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Maximising yield of fisheries while balancing ecosystem, economic and social concerns

REGIONAL IMPLEMENTATION PLAN FOR DEMERSAL FISHERIES FROM THE BALEARIC ISLANDS

Toni Quetglas, IEO-Centre Oceanogràfic de Balears

FP7, COOPERATION, FOOD, AGRICULTURE AND FISHERIES, AND BIOTECHNOLOGY – COLLABORATIVE PROJECT
COORDINATOR: DTU AQUA
DURATION: MARCH 2012 – FEBRUARY 2016

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Home | What is Myfish? | Who is involved? | Where do we work? | Media Centre | Final Symposium | Policy Meeting | Search

http://www.myfishproject.eu/

FACTSHEET

AT A GLANCE

TITLE: Maximising Yield of Fisheries while Balancing Ecosystem, Economic and Social Concerns

PROGRAMME: FP7, Cooperation, Food, Agriculture and Fisheries, and Biotechnology

INSTRUMENT: Collaborative project

TOTAL BUDGET: €6,513,288.34

EC CONTRIBUTION: €4,999,999.00

DURATION: March 2012 – February 2016 (48 months)

COORDINATOR: National Institute of Aquatic Resources, Technical University of Denmark (DTU Aqua), Denmark

CONSORTIUM: 31 partners from 12 countries

WEB: www.myfishproject.eu

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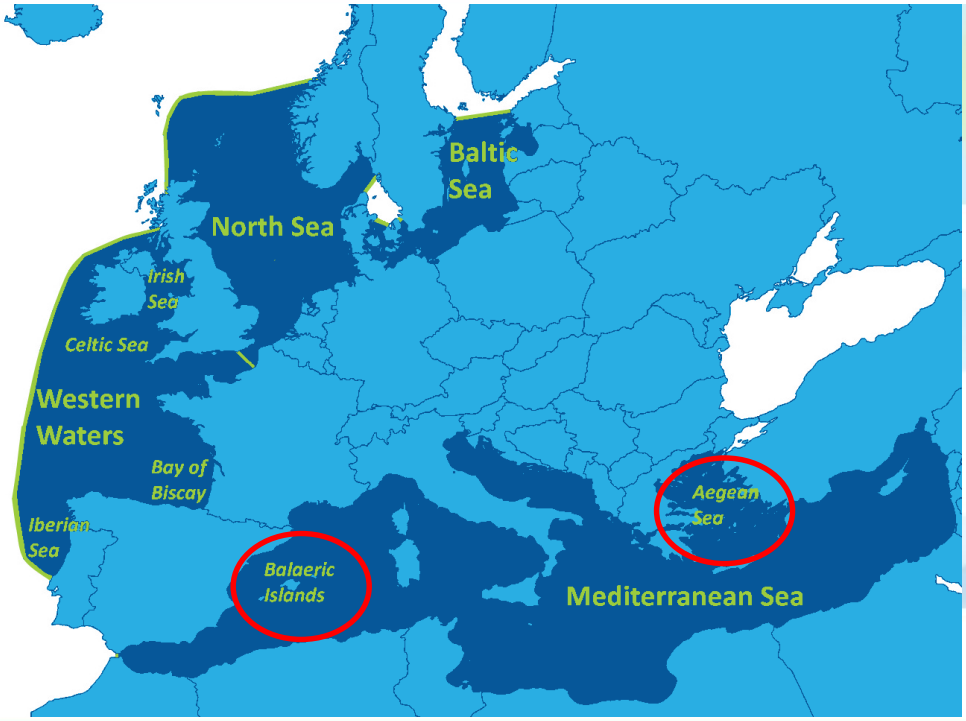

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Maximising yield of fisheries while balancing ecosystem, economic and social concerns

Main objective:
constructing an operational framework for the implementation of the MSY target as a tool for the future management of European fish stocks

Council Regulation (EU) Nº 1967/2006

→ MSY target 2020

→ Multiannual Plans

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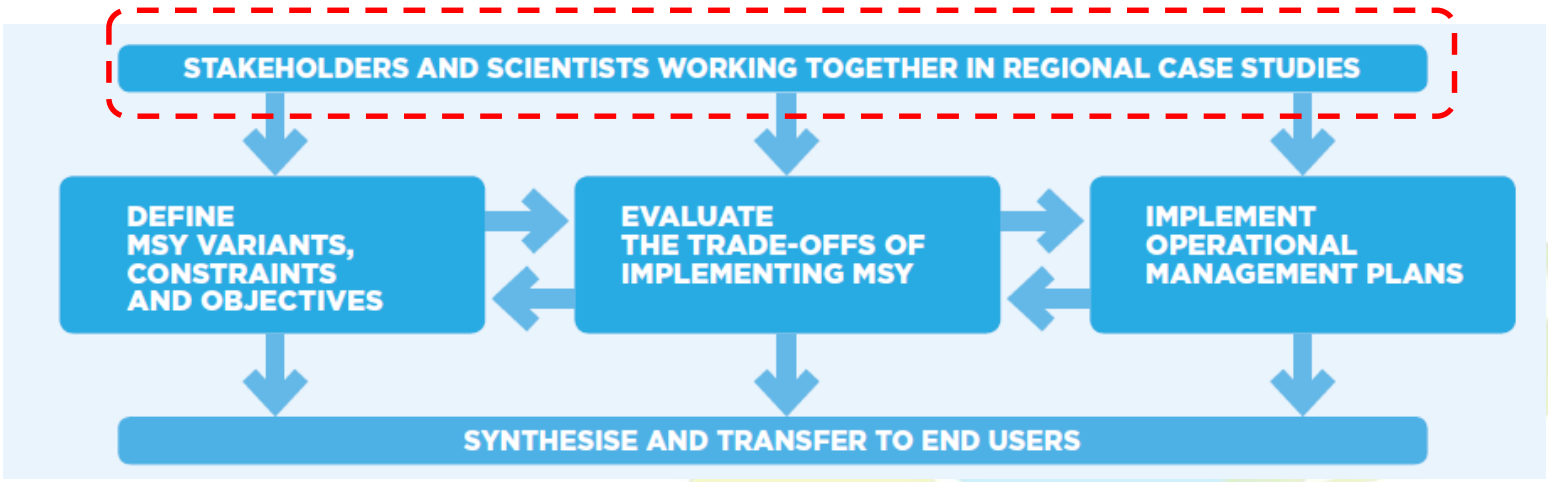
Main objective:
constructing an operational framework for the implementation of the MSY target as a tool for the future management of European fish stocks

Myfish will achieve this objective in all RAC areas integrating stakeholders (fishing industry, NGOs and managers) throughout the project



Fishermen Association of the Balearic Islands

General Directorate of Fisheries
Government of the Balearic Islands

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OCEANA Protecting the World's Oceans

Construct an operational framework for the implementation of the MSY target as a tool for the future management of European fish stocks ...

