

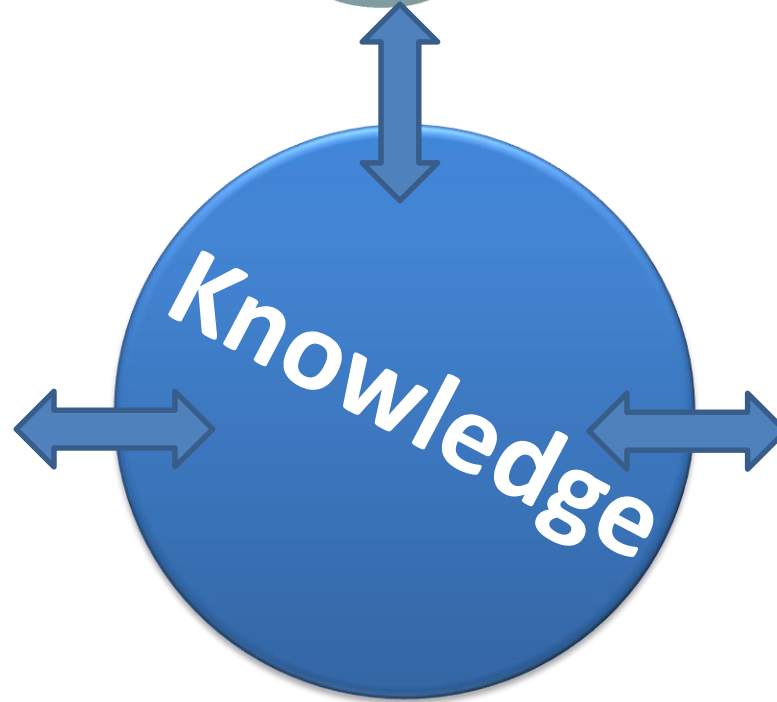


This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 633680

The Discardless **DMS toolbox** (Discard Mitigation Strategies ToolBox) aims to gather , synthesize and disseminate the **knowledge** produced by the DiscardLess project in a single repository freely accessible online.

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





# what are the discards ?



## The fishermen story

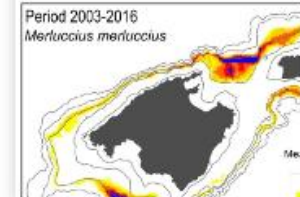
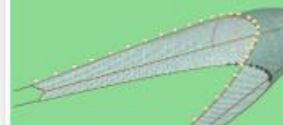
WHAT FACTORS CAUSE YOU TO DISCARD FISH ?

CHANGE IN GEARS

CHANGE IN WHERE AND WHEN TO FISH

WHAT KIND OF TECHNICAL METHOD DO YOU USE TO AVOID UNWANTED CATCHES ?

WHAT KIND OF TACTICAL METHODS DO YOU USE TO AVOID UNWANTED CATCHES ?



# what are the discards ?



## The fishermen story



### The French fisherman story

What kind of technical method do you use to avoid unwanted catches ?

**All trawlers :**

- For French fishers trawl mesh is okay and "cannot make more effort".
- Individual fishers consider that they cannot improve their selectivity, but see next row.

**Artisanal trawlers via Selectfish project :**

Tested square mesh panel (80, 100 and 115mm) of different length (1 or 2m) and also a selective grid were tested.

