

# *DiscardLess* - Strategies for the gradual elimination of discards in European fisheries

## **DiscardLess project in the Mediterranean: main objectives and progresses**



*Mediterranean Workshop, Rome, 9<sup>th</sup> March 2017*



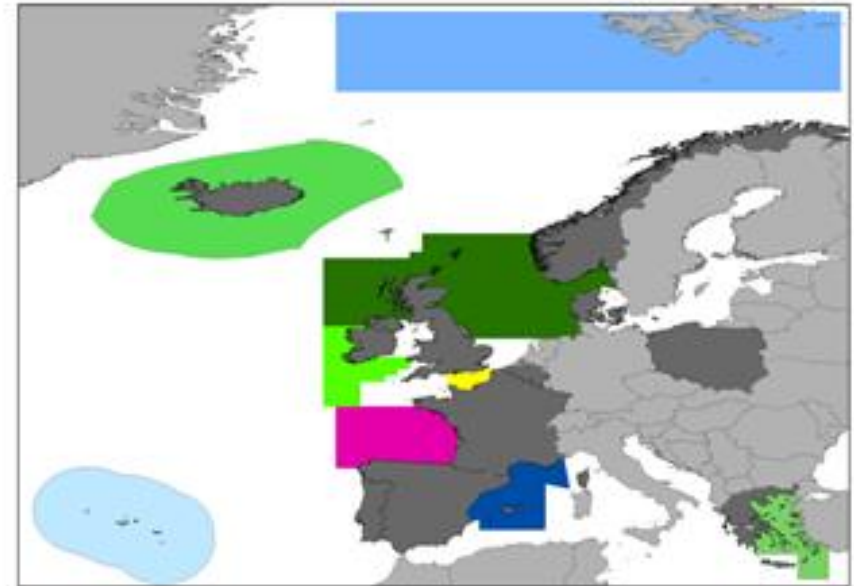
# *DiscardLess* - Strategies for the gradual elimination of discards in European fisheries

EU Horizon 2020 Program, 2015-2018

31 partners in 12 countries

## **Main aim:**

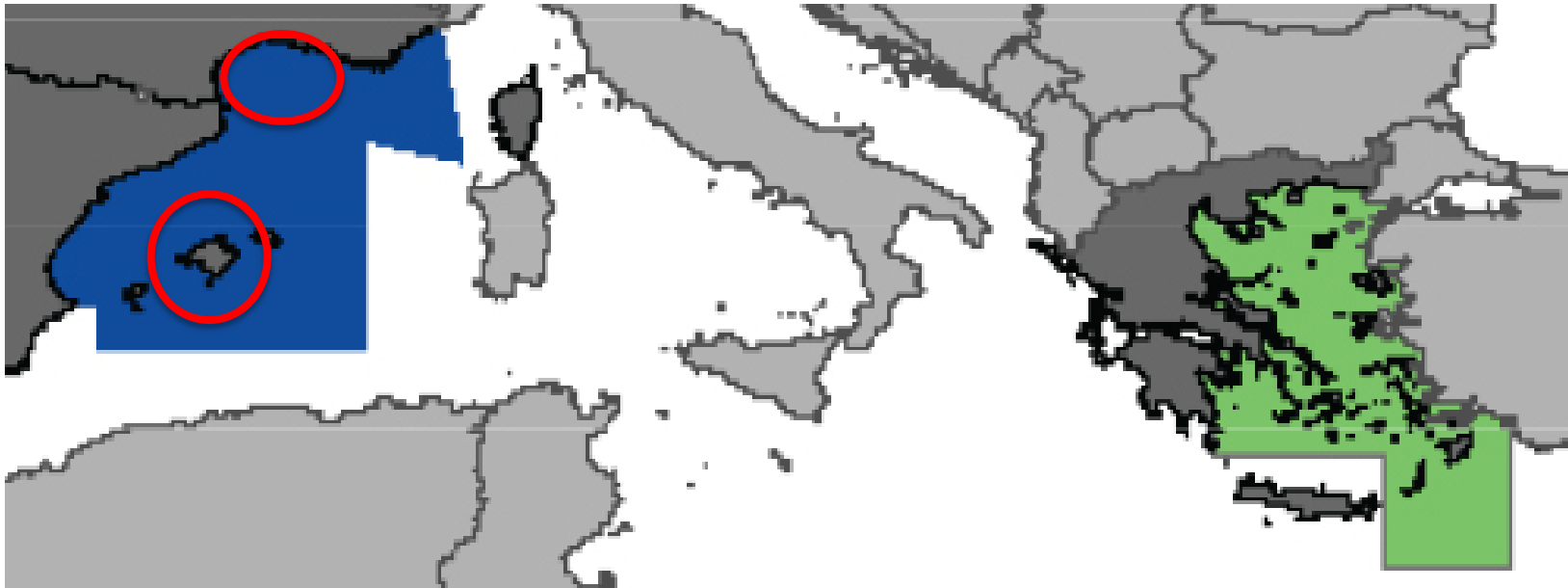
Provide the knowledge, tools and technologies, as well as stakeholders involvement, for the gradual elimination of discards in European fisheries according to the new CFP.



