incofish

Project no: **INCO 003739**

Project acronym: **INCOFISH**

Project title: **Integrating Multiple Demands on Coastal Zones with Emphasis on Aquatic Ecosystems and Fisheries**

Instrument: **Specific Targeted Research Project (STREP)**

Periodic Activity Report

Period covered: **from 1/05/2005 to 30/04/2006**

Date of preparation: **May/June 2006**

Start date of project: **01/05/2005**

Duration: **3 years**

Project coordinator name: **Dr. Rainer Froese**

Project coordinating institution: **Leibniz Institut für Meereswissenschaften an der Universität Kiel**

Table of Contents
Page

Publishable executive summary

INCOFISH conducts specifically targeted strategic research towards reconciling multiple demands on coastal zones with special emphasis on developing countries. It evaluates and integrates data, tools and concepts suitable to contribute to the goals set by the World Summit for Sustainable Development in Johannesburg, such as restoring healthy fish stocks and ecosystems by 2015.

INCOFISH focuses its research activities on the following issues in Integrated Coastal Zone Management (ICZM): documenting historical performance of ecosystems to deal with the 'shifting baselines' syndrome and provide sound reference points for resource restoration; providing electronic maps for all coastal species to establish authoritative species inventories and explore scenarios of global change and invasive species; creating spatial ecosystem models for the coastal systems treated in this project as a basis for understanding the resource; providing guidelines and tools for best sizing and placement of marine protected areas; researching impacts of ecotourism on coastal ecosystems and providing best-practice guidelines; identifying suitable simple indicators to promote and monitor sustainable fisheries; providing valuation of coastal ecosystem products and services and of different management regimes; evaluating legal instruments with regard to their usefulness for sustainable fishing in coastal zones; revisiting coastal transects as a tool for structuring and understanding multiple demands on coastal zones; and providing an archive and web portal for public access to all data and tools relevant for ICZM.

Tools and concepts resulting from INCOFISH research will be tested in real-world scenarios in several large marine ecosystems around the world. To provide for maximum synergy between work packages, all INCOFISH tools and concepts will be applied in the following four ecosystems: North and Central Gulf of California, Benguela Current, Gulf of Thailand and North Sea.

During its first year INCOFISH has accomplished the following main achievements:

International, cross-disciplinary teamwork

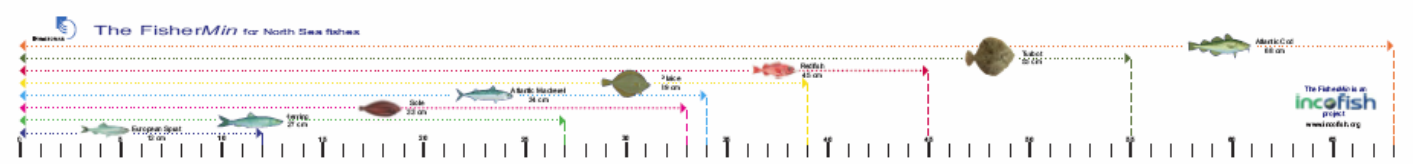
One main achievement of INCOFISH is certainly the combined effort brought towards better management of coastal zones: Over 200 scientific staff from 35 public and private institutions from 22 countries, including 15 developing countries, have joined forces in this effort. They include renowned senior scientists as well as PhD students and technicians. Their areas of expertise include such diverse fields as fisheries science, ecology, modeling, taxonomy, biogeography, human history, economics, social sciences, and international law. These colleagues have agreed to produce at least 50 scientific publications related to ICZM. Six of these publications are already in preparation, three have been submitted and five are already published. Most initial workshops have included participants from other workpackages and good relationships have been built with related INCO projects such as ECOST, PASARELAS, and CENSOR, and with other related projects and initiatives such as the Sea Around Us project in Canada and the international Census of Marine Life program.

Preparing the foundation

During the first year, all workpackages were engaged in preparing scientific reviews of the state-of-the-art with regard to the tasks they were to tackle. In addition, they started compiling data, agreed on concepts, and started developing tools and interfaces. The following three reviews were due in the reporting period and are available at the project portal www.incofish.org: *Review of Simple Indicators for Sustainable Fisheries*, *Criteria to Determine Carrying Capacity of MPAs for Ecotourism,* and *Report on National Legal Commitments to Sustainable Marine Fisheries (with database)*. Considerable work was also invested in quick access to services related to integrated coastal zone management. These will be major highlights of the next reporting period and preliminary versions are already available at the INCOFISH portal.

First success story

One of the first products of INCOFISH is a fish ruler that shoppers can use to ensure the fish they buy at the market have had a chance to spawn before being caught. A prototype has been developed for common commercial fishes in Germany and tested with local fish dealers. A related press-campaign was very successful and sparked overfishing-related contributions in news papers, magazines, radio and television. A sponsor was found for an improved version, and finally the German Consumer Protection Agency (Verbraucherzentrale) became interested, re-designed the ruler and took over the campaign through its many outlets all over Germany (see www.fisch-o-meter.de). This again had a good echo in the media. Response from fish dealers was mostly positive. We will now assist other INCOFISH members in running similar campaigns in their respective countries. One of the first versions of the fish ruler is shown below in compressed format:



The Consortium

The INCOFISH consortium is composed of 35 academy, private non-commercial and private commercial partners (12 European, 12 Latin American, 6 Asian, 5 African) from 22 countries worldwide, see list below.

List of INCOFISH participants (organisation name, country):

- Leibniz Institut für Meereswissenschaften (IfM-GEOMAR), Germany
- Açoes Para Preservaçao dos Recursos Naturais e Desenvolvimento Economico Racional (APRENDER), Brazil
- Instituto de Pesca, (IP), Brazil
- Empresa de Consultoria e Inversiones (CABAL, S.A.), Nicaragua
- Coastal Development Centre (CDC), Thailand
- Charles Darwin Foundation for the Galapagos Islands (CDF), Ecuador
- The Centre for Environment, Fisheries and Aquaculture Science (CEFAS), United Kingdom
- Centro Interdisciplinario de Ciencias Marinas del IPN (CICIMAR), Mexico
- Syddansk Universitet (SDU), Denmark
- Centro de Referencia em Informaçao Ambiental (CRIA), Brazil
- Centre de Recherches Oceanographiques de Dakar Thiaroye (CRODT), Senegal
- Direccion Nacional de Recursos Acuaticos (DINARA), Uruguay
- East China Normal University (ECNU), China
- Universität Bremen (Uni Bremen), Germany
- FishBase Information and Research Group, Inc. (FIN), Philippines
- Instituto del Mar del Peru (IMARPE), Peru
- International Governance Solutions Ltd. (IGS), United Kingdom
- Universita degli Studi di Padova (UNIPAD), Italy
- Marine and Coastal Management Branch of Environmental Affairs and Tourism (MCM DEAT), South Africa
- Estonian Marine Institute (MEI), Estonia
- University of Hull, Maritime Historical Studies Centre (UHULL), United Kingdom
- Nanjing Institute of Environmental Sciences (NIES), China

- Naturhistoriska Riksmuseet (NRM), Sweden
- PRIMEX Foundation for the Alternative Management of the Environment (PRIMEX-FAME), Philippines
- Prince of Songkla University (PSU), Thailand
- Fundacion Malpelo y Otros Ecosistemas Marinos (Fundacion Malpelo), Colombia
- Universidad Nacional de Colombia (UNAL), Colombia
- University of Namibia (UNAM), Namibia
- Universidad de Concepcion (Uni Concepcion), Chile
- The University of Newcastle upon Tyne (UNEW), United Kingdom
- Universitetet i Tromsoe (UiT), Norway
- University of the Western Cape (UWC), South Africa
- The University Court of the University of Aberdeen (UNIABDN), United Kingdom
- Corporacion de Promocion Universitaria /Universidad San Francisco de Quito (USFQ), Ecuador
- Kenya Sea Turtle Conservation Committee (KESCOM), Kenya.
- Instituto Oceanográfico da Universidade de Sao Paulo, Brazil.

Extended information on project structure and results are available at www.incofish.org.

Project coordinator:
Dr. Rainer Froese
Leibniz Institut für Meereswissenschaften an der Universität Kiel
Wischhofstrasse 1-3
24146 Kiel
Germany
www.ifm-geomar.de
e-mail: rfroese@ifm-geomar.de
Phone: +494316004579
Fax: +494316001699

Section 1 – Project objectives and major achievements during the reporting period

Objectives

The goal of INCOFISH is to conduct specifically targeted strategic research suitable to contribute to the goals set by the World Summit for Sustainable Development in Johannesburg, such as restoring healthy fish stocks and ecosystems by 2015.

The scientific and technological objectives of INCOFISH are best grouped in relation to the 11 work packages and can then be summarised as follows:

Overcome the 'Shifting Baseline' Syndrome (WP2)

To resolve the “Shifting Baseline” Syndrome in Fisheries, i.e., the fact that each generation has an increasingly distorted view of what constitutes healthy fish stocks, historical data on catch and effort, biomasses, length-frequencies, maximum sizes, size and age at maturity, growth rates, natural mortality, etc. are being assembled, collated and analysed to establish baselines against which the current status and restoration goals of key aquatic resources can be assessed. Likewise, historical data on catch and effort, production, biomasses, predator-prey interactions, flows, and habitat change will be assembled, collated and analysed to establish baselines against which the current status and restoration goals of selected marine ecosystems can be assessed.

Provide Authoritative Species Inventories (WP3)

INCOFISH uses biogeographic niche modelling to define the preferred environmental conditions for key marine coastal-zone species. This specific niche information is then being used to create standardised electronic maps of predicted distributions for all coastal zone species. In addition, the niche circumscription of species of interest is being connected with physical and bio-geochemical models thus producing dynamic distribution maps driven by models of forcing functions. This allows exploring changes in distribution of species resulting from natural and anthropogenic environmental changes. The maps and related tools are being made freely available on the Internet with an easy-to-use interface.

Provide Ecosystem Models (WP4)

INCOFISH will provide multispecies models as well as the underlying data for more than 10 strategically selected large marine ecosystems with a focus on Asia, Africa and South-America. These models draws on INCOFISH data such as species inventories and biomasses; in return they provide crucial inputs for sizing and siting of protected areas.

Assist in Sizing and Siting of Marine Protected Areas (WP5)

INCOFISH will provide best-practice concepts as well as tools for improved planning of MPAs, with a view of reconciling conflicting demands.

Provide Framework and Tools for Analysis of Interactions and Flows in the Coastal Zone (WP6)

INCOFISH is developing a framework for compilation and analysis of data relevant to the understanding of interactions, impacts and flows in the coastal zone from mountains to the continental shelf. The ultimate goal is to provide coastal managers with a decision-making framework and communication tool for integrated coastal management.

Provide Simple Indicators for Sustainable Resource Use (WP7)

INCOFISH will provide indicators such as degree of resilience to exploitation or natural disturbances. We will focus on simple indicators that allow participation of the public in resource management and that have the potential to end overfishing.

Valuation of Coastal Ecosystem Services (WP8)

INCOFISH is using state of the art methodologies to assign values to products and services of coastal ecosystems. This will then allow valuation of sustainable versus unsustainable management regimes and thus provide the public and politicians with the information needed to combat unsustainable management.

Evaluate Pros and Cons of Ecotourism (WP9)

INCOFISH is analysing benefits and problems associated with ecotourism in selected MPAs and is producing best-practice guidelines for what may be termed 'sustainable ecotourism.'

Review Legal Instruments Relevant for Sustainable Coastal Resource Use (WP10)

INCOFISH is analysing and evaluating the legal framework relevant for sustainable resource use, taking account of legal structures that may increase pressure on resources, relate to the management of the resource, or provide for sharing of benefits from the resource.

Provide Access to Relevant Data, Tools, and Concepts (WP1)

Data, tools, and concepts created by INCOFISH or otherwise relevant to integrated coastal zone management are being made accessible through a user-friendly web portal.

Bringing it All Together (WP11)

A combination of accommodating coordination with strong leadership ensures that the components of INCOFISH described above come together and form a comprehensive package with the potential to improve integrated coastal zone management.

Major achievements during the reporting period

The overall goals and objectives of INCOFISH as laid out above are ambitious but not unrealistic. During the first year of INCOFISH the following main achievements can be highlighted:

International, cross-disciplinary teamwork

One main achievement of INCOFISH is certainly the combined effort brought towards the above goals and objectives: Over 200 scientific staff from 35 public and private institutions from 22 countries, including 16 developing countries, have joined forces in this effort. They include renowned senior scientists as well as PhD students and technicians, with an overall gender balance of 41 percent females. Their areas of expertise range from fisheries science, ecology, modeling, taxonomy, biogeography, human history, economics, social sciences, to international law. These colleagues have established personal communication networks and have used the connections between their workpackages to speed up the overall agenda. As part of this process they have agreed to produce at least 50 scientific publications. Six of these publications are already in preparation, three have been submitted and five are already published. Although the project practically started four months after schedule, most of the early deliverables and milestones were only delayed by two months and the date for most later deliverables was kept on schedule. Several work packages have taken on additional milestones and deliverables, mostly by increasing the in-kind contributions to INCOFISH, such as the time dedicated by senior researchers. Most initial workshops have included participants from other workpackages and good relationships were built with related INCO projects such as ECOST, PASARELAS, CENSOR, and with other related projects and initiatives such as the Sea Around Us project in Canada and the international Census of Marine Life program.

Preparing the foundation

During the first year, all workpackages were engaged in preparing scientific reviews of the state-of-the-art with regard to the tasks they were to tackle. In addition, they started compiling data, agreeing on concepts, and developing tools and interfaces. Three of these reviews were due in the reporting period and are attached to this report: *Review of Simple Indicators for Sustainable Fisheries*, *Criteria to Determine Carrying Capacity of MPAs for Ecotourism,* and *Report on National Legal Commitments to Sustainable Marine Fisheries (with database)*. Considerable work was invested in the services related to integrated coastal zone management which will be available from the INCOFISH portal and which will probably be the major highlight of the next reporting period.

First success story

One of the first products of INCOFISH is a fish ruler that shoppers can use to ensure the fish they buy at the market have had a chance to spawn. A prototype has been developed for common commercial fishes in Germany and tested with local fish dealers. A related press-campaign was very successful and sparked overfishing-related contributions in news papers, magazines, radio and television. A sponsor was found for an improved version, and finally the German Consumer Protection Agency (Verbraucherzentrale) became interested, re-designed the ruler and took over the campaign through its many outlets all over Germany (see www.fisch-o-meter.de). This again had a good echo in the media. Response from fish dealers was mostly positive. Only the lobby of the fishing industry and—strangely—the Government agency in charge of fisheries reacted negatively. INCOFISH workpackage 7, which was organizing all of this, will now assist other INCOFISH members in running similar campaigns.

