PROJECTS AND INITIATIVES ADRESSING FISHING DISCARDS.

COMPILATION OF DISCARD PROJECTS

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The Secretariat of the European Fisheries Technology Platform

European Fisheries Technology Platform
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INTRODUCTION

The European Commission is looking for an integrated and ambitious approach to tackle fishing discards. This is considered one of the main problems for the sustainability of the fishing activity and although it is recognized that a lot of effort has been made by the different stakeholders, implementing efficient measures, technologies and policies to avoid discards is still a major challenge.

The European Commission is interacting with the stakeholders to find out more about the problem, the position of the different Member States and agents and about what has already been done and the results achieved.

In March 2010, the European Commissioner for Maritime Affairs and Fisheries met a delegation of the EFTP Board of Directors and this Platform offered their support to compile information on past and on-going research and innovation projects and initiatives focusing this matter.

The European Fisheries Technology Platform has done a compilation of a number of relevant discard projects carried out, some of them at EU level and, some others, by member states. The information has been collected throw a public consultation using an on line questionnaire and for a period of one month from the 15th on March to the 15th of April 2011.

The information offered in this document has been organized according to different approaches followed by recorded projects to minimize or use discards, and also according to the period of execution, separating with this on-going and past initiatives.

The authors consider socio-economic impact and social perception of marine resources and activities should be considered a very relevant issue in the development of future discards' regulation. It is important to notice that most of the projects gathered in study have not assessed in deep the socioeconomic impact of the measures implemented.

The document it is structured into the following sections:

- ✓ Description of ongoing projects
- ✓ Description of the initiatives already finished
- ✓ Brief reference to others discards projects identified
- ✓ Socioeconomic impact as a matter in the gathered projects
- ✓ Analysis of the EU management
- ✓ Statistic Analysis of some relevant data
- ✓ GANTT analysis of execution periods.

INDEX

PROJECTS LIST:

1. DEVELOPMENT OF A SELECTION SYSTEM FOR MID-WATER TRAWLING FOR COD
2. ESTUDIO DE LOS ESTÁNDARES DE SOSTENIBILIDAD Y APLICACIÓN DE MEJORAS TECNOLÓGICAS PARA LA OBTENCIÓN DE UNA ECO-CERTIFICACIÓN EN EL SECTOR DE ATUNEROS CONGELADORES (ECOFAD).
3. SHRIMP FISHING USING TRAPS
4. SELECTIVITY OF REDFISH (SEBASTES MARINUS) AND GREENLAND HALIBUT (REINHARDTIUS HIPPOGLOSSOIDES) BY MEANS OF FISHSELECT
5. LIFELINES
6. VIP VDTN
7. FISH BEHAVIOR IN RELATION TO TOWED FISHING GEARS
8. BAKASEL: MINIMIZATION OF FISH DISCARD ON BOTTOM SINGLE TRAWL BY MEAN OF SELECTIVE DEVICES PUT IN THE TRAWL
9. ASSESSING THE ENVIRONMENTAL AND ECONOMIC IMPACT OF MODIFIED FISHING GEARS
10. INTEGRAL NETWORKING OF FISHING SECTOR ACTORS TO ORGANIZE A RESPONSIBLE, OPTIMAL AND SUSTAINABLE EXPLOITATION OF MARINE RESOURCES. FAROS. (LIFE08/ENV/000119)
11. BYCATCH AND DISCARDS: MANAGEMENT INDICATORS, TRENDS AND LOCATION (BADMINTON)
12. ESTIMATION AND REDUCTION OF DISCARDS IN THE SPANISH ATLANTIC AND MEDITERRANEAN AREAS
13. IMPROVING THE SELECTION CAPACITY AND SELECTIVITY OF FISHING GEARS FOR DISCARDS' REDUCTION. TECHNOLOGICAL DEVELOPMENTS AND POTENTIAL IMPACT TO THE FISHING INDUSTRY (PSE-REDES)
14. MAPPING OF POTENTIAL SOLUTIONS ABOUT THE USE OF BIODEGRADABLE MATERIALS IN FISHING NETS TO REDUCE GHOST FISHING
15. MADE: MITIGATING ADVERSE IMPACTS OF OPEN OCEAN FISHERIES
16. DEVELOPMENT OF A CATCH CONTROL DEVICE FOR MID-WATER TRAWLING
17. EVALUATION AND VALORIZATION OF BY-PRODUCTS FROM FISHING INDUSTRY
18. VALORPESC. INTEGRAL PROJECT TO USE AND VALORIZE DISCARDS COMING FROM THE BASQUE TRAWL FLEET
19. POSIBILIDADES DE APROVECHAMIENTO Y VALORIZACIÓN DE CABEZAS Y EXOESQUELETOS DE LANGOSTINOS (PENAEUS SPP.)
20. BIOTECMAR. BIOTECHNOLOGICAL EXPLOITATION OF MARINE PRODUCTS AND BY-PRODUCTS
21. IBEROMARE. CENTRO MULTIPOLAR DE VALORIZAÇÃO DE RECURSOS E RESÍDUOS MARINHOS
22. VALORIZACIÓN DE RESIDUOS DA PRODUCCIÓN DE PRODUCTOS PESQUEIROS: OBTENCIÓN DE PRODUCTOS DE ALTO VALOR ENGADIDO A PARTIR DE PEL E ESPIÑAS DE PEIXE
23. PRESPO: SUSTAINABLE DEVELOPMENT OF ARTISANAL FISHERIES IN THE ATLANTIC AREA
24. DATA COLLECTION FRAMEWORK (DCF) - DISCARD MONITORING
25. SEAFISH DISCARD ACTION GROUP
26. MANAGEMENT AND FIRST TREATMENT ON BOARD FISHING BY-PRODUCTS (GESUPES)
27. MULTI-PURPOSE PLANT FOR THE INTEGRAL USE OF THE GALICIAN FISHING BY-PRODUCTS
28. BIOTECHNOLOGICAL VALORIZATION OF MARINE RESOURCES (VALVIOMAR)
29. PROTEUS-TRANSFORMATION OF NATURAL RESOURCES AND MARINE DEBRIS IN HIGH VALUE PRODUCTS FOR INDUSTRIAL APPLICATIONS
30. BENIGN AND ENVIRONMENTALLY FRIENDLY FISH PROCESSING PRACTICES TO PROVIDE ADDED VALUE AND INNOVATIVE SOLUTIONS FOR A RESPONSIBLE AND SUSTAINABLE MANAGEMENT OF FISHERIES (BE-FAIR)
31. ANALYTICAL VALUATION RED CRAB CARAPACE (CHIONOECETES OPILIO) FOR USE IN FEED FOR AQUACULTURE (ROXOCANVAL)
32. PLANTA MULTIPROPÓSITO PARA LA VALORIZACIÓN INTEGRAL DE RESIDUOS PESQUEROS DE GALICIA
33. ASISTENCIA TÉCNICA PARA LA REALIZACIÓN DE UNA MEDIDA

INNOVADORA PARA LA RECUPERACIÓN, GESTIÓN Y VALORIZACIÓN DE LOS DESCARTES PESQUEROS GENERADOS POR LA FLOTA ESPAÑOLA QUE FAENA EN LOS CALADEROS ATLÁNTICO Y MEDITERRÁNEO

34. ESTUDIO DE LAS POSIBILIDADES DE LA UTILIZACIÓN DE VARIAS ESPECIES DE CRUSTÁCEOS DESCARTADAS POR LA FLOTA GALLEGA EN SUS PESQUERÍAS TRADICIONALES EN LAS COSTAS DE GALICIA, PORTUGAL Y GRAN SOL

35. SWEDISH GRID TRIALS IN AREA VIIA

36. MODELING THE FLOW THROUGH FINE-MESHED PELAGIC TRAWLS

37. ESTIMATION OF TRAWL DISCARDS IN THE WESTERN MEDITERRANEAN. EUROPEAN HAKE (MERLUCCIUS MERLUCCIUS) AS A CASE STUDY

38. SPERIMENTAZIONE E SVILUPPO DI RETI A STRASCICO CON MAGLIE QUADRE

39. ESTIMATION OF TRAWL DISCARDS IN THE WESTERN MEDITERRANEAN. EUROPEAN HAKE (MERLUCCIUS MERLUCCIUS) AS A CASE STUDY

40. DISCARDS OF THE WESTERN MEDITERRANEAN TRAWL FLEETS

41. ATTREZZI DELLA PICCOLA PESCA UTILIZZATI IN FUNZIONE DELLA SUCCESSIONE STAGIONALE E DELL'ECOETOLOGIA

42. BIOTECHNOLOGICAL VALORIZATION OF MARINE RESOURCES (VALVIOMAR)

43. INDUSTRY TRIALS IN AREA VIA

44. DEVELOPMENT OF A FLEXIBLE SELECTION SYSTEM FOR BOTTOM TRAWLING (FLEXIGRID)

45. SELECTIVITY STUDIES IN THE BARENTS SEA BOTTOM TRAWL GADOID FISHERY: GEAR AND METHODS

46. SELECTION AND BYCATCH IN THE NORTHERN COD AND SHRIMP TRAWL FISHERY

47. COMPARISON OF LOSS BETWEEN DIFFERENT HAULING TECHNIQUES IN THE OFFSHORE LONGLINE FISHERY

OTHER MENTIONED PROJECTS

- ✓ Project 50%
- ✓ Conservation Credits Scheme
- ✓ Scottish Industry Science Partnership
- ✓ Square mesh panels trials
- ✓ Bristol Channel 100mm cod end trials
- ✓ Cornwall red mullet
- ✓ Modified commercial trawl.
- ✓ North Sea 'Eliminator' Type Gear Trials.
- ✓ South Wales Bass Square Mesh Panels.
- ✓ Simple trawl modification to reduce cod catches
- ✓ Cod Catch Quota Scheme
- ✓ North Sea
- ✓ RTC
- ✓ Individual Vessel Cod Avoidance Plans
- ✓ Trevose Box Closure
- ✓ New markets
- ✓ Red gurnard

- ✓ **Government initiatives**
- ✓ **South Wales Bass Square Mesh Panels**
- ✓ **Marifish**
- ✓ **AMDES**

Editors:

- ✓ Maribel Rodriguez EFTP Secretariat.
- ✓ Rosa Fernandez, EFTP Secretariat.

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- *Ricardo I Perez-Martin Research Prof. IIM-CSIC*

1. PROJECT DESCRITION

1.1 Ongoing projects:

Classification:

- **Selective fishing gears and devices**
- **Management measures**
- **Valorization**
- **Others**

1. Development of a selection system for mid-water trawling for cod

http://www.sintef.no/Fiskeri-og-havbruk-AS/Fiskeriteknologi/Fiskefartoy-og-utstyr/Seleksjon-itralredskap/

"The trawl industry has in the past few years been interested in a new trawl that allows capture of cod, haddock and saithe without seabed contact. This will greatly reduce the drag resistance and thus fuel consumption and CO2 emissions. The problem is that the selective properties of existing selection systems - rigid sorting grids - are reduced because of the relatively high density of fish when they are pelagic.

Project coordinator's details:
Dr. Eduardo Grimaldo (Project leader) Institute for Fisheries Technology SINTEF Fisheries and Aquaculture "Eduardo.Grimaldo@sintef.no +47 40624014 SINTEF SeaLab, Brattørkaia 17C, N-7010, Trondheim, Norway

This project will use all the accumulated knowledge of bottom trawl selectivity (in the North Sea, Baltic Sea and Barents Sea) to develop a new selection system, based on flexible net panels (Exit Windows or T90), which can be used in midwater trawling for cod, haddock and saithe. The new flexible selection system should take into account most possible reduction of the target fish in front of the rear part of the codend. According to this, the new system will enhance the survival of fish released by avoiding that the fish come in contact with the rear of the codend which is known to be the region with the greatest chance for fish to be injured. In addition, it should be easier to handle on deck (in terms of safety), especially in bad weather. The results showed that the selectivity of a T90-codend and a codend with Exit Windows gives encouraging good selection in midwater trawling for cod. Both codends proved to be effective to sort out small fish under relatively high catch rates of fish (up to 12 tonn fish per hour). A T90-codend and a codens with Exit Windows can thus become a clear alternative to grid selection in midwater trawling in the Berents Sea cod fishery".

Type of project: **Selective fishing gears and devices**
Lead by: SINTEF Fisheries and Aquaculture, Research institute, Norway
Duration: 2010/01/01 - 2012/06/30
Has it received public funds? National
Partners:

- Norwegian College of Fishery Science, University of Tromsø, Norway
- Norwegian Directorate of Fisheries, Norway

2. Estudio de los estándares de sostenibilidad y aplicación de mejoras tecnológicas para la obtención de una eco-certificación en el sector de atuneros congeladores (ECOFAD).

Sustainability standards study and the implementation of the technological improvements for obtaining an eco-certification in the field of freezer tuna.

Project coordinator's details:
Jose Franco AZTI-Tecnalia
+34 946574000 jfranco@azti.es

"One of the aims is to design and test an ecological FAD to mitigate turtle and shark incidental catch".