- 1-Azores
- 2-Western Mediterranean
- 3-Eastern Mediterranean
- 4-Bay of Biscay
- 5-Celtic Sea
- 6-Eastern English Channel
- 7-North Sea and West Scotland
- 8-Iceland
- 9-Barents Sea



# MEDITERRANEAN STUDY AREAS



## WESTERN BASIN

- ☐ Gulf of Lions
- ☐ Balearic Islands

France

Spain

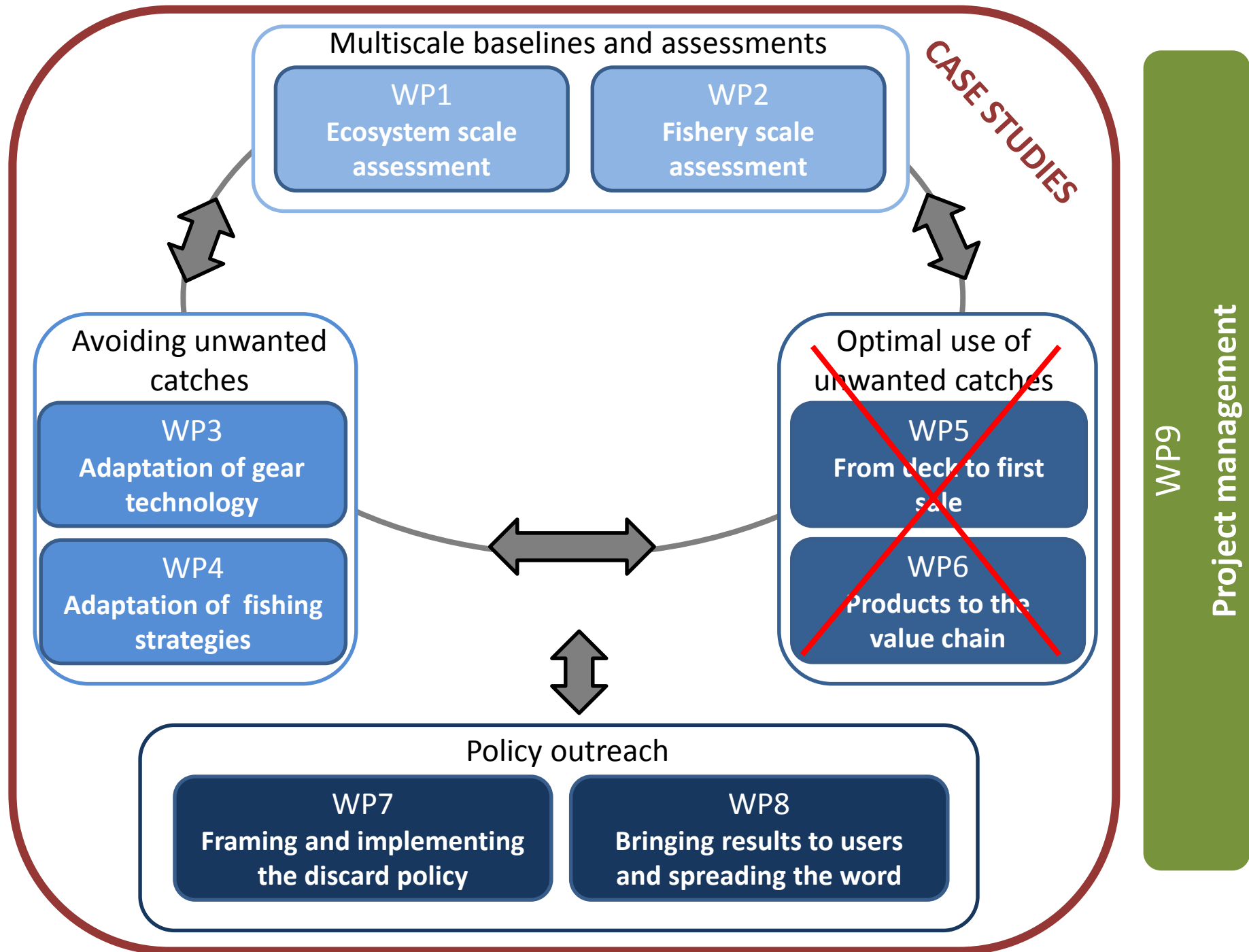


## EASTERN BASIN

- ☐ Aegean Sea

Greece



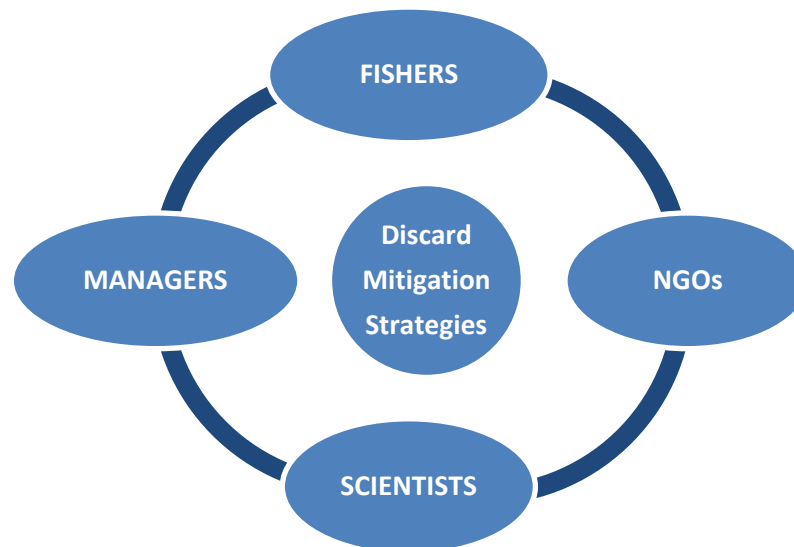


# MEDITERRANEAN CASE STUDIES: MAIN AIM

Help the fishing industry of **how best to adapt to the new EU Regulations on discards**.

Provide solutions to **mitigate the impact and meet CFP regulations**.

The success will depend on the cooperation among scientists, fishing industry and stakeholders.



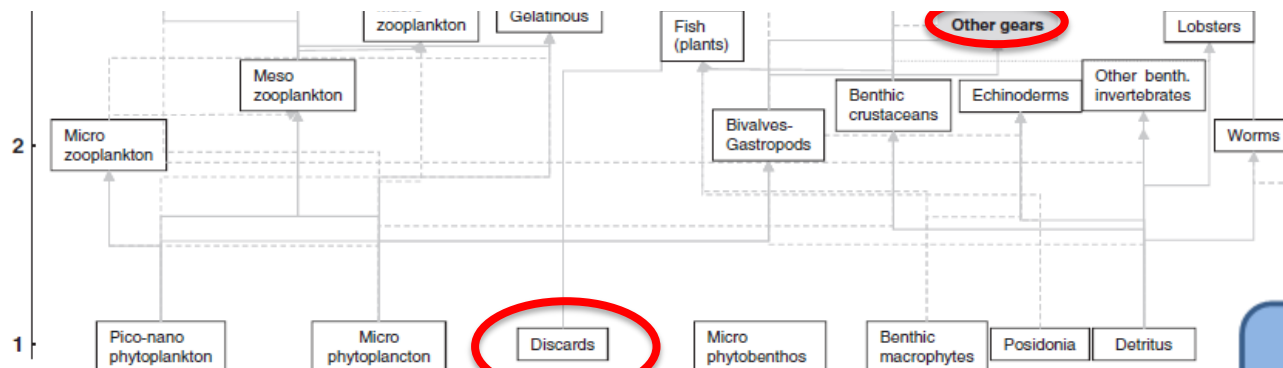
# ECOSYSTEM SCALE ASSESSMENT

Evaluate the consequences of the LO and subsequent changes in fishing practices on marine ecosystems

Trophic levels  
1  
2

PELAGIC                      DEMERSAL                      BENTHIC

The LO will certainly affect the ecosystem but less than expected



WP1  
Ecosystem scale  
assessment

# ECOSYSTEM SCALE ASSESSMENT



DiscardLess WP1 – Task 1.1 factsheet layout

## WESTERN MEDITERRANEAN CASE STUDY

by Beneficiary 3-IEO (Antoni Quetglas, Beatriz Guijarro, Enric Massuti) and  
Beneficiary 2-IFREMER (Sandrine Vaz, Marianela Pataccini, Angélique Jadaud)

### 1. Brief presentation of the CS and fisheries concerned

The Western Mediterranean case study will focus on two contrasting areas in terms of the ecosystem productivity, exploitation pattern, and types and rates of discards: the French and Spanish Gulf of Lions-Catalan coast and the Balearic Archipelago. These areas encompass three different geographical subareas (GSAs), defined by the General Fisheries Commission for the Mediterranean (GFCM; [www.gfcm.org](http://www.gfcm.org)) for the assessment and management of Mediterranean stocks (Fig. 1): 1) Balearic Islands (GSA 5); 2) Northern Spain (GSA 6); and 3) Gulf of Lions (GSA 7).



