



SOUTH WEST INDIAN OCEAN FISHERIES PROJECT (SWIOFP)

REPORT OF THE

FIRST SWIOFP-INDISEAS WORKING GROUP MEETING

“ECOLOGICAL INDICATORS IN THE MARINE ECOSYSTEMS”

18-19 JAN.2011

CAPE TOWN SOUTH AFRICA

Harrison ONG’ANDA and Francis MARSAC

DAY 1

1. The meeting started at 9:30 am. It was held at the Foretrust Building in Cape Town which is the offices of the Department of Agriculture, Forestry and Fisheries (DAFF) The meeting gathered 19 participants, 16 scientists from the 9 countries of the SWIOFP, and 3 lecturers from France and South Africa (see Appendix 1).
2. The session was officially opened by Dr. Kim Prochazka, acting Director of Research in the Fisheries Branch of the DAFF. Dr Prochazka recognised the potential of this meeting on seeking to expand the scope of the Ecosystem Approach to Fisheries (EAF) which in any case is now gaining momentum as a management strategy linking people and ecosystems. She noted that Africa may as well provide leadership in this global initiative and said that she hoped that SWIOFP will have good outcomes during the forthcoming EAF Nansen workshop coming up in February 2011. She expressed her thanks to French-GEF, RMV, UCT, IRD and all other persons who ensured that SWIOFP-Indiseas becomes a reality. She recognised also the contribution of Dr. Marsac for his effective coordination, and the participants for their patience and determination and hoped that the workshop will achieve its objectives. Finally he welcomed all to take time off and enjoy Cape Town.
3. Mr. Ong'anda welcomed the participants on behalf of the RES-SWIOFP. He reminded participants of their privileged role in taking leadership within SWIOFP of developing indicators. Members were reminded that this is an opportunity for the project to develop management oriented products and felt grateful that the resource persons, Dr Lynne Shannon, Dr. Yunne Shin and Dr Astrid Jarre are willing to provide their assistance.
4. Dr. Marsac, as the organiser of the meeting, presented the agenda of the meeting (see appendix 2). Then he gave a brief introduction about SWIOFP. He reminded participants that SWIOFP and IRD have developed StatBase which is a database containing fisheries statistics provided by the country members. He also mentioned the ship surveys undertook for some of the SWIOFP components using the Fridjof Nansen in synergy with ASCLME. All these efforts are meant to address the issue of Ecosystem Approach to Fisheries.
5. The participants did a round table introduction.
6. Meeting logistics were announced by Mr. Ong'anda which included provision for DSA, airport transfers, meeting breaks, registration, group photo.

7. Dr. Marsac then went through the checklist of documents to facilitate the meeting, earlier distributed.

Indicators' approach in SWIOFP

8. Dr. Marsac gave a presentation on role of ecological indicators on the implementation of EAF. He underlined the key role played by the FAO-EAF Nansen project into the development of an indicators-based approach in the region. However, we are now at the stage where a practical implementation has to be started by the countries and this is the aim of this first workshop on ecological indicators. The success of such a task will depend greatly on country contributions and bilateral agreements, and on a close collaboration between SWIOFP and ASCLME, especially for data sharing. Dr Marsac particularly lamented the lack of survey data caused by the slow pace in implementing scientific surveys in the region due to piracy. The scientific ship survey data are essential for the calculation of ecological indicators, as those indicators are due to inform on the status (and eventually trend) of ecosystems, i.e. the structure and the interactions among species. This kind of information cannot be gathered by considering only fisheries data because of the gear selectivity and fishing tactics targeting only some components of the ecosystem. A quick overview of the ship surveys carried out in the region since 2007 was presented, provided that historic data sources exist and must be repatriated and compiled by SWIOFP. There is still a long way to go but initial steps can be easily done using the Indiseas framework which has proven to be successful during its first phase (2005-2009).
9. The indicators will be instrumental in formulation of the TDA and SAP process which are the instruments for political commitments. It is already envisaged that the 2nd phase of the 3 projects may come under a single GEF funding. It is agreed that the SWIOFP and ASCLME projects will implement EAF based on stress reduction indicators according to areas of competence of each. Already SWIOFP has a list of strategies to guide preservation of biodiversity.
10. Key partner institutions in this initiative are the SWIOFC and the FAO EAF-Nansen project that have organised some important workshops on EAF. Most of these workshops have concentrated on setting the context, deliberating on challenges and seeking political approach in the SWIO region. The SWIOFP-Indiseas2 is set-up to do the practical aspects i.e. calculate indicators.

