



*Census of Marine Life*  
**South Atlantic MAR-ECO workshop**  
**Balneário Camboriú, Brazil, 6-7 September 2006**

*Minutes*

**Participants:**

- J. Angel A. Perez, Brazil (Convener)
- Fernando Luiz Diehl, Brazil (Convener)
- André S Barreto, Brazil
- Paulo Y.G. Sumida, Brazil
- Eduardo Hajdu, Brazil
- Lucia S. Campos, Brazil
- Mônica Muelbert, Brazil
- Viviana Andrea Alder, Argentina
- Martin Bessonart, Uruguay
- Anthony Ribbink, South Africa
- Hashali Hamukuaya, Namibia

Representing MAR-ECO:

- Odd Aksel Bergstad, Norway (Convener)
- Ricardo Serrão Santos, Portugal (Convener)
- Monty Priede, UK
- Uwe Piatkowski, Germany
- Tone Falkenhaus, Norway

Representing the CoML project CenSeam:

- Malcolm Clark, New Zealand

Representing CoML

- Ronald K. O'Dor, USA

**Aims of the workshop:**

- To inform the South Atlantic marine science community about strategies and methodologies used by Census of Marine Life field project MAR-ECO to study biodiversity along the mid-Atlantic Ridge in the North Atlantic.
- To stimulate the development of collaborative research efforts on the southern mid-Atlantic Ridge.

**Programme:** See Appendix I

***6. September 2006***

Strategies and methodologies used by MAR-ECO were presented, including information on:

- History, achievements and challenges
- Approaches, methodologies, technology used for sampling and observation
- Taxonomy, data and collection management
- Dissemination

Presentations can be found on [www.mar-eco.no/sci](http://www.mar-eco.no/sci).

## ***7. September 2006***

**1. Activities in the mid-ocean South Atlantic.** The following issues were presented:

- Previous and ongoing deep-sea investigations (Europe, Brazil, Uruguay, Argentina and South Africa)
- Available knowledge on the southern mid-Atlantic Ridge
- Opportunities for collaborative efforts in the south Atlantic

Presentations can be found on [www.mar-eco.no/sci](http://www.mar-eco.no/sci).

**2. Plenary discussion:** the following three issues were raised:

- Identification of the key questions for a southern MAR study.
- Is a collaborative project feasible? How? By whom?
- Strategy for the way ahead. Establishment of an interim Steering Group?

### **Summary of the plenary discussion:**

*Available information and data from South Atlantic ridges and seamounts:*

There is more information on seamounts in the South Atlantic than what is shown in the maps of OBIS/CenSeam. The plenary discussed how to make national information, survey data, fishing data etc. available.

*Gears and methods:*

- Observations of sea mammals and birds can give additional information to the pelagic component (e.g. identifying hot-spots)
- Mammals can also be used as platform for tags with environmental sensors. In the South Atlantic seals would be good platforms for hydrographical tracking.
- A guiding principle within MAR-ECO is to use the latest technology (e.g. Satellite moorings and landers).
- The combination of demersal trawl and long-liner will catch most of the fish community on the ridge. Approximately 10% are not caught
- Simple standard drop-cameras can be used as a complement to ROV

*Mobilisation of shiptime and gears:*

The plenary discussed how to mobilise gears and vessels for investigations in the mid-ocean south Atlantic. The following possibilities were suggested:

- a. To use institutional vessels with gear
- b. To rent commercial vessels
- c. Borrow gears from collaborate institutions
- d. Rent gears from other institutions
- e. Investigating institutions construct their own gear with help from collaborate institutions (e.g landers from oceanlab).

Comments:

- Even if it is possible to borrow gears from other institutions, there may be problems to operate large nets on own ships. Few research vessels are able to handle the large pelagic trawls, which requires right dimensions on wires etc.
- Shiptime and equipment can be mobilised through collaboration with other CoML field projects in the south Atlantic, e.g. CeDAMar, ANDEEP, CenSeam, Chess and CAML.
- One should take advantages of the International Polar Year: A number of ships are going to the Antarctic during the IPY, which could also be doing some sampling on the MAR. Such collaboration is however difficult in practice and needs to be agreed upon early in the planning phase of cruises.
- Shiptime, gears or funds as a contribution from the energy industry (e.g. PETROBRAS). The International Seabed Authority would be interested in studies e.g.on the Rio Grande Rise and Walvis Ridge because of the potential for mining cobalt crusts interests in this “Area”. The challenge is to sell the scientific questions to energy companies and governments. A number of companies that work in the South Atlantic, and governments, would be interested in these studies.
- Could RV Fridtjof Nansen be used? This ship is paid by the Norwegian Developmental Agency, and works mainly in coastal waters off Africa.
- Hire navy ships in Brazil?: The navy are probably willing to lend ships that have the capacity to operate on the ridge. This is dependant on funding. The navy ships have few scientific berths, small labs and low acoustic potential.
- Charter fishing boats? Chartering fishing boats from Africa is not probable. There is a low fishing activity in the area. However, if the commission (SEAFC) is advised that there is a need for monitoring and science on the ridge—then the commission have to find funds for such activities.

*Taxonomy:*

- Taxonomy will be a larger challenge in the South Atlantic due to the lack of expertise.
- It was discussed how to attract new taxonomists (students).