... integrating stakeholders (fishing industry, NGOs and managers) throughout the project


Regional Implementation
Plan for Demersal Fisheries
from the Balearic Islands
(Western Mediterranean)
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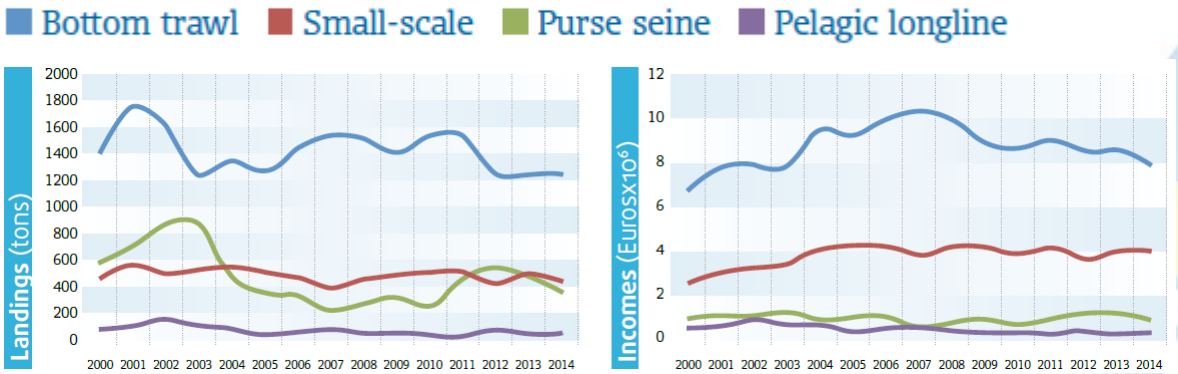
Regional Implementation Plan for Demersal Fisheries from the Balearic Islands (Western Mediterranean)

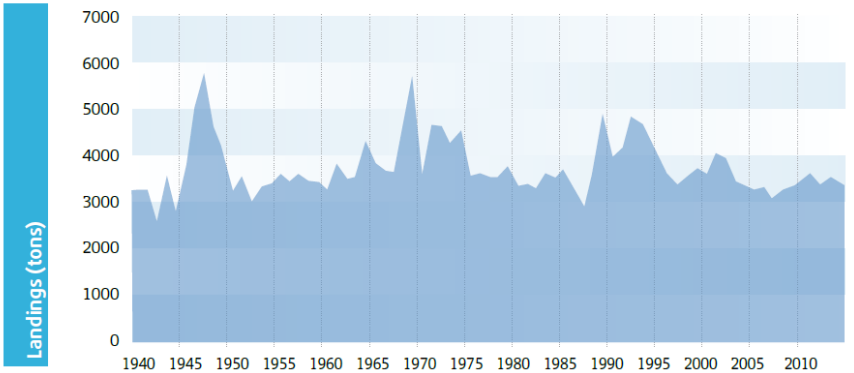
Authors:
Quetglas[1] A., Merino[2,3] G., González[1] J., Ordines[1] F., Garau[4] A., Grau[5] A.M., Guijarro[1] B., Oliver[1] P., Massutí[1] E.

Contents

1. Fisheries description

	Trawl		Small-scale		Purse seine		Longline		Total	
	V	C	V	C	V	C	V	C	V	C
Mallorca	28	139	147	202	7	33	2	11	184	385
Menorca	7	37	54	74	0	0	0	0	61	111
Ibiza	6	23	49	49	0	0	0	0	55	72
Formentera	3	11	17	19	0	0	0	0	20	30
Balearic Islands	**44**	**210**	**267**	**344**	**7**	**33**	**2**	**11**	**320**	**598**





1. Fisheries description: bottom trawl

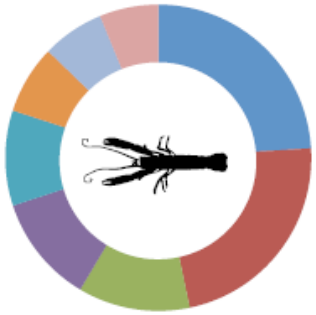
Shallow shelf

- *Mullus surmuletus*
- *Octopus vulgaris*
- *Spicara smaris*
- *Scyliorhinus canicula*
- *Chelidonichthys lastovia*
- *Raja* spp.
- *Serranus cabrilla*
- *Trachinus draco*
- *Loligo vulgaris*
- *Scorpaena scrofa*
- *Pagellus erythrinus*

Deep shelf

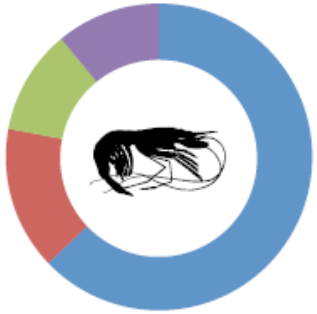
- *Merluccius merluccius*
- *Scyliorhinus canicula*
- *Trachurus mediterraneus*
- *Mullus surmuletus*
- *Lophius budegassa*
- *Raja* spp.
- *Trachinus draco*
- *Mullus barbatus*
- *Centracanthus cirrus*
- *Zeus faber*
- *Lepidorhombus boscii*
- *Chelidonichthys cuculus*

Upper Slope



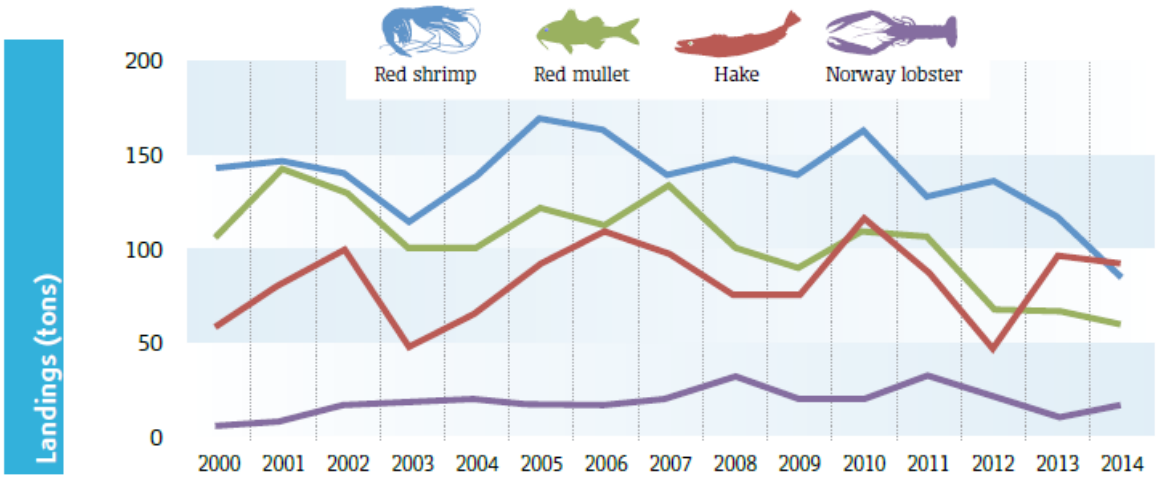
- *Micromesistius poutassou*
- *Merluccius merluccius*
- *Parapenaeus longirostris*
- *Phycis blennoides*
- *Lepidorhombus boscii*
- *Scyliorhinus canicula*
- *Lophius budegassa*
- *Nephrops norvegicus*