**Tools**

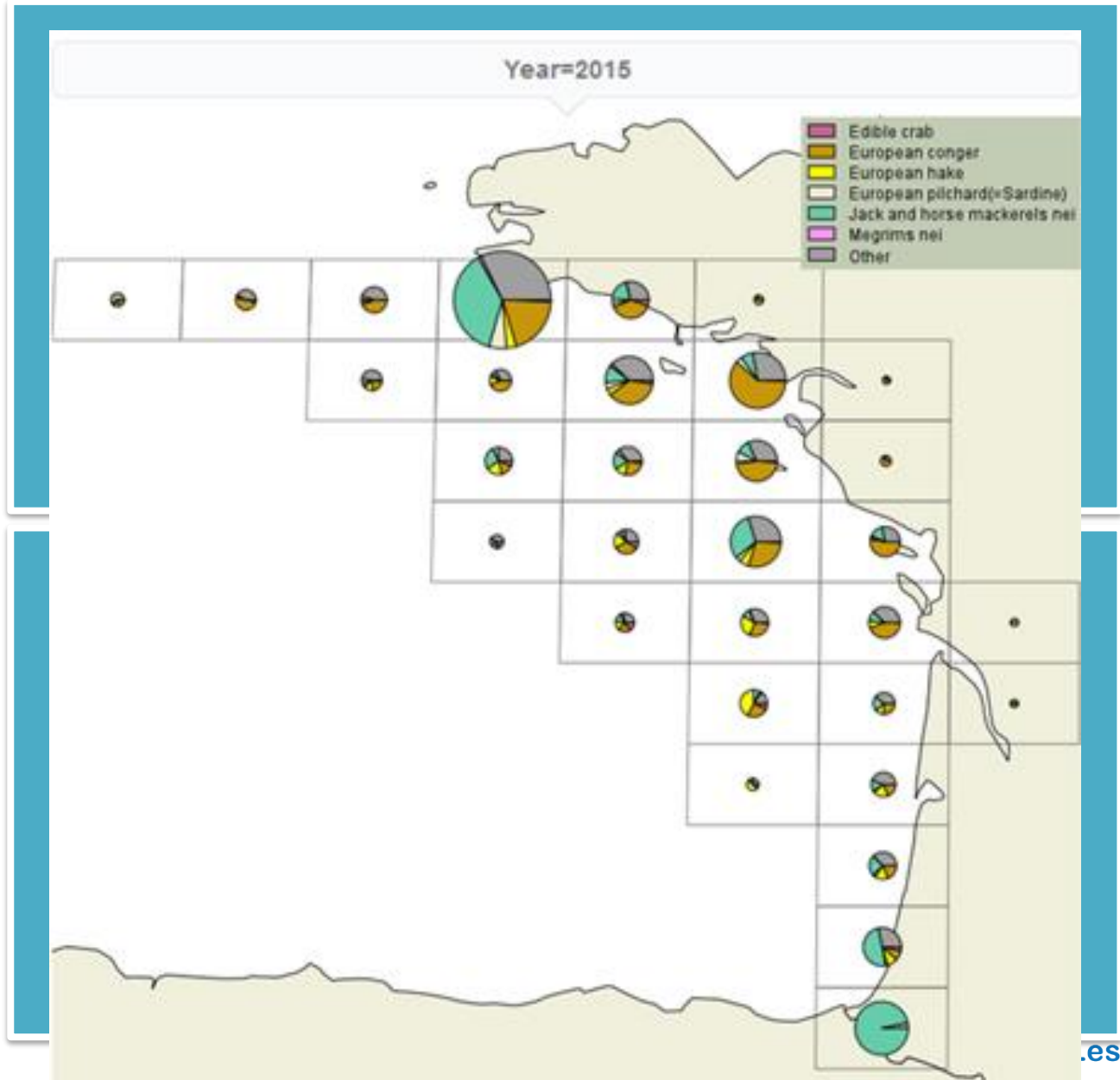
- Atlas
- Selectivity Manual
- Fishermen's Story**
- Adapting Fishing Vessels
- Valorisation Module

