Towards Ecosystem-Based Management of the
Humboldt Current Large Marine Ecosystem

TERMS OF REFERENCE

Title: **Consultancy to deliver a thematic report on Pollution and Ecosystem Health Module Indicators based on the Large Marine Ecosystem (LME) modular assessments as inputs for the Humboldt Current LME (HCLME) Project Causal Chain Analysis (CCA) revision, and updating of the existing Transzonal Diagnostic Analysis (TDA) 2003**

Project: HCLME 4147
Case reference: LME-5-Chile-Nov-2012-Mod3
Duty station: Chile
Section/Unit: EMO IWC
Contract/Level: Company/University/NGO Request for Quotation
Duration: November 2012 to March 2013 (up to 30 day input during this period)
Supervisor: Michael J. Akester, Regional Project Coordinator MichaelA@unops.org
In collaboration with the Senior Project officer MarianoG@unops.org

1. General Background

The Humboldt Current supports one of the world's most productive Large Marine Ecosystems (LMEs), representing approximately 18-20% of the global fish catch and hosting globally significant biodiversity. Natural high environmental variability in the Humboldt Current Large Marine Ecosystem (HCLME) has significant impacts on ecosystem productivity, carrying capacity and trophic structure throughout algal blooms, red tides, proliferation of toxic phytoplankton species, contamination of zooplankton, hypoxia caused by changes in the location of the oxycline etc. Besides climate change, regime shifts, global warming, ocean acidification, species invasion and even overfishing are challenging natural species to adapt in a cascade to accelerated by global effects.

In addition, a range of local and global anthropogenic activities are exerting pressure on this unique ecosystem (e.g. tanker ballast water, airborne particles and washing from mining activities, discarded oil from engine maintenance, pesticides and other chemical products used in agriculture, urban waste both solid and liquid, fertilizer leaching etc).

In order to provide for long-term ecosystem resilience, Chile and Peru propose to advance towards ecosystem-based management (EBM) of the HCLME by formulating a strategic long-term planning framework for the identification and prioritization of actions needed to preserve and maintain HCLME ecosystem benefits and services through endorsement of a Strategic Action Programme (SAP).

The process to obtain approval of the SAP to the highest level in both countries involves a Transzonal Diagnostic Analysis (TDA) along the length of the HCLME. To carry out the analysis, the project requires the existing TDA document to be updated via a series

of five thematic studies following the LME modular assessment (Fig.1).

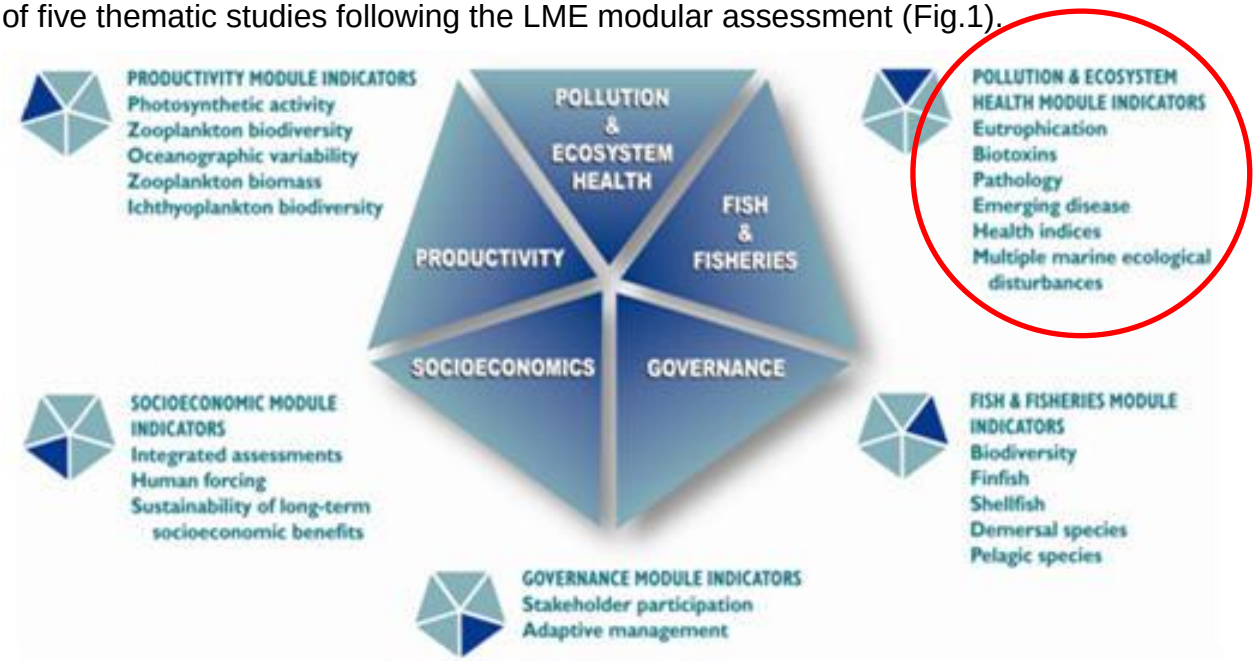

Figure 1 Large Marine Ecosystem (LME) modular assessments for sustainable development

