

DEEPFISHMAN

Management And Monitoring Of Deep-sea Fisheries And Stocks

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Small or medium scale focused research action

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1. INTRODUCTION

1.1 Purpose of this document

The purpose of this document is to deliver a final report on dissemination activities of the project. This activity falls under WP8 (Dissemination and outreach) and is one of the horizontal activities (Fig.1.1) subdivided into four tasks: T8.1 Establishment and maintenance of public web site (led by Ifremer), T8.2 Publications (all partners), T8.3 Conferences, workshops and stakeholder fora (all partners) and T8.3 Policy delivery approaches (led by MRI)

1.2 Project overview

The project DEEPFISHMAN consists of thirteen partners from nine countries of which one is an ICPC country. The interdisciplinary nature of this project is revealed through research objectives covering fishery science and management, ecology and socio-economy studies. The overall objectives of DEEPFISHMAN are mainly twofold: Firstly to identify and develop new and more effective monitoring and assessment methods, reference points (biological, ecological, biodiversity and socio-economical) and control rules. Secondly to develop a long-term monitoring and management framework in which additional data needs will be specified in order to fill current information gaps to achieve reliable long-term management requirements.

The general approach is developed by examining a range of case studies selected to reflect the diverse characteristics of the different types of deep-water fishery, mainly in the NE Atlantic

2. EXECUTIVE SUMMARY

An active communication with stakeholders is essential for success of the DEEPFISHMAN project, since stakeholders offer a source of unique information to undertake proposed approaches and their view on the management framework developed in the project is essential to the success of the implementation of future management. Therefore, a considerable effort was put into establishing a close collaboration to stakeholders of the Deep water fisheries. Several extra activities have been executed that adds to the output of the project while not strictly being deliverables. Further, promotion and introduction of the project to the scientific community has been well established. These activities along with deliverables are described in this report.

3. DISSEMINATION STRATEGY

The dissemination strategy was an inherent part of our research project which aimed at making information about the work and outcomes of the project DEEPFISHMAN available to a wider audience with the aim of enhancing the uptake of its results. This involved establishing an interactive communication platform to stakeholders since it is acknowledged by the project that input of stakeholders will be essential for the success of the project. An active participation of stakeholders in the beginning of the project was essential to be able to implement their input in later stages of the project. The second main strategy is to promote

and encourage the uptake and use of results by policy makers, stakeholders, and fishery managers in Europe, and prepare the basis for maximum impacts of the results.

3.1. Target groups

The dissemination strategy plan had mainly the following target groups:

- Policy makers and Fishery managers involved in the deep-sea fishery management and planning (e.g. international RFMOs; EU council of Ministers, EU commission, National (e.g. Ministers, Directorates for fisheries) and local governments)
- Fishers (e.g. vessels owning companies, fisher associations, individual skippers and crew).
- Other stakeholders in the fishery (e.g. fishmongers, retailers, big buyers, vessel and fishing gear builders).
- Scientific community (e.g. marine scientists in general and fishery research scientists, scientific organisation such as ICES, NAFO, SEAFO).
- NGOs, consumers and broader public audience

These target groups are public or private and operate at different levels (international, national and local).

3.2. Dissemination channels

The following channels for dissemination to our target audiences and for internal dissemination were used:

- Web site of the project
- WIKI site of the project
- Email correspondence
- Leaflet
- Newsletter
- Posters
- Presentations
- Scientific publications

4. DISSEMINATION REPORT

The dissemination activities can be divided in two main groups:

Central activities: Covering international and local activities

Internal activities: Covering dissemination and communication among partners

4.1. Central activities

4.1.1. Dissemination activities toward broader audience and stakeholders

4.1.1.1 Establishment of public web site and logo design

The DEEPFSIHMAN website was launched and logo designed by IFREMER (Partner 1) in M1 (April 2009), 7 months earlier than planned by DoW (Fig. 3.1.1, address:

<http://wwz.ifremer.fr/deepfishman>). The public section includes general information on the project and Case studies, the DoW and other information relevant to the project.

4.1.1.2. WIKI site of the project

At the project's kickoff meeting in May 2009 it was decided to develop a website powered by wiki software because it allows for easy interaction and exchange of working documents. The aim was to develop an active and easy web communication tool mainly for stakeholders and partners but also for the public view. The project's WIKI site was launched by MRI (partner 12) in August 2009 (Fig. 3.1.2., address: <http://deepfishman.hafro.is/doku.php>).

The usage of the site has been mainly twofold (Table 1) Firstly, stakeholders have been directed to the site as a communication and collaboration interface and the site has been the gateway for the web based surveys directed toward stakeholders (see section 3.1.2.). Secondly, a section of the WIKI site remains closed to the public view and is used actively by partners as working platform (exchange of working documents, final documents etc. see section 3.2.3).

