UNITED NATIONS ENVIRONMENT PROGRAMME

Terminal Evaluation of UNEP/GEF Project GF/3010-04-06 (GFL-2328-2732-4768) Promoting Ecosystem-Based Approaches to Fisheries Conservation and Large Marine Ecosystems (LMEs)

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Introduction

i. This report presents the findings and recommendations of the Terminal Evaluation (TE) of the medium-sized project (MSP) Promoting *Ecosystem-based Approaches to Fisheries Conservation and Large Marine Ecosystems (LMEs).* The Project had a total budget of US$1,735,000, whereof US$ 995,000 constituted support from the Global Environment Facility (GEF) trust fund. The duration was initially planned to be three years, i.e. May 2004 – April 2007, but was extended until June 2008. The Project was implemented by the United Nations Environment Programme (UNEP), executed by the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and co-funded by GEF, IOC/UNESCO and three Project partners. The LME Programme of the National Oceanic and Atmospheric Administration (NOAA) ensured the technical and scientific coordination of the Project.

ii. The Project intended to support management of LMEs by producing solid scientific approaches for fisheries/ecosystem management. The Project was also to support capacity building in this field in developing countries and economies in transition and create a basis for increased collaboration and information exchange between these countries and developed countries.

The Project consisted of three activity components:

1. **Strengthening ecosystem-based approaches to fisheries conservation and sustainability** by building a network, conducting a survey on fisheries management needs and establishing a database of experts. The Component was to be implemented by the World Council of Fisheries Societies (WCFS) and the American Fisheries Society (AFS).

2. **Gap-filling experience and practice for global fisheries carrying capacity** by training organised by the Fisheries Centre of the University of British Colombia, Canada (FC/UBC) in the methods based on the Ecopath with Ecosim (EwE) approach. This Component also included a workshop on particle size spectra as indicators of pollution by Princeton University, training on GIS by the University of Rhode Island (URI) and a recalculation of FAO catch statistics for LMEs.

3. **Filling gaps in LME Nitrogen loading forecasts for 64 LME** by provision of training and workshops by Rutgers University on methods and application of a Nitrogen-based model to forecast eutrophication conditions in the coastal waters of the of the world's 64 LMEs.

iii. The Project Document also included a fourth component for monitoring and evaluation (M&E).

iv. This TE was commissioned by UNEP Evaluation and Oversight Unit (EOU) in accordance with a Project Document provision stating that an external evaluation should take place at the end of the Project. It was carried out during a 25-day consultancy during the period May-July 2008 and the methods used included a desk study of relevant documents, visits and discussions with the main Project partners, telephone and email exchanges with persons involved in GEF/LME management projects, and discussions with UNEP staff.

Main findings

Overall rating

v. The overall rating of the Project is *Moderately satisfactory.* This reasons for not rating the project higher are mainly related to the weaknesses of Component 1, the as yet limited application of Project results in LME fisheries/ecosystem management and the shortcomings with regard to Project M&E.

Project Design

vi. The project document and the logic framework (logframe) were found to be lacking in clarity. In particular, the logframe indicators were poorly formulated and did not appear particularly useful for progress monitoring purposes.

vii. The Project was clearly research oriented and although the practical application of modelling results was referred to in Project objectives and outcomes and some of the contents of Component 1 most likely intended for this purpose, Project activities and resources were not adequately included to support this ambition. It would appear that the Project was based on an assumption that research results could be transferred to the management and policy level through training and networking while, in reality, more focused actions are needed for achieving this bridging between science and fisheries/ecosystem management.

Project Performance

(i) Major Achievements and Strengths

viii. Overall, the project produced some unprecedented outputs with regard to information and modelling results at an LME level, i.e. historical catch and landings data, EwE modelling and Nitrogen export forecasts. This work was performed by first class institutions and the results are of high scientific quality.

ix. Main Project strengths include the partnerships with academia in the relevant fields of expertise. Project activities with regard to ecosystem modelling and eutrophication calculations and forecasts were nested within wider global programmes in these areas. The cost-effectiveness and sustainability of Project achievements benefited from this approach.

x. Another strength of the Project was the involvement of NOAA as the technical and scientific coordinator. With this arrangement, the coherence and linking of Project results with other LME-related initiatives could be ensured, and will continue in the future.

xi. At the time of the TE, the Project was in the process of publishing two high quality documents and has significantly contributed to another key report. In this important area of outreach and awareness creation, the Project is likely to create benefits for LME management in the near future when the publications are disseminated.

(ii) Weaknesses

xii. The objectives and outcomes of the Project Document log frame have largely not yet been attained with regard to direct application of the scientific approaches developed by the Project in fisheries/ecosystem management by LME projects. However, the results produced by Components 2 and 3 may contribute to enhanced management decisions and actions in the future.

xiii. While the achievement with regard to Components 2 and 3 were excellent from an output point of view, the results of Component 1 were disappointing. The network, database and survey results that were supposed to serve as important inputs into a capacity building process in developing countries failed to materialise at the expected level. This may have contributed to the low level of attainment of Project objectives.

xiv. The Project lacked a dedicated management structure and did not have its own staff. Instead it operated through contractual arrangements with key partner organisations and under the technical coordination of NOAA. While this arrangement is common practice for this type of UNEP / GEF project, and could be considered an advantage from a cost-effectiveness and sustainability point of view, it could be speculated that if a more stringent project management system and a structured

M&E plan for the Project had been in place, corrective actions could maybe have been taken and better results produced from Component 1.

xv. There was virtually no structured M&E system in place for the Project. PSC meetings were held and NOAA discussed progress regularly with Project partners. However, these processes are poorly documented; there are some minutes from PSC meetings – but not from all – and formal progress reports are incomplete from the first years of the Project's operation.

xvi. With regard to stakeholder involvement and ownership, it would appear that while partner organisations were directly involved and also influencing the focus of Project activities, individual countries in LME project regions were generally not engaged and the Project was not country-driven in this sense. The GEF/LME projects were generally consulted with regard to the selection of participants for training courses and workshops but it seems that there was still often a disconnection between the scientists trained and project managers. While the trainees were from the countries of the relevant LME regions, the individuals were in many cases not involved in the LME projects or only indirectly so.

xvii. The role of UNEP in oversight and supervision of Project management and implementation was generally weak although improved towards the end of the Project with efforts going into redesigning progress report formats. Considering the design concerns and the lack of an M&E plan, it could have been expected that UNEP as the implementing agency would have taken action to rectify these shortcomings. It is however recognised that the change in staff in IOC/UNESCO and UNEP may have disrupted Project monitoring processes.

Lessons and Recommendations

xviii. The following lessons learnt are suggested to be taken into consideration in planning any potential follow-up activities:

- There is a need for appropriate project management and systematic M&E. The implementing agency should ensure that there are clear management responsibilities and a monitoring mechanism.
- Systematic M&E procedures should be applied in the context measuring the success of training events and workshops in relation to the objectives of such events by evaluating the use and application of new skills by participants post-training.
- When working with partners that are not familiar with international development procedures or the planning and reporting requirements, the implementing agency has to provide sufficient information to ensure that all involved understand and are able to adequately participate in progress monitoring according to prevailing requirements.
- There should be close collaboration with project managers and decision-makers at the country level and in the field to ensure that they address perceived needs and that project results are taken up and used in management.
- Adequate resources and activities need to be included for "bridging the gap" between science and practical implementation. It may not sufficient to only provide training but specific activities for supporting local and regional implementation could be needed.
- Disseminating results to a wider audience is important to create awareness and solicit support also from secondary stakeholders and general public. It is also important to publish results in a format and in a language that are suitable for the intended audience.

xix. The TE recommends the following activities for the current wrap-up phase of the Project:

- The two technical reports, Models of the world's large marine ecosystems and Filling gaps in LME Nitrogen Loadings Forecast for 64 LMEs, should be published also in French and possibly Spanish.
- All GEF/LME projects should be provided with detailed information on the Project results, including lists of the participants in their regions that participated in the workshops and training events. A workshop could also be organised to discuss the results of the Project and how these can be taken further in practice.
- The outcome of such a meeting – that could possibly be held in conjunction with the annual IOC-UNEP-IUCN-NOAA Consultative Meeting on LMEs – could form the basis for a request for a follow-up project focusing on bridging the science-management gap. It would appear important to capitalise on the important results achieved at the output level by promoting their wider application. It would be important that a follow-up project proposal be based on consultations with GEF/LME projects with regard to their needs and desires in order to maximise the benefits at the practical LME management level.

ACRONYMS AND ABBREVIATIONS

AFS	American Fisheries Society
GBC	Global Biogeochemical Cycles
CBD	Convention on Biological Diversity
EOU	Evaluation and Oversight Unit (of UNEP)
EwE	Ecopath with Ecosim (food-web computer modelling approach)
FAO	Food and Agricultural Organization of the United Nations
FC/UBC	Fisheries Center, University of British Colombia
GEF	Global Environment Facility
GFEMN	Global Fisheries Ecosystem Management Network
GIS	Geographic Information System
Global NEWS	Global Nutrient Export from Water(S)heds
ICES	International Council for the Exploration of the Sea
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IUCN	The World Conservation Union
IW	International Waters
LME	Large Marine Ecosystem
LOICZ	Land Ocean Interactions in the Coastal Zone
M&E	Monitoring and Evaluation
MCM	Marine and Coastal Management / Department of Environmental Affairs and Tourism (South Africa)
MSP	Medium Sized Project
MTI	Marine Trophic Index
N/A	Not applicable
NOAA	National Oceanic and Atmospheric Administration (of the USA)
PIR	Project Implementation Reports
PSC	Project Steering Committee
SCOR	Scientific Committee on Oceanographic Research (of US??)
TE	Terminal Evaluation
TOR	Terms of Reference
UBC	University of British Colombia
UCT	University of Cape Town
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
URI	University of Rhode Island
UNFCCC	United Nations Framework Convention on Climate Change
US-NSF	United States National Science Foundation
WCFS	World Council of Fisheries Societies
WFC	World Fish Congress

1 INTRODUCTION

This Report

1. This report presents the findings and recommendations of the Terminal Evaluation (TE) – carried out through a 25-day consultancy during the period May-July 2008[1] – of the medium-sized project (MSP) *Promoting Ecosystem-based Approaches to Fisheries Conservation and Large Marine Ecosystems (LMEs).* The Project had a total budget of US$1,735,000, whereof US$ 995,000 constituted support from the Global Environment Facility (GEF) trust fund. The Project was implemented by the United Nations Environment Programme (UNEP), executed by the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and co-funded by GEF, IOC/UNESCO and three main Project partners. The duration was initially planned to be three years, i.e. May 2004 – April 2007, but the Project was extended due to implementation delays in the first year and finished on 30 June 2008[2].

The Project

Project Background and Rationale

2. The Project intended to support management of LMEs by producing solid scientific approaches for fisheries/ecosystem management. The Project was also to support capacity building in this field in developing countries and economies in transition and create a basis for increased collaboration and information exchange between these countries and developed countries. The Project aimed at increasing the capacity of and providing support to those involved in the implementation of other GEF/LME projects; at the time of the approval of the Project, there were some 70 countries engaged in such activities (see Box 1 for information on the current status of GEF/LME projects).

Box 1: LMEs and GEF

The LME concept was first introduced by NOAA for American coastal areas and includes a five-module (productivity, fish and fisheries, pollution and ecosystem health, socioeconomics and governance) approach to ecosystem-based management. Since 1995, GEF in partnership with several United Nations agencies has funded a total of sixteen LME projects in Africa, Asia, Latin America and Eastern Europe: Agulhas Current LME, Baltic Sea LME, Bay of Bengal LME, Benguela Current LME, Black Sea LME, Canary Current LME, Caribbean Sea LME, Guinea Current LME, Gulf of Mexico LME, Gulf of Thailand LME, Humboldt Current LME, Indonesian Sea LME, Mediterranean Sea LME, Somali Current LME, South China Sea LME and Yellow Sea LME. A total of some 2,500 participants and partners are currently involved and grants and investments funds, including co-funding by participating countries and partners, amount to US$ 1.8 billion (total of projects ongoing in 2007).

3. The Project was conceived at the time leading up to the 4th World Fisheries Congress (4th WFC) organised in May 2004 by the American Fisheries Society (AFS) in Vancouver, British Colombia (Canada). It appears that the final Project concept constituted an amalgamation of several initiatives including the support to the organisation of fisheries management training workshops to be conducted in connection with the 4th WFC by AFS and the need to address gaps in information

[1] Comments on the draft TE report were received after this period and the TE report was finalised in November 2008.

[2] At the time of the TE interviews, a no-cost extension from March 2008 to June 2008 was in the process of being negotiated.

and scientific approaches for LME fisheries/ecosystem management. NOAA played a key role in identifying gaps, as well as in contacting partners, and discussing and negotiating the Project with GEF.

4. While perhaps self-evident, it should be pointed out that the Project rationale is based on the underlying assumption that the LME concept is the preferred approach to fisheries and marine ecosystem management (in coastal / continental shelf areas). UNEP (Regional Seas Programme) and GEF, among others, have adopted the concept and actively promote LMEs as the geographic unit for collaborative and interdisciplinary management of living marine resources.

Relevance of Project Contents

5. The need for ecosystem-based approaches is reaching a point of general acceptance by those involved in fisheries and their management, and calls for ecosystem-based approaches to fisheries management have increased noticeably during the last decade. However, there is a need to develop scientific approaches that allow for the implementation of sound management. The Project intended to fill some of these gaps in the context of fisheries/ecosystem LME management.

6. The Project is in line with GEF Operational Program 10 Global Support Component and International Waters (IW) Strategic Priority Number 2 (Targeted Learning). As mentioned in Box 1, GEF included LMEs, since 1995, as important geographic units for introducing developing countries to innovative strategies for ecosystem-based assessment and management practices leading to more sustainable management of fisheries and other marine resources.

7. The project contents are also consistent with the policies and role of UNEP in conservation and maintenance of biodiversity, and relevant to the UNEP Regional Seas Programme.

Project Objectives, Expected Outcomes and Activities

8. The general objective of the Project as spelled out in the Project Document was to "*support participation in the* [4th World Fisheries] *Congress* [May 2004 in Vancouver, Canada] *and its courses, workshops, and the follow-on networking of fisheries professionals from countries participating in the development and implementation of GEF/LME projects and other developing countries and countries with economies in transition. The project will serve to strengthen capacity for improving fisheries management at local, provincial and national levels through a holistic approach by facilitating sharing and applying usable knowledge and successful practices from the Congress and follow-on workshops and networking*".

9. The Project logical framework (log frame)[3] also included four subordinate objectives and five outcomes focusing on improved ecosystem-based fisheries management in GEF/LME project areas through increased capacity, established collaborative networks, and application of Ecopath with Ecosim (EwE) ecosystem modelling approach, nutrient forecast and particle-size spectra models as well as GIS applications (presented in Table 10 and Table 11 in ANNEX 9).

10. The Project activities were organised in four components (see also Table 12 in ANNEX 9):

Component 1: Strengthening Ecosystem-based approaches to fisheries conservation and sustainability

Within this component the Project was to assemble information on management practices based on sound science in fisheries management with an emphasis on the ecosystem and disseminate such practices widely among fisheries scientists, managers, extension professionals, and policy makers in developing countries. Workshops and seminars on fisheries management were to be organized by WCFS/AFS in connection with the 4th World Fisheries Congress (**Component 1a**) and a database and a network were to be established (**Components 1b and 1d**). A survey on the needs of developing countries with regard to scientific approaches to fisheries management was to be carried out (**Component 1c**) and it was also planned that WCFS/AFS would be responsible for

[3] The 'Objectives and activities' section of the Project Document sets out a logical hierarchy of objectives outcomes, and activities that are referred to in this report as the Project 'logframe'.

Project management, i.e. the Project Steering Committee (PSC) meetings and Secretariat (**Component 1e**) (see alsoANNEX 5 and ANNEX 7).

Component 2: Gap-filling experience and practice for global fisheries carrying capacity

Under this component, scientists from developing countries and economies in transition were to be trained by the Fisheries Centre of the University of British Colombia (FC/UBC) in the methods and applications of a multi-trophic level modelling approach to estimate the carrying capacity of fisheries for the world's 64 LMEs based on the EwE approach (**Component 2a**) and in particle size spectra as indicators of pollution (**Component 2b**) by Princeton University. Training on GIS by the University of Rhode Island (URI) (**Component 2c**) and an update of catch data based on FAO statistics and compilation of time series for LMEs (**Component 2d**) were also included here (see alsoANNEX 6 and ANNEX 7.

Component 3: Filling gaps in LME Nitrogen loading forecasts for 64 LME

Under this component, scientists from developing countries and economies in transition were to be trained by Rutgers University – in collaboration with the IOC/UNESCO and the Global NEWS[4] task force – in the methods and application of a Nitrogen-based model to forecast eutrophication conditions in the coastal waters of the of the world's 64 LMEs. Two workshops based on a new and innovative Nitrogen export model, developed within the framework of the Global NEWS model, as well as the establishment of an eutrophication network, were planned (see also ANNEX 8).

Component 4: M&E

The PSC was to oversee the implementation of the project and regularly meet to review progress. M&E indicators were to be established and used to guide implementation of the project and evaluate its success on an ongoing basis.

Executing Arrangements

11. The Project was implemented by UNEP and executed by IOC/UNESCO. NOAA played an important role in coordinating Project activities and providing scientific and technical support; in many respects, NOAA assumed the role of Project manager (see also section on *Implementation Approach* and ANNEX 7) with strong administrative support from IOC/UNESCO.

12. A total of six additional partners were involved in carrying out Project activities:

    - Fisheries Centre of the University of British Colombia (FC/UBC)
    - National Oceanic and Atmospheric Administration, LME Programme (NOAA)
    - Princeton University
    - Rutgers University
    - University of Rhode Island (URI)
    - World Council of Fisheries Societies (WCFS)/American Fisheries Society (AFS)

    All of these except NOAA had contractual arrangements with the Project through IOC/UNESCO. FC/UBC, NOAA and WCFS/AFS also contributed co-funding – mainly through in kind contributions – to the Project.

13. The Project Document suggested that the PSC consist of representatives from GEF, UNEP, NOAA, WCFS/AFS and IOC/UNESCO, as well as possibly a sociologist with expertise in fisheries management in developing countries, someone with knowledge of the developing country policy context and representatives of the fisheries industry in developing countries (small and large-scale sectors). The PSC was to approve work plans and budgets, and provide general oversight of Project implementation. Quarterly progress reports were to be submitted to the PSC,

[4] Global Nutrient Export from Water(S)heds (see http://marine.rutgers.edu/globalnews/).

and it would meet once a year. In reality, the PSC consisted of GEF, UNEP and the main Project Partners. Meetings were held somewhat irregularly and some were telephone meetings from which no minutes were prepared (see the section on *Assessment Monitoring and Evaluation Systems* below).

Budget and Project Duration

14. The total project budget, as stipulated in the Project Document, amounted to US$ 1,735,000 including:

    - GEF funding: US$ 995,000
    - Co-financing AFS: US$ 300,000
    - Co-financing IOC/UNESCO: US$ 140,000
    - Co-financing NOAA: US$ 200,000
    - Co-financing FC/UBC: US$ 100 000

    The initial budget for each Project component was as follows:

    Component 1: US$ 650,500 (GEF US$ 350,500; co-financing US$ 300,000)

    Component 2: US$ 570,000 (GEF US$ 370,000; co-financing US$ 200,000)

    Component 3: US$ 470,000 (GEF US$ 230,000; co-financing US$ 240,000)

    Component 4: US$ 44,500 (GEF US$ 44,500)

    Some changes in co-funding levels and by components took place during implementation (see the section on Financial Planning below and ANNEXES 10 and 11).

15. The project duration was initially foreseen to be three years; starting in May 2004 and ending in April 2007. However, due to delays experienced at the beginning of the project (see paragraph 82), the Project was extended with a final no-cost extension until June 2008 formally approved at the time of the TE.

Terms of Reference of the TE

16. This TE was commissioned by UNEP Evaluation and Oversight Unit (EOU) in accordance with GEF M&E requirements, noted in the project document, that an external evaluation should take place at the end of the Project. The terms of reference (TOR) of the TE were based on standard UNEP and GEF formats.

17. The objective of the TE was to examine the extent and magnitude of any Project impacts to date and determine the likelihood of future impacts. The TE evaluator was also asked to assess Project performance and the implementation of planned Project activities and planned outputs against actual results. In line with standard UNEP GEF evaluation TORs, a number of specific areas to be rated by the TE with regard to success of Project implementation were listed, i.e.:

    A. Attainment of objectives and planned results
    B. Sustainability
    C. Achievement of outputs and activities
    D. Catalytic role
    E. Assessment monitoring and evaluation systems
    F. Preparation and readiness
    G. Country ownership /driveness
    H. Stakeholder participation / public awareness

I. Financial planning

J. Implementation approach

K. UNEP supervision and backstopping

Chapter 2, MAIN FINDINGS, of this report is structured according to these assessment areas.

18. The TE terms of reference also specified the following main questions for the TE evaluator to address:

- Did the Project help to improve understanding of [developing] country fisheries scientists, managers, extension professionals and policy makers in scientific, ecosystem-based approaches to fisheries management and fishery assessments that include food web and nutrient effects?
- Has the consultative and collaborative network between developed and developing countries fisheries experts sharing lessons on fisheries management within the context of the ecosystem approach targeted the relevant key groups and organisations, and has this resulted in the adoption of new fisheries management measures?
- Have the results of the ECOPATH/ECOSIM food-web modelling been adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?
- Have the nutrient forecast models been successfully adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?
- To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?

The full TOR of the TE is attached in ANNEX 1.

Methods

19. The TE was carried out during a total period of 25 days in May-July 2008. The main methods used included:

- Desk study of relevant project documents and reports, including the Project Document, formal UNEP and GEF progress reports, progress and final reports on the different Project components, the Project budget and financial reports, and partner contracts.
- Brief review of other relevant literature regarding the main scientific and technical concepts dealt with by the Project.
- Visits to and discussions with the main Project partners, i.e. FC/UBC (British Colombia – Canada), IOC/UNESCO (Paris – France), NOAA (Rhode Island – USA), Rutgers University (New Jersey – USA) and WCFS/AFS (Maryland – USA).
- Telephone interviews and email exchange with a selected number of LME Project Managers[5] and email correspondence with the Food and Agriculture Organization of the United Nations (FAO) Fisheries Department.
- The TE evaluator also met with the UNEP Task Manager (in Athens, Greece) and spoke to the UNEP Senior Programme Officer for International Waters on the phone (in Nairobi, Kenya).

A list of persons interviewed is included in ANNEX 2, a list of progress reports in ANNEX 3 and the TE time line and itinerary in ANNEX 4. Summaries of the findings of the visits to WCFS/AFS, FC/UBC, NOAA and Rutgers are attached in ANNEXES 5-8. Partner representatives

[5] A total of six persons were contacted (representing Baltic Sea LME, Benguela Current LME, Guinea Current LME, South China Sea/Gulf of Thailand LME and Yellow Sea LME) but interviews/email exchanges could only be held with three (see ANNEX 2).

were given the opportunity to comment on these summaries (by email correspondence) before being including in this report.

Limitations of the TE and comments on the TOR

20. The TE evaluator found that the Project Document was not as clear and concise as it should have been; it lacked in consistency and the logical framework (log frame) – supposed to explain objectives, outcomes and activities, and provide performance indicators – did not appear to have been developed according to the logic that generally governs this type of planning tool. There also seemed to be a certain degree of inconsistency between the Project Document and what had been decided and agreed among partners that the Project would do. There was no formal and properly structured monitoring and evaluation (M&E) system in place and several aspects of the Project implementation were poorly documented. These issues are further discussed in the sections *Project Design* and *Project Performance* below (paragraphs 25-32 and 65-72) with key aspects in the context of the TE highlighted here.

21. Due to the weakness of the Project Document in general, and of the M&E system and performance indicators in particular, the evaluation work was made somewhat difficult. Generally, an evaluation would be clearly guided by a project's performance indicators and documentation available in the form of regular progress reports, PSC meeting minutes, etc. In this case, the TE evaluator found that the documentation did not by any means "tell the whole story" and the visits and interviews proved fundamental for understanding the Project. While it could be argued that this is normal – visits and interviews generally play important roles in evaluations – it also appeared that the design, including the objectives of the Project, differed quite significantly between the Project Document and the perception transpiring from the interviews.

