

**Fishery / target species** : Demersal trawl fishery / Mixed fishery

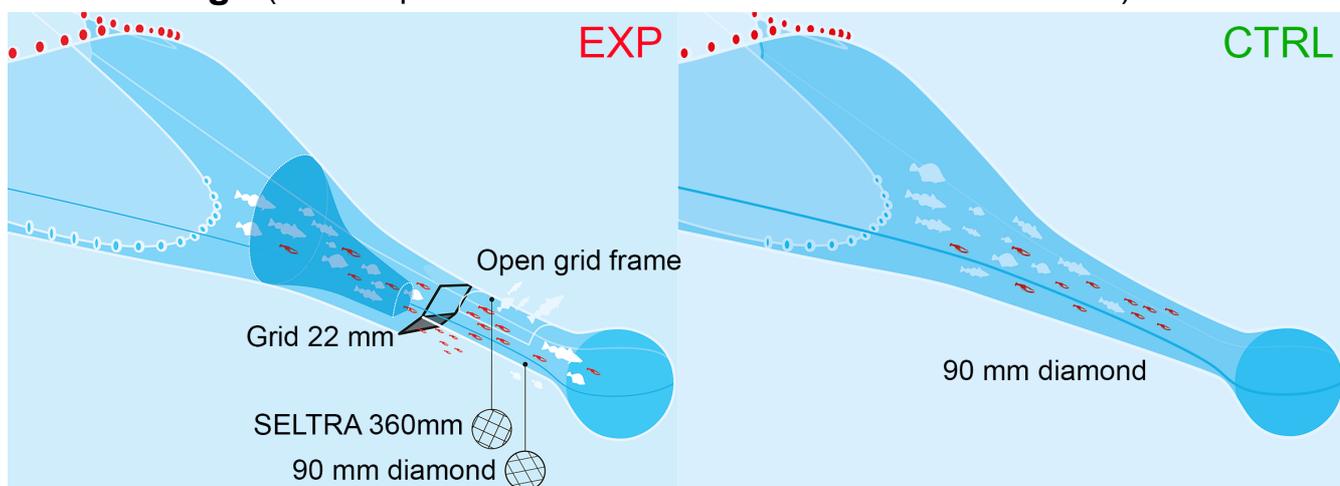
**Area**: Kattegatt. ICES IIIa

**Vessel**: VG-97 Tärno. LÖA 15.1 m / 112 kW och VG-117 Kungsvik. LÖA 17 m / 339 kW

**Gear type**: Size selective grid (22 mm) and SELTRA codend (360 mm)

**Number of haul**: 17 twin-rig

## Gear design (EXP=experimental codend and CTRL= standard codend)



## Results (average catch in CTRL and EXP codend and % difference)

Species	Unite	EXP	CTRL	Diff.
Nephrops	Antal (<40mm)	154	354	-57%
	Antal (≥40mm)	282	312	-10%
Haddock	Weight (kg)	4.6	4.0	16%
Hake	Weight (kg)	2.0	2.8	-28%
American plaice	Weight (kg)	1.6	5.2	-70%
Plaice	Weight (kg)	27.8	35.3	-21%
Dab	Weight (kg)	2.8	8.1	-66%
Cod	Weight (kg)	11.7	30.9	-62%

## Conclusion

- The size selective grid reduce catch of undersized Nephrops and smaller American place and Dab
- SELTRA-codend reduce the catch of Hake and Cod, but not Haddock

# Horizontally divided trouser trawl for species specific catch separation

**Fishery / target species :** Demersal trawl fishery / Round fish

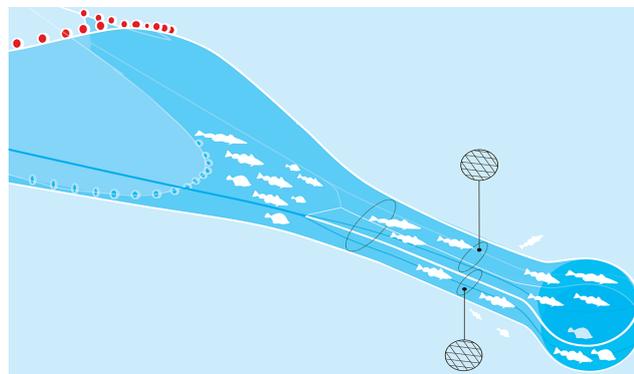
**Area:** Skagerrak/Kattegatt, ICES 20/21

