Trials of measures to reduce bycatch of whiting in the Irish Sea *Nephrops* fishery

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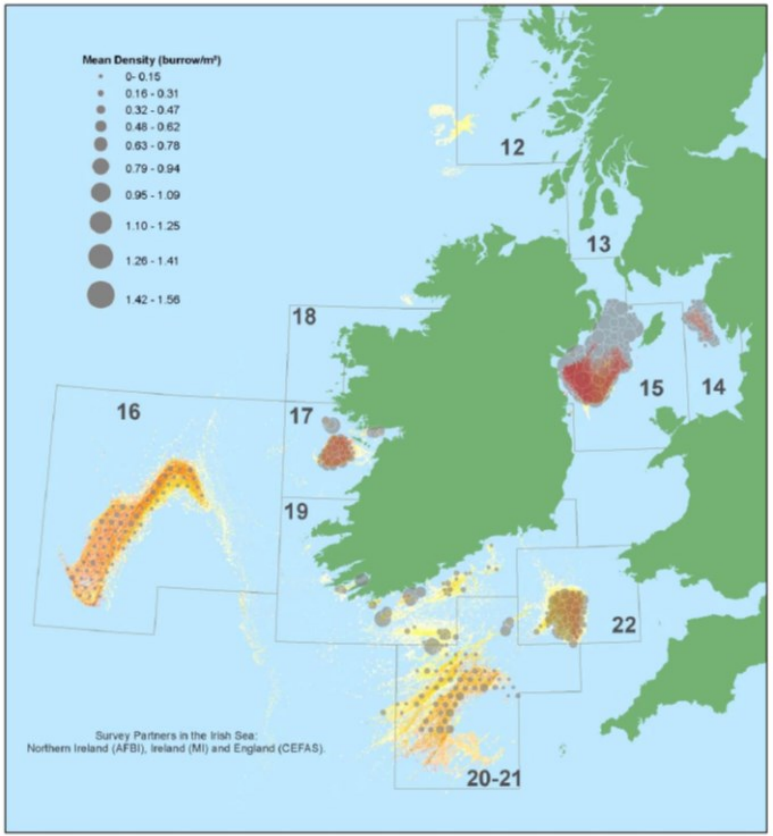
Background

- *Nephrops* is Ireland's most valuable demersal species - worth €55 million
- The western Irish Sea (ICES Division 7a, functional unit 15) contributes ~ 25 % of Irish *Nephrops* landings
- Estimated 216 tonnes of whiting caught by Irish vessels in Irish Sea, majority in *Nephrops* fishery and most < MCRS
- Irish whiting quota is 46 tonnes from a TAC of 80 tonnes (EU 2018/ 120)
- Major choke potential under landing obligation



•Image from Marine Institute (www.marine.ie)

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Existing technical conservation measures

- In ICES 7a MCRS for whiting is 27 cm (TL) and *Nephrops* 20 mm (CL)
- Minimum codend mesh size is 80 mm for vessels > 12 m targeting *Nephrops*
- Technical measures typically used in the Irish Sea are:
  - 300 mm square mesh panel 9 – 12 m from the codline
  - SELTRA 300
  - Swedish grid (35 mm bar spacing)

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Results of trials to reduce whiting catches pre-2017

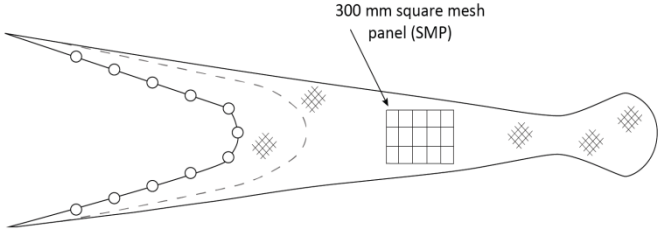
% reduction (kg) compared with a 70 mm codend.