# what are the discards ?



Tools ▾

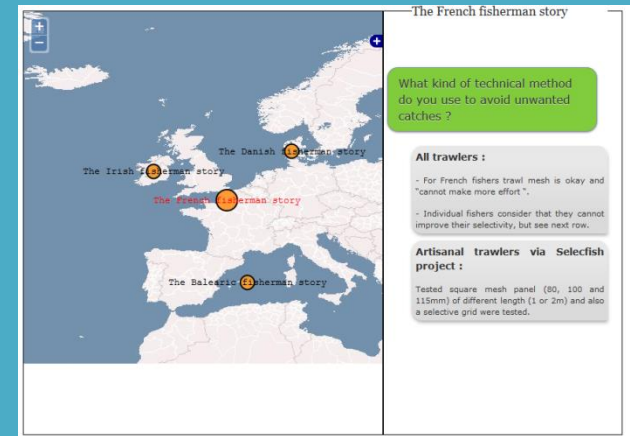
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- Valorisation Module



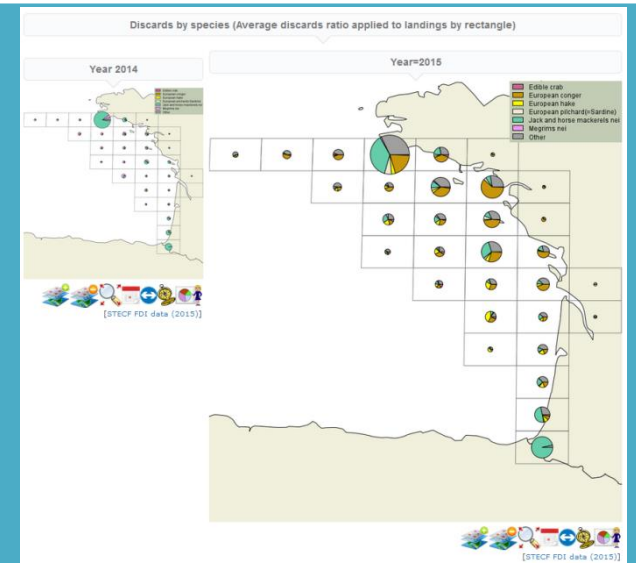
# what are the discards ?

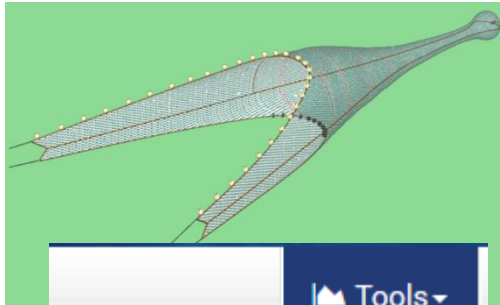


## The fishermen story



## The « available data » story





Tools ▾

Atlas

Selectivity Manual

Fishermen's Story

Adapting Fishing Vessels

Adapting Strategy

Valorisation Module

## using a Flip Flap netting grid

to reduce the capture of cod, haddock and whiting in a Nephrops trawl

### Target species:

Nephrops and mixed whitefish and flatfish species

### Area, Vessel

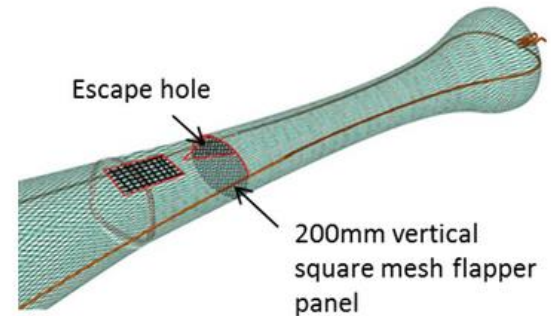
The trials took place in the North Sea (ICES Iva) Fladen Grounds and the Moray Firth on board the Sardonix II (BF 206) (18m, 373kW)

### Gear type:

twin trawl

### Gear modification

The Flip Flap gear has a 200mm vertical square mesh flapper panel in the extension. The top half of this panel is attached to the extension and the bottom half is weighted along its perimeter, but free to 'flap'. There is a hole cut out of the top sheet in front of the vertical panel to facilitate the escape of roundfish.



