basis for improving fisheries management, promoting research particularly on stock assessment, and improving fisheries monitoring.

3.14 Long-Term Ocean Climate Observations (LOCO)

As described on (http://www.nioz.nl/nioz_nl/e56559cda63ee97ddd82c4e987f866f0.php)
To quantify the variability of the meridional mass and heat transport in the Mozambique channel, to relate this variability to Indian Ocean (or El Nino) climate modes and to study the relation between this variability and the 'downstream' formation of Agulhas Rings.

3.15 UNESCO/IOC and the Capacity Development Programme in the WIO region

The first phase of the Capacity development programme focused on strengthening scientific, legal and institutional structures. A marine action planning session was held to identify priority areas where capacity development should be focused so that institutes can better meet their national mandates. Directors of marine institutes identified the following thematic areas that are common across all countries:

- Coastal Degradation (Sediment, Erosion, Management, and Tourism)
- Fisheries (Over-fishing, Habitat destruction, and Regulation)
- Pollution (Oil, Metal & organics, Industrial & human)

Accordingly, these thematic areas have been the focus of all technical trainings provided through the programme in the region. Further information on the results of the planning session are available in the report. The main needs in terms of enhancing science in the region were identified as:

- Improved networking / information exchange between institutes
- Enhanced scientific quality of research and management
- Regional mobilisation for a common stand against environmental degradation
- more direct links between science, socio-economics and poverty.

The leadership, team building and bid writing workshops and activities were implemented to address these, as described in the following section on training (Section 7).

3.16 IUCN EASARO

Main marine and coastal thematic areas of project activity

- MPAs: planning, establishment and management, strict biodiversity reserves as well as collaborative management, international commitments/MEAs; CB; development of management tools, products and approaches
- Fisheries: artisanal fisheries management, enhancement and diversification; mariculture; mechanized/industrial fisheries policy advice
- Alien Invasive Species: assessment, management, CB
- Climate change: knowledge products, resilience and adaptation assessment and planning (ecological as well as socioeconomic)
- Litter and waste management
- Governance support, local to regional

Also regional programmes on:

- Wetlands and Water
- Drylands
- Forest and Woodlands
- Species and Biodiversity
- Environmental Impact Assessment

Immediate intervention priorities

- MPA management planning and CB in Sudan and Somalia
- Continued of intervention in Tanga

3.17 ACEP

Since its inception in April 2002 ACEP has filled a void in oceanographic and marine ecological sampling on the continental shelves of the east coast of southern Africa and the south-western Indian Ocean. ACEP I focused on several sub-projects in the fields of marine geoscience; physical and biological oceanography; marine ecology; coelacanths and biodiversity; isotope, genetic and genome studies; information management and GIS; and environmental education and awareness. Ten ship-based research expeditions were organised, including three dedicated Jago (manned submersible) cruises. Expeditions included cruises along the east coast of southern Africa as well as the rest of the south-western Indian Ocean.

ACEP Phase II (2007 – 2011)

ACEP II was initiated in 2007 and will run until 2011. ACEP II differs from ACEP I in the following four aspects:

1. Funding – Unlike the block grants provided to ACEP I, the vast majority of funding is now managed through the NRF and is made up of student bursaries and individual programme running costs. This will improve tenure security and increase the numbers of MSc and PhD students;

2. Management – The programme is now managed through the Elwandle Node of the South African Environmental Observation Network (SAEON), which is hosted by the South African Institute for Aquatic Biodiversity (SAIAB). ACEP is a flagship programme of SAIAB.

3. Open call – In line with DST's request for an open and competitive funding system, an open research call was distributed by the NRF in late 2007. This initiative allowed for any South African researcher or research consortium to submit a bid for research funding through ACEP II.

4. South African emphasis – With the initiation of the Agulhas and Somali Current Large Marine Ecosystems (ASCLME) programme, which will run until 2012 and will undertake research throughout the Western Indian Ocean, the emphasis of ACEP has been re-orientated towards scientific questions with a southern African bias.

Objectives of ACEP II

- Integrate the physical and biological sciences to understand the processes that govern South West Indian Ocean (SWIO) ecosystem functioning;
- Use innovative science to unravel coelacanth evolutionary adaptations and phylogenies of these ecosystems;
- Conduct long-term monitoring of ecosystems to understand biological processes and climate change;
- Determine species richness, biodiversity and biogeography of SWIO;
- Provide recommendations for SWIO conservation, management strategies and long-term sustainability;
- Build capacity in offshore marine sciences, particularly developing a critical mass of skilled personnel and addressing equity imbalances;
- Promote public awareness and understanding of marine science;
- Generate knowledge and build integrated and shared marine (geographic) information systems;
- Promote ACEP as a platform for national, regional and international partnerships (e.g. with SANCOR and ASCLME) that strengthen South African marine science.

As published on the ACEP website http://www.saiab.ac.za/index.php?pid=136

3.18 PUMPSEA [Text from the WIOMSA website: http://www.wiomsa.org/?id=2446]

PUMPSEA is a regional project being carried out and involving Mozambique through the University of Eduardo Mondlane (UEM) and other regional and European countries. This project aims to demonstrate this ecosystem service and to examine its ecological and socio-economical effects. It will develop the technology for using constructed mangrove wetlands for secondary treatment of domestic sewage water. It will examine the feasibility of 'strategic reforestation and conservation' in sewage hotspot areas, to encourage natural mangrove filtration of discharged wastewater. It will develop an implementation plan for the exploitation of the developed technology and know-how, based on analysis of governance, policy, cost and financing options. The work will take place in peri-urban mangrove areas of Maputo (Mozambique), Dar es Salaam (Tanzania) and Mombasa (Kenya). It will include: socio-economy, condition mapping, biogeochemistry, ecology, modelling, controlled experimentation and experimental optimisation of a trial wetland used for secondary treatment of sewage. Governance analysis and implementation planning will focus on Dar es Salaam, but have reference to Maputo and Mombasa. PUMPSEA addresses INCO research objectives A.2.2 (primarily) and A.2.1 (secondarily), by valuation of coastal ecosystem services, and by supporting policy and management analysis into mitigating the degradation of coastal zones in peri-urban areas. The use of constructed mangrove wetlands for sewage treatment could be an innovative solution that complies with the social, economic and environmental contexts of developing countries. Strategic mangrove conservation and reforestation in sewage discharge areas can facilitate natural filtration and may represent cheap and immediately implementable approaches to mitigating coastal sewage pollution.

3.19 RAMA

The Research Array for Monsoon Analysis and Prediction (RAMA) is a basin-scale, moored buoy array in the Indian Ocean. It provides instrumentation for the study of large-scale ocean-atmosphere interactions, mixed layer dynamics and open ocean circulation related to the monsoons. RAMA contributes to INDOOS (3.20 below).

More details may be found at:

http://www.pmel.noaa.gov/tao/doc/RAMA_BAMS2608_final.pdf

3.20 IndOOS

IndOOS is a basin-scale, integrated, observing system for climate research and forecasting in the Indian Ocean. It is guided by the Indian Ocean Panel (IOP), established in 2004 by the International GOOS Programme and CLIVAR (3.22 below) component of the World Climate Research Programme (WRCP). IndOOS is based on moorings, floats, drifters and tide-gauge stations. It provides a spatial and temporal context for process studies such as:

MISMO: http://www.clivar.org/organization/indian/IndOOS/MISMOupdateJUNE2005.pdf

VASCO-Cirene: http://www.lmd.ens.fr/vascocirene/

TRIO (Thermocline Ridge of the Indian Ocean):
http://www.clivar.org/organization/aamp/presentations/AAMP9/TRIO.pdf

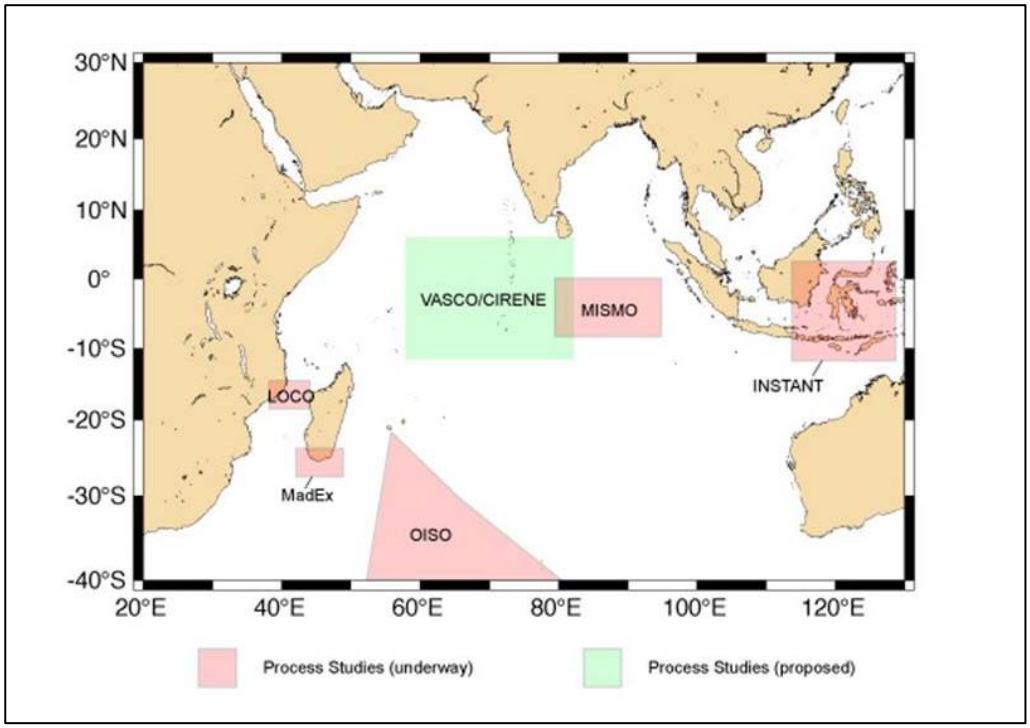

Figure reproduced from http://www.clivar.org/organization/indian/IndOOS/obs.php **as presented at the ASCLME Regional Forum.**

MISMO and Vasco-cirene have both concluded. Key references are:

1. Duvel, J-P., C. Basdevant, H. Bellenger, G. Reverdin, A. Vargas and J. Vialard, 2009, The Aeroclipper, *Bull. Am. Met. Soc.*, 90, 63-71.

   http://ams.allenpress.com/perlserv/?request=res-loc&uri=urn%3Aap%3Apdf%3Adoi%3A10.1175%2F2008BAMS2500.1

2. Vialard, J., J-P. Duvel, M. McPhaden, P. Bouruet-Aubertot, B. Ward, E. Key, D. Bourras, R. Weller, P. Minnett, A. Weill, C. Cassou, L. Eymard, T. Fristedt, C. Basdevant, Y. Dandoneau, O. Duteil, T. Izumo, C. de Boyer Montégut, S. Masson, F. Marsac, C. Menkes, S. Kennan, 2009, Cirene: Air Sea Interactions in the Seychelles-Chagos thermocline ridge region, Bull. Am. Met. Soc., 90, 45-61.

   http://ams.allenpress.com/perlserv/?request=res-loc&uri=urn%3Aap%3Apdf%3Adoi%3A10.1175%2F2008BAMS2499.1

The Indian Ocean Panel implementation plan is at:
http://www.incois.gov.in/Incois/iogoos/IOP_Impl_Plan.pdf

A Community White paper on Observing Systems in the Indian Ocean is currently being written. Lead author: Yukio Masumoto, Institute of Observational Research for Global Change, masumoto@eps.s.u-tokyo.ac.jp TEL:+81-46-867-9835. Contributing authors: Weidong Yu (wdyu@fio.org.cn), Gary Meyers (Gary.Meyers@imos.org.au), with contributions from members of the CLIVAR/GOOS Indian Ocean Panel and national leaders of regional activity.

3.21 The Argo Programme

The Argo programme (www.argo.net) is described for the Indian Ocean at: http://www.incois.gov.in/Incois/iogoos/argofloats.jsp

3.22 CLIVAR

As described on the CLIVAR website (http://www.clivar.org/), CLIVAR is the World Climate Research Programme (WCRP) project that addresses Climate Variability and Predictability, with a particular focus on the role of ocean-atmosphere interactions in climate. It works closely with its companion WCRP projects on issues such as the role of the land surface, snow and ice and the role of stratospheric processes in climate.

The two CLIVAR panels of most relevance to the WIO are VACS (Variability in the African Climate System) which includes the neighbouring oceans, and IOP (Indian Ocean Panel) which is described under section 3.20 above.

3.23 GOOS-Africa

As found on the Global Observing Systems Information Centre (http://www.gosic.org/goos/GOOS-AFRICA-program-overview.htm), GOOS-Africa is a coordination committee established in July of 1998 for the purpose of promoting the development of GOOS in Africa.

Priorities for GOOS-AFRICA are:

- To form an Africa wide network of National Ocean Data Centers
- To upgrade the African network of GLOSS sea level stations
- To encourage access to and capability in Ocean Remote Sensing in Africa
- To facilitate Internet access and data transfer mechanisms.

3.24 Seamounts: EAF Fisheries Project

The global depletion of inshore and continental shelf fisheries, coupled with improvements in fishing technology, has led commercial activities to fish further out and deeper into the oceans, including in the high seas beyond national exclusive economic zones (EEZs), where they are subject to weak or sometimes no regulation. In just ten years, between 1992 and 2002, the percentage of fish caught on the high seas in relation to the global marine catch rose from 5% to 11%.

Seamounts are hotspots of biological diversity and production. They also host concentrations of commercial pelagic fish (e.g. tuna) as well as deep-water fish species (e.g. Orange Roughy) that attract commercial fishing activities. The combination of the lack of understanding of important oceanic features such as seamounts and their interactions with commercial fish species and the existing gap in the high seas marine biodiversity governance and regulatory system poses major threats to marine species and their habitat. These gaps can allow unregulated and unreported activities, overexploitation and pollution of marine resources and destruction of benthic habitats. Deep-sea bottom fisheries can cause irrevocable depletion of commercially-important fish populations in just a few years, and irreparable damage to slow-growing deep-seabed communities of cold water corals, sponges and other animals.

The southern Indian Ocean remains the most significant gap in current knowledge of global seamount ecology and biodiversity. In addition, no governance body yet has the mandate to conserve and manage deep-sea ecosystems in the southern Indian Ocean. The Southern Indian Ocean Fisheries Agreement (SIOFA) is not yet in force, and the only agreement currently in force in the region, the

Indian Ocean Tuna Commission (IOTC), applies to the conservation and management of tuna and tuna-like species. Although States fishing in the area have duties linked to international obligations – including UN General Assembly (UNGA) resolution 61/105 on sustainable fisheries and its paragraph 80 on protection of vulnerable marine ecosystems[1] – seamounts in the southern Indian Ocean are in effect left unregulated.

This UNDP/GEF Project will directly address the three main barriers to sustainable fisheries management and marine biodiversity conservation in the high seas, with a particular focus on seamount ecosystems: 1. lack of scientific knowledge about seamount ecosystems and their relationship with fisheries resources, due in large part to lack of capacity for monitoring, assessment and analysis; 2. lack of comprehensive governance framework for marine biodiversity in the region; and 3. difficulty in managing off-shore fish stocks, including monitoring, control and surveillance. The proposed project will also make significant contributions to raising awareness of decision-makers, the fishing industry and the general public on off-shore and deep-sea marine biodiversity, and serve as a demonstration project for developing robust conservation and management measures for marine biodiversity in areas beyond national jurisdiction.

3.25 Western Indian Ocean Marine Science Association

As described on the WIOMSA website (www.wiomsa.og):

WIOMSA is a regional professional, non-governmental, non-profit, membership organization, registered in Zanzibar, Tanzania. The organization is dedicated to promoting the educational, scientific and technological development of all aspects of marine sciences throughout the region of Western Indian Ocean (Somalia, Kenya, Tanzania, Mozambique, South Africa, Comoros, Madagascar, Seychelles, Mauritius, Reunion(France)), with a view toward sustaining the use and conservation of its marine resources. The Association has about 1000 individual members as well as about 50 institutional members from within and outside the region.

The organization's inter-disciplinary membership consists of marine scientists, coastal practitioners, and institutions involved in the advancement of marine science research and development. The Association: (1) provides a forum for communication and exchange of information amongst it members that promotes and fosters inter-institutional linkages within and beyond the region; (2) supports marine research by offering research grants; (3) implements programs to build the capacity of marine scientists and coastal management practitioners; and (4) works to promote policy dialogue on key topics by organizing meetings and seminars on the findings and policy implications of science.

WIOMSA promotes marine science research through the award of research grants under the Marine Science for Management (MASMA) and the Marine Research Grant (MARG) programmes. MASMA is a competitive research grant scheme designed to support research activities in the region as well as organisation of training courses/workshop. The grants, which range from US$ 15,000 to US$ 50,000 per annum, are available to teams of scientists or individual researchers from the region.

In addition to the on-going capacity building program in ICM and MPA, WIOMSA has organized/hosted a number of regional workshops and meetings that provided the linkage between science and management.