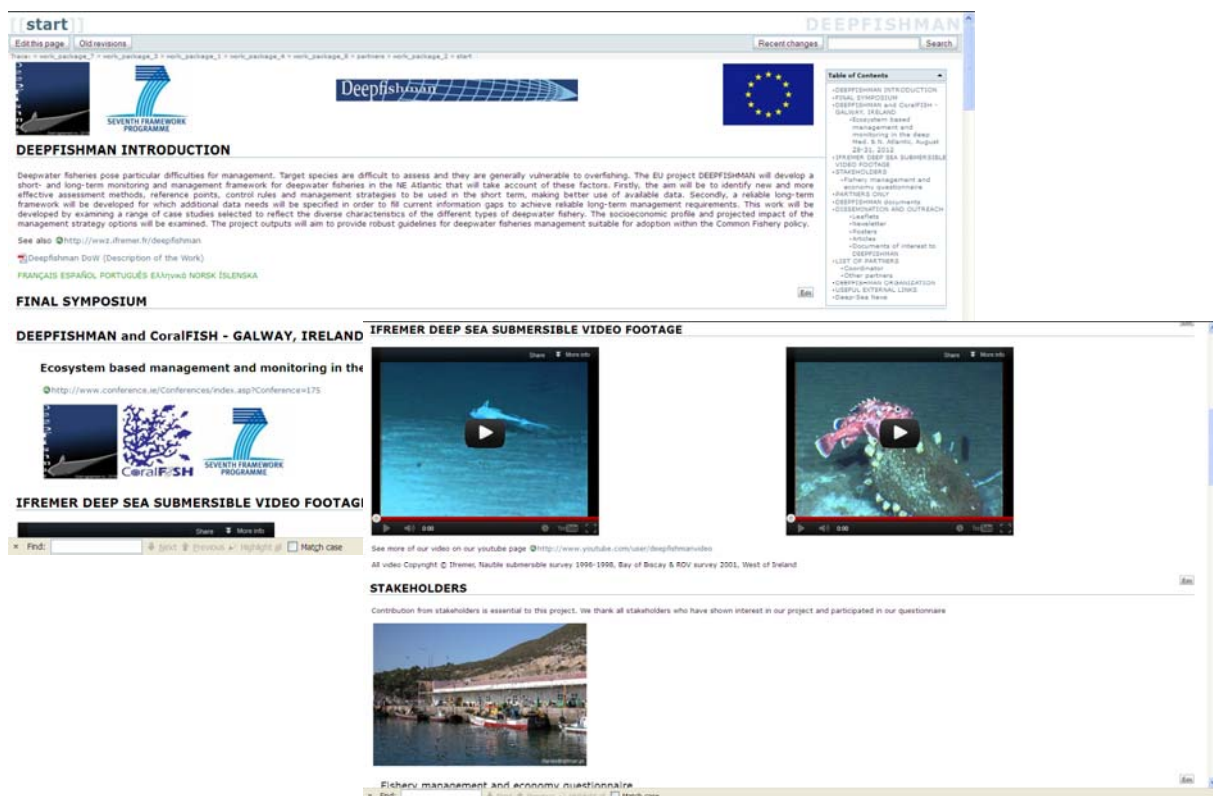


Figure 1. Screenshots from DEEPFISHMAN WIKI front page.

Table 1 Organisation of the project's public WIKI site.

DEEPFISHMAN WIKI Outlines	Description
DEEPFISHMAN INTRODUCTION	Short description of the project offered in seven languages. Link to the DoW of the project is provided
STAKEHOLDERS	Information especially relevant for stakeholders. Gateway to questionnaires. Link to ongoing questionnaire in five languages
PARTNERS ONLY	Gateway to partners' "virtual workshop" closed to the public view. Partners exchange working documents and upload finished documents here.
DEEPFISHMAN DOCUMENTS	Documents finalized by the project. Part of these documents are still closed to the public view but finalized documents are open access
DISSEMINATION AND OUTREACH	Links provided to all Dissemination and outreach material about the project such as project's leaflet, newsletters, posters and also documents relevant to the work of the project
LIST OF PARTNERS	List of the collaborating institutions provided
DEEPFISHMAN ORGANIZATION	Diagram provided describing the organization of the project
USEFUL EXTERNAL LINKS	Links to relevant projects, conferences, symposia provided. Also links to fun/popular science related blogs /sites about deep sea

3.1.1.3. Leaflet

Leaflet with general project information was printed in M4 of the project. A pdf file was made available to all partners for distribution and is easily accessible at the wiki site (http://deepfishman.hafro.is/lib/exe/fetch.php?media=deepfishman_finaljune09.pdf and see also Appendix A). The leaflet was mainly distributed in the first half of the project as described in mid- term report.

3.1.1.4. Newsletter

Newsletter serves as an essential communication tool to all that share an interest in the project. A DEEPFISHMAN newsletter was published in March 2010 and was made available for download at the project's WIKI site: http://deepfishman.hafro.is/lib/exe/fetch.php?media=newletter1_march2010.pdf. The newsletter has also been distributed directly to the stakeholder community and project partners by email announcements.

3.1.1.5. Inquiries from other projects

DEEPFISHMAN details were provided as replies to surveys from the FP7 projects Marine TT (grant agreement 244164) and Liaise (grant agreement 244164). MarineTT is a European Commission FP 7 Support Action that aims to make a real contribution to improved access to EU marine research. To do this, MarineTT examine the Knowledge Transfer and Uptake of Results from European Marine Research Projects funded under EU FP6 & FP7. Marine TT sent a project output questionnaire in late 2010 and a number of email contacts and feedback took place in 2011. LIAISE (Linking Impact Assessment Instruments to Sustainability Expertise, www.liaise-noe.eu) is a Network of Excellence (NoE) who focus on making scientific tools available for policy impact assessment.

3.1.1.6. Popular journals

DEEPFISHMAN provided an article to the Volume 23 of El Anzuelo, the European newsletter on fisheries and the environment of the Institute for European Environmental Policy (IEEP). The focus of this edition was on the reform of the Common Fisheries Policy, with contributions from Maria Damanaki, Commissioner for Maritime Affairs and Fisheries; Mogens Schou from the Danish Ministry of Aquaculture and Fisheries; Dr. Till Markus of the University of Bremen; Paul Keizer and Claus Hagebro from ICES; and much more. El Anzuelo is available at <http://www.ieep.eu/topics/water-marine-and-fisheries/el-anzuelo-newsletter/2011/03/el-anzuelo-volume-23>.

3.1.2. Interaction with stakeholders

As described in mid-term report, a considerable effort was put into establishing a close collaboration to stakeholders of the Deep-water fisheries from the beginning of the project.

The first stakeholder workshop was held in Brussels on 29 and 30 June 2009 by invitation. Partner 1 (Ifremer) and workshop facilitator (subcontracted) wrote formal invitation and sent to relevant important stakeholder at the international level. Each partner translated the formal invitation into native language if needed and was responsible for forwarding the invitation to relevant local stakeholders. The report of this workshop was delivered as Deliverable 8.6 and is available for download at the project's WIKI site. Following this first stakeholder meeting it was decided to try to contact a larger audience of stakeholders. Two actions were developed: A web-based survey was organized and another stakeholder meeting was scheduled together with the Case study workshop held in month 9 of the project (December 2009). The web-based survey, mostly designed by partner 1 (Ifremer) and partner 2 (Cefas) was launched in October-November 2009. The primary aim of this web survey was to identify the stakeholder community and their preference of collaboration and communication. Stakeholders were informed via email and directed to the WIKI site as a gateway to the web based survey (SurveyMonkey™) where introduction and the survey was offered in seven different languages; English, French, Spanish, Greek, Portuguese, Norwegian and Icelandic. The translation work was performed by following partners: Ifremer (Partner 1), IEO (Partner 11), IPIMAR (Partner 8), HCMR (Partner 10) and MRI (Partner 12). A document with questions and responses is provided in the Appendix.