# How to avoid Discards

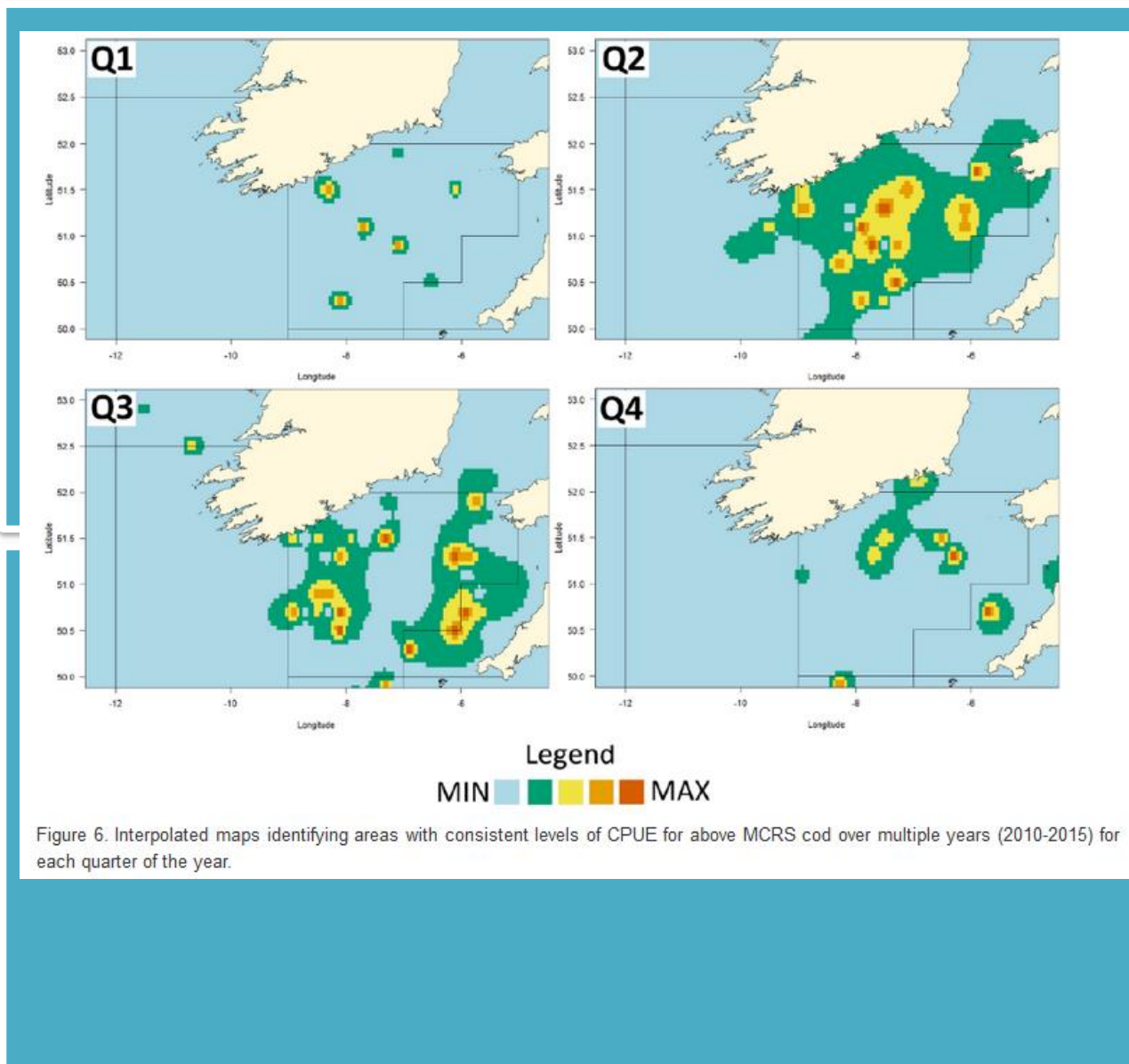


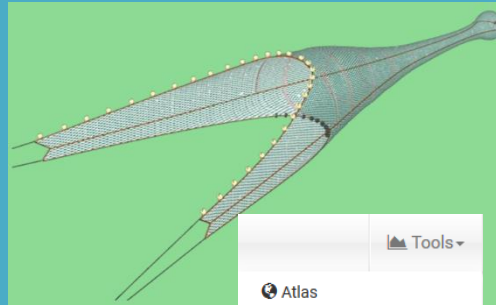
Figure 6. Interpolated maps identifying areas with consistent levels of CPUE for above MCRS cod over multiple years (2010-2015) for each quarter of the year.

Tools ▾

- Atlas
- Selectivity Manual
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- Adapting Strategy**
- Valorisation Module



## Selectivity using new gears


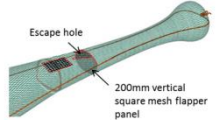


- Tools ▾
- Atlas
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- Valorisation Module

### using a Flip Flap netting grid

to reduce the capture of cod, haddock and whiting in a Nephrops trawl

<p><b>Target species:</b> Nephrops and mixed whitefish and flatfish species</p> <p><b>Area, Vessel:</b> The trials took place in the North Sea (ICES Iva) Fladen Grounds and the Moray Firth on board the Sardinia II (BF 206) (18m, 373kW)</p>	<p><b>Gear type:</b> twin trawl</p> <p><b>Gear