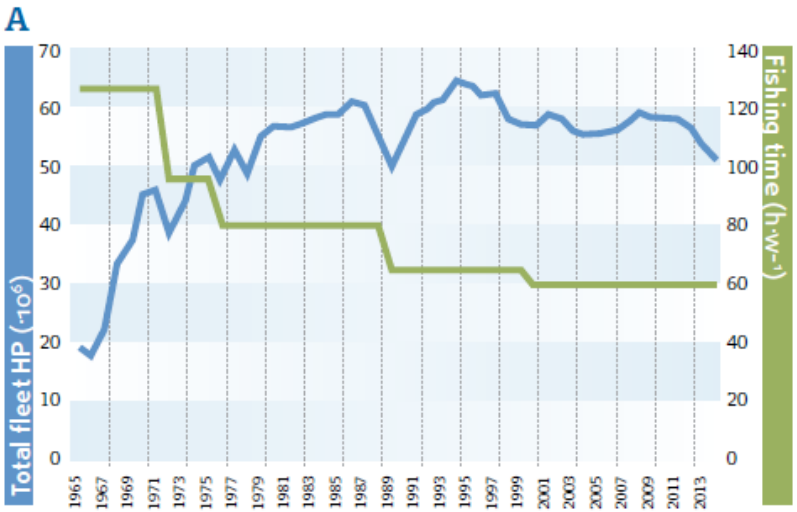
Middle Slope

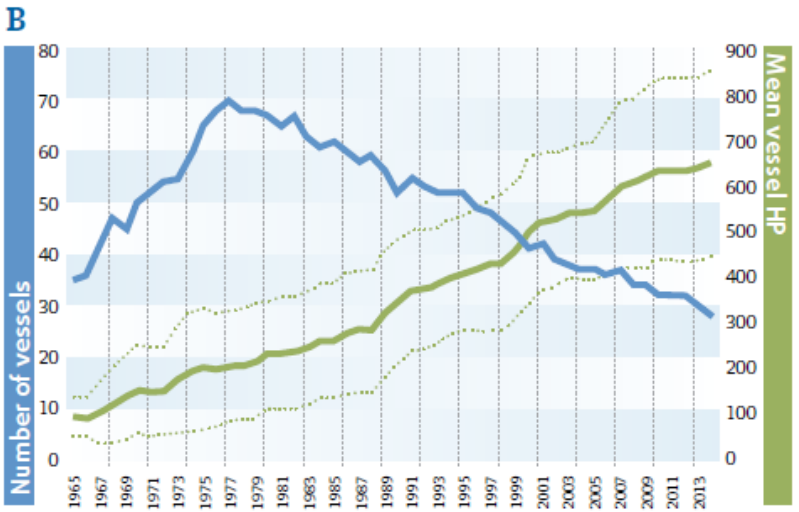


- *Aristeus antennatus*
- *Phycis blennoides*
- *Micromesistius poutassou*
- *Merluccius merluccius*