DiscardLess WP1 – Task 1.1 Review Impacts of discards on ecosystems

## WESTERN MEDITERRANEAN CASE STUDY

by Partner 3-IEO (Antoni Quetglas, Pere Oliver, Enric Massuti)

### Case study

The Western Mediterranean case study will focus on two contrasting areas in terms of the ecosystem productivity, exploitation pattern, and types and rates of discards: the French and Spanish Gulf of Lions-Catalan coast and the Balearic Archipelago. These areas encompass three different geographical subareas (GSAs), defined by the General Fisheries Commission for the Mediterranean (GFCM; [www.gfcm.org](http://www.gfcm.org)) for the assessment and management of Mediterranean stocks (Fig. 1): 1) Balearic Islands (GSA 5); 2) Northern Spain (GSA 6); and 3) Gulf of Lions (GSA 7).

GFCM Geographical Sub-Areas (GSAs) (GFCM, 2009)



## DISCARDLESS T 1.1

Review of discards impacts on ecosystems-Eastern Mediterranean

Ioanna Argyrou and George Triantaphyllidis

NAYS Ltd

July 2015

### Literature review

There are quite a few studies analyzing the effects of discards on ecosystems in the eastern Mediterranean Sea, which have been recently reviewed by Tsagarakis et al. (2014) for the entire Mediterranean Sea. To ensure comparability with the western Mediterranean case study, the available information has been structured into the following sections, as proposed by the western Mediterranean colleagues:

1. Characterization: studies that report quantitative data on species and volumes discarded compared to landings (D/L ratio) or catches (D/C ratio).
2. Discards consumption rates: studies that evaluate the consumption rate of fishery discards.

<http://www.discardless.eu/> <http://www.discardless.eu/>

logical

# FISHERY SCALE ASSESSMENT

Estimate likely economic and social effects of the LO implementation at the fishery scale:

a) bio-economic modelling

b) and monitoring stakeholders perception



DiscardLess WP1 – Task 2.1 Review: socioeconomic impacts of discards

## WESTERN MEDITERRANEAN CASE STUDY

by Partner 3-IEO (Javier González, Antoni Quetglas)

### Introduction

Over recent years the global fishing industry has been under increasing pressure to reduce bycatch and discards, understood as the portion of a vessel's catch returned to the sea dead or alive (Condie *et al.*, 2014; Sigurðardóttir *et al.*, 2015). Discarding wastes human food and economic resources. It also represents a source of unaccounted mortality as long as this catch is unreported and mortality rates of releases is uncertain, increasing the uncertainty of stock assessments and contributing to the overfishing of European fish stocks (European Commission, 2011; Sigurðardóttir *et al.*, 2015).

The incentives for discarding are numerous, but in general result from multiple species and size of fish in the same area and being captured by fishing gear of limited selectivity (Condie *et al.*, 2014). However, discarding is not just an

fishing practices, but also a consequence of existing management r

EU fisheries regulation prohibited the retention of catch that exceeded catch quota, was or

<http://www.discardless.eu/> <http://www.discardless.eu/>

W/D2

scale  
assessment



# FISHERY SCALE ASSESSMENT



	Current	<MLS (20 cm)	<L50 (30 cm)	Implementation of the LO
<b>F</b>	Slight ↓	↓	↓↓	↔
<b># Recruits</b>	↔	↔	↔	↔
<b>SSB</b>	Slight ↑	↑	↑↑↑	↔
<b>Yield</b>	Slight ↑	↑	↑↑	↔
<b>Incomes</b>	Slight ↑	Slight ↑	↑↑	↔
<b>Crew wage</b>	Slight ↑	Slight ↑	↑↑	↓
<b>Profits</b>	Slight ↑	Slight ↑	↑↑	↓



DiscardLess



WP2

Fishery scale  
assessment



# FISHERY SCALE ASSESSMENT

## monitoring stakeholders perception

- ☐ General opposition to the LO, tailored for Atlantic fisheries but not applicable to the Med.
- ☐ Handling discards on land will generate a lot of problems since there are not fish processing industries.
- ☐ The LO goes against the efforts done during the last decades to reduce the commercialization of small-sized fish.
- ☐ All stakeholders agree on the measures to apply: 1) improvement of selectivity and 2) use of spatio-temporal closures.

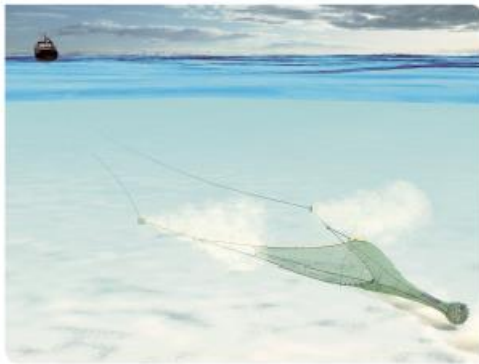
# ADAPTATION OF GEAR TECHNOLOGY

Promote the avoidance of unwanted catches through technological means

## SELECTIVITY IN TRAWL FISHING GEARS

Scottish Marine and Freshwater Science Vol 8 No 01

F.G. O'Neill and K. Mutch



Published by Marine Scotland Science

ISSN: 2043-7722

DOI: 10.4789/1890-1



[www.discardless.eu/selectivity\\_manual](http://www.discardless.eu/selectivity_manual)

[http://www.discardless.eu/selectivity\\_manual](http://www.discardless.eu/selectivity_manual)

### THE EXTENSION

Many trawls have a straight section called the extension between the end of the tapered section and the codend. It is generally made of diamond mesh netting, the meshes of which tend to close as the netting come under tension as the gear is being towed. The selectivity of a trawl gear decreases as the extension length increases. In long extensions, the meshes close more, the extension is narrower and opposite netting panels are more likely to meet. It is thought that as fish pass down the extension, they are more likely to be abraded and stressed, limiting their ability to make successful escape attempts. Consequently, a simple way of improving selectivity is to reduce the extension length as much as possible.