A second stakeholder workshop was held in Lisbon on December 4th 2009. Report of the second workshop was delivered as an extra deliverable since the second workshop was initially not scheduled in the project. The report is also available for download at the project's WIKI site. A session of the workshop was dedicated to draw cognitive maps with the range of stakeholders participating at the workshop. This has been analyzed and has been presented to the stakeholders and the scientific community. A second web-based survey was launched in February 2010. This questionnaire, mostly work of partner 3 (UoI) and partner 10 (HCMR), was designed to collect socio-economic information of the deep water fishery. Primary aims were to solicit stakeholder views on the existing management and monitoring, concerns and aspirations for the future and information for development of new short- and long-term management framework. A communication analyzing the questionnaire, the cognitive maps and other stakeholder data was presented at the Fishery Dependent Information Conference (Galway, Ireland, 23-26 August 2010) and has been published (see list of publication).

The third and final stakeholder workshop was held 31st August 2012 in Galway, Ireland. This was a joint workshop with the EU-project CORALFISH with two goals. Firstly to introduce the project's proposal options for management of deep-water fishery and

secondly to collect views and comments of stakeholders on the management framework output of the project.



Figure 2. Group photo taken at the Stakeholders workshop meeting Galway, Ireland, August 31st 2012.



Figure 3. Third stakeholder's workshop of the project in Galway, Ireland. Joint session with the project Coralfish.

3.1.3. Dissemination activities within the scientific community

3.1.3.1. International conferences, working groups and workshops

The participation and attendance of partners in various conferences, working groups and workshop is listed in table 2. Examples of presentation with output from the project are given in appendix A and B.

3.1.3.2. Publications

Scientific publications

Published (since October 2010)

Edwards, C. T. T., and Plaganyi, E. E. 2011. Protecting old fish through spatial management: is there a benefit for sustainable exploitation? *Journal of Applied Ecology*, 48: 853-863.

Edwards, C.T.T , R.M. Hillary, P.Levontin, J.L. Blanchard and K. Lorenzen. 2012. Fisheries Assessment and Management: A Synthesis of Common Approaches with Special Reference to Deepwater and Data-Poor Stocks. *Reviews in Fisheries Science*. Volume 20, Issue 3, 2012

Planque, B., E. Johannesen, K. V. Drevetnyak, and K. H. Nedreaas. 2012. Historical variations in the year-class strength of beaked redfish (*Sebastes mentella*) in the Barents Sea. *ICES J. Mar. Sci.* (2012) 69(4): 547-552

Lorance, P., S. Agnarsson, D.Damalas, S. des Clers, I. Figueiredo, J.Gil and V.M. Trenkel. 2011. Using qualitative and quantitative stakeholder knowledge: examples from European deep-water fisheries. *ICES J.Mar.Sci.* 68(8): 1815-1824

Lorance, P. 2011. History and dynamics of the overexploitation of the blackspot sea bream (*Pagellus bogaraveo*) in the Bay of Biscay. *ICES J. Mar. Sci.* (2011) 68(2): 290-301

Roa-Ureta, R. H. 2012. Modelling in-season pulses of recruitment and hyperstability-hyperdepletion in the *Loligo gahi* fishery around the Falkland Islands with generalized depletion models. *ICES Journal of Marine Science*, 69: 1403-1415.

In press

Trenkel, V.M., Bravington, M.V., Lorance, P., (in press). A random effects population dynamics model based on proportions-at-age and removal data for estimating total mortality (*Canadian Journal of Fisheries and Aquatic Sciences*)

Under revision

Marchal, P., Baulier, L., Darby, C., Lorance, P., de Oliveira, C., Pawlowski, L., (under revision). Does fleet dynamics research help the credibility of fisheries forecast? (*Canadian Journal of Fisheries and Aquatic Sciences*)

Augustin, N.H., Trenkel, V.M., Wood, N.S., Lorange, P. (under revision) Space-time modelling for blue ling using soap film smoothers. (*Environmetrics*)

Large, P.A., Agnew, D. J., Cloete, R., Damalas, D., Dransfeld, L., Edwards, C. T.T., Feist, S., Figueiredo, I., Barrio Froján, C., González, F., Gil-Herrera, J., Kenny, A., Jakobsdóttir, K., Longshaw, M., Lorange, P., Marchal, P., Mytilineou, C., Alvarez Perez, J. A., Planque, B., Politou, C.-Y., (under revision). Strengths and weaknesses of the management and monitoring of deep-water stocks, fisheries and ecosystems in various areas of the world – a roadmap towards sustainable deep-water fisheries in the Northeast Atlantic? (*Reviews in Fisheries Science*)

Submitted

Tsagarakis K., Mytilineou, Ch., Haralabous, J., Lorange P., Politou, C.-Y†, Dokos J. (submitted). Biodiversity, community and population indicators of the Ionian Sea demersal assemblages (Eastern Mediterranean): relation to environmental, spatial, temporal and fisheries factors and management implications, (*ICES journal of Marine Science*)

In preparation

Most of the articles in preparation are intended to be submitted by the end of December 2012, to a DEEPFISHMAN Special Issue in the journal Aquatic Living Resources.