22. It appears that the Project Document puts more emphasis on capacity building and creating a direct impact at the level of actual management of LMEs while those involved in the Project have focused mainly on producing good research results suitable for being used in LME management but not necessarily during the duration of the Project. The Project Document is also structured and formulated in a way that gives the impression that Component 1, implemented by AFS, is a central part of the Project while in reality more emphasis was given to Components 2 and 3 by Project partners. The apparent importance of Component 1 in the Project Document is illustrated by the fact that the component is allocated a larger share of the total Project budget than the other two components and that it includes the establishment of a Project Secretariat. The Project Document possibly also gives the impression that the coordination and networking activities foreseen under Component 1 were expected to play a more prominent role in disseminating Project results – and contribute to Project outcomes and objectives – but in practice this did not happen; the main focus of the Project moved to Components 2 and 3, after the 4th World Fisheries Congress had taken place, at the beginning of the Project.

23. The differences between the Project Document and the 'real' Project as perceived by Project partners gave rise to a dilemma in the context of the TE; if the Project Document was strictly used as the basis for the evaluation, the results produced by the Project in the form of good research would, to a certain degree, be overlooked since they had not yet been utilised at a larger and practical scale. Hence, the TE evaluator attempted to reflect a balanced view both giving credit to the results *de facto* achieved but also discussing the shortcomings of the Project, including those that pertain to the design and contents of the Project Document. A lower relative importance has also been accorded to Component 1 in the overall assessment of Project performance and results. At the same time, it should be noted though that the TE evaluator feels the Project could have benefited if it had been able to pay more attention to the impact related aspects of the Project Document (outcomes and achievement of objectives) but this may not be a realistic request considering the time and resources available (see also paragraph 28).

24. Moreover, considering the lack of a clear logical structure in the description of indicators at the objective and outcome levels, the TE has used the "*TE main questions*" referred to in paragraph 18 above as the basis for its discussion on *Attainment of objectives and planned results* in Chapter 2 *MAIN FINDINGS*, in addition to the objective and outcome indicators. It should also be

mentioned that since the Project consisted of a number of relatively independent components, it proved difficult to provide a generalised summary of achievements for the Project as a whole. Hence, in Chapter 2, comments are provided by Project component as and when relevant. In ANNEXES 5-8 more detailed accounts of the activities of the main Project partners have been included (based on the visits made by the TE evaluator).

2 MAIN FINDINGS

Project Design

25. Before embarking on a discussion of the Project implementation success and ratings, the TE evaluator feels it is necessary to comment on the shortcomings of the Project design and the Project Document[6]. The weaknesses include:

    - Unclear log frame and poorly defined objectives.
    - Mismatch between the expected achievements and the planned and actual activities.
    - Differences between the documented Project plan (Project Document) and the apparent verbal agreements on what the Project would do and achieve.

26. As mentioned in the section on *Project Objectives, Expected Outcomes and Activities* above, the log frame contains one general objective, four sub-objectives and five outcomes. There are also four Project activity components of which one is dedicated to Project management and M&E. While the project document contains a fairly clear description of the activities to be carried out – according to the components cited in paragraph 10 above – the log frame is lacking in clarity, and the way objectives, outcomes and indicators are defined do not appear helpful as guidance for Project implementation or for progress monitoring.

27. The way the objectives are worded make them read more like activities than objectives, e.g. *to support..., train...* and *strengthen....,* and an overall development objective or goal is in fact missing. The outcomes are more clearly formulated but it is not always obvious which outcome is expected to contribute to the achievement of which objective. At the same time, there appear to be overlaps and a lack of hierarchy between the objectives and the outcomes.

28. Still, the objective and outcome indicators give the impression that it was expected that the research results produced by the Project would also be directly applied in LME fisheries/ecosystem management by the end of the Project[7]. However, although some of the contents of Component 1 may have been intended for dissemination of results at output level, virtually no activities were included for supporting this bridging of science and policy/management; the Project was largely a research project, aiming at producing good scientific results. It may have been assumed that the creation of networks and training of local scientists would ensure that the approaches developed were integrated into LME decision-making processes. It would appear that this was an overoptimistic assumption, especially since the key network under Component 1 did not materialise. Moreover, the trainees and workshop participants, selected based on their scientific suitability and experience, were generally not closely enough involved in LME management to directly influence the uptake of scientific findings.

29. Having said this, there is no doubt that the Project results could be used in LME management in the future if the necessary follow-up activities and support are provided. It should also be pointed out that the Project does not exist in a vacuum; in addition to the GEF/LME projects in different parts of the world and the ongoing research and work programmes of the Project partners within which most Project activities were nested, there are also other global, regional and local initiatives relevant to applying an ecosystem-based approach to fisheries management. However, from a Project design point of view, the problem lies in the fact that these aspects were not clearly stated in the Project Document.

30. As already mentioned, the Project consisted of three activity components (excluding M&E). These components, as well as some subcomponents, were implemented fairly independently from one another by different Project partners (see also *Stakeholder Participation / Public Awareness*

[6] This section partly overlaps with the contents under heading K below, *Preparation and Readiness.* See also the section *Limitations of the TE and comments on the TOR* above.

[7] For example, objective indicator 3 and outcome indicator 2 (see ANNEX 9) refer to the adoption and application of new methodologies for "management actions for recovery of depleted fish stocks".

below). The NOAA LME Programme acted as the Project scientific and technical coordinator with administrative support from IOC/UNESCO. However, the Project was not a clear entity as such but more a cluster of independent – although LME management-related – research activities. The important role of NOAA in this regard is not clearly apparent from the Project Document; in fact, project management (PSC and Secretariat) is mentioned as a sub-component in connection with WCFS/AFS activities, giving the impression that WCFS/AFS had initially been assigned to play a coordinator role that did not materialise.

31. It was also noted that the Project Document hinted at the importance of the interdisciplinary characteristics of the ecosystem approach to fisheries, e.g., in the description of the Project rationale and when suggesting social scientists/experts as possible members of the PSC. However, Project activities focused on biological aspects and did not attempt to address socioeconomic or governance issues.

32. These weaknesses made it difficult to use the log frame and its indicators as the main tool for evaluating Project implementation and assessing impact. Hence, as also mentioned in paragraph 23, in the following sections Project success is not only assessed against the written word (Project Document objectives and outcomes) but also reviewed in the light of the apparent perceived expected achievements, partly reflected in the planned Project activities. Moreover, comments in this report often refer to particular components rather to the Project as a whole because of the way activities were structured.

Project Performance

Introduction

33. When Project performance is reviewed against the Project Document objective and outcome indicators, the success rate of the Project seems relatively low. The objective indicators focus on adoption and application of Project results in a way that would appear beyond what could possibly have been achieved, considering the planned activities and time frame of the Project. Also at the outcome level, only a few of the indicators have been partly achieved; most Project achievements remain at the output level. However, it is likely that many of the results will only have an impact after the end of the Project when they have been disseminated. The importance of the outputs vis a vis their future potential impact should hence not be underestimated. In the following, the terms Project "achievement" or "result" are used to indicate an output/outcome, i.e. something that has been produced by the Project and is likely to have a future impact, possibly subject to certain conditions.

34. As explained in paragraph 23, the assessment of whether the Project attained its objectives and planned results has also been considered in the context of the *TE main questions* given in the TE TOR. Hence, the section on *Attainment of Objectives and Planned Results* below is structured according to these questions. More information on performance of Project Components 1-3 is given in ANNEXES 4-7.

A. Attainment of Objectives and Planned Results

(i) Effectiveness

QUESTION 1:

Did the Project help to improve understanding of [developing] country fisheries scientists, managers, extension professionals and policy makers in scientific, ecosystem-based approaches to fisheries management and fishery assessments that include food web and nutrient effects?

35. The Component 1 activities of the Project (workshops at 4th World Fisheries Congress, survey of the needs of developing countries, establishment of database and strengthening of expert network) were not implemented as planned (see ANNEX 5). The outputs of these activities were intended to

contribute to the understanding of ecosystem-based fisheries management approaches on behalf of developing country professionals but this did not happen to the extent expected.

36. Nevertheless, a total number of some 200 persons – of which approximately 170 from developing countries or economies of transition[8] – benefited directly from Project activities by participating in training events and/or workshops[9]. The vast majority of these beneficiaries were scientists (rather than managers and policy makers).

37. In this way, the Project contributed to building capacity, in particular with regard to ecosystem modelling (using EwE – Project Component 2a) and eutrophication modelling (Nitrogen export / Global NEWS model: Component 3). Scientists from countries of eight different LMEs[10] participated in the EwE or Nitrogen export modelling exercises, which represented the most substantial training activities of the Project. It also has to be assumed that the participants in the 4th World Fisheries Congress, its associated workshops (Component 1), the particle size spectra workshop (Component 2b) and the GIS training (Component 2c) benefited from these activities. While FC/UBC conducted evaluations immediately after training events exploring the extent to which they had been appreciated by participants, giving very encouraging results, no other systematic and documented review of the usefulness of Project training and workshops appears to have taken place.

38. Many training participants have continued to work on ecosystem modelling and eutrophication forecasting using their new skills acquired through the Project. It is however difficult to judge to what extent the capacity building has had an impact on the understanding of ecosystem approaches by developing country fisheries professionals at a larger scale. The impact remains generally at the level of individual scientists although there are some important exceptions, e.g. the Benguela Current LME project and Commission[11] uses EwE as their main ecosystem modelling framework and the countries of the Guinea Current LME project are also starting to make use of the EwE model (see also *Question 3* below).

39. In this context, it should be mentioned that it is only relatively recently that managers and decision-makers – both in developed and developing countries – have recognised that it is necessary to adopt ecosystem-based approaches to fisheries management. In some respects, there is still debate as to what exactly an ecosystem-based approach means. It should be noted that in several of the countries targeted by the Project, fisheries management systems may not be well developed in general and without this framework, the application of scientific ecosystem approaches is difficult. The GEF/LME projects aim, among other things, at improving this situation but it would appear clear that considerable effort and time will be needed to achieve a wider application of the type of scientific approaches promoted by the Project (EwE, Nitrogen export and particle size spectra) (see also the section on *Sustainability* below).

40. An important contribution by the Project to the understanding and advancement of ecosystem-based fisheries management in LMEs is the creation of a number of basic models and information on all of the world's 64 LMEs, constituting tools that can be used by individual LMEs to build further work on, or for comparing the situation between, different LMEs across the globe. These results include EwE models, Nitrogen export models and forecasts, and historical catch statistics for all LMEs. A complete list of Project outputs is included in section *Achievement of Outputs and Activities* below (see Table 1). However, the publications among these outputs are currently in the process of being published and disseminated and their wider impact is hence still difficult to judge.

[8] Economies in transition here include Estonia, Latvia and Lithuania.

[9] See ANNEXES 4-7 and the section on *Achievement of Outputs and Activities* below for more information on the various training events and workshops. Lists of participants are included in ANNEX 10.

[10] Baltic Sea, Bay of Bengal, Benguela Current, Guinea Current, Gulf of Mexico, Humboldt Current, South China Sea and Yellow Sea.

[11] An Interim Agreement establishing the Benguela Current Commission was signed by South Africa and Namibia in August 2006 and by Angola in January 2007. The Commission replaces the Benguela Current LME project that came to an end earlier this year (2008).

QUESTION 2:

Has the consultative and collaborative network between developed and developing countries fisheries experts sharing lessons on fisheries management within the context of the ecosystem approach targeted the relevant key groups and organisations, and has this resulted in the adoption of new fisheries management measures?

41. Although a network – the Global Fisheries Ecosystem Management Network (GFEMN) – was created as planned in conjunction with the 4th World Fisheries Congress under Component 1, it has not played the role and functioned as foreseen. At the time of the TE, the GFEMN network of some 100 individuals from developing countries constituted a subgroup within the AFS general membership and was used as a mailing list by AFS for disseminating information[12]. It is possible that the Project targeted the wrong individuals for the network – members are scientists, some having a particular interest in LMEs, others not – and it could also be speculated that the purpose and focus of the network was not specific enough to be attractive to scientists.

42. Within the context of the EwE activities, (Component 2a), the creation of a network was not explicitly aimed at. However, FC/UBC estimates that, after a training course[13], about of a third of the trainees remain in contact with them on EwE modelling related issues and there is an informal network of sorts among EwE users linked through FC/UBC; there are over 5,000 registered users of EwE in over 160 countries in the world. However, with the exception of the examples mentioned in paragraph 45 below, this has not yet resulted in the adoption of new fisheries management measures.

43. With regard to the Nitrogen export modelling (Component 3), a strong network – the IOC Eutrophication Network – evolved among the eleven workshops and training participants. However, while the network and its contacts with the Global NEWS task force constitute increased effective collaboration between developed and developing country scientists, this has not led to an adoption of new fisheries management measures. It should also be noted that Nitrogen export is not a fisheries model or approach as such, and that additional analyses are needed to understand the potential effect on fish populations (e.g. in the context of ecosystem modelling). This was outside the scope of the Project.

44. The other two workshop activities – the particle size spectra workshop (Component 2b) and the GIS training (Component 2c) – did not lead to any particular further collaboration between developed and developing countries fisheries experts. The outcome of the particle size spectra exercise is currently being assessed by NOAA with regard to its potential usefulness in the context of LME management.

QUESTION 3:

Have the results of the ECOPATH/ECOSIM food-web modelling [Project Component 2a] been adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?

45. EwE is likely to be used by scientists being involved, directly or indirectly, in GEF/LME projects or working in countries implementing GEF/LME projects, possibly as a preferred framework for ecosystem modelling, but the impact at management and policy level is still limited. While there are several examples of good EwE modelling work at the research level, there are fewer examples of direct application of EwE in decision-making at the fisheries management and policy level. As mentioned in paragraph 38 above, the countries of the Guinea Current LME project are taking a

[12] In comments on the draft TE report, NOAA has indicated that the GFEMN network and is being reactivated by including FAS and WCFS membership in the LME portal developed by Rhode Island University for NOAA (see ANNEX 7).

[13] FC/UBC conducts EwE training courses and workshops also independently of the Project (see further the sections on *Sustainability* and *Catalytic Role* below).

keen interest in the approach and it is also known to be used – to varying extents and in different forms – in fisheries management in[14]:

- Thailand (fisheries management in the Gulf of Thailand)
- Benguela LME (for management of certain segments, including small-pelagics)
- Namibia (impact of proposed fisheries interventions).

It is however not possible to attribute these applications solely to the UNEP/GEF Project; they represent an outcome that includes the long-term work by FC/UBC (and others) on ecosystem modelling (see also paragraph 51).

QUESTION 4:

Have the nutrient forecast models [Project Component 3] been successfully adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?

46. Scientists in nine countries are likely to have a good understanding of the issue and the forecast model but it is not known if this has influenced GEF/LME project implementation. Further activities and support focusing on linking the scientific results with management decisions are likely to be needed for this to happen (and such follow-up activities are currently being discussed by Rutgers and GEF within the context of a new project).

QUESTION 5:
To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?

47. The results of the Project research activities – in particular from the work on EwE and Nitrogen export – are most certainly of excellent scientific quality and would appear to have a great potential of influencing policy and management decisions in the future. EwE is included as one of the models reviewed in FAO's Technical Guidelines for Responsible Fisheries[15] on ecosystem modelling and is also widely cited in peer reviewed literature[16]. The Global NEWS task force, by which the Project Nitrogen export model was realised, published its first articles in late 2005 and early 2006 as a special collection of the journal Global Biogeochemical Cycles (GBC). Subsequently, a number of articles have been published or are in the process of being published by the task force members[17]. These successes are however related to a number of factors outside the scope and control of this Project and it should be recognised that the Project activities and results formed part of larger already existing research initiatives (see also the section on *Sustainability* below as well as ANNEX 6 and ANNEX 8).

(ii) Relevance

48. In the section *Relevance of Project Contents* above, the importance of the Project in a wider international context was briefly referred to. Reviewing the results that the Project has achieved, it appears clear that it has contributed to the scientific knowledge and the development of technical approaches that will be important for guiding management decisions in the future with regard to ecosystem-based fisheries management in LMEs. This would be in line with the overall

[14] Geographical areas outside the scope of the Project where the approach is also used for various fisheries management processes include the Gulf of California, Gulf of Mexico, Bering Sea and Gulf of Alaska, Great Barrier Reef (Australia) and Ortobello lagoon (Italy).

[15] FAO. Fisheries management. 2. The ecosystem approach to fisheries. 2.1 Best practices in ecosystem modelling for informing an ecosystem approach to fisheries. *FAO Fisheries Technical Guidelines for Responsible Fisheries.* No. 4, Suppl. 2, Add. 1. Rome, FAO. 2008. 78p.

[16] See footnote 33 and text in ANNEX 6.

[17] Five articles are listed on the Global NEWS webpage (see http://marine.rutgers.edu/globalnews/documents.htm).

approaches and principles agreed on in international collaboration such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD).

(iii) Efficiency

49. The cost-effectiveness with which the Project results were produced varied across components. Component 1 appears to have been less cost-effective; the currently available database (a list of names and contact details of some 100 GFEMN members), website and survey results seem in fact preciously little considering the amount of funds that were used. However, it should be noted that work may have been carried out that is not longer documented, e.g. originally a more extensive website and database were available but because of limited interest from GFEMN members and technical problems, the upkeep was discontinued.

50. The funding of workshops and training – including for the participants in the 4th World Fisheries Congress under Component 1 – appears generally to have been money well spent. In several cases, travel costs were co-funded by participants' projects or institutions. The GIS workshop (Component 2c) was organised in conjunction with an IW Learn workshop on "Sustainability of LMEs: Bridging the governance and socioeconomic gap". Such arrangements allowed for more cost-effective implementation.

51. The development and application of EwE and its associated model components have constituted an important part of FC/UBC's work programme for almost a decade through the implementation of the *Sea around Us project*. The implementation of the Project's EwE activities (Component 2a) was nested within the structure of the 'Sea Around Us' project and contributed additional support for workshops and model development with particular emphasis on developing countries and LMEs. The total financial contribution by the Project constituted only a few percent of the total 'Sea Around Us' project during its implementation period but thanks to synergy effects, the results could be more important than the level of funding may suggest. Component 2a of the Project would hence appear to have been implemented in a truly cost-effective manner, if accepting the Project outcomes as described above (see section *Attainment of Objectives and Planned Results*) with limited practical application so far.

52. Likewise, the Project activities on eutrophication modelling were closely related to the work of the Global NEWS task force, the new Nitrogen export model used being part of the overall Global NEWS model framework. A considerable amount of co-funding in the form of in-kind time contributions – most probably more than that formally accounted for – by Rutgers University staff and other Global NEWS task force members was provided to the Project. As for the EwE work of Component 2a, if accepting that Project results have not yet been applied to the extent alluded to in the Project Document, the implementation of Project Component 3 would appear to have been exceptionally cost-effective.

53. The role NOAA played as the technical and scientific coordinator of the Project is considered extremely important. The Project as a whole was in many ways integrated into the overall NOAA LME programme and in this way connected to a number of other activities, globally and in GEF/LME projects. NOAA played an important role in pulling Project results together and was instrumental in preparing documents for publication (see also paragraph 40, Table 1 and ANNEX 7). This integration of Project activities into the larger GEF/LME project context is likely to have created important synergy effects – also for the future – and hence have contributed to cost-effectiveness.

B. Sustainability

54. As in the case of cost-effectiveness, discussed above, the level of sustainability of Project results differ between components. Thanks to the general integration of Project activities into ongoing work programmes of the Project partners, the results from Components 2a (EwE) and 3 (Nitrogen

export) are likely to be good, while the limited outputs generated under Component 1 are probably less so.

55. The GFEMN, created under Component 1, does not appear to be sustainable. The current GFEMN members may however continue to be members of AFS, or of one of the national societies of the WCFS. The Project is also likely to have contributed to making AFS more open to and interested in developing country members and to making AFS more known in these countries, which could lead to increased future exchanges between scientists in developing and developed countries (see also remark in footnote 12).

56. The more important Project results will be disseminated through UNEP and IOC/UNESCO publications (see also paragraph 60 and Table 1) as well as probably also through other publications by Project partners and this may lead to an uptake by interested parties, e.g. GEF/LME projects, contributing to sustainability. However, there will be a need for continued *financial support* if Project results are going to become sustainable. Part of this financial support exists within the main partner organisations and the work on the EwE and Global NEWS models will also continue after the Project but with less focus on developing countries and LMEs. Since countries have not been directly involved as stakeholders in the Project (see also the section on *Country ownership / driveness* below), funding is likely to have to come from external sources such as GEF. Activities could partly be sustained from within existing GEF/LME projects but more concerted efforts could be needed in order to bring the modelling work forward and to promote the application of the results at the decision making and policy levels. It is the understanding of the TE evaluator that proposals for follow-up activities are, in some cases, already being discussed.

57. *Socio-political support* is a key factor as to whether the approaches developed by the Project will be adopted and applied. While both the EwE model and the Global NEWS framework are widely accepted and appreciated within the academic world, there are also other similar approaches available and the merits of the Project chosen approaches need to be communicated to decision makers. An assumption underlying this is that ecosystem-based fisheries management within an LME context continues to gain in acceptance among politicians and fisheries managers.

58. All fisheries management approaches are dependent on adequate *institutional frameworks and good governance* for successful outcomes. The existence of the GEF/LME projects as the main organisational unit for implementing ecosystem-based fisheries management in many coastal areas is an important advantage with regard to the sustainability of Project results. Some of the LME projects are in the process of achieving more permanent structures, e.g. the Benguela Current Commission is replacing the Benguela Current LME project this year and the Guinea Current LME is about to attain a similar status[18]. However, referring to the question of financial resources commented on above, also in these cases continued funding will be essential for building sustainability and this is likely to be the case in most regions of developing countries. Another institutional challenge, mentioned above in paragraph 39, is the lack of fisheries management capacity in many developing countries. The application of scientific approaches to fisheries/ecosystem management will require human and institutional resources that may not be available at present and a long-term commitment for supporting capacity building will be required.

C. Achievement of Outputs and Activities

59. As already mentioned above, while the Project may not have generated all the outcomes stated in the Project Document, it did produce a number of important outputs with potential to generate sustainable impacts in the future. Reviewing the planned contents of Components 1-3 (see ANNEX 9), it can be noted that all activities were implemented with the exceptions of the weaknesses concerning Component 1 already referred to above (see ANNEX 5 for more details) and in relation to component indicators 2b and 3b regarding the direct application of the EwE and Nitrogen export modelling approaches in GEF/LME projects.

[18] See also brief comments with regard to institutional context in paragraph 114.

60. Instead, some additional outputs were produced, not mentioned in the Project Document. The more important of these include the publication of two technical reports on the EwE modelling in 63 LMEs and on the Nitrogen export modelling, as well as inputs into a publication in the UNEP Regional Sea Studies and Reports: *UNEP Large Marine Ecosystems Report – A perspective on changing conditions in LMEs of the World's Regional Seas* (see Box 2). The Project also provided inputs, to different degrees, to other publications and articles[19]. Moreover, work has been carried out to develop a web portal facilitating access to LME resources and information. Under Component 1, the introduction of AFS membership for developing country national at a symbolic fee rate and free access to AFS publications for selected libraries in Senegal and Indonesia are worth mentioning.

    Table 1 gives a summary list of all main Project outputs by partner and component and more details are available in ANNEXES 5-8. The lists of participants from all the training events and workshops are included in ANNEX 10.

61. Generally, the Project outputs of Components 2 and 3 were of excellent quality. EwE is widely known and carries substantial scientific authority and credibility among scientists; it is one of the major approaches for ecosystem modelling. The Nitrogen export / Global NEWS modelling work also appears to have an excellent international reputation. Both these could influence policy and decision makers in the future (see also paragraph 47).