[1] UNGA Resolution 61/105, para. 80, calls for *States to take action immediately, individually and through regional fisheries management organizations and arrangements, and consistent with the precautionary approach and ecosystem approaches, to sustainably manage fish stocks and protect vulnerable marine ecosystems, including seamounts, hydrothermal vents and cold water corals, from destructive fishing practices, recognizing the immense importance and value of deep seas ecosystems and the biodiversity they contain.*

Recently, WIOMSA also signed Memorandum of Understanding with UNEP as the secretariat to the Nairobi Convention, whereby WIOMSA will be responsible for providing research, technical, managerial and advisory support to UNEP as requested.

WIOMSA in collaboration with UNEP is hosting a regional Group of Experts on Marine Protected Areas for the Eastern African region (GEMPA). GEMPA has been established with the aim of building a constituency for marine protected areas in the region and to provide a forum for linkages and dialogue between MPA practitioners and experts, and between government and non-government organizations.

List of FUNDED MASMA PROJECTS could go here.

3.26 Western Indian Ocean Projects of the Institut de Recherche pour le Développement (IRD) ; in particular MESOBIO

The IRD = Institut de Recherche pour le Développement (http://ww.ird.fr) is a French public research institute, funded by 2 ministries (Research and Education, Foreign Office)

EME (Exploited Marine Ecosystem) is the scientific structure of IRD (UMR research unit) dealing with halieutic (fishery) science. EME started in January 2009 from the merger of 4 previous research units, among which was THETIS (directed by Dr Francis Marsac).

Head of EME: Dr Philippe CURY. EME is hosted at the Centre de Recherche Halieutique Méditerranéenne et Tropicale (CRH), at Sète (France) - http://www.crh-sete.org

In the Western Indian Ocean, EME is present at La Réunion (IRD Réunion, BP 172, 97492 Sainte Clotilde Cedex) and in Seychelles (RD Seychelles - BP 570 - Victoria, Mahé, Seychelles)

IRD / EME research programmes in the Western Indian Ocean are:

MESOP program which has been included in the MESOBIO (2009-2011) project. The MESOBIO project is conducted by the IRD (EME team) in strong collaboration with scientists and organisations from South Africa. The MESOBIO project (*Influence of mesoscale dynamics on biological productivity at multiple trophic levels in the Mozambique Channel*) includes the activities developed by IRD / EME in the Mozambique Channel on the role of mesoscale eddies on the whole trophic web. MESOBIO has just been funded (MASMA grant) and is being implemented at the moment.

- MADE (European funds FP7, 2008-2012): Mitigating adverse ecological impacts of open ocean fisheries

- BIOPS (ANR French grant, 2008-2010): Biodiversité des milieux pélagiques marins dans l'Océan Indien

- SWIOFP (World Bank, 2008-2013) : France is member of SWIOFP. IRD (SWIOFP representative: Francis Marsac) participates at two components: Data gap analysis, Data archiving and Information technology (component 1) and Assessment ansd sustainable utilization of pelagic fish (component 4).

Other Research Units of IRD have developed projects and programmes in the SWIO:
- COREUS: mapping / GIS activities with the ASCLME Project (S. Andrefouet)
- ESPACE: As a partner in AMESD (*to be verified*)

MESOBIO
MESOBIO aims at understanding the influence of mesoscale dynamics (eddies) on the biological productivity of the sea. The Mozambique Channel is very well suited for the study, as it is the place of an intense mesoscale activity. Mesoscale eddies may enhance biological productivity by themselves (through vertical exchanges induced by the eddies) and through the seaward export of coastal productivity by circular currents associated with the structure. MESOBIO intends to investigate from the physical processes associated with eddies, to primary (phytoplankton) and secondary (zooplankton) production, then to forage fauna (micronekton) up to top predators (tunas, seabirds, marine mammals). MESOBIO aims at developing a global ecosystemic approach.

3.28 The EAF Nansen Project

The long term objective of the EAF-Nansen project is to strengthen regional and country specific efforts to reduce poverty and create conditions to assist in the achievement of food security through development of sustainable fisheries management regimes and specifically through the application of the ecosystem approach to fisheries in a number of developing countries at global level, with an early emphasis on Sub-Saharan Africa.

The long term objective would be achieved through the provision of support for the development and country driven application of the conceptual framework of the Ecosystem Approach to Fisheries (EAF) through capacity-building, promoting standardized data collection and monitoring, supporting policy development and management practices consistent with EAF principles and contributing to an expanded knowledge base.

The Immediate Objectives of the project are to provide the fisheries research institutions and management administrations in the participating countries with additional knowledge on their ecosystems for their use in planning and monitoring, and to further the acceptance and application of the key principles of the EAF. The key principles are that:

- fisheries should be managed to limit their impact on the ecosystem to an acceptable level;
- ecological relationships between species should be maintained;
- management measures should be compatible across the entire distribution of the resource;
- precaution in decision-making and action is needed because the knowledge on ecosystems is incomplete; and that
- governance should ensure both human and ecosystem well-being and equity.

3.29 Agulhas Current Transport (ACT)

The project will deploy a three-year mooring array across the Agulhas Current off South Africa at nominally 34S to measure its volume transport. The mooring array will be positioned offshore and a little south of East London, where it will leave the African shelf at 33.4 S and follow the trajectory of descending TOPEX/Jason ground track #96. These three years of in situ data will build towards long-term monitoring capability of the Agulhas Current through correlations with sea surface height fluctuations along the mooring line from satellite altimeter.

Three two-week cruises, eighteen months apart are planned, with the first deployment cruise tentatively scheduled for March 2010. Seven full-depth moorings will be deployed, each with single-point Doppler current meters at depths throughout the water column, topped with upward-looking, profiling Doppler current meters at 350 m below the surface. In addition, four current meter- and pressure sensor- equipped inverted echo sounders will be deployed offshore to capture meander events. Finally, a tide gauge will be placed at the beginning of the line close to the coast, in shelf waters of less than 50 m depth. Tidal data will be used to improve coastal altimetry products for the building of the long-term Agulhas transport proxy.

On each of the three ACT cruises, we will collaborate with the University of Cape Town (UCT) to train three of their scientists and/or students at sea. This is a symbiotic relationship whereby we gain three watch-standers and the South Africans gain experience and training at sea, as well as links with US scientists. In addition, we will collaborate with a South African student on the production of the coastal altimeter data, through the ALTICORE Africa program. These collaborations have been established with Johann Lutjeharms and Frank Shillington at UCT, and Paolo Cipollini at National Oceanography Centre, Southampton.

4. FUNDED ACTIVITIES

4.1 Wio-LaB

Project Objective 1: Reduce stress to the ecosystem by improving water and sediment quality

1.1: Assessing water & sediment quality
- Development of standard methods for assessing water & sediment quality
- Filling in gaps in knowledge of priority pollutants & their sources through a regional monitoring programme
- Assessment of carrying capacity of major ecotones
- Identification of major hotspots of pollution
- Establishment of Regional Environmental Quality Standards for water and sediment quality
- Development of a long-term monitoring protocol

1.2: Managing municipal waste water (MWW)
- Implementation of demonstration projects on MWW management
- Development of guidelines for MWW management

1.3: Managing physical alteration and destruction of habitats (PADH)
- Implementation of demonstration projects on PADH management
- Development of guidelines for PADH management

Project Objective 2: Strengthen regional legal basis for preventing land based (LB) sources of pollution

2.1: Legal framework
- Review of existing national legislation/regulatory frameworks
- Review of the status of ratification of international conventions
- Development and adoption of a Protocol on land-based sources and activities

2.2: Environmental Impact Assessment (EIA)
- Development of guidelines for transboundary EIA's

2.3: National Programme's of Action (NPA)
- Development of National Programmes of Action for land based activities by countries

2.4: Integrated Coastal Area and River Basin Management (ICARM)
- Promotion and enhancement of ICARM principles
- Implementation of a demonstration project on ICARM

Project Objective 3: Develop regional capacity for sustainable, less polluting development

3.1: Regional coordination
- Strengthen Nairobi Convention Secretariat and EAF/RCU
- Establishment of a regional International waters coordinating mechanism
- Creation of an East African node of the GPA Clearinghouse Mechanism

3.2: Training & education
- Addressing training needs for land-based sources & activities management
- Implementation of educational programs on land-based sources & activities

3.3: Stakeholder participation
- Establishment of private and public sector partnerships
- Strengthen stakeholder participation in land-based sources and activities management
- Implementation of a small grants programme

3.4: Transboundary Diagnostic Analysis & Strategic Action Plan
- Development of an updated, scientifically relevant and geographically focused TDA and SAP

4.2 ASCLME

The funded activities of the ASCLME are under four result areas (this is under revision):

1 INFORMATION CAPTURED FOR DEVELOPMENT OF THE TRANSBOUNDARY DIAGNOSTIC ANALYSIS

1.1 Data and information review

1.2 Identification of data needs and data capture mechanisms to populate the 2 TDAs

1.2A Identify and prioritize ecosystem assessment and ecosystemic process information gaps in key oceanographic areas of the ASCLMEs along with work-plans, cruise schedules, budgets and responsibilities

1.2B Key knowledge gaps in near-shore (artisanal/subsistence) fisheries updated, nursery areas and other rich biological habitat mapped or otherwise identified using existing information

1.2C Management and Policy gaps/needs identified as part of root cause requirements for TDAs development (national and regional)

1.3 Active offshore and coastal oceanographic data collection to fill gaps in ecosystem assessment and status as necessary for development of TDAs and SAPs

1.4 Baseline information obtained on persistent organic pollutants (POPs) within the LMEs through use of key indicator species

2 LONG-TERM LME DATA COLLECTION, MANAGEMENT AND DISTRIBUTION MECHANISMS ESTABLISHED

2.1 LME based indicators linked to national and regional M&E mechanisms are developed and captured within institutional work programmes and budgets

2.2 A region wide socio-economic valuation of near-shore marine goods and services is undertaken to gain greater understanding of the social and economic importance of these areas

2.3 National and regional data handling, storage and synthesis focal centres are established

2.4 Use of GIS and predictive models expanded to increase systems knowledge

3 TDAS AND STRATEGIC ACTION PROGRAMMES AND ASSOCIATED SUSTAINABILITY MECHANISMS IN SUPPORT OF AN LME APPROACH ARE ADOPTED

3.1 TDAs are negotiated and approved by technical stakeholders

3.2 SAPs are negotiated and approved by technical stakeholders

3.3 Financial resources are brokered to ensure financial sustainability of monitoring, evaluation and information systems to support the LME approach

3.4 Institutional, programme and human capacity building requirements are identified and addressed through training initiatives

4 LME COORDINATION, COMMUNICATION, AND PARTICIPATION MECHANISMS ESTABLISHED

4.1 Effective and frequent communication and coordination established among the IAs, the various projects under the programme and other related initiatives and institutions in the region, including linkages with other GEF supported projects in Sub-Saharan Africa and globally

4.2 Key policy stakeholders sensitized and engaged in LME process through appropriate packaging and presentation of LME information and concepts

4.3 Stakeholder engagement, public involvement, participation, and environmental education initiatives are developed and implemented in the region

4.3 Nairobi Convention Clearinghouse Mechanism

i. An operational, online database drawn from the list of parameters described in above

ii. Data available in the Clearinghouse portal and data gap analysis

iii. National level training on (remote) data uploading

iv. National level campaigns conducted for decision makers, experts and stakeholders

4.4 ODINAFRICA

The following activities were funded under each of the thematic work packages:

Coastal Ocean Observing System: Upgrading and expanding African network sea level network in collaboration with the Global Sea Level Observing System, the University of Hawaii Sea Level Centre, the Indian Ocean Tsunami Early Warning and Mitigation, the Benguela Current Large Marine Ecosystem project. Details are available at www.iode.org/glossafrica. Other activities include training on sea level data analysis and interpretation as well as collocation of GPS at some of the tide gauge stations. The ODINAFRICA Sea Level Data Facility (www.sealevelstation.net) has been established to provide information on tide gauge status, as well as real-time access to sea level data.

Data and Information Management: The National Oceanographic Data and Information Centres (NODC) have been further developed and strengthened to manage a wide range of marine data and information types. Support was provided for upgrading infrastructure in the NODCs (including internet access and computer systems). Training courses have been organized on topics such as marine biodiversity data management, numerical modeling, and the application of remote sensing and GIS to coastal management. The participating institutions have developed a suite of data and information products available through project website (*www.odinafrica.org*). These include: Directories of marine and freshwater professionals, Catalogues of marine related data sets, Marine Species data bases, and library catalogues. An electronic repository of marine related publications from/about Africa developed through ODINAFRICA is available at: http://iodeweb1.vliz.be/odin/

Product Development and end user communication and information delivery: focuses on identification of end users of marine/coastal data/information products and their requirements, identification and development of set of core products to be prepared by each NODC, development of national marine atlases as well as the African Marine Atlas (www.africanmarineatlas.net), development of an African Marine Biodiversity database, improvement of atmospheric and oceanic monitoring databases, and promotion and dissemination of outputs of the project to all stakeholders.

Details of national data services and products are can be accessed at the websites of each NODCs - www.nodc-countryname.org (e.g. www.nodc-tanzania.org). ODINAFRICA publishes the WINDOW newsletter 3-4times a year to provide information on project activities. The African Ocean Portal (www.africanoceans.net) and the COSMARNews which are produced in collaboration with the secretariat for the Coastal and Marine sub-theme of NEPAD provide information on all aspects of marine and coastal management.

The current phase is ending in February 2009. A proposal for the next phase to start in March 2009 has already been submitted to the Flanders UNESCO Science Trust fund for consideration.

4.5 ReCoMaP

There are numerous activities and projects that ReCoMaP is supporting in the region in addition to the rather distinct Call for Proposals (see Result 6), the provision of training (see section 7) and the regional assessments (see Section 8). These activities are funded under annual programme estimates (PEs) and are designed to collectively contribute towards the improved functioning of ICZM in our partner countries. Not all activities are straightforward to describe in brief. For example, in all partner countries ReCoMaP's ICZM specialist is very active in supporting national institutions to develop their ICZM policy and planning capacity. In some case (e.g. Madagascar) this includes specific consultancies to propose options for new institutional arrangements for ICZM (further details area available on request). Sections 4.1 to 4.7 presents a selection of ReCoMaP's other major activities for 2008-2009:

Kenya

A Management Plan for Prawn fisheries in Ungwana Bay: Support to the Fisheries Department in Kenya to provide additional and complementary support this on-going work.
Mariculture: Support to the Kenya Marine & Fisheries Research Institute (KMFRI) towards the establishment of a seaweed nursery and test plots on the south coast of Kenya.
Fisheries Information: A programme of support for improved generation of coastal small-scale fisheries statistics is currently being developed with the Fisheries Department.

Madagascar

Fisheries Information Systems: A consultancy has recently been completed by a Madagascar-based consultancy company, in collaboration with the Ministry of Agriculture, Livestock and Fisheries (MAEP) to undertake a preliminary assessment of recent and ongoing coastal small-scale fisheries monitoring programs. Following the presentation to stakeholders, ReCoMaP will work the MAEP to facilitate the design of a cost-effective, accurate and hopefully sustainable fisheries information system for Madagascar's coastal fisheries. It is anticipated that a pilot region will be selected to trial a fisheries information system.

Mauritius/Rodrigues

Mariculture and integrating Mariculture planning into ICZM: ReCoMaP and UNDP recently supported a mariculture planning workshop, covering seaweed as well as other potential targets of mariculture in Rodrigues. A SWOT analysis indicated that seaweed farming does not hold much promise at the moment, but that sea-cucumber ranching or farming may be feasible. To this end, we are supporting further analysis of the opportunities in partnership with the Albion Fisheries Research Centre in Mauritius, and IHSM in Madagascar.

Seychelles

Fisheries Statistics: Support to the Seychelles Fishing Authority (SFA) to building capacity for the sustainable management of small-scale fisheries in the Seychelles through technical support for the improvement of SFA's fisheries monitoring systems.

Tanzania

Strengthening artisanal fisheries statistics in Tanzania: ReCoMaP is developing a programme with the Fisheries Division in Tanzania to support the on-going improvement of fisheries statistics in the country. This work will be closely integrated with MACEMP activities in the Rufiji-Mafia-Kilwa districts of Tanzania.

Regional Activities

ReCoMaP has successfully employed the EU's Direct Award facility to provide grants totaling approximately Euro150,000 to CORDIO-EA and WIOMSA.

CORDIO: The grant will cover the costs of an extended socio-economic monitoring of coastal fishers. This work will be implemented under the highly successful SocMon-WIO programme that has been under-way in the region since 2005.

The activities to be supported include:

1. Site-based training for socio-economic monitoring using SocMon-WIO materials and training approaches;
2. Supporting on-going socio-economic monitoring in Tanzania and Kenya; and,
3. Integrating information on resource *users* into existing management decision-making arrangements.

WIOMSA: The grant will go towards supporting the implementation of the first COMPASS programme for the certification of MPA managers in the WIO region.

Practical Guidelines for Solid-Waste Management in Coastal Regions is being developed and should shortly be available.
Awareness-raising: In all partner countries ReCoMaP is providing a limited number of small-grants (of less than Euro10,000) to local media organizations to promote ICZM-related awareness raising activities. Similarly, small-grants are being awarded to non-media organizations (government and non-governmental) to extend their ICZM-related awareness-raising programmes (further details are available on request).
School-Contest: A school-contest has been successfully held in Mauritius and Rodrigues. A similar event is currently underway in Seychelles, and further contests are planned for Madagascar (2008), Kenya and Tanzania (2009).