modification:</b> The Flip Flap gear has a 200mm vertical square mesh flapper panel in the extension. The top half of this panel is attached to the extension and the bottom half is weighted along its perimeter, but free to 'flap'. There is a hole cut out of the top sheet in front of the vertical panel to facilitate the escape of roundfish.</p>
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## Selectivity using new strategies

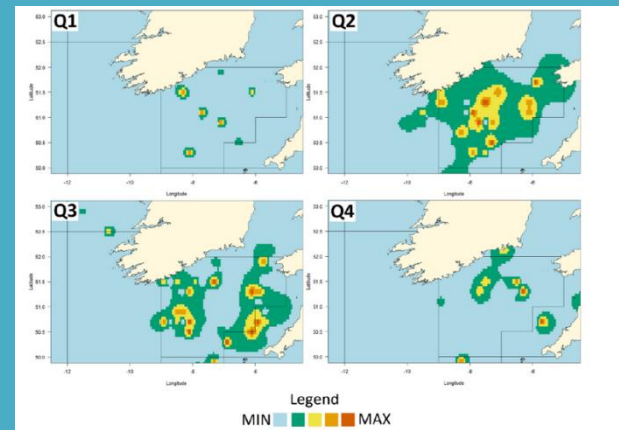
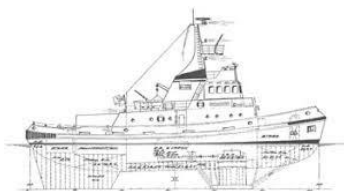


Figure 6. Interpolated maps identifying areas with consistent levels of CPUE for above MCRS cod over multiple years (2010-2015) for each quarter of the year.



Tools ▾

Atlas

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Valorisation Module

## Small coastal vessels

10-15 meter hook & line coastal vessels (N-Atlantic)

### Main target catch

- Cod

### Activity

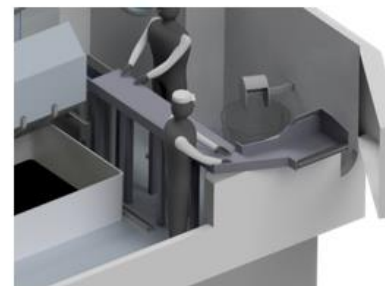
Fishing trip: 1 day  
Average landings: 2-4 tons