11. A series of meetings have been held in SWIOFP including gap analysis, metadata management (Geonetwork), and fisheries statistics (StatBase). The gap analyses undertaken during the Year 1 of the project can assist in defining the best documented ecosystems and fisheries for which indicators can be defined. For instance, priority species are easily discerned from species table listing from component 3 and 4. A quick review of the StatBase data showed that several country datasets are still very incomplete. All the SWIOFP RV- Dr Fridtjof Nansen surveys are all available in the ASCLME ftp site. The historical Nansen cruises of the south West Indian Ocean will be collected by SWIOFP consultant shortly.
12. In the discussions that followed, a scientist from Madagascar wished to know who was responsible for their country in-puts in StatBase in order to follow up on the completeness of data. Mauritius delegate also asked for the same. They were advised to check with NMU-FPs in respective country and check reports posted in the project website for information.

Review of Indiseas-1, description of ecological indicators and major outcomes

13. Dr. Shin gave her first presentation on evaluating the status of marine ecosystems in a changing world by means of indicators across the two phases of the Indiseas initiative. Indiseas-1 was implemented in 2005-2009 by a European working group. The terms of reference for the working group were developed similar to what we shall do for the SWIOFP group including methodology and communication tools. She presented the list of ecological indicators that were agreed upon and documented during the first phase of Indiseas. The methodology and the results are accessible on the indiseas web site (www.indiseas.org). In 2009, 19 marine ecosystems were documented, with the contribution of 31 scientists from 21 research institutions in 19 countries. The major deliverables of Indiseas-1 include a suite of 9 papers published in a Special Issue of the ICES Journal of Marine Science (Vol 67, May 2010).
14. Indiseas-2 (2010-2013) is a follow-up of Indiseas-1 with greater challenges: complementary indicators, additional methods, develop comparative work across ecosystems, better information to decision-makers. It still includes the same group of participating countries and institutions and is seeking more contributions. Indiseas-2 has recently received endorsements by the IOC-UNESCO, benefiting from hindsight of Indiseas-1. Key questions will be addressed through 6 task groups (TGs). In Indiseas-2, 34 marine ecosystems will be represented, with contribution of 56 scientists from 44 research institutions. It was also the hope that SWIOFP ecosystems will be adequately represented. Therefore, SWIOFP experts

were encouraged to take part in these TGs but strict deadlines for the project have to be met in 2011. The 2nd meeting of Indiseas-2 will be held in Paris in November 2012 where the TGs will present their outputs. SWIOFP could participate through the participating countries to Indiseas-2. The announcement will be passed on to H. Ong'anda and F. Marsac.

15. Dr. Shannon presented more in detail the results of Indiseas1. 19 ecosystems were included, from high-latitude to tropical regions and upwelling systems, providing the baseline for diagnosis for ecosystem status and allowing in-depth comparisons across them. Visual illustrations were developed such as modified pie-charts and decision trees to show significance of these comparisons.
16. In the discussions that followed these presentations, participants were informed that Indiseas is not a project but a working group endorsed by several organisations and facilitating collaboration. Individual projects (such as SWIOFP) avail their scientists to take part.
17. It was also noted that one of the major constraints of Indiseas-1 was data availability and diversity of measurements. Sometimes surveys were not designed to measure necessary data. Indiseas indicators are designed both to look at status of ecosystem and trends for comparative purpose across ecosystems. It was advised that SWIOFP may take part in Indiseas-2 work but it was recognised that the first step would be to calculate Indiseas-1 indicators which would be assessed during the November meeting. New surveys will provide useful snapshot data. It would be advisable that forthcoming SWIOFP surveys be designed to address data needs for indicators.
18. Official country commitments were not necessary, since Indiseas is not seeking to use national datasets directly, but only through the national expert participation.
19. Conclusion was that there is need for multiple indicators, multiple analyses and a comparative approach.
20. Dr. Shin gave an illustration of the project website. It was created in 2009 and the next update will be done before the Paris meeting planned in November 2011. It is possible to interactively compare Indiseas-1 ecosystems in the site by means of radar plots, pie-charts and bar diagrams. The site also shows who are the scientific experts, and organisations who have endorsed the project. Contributions for updating the website will be due by June 2011, and this applies also to SWIOFP contributions.