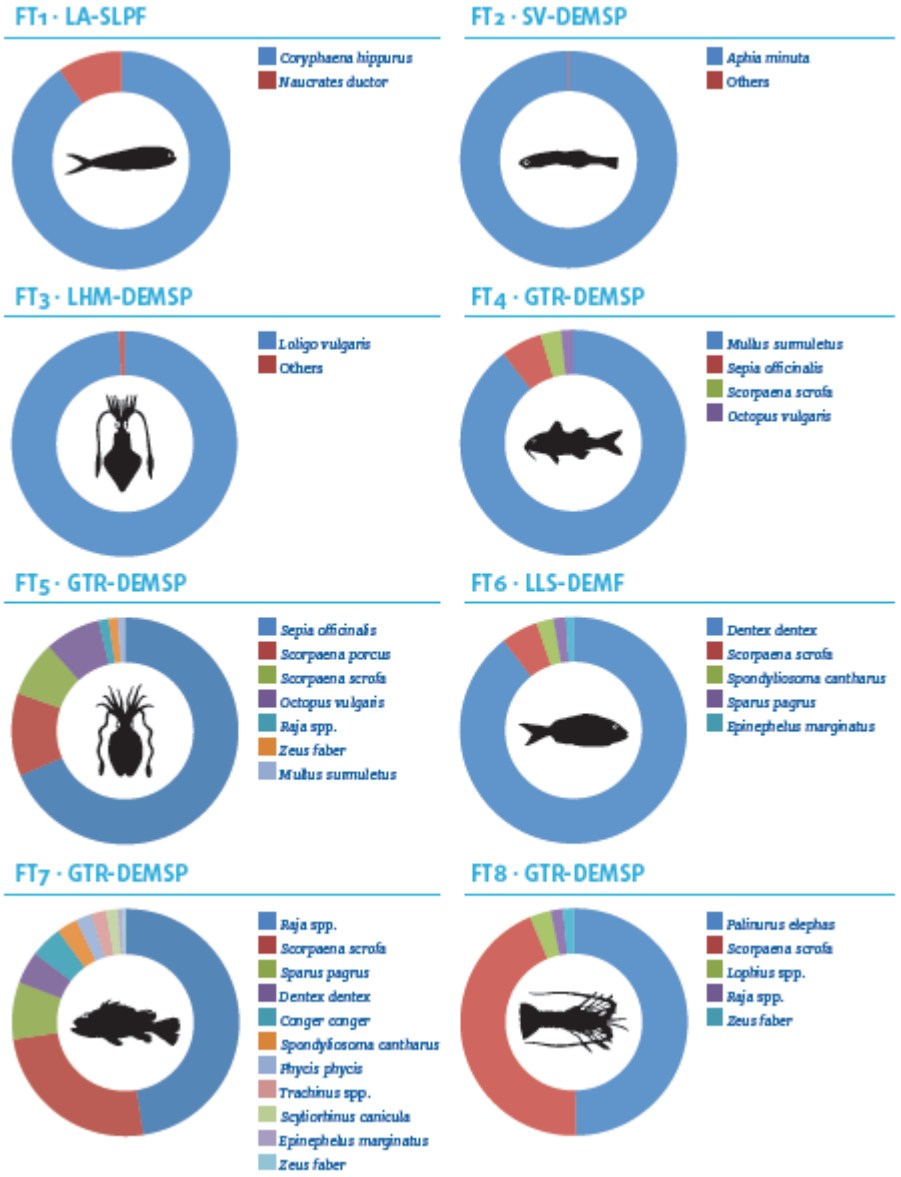
1. Fisheries description: bottom trawl







1. Fisheries description: small-scale



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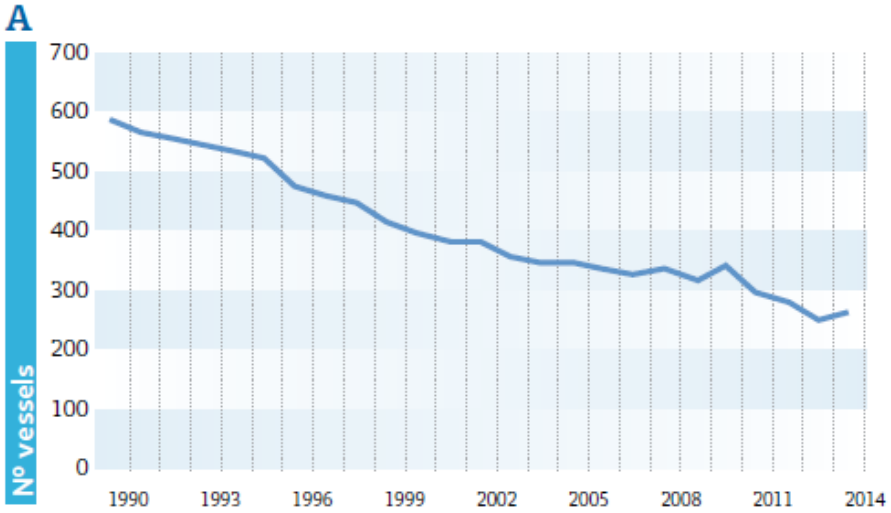
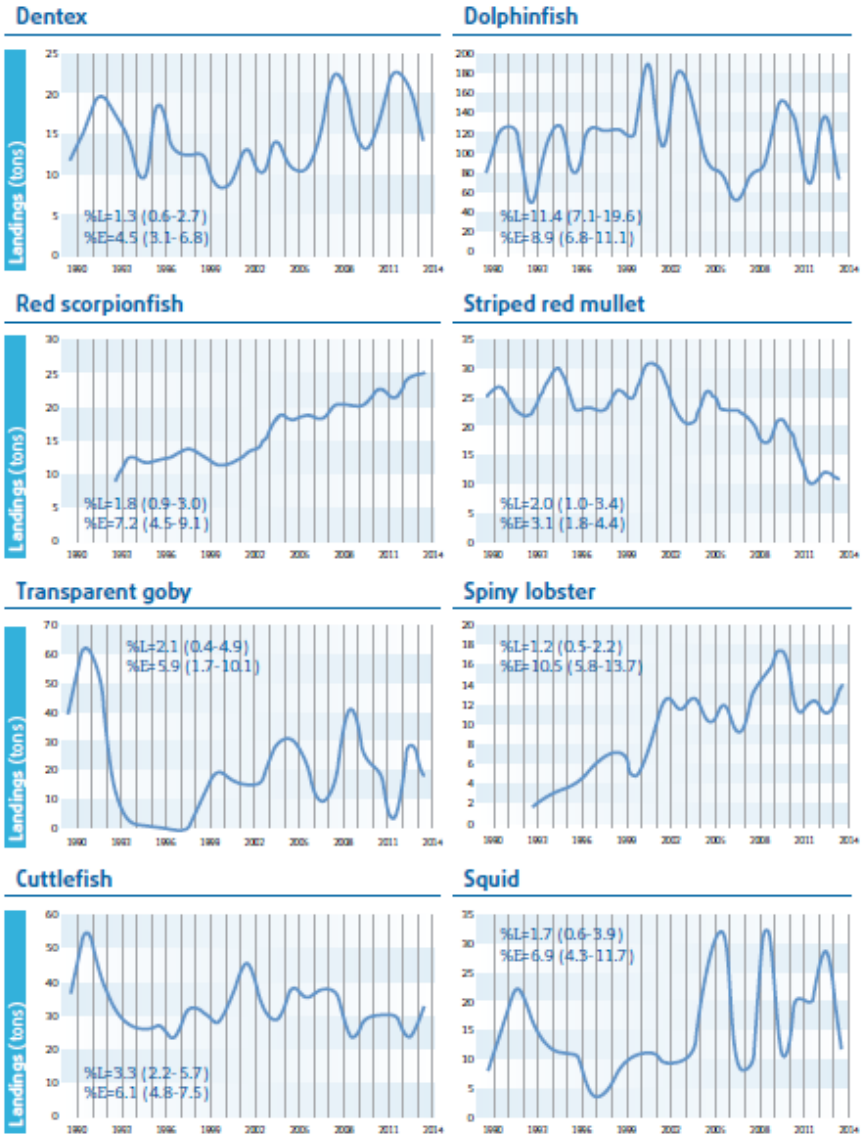
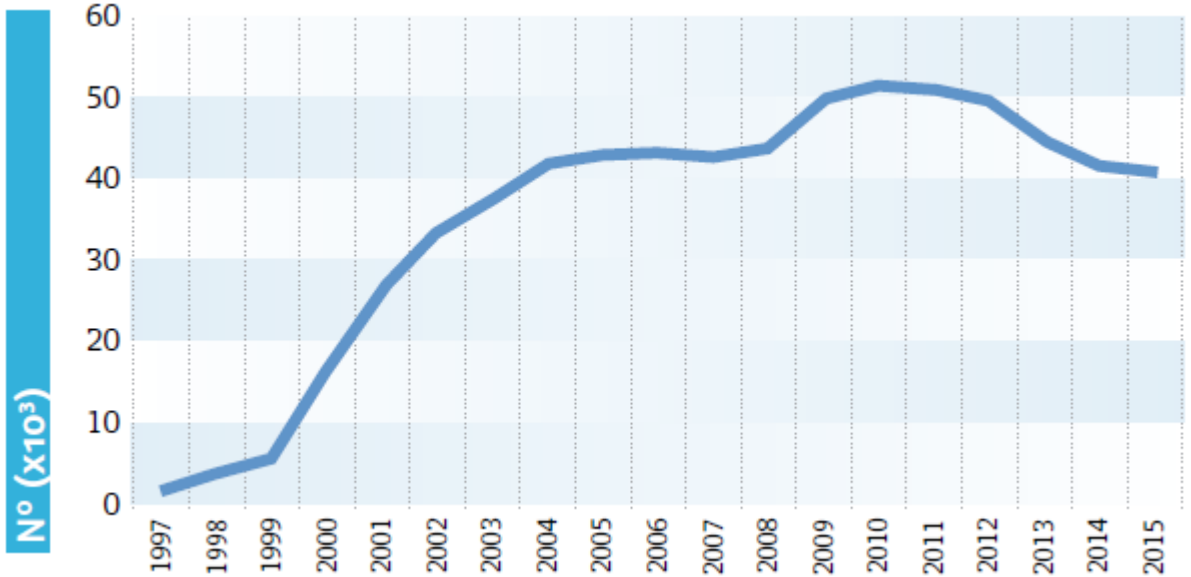
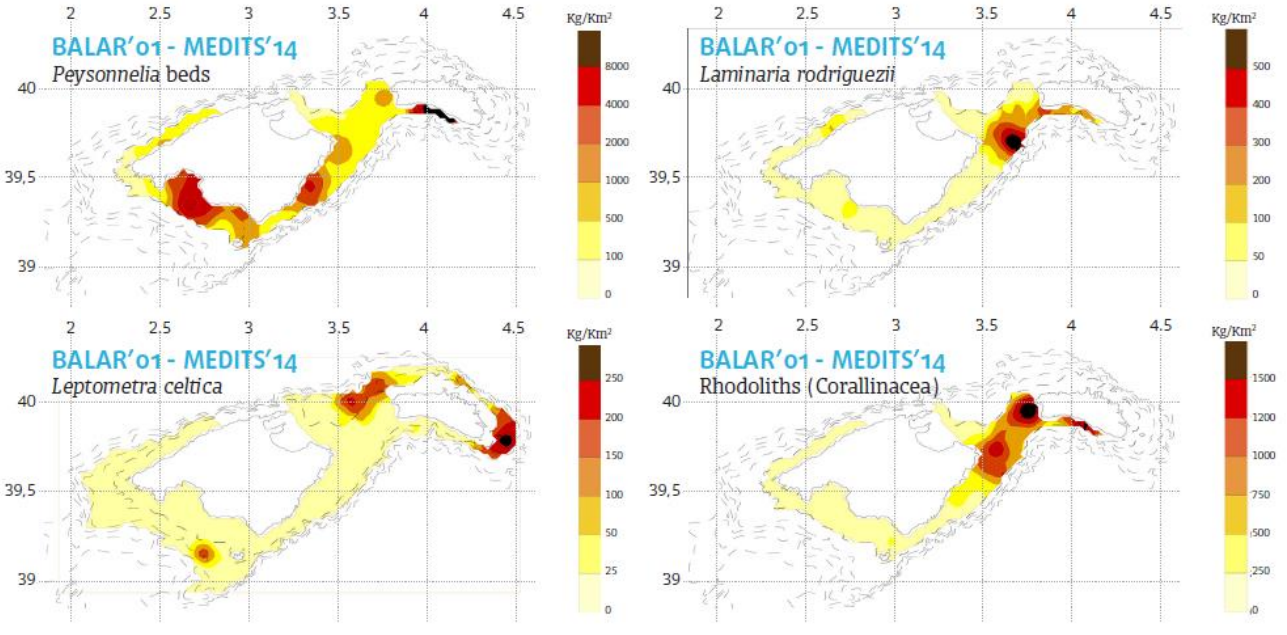