Type of project: **Selective fishing gears and devices**
Lead by: AZTI Tecnalia

Duration: 2010/03/01 - 2012/06/30
Has it received public funds? International
Co-funded? National funds "Spain. Acciones Colectivas de Interés Público"

3. Shrimp fishing using traps www.sintef.no

"The main objective of this project is to study the possibility for the introduction of a trap based shrimp fishery for the coastal fleet in the Norwegian fjords. Shrimps are successfully harvested in many countries using traps. However, in Norway only trawlers are capable of making a living from harvesting this species. Shrimp trawlers are known to harvest a considerable amount of fish juveniles during their activities producing at times high levels of discards.
The successful implementation of a trap based shrimp coastal fishery would transform this fishery into a close-to discard free and environmentally friendly fishery".

Project coordinator's details:
Manu Sistiaga PhD - Researcher
Fisheries technology SINTEF Fisheries and Aquaculture e-mail: manu.sistiaga@sintef.no

Type of project: **Selective fishing gears and devices**
Lead by: SINTEF Fisheries and Aquaculture Research Institute Norway
Duration: (2010/10/01) - (2011/08/01)
Has it received public funds? National
Co-funded? National funds

4. Selectivity of redfish (Sebastes marinus) and Greenland halibut (reinhardtius hippoglossoides) by means of FISHSELECT www.sintef.no

"The project aims at making a complete gear selectivity study on redfish (Sebastes marinus) and Greenland halibut (Reinhardtius hippoglossoides) by means of the FISHSELECT methodology. The FISHSELECT method was developed at DTU Aqua in Denmark, and has already been used in Denmark, Norway and Germany to evaluate the selectivity of cod, haddock and Nephrops in mesh-based selective systems. In this method, the shape and morphometrics of the species studied are used as base to estimates the selective properties of a certain amount of mesh shapes and sizes. The application of this method on redfish and Greenland halibut will contribute to reduce the discards of these two species both in finfish and shrimp fisheries".

Project coordinator's details:
Manu Sistiaga PhD - Researcher
Fisheries technology SINTEF Fisheries and Aquaculture e-mail: manu.sistiaga@sintef.no

Type of project: **Selective fishing gears and devices**
Lead by: SINTEF Fisheries and Aquaculture Research Institute Norway
Duration: (2011/07/01) - (2011/12/01)
Has it received public funds? National
Co-funded? National funds
Partners:

- SINTEF Fisheries and Aquaculture Research Institute Norway
- DTU Aqua National Institute of Aquatic Resources Denmark

Proposal under preparation or pending for funding

5. LIFELINES fish@sintef.no

"Develop a new technological platform for automation of longline for the world fisheries based on minimum carbon footprint and seabed damage and at the same time enhance the selectivity and fish quality. Existing longline methods have these qualities, but lack the efficiency to gain market dominance".

Project coordinator's details:
Lasse Rindahl SINTEF Fiskeri og havbruk
Sintef Nord AS Framsentret 9296 Tromsø
Tel: 905 69 476 Lasse.Rindahl@sintef.no

Type of project: **Selective fishing gears and devices**
Lead by: SINTEF-NORWAY RESEARCH INTITUTE
Partners:

- MUSTAD-NORWAY SME
- PUERTO DE CELEIRO-SPAIN LARGE COMPANY
- ALEGRIN SMALL COMPANY

Duration: (2011/09/01)-(2014/08/31)
Has it received public funds? European
Co-funded? European funds managed through European Programmes

6. VIP VDTN

"Research on reducing discards of fish and benthos by technical modifications in beam trawls".

Type of project: **Selective fishing gears and devices**
Lead by: CPO Texel, Haven 15, 1792 AE Oudeschild, Texel, Netherlands
Partners:

- Fishing company TX68 Ankerstraat 29Texel, Netherlands
- Fishing company UK45 Schelpenhoek Netherlands
- Fishing company GO4, Bernhardstraat, Netherlands
- IMARES, Netherlands and ILVO, Belgium

Project coordinator's details:
Bob van Marlen, IMARES, Netherlands
Project Manager Fishing Technology,
bob.vanmarlen@wur.nl www.imares.nl
Tlf: +31 317 48 71 81 Haringkade 1

Duration: 2010/10/01-2012/12/31
Has it received public funds? Yes, National
Co-funded? European funds managed at regional or Member state level

7. Fish Behavior in relation to towed fishing gears

8. BAKASEL: minimization of fish discard on bottom single trawl by mean of selective devices put in the trawl

"Project main objective is to characterize the behavior of different fish species inside the trawl to design selective devices to put in the more suitable part of the trawl in relation with fish behavior".

Project coordinator's details:
Luis Arregi Senior Scientist working at Marine Research Division (AZTI-TECNALIA)
larregi@azti.es Telf:+34 946574000 AZTI-TECNALIA

Type of project: **Selective fishing gears and devices**
Lead by: www.azti.es AZTI TECNALIA is a Technological Institute from Spain
Duration: 2010/12/17-2012/03/31
Has it received public funds? European and Regional funds, European funds managed at regional or Member state level. The funding programme has been The European Fisheries Fund in co-funding with Basque Regional Government.

9. Assessing the environmental and economic impact of modified fishing gears

"In this project we will enhance our ability to assess, predict and quantify (i) the engineering performance and (ii) the environmental impact of towed fishing gears. This, in turn, will allow a better assessment of existing and modified gears and permit the development of more fuel efficient gears and of fishing gears of reduced environmental impact".

Project coordinator's details:
Barry O'Neill, Fishing Technology Group Leader, Marine Scotland - Science
+44 1224 295343 oneillb@marlab.ac.uk
375 Victoria Road, Aberdeen, Scotland

Type of project: **Selective fishing gears and devices**
Lead by: Marine Scotland – Science carries out research and provides expert scientific and technical advice on marine and freshwater fisheries, aquaculture, and the protection of the aquatic environment and its wildlife. This is to ensure that - as far as possible - the policies and regulatory activities of Government are supported by full and up-to-date knowledge.
Duration: 2011/04/01 - 2015/03/31
Have it received public funds? National funds. The project is being funded by the Scottish Government.

10. Integral Networking of Fishing Sector Actors to Organize a Responsible, Optimal and Sustainable Exploitation of Marine Resources. FAROS. (LIFE08/ENV/000119) http://www.farosproject.eu/

"The main objective of the project is the development and implementation of a neural network for an efficient and comprehensive management of discards and bycatch fisheries.
The project involves several actors in the fisheries sector (fleet, ports, etc.), with the objectives of minimizing discards / by-catch, optimizing value and produce commercial products of interest in food and pharmaceutical industries".

Project coordinator's details:
Antonio Alvarez Alonso
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS – INSTITUTO DE INVESTIGACIONES MARINAS (IIM-CSIC)"
http://www.iim.csic.es/ Telf: +34 986231930

Type of project: **Project focusing discards' reduction through management measures**.
Lead by: Instituto Investigaciones Marinas. CSIC. Spain.
Partners:

- Instituto Español de Oceanografía. Spain.
- Centro Te4cnológico del Mar - Fundación CETMAR. Spain.
- Centro de Supercomputación de Galicia. CESGA. Spain
- INSTITUTO DE INVESTIGAÇAO DAS PESCAS E DO MAR (INRB-IPIMAR). Portugal
- AUTORIDAD PORTUARIA DE VIGO. Spain.

Duration: 2010/01/01 - 2013/01/31
Has it received public funds? YES, European funds managed through European Programmes.
Co-funded? Project co-founded between the European Union LIFE08/ENV/000119, and the members of the consortium.

11. Bycatch And Discards: Management INdicators, Trends and locatiON (BADMINTON) http://83.212.243.10/badminton.html

"In the EU there is intensive data collection of bycatch and discard onboard commercial vessels but until now there have been few attempts to describe the general patterns in these data, and still less to understand the factors that determine what and how much is discarded. However, the latter step it is key if we are to develop operational indicators and propose mitigation tools for fisheries management. There is especially a need to investigate the effectiveness of mitigation methods that have been implemented in the past that is primarily technical regulations, including gear modification. This has to be done at the scale of the fishery: many gear modifications showed to make a difference in field trials, however there have been few studies about the way fishers used these modified gears, and the real impact it had on catches and discards on the fleet scale".

Project coordinator's details:
Alberto Gonzalez-Garcés Consejero técnico Telf.: + 34 986492111alberto.garces@vi.ieo.es
Instituto Español de Oceanografía. Apartado 1552. 36280 Vigo. Spain

Type of project: **Project focusing discards' reduction through management measures**
Lead by: Hellenic Centre for Marine Research (GREECE)
Partners:

- IFREMER (L'Institut Francais de Recherche pour l'Exploitation de la Mer). France.
- IEO (Instituto Español de Oceanografía). Spain
- CEFAS (Centre for Environment Fisheries and Aquaculture Science) UK.
- FM (Innovative Fisheries management, Aalborg University). Denmark.
- MATIS (Icelandic Food Research). Iceland.
- DTU Aqua (National Institute of Aquatic Resources). Denmark

Duration: 2009/01/01 - 2012/31/12
Has it received public funds? Yes, European and National funds, European funds managed through European Programmes "ERA-NET MarFish project.

Co-funded? Co-founded by the consortium members.

12. Estimation and reduction of Discards in the Spanish Atlantic and Mediterranean areas

http://www.ba.ieo.es/es/investigacion/grupos-deinvestigacion/ibdes/proyectos/441-amdes

"Improve the knowledge of the proportion of discards by Operational Unit (gear, area and quarter) of the main component species in the ICES areas and comparison of current estimates of discards with new predictive models based on regression and adapted to the behavior of the species".

Project coordinator's details:
Alberto Gonzalez-Garces, Consejero técnico Telf: + 34 986492111 alberto.garces@vi.ieo.es Instituto Español de Oceanografía. Apartado 1552. 36200 Vigo. Spain

Type of project: **Project focusing discards' reduction through management measures**
Lead by: Instituto Español de Oceanografía. Spain.
Duration: 2010/01/01 - 2012/12/31
Has it received public funds? National funds, European funds managed through European Programmes. Project founded by the EU Data Base Collection

13. Improving the selection capacity and selectivity of fishing gears for discards' reduction. Technological developments and potential impact to the Fishing Industry (PSE-REDES)

http://pseredes.org/

"Reduction of fishing discards by improving selectivity capacity of fishing gears, contributing to a sustainable use of fishing resources and to the development of the fishing sector. The project is under development; however there are some pilot gears developed pending for testing in commercial fishing ships".

Project coordinator's details:
Rosa Fernández Otero, area coordinator Promotion and technology transfer CETMAR rfernandez@cetmar.org www.cetmar.org Telf: +34 986 247 047 Fundación CETMAR C/Eduardo Cabello s/n E-36208 Bouzas-Vigo

Type of project: **Project focusing discards' reduction through management measures, Selective fishing gears and devices**
Lead: Centro Tecnológico del Mar - Fundación CETMAR RTD Public Foundation Spain
Partners:

- Instituto Español de Oceanografía IEO Public RTD Center Spain
- Universidade de Vigo Public University Spain
- Universidade de A Coruña Public University Spain
- Tecnopesca PyM SME Spain
- Tecnología Marina Ximo MAREXI SME Spain
- Cooperativa de Armadores del Puerto de Vigo ARVI SME Spain
- Confederación Española de Pesca CEPESCA Association Spain
- 9 Fishing companies (SME, Spain)
- Pesquera Recare S.L.
- Plana y Cía. S.L.
- Pesquera Santander S.L.
- Juan José Rosales Carregal
- Pesquera Jopitos S.L.
- Pesquera Julimar S.L.
- Sebastián Martín Sánchez

Duration: (2009/09/01)-(2013/08/31)
Have it received public funds? National funds. Ministerio de Ciencia e Innovación (MICINN) Plan Nacional de I+D+I 2008-2011. Subprograma de apoyo a Proyectos Singulares Estratégicos, (Spain).

14. Mapping of potential solutions about the use of biodegradable materials in fishing nets to reduce ghost fishing

http://www.sintef.no/Fiskeri-oghavbruk-AS/Fiskeriteknologi/Fiskefartoy-og-utstyr/

Project coordinator's details:
Eduardo Grimaldo Research Scientist
Fisheries Technology SINTEF Fisheries and Aquaculture Eduardo.Grimaldo@sintef.no

"Lost fishing gear is a major environmental problem both internationally and in national waters. Norway is the only country in the world to systematically clean up nets on the most intensive gillnets fishing grounds. Norwegian authorities estimate that there are lost between 500 and 1000 nets per year only in Norwegian waters (Misund, et al 2006). Experience with clean-up work shows that the lost gillnets that is left on the seabed may be actively fishing in at least seven years after they are lost. This represents a significant hidden, unwanted and totally unnecessary form of resource use. Lost nets contribute to hidden mortality of a large quantity of fish of different species throughout the year. In addition to the environmental problems creates lost fishing gear conflicts between different groups. This project is aimed at generating solution to reduce/avoid the impact of ghost fishing".