The initial TDA for the HCLME Region developed during Global Environment Facility (GEF) Project Development Phase (PDF) (2002-2003), identified and analysed the priority transzonal problems in the Humboldt Current System. The analysis included a preliminary Causal Chain Analysis (CCA) and identification of underlying and root causes as well as a first identification of the information gaps. The four priority transzonal problems that affect the HCLME identified in 2003 were: 1) suboptimal exploitation of fish and other living resources, 2) insufficient knowledge re the LME variability, 3) habitat degradation, and 4) biodiversity reduction linked to fisheries pressure.

2. Justification

During the HCLME Transzonal Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) Training Workshop held in Lima, 10-14 September 2012, it was agreed that the LME modular approach would be followed as outlined in the Project Document (Annex A) and that a consultant team will be hired to elaborate the five thematic studies in each country to be presented at the Causal Chain Analysis (CCA) workshop to be held in Chile March / April 2013. The CCA statements to be produced at the 2013 workshop will review the Global International Waters Assessment (GIWA)[1] CCA statements in the 2006 study. The results will be incorporated into a final updated TDA as the technical input to the SAP.

1 http://www.unep.org/dewa/giwa/methodology/methodology.asp

The goal of the HCLME project is to ***advance towards a sustainably used and resilient HCLME that can maintain biological integrity and diversity and ecosystem services for current and future generations despite changing climatic and social pressures***.

3. General Arrangements

The selected company/university/NGO under the supervision of the HCLME Project Regional Project Coordinator (RPC) with the assistance of the Senior Project Officer (SPO), will review the existing TDA from 2003 as well as other relevant available information and proceed with the drafting of the Pollution and Ecosystem Health module thematic report for Chile following the modules identified in the LME modular approach shown in figure 1 above.

4. Specific Duties

Objective: To update the Pollution and Ecosystem Health Module in the existing Transzonal Diagnostic Analysis (TDA) document (approved in 2003) as an input to a new TDA identifying the problems faced by the HCLME.

The selected company/university/NGO will:

a. Review information prepared during the HCLME Project Development Phase (PDF) including the previous Pollution and Ecosystem Health thematic report (October 2002) and the preliminary Transzonal Diagnostic Analysis (TDA) approved in 2003;
b. Review information from other sources relevant to updating and reformulating the Pollution and Ecosystem Health module as an input to the new TDA;
c. Validate the CCA statements that were prepared by the previous TDA Technical Task Team (TTT) as outlined in the original TDA document from 2003 and the GIWA document from May 2006 (Annex A);
d. Prepare and submit a report (using the table of contents structure identified in Annex B) describing the major Pollution and Ecosystem Health indicators including:
    - Eutrophication & Biotoxins
    - Pathology and Emerging diseases
    - Health indices
    - Multiple marine ecological disturbances
    - Water quality trends with special reference to point-source pollution as identified in reports and associated impacts on bio-indicators described in

recent documentation

e. Liaise on a weekly basis with supervisors and other thematic study authors to ensure compatibility of terminology;

f. Attend a CCA workshop in March / April 2013 and present thematic study findings on the day identified for this activity; and

g. Prepare and submit a final report incorporating comments received at the three day CCA workshop.

5. Expected Outputs

1. Report in MS Word (in English and Spanish) to be delivered by e-mail to Michael Akester MichaelA@unops.org y Maria Angela Barbieri angela.barbieri@ifop.cl cc Mariano Gutiérrez MarianoG@unops.org and Lenka LAZO LenkaL@unops.org
2. Power Point presentation files (English & Spanish) delivered at the March / April 2013 CCA workshop and sent by e-mail prior to the event outlining suggested changes to the Pollution and Ecosystem Health report dated October 2002 and current aspects identified in 2012 of importance for the development of the new TDA
3. Active participation on the day of presenting the study at the CCA workshop to be held March or April in Chile.

6. Inputs

The Regional Coordinating Unit (RCU) will provide the selected company/university/NGO with the documents listed in Annex A and provide the necessary support, if necessary, to contact government representatives or regional organizations in the search for relevant information.

7. Specific deliverables, reporting, timing and payment modality (% payment available).

a. Selected company/university/NGO should review relevant information in the Pollution and Ecosystem Health module prepared during the PDF-B phase of the HCLME project with emphasis on the preliminary Transzonal Diagnostic Analysis (TDA) developed for Humboldt Current System in 2003 and brief the Regional Coordination Unit team by **January 2013 (15%)**

b. Selected company/university/NGO should submit a draft report and Power Point presentation files to the RCU and Project focal point (IFOP-Chile) by **mid-March 2013 (15%)**

c. Selected company/university/NGO should attend the CCA workshop in Chile in

March / April 2013 and present his/her Pollution and Ecosystem Health Module assessment (20%)

d. Selected company/university/NGO should prepare and submit a final report including comments made at the March / April workshop to the RCU and Project focal point (IFOP-Chile) by the end of April 2013 (50%).

