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## INCOFISH Progress Report for September 2006

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### Coordinator's Report (by Rainer Froese)

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-- I participated in the FishBase Consortium meeting in Vancouver. Among others there was a decision to start an online peer-reviewed FishBase Journal, to increase contribution of suitable data such as growth, length-weight, diet, or reproduction. INCOFISH members are welcome to submit papers. The first issue is planned for early 2007.

-- Christine and Eli expanded our 'Invasive Aquarium Fishes' wizard to Aquaculture fishes. The wizard was tested by INCOFISH members and is now available from the INCOFISH search page under 'Invasive exotics.' See Lotta's report for more details.

-- We (Rainer & Christine) are looking into options for a new 'Wizard' that would analyze the 'homogenization' of ecosystems caused by introductions and extirpations. Seems doable.

-- In Kiel the INCOFISH team had a meeting with representatives of the provincial angling association (LSFV-SH), Robert Vollborn ([vollborn@lsfv-sh.de](mailto:vollborn@lsfv-sh.de)) and Jörg Schimmler ([joerg\\_schimmler@web.de](mailto:joerg_schimmler@web.de)). LSFV-SH has 42,000 members and manages many freshwater bodies, including the Kiel Canal, but also represents marine anglers and knows the other players very well. LSFV-SH is member of the new 'Regional Advisory Council' that the EC has established to improve participation of stakeholders. They had originally planned to push for a roll-back of the increased minimum size for Baltic Cod (from 35 to 38 cm; maturity starts at 38 cm). I explained advantages of starting fishing at Lopt, and my understanding was that they will accept 38 cm. We are now thinking of a joint media event in early 2007, bringing together science (us), anglers (LSFV-SH), consumer agencies, NGOs (Greenpeace), gear specialists and fishers representatives. We aim for a joint public statement that would aim for harmonization of gears and legal minimum sizes, mandatory landing of by-catch (instead of on-sea discarding), and some statement against the catch of juveniles and in support of MSY and Lopt fishing with a package to assist fishers in the transition period.

-- Henning Winker stood in for me and gave a presentation and poster on 'A common sense approach to ecosystem-based fisheries management' at the Bergen Conference on 'Implementing the Ecosystem Approach to Fisheries.' This led to interesting discussions, as most colleagues saw EBFM as a 'more data, more models, more money' issue not ready for implementation. Also, many colleagues seem to have given up on sustainable management of the North Sea, because of the political framework.

-- We continued our collaboration with IUCN on the random sample approach towards assessing the status of threat of all major taxonomic groups. IUCN has identified 1500 randomly-selected fish species and the FishBase team will now beef up respective

information and assist IUCN in doing status-of-threat assessments for these species.

-- Thanks to Jonathan Ready (Biomapping), Kristin Kaschner and others we are making excellent progress in our quest to have standardized electronic maps for as many aquatic species as possible. A workshop on 1-3 November in Kiel will produce the first cross-species analytical maps.

-- We managed to include Google images in our species information service, see e.g. <http://fishbase.sinica.edu.tw/sp2006/SpeciesSummary.php?group=All&ID=ITS-98734&infra=>

We are joining forces with the SealifeBase project to have soon even more informative species pages, see <http://fishbase.sinica.edu.tw/slp/SpeciesSummary.php?ID=ITS-180528>

-- We will soon have better indicators for catches and prices of fishes in FB, as replacement for our current 'Importance' category. This is done in collaboration with the Sea Around Us project.

-- I participated in a GBIF workshop on portal development. This will hopefully soon lead to point maps being available from GBIF for inclusion in other web pages, for all species that have such information.

-- I contacted Martin Sharman, EC officer in charge of biodiversity programs. I introduced him to our ideas for species information systems that serve the needs of various user groups, expressing hopes for a suitable call in Framework 7. Jim Edwards, Director of GBIF, supported that initiative with a follow-up mail. Keeping fingers crossed.