MPA Call for Proposals

ReCoMaP will be launching a Call for Proposals (valued at approximately Euro600,000) for Marine Protected Areas (MPAs) in September 2008. Further MPA-related activities may include a regional-based training opportunity to link in and support the WIOMSA COMPASS initiatives.

4.6 RAMP-COI

Comoros: Supporting the Moheli marine park and the development of a sustainable whale-watching eco-tourism with the local population around MPA in Mohéli, Grande Comore and Anjouan.

Madagascar: Supporting the process of creation of two MPAs in Andavadoaka (Velondriake) and in southwest Toliara . ; Supporting the construction of interpretative center and souvenirs shop in Nosy Tanikely to provide income generating activities.

Mauritius: Supporting the creation of the Rivière Banane marine reserve and the development of income generating activities for local communities in Rodrigues and supporting the creation of the Balaclava MPA in Mauritius through marine inventory.

Seychelles: Supporting a demonstration project for monitoring of MPA and high biodiversity island using radar technology (radar installation in Curieuse, Cousin and Aride). Supporting Aldabra WHS in developing best management practices through the production of alternative renewable energy. Supporting Cousin Island Special Reserve in establishing marine baseline for monitoring programme and supporting sustainable marine ecotourism techniques in St Anne marine park.

4.7 AMESD

Support for the management of fishery resources in the south west Indian Ocean
Data archive and dissemination system enabling:

- Processing and the visualization of archive data relating to the observation of the oceanic environment
- Cross-analysis of data relating to the observation of the oceanic environment and data on (e.g.) ship positions
- Calculation and analysis of the evolution of climatologically parameters (e.g. elevation of the sea level, frequency of wind, surge)

Software application will allow:

- Visualization of time averages (days, months, year, seasons) of data (e.g. CHL-a and SST)
- Extractions of archive data for particular points or zones (e.g. upwelling coastal zones, fishing zones)
- Animation of time series plots
- Statistical analysis, including correlations between data
- Interface to analyze the correlations between ocean observation and fishing data

Monitoring and control of fishing activities in the south west Indian Ocean

- System allowing reception (via thematic station-EumetCast), visualisation & processing ocean observation data & conceptualizing near-realtime products to observe and monitor fisheries resources
- Realtime monitoring of local systems such as productivity zones, upwelling or alert system against toxic algal blooms can be developed at a later stage based on data retrieved and products generated

Physical oceanography and support for the management of maritime risks

- Processing and visualization of archive data of physical oceanography
- Analysis of the evolution of climatological parameters (e.g. sea level elevation, wind and surge frequencies)
- Modelling of regional marine hydrodynamics (followed by prediction of drifting objects at sea)

4.8 SWIOFP

The project will be funded for an initial duration of 5 years with a possible extension of 5 years. In the first five years the project aims to accomplish a number of items namely

- Production and adoption of joint fisheries TDA (transboundary diagnostic analyses) and SAP (strategic action plans) by all eight countries participating in project
- Formal agreement by all countries on policy, institutional and legal framework governing ecosystem-based management of specific transboundary fisheries
- Adoption by all SWIOFP countries of environmental status and stress reduction indicators that define ecosystem health within the framework of a regional management institution legally mandated to undertake this function
- Adoption of at least one national or multi-national management plan for a specific demersal, pelagic or crustacean fishery by each country participating in the project
- Establishment of a regional fisheries database based on new and historic data including repatriated data

4.9 COAST-MAP-IO

Phase I: This will be a joint analysis by IOC/IHO and local experts to determine local capability for the project, and methods of building this capability to create the required datasets. This will be followed by joint actions [IOC/IHO and local experts] in participating countries to collate available information on onshore-offshore morphology within their coastal zones. For the most part, this information will be sought in partnership with national mapping agencies (including the Hydrographic Services of participating states) that undertake bathymetric and topographic surveys on a systematic basis.

Capacity-building programs will be formulated to:

- Enable national hydrographic agencies to assemble, quality-control and load existing information into national databases
- Train agencies responsible for Disaster Management and Preparedness to create a series of provisional maps that aid preliminary risk analyses and identify areas that need special surveys
- Work with national coastal management and planning organisations to utilise present datasets in creating useful products and identifying areas for further surveys

Plan new surveys to be implemented by national agencies that enhance existing coverage and meet the requirements of other national bodies.

Phase II: New data will be integrated with existing observations to create a comprehensive database and improved maps. In particular, acquisition of available airborne or satellite observations of

topography over land, and airborne LIDAR mapping of the inter-tidal zone, along with its seaward and landward margins will be provided, in order to ensure the seamless continuity of on-shore/off-shore relief measurements.

Working with coastal management agencies, varied data products – coastal bathymetry, tide gauge data, morphology of coastal areas, and available GOOS operational products – will be used to produce integrated data sets. These data sets will be used in coastal engineering models in coastal zone development and predictive scenarios for decision makers in long-term planning. Continuous improvement and updating of these datasets after this project will hinge on such applications, in addition to their primary purpose for emergency planning.

Capacity-building programs during this phase will be focused on the selected Pilot Project site:

- Integration of varied data sources from surveys, sea-level GLOSS type stations, the Marine Atlas being produced by ODINAFRICA, remotely-sensed and in-situ data
- Training in operating coastal engineering models and Graphical User interfaces for effective presentations to decision makers
- GIS training for data mapping and as management tools in Disaster Management and Preparedness
- Training in Integrated Coastal Area Management using integrated data sets and results from numerical models
- Preparation of inundation maps by National Agencies for the Pilot Area identified during Phase 1

4.10 WIO Cetacean Conservation and Research

This project is in the proposal stage.

4.11 TRANSMAP

In order to achieve the project's central goal, the work conducted in each of the sites will focus on the following specific research objectives or operational goals defined in the following 12 workpackages:

1. Existing Knowledge: To compile and assess the existing information from the two transboundary areas (SA/Mozambique, and Mozambique/Tanzania). Hence information on coastal biological resources, physical and chemical phenomena and characteristics, living resources, socio-economic characteristics as well as existing formal and informal legal and institutional frameworks should be gathered from different sources.
2. Mapping Habitat Types and Current Uses: Tasks focus on the development of a geographic information system (GIS) and the collection of geospatial data for the TRANSMAP project study area. Specific objectives include: i) the classification and mapping of coastal habitat types using satellite remote sensing (coral reefs, coastal dunes, mangroves, seagrasses, tidal flats, and coastal lagoons); and, ii) the merging of GIS layers depicting current land- and sea-uses.
3. Biodiversity and Condition Evaluation: Specific objectives are: (1) to assess the biodiversity in each of the habitats; (2) to identify “hot spots” that possess either unique species assemblages or are uniquely species rich or both; (3) to identify critical habitats – nursery grounds, spawning aggregations; (3) to assess the relative contribution of each habitat to the ecological functioning of the region (at regional scales); (4) to assess and evaluate the available information regarding the status of different habitats and ecosystems of the two considered areas.
4. Special taxa: To assess the occurrence of rare and endangered species and their habitats in the two regions.
5. Connectivity Assessment: To assess connectivity potential between the reserve units.
6. Sources and uses: Investigates the socio-economic conditions and trends in the study regions and how they relate to coastal and marine resources.
7. Socio-economic needs: This aims to undertake a participatory assessment of stakeholders and their concerns in relation to the creation and management of MPAs. The research involves (1)

identifying the main stakeholders and scoping their interests; (2) increasing general understanding among key stakeholders of MPAs [and transfrontier conservation approaches]; (3) facilitating the articulation of stakeholder values, concerns and priorities.

8. Policy, legal and institutional framework: Will identify the pertinent international (global and regional) and domestic (national and provincial) policy, legal and institutional instruments that serve as the framework for marine protected areas in Eastern Africa.
9. Operational assessment and state of management: This will identify, inventory, describe and analyse existing and proposed national economic development, integrated coastal and ocean management, and sectoral management plans that have an actual or potential impact for prospective MPAs in the countries concerned.
10. Options for MPA zoning: In this it is intended to integrate the information gathered by the different project components and address a final proposal of alternative zoning plan scenarios for the considered case studies, in an appropriate format for decision-making organisations.
11. Use and dissemination of knowledge: The use and dissemination of knowledge between participants and different level stakeholders and end-users, and the promotion of results and interaction among decision-making structures. In particular the representatives of established marine protected areas will be involved. This may increase the chances of use of the project results in generating effective local and regional policies. Also public participation and awareness are targeted, including the involvement of different level educational experts.

4.12 Marine Highway Project

- Hydrographic survey of entrances to Ports
- Hydrographic survey of proposed marine Highway along the Mozambique Channel

4.13 WIOFish

The database was initiated in 2004 with data from five countries: Kenya, Mozambique, Seychelles, South Africa and Tanzania. It is anticipated that information from other countries in the WIO, including, but not limited to, Madagascar, Mauritius, Comoros and Reunion (France) will be included within the next two years. The database is designed to increase the understanding of the small-scale traditional fisheries of the Western Indian Ocean by providing holistic descriptions of the fisheries including attributes such as catch composition, vessels and gear used, habitats within which the fisheries operate, management strategies and socio-economics. The database is therefore populated with as many WIO fisheries and their respective descriptions as possible. While basic catch information is included such as species contributing more than 5% of the total catch, catch rates and total catches, it is not the intention of the database to provide comprehensive catch statistics.
Links to appropriately related statistical database websites will be included.

4.14 Long-Term Ocean Climate Observations – LOCO

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4.15 UNESCO/IOC and the Capacity Development Programme in the WIO region

The first phase of the IOC Capacity Development programme activities in the region will finish in 2008 and A new proposal is under development for the next phase covering 4 years of activities. The training priorities of both phases are documented in section 7.

4.16 IUCN

4.17 ACEP

The vision of ACEP II is to *Build the capacity to sustain the processes which support life*, and the aim of the ACEP II is to build on the good work that has been done before and ensure that the vision and objectives is achieved through high quality research. The open call for ACEP II projects were a

success and eight proposals involving 30 scientists from 10 research institutions in South Africa were awarded funding. These were:

1) Biodiversity and Coelacanths
Title: Investigating African Coelacanths, their ecosystems and surrounding deep water environments through integrating multidisciplinary research focusing on biodiversity and ecology

2) Conservation planning
Title: The application of systematic conservation planning to the high resolution biological, oceanographic and threats data collected over the last seven years by EKZN Wildlife for the waters of the EEZ off Kwazulu-Natal to assess biodiversity status and recommend placement of MPAs

3) Education
Title: Accessing and use of scientific knowledge resources for public understanding and environmental education

4) Coral & climate change
Title: Sampling and analysis of coral core from the Sodwana coral reef system to determine decadal variations in sea surface temperature, geochemistry and climate.

5) Genetics
Title: A phylogenetic investigation of differentiation of the marine fish fauna of the South Western Indian Ocean at different temporal and spatial scales.

6) Natal Bight Ecosystem
Title: Ecosystem processes in the KZN Bight: linking geological, biological and physical processes to understand ecosystem functioning.

7) Agulhas Current Ecosystem
Title: A multi-disciplinary study of the landward edge of the Agulhas Current along its full length and its influence on the adjacent shelf (Figure 1), including the Agulhas Bank (Figure 1).

8) Database
Title: An integrated web-based data and metadata system, using Geographical Information Systems (GIS) to understand biophysical processes.

Local programme collaboration
1) Algoa Bay: Algoa Bay Long Term Monitoring and Research Programme (Algoa Bay LTMRP). The new coastal research boat (13 m Lee-Cat) will play a major role in observation studies along the coast of SA. In collaboration with SAEON long term monitoring lines off Algoa Bay and Port Alfred will be set up to investigate long term variation and climate change impacts on the coastal region.

2) Tsitsikamma National Park (TNPA): Establishment of a long-term monitoring site for sub-tidal nearshore reef communities of the warm-temperate biogeographic region. The Remotely Ooperated Vehicle (ROV) will provide capacity to undertake observation in areas previously to deep to monitor. The programme at TNPA involves establishing deep water monitoring protocols that can be implemented along the South African coast.

4.26 MESOBIO

Different components of the MESOBIO project are self-funded (for instance, ship time availability from IRD for the MESOP cruise onboard the R/V ANTEA, support from ASCLME and ACEP for future cruises onboard R/V Algoa and/or R/V Fridtjof Nansen). Complementary funds have been requested from WIOMSA (MASMA grant), from European grant at La Réunion (top predators component). Support from ASCLME and ACEP could also be requested for complementary funds.

5. DATA NODES AND MANAGEMENT SYSTEMS

5.1 Wio-LaB

As one of its activities, the WIO-LaB project supports implementation of the Clearinghouse and information sharing system of the Nairobi Convention to serve as a regional clearinghouse node for the Global Programme of Action for the protection of the marine environment from land based activities. Besides hosting data generated by WIOLaB activities, the national and regional Clearinghouses are repositories of geospatial and socioeconomic data, and acts as information sharing platform for the Eastern Africa coastal and marine environment. As such, Wio-LaB data nodes are the same as CHM nodes.

5.2 ASCLME

The ASCLME will use a distributed management system for data, where every participating country manages and archives the data for that country, collected or used during the MEDA/TDA/SAP process. Since the long term goal of the ASCLME Project is to build capacity in national institutions to support data collection, management and use to inform decision-making, the Project will use existing national data systems and repositories and support capacity building (infrastructure / training) where it is needed and requested. Data nodes and their funded activities are aligned with those of ODINAFRICA (IOC/UNESCO) and the Nairobi Convention. Several data nodes are used in each country depending on the discipline of interest (taxonomy/oceanography/fisheries); these are described in the ASCLME Data and Information Management Plan.

5.3 Nairobi Convention Clearinghouse Mechanism

- Data nodes are as described in Section 2
- Each lead country institution has been provided with a high-end data server for data repository
- A team of experts at national level with a broad range of expertise representing different institutions/stakeholders act as a National Working Group (WG) for the coordination of the activities related to collection, collation and formatting of metadatadata and information uploaded into the national clearinghouse node server by WG which also carry out initial analysis of the data to identify critical environmental emerging issues.

5.4 ODINAFRICA

The data nodes are the National Oceanographic Data and Information Centres located in the Focal Point Institutions.

5.5 ReCoMaP

ReCoMaP is engaged in supporting provision of improved data and information contributing to ICZM decision-making (e.g. on fisheries, coastal erosion, coastal eco-tourism etc). However, we have not established any data nodes or programme-specific data management systems as such, but rather we support the functioning of existing systems. The only programme-specific information management system we are promoting is a Knowledge Management System (KMS) for ICZM. This will be a web-based system that offers selected papers, reports, images etc related to ICZM as a process, rather than a library of sector-based material. The contents will be largely defined and ranked by our ICZM specialist and from contributions from our Regional Technical Advisory Panel. The system is developed and based on open-source Knowledge Tree and should be on-line by the end of 2008.

5.6 RAMP-COI

The project will develop a regional biodiversity data base in collaboration with WCS Madagascar. The data base already exit for the terrestrial biodiversity of Madagascar. It will be extended to the marine biodiversity in the IOC countries, in the frame of the eco-regional analysis (component 1 of the project).

5.7 AMESD

The service will be composed of a data archive and dissemination system installed in institutions in charge of the management of fisheries resources (see focal point institutions). Products and services

provided should notably enable improved detection of climatic evaluations and/or variations of parameters of the oceanic environment and analysis of its consequences on marine resources. The archive data will be stocked and processed in part at the MOI, Mauritius.

5.8 SWIOFP

Data Gap Analysis, Data Archiving and Information Technology Component (Kenya) SWIOFP will establish a regional data management system to underpin information needed to ensure management of regional fisheries and to undertake a gap analysis to identify the specific research activities to be supported by the project. This regional database will be created during the first year of the Project and will continue to operate and service the participating and observer countries in SWIOFP, expanding the database with new information from the SWIOFP research cruises and other relevant data input from projects in the SWIO. The project database will include fields for existing data describing by-catch, and provision for adding information from Project-leased and commercial vessels (that have Project observers onboard).The gap analysis will rely on the development of a data atlas of historic data describing offshore fisheries of the WIO. A single regional fisheries database will be created using the data atlas, which reflects published information, along with repatriated and consolidated data from various sources. National fisheries related IT and communications infrastructure will also be procured or upgraded for each of the nine countries along with training in data handling and reporting

5.9 COAST-MAP-IO

- Country-specific databases, formatted and ready for merger into sub-regional or regional databases
- Bathymetric data sets complemented by flooding/inundation maps. (These will indicate levels of vulnerability to tsunami damage caused by wave action at the coast, and by flooding at inland locations). Zones that are most at risk of future catastrophic events will be the priorities for support and resources.

5.10 WIO Cetacean Conservation and Research

Funding from the French Ministry of Foreign Affairs will allow the development of a tool, in the form of a protected database accessible on the Internet and supported by CD or DVD, making it possible to centralise the photographic data collected on the humpback whales in the various countries of the COI and to facilitate the exchange between these various structures. This tool will meet the needs expressed at the first workshop of study and conservation of the Cetacean of the countries of the COI, which was held at Isle St. Marie (Madagascar) in July 2007. This project will make it possible to harmonize the protocols of photographic data acquisition and to develop and exploit on a regional scale the data accumulated over several years by the local actors.