Section 2 – Workpackage progress of the period

INCOFISH work is divided into 11 WorkPackages, which are:

- WP 1 Data, Tools and Outreach
- WP 2 Shifting Baselines
- WP 3 Biomapping
- WP 4 Ecosystem Modelling
- WP 5 Marine Protected Areas
- WP 6 Coastal Transects
- WP 7 Simple Indicators for Sustainable Fisheries Management
- WP 8 Valuation of Ecosystem Products and Services
- WP 9 Ecotourism
- WP10 Legal Instruments for Fisheries Management
- WP11 Management of Consortium Activities

A review of the progress within each of the WPs follows.

WP Number: 1	**WP Name: Data, Tools and Outreach**

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective:
The "Data, Tools, and Outreach" workpackage provides data, tools, and Internet outreach services to the other INCOFISH workpackages,.

Specific objectives:

1. Make relevant data for ICZM available from all possible sources using modern Internet technologies.
2. Provide an archive function for ICZM data that might otherwise be lost.
3. Provide tools for analysis and visualization of data, including a 'Step-by-Step' approach to complicated interactive analyses.
4. Provide mapping tools for WP 3.
5. Provide a user-friendly one-stop Internet portal to all data, tools, models, documents and partners in the context of this project.
6. Provide an Internet discussion forum for ICZM issues open to project partners and the public, as well as links to the many existing news and discussion forums around ICZM.
7. Provide interfaces where the interested public (e.g. fishers, divers or anglers) can upload data such as observed occurrences of species in space and time.
8. Assist project partners in building their own web presence.
9. Work in integrated fashion with workpackages 2-10.

Starting point for reporting period: August 15, 2005

b) Progress towards objectives

Re (1) A broad variety of ICZM services has been made available as opening page of www.incofish.org. These services include a species information system covering over 800,000 species; a large glossary which is currently being extended to include, e.g., legal and economic terms; information on various ICZM topics by country and ecosystem; an international seafood

advisory is in preparation; various tools deemed useful for ICZM issues, such as FAO catch statistics, size at maturity for commercial fishes, and how to construct a local fish ruler; and an annotated bibliography of key publications relevant to ICZM, as provided and annotated by INCOFISH members.

Re (2) WPs have been alerted of the option to archive datasets through INCOFISH. WP1 will then seek the most appropriate long-term archive providers, such as FishBase or OBIS or others. So far no dataset in need of archiving has been forwarded.

Re (3) Dedicated ICZM tools will mainly be developed during the next reporting period. Currently the Fish ruler and Maturity poster step-by-step tools are close to being finished.

Re (4) The AquaMaps tool is functional and about 500 standardized maps for all marine mammals and for some fishes have been developed. This will expand soon to several thousand maps. In addition, CRIA developed a *mapcria web service* (see http://www.cria.org.br/mapcria/doc/) and a *mapcria viewer* (see e.g. http://sinbiota.cria.org.br). CRIA has started testing these tools with Incofish applications. They will require map layers of relevance for fish data. A workshop has taken place in Brazil, in April, 2006 where CRIA and Work Package 3 (WP3) 'Biodiversity Mapping members discussed the specific needs of WP3 and how to best interact.

Re (5) A first version of a user-friendly one-stop Internet portal to all data, tools, models, documents and partners in the context of INCOFISH is available at www.incofish.org.

Re (6) An Internet discussion forum for ICZM issues open to project partners and the public, as well as links to the many existing news and discussion forums around ICZM are available from the INCOFISH portal, see http://www.incofish.org/incofishv1/Forum/DiscForum.php and http://172.29.59.14/incofish/News/Aroundtheworld.php.

Re (7) A preliminary interface where the interested public can upload data is available at http://www.incofish.org/incofishv1/Forum/UpForm.php. An interface for observed occurrences of species in space and time is under development.

Re (8) Assistance was provided to several project partners in populating their web pages as part of the INCOFISH portal. Assistance was also provided for partners building their own web presence, such as WP 10.

Re (9) Two workshops were held to improve personal contacts and interactions with all other INCOFISH work packages. In addition, WP1 participated in workshops of WP 2 and 3.

d) Deviations from the workprogram (if any), and corrective actions taken/suggested:
No deviations from the work programme are to be reported.

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

-

WP Number: 2	**WP Name: Shifting Baselines**

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective:
To examine the patterns of long term change in selected coastal ecosystems and thereby establish targets for the restoration and sustainable use of living marine resources.

Specific objectives:

1. Identification, validation and assembly of historical data (e.g. biomass, mean size, maturity, fecundity) relating to key aquatic resources in selected large marine ecosystems (LMEs);
2. Collation, analysis and dissemination of the historical data collected and processed in (1);
3. Establish baselines against which the current status of aquatic resources and LMEs can be evaluated and restoration goals can be set.

Work commenced in month 5.

b) Progress towards objectives

In year 1 attention has been focused on meeting objectives 1 and 2, with progress made in the following specific respects:

- Ten viable case studies of key aquatic resources in large marine ecosystems have been identified;
- the spatial, topical and temporal parameters of these case studies have been established;
- historical data pertaining to the case studies has been identified, sampled and appraised;
- the data submission process and database structure have been established (in conjunction with WP1);
- schedules of work for the workpackage as a whole, and for the contributions of each partner, have been agreed.

c) Work performed by each contractor in WP2 during the reporting period.

CEFAS

- North Sea LME: data collected on cod, haddock and whiting stocks, 1920-1993; sampling of data on sole, plaice (1920 onwards) and herring in progress.
- Black Sea LME: data reconnaissance and appraisal commenced.
- Outputs: one paper accepted for publication, another in preparation.

CDF

- Pacific Central-American Coastal LME: catch, effort and biological data on sea cucumber, lobster and pelagic fisheries, 1997-2005, collected and 'cleaned'. Data being assembled from grey literature about past catch and effort rates, as well as biological information relating to sizes and mortality estimates, etc.
- A new project called 'Paving the path to collaborative sustainable fisheries management in the Galapagos Marine Reserve (GMR)' will be used as an important source of information to complete the historic baselines of the main fisheries resources of the GMR.
- CDF has advised the Participatory Management Board – which comprises the main stakeholders of GMR – that the results and recommendations of INCOFISH will contribute to the improvement of the GMR's ecosystems and fisheries resources.

IMARPE

- Humboldt Current LME: data on hake catches, 1971-2005, collected.
- Outputs: two papers are in preparation - 'Comparative analysis of the community structure of hake and its by-catch between 1995 and 2001'; and 'Changes in the distribution area of Peruvian hake: effect of fisheries'. Two further papers – both relating to 'Patterns of long-term changes in four selected demersal species off Peru' – are in the planning stage.

MEI

- Baltic Sea LME: archival study of Pärnu custom books, 1764-1782, completed; Narva custom books, 1600-1700, appraised.
- Outputs: a special volume of Fisheries Research is being edited in collaboration with Danish Fisheries Research Institute. A paper - Poulsen & Ojaveer, 'Long term fluctuations in the eel fishery, c.1800-2000' – is in the planning stage.

SDU

- North Sea LME: catch & effort data assembled for herring, 1752-1980.
- Baltic Sea LME: catch & effort data assembled for herring, 1752-1980.
- Outputs: One paper - Poulsen & Holm, 'A fishery of historical magnitude. Reconstructing the 17th-19th centuries catches of herring, eel, whitefish and plaice in Limfjorden, Denmark'. Two papers – Poulsen, 'Investment structures and the marine environment in the Limfjord pound net fisheries, c.1690-1830' and Poulsen & Jakobsen, 'The flight of the eels - Spatial changes in distribution of Limfjord eel fisheries, c.1750-1920'. Three papers – Poulsen, 'The nature of historical regime shifts in Limfjorden'; Poulsen & Ojaveer, 'Long term fluctuations in the eel fishery, c. 1800-2000'; and Poulsen, 'Climate analyses of Limfjord herring vs other European herring fisheries' – are planned.

UHULL

- Benguela Current LME: data for snoek, 1815-2001, is being assembled from British colonial archives and South African government publications.
- Southeast Australian Shelf LME: data on tiger flathead, 1918-1957, is being assembled from the Annual Statements of Trade and other sources.
- Newfoundland-Labrador Shelf LME: the feasibility of developing this LME into a case study is being investigated.
- Data Management: the WP2 database has been designed and constructed, and the data submission process agreed.
- Outputs: two papers are planned, one to be written in collaboration with WP1.

UNAL

- Caribbean Sea LME: data on the fisheries for snappers, sharks and rays, 1970-2006, is being collected. A key source is the perceptions of fishermen regarding changes in the quantities captured, technology used and effort applied during this period.
- Outputs: A manuscript – Garcia, 'Demersal fish density in the upwelling ecosystem off Colombia: an historic outlook'.

UNIABDN

- Celtic-Biscay Shelf LME: data relating to catches of herring and haddock off the west coast of Scotland, 1960-2006, have been assembled.
- North Sea LME: data relating to catches of herring and haddock off the east coast of Scotland, 1960-2006, have been assembled.
- Gulf of Thailand LME: the feasibility of developing this LME into a case study is being investigated.
- Iberian Coastal LME: the feasibility of developing this LME into a case study is being investigated.
- Outputs: one paper is being planned.

d) Deviations from the workprogram (if any), and corrective actions taken/suggested:

In the Description of Work, Workshop 1 was scheduled for month 5 (September 2005). This proved to be unrealistic as work did not commence until that month, and the INCOFISH kick-off workshop was not held until month 6. The workshop was re-scheduled for month 11 (March 2006). It was held in Tallinn, Estonia, and involved all WP2 partners and representatives from WP1 and WP11.

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

WP Number: 3	WP Name: Biomapping

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective:
The "Biomap" workpackage will provide authoritative knowledge about the occurrence of marine species in space and time and in response to climate change.

Specific objectives:

1. Provide access to point data from all available sources (collections, surveys, observations) and from historical times to present for all organisms occurring in areas covered by this project;
2. Combine data from 1) with relevant environmental parameters to define the preferred niche and to create standardized electronic maps for all species;
3. Establish a system where maps can be verified by experts;
4. Based on (2) and (3), provide authoritative species inventories;
5. Using current climate change scenarios and knowledge about resilience of species and ecosystems, predict potential changes in species composition or abundance, with special attention to harmful algal blooms, invasive species, and predator-prey overlap.

Activities commenced in Month 3

b) Progress towards objectives

The first year addressed objectives 1, 2, and 5 in particular, preparing for electronic maps, and has been devoted to (a) development of the mapping tool and the maps together with WP1, mainly executed by NRM for WP3, (b) establishment of a list of target species meeting conditions of model testing as well as including major commercial fish species, developed with contributions from all participants, and (c) investigating optimal and alternative modelling strategies, in which NRM and CEFAS played the major role.

Online distribution maps according to D.3.1 are already available and include visualisation of predicted distribution conforming to an environmental envelope model elaborated and programmed by WP1.

c) Work performed by each contractor in WP3 during the reporting period.

CEFAS:
Input from CEFAS towards deliverable D3.1 has comprised of expert advice on the development and implementation of the 'Aquamaps' fish species distribution modelling system, which is now accessible from the INCOFISH portal. A paper has also been prepared entitled 'Modelling the distribution of marine fish in UK waters and the use of validation criteria for model selection', and will soon be submitted to an appropriate ecological modelling journal. The main outcomes of the paper were presented at the Third International Symposium on GIS/Spatial Analyses in Fishery and Aquatic Sciences held in Shanghai, China, in August 2005. Background research has also begun into methods for modelling and assessing the effects of climate change on marine fish distributions as part of D3.2.

DINARA:
Input from DINARA was focused on providing point data of 25 fish and 10 mollusc species, along with 2 invasive species. Data source are surveys carried out by national fisheries research vessels in the Uruguayan EEZ and adjacent international waters in the Atlantic Ocean. Selection criteria

and data quality controls were adopted in order to add those records to existent databases (e.g. FishBase) and to build an institutional database. Some environment data (SST and depth) were included and salinity/chlorophyll are expected to be added in the following years.

KESCOM:
This reporting period was spent dealing with improving technical issues highly relevant for our location, including 1) the problem of mapping using Mac computers, after seeking technical advice it was finally decided that the best way to solve this problem was to purchase a PC with ArcView for the WCS Mombasa office. Two KESCOM staff have been trained in use of this GIS software. 2) Internet connectivity has been a problem in the KESCOM office due primarily to the slow speed and the expense of dial-up in Mombasa. This has been resolved by a combination of technical solutions.

Occurrence data for coral reef fish and sea cucumber species has been compiled. KESCOM was supposed to test an ecological model, however due to the challenges outlined above this was not possible during this period. KESCOM attended the INCOFISH start-up meeting but due to problems in getting a visa on time was not able to attend the WP3 meeting in Campinas.

NRM:
Prepared the distribution maps (AquaMaps) together with WP1. This involved searching, applying for and preparation of environmental data sets and occurrence data. Co-ordinated main activities and maintained contact with work package members, mainly by e-mail. One visit to CEFAS for discussing modelling requirements and options. Maintained collaboration with WP1 for mapping and as part of coordination, including one visit to the Philippines, and organized the WP workshop in Campinas, Brazil, together with WP1 (CRIA). A document about AquaMaps was prepared with various partners. Made a major effort to select species for testing model functions in Aquamaps. Investigated various presence only distribution modelling methods, including BioClim, GARP, and Maxent. Set up a c-squares/AquaMaps mapper at NRM web server, including translation of PERL code to PHP.

d) Deviations from the workprogram (if any), and corrective actions taken/suggested:

DINARA experienced a delay in the start-up period due to local administrative constraints in the contract form. Meanwhile, these have been solved.

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

WP Number: 4	**WP Name: Ecosystem Modelling**

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective:
To provide standardized ecosystem models for all selected ecosystems.

Specific objectives:

1. Compile and make available all data relevant for the construction of models for the selected LMEs;
2. Construct standardized ecosystem models;
3. Work closely with WP 5 on the size and placement of protected areas; explore patterns of response of impacted ecosystems, testing hypothesis on resilience and impact of fisheries on ecosystems.
4. Contribute to the exploration of ecosystem attributes in a two-levels strategy, one within each model exploring impact of fishing, compatibility of conservation and exploitation under sustainable use of the ecosystems, resilience, among others. The second level will be a meta-analysis, searching patterns of response of aquatic ecosystems (to human activities, ecosystem attributes, structural and functional behavior, etc...).

The starting point of work corresponds to the start-up meeting for the overall project during the Kiel Workshop in month 6.

b) Progress towards objectives

Re (1) According to the contract data for at least one hundred ecosystem models must be available through the INCOFISH portal. Currently we have compiled data for more than 120 ecosystem trophic models. Initially, within the contract, it was established that these data should be uploaded at the INCOFISH portal by May 2006, one year after the beginning of the project. However since activities really started by October 2005, during the starting-up meeting the WP4 re-allocated such date to July 2006. At the moment we are going to initiate the construction of a database for a user-friendly access to such information by the public. This strategy will be defined in agreement with the WP1.