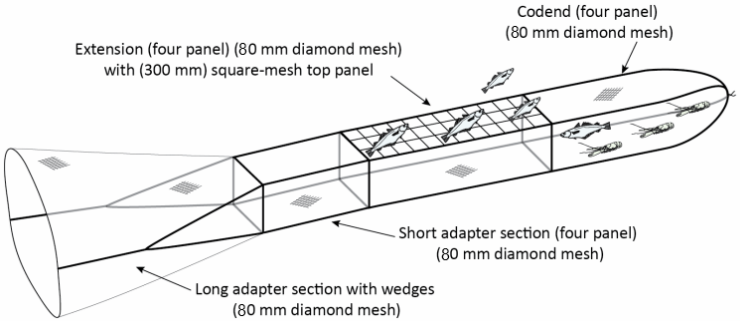
Technical measure	Whiting < 20 cm	Whiting < MCRS	Nephrops >25 mm
300 mm SMP	~ 0	~ -52	~ +14
SELTRA 300	~ 0	~ -53	~ +11
Swedish grid (2015)	~ -77	~ -77	~ -4
Swedish grid (2010 to 2014)*	~ -50	~ -60	
90 mm codend	~ -58	~ -58	~ -21
90 V 80 mm codend	~ -62	~ -62	~ -10

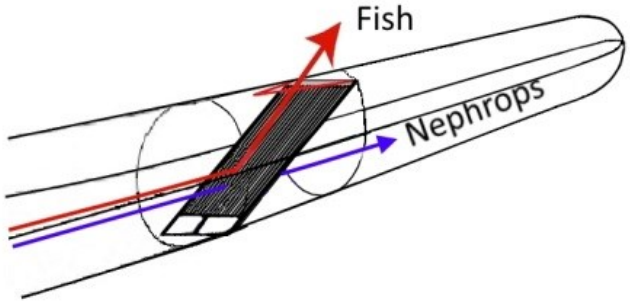
* Based on observer coverage of long-term use by Industry

Problems:

- **Large square mesh panels not effective for < 20 cm whiting which can form a major component of the catch**
- **Grid can be effective for < 20 cm whiting but reduces income from marketable fish and associated with handling difficulties**
- **Increase to 90 mm codend effective for < 20 cm whiting but reduces catch of mainly tail grade *Nephrops***

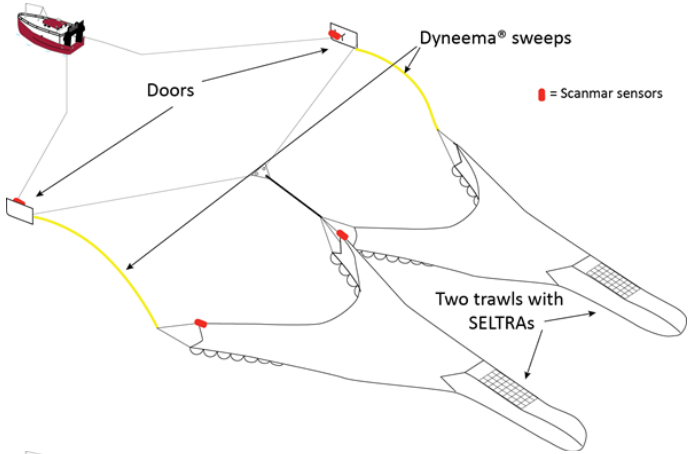






Additional measures to reduce unwanted whiting catches (post-2017)

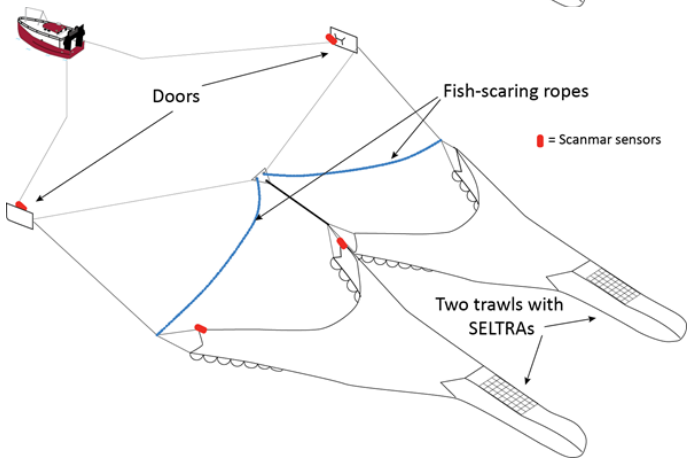
- Floating Dyneema sweeps to reduce fish herding effect
- Fish scaring ropes to stimulate fish to move out of the path of the trawl
- SELTRA 300 with inclined mesh guiding panel