Agnarsson S. & Stefansson, A.S., (in prep.). Effective management of deep-sea species: The Icelandic redfish fishery in the Irminger Sea. (*DEEPFISHMAN Special Issue*)

Dransfeld L, Campbell, N, Figueiredo, I, Lorange, P, Trenkel, V & O’Hea, B, (in prep.) Adapting ecosystem indicators to evaluate good environmental status to deepwater fish communities. (*DEEPFISHMAN Special Issue*)

Dransfeld, L, Hareide, NR, & Lorange, P. (in prep.) Managing the risk of vulnerable species exposure to deepwater trawl fisheries- The case of Orange Roughy to the west of Ireland and Britain. (*DEEPFISHMAN Special Issue*)

Earl, T., Large, P.A., Lorange, P., Orr, P. & Trenkel, V.M., (in prep.). Testing Assessment Methods for Data Poor Deepwater Stocks. (*DEEPFISHMAN Special Issue*)

Farias et al. (in prep). Otolith microchemistry applied to the black scabbardfish and additional data on the species. (*DEEPFISHMAN Special Issue*)

Figueiredo, I., Natário, I., Lorange, P., & Carvalho, L., (in prep.). Modeling the dynamics of Portuguese Dogfish in the North east Atlantic. (*DEEPFISHMAN Special Issue*)

Garcia D, Prellezo, R, Diez, G, Andonegi, E, Urtizberea, A, Sanchez, S2 Andres, M. (in prep.) FLBEIA: A toolbox for Bio-Economic Impact Assessment of fisheries management strategies. (*DEEPFISHMAN Special Issue*)

Gil J., Farias, C, del Mar Padillo, M., Canoura, J., & Sobrino, I. (in prep.) All about my growth: Highlights from the Red seabream population of the Strait of Gibraltar. (*DEEPFISHMAN Special Issue*)

Haralabous J., Damalas D., Mytilineou Ch., Kavadas, S., Dokos J., Anastasopoulou A., Bekas, P., Christidis G. & Dogramazti K. (in prep.) Preliminary stock assessment of black-spot red seabream, *Pagellus bogaraveo*, in the Ionian Sea (Eastern Mediterranean) and potential harvest control rules. (*DEEPFISHMAN Special Issue*)

Jakobsdottir, K., Lorange, P., (in prep.). Temporal trends in deep-water fish community off West-Iceland. (*DEEPFISHMAN Special Issue*)

Marchal, P., Vermard, Y.A. (in prep.) Evaluating deepwater fisheries management strategies using a mixed-fisheries and spatially-explicit modelling framework. (*Canadian Journal of Fishery and Aquatic Sciences*)

Moura, T., Jones, E., Cotton, C. F., Irvine, S. B., Daley, R. K., Clarke, M. W., Lorange, P., Jakobsdottir, K., López Abellán, L.J., Crozier, P., Diez, G., Fossen, I., Dyb, J.E., Severino, R.B., Pascual-Alayón, P., Figueiredo, I., (in prep.) Community structure of three cosmopolitan deep-water sharks. (*DEEPFISHMAN Special Issue*)

Mytilineou Ch., J. Haralabous, Politou C.-Y., Lorange P. and Dokos I. (in prep.) Changes and trends in population and community metrics in the Eastern Ionian Sea based on survey data: information for assessment and ecosystem approach to fisheries management. (*DEEPFISHMAN Special Issue*)

Planque, B., Kristinsson, K., Astakhov, A., Bernreuther, M., Bethke, E., Drevetnyak, K. V., Nedreaas, K., (in prep.). Monitoring beaked redfish in the North Atlantic, current challenges and future prospects. (*DEEPFISHMAN Special Issue*)

Posen, P., Large, P.A. & Lee, J. , (in prep.) Using vessel monitoring system (VMS) data to assess the impact of marine protection boundaries on blue ling fishing activity to the northwest of the British Isles. (*DEEPFISHMAN Special Issue*)

Roberts, J., Jakobsdóttir K. and Lorange P. (in prep.) Fish diversity and environment: how do deep-water fish communities respond to abiotic gradients and are predictive models of species diversity useful for management? (*DEEPFISHMAN Special Issue*)

Trenkel, V.M., Rochet M.-J., Rice J.C. (in prep.) A framework for qualitatively evaluating management plans. (*Fish and Fishery*)

Trenkel V.M., Beecham, J., Blanchard, J.L., Edwards, C.T.T., Lorange, P. (in prep.). Spatial indicators for multi-species commercial catch based management (*DEEPFISHMAN Special Issue*)

3.1.3.3. Communications (presentations and posters) in conferences and other scientific meetings

Most of the communications listed below are available at <http://deepfishman.hafro.is/doku.php>, page "DEEPFISHMAN documents".

Blanchard J.L., Trenkel, V.M., Powell, T., Lorange P., The effects of fishing on deep sea food webs. British Ecological Society (BES) Annual meeting, 12-14 September 2011 – Sheffield, UK.

Blanchard J.L., Edwards, C.T.T., Guo Heng Chin, G., Beecham, J., Lorange P., Trenkel, V.M., Deep-sea macroecology and fisheries. “Challenge and Opportunity in Marine Macroecology” 2nd World Conference on Marine Biodiversity, Aberdeen, Scotland, Sept. 26-30, 2011.

Garcia, D. FLBEIA: A toolbox for Bio-Economic Impact Assessment of fisheries management strategies. WGSIMM. June 2011. *Presentation*

Jakobsdóttir, K. and P. Lorange. Fiskasamfélög á landgrunnshallanum vestan við Ísland (Fish communities on the slope off W-Iceland). Conference of the Icelandic Biological Society. Reykjavík, Iceland. November 2011. *Poster*

Kenny, A., Barrio Frojan, C., 2011., Understanding deep sea Vulnerable Marine Ecosystems and Fisheries in the NW Atlantic: links between productivity and biodiversity in the NW Atlantic. Symposium "Marine Protected Areas on the high seas", Zoological Society of London (ZSL), 3-4 February 2011.

Kenny, A., Large P. and Lorange P. DEEPFISHMAN. A prototype deep-sea fishery management plan for the NE Atlantic. NUIG Galway Ireland. August 2012. *Presentation*

Lorange, P. DEEPFISHMAN stakeholder process. NUIG Galway Ireland. August 2012. *Presentation*

Pawlowski, L. and Lorange, P. Analytical assessment of roundnose grenadier in Vb, VI, VII. NUIG Galway Ireland. August 2012. *Presentation*

Planque, B., Johannessen, E., Drevetnyak, K. V., and Nedreaas, K.. Historical variations in the year-class strength of beaked redfish (*Sebastes mentella*) in the Barents Sea. WD 07. 2011. *Working document*

Posen, P., Large, P. and Lee J. Estimating uncertainty in deriving spatial distribution of blue ling landings from vessel monitoring system (VMS) data and implications for delineating marine protection boundaries to the northwest of the British Isles. Proceedings of the Tenth International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences, 10-13 July 2012, Florianópolis, SC, Brazil.