Type of project: **Project focusing discards reduction through management measures**
Lead by: SINTEF Fisheries and Aquaculture
Duration: (2011/01/01) - (2011/08/30)
Has it received public funds? National funds
Partners: Norwegian Directorate of Fisheries

15. MADE: Mitigating Adverse Impacts of Open Ocean Fisheries

www.made-project.eu/

Project coordinator's details:
MADE contact: Dr. Laurent Dagorn
IRD: Institut pour la Recherche et le Dévelopement Laurent.Dagorn@ird.fr

"The project aims at: minimize turtles, sharks and tuna and swordfish juvenile bycatch on distant fisheries: tropical purse seine fisheries targeting tuna fish; b) Longline fisheries targeting tuna and swordfish. Different scientific and technical approaches are used: MADE aims at proposing measures: The project will examine spatial management measures (avoidance) and technical measures (deterrent systems). The project will consider the widely accepted 3-stage processes to reduce by-catch: Accessibility; Vulnerability; Survival. The project follows a multy-disciplinary and integrated approach: Behavioral studies; Biological studies; Analyses of fisheries activities; Technical studies; Socio-economical studies. The project is working very closely with fishers, as fishers are involved in some actions of the project".

Type of project: **Project focusing discards reduction through management measures, Selective fishing gears and devices, Fish behavior study**
Lead by: IRD (France): The Institute for Development Research (http://www.ird.fr). Attached to both the French Ministries of Research and of Foreign Affairs
Duration: 2008/01/01 - 2012/12/31
Has it received public funds? International
Co-funded? Regional funds, European funds managed through European Programmes
Partners:

- SFA (Seychelles): The Seychelles Fishing Authority (SFA, www.sfa.sc) is the executive arm of government in the field of fisheries.
- ULB (Belgium): The "Université libre de Bruxelles (ULB)
- AZTI (Spain): AZTI-Tecnalia is a non-profit foundation governed by both the Regional Basque Government and the private sector (www.azti.es)
- AQUASTUDIO (Italy): is a private research institute, established in 1982, working on a non-forprofit base.
- HCMR (Greece):The Hellenic Centre for Marine Research (http://www.hcmr.gr) is a
- Governmental Research Institution engaged in research activities in all fields of the marine and freshwater science

- IMAR (Portugal): The Institute of Marine Research (IMAR - http://www.IMAR.pt) is a non-profit organization based on Portuguese Universities.
- FREMER (France): The French Research Institute for Exploitation of the Sea (http://www.ifremer.fr) is a public establishment being created in 1984.
- UM2 (France): The University of Montpellier 2 through the "Institut Charles Gerhardt Montpellier", a not-for-profit governmentfunded public organization whose general mission is to perform academic and applied researches.
- The Genoa Aquarium Foundation is constituted as a ONLUS (non-profit organization having a social utility) established in 2003.

16. Development of a catch control device for mid-water trawling

http://www.sintef.no/Fiskeri-og-havbruk-AS/Fiskeriteknologi/Fiskefartoy-og-utstyr/Seleksjon-itralredskap/

"One of the problems of fishing cod with pelagic trawls is that one can easily take too big catches. Large densities of pelagic cod mean that large quantities of fish enter the trawl in only few minutes. Therefore the sizes of the catches are difficult to control even with a lot of electronic surveillance on the trawl. Too big catches (over 30 tons of fish) mean that the fish must be on the intake bins for several hours before being processed, a situation that reduces quality of the catch. This project will develop a catch control system where the skipper can easily control the size of the catch".

Project coordinator's details:
Eduardo Grimaldo Research Scientist
Fisheries Technology SINTEF Fisheries and Aquaculture Eduardo.Grimaldo@sintef.no

Type of project: **Project focusing discards reduction through management measures**
Lead by: SINTEF Fisheries and Aquaculture
Duration: (2011/01/01 - 2011/12/30
Has it received public funds?
Co-funded? National funds Norway
Partners:

- Norwegian College of Fishery Science, University of Tromsoe
- Norwegian Directorate of Fisheries

17. Evaluation and Valorization of by-products from fishing industry

"Design and implementation of relatively simple methods for obtaining used products as food additives, compounds for pharmaceutical, cosmetic and biomedical products from by-products, to give them an added value".

Project coordinator's details:
Juan José de la Cerda, RTD Manager
PESCANOVA S.A.
juanjoc@pescanova.es
www.pescanova.es

Type of project: **Fishing by-products valorization**
Lead: PESCANOVA S.A. SME Spain

- FUNDACIÓN CETMAR. CENTRO TECNOLÓGICO DEL MAR RTD Public Foundation Spain
- Instituto de Investigaciones Marinas. Consejo Superior de Investigaciones científicas (CSIC)
- RTD public Agency Spain
- "Universidad de Santiago de Compostela Public University Spain
- "Universidad de Vigo Public University Spain

Duration: (2009/04/30)-(2012/04/30)
Have it receive public funds? YES National funds. CDTI- Proyectos Integrados Fondo Tecnológico (FEDER)

18. VALORPESC. Integral Project to use and valorize discards coming from the Basque trawl fleet Confidential

19. Posibilidades de aprovechamiento y valorización de cabezas y exoesqueletos de langostinos (penaeus spp.)

Possibilities for the use and exploitation of shrimp heads and exoskeletons

Type of project: **Discards' valorization**
Has it received public funds? Yes, FEP
Duration: 2009-2012
Participants: 7 Private companies and IIM

20. Biotecmar. Biotechnological exploitation of marine products and byproducts

www.biotecmar.eu

"The main objective of BIOTECMAR is to set up and incorporate a fully integrated chain for the production of value added compounds derived from Atlantic marine resources. BIOTECMAR"s overall aim is to help the companies of Atlantic Area (which are mainly SMEs) to take advantage of the use of modern biotechnological tools and contribute to a diversification of the activities derived from marine biomass exploitation within the strict framework of sustainable management of marine natural resources. The various sectors concerned by the project are the following: 1. The fisheries, aquaculture, seaweed harvesting and seafood processing as source of raw materials, 2. The fish byproducts and discards conservation, collection and transport and processing, 3. The production and commercialization of bioactive compounds and/or ingredients derived from processing to be used for the food, feed, nutrients, cosmetics and therapeutic industries, 4. The development and the transfer of R&D in marine biotechnology".

Project coordinator's details:
GUERARD Fabienne, LEMAR - UMR 6539 - Institut Universitaire Européen de la Mer - Place Nicolas Copernic, 29280 Plouzané, France www.univ-brest.fr Telf:+33 2 98 01 60 03 fabienne.guerard@univ-brest.fr

Type of project: **Discards' valorization**
Lead by: Fabienne Guerard UBO
Participants:

- Université Européenne de Bretagne-Université de Bretagne Occidental (Francia),
- Museum National d'Histoire Naturelle de Concarneau (Francia),
- Technopole Quimper Cornuaille (Francia),
- Martin Ryan Institute de la National University of Ireland (Irlanda),
- Indigo Rock Marine Research Centre (Irlanda),
- CETMAR (España),
- CSIC (España),
- IPIMAR (Portugal),
- Université de la Rochelle (Francia),
- Université de Nantes (Francia),
- IFREMER (Francia), NET- Novas Empresas e Tecnologías S.A. (Portugal)

Duration: (2009/01/01)-(2011/12/31)
Have it received public funds? YES, European funds managed through European Programmes
Interreg UE program

21. IBEROMARE. Centro Multipolar de Valorização de Recursos e Resíduos Marinhos

Type of project: **Discards' valorization**
Participants:

- Universidade do Minho (Portugal),
- Centro Interdisciplinar de Investigação Marinha e ambiental (Portugal),
- CETMAR (España),
- Universidad de Vigo (España),
- Universidad de Porto (Portugal),

Project coordinator's details:
Rui L Reis, 3 B´s U. Minho

- Universidad de Santiago de Compostela (España),
- Universidade Católica Portuguesa – Centro Regional do Porto (Portugal),
- Conselleria do Mar (Xunta de Galicia),
- Instituto de Investigaciones Marinas (CSIC).

Have it received public funds? YES, European. Cooperación Transfronteriza España-Portugal. INTERREG UE program.
Duration: 1/04/2009 to 31/12/2011

22. Valorización de residuos da producción de productos pesqueros: obtención de productos de alto valor añadido a partir de la piel y espinas de pescado

Type of project: **Discards' valorization**
Lead by: private company
Participants: 2 private companies, IIM-CSIC.
Has it received public funds? YES, Regional. Xunta de Galicia 10TAL011E
Duration: 2010-2013.

23. PRESPO: sustainable development of artisanal fisheries in the Atlantic Area http://atlanticprojects.inescporto.pt/project-area/prespo

"Focusing on discards, studies will be conducted to evaluate the impacts of the discards in the marine environment and to develop new fishing gears (or modify the existing ones), more selective and efficient than those used actually, aiming to minimize the impacts in the ecosystem. The encouragement and the promotion of fishing practices that reduce the impacts in the marine environment is also a priority of this project".

Project coordinator's details:
Miguel Gaspar Main Researcher IPIMAR
mbgaspar@cripsul.ipimar.pt
Telf: +351289700500

Type of project: **Focused on artisanal fisheries**
Lead by: IPIMAR (Portugal)
Partners:

- CETMAR (Spain)
- AGLIA (France)
- CADIZ UNIVERSITY (Spain)
- CEP (Spain)
- HUELVA UNIVERSITY (Spain)
- FEUP (Portugal)
- IFREMER (France)
- RICEP (France)
- IFAPA (Spain)

Duration: 2009/01/01 - 2011/12/31
Has it received public funds? European funds managed through European Programmes. FEDER funds co funded by Basque Government

24. Data Collection Framework (DCF) - discard monitoring

http://www.cvo.wur.nl/

"Within the DCF the Netherlands collect discard information on their commercially most important fisheries. Data and results are reported to the Ministry of Economic affairs, Agriculture and Innovation."

Project coordinator's details:
A.T.M. (Edwin) van Helmond MSc. Project Manager.
Department of Fisheries. IMARES.
edwin.vanhelmond@wur.nl Tlf: +31 317

Type of project: Annual estimates of discard rates and total volume by metier.
Lead by: IMARES. Research Institute. The Netherlands.

Has it received public funds? Yes, National funds The Netherlands. EU - Data Collection Framework (DCF).

25. Seafish Discard Action Group

http://www.seafish.org/fishermen/responsible-sourcing/protecting-fish-stocks/discards
http://www.seafish.org/fishermen/responsible-sourcing/protecting-fish-stocks/discards/discardaction-group

Project coordinator's details:
Karen Green, Secretary Discard Action Group Sea Fish Industry Authority 18 Logie Mill Logie Green Road Edinburgh Scotland EH7 4HS k_green@seafish.co.uk

"The Discard Action Group was set up by the UK based Sea Fish Industry Authority three years ago in light of the many initiatives being adopted by the fishing industry to address the issue of discards. It acts as an „issue forum" playing a pivotal role in mediating a common approach to discard issues affecting the whole seafood supply chain. The terms of reference for the group states: „the aim of the DAG is to improve our understanding of the phenomenon of discarding and to explore the means by which discarding can be reduced to the minimum level practicable." The DAG reports to the Seafish-facilitated Common Language Group which covers all issues affecting the seafood industry. The group is representative of the seafood supply chain with representatives from the catching sector, non-governmental organizations, legislators, regulators, technologists and scientists, retailers and foodservice and, where appropriate, the media".

Type of project: **Communication programme**
Lead by: Sea Fish Industry Authority. The Sea Fish Industry Authority is a Non-Departmental Government Body based in the UK which is funded by a levy.
Duration: 2008/01/01 - ongoing
Has it received public funds? YES, National funds

26. MANAGEMENT AND FIRST TREATMENT ON BOARD FISHING BYPRODUCTS (GESUPES)

"Reducing the dumping at sea of fishing discards and by-products through actions to solve economic problems."

Project coordinator's details:
Francisco Teijeira ONAPE

Type of project: **Project focusing discards reduction through conservation and transport to port.**
Lead by: "Organización Nacional de Organizaciones Pesqueras (ONAPE) Non profit organization
Duration: (2011/03/21)-(2013/03/21)
Has it received public funds? National
Co-funded? National funds Ministerio de Medio Ambiente y Medio Rural y Marino
Partners: Centro Tecnológico del Mar - Fundación CETMAR (Technical assistance to the project) RTD Public Foundation Spain.

1.2 PROJECT ALREADY FINISHED

27. Multi-purpose plant for the integral use of the Galician fishing byproducts

"Design of an industrial plant for treatment and recovery of wastes and by-products from the fishing activity en Galicia. Development of a brief market analysis for each potential product".

Project coordinator's details:
Rosa Fernández Otero, Area Coordinator Promotion and Technology Transfer
CENTRO TECNOLÓGICO DEL MARFUNDACION CETMAR
rfernandez@cetmar.org www.cetmar.org
Telf: +34 986 247 047. Fundación CETMAR
C/Eduardo Cabello s/n E-36208 Bouzas

Type of project: Discards' valorization
Lead by: CETMAR RTD Public Foundation Spain and IIM-**CSIC Public RTD center Spain**
Duration: (2004/09/01)-(2008/02/01)
Has it received public funds? YES, Regional funds. Spain: Plan Gallego de I+D: PGIDIT

28. Biotechnological valorization of marine resources (VALVIOMAR)

http://www.valbiomar.org/
http://www.interregatlantique.org/iiib/pl/projet/detail_projet.html?idr=47&id=81

"The VALBIOMAR project seeks to develop an Atlantic network of competences in the domain of maximizing the biotechnological value of living marine resources, and energizing relations among laboratories and SMEs to produce concrete co-operation, and the development of new activities. The principal object of VALBIOMAR rests on the necessity, in the context of the rarefaction of certain marine resources, of optimizing the operations of transformation of raw materials and of the generation of co-products (animal and human foods, cosmetics, health products)".

