Implementation of an Ecosystem Approach to Ocean Governance

By

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Benguela Current LME Programme

- Countries: Angola, Namibia and South Africa
- Duration: 2002 - 2007
- Implementing agency: UNDP
- Executing agency: UNOPS
- GEF: US$ 15,000,000.00
- In-kind: US$ 18,000,000.00
- Goal: Integrated management, sustainable development and protection of the ecosystem

THE BENGUELA CURRENT LARGE MARINE ECOSYSTEM

CURRENTS AND BOUNDARIES
Angolan Current (warm)
Benguela Current (cold)
Aghulas Current (warm)
EEZ’s of Angola, Namibia and South Africa
MARINE RESOURCE UTILISATION

- Commercial fisheries
- Artisanal fisheries
- Diamond mining
- Offshore oil and gas
- Recreational fisheries
- Nature-based tourism

Primary Productivity
Chlorophyll 2-10 February 2004

MODIS SATELLITE
EXTREME EVENTS

Benguela Nino’s
Harmful Algal Blooms
Low oxygen
Sulphur eruptions

ENVIRONMENTAL VARIABILITY

- Develop early warning system
- Improve forecasting of extreme events
- Establish baseline data
- Monitor harmful algal blooms
- Assess links to climate change
MARINE BIODIVERSITY

- Map vulnerable species / habitats
- Assess alien species – ballast water
- Conserve marine biodiversity
- Establish marine protected areas

Harmful Algal Bloom Observation Systems in the southern Benguela – Real time monitoring – BCLME Project
Benguela Plankton Environmental Status Indicators

- Regional monitoring lines for zooplankton off South Africa, Namibia and Angola
- Continuous Plankton Recorder (CPR) and Aquashuttle deployed in region
- Training (NOAA /Southampton Oceanography)

Trends in Namibian fish catches (1950 – 1999)

J.P. Roux
Ecosystem- Wide Management

2 Key BCLME Projects

- Ecosystem approach to fisheries management (EAF)
- Monitoring of top predators as indicators of ecosystem change

Conceptual model for hake in South Africa – Namibia
Trends in seal pup numbers in the BCLME region

Transboundary Resource – Bronze Whaler Sharks

BCLME Project – Angola and Namibia
Satellite tagging of Bronze Whaler Shark

MANAGEMENT OF POLLUTION

- Harmonisation of water quality guidelines
- Regional oil spill contingency plan
- Assessment of land-based sources of marine pollution

- Transboundary pollution monitoring
- Marine litter programme
COASTAL DEGRADATION SHOWING LARGE SCALE IMPACT OF DIAMOND MINING NEAR SA-NAMIBIA BOUNDARY

Cumulative impacts of diamond mining on Benguela Large Marine Ecosystem: BCLME Project – Assessment and Mitigation
Marine diamonds – Namibia: 90% are of gem quality
Development and Implementation of Strategic Plan for Capacity Strengthening

International Co-operation

- FAO (Ecosystem approach to fisheries –EAF)
- IOC (Annual consultative meetings, LMEs)
- IOC-GOOS Africa (operational oceanography)
- UNEP (GPA – Pollution, Regional Seas, LMEs)
- NOAA (Global LME’s and consultations)
- GEF IW:LEARN (LMEs shared experiences and lessons learned)
- Marine science institutes (Norway, France, Germany, USA)
Key Regional Instruments and Initiatives

- SADC Treaty on regional development and integration
- SADC Protocol on Fisheries
- BENEFIT (partners: Norway - Germany)
- SEAFO (South East Atlantic Fisheries Organisation)
- Monitoring, Control and Surveillance of Fishing Activities (EU – SADC MCS Programme)
- NEPAD (New Partnership for African Development)

Some Key International Instrument

- UNCED (1992) – LME’s
- Convention on Biodiversity (1993)
- UN Agreement ‘Straddling and Highly Migratory Fish Stocks (1995)
- UN Millenium Goals (Goal 7 – ensure environment sustainability
- WSSD Johannesburg (2002)
Co-operation with other African LME

- **Guinea Current LME**
  - joint assessment of shared stocks and pollution
  - survey cruises, training, scientific exchange
  - workshops and consultations