Table 1: Summary list of Project outputs by partner and component

Output	***Main partner(s)***
Special developing country membership in AFS established through the Global Fisheries Ecosystem Management Network (GFEMN) (107 members)	AFS/WCFS (component 1)
Access to AFS journals to selected libraries in Indonesia and Senegal established	AFS/WCFS (component 1)
Developing country nationals AFS membership at nominal fee introduced	AFS/WCFS (component 1)
33 participants to 4th World Fisheries Congress and related workshops supported	AFS/WCFS (component 1)
Carrying capacity – Ecopath with Ecosim (EwE) – models for 63 LMEs developed, and • Training of 110 scientists in EwE modelling carried out • Web-based database making the EwE LME models available on-line • IOC/UNESCO technical report on the LME models and analyses: *Models of the world's large marine ecosystems* to be published	FC/UBC (component 2a)
FAO catch statistics updates for 64 LMES, including: • 54 years of catch statistics (reported landings by species) organised by	FC/UBC (component 2d)

[19] Work mentioned to the TE evaluator by Project partners included:
Stock, C.AS, Powell, T.M and Levin, S.A. 2008 *in press*. Bottom–up and top–down forcing in a simple size-structured plankton dynamics model. *Journal of Marine Systems.*19pp.
Sherman, K. and Duda, A. 2007. A Global Approach for Recovery and Sustainability of Fisheries in Large Marine Ecosystems. Fisheries Volume 32 No 7, July 2007.
In addition, a second related article published in PICES for the Asia-Pacific Region (January 2008) and manuscripts being prepared by Rutgers were also referred to. However, it should be noted that the TE evaluator only had access to the main parts of the draft UNEP report and the Stock *et al* article and has hence not been in a position to judge the links between the work and the Project in detail.

half-degree lat.-long cells (biomass, volume) • 54 years of catch statistics (reported landings by species) organised by half-degree lat.-long cells (value) • Foot print analysis carried out: primary production required to sustain fisheries within LMEs • Marine trophic index (MTI) and fishing in balance index (FIB) calculated • Stock-catch status plots by LME produced • Catch graphs for Arctic LMEs not fully reported on in FAO statistical area No 18 developed	
Land-based nutrient loading to LMEs: loadings quantified and main sources identified by LME, and • 11 scientists trained in Global NEWS nitrogen export model • IOC/UNESCO technical report on the LME models and analyses: *Filling gaps in LME Nitrogen Loadings Forecast for 64 LMEs* to be published	Rutgers (component 3)
Particle size spectra model potentially suitable for LME assessments developed (workshop with 34 participants whereof 8 from developing country LMEs)	Princeton (component 2b)
GIS training carried out for 18 participants, including 11 from LMEs	URI (component 2c)
LME web portal developed including future links with AFS and WCFS membership.	URI/NOAA (component 2c)
Contributions (including catch statistics update and Nitrogen export calculations) to the UNEP Large Marine Ecosystems Report *A perspective on changing conditions in LMEs of the World's Regional Seas* (UNEP Regional Seas Studies and Reports No 182) to be published (see Box 2).	FC/UBC, Rutgers and NOAA (components 2d and 3)

Box 2: UNEP Large Marine Ecosystems Report – A perspective on changing conditions in LMEs of the World's Regional Seas

The results of the GEF/LME projects (see Box 1) together with LME research have been reviewed in a number of regional and global meetings over the years. Fourteen volumes have been published (by NOAA) on the status of and issues in LMEs across the world. These results have now been summarised and consolidated together with research outputs from the Project and other activities and will be published in a UNEP Regional Seas report: *UNEP Large Marine Ecosystems Report – A perspective on changing conditions in LMEs of the World's Regional Seas.* The report provides the following information on LMEs:

- Chlorophyll and primary production
- Fish and fisheries, based on a 50 year time series of landings, trophic levels of catch and value of catches
- Changing conditions affecting pollution and the general health of LMEs
- Profiles of socioeconomic conditions related to marine resource variability in abundance and availability
- Descriptions of governance and management regimes operating in each of the LMEs

The document provides new insights and information on LMEs adjacent to developing countries and economics in transition in Africa, Asia, Latin America and Eastern Europe. It also contains summary reports on Fish and Fisheries Diagnoses, the Status of Global Nutrient Over-enrichment and the Effect of Global Climate Warming on Fisheries Biomass Yield.

Source: NOAA LME Programme

D. Catalytic Role

62. The Project was designed to play a catalytic role and for supporting GEF/LME projects in the development and implementation of scientifically sound approaches to ecosystem-based fisheries management. Unfortunately, as mentioned earlier, the database and network activities of Component 1 did not produce the results hoped for and the results of the other components have not yet been brought into wider application. Nevertheless, the catalytic potential of the main Project outputs remain and would appear likely to be realised in the future. The TE evaluator was also informed by NOAA that the outputs already contribute positively to the GEF IW portfolio, the proposed UN Global Marine Assessment, the Assessment of Assessment process and the Transboundary International Waters Assessment although this information was not substantiated by written evidence.

63. The Project made use of existing approaches and structures, developing and adapting them to the needs of GEF/LME projects. The EwE, Nitrogen export and particle size spectra modelling approaches existed already but had generally not been adapted to developing countries and the LME management context. The Project worked more closely with some GEF/LME projects – through the participation of individuals from LME regions – but also developed basic models and information for all 64 LMEs in the world. As mentioned in paragraph 40 above, these Project results constitute tools that can be used for further work by individual LMEs or as a basis for global analyses and studies.

64. In order to capitalise on the catalytic potential of Project outputs, these – in particular the UNEP and IOC/UNESCO publications (see paragraph 60) – need to be disseminated as widely as possible to the key target audience of policy and decision-makers and managers involved in or having an influence on ecosystem, fisheries and LME management and be supported by outreach activities. Follow-up activities, both with regard to replication (additional training and workshops) and more direct support to their application at the LME level would also be important.

E. Assessment Monitoring and Evaluation Systems

65. The Project Document included some provisions for M&E and Component 4 was defined for this purpose, stating the following:

    "*The Steering Committee will oversee the implementation of the project and will regularly meet to review progress. Monitoring and evaluation indicators will be established and used to guide implementation of the project and evaluate its success. Quarterly progress reports will be provided to the Project Steering Committee. Final evaluation of the project carried out independently and under the oversight of UNEP's Evaluation and Oversight Unit. Final report will be submitted to GEF*."

    Page 20 of the Project Document gives further guidance for how to establish an M&E plan including indicators and procedures for monitoring.

66. While PSC meetings did take place – although not always in a regular and systematic manner – and the Project is now subject to a final evaluation, a systematic approach to M&E was lacking; the detailed M&E plan as specified in the Project Document did not materialise and funds initially made available for M&E were reallocated to other activities (except for the current TE). During the first part of the Project, progress reports were not submitted in a systematic manner. The shortcomings of the Project Document logframe and indicators have already been mentioned (see the section on *Project Design* above).

67. At the beginning of the Project, PSC meetings were organised by AFS and several meetings were held, some of which took place over the phone. Later on in the Project, fewer meetings appear to have been held; the last one took place in January 2008. Still, the frequency of meetings and discussions was higher than what had been planned for in the Project Document which suggested annual meetings. However, meetings were less formal and did not appear to have had a clear role in reviewing work plans, budgets etc. Minutes from some of the meetings are available but not from all. The members of the PSC included GEF, UNEP and the main Project partners. The

potential additional members with social science and developing country expertise – proposed in the Project Document (see paragraph 13) – were not invited.

68. No progress reports are available from the first year of the Project and only partial reports for the second year. It should however be noted in this context that GEF Minimum M&E Requirements only came into effect after the Project had been approved. From 2007, UNEP-GEF half-yearly reports, Project Implementation Reports (PIR) and GEF IW reports were produced and all Project partners have submitted final reports. Some partners also submitted reports during the earlier stages of the Project that were sent to and reviewed by UNEP. However, the quarterly reports referred to in the Project Document that were to be provided to the PSC were not submitted. Moreover, the reports that did exist failed to draw attention to the lack of progress towards attaining objectives. The TE evaluator did not either come across any documentation supporting the change of focus of the Project as spelled out in paragraphs 21-22.

69. The Project was reported on in the annual meetings of the Consultative Committee meetings organised by IOC, UNEP, the World Conservation Union (IUCN) and NOAA in Paris. These meetings are important in getting GEF/LME project representatives together and exchanging experiences and ideas. Several Project partners have also participated in recent meetings.

70. The lack of a formalised M&E system may have been symptomatic of the Project design and structure. The Project consisted of a number of independent Project components implemented through Project partners working under contract with IOC/UNESCO and it did not have any Project specific infrastructure, staff or management unit. There was no formal overall work plan; instead partners worked according the contents of their individual contracts. As explained earlier (see also ANNEX 6), NOAA filled the role as technical and scientific coordinator and in many ways also monitored Project implementation, supported by IOC/UNESCO as the Project executing agency. This monitoring was carried out in a pragmatic way and Project implementation was adapted as seen necessary, e.g. with regard to the additional deliverables referred to in the section on *Achievement of Outputs and Activities* above. However, from a TE point of view, the problem is that what happened was not always documented.

71. IOC/UNESCO was responsible for the day-to-day administrative and financial management of the Project. Financial reports appear to have been submitted regularly from the beginning of the Project. One concern noted by the TE evaluator was that invoices submitted by partners appear to have contained only minimal information on how funds had been used and no supporting documentation (receipts, time sheets, etc) was required (see also section on *Financial Planning*). Referring to the section on efficiency and cost-effectiveness (see page 21), questions could possibly be asked with regard to the use of funds under Component 1 (for the survey, and database and network development), particularly the reported co-funding, but there was insufficient documentation available for the TE evaluator to make a reliable judgement in this respect.

72. In summary, the M&E was a clearly weak part of Project implementation. This situation seems to have been related to the issues discussed above with regard to overall Project Design and also the general structure of the Project. It is also noted that the Project suffered from a lack of continuity with regard to staff both in IOC/UNESCO and UNEP[20] with a disruptive effect on Project monitoring as a result. It is difficult to judge whether the results of the Project would have been much different if there had been a formal and more rigid M&E system in place. The difficulties under Component 1 could possibly have been given attention at an earlier stage.

F. Preparation and readiness

73. Project design and issues related to the Project Document have already been discussed above; objectives were not realistic and there was a mismatch between expected outcomes and planned activities. With regard to the selection partner organisations and their capacities and resources, the choices made would appear to have been excellent for Component 3 (Rutgers) and also mainly for

[20] The IOC/UNESCO officer in charge of the Project tragically passed away and the initial UNEP project task manager resigned.

Component 2 (components 2a, 2b and 2c; FC/UBC, Princeton and URI). In particular FC/UBC and Rutgers, considering their already advanced work programmes on the subject matters at hand, were particularly well placed to carry out the activities assigned.

74. With regard to Component 1, AFS is a solid organisation with a long history, publishing a number of highly esteemed academic journals and coordinating the organisation of the World Fisheries Conferences. The reasons for not achieving the results planned under Component 1 are probably not attributable to the capacity of WCFS/AFS as such, although their apparent lack of experience from working with development type of activities may have played a role.

75. The NOAA LME Programme, already the hub of the world's LME projects and activities, must certainly be considered the right choice for coordinating Project activities. This role should however have been spelled out more clearly in the Project Document; the document gave the impression that AFS would play a main role in Project coordination and the change in responsibilities does not appear to be documented in progress reports of PSC meeting minutes. IOC/UNESCO also seems to have been highly suitable as the Project executing agency. However, the Project was in many respects not a conventional project and, for example, lacked – as mentioned above – its own staff and a well-defined management structure (see also the section on *Implementation Approach* below).

G. Country ownership / driveness

76. The way the Project was designed and structured, ownership was mainly with the Project partners and also to some extent with the GEF/LME projects that were consulted with regard to selection of participants for training and workshops. Countries were presumably involved indirectly through their involvement in other GEF/LME projects. Considering the research-oriented characteristics of the Project, it cannot be described as driven by country governments. However, when the Project results are disseminated and in combination with the continuing increasing recognition of the importance of ecosystem-based approaches to fisheries management, it is possible that new requests for collaboration and work based on the Project achievements will be launched, from regional projects and national governments.

H. Stakeholder Participation / Public Awareness

77. The Project primary stakeholders and beneficiaries were the participants in training events and workshops. Participants were generally selected according to professional criteria and with the help of GEF/LME project managers[21]. They were mostly scientists from countries participating in GEF/LME projects but the extent to which they were directly involved in LME project management seems to have varied. The TE evaluator interviewed three GEF/LME project staff (Benguela Current LME, Guinea Current LME and South China Sea/Gulf of Thailand) and in two instances it was felt that a different trainee selection, i.e. more practitioners and managers, would have benefited the projects better. However, considering the requirements from a scientific and professional point of view, at least for some of the workshops, it may have been difficult to include those closely involved in project management.

78. Project partners directly involved in Project implementation were also important Project stakeholders, as well as the GEF/LME projects that the Project aimed to support. The ultimate stakeholders – in relation to the outcomes and desired future impacts – are the populations dependent on the living marine resources in coastal areas where ecosystem-based fisheries management approaches and LME approaches are applied. However, for this type of research project, direct involvement of this larger more general stakeholder group could not be expected.

79. The TE noted that the training courses were given in English and material produced by the Project was only available in English. This could potentially have limited the Project's relevance to, for example, French speaking countries in West Africa (Guinea Current LME). This suspicion was

[21] The way by which participants in training events were selected is described in ANNEXES 4-7 on the different Project Components.

supported by the fact that French turned out to be the preferred language of communication when the TE evaluator carried out a telephone interview with a representative of the Interim Guinea Current Commission (see ANNEX 2).

80. The Project components and activities were implemented almost entirely independently from one and other. There were few links between Project partners, except for contacts with NOAA as the coordinator and in PSC meetings. Also, it appears that the different Project activities – in particular the workshops – were seen as more or less independent entities under the ownership of the individual Project partners and/or related to the overall support provided by NOAA; awareness of the Project as such appeared limited among the GEF/LME project representatives interviewed by the TE evaluator. This does not necessarily constitute an issue but relates to the structure of the Project and how it was managed (see also *Implementation Approach* below).

81. Considerable efforts have been and continue to be made by UNEP and Project partners to publish the results produced by the Project, in particular through the publications mentioned in paragraph 60. The Project technical reports and the UNEP document have the potential of reaching a large audience through the IOC/UNESCO and UNEP memberships and networks. At the time of the TE, the plan was however to only publish these documents in English which could limit the outreach in French (and Spanish) speaking countries.

I. Financial Planning

82. A summary of the Project budget was presented in paragraph 14 above and more detailed tables are included in ANNEX 11 (*Project Financial Statement)* and ANNEX 12 (*Co-funding and leverage resources)*. Although there have been a few budget revisions, significant changes in the planned use of GEF funds have not taken place except for with regard to M&E; funds for Component 4 were decreased from USD 44,500 to USD 25,500 and the only M&E activity directly funded by the Project budget is the current TE. This situation would appear to be commensurate with the noted weaknesses of Project M&E (see above).

83. Component 3 shows the most important funding change with an increase of expenditures over original budget with 15 percent, mainly used for reports and workshop activities but with less spent on equipment (computer rental). While a 15 percent overspending could be considered significant under certain circumstances, the TE evaluator does not see any reason for concern in this case; the change is likely to be due to an initial misjudgement of certain costs and the production of the technical outputs.

84. During the first year of the Project, there were delays in the establishment of contracts and in the transfer of funds to Project partners. The difficulties in establishing contracts – due to (IOC/UNESCO) administrative rules and the need for clarifications on behalf of partner organisations – caused an overall delay in Project implementation but this is not likely to have significantly affected the end results. Project partners were in a position to advance the necessary funds in order to complete activities and hence ensure delays did not become detrimental.

85. As mentioned earlier, there have been 'no-cost' extensions of the Project to compensate for the delays, i.e. the overall budget of the Project was not increased but merely reallocated in time. However, by extending the Project by one year, indirect management costs may have been incurred by UNEP and Project partners for staff that continued to spend time on the Project but these costs do appear in Project financial or other reports.

86. Apart from some question marks with regard to cost-effectiveness – in particular considering Component 1 and the reported co-funding (already mentioned above; see paragraphs 49 and 71) – the TE evaluator did not find any particular concerns with regard to the use of funds. However, the financial reports required by the partner organisations seemed to be somewhat lacking in detail. According to IOC/UNESCO, receipts or detailed breakdowns of how money had been spent were not required. Hence, the TE evaluator could not make an assessment with regard to the use of funds by WCFS/AFS; only one line explanations on invoices supported the expenditures. IOC/UNESCO did however not express any concerns with respect to the use of funds and the TE

evaluator does thus not have any reason to suspect unwise financial decisions with the possible exception of Component 1; money seems to have been well spent under Components 2 and 3.

87. The co-funding has been provided as planned with the exception of NOAA – US$ 40,000 less than anticipated in the Project Document – and WCFS/AFS reporting US$ 110,000 more than originally foreseen. It was not clear to the TE evaluator why these divergences occurred; in the case of NOAA, it could be that a final co-funding report had yet to be submitted to IOC/UNESCO. In the case of WCFS/AFS, the additional expenditure is more puzzling and no explanation was found.

88. The Project was not audited but included in the overall IOC/UNESCO audits taking place on a regular basis. A financial statement – updated at the time of the TE – and a summary of the co-funding are included in ANNEX 11 and ANNEX 12, respectively.

J. Implementation Approach

89. As mentioned in paragraph 72, the Project did not have a formal management unit and dedicated staff. Instead, the Project was implemented by contracting – through the executing agency IOC/UNESCO – institutions with specialist competence in the technical and scientific subject areas. This was in line with Project design and general practice for this type of Project; the Project Document did not outline any particular project management arrangements in this respect[22].

90. It would seem that most Project partners, including NOAA, had relatively limited experience in implementing development project type of activities. To the knowledge of the TE evaluator, NOAA acts as an advisor to most – if not all – GEF funded LME projects but does generally not get involved in direct project implementation. It is hence likely that Project partners were not familiar with the progress and impact monitoring principles that are commonly used in donor funded technical cooperation projects and the importance of the Project Document, logframe and indicators in this respect. Partners tended to work closely according to their contracts with IOC/UNESCO and without necessarily viewing their work in the larger context of the Project and its objectives.

91. The weaknesses of Project M&E and how the PSC functioned have been discussed above in the section on *Assessment Monitoring and Evaluation Systems.* In addition, the role of NOAA has been discussed above (e.g. paragraphs 11 and 30, and ANNEX 7). NOAA coordinated the technical and scientific aspects of the Project within the context of its wider involvement in GEF/LME projects and applied adaptive management as seen fit in this context. Considering the design and structure of the Project, this mainly consisted in ensuring the production of the additional outputs mentioned in paragraph 60. There was also a change in partner for carrying out the work under Component 2d (catch statistics update for 2000 and completion of 11-year LME time series) from FAO to FC/UBC.

92. As discussed in the section on M&E above, formal Project work plans were not established. Instead Project activities seem to have been outlined in the partner contracts and the activities specified in the Project Document appear to have been fairly strictly followed for Components 2 and 3, although the outcomes and wider impact at objectives level were not always achieved (see the section on *Attainment of Objectives and Planned Results* above). It is not clear what management actions were taken to improve the implementation performance of Component 1 in addition to discussing Project progress in PSC meetings and in direct contacts with WCFS/AFS. It should also be noted that the changes in Project focus and implementation arrangement do not seem to have been documented.

[22] The establishment of a Project Secretariat is mentioned under Component 1 in the Project Document but without further explanations. With the change in priorities and role of WCFS/AFS – mentioned in the sections on *Limitations of the TE and comments on the TOR* and *Project Design* above – such a project management unit was not developed and overall coordination was instead ensured by IOC/UNESCO and NOAA.

K. UNEP Supervision and Backstopping

93. The role of UNEP as the implementing agency is one of oversight and supervision. Whilst not actually undertaking activities, the implementing agency is involved in reviewing the operational and execution aspects and ensuring that progress is acceptable. UNEP participated in most PSC meetings; prepared financial reports to GEF based on information from IOC/UNESCO and consolidated progress reports to GEF during the later part of the Project[23].

94. Considering the concerns with regard to Project design, weaknesses in M&E and the lack of an overall work plan and initial progress reports, it might have been expected that UNEP – in its role as implementing agency with the responsibility to track risks and other issues affecting project implementation and achievement of project objectives – would have paid closer attention to the Project at an early stage. It would have been opportune to have revised the Project design and indicators and developed an M&E plan and the initiative for this would presumably have been the responsibility of the implementing agency. It should be noted that, at the time of the TE, it was difficult to get a clear picture of what had happened early on in the Project since the UNEP Task Manager changed in 2007. Additionally, the person responsible for the Project in IOC/UNESCO had recently changed (see also paragraph 72 and footnote 20).

[23] Progress reports are incomplete from the first part of the Project (see paragraph 68).

3 CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNT

Summary of Findings

Overall rating

95. Referring to the criteria against which Project implementation success should be measured, reviewed in the previous chapter, the overall rating of the Project is *Moderately satisfactory.* The reason for not giving the Project a higher rating is related mainly to the weaknesses of Component 1, the, as yet, limited application of Project results in LME fisheries/ecosystem management and the shortcomings with regard to Project M&E. Table 2 gives the breakdown of this rating and the sections below includes a summarised narrative of the TE findings.

Project Design

96. The project document and the logframe were found to be lacking in clarity. In particular, the logframe indicators are poorly formulated and not particularly useful for progress monitoring purposes. It would have been useful if the Project Document had been revised at an early stage to better reflect the actual situation.

97. The Project was clearly research-oriented and although the practical application of modelling results was referred to in Project objectives and outcomes, Project activities and resources were not adequately included to support this ambition. It would appear that the Project was based on an assumption that research results could be transferred to the management and policy level through training and networking while, in reality, more focused and targeted actions are needed to achieve this bridging between science and LME project implementation.

98. Having said this, the Project did implement most of its planned activities satisfactorily and produced some impressive outputs in the form of modelling results at the global LME level. It is likely to have an impact in the future and the Project is part of a much wider process towards more sustainable and ecosystem-based fisheries and coastal zone management. This type of research-oriented projects is fairly rare and within the GEF/LME portfolio it is the only example of a science-based project. Project achievement should hence be seen in this broader context. However, the Project design failed to accurately reflect this situation.

Project Performance

(i) Major Achievements and Strengths

99. Overall, the project produced some unprecedented outputs with regard to information and modelling results at an LME level, i.e. historical catch and landings data, EwE modelling and Nitrogen export forecasts. This work was performed by first class institutions and the results are of high scientific quality (see also Box 3).

100. Main Project strengths included the partnerships with academia in the relevant fields of expertise. Project activities with regard to ecosystem modelling and eutrophication calculations and forecasts were nested within wider global programmes in these areas. The cost-effectiveness and sustainability of Project achievements benefited from this approach.

101. Another strength of the Project was the involvement of NOAA as the technical and scientific coordinator (although in a somewhat informal manner). With this arrangement, the coherence and linking of Project results with other LME related initiatives could be ensured, and will continue to be so in the future.

102. The Project is in the process of publishing two high quality documents and has significantly contributed to another key report. In this important area of outreach and awareness creation, the Project is likely to generate benefits for LME management in the near future when the publications are disseminated and utilised.

Box 3: Importance of Project outputs

"The Project has been instrumental in bringing together key partners to focus on important research gaps relative to enhancing the utility of the LME approach to the assessment and management of coastal ocean goods and services, i.e.:

- *The FC/UBC group produced the first value-added product to marine fisheries catch data by restructuring in a quantitative and reproducible manner 53 years of mean annual marine fisheries catch, value, trophic indices, and fisheries condition with regard to exploitation level. This was an enormous challenge that was indeed met on schedule and provided for the first time multi-decadal profiles of the world's LME fisheries representing 80% of the mean annual global landed product.*
- *The FC/UBC team also successfully trained scientists from the participating LME countries in the application of the forward looking EwE models, providing for the first time estimates of sustainable marine fisheries carrying capacity for 63 of the 64 LMEs, excluding the ice-covered Arctic Ocean LME.*
- *The team at Rutgers provided for the first time at the LME management scale estimates of the amount and sources of coastal-LME nutrient over-enrichment (e.g. sewage, fertilizers, atmospheric deposition, manure, natural fixation, and agricultural fixation). This is an extraordinary result for all 64 LMEs and its importance cannot be overemphasized as these results form the basis of actions to mitigate the over-enrichment problem for each LME and collectively for the world.*

Accordingly, the results must be considered highly significant contributions of first class science that will serve now and in the immediate future as the basis for mitigating actions to be taken by LME project managers to reduce over fishing, recover depleted stocks, and reduce over-enrichment through actions to be implemented by LME management authorities."