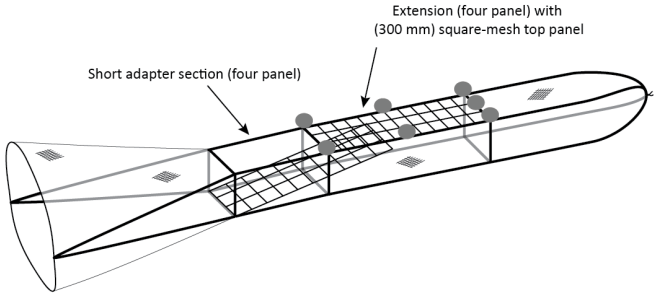


Results

- None of the above measures achieved reductions in

  < 20 cm whiting





Commission proposal to increase codend mesh size to 90 mm in ICES 7a *Nephrops* fishery

- **Commission proposal in November 2017 TAC non-paper: "when Norway lobster is targeted in ICES division 7a with trawls or seines, a cod end of a minimum mesh size of 90 mm shall be used."**
- **EEC No 3440/84 states: "the codend includes the codend *sensu stricto* and the lengthening piece."**
- **Maximum permitted codend circumference is 120 meshes round for 70-89 mm mesh and 100 meshes round for 90 mm or greater mesh.**
- **Therefore the proposed codend mesh size increase also equates to a reduction in codend circumference.**

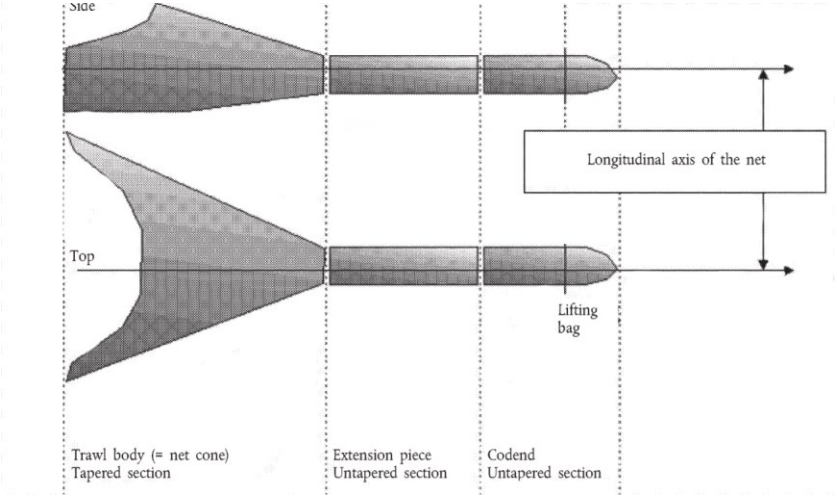


Image from: COMMISSION REGULATION (EC) No 517/2008

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BIM trials

A total of 4 BIM catch comparison trials were conducted during 2018 testing a standard 80 mm codend and:

- (T1) A 90 mm codend fitted with 300 mm SMPs between 9 and 12 m from the codline.
- (T2) An 80 mm codends with reduced circumference (no. of meshes round).
- (T3) A 90 mm codend *sensu stricto* with 80 mm extension.
- (T4) A SELTRA 300 sorting box constructed with 90 mm mesh.

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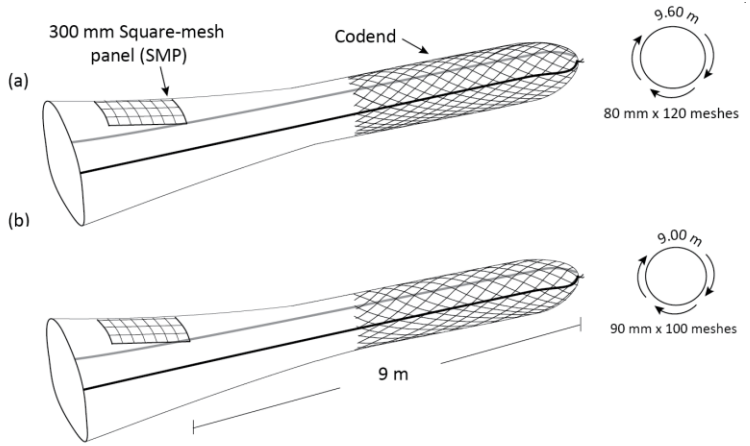
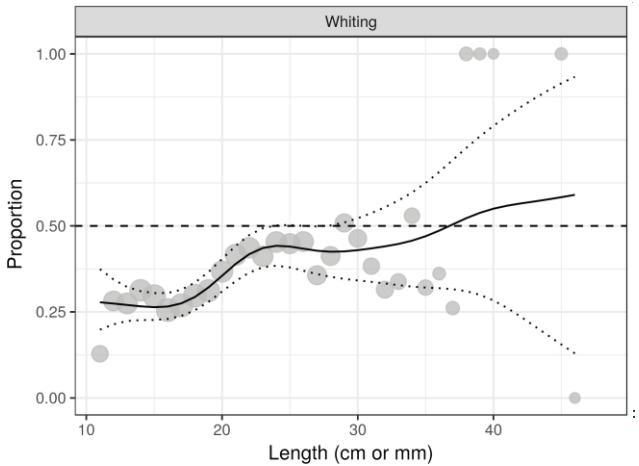
T1: Increase in codend mesh size from 80 to 90 mm