-- With Silvia I started developing ideas for an INCOFISH follow-up project. Goal will be to see improvements in the real world. We are looking for suitable calls in the EC Framework 7 programme which is currently taking shape.

Project Support Team (by Silvia Opitz)

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- Collated and distributed the project progress report for August 06 (C).

- Finalized work on follow-up of 1st annual management report and dispatched it to Brussels (C,S).

- Finalized work on complementary 1st annual management report and dispatched it to Brussels (S,C).

- Participated in WP4 & 5 workshop in Cape Town.
- Updated "About us" page on INCOFISH portal (S, Sv).
- Advised INCOFISH participants on project matters (S).

WP 1 Data, Tools and Outreach (by Lotta Järnmark)

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**September was a fruitful month with several tools reaching their potential for online dissemination.**

- The Coastal Transects Analysis Model (CTAM) alpha version is readily available online for data input from scientific contributors. Please forward to your colleagues: <http://www.incofish.org/CTAM/default.htm> (Kit, Aque, Lotta and WP6).
- The International Seafood Guide (ISFG) is also available online and is continuously being developed. Please send us your local websites of Seafood advisories from your country. Please test: <http://fishbase.sinica.edu.tw/tools/SeaFoodGuide/search.php> (Auda, Sheng, Kit, Skit and Eli and Rainer).
- The Invasiveness wizard (data on aquarium species and aquacultured species) is now available for testing: [http://fishbase.sinica.edu.tw/country/InvasiveExotics.php?what=aquarium&c\\_code=598](http://fishbase.sinica.edu.tw/country/InvasiveExotics.php?what=aquarium&c_code=598)  
[A](#)
- WP10 successfully approached a database manager and contact person in IUCN, Brussels, for further discussions on incorporating tables from their ECOLEX to FishBase for a tool produced by WP10 and WP1 for INCOFISH.
- CRIA approved WP3 to provide more layers to their mapping tools to facilitate for INCOFISH WPs (among other users) the use of the species Mapper for map production online. CRIA also promoted the usage of their tool openModeler: <http://openmodeller.sourceforge.net/>
- Lotta discussed with WP7 the progress with Fishruler wizard and Maturity wizard. Agreement was reached with Sheila Vergara to have the Conservation International's Sulu Sulawesi Seascape (SSS) project test the tools as soon as they are available for testing and give feedback on the evaluation.
- Lotta participated in the WP 4 workshop in Cape Town where she introduced the portal tools and WP4 pages to the participants and discussed how to resolve copyright issues, upload of the model files collated by WP4, and how to disseminate their data.

- Sven Mohr uploaded the dataset of WP4 to INCOFISH database and made it available on the portal.
- Kit, Eli and Skit participated in the first FishBase technical workshop at NRM, Stockholm, Sweden.
- Kit and Aque attended the Coastal Zone Asia Pacific Conference in Batam, Indonesia and introduced the CTAM alpha version.
- Lotta submitted an abstract for participation in Coastal Zone 07 in Oregon, USA (July 22-26) together with WP2, 4, 5 and 6 and another abstract for the International Coastal Symposium, 2007, Gold Coast, Australia (April 16-20).
- Fish length buying guide tools under development; 18 INCOFISH web pages enhanced and modified (Kit).
- Lotta updated 26 portal pages after content discussions with WP leaders individually: Index page, Workpackage pages, ICZM Links, ICZM Documents, INCOFISH Events, Models, Tools, Maps and Outreach toolkit.
- Joann revised the INCOFISH Events page and is preparing it for upload. 15 INCOFISH portal bug check reports were made as well as 6 reports for the ISFG. Joann also assisted with preparations for the CZAP conference
- INCOFISH web statistics for September 2006: unique visitors (1031), number of visits (2338), pages visited (8738), hits (26453), bandwidth (7.13 GB).

## WP 2 Shifting Baselines (by David Starkey/Joanne Phillips)

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MEI have continued to co-manage the peer-review process of manuscripts that have been submitted to the special volume of Fisheries Research. This has involved, amongst other things, contacting referees for their reviews and beginning the preparation of first decision letters. In addition, a meeting has been held with the chief editor of the journal, Prof. A. MacIntyre, during the ICES ASC 2006 in Maastricht. This was to provide an overview of the current status and to discuss issues concerning the special volume.