During the WP4 first intermediate workshop in London in February 2006 (see M1.1 in Table 1.2), contractors defined a strategy for this objective. CICIMAR as WP4 leader is coordinating the compilation and other contractors have been contributing with data (until the present state). Database is under construction and all contractors will participate in the data verification process.

Re (2) During the first intermediate workshop, partners definined study cases for construction of ecosystems. Discussions were conducted on standardizing criteria, particularly for ecosystem comparisons.

Ecosystem models identified for construction within WP4 are shown in the table below:

Table WP4.1: Ecosystem models compiled in WP4

Contractor	**Ecosystem**	**Country**	**Comment**
MCM DEAT	Benguela Current	South Africa	WP4
UNI CONCEPCION	Humboldt Current	Chile	WP4
CRODT	Senegambian System	Senegal	WP4
CICIMAR	Gulf of California	Mexico	WP4

UNIPAD	Adriatic Sea	Italy	WP4
UNIABDN	Moray System	Scotland	WP4
CEFAS, UNEW	North Sea	United Kingdom	WP4-5
ECNU	East China Sea	China	WP4-5
CICIMAR	Gulf of Mexico	Mexico	WP4
USP	Southern Brazil Bight	Brazil	WP4
CICIMAR	Campeche Bank	Mexico	WP4-5
CICIMAR	Northern Gulf of California	Mexico	WP4-5

For all the study cases the ecosystem structure, function and organization will be analyzed, and through the time dynamic modeling, hypotheses will be tested and fishing policies will be explored. With exception of two models, all the others will approach spatial modeling to explore fisheries management strategies.

Our partners from China did not have previous experience with modeling using the Ecopath with Ecosim suite of programs. A specific strategy was established in conjunction with WP5 (since it is also a study case for MPAs) to update the Chinese partners. By now, actions include two working sessions in China (one of them under development) and one in Mexico. It is expected that by September a consistent model will be available including temporal dynamics aspects and will be ready to explore fishing policies. Once the second deliverable is achieved, new joint actions will be defined for spatial modelling and MPAs. Up to now, ECNU has been collecting data for sixty functional groups of the East China Sea ecosystem which are the base for the construction of a preliminary model, presumably at the beginning of May 2006.

Re (3) and (4) According to the project strategy, it is expected that some spatial models constructed within the WP4 will move towards WP5 to explore MPAs. In this sense, six from the ten models that will be constructed will deal with MPAs.

c) Work performed by each contractor in your WP during the reporting period.

MCM DEAT worked on a review of existing data and decision support tools for the Benguela region. Two local workshops were performed in this context.

UNI CONCEPCION worked on ecosystem models for MPAs and for the Chilean marine system.

CRODT compiled data for the updating of the Senegambian ecosystem model.

CICIMAR compiled data files and reprints of 120 Ecopath models; compiled data for several new Ecopath models; and coordinated the activities within WP4.

UNIPAD compiled data for modelling the Adriatic Sea.

UNIABDN collected data in preparation for modelling.

CEFAS and UNEW worked on updating the Ecopath model for the North Sea. They also assisted ECNU with construction of an Ecopath model for the East China Sea.

ECNU compiled data needed for an Ecopath model of the East China Sea.

IOUSP worked on an Ecopath model for the Southern Brazil Bight.

d) Deviations from the workprogram and corrective actions taken/suggested:

Table WP4.2: Deviations from the workprogram and corrective actions taken

Deviation	Corrective action taken	Nature and reason	Contractor involved
The need of expert assistance for spatial modelling was identified	The group decided to organize an Ecospace workshop in early 2007 (January - February) which will serve to fill deliverable D4.3	Lack of experience with Ecospace modelling	All contractors will be involved

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

WP Number: 5	**WP Name: Marine Protected Areas**

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective:
The objectives of the WP5, "MPA" workpackage, are to improve the basis for planning of MPAs with a view to reconciling demands especially of fisheries, biodiversity conservation and industrial uses including coastal aquaculture.

Specific objectives:

1. Compile data from three selected case studies of MPAs, compare and contrast the stated objectives, operation, and known effectiveness of the MPAs with respect to location, resource and other factors;
2. Conduct simulations of existing MPAs where feasible with respect to stock benefits/costs, and derive objective criteria for the placement of MPAs in all three case studies;
3. Consider possible alternatives for design of MPA networks in the shelf systems, develop conceptual models for the planning of MPAs on continental shelves, and apply these to the selected case studies.

The starting point of this reporting period is month 5.

b) Progress towards objectives

The major works by WP5 for this reporting period concern preparations for deliverable 5.1, review of existing MPAs. The review is encompassing detailed case studies of 4 LMEs and specific contractors have been tasked to prepare inputs from the report for each area, the areas and contractors tasked for each area are as follows;
East China Sea – NIES
Campeche Bank – CICIMAR
Northern Gulf of California – CICIMAR
North Sea – UNEW

NIES has been assisting ECNU with preparation of the Ecopath ecosystem model of the East China Sea.

UNEW has been working on strategic modelling of the effects of MPAs under specific scenario conditions, a draft paper titled 'A comparison of No-Take Zones and traditional fishery management tools for managing site attached species with a mixed larval pool' has been prepared for submission to an international peer review journal.

A workshop was held in London in February 2006 in conjunction with WP4 and representatives of WP7 and WP11 to discuss collaboration within the project, and discussions were held regarding the specific work that will be required to achieve the deliverables that are scheduled for work later in the project. This included identifying a unified strategy for providing information for D5.1, discussing and deciding upon a combined strategy for objective testing of MPA characteristics for D5.2 and preliminary discussions for the nature and format of the MPA tool for D5.3.

c) Work performed by each contractor in your WP during the reporting period.

UNEW

Work Package Co-ordination tasks. Collected and collated information on the North Sea for D5.1 MPA review and co-ordinated work on D5.1 by other WP partners. Worked on alternative population modelling of MPAs, one draft manuscript has been prepared, work is underway on further manuscripts. Arranged combined WP5-WP4 workshop for London, Feb 2006. Attended combined WP5-WP4 workshop in London, Feb 2006.

CEFAS
Attended combined WP5-WP4 workshop in London, Feb 2006. Provided input to UNEW towards data collection on North Sea for D5.1. Discussed with UNEW a general strategy for MPA testing. Not tasked to provide any further input to WP5 for this reporting period.

CICIMAR
Collected and collated information on the Campeche Bank for D5.1 MPA review. Collected and collated information on the Northern Gulf of California for D5.1 MPA review. Attended combined WP5-WP4 workshop in London, Feb 2006.

NIES
Collected and collated information on the East China Sea for the D5.1 MPA review. Assisted WP4 with the Ecopath model construction of the East China Sea model. Attended combined WP5-WP4 workshop in London, Feb 2006.

d) Deviations from the workprogram, and corrective actions taken/suggested:

A fourth system for analysis (Upper Gulf of California) has been added to the original three specified for the WP, this additional work will be undertaken by CICIMAR.

NIES has been providing additional support to WP4 for the development of the East China Sea ecopath model, a contract was signed between NIES and ECNU to formalise co-operation on the East China Sea ecopath model.

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

WP Number: 6	**WP Name: Coastal Transects**

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective:
To provide a framework for compilation and analysis of data relevant to the understanding of interactions, impacts and flows in the coastal zone. It aims also at providing coastal managers with a decision-making framework and communication tool for integrated coastal management.

Specific objectives:

1. To review concepts and tools for ICZM, with a special focus on stakeholder involvement;
2. To categorize coastal areas using coastal transects and related software; and
3. To develop and test decision-making framework for integrated coastal management based on coastal transects using selected cases around the world.

Work started in month 5.

b) Progress towards objectives

For this reporting period, WP6 activities were focused on the first two objectives: ICZM review (Deliverable 6.1) and coastal transect analysis (Deliverable 6.2). WP members met at the Kiel project meeting in October and discussed the overall work plan for the WP activities. This was followed by a conference call in November. An intermediate workshop of the WP took place in Aberdeen in January (see M6.1 in Table 1.2) to discuss the work for deliverables 6.1 and 6.2. A second intermediate workshop was held in Thailand in May 2006, jointly with WP8 (see M6.2 in Table 1.2). Tasks worked on and achievements are summarized below.

c) Work performed by each contractor in your WP during the reporting period.

Table WP6.1: Tasks and achievments in WP6 with contractors involved

Objective	Tasks	Achievements	Contractors involved
ICZM Review	Preparation of report	Report was assembled for review at May 2006 workshop in Thailand.	IGS (leader), CDC, UNIABDN
Coastal transects analysis model	Conceptualization of the model, creation of a draft user interface	A database was constructed and populated and summary tables, GIS maps and draft user interface were prepared for presentation at the May 2006 workshop	CDC (leader), UNIABDN, IGS
Decision-making model	Review of past and current decision-making tools (including SimCoast)	A short summary was prepared to describe existing tools.	CDC (leader), UNIABDN, IGS

d) Deviations from the workprogram (if any), and corrective actions taken/suggested:

The meeting in Aberdeen in January was not in the original workplan. It was an 'opportunistic' meeting, given that two WP members were travelling through to Aberdeen at that time. The meeting provided a very important opportunity for WP members to discuss about the work and enable the progress made in the WP. WP members agree that this kind of opportunistic meetings should be held as often as possible.

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

WP Number: 7	WP Name: Simple indicators for sustainable fisheries

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective: To overcome overfishing by identifying, testing, and implementing simple indicators for sustainable fisheries management for direct use by fishers, fish traders, consumers, managers, and media.

Specific objectives:

1. Identify suitable indicators
2. Establish biological parameters needed for indicators for all relevant species
3. With stakeholders and public, test management by indicators
4. Analyze progress and problems

WP7 began working in month 5.

b) Progress towards objectives

WP 7 is on schedule with objectives and deliverables thus far. We are at the tail end of the data collection phase and headed into the "web-tool" phase. After this we will test indicators on site.

Re (1) - completed. At the first WP7 workshop contractors met to decide upon suitable indicators. The chosen four can be found in the indicators review at www.incofish.org.

Re (2) - in progress. All WP7 contractors are currently working to extract data on maturity lengths and find length-frequency data for relevant species in their areas. Database with 500 species (in FishBase or referenced through FishBase), should be finished by June, 2006. CDF is additionally working on maturity data for the invertebrate species Red and Green Spiny Lobsters and Sea Cucumbers.

Re (3) - expected to begin by month 20. At 2nd workshop in December, 2006, WP contractors will decide where to test indicators.

Re (4) - expected to begin by month 30. All WP7 contractors will reflect on success of indicator implementation/testing.

c) Work performed by each contractor in your WP during the reporting period.

IFM-GEOMAR:
Workpackage coordination, created first Fish Rulers and obtained corresponding maturity data, wrote Indicators Review, built spreadsheet tool for using Length-frequency data in application of indicators, attended CIR conference to disseminate information, contributed 15 references to the annotated bibliography on the incofish portal.

CABAL, S.A.:
Collected maturity and morphometry data from the several species of Bluefields Bay and Peral Lagoon, Nicaragua; reviewed and commented on draft of Indicators Review.

CDF:

Compiled grey literature information on the basic life parameters of the red spiny lobster and the Galapagos sea cucumber and prepared manuscripts on reproductive biology of the sea cucumber; fisheries data are collected in a database; in the process of evaluating the management of both fisheries and the suitability of the indicators with the fishers. Contributed six references to the collective annotated bibliography on the incofish portal. Reviewed and commented on draft of Indicators Review.

CRODT:
Review of literature to collect all pertinent biological information; data capture and treatment of data to get length frequencies; the current number of fishes with data is 41 species. First tentative trial was done to calculate indicators for the species *Pagellus bellottii*.

IMARPE:
Four main demersal species are considered under this study: *Merluccius gayí peruanus, Paralabrax humeralis, Paralonchuros peruanus, Prionotus stephanophrys.* The main tasks have been: Collect data from old sample reports and make them available in digital format. Also, growth parameters from the literature have been collected in order to estimate the indicators agreed. A review of grey literature has been made and Lm50 for 16 species has been found.

MCM-DEAT:
Reviewed and commented on draft of Indicators Review. Working on a decision support systems for an ecosystem approach to fisheries management in the Benguela system. Unclear how this relates to deliverables of WP7. In contact with them now to take corrective measures.

MEI:
Collected maturity and length-frequency catch data for 6 species in the Baltic Sea.
Calculated Size at first maturity for pikeperch for the Parnu Bay population in the Gulf of Riga for a more than 10 year period. This shows decline over time, corresponding with very high fishing pressure since early 1990s and declining stock size and catches afterwards.

PSU:
In process of elaborating a database containing relevant biological parameters and some available length frequencies for some important species. Review of bibliography to collect all pertinent biological information. First tentative trial for calculating sustainable indicator was done for *Rastrelliger kanagurta* and *Decapterus maruadsi.* Biological data for selected commercial species are monthly collected from fish landing around Gulf of Thailand.

UNIABDN:
Reviewed and commented on draft of Indicators Review. Awaiting additional information on progress (delayed because Christina Pita, responsible party, is in the hospital).

d) Deviations from the work program (if any), and corrective actions taken/suggested:
No deviations thus far, except CABAL s.a. and MCM-DEAT have been out of contact for several months. Contact has meanwhile been re-established and measures have been taken to ensure timely provision of deliverables.

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

WP Number: 8	WP Name: Valuation of Coastal Ecosystem Products and Services

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective: To overcome overfishing by providing economic and social data and analysis for sustainable fisheries management.

Specific objectives:
1. Provision of social and economic data to the project database;
2. Valuation of marine ecosystem goods and services;
3. Develop economic and social indicators of ineffective management;
4. Develop policy options for sustainable coastal resources management.

WP8 began working May 1, 2005.

b) Progress towards objectives

Re (1) - core component completed. All contractors at the first WP8 workshop worked to finalize databases for submission to WP1. Since the database is by definition always a work in progress, it will continue to be improved and updated with data. A report on this will be submitted as part of Deliverable 8.1, which is due May 30, 2005.

Re (2) - in progress. Work is currently ongoing on the valuation of goods and services from the Benguela and Gulf of Thailand large marine ecosystems. Fish prices, cost of fishing and non-market values from marine ecosystems have been collected to serve as a basis for the work under this objective.

Re (3) - in progress. WP contractors are currently working on different indicators: CDC on a public sentiment index for ecosystem management; UNAM on subsidies and a bioeconomic invulnerability index; Primex on a Political sensitivity index, UWC and UNAM on poverty index, and UiT on an overcapacity index.

Re (4) expected to begin by month 28. Each project team member will contribute at least one policy option derived from the results of their work on this project. These will be compiled into a report by the WP leader and reviewed by all.

c) Work performed by each contractor in your WP during the reporting period.

UNAM: project coordination; market and social database; valuation and indices development;
CDC: economic and social database; indices development; hosted WP intermediate workshop in month 13.
PRIMEX-FAME: Non-market valuation; indices development.
UiT: Institutional data; indices development; Ecopath with Ecosim; habitat valuation.
UWC: social analysis, poverty index.

d) Deviations from the work program (if any), and corrective actions taken/suggested:

No deviations thus far.