Ken Sherman, NOAA LME Programme

(ii) Weaknesses

103. The objectives and outcomes of the Project Document logframe have largely not been attained with regard to the practical application of the scientific approaches developed by the Project in fisheries/ecosystem management by LME projects and developing countries. However, the results produced by Components 2 and 3 may contribute to enhanced management decisions and actions in the future.

104. While the achievement with regard to Components 2 and 3 were excellent from an output point of view, the results of Component 1 were somewhat disappointing. The network, database and survey results that were supposed to serve as important inputs into a capacity building process in developing countries failed to materialise at the expected level. The reasons behind this situation are not completely clear but are likely to relate to a misjudgement of the level of interest among developing country scientists to participate in the proposed activities and inexperience, on behalf of WCFS/AFS as the implementing partner, of working with development cooperation activities.

105. The Project lacked a dedicated management structure and did not have its own staff. Instead it operated through contractual arrangements with key partner organisations, which is a normal arrangement for this type of project. While the set-up could be considered an advantage from a cost-effectiveness and sustainability point of view (see paragraph 100), it could be speculated that if a more explicit and stringent project management system for the Project had been in place, corrective actions could maybe have been taken and better results produced from Component 1 as well as with regard to the practical use of Project outputs.

106. There was virtually no structured M&E system in place for the Project. PSC meetings were held and NOAA discussed progress regularly with Project partners. However, these processes were poorly documented; there are some minutes from PSC meetings – but not from all – and formal progress reports are missing from the first period of operation. Moreover, the progress reports that do exist fail to identify the shortcomings of Project implementation (e.g. Component 1) and the difficulties in attaining Project objectives. The divergences from the Project Document and change of focus are not documented and gives the impression of a serious lack of transparency.

107. The stakeholders of the Project included the individual scientists participating in and directly benefiting from the workshops and training events. Other stakeholders included the partner organisations carrying out the activities and the GEF/LME projects that were intended to benefit from Project results. However, it would appear that while partner organisations were directly involved and also influenced the focus of Project activities, individual countries in LME project regions were generally not engaged and the Project was not country driven in this sense. The GEF/LME projects were generally consulted with regard to the selection of participants for training courses and workshops but it seems that there was still often a disconnect between the scientists trained and project management, i.e. the trainees were not always closely enough involved in LME management to be able to implement their new skills in practice.

108. The role of UNEP in the oversight and supervision of Project management and implementation was weak, although more involvement is noted for the later part of the Project. Considering the design concerns and the lack of an M&E plan, it could have been expected that UNEP as the implementing agency would have taken action to rectify these shortcomings early on. It is however recognised that the changes in staff in IOC/UNESCO and UNEP may have had a disruptive effect on Project monitoring.

109. Table 2: Overall ratings table

Criterion	Evaluator's Summary Comments	Evaluator's Rating[24]
A. Attainment of project objectives and results (overall rating) Sub criteria (below)	While the Project produced some excellent outputs, there is little evidence that these are yet applied in fisheries/ecosystem management. Moreover, only limited results were produced under Component 1. Nevertheless, the excellent outputs of Components 2 and 3 and the likelihood of these to be taken up in the medium or longer-term justify a positive rating.	MS
A. 1. Effectiveness	Although there is good potential for future use of results from Components 2 and 3, rating cannot be higher than MS due to weakness of Component 1.	MS
A. 2. Relevance	Project results are generally relevant to global ecosystem-based fisheries management agenda.	S
A. 3. Efficiency	Work under Components 2 and 3 was cost-effective but not under Component 1.	MS
B. Sustainability of Project outcomes (overall rating) Sub criteria (below)	Project results from Components 2 and 3 are generally considered sustainable from all aspects (B1, B2 and B3) while Component 1 results are not.	ML
B. 1. Financial	Financial support is expected to be available to support sustainability of results from Components 2 and 3.	ML
B. 2. Socio Political	The general acceptance and support for ecosystem-based fisheries management is increasing.	ML
B. 3. Institutional framework and governance	The existence of a large number of GEF/LME projects and NOAA as a technical coordination hub supports institutional sustainability. The way Components 2 and 3 were nested in overall work programmes of FC/UBC (Sea Around Us project) and of Rutgers (Global NEWS task force) are supporting sustainability.	L
B. 4. Environmental		N/A
C. Achievement of outputs and activities	Outputs were not produced as planned under Component 1. On the other hand, outputs from Components 2 and 3 were of high quality and high strategic relevance to GEF IW and to ecosystem/fisheries management. Moreover, additional outputs were generated under Components 2 and 3.	S
D. Catalytic Role	The catalytic potential of Project outputs (2 and 3) remain and would appear likely to be realized in the future.	MS
E. Monitoring and Evaluation (overall rating)	There was no structured M&E plan for the Project and Project management and implementation decisions were often not documented leading to a general lack of	MU

[24] For explanations of ratings, see Annex 1 of the TE TOR in ANNEX 1.

Criterion	Evaluator's Summary Comments	Evaluator's Rating[24]
Sub criteria (below)	transparency.	
D. 1. M&E Design	Indicators (only available in Project Document logframe) were poor and not used for effective progress monitoring.	U
D. 2. M&E Plan Implementation (use for adaptive management)	Only incomplete progress reports were submitted during first couple of years. PSC meetings and informal monitoring took place but were poorly documented. Still, a certain degree of adaptive management was applied.	MU
D. 3. Budgeting and Funding for M&E activities	Budget for M&E only used for TE. Funds available for PSC meetings (under separate budget line).	MU
F. Preparation and readiness	While objectives and outcomes were not realistic overall, the planned activities were Components 2 and 3 were well planned. The choice of implementing partners for Components 2 and 3 was excellent. Project management arrangements were not clearly spelled out prior to Project implementation.	MS
G. Country ownership / driveness	Because of the Project's research focus and structure, direct country involved was limited and ownership by GEF/LME projects relatively weak. However, when Project results (Component 2 and 3) are disseminated, more direct involvement can be expected.	MS
H. Stakeholders involvement	Strong involvement by Project partners in individual Project components but less so by other stakeholders, e.g. GEF/LME projects.	MS
I. Financial planning	Possible concerns with regard to the use of funds under Component 1 but no evidence of deficient financial management.	MS
J. Implementation approach	The design of the Project did not include dedicated project management or staff; the Project operated subcontracting partners which appeared to be an adequate approach in particular for Components 2 and 3 (as well as coordination by NOAA).	MS
K. UNEP Supervision and backstopping	At the beginning of the Project, UNEP appears to have played a minimal role in Project oversight, failing to note and revise Project design and indicators and ensure that an M&E plan was in place. However, some of the difficulties were due to staff turnover.	MU

Recommendations

Lessons Learnt

110. If and when embarking on a similar Project, i.e. a research-oriented initiative with a view to develop scientific information and approaches in support of ecosystem-based fisheries management in LMEs, the following should be kept in mind:

- There is a need for appropriate project management and systematic M&E. Even if a project consists of relatively separate components that can be implemented more or less independently, it would be important to have an overall project coordinator with clear management responsibilities and who can exercise adaptive management, prepare workplans and suggest budget revisions. It is the responsibility of the implementing agency to ensure that an adequate structure and procedures are in place.
- Systematic M&E procedures should be applied in the context measuring the success of training events and workshops in relation to the objectives of such events. By evaluating the use and application of new skills by participants post-training, guidance can be obtained as to how to make capacity building as effective as possible.
- When working with partners that are not familiar with international development procedures or the planning and reporting requirements of UNEP (or other agencies), the implementing agency has to provide sufficient information – or evening training – to ensure that all involved understand and are able to adequately participate in progress monitoring according to prevailing requirements.
- The closer the collaboration with project managers and decision-makers at the country level and in the field the better the chances that project results are taken up and used in management. GEF/LME project managers and country representatives should be involved from the beginning in project design in order for their needs to be reflected in project activities.
- Adequate resources and activities need to be included for "bridging the gap" between science and practical implementation. It is not sufficient to train only scientists but opportunities have to given for scientists and politicians, managers and others to interact, the scientific results need to be promoted and direct support for local implementation of new approaches need to be ensured.
- Disseminating results widely and paying special attention to reaching key target audiences is important to create awareness and solicit support also from secondary stakeholders and the general public. This may be particularly important with regard to a subject matter such as ecosystem-based fisheries management in an LME context that requires interdisciplinary and cross-sectoral collaboration and that is still a relatively new concept. Publishing reports in series that are widely distributed is essential in this respect. It is also important to publish results in a format and in a language that are suitable for the intended audience.

Recommendations

111. Referring to the last point made above regarding publications and target audiences, it is recommended that the two technical reports to be published by the Project (*Models of the world's large marine ecosystems* and *Filling gaps in LME Nitrogen Loadings Forecast for 64 LMEs*) be published also in French and possibly Spanish. In this way, a larger audience in French speaking West Africa, and in Latin America, would be reached.

112. All GEF/LME projects should be provided with detailed information on the Project results, including lists of the participants in their regions that participated in the workshops and training

events. A workshop could also be organised to discuss the results of the Project and how these can be taken further in practice.

113. The outcome of such a meeting – that could possibly be held in conjunction with the annual IOC-UNEP-IUCN-NOAA Consultative Meeting on LMEs – could form the basis for a request for a follow-up project focusing on bridging the science-management gap. It would appear important to capitalise on the important results achieved at the output level by promoting their wider application. It would be important that a follow-up project proposal be based on consultations with GEF/LME projects with regard to their needs and desires in order to maximise the benefits at the practical LME management level.

Final Remarks

114. The Project was obviously based on the assumption that the LME concept is the most suitable unit for coastal and continental shelf fisheries/ecosystem management. While the validity of this assumption is not questioned, there may be a need in general to review and consider how the LME unit fits into the larger institutional picture and how projects like the one currently being evaluated can also contribute and influence at other levels. In Africa, for example, there are now several GEF/LME projects among which two have developed into permanent LME commissions (Benguela Current and Guinea Current). There are also the Abidjan and Nairobi Convention Secretariats[25] and Regional Fisheries Bodies. It would appear important that projects working to support ecosystem-based fisheries management approaches liaise and collaborate with all relevant stakeholder organisations.

115. Changes take a long time and major paradigm shifts even longer. The ecosystem-based fisheries management concept is still fairly recent and its implementation at a global level is, in reality, still in its initial stages. In many developing countries, the capacities and capabilities even for conventional fisheries management remain limited and to implement ecosystem-based fisheries management approaches entails additional challenges, even more so since these approaches are still under-developed in industrial countries. This Project made important contributions to improving the scientific basis for ecosystem-based management in LMEs. It may not have had a great visible impact yet, but together with other initiatives and efforts, it will help promote more sustainable fisheries and ecosystems for the benefit of current and future generations.

[25] *Convention for the Cooperation in the Protection and Development of the Marine and Coastal Environment of the West and Central African Region* and *Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region*.

ANNEX 1: TERMS OF REFERENCE OF THE TERMINAL EVALUATION

Terminal Evaluation of the UNEP GEF project GF/3010-04-06 (GFL-2328-2732-4768) "Promoting Ecosystem-based Approaches to Fisheries Conservation and Large Marine Ecosystems (LMEs)"

1. PROJECT BACKGROUND AND OVERVIEW

Project rationale

The project was to support capacity building in developing countries and countries with economies in transition through the transfer of advanced methods, practices and tools for eco-system based fisheries management. This was to be accomplished by participation in the 4th World Fisheries Congress which was to be held in May 2004, interaction with world fisheries experts, interaction and expertise sharing through participation in training courses, workshops, and follow-on in-country workshops and transfer of information via electronic networking. At the time of approval of the project, more than 70 countries were involved in the implementation of the GEF/LMEs projects. The project was to strengthen the capacities of the participating countries by providing necessary training and building scientific capacity in ecosystem-based fisheries assessment and management, by encouraging information sharing and networking amongst the participants to the Fisheries congress and though active involvement in the follow-on electronic networking and in-country workshops.

The objective was stated as:

"To support participation in the Congress and its courses, workshops, and the follow-on networking of fisheries professionals from countries participating in the development and implementation of GEF/LME projects and other developing countries and countries with economies in transition. The project will serve to strengthen capacity for improving fisheries management at local, provincial and national levels through a holistic approach by facilitating sharing and applying usable knowledge and successful practices from the Congress and follow-on workshops and networking.'

The indicators given in the project document for the objectives were:

- Increased dissemination of lessons learned through the establishment of a collaborative network of trained developing country fisheries scientists, managers, extension professionals and policy makers to promote sound, scientific approaches to fisheries sustainability and management with an emphasis on the large marine ecosystems of developing countries. Application by developing countries of advanced fishery assessments that include food web and nutrient effects considerations in management decision making;
- Consultative and collaborative network between developed and developing country fisheries experts sharing lessons on fisheries management within the context of the ecosystem approach;

- ECOPATH/ECOSIM food-web modelling results adopted in at least 10 countries involved in the implementation of the GEF/LMEs projects for management actions supporting recovery of depleted fish stocks.
- Nutrient forecast models adopted in at least 10 countries involved in the implementation of the GEF/LME's projects for management actions to reduce coastal eutrophication.

Relevance to GEF Programmes

The project is in line with GEF Operational Program 10 Global Support Component and IW Strategic Priority Number 2 (Targeted Learning). Since 1995 the Council of the Global Environment Facility included Large Marine Ecosystems as important geographic units for introducing developing countries to innovative strategies for ecosystem-based assessment and management practices leading to more sustainable management of fisheries and other marine resources.

Executing Arrangements

Component one (strengthening ecosystem-based approaches to fisheries conservation and sustainability) will be executed by the World Council of Fisheries Societies in collaboration with the American Fisheries Society. The WCSF was to provide a database of the selected scientists to facilitate the sharing of information, and was to provide advice and support as they developed their projects and formed their own society of fisheries professionals within their own country.

Components two, three and four of the project were to be executed by the IOC of UNESCO. The IOC has been active in assisting developing countries in moving forward toward the coastal and ocean resources sustainability targets of UNCED and WSSD.

Project Activities

The project comprised of activities grouped in four components.

Component 1: Strengthening Ecosystem-based approaches to fisheries conservation and sustainability

- Within this component the project was to assemble information on management practices based on sound science to fisheries management with an emphasis on the ecosystem and disseminating then widely among fisheries scientists, managers, extension professionals, and policy makers in developing countries. Workshops and seminars on fisheries management were to be organized.

Component 2: Gap-filling experience and practice for global fisheries carrying capacity

- Under this component, scientists from developing countries were to be trained by the Fisheries Center of the UBC and Princeton University in the methods and applications of a multi-trophic level modelling approach to estimate the carrying capacity of fisheries for the world's 64 LMEs based on the ECOPATH/ECOSIM approach.

Component 3: Filling gaps in LME Nitrogen loading forecasts for 64 LME

- Under this component, scientists from developing countries were to be trained through the IOC Eutrophication Network in the methods and application of a Nitrogen-based model used to forecast eutrophication conditions in the coastal waters of the of the world's 64 LMEs based on the use of a new and innovative Nitrogen Export Model.

Component 4: Monitoring and Evaluation

- The steering committee was to oversee the implementation of the project and regularly meet to review progress. Monitoring and Evaluation indicators were to be established and used to guide implementation of the project and evaluate its success.

Budget
The project had a total budget of US$1,735,000 of which US$995,000 was GEF funding and US$ 740,000 was co-financing.

TERMS OF REFERENCE FOR THE EVALUATION

1. Objective and Scope of the Evaluation

The objective of this terminal evaluation is to examine the extent and magnitude of any project impacts to date and determine the likelihood of future impacts. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results. The evaluation will focus on the following main questions:

1. Did the project help to improve understanding of country fisheries scientists, managers, extension professionals and policy makers in scientific, ecosystem-based approaches to fisheries management and fishery assessments that include food web and nutrient effects?
2. Has the consultative and collaborative network between developed and developing countries fisheries experts sharing lessons on fisheries management within the context of the ecosystem approach targeted the relevant key groups and organisations, and has this resulted in the adoption of new fisheries management measures?
3. Have the results of the ECOPATH/ECOSIM food-web modelling been adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?
4. Have the nutrient forecast models been successfully adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?
5. To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?

2. Methods

This terminal evaluation will be conducted as an in-depth evaluation using a participatory approach whereby the UNEP/DGEF Task Manager, key representatives of the executing agencies and other relevant staff are kept informed and consulted throughout the evaluation. The consultant will liaise with the UNEP/EOU and the UNEP/DGEF on any logistic and/or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be circulated to UNEP/DGEF Task Manager, key representatives of the executing agencies and the UNEP/EOU. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary or suggested revisions.

The findings of the evaluation will be based on the following:

1. A desk review of project documents including, but not limited to:
    (a) The project documents, outputs, monitoring reports (such as progress and financial reports to UNEP and GEF annual Project Implementation Review reports) and relevant correspondence.
    (b) Notes from the Steering Group meetings.
    (c) Other project-related material produced by the project staff or partners.
    (d) Relevant material published on the project web-site:

2. Interviews with project management and technical support including Rutgers University, American Fisheries Society, University of British Colombia, NOAA and executing agency IOC UNESCO.

3. Interviews and Telephone interviews with intended users for the project outputs and other stakeholders involved with this project, including in the participating countries and international bodies. The Consultant shall determine whether to seek additional information and opinions from representatives of donor agencies and other organisations. As appropriate, these interviews could be combined with an email questionnaire.

4. Interviews with the UNEP/DGEF project task manager and Fund Management Officer, and other relevant staff in UNEP dealing with International Waters-related activities as necessary. The Consultant shall also gain broader perspectives from discussions with relevant GEF Secretariat staff.

5. Field visits[26] to project staff. The evaluator will make field visits to the project partners in the US and Canada as well as IOC, UNESCO in Paris.

Key Evaluation principles

In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project's performance should be assessed by considering the difference between the answers to two simple questions ***"what happened?***" and ***"what would have happened anyway?"***. These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition it implies that there should be plausible evidence to **attribute** such outcomes and impacts **to the actions of the project**.

Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

3. Project Ratings

The success of project implementation will be rated on a scale from 'highly unsatisfactory' to 'highly satisfactory'. In particular the evaluation shall **assess and rate** the project with respect to the eleven categories defined below:[27]

[26] Evaluators should make a brief courtesy call to GEF Country Focal points during field visits if at all possible.
[27] However, the views and comments expressed by the evaluator need not be restricted to these items.

A. Attainment of objectives and planned results:

The evaluation should assess the extent to which the project's major relevant objectives were effectively and efficiently achieved or are expected to be achieved and their relevance.

- *Effectiveness:* Evaluate how, and to what extent, the stated project objectives have been met, taking into account the "achievement indicators". The analysis of outcomes achieved should include, *inter alia*, an assessment of the extent to which the project has directly or indirectly assisted policy- and decision-makers to apply information supplied by fisheries management tools in their national planning and decision-making. In particular:
  - Evaluate the immediate impact of the project on the use of fisheries management tools in national planning and decision-making and international understanding and use of ecosystem-based approaches to Fisheries Conservation and LMEs.
  - As far as possible, also assess the potential longer-term impacts considering that the evaluation is taking place upon completion of the project and that longer term impact is expected to be seen in a few years time. Frame recommendations to enhance future project impact in this context. Which will be the major 'channels' for longer term impact from the project at the national and international scales?
- *Relevance*: In retrospect, were the project's outcomes consistent with the focal areas/operational program strategies? Ascertain the nature and significance of the contribution of the project outcomes to the CBD and the UNFCCC and the wider portfolio of the GEF.
- *Efficiency*: Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost-effectiveness? Assess the contribution of cash and in-kind co-financing to project implementation and to what extent the project leveraged additional resources. Did the project build on earlier initiatives, did it make effective use of available scientific and / or technical information. Wherever possible, the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

B. Sustainability:

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, e.g. stronger institutional capacities or better informed decision-making. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes. The evaluation should ascertain to what extent follow-up work has been initiated and how project outcomes will be sustained and enhanced over time.

Five aspects of sustainability should be addressed: financial, socio-political, institutional frameworks and governance, environmental (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources.* Are there any financial risks that may jeopardize sustenance of project outcomes? What is the likelihood that financial and economic resources will not be available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)? To what extent are the outcomes of the project dependent on continued financial support?
- *Socio-political:* Are there any social or political risks that may jeopardize sustenance of project outcomes? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework and governance.* To what extent is the sustenance of the outcomes of the project dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/benefits to be sustained? While responding to these questions consider if the required systems for accountability and transparency and the required technical know-how are in place.
- *Environmental.* Are there any environmental risks that can undermine the future flow of project environmental benefits? The TE should assess whether certain activities in the project area will pose a threat to the sustainability of the project outcomes. For example; construction of dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project; or, a newly established pulp mill might jeopardise the viability of nearby protected forest areas by increasing logging pressures; or a vector control intervention may be made less effective by changes in climate and consequent alterations to the incidence and distribution of malarial mosquitoes.

C. Achievement of outputs and activities:

- Delivered outputs: Assessment of the project's success in producing each of the programmed outputs, both in quantity and quality as well as usefulness and timeliness.
- Assess the soundness and effectiveness of the methodologies used for developing the technical documents and related management options in the participating countries
- Assess to what extent the project outputs produced have the weight of scientific authority / credibility, necessary to influence policy and decision-makers, particularly at the national level.

D. Catalytic Role

Replication and catalysis. What examples are there of replication and catalytic outcomes? Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Specifically:

- How can the fisheries management tools be further disseminated and adopted within current and future LME projects, national planning and decision-making?

If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out.

E. Assessment monitoring and evaluation systems.

The evaluation shall include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. The Terminal Evaluation will assess whether the project met the minimum requirements for 'project design of M&E' and 'the application of the Project M&E plan' (see minimum requirements 1&2 in Annex 4). GEF projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project.

M&E during project implementation

- *M&E design.* Projects should have sound M&E plans to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators (see Annex 4) and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified.
- *M&E plan implementation.* A Terminal Evaluation should verify that: an M&E system was in place and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period (perhaps through use of a log frame or similar); annual project reports and Progress Implementation Review (PIR) reports were complete, accurate and with well justified ratings; that the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs; and that projects had an M&E system in place with proper training for parties responsible for M&E activities.
- *Budgeting and Funding for M&E activities.* The terminal evaluation should determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

F. Preparation and Readiness

Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place?

G. Country ownership / driveness:

This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. The evaluation will:

- Assess the level of country ownership. Specifically, the evaluator should assess whether the project was effective in providing and communicating biodiversity information that catalyzed action in participating countries to improve decisions relating to the conservation and management of the focal ecosystem in each country.
- Assess the level of country commitment to the generation and use of biodiversity indicators for decision-making during and after the project, including in regional and international fora.

H. Stakeholder participation / public awareness:

This consists of three related and often overlapping processes: information dissemination, consultation, and "stakeholder" participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF- financed project. The term also applies to those potentially adversely affected by a project. The evaluation will specifically:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses.
- Assess the degree and effectiveness of collaboration/interactions between the various project partners and institutions during the course of implementation of the project.
- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project.

I. Financial Planning

Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project's lifetime. Evaluation includes actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co- financing. The evaluation should:

- Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables.

- Present the major findings from the financial audit if one has been conducted.
- Identify and verify the sources of co- financing as well as leveraged and associated financing (in co-operation with the IA and EA).
- Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.
- The evaluation should also include a breakdown of final actual costs and co-financing for the project prepared in consultation with the relevant UNON/DGEF Fund Management Officer of the project (table attached in Annex 1 Co-financing and leveraged resources).

J. Implementation approach:

This includes an analysis of the project's management framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management. The evaluation will:

- Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed. In particular, assess the role of the various committees established and whether the project document was clear and realistic to enable effective and efficient implementation, whether the project was executed according to the plan and how well the management was able to adapt to changes during the life of the project to enable the implementation of the project.
- Evaluate the effectiveness and efficiency and adaptability of project management and the supervision of project activities / project execution arrangements at all levels (1) policy decisions: Steering Group; (2) day to day project management in each of the country executing agencies and World Council of Fisheries Societies and IOC-UNESCO.