UHULL have collected further data on the Benguela Current LME and the Southeast Australian Shelf LME, and have been compiling metadata to support these datasets. Trends in the information gathered are now being closely studied, so that appropriate baselines can be set. These baselines take into account the fish caught and CPUE, and also historical events which may have affected either the ability to catch fish or the demand for certain species, for example wars or natural disasters.

### WP 3 Biodiversity Mapping (by Jonathan Ready)

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NRM – Continued preparing modelling occurrence data for each species in the new species list, contacting experts for review process of maps, generation of environmental layers and general coordination of WP activities. Continued contact with CRIA (WP1), Kristin Kaschner and Paul Eastwood (CEFAS) regarding implementation of validation methods and development of AquaMaps openModeller version. Contact with Lotta (WP1) regards content of WP portal pages and need for maps from other WP's.

CDF – Finished the field component of sub-tidal ecological monitoring with respect to Galapagos MPAs, and will be working in the evaluation of that information (using WP3 inputs from sp. distributions and small scale resolution model as mentioned before). Also starting to develop plans for ENSO linked research where we hope to be able to follow species distributions locally shifting in response to climatic stress (El Nino may be on the way).

CEFAS – discussion and running GLMs and AUC-ROC analysis of the 5 species used for preliminary model validation prior to AquaMaps meeting.

DINARA – A matrix with data of several fish species was made with 908 geographic references records from the La Plata River and the South western Atlantic Ocean. This data are principally from coastal demersal species. Another matrix with environmental data was included. There is some information about invasive species.

WCS – no report this month.

### WP 4 Ecosystem Modelling (by Paco Arreguin-Sanchez)

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#### ***Models construction***

All WP4 partners have been encouraged to finish their models and make them available for uploading on the Incofish portal by November 2006.

#### **Southern Brazilian Bight ecosystem (USP):**

Work at this stage is on balancing the South Brazil Bight model while tuning sardine recruitment – multistanza – (late 90s); construction of a preliminary past model (late 70s); attempt at fitting the model with times series data; additional data culling.

#### **Humboldt Current ecosystem (UNI CONCEPCION):**

Participation in two scientific conferences partially supported by Incofish with three contributions:

- Neira, S. and H. Arancibia. Recent Advances Towards the Implementation of the Ecosystem Approach to Fisheries Management in Central Chile. The Bergen Conference on Implementing the Ecosystem Approach to Fisheries. September 26-28, 2006. Bergen, Norway.

- Arancibia, H. and S. Neira. Medium-term projection of the common hake biomass in central Chile using an ecotrophic-multispecific method (Proyección de mediano plazo de la biomasa de merluza común de Chile central mediante un enfoque ecotrófico multiespecífico). Technical Workshop “Present state of the common hake (*Merluccius gayi*) stock and its fishery in Chile”. Universidad de Concepción, September 5-6, 2006.

- Neira, S. and H. Arancibia. Risk factors for the sustainability of the common hake fishery in central Chile (Factores de riesgo para la sustentabilidad de la pesquería de merluza común en Chile central). Technical Workshop “Present state of the common hake (*Merluccius gayi*) stock and its fishery in Chile”. Universidad de Concepción, September 5-6, 2006

**Moray System (UNIABDN):**

Model construction is still at data collection stage. Partner is limited by time and their dependence on other data holders to provide information (at their convenience).

**North Sea ecosystem (CEFAS):**

Cefas have completed the 1991 model and have started fitting to time series data. The model will be used primarily for the evaluation of fishery management scenarios and will be developed as a spatial model over the coming months. The 1973 model had also been completed and is being fitted to time series data. The model will facilitate analyses of long-term changes in the structure of North Sea communities.