Project coordinator's details:
J.M. PIOT, Laboratoire LIENS
Université de La Rochelle jmpiot@univ-lr.fr
http://www.univ-larochelle.fr /
Telf: +33 (0)5 46 45 86 44

Type of project: Valorization of marine products and by-products
Lead by: Université de La Rochelle Public University France
Partners:

- Centro Tecnológico del Mar. Fundación CETMAR RTD Public Foundation Spain
- ALICONTROL SME Spain
- Institut français de recherche pour l'exploitation de la mer (IFREMER) Public organism or
- assimilated Francia
- IPIMAR/INRB-National Institute for Fisheries and Sea Research, University or research center, Portugal
- Integrin Advanced Biosystems Ltd, SME (holding company) United Kingdom
- Museum National d´Histoire Naturelle Public Center France
- Technopole Quimper-Cornouaille, Not for profit organization France
- Universidad de La Laguna Public University Spain
- French Public Universities:
- Reseau des Universites de l´Ouest Atlantique (RUOA),
- Université de Bretagne Occidentale,
- Université de Bretagne Sud, Université de Nantes-ISOMER
- Public University France

Has it received public funds? YES, European funds managed through European Programme INTERREG III B "Espacio Atlántico" 2000-2006.
Duration: (2003/09/01)-(2006/12/30)

29. Proteus-Transformation of natural resources and marine debris in high value products for industrial applications http://www.proteusproject.eu

"Sustainable development of new industrial products which has a potential high value, through transformation of fishing by-products, looking for the technological strengthening in the cross-border competitiveness"

Project coordinator's details:
Manuel José Magalhães Gomes Mota
Vice-reitor para a investigação
Grupo de Investigação 3B's - Biomaterials, Biodegradables and Biomimetics
Universidade do Minho.

Type of project: **Discards' valorization**
Lead by: Universidade do Minho (Grupo 3B's) Public University Portugal
Partners:

- Centro tecnológico del mar. Fundación CETMAR RTD Public Foundation Spain
- CIIMAR-UP (Centro Interdisciplinar de InvestigaÇao Marinha e Ambiental) RTD Center Portugal
- Universidad de Vigo Public University Spain

Duration: (2006/03/10)-(2008/09/30)
Has it received public funds? European funds managed at regional or Member state level
Unión Europea: INTERREG III A.

30. BENIGN AND ENVIRONMENTALLY FRIENDLY FISH PROCESSING PRACTICES TO PROVIDE ADDED VALUE AND INNOVATIVE SOLUTIONS FOR A RESPONSIBLE AND SUSTAINABLE MANAGEMENT OF FISHERIES (BE-FAIR)

http://www.befairproject.com/en/main.html

"Minimization of the adverse environmental impact from the fishing activities, both on board and ashore, looking for a responsible and sustainable fishing management. Development of an integral by-products treatment and improving the reusing and recycling of industrial fishing wastes.
Results: Prototypes production of gelatin "chondroitin" and fish oil".

Project coordinator's details:
Antonio Alvarez Alonso
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS – INSTITUTO DE INVESTIGACIONES MARINAS (IIM-CSIC)"
http://www.iim.csic.es/ Telf: +34 986231930

Type of project: **Project focusing discards reduction through management measures, Discards' valorization**
Lead by: "Agencia Estatal Consejo Superior de Investigaciones Científicas (CSIC) RTD public Agency Spain
Partners:

- Centro Tecnológico del Mar - Fundación CETMAR RTD public Foundation Spain
- Espaderos del Atlántico, S.A SME Spain
- Institute Français de Recherche pour L"exploitation de la Mer RTD public Center France
- Instituto de Investigaçao das Pescas e do Mar (IPIMAR) RTD public Center Portugal
- PEIXESPORT, S.L SME Spain
- HNOS. RODRIGUEZ GÓMEZ, SL SME Spain

Duration: (2005/11/15)-(2008/11/15)
Has it received public funds? YES, European funds managed through European Programmes "Unión Europea Programa LIFE Medio ambiente – Comisión Europea. Programa Life. Clave: LIFE 05 ENV/E/ 000267 BE-FAIR (2005-2008).

31. Analytical Valuation Red Crab Carapace (Chionoecetes opilio) for use in feed for aquaculture (ROXOCANVAL) http://www.roxocanval.org

"Utilization of a by-product resulting from the handling on freezers ships dedicated to this species, rich in protein and natural dyes, with potential use in feed for aquaculture. As a result, technical studies have been published".

Project coordinator's details:
Julio Maroto Leal, Area Coordinator.
Technology of Fish products CETMAR
jmaroto@cetmar.org www.cetmar.org
Telf: +34 986 247 047

Type of project: **By-products valorization**
Lead by: Centro Tecnolóxico do Mar (Fundación CETMAR) RTD Public Foundation Spain.
Partners:
Universidad de Santiago de Compostela. Facultade de Farmacia. Departamento de Química Analítica, Nutrición e Bromatoloxía Public University Spain.
Duration: 2006/03/01 - 2006/12/31
Has it receive public funds? Regional funds. Plan Gallego de I+D (PGIDIT)

32. Planta multipropósito para la valorización integral de residuos pesqueros de Galicia

Type of project: **Discards' valorization**
Have it received public funds? Yes, Dirección Xeral de Investigación e Desenvolvemento de la Xunta de Galicia. PGIDIT04TAM007001CT. Coordinated Project.
Lead by: Instituto de Investigaciones Marinas (CSIC),
Participants:

- Instituto de Investigaciones Marinas (CSIC),
- Fundación CETMAR

Duration: 2004 – 2007

33. Asistencia técnica para la realización de una medida innovadora para la recuperación, gestión y valorización de los descartes pesqueros generados por la flota española que faena en los caladeros atlántico y mediterráneo

(Technical assistance for the implementation of an innovative step for the recovery, management and enhancement of discards generated by the Spanish fleet operating in the North Atlantic and Mediterranean fisheries).

Type of project: **Discards' valorization**
Participants: ARVI, IIM
Have it received public funds? Yes, Cooperativa de Armadores ARVI with a FROM contract.
Duration: 2007-2009

34. Estudio de las posibilidades de la utilización de varias especies de crustáceos descartadas por la flota gallega en sus pesquerías tradicionales en las costas de Galicia, Portugal y Gran Sol

Study of possibilities of using species discarded by the Galician fleet in their traditional coastal fisheries (Galicia, Portugal and Gran Sol).

Type of project: **Discards' valorization**
Lead: ARVI
Participants: CSIC, ARVI y Serviguide
Has it received public funds? Yes, Regional Secretaria Xeral de Investigación e Desenvolvemento de la Xunta de Galicia MMA033E

Duration: 2008-2010.

35. Swedish Grid Trials in Area VIIA

"A short trial was carried out on Area VIIA with the Swedish Grid to assess its effectiveness in reducing bycatch in the Irish Sea Nephrops Fishery. The trials showed that bycatch was significantly reduced without losing too much nephrops".

Project coordinator's details:
Mr Daniel McDonald Marine Technical Officer. An Bord Iascaigh Mhara, Crofton Rd Dun Laoghaire Co. Dublin
McDonald@bim.ie

Type of project: Selective fishing gears and devices
Lead: www.bim.ie
Duration: 2009/07 - 2009/08
Has it received public funds? Regional
Co funded? National funds of Ireland

36. Modeling the flow through fine-meshed pelagic trawls

"The projects resulted in a theoretical model for the flow through and drag on fine-meshed nets and trawls, e.g. describing how flow and filtration varies with mesh- and net perimeters and with towing speed. The model is general and applies to all net solidities etc., but focus in the present project was on very small meshes and high net solidities.
Comparisons were made with flume tank experiments, and showed good agreement between theory and measurements".

Project coordinator's details:
"Svein Helge Gjøsund Senior Scientist, dr. ing Research Manager Fisheries Technology SINTEF Fisheries and Aquaculture P.O. Box 4762 Sluppen NO-7465 Trondheim, Norway
Svein.H.Gjosund@sintef.no
www.sintef.no

Type of project: Theoretical basis with relevance to the performance of nets and trawls.
"Published paper ""Flow through nets and trawls of low porosity"" (Gjøsund and Enerhaug, 2010) can be found at Elsevier
Lead by: SINTEF Fisheries and Aquaculture, Norway
Duration: 2003-2005
Has it received public funds? YES International
Co-funded? National funds Norway, The Research Council of Norway, Fisheries Technology programme project no. 153140.

37. Estimation of trawl discards in the western Mediterranean. European hake (Merluccius merluccius) as a case study

"The aim of the project has been the assessment of the discards by the trawl fleets in the western Mediterranean. Discard refers to that part of the gross catch thrown back into the water by fishermen".

Project coordinator's details:
Paloma Martin, senior researcher ICM-CSIC Spain paloma@icm.csic.es

The study has focused on the European hake Merluccius merluccius because it is one of the main target species for trawling and the fact that it was known to be partially discarded. Field work has been conducted in five fishing ports located in the western Mediterranean, from the northern Tyrrhenian Sea to the Gulf of Lions, coasts of Catalonia and Valence, and Balearic Islands. The duration of the sampling has been six months, from February to July 2001. Data collection included sampling on board commercial trawlers, examination of the discard samples in the laboratory, and data on the trawl fleets and landings in the study ports. The most relevant result to the management of the European hake is that discards can represent a significant part of the total European hake catch both in weight and in number. It is thus necessary considering them in the evaluations to assess the state of exploitation of M. merluccius by trawling. The monthly length frequency distributions in all five study ports show that most part of the European hake catch consists of immature individuals.

Nevertheless, the proportion of the catch and sizes that are discarded can be very different, as observed when comparing the different study ports. The percentage of discarded European hake during the six months sampling ranged between less than 1% and more than 70% of the total individuals caught, depending on the month and port; as for the European hake discards expressed as percentage of the total hake catch, it ranged between less than 1% and 30% of the total M. merluccius catch.

Hake trawl fisheries impact over the benthic and epibenthic communities of the continental shelf and upper slope, as highlighted by the number of species identified during six-months sampling on board commercial trawlers (for example, 319 only in one of the study ports).
The vessels targeted to Merluccius merluccius include other species in their objectives. The number of species caught by trawl that are commercialized is also high, around 90 in three of the study ports.
Within the study ports, on average during the six-months sampling, the amount of discarded catch ranged between 17% of the total catch and 34%. The main reason for discarding part of the catch is the low or nil commercial interest of the discarded species. In general, the incidence of discards in species with commercial interest is low. Significant changes in M. merluccius abundance have been observed from month to month. Therefore, sampling frequency of this study, monthly, 3 days at sea so as to minimize the effect of autocorrelation of the hauls performed during the same day, seems to have been adequate to detect the changes in hake abundance. When there is an active European hake discard as observed in one of the study ports, both the total European hake catch and time of the year have a significant effect on the amount of discarded hake. The highest hake catches and discards corresponded to the time of the year with more intense recruitment of European hake to trawling. This result is important when considering the possibility of closed seasons for trawling.

Type of project: Project focusing discards reduction through management measures
Duration: 2001/01/01-2001/09/30
Has it receive public funds? YES, Regional. European funds managed through European Programmes
Co funded? By Spanish and Italian government
Lead by: Instituto de Ciencias del Mar, CSIC Barcelona (Spain)
Partners:

- Instituto Español de Oceanografia - (Spain)
- University of Pisa (Italy)

38. Sperimentazione e sviluppo di reti a strascico con maglie quadre

"This project is focused on the experimentation of a square mesh panel in a bottom trawl net used by an Italian fleet. The study area is a fishing ground located in the northern Tyrrhenian Sea, from 150 to 350 m depth, exploited by the Porto Santo Stefano fleet. Following a comparative approach, three trawl nets were experimented: 1) a commercial net, provided with a 40 mm codend with diamond meshes; b) an experimental net, the same of 1), but provided with a square mesh panel (size of 40 80 mm), placed in front of the codend; c) an experimental net, the same of 1), but provided with a 60 mm codend with diamond meshes. The square mesh panel was built following Robertson (1993). Selectivity was assessed by the covered codend method. The comparison among the different nets was performed through the alternate haul method. Selectivity trials were carried out on April, July, October 2003,
January and May 2004. Ten hauls with the same duration and position were carried out each season. A total of 72 experimental hauls was realized. Catches in biomass and abundance were standardized to 1h of trawling. Percentage of retention was calculated for each species and gear and adjusted to a selectivity curve. The size at 50% of retention (L50%), the selectivity factor (SF) and the selection range (SR) were estimated. In conclusion, the results of the trials with the experimental net provided with square mesh panel seem to be encouraging as a "soft" management measure, allowing some reduction of fishing mortality for juveniles, without important changes in commercial landings. The experimental net with codend of 60 mm produces more evident differences in selectivity, changing the qualiquantitative composition of the landings; this measure can be envisaged when a stronger management option is required".