**Vessel:** GG-840 Svanen. LOA 24 m / 578 kW

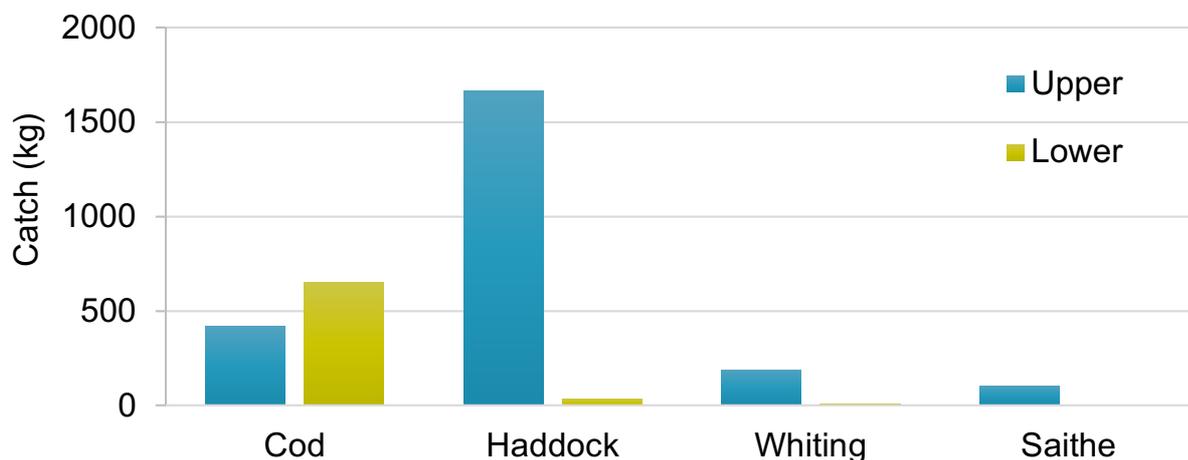
**Gear type:** Horizontally divided trouser trawl

**Gear modification:** The trawl was divided internally in two sections, each section ended with a separate extension and codend

## Gear design



## Results (Total catch of commercial fish in each compartment)



## Conclusion

- In weight 90 – 99% of all Whiting, Haddock and Saithe was caught in the upper part.
- There was no significant difference between upper and lower part in weight of Cod, however, the number of individuals was significantly higher in the lower part.
- The species specific selection properties of the horizontally divided trouser trawl allows the fishermen to control the composition of the catch and thereby reduce the catch of limited stocks.

- is fish size selectivity equivalent?

**Fishery / target species:** Demersal mixed Nephrops/fish trawling

**Area:** the Skagerrak and Kattegat, ICES SD 20, 21

**Vessels:** VG 117 Kungsvik, 17,0 m, 339 kW och FG 96 Cindy Vester, 18,0 m, 300 kW.

**Redskap:** Demersal trawl

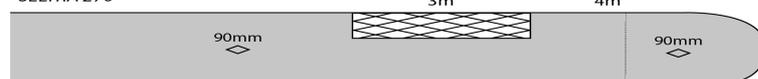
**Modifikation:** 90 mm lyft med takpanel av 270 mm diagonalmaska monterad 4-7 m framför lyftets slut (SELTRA 270), samt 90 mm lyft med takpanel av 300 mm fyrkantsmaska 3-6 m framför lyftets slut (SELTRA 300). 120 mm lyft som kontroll.

## Experimental design (120 mm is the baseline gear; the two SELTRA codends are legal alternatives)

120mm diagonal



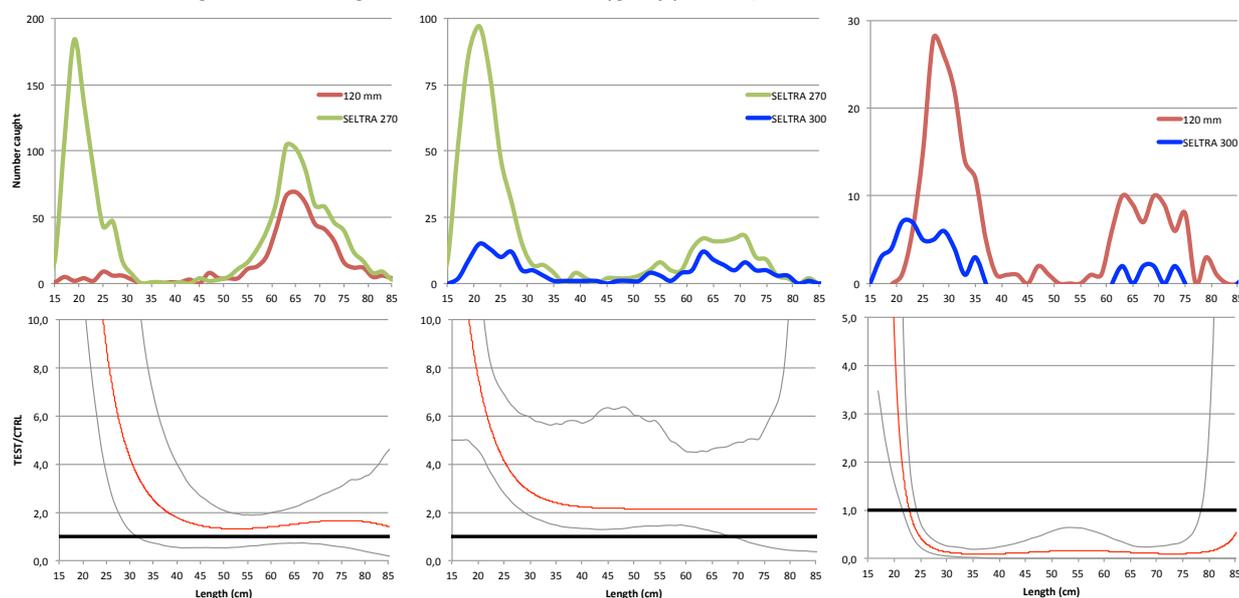
SELTRA 270



SELTRA 300



**Results** Upper panel: numbers caught by codend for each comparison and in lower panel catch ratio over length including 95% conf. limits (grey). Graphs show the results for cod.