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

WP Number: 9	WP Name: Impacts of ecotourism

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective:
Provision of scientific guidelines for management of marine areas where ecotourism activities are being developed.

Specific objectives:

1. To determine the most appropriate criteria for evaluating the effects of marine ecotourism practices in multi-use reserves (carrying capacity and/or LAC)
2. To develop and test chosen criteria with appropriately designed and defined indicator categories
3. To elaborate and implement efficient, cost-effective monitoring and evaluation protocols (integrating biophysical, socio-economic, user perceptions and governance metadata)
4. To assess human impacts on biological communities at specific case study sites and the implications of environmental variability (ENSO, PDO, global warming etc) upon sustainable business practices in the Equatorial Pacific
5. To apply lessons learned to new and existing decision support systems and mechanisms (e.g. coastal zoning etc.) for MPA conservation and management
6. To establish a regional conservation network (Eastern Tropical Pacific) for ecotourism practices within developing frameworks (e.g. Seascape etc)

b) Progress towards objectives
Tasks worked on and achievements made with reference to planned objectives; identify contractors involved

Table WP9.1: Progress within the reporting period towards specific objectives

Objective	Achievements	Contractors
1	Several tourism management concepts, including LAC, VIM, PAVIM and TCC were analyzed, concluding that these tools do not fulfil the requirements of WP9.	CDF, USFQ, Fundación Malpelo
2	Preliminary criteria and draft indicators have been defined. These are considered to be useful and applicable in the four MPAs. Each MPA will be in charge of their testing and evaluation to provide a more refined and accurate list that reflects local needs.	CDF, USFQ, Fundación Malpelo
3	Each MPA started working on the creation of monitoring and evaluation protocols adjusted to their specific characteristics and needs. Continuous feedback among the WP members, managers and user groups in each region will facilitate a standardization of protocols.	CDF, USFQ, Fundacion Malpelo

c) Work performed by each contractor in your WP during the reporting period.

CDF
hired a professional to direct and develop WP 9 activities. Formal presentations of WP 9 were made to representatives of the Galapagos National Park Service. CDF provided a list of references

to be used for the annotated bibliography. Surveys are under development with the aim of establishing a profile of the structure and perceptions related to marine ecotourism. Databases with information on itinerary registers, tour guide reports and visitor satisfaction have been solicited from the Galápagos National Park Service, to be reviewed against the criteria and draft indicators product D9.1. Work continues in the creation and evaluation of GMR tourism specific direct and indirect indicators as part of a regional evaluation of the effectiveness of tourism no-take coastal MPAs with appropriate feedback mechanisms to management process. Meanwhile, counterpart fieldwork continued to characterise the biophysical state of the GMR through oceanographic sampling, and sub-tidal community level monitoring with surveys over 66 subtidal sites at 2 depth strata to assess impacts between provisional take, protected and specific marine tourism no-take areas. This information works towards objective 4 (part of the second phase of WP9).

USFQ
continued working along with Parque Nacional Machalilla to build a visitor attendance registry data base for 2001 and 2002 to better understand visiting dynamics. Around 8,000 entries have been included in this data base. At the same time, information has been prepared to develop a data base useful for key actors: the Machalilla National Park, the local government, the chamber of tourism and researchers of INCOFISH Project WP 9. A total of 45 Incofish questionnaires of tourism perceptions and activities were completed by tourism actors, local guides, boat captains, specifically “marine” tourists and general National Park tourist, and 100 new questionnaires are being prepared to assist in local Park projects. The Ecolap WP 9 researcher will be monitoring tourist activities during the whale watching season with the Pacific whale Foundation, Jatunsacha Foundation and Machalilla National Park.

Fundación Malpelo
in cooperation with Parques Nacionales of Colombia conducted surveys to gather information on visitor satisfaction and tourism operation. During dive tours to Malpelo MPA, information continues to be collected regarding abundance of selected species and diving impacts on habitats. Data collected during last year is currently being analyzed and a value of carrying capacity and limits of acceptable change for each dive site will be estimated. This information forms part of the base line to design criteria and indicators for WP 9 in Protected Areas in Colombia. A list of references related to tourism management and marine protected areas management has been compiled and provided to the WP 9 team. From March 27th to 30th the first Workshop of WP 9 was carried out in Bogotá, Colombia and hosted by Fundación Malpelo and Parques Nacionales de Colombia. Work was focused on defining Marine Ecotourism as a framework for the project as well as on the analysis and establishment of indicators based upon Limits of Acceptable Change (LAC) and similar methodologies for tourism management. The team proposed indicators for management, considering four main issues: (a) marine resources conservation, (b) administration and management, (c) visitor satisfaction and (d) socio-economic benefits. A total of 40 indicators and 15 criteria were defined, which are summarized in WP product D9.1 and the Bogota workshop report.

d) Deviations from the workprogram (if any), and corrective actions taken/suggested:

none

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

WP Number: 10	**WP Name: Legal Instruments**

a) Workpackage objectives and starting point of work for the reporting period

Overarching objective:
The WP will analyse the national and international legal framework with a focus on sustainable use of marine living resources, both in overfished and surplus regions, taking account of legal structures as they relate to increasing pressure on resources, options for managing of resources, and options for sharing of benefits.
Work started in August 2005 (month 4).

b) Progress towards objectives

Table W10.1: Progress in the reporting period towards specific WP objectives

Specific objectives	**Tasks and achievements**	**Lead Contractor**
Overview on national legal commitments to sustainable marine fisheries	Developed a database (D10.1), including • country profiles • links inventory • fisheries ministries compendium	UNI HB
Analysis of legal structures relating to increasing pressure on resources and options for managing of resources	Developed a common outline of country reports (D10.2-4)	UNI HB
Analysis of legal structures relating to increasing pressure on resources and options for managing of resources	Advancing drafts of D10.2-4	UNI HB APPRENDER UNAM2 KESCOM CABAL S.A.
Analysis of legal structures relating to increasing pressure on resources and options for managing of resources	Organising a workshop on • co-ordination of country reports • advancing a synthesis on fisheries management systems for coastal zones: forms and conditions of success	UNI HB
Analysis of legal structures relating to the sharing of benefits	Scientific research	UNI HB

c) Work performed by each contractor in your WP during the reporting period

Table WP10.2: Work performed by each contractor in WP10

Contractor	**Work performed**
UNI HB	• Co-ordination and supervision of deliverables • Developed a common outline of country reports (D 10.2-4) • Developed a database (D 10.1), including country profiles, a links inventory and a fisheries ministries compendium • Organised a WP 10 workshop on 2-3 June 2006 • Scientific research on and advancing drafts of D10.6-8 • Communication with other workpackages, partner projects and external institutions

	• Addressed miscellaneous administrative tasks
APPRENDER	Prepared draft of D10.2a
UNAM	• Prepared draft of D10.3a • Visit to Bremen: discussion of and feedback on the country report outline; presentation on the interplay of different levels of governance and the ability of customary law to govern multiple demands on resources in Namibia.
KESCOM	Prepared draft of D 10.3b
CABAL S.A.	Prepared draft of D 10.2b

d) Deviations from the workprogram (if any), and corrective actions taken/suggested:

None.

e) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

WP Number: 11	WP Name: Project Management

a) Workpackage objectives and starting point of work:

Overarching objective:

The "Management" workpackage will provide review, assessment and management for the INCOFISH project. It will also maintain close contact with the Commission, through regular informal reports and visits as needed or opportunities arise.

Specific objectives:

1. Review and assess INCOFISH results and progress;
2. Supervise activities to achieve objectives and provide deliverables in good quality and on time;
3. Disperse, use, and account for resources as contracted;
4. Coordinate activities so that objectives of workpackages come together to reach the overall goal of INCOFISH, i.e., sustainable use of coastal zones.

Work commenced in month 1, May 2005.

b) Progress towards objectives

Re (1): For general information and coordination, a project webpage was launched in May 2005. A Consortium Agreement was prepared and signed by all INCOFISH contractors. A first Project Steering Committee meeting and a start-up workshop of all INCOFISH members was held in October 2005, with 52 participants from 22 countries, to review and assess establishment and first progress of INCOFISH. Monthly short progress reports by all work packages are assembled and edited by WP11 and disseminated by email to all members and partners. This has proven useful in keeping all members up-to-speed with regards to INCOFISH activities. A first semi-annual report was prepared and shared with all members and the commission in December 2005. This first annual report was assembled, edited and submitted on time.

Re (2): During the reporting period WP11 participated in INCOFISH workshops of WP 2, 4, and 5. WP11 participated closely in the development of the INCOFISH portal, especially the ICZM services. Also, the deliverables due in the reporting period D7.1, D9.1 and D10.1 were carefully evaluated and commented upon. Guidance with regard to deliverables that are due next was given. Members were reminded to plan their publications (50 altogether) early on. WP11 took leadership of one potential high-impact publication and suggested a topic for one other.

Re (3): The INCOFISH pre-payment arrived in August 2005 in the account of IFM-GEOMAR and was immediately transferred to the accounts of all 34 INCOFISH contractors in 22 countries. No complaints were received from partners indicating that this process was smooth and successful. Financial reports (Form C) for this first annual report have been assembled from all contractors. Spending by partners was monitored to make sure that 70% of the first installment would be spent during the first 12 months of INCOFISH. This was not achieved due to late arrival of funds (project started in May, funds arrived in August) and change in amount needed for and timing of audits: these were reduced from two to one only for every contractor, at the end of the project. The funds thus made available will be used for project purposes as agreed by the Steering Committee and included in a rider to the contract.

Re (4): Synergy between workpackages was encouraged, especially though cross-WP participation in workshops; this has worked very well and all WPs are well connected with at least

one or two other WPs. Especially, a list of ecosystems where all WPs would apply their tools and concepts was proposed for discussion and agreement at the second Project Steering Committee. With regards to external relations, the INCOFISH manager presented INCOFISH at the 1st PASARELAS Symposium in Corte, Corsica, France, July 2005, and explored synergy effects with this INCO partner project. From 24-28 October the project manager presented INCOFISH at the ECOST initial meeting at FAO headquarters in Rome, Italy, and explored synergy effects with this INCO partner project as well as with CENSOR, the third related INCO partner project.

c) Deviations from work programme and corrective actions taken.

The following issues arose after the signature of the contract that might require a rider or even an amendment to the INCOFISH contract:. The request for a rider / amendment is being submitted together with this report.

- Change of contractor: Dr. Maria Gasalla, main contact person of INCOFISH contractor no. 3 Instituto de Pesca (IP) signed a new contract with Instituto Oceanografico Universidade de Sao Paulo. As IP does not have personnel to replace Dr. Gasalla, IP agreed to resign from the INCOFISH contract and shift tasks and budget to the new employer. Dr. Gasalla presented the necessary documentation for the modification to Commission representatives (included into request for a rider to the INCOFISH contract).

- Change of contractor: The INCOFISH team at Sydansk Universitet (SDU, contractor no. 10) supervised by Poul Holm moved to Roskilde University. University of Roskilde has agreed to sign a contract with the Commission to take on tasks of SDU. Poul Holm presented the necessary documentation for the modification to Commission representatives (included into request for a rider to the INCOFISH contract).

- Shift of funds: During the 1st Project Steering Committee Meeting (see previous chapter at WP 11), it was decided to organize a Mid-Term Conference for presentation of results and adjustment of project schedule, provided the Commission agrees to a shift of surplus funds set aside for a second set of audit certificates.

During the same meeting, the funding of a book project by WP6 was approved provided that the Commission agrees to the use of funds within the project set aside for audit certificates.

Furthermore, WP 10 asked for additional funding of 25 000 Euro. This additional funding will be used by members of WP10 to update and expand the “Treaties and Conventions” database provided by FishBase for inclusion in INCOFISH and by contractor 43 to produce a study on legal instruments for sustainable fisheries in Kenya. This additional funding depends on the permission of the Commission to allocate surplus audit money to WP10 members (University Bremen, University of Namibia, KESCOM).

d) Lists of deliverables and milestones with indication of progress are available in Tables S2.1 and S2.2, respectively.

Table S2.1: List of INCOFISH deliverables showing delivery date, indicator of success and lead contractor.

* Indications of date refer to month after project start

Deliverables due during 1st reporting period are highlighted

WP no.	Del. no.	Deliverable name	Date due*	Actual / Forecast delivery date*	Indicator of success	Evidence by end of reporting period 1	Lead contractor
1	D1.1	Free online access to all data relevant to this project	19	19	Web portal available and working.	Some data already available at www.incofish.org.	FIN
	D1.2	Data Archive for all relevant data of D1.1 not archived elsewhere (database)	19	19	Database with archiving function for ICZM data available online.	WPs have been alerted of this service. No candidates data sets yet.	FIN
	D1.3	Online ICZM tools including coastal transects, and special step-by-step tools for common ICZM tasks	25	25	Available on INCOFISH portal.	Work with WP6 on web interface has started.	FIN
	D1.4	Electronic maps for all relevant marine organisms	25	25	Electronic maps available on portal.	About 500 maps already available on portal.	FIN
	D1.5	Internet Portal including Forum, Data Upload, and Links	13	13	Internet portal running at www.incofish.org.	Portal almost ready for upload to www.incofish.org, with forum, data upload, links and many ICZM services.	FIN
	D1.6	Maintenance of portal, uploading of WP data & tools	36	36	Improved version of web portal available; more than 10.000 visitors to ICZM tools & data per month; more than 100 citations in Google Scholar (http://scholar.google.com).		FIN
	D1.7	Scientific publications	36	36	At least five scientific papers published or submitted.		All WP members
2	D2.1	Historical data relating to selected key aquatic resources (stocks) in particular large marine ecosystems	19	19	Creation of online database containing data of the change in stock abundance over time of various species in at least 10 LMEs.	Database is being prepared.	UHULL
	D2.2	Derived from D2.1, baseline data for the respective stocks and LMEs, for utilisation in WP 4, 5, 7 and dissemination through WP 1	25	25	Analyses conducted and baseline data available to indicated WPs.		All WP partners

