# Nephrops grid 

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# Nephrops grid combined to square mesh cylinder and window 

Information session on technical conservation measures, discards and the escapement of juvenile fish

North Western Waters Regional Advisory Council (NWWRAC)
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## 2 selective devices - Objectives

## Nephrops grid (2005)

Reduce the discard of Nephrops below 34 mm of cephalothoracic length ( 11 cm ). Trials conducted in the Bay of biscay but aiming the Celtic sea trawler fishery.
(Anon. 2007, NEphrops and CEtacean Species Selection Information and TechnologY, Area 1.3 - Modernisation and sustainability of fisheries, including aquaculture-based production systems, NECESSITY Periodic Activity Report No 2, Annex 3.10)

## Evolution

## Nephrops grid combined to square mesh cylinder and window (2010)

Reduce the discard of hake and Nephrops in the mixed trawl fishery of the bay of Biscay.
(Meillat, Méhault, Morandeau, Vacherot, Marc, 2010. Etude de dispositifs sélectifs - Pêcherie crustacés-poissons du golfe de Gascogne. Rapport interne Ifremer: R.INT.STH/LTH 11-01. )


## Nephrops grid - Characteristics



Space between bars : 20mm
Bars shape: round section
Dimensions: $970 \mathrm{~mm} \times 750 \mathrm{~mm}$
Material: polymer

Introduction

Material and method

Results

Discussion

Nephrops grid inside the trawl



Discussion



Nephrops grid - methodology



## Nephrops grid - period and area



South Brittany

25 of August to 05 of September 2005

21 hauls

## Nephrops selectivity results

Introduction

Material and method

Results

Discussion


Percentage of escapement - 21 hauls

|  | Below MLS | Above MLS |
| :---: | :---: | :---: |
| Bay of Biscay (9cm) | $87 \%$ | $62 \%$ |
| Celtic sea (objective: 11 cm ) | $84 \%$ | $29 \%$ |

L50 $=36 \mathrm{~mm}$ (or 12 cm total length)

## Nephrops grid : problems of hauling

Introduction

Material and method

Results

Discussion


Gri : efficient for Nephrops escapement but manipulation problem when hauling back and wearing down due to frictions on the sea bed

Material and method

Results

Discussion


## From Nephrops grid to grid combined with square meshes

Introduction

Material and method

Results

## Combined selective device

Combination of:

* Grid (13mm spaced bars, $100 * 75 \mathrm{~cm}$ ),
* Nephrops square mesh panel ( $62 \mathrm{~mm}, 1^{*} 1.5 \mathrm{~m}$ ),
* Square mesh cylinder (2m long)
- Hake SMP (100mm, 1*2m)
- 7omm square meshes


## Reduction of grid problems:

- Better hauling
- Less friction on the sea floor
+ improve square meshes eficiency

Discussion



## Combined selective device



## Combined selective device - Images

Introduction

Material and method

Results

Discussion


## Combined selective device - methodology




Combined selective device - period and area


South Brittany

> 23 of April to
> 12 of May 2010

26 hauls

## Nephrops - Catch comparison

| Nephrops |  |  |  |
| :---: | :---: | :---: | :---: |
| \% escapement <br> (number) |  | \% escapement <br> (weight) |  |
| <MLS | $\geq$ MLS | <MLS | $\geq$ MLS |
| 46 | 10 | 41 | 6 |
| Numbers |  |  |  |
| Kg |  |  |  |
| Standard gear | Selective <br> gear | Standard <br> gear | Selective <br> gear |
| 20742 | 14583 | 380 | 311 |



Material and method


Hake - Catch comparison

Introduction

Material and method

| Hake |  |  |  |
| :---: | :---: | :---: | :---: |
| \% escapement (number) |  | \% escapement (weight) |  |
| < MLS | $\geq$ MLS | < MLS | $\geq$ MLS |
| 46 | 13 | 34 | 20 |
| Numbers |  | Kg |  |
| Standard gear | Selective gear | Standard gear | Selective gear |
| 2057 | 1250 | 248 | 190 |



Equivalent catches from 26 cm

## Results

Discussion



## Combined selective device - Catch comparison

- Best perfoming selective device in Hake /

Nephrops mixed fishery among all those tested

- Problems of grid are solved
- Still problem of square mesh deformation - may be solved by T90 (to be tested)



## Bonus: Fish grid (1994-95)

Aluminium grid (1994-95)


## 2 surveys:

From 20/08 to 03/09/1994 and 13/03 to 27/03/1995 North of bay of Biscay


Dupouy, Meillat, Rivoalen et Bavouzet, 1996. Les paramètres de la courbe de sélectivité des chaluts munis d'un dispositif à grille. Référence DG XIV: Study proposal 94/099

## Bonus: Fish grid (1994-95) - Monkfish

Introduction

Material and method


## Bonus: Fish grid (1994-95) - Megrim

Introduction
$67 \%$ of escapement of megrim (numbers) below 30 cm $36 \%$ of escapement of megrim (numbers) above 30 cm


Material and method

## Results

Discussion

$\mathrm{L} 50=31 \mathrm{~cm}$
$55 \%$ of escapement of ray (numbers) below 40 cm $<0.5 \%$ of escapement of ray (numbers) above 40 cm


## Material and method

## Results

Discussion

$L 50=31 \mathrm{~cm}$

Thank Yau!