5.11 TRANSMAP

WP1 (TRANSMAPMeta-database): The purpose of this web-interface meta-database is to facilitate data collection within the TRANSMAP Project. This involves the identification and indexing of data (both historic and existing) relating to the various research thrusts of the project, which are biophysical (habitat and species distribution, biodiversity assessments namely hotspots and current conditions), socio-economic (resource use, and human community distribution), governance (existing legislation and basic institutional frameworks), existing protected areas and framework, as well as geo-analytical support (aerial and satellite imagery, spatial information etc).

WP2 (TRANSMAP Map server): Is already available at 'http://internal.bio3.pt/transmap', the TRANSMAP map server. This map server is a simplified TRANSMAP GIS for public use which is being facilitated through the implementation of a manifold IMS application by Bio3 (see details under consortium/FUL). It is the main objective of the TRANSMAP map server to publish the GIS data and maps to the internet, allowing the public to see many of the information that is being used to develop the scientific basis for the creation of transboundary networks of Marine Protected Areas (MPAs). It is

also intended to allow the public to interactively query the data and to download information and save pictures of the maps

Fieldwork was undertaken in the following locations:

- Southern Tanzania, region of Mtwara: Mbuo, Mngoji and Chui villages;
- Northern Mozambique, province of Cabo Delgado: Palma Sede, Quirinde, Mocimboa da Praia and Ulo;
- Southern Mozambique, district of Matutuíne: Santa Maria (with more rapid assessments also involving Ponta do Ouro, Movukuza, Mucombo and Inhaca island);
- South Africa, province of KwaZulu-Natal: St Lucia town, Khula, Sokhulu, Sodwana and Mabibi.

Currently, the data collected in the field are being analysed. The following outputs are being prepared:

- A database of coastal use and change
- An analysis of the socio-economic dynamics of the region
- An assessment of threats and opportunities for marine conservation

5.12 Marine Highway Project

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5.13 WIOFish

The WIOFish Online Database www.wiofish.org is managed and updated by a regional node, in close collaboration with the national nodes. Presently, the regional node is the Oceanographic Research Institute (ORI) from South Africa who has led the development of the database, in collaboration with IUCN-EARP. The national nodes are those listed in the focal point institutions section above.

5.14 Long-Term Ocean Climate Observations - LOCO

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5.15 UNESCO/IOC and the Capacity Development Programme in the WIO region

IOC supports building capacity in data management primarily through the ODINAFRICA programme, implemented through the National Oceanographic Data and Information Centres. In addition, institutions involved in the Capacity Development (CD) and other IOC programme activities produce and manage data on a project by project basis. This is done in coordination with ODINAFRICA and the National IOC Action Addresses listed in Section 1. The Capacity Development (CD) programme focuses on institutional training and development of products and applications - developing and utilising the data rather than building capacities in data management nodes or clearing houses themselves. The programme seeks partnership in the region to jointly develop such capacities and products.

5.26 MESOBIO

As part of (or associated with) ASCLME and SWIOFP programme, MESOBIO will contribute to the data management systems developed within these programmes. Also, French cruises are intended to contribute to French oceanographic data bases.

6. CASE STUDY SITES

6.1 Wio-Lab

- Kenya - Mombasa: A wetland-lagoon system for wastewater management at Shimo La Tewa Prison
- Madagascar – Toliara: Development of eco-tourism in the Marine Park of Toliara
- Tanzania - Dar es Salaam: Application of vetiver grass for erosion and leachate control at a landfill site
- Mauritius – Port Louis : Solid Waste Management in Port Louis Harbour
- South Africa: Integrated Algal Ponding System technology for the polishing and beneficiation of effluent from municipal sewage treatment facilities
- Mozambique: Enhancing the ecological function of mangroves
- Tanzania – Pemba Island: Wastewater management on Pemba Island
- Comoros – Mohéli: Integrated management and protection of the coastal zone at Itsamia
- Mauritius - Black River Gorges National Park: Use of native species to control soil erosion within The Black River Gorges National Park

For more information on these projects see webpage
http://www.wiolab.org/Demonstration%20Projects/Demonstration%20Projects

6.2 ASCLME

Case study sites will be identified during the course of 2009

6.3 Nairobi Convention Clearinghouse Mechanism

-

6.4 ODINAFRICA

Sites where ODINAFRICA has installed tide gauges:

Kenya	Mombasa
Kenya	Lamu
Madagascar	Nosy Be
Mauritius	Port Louis
Mauritius	Rodrigues
Mozambqiue	Inhambane
Mozambqiue	Pemba
Seychelles	Pt. Larue
Tanzania	Zanzibar
Tanzania	Mtwara

6.5 ReCoMap

Kenya – South coast: Mariculture Development Support
Kenya – Ungwana Bay: Prawn Management Plan
Madagascar – Toliara: MAEP - Octopus Stock Assessment
Mauritius/Rodrigues - Albion/Rodrigues Assembly (Sea Cucumber Mariculture).
Tanzania – RuMaKi : Artisanal Fisheries Information
Madagascar - Regional Fisher Migration Study

6.6 RAMP-COI

Comoros: Moheli Marine Park
Comoros: MPA development for Mohéli, Grande Comore and Anjouan
Madagascar: Two MPAs in Andavadoaka (Velondriake) and in southwest Toliara
Madagascar: Supporting interpretative center and souvenirs shop in Nosy Tanikely
Mauritius: Rivière Banane marine reserve
Mauritius: Income generating activities for local communities in Rodrigues
Mauritius: Balaclava MPA
Seychelles: Supporting a demonstration project for monitoring of MPA and high biodiversity island using radar technology (radar installation in Curieuse, Cousin and Aride)
Seychelles: Aldabra WHS in developing best management practices through the production of alternative renewable energy
Seychelles: Supporting Cousin Island Special Reserve in establishing marine baseline for monitoring programme
Seychelles: supporting sustainable marine ecotourism techniques in St Anne Marine Park.

6.7 AMESD

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6.8 SWIOFP

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6.9 COAST-MAP-IO

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6.10 WIO Cetacean Conservation and Research

Feasibility study for the creation of a regional cetacean network (40 000 €, ReCoMaP 9th EDF)

6.11 TRANSMAP

The transboundary case study areas proposed herein constitute important biogeographical units with unique character, and referred to by the World Wildlife Fund (WWF) and the East African Marine Ecoregion (EAME) as priority areas:

1. in the boundary between South Africa and Mozambique which comprises the Greater St Lucia Wetland Park World Heritage Site, an important centre of marine turtle nesting and also bearing the southern-most coral reefs in the world, among a heterogeneous mosaic of different coastal habitats such as mangroves, seagrass beds, coastal dunes and estuarine lagoons
2. in the boundary between Mozambique and Tanzania, some of the most impressive coral reefs of the Western Indian Ocean, dispersed through a complex of coastal islands significantly affected by recent coral bleaching events, as well as periodic dynamite fishing in Tanzania. These two case study sites present unique and challenging opportunities to develop and test methods that can accommodate the various ecological and socio-economic complexities addressed by the research.

Fieldwork was undertaken in the following locations:

- Southern **Tanzania**, region of Mtwara: Mbuo, Mngoji and Chui villages;
- Northern **Mozambique**, province of Cabo Delgado: Palma Sede, Quirinde, Mocimboa da Praia and Ulo;
- Southern **Mozambique**, district of Matutuíne: Santa Maria (with more rapid assessments also involving Ponta do Ouro, Movukuza, Mucombo and Inhaca island);
- **South Africa**, province of KwaZulu-Natal: St Lucia town, Khula, Sokhulu, Sodwana and Mabibi.

6.12 Marine Highway Project

Overall coastal and marine areas, but more specifically ESAs, including MPAs and coastal and marine areas identified as being of major ecological and economic high importance. These sites will be taken on board in designing site specific OSCP plan for protection.

6.13 WIO-Fish

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6.14 Long-Term Ocean Climate Observations – LOCO

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6.15 IOC – CD

A number of pilot projects have been initiated through the trainings undertaken in hydrodynamic modelling, and spin off projects. Collaboration on further development/transfer of the skills and project outcomes may be possible with the national components of other regional project. Example sites include the following where hydrodynamic models are under development:

- Kenya – Mombasa harbour
- Mozambique Maputo harbour
- Mozambique - Pemba near shore
- Seychelles – Victoria near shore
- Tanzania – Zanzibar Channel
- Tanzania - Zanzibar shoreline change
- Tanzania – Dar es Salaam harbour

6.16 IUCN EASARO

- MPA management planning and Capacity Building in Sudan and Somalia
- Continued of intervention in Tanga

6.26 MESOBIO

MESOBIO activities will focus exclusively on the Mozambique Channel. Repeated cruises are necessary to face with different processes involved in the enhancement of biological production by mesoscale eddies. Also, different sectors within the Mozambique Channel have to be investigated independently (for instance, southward migration of eddies along the western coast of the Channel – Mozambique, vs northward trajectory of southern eddies along the coast of Madagascar).

Other IRD / EME: Case study sites

The IRD/EME MICROTON project (see below) will concern the Mascareigne Plateau (between La Réunion and Seychelles) and the north of Seychelles. Generally speaking, IRD has a long experience of marine (fishery) research around the Seychelles due to long-time partnership with local scientists, especially from SFA.

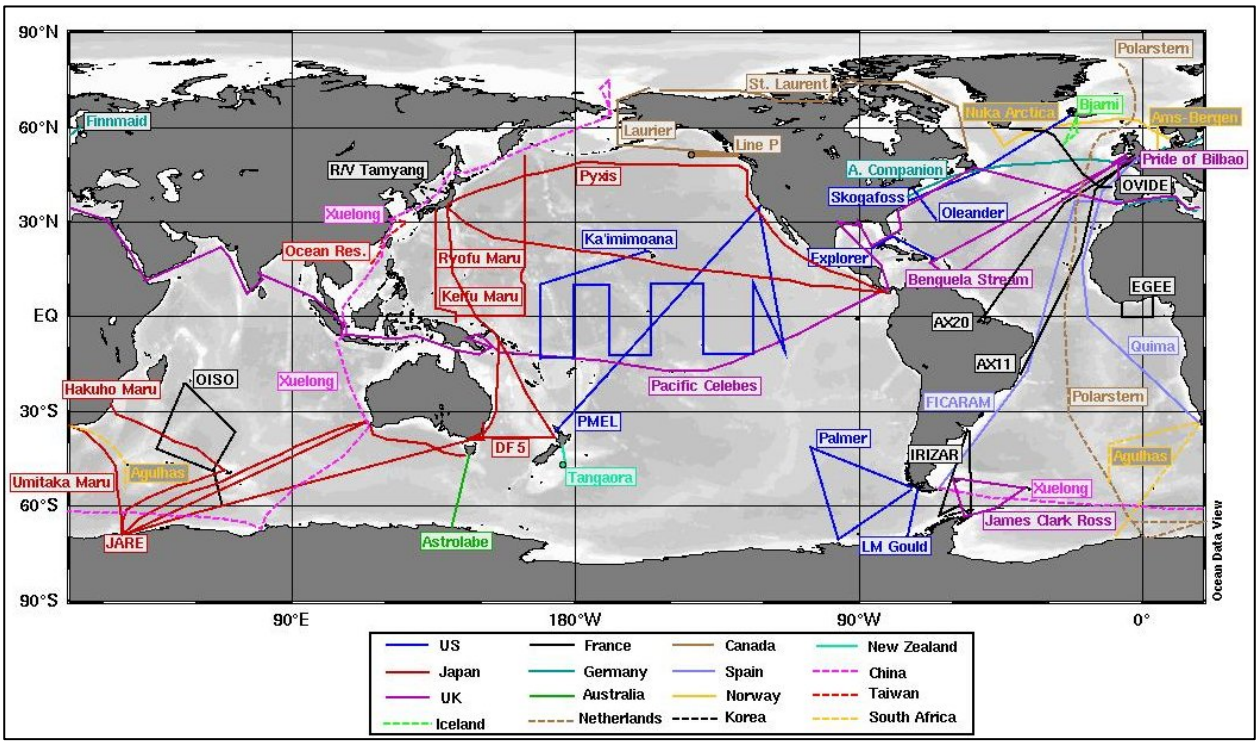
7. CRUISES

Summary table

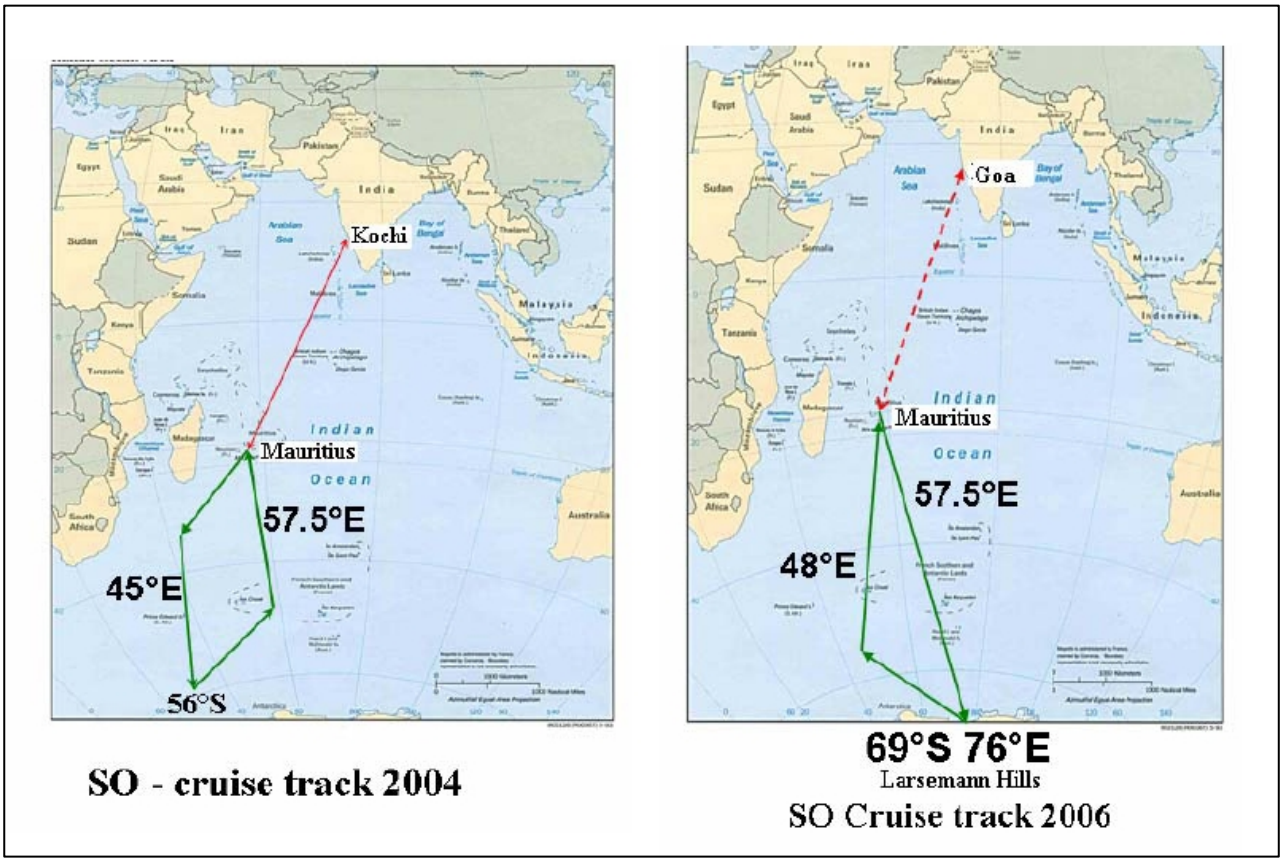
Year	Month	Project	Vessel	Cruise #	Contact Person	Study Area	Ports visits	Nature of research
2008		ASCLME	Dr Fridtjof Nansen	ASCLME 1	Tommy Bornman	East Madagascar	Madagascar	Oceanography/ biodiversity
2008		ASCLME	Dr Fridtjof Nansen	ASCLME 2	Tommy Bornman	Mauritius	Mauritius	Oceanography/ biodiversity
2008		ASCLME	Dr Fridtjof Nansen	ASCLME 3	Tommy Bornman	Mascarene Plateau	Mauritius, Seychelles, Comoros, Mozambique	Oceanography/ biodiversity
2008		ASCLME	Dr Fridtjof Nansen	ASCLME 4	Tommy Bornman	Mozambique channel	Mozambique, South Africa	Oceanography/ biodiversity
2009		ASCLME	Dr Fridtjof Nansen	ASCLME 1	Tommy Bornman	East Africa Current	Kenya, Tanzania	Oceanography/ biodiversity
2009		ASCLME	Dr Fridtjof Nansen	ASCLME 2	Tommy Bornman	Comoros Basin	Comoros	Oceanography/ biodiversity
2009		ASCLME	Dr Fridtjof Nansen	ASCLME 3	Tommy Bornman	Mascarene Plateau	Seychelles, Reunion (France)	Oceanography/ biodiversity
2009		ASCLME	Dr Fridtjof Nansen	ASCLME 4	Tommy Bornman	South-West Indian Ocean	South Africa	Oceanography/ biodiversity
2009		ACEP	RV Algoa		Tommy Bornman	Natal Bight	South Africa	Oceanography/ biodiversity
2009		ACEP	RV Algoa		Tommy Bornman	Agulhas shelf	South Africa	Oceanography/ biodiversity
2009	10/24/09 to 11/10/09	MESOP	IRD R/V ANTEA		Jean-Francois Ternon		Reunion (France)	
2009	1 Jan to 5 April	NCAOR			Dr. M. Sudhakar; msudhakar@ncaor.org		South Africa, Mauritius	
2009			Roger Revelle		shipsked@ucsd.edu		South Africa, Seychelles	
2010	Proposed for April	MICROTON	IRD R/V ANTEA		Jean-Francois Ternon		Seychelles, Reunion (France)	
2011		TRIO	RV Atalante		Jérôme Vialard, Jean-Philippe Duvel		Seychelles	See TRIO science plan: http://www.lmd.ens.fr/jpduvel/trio/TRIO_science_plan_oct08.pdf
2011		CINDY - Japan				In TRIO science plan	Mostly the central equatorial Indian Ocean	A follow-up to MISMO, duration – 2 months
2011/2		PIA Murata - Japan				a repeat of a WOCE cruise (I02, see http://whpo.ucsd.edu/maps/ind_map.html)	Following 8°S through most of the Indian Ocean	CO2 measurements, duration – 2 months

Other information resources for ship-based expeditions:

- www.researchvessels.org
- UNOLS Ship Time Request and Scheduling System (STRS)
  http://unolsweb.cms.udel.edu/STRS/Public/Search/diu_all_schedules.aspx
- http://ioc3.unesco.org/ioccp/Underway/New_GlobalUWMap.html
- CLIVAR and Carbon Hydrographic data office
  (http://whpo.ucsd.edu:80/maps/ind_map.html)
- **CARBON UNDERWAY MAP: On-going and Planned Cruises**
  International Ocean Carbon Coordination Project - Last Updated: November 2007.
  http://ioc3.unesco.org/ioccp/Underway/New_GlobalUWMap.html (see figure below)



- **The (Indian) National Centre for Antarctic and Oceanic Research (NCOAR) http://www.ncaor.gov.in/ shows the following cruise tracks for 2004-2006.** The objectives and work plan for 2008-2009 are on the same website, and will cover the same geographical area.



