Improve selectivity in beam trawls

Short summary of experiments in Belgium (ILVO)

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The beam trawl

- Multipurpose fishing gear
    - Very efficient in catching many target species
    - Sole, plaice, turbot & brill, rays, cod, cuttlefish, scallops… can all be single target species for one boat and one beam trawl type
    - Thus also very efficient in catching them as by-catch
    - That combined with a small mesh size necessary to catch sole is, in short, the problem of the beam trawl in terms of discards

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The beam trawl

- Improve selectivity is difficult
    - Low vertical net opening
    - Short nets
    - High towing speed
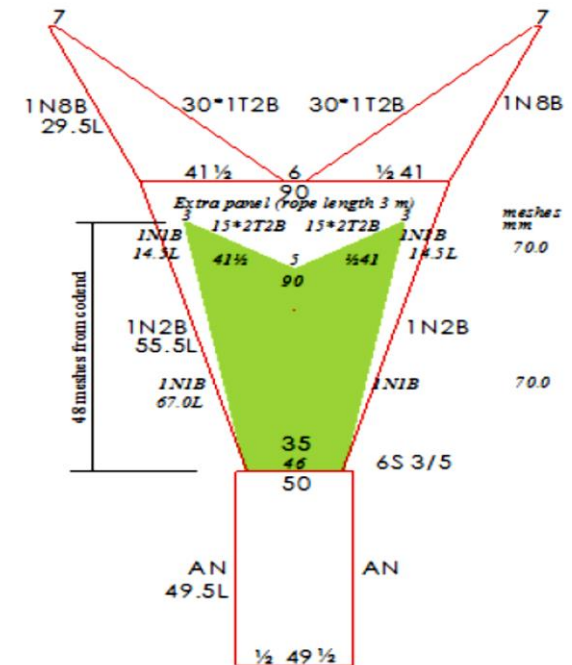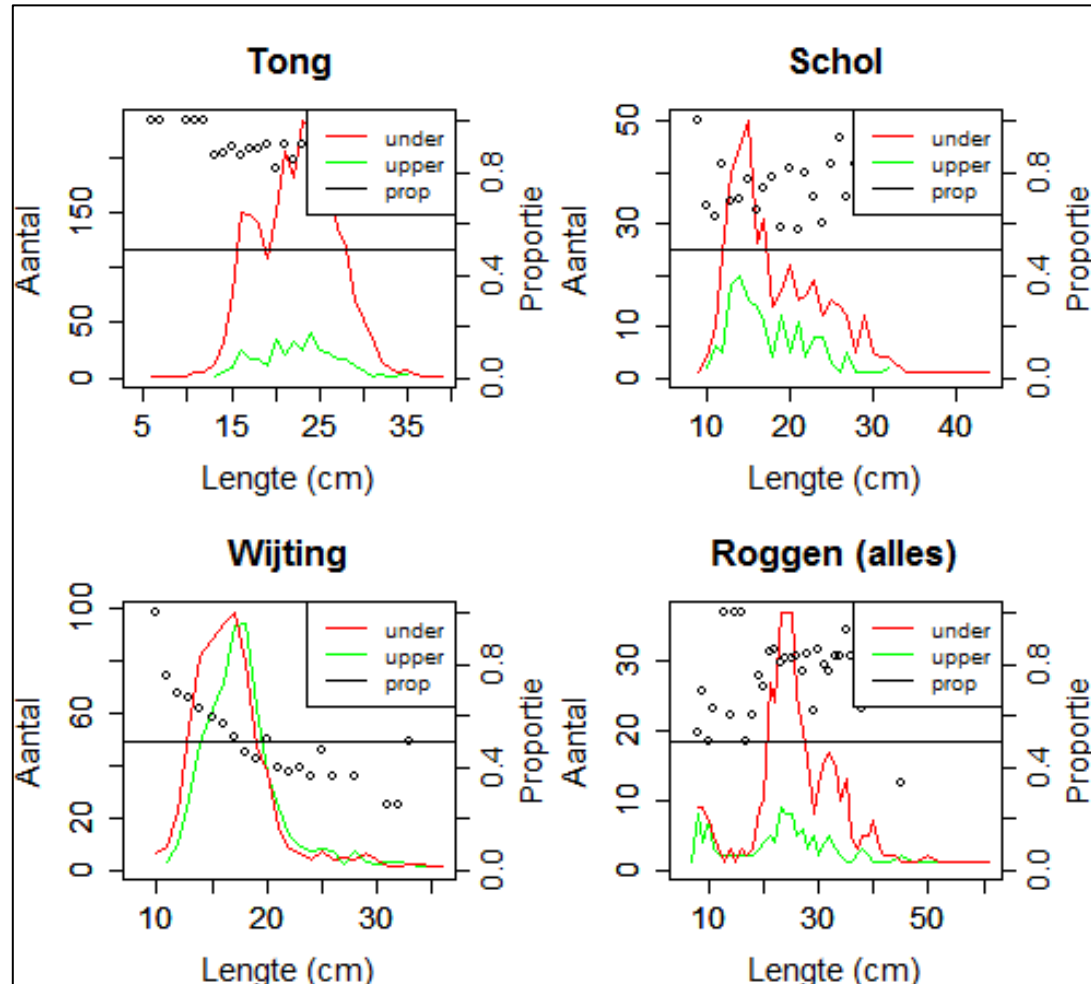   - Heavy netting material
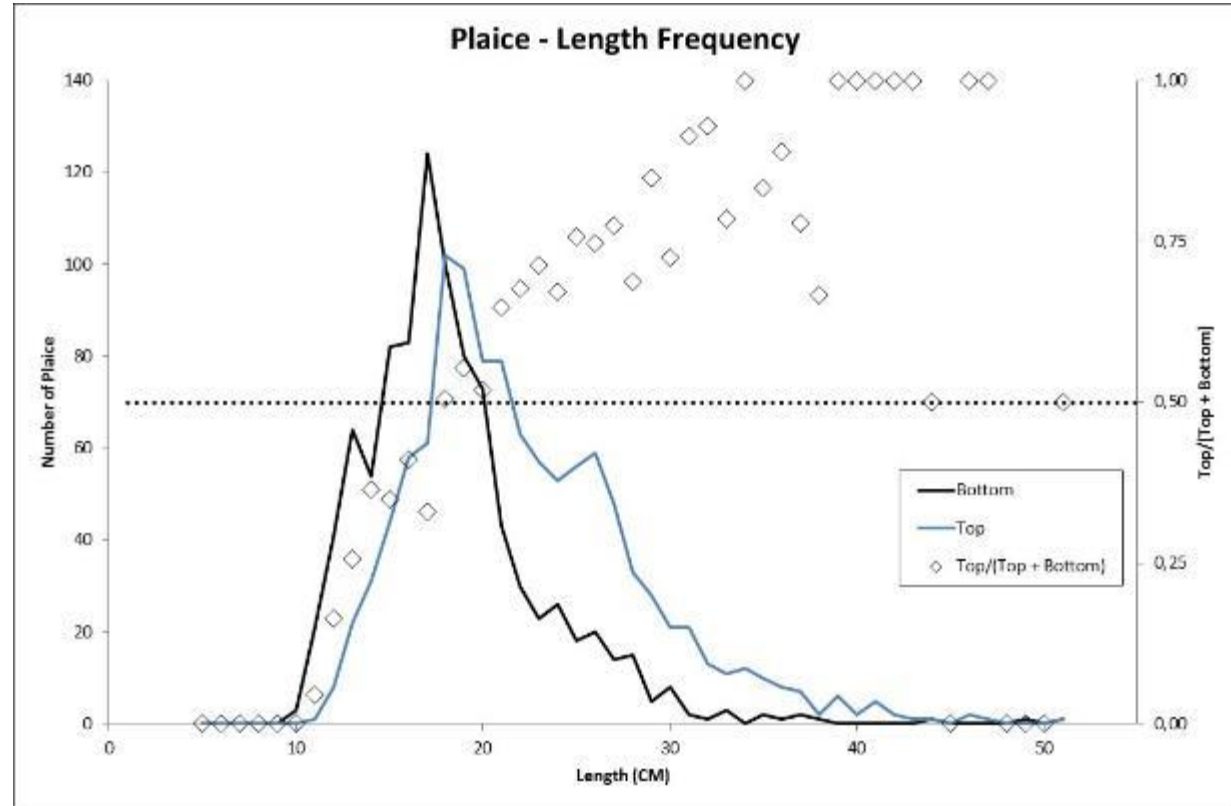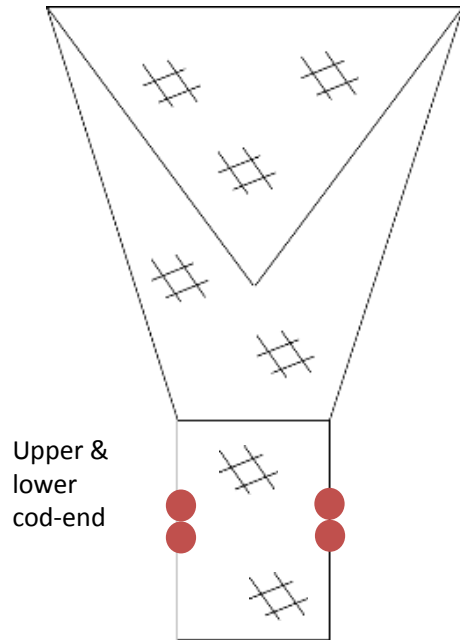
Separator panels