Project coordinator's details:
Paola Belcari Researcher, Dipaertimento Scienze Uomo e Ambiente - University of Pisa, lbelcari@discat.unipi.it Viale Nazario sauro 4, 57127 Livorno (Italy)

Type of project: Selective fishing gears and devices
Lead by: "Consorzio per il Centro Interuiniversitario di Biologia Marina ed Ecologia Applicata, Livorno (Italy)
Duration: (2011/09/01)-(2014/08/31)
Has it received public funds? European
Co-funded? Regional and National funds "Italy Ministry for Agricoltural, Food and Forestry Policies

39. Estimation of trawl discards in the western Mediterranean. European hake (Merluccius merluccius) as a case study

Project coordinator's details:
Paloma Martin, senior researcher ICM-CSIC Spain paloma@icm.csic.es viale Nazario Sauro 4, 57127 Livorno, italy

"The aim of the project has been the assessment of the discards by the trawl fleets in the western Mediterranean. Discard refers to that part of the gross catch thrown back into the water by fishermen. The study has focused on the European hake Merluccius merluccius because it is one of the main target species for trawling and the fact that it was known to be partially discarded. Field work has been conducted in five fishing ports located in the western Mediterranean, from the northern Tyrrhenian Sea to the Gulf of Lions, coasts of Catalonia and Valence, and Balearic Islands. The duration of the sampling has been six months, from February to July 2001. Data collection included sampling on board commercial trawlers, examination of the discard samples in the laboratory, and data on the trawl fleets and landings in the study ports. The most relevant result to the management of the European hake is that discards can represent a significant part of the total European hake catch both in weight and in number. It is thus necessary considering them in the evaluations to assess the state of exploitation of M. merluccius by trawling. The monthly length frequency distributions in all five study ports show that most part of the European hake catch consists of immature individuals. Nevertheless, the proportion of the catch and sizes that are discarded can be very different, as observed when comparing the different study ports. The percentage of discarded European hake during the six months sampling ranged between less than 1% and more than 70% of the total individuals caught, depending on the month and port; as for the European hake discards expressed as percentage of the total hake catch, it ranged between less than 1% and 30% of the total M. merluccius catch. Hake trawl fisheries impact over the benthic and epibenthic communities of the continental shelf and upper slope, as highlighted by the number of species identified during six-months sampling on board commercial trawlers (for example, 319 only in one of the study ports). The vessels targeted to Merluccius merluccius include other species in their objectives. The number of species caught by trawl that are commercialized is also high, around 90 in three of the study ports. Within the study ports, on average during the six-months sampling, the amount of discarded catch ranged between 17% of the total catch and 34%. The main reason for discarding part of the catch is the low or nil commercial interest of the discarded species. In general, the incidence of discards in species with commercial interest is low. Significant changes in M. merluccius abundance have been observed from month to month. Therefore, sampling frequency of this study, monthly, 3 days at sea so as to minimize the effect of autocorrelation of the hauls performed during the same day, seems to have been adequate to detect the changes in hake abundance. When there is an active European hake discard as observed in one of the study ports, both the total European hake catch and time of the year have a significant effect on the amount of discarded hake. The highest hake catches and discards corresponded to the time of the year with more intense recruitment of European hake to trawling. This result is important when considering the possibility of closed seasons for trawling".

Type of project: Project focusing discards reduction through management measures
Lead by: Instituto de Ciencias del Mar, CSIC Barcelona (Spain)
Duration: 2001/01/01-2001/09/30
Has it received public funds? Regional

Co-funded? European funds managed through European Programmes "Spain Italy"
Partners:

- Instituto Espanol de Oceanografia - (Spain)
- University of Pisa (Italy)

40. Discards of the western Mediterranean trawl fleets

"The aim of the project was the analysis of the composition, both from a quantitative and a qualitative point of view, of the discards of the trawl fleets in different areas of the western Mediterranean, considering seasonality, depth and type of gear or vessel horse power as factors that might affect such discards. The project was centred on 12 common target species in all the choosen ports (Porto Santo Stefano, Italy, Vilanova i la Geltrù, Valencia, Santa Pola, Palma de Mallorca, Alcudia, Fuengirola, Spain). A sampling programme, lasting one year, was designed through on board sampling on commercial trawlers, from June 1996 to June 1996. The average annual discard, considering the seven ports, was about 40% of the biomass caught in the depth stratum A (< 150 m), 35% in B (150-350 m) and 27% in C (> 350 m). For each target species two discard indices were calculated. For the target species, the maen annual size distribution was also analyzed, and the size at which 50% of the specimens caught were discarded was estimated. The discard of target species was in general low. The principal causes of discarding were identified".

Project coordinator's details:
Aina Carbonell, Researcher, IEO Palma de Mallorca ana.carbonell@ba.ieo.es
Viale Nazario Sauro 4, 57128 Livorno (Italy)

Type of project: **Project focusing discards reduction through management measures**
Lead by: Instituto Español de Oceanografía, Palma de Mallorca, Spain
Duration: 1995-1996
Has it received public funds? Regional
Co-funded? European funds managed through European Programmes "Spain- Italy"
Partners:

- Institut de Ciences del Mar - CSIC - Barcelona Spain
- Consorzio per il Centro Interuniversitario di Biologia Marina ed Ecologia Applicata (CIBM), Livorno, Italy

41. Attrezzi della piccola pesca utilizzati in funzione della successione stagionale e dell'ecoetologia

"The present study was aimed to increase the actual knowledge on the Italian artisanal fisheries through the collection of data on technical features of gears, fishing areas, landings, fishing effort, fishing yields, composition of retained and discarded catch, as well as on the demography of the target species catches. Three sites in the northern Adriatic Sea (Ancona, Senigallia and Portonovo) and one in the eastern Ligurian Sea (Livorno) were investigated.

Project coordinator's details:
DR Gianna Fabi, CNR-ISMAR Ancona, Italy
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Firstly, a census was conducted at both the local maritime offices and the landing sites to get information on the number and technical features of vessels and gears used in the different seasons as well as on the main target species. From January 1999 to December 2000 a weekly sampling was performed at the main mooring places to record amounts and composition of landings obtained by the investigated artisanal fisheries, technical features of the used gears, fishing time and grounds. At the same time, periodic observations aboard of commercial vessels were carried out to investigate demography and gonadic stages of the caught specimens of target species, as well as the quali-quantitative composition of discard. The catch was subdivided in target species, kept bycatch, discard of commercial species (discard C) and non commercial species (discard NC). Catch data were standardised as number of individuals and biomass caught in 1 hour and by 5000 m of gear. The importance of discard on catches was assessed using the Ecological Use Efficiency (EUE) and the

Stock Use Efficiency (SUE) indexes (Alverson and Hughes, 1996). Sizefrequency distributions were seasonally computed for each target species and gear. The artisanal fleets of the northern Adriatic mainly included fibreglass planning vessels having an average GRT of about 3, Loa of 6-12 m and average engine power of about 40 kW. On the contrary, the Livorno artisanal fishery was mainly made of wooden displacing vessels having an average GRT of 4.1±0.3, an average engine power of 54.4±5.2 kW and a mean Loa of 7.7±0.3 m. The crew was usually composed by 1-3 people everywhere. Gillnet for common sole (Solea vulgaris), gillnet for other highly valuable species (i.e. Sciaena umbra, Umbrina cirrosa and Dicentrarchus labrax, sparids) and trammel net were the main gears both in the Adriatic and the Ligurian fisheries. In addition, a relevant importance was also assumed by traps for Sepia officinalis and Nassarius mutabilis in the Adriatic and by a small meshed trammel net called "tramaglino" for Mullus barbatus, Mullus surmuletus and S. officinalis in the Liguarian Sea. The results evidenced the great dynamism of the investigated artisanal fisheries, due to their capacity of changing gears and/or fishing area according with the fluctuations of the target species. A high variability concerning vessels, gears and fishing areas was also observed comparing the Adriatic and the Ligurian fisheries, due to social, economic and environmental differences between the two basins. In fact, in both areas the fleets consisted of small vessels, most of which were planning in the Adriatic, and displacing in the Ligurian Sea. The fishing grounds of the Livorno fleet included posidonia meadows, sand-muddy seabeds, rocky banks and biogenic hard substrata, so showing a greater heterogeneity than those exploited by the northern Adriatic vessels, which mainly operated on sand-muddy bottoms, remaining inside the 3 nm offshore to avoid injuries by trawlers to the gears. On the other hand, the Adriatic fleets showed a higher specialization as concerns the types of gears and the technical tricks aimed to increase the gear efficiency. This is likely due to the fact that in this area fishermen tended to change the gears over the year following the seasonal occurrence of the different target species, while in the Ligurian Sea most of vessels utilized trammel net all the year round, varying the fishing areas and spreading out the number of target species rather than changing gear. Differences were also recorded in the fishing effort: the number of fishing days carried out by the Adriatic vessels was almost twice that of the Livorno ones, while the amount of set nets utilized by this last fishery was about twice that employed by the Adriatic ones. Landings were noticeably larger in the northern Adriatic, as a consequence of both a greater fishing effort and higher fishing yields, likely due to the gear efficiency and to the abundance of resources. Conversely, the Ligurian catches showed a higher species richness, due to the greater heterogeneity of the fishing grounds. However, the target species landings appeared strictly related to the fishing activity and capacity in both areas. Only those of the trammel and gillnet in the eastern Ligurian Sea seemed related to the abundance of the resources at sea. Analysis of catch composition revealed a great species selectivity of the used gears, even though kept bycatch often made up a discrete portion in biomass, according with the fact that the Mediterranean fisheries, also when targeted to a few species, commonly include a fraction of bycatch, which can contribute to the total income. The kept bycatch was negligible only in the traps. The high EUE values evidenced a low ecological impact for all the analyzed set nets, whose discard C mainly included damaged specimens, while individuals discarded for their small dimensions were very scarce. Discard NC was dominated by crustaceans, mainly crabs, usually rejected into the sea dead or strongly damaged. All the species of this category fell into the socalled "bycatch of unknown levels" (Hall, 1994), as the lack of information on their abundance and mortality made impossible to estimate the impact of fisheries either directly on them or indirectly on the commercial species, taking into account the role played by many of these organisms inside the food chains of the coastal environment. Discard was negligible in pots and fyke nets catches, while as concerns the basket traps for N. mutabilis, the selective harvesting of this gastropod and the discard at sea of large amounts of alive Nassarius reticulatus might cause an ecological imbalance.

The catch demography also evidenced a high size selectivity of the nets, especially the gillnets. The few variations observed between the Adriatic and the Ligurian Sea were due to the different employed mesh sizes and to the fact that the wideness of the Adriatic continental shelf allows a wider spatial and temporal partitioning of the marine organisms on the basis of the size classes and the reproductive behavior. Nevertheless, only a portion of undersized individuals of S. vulgaris were caught with the gillnet in the Adriatic and the trammel net in the Ligurian Sea, but this amount decreased from spring, when it also exceeded the legal limit of 10% of the total catch in weight, to fall-winter. Concerning the other target species, without minimum legal size, only the cuttlefish catches got in the Ligurian Sea with the trammel net and "tramaglino" always included juveniles. On the other hand, the fact that the highest landings of S. officinalis in both areas, as well as of S. vulgaris

and L. mormyrus in the Ligurian Sea, corresponded to the largest spawners occurrence might affect the reproductive capacity of the populations of these species. A greater availability of detailed official landing data and of evaluation studies on the resources exploited by artisanal fisheries would allow quantifying the impacts of these activities both on adults and juveniles. Moreover, management plans aimed to preserve the resources and their availability in time should also consider the interactions among the artisanal fisheries and other fishing activities (i.e. bottom trawl) in the exploitation of some species, such as the sole, targeted both by gillnetters and rapido trawlers".

Type of project: **Project focusing discards reduction through management measures**
Lead by: Consiglio Nazionale delle Ricerche (CNR) ISMAR Ancona, Italy
Duration: 1999-2000
Has it received public funds? Regional
Co-funded? National funds "Italy Italian Ministry for Agricultural, Food and Forestry Policies"

42. Biotechnological valorization of marine resources (VALVIOMAR)

http://www.valbiomar.org/
http://www.interregatlantique.org/iiib/pl/projet/detail_projet.html?idr=47&id=81

"The VALBIOMAR project seeks to develop an Atlantic network of competences in the domain of maximizing the biotechnological value of living marine resources, and energizing relations among laboratories and SMEs to produce concrete co-operation, and the development of new activities. The principal object of VALBIOMAR rests on the necessity, in the context of the rarefaction of certain marine resources, of optimizing the operations of transformation of raw materials and of the generation of co-products (animal and human foods, cosmetics, health products)".