Figure 12.

Netting sections and panels fitted to the tapered and extension sections and the codend of demersal trawls.

WP3  
Adaptation of gear  
technology

# ADAPTION OF GEAR TECHNOLOGY

## fitting square mesh panels to improve bottom trawl selectivity on the Mediterranean continental shelf

**TARGET SPECIES**  
striped red mullet

**AREA, VESSEL**  
8 pairs of hauls were carried out in the Balearic Islands bottom trawl fishery on board the FV Nueva Joven Josefina (21 m, 150 HP) at depths between 50 – 80 m.

### GEAR MODIFICATION

The traditional two-panel bottom trawl net which is fished with semi-pelagic Thyborzen type 15VFS doors, was fitted with a 68 m<sup>2</sup> panel of 54 mm knotless Dyneema square mesh netting (1.2 mm twine thickness) in the upper panel. The codend was made from 40 mm square mesh netting of 3 mm twine thickness



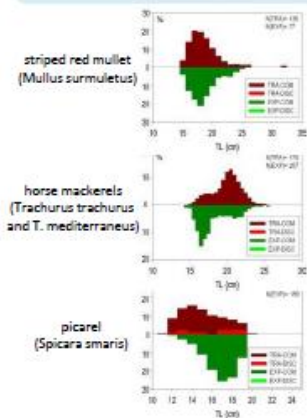
### RESULTS

The trawl with square mesh in the upper panel caught less commercial and discarded species.

There was no difference in the length frequency distribution of target species, striped red mullet.

Fuel consumption was reduced by up to 15%.

It was concluded that the incorporation of square mesh netting in the upper panels could be a plausible additional measure to improve the selectivity of the 40 mm square mesh codend currently in force.



**FURTHER INFORMATION** [enric.massuti@ba.ileo.es](mailto:enric.massuti@ba.ileo.es); DISCATCH project (DG MARE Contract N° MARE/2012/24 Lot 2) Final Report: <http://en.med-sc.eu/progetti.php>



**DiscardLess**

[www.discardless.eu/selectivity\\_manual](http://www.discardless.eu/selectivity_manual)



## using flexible sorting grids to improve the selectivity of the Mediterranean bottom trawl fishery

**TARGET SPECIES**  
hake; Norway lobster; red shrimp

**AREA, VESSEL**  
21 hauls were carried out in the Balearic Islands multispecies bottom trawl fishery on board the FV Moralt Nou (22.05 m, 365 HP)

### GEAR MODIFICATION

The catching performance of two flexible sorting grids, installed in extension piece, were compared on a divided bottom trawl. The lower 25% of the grids did not have bars and led to a 40 mm diamond mesh codend. The upper 75% had bar spacing of either 15 mm (SG15) or 20 mm (SG20)



## fitting square mesh panels to improve bottom trawl selectivity on the Mediterranean continental slope

**TARGET SPECIES**  
red shrimp

**AREA, VESSEL**  
10 pairs of hauls were carried out in the Balearic Islands bottom trawl fishery on the FV Nueva Joven Josefina (21 m, 150 HP) at depths between 600 – 700 m.

### GEAR MODIFICATION

The traditional four-panel bottom trawl net which is fished with semi-pelagic Thyborzen type 15VFS doors, was fitted with 10 square mesh panels. 4 in the upper section (58, 40, 17 and 9 m<sup>2</sup>) and 3 in each lateral section (16, 5 and 1 m<sup>2</sup>). The square mesh panels were made from 54 mm knotless Dyneema netting (1.2 mm twine thickness). The codend was made from 40 mm square mesh netting of 3 mm twine thickness



## using 50 mm diamond and 40 mm square mesh codends to improve the selectivity of the Mediterranean bottom trawl fishery

**TARGET SPECIES**  
striped red mullet; hake; Norway lobster; red shrimp

**AREA, VESSEL**  
315 hauls were carried out in the Balearic Islands multispecies bottom trawl fishery on fishing vessels in the size and power ranges of 15 - 23 m and 100 - 400 HP



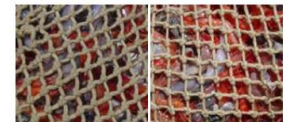
## diamond and square mesh codends to improve the selectivity of the Mediterranean bottom trawl fishery

