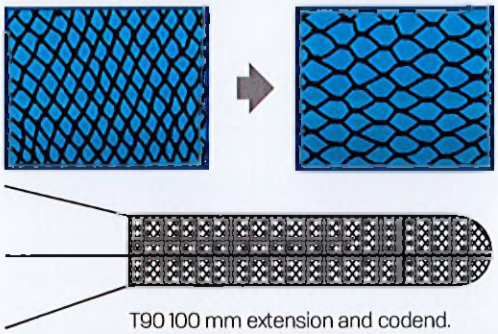
Results from the **Celtic Sea Selectivity project**

T90 100MM EXTENSION AND CODEND

reduces catches of boarfish and small haddocks

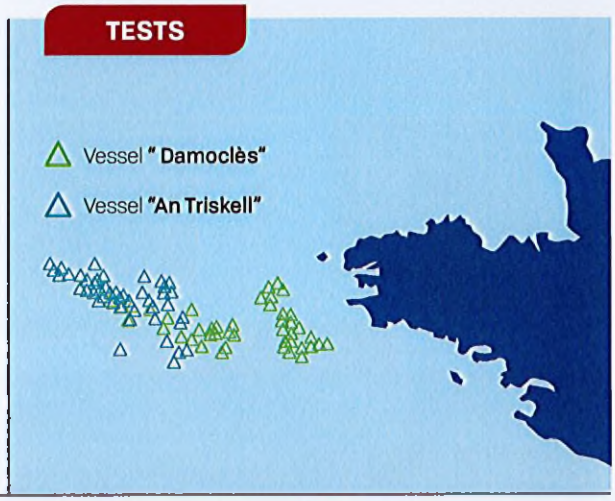
PRINCIPLE

Diamond mesh turned through 90° (« T90 ») in the terminal section of the trawl (extension + codend)



T90 100 mm extension and codend.

TESTS



RESULTS

	Discards	Landings	« Lengths that better escape »
ALL SPECIES	-40 to -50%	=	
Spinous spider crab	?	Insignificant losses	
Seabass	?	=	
Monkfishes	=	=	
Cod	?	=	
Megrims	Up to -50%	=	Around 25 cm
Haddock	Up to -90%	=	25-35 cm
Squid	?	-30 to -70%	
Gurnards	-60 to -75%	=	18-25 cm
Lemon sole	=	=	
Lings	?	Insignificant losses	
Atlantic and horse mackerels	Up to -70%	?	
Whiting	?	?	
Hake	Up to -80%	=	?
Small-spotted catshark	-50 to -60%	=	?
Rays	Up to -30%	=	20-40 cm
Surmullet	?	Up to -50%	
John Dory	?	=	
Boarfish	-75 to -85%	?	11-16 cm
Sole	?	=	
Pouting	-45 to -90%	=	15-22 cm

Legend > Positive and reliable results | Positive results, but based on few data | Negative results | Negative results, based on few data | ? not enough data | = to conclude no difference between T90 trawl and standard trawl

CONCLUSION

Using T90 mesh in extension and codend reduces by 50% global discards (all species included) without significant commercial losses.
It is particularly efficient to reduce boarfish catches (specie for which France does not have quota and that damages others fishes when caught and increases sorting time). It also reduces gurnards, pouting and small-spotted catshark catches. Finally, it reduces significantly young haddocks catches. However, this selective device is not appropriate during the squid season (significant commercial losses).

Reduction of boarfish catches in the T90 trawl (on the right) compared to the standard trawl (on the left).

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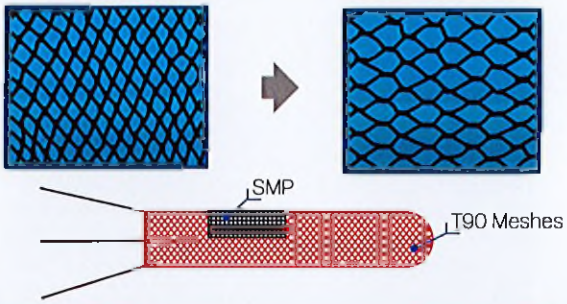
Results from the **Celtic Sea Selectivity project**