21. In the discussions that followed, it was agreed that non-fisheries data, i.e. data resulting from scientific ship surveys, would be considered. Data would normally be stored in the project's server but available only to the experts involved in the project work. The experts would be accountable on use of the data.
22. Dr. Shin gave a presentation detailing the set of ecological indicators developed during Indiseas-1 and the way to calculate them. There are 8 indicators which address the communities and assemblages in the ecosystem (not a single group of species targeted by fisheries) : mean length, trophic level of landings, proportion of under and moderately exploited stocks, proportion of predatory fish, mean lifespan, inverse of the coefficient of variation of the total biomass, the total biomass of surveyed species and the inverse of the ration landings/biomass. A clear definition of species categories (surveyed, retained, predatory fish species) was also given in this presentation.
23. In the discussions that followed it was pointed out that there was no common protocols for data sampling designs but that entities should report all the information (i.e. elaborate documentation) to assist in evaluation. Bottom trawl is considered as the best gear to use in the scientific surveys to document the requested indicators. As landings do not provide data on community structure, survey data is essential. External sources of information, such as FAO classification of stock and Fishbase, can be used to assist in the calculation of some indicators (e.g. % of exploited stocks or mean life span).
24. It was also pointed out that countries may give priorities for sampling based on important species or resource constraints and that such decision would be taken by the local expert(s). Boundaries for ecosystems may be based on ecosystem functions (e.g. closed systems) or may conform to a management unit. At times even shared stocks can have different exploitation systems.
25. It was noted that some SWIOFP ecosystems may not be able to join Indiseas within short delays but that certain products may still be available for website display.

National Presentations

26. Each country gave a presentation on the status of its fisheries, the data availability and the possible ecosystem delineations.
27. In the discussions that followed, Comoros reported that scientific surveys were only acoustic surveys for small pelagic resources, and therefore not suitable for the Indiseas indicators.

Mauritius reported possibility to use their past surveys for indicators' analysis. In Seychelles the data available was for large pelagics tuna and associated fish. There have been no surveys suitable for the Indiseas indicators. South Africa would provide comprehensive details on surveys believed to exist in national and ACEP surveys. Kenya surveys were limited to Ungwana Bay crustaceans. Other historical surveys exist and would be collected in due course. Mozambique datasets were sufficient for Indiseas work especially the deep water and shallow water prawns. The observer data did not have by-catch and so were not sufficient for community composition. It was pointed out that data from shallow water trawls can be used similarly to scientific surveys since they are non-selective, provided the list of species taken are recorded exhaustively before discards. Tanzania surveys were sufficient for indicator calculations and effort would be made to collate them.

DAY 2

28. Dr. Shannon gave a presentation on Biodiversity Indicators following national presentations part of the morning. These are among the new indicators introduced in Indiseas2. She pointed out that discards data is of particular concern due to absence of such data in most surveys/fisheries. These indicators are geared to address conservation risks. The task groups have to stick to deadlines to present results during the 2nd meeting in Paris.
29. Prof. Jarre gave a presentation of Climate Indicators and Socio-economic Indicators for Indiseas2. These indicators are looking at the effects of climatic factors (El Nino, ice retreat, oxygen deficiency, PDO, NAO). This is to assist in refining the diagnosis of their impacts. Specifically the Indian Ocean productivity system needs more understanding since it is sub-surface and therefore not easy to detect with satellite systems. The indicators are meant to enhance science behind fisheries management. She said that data would be easier to obtain (Argo floats, satellites) than ecological indicators. It would be easy for SWIOFP to work within the TG1 for this particular set of indicators and encouraged that at least one expert to be identified for this task.

Indiseas Implementation Plan for SWIOFP

30. Dr Marsac gave a recap on what would be expected of SWIOFP Group. The Indiseas activity should guide data collection surveys to come. Results of the Indiseas may be used in bridging science and management through the SWIOFC. For this to be realised roles have to be assigned.