1. Fisheries description: recreational

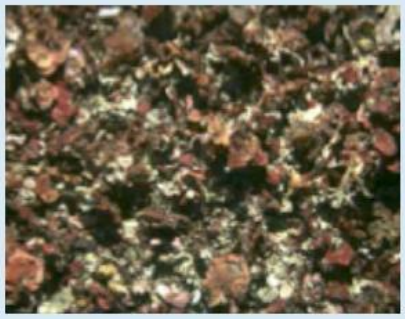


2. Demersal fishing grounds



Maërl beds

Peysonnelia beds



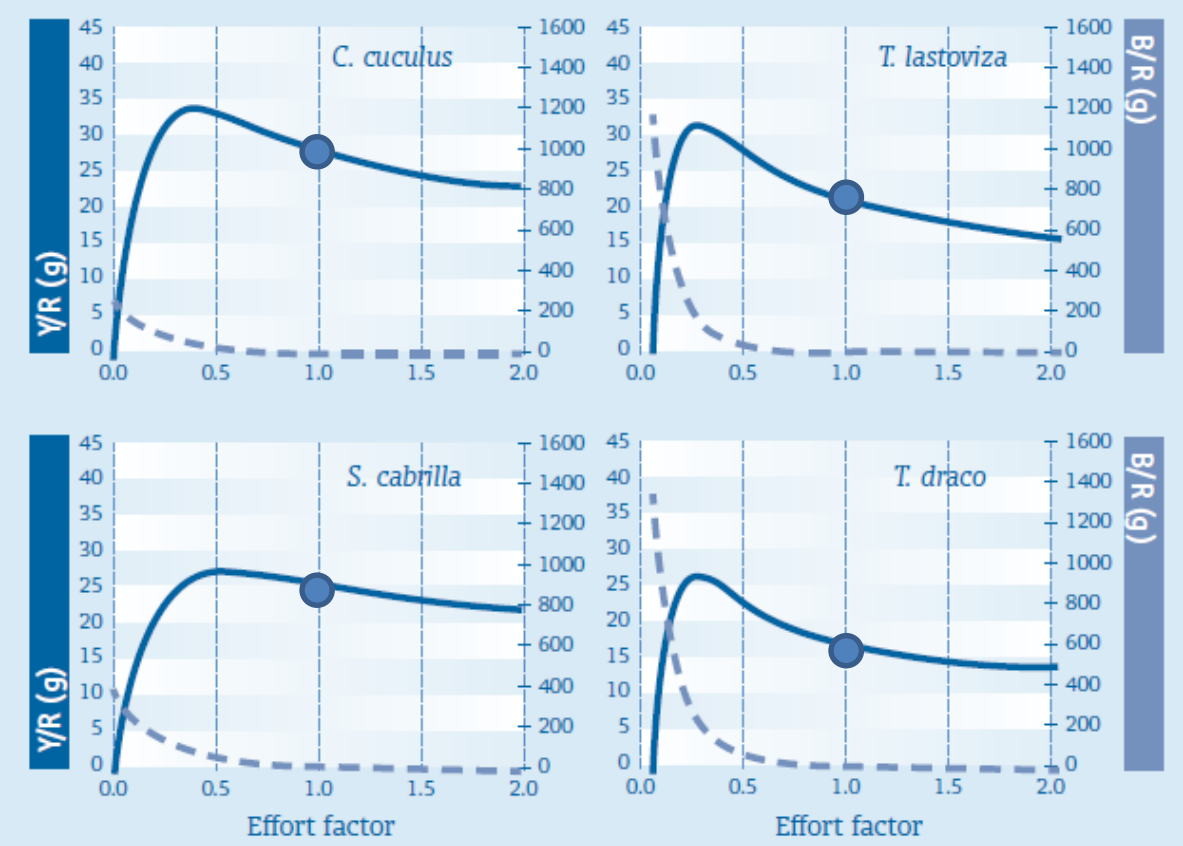
Crinoid beds

3. Stock status: bottom trawl

Stock	F_c	$F_{0.1}$	$Fc/F_{0.1}$	Source
Black-bellied angler (*L. budegassa*)	0.84	0.08	10.5	STECF (2014)
European hake (*M. merluccius*)	1.15	0.15	7.7	GFCM (2014)
Red mullet (*M. barbatus*)	0.93	0.15	6.2	GFCM (2014)
Striped red mullet (*M. surmuletus*)	0.17	0.51	3.0	GFCM (2014)
Red shrimp (*A. antennatus*)	0.42	0.24	1.7	GFCM (2014)
Norway lobster (*N. norvegicus*)	0.29	0.17	1.7	STECF (2014)
Common octopus (*O. vulgaris*)	0.47	0.32	1.5	STECF (2012)
Deep-water pink shrimp (*P. longirostris*)	0.77	0.62	1.2	STECF (2013a)
Cuttlefish (*S. officinalis*)	0.44	0.41	1.1	Quetglas et al. (2015)

Target species and main by-catch

3. Stock status: bottom trawl



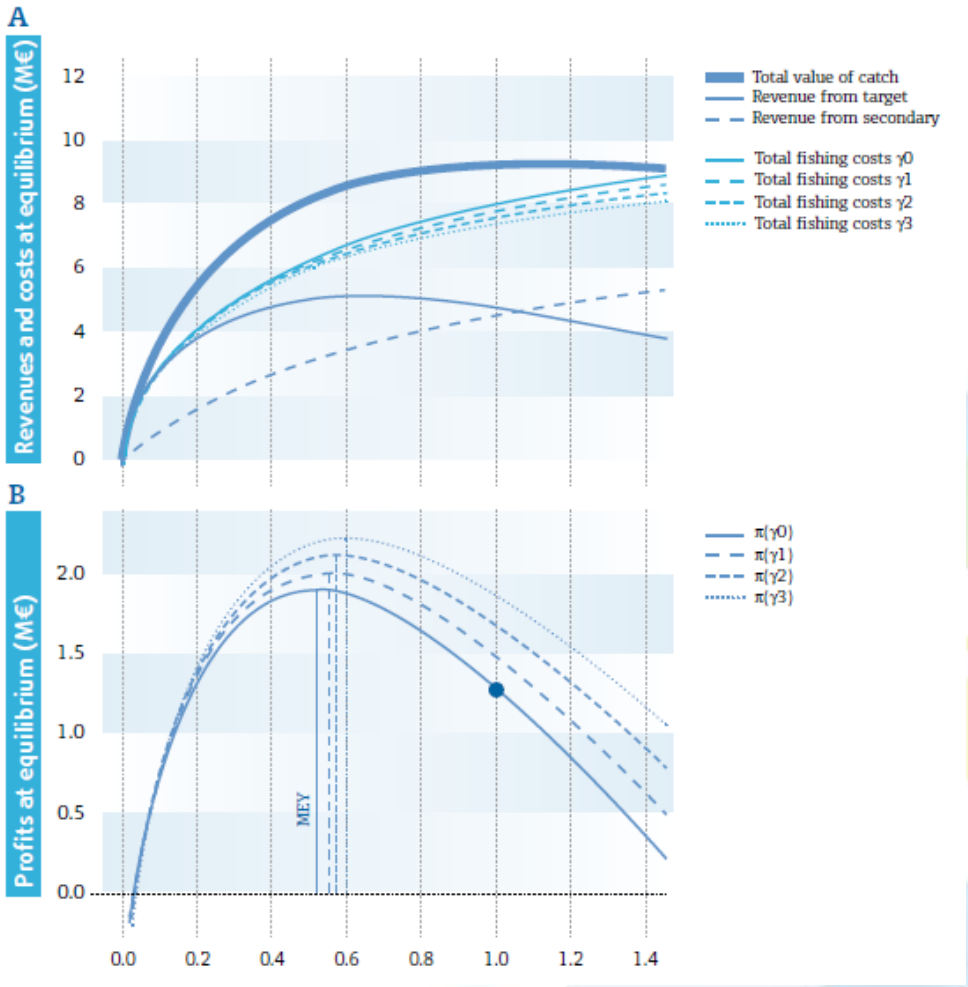
Mixed fish category (morralla)