Posen, P., Large, P. and Lee J. Using vessel monitoring system (VMS) data to assess the impact of marine protection boundaries on blue ling fishing activity to the northwest of the British Isles. NUIG Galway Ireland. August 2012. *Presentation*

Trenkel, V.M. The future of EBM advice in European marine ecosystems: Challenges for science. Aminor, November 2011, Tromsø, Norway. *Presentation*.

Trenkel, V.M. Advanced environmental studies in the North. Aminor (Advanced environmental studies in the North) Workshop, November 2011, Tromsø, Norway. *Presentation*

Trenkel, V and Lorance P. New methodological developments for stock assessment and management strategy evaluation without survey data: application to deep-water species. NUIG Galway Ireland. August 2012. *Presentation*

Trenkel, V.M., Beecham, J., Blanchard, J., Edwards, C.T.T., Lorance, P., Spatial indicators for multi-species commercial catch based management. ICES Annual Science Conference, 17-21 September 2012, Bergen, Norway. ICES CM 2012/K:15.

Table 2. List of conferences, workshops and expert groups attended by DEEPFISHMAN Scientists in latter half of project

Title	Type of Event	Date	Location	Attending partners
International Symposium - Improved Fisheries and Science Partnerships as Policy Drivers	Conference	9/11/2010	Ostende, Belgium	IFREMER
INDISEAS workshop	Workshop	29.11-03.12/2010	Paris, France	Imperial
ICES SGIMM (Study Group on Integration of Economics, Stock Assessment and Fisheries Management)	Expert group	7-14/06/2011	Copenhagen, Denmark	AZTI, IFREMER
ICES WKFRAME2 (Workshop on Implementing the ICES Fmsy Framework)	Expert group	10-14/01/2012	Copenhagen, Denmark	AZTI, IFREMER
"Marine Protected Areas on the High Sea", London Zoological Society	Symposium	3-4/02/2011	London, UK	Cefas
ICES WGDEEP (Working group on the biology and assessment of deep-sea fisheries resources)	Expert group	2-8/03/2011	Copenhagen, Denmark	IFREMER, MRI, IPMA, MI, IEO, AZTI, Cefas, IMR
ICES Arctic Fisheries Working Group	Expert group	1/04/2011	Copenhagen, Denmark	IMR
Implementation of Stock Reproduction Potential into Assessment and Management Advice for Harvested Marine Species	Expert group	12/4/2011	Aberdeen, Reino Unido	IEO
ICES WGNEACS Working Group on North-east Atlantic Continental Slope Survey	Expert group	14-16/06/2011	Lisbon, Portugal	IFREMER, MI,
NAFO Fisheries Commission Working Group of Fishery Managers and Scientists	Expert group	26/06/2011	Halifax, Canada	IEO
ICES WGEF (Working group Working Group on Elasmobranch Fishes)	Expert group	24-28/06/2011	Copenhagen, Denmark	IPMA, AZTI
NAFO Scientific Council Meeting	Expert group	3/6/2011	Braunschweig, Germany	IEO
NAFO Working Group on Greenland Halibut Management	Expert group	09/07/2011	Halifax, Canada	IEO
NAFO General Council	Expert group	19/09/2011	Halifax, Canada	IEO
Workshop on implementation of UN resolution 61/105 and 64/72	Workshop	15/09/2011	New York, USA	IFREMER, Cefas
ICES ASC 2011, Gdańsk	Conference	19-23/09/2011	Gdańsk, Poland	AZTI, MRI, IMR
"Challenge and Opportunity in Marine Macroecology" 2nd World Conference on Marine Biodiversity	Conference	26-30/09/2011	Aberdeen, Scotland	Imperial
Advanced environmental studies in the North (AMINOR)	Conference	9/11/2011	Tromsø, Norway	IFREMER, IMR
FAO Workshop for the development of a database for vulnerable marine ecosystems (VMEs)	Workshop	7/12/2011	FAO, Rome, Italy	IFREMER
6th World Fisheries Congress	Conference	8/5/2012	Edinburgh, Scotland	IFREMER, MRI, HCMR, Imperial
Ecosystem based management and monitoring in the deep Med. And N. Atlantic	Conference	28/08/2012	Galway, Ireland	IFREMER, MRI, HCMR, IPMA, MI, IEO, AZTI, Cefas, Imperial, UoI
ICES ASC 2012, Bergen	Conference	17/09/2012	Bergen, Norway	IFREMER, MRI, IMR
ICES WKLIFE (Workshop on the development of assessments based on life history traits)	Workshop	13/02/2012	Lisbon, Portugal	IPMAR, IFREMER

Title	Type of Event	Date	Location	Attending partners
FAO WGPB CopeMed II working group on blackspot seabream (<i>Pagellus bogaraveo</i>) of the Strait of Gibraltar area between Spain and Morocco	Expert group	19/3/2012	Tanger, Morocco	IEO
DEEPFISHMAN FLR Course on the 26th and 27th March, ICES (Baltic Room)	Training Course	26-27/03/2012	Copenhagen, Denmark	IEO, IFREMER, Cefas, IPIMAR, MRI
ICES WGDEEP (Working group on the biology and assessment of deep-sea fisheries resources)	Expert group	28.03-5.04/2012	Copenhagen, Denmark	IFREMER, MRI, IPMA, MI, IEO, AZTI, Cefas, IMR
ICES WGENACS Working Group on North-east Atlantic Continental Slope Survey	Expert group	12-14/06/2012	Lisbon, Portugal	CEFAS, IEO, IFREMER, IMR, IPMA, MI,
ICES WGEF (Working group Working Group on Elasmobranch Fishes)	Expert group	19-26/06/2012	Copenhagen, Denmark	IPMA, AZTI
SEAFO Scientific Committee, 28th September – 7th October		28/09/2012	Vineta, Namibia	Cefas, IPMA, NatMIRC
NAFO Fisheries Commission Working Group of Fishery Managers and Scientists on Management Strategy Evaluation (WGFMS-MSE)	Expert group	11/1/2012	Internet based	IEO