- **Canary Current LME**
  - Regional workshop, TDA, consultations

- **Aghulas-Somali Current LME**
  - Regional workshop and consultations

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**BENGUELA CURRENT COMMISSION**

- Ministerial Conference
- Benguela Current Commission
- Living Marine Resources Sub-Committee
- Ecosystem Health Sub-Committee
- Minerals and Oil Sub-Committee
- Secretariat
  - Executive Secretary / Ecosystem Coordinator
- Ecosystem Advisory Committee
- Working Groups
  - e.g.: Hake
  - Pilchard
  - Pollution
  - Marine Mining
  - Climate Change
  - Socio-economics
  - Data and Information
The goal of EAF-
Feasible, agreed objectives and management measures for all stakeholders
Application of EAF approach

FAO

Agree on Broad Objectives for Fishery

Identify EAF Issues

Prioritise Issues

Consider Management Measures to Address Priority Issues

Consider Costs & Benefits of Management Options for all Objectives

Select Optimal Measures

Implement

Assessment of Impacts – EAF

• Direct Impacts of the Fishery
  – Target species
  – Bycatch species (including endangered)
  – Impacts on habitat
• Direct Impacts of the Ecosystem
  – Environmental variability
  – Regime changes
  – From other human activities
• Indirect Impacts
  – Foodchain effects (biological)
BCLME EAF Project
Objectives

i) to investigate the feasibility of EAF management in the BCLME region through examining the existing issues, problems and needs related to EAF; and

ii) using the best available scientific and other relevant information, to evaluate different management options for achieving sustainable management of the resources at an ecosystem level.

Project Structure

• National task groups to enable input from and discussion between stakeholders
• Science and modelling groups to generate and/or synthesise scientific information to guide consideration of EAF
• Regional meetings and workshops to enable cooperation and consultation between partner countries
## Fisheries Considered

<table>
<thead>
<tr>
<th></th>
<th>Angola</th>
<th>Namibia</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demersal trawl</td>
<td>Hakes</td>
<td>Hakes/demersal</td>
<td></td>
</tr>
<tr>
<td>Artisanal</td>
<td>Purse seine - small pelagics</td>
<td>Small pelagics</td>
<td></td>
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<tr>
<td>Small pelagics</td>
<td>Midwater trawl - horse mackerel</td>
<td>West coast rock lobster</td>
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## Selected Shared Stocks in BCLME

<table>
<thead>
<tr>
<th>Species</th>
<th>Angola-Namibia</th>
<th>Namibia-South Africa</th>
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</thead>
<tbody>
<tr>
<td>Deepwater hake</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Shallow water hake</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Seabirds and seals</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Kabeljou &amp; other linefish</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sardine</td>
<td>X</td>
<td>?</td>
</tr>
<tr>
<td>Cape horse mackerel</td>
<td>X</td>
<td>?</td>
</tr>
<tr>
<td>Large-eye dentex</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Deepwater crab</td>
<td>X</td>
<td>X</td>
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</tbody>
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Main Elements of the Project

1. Review of implications of existing target-management objectives and strategies (strengths, weaknesses, consequences)
2. Consideration of objectives and changes to management measures & strategies for implementation of EAF (national+regional);
3. Cost-benefit analyses to assist in selection of management options for EAF;
4. Scientific support and information;
5. Towards implementation (decision-making, incentives, research and institutions).

Progress and Plans

• 2004
  – Meetings of National Task and Science and Modelling Groups to consider gaps and needs.
  – Regional workshop on risk analysis and indicators.

• 2005
  – Preliminary investigations on indicators for EAF.
  – Seven risk analysis workshops in the 3 countries to identify & prioritise EAF issues for selected fisheries.

• 2006
  – Regional workshop - methods for cost-benefit analyses
  – Cost-benefit workshops for all fisheries
  – Studies on incentives, decision-making, indicators
  – Final regional workshop for synthesis and conclusions
Project Outputs - Putting it all Together

- Identification of most pressing EAF issues in BCLME
- Consideration of governance needs and management measures required
- Evaluation of costs and benefits of implementation of governance and management for EAF
- Facilitating implementation: decision-making, incentives, indicators
- Advisory report to BCLME governments