**TARGET SPECIES**  
striped red mullet; hake; Norway lobster; red shrimp

**AREA, VESSEL**  
31 pairs of hauls were carried out at depths of between 50 and 800 m in the Balearic Islands multispecies bottom trawl fishery on board the FV Moralt Nou (22 m)

### GEAR MODIFICATION

The catching performance of codends made of  
(i) 40 mm diamond mesh and  
(ii) 40 mm square mesh  
were compared



**WP3**  
**Adaptation of gear  
technology**

[http://www.discardless.eu/selectivity\\_manual](http://www.discardless.eu/selectivity_manual)

# ADAPTATION OF FISHING STRATEGIES

To develop industry led approaches to the strategy and tactics for minimising unwanted catches.

***The Fishers story*** – manuals of discard reduction practices

***The Scientists story*** – identification of locations to avoid unwanted catch.

***The Managers story*** – incentives for LO compliance.

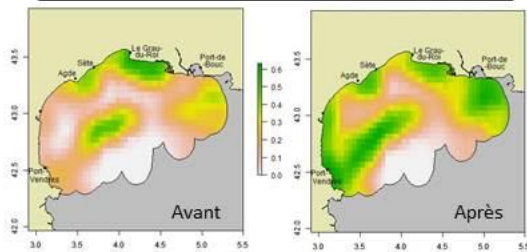


# ADAPTATION OF FISHING STRATEGIES

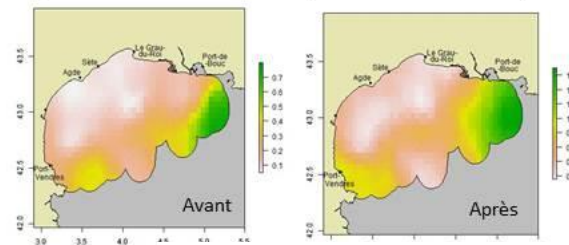
- Mapping discards and Defining strategies to avoid discard



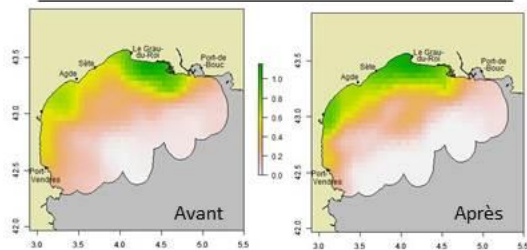
Rouget barbet de vase



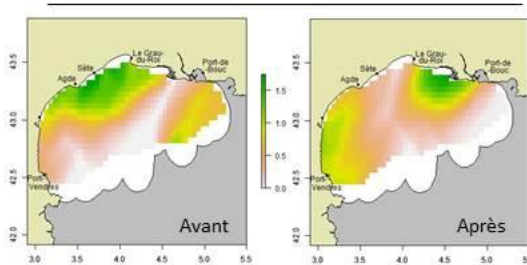
Dorade royale



Chinchard de Méditerranée



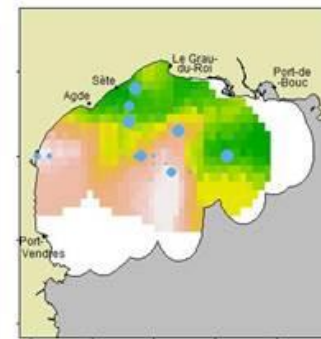
Anchois



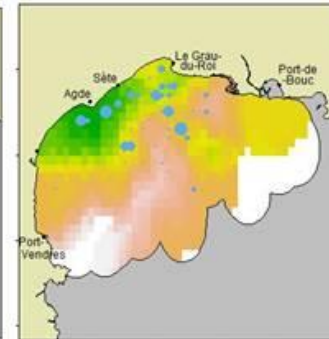
Individuals < MLS

Chaluts démersaux

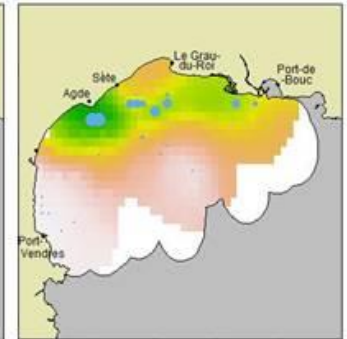
Saison 1



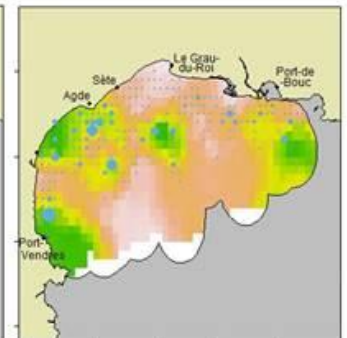
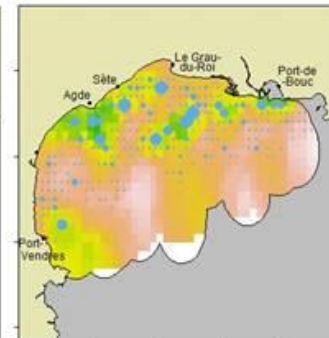
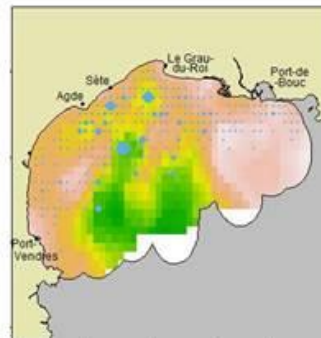
Saison 2