	D2.3	Population of databases, interactions with WPs 1, 3, 4, 7, report on baseline data and analysis	34	34	Report available on INCOFISH portal.		UHULL
	D2.4	Scientific publications	34	12-34	At least five scientific papers published or submitted.	One paper accepted, three in prep., several planned.	All WP members
3	D3.1	Standardized electronic maps with predicted distribution (likelyhood of occurrence) for all coastal zone species relevant to this project (web-based maps)	13	13	Maps, with species distributions, available on INCOFISH portal.	500 maps are already available on portal.	NRM
	D3.2	Before-After maps with predicted distribution before and after a certain point in time	19	19	Tool for creation of Before-After maps available, with examples for more than 10 key species.		NRM
	D3.3	Maps with predicted seasonal distribution	26	26	Maps available on INCOFISH portal.	Seasonal environmental datasets have been identified.	NRM
	D3.4	Dynamic maps where species distribution is predicted from the occurrence of the respective niche in space and time as predicted by physical models of the oceans (web-based maps)	31	31	Maps available on INCOFISH portal.	Data for environmntal scenarios are explored.	NRM
	D3.5	Further population of maps, interactions with WPs	34	34	Final report available and satisfactory.		NRM
	D3.6	Scientific publications	34	34	At least five scientific papers published or submitted.	One paper is ready for submission.	All WP members
4	D4.1	Data relevant for ecosystem modelling disseminated through WP 1	13	15	Ecosystem parameters available through portal for more than 100 ecosystems.	Data files and references of 120 Ecopath models have been compiled and are being prepared for display on portal.	CICIMAR
	D4.2	Ecosystem models available for all INCOFISH ecosystems (models, month 19)	19	19	Models constructed by all contractors within WP4 will be available on the INCOFISH portal.	Thirteen ecosystem models are in various stages of development.	All contractors
	D4.3	Spatial ecosystem models available for all selected LME's (models, month 25)	25	25	Spatial models based on D4.2 available on INCOFISH portal.	Six spatial models are under development.	CICIMAR
	D4.4	Further development of models, interactions with WPs, final report (report, month 34)	34	34	Final report available and satisfactory		CICIMAR
	D4.5	Scientific publications	34	34	At least five scientific papers published or submitted.	Several publications in preparation.	All WP members
5	D5.1	MPA review	16	16	Review available on INCOFISH portal, including links to relevant partners and data sources.		UNEW

	D5.2	Model based analysis of MPA size and placement	28	28	Report produced and available on INCOFISH portal.	At present WP5 is on schedule to provide all deliverables according to the original schedule laid out in Annex I, this however is dependant upon the models provided by WP4 being available in accordance with the time plan detailed in Annex I.	UNEW
	D5.3	Conceptual model for MPA planning	31	31	Concept for MPA planning available on INCOFISH portal together with “web wizard” and access to relevant data.		UNEW
	D5.4	Final Report on WP5	34	34	Final Report available and satisfactory.		UNEW
	D5.5	Scientific publications	34	34	At least five scientific papers published or submitted.	One paper ready for submission.	All WP members
6	D6.1	Report on ‘Concepts and tools for ICZM, with a special focus on stakeholder involvement’	13	13	Review of ICZM tools available on INCOFISH portal.	A draft report was ready for presentation and finalization at the upcoming WP6+8 workshop in May 06	IGS
	D6.2	Coastal Transects Software to classify and display common typology of coastal cross-sections	17	17	Prototype of software available on INCOFISH portal.	Conceptual model of the “Coastal Transects Analysis Model” (CTAM) was ready for presentation at WP6+8 workshop in May 2006.	CDC/ UNIABDN
	D6.3	Decision-making framework based on coastal transect analysis and related software	25	25	-Decision framework and related data and software available on portal.	Review of existing tools completed	CDC
	D6.4	Testing of framework, interactions with other WPs, final report	34	34	Final report available and satisfactory.	Preliminary discussion with INCOFISH members for potential case studies	CDC
	D6.5	Scientific publications	34	34	At least five scientific papers published or submitted.	The first manuscript on ICZM and stakeholders involvement completed; the second manuscript on coastal transects analysis is being prepared.	All WP members
7	D7.1	Review of indicators and selection of suitable, simple indicators	7	7	Selection and justification of simple indicators published on INCOFISH portal.	Review was available on portal in month 7.	IFM-GEOMAR
	D7.2	Database containing necessary biological parameters for application of indicators	13	13	Database with data needed for indicators available online, for more than 500 species.	Maturity data are already available on portal for over 2000 species.	IFM-GEOMAR/ FIN

	D7.3	Internet-based wizard to help in application of indicators	19	19	Indicator wizards available on portal.	Availability of Fish Ruler Wizard projected for month 13-14, rest month 19	IfM-GEOMAR / FIN
	D7.4	Final report (after testing of indicators with real-world fisheries and stakeholders)	34	34	Final report available and satisfactory.		IfM-GEOMAR
	D7.5	Scientific publications	34	34	At least five scientific papers published or in press.	Two publications in prep., one together with WP8	All contractors
8	D8.1	Economic & Social Database with information relevant for ICZM	13	13	Database with social and economic information relevant for ICZM available on INCOFISH portal.	Work on database well under way. Will continue to be improved and updated with data. A report on this will be submitted as part of deliverable 1 until May 2006.	All contractors (CDC)
	D8.2	Valuation of ecosystem goods and services	19	19	First report on valuation of ecosystems available on INCOFISH portal.	Work is currently ongoing on the valuation of goods and services from the Benguela and Gulf of Thailand large marine ecosystems. Both fish prices and non-market values from marine ecosystems have been collected to serve as a basis for the work under this objective.	All contractors (UNAM).
	D8.3	Analysis of ineffective management: Indicators	25	25	Report and wizard on economic indicators available on INCOFISH portal.	WP contractors are currently working on different indicators: CDC on a public sentiment index for ecosystem management; UNAM on subsidies and a bioeconomic vulnerability index; PRIMEX-FAME on a “political sensitivity index” and UiT on an “overcapacity index”.	All contractors (Tromsoe).
	D8.4	Policy options for sustainable fisheries and coastal management	31	31	Report on policy options available on INCOFISH portal.	Each project team member will contribute at least one policy option derived from the results of their work on this project. These will be compiled into a report by the WP leader and reviewed by all.	All contractors (UNAM).

	D8.5	Final report	34	34	Final report available and satisfactory.	Each project team member will write up his/her contribution to the report, to be compiled by WP leader, and reviewed by all members before submission.	All contractors (UNAM).
	D8.6	Scientific publications	34	34	At least five scientific papers published or submitted.	Three primary literature papers published	All contractors (UNAM).
9	D9.1	Criteria to determine carrying capacity of MPAs for ecotourism	12	12	Report on carrying capacity available on INCOFISH portal, including links to relevant ecotourism data sources.	Draft report submitted after the intermediate workshop (see M9.1.1in the list of milestones below) in month 12, revised version available on portal in month 13.	CDF, ECOLAP, Fundación Malpelo
	D9.2	Indicators to monitor impact of ecotourism on MPAs	21	18	Ecotourism impact report and wizard available on INCOFISH portal.	Prototype indicators were established. Their testing and evaluation are in progress. Threshold values to be established from base line work.	CDF, ECOLAP, Fundación Malpelo
	D9.3	Testing of concepts and indicators, interactions with WPs	33	30	Final report available and satisfactory.	Application and evaluation of ecotourism concepts, standards and indicators between WP's and MPA stakeholders and managers has started.	CDF, ECOLAP, Fundación Malpelo
	D9.4	Scientific publications	33	30	At least five scientific papers published or submitted.	WP11 reminded WP9 to start planning publications	CDF, ECOLAP, Fundación Malpelo
10	D10.1	Report on international and national legal commitments to sustainable marine fisheries (with database)	10	8 + 14	Report with database available on INCOFISH portal		UNI HB
	D10.2	a) Report on the promotion and management of marine fisheries in Brazil: focus on participatory approach to MPA management D 10.2a.1 Focus on coastal zone D 10.2a.2 Focus on EEZ	 13 25	 15 25	Report available on INCOFISH portal.		APPRENDER

		b) Report on the promotion and management of marine fisheries in Nicaragua: focus on communal approaches outside MPAs with local property rights	13	15	Report available on INCOFISH portal.		CABAL S.A.
	D10.3	a) Report on the promotion and management of marine fisheries in Namibia D 10.3.1 Focus on coastal zone D 10.3.2 Focus on EEZ	 13 25	 15 25	Report available on INCOFISH portal.		UNAM2
		b) Report on the promotion and management of marine fisheries in Kenya: focus on communal approaches outside MPAs and without property rights	-	15	Report available on INCOFISH portal.	Additional deliverable.	WCS
	D10.4	Report on the promotion and management of marine fisheries in Indonesia D10.4.1 Focus on coastal zone D10.4.2 Focus on EEZ	 13 25	 17 25	Report available on INCOFISH portal.		UNI HB
	D10.5	Report on the promotion and management of marine fisheries in EU in comparison to the other selected countries D10.5.1 Focus on coastal fishery D 10.5.2: Comparison of management tools in the coastal zone D 10.5.3 Focus on EEZ D 10.5.4 Focus on reorientation of structural policy	 19 19 26 31	 16 19 26 31	Report available on INCOFISH portal.		UNI HB
	D10.6	'North/South' relationships: access to resources and benefit sharing	31	34	Report available at INCOFISH web portal.		UNI HB
	D10.7	Overall synthesis; recommendations	34	35	Report available at INCOFISH web portal.		UNI HB
	D10.8	Scientific Publications	34	34	At least five scientific papers published or submitted.		All contractors
11	D11.1	First Annual Progress Report	13	14	Report delivered to European Commission.	Delivered on time.	IfM-GEOMAR
	D11.2	Second Annual Progress Report	25	26	Report delivered to European Commission.		IfM-GEOMAR
	D11.3	Third and Final Report	36	38	Reports delivered to European Commission.		IfM-GEOMAR

Table S2.2: List of Milestones per Workpackage

Milestones within reporting period are highlighted

WP No.	Milestone no.	Milestone name	Date due	Actual/Forecast delivery date	Comments	Lead contractor
1	M1.1	First workshop	6	6	Conducted in conjuction with start-up workshop (see M11.1)	FIN
	M1.1.1	Intermediate workshop	-	13	Additional milestone. The scheduling of an additional workshop was considered beneficial for overall performance and improvement of the INCOFISH portal after. Workshop was held in Los Banos, Philippines in May 2006.	FIN
	M1.2	Second workshop	26	26		FIN
2	M2.1	First workshop	5	6	Conducted in conjuction with start-up workshop (see M11.1).	UHULL
	M2.1.1	Intermediate workshop	-	11	Additional milestone; workshop held in Tallin, Estonia, in March 2006.	UHULL
	M2.2	Second workshop	15	15		UHULL
3	M3.1	First workshop, review data body	5	6	Conducted in conjuction with start-up workshop (see M11.1)	NRM
	M3.1.1	Intermediate workshop	-	12	Additional milestone. Not all aspects could be cleared during the Start-up workshop. During the intermediate workshop the WP3 work plan was adjusted to comply with requirement to coordinate with other workpackages and be scheduled to avoid overlap. Was held in Campinas, Brazil, in April 2006.	NRM
	M3.2	Second workshop, review maps, tools, etc	27	27		NRM
4	M4.1	First workshop	5	6	Conducted in conjuction with start-up workshop (see M11.1). Partners learned about rational of the project, global strategies of the whole project and WP's, first synergies were established. Partners got to know each other.	IfM-GEOMAR
	M4.1.1	Intermediate workshop	-	10	Additional milestone. Workshop organized in cooperation with WP5 in London, UK, in February 2006. The work plan was discussed, study cases defined, as well as criteria for models standardization and comparisons.	UNEW & CICIMAR

	M4.1.2	Overseas consultancy	-	12+13+14	Additional milestone. Overseas consultancy for construction of East China Sea ecosystem model consisting of three meetings. Because of poor experience of ECNU and NIES in modelling with the Ecopath with Ecosim suite of programs a particular strategy was developed to guarantee to fulfill deliverable D4.2 for all the partners. It includes an overseas consultancy in three major steps: Two meetings in China (hosted by ECNU) with an Ecopath model constructed as final result. The third step, a meeting in Mexico (hosted by CICIMAR) for model calibration, time simulation based on Ecosim and an introduction to Ecospace (spatial modelling).	ECNU (in collaboration with CICIMAR, UNEW and NIES)
	M4.2	Second workshop	13	16	All partners agreed on the shift due to delayed progress in modelling	CICIMAR
	M4.3	Third workshop	19	20	An Ecospace workshop in early 2007 (January or February), will be organized in early 2007 which will serve as base to construct spatial ecosystem models (deliverable D4.3) until May 2007. During the second workshop on September 2006 these plans will be reviewed and, if necessary reprogrammed.	CEFAS, CICIMAR
	M4.4	Fourth workshop	30	30	To present Ecosystem models, and to prepare meta-analysis.	CICIMAR
5	M5.1	First workshop	5	6	Conducted in conjunction with start-up workshop (see M11.1)	UNEW
	M5.1.1	Intermediate workshop	-	10	Additional milestone. The project start up meeting in Kiel enabled many of the early issues to be covered, but not all. Therefore, an intermediate workshop has been organized in cooperation with WP4 in London, UK, in February 2006.	UNEW / CICIMAR
	M5.2	Second workshop	19	22		UNEW
	M5.3	Third workshop	25	29	The workshop is being timed to coincide with an MPA conference of which the INCOFISH project is a partner organiser. This will allow more efficient usage of the WP travel budget.	UNEW
6	M6.1	First workshop	6	6	Conducted in conjunction with start-up workshop (see M11.1).	CDC, IGS, UNIABDN
	M6.1.1	Intermediate workshop	-	9	Additional milestone. Workshop held in Aberdeen, UK, in January 2006.	CDC, IGS, UNIABDN
	M6.1.2	Intermediate workshop	-	13	Additional milestone. Workshop organized in cooperation with WP8 in Bangkok, Thailand, in May 2006.	CDC / UNAM
	M6.2	Second workshop	25	22		CDC + UNAM
7	M7.1	First Workshop	6	6	Conducted in conjunction with start-up workshop (see M11.1).	IfM-GEOMAR
	M7.2	Second Workshop	20	20		IfM-GEOMAR
8	M8.1	First Workshop	5	6	Conducted in conjunction with start-up workshop (see M11.1).	UNAM
	M8.1.1	Intermediate workshop	-	13	Additional milestone. Workshop held in Bangkok, Thailand, in cooperation with WP6.	UNAM / CDC
	M8.2	Second Workshop	25	22	To assess findings and adjust actions. In cooperation with WP6.	UNAM
9	M9.1	First workshop	5	6	Conducted in conjunction with start-up workshop (see M11.1).	CDF

	M9.1.1	Intermediate workshop	-	12	Additional milestone. Intermediate workshop was held in Bogota in April 2006. Drafting of 1st deliverable with all WP9 partners.	CDF
	M9.2	Second workshop	19	21	To compare results, adapt monitoring protocols and define changes of strategy.	CDF
	M9.3	Third workshop	31	31	To discuss results and prepare final report.	CDF
10	M10.1	First workshop	5	6	Conducted in conjunction with start-up workshop (see M11.1).	UNI BREMEN
	M10.1.1	Intermediate workshop	-	14	Additional milestone, held in June 2006 in Bremen, Germany.	UNI BREMEN
	M10.2	Second workshop	29	29	To review and finalize work	UNI BREMEN
11	M11.1	Start-up workshop for all INCOFISH members	5	6	Start-up workshop took place in Kiel, Germany, in October 2005, with 52 participants from 22 countries. All WPs were provided space and time to conduct their 1st WP workshop during the start-up workshop.	IfM-GEOMAR
	M11.2	First Steering Committee meeting	5	6	Held in conjunction with start-up workshop in October 2006 in Kiel, Germany (see M11.1).	IfM-GEOMAR
	M11.3	Second Steering Committee meeting	12	13	Conducted in conjunction with intermediate workshop of WP1 (see M1.1.1).	IfM-GEOMAR
	M11.4	Third Steering Committee	24	24		IfM-GEOMAR
	M11.5	Final Steering Committee meeting	34	34		IfM-GEOMAR

Section 3 – Consortium management

The project was led by the Project Co-ordinator Rainer Froese with the help of the Project Support Team consisting of the Project Manager Silvia Opitz, half-time Project Assistant Crispina Binohlan, and Webmaster Sven Mohr, all based at IFM-GEOMAR, Kiel, Germany. Also, the Project Steering Committee consisting of all work package leaders met in Kiel during the INCOFISH Start-up Workshop.