3.2. Internal activities

3.2.1. Internal meetings

Several internal meetings and workshops have been held during the latter half of the Project life

- Meeting at Silwood Imperial, 17-19th May, 2011. Workshop: WP4-WP6 feeding into WP7. Steering group meeting.
- Meeting between IPIMAR, FFCUL, Ifremer and stakeholders from the Portuguese and French fisheries on the development of a state-space model of the population dynamics of black scabbardfish, IPIMAR, Lisbon, 5 July 2011
- Working meeting between scientists from DEEPFISHMAN (P. Lorance from Ifremer and A. Kenny from Cefas) and CoralFISH (A. Grehan, Coordinator of CoralFISH), P. Laffargue (Ifremer participant) on fish, fisheries and bottom habitats interactions, Ifremer, Brest, 7 September 2011.
- WP7 Workshop Meeting, Bilbao, November 15-17th, 2011. Steering group meeting.
- Working meeting between Ifremer scientist (P. Lorance, V. Trenkel) and J. Blanchard, former DEEPFISHMAN scientist, now lecturer, marine ecologist, University of Sheffield, UK. Progress on size-based ecosystem modelling of the deep-water community, 14-16 May 2012, Sheffield.
- Joint conference of EU-projects DEEPFISHMAN and Coralfish, NUIG Galway, August 28-30th 2012. Final steering group meeting.

3.2.3. WIKI repository for DEEPFISHMAN documents

A section of the partner's WIKI remains closed to the public view and is used actively for internal change of information and for working documents. This closed section serves as repository of all DEEPFISHMAN documents (Fig)

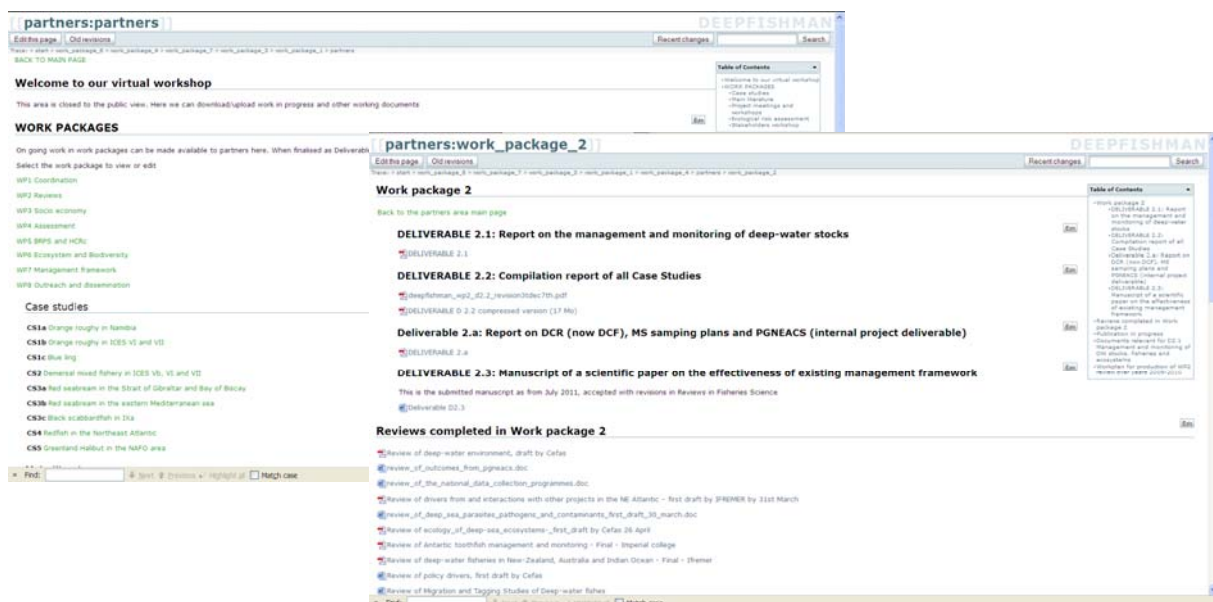


Figure 4. Screenshot of the projects “workbench” on the WIKI, closed to public view

5. Summary and conclusions

This document describes the dissemination activities of the DEEPFISHMAN project with special emphasis on the latter half of the project. Partner 1 (Ifremer) has mostly planned and coordinated all these efforts; however suitable implementation for the plan required close cooperation of all DEEPFISHMAN partners. Therefore, most partners have at some level contributed to these activities. Most goals of dissemination plan have been accomplished or will be accomplished within next months/year. Firstly, an active communication plan with stakeholder was accomplished and maintained. This communication resulted both in scientific output (i.e. see Lorange et al. 2011) and in an active input of stakeholders in developing management framework proposal of the project. Secondly, the output to the scientific community has been steadily increasing during the latter half of the project. The scientific output of the project was highlighted in a joint conference of the EU-projects DEEPFISHMAN and Coralfish, held 28-30th August, 2012 at NUIG, Galway. Contribution of DEEPFISHMAN partners has also been significant in recent major conferences of relevance (i.e. WFC 2012) and relevant working groups within ICES and NAFO. Scientific impact of the project will continue to be considerable in coming months as many papers are now in preparation or in process of being submitted for publication. Thirdly, management framework proposal has been developed and introduced on several occasions to stakeholders that will hopefully lead to a maximum impact of the Policy advice report in the CFP.

7.APPENDICES

APPENDIX A. Presentation of DFM member (P. Lorance) at 6th WFC, Edinburgh as a example of project's output.