31. Countries would nominate a National Ecosystem Expert (NEE). 1st step would be to calculate the Indiseas1 indicators for comparison of ecosystems. Additional contributions for the Indiseas website would be welcome.
32. In the discussions that followed on nominations the following feedbacks were received.
- **Madagascar** provided H. Razafindrainibe as the interim NEE and final decision to be communicated by 28/1. However they requested for more advice on how to draw their ecosystems.
 - **Comoros** declined to take part as there would be no data suitable for Indiseas indicators. However they also requested for support in developing more specific indicators to address the FAD fisheries.
 - **Mauritius** reported that candidate ecosystems include the Mascarene Ridge and survey data would be surveys carried by RV Dr. Fridtjof Nansen and future surveys in the small sea mounts. Final nomination of NEE will be communicated in due course.
 - **Seychelles** reported lack of survey data as mostly data exist for longlines which doesn't represent whole communities. Contact for now is Mr. Govinden.
 - **South Africa** reported willingness to participate and will confirm the extent of data available. There are also surveys planned for the future. NEE will be nominated, in the meantime Mr. Rouillard will act as contact.
 - **Kenya** would nominate NEE in consultation back home. There are two surveys at Ungwana Bay for Crustacean fisheries (0-50 m depth) which would be used for the Indicators. One other survey is taking place shortly. Genetic indicators were discounted as these are not sensitive in the short term to fishing pressure.
 - **Mozambique** will use the deep water commercial shrimp fishery in this program. Mrs N. Dias would be the contact, but this would be confirmed later.
 - **Tanzania** committed Mr. Matiku to be the NEE but this would be confirmed later. There is data from surveys undertaken by TAFIRI and a survey for crustaceans is up-coming. A Zone 2 was presented as the candidate ecosystem for Indiseas2.

A summary table is presented below.

33. The meeting ended at 4:00pm with vote of thanks given by H. Ong'anda and F. Marsac.

Summary of discussions for ecosystem selection and commitment of the countries into Indiseas

[EN]	Commitment in Indiseas as from 2011	Commitment in Indiseas at a later date	No commitment in Indiseas	Decision pending
Madagascar	Demersal, shallow (0-30 m), Baie d'Ambar			
Comoros			X	
Mauritius	Demersal, plateau and slope, Mascarene ridge			
Seychelles		X		
South Africa				X
Kenya	Demersal, shallow (0-50 m)			
Mozambique	Slope of continental shelf, South Mozambique			
Tanzania	Demersal, under estuarine influence influence estuarienne, peu profond (0-30 m)			

APPENDIX 1 - LIST OF PARTICIPANTS

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APPENDIX 2 – AGENDA OF THE WORKSHOP



IndiSeas-SWIOFP meeting
DAFF, Foretrust building, Cape Town
18-19 January 2011



Tuesday 18 January 2011

9h30		Welcome - Opening address Introductions all round Go over agenda
9h50	<i>Francis Marsac</i>	Review of SWIOFP - Implementation of EAF, role of indicators Discussion
10h30		Coffee break
11h	<i>Yunne Shin</i>	Review of history and objectives of IndiSeas1 Objectives Indiseas2, presentation of Task Groups
11h30	<i>Lynne Shannon</i>	Suite of papers ICES Journal
12h	<i>Yunne Shin</i>	IndiSeas Website
12h30		Lunch
13h30	<i>Yunne Shin</i>	Indiseas1 Ecological indicators Theoretical background, justification Details of calculation, data required
14h30	<i>SWIOFP participants</i>	all round: SWIOFP case studies and available data <i>15' per ecosystem (presentation + discussion)</i>
15h30		Coffee break
16h- 17h	<i>SWIOFP participants</i>	all round: SWIOFP case studies and available data

Wednesday 19 January 2011

9h30		Recap of available data for indiSeas1 indicators
10h30		Coffee break
11h	<i>Lynne Shannon</i>	IndiSeas2: Biodiversity indicators
11h30	<i>Astrid Jarre</i>	IndiSeas2: Climate indicators
12h	<i>Astrid Jarre</i>	Indiseas2: Socio-economic indicators
12h30		Lunch
13h30	<i>Rapporteurs: Francis Marsac, Harrison Onganda</i>	Implementation plan Deliverables Timeline
15h30		Coffee break End of meeting