The Project Co-ordinator took care of overall project management and chaired the Steering Committee. The Steering Group gave advise to the Project Co-ordinator on management matters, such as relating to late start of project and agreement on a rider to the contract. Workshops at the workpackage level as well as contributions to monthly reports served as milestones and 'control points' to review progress and adjust course where needed.

Each workpackage was led by its Workpackage Leader, a senior representative of the Contractor for that workpackage. All workpackages held at least one workshop during the reporting period, attended by most or all workpackage members, plus invited participants from other WPs, and – in some cases – by resource persons.

The organization of work between project participants was regulated by the INCOFISH Consortium Agreement that has been signed by all INCOFISH contractors.

Below is an overview of responsibilities, decision making structures, communication flow, and assessment of progress and results.

Activities of the Project Co-ordinator

Detailed activities of the Project-Coordinator are available from the monthly INCOFISH progress reports and from the minutes of the Steering Committee. In general, the Project Co-ordinator was responsibility for the co-ordination of the project and maintaining contact with the Commission. Particular responsibilities included:

- scientific co-ordination of the entire project, resulting in milestones and deliverables being on time and in good quality;
- chairing the Steering Committee at its first meeting in Kiel;
- maintaining contact with the Commission, through email, phone calls and visit to Brussels;
- supervision of the Workpackage Leaders´ activities within the project, mainly in reaction to monthly reports, workshop reports, and draft deliverables.
- distribution of funds to partner organisations, which was done directly after the funds arrived at IFM-GEOMAR in August 2005.
- maintenance of a project timetable and register of project events, including meetings, milestones and deliverables (see tables in this document).
- maintenance of consolidated time, expenditure and financial records.
- final preparation and submission of reports and other deliverables to the Commission (see first half-year report and this first annual report).

Responsibilities of the Workpackage Leaders

Each Workpackage Leader had responsibility for leading their respective workpackage. This included:

- scientific and technical management of the workpackage
- two-way communication with the project co-ordinator
- supervision of the activities of the workpackage members within the workpackage
- adherence to the agreed time-lines for milestones and deliverables

- adherence to the budget plan
- two-way communication with the members of the workpackage
- preparation of the milestones, deliverables and financial reports for delivery to the project co-ordinator.

This was overall satisfactory. Problems in workpackage management are adhered to below.

Responsibilities of Workpackage Members
Workpackage Members had the responsibility to execute their specific task (including reporting) in the workpackage within a specified time span for which he/she received funding. Workpackage Members also are expected to participate in workpackage meetings and activities, all of which was overall satisfactory. Problems of some members are adhered to below.

Financial management and administration
Internal accounting has being established by the project co-ordination, based on the accounting and control practices used by the Finance Department of IfM-GEOMAR. INCOFISH members were briefed on the practices during a special session at Start-up workshop.

Decision Making Structures

All INCOFISH decisions so far were reached by consensus at all levels.

Assessment of progress and results

The following mechanisms were used for assement of progress and results:

- Monthly progress reports by workpackages and coordinator
- Semi-annual progress reports by workpackages and by entire project.
- Annual progress reports by workpackages and by entire project.

Coordination Reports from WP leaders

WP1 Outreach

WP1 was in contact with all other workpackages re contributions to the portal, see detailed reports. Collaboration between WP leader FIN and WP member CRIA was good. No coordination problems arose.

WP2 Shifting Baselines

The workpackage membership has remained intact. All partners have attended either or both the kick-off meeting in October 2005 and the WP2 workshop in March 2007, and all have contributed to the design of the workpackage programme of work as well as their own research schedules. The only substantive change in membership has arisen from the transfer of personnel from the University of South Denmark to Roskilde University (DK), with the latter replacing the former as partner in the INCOFISH project.

INCOFISH WP2 has notably strong links with the History of Marine Animal Populations (HMAP) project. While three WP2 partners – UHULL, RUK, MEI – are engaged in both projects, HMAP and WP2 are pursuing similar research agendas which entail the mining, analysis and dissemination of historical data relating to aquatic resources in selected marine ecosystems.

WP3 Biomapping

The WP membership has remained intact. Workshop coordination has been maintained chiefly by e-mail following the Start-up Workshop. Meetings were held in conjunction with the Start-up workshop, and later organised as the first intermediate WP 3 workshop in Campinas, Brazil in April 2006.

WP4 Ecosystem Modelling

Maria Gasalla, IOUSP, requested a contract shift from Instituto de Pesca to Instituto Oceanográfico, University of São Paulo, due to institutional change/new tenure. Changes occurred without any problem.

CEFAS helped to arrange and host the WP4-WP5 meeting in February 06 and were active contributors to all discussions. Being one of the partners experienced in modelling, they helped lead discussion and initiate documentation of 'Guidelines for Ecopath modelling' and Ideas for publications arising from collaborations between the work of partners in WP4. Steve Mackinson is working closely with the WP4 coordinator to plan future modelling workshops, particularly in respect to soliciting input from the software developers

MCM DEAT is helping in arrange and host the WP4 third meeting next September 2006. CEFAS and CICIMAR are working on the organization of special sessions regarding application of Ecosim, particularly the searching (fishing) policy routine, and Ecospace (use and potential improvements).

Additionally some dates for WP4 workshops were moved with respect to the original plan and their contents were re-oriented to fill better the needs of the WP4 members. The third workshop will take place on September 2006, instead June 2006. The group identified the need of expert advice on spatial modelling based on Ecospace on the light of the deliverable D4.4; as well as the convenience of an additional workshop on this topic. Initially the WP4 fourth workshop programmed in May 2007 was moved to January/February 2007, but some other sources of funds will be explored. This activity will be reviewed during the WP4 third workshop next September.

A strong communication between some partners was developed particularly for the East China Sea case of study since ECNU and NIES partners have poor experience on modeling. Detailed actions were as follows: first partners' meeting of ECNU contractor to start-up the work (Shanghai, September 14, 2005); a small conference to discuss the functional group division of the East China Sea ecosystem (State Key Laboratory, January 23, 2006); discussion and signed of an agreement contract of EwE modelling collaboration of East China Sea ecosystem with Dr. Xu Hai-Gen from NIES from WP5 (March 1, 2006); discussion the ECS fishery landing data collection and parameterization concerning Ecopath modelling and the design of an MPA with Will Le Quesne from the University of Newcastle, UK and Dr. Xu Hai-Gen in NIES from WP5 (February 2006, during the London meeting); consultant meeting in April 17, 2006 to get more help about functional groups division and modelling techniques from the domestic authoritative experts in marine fisheries and estuarine and coastal resource management, including marine protected areas in China as well as with an academician of Chinese Academy of Engineering and a professor from the East China Sea Fisheries Research Institute, Chinese Academy of Fishery Science; discussions about cooperation on the East China Sea fishery data collection with domestic institutes and experts in China. First meeting on modelling ECS ecosystem with the participation of two scientists from CICIMAR (April 25 to May 3, 2006).

During June 2006, a meeting with a scientist of the CENSOR partner project is programmed to discuss collaborative work.

WP5 Sizing and Siting of MPAs

Due to changes within WP4 with regards to the East China Sea ecopath model, NIES has agreed to provide additional assistance to ECNU for the development of the East China Sea ecopath model.

A further LME has been added to the case studies under consideration by WP5; CICIMAR are including the Upper Gulf of California for the review of existing MPAs and for additional ecospace model studies.

UNEW as WP co-ordinators have:

- arranged a standard format for input to D5.1 from each of the individual contracting partners, and arranged an 'internal' timetable for steps towards the delivery of D5.1
- held preliminary discussions within the WP about work that will be done towards the other WP deliverables later in the project, and arranged an out line timeline for work to be done towards achieving these deliverables on time.
- organised and hosted a WP meeting combined with WP4 and 'visitors' from WP8 and WP11 that was held in London in February. Due to the tightly linked nature of WP4 and WP5 there has been close communication between the two during the year in addition to the meeting.
- had preliminary discussions with the EU funded Protect and Empafish projects (both working on MPAs) on being a full co-ordinating partner of a joint symposium on MPAs in Spain in September 2007.
- provided money from the WP budget for WP members to attend and present at international conferences with themes on ecosystem management of fisheries and MPAs.
- As part of the WP4 and WP5 combined works on developing the East China Sea ecopath model made arrangement for a WP4 ECNU member to travel to UNEW in September 2006 for 2 weeks to work on model balancing.
- Made preliminary arrangements for UNEW to travel to ECNU and/or NIES in China for collection and analysis of fisheries landings data for the ECS ecopath model.

WP6 Coastal Transects

Based on the discussion about the work plan and deliverables at the Kiel meeting, WP members agreed on tasks and responsibilities. Each WP member/contractor then arranged for their tasks to be completed with the assistance of their own researchers and assistants. In general, WP members work collaboratively on the activities leading to the deliverable, with one WP member in the leadership role, others in the supporting role, and all are coordinated by WP leader.

The following people are currently involved in the WP activities:
- CDC: Ratana Chuenpagdee, Kungwan Juntarashote, and Javier Bello (WP members) + CDC researchers, namely Passara Ratanapisit, Idsariya Wudtisin, Montree Mongkala, Ilada Neamthed, Pisuttipong Suriyakarn, and CDC interns (Fareed Kanji and Marco Boccia)
- IGS: Robert Kay (WP member) + Sarah Gardner (graduate student assistant)
- UNIABDN: Graham Pierce, Jianjun Wang and Cristina Pita

WP timetable was adjusted based on the first WP meeting in Kiel in October 2005 such that the activities for deliverable 6.2 began in month 8. Overall, the WP is progressing as planned.

Coordination of the WP is mainly through e-mail. A conference call is also used when needed. WP6 works closely with WP8 and communicates regularly with WP1. Interaction with other WPs is currently limited, except for some discussion about contributing some information to WP2 and with some other INCOFISH-WP members about the testing of the model.

Consultation with Daniel Pauly and Jackie Alder of the Sea Around Us Project is frequent, resulting in the sharing of the work on small-scale fisheries and institutional arrangement. Discussion with Maarten Bavinck and Ruangrai Tokrisna of ECOST project might lead to collaboration in the future.

WP7 Simple Indicators

Actual scientists working on WP 7 from each contractor are as follows:

IfM-GEOMAR	Amanda Stern-Pirlot, Rainer Froese
CABAL, s.a.	Joe Ryan
CDF	Alex Hearn, Mauricio Castrejon
CRODT	Birane Samb, Djiga Thiao
IMARPE	Michael Ballon, Claudia Wosnitza
MCM-DEAT	Lynne Shannon
MEI	Tiit Raid
PSU	Vachira Lheknim
UNIABDN	Cristina Pita

MEI is not an actual workpackage 7 contractor, but they are enthusiastic in participating.
WP 7 is on schedule with objectives and deliverables thus far. We are at the tail end of data collection phase and headed into “web-tool” phase.

- WP7 met in October, 2005 at INCOFISH start-up meeting to discuss indicator choices and next-steps.
- Regular communication between WP members is conducted via email, usually through the WP coordinator. WP members share tools and literature this way, as well as publications in progress.
- Next WP7 workshop is to be scheduled for December, 2006.

WP8 Valuation of Ecosystem Services

Actual scientists working on WP 7 from each contractor are as follows:

UNAM	Kevin Stephanus, Sheila Heymans, P. Susan Alexander; Rashid Sumaila
CDC	Ratana Chuenpagdee; Kungwan Juntarashote
University of Tromsoe	Claire Armstrong; Jannike Falk-Petersen
University of Western Cape	Moenieba Isaacs
Primex-Fame	Abbie Cruz-Trinidad

WP 8 is on schedule with objectives and deliverables thus far.

- WP8 met in October, 2005 at the INCOFISH start-up meeting to discuss our workplans and next-steps.
- Regular communication between WP members is conducted via email, usually through the WP coordinator. WP members share tools and literature this way, as well as publications in progress.
- WP8 first workshop took place in May, 2006.

WP9 Ecotourism

No significant changes have occurred. Ecolap in particular have driven early discussions with respect to concepts and definitions of ecotourism, having prior experience from mainland Ecuador while Fundacion Malpelo provided excellent support during the first workshop. CDF continues with

Ecolap in a coordinating role as WP leaders and have interchanged this role occasionally to better manage schedules for participation in workshops, field work etc.

WP timetable remains as planned (see Annex 1), with product D9.1 submitted in month 12.

Given the relative isolation of the WP members, communication has been conducted mostly through e-mail, or Skype with occasional meetings in Galapagos between CDF and Ecolap within Ecuador. Since all WP members work closely as technical accessory to government authorities and user groups in each National Park, INCOFISH WP9 activities are closely linked to a variety of ongoing projects with management outcomes with key contacts in the respective National Park Services. These include interactions with other NGOs working locally such as WWF, CI etc with compatible goals where we hope to increase the project audience at the level of the Eastern Pacific.

WP10 Legal Aspects

WP members' contributions:

Workpackage co-ordination is conducted by UNI HB (Gerd Winter, Till Markus, Marion Markowski).

Changes to the WP membership:
UNI HB subcontracted Laode M. Syarif, Indonesia, Evanson Chege Kamau, Kenya/Germany, Evelina Dimitrijeva, Latvia/Germany, Aicha Zergani, Morocco/Germany and Dulani Perera, Sri Lanka/Germany.
UNAM2 has employed Mavetja R. Rukoro, Namibia.
WP 10 cooperates with Nyawira Muthiga, WP 3, and Joe Ryan, WP 7.