3. Stock status: small-scale

Parameter	Dentex	Red scorpionfish	Striped red mullet	Transparent goby	Spiny lobster	Cuttlefish	Squid
B1/K	0.30	0.20	0.40	0.15	0.10	0.30	0.20
K	265.5 (255.3-282.1)	266.1 (253.9-290.3)	344.8 (323.8-377.4)	1150.0 (892.1-1965.0)	217.7 (207.2-235.0)	596.7 (577.3-620.1)	260.7 (226.1-301.8)
MSY	16.8 (16.7-16.9)	20.63 (20.55-20.85)	24.57 (24.23-24.82)	46.97 (41.24-51.76)	15.82 (15.61-15.17)	41.64 (41.41-41.84)	20.87 (20.68-21.06)
$B2015/B_{MSY}$	0.411 (0.356-0.482)	0.562 (0.485-0.660)	0.657 (0.552-0.792)	0.258 (0.145-0.405)	0.398 (0.332-0.452)	0.624 (0.566-0.687)	0.601 (0.377-0.880)
$F2014/F_{MSY}$	2.023 (1.739-2.321)	2.044 (1.760-2.333)	0.708 (0.582-0.847)	1.534 (0.996-2.697)	2.135 (1.918-2.486)	1.273 (1.154-1.400)	0.982 (0.668-1.532)
Ye2015	10.97 (9.76-12.36)	16.67 (15.18-18.28)	21.67 (19.41-23.76)	21.14 (12.14-30.39)	10.09 (8.92-11.01)	35.74 (33.66-37.75)	17.55 (12.68-20.49)
Ye2014/MSY	0.653 (0.585-0.731)	0.808 (0.735-0.884)	0.882 (0.799-0.957)	0.450 (0.268-0.646)	0.638 (0.553-0.700)	0.858 (0.812-0.902)	0.841 (0.617-0.976)

4. Bioeconomic analysis: bottom trawl

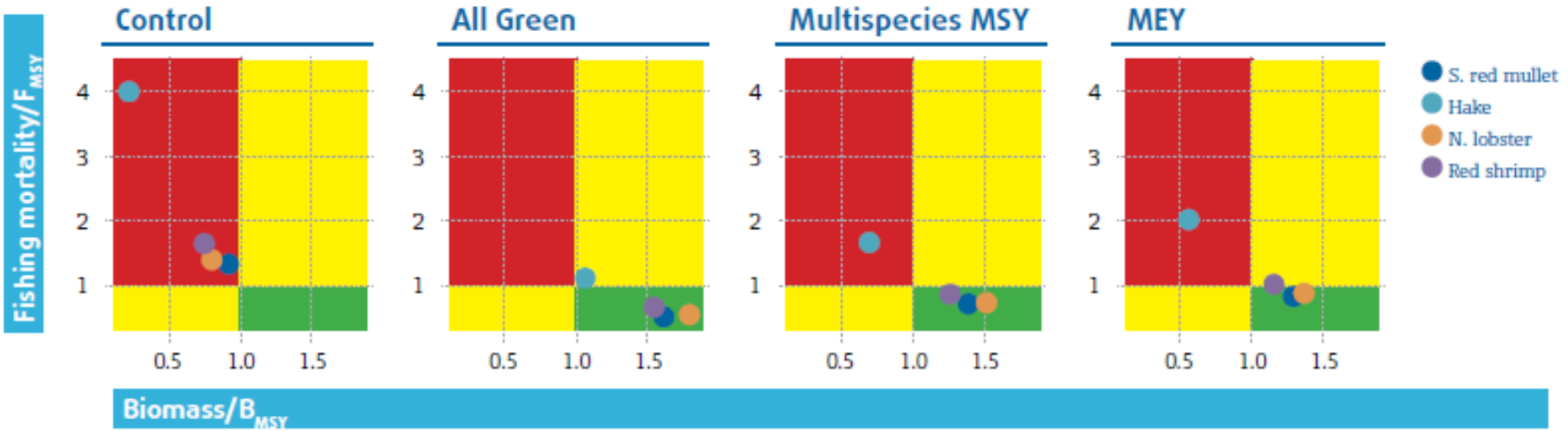
Bioeconomic modelling (mefisto)



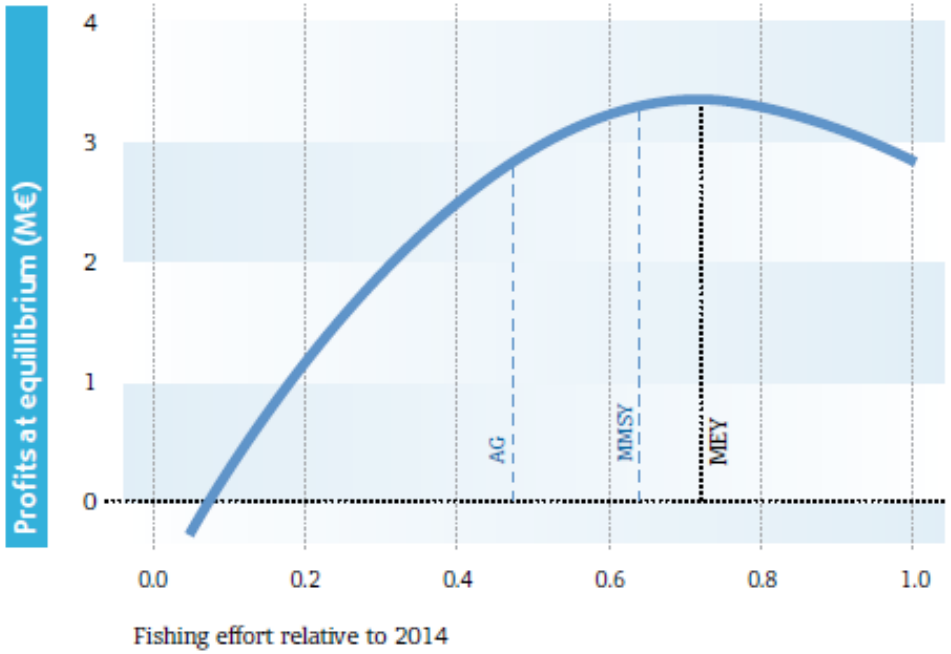
4. Bioeconomic analysis: bottom trawl

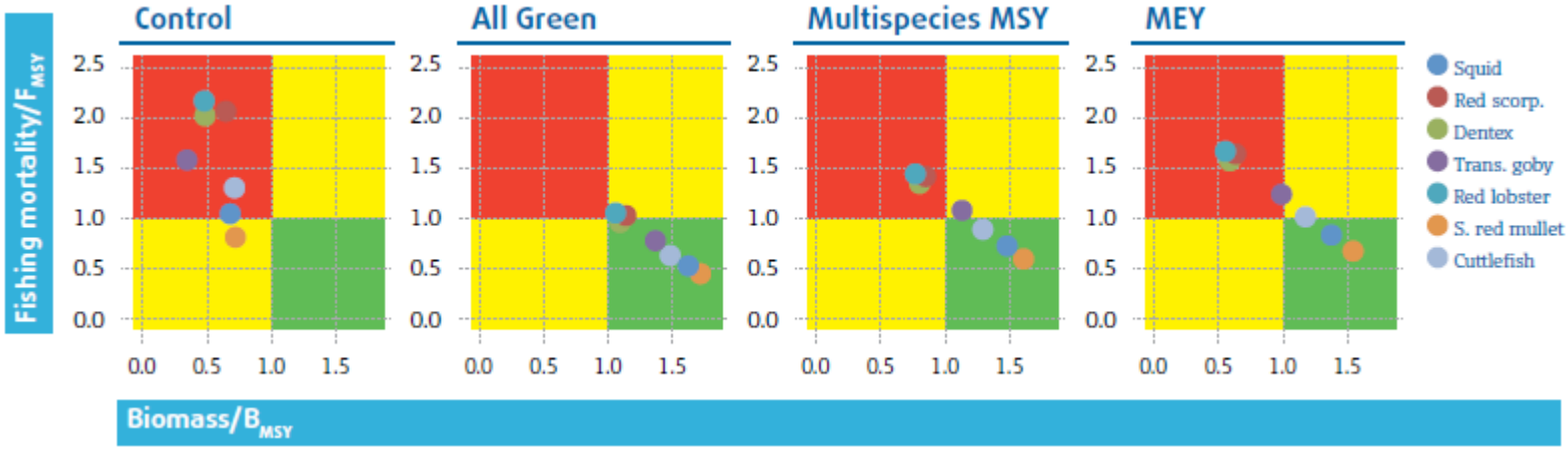
Four management scenarios were tested:

i) Control: projection of current conditions;
ii) All Green: main target species underexploited;
iii) MMSY: maximum aggregated catch;
iv) MEY: maximum economic profits