K. UNEP Supervision and Backstopping

- Assess the effectiveness of supervision and administrative and financial support provided by UNEP/DGEF.
- Identify administrative, operational and/or technical problems and constraints that influenced the effective implementation of the project.

The ***ratings will be presented in the form of a table***. Each of the eleven categories should be rated separately with **brief justifications** based on the findings of the main analysis. An overall rating for the project should also be given. The following rating system is to be applied:

HS = Highly Satisfactory
S = Satisfactory
MS = Moderately Satisfactory
MU = Moderately Unsatisfactory
U = Unsatisfactory
HU = Highly Unsatisfactory

4. Evaluation report format and review procedures

The report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should be presented in a way that makes the information accessible and comprehensible and include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

The evaluation will rate the overall implementation success of the project and provide individual ratings of the eleven implementation aspects as described in Section 1 of this TOR. *The ratings will be presented in the format of a table* **with brief justifications based on the findings of the main analysis.**

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. Any dissident views in response to evaluation findings will be appended in an annex. The evaluation report shall be written in English, be of no more than 50 pages (excluding annexes), use numbered paragraphs and include:

i) An **executive summary** (no more than 3 pages) providing a brief overview of the main conclusions and recommendations of the evaluation;

ii) **Introduction and background** giving a brief overview of the evaluated project, for example, the objective and status of activities; The GEF Monitoring and Evaluation Policy, 2006, requires that a TE report will provide summary information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology.

iii) **Scope, objective and methods** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed;

iv) **Project Performance and Impact** providing *factual evidence* relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report. The evaluator should provide a commentary and analysis on all eleven evaluation aspects (A − K above).

v) **Conclusions and rating** of project implementation success giving the evaluator's concluding assessments and ratings of the project against given evaluation criteria and standards of performance. The conclusions should provide answers to questions about whether the project is considered good or bad, and whether the results are considered positive or negative. The ratings should be provided with a brief narrative comment in a table (see Annex 1);

vi) **Lessons (to be) learned** presenting general conclusions from the standpoint of the design and implementation of the project, based on good practices and successes or problems and mistakes. Lessons should have the potential for wider application and use. All lessons should 'stand alone' and should:

- Briefly describe the context from which they are derived
- State or imply some prescriptive action;
- Specify the contexts in which they may be applied (if possible, who when and where)

vii) **Recommendations** suggesting *actionable* proposals for improvement of the current project. In general, Terminal Evaluations are likely to have very few (perhaps two or three) actionable recommendations.

Prior to each recommendation, the issue(s) or problem(s) to be addressed by the recommendation should be clearly stated.

A high quality recommendation is an actionable proposal that is:

1. Feasible to implement within the timeframe and resources available
2. Commensurate with the available capacities of project team and partners
3. Specific in terms of who would do what and when
4. Contains results-based language (i.e. a measurable performance target)
5. Includes a trade-off analysis, when its implementation may require utilizing significant resources that would otherwise be used for other project purposes.

viii) **Annexes** may include additional material deemed relevant by the evaluator but must include:

1. The Evaluation Terms of Reference,
2. A list of interviewees, and evaluation timeline
3. A list of documents reviewed / consulted
4. Summary co-finance information and a statement of project expenditure by activity
5. The expertise of the evaluation team. (brief CV).

TE reports will also include any response / comments from the project management team and/or the country focal point regarding the evaluation findings or conclusions as an annex to the report, however, such will be appended to the report by UNEP EOU.

Examples of UNEP GEF Terminal Evaluation Reports are available at www.unep.org/eou

Review of the Draft Evaluation Report

Draft reports submitted to by the evaluator to UNEP EOU. EOU then shares draft report with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff are allowed to comment on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks feedback on the proposed recommendations. UNEP EOU collates all review comments and provides them to the evaluator(s) for their consideration in preparing the final version of the report.

5. Submission of Final Terminal Evaluation Reports.

The final report shall be submitted in electronic form in MS Word format and should be sent to:

Segbedzi Norgbey, Chief,
UNEP Evaluation and Oversight Unit
P.O. Box 30552-00100
Nairobi, Kenya
Tel.: (254-20) 7624181
Fax: (254-20) 7623158
Email: segbedzi.norgbey@unep.org

EOU will then copy the report with a formal 'evaluation commentary' to:

Maryam Niamir-Fuller, Director
UNEP/Division of GEF Coordination
P.O. Box 30552-00100
Nairobi, Kenya
Tel: + 254-20-7624165
Fax: + 254-20-624041/4042
Email: Maryam.Niamir-Fuller@unep.org

Virginie Hart
Task Manager, International Waters
UNEP Division of GEF Coordination
P.O. BOX 30552
00100, Nairobi, Kenya
Tel: +254 20 762 4527
Fax:+254 20 762 4041 / 762 4042
E-mail: virginie.hart@unep.org

Takehiro Nakamura,
SPO International Waters
UNEP/Division of GEF Coordination
P.O. Box 30552-00100
Nairobi, Kenya
Tel: + 254-20-7623886
Fax: + 254-20-624041/4042
Email: Takehiro.Nakamura@unep.org

The Final evaluation will also be copied to the following Project Steering Committee Members:

Dr. Gus Rassam, AFS/WCFS
Executive Director
American Fisheries Society: World Council of Fisheries Societies
5410 Grosvenor Lane
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20814
USA
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Tel: 1.301.897.8616
Fax: 1.301.897.8096

Dr. Ken Sherman, NOAA/LME
CMER Program Director
National Marine Fisheries Service
Narragansett, RI 02882
Tel: 401.782.3211
Email: Kenneth.Sherman@noaa.gov

Ms. Jessica Geubtner
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Tel: 301-427-2485

Mr. Alfred Duda
Senior Advisor International Waters
1818 H Street , NW, MSN G6-602
Washington, DC 20433
U.S.A.
Email: aduda@thegef.org
Tel: +1 202 473 1077

The final evaluation report will be published on the Evaluation and Oversight Unit's web-site www.unep.org/eou and may be printed in hard copy. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

6. Resources and schedule of the evaluation

This final evaluation will be undertaken by an international evaluator contracted by the Evaluation and Oversight Unit, UNEP. The contract for the evaluator will begin on 28th April 2008 and end on 28th July 2008. The contract will cover 25 days of consulting time spread over 12 weeks (11 days of travel, to US, Canada and France and 14 days desk study). The evaluator will submit a draft report on 7th July 2008 to UNEP/EOU, the UNEP/DGEF Task Manager, and key representatives of the executing agencies. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary revisions. Comments to the final draft report will be sent to the consultant by 18th July 2008 after which, the consultant will submit the final report no later than 28th July 2008.

The evaluator will after an initial telephone briefing with EOU and UNEP/GEF conduct initial desk review work. The evaluator will travel to meet with project staff at the beginning of the evaluation at IOC-UNESCO and later travel to the American Fisheries Society, NOAA, University of British Columbia Fisheries Center in the US and Canada.

In accordance with UNEP/GEF policy, all GEF projects are evaluated by independent evaluators contracted as consultants by the EOU. The evaluator should have the following qualifications:

The evaluator should not have been associated with the design and implementation of the project in a paid capacity. The evaluator will work under the overall supervision of the Chief, Evaluation and Oversight Unit, UNEP. The evaluator should be an international expert in biodiversity management or conservation with a sound understanding of ecosystem-based approaches to fisheries conservation. The consultant should have the following minimum qualifications: (i) experience in international ecosystem-based approaches to fisheries conservation issues; (ii) experience with management and implementation of research projects and in particular with research targeted at policy-influence and decision-making; (iii)

experience with project evaluation. Knowledge of UNEP programmes and GEF activities is desirable. Fluency in oral and written English is a must.

7. Schedule Of Payment

Fee-only Option

The evaluator will receive an initial payment of 40% of the total amount due upon signature of the contract. Final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is **NOT** inclusive of all expenses such as travel, accommodation and incidental expenses. Ticket and DSA will be paid separately.

In case, the evaluator cannot provide the products in accordance with the TORs, the timeframe agreed, or his products are substandard, the payment to the evaluator could be withheld, until such a time the products are modified to meet UNEP's standard. In case the evaluator fails to submit a satisfactory final product to UNEP, the product prepared by the evaluator may not constitute the evaluation report.

Annex 1. OVERALL RATINGS TABLE

Criterion	Evaluator's Summary Comments	Evaluator's Rating
A. Attainment of project objectives and results (overall rating) Sub criteria (below)		
A. 1. Effectiveness		
A. 2. Relevance		
A. 3. Efficiency		
B. Sustainability of Project outcomes (overall rating) Sub criteria (below)		
B. 1. Financial		
B. 2. Socio Political		
B. 3. Institutional framework and governance		
B. 4. Ecological		
C. Achievement of outputs and activities		
D. Monitoring and Evaluation (overall rating) Sub criteria (below)		
D. 1. M&E Design		
D. 2. M&E Plan Implementation (use for adaptive management)		
D. 3. Budgeting and Funding for M&E activities		
E. Catalytic Role		
F. Preparation and readiness		
G. Country ownership / drivenness		
H. Stakeholders involvement		
I. Financial planning		
J. Implementation approach		
K. UNEP Supervision and backstopping		

RATING OF PROJECT OBJECTIVES AND RESULTS

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Please note: Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

RATINGS ON SUSTAINABILITY

A. Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The Terminal evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes..

Rating system for sustainability sub-criteria

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

Likely (L): There are no risks affecting this dimension of sustainability.

Moderately Likely (ML). There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability

Unlikely (U): There are severe risks that affect this dimension of sustainability.

According to the GEF Office of Evaluation, all the risk dimensions of sustainability are deemed critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in any of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

RATINGS OF PROJECT M&E

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on 'M&E Design', 'M&E Plan Implementation' and 'Budgeting and Funding for M&E activities' as follows:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system.

Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

"M&E plan implementation" will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on "M&E plan implementation."

All other ratings will be on the GEF six point scale.

GEF Performance Description		Alternative description on the same scale
HS	= Highly Satisfactory	Excellent
S	= Satisfactory	Well above average
MS	= Moderately Satisfactory	Average
MU	= Moderately Unsatisfactory	Below Average
U	= Unsatisfactory	Poor
HU	= Highly Unsatisfactory	Very poor (Appalling)

Annex 2. Co-financing and Leveraged Resources

Co-financing (basic data to be supplied to the consultant for verification)

Co financing (Type/Source)	IA own Financing (mill US$)		Government (mill US$)		Other* (mill US$)		Total (mill US$)		Total Disbursement (mill US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
– Grants										
– Loans/Concessional (compared to market rate)										
– Credits										
– Equity investments										
– In-kind support										
– Other (*) - - - - -										
Totals										

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

Leveraged Resources

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Table showing final actual project expenditure by activity to be supplied by the UNEP Fund management Officer. (insert here)

Annex 3

Review of the Draft Report

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff provide comments on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. UNEP EOU collates the review comments and provides them to the evaluators for their consideration in preparing the final version of the report. General comments on the draft report with respect to compliance with these TOR are shared with the reviewer.

Quality Assessment of the Evaluation Report

All UNEP GEF Mid Term Reports are subject to quality assessments by UNEP EOU. These apply GEF Office of Evaluation quality assessment and are used as a tool for providing structured feedback to the evaluator.

The quality of the draft evaluation report is assessed and rated against the following criteria:

GEF Report Quality Criteria	**UNEP EOU Assessment**	**Rating**
A. Did the report present an assessment of relevant outcomes and achievement of project objectives in the context of the focal area program indicators if applicable?		
B. Was the report consistent and the evidence complete and convincing and were the ratings substantiated when used?		
C. Did the report present a sound assessment of sustainability of outcomes?		
D. Were the lessons and recommendations supported by the evidence presented?		
E. Did the report include the actual project costs (total and per activity) and actual co-financing used?		
F. Did the report include an assessment of the quality of the project M&E system and its use for project management?		
UNEP EOU additional Report Quality Criteria	**UNEP EOU Assessment**	**Rating**
G. Quality of the lessons: Were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
H. Quality of the recommendations: Did recommendations specify the actions necessary to correct existing conditions or improve operations (‘who?’ ‘what?’ ‘where?’ ‘when?)’. Can they be implemented? Did the recommendations specify a goal and an associated performance indicator?		
I. Was the report well written? (clear English language and grammar)		
J. Did the report structure follow EOU guidelines, were all requested		

Annexes included?		
K. Were all evaluation aspects specified in the TORs adequately addressed?		
L. Was the report delivered in a timely manner		

GEF Quality of the MTE report = 0.3*(A + B) + 0.1*(C+D+E+F)

EOU assessment of MTE report = 0.3*(G + H) + 0.1*(I+J+K+L)

Combined quality Rating = (2* 'GEF EO' rating + EOU rating)/3

The Totals are rounded and converted to the scale of HS to HU

Rating system for quality of terminal evaluation reports

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1, and unable to assess = 0.

Annex 4 GEF Minimum requirements for M&E

Minimum Requirement 1: Project Design of M&E[28]

All projects must include a concrete and fully budgeted monitoring and evaluation plan by the time of Work Program entry (full-sized projects) or CEO approval (medium-sized projects). This plan must contain at a minimum:

- SMART (see below) indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, corporate-level indicators
- A project baseline, with:
  - a description of the problem to address
  - indicator data
  - or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation
- An M&E Plan with identification of reviews and evaluations which will be undertaken, such as mid-term reviews or evaluations of activities
- An organizational setup and budgets for monitoring and evaluation.

[28] http://gefweb.org/MonitoringandEvaluation/MEPoliciesProcedures/MEPTools/meptstandards.html

Minimum Requirement 2: Application of Project M&E

- Project monitoring and supervision will include implementation of the M&E plan, comprising:
- Use of SMART indicators for implementation (or provision of a reasonable explanation if not used)
- Use of SMART indicators for results (or provision of a reasonable explanation if not used)
- Fully established baseline for the project and data compiled to review progress
- Evaluations are undertaken as planned
- Operational organizational setup for M&E and budgets spent as planned.

SMART INDICATORS GEF projects and programs should monitor using relevant performance indicators. The monitoring system should be "SMART":

1. ***Specific***: The system captures the essence of the desired result by clearly and directly relating to achieving an objective, and only that objective.
2. ***Measurable:*** *The monitoring system and its indicators are unambiguously specified so that all parties agree on what the system covers and there are practical ways to measure the indicators and results.*
3. ***Achievable and Attributable:*** *The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.*
4. ***Relevant and Realistic:*** *The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders.*
5. ***Time-bound, Timely, Trackable, and Targeted:*** *The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of the particular stakeholder group to be impacted by the project or program.*

Annex 5 List of intended additional recipients for the Terminal Evaluation (to be completed by the IA Task Manager)

Name	Affiliation	Email
Government Officials		
GEF Focal Point(s)		
Executing Agency		
Implementing Agency		
Carmen Tavera	UNEP DGEF Portfolio Manager	

ANNEX 2: LIST OF PERSONS INTERVIEWED

Project partners

FC/UBC (Vancouver, BC, Canada):
Villy Christensen
Daniel Pauly

IOC/UNESCO (Paris, France):
Bernardo Aliaga, Programme Specialist

NOAA LME Programme (Naragansett, RI, USA):
Ken Sherman
Marie-Christine Aquarone

Rutgers University (New Brunswick, NJ, USA):
Sybil Seitzinger
Emilio Mayorga

UNEP Division of GEF Coordination:
Virginie Hart (Athens, Greece)
Takehiro Nakamura (telephone interview Nairobi, Kenya)

WCFS/AFS (Bethseda, MD, USA):
Gus Rassam
Elden Hawkes

GEF/LME representatives

Interim Guinea Current Commission (Accra, Ghana):
Jacques Abe (telephone interview)

Benguela Current LME Programme
Michael O'Toole (telephone interview)

Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand (UNEP/GEF project)
Christopher Paterson (email exchange)

Others

FAO Fisheries Department (Rome, Italy):
Kevern Cochrane (email exchange)
Marcelo Vasconcellos (email exchange)

ANNEX 3: LIST OF PROGRESS REPORTS REVIEWD BY TE EVALUATOR

REPORT TYPE	***PERIOD COVERED***	***COMMENT***
Biennium report	4 May 2004 – 31 December 2006	Report established in 2007 to compensate for lacking half yearly reports during the first part of the project.
Half-yearly report	January – June 2007	
Half-yearly report	July - December 2007	
UNEP GEF PIR	July 2005 – June 2006	Some sections only partly filled in.
UNEP GEF PIR	July 2006 – June 2007	Some sections only partly filled in.
GEF-IW Annual project performance results	2006	
GEF-IW Annual project performance results	2007	
Annex 4: Format for half-yearly progress report	January – June 2006	Incomplete
Annex 4: Format for half-yearly progress report	July – December 2006	Incomplete
Annex 4: Format for half-yearly progress report	January- June 2007	Incomplete

In addition, a number of reports from Project partners on their activities – some prepared in direct relation to their invoicing under contracts with IOC/UNESCO – were made available to the evaluator.

ANNEX 4: TERMINAL EVALUATION TIMELINE AND ITINERARY OF VISITS

EVALUATION TIME LINE:

Activity	***5-11 May***	***12-18 May***	***19-25 May***	***26 May – 1 Jun***	***2-8 Jun***	***9-15 Jun***	***16-22 Jun***	***23-29 Jun***	***30 Jun – 6 Jul***	***7-13 Jul***	***14-20 Jul***	***21-28 Jul***	***Aug***	***Sep***	***Oct***	***Nov***
Signature contract *5 May*	☆															
Desk study	.....	.....														
Travel preparations		—														
Travel (itinerary below)			—	—												
Preparation of visit reports and feed back				.....	.....	.....	.....	.....	.....							
Telephone interviews								—								
Drafting of report						.....	.....	.....	.....	.....						
Submission of draft report *7 July*										☆						
Comments to received by *5 November*																☆
Revision of report																.....
Submission of final draft report *14 November*																☆

ITINERARY:

	Arrival	***Departure***	***Visit to***
Halifax, Canada		11 May 2008	
Vancouver, BC, Canada	11 May 2008	13 May 2008	FC/UBC
Halifax, Canada	13 May 2008	18 May 2008	
Bethesda, MD, USA	18 May 2008	19 May 2008	WCFS/AFS
Narragansett, RD, USA	19 May 2008	21 May 2008	NOAA
New Brunswick, NJ, USA	21 May 2008	23 May 2008	Rutgers
Athens, Greece	24 May 2008	26 May 2008	UNEP
Paris, France	26 May 2008	28 May 2008	IOC/UNESCO
Halifax, Canada	28 May 2008		

ANNEX 5: COMPONENT 1

WORLD COUNCIL OF FISHERIES SOCIEITES (WCFS) / AMERICAN FISHERIES SOCIETY (AFS) – BETHESDA, MARYLAND – USA

Role of WCFS/AFS in the Project (and role of Project in WCFS/AFS[29])

WCFS/AFS implemented **Component 1** of the UNEP/GEF Project: Strengthening eco-system based approaches to fisheries conservation and sustainability. The Component consisted of 5 sub-components: *(a) Workshops and seminars on fisheries management, i.e. 13 workshops and seminars organised during the 4th World Fisheries Congress in May 2004*, (b*) Development of extensive database of ecosystem oriented fisheries management practices and experts, hosted by WCFS and AFS, (c) Survey of the needs of each developing country in sound, responsible scientific approaches to fisheries management*, *(d) Strengthening of the GEF-LME projects network and other marine fisheries networks and partnerships*, and *(e) Project management*. The work under the component intended to contribute to increased dissemination of information and networking between fisheries experts in developed and developing countries (objectives 10.1 and 10.2, outcomes 11.1 and 11.3) and the applications of newly acquired database of ecosystem-based fisheries management practices in developing countries (outcome 11.1).
WCFS/AFS was initially (according to the Project Document) designated executing agency for Component 1. However, before the 4th World Fisheries Congress, this was changed. IOC/UNESCO was asked (by AFS) to help with the travel arrangements for participants and also assumed executing responsibility for all other parts of the project (see further below).

From the point of view of WCFS/AFS, the Project was originally conceived as a project with WCFS/AFS as sole implementer/partner. The overall purpose of the initial proposal was to train fisheries experts in developing countries in various fisheries management issues. The merge of this proposal with the other components appears to have taken place on the initiative of UNEP/GEF and/or the NOAA LME Programme.

The main role of WCFS/AFS as foreseen in the design of the broader consolidated Project was to become the hub for the networking activities. An extensive and active network ("for receiving and exchanging information on ecosystem based fisheries assessment tools and management methods and tools", Component 1a indicator) was to be established together with a database containing information on fisheries management practices and needs for capacity building in participating LME (developing) countries. The already extensive network of members in AFS (mainly North American) and in other national organisations that are members of or affiliated with WCFS (e.g. Australia, India, Japan, Mexico, Pakistan, UK) were to form the basis for the Project's new LME fisheries management network. However, although attempts were made to establish these outcomes, the results do not appear to live up to the initially defined ambitions. This is further discussed below under Table 3.

The Project played a role in AFS in linking the organisation with fisheries scientists in developing countries. Although AFS has members also outside North America, it has remained a national (or bi-national with many members from Canada) organisation. The Global Fisheries Ecosystem Management Network (GFEMN), which was the network created through the Project, now largely represents AFS' developing country membership. Its members are more widely distributed than the national fisheries

[29] WCFS does not have a physical secretariat but acts though its steering committee and the Executive Director of AFS is also the chairperson of the WCFS. In practice, the Project activities have been carried out by AFS.

societies that are members of WCFS; 107 GFEMN members represent some 40 countries while the developing country fisheries societies of WCFS only include India, Mexico, and Pakistan[30].

AFS has used these contacts for selecting which libraries/universities in developing countries should be given free access to AFS publications (currently provided to selected institutions in Indonesia and Senegal but AFS is considering the expansion of this activity) and on one occasion to distribute donated text books. It is felt that this direct contact with "practicing scientists" is essential for this type of activity in order to target the right beneficiaries for the services AFS can provide. AFS also offers membership at a nominal annual fee (US$ 5) to developing country nationals.

The Project also contributed to the establishment of closer contact between AFS and the NOAA LME Programme. It is foreseen that the expanded LME website portal will also include links to the AFS website and its members (see also Appendix on NOAA).

Overview of activities, results and beneficiaries

Activities and results

Although activities were carried out more or less in accordance with the plan for Component 1, the results – as mentioned above – did generally not meet the targets stated in the Project Document.

The GFEMN network was established during the 4th World Fisheries Congress and the list of members continues to be used for distributing information on training opportunities etc through a list-serve / mailing list managed by AFS. GFEMN members are also given free membership in AFS for a period of five years and free access to AFS publications. There is a "database" consisting of an Excel-sheet with contact details for the 107 members, posted on the website (http://www.fisheries.org/afs/international.html) Originally more information was collected and the website contained news and postings but due to an apparent lack of interest on behalf of members to actively participate in the network, the website has become static and now only contains limited background information on the Project and the list of GFEMN members. It is not clear why the network did not succeed in engaging the targeted beneficiaries to a larger extent, but it could be speculated that its purpose and focus was not sufficiently specialised to be attractive to scientists.

The survey on needs in developing countries that was carried out did not yield the results hoped for; out of 90 questionnaires distributed, only six were received back. A brief survey report was produced by AFS (as part of their Final report to the Project) but the low number of questionnaires returned does not allow for proper analysis or for sound conclusions to be drawn. An explanation for the low response rate could be that the questions asked focused on national policy issues that the GFEMN member scientists were not directly involved in and would hence find difficult to answer.

The activities carried out by WCFS/AFS are further discussed in Table 3. An overview of how the results of the WCFS/AFS implemented activities contributed to Project outcomes and objectives is given in Table 4, using the "TE main questions" as the framework[31].

[30] There are also associated members and applications in process, e.g. China and Somalia.

[31] As discussed in the beginning of the section on *Project Performance* in the main text of this report, the "TE main questions: (page 3 of TE TOR in ANNEX 1) are being used as a consolidated summary of the objective and outcome indicators stated in the Project Document.

Beneficiaries

The beneficiaries of the WCFS/AFS Component 1 activities are the members of the GFEMN network (with the benefits included as described above) and participants in the 4th World Fisheries Congress whose travel was financed by the Project. The free access to AFS material by selected libraries in Indonesia and Senegal are also likely to have benefited scientists in these countries.