**Adriatic Sea ecosystem (UNIPAD):**

- Ecopath network is being constructed after defining functional groups (based on statistical analysis of diet of all species) with the collection of data useful for the estimation of all parameters needed (in particular production and biomass).
- Contemporary time-series data useful for the Ecosim application has been collected.
- Preparation (and refining after the WP meeting) of the paper proposal on “Metabolic scaling relations in marine ecosystems trophic networks”. This paper aims to study universal scaling relations in trophic network models around the world starting from the EwE models collected for the D4.1 (more details from the WP4 workshop presentation).

**Benguela Current ecosystem (MCM DEAT):**

Steady progress with fitting the southern Benguela model to time series. Work is in progress with Claude Roy to try to translate some environmental series into suitable forcing functions to improve the fits in general, and of anchovy in particular.

**East China Sea ecosystem (ECNU):**

Dr. Cheng Heqin visited CICIMAR to review and discuss with Dr. Francisco Arreguín-Sánchez the ECS model, mainly the following aspects: a) diets, mostly for invertebrates; a) parameterization: looking into the balance and consistency of the model. Some inconsistencies were found and corrected. The Ecoranger routine was subsequently studied and applied to obtain the best possible model. Data is being reviewed to confirm some changes made above (i.e. ranges of variation of some parameters, and how to include information from fleets of other countries).

With the advice and close cooperation of Dr. Will Le Quesne from UNEW, a poster had been shown on the 41st European Marine Biology Symposium hosted by University College Cork, Ireland.

ECNU group in cooperation with leaders and partners of WP4 and WP5 successfully participated at a meeting involving experts of FP6 from Brussels and Chinese colleagues from other universities hosted by the Science and Technology Committee of local government, Shanghai City in September, 2006.

**Senegambian System (CRODT):**

Data inputs had been standardized and reviewed and the model is now being balanced. It is expected to be ready by November 2006 for deliverable 4.2.

**Gulf of California ecosystem (CICIMAR):**

An integrated model containing both, the Northern and Central Gulf of California ecosystems was obtained and balanced. At this stage new data are being incorporated to gain resolution for the artisanal fleets as well as for marine mammals.

**Gulf of Mexico ecosystem (CICIMAR):**

Model of the northwest region of the Mexican GoM is almost finished. This model is going to be integrated with other six existing models of the continental shelf of the GoM. Two of these models are currently interconnected

For both cases time series of fisheries data and forcing factors are being collected. Currently a database of historical catch records for the last 50 years is available. Such records comprise all coasts of Mexico.

**Campeche Bank (CICIMAR):**

Ecosystem models from the north continental shelf of Yucatan and the Campeche Sound are now interconnected. Time series of fisheries and environmental data are being collected at this scale.

-- Some advances in spatial modeling concerning the red grouper fishery on the north continental shelf of the Yucatan peninsula. At this stage, association between types of bottoms with stock abundance was established using neural network analysis. Some useful information related to MPAs emerged regarding habitat preference during reproductive aggregation; as well as for juvenile fish.

-- Some results showing the spatial distribution of catchability of the red grouper on the continental shelf. Currently there are available annual and seasonal patterns showing catchability behavior, particularly in the light of reproductive aggregation and concentration of juvenile fishes.

-- Two manuscripts in preparation concerning both topics above.

***Cape Town WP4-workshop.***

MCM DEAT, CEFAS and CICIMAR organized a successful second WP4 workshop held in Cape Town in September. We commend MCM DEAT for the local organizing.

The workshop centered on Ecosim modeling where participants worked with their own models and data under the expert guidance of Villy Christensen and with contributions by Sheila Hymans on some aspects. The main topics were: using ecosystem modeling for fisheries management; Ecosim foraging arena and carrying capacity; fitting Ecosim to timeseries data; policy search routine.

Some discussion was devoted to potential papers for publication (deliverable 4.5) and 8 tentative titles were proposed.

The next workshop which will focus on spatial modeling with Ecospace was set for 16-21 March 2007 in La Paz, Baja California Sur, Mexico, hosted by CICIMAR. This will coincide with the All INCOFISH mid-term workshop and Project Steering Committee meeting to be hosted by CICIMAR.