8. Requirements

Interested company/university/NGO should have the following qualifications and experience which are to be listed on the UN P.11 form (sections 1-14, 16, 22, 24 (university only), 25, 26 (10 most relevant publications only) and 27 (last 3 only):

a. University degree (Bachelor, Master or Doctorate) in a relevant subject;
b. Demonstrable experience (>5 years) in the subject and work area (HCLME);
c. Proficiency in both Spanish and English languages;
d. Excellent report writing skills; and
e. The UN P.11 form must be completed (see item 10) and sent with the proposal

9. Evaluation

There will be no final evaluation of this consultancy other than the quality assessment of reports submitted.

9.1 Copyright:

The GEF-Humboldt project will be the owner of the information generated and will cite the author as and when the information is published

10. Budget

Interested companies/universities/NGOs will prepare and submit a technical and financial proposal and a completed P.11 form (NB only complete the following areas on the P11 form: 1-14; 16; 22; 24 (Universities only); 25; 26 (up to 10 most relevant publications); and 27 (last 3 employers only) for each participating expert (the budget should provide an estimate based on an input of up to 30 days per study, any local travel if necessary and the attendance of a CCA workshop in in Santiago or Valparaiso Chile in March or April 2013) to the Regional Project Coordinator Michael J. Akester MichaelA@unops.org cc LenkaL@unops.org by November 30th 2012.

P.11 form can be downloaded from: http://www.pnud.cl/vacantes/index.asp

Annex A: List of documents provided by HCLME Project

1. **HCLME Executive Summary Document**
   http://humboldt.iwlearn.org/informacion-y-publicacion/ResumenProyectoHCLMEVolpdf.pdf

2. **HCLME PDF-B TDA thematic documents Chile & Peru**
   http://humboldt.iwlearn.org/informacion-y-publicacion/pagina-de-documentos-del-proyecto

3. **HCLME PDF-B TDA document May 2003**
   http://humboldt.iwlearn.org/informacion-y-publicacion/TDAHumboldt.pdf

4. **TDA-SAP manual:** http://manuals.iwlearn.net/tda-sap-methodology/tda-sap-methodology-24-october **and** http://manuals.iwlearn.net/ **and** http://manuals.iwlearn.net/tda-sap-methodology

5. **GIWA manual in English /Spanish and Humboldt Assessment** http://humboldt.iwlearn.org/informacion-y-publicacion/pagina-de-publicaciones-relacionadas

7. **Study of the Concept of Large Marine Ecosystems and Institutional relevance for Ecosystem-based Management and Development**

   http://iwlearn.net/publications/ll/study-of-the-concept-of-large-marine-ecosystems-and-its-institutional-relevance-for-ecosystem-based-management-and-development/view

8. **Documents of relevance held in the HCLME database**

Annex B: Table of Contents for thematic report

Annex C WORK PLAN AND SCHEDULE OF DELIVERABLES BY THE COMPANIES/UNIVERSITIES/NGOs CONDUCTING THE POLUTION & ENVIRONMENTAL HEALTH MODULE FOR THE HCLME REGION IN CHILE.

OUTPUT	2012		2013						Comments
	Dec		Jan		Feb		Mar/Apr		
Contract negotiation and signing									Agree work plan for the 30 day period with RCU and Project focal point (IFOP-Chile)
Review information prepared during the HCLME Project Development Phase (PDF) including the previous Pollution and Ecosystem Health thematic report (October 2002) and the preliminary Transzonal Diagnostic Analysis (TDA) approved in 2003									At the end of this analysis report findings to TDA-SAP working group
Review information from other sources relevant to updating and reformulating the Pollution and Ecosystem Health module as an input to the new TDA									Progress reports will be presented to the RCU on a weekly basis and Project focal point (IFOP-Chile).
Validate the CCA statements that were prepared by the previous TDA Technical Task Team (TTT) as outlined in the original TDA document from 2003 and the GIWA document from May 2006 (Annex A)									To be presented to the TDA-SAP working group by e-mail for comment.
Prepare and submit a report (using the table of contents structure identified in Annex B) describing the major Pollution and Ecosystem Health indicators including: •Eutrophication Biotoxins •Pathology and Emerging diseases •Health indices •Multiple marine ecological disturbances •Water quality trends with special reference to point-source pollution as identified in reports and associated impacts on bio-indicators described in recent documentation									To be presented to the TDA-SAP working group by e-mail for comment.
Attend a CCA workshop in March / April 2013 and present thematic study findings on the day identified for this activity									To be presented to the TDA-SAP working group by e-mail for comment. A PowerPoint presentation will be made in Spanish
Prepare and submit a final report incorporating comments received at the three day CCA workshop.									Final report will be presented in Spanish and English **by the end of April 2013**

Project Authority (Name/Title): Michael J. Akester RPC	Contract holder (Name/Title):
Signature Date	Signature Date