### Function

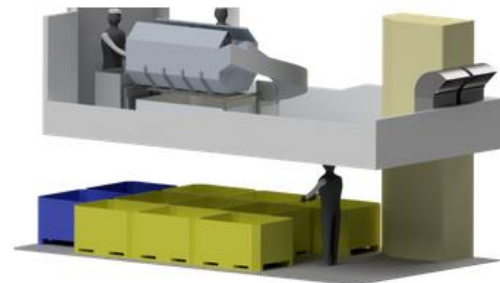
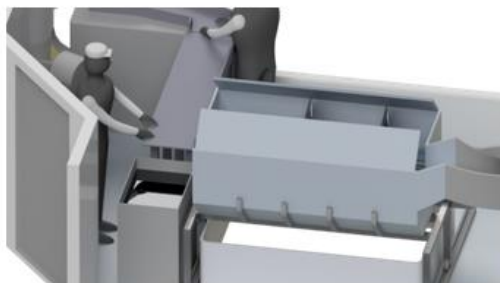
- Rapid bleeding of the catch before gutting
- Cooling of the catch in a rotary cooling tank
- The sorting of catches takes place down in the hold

### Benefits

- Whiter fillets
- Improved quality
- Extended shelf life

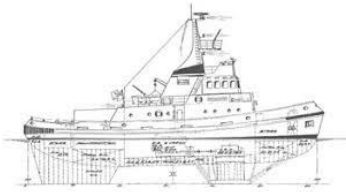


Upper deck : On left, batch related bleeding tank and on right is rotary cooling tank