7.1 Wio-LaB

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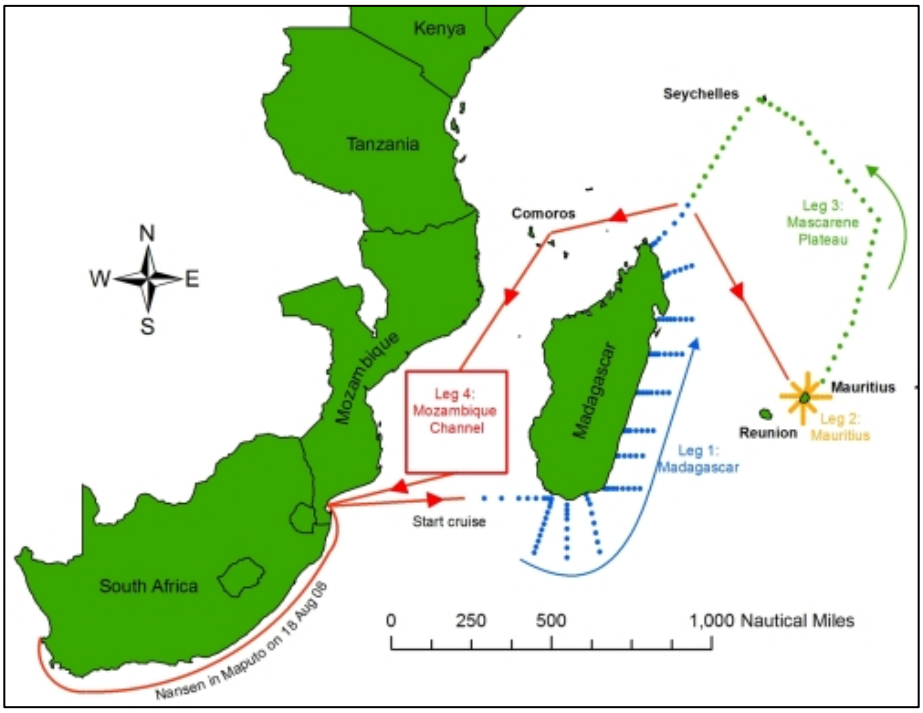
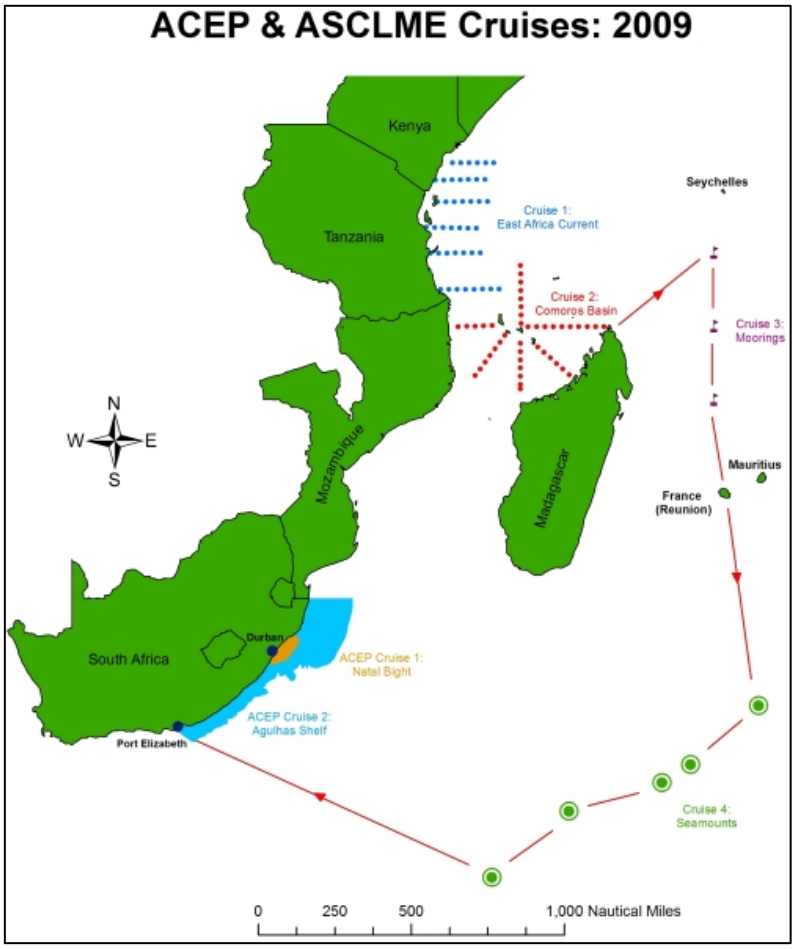
7.2 ASCLME

Ten WIO-wide cruises will take place in collaboration with the EAF Nansen Programme, SWIOFP and ACEP. The first four have taken place on an extended 100-day expedition from August to December 2008.



ASCLME cruises - 2008



Schematic of proposed ACEP and ASCLME cruises - 2009

7.3 Nairobi Convention Clearinghouse Mechanism

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7.4 ODINAFRICA

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7.5 ReCoMaP

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7.6 RAMP-COI

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7.7 AMESD

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7.8 SWIOFP

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7.9 COAST-MAP-IO

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7.10 WIO Cetacean Conservation and Research

In the frame of the WIO cetacean Conservation & Research project, a student participated in the cruise from Mauritius to Seychelles, in order to observe the cetacean over the "Mascareignes Plateau". The travels cost to Mauritius and from Seychelles for the student were supported by the IOC.

7.11 TRANSMAP

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7.12 Marine Highway Project

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7.13 WIOFish

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7.14 Long-Term Ocean Climate Observations - LOCO array

Cruises will take place in early 2009 and 2010. Funding has been secured till 2012.

7.15 UNESCO/IOC and the Capacity Development Programme in the WIO region

Data FROM cruises? To validate models?

7.16 IUCN

7.26 MESOBIO

Previous cruises (ACEP 2007, ASCLME / NANSEN Leg4 2008) may be considered as pre-MESOBIO cruises as results from these cruises will be analysed in the course of MESOBIO together with new data to come, and because the sampling methodology – based on the near-real time eddy monitoring – will be used during MESOBIO cruises.
New cruises will be achieved during the project:
MESOP 2009 (10/24/09 to 11/10/09, onboard the IRD R/V ANTEA)
MESOP 2010 (proposal for a cruise in April 2010, to be validated in the course of 2009)
ACEP (R/V Algoa) or ASCLME (R/V Nansen) in 2010 : to be validated in 2009
ACEP (R/V Algoa) or ASCLME (R/V Nansen) in 2011 : to be validated in 2010

Other IRD / EME: Cruises

Another IRD / EME cruise has been applied for the ANTEA proposal 2010 (MICROTON). It should consist of: 1) a transect between Réunion and Seychelles, and 2): northward transect from Seychelles to 5°N. This cruise should be coupled to SWIOFP field study.

7.27 Thermocline Ridge of the Indian Ocean (TRIO)

Abstract copied verbatim, with permission, from the TRIO science plan:

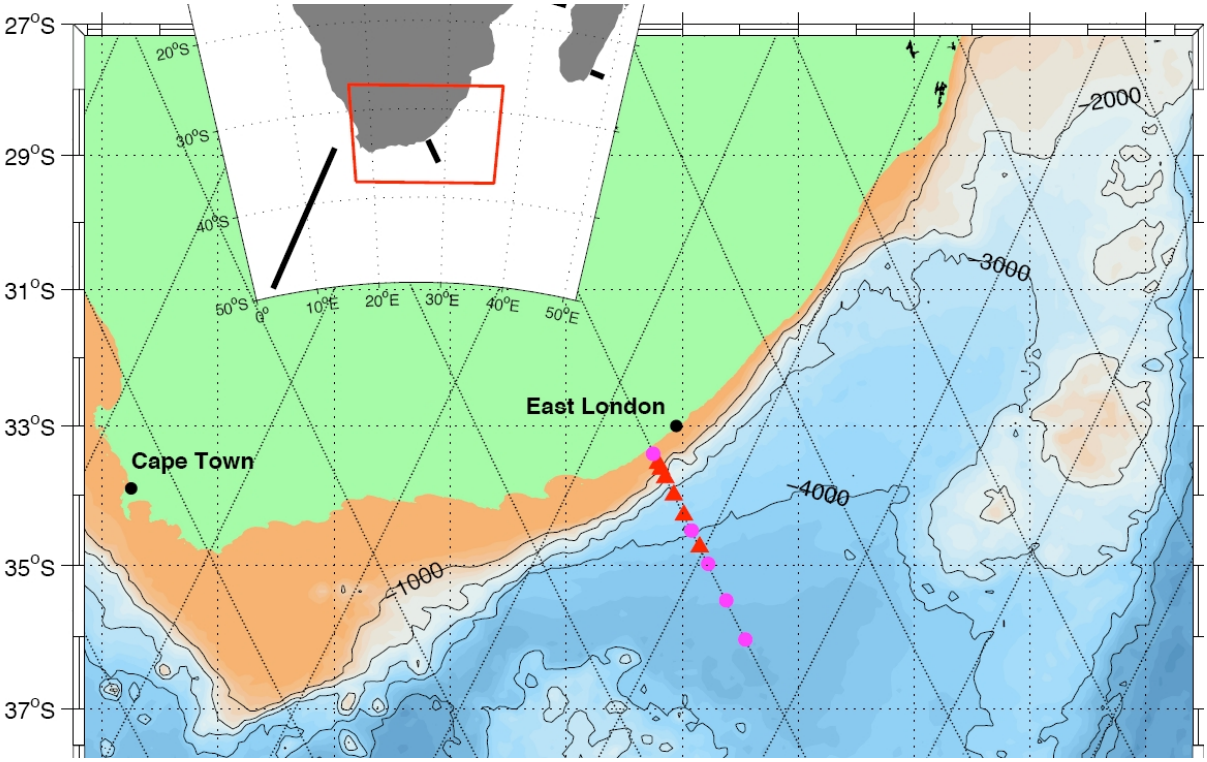
A shallow thermocline, in conjunction with high sea surface temperature, results in strong air-sea interactions between 5°S and 12°S in the Indian Ocean. This region is at the same time a cyclogenesis region (with cyclones that can hit La Réunion or Madagascar), the genesis region of the Madden Julian Oscillation (MJO, the main mode of intra-seasonal atmospheric variability) and hosts strong interannual variability of the oceanic heat content. The TRIO project focuses on air-sea interactions at those three timescales. One particular question is whether considering the oceanic response is necessary to better understand (and forecast) tropical cyclones or MJO events?

TRIO will cruise from Indonesia to Seychelles, with two specific phases. First, an observing system of the regions of strong MJO oceanic signature (North-Western Australian Basin, 5-12°S band) will be installed, in conjunction with the RAMA mooring project and Argo, and by repeating partially a

section already occupied by WOCE in late 1995-1996. The second leg will involve a close collaboration with the SWICE project (Cyclone-targeted experiment) and will allow studying both oceanic and atmospheric processes in the genesis region of MJO and many cyclones. In contrast with Cirene, this approach will allow a basin scale study of the MJO. The variety of oceanic and atmospheric variability along the TRIO cruise will also allow secondary science targets, and a close links with 3 satellite projects (AltiKa, Megha Tropiques, SMOS). The CLIVAR Indian Ocean and Asian-Australian Monsoon panels have endorsed the TRIO project.

7.29 Agulhas Current Transport

Three two-week cruises, eighteen months apart are planned, with the first deployment cruise tentatively scheduled for March 2010. Seven full-depth moorings will be deployed, each with single-point Doppler current meters at depths throughout the water column, topped with upward-looking, profiling Doppler current meters at 350 m below the surface.

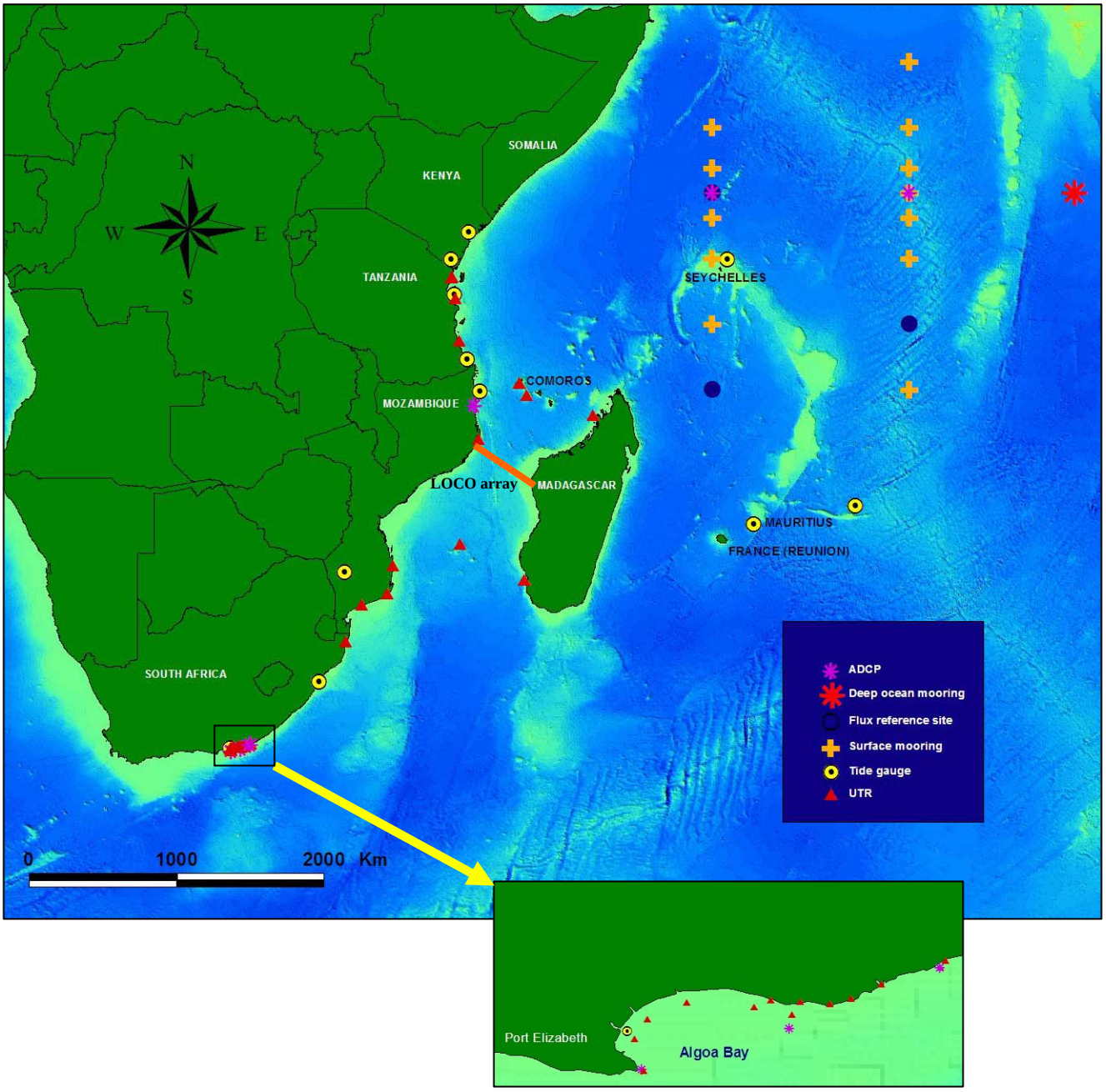


Past cruises (2004-2007) as presented by Hermes *et al.* at the ASCLME Regional Forum.