Table 3: Project activities carried out by WCFS/AFS (by component indicator)

Indicator	***Activity***	***Date completed***	***Remarks***
1a: Each workshop is attended by at least 40 people. Of these 40 attendees, up to 30 will consist of professionals engaged in GEF-LME projects. The Project Steering Committee will undertake the process of determining attendees. Fisheries scientists, managers, extension professionals, and policy makers are trained at 13 Congress courses and workshops in successful approaches to responsible fisheries management with an integrated approach. Workshop attendees take their training back to developing countries and share their skills with others. They will also serve as the post Congress E-Network for receiving and exchanging information on ecosystem based fisheries assessment and management methods and tools.	Project funded 33 participants to the 4th World Fisheries Congress (participants were selected by AFS and NOAA LME Programme and travel arrangements carried out by IOC/UNESCO). One training workshop in collaboration with UBC (24 participants)	May 2004	Workshops were held in connection with 4th World Fisheries Congress and a list of participants exist but their professional affiliation is not clear, i.e. it is not possible to assess whether 75% were engaged in GEF/LME management.
	3 additional workshops held but not funded by the Project (although participants may have had travel funded to the Congress by the Project).	May 2004	Originally 13 workshops were planned but due to low enrolment most were cancelled. Workshops carried out included: Microcomputer applications in fisheries science (11 participants) Stock assessment for data poor fisheries (20) Decision analysis, risk assessment and risk management (20)

Indicator	***Activity***	***Date completed***	***Remarks***
1b: Database fully accessible by end of year 1. Regular updates of the database. Project web site established by the WCFS and AFS.	Detailed information requested from original GFEMN members. Currently (May 2008) the website only includes contact details of 107 members from 40 countries. It is however no longer an LME network; membership focus has shifted over the years and GFENMN had become a more general fisheries scientist network. Members in GFEMN are given free membership in AFS and subscriptions to AFS publications. NOAA plans to link GFEMN members together with the WCFS and AFS membership to the new LME portal (see ANNEX 7).	?	Efforts were made to make the website interactive early on in the Project but little interest was shown on behalf of GFEMN members. Now contact list is maintained and a "listserve" is distributed by AFS weekly with information on training opportunities etc.
1c: Survey of the needs of developing countries is completed and results assessed. Fisheries scientists, managers, extension professionals, and policy makers in developing countries are successfully trained in sound fisheries management approaches, and they use these approaches in their future plans.	Questionnaire sent to 90 members; only 6 responses were received.	Feb 2008	No conclusions can be drawn.
1d: Project network is strengthened through Congress workshops and activities. Post-Congress network continues to grow based on the existing GEF-LME projects network.	2 meetings of 33 members were held during 4th World Fisheries Congress and GFEMN was established. GFEMN currently has 107 members.		See also remark under 1b.
1e: Project Steering Committee and Project Secretariat established	2 first PSC organised by AFS but later IOC took over this responsibility.		It would appear that PSC meetings have been held more often than stipulated in the Project Document but they have not always been documented.

Table 4: Results of AFS/WCFS Project activities – answers to TE questions

1. *Did the project help to improve understanding of country fisheries scientists, managers, extension professionals and policy makers in scientific, ecosystem-based approaches to fisheries management and fishery assessments that include food web and nutrient effects?*
It has to be assumed that the participants in the 4th World Fisheries Congress and in associated the training courses benefited from these activities. However, there is no evidence showing that this had any impact on the understanding of ecosystem approaches by developing country fisheries professionals in general.
2. *Has the consultative and collaborative network between developed and developing countries fisheries experts sharing lessons on fisheries management within the context of the ecosystem approach targeted the relevant key groups and organisations, and has this resulted in the adoption of new fisheries management measures?*
Although the GFEMN was created, it does not appear to have the network features that were foreseen by the Project; currently it functions as a mailing list.
3. *Have the results of the ECOPATH/ECOSIM food-web modelling been adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?*
N/A please refer to table 6 below.
4. *Have the nutrient forecast models been successfully adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?*
N/A please refer to table 9 below.
5. *To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?*
N/A please refer to table 6 below.

Sustainability and catalytic role

Considering its weaknesses mentioned above, the GFEMN does not appear to be sustainable. The current members may however continue to be members of AFS, or of one of the national societies of the WCFS. The Project is also likely to have contributed to making AFS more open to and interested in developing country members and to making AFS more known in these countries, which could lead to increased future exchanges between scientists in developing and developed countries.

Stakeholder participation and ownership

While there would appear to have been a certain level of stakeholder participation and ownership evident in the initial meetings of the GFEMN during the 4th World Fisheries Congress, there is now little active involvement on behalf of members; they are mainly receivers of information from AFS (through the weekly emails). The low response rate for the survey would also appear to indicate that the sense of ownership by members is low.

Operational and administrative issues

M&E
Reports have been submitted to IOC/UNESCO as and when requested. A final report, also including the results from the survey (see above), was submitted in February 2008.

WCFS/AFS was not aware of any further reporting requirements. Hence, the quarterly progress reports mentioned in the Project Document (indicator 11.3 c) were never submitted.

Financial planning
As mentioned in the beginning of the Appendix, it had originally been planned that WCFS/AFS would be the executing agency for Component 1 (and IOC/UNESCO for the other 3) but eventually IOC/UNESCO was given administrative responsibility for the whole Project. Instead, WCFS/AFS became a Project partner and had two contracts with IOC/UNESCO.

The first contract covered the workshops given at the 4th World Fisheries Congress. However, the travel arrangements for the participants were made and paid for directly by IOC/UNESCO. The IOC/UNESCO-WCFS/AFS contract was officially only established in 2005 and AFS was hence reimbursed the costs, incurred and advanced by them, for the Project sponsored workshops retroactively.

The Project had been approved shortly before the 4th World Fisheries Congress and it would appear that the funds were made available fairly late, which prevented some participants to participate or arrive on time for all workshops. Still, 33 participants are reported to have been funded and participated in the GFEMN meetings during the 4th World Fisheries Congress.

The first contract intended to also cover the survey and establishment of the database. However, these activities were not completed under the first contract and their continuation was included under the 2nd contract. The total amount for the two contracts was US$ 209,048 (US$ 111,048, and 98,000).

It would appear that the financial reporting requirements – in particular for the second contract – were minimal; the four invoices only stated a main output or activity (e.g. “Development of database: US$ 35,000” and “Survey needs & capabilities dev countries: US$ 25,000”).

The planned co-funding, as stated in the Project Document, amounted to US$ 300,000. However, in a report dated October 2007, AFS estimates their co-funding contribution to US$ 410,000.

ANNEX 6: COMPONENTS 2a AND 2d

FISHERIES CENTRE / UNIVERSITY OF BRITISH COLOMBIA (FC/UBC), CANADA

Role of FC/UBC in the Project (and role of Project in FC/UBC)

FC/UBC implemented **Component 2a** of the UNEP/GEF Project: *Pauly-Christensen UBC Workshops and Seminars on carrying capacity based on ECOSIM and ECOPATH model training and application for 64 LMEs* under the overall heading of Component 1: *Filling the gaps in LME fisheries carrying capacity*. The component has contributed to the outcomes and objectives regarding enhancing the capacity of experts and scientists in ecosystem approaches to fisheries management (objective 10.1, outcome 11.2), strengthening collaborative networks (objective 10.2, outcome 11.3) and filling gaps in the knowledge on ecosystem carrying capacities (objective 10.3).

FC/UBC has also carried out the activity under **Component 2d** *FAO catch statistics updates for the year 2000 for the world's 64 LMEs, completing an 11-year time-series*. This activity was initially planned to be implemented by FAO but due to staff limitations of the organization, there was a change of partners for the task. The activity built on work carried out through activities carried out under the *Sea Around Us project* and the output fed into the development of basic LME ecosystem models (see below). It also contributed to the write-up of a chapter in the UNEP Large Marine Ecosystems Report – A perspective on changing conditions in LMEs of the World's Regional Seas (UNEP Regional Seas Studies and Reports No 182. This is further discussed in ANNEX 7 on NOAA.

Except for contacts with the NOAA LME Programme, at the conception of the Project and also throughout its implementation, the work by FC/UBC has been carried out almost entirely independently from the other components, activities and partners of the Project. FC/UBC participated in Project Steering Committee (PSC) meetings and the outputs of the UBC work – as also the work of the other partners – has been pulled together by the NOAA LME Programme in its Project coordinator role (e.g. for the UNEP report mentioned above).

Some collaboration with AFS took place in relation to the first workshop held in connection with the 4th World Fisheries Congress (Component 1). There are also links between the work carried out by Rutgers University on nitrogen flows / eutrophication analysis and forecasting (Component 3) and the Ecopath with Ecosim (EwE) modelling but no explicit link has yet been established. The results of the nitrogen loading forecasts are potentially of significance to the ecosystem models and UBC has followed with interest the work carried out by Rutgers. Moreover, regular contacts with IOC/UNESCO have been maintained during the Project but this has been for administrative purposes rather than technical, IOC/UNESCO being the executing agency of the Project.

The development and application of EwE and its associated model components have constituted an important part of FC/UBC's work programme for almost a decade through the implementation of the Sea Around Us project. The implementation of the UNEP/GEF Project was nested within the structure of the Sea Around Us project and contributed additional support for workshops and model development. Due to the high degree of integration between the UNEP/GEF Project and other activities of the Sea Around Us project, it is somewhat difficult to clearly separate the outputs and outcomes generated by one project from those of the other. The total financial contribution by the UNEP/GEF Project constituted only a few percent of the total Sea Around Us project during its implementation period but thanks to synergy effects, the results could be more important that the level of funding may suggest. The UNEP/GEF Project also allowed for specific activities to be implemented than would maybe not have taken place otherwise. The activities of the UNEP/GEF Project are described below.

Overview of activities, results and beneficiaries

Project activities

All the activities planned in the Project Document have been implemented and the results achieved meet the indicators defined for Components 2a and 2d. In fact, more activities were carried out than foreseen in the Project Document, i.e. one additional workshop[32] and ecosystem modelling of all existing LMEs. These activities were specified in the contracts between IOC/UNESCO and FC/UBC. Moreover, a publication on the modelling results by LME will be published as an IOC/UNESCO Technical Report (in accordance with a decision in the PSC meeting in January 2008 and along with a similar report on the work by Rutgers). At the time of the TE, a couple of these activities were still ongoing but were scheduled to be completed before the end of the Project, i.e. by June 2008 (see Table 5).

The workshop activities also included the preparation of extensive study material for the trainees consisting of, among other things, an EwE User Manual that had been adapted to the training course in question. When releasing the new version of EwE 6.0 the manual was revised in a more substantial way. This work was partly financed by the Project and the new user manual version was distributed to the participants of the workshop in the Philippines.

In addition to the activities listed in Table 5, the Project also contributed indirectly to the following:

- LME ecosystem modeling session at the 2005 Annual Science Conference of the International Council for the Exploration of the Sea (ICES)
- Ecosystem modelling workshop for Gulf of Guinea, Accra (Ghana) 2006

The Project did not provide funding for these events but they could be considered spin-offs of preceding Project activities.

Results

With regard to the quality of the EwE models produced and the concepts and methodologies taught at the training workshops, the TE Consultant believes these to be of very high standard. The TE Consultant is not in a position to assess EwE from a technical point of view, nor does the scope of the TE allow for an assessment of EwE as such. However, considering the popularity of EwE and its general renown among researchers around the world[33] in combination with the reputation of FC/UBC's capacities, it would appear safe to assume that the results in this respect are of top quality (see also description of EwE in Box 4[34]. The same assessment is valid for the work on updating and reorganising the catch statistics to allow for aggregates at an LME level.

[32] The reason for including an additional workshop was the relatively low number of participants that the Project paid for at the first workshop organised in connection with the 4th World Fisheries Congress. Project funds hence remained available for this additional activity.

[33] According to a citation index analysis carried out by FC/UBC using Web of Science for the years 1992-2004, EwE is the dominant modelling framework for ecosystem modelling currently in use (Christensen, V. & C.J. Walters. 2005. Using ecosystem modelling for fisheries management: Where are we? Paper presented at ICES Annual Science Conference, Aberdeen, Scotland, 20-24 September 2005. CM 2005/M:19 (updated). 17pp).

[34] The original model of ECOPATH was developed by NOAA scientists and the approach has been selected one of NOAA's top ten breakthroughs
(see http://celebrating200years.noaa.gov/breakthroughs/ecopath/welcome.html#modeling).

Table 5: Project activities carried out by FC/UBC (by component indicator)

Indicator	*Activity*	*Date completed*	*Remarks*
2a: ECOPATH/ECOSIM training module completed and successfully utilized by scientists from developing countries during 2 in-country workshops and 1 UBC workshop.	Training workshop UBC (24 participants)	May 2004	In collaboration with AFS during 4th World Fisheries Congress.
	Training workshop Latvia (19 participants)	Oct 2004	In collaboration with Baltic Sea Project.
	Training workshop South Africa (28 participants)	Dec 2005	In collaboration with UCT and MCM.
	Training workshop Philippines (31 participants)	Feb 2008	In collaboration with WorldFish Center.
2d: Completion and dissemination of 64 LME 11-year time-series, 1990 through 2000, depicting decadal trends in fish biomass levels. Report produced and disseminated by FAO on updated time-series data. Present FAO system for reporting global fish catches is limited to large geographic areas of the world's ocean.	Catch data updated and LME time series completed.	Dec 2007[35]	The database to be available on www.seaaroundus.org
Activities and outputs not explicitly mentioned in Project Document but included under the contractual arrangements between IOC and UBC.	Ecosystem models based on EwE developed for 63 of the world's 66[36] defined LMEs.	Basic first models available (final versions Jun 2008)	
	Web-based database making the LME models available	Jun 2008	
	Technical report on the LME models and analyses: *Models of the world's large marine ecosystems*	Draft available (final version Jun 2008)	To be published by UNESCO and UBC[37].
	Chapter in UNEP The UNEP Large Marine Ecosystems Report (No 182)		*See further Appendix on NOAA.*

[35] The activity has in fact been completed but was not yet covered by a contract from IOC (see further under *Operational and administrative issues* below).
[36] A decision to formally increase the number of LMEs from 64 to 66 (by a redefinition of the LMEs in the Arctic region) is likely to be taken in July this year at the meeting of the LME Consultative Committee (IOC-IUCN-NOAA).
[37] IOC/UNESCO Technical Report Series and Fisheries Centre Report, 2008, Volume 16, Issue 7.

However, when looking at the use of EwE models in fisheries management processes and by decision makers, it is more difficult to see clear results although the approach is used in some parts of the world (see Table 6 below). The reasons for this are likely to be of a more general nature and not related to the quality of EwE. An overview of how the results of the FC/UBC implemented activities contributed to Project outcomes and objectives is given in Table 6, using the "TE main questions" as the framework[38].

Beneficiaries

The direct beneficiaries of the FC/UBC activities were primarily fisheries and ecology scientists (and students) in developing countries (Africa and Southeast Asia) and in countries that at the time were considered "economies in transition", e.g. Estonia, Latvia and Lithuania in the Baltic region. The total number of trainees is 110 (including the workshop in Ghana). The participants in the workshop in Latvia were selected by the Baltic Sea LME project, which also paid for travelling costs. For the workshop in South Africa, the two co-partners – UCT and MCM – helped with the selection in coordination with the Benguela Current LME project. The latter also paid for travel costs. The workshop in the Philippines was posted on a commercial "event coordinator" website (www.brite.com). With the assistance of NOAA LME Programme, all LME projects in the region were also contacted. However, the turnout was lower than expected and most participants were from the Philippines. All workshops required a certain educational and professional background and specified criteria were used in the selection process.

Sustainability and catalytic role

Thanks to the fact that the UNEP/GEF Project was fully incorporated into the existing Sea Around Us project and built on and contributed to an already ongoing process – the development, enhancement and application of EwE – the results achieved with regard to modelling are likely to be sustainable. The Sea Around Us project is expected to continue for the foreseeable future and the work of the UNEP/GEF Project constitutes an integral part of the whole EwE project. It will be further built upon and replicated as appropriate. FC/UBC gives training courses on a continuous basis through the Sea Around Us project and it is possible that further support – in addition to the fairly common contacts on an individual basis between FC/UBC and former trainees – will be extended to some of the same countries, regions, LMEs or participants that have already received training[39].

The sustainability of the enhanced capacity of scientists acquired through the Project training workshops is more difficult to judge. As mentioned in other parts of this Appendix, the application of Project results at the level of fisheries policy and management are rare. If former trainees do not have opportunity and authority to inform decision making, the degree of sustainability of Project results will be low.

Stakeholder participation and ownership

The stakeholders of the Project included the trainees, LME and fisheries managers, the different Project partners involved in the organisation of training workshops and ultimately the local populations dependent on effective management of fisheries and LMEs. The Project activities were directed to trainees and stakeholder involvement was limited to this group and Project partners.

As mentioned above, the trainees for the various workshops were selected in somewhat different ways. The level of stakeholder ownership has probably been low at the start of activities (i.e. before training workshops) but could have increased over time for trainees who developed models for their local areas with support from FC/UBC.

[38] See footnote 31.
[39] For example, a second training course for the Gulf of Guinea will be held in December 2008.

Table 6: Results of FC/UBC Project activities – answers to TE questions

1. *Did the project help to improve understanding of country fisheries scientists, managers, extension professionals and policy makers in scientific, ecosystem-based approaches to fisheries management and fishery assessments that include food web and nutrient effects?*
The Project contributed to building capacity with regard to ecosystem modelling (using EwE) among scientists from the participating regions (in particular the Baltic Sea, Benguela Current and South China Sea). Many of these scientists have continued to work with EwE for their local, national and regional areas. FC/UBC estimates that, after a training course, about of a third of the trainees remain in contact with them on EwE modelling related issues. An example of application and follow-up to be noted is the decision by the local participants in the training workshop in Ghana to publish a book on "*Fisheries of the Guinea Current Large Marine Ecosystem*". This publication is currently under preparation with organisational and editorial support from FC/UBC. However, while there are several examples of good EwE modelling work at the research level, there are fewer examples of direct application of EwE in decision making at the fisheries management and policy level. The countries of the Guinea Current LME project are starting to make use of the approach and it is also known to be used – to varying extents and in different forms – in fisheries management in[40]: - Thailand (fisheries management in the Gulf of Thailand) - Benguela LME (for management of certain segments, including small-pelagics) - Namibia (impact of proposed fisheries interventions) It is however not possible to attribute these applications solely to the UNEP/GEF Project; they represent an outcome of the long-term work by FC/UBC (and others) on ecosystem modelling.
2. *Has the consultative and collaborative network between developed and developing countries fisheries experts sharing lessons on fisheries management within the context of the ecosystem approach targeted the relevant key groups and organisations, and has this resulted in the adoption of new fisheries management measures?*
There are over 5,000 registered users of EwE in over 160 countries in the world. While there is no formalised network structure in place, there are many contacts between users and the training workshop have contributed to establishing these relationships (see also (1) above).
3. *Have the results of the ECOPATH/ECOSIM food-web modelling been adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?*
EwE is likely to be used by scientists being involved, directly or indirectly, in GEF/LME projects or working in countries implementing GEF/LME projects but – apart from what has been mentioned under (1) above – the evidence of influence at management and policy levels is still limited.
4. *Have the nutrient forecast models been successfully adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?*
N/A
5. *To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?*
EwE is widely known and carries substantial scientific authority and credibility among scientists; it is one of the major approaches for ecosystem modelling. The reason for it not being incorporated into fisheries management processes to a larger extent – as mentioned above (see (1) – is unlikely to be related to any doubt regarding its scientific quality of the work as such but rather to the way fisheries management is structured in general and the relatively recent recognition by managers and decision makers that it is necessary to adopt an ecosystem approach. Likewise, ecosystem models – such as the EwE – are in many respects still in a development phase and in the process of being tested empirically.

[40] Geographical areas outside the scope of the Project where the approach is also used for various fisheries management processes include the Gulf of California, Gulf of Mexico, Bering Sea and Gulf of Alaska, Great Barrier Reef (Australia) and Ortobello lagoon (Italy).

Box 4: The Ecopath with Ecosim (EwE) approach

"EwE is an ecological software suite for personal computers that has been under development for more than a decade. The development is centered at the University of British Columbia's Fishery Centre, while applications are widespread throughout the world. […] EwE has three main components: Ecopath – a static, mass-balanced snapshot of the system; Ecosim – a time dynamic simulation module for policy exploration; and Ecospace – a spatial and temporal dynamic module primarily designed for exploring impact and placement of protected areas. The Ecopath software package can be used to

- Address ecological questions;
- Evaluate ecosystem effects of fishing;
- Explore management policy options;
- Evaluate impact and placement of marine protected areas;
- Evaluate effect of environmental changes.

The foundation of the EwE suite is an *Ecopath* model […], which creates a static mass-balanced snapshot of the resources in an ecosystem and their interactions, represented by trophically linked biomass 'pools'. The biomass pools consist of a single species, or species groups representing ecological guilds. Pools may be further split into ontogenetic (juvenile/adult) groups that can then be linked together in Ecosim. Ecopath data requirements are relatively simple, and generally already available from stock assessment, ecological studies, or the literature: biomass estimates, total mortality estimates, consumption estimates, diet compositions, and fishery catches.
[…]

Ecosim provides a dynamic simulation capability at the ecosystem level, with key initial parameters inherited from the base Ecopath model. The key computational aspects are in summary form:

- Use of mass-balance results (from Ecopath) for parameter estimation;
- Variable speed splitting enables efficient modeling of the dynamics of both 'fast' (phytoplankton) and 'slow' groups (whales);
- Effects of micro-scale behaviors on macro-scale rates: top-down vs. bottom-up control incorporated explicitly.
- Includes biomass and size structure dynamics for key ecosystem groups, using a mix of differential and difference equations. As part of this EwE incorporates:
    - Juvenile size/age structure by monthly cohorts, density- and risk-dependent growth;
    - Adult numbers, biomass, mean size accounting via delay-difference equations;
    - Stock-recruitment relationship as 'emergent' property of competition/predation interactions of juveniles.

Ecosim uses a system of differential equations that express biomass flux rates among pools as a function of time varying biomass and harvest rates, […]. Predator prey interactions are moderated by prey behavior to limit exposure to predation, such that biomass flux patterns can show either bottom-up or top down (trophic cascade) control […]. By doing repeated simulations Ecosim allows for the fitting of predicted biomasses to time series data. […] Ecosim can thus incorporate (and indeed benefits from) time series data on:

- relative abundance indices, (e.g., survey data, catch per unit effort [CPUE] data);
- absolute abundance estimates;
- catches;
- fleet effort;
- fishing rates; and
- total mortality estimates.

For many of the groups to be incorporated in the model the time series data will be available from single species stock assessments. EwE thus builds on the more traditional stock assessment, using much of the information available from these, while integrating to the ecosystem level."
(About EwE, webpage, available at www.ecopath.org).

Operational and administrative issues

M&E

Reports have been submitted to IOC/UNESCO as and when requested. The main documents in this respect are the two final reports, one for each of the two contracts FC/UBC had with IOC/UNESCO. Contacts have also been maintained with NOAA and progress discussed and reported to the agency although not always in documented and systematic way.

Financial planning

FC/UBC has had two contracts with IOC/UNESCO and is expecting to sign a third one for Component 2d.

The establishment of both two contracts that FC/UBC had with IOC/UNESCO took longer than expected. The first contract was delayed about one year due to legal and administrative procedures. The second contract was about six months late due to, at least partly, the sudden passing away of the UNEP Task Manager. The third contract is delayed because of UNESCO rules that do not allow the total of simultaneous contracts to exceed a certain amount.

These delays did however not affect the implementation of the Project. Other funding sources available under the Sea Around Us project could support Project activities while waiting for the contractual arrangements. The organisation of the workshop organised in connection with the 4th World Fisheries Congress started late, with effects on the participants that were able to attend (see also footnote 32).

The total amount of the two established contracts is US$ 205,000. The third contract is expected to be for some US$ 40,000 – 50,000. FC/UBC has officially provided co-funding of US$ 100,000. Considering the way the UNEP/GEF Project was integrated with FC/UBC's other EwE activities, it is however difficult to assess how much co-funding in the form of staff time that has been provided in practice.