T90 100MM EXTENSION AND CODEND in addition to 120Mm Square Mesh Panel

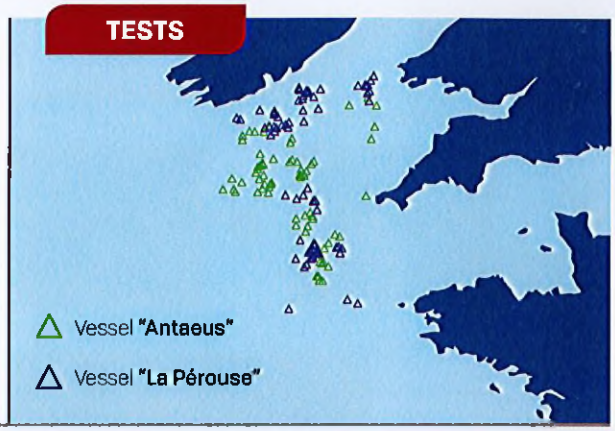
to reduce catches of boarfish and young gadoids

PRINCIPLE

Diamond mesh turned through 90° (« T90 ») in the terminal section of the trawl (extension + codend) in addition to required 120mm SMP.



TESTS



RESULTS

	Discards	Landings	« Lengths that better escape »
ALL SPECIES	-20 to -35%	=	
Spinous spider crab	?	?	
Seabass	?	?	
Monkfishes	=	=	
Cod	?	=	
Megrims	=	=	<20 cm
Haddock	-20 to -70%	=	25-35 cm
Gurnards	-60 to -80%	=	20-30 cm
Norway lobster	Reduction but not enough data to confirm	Losses but not enough data to confirm	2,5 à 3,5 cm (cephalothorax lenght)
Pollack	?	?	
Common dab	?	=	
Lings	?	=	
Atlantic and horse mackerels	Up to -75%	?	31-36 cm (hors mackerel)
Whiting	-85 to -90%	-20 to -30%	30-40 cm
Hake	Up to -80%	=	<40 cm
Small-spotted catshark	Up to -85%	Up to -60%	All lenghts (up to 70 cm)
Plaice	=	=	
Rays	=	=	
Surmullet	?	?	
John Dory	?	=	
Boarfish	Up to -70%	?	11-16 cm
Sole	?	?	
Pouting	Up to -90%	?	16-22 cm
Turbot	?	?	

Legend > Positive and reliable results | Positive results, but based on few data | Negative results | Negative results, based on few data | not enough | ? data to conclude | = no difference between T90 + SMP trawl and simple SMP trawl

CONCLUSION

Using T90 mesh in extension and codend in addition to required 120mm SMP reduces by around 30% global discards (all species confused). That is less than the T90 alone because with the 120mm SMP, the standard trawl is already selective. However, using both T90 & SMP clearly reduces young gadoids (haddock and whiting) discards. By the way, with an escaping length around 30 - 40 cm, commercial losses may occur on whiting depending on sorting habits. It is also very efficient to reduce gurnards and boarfish catches.


Boarfish escaping through a T90 mesh from La Perouse

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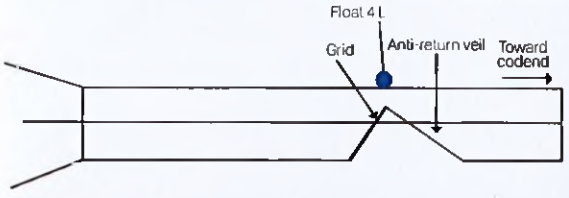
Results from the **Celtic Sea Selectivity project**

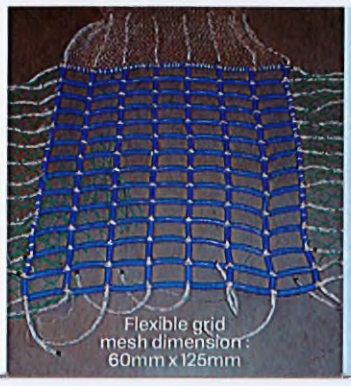
FLEXIBLE GRID

to reduce young monkfishes catches and improve filtration

PRINCIPLE

Flexible grid with cordage strenghtened by rubber tubes fixed in the bottom of the extension with a 40 to 45° angle.