Lower deck: Shows differently coloured boxes for

# And when the Fish are onboard ?



Tools ▾

Atlas

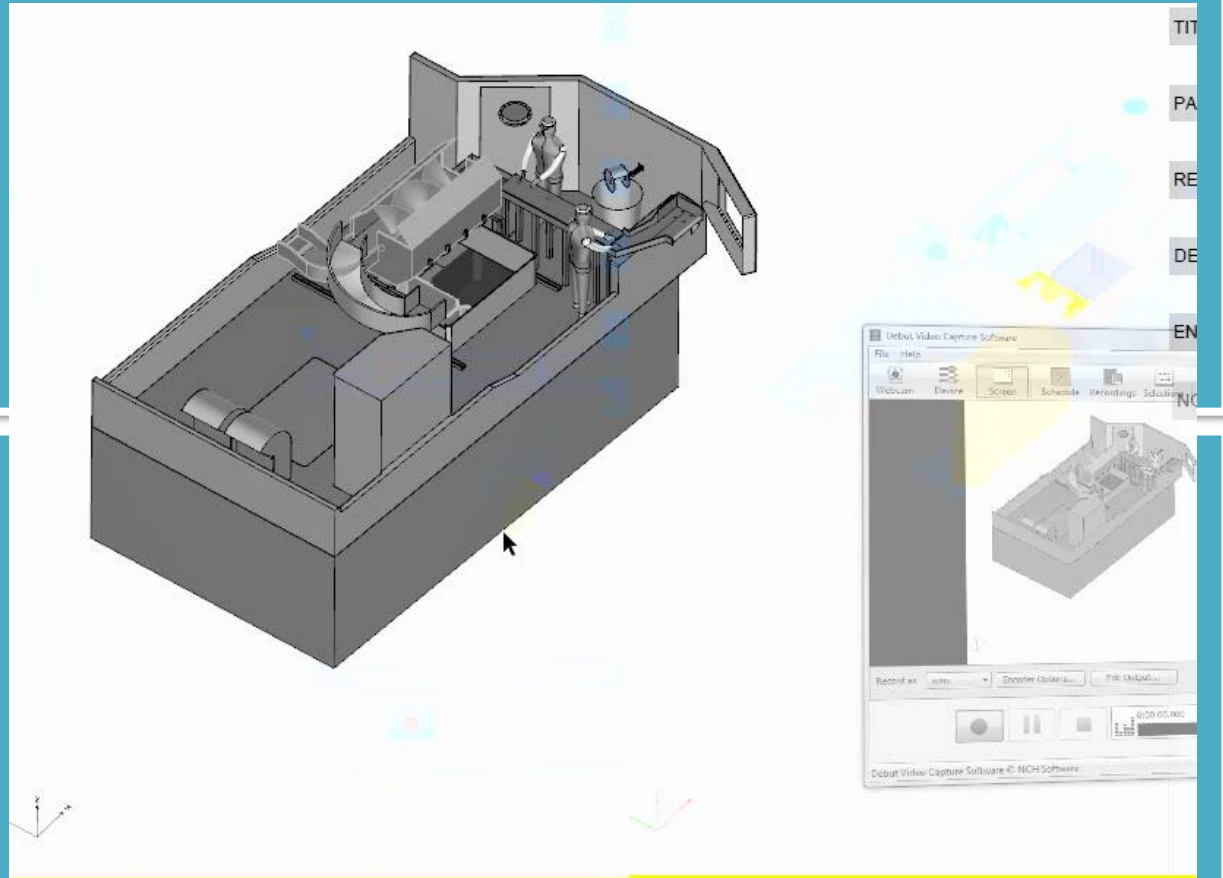
Selectivity Manual

Fishermen's Story

Adapting Fishing Vessels

Valorisation Module

## Boat organization to mitigate wasting time





Tools ▾

Atlas

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## → Vitamins

### Product description

Vitamin A is a group of fat-soluble substances that are found in animal products. Therefore, it is present in high concentrations in fish fatty tissues. Vitamin D is present in fish oil. Vitamin dietary sources are eggs, fish, and dairy products. It is also synthesized in the skin through a non-enzymatic reaction activated by the sunlight. EFSA has confirmed that clear health benefits have been established for the dietary intake of vitamin A in contributing to:

- normal cell differentiation;
- a normal function of the immune system;
- the maintenance of normal skin and mucous membranes;
- the maintenance of normal vision;
- normal iron metabolism.

While the nutrition claims for omega 3 fatty acids and vitamin D are:

- Vitamin D supports normal bones
- EPA & DHA support normal heart function.
- DHA supports the maintenance of normal vision
- DHA supports normal brain function

coastal vessels (N-Atlantic)



and breeding tank

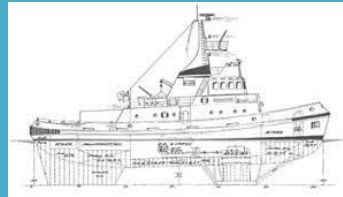


coloured boxes for

# And when the Fish are onboard ?



## Boat organization to mitigate wasting time



Tools ▾

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### Small coastal vessels

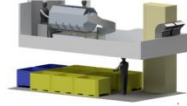
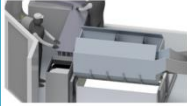
10-15 meter hook & line coastal vessels (N-Atlantic)

Main target catch	Activity
<ul style="list-style-type: none"><li>Cod</li></ul>	Fishing trip: 1 day Average landings: 2-4 tons

Function	Benefits
<ul style="list-style-type: none"><li>Raised bleeding of the catch before gutting</li><li>Cooling of the catch in a rotary cooling tank</li><li>The sorting of catches takes place down in the hold</li></ul>	<ul style="list-style-type: none"><li>Whiter fillets</li><li>Improved quality</li><li>Extended shelf life</li></ul>



Upper deck: On left, hatch related bleeding tank and on right rotary cooling tank



Lower deck: Shows differently coloured boxes for sorting of unwanted catches

## Discards are landed, and now !!!



Tools ▾

- Atlas
- Selectivity Manual
- Fishermen's Story
- Adapting Fishing Vessels
- Valorisation Module**

### o Vitamins

Valorisation Option Factsheet


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# DiscardLess

Strategies for the gradual elimination of discards in European fisheries

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- OwnCloud

Home / Tools

## Tools

- Atlas
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