Project coordinator's details:
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Fundación CETMAR C/Eduardo Cabello s/n E-36208 Bouzas-Vigo

Type of project: **Valorization of marine products and by-products**
Lead by: Université de La Rochelle Public University France
Duration: (2003/09/01)-(2006/12/30)
Has it received public funds? European
Co-funded? European funds managed through European Programmes INTERREG III B "Espacio Atlántico" 2000-2006
Partners:

- Centro Tecnológico del Mar. Fundación CETMAR RTD Public Foundation Spain
- ALICONTROL SME Spain
- Institut français de recherche pour l'exploitation de la mer
- (IFREMER) Public organism or assimilated Francia
- IPIMAR/INRB-National Institute for Fisheries and Sea Research
- University or research center Portugal
- Integrin Advanced Biosystems Ltd SME (holding company) United Kingdom
- Museum National d´Histoire Naturelle Public Center France
- Technopole Quimper-Cornouaille Not for profit organization France
- Universidad de La Laguna Public University Spain
- French Public Universities: Reseau des Universites de l´Ouest Atlantique (RUOA), Université de Bretagne Occidentale, Université de Bretagne Sud, Université de Nantes-ISOMER Public
- University France

43. Industry Trials in Area VIA (Confidential)

44. Development of a flexible selection system for bottom trawling (FLEXIGRID) http://www.sintef.no/Fiskeri-og-havbruk-AS/Fiskeriteknologi/

Project coordinator's details:
Snorre Angell Research Scientist, Fisheries Technology, SINTEF Fisheries and Aquaculture
Eduardo.Grimaldo@sintef.no

"Since their introduction, metal sorting grids (the Sort-X and Sort-V) have been associated with crew safety problems, especially when handling the grid sections during bad weather. During the late 1990s and the beginning of 2000s experimentation with grids made of other materials, such as plastics, nylon, and rubber, was promoted. The systems studied were the plastic Sort-X, the Eurogrid, and the Flexigrid. The intention behind developing these systems was to offer the industry grids that could be more easily handled, were more user friendly, and were cheaper to purchase. The plastic Sort-X was made of HDPE materials and weighed considerably less than the steel version. The Eurogrid was made of massive nylon and was developed primarily for the trawl fishery in the North Sea. Although these grids were design to be more user friendly alternatives to other grids on the market because of their low weight, flexibility, and the possibility of storing them in net drums, none of them was successfully introduced into the fishery. During three years of experimental work, the Flexigrid proved to have a selection capacity similar to that of the Sort-X (Angell, 1999; Angell et al., 2001a; 2001b; 2001c; and 2001d). In addition, this new grid system was lighter, smaller, more flexible, and therefore easier to handle on deck. The Flexigrid system was legalized in the Barents Sea cod fishery in the beginning of 2002".

Type of project: **Project focusing discards reduction through management measures, Selective fishing gears and devices**
Lead by: SINTEF Fisheries and Aquaculture, Norway
Duration: 1999-2001
Has it received public funds? National funds
Partners:
Norwegian College of Fishery Science, University of Tromsoe, Norway
Bull Gummi Industry AS, Norway

45. Selectivity studies in the Barents Sea bottom trawl gadoid fishery: Gear and methods www.nfh.uit.no

"This project is a study of the selection gear, sampling methods, and approaches used in selectivity studies of the North-east Arctic bottom trawl gadoid fishery. Better selectivity contributes in general to reduce discards.

Project coordinator's details:
Manu Sistiaga PhD - Researcher
Fisheries technology SINTEF Fisheries and Aquaculture e-mail: manu.sistiaga@sintef.no

Thus, the goals of this research were:
1) To positively contribute to the understanding of the selection processes that occurs in the gear used in this fishery and alternative gears used in other seas.
2) To develop improvements for the sampling methodologies and selectivity estimation approaches used today. The different studies integrated in this project contribute to a better understanding of size selectivity studies in general and in the Barents Sea bottom trawl gadoid fishery in particular. All studies contribute either directly or indirectly to reduce discards levels in the Barents Sea gadoid fishery. The project resulted in five scientific publications. The first four papers are published at "Fisheries Research" while the fifth paper was published at "Canadian Journal of Fisheries and Aquatic Sciences". Papers I and II present studies that add to the knowledge of the properties of the grid + codend gear in force in the area today and that investigate alternative selection gears, such as traditional diamond mesh codends and EWs. Papers III and IV, in turn, contribute to trawl fisheries research in general by investigating the most commonly used sampling techniques and adding improvements to the data analysis processes employed. Finally, Paper V describes a multidisciplinary approach that shows a new and more complete way to conduct trawl selectivity studies by combining sea trials, underwater video observations, and computer simulation".

Type of project: Selective fishing gears and devices
Lead by: University of Tromsø
Duration: (2007/03/01) - (2010/03/01)
Has it received public funds? National funds
Partners:
Norwegian College of Fisheries and Aquatic Sciences Tromsø, Norway"
DTU Aqua
National Institute for Aquatic Resources Hirtshals, Denmark
AZTI Tecnalia Research Institute Basque Country, Spain

46. Selection and bycatch in the Northern Cod and shrimp trawl Fishery www.uit.no

Project coordinator's details:
Eduardo Grimaldo Research Scientist
Fisheries Technology SINTEF Fisheries and Aquaculture Eduardo.Grimaldo@sintef.no

"This project was divided into two study cases: The northern shrimp fishery and the gadoid bottom trawl fishery. The northern shrimp fishery addressed further development of grid designs and focuses on some factors that may help improve the sorting ability of juvenile fish, especially those of the 0 and I age groups. The gadoid bottom trawl fishery addressed the challenge of developing a more user friendly and less expensive selection system than those based on metal sorting grids that are used exclusively in the gadoid bottom trawl fishery in the Barents Sea. In this regard, the study of escape windows as an alternative to sorting grids is emphasized".

Type of project: Selective fishing gears and devices
Lead by: Norwegian College of Fishery Science, University of Tromsø, Norway
Duration: 2004/01/01 - 2007/31/30
Has it received public funds? National
Co-funded? National funds

47. Comparison of loss between different hauling techniques in the offshore longline fishery

http://www.fiskerifond.no/index.php?current_page=prosjekter&subpage=archive&detail=1&id=844&gid=1

Project coordinator's details:
Roger B. Larsen, Associate Professor, NCFS, University of Tromsoe roger.larsen@uit.no

"Two different hauling technologies were compared to traditional gaffing in the Norwegian fishery for cod, haddock and Greenland halibut to determine if there was potential to reduce loss of fish, and hence reduce unaccounted mortality, in the offshore longline fishery.
The project discovered that the new technologies, Moonpool and ALH (automatic line hauler) reduced the loss significantly compared with traditional gaffing".

Type of project: Selective fishing gears and devices
Lead by: Norwegian College of Fishery Science
Has it received public funds? National
Duration: (2008/10/01- 2009/09/01)
Partners:
Norwegian College of Fishery Science
SINTEF Fisheries and Aquaculture

OTHER DISCARD PROJECTS

1. Gear selectivity

Project 50% www.cefas.co.uk

Previous approaches to reducing the damaging fishing practice called "discarding" (throwing fish with no market value back into the water) often achieved little or no success. Project 50% used an innovative approach to dealing with this high-profile, long-standing issue by putting collaboration at the heart of its plans.

An innovative partnership between CEFAS scientists and the Devon beam trawler fleet aimed at helping to protect fish stocks, has led to skippers reducing the amount of juvenile fish discarded overboard by an overall 57 percent. There are 11 fact sheets.
Social marketing experts carried out interviews with fishermen in southwest England to clarify the issues, communicate the potential for change, and help guide a new approach to developing discard-reduction techniques.

Devon beam-trawler crews agreed to try to reduce their discards by an ambitious 50%. Working with local net-makers, the fishermen trialled their own new net designs alongside standard trawling configurations. The research was supported by Cefas gear technologists and fishery liaison officers.
The side-by-side trials were a resounding success, with average discards reductions of 52%, and the most successful boat achieving a 69% reduction.
Lear: CEFAS
Funded: DEFRA (UK)
Partners:

- TRAWLER AGENTS LTD
- SOUTH WEST FISH PRODUCERS ORGANISATION LTD
- SWFPO
- BRIXHAM TRAWLER AGENTS LTD
- INTERFISH LTD PLYMOUTH
- PLYMOUTH TRAWLER AGENTS LIMITED

Conservation Credits Scheme - In Scottish waters a whole host of measure were introduced under the Conservation Credits Scheme including a "one-net rule" so that vessels carry only one regulated gear mesh size per trip. Special rules were introduced for twin-rig vessels and single trawl vessels. There have also been selectivity trials covering *Nephrops*, cod and whitefish mixed fisheries.

Scottish Industry Science Partnership
In 2011 funding of £243,000 awarded to five projects working to enhance the conservation credentials of Scotland's fishing sector - £50,000 will go towards trials of coverless and low headline trawls aimed at reducing whitefish catches in *Nephrops* fisheries. £14,000 in the Western Isles to look at the effects of mesh size and escape panels on catch composition in the *Nephrops* creel fishery.
In 2010 trials to reduce cod by-catches in Shetland mixed demersal whitefish trawl fisheries by putting large meshes (300 and 600mm) in the front portion of a commercial trawl. The results showed that both test gears caught significantly fewer cod, hake, megrim and ling than the control trawl across all length classes and significantly fewer monkfish below 76 and 83cm respectively than the control trawl. The 300mm trawl caught significantly more haddock than the other trawls and catches of saithe greater than 53cm were reduced in both test gears. http://www.frs-scotland.gov.uk/FRS.Web/Uploads/Documents/SISP01_10.pdf

Square mesh panels trials on twin/multi rig working inshore grounds in the northern Thames Estuary to investigate the potential of more selective/environmentally friendly fishing methods to reduce discard rates of fish and benthos in the northern Thames Estuary. **2010/2011**

Bristol Channel 100mm cod end trials to understand the effects on landings and discards of moving to a 100 mm mesh cod-end compared with a standard 80mm cod end. **2010/2011**

Cornwall red mullet gill net fishery discard reduction trialling a range of nets. **2010/2011**

Modified commercial trawl. Survey to know more about the behavior of cod and other fish as they enter the net. **2010/2011**

North Sea 'Eliminator' Type Gear Trials. To provide new information on comparative catch profiles of the 'eliminator' trawl to those from a conventional trawl fitted with belly cod-escape panels. This modification has been demonstrated to reduce the catches of cod by over 55% in a mixed North Sea demersal whitefish fishery. **2010/2011**

South Wales Bass Square Mesh Panels. To reduce catches of undersized bass through the use of square mesh panels. A lower percentage of undersized bass were caught, the percentage of undersized bass was 11% of the total bass catch when using the experimental trawl and 30% when using the control trawl; the number of discards of other species caught per hour per haul was on average 14% lower when using the square-mesh section; in general, a lower number of fish of 30cm in length and below were caught. **2010/2011**

Simple trawl modification to reduce cod catches
Design a demersal trawl modification to facilitate cod escapement in order to catch fewer cod and comply with conservation objectives in the North Sea. The trawl reduced catches of cod by over 55% in a mixed North Sea demersal whitefish fishery. **2010/2011**

More generally:
• Square Mesh Panels: have dramatically reduced unwanted catch of either juveniles or by-catch of haddock and whiting.
• Benthic Release Panels: provide beam trawlers with a means to reduce discards and maintain the quality of their catch.
• Irish Sea Double Panel Project: trials to reduce discards of demersal species in the nephrops fishery using a double square mesh configuration.
• Shrimp veils: permit the escape of small plaice and other species in this necessarily small mesh fishery.

2. Regulatory controls

Cod Catch Quota Scheme - In 2010, Defra and Marine Scotland introduced a voluntary pilot Cod Catch Quota Scheme (CCQS), where participating vessels must retain on board and land all cod that is caught, regardless of size and marketability. The Defra scheme is to count all fish against quota, regardless of size and marketability. A final combined UK report once the pilot has concluded should look to compare what, if any, difference in approaches can be identified. The Defra scheme is on a far smaller scale but covers different types of vessels and activities, and the comparative data from both trials will be invaluable. Those participating in the Catch Quota Scheme are now operating a fully documented fishery for cod.
Twenty three vessels, six in England and 17 in Scotland took part in a trial where they account for all they catch (including discards) and in return are given increased catch quotas. Participating vessels have agreed to make use of closed circuit television cameras (CCTV), as part of a network of sensors, that record all fishing and processing activities, on board the vessels. In return they get an additional 5% of the EU share of the cod TAC.

Interim reports in September showed all six participants of the English trial have demonstrated evidence of behavior change to avoid capturing small cod and discarding of cod has been low (currently 4 vessels have been fully analyzed, with discard rates of <1%, 1%, 7%, <1%). The recorded crew data, observer data and REM data show good correlations and Cefas project workers support the view that the scheme is reducing discards and encouraging more selective fishing practices. In Scotland initial signs from the trials suggest this scheme provides a clear and strong economic driver which brings about behavioral changes (spatial, selectivity, diversification) in fishermen. They are clearly incentivized to fish in a way that optimizes their catch. However only a small number of

candidate stocks would be suitable for catch quota management in the North Sea. These are: cod, haddock, whiting and plaice, which make up a significant proportion of all catches.