- **Increasing codend mesh size from 80 to 90 mm reduced catches of whiting < 20 cm by 60%, and *Nephrops* catches by 33% by weight and 23% by value.**
- **Nephrops losses were greater in this trial than in 2015. Mesh size increased in extension piece as well as the codend *sensu stricto* in the 2018 trial.**

Species and size	% difference (kg) in catches
Whiting < 20 cm	-60
Whiting < 27 cm	-47
Nephrops ≥ 25 mm	-31
Nephrops < 25 mm	-56

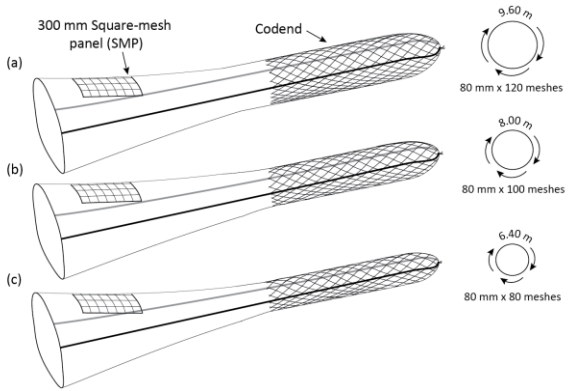


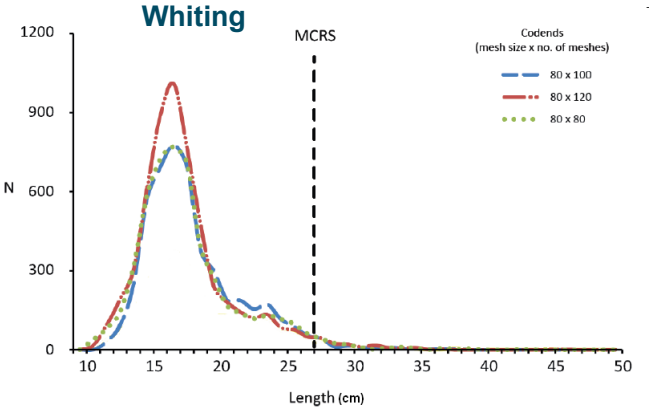


T2: Reduction in circumference of 80 mm codend

- Decreasing the circumference of an 80 mm codend from 120 to 80 meshes round reduced catches (kg) of small Nephrops < 25 mm carapace length by 34% but reduced catches (kg) of whiting < 20 cm by just 16%.