4. Bioeconomic analysis: small-scale





5. Decision Support Tables (DSTs): bottom trawl

West Mediterranean DST: Bottom Trawl Fishery

Options	Stock Conservation Status	Catch (tonnes)				Fishery Gross Revenues	Fishing Sector Viability	Employment	Dependence on Subsidies	Ecosystem Impacts
		Red Mullet	Hake	Norway Lobster	Red Shrimp					
Current	Unsafe	93 t	85 t	32 t	111 t	€€€ €€				
Intermediate	High	94 t	128 t	26 t	125 t	€€€ €				
MEY	Optimum	95 t	172 t	19 t	139 t	€€€ €				

Indicators (five point scale)	1 Very Bad	2 Bad	3 Medium	4 Good	5 Very Good
Icons	= 20 tonnes			€ = 2 million euros	

5. Decision Support Tables (DSTs): small-scale

West Mediterranean DST: Small-Scale Fishery

Options	Stock Conservation Status	Catch (tonnes)				Fishery Gross Revenues	Fishing Sector Viability	Employment	Dependence on Subsidies	Ecosystem Impacts
		Spiny Lobster	Striped Red Mullet	Cuttlefish	Mixed					
Current	Unsafe	14 t	11 t	33 t	70 t	€2.9 mil				
Intermediate	High	13 t	14 t	37 t	84 t	€3.7 mil				
MEY	Optimum	13 t	18 t	41 t	98 t	€4.5 mil				

Indicators (five point scale)	1 Very Bad	2 Bad	3 Medium	4 Good	5 Very Good
Icons	= 20 tonnes		€ = 2 million euros		

6. Fish price analysis

According to stakeholders, the fishery viability depends more on economic aspects than on the exploitation state of the stocks

•Most species show inverse price-quantity elasticity, but it does not compensate the dissipation of rents derived from the effort reductions needed to achieve the MSY.

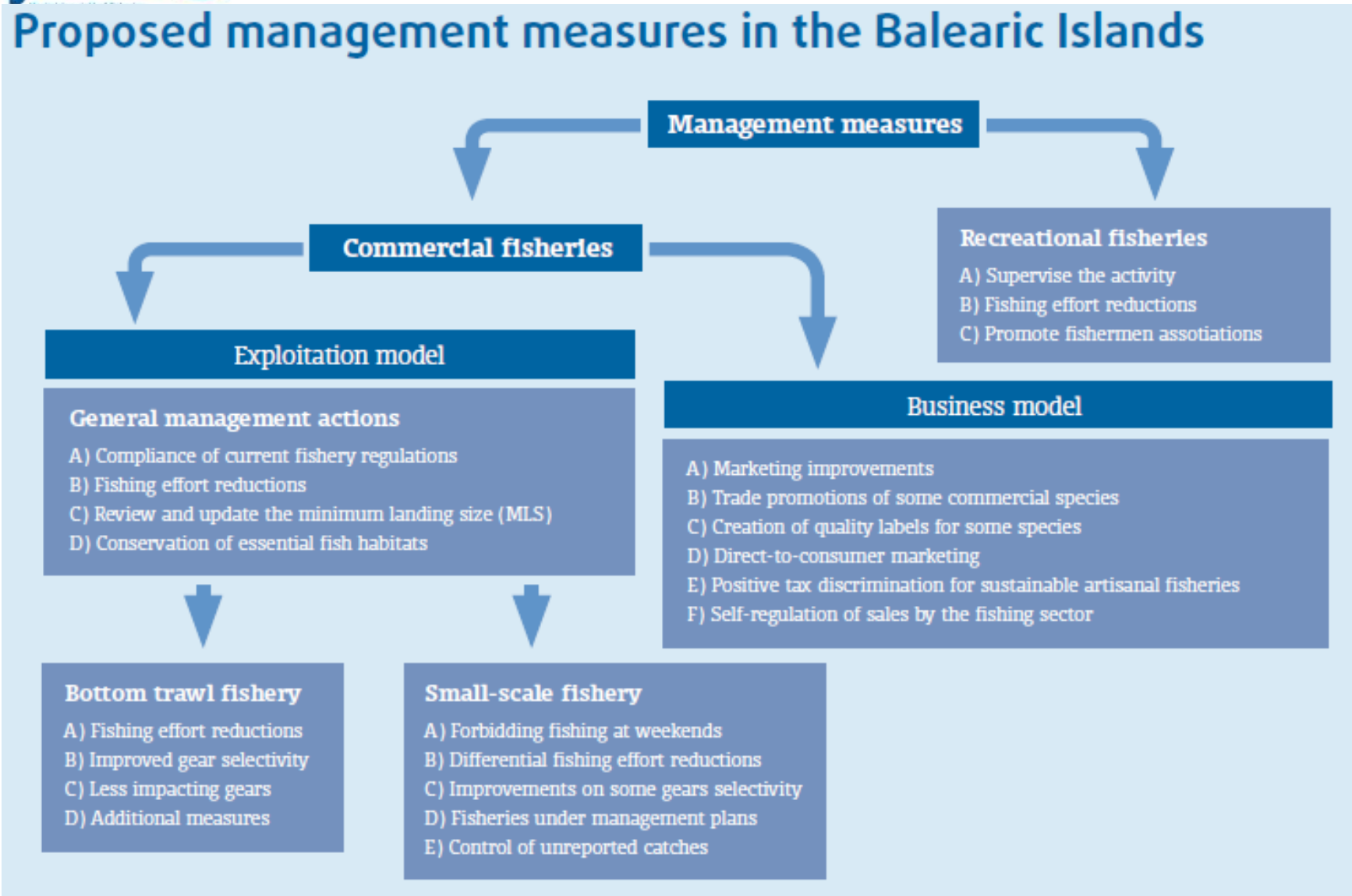
• Size or commercial category is the most important attribute influencing prices.

• Reductions of fishing days per week should target the days with the lowest prices to minimize economic loses.

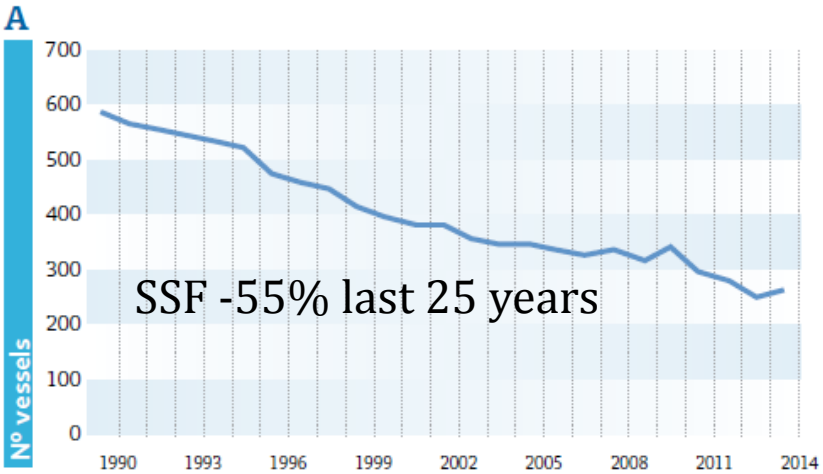
• Market-based incentives are paramount to ensure the long-term economic viability of the fisheries.