PI / Contact	Project / Website	Description	Status	Data
J Vialard LOCEAN, France	CIRENE cruise on Atalante	**Port of dep/end:** Victoria (Seychelles), Jan - Feb 2007 **Aim:** to study air-sea interaction at intraseasonal timescale. **Comment:** an ATLAS mooring will be deployed during the cruise and left for ~1 1/2 year after that.	Scheduled 5th January-21st February 2007	-
K Yoneyama Y Kuroda JAMSTEC, Japan	MISMO cruise on MIRAI	Updated cruise details **Aim**: to study the onset of MJO convection in the Indian Ocean. Additional observations are possible.	Approved	-
Weidong Yu FIO/SOA, China Weijia Qin PRIC, China	Antarctic Routine Cruise on R/V Xue-Long	**Port of dep/end**: Shanghai (China), November 2005 - April 2006 **Call at**: Willington (New Zealand); Great Wall and Zhong Shan Stations (Antarctic); Fremental (Australia) **Comment**: A subsurface ADCP mooring off Java is planned with cooperation with Australia and US. This deployment is scheduled at the return leg in early 2006. HD XBT section between 15S-15N will be done. Drifter deployment along the route is possible if there are drifter suppliers.	Approved and ongoing	-
Weidong Yu FIO/SOA, China Ning Zhou	Ocean-1 Global Survey on Ocean-1	**Port of dep/end**: Qingdao (China), 2 April 05 – Jan 06 Call at: Ponape (Micronesia); Mexico; Cape Town (S Africa) and Singapore (track vs. Indian Ocean mooring and XBT network) **Comment**: Deployment of three moorings for PMEL/NOAA is schedule during its passing by (cooperation between FIO/SOA and PMEL/NOAA). A XBT section is conducted acrossing the north Pacific. Further XBT and drifter chances are available.	Approved and ongoing	-

V S N Murty NIO, India	ORV Sagar Kanya cruises	**1st cruise**: 15 May - 15 June 2005, along 77E and 83E between 5N and 5S **Aim**: hydrographic survey/multi-disciplinary observations **2nd cruise**: November 2005, along equtorial zone between 77E and 93E **Aim**: Indian and TAO moorings service **Comment**: ship time for additional relevant tasks is possible	Proposed to DOD, India (plan for 2006 underway)	-
R Molcard, LOCEAN, France; I Soesilo, JT Anggadiredja, J Sopaheluwakan (BRKP, BPPT, LIPI) Indonesia	INSTANT 2nd phase	**INSTANT**: International Nusantara STratification ANd Transport **Aim**: to investigate the Indonesian Throughflow (ITF), which links the Pacific and Indian oceans. **Comment**: the observing arrays will be recovered and redeployed for another 18 months period.	The 2nd phase begins in June 2005	-
G Quartly NOC, UK	MadEx cruise on RRS Discovery	**Port of dep/end**: Durban (South Africa), 26 Jan - 21 Feb 2005 **Aim**: to investigate the current to the south of Madagsascar, which may contain contributions from the East Madagascar Current (EMC), eddies and a supposed 'retroflection'. **Comment**: 4 moorings deployed, CTD, SeaSoar and underway measurements	Likely recovery / servicing is Feb. 2006, supported by NERC, UK	-

8. IN-SITU INSTRUMENTATION



In-situ Instrumentation for the measurement of oceanographic/atmospheric variables in the Western Indian Ocean Region (as of November 2008)

8.1 Wio-Lab

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8.2 ASCLME

The ASCLME Project has worked with NOAA, BCRE, ACEP, Norway and Mozambique for the deployment of Atlas moorings (as part of the RAMA array), Argo floats, surface drifters and a mooring off Pemba, Mozambique.

8.3 Nairobi Convention Clearinghouse Mechanism

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8.4 ODINAFRICA

Tide gauges have been installed or upgraded at the following locations through the joint efforts of various initiatives of UNESCO/IOC such as ODINAFRICA, the Global Sea Level Observing System (GLOSS) and the Indian Ocean Tsunami Early Warning and Mitigation System (IOTWS). These include:

	Station	**Latitude (S)**	**Longitude (E)**
Kenya	Mombasa	4.07 ^{o}	39.65 ^{o}
	Lamu	2.28 ^{o}	40.90 ^{o}
Madagascar	Nosy Be	PLANNED – not yet scheduled	
Mauritius	Port Louis	20.15 ^{o}	57.50 ^{o}
	Rodrigues	19.67 ^{o}	63.42 ^{o}
Mozambqiue	Inhambane	23.87 ^{o}	32.37 ^{o}
	Pemba	12.97 ^{o}	40.50 ^{o}
Seychelles	Pt. Larue	4.67 ^{o}	55.53 ^{o}
Tanzania	Zanzibar	6.15 ^{o}	39.18 ^{o}
	Mtwara	PLANNED 2008	

8.5 ReCoMap

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8.6 RAMP-COI

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8.7 AMESD

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8.8 SWIOFP

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8.9 COAST-MAP-IO

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8.10 WIO Cetacean Conservation and Research

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8.11 TRANSMAP

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8.12 Marine Highway Project

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8.13 WIOFish

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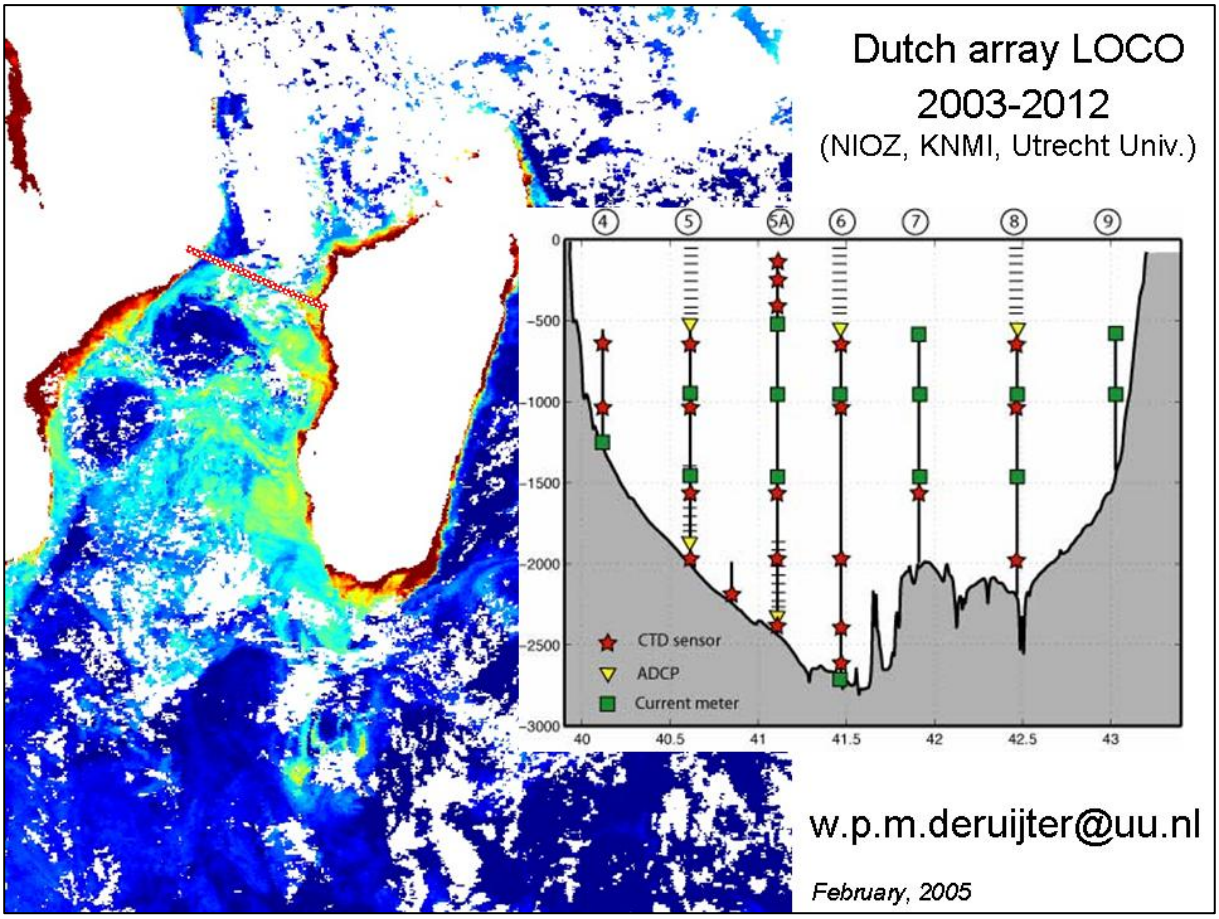
8.14 Long-Term Ocean Climate Observations - LOCO array

An array of moorings (the LOCO program) is maintained till at least 2012 across the narrow section of the Mozambique Channel. LOCO has hydrographic cruises to study the currents and eddies in this region.



8.15 IOC – CD

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8.16 IUCN

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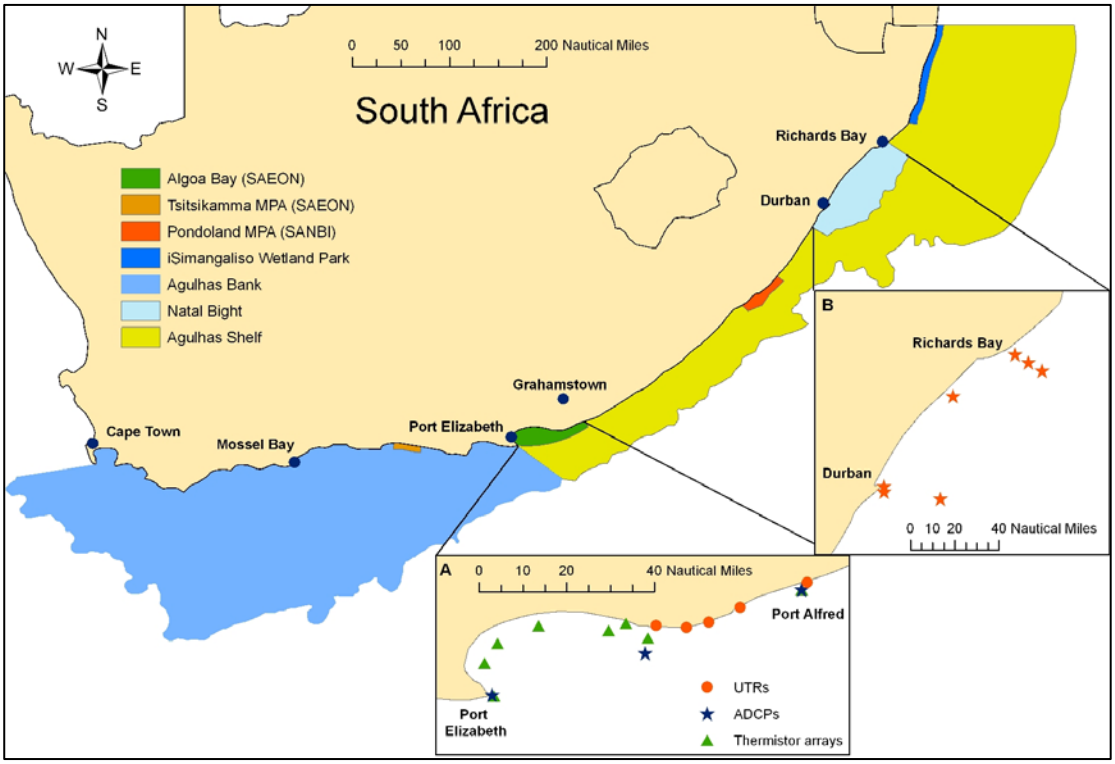
8.17 ACEP

Underwater temperature deployment positions identified during ACEP Phase I:

Mozambqiue	Xai Xai	-25.1646	33.678117
Mozambqiue	Ponta Zavora	-24.482183	35.2391
Mozambqiue	Zambia Reef	-22.771333	35.584
Mozambqiue	Mozambique Island	-15.0645	40.785

Tanzania	Songa Mnara	-9.054483	39.61015
Tanzania	Zanzibar, Kibela	-6.4724	39.396767
Comoros	Grande Comore	-11.667533	43.263533
Comoros	Moheli	-12.391567	43.739033
Madagascar	Nosy Iranja	-13.593033	47.784433
Madagascar	Nosy Ve	-23.655183	43.5858
France	Bassis da India	-21.43845	39.67065
South Africa	9 Mile UTR	-27.414917	32.726667
Comoros	Itsandra UTR shallow	-11.667733	43.263066
Comoros	Mouillage de Moroni (Grand Comoro	-11.667533	43.263533
Comoros	Itsandra, Grande Comore	-11.667533	43.263533
Tanzania	Tanga	-5.2343	39.13234
Tanzania	Tanga	-5.156	39.1672

ACEP Phase II:



ACEP funded and collaborative research in South African waters. Insert A shows the Algoa Bay core study area of SAEON (Elwandle and Egagasini Node). Insert B shows the study area of ACEP's Natal Bight Ecosystem project.

8.18 PUMPSEA

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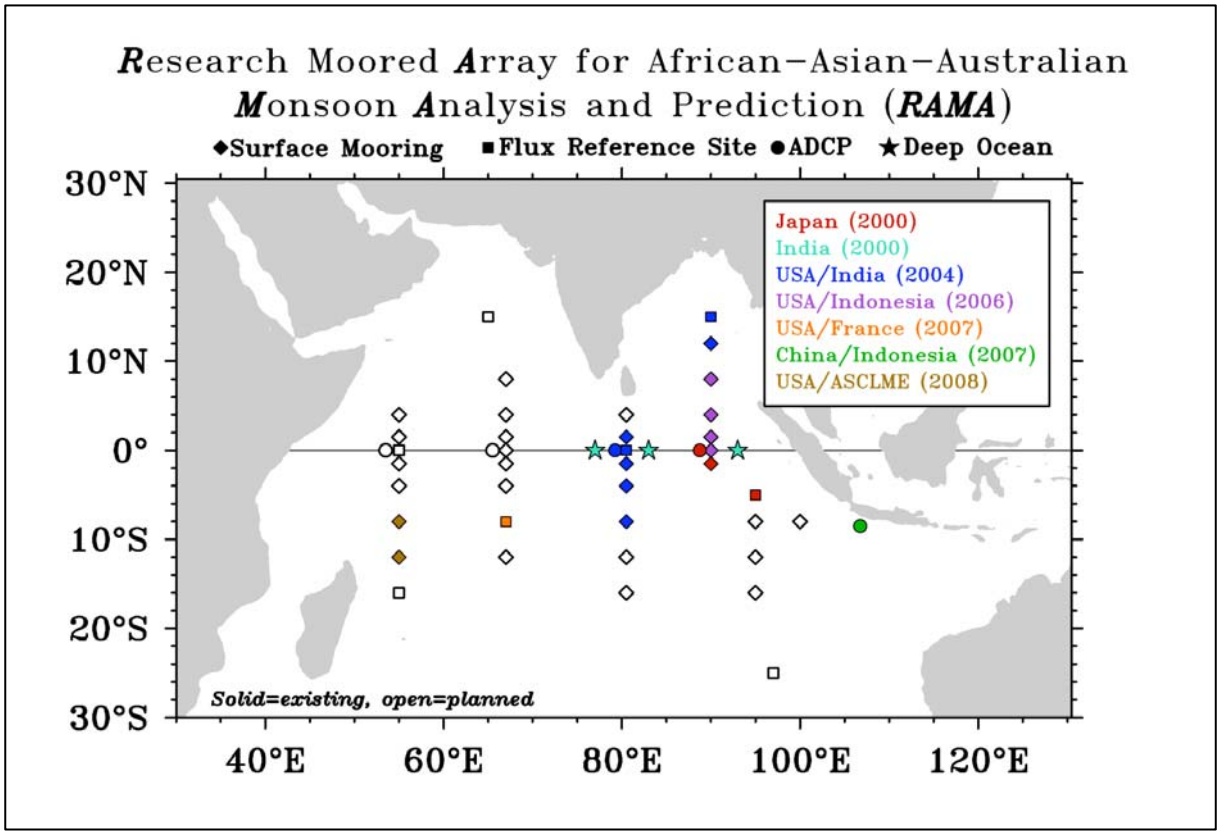
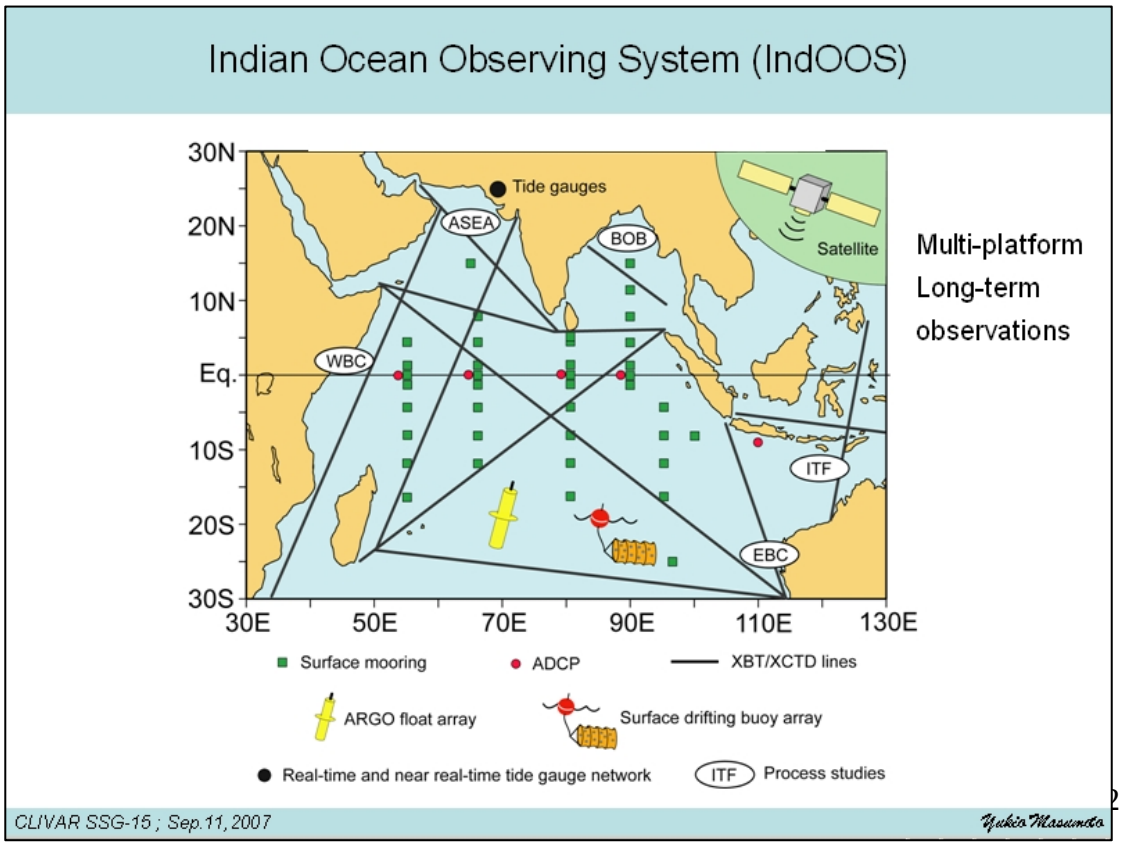
8.19 RAMA