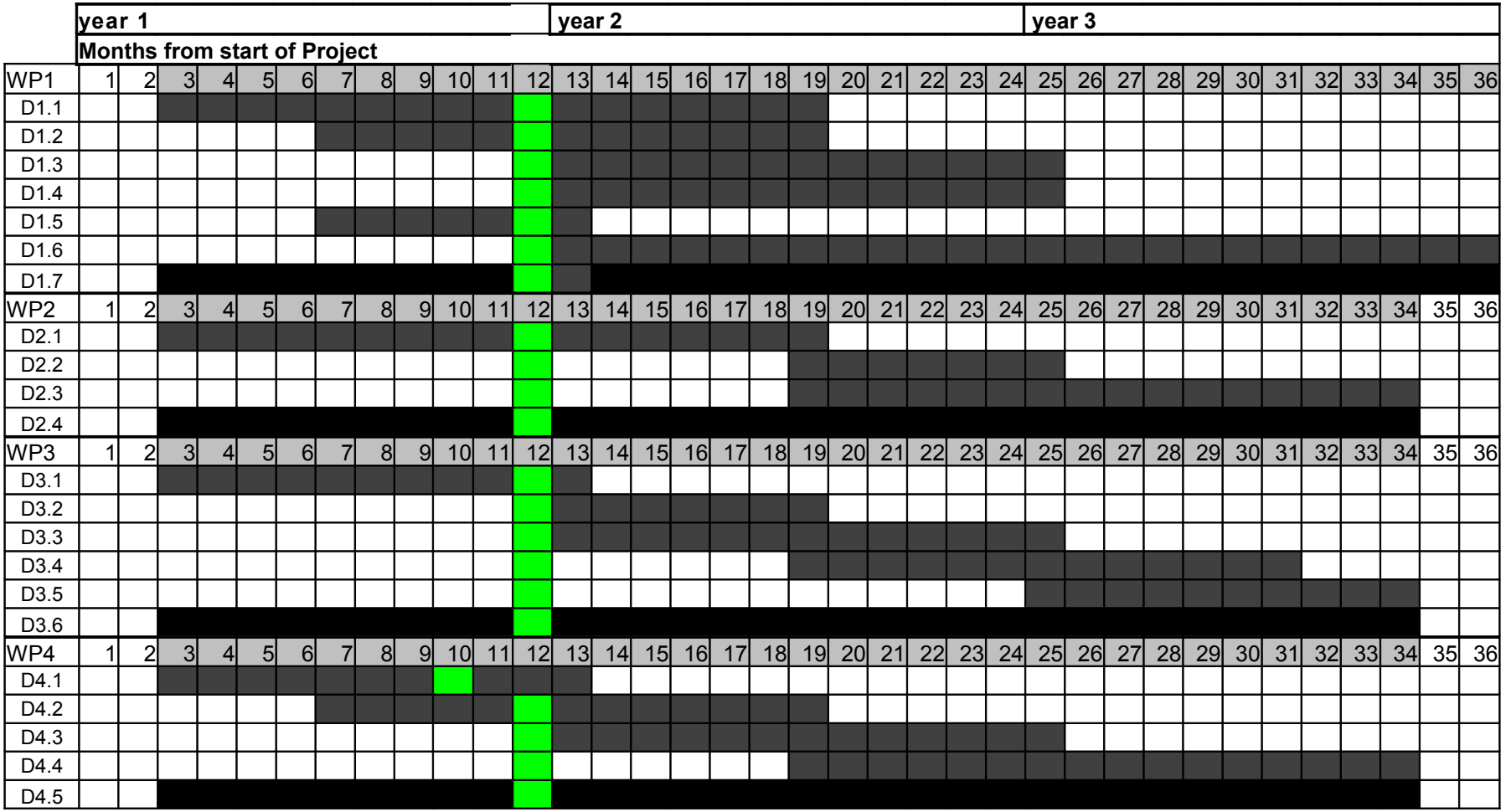
Where WP 10 is not in line with the timetable, this is due to delayed funding and amended and additional deliverables.

d) WP co-ordination activities:

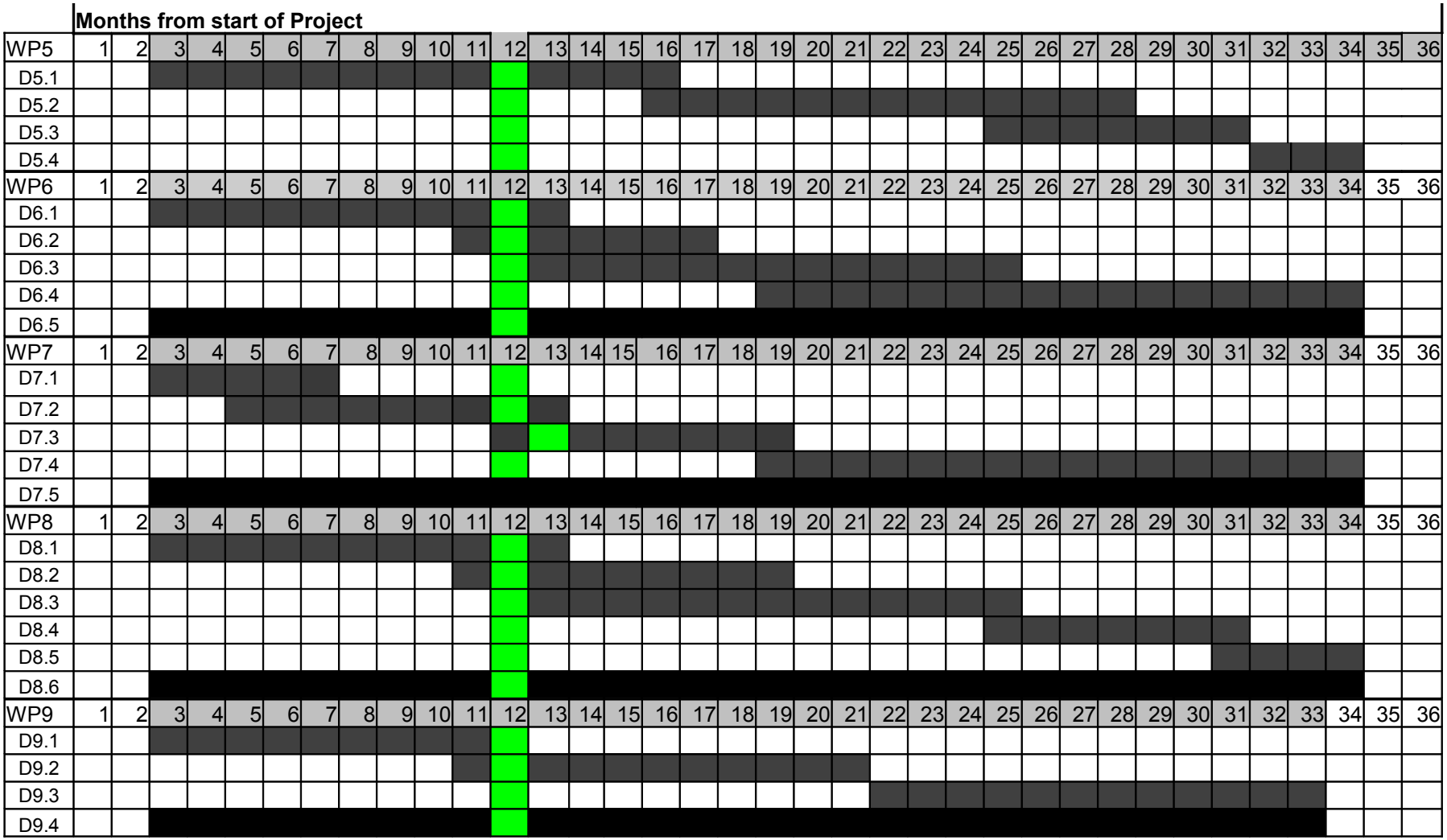
- Co-ordination and supervision of deliverables
- Developed a common outline of country reports (D 10.2-7)
- Organised a WP 10 workshop
- Communication with other workpackages (WP 1, 11), partner projects, such as ECOST, and external institutions
- Visit to Bremen by the UNAM2 team: discussion of and feedback on the country report outline; presentation on the interplay of different levels of governance and the ability of customary law to govern multiple demands on resources in Namibia.

WP11 INCOFISH Coordination: See above

Table S3.1: Barchart of project deliverables. The highlighted vertical line shows where each WP stands at the end of the first reporting period.



year 1 year 2 year 3


Months from start of Project
WP5 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
D5.1
D5.2
D5.3
D5.4
WP6 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
D6.1
D6.2
D6.3
D6.4
D6.5
WP7 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
D7.1
D7.2
D7.3
D7.4
D7.5
WP8 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
D8.1
D8.2
D8.3
D8.4
D8.5
D8.6
WP9 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
D9.1
D9.2
D9.3
D9.4

	year 1												year 2												year 3											
	Months from start of Project																																			
WP10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
D10.1																																				
D10.2																																				
D10.3																																				
D10.4																																				
D10.5																																				
D10.6																																				
D10.7																																				
D10.8																																				
D10.9																																				
WP11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
D11.1																																				
D11.2																																				
D11.3																																				

WP Workpackage, D Deliverable

Collaboration with other programmes / projects

Table S3.1: Synergies with other Projects or Initiatives per Work Package

WP No.	Synergies per Work Package
1	*FishBase*: Data collation and database building *"Sea Around Us" (SAUP)* project: Data collation and database building *OBIS* and *GBIF* for data *FIN, CRIA* and *Worldfish* cooperation on outreach publications and actions on (*EC-CAB*) small scale fisheries and perhaps MPA development; *FIN, CRIA, WorldFish* and *Allfish* cooperation on outreach publications and actions on historical data.
2	Strong synergies exist between INCOFISH WP2 and *HMAP*: the History of Marine Animal Populations project [a component of the *Census of Marine Life* program] *MARBEF* (EU Network of Excellence)
3	Web mapping to be done sharing resources/competence with *GBIF-Sweden* and *CSIRO*-Australia.
4	During June 2006, a meeting with a scientist of the CENSOR partner project is programmed to discuss collaborative work.
5	Had preliminary discussions with the EU funded Protect and Empafish projects (both working on MPAs) on being a full co-ordinating partner of a joint symposium on MPAs in Spain in September 2007.
6	Synergy with SAUP on coastal habitat database and small-scale fisheries database. Discussion with Maarten Bavinck and Ruangrai Tokrisna of ECOST project might lead to collaboration in the future.
7	*FishBase*; (additional ones to be determined later)
8	Intensive cooperation with SAUP
9	The Nature Conservancy, DED (Deutscher Entwicklungsdienst), Jatunsacha NGO. US-AID Project "Zonification of the Galapagos Marine Reserve" Tourism component CDF representation within the Galapagos Participatory Management Committee - Development of sustainable businesses in a multi-use marine reserve. WP 9 INCOFISH process is expected to help strengthen the Galapagos National Park Service Tourism Unit. "Seascape Project" UNESCO, CI, Malpelo Foundation, Colombia National Parks Authority.
10	Representatives of *ZMT (Center for Tropical Marine Ecology*) Bremen invited to participate in WP10 intermediate WS in June 2006. ECOST coordinator Pierre Failler invited to participate in WP10 intermediate WS in June 2006.
11	INCOFISH has established contact with other INCO Projects such as CENSOR, ECOST and PASARELAS. Links to CENSOR and PASARELAS products have been added to the project webpage at www.incofish.org. The project manager introduced INCOFISH to members of partner projects at initial meetings of PASARELAS (July 2005 in Corte, Corsica) and ECOST (October 2005, Rome, Italy).

Section 4 – Other issues

Communications

Responsibility for flow of communications lies with the Project Co-ordinator (to and from the Commission, and to/from the Workpackage Leaders), and with the Workpackage Leaders (to/from the relevant members of the workpackage). This flow is being maintained by regular meetings, by an electronic portal established for the project, used both for a project-wide repository of documents (including agendas, minutes and technical documents) and for a repository and commentary on the timetable of meetings, milestones and deliverables.

INCOFISH participants communicate mainly by e-mail and through the INCOFISH website (www.incofish.org) that was established at the start of the project.

The Project Steering Committee, meeting once per year, met for the first time on 4th October, 2005 (see previous Section at WP11). Between meetings communication is maintained and decisions taken by electronic media.

There are other specific WP meetings that partners and members have attended. The complete list of past and future meetings may be found in the list of milestones (Table S2.1 in the previous section).

Benefits to SMEs

There are two key benefits for the involvement of SMEs in the INCOFISH project. First, is the interaction with leading professionals and institutions in the field globally. This allows the free exchange of ideas and knowledge between project participants ensuring that the latest trends and issues in the field become known. Second, the interactions allow SMEs to innovate through the application of lessons learned from INCOFISH to be applied to commercial projects being undertaken by the company.

Dissemination of knowledge

All data, tools and concepts developed by INCOFISH are considered public goods and are made available through the INCOFISH web portal (www.incofish.org). Members of INCOFISH have volunteered to archive data and continue to make tools available beyond the duration of this project. Consortium partners accept and authorise that the Commission disseminates relevant project information, including summaries and public project results, names and contact details of consortium partners through visual, oral and electronic media.

Incoming day-to-day information on subjects considered to be of interest to INCOFISH objectives is being distributed to participants by the management team via e-mail.

A monthly newsletter was initiated in October 2005, informing INCOFISH participants on major achievments and working success within the project. These reports are also available for download on the INCOFISH webpage at www.incofish.org (Documents/Reports/Monthly Reports).

Public participation is envisaged mainly through the INCOFISH web portal where lay-persons can upload data such as observations of species or pollution events, attach their own web sites if relevant to INCOFISH, or discuss issues with experts in the relevant forum. Public awareness is also being raised through traditional means such as regular press releases demonstrating success stories and guiding lay-persons to the INCOFISH web portal. Involvement of stakeholders or the

public in general is an essential part of work packages 3, 5, 6, 7, 8 and 9. (For early examples of success see Section 1 – Major achievements).

For an overview on past and future use and dissemination activities by workpackage see Annex II.

Annex I

INCOFISH Publications

Papers in peer review journals:

Sumaila, U.R. (2005). Differences in economic perspectives and the implementation of ecosystem-based management of marine resources. Marine Ecology Progress Series, 279-282.

Chuengpagdee, R., Preikshot, D., Ligouri, L. and Pauly, D. (2006) A public sentiment index for ecosystem management. Ecosystems, 9, 463-473.

Book chapters:

Arreguín-Sánchez, F. In press. Pesquerías de México: Diagnóstico y Perspectivas. In: D. Fuentes y P. Guzman (eds). Pesca, Acuicultura e Investigación en México. Cámara de Diputados, México.

Ponce-Díaz. G., F. Arreguín-Sánchez and L.F. Beltrán-Morales. In press. Indicadores de sustentabilidad y pesca: casos en Baja California Sur, México. In: Sustentabilidad y recursos Naturales de Baja California Sur.

Sumaila, U.R. and K. Stephanus (2006). Declines in Namibia's pilchard catch: the reasons and consequences. In: Rognvaldur Hannesson, Manuel Barange and Samuel F. Herrick Jr. Climate Change and the Economics of the World's Fisheries - Examples of small pelagic stocks. Edward Elgar, Cheltenham, UK, pp. 205-214.