In 2011 58 Scottish skippers have applied to join the Cod Catch Quota Scheme in Scotland and 26 have been approved. Defra opened applications on 21 January for fishermen in England who want to join the North Sea Cod Catch Quota Scheme and to take part in a new Catch Quota Scheme for Channel sole. Closing date was 21 February 2011. Last year the amount of additional quota set aside to run the scheme amounted to 5%, this year it will be 12%; vessels are limited to 30% additional cod quota. There will also be a trial in the South west sole fishery. In 2011 the trial is due to run from March to December.

3. Managing fishing effort

North Sea - A Voluntary Real Time Closure (RTC) Scheme has been implemented throughout the cod recovery zone since early 2008. Initially this was to protect spawning cod but was later expanded to cover all cod. When a high abundance of cod is identified a limited area is closed for a fixed period of 21 days after which the area will automatically re-open. Designed to reduce mortality on concentrations of cod using data from catches and tracking information from vessels, enabled an estimated reduction of 10% in cod mortality during 2009

RTC - In Scottish waters there are a maximum of nine RTCs in place at any one time.
There are also seasonal closures. Localized RTCs provide necessary protection for local aggregations of fish.

Individual Vessel Cod Avoidance Plans (formal and informal) – to test the efficacy of cod avoidance plans in ensuring that vessels operate to restrict catches of cod to their quota allocations, through spatial, temporal and gear adaptations. Skippers use their own knowledge and experience to avoid cod whilst fishing for other species and while stocks rebuild.

Trevose Box Closure – an area of 3600 square miles off Padstow which closes each season to protect the spawning of fish such as dover sole and whiting. This agreement was secured by Cornish fishermen working closely with their European counterparts provides protection for aggregations of spawning cod where and when they would be vulnerable and discards more likely.

4. Marketing

New markets – The food service sector is actively working towards bringing underutilized species to the market. Chefs have an important role to play in creating new dining experiences using species such as dab, flounder, grey mullet, pouting, gurnard and cuttlefish.

Red gurnard – This under-utilized species won the Billingsgate School Sustainable Fish and Shellfish Award in 2008. This annual event aims to raise awareness of the diversity of responsibly sourced seafood that is available.

Government initiatives – Defra, under its 'Fishing for the market' project, is working with industry to influence the market, remove barriers and create new incentives to improve sustainability for edible, under-utilized species.

South Wales Bass Square Mesh Panels - The percentage of undersized bass was 11% of the total bass catch when using the experimental trawl and 30% when using the control trawl. The number of discards of other species caught per hour per haul was on average 14% lower when using the square-mesh section.

Marifish. Strengthening the links between European marine fisheries science and fisheries management funded by the ERA-NET Scheme of the EU FP6 (2006-2011.)

AMDES: Estimation and Reduction of the Atlantic and Mediterranean discards.

Objetives:

• Estimation and Analysis of discards by ICES fleet by metier and quarter, within the PNdB.
• New models estimates. ICES and the Mediterranean.
• Monitoring and advances in knowledge for the reduction of discards. ICES, Mediterranean.
• Control observers.
• Improving the sector relationship.
• Monitoring of bycatch in the Atlantic and Mediterranean devilfish. Marking activities, Survival, Species identification. And recovery of new technical measures on the Rays in the ICES area.

Funded: Spanish National grants. Plan Nacional

Duration: 1th January 2010 – 31 December 2012

Lead: IEO C.O. Vigo

Participants:

- C.O. Baleares
- C.O. Murcia
- C.O. Málaga

SOCIOECONOMIC IMPACT OF THE DISCARDS PROJECTS

2. Have you assessed the socioeconomic impact of the measures that have to be implemented to reduce discards? If yes, can you inform about them?

No,

1. ROXOCANVAL
2. DATA COLLECTION FRAMEWORK (DCF) - DISCARD MONITORING
3. FISH BEHAVIOUR IN RELATION TO TOWED FISHING GEARS
4. ESTIMATION AND REDUCTION OF DISCARDS IN THE SPANISH ATLANTIC AND MEDITERRANEAN AREAS.
5. MULTI-PURPOSE PLANT FOR THE INTEGRAL USE OF THE GALICIAN FISHING BY-PRODUCTS
6. EVALUATION AND VALORISATION OF BY-PRODUCTS FROM FISHING INDUSTRY.
7. SWEDISH GRID TRIALS IN AREA VIIA
8. PRESPO
9. MODELING THE FLOW THROUGH FINE-MESHED PELAGIC TRAWLS
10. VIP VDTN
11. ESTIMATION OF TRAWL DISCARDS IN THE WESTERN MEDITERRANEAN. EUROPEAN HAKE (MERLUCCIUS MERLUCCIUS) AS A CASE STUDY
12. BIOTECMAR
13. LIFELINES
14. SPERIMENTAZIONE E SVILUPPO DI RETI A STRASCICO CON MAGLIE QUADRE
15. ESTIMATION OF TRAWL DISCARDS IN THE WESTERN MEDITERRANEAN. EUROPEAN HAKE (MERLUCCIUS MERLUCCIUS) AS A CASE STUDY
16. DISCARDS OF THE WESTERN MEDITERRANEAN TRAWL FLEETS

17. ATTREZZI DELLA PICCOLA PESCA UTILIZZATI IN FUNZIONE DELLA SUCCESSIONE STAGIONALE E DELL'ECOETOLOGIA

18. INDUSTRY TRIALS IN AREA VIA

19. DEVELOPMENT OF A SELECTION SYSTEM FOR MID-WATER TRAWLING FOR COD

20. DEVELOPMENT OF A FLEXIBLE SELECTION SYSTEM FOR BOTTOM TRAWLING (FLEXIGRID)

21. MAPPING OF POTENTIAL SOLUTIONS ABOUT THE USE OF BIODEGRADABLE MATERIALS IN FISHING NETS TO REDUCE GHOST FISHING

22. SELECTIVITY STUDIES IN THE BARENTS SEA BOTTOM TRAWL GADOID

FISHERY: GEAR AND METHODS

23. DEVELOPMENT OF A CATCH CONTROL DEVICE FOR MID-WATER TRAWLING

24. SHRIMP FISHING USING TRAPS

25. SELECTION AND BYCATCH IN THE NORTHERN COD AND SHRIMP TRAWL FISHERY

26. SELECTIVITY OF REDFISH (SEBASTES MARINUS) AND GREENLAND HALIBUT (REINHARDTIUS HIPPOGLOSSOIDES) BY MEANS OF FISHSELECT

27. COMPARISON OF LOSS BETWEEN DIFFERENT HAULING TECHNIQUES IN THE OFFSHORE LONGLINE FISHERY

Other answers,

FAROS
The aims are both the minimization of discards/by-catch as well as their optimal valorization to recover and to produce valuable chemicals of interest in the food and pharmaceutical industry.

BADMINTON
Project Objectives:
1. Provide estimates of amounts discarded in selected European fisheries.
2. Develop indicators of total catch, discards, and selectivity on the stock, community and fleet levels.
3. Find out the most important factors that determine discard amounts (including ecological, social and economical, and technical factors).
4. Suggest integrated management approaches to the discard issue.

ASSESSING THE ENVIRONMENTAL AND ECONOMIC IMPACT OF MODIFIED FISHING GEARS.
A major part of this project will be an economic analysis of the gear options that are available and being developed as part of the Scottish Conservation Credit Scheme to reduce the by-catch and discarding of cod. The economic analysis will consider the change in catch efficiency and composition, plus any other impacts, for example on fuel efficiency or gear costs, and set this against the benefits – reduced by-catch and discards and, for the fishing firm, increased days at sea.
The analysis could provide an estimate, for each gear type, of what the break-even days-at-sea increase would need to be in order to make use of selective gears a viable financial proposition. A particular challenge for the economic analysis will be to estimate a value to place on avoided discards and by-catch.

PSE-REDES
It includes a specific sub-project on this issue. It is assessed how far bioeconomic models are adapted to introduce changes in selection patterns for different species and how far a general use of new selective fishing gears developed within this project can yield different economic, social and marketing scenarios for the target fisheries addressed.

BE-FAIR
Analysis of potential markets for the developed prototypes.

PROTEUS-TRANSFORMATION OF NATURAL RESOURCES AND MARINE DEBRIS IN HIGH VALUE PRODUCTS FOR INDUSTRIAL APPLICATIONS

It was developed a study of the socioeconomic context for that moment in the region Galicia-North Portugal, plus a SWOT analysis for each of the defined applications. It was conducted an analysis of possible channels and logistical feasibility.

BAKASEL

It was expected to analyze the socioeconomic impact of measures, but it will not be possible due to economic constrains in fund.

VALORPESC

The measures we propose are not to reduce discards but to valorize them once reducing measures have been taken previously.

VALVIOMAR

Valorization

SEAFISH DISCARD ACTION GROUP

The DAG is representative of the UK seafood industry. It has helped each sector to understand the perspectives of others and build consensus on issues relating to discarding; it has helped define and promote best practice in discard reduction; it has been instrumental in looking for novel ways of incentivizing the adoption of best practice; it has informed industry and the media of new developments on an international, as well as a national basis; it has provided factual information on discards that is both accessible and understandable and created a discards web page that pulls together key information on measures to reduce discards.

This page includes Seafish publications and news on past and present Seafish projects. It also provides links to published papers and reports, and suggests sources of further information. It also includes the minutes of the DAG meetings.

GESUPES

Proposal under preparation

ECOFAD

Yes. The ecological FAD will be more expensive than the traditional one, but as far as the ecological FAD is effective in aggregating tuna, and not catching turtles and sharks, should be used.

MADE: MITIGATING ADVERSE IMPACTS OF OPEN OCEAN FISHERIES

The socioeconomic impact of potential measures derived from the project are still to be assessed

Analysis of the EU management

3. Have you analyzed the possible consequences in the EU management systems? Should they be adapted? Please give us your opinion about the best management system to reduce discards?

No

1. VIP VDTN

2. DCF

3. FISH BEHAVIOUR IN RELATION TO TOWED FISHING GEARS

4. ASSESSING THE ENVIRONMENTAL AND ECONOMIC IMPACT OF MODIFIED FISHING GEARS.

5. PROTEUS-TRANSFORMATION OF NATURAL RESOURCES AND MARINE DEBRIS IN HIGH VALUE PRODUCTS FOR INDUSTRIAL APPLICATIONS

6. SEAFISH DISCARD ACTION GROUP

7. ESTIMATION OF TRAWL DISCARDS IN THE WESTERN MEDITERRANEAN. EUROPEAN HAKE

(MERLUCCIUS MERLUCCIUS) AS A CASE STUDY

8. BIOTECMAR

9. SPERIMENTAZIONE E SVILUPPO DI RETI A STRASCICO CON MAGLIE QUADRE

10. ESTIMATION OF TRAWL DISCARDS IN THE WESTERN MEDITERRANEAN. EUROPEAN HAKE

(MERLUCCIUS MERLUCCIUS) AS A CASE STUDY

11. DISCARDS OF THE WESTERN MEDITERRANEAN TRAWL FLEETS

12. ATTREZZI DELLA PICCOLA PESCA UTILIZZATI IN FUNZIONE DELLA SUCCESSIONE STAGIONALE E DELL'ECOETOLOGIA

13. SEAFISH DISCARD ACTION GROUP

14. DEVELOPMENT OF A SELECTION SYSTEM FOR MID-WATER TRAWLING FOR COD

15. DEVELOPMENT OF A FLEXIBLE SELECTION SYSTEM FOR BOTTOM TRAWLING (FLEXIGRID)

16. MAPPING OF POTENTIAL SOLUTIONS ABOUT THE USE OF BIODEGRADABLE MATERIALS IN FISHING NETS TO REDUCE GHOST FISHING

17. SELECTIVITY STUDIES IN THE BARENTS SEA BOTTOM TRAWL GADOID FISHERY: GEAR AND METHODS

18. DEVELOPMENT OF A CATCH CONTROL DEVICE FOR MID-WATER TRAWLING

19. SHRIMP FISHING USING TRAPS

20. SELECTION AND BYCATCH IN THE NORTHERN COD AND SHRIMP TRAWL FISHERY

21. SELECTIVITY OF REDFISH (SEBASTES MARINUS) AND GREENLAND HALIBUT (REINHARDTIUS HIPPOGLOSSOIDES) BY MEANS OF FISHSELECT

Other answers

FAROS

The objectives complements the European Commission guidelines oriented to the responsible and sustainable management of the European fishing activity, especially in what refers to " the reduction of unwanted by-catches and progressive elimination of discards" and "making the best possible use of the captured resources avoiding its waste" (EC communication on the reform of the CFP). In this way, the project objective aims to contribute to the minimization of the adverse ecological and environmental impact of fishing activities, by helping fleets comply with the so-called "no-discard" or "zero-waste" production aboard, in agreement with the common fisheries policy (to promote a responsible and sustainable management of fisheries).

BADMINTON

Project Objectives:
1. Provide estimates of amounts discarded in selected European fisheries
2. Develop indicators of total catch, discards, and selectivity on the stock, community and fleet levels
3. Find out the most important factors that determine discard amounts (including ecological, social and economical, and technical factors)
4. Suggest integrated management approaches to the discard issue.