Schematic of RAMA as of December 2008. From McPhaden *et al.*
http://www.pmel.noaa.gov/tao/doc/RAMA_BAMS2608_final.pdf

Details about RAMA sensors:
http://www.clivar.org/organization/aamp/documents/E_Supplement_RAMA_BAMS2608.pdf

8.20 Indian Ocean Observing System (IndOOS)



The IndOOS website (http://www.incois.gov.in/Incois/iogoos/insitu_mooring.jsp) provides the following links:

NOAA/PMEL data are available at the TAO/TRITON web site:
http://www.pmel.noaa.gov/tao/disdel/

JAMSTEC data are available at their website:
http://www.jamstec.go.jp/jamstec/TRITON/real_time/index.html

NIOT/ NDBP data ate available at NDBP website:
http://www.niot.res.in/ndbp/ndbp/BuoyHome.php

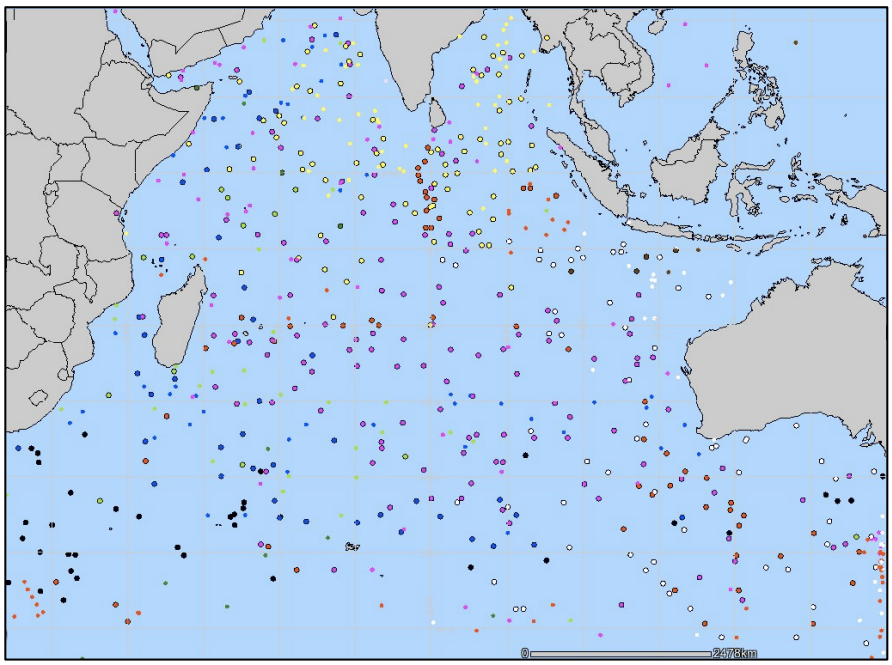
The NIO equatorial mooring data are available at:
http://www.nio.org/data_info/deep-sea_mooring/oos-deep-sea-currentmeter-moorings.htm

The APDRC serves WOCE mooring data via an EPIC server at:
http://apdrc.soest.hawaii.edu/

The primary site for NOAA data is currently in transition. The OceanSites project is developing a virtual data network for distribution of their data.

8.21 The Argo Programme

The Argo programme (www.argo.net) in the Indian Ocean
http://www.incois.gov.in/Incois/iogoos/argofloats.jsp



8.22 CLIVAR

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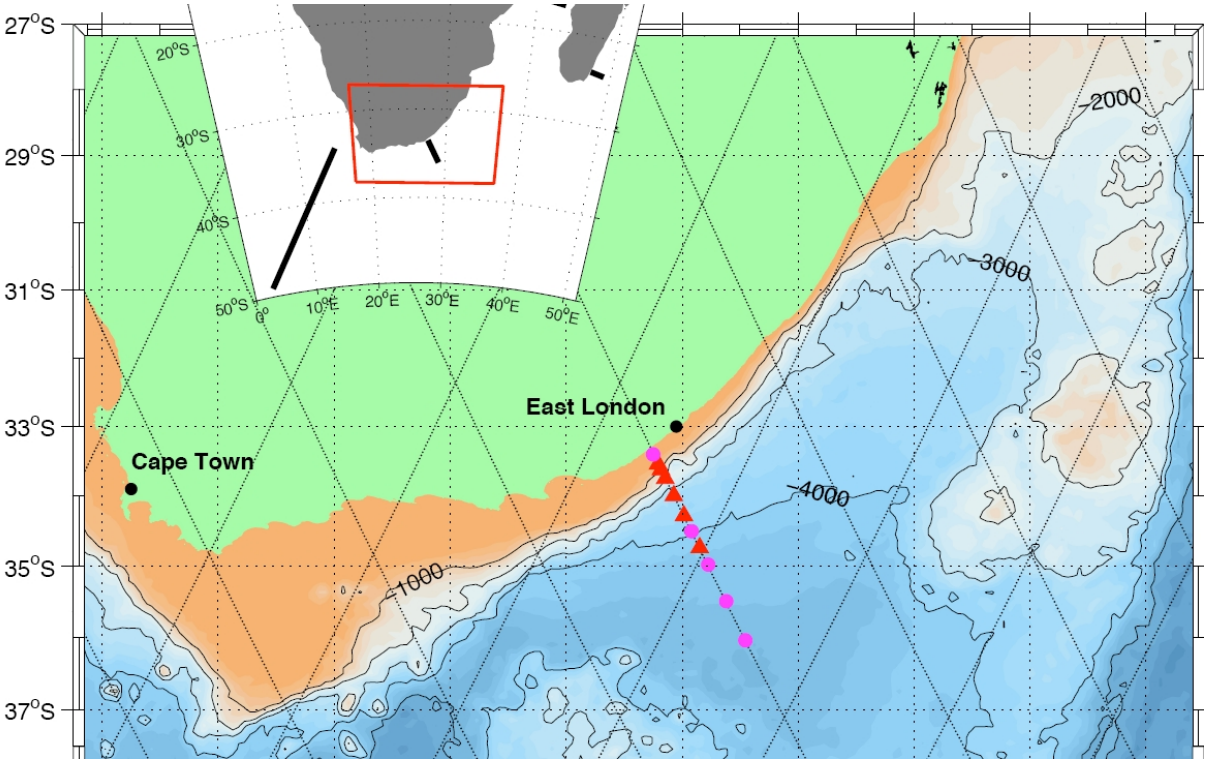
8.26 MESOBIO

MESOBIO won't deploy in-situ instrumentation by itself. MESOBIO cruises might be, however be used for servicing the ACEP UTR within the Mozambique Channel.

8.29 Agulhas Current Transport (ACT)

The project will deploy a three-year mooring array across the Agulhas Current off South Africa at nominally 34S to measure its volume transport. The mooring array will be positioned offshore and a little south of East London, where it will leave the African shelf at 33.4 S and follow the trajectory of descending TOPEX/Jason ground track #96. These three years of in situ data will build towards long-term monitoring capability of the Agulhas Current through correlations with sea surface height fluctuations along the mooring line from satellite altimeter.



9. REMOTE SENSING and GIS activities

- TRIO
- GOOS Africa pilot projects (ChloroGin etc)
- Alticore Africa
- AMESD
- ACCESS
- ACEP/BCRE
- IRD projects
- Transmap
- others

9.2 ASCLME

Marine Ecosystem Diagnostic Analyses (MEDAs)
Each ASCLME country will be working on a national MEDA during 2009 which will include reviews of LME-relevant information and key spatial data sets. The MEDAs will include (in the annexes) recommendations from the countries on requirements for GIS data collection as well as capacity building and training. The information synthesised in the body of the MEDAs will be used to carry out causal chain analyses for each country which will then inform the TDA. The data sets identified during the MEDA process will be described (if not already described) and entered into a metdatabase in 2009, later to be accessed in the development of national ecosystem atlases or similar, as well as the development of specific information products (2010 and beyond).

9.26 MESOBIO

MESOBIO uses near-real time satellite data to locate precisely the mesoscale eddies during the course of the cruises. Remote sensing data used are SLA (sea level anomaly), ocean color (SeaWiFS and MODIS) and SST (NOAA AVHRR, TMI). Internet connection is used to receive the data from shore based laboratory (French laboratories at Sète and Brest, UCT laboratory).

10. TRAINING

10.1 Wio-LaB

Training programmes so far supported focused on:

- General Marine Management – Governance
- Leadership skills development for heads of Institutions
- Mainstreaming of coastal and marine issues in national policies and budgetary processes
- Water and sediment quality sampling and analysis (organics, metals, nutrients)
- Municipal wastewater management
- Legal aspects of LBSA Management
- TDA and SAP development

10.2 ASCLME

Institutional, programme and human capacity building requirements will be identified and addressed through training initiatives. Participating countries will identify training requirements in the following broad thematic areas *among others*:

- Strengthening of artisanal fisheries management
- MCS
- Oceanographic research – theoretical and technical training
- Monitoring of the coastal and marine ecosystem

10.3 Nairobi Convention Clearinghouse Mechanism

- GIS (mapping, database development and population, modelling, web mapping)
- Remote sensing

10.4 ODINAFRICA

- modelling,
- GIS applications,
- remote sensing,
- data management,
- information (library) management,
- tidal predictions,
- websites development.

10.5 ReCoMaP

ReCoMaP has a fairly broad mandate for training activities under its Result Area 2 (see above). During the programme's first 18-months support has been provided for participants to attend the following training-related events:

- Ocean Colour Remote Sensing (2007);
- NFP and ReCoMaP ICZM Officer Study Tour to the CHARM Programme (Thailand, 2007);
- Participants to 5th WIOMSA Scientific Symposium (Durban, 2007);
- Integrating Social and Ecological Data Workshop (Mauritius, 2008);
- Coral-reef monitoring (COREMO 3) Database (Mauritius, 2008);
- ReCoMaP Regional ICZM Short-Course (Mauritius, 2008).

During the next 12-months or so training support will focus on support to WIOMSA COMPASS MPA Certification (2008), support for a small-number of students to attend IMS's new MSc in Marine Sciences. Furthermore, follow-up national-level ICZM short-courses will also be held. ReCoMaP is also providing a small-grant to assist the Seychelles Maritime Training Centre's Advanced Fisheries Science Certificate.

In addition to programme-related training, our local-support team employed at the Regional Coordinating Unit based in Mauritius have regular opportunities to benefit from attending training courses to improve their capacities to support ReCoMaP's implementation, including courses in Project Cycle Management and IT.

10.6 RAMP-COI

MPA managers Workshop (Antsiranana, Madagascar May 2008): information and discussion process on sustainable financial mechanisms for MPAs and income generating revenues for local communities. A Guide-type of report was produced for MPA managers compiling MPA information in the region and factsheet related to different potential donors.

MPAs managers training on MPA management and effectiveness assessments (to be organised in collaboration with Recomap).

10.7 AMESD

Training sessions (individual or collective) on:

- Spatial oceanography
- Analysis and the processing of satellite data: ocean color, altimetry …
- Oceanic parameters /marines resources links and the use of spatial data
- for fishing
- Utilization of Eumetcast products and stations
- Digital modelling
- Utilization of AMESD products and services

10.8 SWIOFP

-

10.9 COAST-MAP-IO

Phase I:

- Training of agencies responsible for Disaster Management and Preparedness to create a series of provisional maps that aid preliminary risk analyses and identify areas that need special surveys

Phase II:

- Training in operating coastal engineering models and Graphical User interfaces for effective presentations to decision makers
- GIS training for data mapping and as management tools in Disaster Management and Preparedness
- Training in Integrated Coastal Area Management using integrated data sets and results from numerical models

February 2009 report states that "***At present six training courses were successfully conducted*** by the National Hydrographic School of Indian Navy, Goa, India, the Training and Education Centre in Hydrography at Alfred Wegener Institute for Polar and Marine Research, Germany, the International Coordination Group for the Indian Ocean Tsunami Warning System in Jakarta, Indonesia and Indian National Centre for Ocean Information Service(INCOIS) Hyderabad, India. Modern hardware and software for modelling have been supplied to all twelve countries. More than 75 specialists were trained."

10.10 WIO Cetacean Conservation and Research

-

10.11 TRANSMAP

-

10.12 Marine Highway project

Training will be provided in areas deemed to enhance capacity building for hydrographic surveys, Oil spill Contingency Planning, Environmentally Sensitive Areas and Ecosystem Valuation.

10.13 WIOFish

-

10.14 Long-Term Ocean Climate Observations – LOCO

-

10.15 UNESCO/IOC and the Capacity Development Programme in the WIO region

a) Strengthening institutional structures

Training is core to the Capacity Development programme and presents the greatest opportunity for collaboration between the programme and other projects in the region. The first phase of the programme focuses on strengthening scientific, legal and institutional structures. The activities where collaboration is already underway and can be strengthened include training for marine and coastal institutes and management authorities in:

- Leadership and institutional development
- Proposal writing
- Team building
- Development of tools to support decision making (DSTs), namely technical training in hydrodynamic modelling.

b) Raising awareness of decision makers and communities

The second phase of the programme will focuses on raising awareness of decision makers and communities. This presents an opportunity to jointly plan support for capacity development of institutes participating in one or more of the regional projects. Many collaborating institutes will be involved in collecting and analyzing data, and developing products for regional projects. Potential areas for collaboration include capacity development and training in:

- Scientific tools for decision making such as Hydrodynamic modelling; GIS; and Remote Sensing
- Communication of science to stakeholders and the media

c) Pilot sites in DSTs – hydrodynamic modelling

A number of pilot projects have been initiated through the trainings undertaken in hydrodynamic modelling, and spin off projects. Collaboration on further development/transfer of the skills and project outcomes may be possible with the national components of other regional project. Example sites include the following where hydrodynamic models are under development:

- Kenya – Mombasa harbour
- Mozambique Maputo harbour
- Mozambique - Pemba near shore
- Seychelles – Victoria near shore
- Tanzania – Zanzibar Channel
- Tanzania - Zanzibar shoreline change
- Tanzania – Dar es Salaam harbour

Further sites and project information should be available shortly.