Ifremer

Continental slope fisheries and conservation of vulnerable fish species and deep-water benthic communities

Implications for management

P. Lorance, Ifremer, France


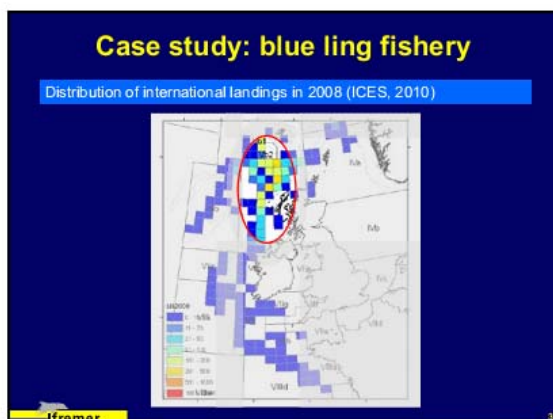
pascal.lorance@ifremer



Context

Fishery for deep-water species west of Scotland

- Main species exploited by deep-water trawls
 - roundnose grenadier
 - black scabbardfish
 - blue ling
- Bycatch, including sharks
- Impact on benthic ecosystem

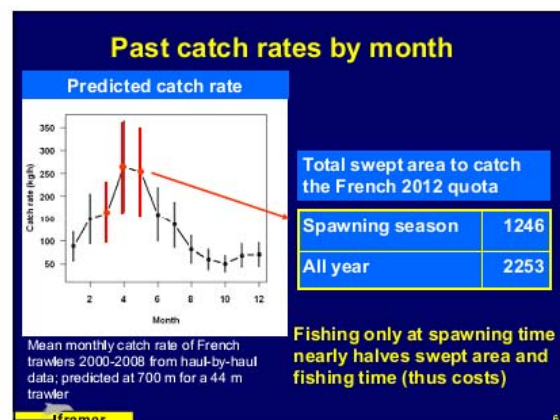
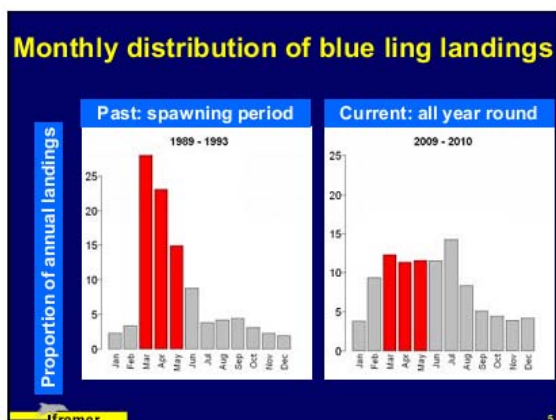



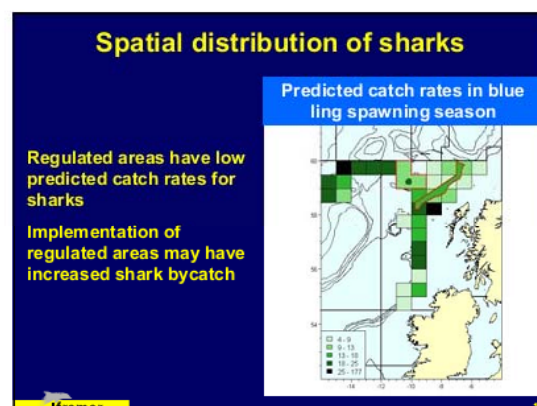
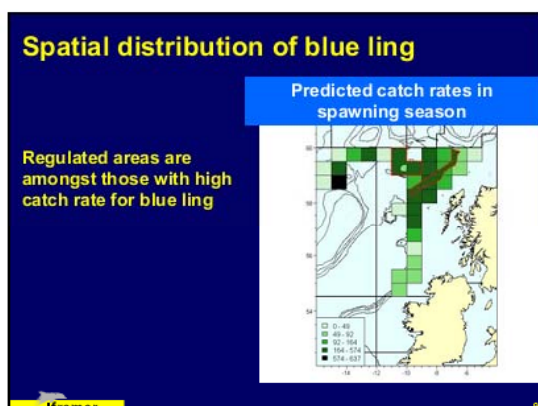
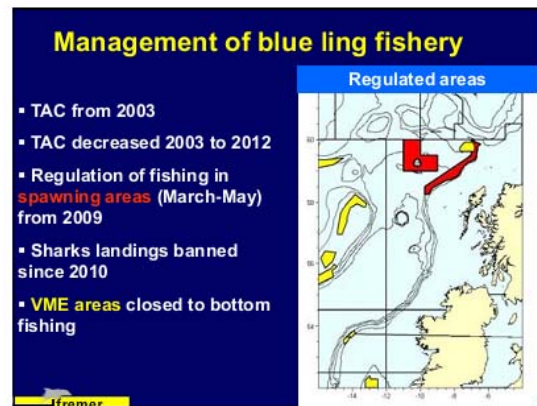
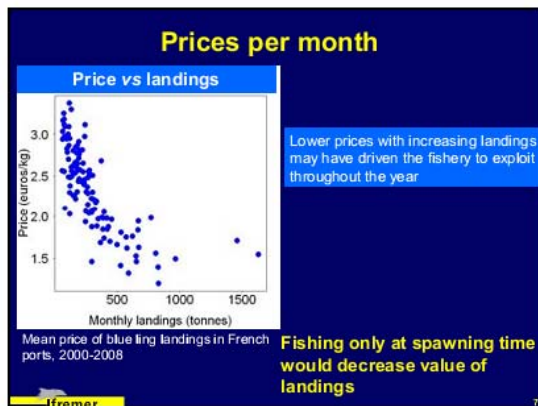
Two consequences of blue ling fishing

Seafloor disturbance



Sharks bycatch



Trade-offs in blue ling fishery management

Objective	Management measure	Trade-off
Exploit target stocks at MSY	TAC	Revenue
Protect vulnerable or depleted species	Ban sharks landings	Sharks discards
Prevent overfishing	Seasonal closure of spawning areas	Swept area
Minimise the impact of bottom fishing on the seafloor	Sedimentary seafloor: None VMEs: spatial closure	Catch rates and benthic production

Trade-off between fishing strategy, costs and revenue

Conclusion

- trade-offs between ecological objectives
 - the regulation for harvesting one stock have different effects on other species and benthic communities
 - a precautionary regulation for one species can have unwanted effects on other ecological components
- Ecology and economy
 - revenue obtained from a stock and associated costs are impacted by regulation

APPENDIX B. Presentation of DFM member (K. Jakobsdóttir) at 6th WFC, Edinburgh as an example of project's output.