ESTIMATION AND REDUCTION OF DISCARDS IN THE SPANISH ATLANTIC AND MEDITERRANEAN AREAS

With the new European Union policy, which is expected to adopt in 2012, with effect from 2013 on reducing unwanted catches and discards reduction, it is necessary to know the fleet and species that would be affected by the new regulations and provide information to the extractive sector about a better knowledge of their unwanted catches.

PSE-REDES

There is no single global solution. Each issue must be analyzed case by case, adopting the solutions on a case by case basis, trying to focus on homogeneous units and involving all stakeholders throughout the process. There are a lot of factors influencing fishing discards and to reduce them this factors should be analyzed in homogeneous units so have effective conclusions on how to tackle the problem in each case.

BAKASEL

In my opinion the best management system to reduce discard is to improve in gear selectivity or to investigate in more efficient gears related with discards. Another measures like area closures, can move fishing effort to another area were impact is higher.

PRESPO

Yes we have analyzed that.
In our artisanal fisheries the discards can be reduced improving gear selectivity and changing some operational characteristics of the activity like soak time. In our analysis the main factors affecting discards will be identified, this will allow if appropriate to take measures to reduce discards.

VALORPESC

If we want to have a sustainable fishing activity in the future, the actual management systems must be modified in order to avoid the marine resources depletion. Technical and innovative measures must be taken in order to improve the selectivity of the fishing gear. Once discards have been reduced, what remains should be valorized, as a source of protein that it is.

LIFELINES

The demand for longline caught fish is on the rise among consumers in most developed markets. Governments, NGOs and regulatory bodies alike are at the same time seeking to align the efforts of the fishing industry with the political objectives of sustainable fishing practices.

MADE

Best management system to reduce discard: Although the project is still ongoing one of the most promising ways of reducing discards/bycatch are technical innovation in terms of fishing activity procedures and fishing technology.

Statistic Analysis of the projects under study

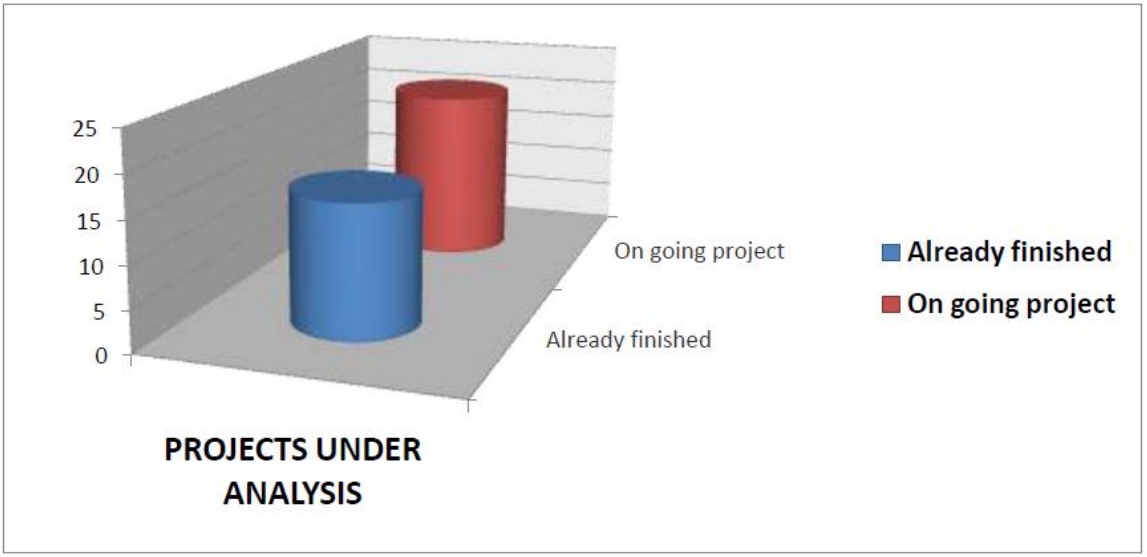

Fig 1. Graphic of project duration

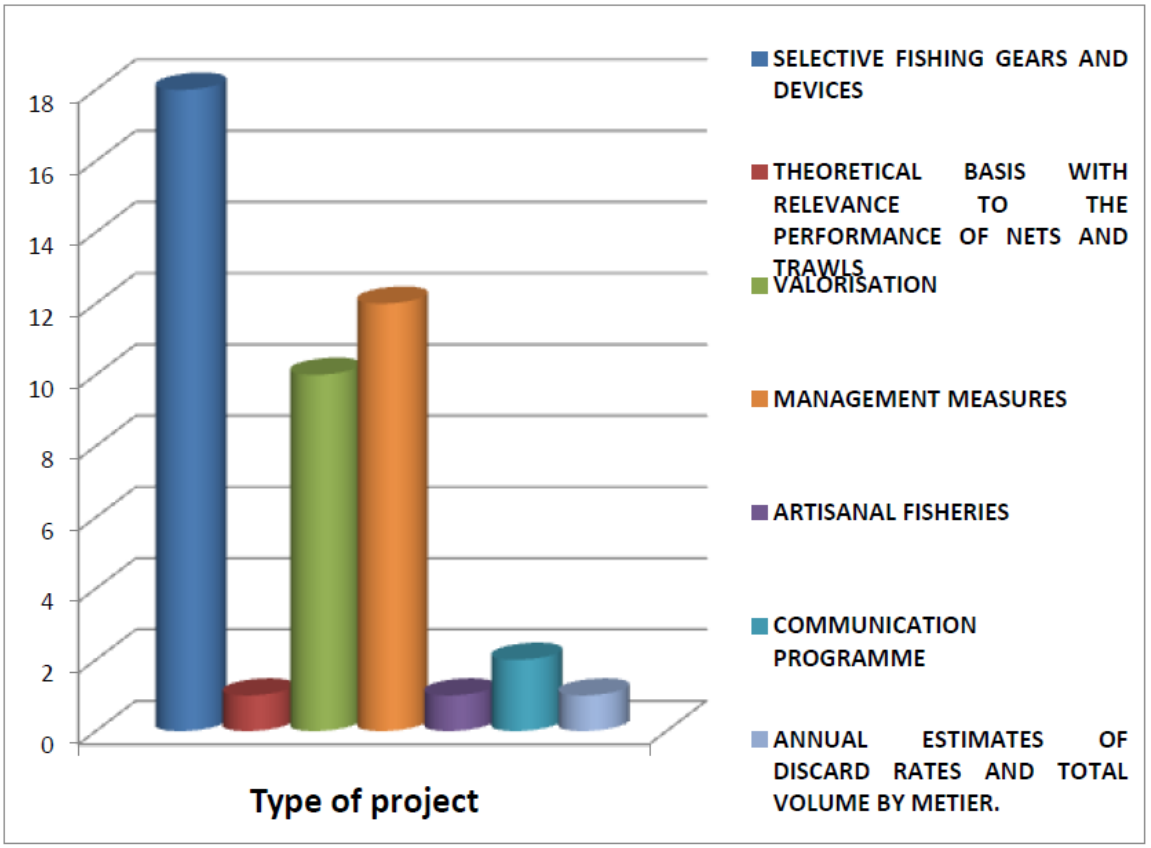

Fig 2. Thematic classification of projects

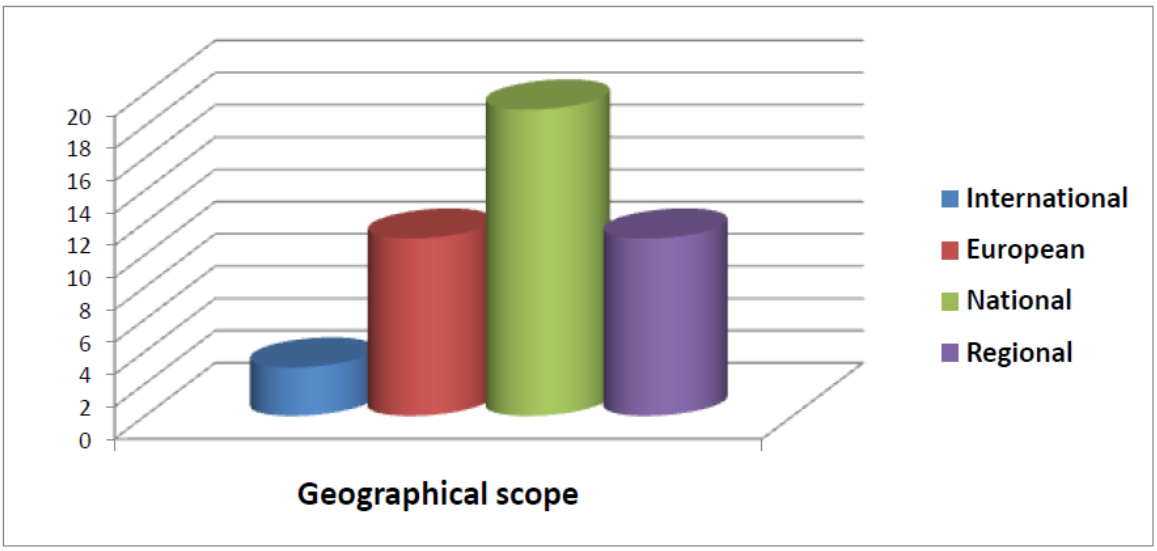

Fig 3. Geographical scope of the studied projects

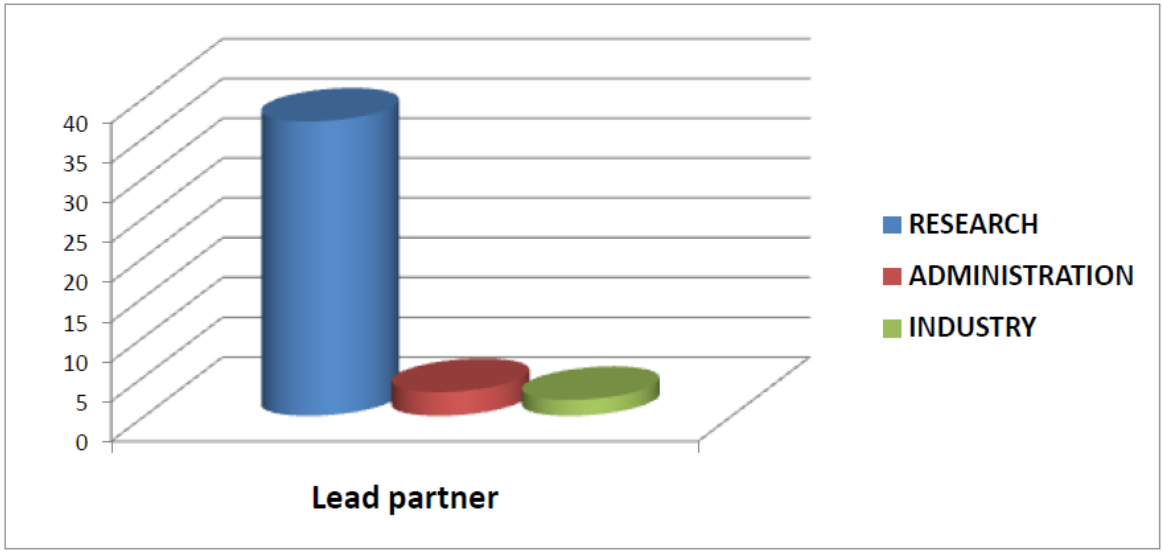

Fig 4: Entity leader of the projects under study.

GANTT ANALYSIS OF THE DISCARDS PROJETCS UNDER STUDY

Id	PROJECT TITLE	START	END
1	FAROS	mié 29/02/12	jue 31/01/13
2	BADMINTON	vie 01/04/11	lun 31/12/12
3	BAKASEL	lun 16/12/13	sáb 31/03/12
4	BENIGN AND ENVIRONMENTA	mié 28/03/12	sáb 15/11/08
5	Proteus-Transformation of natur	vie 07/09/12	mar 30/09/08
6	BIOTECMAR	vie 30/03/12	sáb 31/12/11
7	VALVIOMAR	mar 29/11/11	sáb 30/12/06
8	Modeling the flow through fine-m	jue 28/03/13	sáb 01/01/05
9	DCF	mié 27/03/13	jue 03/01/13
10	Seafish Discard Action Group	mié 30/03/11	vie 30/12/11
11	Estimation and reduction of Disc	lun 02/04/12	lun 31/12/12
12	VIP VDTN	lun 31/12/12	lun 31/12/12
13	Fish Behaviour in relation to tow	vie 30/03/12	dom 31/03/13
14	Assessing the environmental an	vie 01/04/11	mar 31/03/15
15	PSE-REDES	mié 30/03/11	sáb 31/08/13
16	Evaluation and Valorisation of by	vie 30/03/12	lun 30/04/12
17	PRESPO	vie 30/03/12	sáb 31/12/11
18	Estimation of trawl discards in th	mar 01/07/14	dom 30/09/01
19	Swedish Grid Trials in Area VIIA	jue 26/02/15	sáb 01/08/09
20	Multi-purpose plant	vie 28/10/11	vie 01/02/08
21	ROXOCANVAL	jue 29/05/14	dom 31/12/06
22	VALORPESC	vie 30/03/12	sáb 31/12/11