Saison 3



Avant 2009



Après 2009

Hake < MLS

# FORMULATE POLICY GUIDELINES

How the LO regulation may be successfully implemented at the regional level.

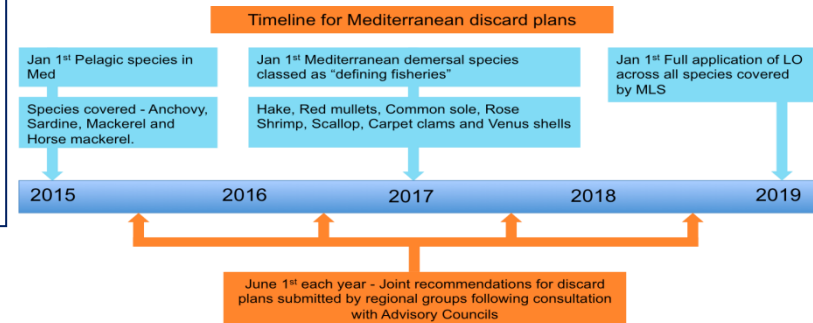
## *Mediterranean Policy Brief*

### Year 2 of the Landing Obligation: key issues in Mediterranean Fisheries

#### 1. Purpose and Scope of the Policy Brief

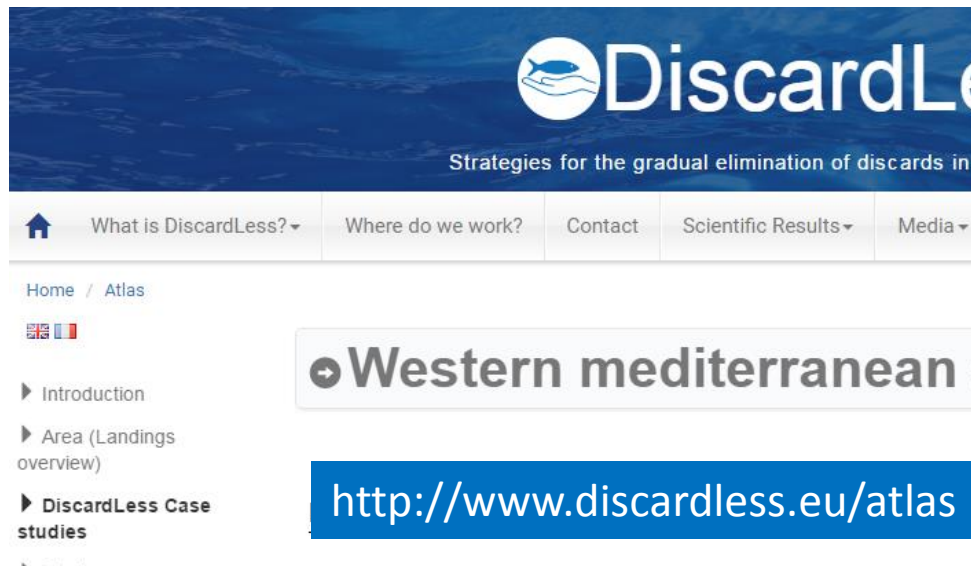
The Landing Obligation (LO) was introduced in the revised Common Fisheries Policy of 2014 and requires that all catches of certain fish species are landed. This Policy Brief provides an overview of the current status and initial experiences, barriers, and opportunities with regard to applying the LO in the Mediterranean (Med). The Policy Brief is written for policy makers, the fishing industry, NGO's and citizens with an interest in fisheries management and is based on policy documents, stakeholder interviews, meetings and literature.