Temporal trends in deep-water fish community off W-Iceland

Klara Jakobsdóttir Pascal Lorange

Map of the study area
WFC 2013 Edinburgh

Introduction

- The slope off W-Iceland is subject to commercial trawling fishery targeting:
 - Reinhardtius hippoglossoides* (Greenland halibut)
 - Sebastes mentella* (Deep-sea redfish)
 - Merluccius dipterygius* (Blue ling)
 - Argentinus silus* (Greater silver smelt)
- High fish diversity in area south of Denmark strait (Stefánsdóttir et al 2010)
- Little known about fish community structure or impact of fishery

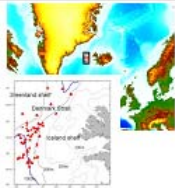
Map of the study area
WFC 2013 Edinburgh

Objectives

- Analyze time trends in ML and abundance of most abundant species from survey data
- Identify fish community structure and species co-occurrence in survey catch
- Investigate data for time trends in diversity

Map of the study area
WFC 2013 Edinburgh

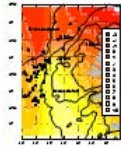
Area of study - Data



Autumn trawl surveys 1996-2010: total 683 stations
Species info: Length – abundance
Station info: location, depth, swept area, bottom temperature
Log books for CPUE data

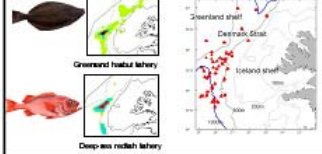
Map of the study area
WFC 2013 Edinburgh

Bottom temperature in study area



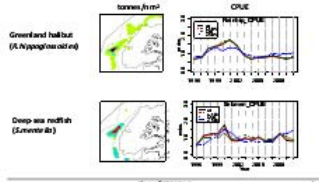
Map of the study area
WFC 2013 Edinburgh

Autumn ground fish survey Sampling



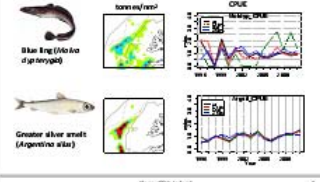
Map of the study area
WFC 2013 Edinburgh

CPUEs target species



Map of the study area
WFC 2013 Edinburgh

CPUEs target species cont.



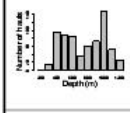
Map of the study area
WFC 2013 Edinburgh

Results

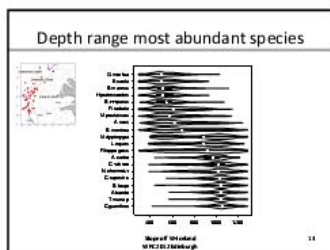
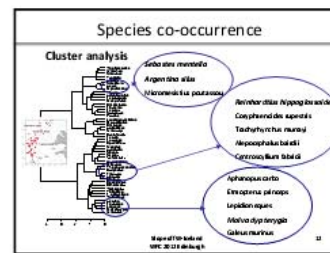
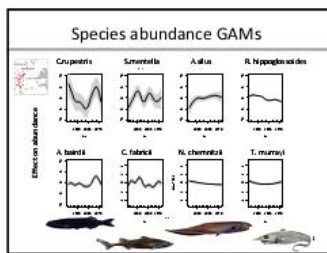
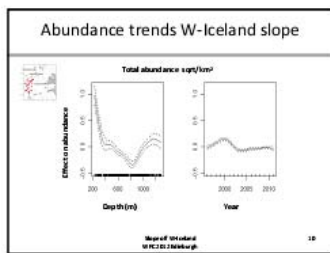
All material: 120 fish species from 62 families, 25 orders and 5 classes

Most abundant species: 49 most abundant species from 27 families, 14 orders and 3 classes

- Gadiformes 15 species
- Scorpaeniformes 8 species
- Squaliformes 5 species
- Perciformes 4 species
- Clariiformes 3 species



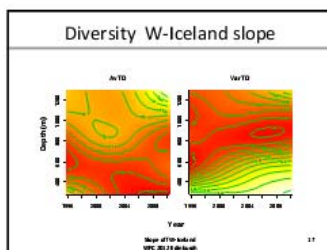
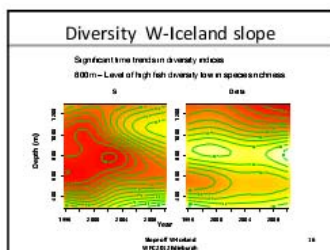
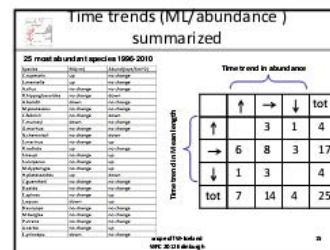
Map of the study area
WFC 2013 Edinburgh



Species co-occurrence

Co-occurrence	ML	Abund
A. mentalis - deep sea redfish	Up	No change
A. alba - greater silver mullus	No change	No change
M. poutasou - blue whiting	No change	No change
R. hippoglossoides - Greenland halibut	No change	Down
C. pagrus - greater redfish	Up	No change
T. munitus - roughnose	Down	No change
A. borealis - Atlantic's smoothhead	Down	No change
C. labridae - black dogfish	No change	Down
M. dybowskii - blue ling	No change	Up
A. borealis - black seaboard	No change	Up
E. princeps - greater lantern shark	Down	No change
L. aquila - rough's lantern codling	Down	Up
G. munitus - munitus cod shark	No change	Up

Map of the Iceland W-Iceland slope



- ### Summary
- Time trend analysis of overall abundance indicated no change
 - Time trend analysis of overall ML indicated no changes
 - Potential shifts in spatial distribution of several species
 - Some temporal changes have occurred in the deep-water fish community off W-Iceland
 - Depth effect evident in most models
 - High level of diversity around 800m depth zone but low abundance
- Map of the Iceland W-Iceland slope