### ***Advances on Deliverables***

*Deliverable 4.1:* About 140 ecopath models and related information being uploaded on the INCOFISH portal. A list of references for the models instead of full papers will be made available. Complementary information to the database containing standard outputs estimated by Ecopath is under construction and will be the base for a planned meta-analysis paper.

*Deliverable 4.2:* Except for the Moray system (UNIABDN), the models developed by WP4 partners are expected to be ready for uploading in November 2006.

*Deliverable 4.3:* A few advances have been made with some spatial models.

*Deliverable 4.4:* Some work was initiated in relation with other packages aimed at global analysis of the Gulf of California by most WPs of Incofish. Work was initiated with WP2 (shifting baseline), WP5 (marine protected areas) and WP10 (legal instruments)

*Deliverable 4.5:* Eight tentative titles of papers for publication were proposed during the 2<sup>nd</sup> WP4 workshop, namely: 1) Impact of fishing on marine ecosystems: structure, functioning and organization (F. Arreguín-Sánchez), 2) Metabolic scaling relations in marine ecosystems trophic networks (Luca Palmeri), 3) Searching global ecosystem patterns (F. Arreguín-Sánchez), 4) Key upwelling ecosystem processes response to the overfishing in a global scale (Cheng Heqin), 5) Fishing and climate: comparison of model based indicators (Kathryn Lees), 6) The impact of bycatch on marine ecosystems (F. Arreguín-Sánchez), 7) Average mutual information as an indicator of trends in fisheries (Manual J. Zetina-Rejón), and 8) Testing indicators (Hugo Arancibia).

### ***Coordination activities***

Outside the WP4-WP5 circle, coordination is being done with WP1, WP7, WP8 and WP10 to work out some deliverables. Coordination with the Sea Around Us Project also continues with Villy Christensen participating in the Ecospace workshop in Mexico in March 2007.

#### WP 5 Marine Protected Areas (by Nick Polunin/Will Le Quesne)

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All members of WP5 have been focusing on deliverable 5.1 to prepare the final report for submission at the end of September.

In addition NIES have been continuing to work with ECNU (WP4) in collecting fisheries landings and economic data for the East China Sea model.

Will Le Quesne (UNEW), and Diego Lercari and Manuel Zetina-Rejon (CICIMAR) have prepared presentations on MPAs and ecosystem modeling for the 41st European Marine Biology Symposium held in Cork, Ireland in early September.

Additionally preparations have been made in conjunction with WP4, for the WP4-led Ecosim workshop with Villy Christensen in Cape Town for mid-September

#### WP 6 Coastal Transects (by Ratana Chuenpagdee)

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-- Submission of deliverable WP6.2 (*Visualization of Coastal Areas using Coastal Transects Analysis Model (CTAM)*)

-- CTAM Phase I is uploaded onto INCOFISH portal (<http://www.incofish.org/CTAM/default.htm>).

-- Wide distribution of invitations to visit CTAM and enter coastal data, e.g., to INCOFISH members, Fisheries Governance Network, and other colleagues in many parts of the world.

-- Revision, modification and further development of CTAM.

-- Data collection on interactions and flows in coastal areas

#### WP 7 Simple Indicators for Sustainable Fisheries (by Amanda Stern-Pirlot)

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WP 7 members from Peru prepared a draft version of a Peruvian fish ruler which will be ready for distribution during the WP 7 workshop in Lima, Dec. 4-7.

WP 7 members in the Galapagos are working on finding a venue for the distribution of a Galapagos ruler, possibly as part of a recent “experiential fisheries tourism” (pesca

vivencial) initiative with local fishers. Also, the article 'REPRODUCTIVE BIOLOGY OF THE RED SPINY LOBSTER, *PANULRIUS PENICILLATUS* AND THE GALAPAGOS SLIPPER LOBSTER, *SCYLLARIDES ASTORI* IN THE GALAPAGOS ISLANDS' has been approved and is set for publication in *Crustaceana* in February 2007.