7. Management proposals

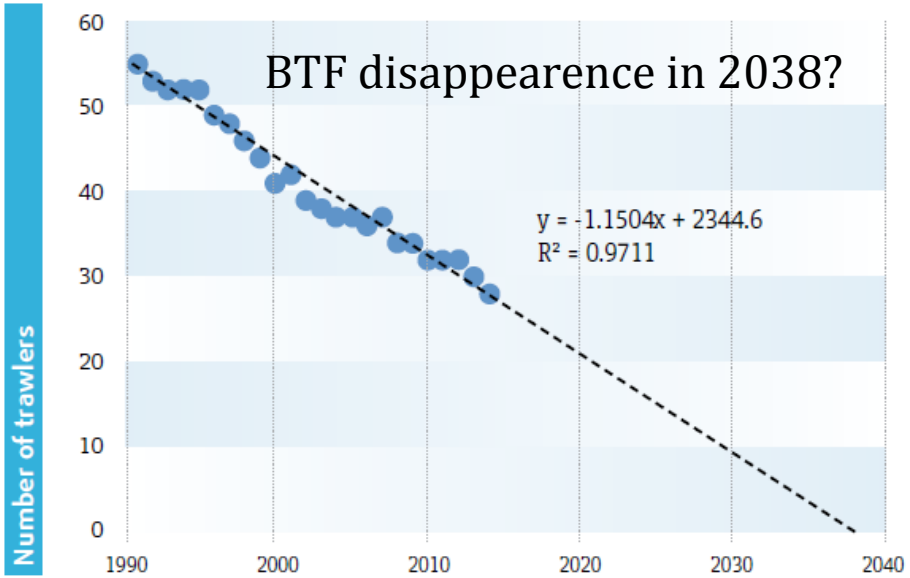
Proposed management measures in the Balearic Islands



7. Management proposals



In no case vessel removals



8. Monitoring

- Full compliance of fishery regulations: a reliable control system should be set up.

- A scientific surveillance system to monitor the effects of the management measures:

  i) Fishery-dependent data: fishery statistics + scientific sampling at fish markets or on board commercial vessels;

  ii) Fishery-independent data: scientific sampling on board research vessels (MEDITS).

- Assessment of the exploitation state of the main target and by-catch stocks. Conservation reference points consistent with the MSY target by 2020 (EU Regulation 1380/2013) will be set out.

- Conservation indicators agreed within the Marine Strategy Framework Directive (MSFD), to achieve Good Environmental Status (GES) of the EU's marine waters by 2020.

9. Conclusions

- The serious overfishing of most Mediterranean stocks contrasts with the improvement observed in other European areas.
- Fisheries management in the Mediterranean has been ineffective, necessitating urgent sustainable reform measures.
- This reform should focus on reducing the exploitation rate and improving selectivity but also on political and socioeconomic changes beyond fishery management.
- Most urgent measure: clear determination of law enforcement, which probably would do unnecessary establishing new, more restrictive regulations.

9. Conclusions

- Ad hoc measures suited to differences in the exploitation state, not only among the main stocks but also among different regions.
- Differential effort reductions in line with the status of the stocks and/or GSAs.
- The MSY target is not an easy task in mixed Mediterranean fisheries where it is difficult to regulate the fishing mortality for each species independently.
- Environmental effects (e.g. global change) should be considered for fisheries management, demanding an adaptive approach to face changing conditions.
- Fisheries management should make compatible the conservation of essential habitats and the sustainability of fisheries.
- Fisheries management should also ensure the viability and maintenance of the fish market chain, from fishers to consumers.

SFS-09-2014: Towards a gradual elimination of discards in European fisheries

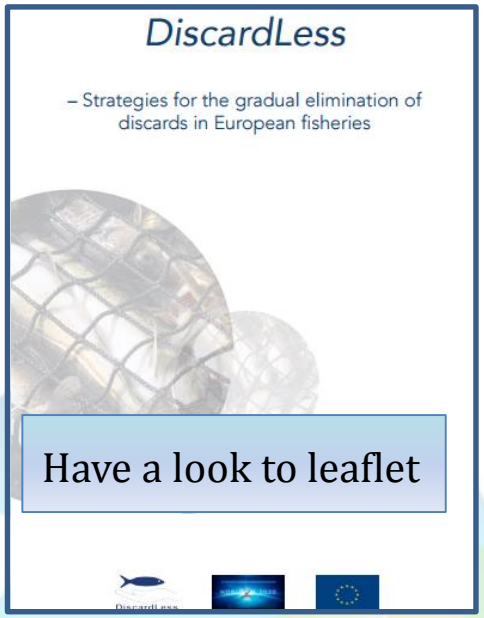
NEW COLLABORATION

NOW IN PROGRESS

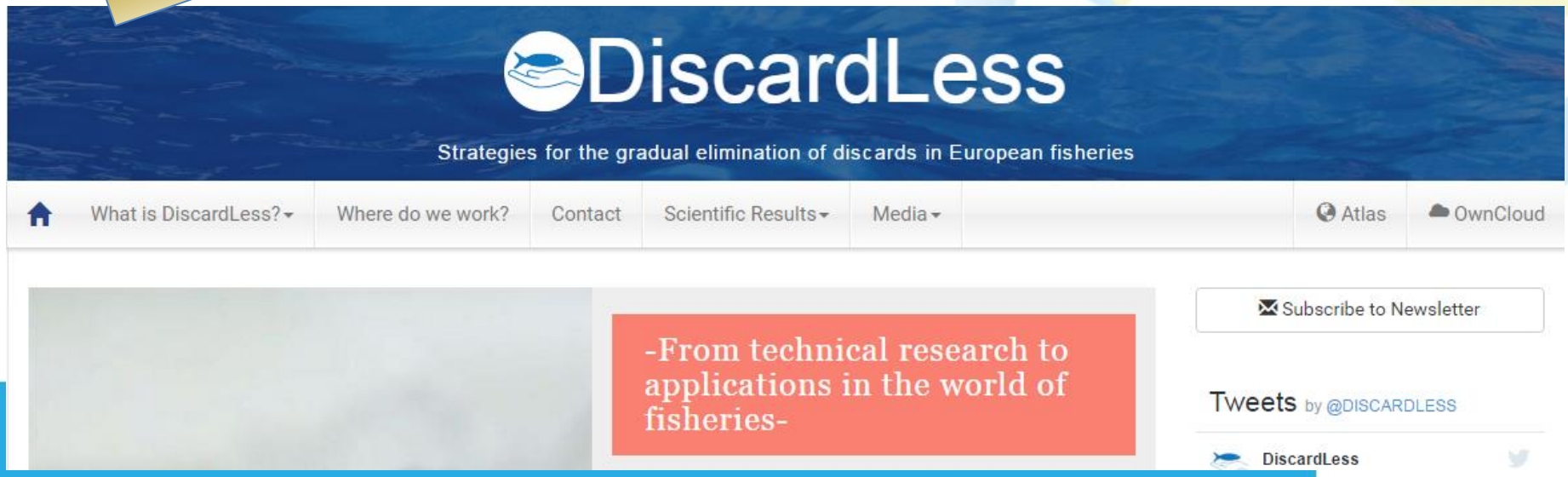
2015-2019

See at

http://www.discardless.eu/



Next meeting
in Rome
6-10 March 2017



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Thank you for your attention!

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