*Management of biological collections:*

- The museums in South Atlantic have limited capacity for handling large collections from cruises and expeditions. In some countries the limiting factors are both space and personnel. So there is much to be done and improve, but the National Museum in Brazil is improving its capabilities (there are other

museums in the country), and Brazil has developed strategies to deal with diversity issues, and South America has some good taxonomists

- The MAR-ECO collection from RV G.O.Sars 2004 is curated by one single museum (Bergen Museum). Future expeditions may consider to split the material into different museums in order to reduce the risk of losing a complete collection (in case of fire etc)

*Outreach and Education:*

- The Public Outreach component and involvement of media has been an important part of the MAR-ECO activities. The number of berths on a cruise are usually limited, and it was discussed how to decide on participation by media and artists. On the MAR-ECO RV GO Sars 2004 cruise, this was decided by the MAR-ECO Steering Group.

*Identification of the key questions for a southern MAR study:*

Key questions and focus areas for a study in the South Atlantic was discussed in plenary and the following comments were made:

- A concern was the distance from the coast, in order to get ship-time. The study area should therefore be as close to the continents as possible. In the Equatorial Fracture Zone area, the MAR is closer to the South American continent. The Rio Grande Rise is closer to South America and the Walvis-ridge area is closer to the African continent, and these are important fishery areas. Thus it would be easier to get ships to go these regions.
- A MAR-ECO study should however focus on the ridge itself, but use available data from the continental margins for comparisons.
- The number and location of stations is a compromise between the geographical coverage and the focus on small-scale processes (diel variation, cross ridge transects). Since circulation patterns in the South Atlantic are more complex than in the North Atlantic, the study should be more descriptive and focus more on biodiversity than on processes. It was also suggested to make the study more benthos-oriented.
- The questions should be scientifically curiosity-driven but also appeal to funding agencies/governments. In order to get funds, the questions should relate to the benefit (conservation, fisheries) and the use of the latest technology.
- MAR-ECO has targeted the mid-ocean North Atlantic between Iceland and the Azores (N Subpolar gyre and N Subpolar Front). An extended study on biogeographic dispersion of fauna should cover the whole Atlantic ridge (including the N and S Tropical Fronts and the S Subpolar Front). Is it possible to cover the whole Atlantic south of the Azores? Would it be feasible to sample the whole ridge in a period of 8 years?

Three target areas for future cruises on the southern mid-Atlantic Ridge were suggested:

1. *The Equatorial Fracture Zone.* This zone may act as a barrier for fauna between north and south. In this area, the ridge is closer to the South American continent.

2. *Middle area:* The Vitoria-Trindade Seamounts are comparatively more oligotrophic to the more southern areas.
3. *Southern area:* The Walvis Ridge and Rio Grande Rise are closest to the southern polar front. Do these act as stepping stones across the Atlantic? What is the influence of the intermediate and deep Antarctic waters?

The following scientific focus and key questions were suggested:

- Focus on biodiversity and dispersion of fauna (pelagic and benthic).
- Relevance to existing and potential seamount and ridge fisheries and their impacts on biota and habitats. Potential use of nekton as data collectors.
- Longitudinal-latitude gradients in the fauna along the ridge.
- Does the Equatorial Fracture Zone act as a barrier for fauna?
- How does the ridge take part in the connections of fauna between African and American coast? Are the Walvis ridge and Rio Grande Rise stepping stones for dispersal?
- How does the ridge take part in the dispersal of fauna from the South Pacific and Indian Ocean to the North Atlantic?
- How does the current system affect productivity? Are frontal areas high productive areas?
- The ridge transverse an area where four oceans meet. How does this affect the biodiversity and dispersal of organisms?
- Appeal to funding agencies/governments: Does the ridge affect the fisheries on the eastern or western side of the Atlantic?
- A “headline” suggested by Ron o’Dor: *“The world’s newest ocean”*

*Strategy for the way ahead:*

- The new initiative should be coordinated from South America, and led by a South Atlantic MAR-ECO Steering Group.
- The South Atlantic MAR-ECO Steering Group should be a small group, with a good geographical representation.
- The South Atlantic MAR-ECO Steering Group will have common membership with the northern Steering Group:
  - a) The South Atlantic Steering Group will have one member from the North Atlantic MAR-ECO Steering Group
  - b) The chair of the South Atlantic Steering Group will also meet in the North Atlantic Steering Group.

*Establishment of an Interim Steering Group:*

The following Interim South Atlantic MAR-ECO Steering Group was established:

1. Jose Angel Alvarez Perez Brazil (chair)
2. Debora Pires, Brazil
3. Pablo Muniz Maciel, Uruguay
4. Viviana Alder, Argentina
5. Johan Augustin: Africa (if available and willing)
6. Ricardo S Santos: Portugal (From North Atlantic MAR-ECO Steering Group).
7. Malcolm Clark, Corresponding representative of CenSeam.

#### Initial tasks of the South Atlantic MAR-ECO Steering Group

- To write a South Atlantic MAR-ECO Science Plan. This science plan should identify the scientific questions and include a progress plan.
- Initially, the Steering Group will have to work by e-mail correspondence.
- The science plan will be sent to the North Atlantic MAR-ECO Steering Group who will forward this to CoML, and incorporate elements in a renewal proposal due in mid-2007.
- Possible venue for next South Atlantic MAR-ECO meeting: Brazil: 15-19 April, 2007, XII COLACMAR meeting

#### Funding

- At present there are no funds for the activities of a Southern Atlantic Steering Group. The initial work of such a group must therefore have to be based on correspondence by e-mail. However, CenSeam may provide some funding for meetings (Malcolm Clark)
- CoML ends in 2010. Activities in the South Atlantic will have to be funded by other funding sources such as national funding agencies, private sponsors, energy and mining companies etc.
- Additional funding for the meeting activities of a Southern Atlantic Steering group will be included in the renewal proposal for the next funding period to Sloan Foundation (March 2007).