## Conclusions

- Both SELTRA-variants caught significantly more undersized roundfish (cod, haddock and whiting) than the 120 mm codend. The SELTRA's also caught more undersized plaice
- Especially SELTRA 270 showed consistently larger catches of small roundfish than both SELTRA 300 and a 120 mm codend
- These results indicate that fish size selectivity is not equivalent for the three codends (as intended by legislators)

- to separate round and flatfish into different cod-ends and select for large round fish

**Fishery / target species:** Bottom trawl / 2016: witch flounder and cod, 2017: plaice and cod

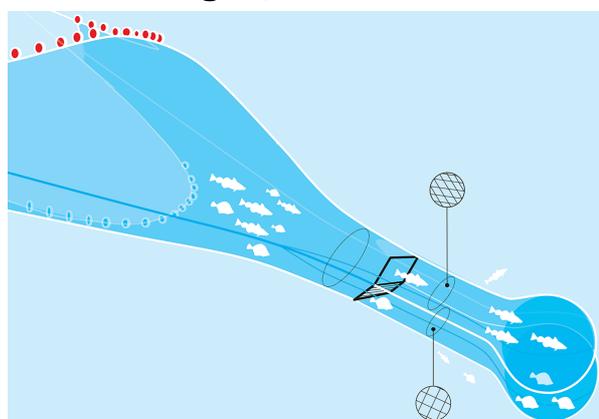
**Area:** Skagerrak and Kattegat

**Vessel:** GG 840 Svanen av Rörö, Stefan Larsson, 23.91 m, 578 kW

**Gear:** Bottom trawl with grid

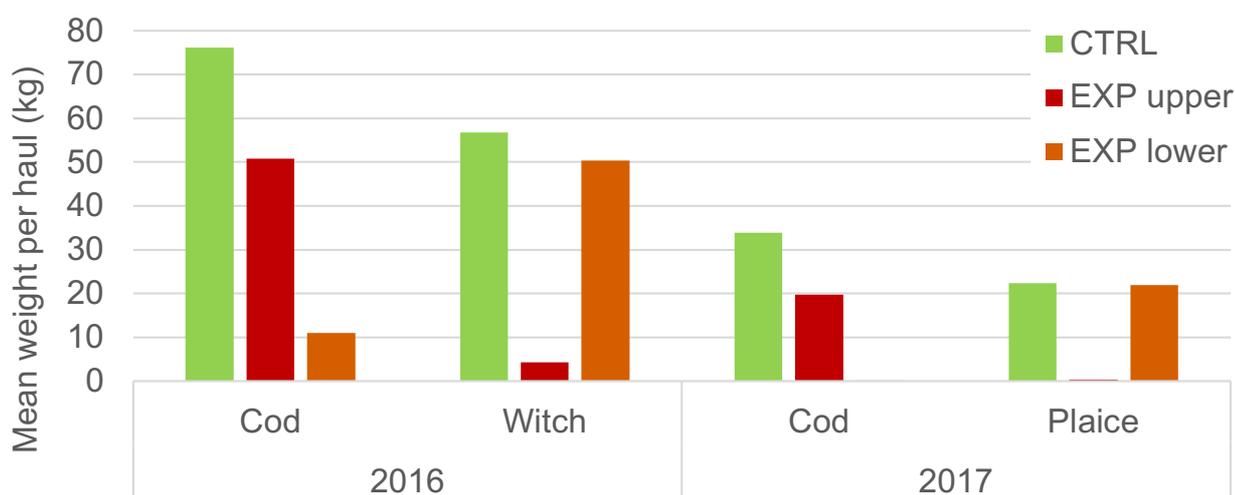
**Gear modification:** The experimental trawl divides the catch going through the grid into two cod-ends. The upper part of the grid is open and attached to the upper codend. The lower part of the grid has horizontal slots and is attached to the lower codend. The mesh size is larger in the upper codend.

## Gear design (EXP=experimental trawl and CTRL= control trawl)



Gear parameters	Mesh size (mm)	Mesh type	Grid
CTRL 2016	120	diamond	-
EXP upper 2016	220/150	diamond	30 cm opening
EXP lower 2016	120/126/120	diamond/square/diamond	5-8 cm slot width
CTRL 2017	120	diamond	-
EXP upper 2017	180/200	diamond	50 cm opening
EXP lower 2017	120	diamond	5 cm slot width

## Results (Catch comparison)



## Conclusions

- Flat fish was primarily caught in the lower cod-end while the opposite was true for round fish.
- No significant difference was found between the trawls regarding catch of witch 2016 or plaice and cod 2017. Cod was caught in a significantly higher amount by the control 2016.
- No significant size difference was found between the trawls regarding witch 2016 or plaice 2017. Fewer small cod were caught in the experimental trawl compared to the control in both years.