Progress with the Global Cost of Overfishing paper continues. We now have data contributions from WP 7 members in Senegal, Peru, and South Africa to add to the paper.

The serious planning for the WP 7 Lima workshop is underway and there will be a provisional agenda available on the portal by Oct. 16<sup>th</sup>.

Rainer, Amanda and Henning are drafting a paper dealing with WP7's Lopt indicator and the benefits of its application in EU waters if it were to be taken up by managers.

#### WP 8 Valuation of Coastal Ecosystem Products and Services (by Rashid Sumaila)

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-- Sumaila, working in collaboration with the Sea Around Us project, completed a substantial report on fisheries subsidies. A global compendium of national fisheries subsidies will be made available for upload on the Incofish website;

-- Claire Armstrong participated at the ISRS European Meeting in Bremen 19-25, September 2006. Presented: The formation of policy for protection of cold-water corals off the coast of Norway;

-- Ratana and CDC members spent time collecting social and economic data for Gulf of Thailand for Ecopath with Ecosim (EwE), and also data about coastal tourism;

-- Sheila, Kevin and Susan spent time collecting social and economic data for Benguela Current Large Marine Ecosystem for EwE;

-- Sumaila made a presentation on fuel fisheries subsidies at the 136th American Fisheries Society Annual Meeting in the legendary Olympic Village of Lake Placid, NY, 10-14 September 2006;

-- Sumaila gave a talk in a panel session on the potential benefits of restoring depleted fish stocks at the California and the World Oceans Conference in Long Beach, California, September, 17-20, 2006.

#### WP 9 Impacts of Ecotourism (by Stuart Banks/Priscilla Cubero)

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During September 2006, **Charles Darwin Foundation (CDF)** finished the analysis on baseline information related to the indicators as well as their formal evaluation to determine their feasibility to be applied in the Galapagos Marine Reserve (RMG, by its Spanish acronyms). A total of 10 criteria and 16 indicators were selected as appropriate to be applied at the RMG. Further advances on the first scientific publication were also made.

Field tools for biophysical and visitor satisfaction indicators continued to be applied as part of the testing and improvement process through participation in live-a-board cruise-ships (*Floreana*) of Peñaherrera Andrade Tours and (*Santa Cruz*) of Metropolitan Touring. A total of 7 new marine sites were visited and SCUBA diving, snorkeling, panga-ride and hikes to watch marine animals were evaluated. The database with this information was continued.

A proposal was made using GIS for a better understanding of the general features and key species of the marine visit sites, as a contribution of the project to the administration of the RMG. The creation of a Regional Code of Conduct was started along with the other three MPA as a second publication of WP9.

**Parques Nacionales Naturales de Colombia** and **Fundación Malpelo** continued the evaluation of the criteria and indicators proposed. The process was started in Gorgona National Park. Progress with the evaluation process is shown below:

	<b>Gorgona NNP</b>	<b>Malpelo FFS</b>
<b>Thematic aspects</b>	<b>4</b>	<b>4</b>
<b>Total criteria</b>	<b>13</b>	<b>13</b>
<b>Total indicators</b>	<b>31</b>	<b>31</b>
<i>Management and administration</i>	5	6
<i>Biodiversity conservation</i>	8	7
<i>Visitor satisfaction</i>	15	16
<i>Socio-economical benefits</i>	3	3

It is expected to complete the evaluation of criteria and indicators for the two MPAs in December 2006 and to be able to homologate methodologies and monitoring protocols, as well as management tools to define impact, such as Limit of Acceptable Change (LAC) or Analysis of the Visitor Experience and Resource Protection (VERP), with the other MPA of WP9.

**The Institute of Applied Ecology (ECOLAP)**, along with Machalilla National Park (MNP) administration reached the end of the whale-watching season and with it, the decrease of the whole tourism season in the area. The organization and analysis of the information obtained through surveys, workshops and meetings with local actors are being done.