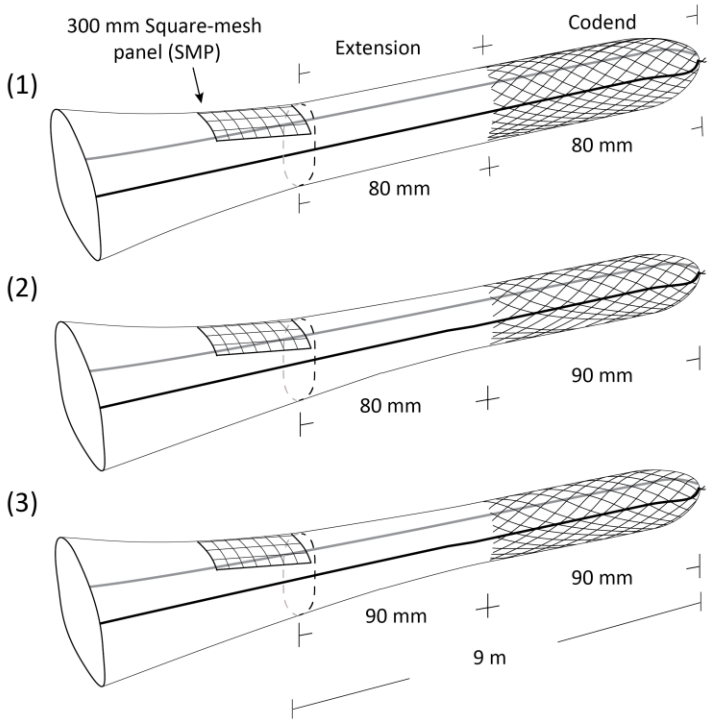
- This measure has potential to reduce unwanted *Nephrops* catches but is not a suitable management measure for reducing unwanted catches of whiting





T3: 80 to 90 mm mesh size increase restricted to the codend *sensu stricto*

- The 80/90 and 90/90 gears both reduced < 20 cm whiting by over 60 %.
- The 80/90 and 90/90 reduced catches of *Nephrops* ≥ 25 mm by 34 % and 16 % respectively.
- This finding is contrary to the result of previous trials.
- The ground was extremely soft during the trial which made it difficult to maintain door spread at times and resulted in invalid tows.
- Results highlight difficulties associated with constructing and implementing gears with different mesh size in codend and extension piece.



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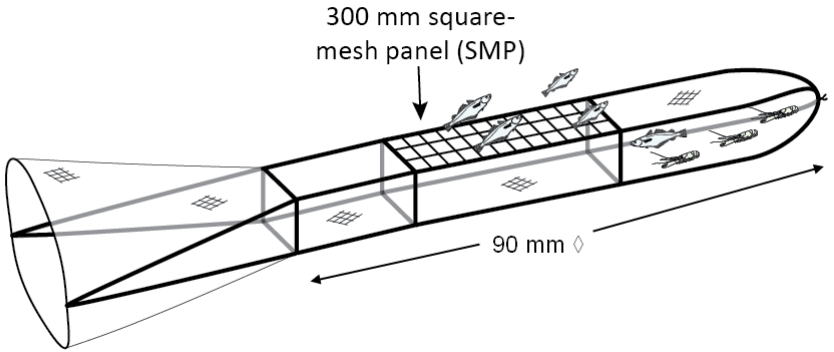
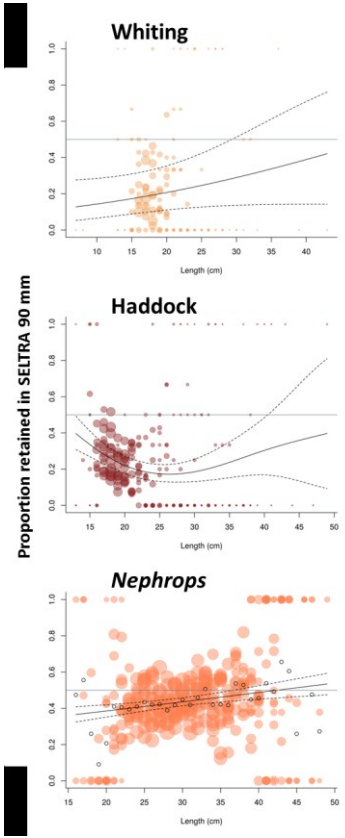
T4: SELTRA with increased mesh size in codend and extension piece

- < 20 cm whiting (kg) reduced by 78 %
- ≥ 25 mm *Nephrops* (kg) reduced by 19 %





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Summary of trials post 2017

% reduction (kg) of key species

Trial	Whiting < 20 cm	Whiting < 27 cm	Nephrops ≥ 25 mm	Nephrops < 25 mm
T1: Standard 80 mm codend V 90 mm codend	-60	-47	-31	-56
T2: Standard 80 mm codend V reduced circumference 80 mm codend (80 meshes round)	-15	-6	-12	-30
T3: Standard 80 mm codend V 90 mm codend *sensu stricto*	-68	-45	-34	-18
T4: further test of standard 80 mm codend V 90 mm SELTRA 300	-78	-75	-19	-34

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Thank you

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