TESTS

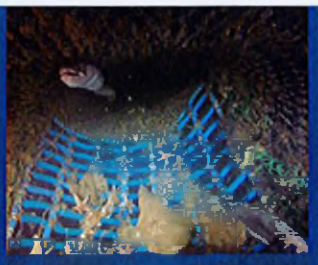
RESULTS

	Discards	Landings	« Lengths that better escape »
ALL SPECIES	-20%	=	
Monkfishes	reduction but not quantifiable	=	10-20 cm
Megrims	-35% to -40%	=	20-25 cm
Conger	?	=	
Dragonet	-60%		
Haddock	=	=	
Octopus	-50%	?	
Smouth-Hounds	?	=	
Shortfin squids	-35 to -40%	=	80-160 cm (mantle length)
Scaldfish	-60%		14-17 cm
Gurnards	-40%	=	17-25 cm
Lemon sole	?	=	
Lings	?	=	
Whiting	-50%	=	
Small-spotted catshark	-20%		20-30 cm
Rays	=	=	
Surmullet	?	=	
John Dory	=	=	
Boarfish	=		
Cuttlefish	-60%		
Sole		-30%	20 cm
Pouting	=	=	

Legend > Positive and reliable results | Positive results, but based on few data | Negative results
Negative results, based on few data | ? not enough data to conclude | = no difference between trawl + grid and standard trawl

CONCLUSION

Using this flexible grid reduces by around 20% global discards (all species included) with significant reductions for megrims, gurnards and cephalopods.
The expected reduction of young monkfishes catches is not statistically proved but monkfishes between 20 and 25 cm escaped. Moreover, by reducing discard of non commercials species (dragonet, scaldfish) and also sediments this grid reduces the sorting time and improves quality of landings without commercial losses (except for the sole which is not a target specie of concerned vessels).
Finally, this device is ergonomic, user-friendly and can be adapted to different selectivy levels and aims calibrating mesh size.



Submarine view of the flexible grid in situation.

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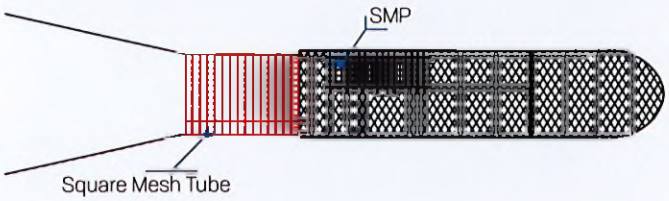
Results from the **Celtic Sea Selectivity project**

100MM SQUARE MESH TUBE in addition to 120mm Square Mesh Panel

to reduce young gadoids catches.

PRINCIPLE



TESTS

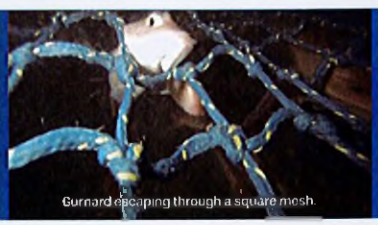
RESULTS

	Discards	Landings	« Lengths that better escape »
ALL SPECIES	-30%	=	
Monkfishes	=	-10%	
Cod	?	=	
Megrims	=	=	
Horse mackerel	?	?	
Haddock	-50%	=	30-35 cm
Gurnards	-35%	=	23-26 cm
Norway lobster	?	Losses but not enough data	
Common dab	?	?	
Lemon sole	?	=	
Lings	?	?	
Whiting	reduction but no quantifiable	=	30-35 cm
Hake	?	=	
Small-spotted catshark	-30%	?	
Plaice	?	=	
Witch flounder	?	?	
Rays	=	=	
John Dory	?	=	
Boarfish	=	?	
Cuttlefish	?	=	
Sole	?	=	
Pouting	-40%	?	20-22 cm

Legend > Positive and reliable results | Positive results, but based on few data | Negative results | Negative results, based on few data | ? not enough data to conclude | = no difference between SMT + SMP trawl and simple SMP trawl

CONCLUSION

Using a square mesh tube in addition to the required SMP reduces by around 30% global discards (all species confused) without significant commercial losses.
In particular, haddock, pouting, gurnard and small-spotted catshark discards reduce by 30 to 50%.
This device could be an appropriate alternative to the T90 during squids season.
Yet, optimizations deserve to be deal with : using a dispersive ball, position of the tube in relation to the panel.


Gurnard escaping through a square mesh.

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