#### 2. Key elements of the LO for Mediterranean Fisheries

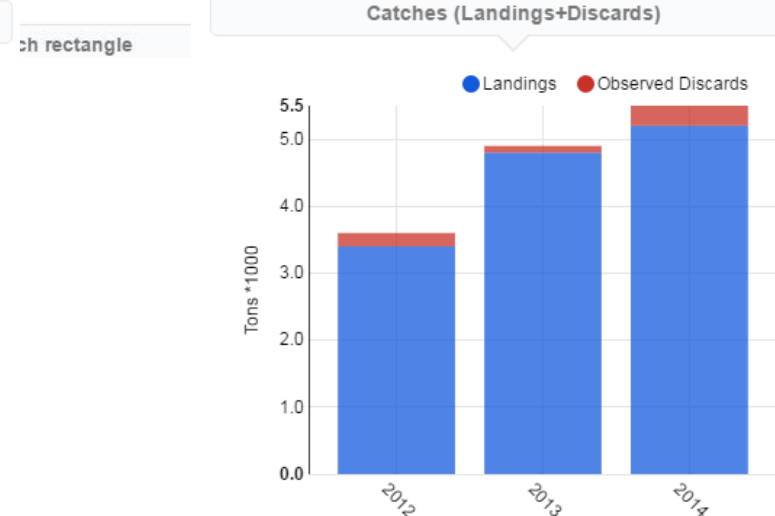
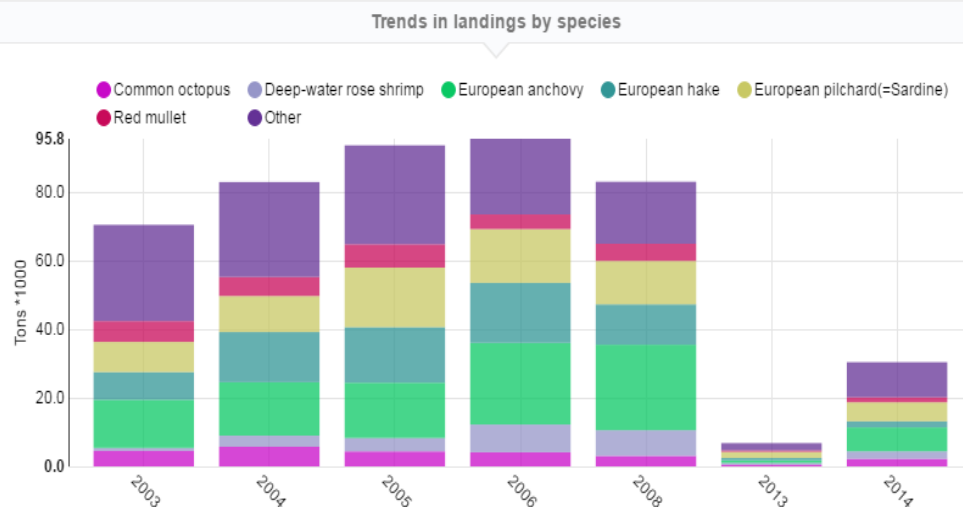
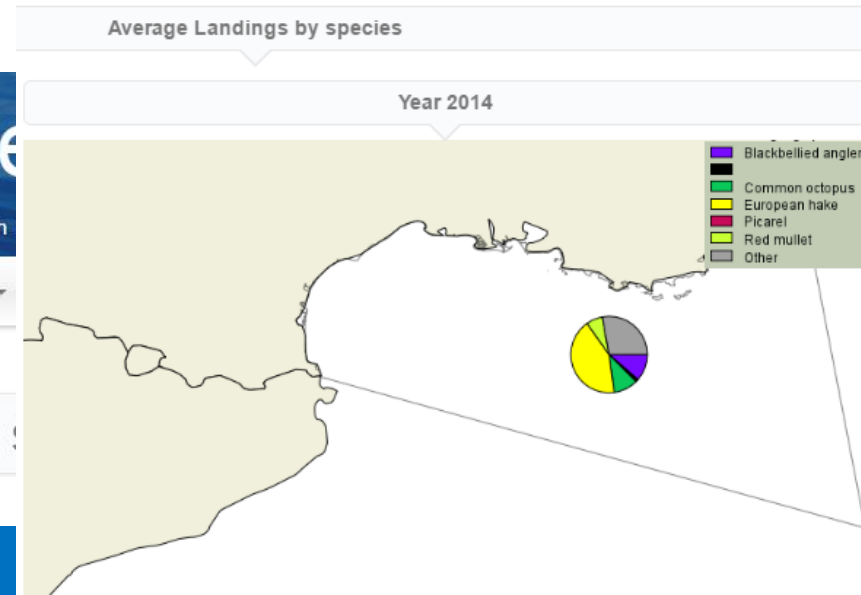


WP7  
Framing and implementing  
the discard policy

# SPREADING THE WORD: Secure the maximum impact of the project



The screenshot shows the DiscardLess website with a blue header featuring a fish icon and the text "DiscardLess Strategies for the gradual elimination of discards in". Below the header is a navigation bar with links: "What is DiscardLess?", "Where do we work?", "Contact", "Scientific Results", and "Media". A sidebar on the left contains links for "Home / Atlas", "Introduction", "Area (Landings overview)", and "DiscardLess Case studies". A large blue button in the center displays the URL <http://www.discardless.eu/atlas>.





# *DiscardLess* - Strategies for the gradual elimination of discards in European fisheries

## **Thank you for your attention**



*Mediterranean Workshop, Rome, 9<sup>th</sup> March 2017*