10.16 IUCN

-

10.26 MESOBIO

Training component of the project will be:

- during the cruises, with the participation of – at least – 2 trainees on each cruise
- a summer course will be organised at the Université de la Réunion (july 2010) on the "Relationships between environment and living resources, in the context of the SWIO and the Mozambique Channel" (10 participants from outside La Réunion)

11. REGIONAL ASSESSMENTS

11.1 Wio-LaB

- Transboundary Diagnostic Analysis of problems related to impacts from Land-based Sources and Activities on the coastal and marine environment
- Regional Assessment of the Status of Pollution of Coastal Waters and Sediments
- Regional Assessment of the Status of Municipal Wastewater Management
- Regional Assessment of the Status of Physical Alteration and Destruction of Habitats
- Regional Assessment of River-Coast Interactions
- Regional Assessment of Existing Policy, Legal and Institutional Frameworks for Land-based Sources and Activities Management
- Regional Assessment of the Status of Ratification of International Conventions related to Land-based Sources and Activities Management
- Regional Assessment of National Policy and Institutional Framework for Environmental Assessment
- Regional Training Needs Assessment related to Land-based Sources and Activities Management
- Regional Educational Needs Assessment related to Land-based Sources and Activities
- Regional Assessment of National Capacities for Monitoring Water and Sediment Quality and Coastal and Marine Waters

11.2 ASCLME

- Meetings and a workshop have been held in each country for the establishment of a Technical Coordination Group (COG)
- A Regional Meeting of Technical Coordination Groups has been held
- A Regional Forum for marine-related projects in the WIO has been held
- A regional meeting of D&I coordinators has been held.
- A regional review of projects in the WIO has been undertaken (this document)

11.3 Nairobi Convention Clearinghouse Mechanism

• 9-11 May 2006 Regional Clearinghouse Workshop, Nairobi.
http://www.wiolab.org/publications/copy_of_Meeting%20Reports

• Information management strategy for the development of the Nairobi Convention Clearinghouse and information system.

http://www.wiolab.org/publications/Technical%20Reports

11.4 ODINAFRICA

Assessment of capacities (staff), assessment of internet connectivity, assessment of facilities and infrastructure in NODCs, assessment of data and information needs for ICAM

11.5 ReCoMaP

- Regional GIS Assessment Report (July 2007);
- Regional Coastal Mariculture Assessment Report (October 2007);
- Review of the IOC Coral Reef Monitoring Network (November 2007);
- Sustainable Development of Coastal Tourism in the SWIO (November 2007):
    - Potential & Feasibilities of National & Local Development of Coastal Ecotourism;
    - Strategic Environmental Assessments at National and Regional Levels.
- Regional Review of Coastal Solid-Waste Management Arrangements (May 2008);
- Feasibility of Establishing a Cetacean & Dugong Network in the WIO (in prep.).

11.6 RAMP-COI

Available reports: "General review of the biological, ecological, socio-economic, political, legal and institutional aspects for Seychelles, Mauritius, Madagascar and Comoros". Evaluation / Assessment of the Moheli marine park (2007).

11.7 AMESD

A Thematic Action (THEMA) "Marine and coastal management" proposed for the Indian Ocean zone, resulting from a consultation process and evaluation of needs in the IOC region, covers needs expressed by the institutions in charge of fish monitoring and fisheries resources in IOC countries for:

- Tools to improve the management efficiency and fish monitoring (against illegal fishing)
- Data and/or software tools useful for evaluation of stocks and pelagic catch.
- Data and tools enabling the analysis of variations of oceanic parameters and their consequences on these resources.
- Means to improve the dissemination of data (particularly marine meteorology) to fisher communities

11.8 SWIOFP

The outputs of the SWIOFP data management plan comprise the following:

- An analysis at national and then at a regional level of data relevant to the project assessment components and the countries that will participate in them to identify specific gaps in existing knowledge that would allow the participants in each component to identify detailed data collection programs
- A workshop consisting of all SWIOFP countries at which a conceptual, harmonized, baseline data collection program and data sharing protocols will be established to enable regional evaluation of the harmonized, ecosystem-based management of fisheries resources
- An analysis at national and then at a regional level of data relevant to components in which each country will participate and identification of specific gaps in existing data that would collectively form the gap analysis used to identify the data collection program
- A workshop consisting of all SWIOFP countries at which a conceptual, harmonized, data gap analysis (by type of fishery, i.e. demersal, pelagic, invertebrate) will be undertaken leading to synthesis of a year-by-year data collection program

11.9 COAST-MAP-IO

Phase I:

- Assessment missions in participating countries to determine level of capacity, focal points and national partner agencies and existing data sources
- IOC/IHO meeting to develop Work Programs (WP) and submission to National Agencies
- Review by National Agencies of WP components, identification of counterpart contributions, and determination of local capacities to assume the tasks and responsibilities indicated in the project
- Evaluation of national agencies responses by IOC/IHO, followed by official project launch with all coordinating agencies. In the first part of this event the WP will be endorsed with agreed on responsibilities and timetable. The second part will be a training course on data capture, processing and management
- Identification of most vulnerable national coastal areas, collection of relevant coastal bathymetry and coastal topographic data (surveys as needed) and collation of ancillary information for at least one pilot project area in each country

Phase II:

- Workshops on coastal models incorporating integrated data sets to fine tune maps and products for coastal communities at-risk

- Workshops on the use of model and other information as Decision Support tools in integrated coastal area management
- Seminar for exchange of experience and reinforcement of a regional approach to face common problems. Identification of follow-up regional initiatives.
- IOC/IHO evaluation meeting of the project and report

See "COAST-MAP-IO Project: Building coastal resilience to ocean-based extreme events through improved coastal mapping capacity in the Indian Ocean" Assessment Missions

11.10 WIO Cetacean Conservation and Research
Workshop for the research and conservation of cetaceans and the dugong in the IOC countries:

The Indian Ocean Commission organized a workshop in Sainte-Marie (Madagascar) from the 1st to the 4th of July 2007, tasked with:

- Assessing the situation in the Western Indian Ocean region
- Proposing a network for information exchange on cetaceans and the dugong
- Designing an IOC regional project

Workshop in Seychelles the 25 & 26 of November 2008 to:
Finalize and validate the cetacean Conservation & Research project proposal
Present the results of the feasibility study of a IOC cetacean network

11.11 TRANSMAP

Assessment of legal, institutional and policy frameworks (WP8). Since the begging of the project, the team has been able to:

- Collect and synthesize into standardized tables the relevant instruments to be considered in the report. This involved 6 types of tables, all available at the metadata base: global instruments; regional instruments; ratification of global instruments; ratification of regional instruments; Mozambican national legislation; South African national legislation; Tanzanian national legislation.
- Initiate the analysis of the instruments and associated documentation;
- Produce drafts of report sections, now consolidated into a single document;
- Build organograms for each of the three countries depicting the institutions and their roles in the MPA creation-to-management process;
- Envision a possible series of options for transboundary MPAs in the region that represent different degrees of political commitment between the three African countries.

Assessment of the state of management in support of MPAs (WP9), while identifying sectoralisation issues and need for multi-plan harmonization in the three countries. Since the begging of the project, the WP9 team has been able to:

- Collect and synthesize into standardized tables the relevant instruments to be considered in the report. This involved 4 types of tables, all available at the metadata base: multilateral management instruments; Mozambican management instruments; South African management instruments; Tanzanian management instruments.
- Initiate the analysis of the instruments and associated documentation;
- Produce drafts of report sections*;
- Build organograms for each of the three countries depicting the institutions and their roles in the MPA creation-to-management process*.

11.12 Marine Highway Project
Assessment of risk and Impact Assessment from accidental oil spills in the zone.

11.13 WIOFish

-

11.14 Long-Term Ocean Climate Observations – LOCO

-

11.15 UNESCO/IOC and the Capacity Development Programme in the WIO region

IOC has undertaken a number of assessments relevant to planning regional collaborations, particularly regarding capacity development:

- Marine Action Planning Document on institute priorities in the region (http://ioc.unesco.org/tema/ZanzibarWorkshop.htm)
- Marine Science Country Profiles for countries in the Western Indian Ocean (WIOMSA/IOC - Available on request or at ocean docs e.g. Kenya: http://hdl.handle.net/1834/124)
- National assessments of institutional capacity in marine science (available on request for some countries of the WIO region)
- Guidelines for assessment of capacity development relevant to the region (http://www.ioc-cd.org/index.php?option=com_content&task=view&id=40&Itemid=50).

11.16 IUCN EASARO recent reports

- Tanga – several studies, recent review Wells, S, Makoloweka, S, and Samoilys M. (eds.) (2007a). Putting Adaptive Management Into Practice: Collaborative Coastal Management in Tanga, northern Tanzania. IUCN Eastern Africa Regional Office, x +197pp.
- MBREMP – 13 technical studies
- Jakarta Mandate – MPA toolkit, MPA Workbook (see e.g. WIOMSA website)
- Recent outputs:
    - IUCN 2008. Building capacity for coastal communities to manage marine resources in Kenya – 5 Community Policy Advisories on priority issues. IUCN ESARO 2008.
    - IUCN 2008. Building capacity for coastal communities to manage marine resources in Tanzania – 5 Community Policy Advisories on priority issues. IUCN ESARO 2008.
    - Mirera H.O.D. and Samoilys M.A. 2008. Mariculture Exchange. Community visits between Kenya and Tanzania. IUCN ESARO 2008.
    - Samoilys M.A. and Kanyange N.W. 2008. Natural resource dependence, livelihoods and development: Perceptions from Kiunga, Kenya. IUCN ESARO 2008.
    - Samoilys M.A. and Kanyange N.W. 2008. Natural resource dependence, livelihoods and development: Perceptions from Tanga, Tanzania. IUCN ESARO 2008.

11.26 MESOBIO

Meetings will be organized in the course of the project. One of them will hold in the framework of the WIOMSA meeting (August 2009) and will be dedicated more specifically to mesoscale eddies in the Mozambique Channel.

12. PROJECT DURATION

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Wio-LaB										
ASCLME										
NC-CHM										>>
ODINAFRICA	III					IV				
ReCoMaP			*	*	*	*	*	*		
RAMP-COI		*	*	*	*	*				
AMESD										
SWIOFP										
COAST-MAP-IO				*	*					
WIO Cetacean Conservation and Research										
TRANSMAP		*	*	*	*					
Marine Highway Project					*	*	*	*		
WIOFish	*	*	*	*	*					
LOCO	*	*	*	*	*	*	*	*	*	
IOC-CD			*	*	*	II*	II*	II*	II*	
IUCN										
ACEP										
Pumpsea										
RAMA										
IndOOS										
Argo Programme										
CLIVAR										
GOOS Africa										
Seamounts: EAF Fisheries Project										

MESOBIO: Project duration
MESOBIO is expected to be achieved from 2009 till 2011 (3 years programme, kick-off meeting expected in June 2009)

IRD / EME: Project duration
MADE: 2008-2012
BIOPS: 2008-2010

Appendix I. List of regional institutions, programmes and projects in the WIO region

Table 1. Field list for the ASCLME Regional Projects database

1	Project ID
2	Project name
3	Acronym
4	AOI
5	Participating countries
6	Aim
7	Description
8	Project status (past/active/future/proposed)
9	Website/Contact
10	F&F
11	Prod.
12	Ecosys.
13	Socio.
14	Gov.
15	Climate change
16	Equipment/Instrumentation
17	DM/GIS/RS (y/n)
18	Details
19	CB/training
20	Ship/in-situ
21	Primary products
22	Partners
23	Funder
24	Fund recipients
25	Area of collaboration
26	Scale
27	Reports/papers (y/n)
28	Comments

Table 2. The list of projects, programme, institutes and organisations in the ASCLME database

Project ID	Project name
1	United Nations Educational, Scientific and Cultural Organization World Heritage Centre
2	United Nations Educational, Scientific and Cultural Organization International Oceans Commission
3	Global International Waters Assessment
4	The New Partnership for Africa's Development
5	The New Partnership for Africa's Development Coastal and Marine
6	AfriBasins Project
7	Development and Protection of the Coastal and Marine Environment in Sub-Saharan Africa 'The African Process'
8	Global Coral Reef Monitoring Network
9	Global Program of Action for the Protection of the Marine Environment from Land-Based Activities

10	Ocean Data and Information Network for Africa
11	Global Climate Observing Centre
12	Global Ocean Observing System
13	International Coral Reef Initiative
14	World Conservation Monitoring Centre
15	International Coastal Atlas Network
16	ALTImetry in Coastal Regions
17	Moving Sushi Marine Resources Expedition
18	Ocean Tracking Network
19	Global Observing Systems Information Center
20	World Meteorological Organization
21	Development of an African Repository for Electronic Publications
22	Addressing Land-based Activities in the Western Indian Ocean
23	IUCN East & Southern Africa Regional Programme
24	Regional Tuna Tagging Project - Indian Ocean
25	Agulhas and Somali Current Large Marine Ecosystems Project
26	Western Indian Ocean Islands Oil Spill Contingency Planning
27	Regional Programme for the Sustainable Management of Coastal Zones of the Countries in the Indian Ocean
28	West Indian Ocean Electronic Highway Development and Coastal and Marine Contamination Prevention Project
29	Adaptation to Climate Change - Responding to Shoreline Change and its human dimensions in West Africa through integrated coastal area management
30	Protection of the Canary Current Large Marine Ecosystem
31	Integrated management of the Benguela Current Large Marine Ecosystem
32	Wings Over Wetlands: Enhancing conservation of the critical network of sites of wetlands required by migratory waterbirds on the African/Eurasian flyways
33	Combating living resources depletion and coastal area degradation in the Guinea current Large Marine Ecosystem through ecosystem-based regional activity
34	Regional strategy for marine protected areas in West Africa (PRCM)
35	Regional Network of Marine Protected Areas in West Africa
36	Development and protection of the coastal and marine environment in sub-Saharan Africa
37	Agulhas Somali Currents Large Marine Ecosystem Project
38	South West Indian Ocean Fisheries Programme
39	African Coelacanth Ecosystem Programme
40	Census of Marine Life
41	World Heritage Centre
42	Intergovernmental Oceanographic Commission
43	Coral Reef Degradation in the Indian Ocean
44	Reef Watcher
45	reefcheck
46	reef doctor
47	reefbase
48	fishwatch
49	group on earth observations
50	global earth observation system of systems
51	european space agency
52	Global Biodiversity Information Facility
53	United Nations Development Programme
54	World Bank
55	Conservation International
56	Food and Agricultural Organisation

57	FAO Fisheries and Aquaculture Fisheries Global Information System
58	FAO Committee on Fisheries
59	FAO COFI Sub-committee on fish trade
60	FAO COFI Sub-committee on aquaculture
61	FAO Fisheries and Aquaculture Department (Programme on Fisheries and Aquaculture)
62	Wildlife Conservation Society
63	Global International Waters Assessment
64	Division of Early Warning and Assessment
65	Nairobi Convention
66	Nairobi Convention Clearing House Mechanism
67	Indian Ocean Commission
69	Geological Survey of Denmark and Greenland
70	Scripps Institution of Oceanography
71	Aquamarine Fukushima
72	National Geographic Society
73	National Geographic Committee for Research and Exploration
74	The Nature Conservancy
75	Mazda Wildlife Fund
76	Value added ALTImetry in Coastal Regions
77	The ARGO project
78	Indian Ocean Tuna Commission
79	International Maritime Organisation
80	Plymouth Marine Lab
81	Joint Institute for Marine Observations
82	European Union
83	European Union Joint Research Council
84	UNEP Regional Seas Programme
85	South African Shark Conservancy
86	Natal Sharks Board
87	Oceanographic Research Institute
88	South African Marine Predator Labortary
89	World Wide Fund for Nature
90	Southern African Sustainable Seafood Initiative
91	WWF Responsible Fisheries Programme
92	Marine Stewardship Council
93	Ocean Conservancy
94	Global Coral Reef Alliance
95	Blue Flag Programme
96	Ocean Futures Society
97	Shifting baselines: common sense for the ocean
98	International Center for Living Aquatic Resources Management
99	Marine Conservation Biology Institute
100	Planetary Coral Reef Foundation
101	International Marinelife Alliance
102	Whale and Dolphin Conservation Society
103	Africa Conservation Fund
104	UN Division for Ocean Affairs and Law of the Sea
105	United Nations Commission on Sustainable Development
106	Global Runoff Data Centre
107	The World Bank Fisheries and Aquaculture
108	International Council for the Exploration of the Seas

109	Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection
110	UN Convention on Biological Diversity
111	UN Convention on the Law of the Sea
112	International Whaling Commission
113	World Water Vision
114	International Centre for Living Aquatic Resources Management
115	International Geosphere-Biosphere Project
116	World Resources Institute
117	WRI Global Marine Strategy
118	Worldwatch Institute
119	Advisory Committee on Protection of the Sea
120	African Water Page
121	Clean Islands International, Inc.
122	Global Water Partnership
123	International Office for Water
124	International Ocean Institute
125	International Water Law Project
126	GEO Data Portal
127	GRID Africa GeoPortal
128	Prototype Environmental Assessment and Reporting Landscape
129	Plymouth Marine Lab Remote Sensing Group
130	WIO-rise
131	EAF Nansen Programme
132	Agulhas Current Transport
133	Marine Protected Areas Network of the Indian Ocean Commission Countries (RAMP-COI)
134	African Monitoring of Environmental for Sustainable Development
135	Improving Emergency Response to Ocean-based Extreme Events through Coastal Mapping Capacity Building in the Indian Ocean
136	WIO Cetacean Conservation and Research
137	Transboundary networks of marine protected areas for integrated conservation and sustainable development: biophysical, socio-economic and governance assessment in East Africa
138	WIOFISH
139	Long-Term Ocean Climate Observations
140	Peri-urban mangrove forests as filters and potential phytoremediators of domestic sewage in East Africa
141	The Research Moored Array for African-Asian-Australian Monsoon Analysis and Prediction
142	Indian Ocean Observing System
143	Argo Programme
144	Climate Variability and Predictability
145	Applying an ecosystem-based approach to fisheries management: focus on seamounts in the southern Indian Ocean
146	Western Indian Ocean Marine Science Association
147	Influence of mesoscale dynamics on biological productivity at multiple trophic levels in the Mozambique Channel
148	Thermocline Ridge of the Indian Ocean