ANNEX 7: COMPONENTS 2b AND 2c AND TECHNICAL COORDINATION

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION. LME PROGRAMME (NOAA), NARAGANSETT, RHODE ISLAND – USA
and work by
PRINCETON UNIVERSITY, NEW JERSEY – USA and
UNIVERSITY OF RHODE ISLAND (URI), USA

Role of NOAA in the Project (and role of the Project in NOAA)

The **NOAA LME Programme** was not directly responsible for the implementation of any particular component of the Project but acted as the main technical coordinator of all Project activities. **Princeton University** and **University of Rhode Island (URI)** carried out the workshops on particle size spectra and GIS included under **Component 2,** *Filling gaps in LME fisheries carrying capacity,* i.e. *Training of GEF-LME project network in the application of particle size spectra as indicators of pollution in LMEs* (Princeton) and *Geographic Information Systems (GIS) training in assessment and management of LMEs* (URI). These sub-components contributed to the outcomes and objectives regarding enhancing the capacity of experts and scientists in ecosystem approaches to fisheries management (objective 10.1, outcome 11.2) and filling gaps in the knowledge on ecosystem carrying capacities (objective 10.3).

NOAA was closely involved in the design of the Project, the coordination of activities during its implementation and is currently playing an important role in pulling together the outputs generated, e.g. as co-editor[41] of the UNEP Large Marine Ecosystems Report *A perspective on changing conditions in LMEs of the World's Regional Seas* (UNEP Regional Seas Studies and Reports No 182) drawing on, among other things, results produced by FC/UBC and Rutgers.

The LME concept was pioneered by NOAA and introduced as the main approach to ecosystem management in US coastal areas in 1984; the Northeast US shelf is the prototype of the LME concept. NOAA is also involved in LME projects internationally and works closely with all sixteen LME projects funded by GEF since 1995, providing technical support and coordination. A total of some 2,500 participants and partners are involved, and grants and investments funds amount to US$ 1.8 billion (total of projects ongoing in 2007). The present Project is providing important scientific support and is the only GEF funded project focused on research; other LME projects are generally addressing management and implementation issues more directly.

The important role of NOAA as the main technical coordinator was not spelt out clearly in the Project Document although mentioned in the context of cofunding (e.g. under the heading Incremental Cost Assessment page 13: "US-NOAA will provide scientific and technical support at the level of $200,000 to assist the implementation of the project"). Nevertheless, there appears to have been an evident understanding and appreciation of this role of NOAA among partners and the donor since the very beginning of Project.

Overview of activities, results and beneficiaries

Activities and results
NOAA was the main contact point among Project partners (along with IOC/UNESCO for administrative matters) and supported the work under the different components. In addition to support to the activities carried out by WCFS/AFS, FC/UBC and Rutgers – explained in ANNEXES 4, 5 and 7 – NOAA also

[41] The report is edited by Kenneth Sherman of the NOAA LME Programme and Gotthilf Hempel.

coordinated the work by Princeton and URI mentioned above. Moreover, NOAA continues to support the further development of the LME portal, designed by URI (see http://www.lme.noaa.gov/Portal/ and http://www.edc.uri.edu/lme/intro.htm). When completed, the portal will allow users to access all Project outputs as well as other information on LMEs around the world through one web access point.

Table 7 gives an overview of the activities by Princeton and URI. Since NOAA's involvement largely consisted of general support and overall Project coordination, component specific activities referred to in the Appendices on AFS/WCFS, FC/UBC and Rutgers are not discussed further in this Annex.

Table 7: Project activities carried out by Princeton and URI (by component indicator)

Indicator	***Activity***	***Date completed***	***Remarks***
2b: At least 3 GEF-LME projects successfully using the methodology [particle size spectra] (Baltic, Guinea, Benguela LMEs).	Workshop carried out on *Climate Change, Upwelling, Fisheries and Coastal Communities* with 34 participants whereof 6 from Benguela Current LME countries, 1 from Chile and 1 from Nigeria (all others from developed countries, including Baltic Sea LME). The workshop was a joint undertaking by Princeton University/University of California-Berkely, ICTP, IIASA and NOAA and took place in Trieste, Italy.	Mar 2006	Article published on size-structured plankton dynamics model by participants Stock, Powell and Levin [42]as follow-up on workshop. The usefulness of the approach for LME management is currently being assessed by NOAA.
2.c. At least 25 experts from 13 developing countries trained [in GIS assessment and management of LMEs].	Training session on GIS carried out by URI in cooperation with a GEF IWLearn workshop on *Sustainability of LMEs: Bridging the Governance and Socioeconomic Gap*.11 participants from 6 LMEs (Agulhas/Somali Current, Baltic Sea, Benguela Current, Caribbean Sea, Guinea Current and Yellow Sea) attended.	Mar 2006	
Activities and outputs not explicitly mentioned in Project Document but included under the contractual arrangements between IOC and UBC.	Development of an information portal for LMEs by URI.	Ongoing	NOAA is funding further development required before portal can be made operational.

One major output related to the Project and largely attributable to NOAA – although based also on inputs from other partners, i.e. FC/UBC and Rutgers – is the UNEP Large Marine Ecosystems Report mentioned above. The report consists of 64 LME condition briefs summarising information on each LME with regard to:

- Chlorophyll and primary production;

[42] Stock, C.AS, Powell, T.M and Levin, S.A. 2008*in press*. Bottom–up and top–down forcing in a simple size-structured plankton dynamics model. *Journal of Marine Systems.*19pp.

- Fish and fisheries based on a 50-year time series of landings, trophic levels of catch and value of catch;
- Changing conditions effecting pollution and the general health of LMEs;
- Profiles of socioeconomic conditions related to marine resource variability in abundance and availability; and
- Descriptions of governance and management regimes operating in each of the LMEs.

In addition, the report includes summary chapters addressing Fish and Fisheries Diagnoses, the Status of Global Nutrient Over-enrichment and the Effect of Global Climate Warming on Fisheries Biomass Yield. The two first of these are based essentially on outputs produced by the Project. The Fish and Fisheries Diagnoses present several innovative concepts and indicators for describing fisheries at the stock level and is based on work by FC/UBC. The Status of Global Nutrient Over-enrichment is based on Rutgers' work on nitrogen export. At the time of the TE, the document was subject to a peer review process and expected to be published later in the year.

An overview of all Project results across components is given in the main text of the TE report (see Table 1).

Beneficiaries

The direct beneficiaries of the activities carried out by Princeton and URI were the participants attending the workshops. Referring to Table 7 above, the number of beneficiaries from developing countries that attended the two events may be considered somewhat low compared to the indicators and in the light of the overall objective as spelled out in the Project Document. In particular with regard to the particle size spectra training, it would also appear that few participants were directly involved in LME management. On the other hand, the subject matter of the workshop required a certain educational and professional background and the combination of participants may have been appropriate for producing the results achieved.

The beneficiaries, in addition to Project partners, of NOAA's support and coordination constitute a much wider and diverse group that will be defined largely by follow-up communication and outreach activities. The UNEP Large Marine Ecosystems Report is likely to reach a broad audience but its influence will also depend on a variety of factors, including political commitment and whether support will be available for bringing the approaches promoted into the arena of practical implementation.

Sustainability and catalytic role

As already mentioned above, the NOAA LME Programme is playing an important supportive and coordinative role for the GEF funded LME projects. With NOAA as the central hub of the present Project, sustainability is likely to be ensured since results and the need for follow-up activities will be considered within the larger picture of LME projects. It should also be noted that the outputs of the Project are in this context considered substantial and important, filling a gap in basic scientific information on LMEs that is essential for improving fisheries/ecosystem management.

However, reviewing the Project results in the light of the objective and outcome indicators given in the Project Document, it would appear that the Project has not quite achieved what it was set out to do with respect influencing fisheries/ecosystem management of LMEs. This may be a Project design issue since it appears that it was clear from the beginning to all partners involved that the Project was research focused and that the scope would not allow for taking the next step, i.e. promoting the application of the scientific results generated and the approaches developed at the level of actual LME management. It would appear that substantial further efforts will be needed to achieve this and it would seem logical that NOAA should be a key partner in any such initiative. In this respect, it should be noted that NOAA – through its general

involvement in LME projects – is in regular contact with GEF and other partners discussing potential future activities with regard to LME management.

With regard to the activities and results relating to the involvement of Princeton and URI, the development of the LME portal would appear of particular importance. NOAA's ongoing and continued support – both financially, administratively and technically – to this output will be essential for its sustainability and future usefulness.

Stakeholder participation and ownership

The stakeholders of the Project include the trainees, LME and fisheries managers, the different Project partners involved in the organisation of training workshops and other Project activities. The ultimate beneficiaries and stakeholders are the local populations dependent on effective fisheries/ecosystem management in LMEs.

Maybe due to its research focus, it would appear that while the partners – in particular NOAA, FC/UBC and Rutgers – were closely involved and had ownership of their respective parts of the Project, there was relative little direct involvement of LME managers and relevant national decision-makers. Trainees and participants in the various Project workshops were selected in somewhat different ways and generally in consultation with GEF/LME project managers but overall the level of country-level and LME project ownership in this respect has probably been low, including in the two events organised by Princeton and URI. Some training courses required specialised scientific skills and were not necessarily designed for LME project management. Participants tended to be qualified scientists who were not always closely involved in practical ecosystem/fisheries management.

Operational and administrative issues

M&E
Reports have been submitted to IOC/UNESCO as and when requested. NOAA was not aware of any further reporting requirements. Hence, the quarterly progress reports mentioned in the Project Document (indicator 11.3 a) were never submitted.

Financial planning
NOAA did not receive any funding from the GEF budget. Instead, NOAA contributed US$ 200,000 of cofounding consisting of staff time of NOAA LME Programme and travel costs for coordination and general support as well as participation in workshops and meetings. The NOAA in-kind contribution also covers time spent on the Project by Rutgers (Sybil Seitzinger is a NOAA employee).

ANNEX 8: COMPONENT 3

RUTGERS UNIVERSITY – NEW BRUNSWICK, NEW JERSEY – USA

Role of Rutgers in the Project (and role of Project in Rutgers)

Rutgers University implemented **Component 3** of the UNEP/GEF Project: *Filling gaps in LME Nitrogen loadings forecasts for 64 LMEs*. It consisted of three sub-components: (a) *Organize initial IOC-UNESCO workshop on modeling Nitrogen Flux and eutrophication. The workshop will be convened at IOC/UNESCO in Paris*, (b) *Establish continuing training through electronic IOC Eutrophication Network on the methods and application of a Nitrogen-based model used to forecast eutrophication conditions in the 64 LMEs of the world*, and (c) *Follow-on final workshop on modeling of N flux and eutrophication to be convened at IOC/UNESCO, Paris.* The component contributed to the outcomes and objectives regarding the enhancement of capacity of experts and scientists in ecosystem approaches to fisheries management (objective 10.1, outcome 11.2), strengthening of collaborative networks (objective 10.2, outcome 11.3) and forecasting nitrogen induced eutrophication (objective 10.4).

The work of Rutgers University has been fairly independent from the other Project components and the work of other partners although the two workshops in Paris were implemented in collaboration with IOC/UNESCO. Regular contacts with IOC/UNESCO were also maintained throughout the Project for administrative purposes since IOC/UNESCO was the executing agency.

Moreover, Rutgers participated in Project Steering Committee (PSC) meetings and the outputs generated under the Component have been pulled together – with outputs of other Project components – by the NOAA LME Programme in its Project coordinator role. In this way, Rutgers has contributed to a UNEP publication: *The UNEP Large Marine Ecosystems Report – A perspective on changing conditions in LMEs of the World's Regional Seas* (UNEP Regional Seas Studies and Reports No 182. This is further discussed in the ANNEX 7 on NOAA.

There are some potential future links between the work carried out by Rutgers and the Ecopath with Ecosim (EwE) modelling done by FC/UBC under Component 2a; the results of the nitrogen loading forecasts are potentially of significance to the ecosystem models. However, this was not part of the Project and no collaboration on this has yet taken place.

The Project activities carried out by Rutgers took place within the overall framework of the scientific task force Global NEWS[43], using the Global NEWS model (see Box 5). The Project contributed to the work of the task force by providing a link to developing countries and allowing for validation of data for a number of geographic (LME) areas. The fact that the Project activities were embedded in the wider context of Global NEWS is likely to have created synergy effects increasing the 'value for money' of the Project investment. Close contacts have been maintained with several of the Project workshop participants thanks to common professional interests and collaborative links are likely to continue beyond the Project.

[43] Global Nutrient Export from Water(S)heds.

Box 5: Global NEWS

"Global *NEWS* is an international, interdisciplinary scientific taskforce, focused on understanding the relationship between human activity and coastal nutrient enrichment. It was formed in the spring of 2002 as a workgroup of UNESCO's Intergovernmental Oceanographic Commission (IOC), with co-sponsorship by UNEP, US-NSF[44], and US-NOAA. Global *NEWS* is a LOICZ[45] affiliated project. The primary aim of Global *NEWS* is to construct and apply the next generation of spatially explicit, global nutrient export models, linking the resulting river loads to quantitative assessments of coastal ecosystem health. The first set of global river export models was published in late 2005 in a special collection of the journal Global Biogeochemical Cycles."

The possible application areas of Global NEWS include:
- "Identification of areas prone to nutrient over-enrichment
- Explanation of regional patterns in coastal nutrient enrichment
- Prediction and mitigation of environmental impacts of nutrient over-enrichment (e.g. occurrence of harmful algal blooms)
- Identification of nutrient sources to the coastal zone and their relative importance
- Evaluation of potential environmental impacts due to economic and policy decisions at the national, regional, and global level"

Source: Global NEWS webpage (http://marine.rutgers.edu/globalnews/index.htm)

Overview of activities, results and beneficiaries

Project activities

All the activities planned in the Project Document have been implemented and the results achieved meet the indicators defined for Component 3, except possibly for indicator 3b referring to the application of model results in GEF LME projects (see also Table 8). In addition to the activities specified in the Project Document, an IOC/UNESCO technical report is being prepared for publication later this year (in accordance with a decision in the PSC meeting in January 2008 and along with a similar report on the work by FC/UBC). Moreover, a manuscript has been prepared for publication in a peer reviewed journal.

In preparation of the workshops, the Global NEWS model had to be reconfigured to fit the context of LMEs, to allow inputting of databases for 2030 forecasting scenarios and to facilitate its use by workshop participants[46]. Specific training material was also developed for the workshops. IOC/UNESCO handled the practical arrangements for the workshops (room scheduling, computer rentals, internet connections, travel arrangements).

[44] United States National Science Foundation.

[45] LOICZ is a core project of the International Geosphere-Biosphere Programme (IGBP) and the International Human Dimensions Programme on Global Environmental Change (IHDP).

[46] The modelling work and training carried out in the context of the Project used a new Nitrogen Export from Watersheds Model (NEWS N-Export Model) that predicts inorganic N export by rivers to the coast.

Table 8: Project activities carried out by Rutgers (by component indicators)

Indicator	*Activity*	*Date completed*	*Remarks*
3.a. At least 5 developing countries and countries with economy in transition and 7 GEF-LME projects trained. Training materials disseminated broadly through the established network.	1st training workshop held at IOC/UNESCO (8 participants)	Jan 2006	Participants from 7 developing countries (Chile, China, Ghana, India, Mexico, Namibia, Nigeria) and 1 economy in transition (Latvia).
3.b. Ongoing interactive operation of the IOC Eutrophication Network. Nitrogen modeling successfully applied in at least 6 GEF-LME projects.	The network has been and continues to be active. The Nitrogen export model was successfully applied in at least 6 GEF/LMEs through the workshop participant activities. However, it is not known if the results have been directly incorporated into GEF/LME projects.		See also http://marine.rutgers.edu/globalnews/LMEworkshop.htm
3.c. Training completed. Completion of the final Nitrogen Flux Workshop Report and dissemination to the GEF-LME Network.	2nd training workshop held at IOC/UNESCO (8 participants)	Sep 2006	New participants from Angola, China and Latvia replacing 3 trainees from earlier workshop that could not attend.
Activities and outputs not explicitly mentioned in Project Document but included under the contractual arrangements between IOC and Rutgers.	Nitrogen loading forecasts developed for each of the world's 64 defined LMEs.		Manuscript prepared for publication in peer reviewed journal.
	Technical report on the LME models and analyses: *Filling gaps in LME Nitrogen Loadings Forecast for 64 LMEs*	2008	To be published by UNESCO[47].
	Chapter in the UNEP Large Marine Ecosystems Report – A perspective on changing conditions in LMEs of the World's Regional Seas (UNEP Regional Seas Studies and Reports No 182)		*See further Appendix on NOAA.*
	Project component summary document developed and distributed at the 2nd Global Conference on LMEs in Qingdo, China	Sep 2007	

[47] IOC Technical Series No 79. UNESCO 2008.

Results

With regard to the quality of the model results and the concepts and methodologies taught at the training workshops, the TE Consultant believes that these are of a very high standard. The TE Consultant is not in a position to assess the work from a technical point of view, nor does the scope of the TE allow for such an assessment. However, considering the apparent general global renown of Global NEWS, the TE Consultant concludes that the work carried out is state of the art.

However, Global NEWS is a relatively new approach; the first set of articles was published by the task force in 2005 and 2006. The model is being used by the task force members and by academia. While it to a certain extent feeds into management decisions in Europe and North America, its wider application in a policy context is yet to begin (see also Box 5). In order to use its results in the context of fisheries/ecosystem management, further analyses would be needed; the model estimates the nitrogen export up to the coastline and not its effects on fish populations.

The network created through the workshops and follow-up work – the IOC Eutrophication Network[48] – appears to be functioning well and to be useful. It is a virtual network (e.g. no webpage or other formal structure), partly built on social contacts made during the training events but also because of professional mutual interests. The fact that the group is relatively small with a common professional focus may be part of the explanations for its success.

An overview of how the results of the activities implemented by Rutgers contributed to Project outcomes and objectives is given in Table 9: Results of Rutgers Project activities – answers to TE questions, using the "TE main questions" as the framework[49].

Beneficiaries

The direct beneficiaries of Rutgers University activities were the government agency and academic scientists who participated in the workshops and training. These included a total of eleven individuals from nine countries, representing seven LMEs (Baltic Sea, Bay of Bengal, Benguela Current, Guinea Current, Gulf of Mexico, Humboldt Current and the Yellow Sea). Eight participants attended each workshop: three from the first one could not attend the second and appointed replacements from their respective LMEs. Trainees also took part actively in the work in between and after the training events. The participants were selected with assistance of the relevant LME projects and had to fulfil certain educational and professional criteria.

Sustainability and catalytic role

Considering that the Project activities were nested in the overall Global NEWS work, the results generated by Component 3 are likely to be sustainable on the whole. Work on nutrient forecasting will continue after the conclusion of the Project within the existing Global NEWS task force and the group at Rutgers. In addition to the Global NEWS members at Rutgers, two members from the Netherlands also participated in the second workshop carried out creating direct interaction between the workshop participants and the larger group of Global NEWS individuals. The network established among developing country participants appears sustainable, at least as long as there are shared interests as a basis for communication. It is also likely that there will continue to be exchanges between scientists in developing and developed countries although it is doubtful that work focusing on developing countries will be maintained by the task force unless a follow-up project is approved (see below).

[48] The network may be more of a social network consisting of workshop participants; it does not have a specific agenda or formulised objectives.

[49] See footnote 31.

Table 9: Results of Rutgers Project activities – answers to TE questions

1. *Did the project help to improve understanding of country fisheries scientists, managers, extension professionals and policy makers in scientific, ecosystem-based approaches to fisheries management and fishery assessments that include food web and nutrient effects?*
The Project contributed to building capacity with regard to eutrophication modelling among government agency and academic scientists from the nine participating countries and seven LMEs (Baltic Sea, Bay of Bengal, Benguela Current, Guinea Current, Gulf of Mexico, Humboldt Current and Yellow Sea). Rutgers continues to be in contact with several of the trainees and the original Global NEWS task force has in this way – through the IOC Eutrophication Network – become more global with contacts in developing countries. The IOC Eutrophication Network continues to be active and participants generally pursue research activities related to nitrogen loadings. Two participants from the Project training courses are participating in the SCOR[50]/LOIZC working group of Land Based Nutrient Pollution and Harmful Algal Bloom. However, it is not possible to see an impact of the Project at the level of managers and policy makers at this stage. Considering that nutrient export through river loads appears to receive increasing attention by global environmentalists, the results of the Project could contribute to increased awareness of this issue in the future although it will be difficult to distinguish between the impact of the Project and that of the Global NEWS task force as a whole. It should also be noted that Nitrogen export is not a fisheries issue as such and that additional analyses are needed to understand the potential effect on fish populations (e.g. in the context of ecosystem modelling).This was outside the scope of Component 3 of the Project.
2. *Has the consultative and collaborative network between developed and developing countries fisheries experts sharing lessons on fisheries management within the context of the ecosystem approach targeted the relevant key groups and organisations, and has this resulted in the adoption of new fisheries management measures?*
The IOC Eutrophication Network and its contact with the Global NEWS task force constitutes increased effective collaboration between developed and developing country scientists, and trained government agency and academic scientists who interact with their government agencies that address environmental issues. However, it is not known if this has led to an adoption of new fisheries management measures (see also (1) above).
3. *Have the results of the ECOPATH/ECOSIM food-web modelling been adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?*
N/A please refer to table 6 above.
4. *Have the nutrient forecast models been successfully adopted in at least 10 countries involved in the implementation of the GEF/LME's projects?*
No. Scientists in nine countries are likely to have a good understanding of the issue and the forecast model but this has not yet influenced GEF LME project implementation, as far as it is known. Further activities and support focusing on linking the scientific results with management decisions would be needed for this to happen (and such follow-up activities are currently being discussed within the context of a new project).
5. *To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?*
The modelling work carried out under the Project and Global NEWS appears to have an excellent international reputation. With appropriate dissemination, outreach and delivery to policy processes, this could influence policy makers and others in the future.

[50] Scientific Committee on Oceanographic Research.

The influence of nitrogen loading forecasts on future LME management will depend on a number of factors. As mentioned above, the link to fisheries/ecosystem management is not direct but further analyses are required. It would appear important to include nutrient export factors in the assessment and management of LME ecosystems, both as an explanatory factor enhancing the understanding of ecosystem state and health and as a basis for taking multi-sectoral action to mitigate the impact of human land based activities on coastal areas. Political support would be important for the latter.

The Project did not explicitly address the need to disseminate and publicise the results of the work carried out at national policy and LME management levels. It is recognised that this is a critical step – to link science and policy and management decision making – and a new project proposal to GEF is under preparation as a follow-up to the present Project. The new project would include the development of a user friendly interface of the model as well as a tool box and would target LME managers and other decision makers more directly. It would cover LMEs in Southeast Asia, West Africa and Central America.

Stakeholder participation and ownership

The stakeholders of the Project included the eleven workshop participants, LME and fisheries/ecosystem managers, government agencies and other organisations concerned with the reasons for and effects of nutrient export and ultimately the local populations dependent on effective management of fisheries and LMEs.

The Project activities were directed to workshop participants and stakeholder involvement was limited to this group.

Operational and administrative issues

M&E
Reports have been submitted to IOC/UNESCO as and when requested. The main documents in this respect are the two final reports – for year 1 and year 2 – one for each of the two contracts Rutgers had with IOC/UNESCO. Contacts have also been maintained with NOAA; this has been through telephone discussions as well as by progress and final reports being copied to NOAA when submitted to IOC/UNESCO.

Financial planning
Rutgers has had two contracts with IOC/UNESCO, one for each year of the Project implementation phase relevant to Component 3.

The total amount of the two established contracts is US$ 164,000 (US$ 79,000 + 89,000). Co-funding in kind contributions were not reported directly by Rutgers but by NOAA (since Rutgers' lead person, Sybil Seitzinger, is a NOAA employee).