Newspaper articles:

Priscilla Brooks and Rashid Sumaila April 02, 2006: "Without drastic measures, Gulf of Maine cod fishery will be lost forever", Maine Sunday Telegram.

Newsletter articles:

Maria Gasalla, Uma nova abordagem para estudos pesqueiros. Newsletter: "Diario de bordo – Publicacion trimestral del Instituto Oceanográfico, Universidade de São Paulo." Año 2, numero 7 – jan/feb/mar 2006.

Conference contributions:

CEFAS: 'Modelling the distribution of marine fish in UK waters and the use of validation criteria for model selection'. Presented at the Third International Symposium on GIS/Spatial Analyses in Fishery and Aquatic Sciences held in Shanghai, China, in August 2005. Website: http://www.esl.co.jp/Sympo/index.htm
Participants: 86 participants from 21 countries and 5 international organizations

Six contributions accepted for the International Conference on Coastal Ecosystems to take place in Campeche, Mexico on 26-29 June, 2006. http://etzna.uacam.mx/epomex/icce/icce.html :

Arreguín-Sánchez, F. Fisheries management and the need of improving scientific advice: breaking old ideas and taken new challenges (lead speaker)

Lopez Rocha, J.A. and F. Arreguín-Sánchez. Spatial distribution of catchability for the red grouper, *Epinephelus morio,* fishery on the Campeche Bank, Mexico.

Cruz-Escalona, V.H., F. Arreguín-Sánchez and M.J. Zetina-Rejón. Exploring effects of changing harvest rates in the brown shrimp sequential fishery of the western Gulf of Mexico accounting for interdependent ecosystems.

Zetina-Rejón M.J., F. Arreguín-Sánchez and V.H. Cruz-Escalona. Towards an integration of the Campeche Bank ecosystem dynamics for ecosystem-based fisheries management.

Arreguín-Sánchez, F., M.J. Zetina-Rejón, M. Ramírez-Rodríguez and V.H. Cruz-Escalona. Natural and fishing processes behind the collapse of the pink shrimp, *Farfantepenaeus duorarum*, fishery in the southern Gulf of Mexico.

Albañez-Lucero. M.O. and F. Arreguin-Sánchez. Relationship between type of bottoms and spatial distribution of the red grouper, *Epinephelus morio*, in the Campeche Bank, Mexico.

Two contributions presented at the workshop “Impacto de la pesca de arrastre de camarón en los ecosistemas del Golfo de California”:

Arreguín-Sánchez, F. Avances de las investigaciones sobre el impacto de la pesca de arrastre de camarón en los ecosistemas.

Arreguín-Sánchez, F. Modelos de ecosistemas, aplicabilidad para la evaluación del impacto de la pesca de arrastre de camarón.

Lectures:

NRM: Presentation of environmental niche modelling methods including AquaMaps to members of the EDEN project (British Museum of Natural History). 3 Mar 2006

NRM: AquaMaps and general principles of ecological niche modelling. Lectures given to students in Stockholm University. DATE

NRM: AquaMaps and general principles of ecological niche modelling. Lectures given to students in USP Oceanography, Brazil. 5 May 2006

NRM: AquaMaps and general principles of ecological niche modelling. Lectures given to students in Museu de Zoologia da Universidade de São Paulo, Brazil. 5 May 2006

NRM: AquaMaps and general principles of ecological niche modelling. Lectures given to students in Universidade Federal de Pará, Braganca Campus. 27 April 2006

Annex II, WP3, Lecture 1, (p57 in the document) was given to members of the EDEN project, British Museum of Natural History. This is an FP6 project (CORDIS Project Reference: 10284).

Annex II Use and dissemination of knowledge

The Table below gives an overview on past and future use and dissemination activities of each workpackage. ND = not defined

Planned /actual Dates (Month of project)	Type	Type of audience	Countries addressed	Size of audience	Partner responsible /involved	WP no.
3	Article mentioning Fish Ruler in "Luebecker Nachrichten" [1]	General Public	Northern Germany	?	IfM-GEOMAR	7
4	Conference contribution (see Annex I: conference contributions).	Research	26 countries	86	CEFAS	3
5	Article on Fish Ruler in German Press [2]	General Public	Germany		IfM-GEOMAR	7
5	Spawning season fact sheet for European fish [3]	Fish wholesalers	Europe	?	IfM-GEOMAR	7
5 and 7	Fish Ruler [4]	General Public	Germany/Europe, other sites TBA	?	IfM-GEOMAR, eventually all WP members	7
7	Communicating European Research Conference [5]	Press and Scientists	Europe	Over 3000 at conference	IfM-GEOMAR	7
7	Indicators review paper [6]	Scientists, Policy Makers, general public	International (on INCOFISH portal)	?	IfM-GEOMAR with collaboration from CDF, MCM-DEAT, UNIABDN and CABAL	7
8	WP6 overview presented at the CDC project website http://cdc.fish.ku.ac.th/wp6/about_CT.htm	General public	n/a	n/a	CDC	6
8 - 13	Fish Ruler outreach project with High School in Kiel	Pupils and General Public	Germany	Fish consumers in Kiel # unknown	IfM-GEOMAR	7
9 - 11	Press releases in newsletter of IOUSP	General public	Brazil	?	IOUSP	4
10	WP 10 web-site, integrated within the FEU web-site, http://www-user.uni-bremen.de/%7Efeu/frame.html	(Environmental) Jurists	Coastal states	?	UNI HB	10
11	Presentation of Aquamaps	Research	UK	?	NRM	3

11	Oral presentation to 40th Annual Conference of the California-Nevada Chapter of the American Fisheries Society titled 'Conservation and exploitation in the northern Gulf of California: temporal and spatial simulations of the ecosystem'	Researchers, fisheries managers and government agency representatives	USA	35	CICIMAR	5
11	Oral presentation to 6 Postgraduate Week of South Baja California titled 'Conservación y explotación en el norte del Golfo de California: simulaciones temporales y espaciales del ecosistema'	University researchers	Mexico	70	CICIMAR	5
12	Presentation of Aquamaps	Students	Sweden,	20	NRM	3
12	Presentation of Aquamaps	Students	Brazil		NRM	3
12	Media briefing – University Press agency	General public	Brazil	ND	IOUSP	4
12	Conference (two contributions, see Annex I: conference contributions)	Industry, Fishers, Managers. MPA representatives, Federal and state governments, Federal Senate members, scientists, representatives of the ministries of fishing and ecology	Mexico	~ 30 persons	CICIMAR	4
12 + 13	Publications: Two book chapters	Research and Public in general but with technical contents	Mexico	ND	CICIMAR	4
3 - 12	Web-site links	WP members, Partners, Researchers, NGOs, Managers and the Public	Thailand and Namibia	Global, Thailand and Namibia in particular	Contractors responsible for linking the Incofish web site to theirs	8
Continuous	AquaMaps presented to scientists through personal contact to determine user needs and feedback	Research	Multiple	?	NRM	3
Year 1	Conference	Coastal resource managers in the Benguela countries of Namibia, South Africa and Angola	Namibia, South Africa and Angola	?	UNAM	8
Year 1	Primary publications	Global	Namibia; Global	Managers, NGOs, stakeholders	CDC, UNAM	8
Year 1	Project web-site	WP9 members, Partners Technical comittee	Costa Rica, Panamá, Colombia, Ecuador	Eastern Tropical Pacific Initiatives.	ECOLAP, Fundación Malpelo, CDF, Parque Nacionales de Colombia	9

Year 1	Direct e-mailing	Government Environmental Authorities, (Marina Mercante, Subsecretaria de Medio Ambiente, Subsecretaria de Turismo)	Ecuador	Local Authorities	ECOLAP/CDF	9
Year 1	Workshops	National Parks Stakeholders, Government Environmental Authorities, National NGO participants	Bi-national (Colombia – Ecuador)	Local stake-holders of NP- Marine – Coastal resources	CDF, ECOLAP, Fundación Malpelo	9
12 - 34	Publications of deliverables on the INCOFISH web-site	Jurists, administrative staff, fisheries managers	Coastal states	ND	UNI HB APPRENDER UNAM2 WCS CABAL S.A.	10
13	Launching of portal at www.incofish.org	Researchers, stakeholders, public	Global	Global	FIN	1
13	Project website: www.hull.ac.uk/incofish	General public	Multiple		UHULL	2
13	Two presentations of Aquamaps	Students	Brazil		NRM	3
13	Manuscript on ICZM review and stakeholder engagement tools to be submitted for publication (Coastal Management Journal)	Scientists and coastal managers	global	n/a	IGS (lead), CDC, UNIABDN	6
13	Presentation of the small-scale fisheries database (developed initially for 'Thinking Big: A Global Look at Fisheries Science', a symposium to honour Professor Daniel Pauly, for the 13th International Cosmos Prize & his 60th birthday, May 2, 2006, Vancouver, BC, Canada;	Scientists and students		?	CDC	6
13	Workshop in Pattaya-Bangkok	WP6&8 members plus invited guests	Thailand and Namibia	Local Authorities	All	8
14	Conference (six contributions) in Campeche (see Annex I: conference contributions)	Research, international conference, ICCE	Several countries	~ 120	CICIMAR	4
14	2 oral presentaions on MPAs are being given at the International Conference on Coastal Ecosystems	Research, international conference	International	~120	1 by UNEW, 1 by CICIMAR	5
14 - 16	Paper on the reproductive biology of *I. fuscus* (Sea Cucumber) (to be submitted between June and August, 2006)	Fisheries Scientists, Fishers	International	?	CDF	7
14	Internet Wizard for Maturity indicators (INCOFISH Portal)	General Public	International	?	IfM-GEOMAR and FIN	7

14	WP 10 workshop	WP members, WP 11, ECOST members, external specialists	Brazil, Nicaragua, Namibia, Kenya, Indonesia, EU, India, South Africa	10-15	UNI HB (responsible) APPRENDER UNAM2 WCS CABAL S.A.	10
15	Review paper on using simple indicators and the "knowledge society" to overcome mismanagement in fisheries (to be presented at IIFET conference)	Public and Policy Makers	International	?	IfM-GEOMAR	7
15	IIFET Conference	Economists, Policy-Makers, Scientists	Europe	?	IfM-GEOMAR	7
16	Technical report on small-scale fisheries in the Fisheries Centre Research Report Series;	Scientists, students, managers, general public		?	CDC	6
16	Launching of the "Coastal Transects Analysis Model" at the Coastal Zone Asia-Pacific Conference (CZAP 2006) Batam, Indonesia.	Scientists, coastal managers and practitioners		?	CDC, IGS	6
17	Conference (one contribution) ([1])	Research, international conference, EMBS	Several countries	ND	ECNU	4
17	2 oral presentations on MPAs are being given at the European Marine Biology Symposium	Research, international conference	International	?	CICIMAR	5
17	2 posters on MPAs are being presented at the European Marine Biology Symposium	Research, international conference	International	?	1 by UNEW, 1 by ECNU, CICIMAR and UNEW	5
18	Direct e-mailing	Researchers	Philippines	10	FIN, WFC	1
18	Update of DINARA Web site and link to IncoFish	General public	Uruguay/multiple	?	DINARA	3
18	Publication	Research	Multiple	?	NRM/CEFAS	3
19	Posters	Researchers	Global	100	FIN, WFC	1
19	Database	Higher education	Multiple	?	UHULL	2
20	Manuscript on on coastal transects analysis to be submitted for publication	Scientists and coastal managers		?	CDC (lead), IGS, UNIABDN	6
2006	Draft paper to be submitted to international fisheries journal	Research, international journal	International	?	UNEW	5
2006	Paper on size structure changes of Spiny Lobster population in the Galapagos from the 1970 until present	Scientists and Policy Makers	Galapagos and other tropical regions	?	CDF	7
21	Publication	Research	Multiple	?	CEFAS/NRM	3
24	Flyers (e.g. Fish Ruler)	Local stakeholders	Philippines	80	FIN, WFC	1

33	Film/video	General public, education	Global	100	FIN, WFC,	1
Late 2007	Publication	Research	Multiple	*?*	NRM/all	3
Late 2007	Publication	Research	Multiple	*?*	NRM/all	3
2007	Publication	Research	Multiple	*?*	NRM/all	3
Year 2	Conferences and exhibitions	Primary and secondary schools, guides courses	Ecuador/ Colombia	Local Communities	ECOLAP/FCD/ Parques Nacionales/F. Malpelo	9
Year 2	Media briefing aiming at strengthening common tourism research in Eastern Pacific bioregion	Local authorities and technical and scientific partners	Seascape/ Incofish/ other international projects	unknown	ECOLAP/CDF Parques Nacionales/F. Malpelo	9
34	Electronic map	General public	Multiple	*?*	UHULL	2
34	Learning resources	Learning facilitators	EU	*?*	UHULL	2
34	Web-based quiz	Students	Multiple	*?*	UHULL	2
Years 2&3	Workshops and publications as planned		Namibia, South Africa and Angola	Global	All	8

[1] Fish Ruler: "Der Fischmax" and "The Fishermin" were printed for distribution in Germany and other countries bordering the North Sea and the Baltic, showing size at maturity (also for fillet and headless lengths) so the ruler can be brought to the fish market by consumers to make sure the fish they buy have had the chance to reproduce. The material of the rulers is a flexible and washable PVC. As of January, 2006, the Verbraucherschutzzentrale (consumer rights center) in Hamburg has taken over the design and distribution of these rulers in Germany, which are now called "Fisch-o-Meter" and plan to distribute them at their offices Germany-wide. In the third phase of WP7, we will create and test similar rulers in partner countries in the tropics.

[2] Spawning season fact sheet for European fish: A printed sheet for fish wholesalers with spawning seasons and maturity weights for common food fish. The wholesalers can refer to this sheet when buying fish from fishermen to ensure they only buy mature fish.

[3] Article in German press about fish rulers: The German wire service wrote an article about the threatened Cod stocks in the North Sea and featured the Fisch-Max as a tool the public can use to help combat this problem. Over 100 newspapers and magazines ran this story and there was much public enthusiasm generated.

[4] Communicating European Research Conference: Rainer presented FishBase and the Fishermin ruler at a press conference, and fish rulers were handed out at a booth shared with ENBI. There were 3000 registered attendees at the conference and ca. 500 rulers were handed out.

[5] Indicators Review: Deliverabe 7.1 was to review existing indicators and choose suitable simple ones for implementation by the workpackage. This work was made into a review paper that was published on the INCOFISH webste. It will be used also as a basis for a future paper to be published in the peer-reviewed literature.

[6] Fish Ruler outreach project: As part of the German Nat-Working program, in which High School science classes are paired with research institutions in the country, three students from Gymnasium Wellingdorf in Kiel conducted a research project using the Fisch-Max. They visited 12 markets in Kiel where fish are sold, and measured the fish in order to determine how many undersized fish are for sale. Additionally, they interviewed fish buyers to find out their perceptions and knowledge of problems facing fish stocks in their area and assess their willingness to participate in using the ruler and buying only mature fish. Their final results are still pending.