ANNEX 9: PROJECT OBJECTIVES, OUTCOMES AND COMPONENTS

Table 10: Project objectives

General objective:	
To support participation in the [4th World Fisheries] Congress [May 2004 in Vancouver, Canada] and its courses, workshops, and the follow-on networking of fisheries professionals from countries participating in the development and implementation of GEF/LME projects and other developing countries and countries with economies in transition. The project will serve to strengthen capacity for improving fisheries management at local, provincial and national levels through a holistic approach by facilitating sharing and applying usable knowledge and successful practices from the Congress and follow-on workshops and networking.	
Objectives:	***Objective indicators:***
1. Train fisheries experts from developing countries and countries with economies in transition in scientific, ecosystem-based approaches to fisheries management and fishery assessments that include food web and nutrient effects considerations in management decision-making.	Increased dissemination of lessons learned through the establishment of a collaborative network of trained developing country fisheries scientists, managers, extension professionals and policy makers to promote sound, scientific approaches to fisheries sustainability and management with an emphasis on the large marine ecosystems of developing countries. Application by developing countries of advanced fishery assessments that include food web and nutrient effects considerations in management decision making.
2. Strengthen collaborative network and partnerships among fisheries scientists, managers, and policy makers from developed and developing countries through ECOPATH/ECOSIM workshops, Nutrient modelling workshops, and the May 04 Fisheries Congress and follow-on activities on fisheries management within the context of the ecosystem approach.	Consultative and collaborative network between developed and developing country fisheries experts sharing lessons on fisheries management within the context of the ecosystem approach
3. Fill gaps in ecosystem carrying capacity for sustainable fisheries.	ECOPATH/ECOSIM food-web modelling results adopted in at least 10 countries involved in the implementation of the GEF/LMEs projects for management actions supporting recovery of depleted fish stocks.
4. Forecast Nitrogen induced eutrophication.	Nutrient forecast models adopted in at least 10 countries involved in the implementation of the GEF/LME's projects for management actions to reduce coastal eutrophication.

Source: Project Document.

Table 11: Project outcomes

Outcomes:	***Outcome indicators:***
1. Increased dissemination of information and lessons learned made readily available to fisheries scientists, managers, extension professionals, and policy makers in developing countries through extensive database of ecosystem oriented fisheries management practices.	End users survey shows applications of newly acquired database of ecosystem-based fisheries management practices in developing countries and increase in dissemination of information and lessons learned
2. Well trained fisheries scientists, managers, and extension professionals in developing countries who are better prepared to guide the management and development of their countries' aquatic ecosystems in a holistic way, using responsible scientific approaches to estimating fisheries carrying capacity, forecast Nitrogen eutrophication conditions, and who can act as the nucleus of stakeholders group in each country that would approach fisheries issues in a scientific and practical manner.	Scientists and resource managers from at least 10 countries involved in the implementation of the GEF/LME's projects receive certification in the application of advanced food-web and nutrient flux models, and apply new methodologies as input to management actions for recovery of depleted fish stocks and reduction of nutrient loadings to coastal waters.
3. A global community of fisheries scientists, managers, and extension professionals from developing countries with growing science capacity who are able to continually access new scientific information and ideas on scientifically based-approaches to responsible fisheries management through their association with the global GEF-LME project network and/or association with the World Council of Fisheries Societies/ American Fisheries Society.	Operational network of experts from developing countries in the application of ECOPATH/ECOSIM modelling for fisheries assessment and management strategies, through 2 in-country workshops and 1 UBC workshop and IT-based communications on implementation progress over 24 months. Evaluations of the influences of ECOPATH-ECOSIM food-web are to be conducted and reported on quarterly intervals. Operational network of experts from developing countries in the application of Nitrogen-flux modelling for management actions for reducing nutrient loadings of LME coastal waters through participation in 2 workshops and IT communications on implementation progress over 12 months. Evaluation of influences of nitrogen modelling on management actions are to be completed at quarterly intervals. Operational network of experts from developing countries in the application of ecosystem-based fisheries assessment and management methods through participation at the 4th World Fisheries Congress, and follow-on workshops. Preparation of CDs, detailed fisheries assessment modules, materials and tapes, beginning in May 2004 and continuing with IT communications of the Network for 24 months to 2006. Evaluations of the influence of ecosystem-based networks on fisheries assessment and management are to be reported on at quarterly intervals.

Outcomes (cont.):	***Outcome indicators (cont.):***
4. GEF-LME projects network trained in the application of the role of particle-size spectra as an indicator of pollution stressors on Large Marine Ecosystems, beginning in May 2004 and completion in May 2005.	At least 7 GEF-LME projects under implementation trained successfully. Training materials prepared for IT distribution to the LME Network by May 2005. At least 4 GEF-LME projects under development involved at the latter stage.
5. Fisheries experts from developing countries trained in GIS applications for ecosystem-based assessment and management, beginning in May 2004 and targeted for completion in May 2005.	At least 25-30 experts from developing countries and countries with economies in transition involved in the GEF/LME projects trained in the applications of a high-resolution internet map server capacity for LMEs by May 2005. Training materials available to all participating countries and GEF-LME projects.

Table 12: Project activity components

Components:	*Component indicators:*	*Partners:*
Component 1: Strengthening ecosystem-based approach to fisheries conservation and sustainability:		
1a: Workshops and seminars on fisheries management 13 workshops and seminars will be organised during the 4th fisheries congress in May 2004.	**1a:** Each workshop is attended by at least 40 people. Of these 40 attendees, up to 30 will consist of professionals engaged in GEF-LME projects. The Project Steering Committee will undertake the process of determining attendees. Fisheries scientists, managers, extension professionals, and policy makers are trained at 13 Congress courses and workshops in successful approaches to responsible fisheries management with an integrated approach. Workshop attendees take their training back to developing countries and share their skills with others. They will also serve as the post Congress E-Network for receiving and exchanging information on ecosystem based fisheries assessment and management methods and tools.	WCFS/AFS
1b: Development of extensive database of ecosystem oriented fisheries management practices and experts, hosted by WCFS and AFS.	**1b:** Database fully accessible by end of year 1. Regular updates of the database. Project web site established by the WCFS and AFS.	WCFS/AFS
1c: Survey of the needs of each developing country in sound, responsible scientific approaches to fisheries management.	**1c:** Survey of the needs of developing countries is completed and results assessed. Fisheries scientists, managers, extension professionals, and policy makers in developing countries are successfully trained in sound fisheries management approaches, and they use these approaches in their future plans.	WCFS/AFS
1d: Strengthening of the GEF-LME projects network and other marine fisheries networks and partnerships.	**1d:** Project network is strengthened through Congress workshops and activities. Post-Congress network continues to grow based on the existing GEF-LME projects network.	WCFS/AFS
1e: Project management.	**1e:** Project Steering Committee and Project Secretariat established	Initially WCFS/AFS and later IOC/UNESCO
Component 2: Filling the gaps in LME fisheries carrying capacity		
2a: Pauly-Christensen UBC Workshops and Seminars on carrying capacity based on ECOSIM and ECOPATH model training and application for 64 LMEs.	**2a:** ECOPATH/ECOSIM training module completed and successfully utilized by scientists from developing countries during 2 in-country workshops and 1 UBC workshop	FC/UBC
2b: Training of GEF-LME projects network in the application of particle size spectra as indicators of pollution in LMEs	**2b:** At least 3 GEF-LME projects successfully using the methodology (Baltic, Guinea, Benguela LMEs).	Princeton

Components (cont.):	*Component indicators (cont.):*	*Partners (cont.):*
2c: Geographic Information Systems (GIS) training in assessment and management of LME's	**2c:** At least 25 experts from 13 developing countries trained.	URI
2d: FAO catch statistics updates for the year 2000 for the World's 64 LMEs, completing an 11-year time-series	**2d:** Completion and dissemination of 64 LME 11-year time-series, 1990 through 2000, depicting decadal trends in fish biomass levels. Report produced and disseminated by FAO on updated time-series data. Present FAO system for reporting global fish catches is limited to large geographic areas of the world's ocean.	FC/UBC (originally planned be FAO)
Component 3: Filling gaps in LME Nitrogen loadings forecasts for 64 LMEs		
3a: Organize initial IOC-UNESCO workshop on modelling Nitrogen Flux and eutrophication. The workshop will be convened at IOC/UNESCO in Paris.	**3a:** At least 5 developing countries and countries with economy in transition and 7 GEF-LME projects trained. Training materials disseminated broadly through the established network.	
3b: Establish continuing training through electronic IOC Eutrophication Network on the methods and application of a Nitrogen-based model used to forecast eutrophication conditions in the 64 LMEs of the world.	**3b:** Ongoing interactive operation of the IOC Eutrophication Network. Nitrogen modelling successfully applied in at least 6 GEF-LME projects.	
3c: Follow-on final workshop on modelling of N flux and eutrophication to be convened at IOC/UNESCO, Paris.	**3c:** Training completed. Completion of the final Nitrogen Flux Workshop Report and dissemination to the GEF-LME Network.	
Component 4: Monitoring and evaluation	**4:** Quarterly progress reports are provided to the Project Steering Committee. Final evaluation of the project carried out independently and under the oversight of UNEP's Evaluation and Oversight Unit. Final report submitted to GEF.	

Source: Project Document.

ANNEX 10: TRAINEES AND PARTICIPANTS IN PROJECT WORKSHOPS

ANNEX 9A: Participants in 4th World Fisheries Congress

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First Institute of Oceanography, SOA
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ANNEX 11: PROJECT FINANCIAL STATEMENT

ANNEX 12: CO-FUNDING AND LEVERAGE RESOURCES

Co financing (Type/Source)	IA own Financing (mill US$)		Government (mill US$)		Other* (mill US$)		Total (mill US$)		Total Disbursement (mill US$)	
	Planned	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**	**Planned**	**Actual**
– Grants										
– Loans/Concessional (compared to market rate)										
– Credits										
– Equity investments										
– In-kind support										
AFS							0.300	0.410	0.300	0.410
IOC-UNESCO	0.140	0.139							0.140	0.139
NOAA**			0.200	0.160					0.200	0.160
FC/UBC					0.100	0.100			0.100	0.100
– Other (*)										
Totals	0.140	0.139	0.200	0.160	0.100	0.100	0.300	0.410	0.740	0.809

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.
** Also includes in-kind contributions from Rutgers University (Sybil Seitzinger is a NOAA employee).

Leveraged Resources
Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective: **N/A**

ANNEX 13: CV OF EVALUATOR

CURRICULUM VITAE
of
Lena Maria WESTLUND

PERSONAL DATA

Date of birth:	22 May 1964
Nationality:	Swedish
Sex:	Female
Marital status:	Married with one child

Address:	Westlund Research & Consulting 148 Pinewood Crescent Dartmouth, Nova Scotia B2V 2P9 CANADA Telephone: ++1-902-435 5271 Mobile telephone: ++1-902-471 8049 (or ++46-708-548813) E-mail: lena.westlund@swipnet.se or lena.westlund@ns.sympatco.ca

EDUCATION AND TRAINING

1989	**Master of Science in Business Administration and Economics.** International Business Program, University of Göteborg, SWEDEN. Specialisation: International finance.
1989	**Course in international relations.** University of Göteborg, SWEDEN.
1991	**Course in social anthropology.** University of Göteborg, SWEDEN.
1991	**Project formulation training course.** FAO, Rome, ITALY.
1994	**Course in economics of transition.** International Summer School, London School of Economics, U.K.
1996	**Course in econometric principles and data analysis.** University of London, Centre for International Education in Economics (distance-learning programme).
1996	**Course in participatory rural appraisal-techniques.** Asian Association for Management in Development, Bhaktapur, NEPAL.

PROFESSIONAL EXPERIENCE

06/2000 to present

Independent consultant in research and development, based in CANADA (June 2000 – March 2006 based in SWEDEN):

Carrying out consultancies in the field of development policy and planning, and project implementation and evaluation. Main assignments include (year and funding body in parentheses):

- Consultant for finalisation of draft FAO Technical Guidelines for Responsible Fisheries on Human Dimensions of the Ecosystem Approach to Fisheries (2007–ongoing, FAO).
- Consultant for auto-evaluation of Code of Conduct for Responsible Fisheries programme of the Fisheries and Aquaculture Economics and Policy Division (2007–ongoing, FAO).
- Editor of FAO Fisheries Technical Paper on key lessons learnt from the Sustainable Fisheries Livelihoods Programme (SFLP), a regional DFID/FAO project including 25 countries in West Africa (2007-ongoing / World Fish Center).
- Financial advisor to Swedish-Kazakh joint venture company for project management services in Astana, Kazakhstan (2007 Hifab/private sector).
- Rapporteur at CWP (Coordinating Working Party on Fishery Statistics) and FIRMS (Fishery Resources Monitoring Systems) sessions and steering committee meetings (2006 and 2007, FAO).
- Main author of FAO Fisheries Technical Paper on "Disaster Response and Risk Management in the Fisheries Sector" (2006, FAO).
- Mid-term review of the global GEF-funded project "Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of By-catch Reduction Technologies and Change of Management", implemented by UNEP and executed by FAO (2006, UNEP).
- FAO Fisheries Tsunami Country Programme Support Officer: 10-month assignment based in headquarters with travel to tsunami-affected countries in Asia. Main tasks included: technical and operational support to field activities, situation analysis and preparation of project proposals for continued tsunami rehabilitation and reconstruction assistance (2005-2006, FAO).
- Preparation of documents and participation as rapporteur in a workshop on "The Role of Regional Fisheries Bodies in Implementation of the FAO Strategy for Improving Information on Status and Trends of Capture fisheries" and in the 22nd Session of the Coordinating Working Party on Fishery Statistics (CWP) hosted by ICES, Copenhagen, 28 February – 4 March 2005 (2005, FAO).
- Deskstudy of current development strategies in the Republic of Turkey (2005, Opto International AB / Sida).
- Preparation of final document on evaluation of FAO Fisheries Department's work programme "Global analysis of Economic and Social Trends in Fisheries and Aquaculture" (2004, FAO).
- Participation in the Annual ECOWAS / Development Partners Coordination meeting and in other meetings attended by the Swedish delegation, 22-25 November 2004, Abuja, Nigeria. Preparation of internal report of the meetings (2004, Sida).
- Preparation of meeting documents and participation in FAO Expert Consultations and meetings on fisheries subsidies (2002-2004, FAO).
- Preparation of the "Guide for identifying, assessing and reporting on subsidies in the fisheries sector", including case studies in Norway, Trinidad and Tobago, Vietnam and Tanzania, published as an FAO Fisheries Technical Document, (2002-2004, FAO).
- Provision of inputs in the field of socio-economics and gender for a development study project in Guinea (2002-2003, Overseas Agro-Fisheries Consultants Co. Ltd. / JICA).
- Responsible for the socio-economic component of a project for the development of a fisheries management plan for the main demersal fisheries of Mauritania (2000-2002, Overseas Agro-Fisheries Consultants Co. Ltd. / JICA).

- Preparation and presentation of a keynote document on "Outlook of fish supply and demand in the ASEAN region" for the ASEAN/SEAFDEC/FAO conference "Fish for the people" in November 2001 in Bangkok, Thailand (2001, Southeast Asian Fisheries Development Centre).

05/1998 to 06/2000
Business Management Adviser / Team Leader
Department For International Development (DFID, U.K.), based in Dhaka, BANGLADESH:

Responsible for the implementation of the "Support to Grameen Motsho Foundation Project". The project aimed at strengthening the institutional capacities of the Foundation (part of the Grameen Bank group and involved in aquaculture) focusing in particular on aspects of financial viability and the enhancement of social development skills (participatory approaches, gender, etc.). In addition to general project management and the recruitment and management of international and national consultants, specific tasks also included: assistance in defining organisational goals and a future vision, financial analyses of various activities/cost centres, improvement of financial monitoring systems, and organisation of staff training in participatory working methodologies and other subjects related to social development and gender concepts.

01/1996 to 04/1998
Independent consultant in development economics
Based in Kathmandu, Nepal, and carrying out various short-term consultancies, mainly in the field of fisheries planning and socio-economics. The main assignments included (year and funding body in parentheses):

- Review of the fish marketing structure of Kathmandu Valley and formulation of recommendations for the operation of the new fish wholesale market in Kathmandu (1997-1998, FAO).
- Development and implementation of an aquaculture component as an income-generating activity for rural women within the Churia forest Development Project in south Nepal (1996-1997, GTZ).
- Elaboration of an accounting and financial reporting system for the Nepal-Denmark Watershed Management Project and the Natural Resource Management Sector Assistance Programme (1997, Royal Danish Embassy/DANIDA).
- Review of the economic aspects of the fisheries of Kompienga and Bagré lakes in Burkina Faso and giving recommendations for the elaboration of resource management plans for the two fisheries (1997, FAO).
- Review of the economics of the small pelagic fisheries sector in West Africa and participation in a regional CECAF workshop (1997, FAO).
- Review of the overall policy framework of the Estonian fisheries sector and analysis of development options and institutional requirements (1996, FAO).

09/1993 to 12/1995
Fisheries Planning Analyst
Fishery Policy and Planning Division/Development Planning Service, FAO, Rome, ITALY:

Performing economic and financial analyses, assisting in the division's work on issues related to natural resources management and sector planning, formulating specific research and project activities including drafting of project documents and study outlines, providing technical assistance to field projects as well as co-ordinating projects and activities, and drafting technical reports and documents. Specific tasks carried out included: a study on the exploitation and use of small pelagic fish species in West Africa, the coordination of a project on the rationalisation of the distant-water fishing fleets in Estonia, Latvia and Lithuania, and the preparation of a report on global fish consumption and future demand as well as the coordination of the preparation of other documents for the "International Conference on Sustainable Contribution of Fisheries to Food Security", held in Kyoto, Japan, in 1995.

09/1991 to 09/1993
Project Operations Officer
Operations Service of the Fisheries Department of FAO, Rome, ITALY:

Directly responsible for headquarters management of development projects in approximately ten countries, mainly in West Africa. Specific tasks included: formulation and drafting of project documents, recruitment of experts and consultants, budget preparation and monitoring, operational backstopping at field level and negotiations and discussions with recipient governments and the donor community.

11/1989 to 07/1991
Controller / Business Manager
Atlet AB / Atlet Leasing AB, Mölnlycke, SWEDEN:

Carrying out financial analyses and preparing annual reports and budgets at group level, improving internal reporting routines including maintaining contacts with European subsidiaries. Responsible for the management of the Atlet Leasing finance company, including the evaluation of internal and external financial reporting needs, development of accounting and reporting procedures, establishment of a financial reporting system, and the preparation of budgets and reports.

09/1989 to 10/1989
Consultant - Socio-economist
FAO Trust fund project, Madras, INDIA:

Participating in the mid-term evaluation mission to the Bay of Bengal Programme project "Small-Scale Fisherfolk Communities", a regional development project.

ADDITIONAL EXPERIENCE

1995 to present	Member of The International Institute of Fisheries Economics and Trade (IIFET).
1991-1995	Member of the FAO Core Group on Women in Fisheries.
1989	Visit to Indonesia under the Minor Field Study Programme, Swedish International Development Co-operation Agency (SIDA).
1989	Trainee, 1-month assignment, International Business Department, Dresdner Bank AG, Regensburg, GERMANY.
1988	Trainee, 2-month assignment, Financial Department, Entreprise J. Serpollet SA (public engineering company), Lyon, FRANCE.

LANGUAGES

Swedish: mother tongue.
English and French: fluent.
Danish and Norwegian: excellent comprehension.
Italian and Spanish: good.
German: knowledgeable.
Indonesian: basic notion.

COUNTRIES VISITED FOR WORK

Europe: Denmark, Estonia, France, Germany, Latvia, Lithuania, Italy, Norway, Spain, Sweden, Switzerland, United Kingdom.
Africa: Burkina Faso, Ghana, Guinea, Madagascar, Mali, Mauritania, Morocco, Nigeria, Senegal, Sierra Leone, Tanzania.
Asia: Bangladesh, India, Indonesia, Japan, Kazakhstan, Maldives, Malaysia, Mongolia, Nepal, Philippines, Sri Lanka, Thailand, Vietnam.
The Caribbean and South America: Ecuador, Mexico, Trinidad and Tobago.

REPORTS AND PUBLICATIONS

Westlund, L. 1994. *Report of the study on exploitation and use of small pelagic species in West Africa*. FAO Fisheries Circular No. 880, Rome FAO, 1994. 57 p. [Also published in French]

Westlund, L. 1995. *Rapport du groupe de travail ad hoc sur les aspects économiques de l'exploitation des sardinelles et autres espèces de petits pélagiques de l'Afrique du Nord-Ouest*. Comité des Pêches pour l'Atlantique Centre-Est, COPACE/PACE series 94/59, FAO, 1995. 32 p.

Westlund, L. 1995. *Apparent historical fish consumption and future demand for fish and fishery products - exploratory calculations*. Kyoto, Japan, 4-9 December 1995. International Conference on Sustainable Contribution of Fisheries to Food Security. KC/FI/95/TECH/8 Government of Japan, Japan, and FAO, Rome. 55 p.

Westlund Löfvall, L. 1996. *Review of the policy framework and development options for the Estonian fisheries sector*. FAO project report TCP/EST/4452, March 1996. 58 p.

Westlund, L. and P.L. Joshi. 1997. *Production technology and prospects of trout farming in Nepal*. pp. 27-34. IN. "Proceedings of the National Symposium on the Role of Fisheries and Aquaculture in the Economic Development of Rural Nepal 15-16 August 1996, Kathmandu". Nepal Fisheries Society, Kathmandu, 1997.

Westlund, L. and J. Swan. 1997. *Regional review*. pp. 50-104. IN. "The State of World Fisheries and Aquaculture 1996". FAO, Rome.

Westlund, L. 1997. *World situation of small pelagics with particular reference to consumption and supply patterns*. pp. 72-76. IN "Workshop on the Management and Regulations of Small Pelagics in the CECAF divisions 34.1.3, 34.3.1, 34.3.2 and 34.3.3". Project GCP/RAF/302/EEC Improvement of the Legal Framework for Fisheries Co-operation, Management and Development of Coastal States of West Africa. Document No. 56.

Westlund, L. 1997. *Economic aspects of small pelagic fisheries in West Africa*. pp. 77-98. IN "Workshop on the Management and Regulations of Small Pelagics in the CECAF divisions 34.1.3, 34.3.1, 34.3.2 and 34.3.3". Project GCP/RAF/302/EEC Improvement of the Legal Framework for Fisheries Co-operation, Management and Development of Coastal States of West Africa. Document No. 56.

Westlund, L. 1997. *Etude économique de la filière pêche sur les lacs de Bagré et de Kompienga*. FAO/Norway project GCP/INT/466/NOR Doc. de travail 97/48. FAO, Rome. 61 p.

Westlund, L. 1998. *Fish marketing in Katmandu Valley. Support to the new Kalimati market project*. Technical Report AG: DP/NEP/91/035, FAO office, Kathmandu, Nepal. 47 p.

Westlund, L. 2001. *Outlook of fish demand and supply in the ASEAN region*. pp. 15-58. IN "Fish for the people". ASEAN/SEAFDEC/FAO Bangkok, Thailand, November 19-24, 2001. SEAFDEC, P.O. Box 1046, Kasetsart Post Office, Bangkok.

Westlund, L. and T. Ismaila. 2002. *Socioeconomic Aspects*. Chapter 8.1. IN "The Study for the Fishery Resources Management Plan in the Islamic Republic of Mauritania". Unpublished report for JICA and Ministère des Pêches et de l'Economie Maritime, Mauritania.

Westlund, L. 2004. *Guide for identifying, assessing and reporting on subsidies in the fisheries sector*. FAO Fisheries Technical Paper No. 438, FAO, Rome. 71 p.

Westlund, L. 2005. *Future prospects for fish and fishery products. 5. Forecasting analysis: a literature review*. FAO Fisheries Circular No. 972/5, Rome, FAO, 2005. 17 p.

Westlund, L. 2006. *Mid-term review: Reduction of Environmental Impact from Tropical Shrimp Trawling through the Introduction of By-catch Reduction Technologies and Change of Management*. Project No UNEP GF/2731-02-4469 & GF/4030-02-04. FAO EP/GLO/201/GEF. UNEP Evaluation and Oversight Unit. December 2006. 67 p.

Westlund, L., Poulain, F., Båge, H. and R. van Anroy. (2007). *Disaster Response and Risk Management in the Fisheries Sector*. FAO Fisheries Technical Paper. 56 p.