Horizontal separator panels – "sole trap"

- Potential to separate round- and flatfish
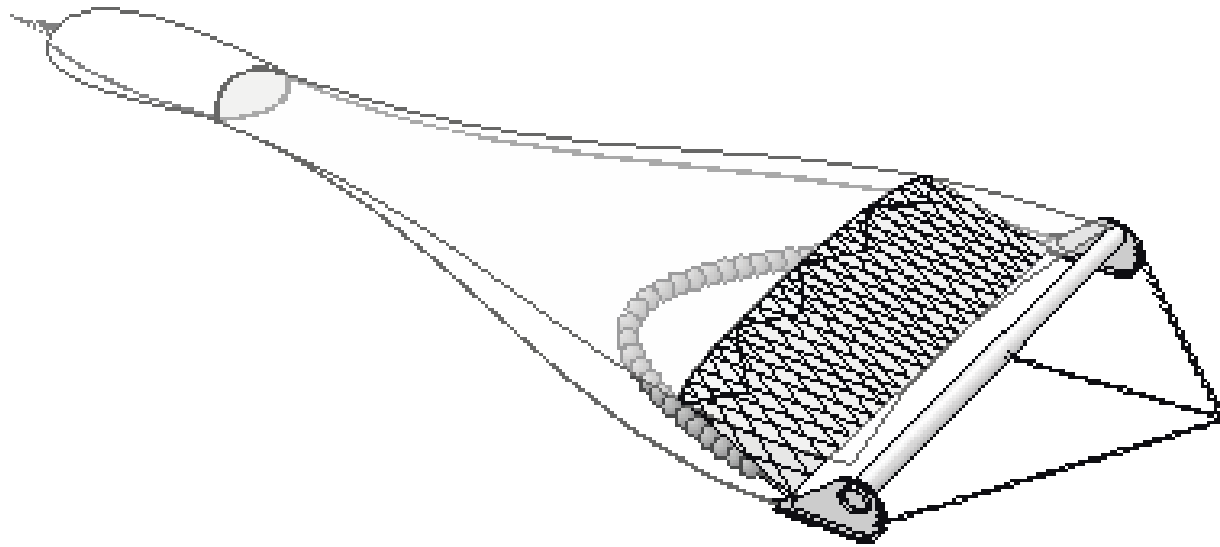- Loss of commercial flatfish difficult to avoid

Sole trap 2 – rope 3m, depth 48 mesh

Inclined separator panels – "Dutch triangle"

Upper & lower cod-end

Plaice - Length Frequency

- Potential to reduce plaice by-catch
- Loss of marketable sole

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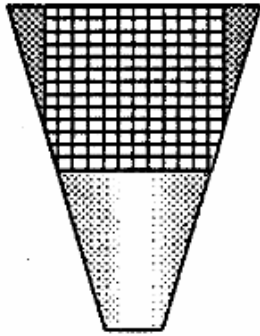# Inclined separator panels – "Straight up"

- Small loss of flatfish
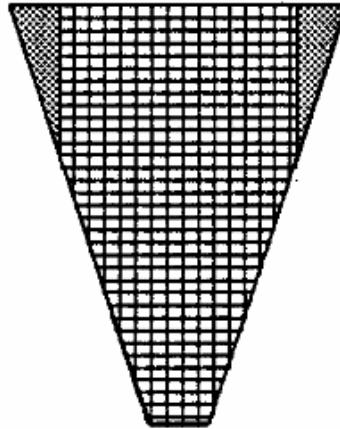- Up to 30 % escape of cod

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Top panels

Alternative top panels – "Square mesh & open top"
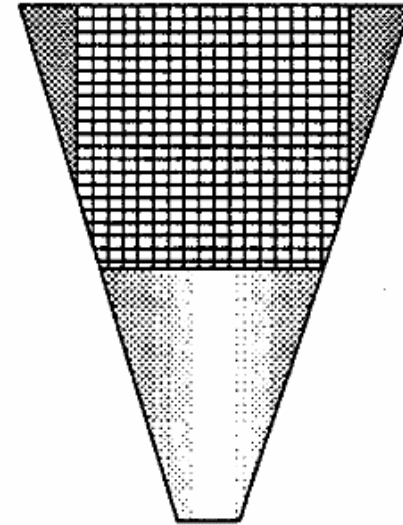
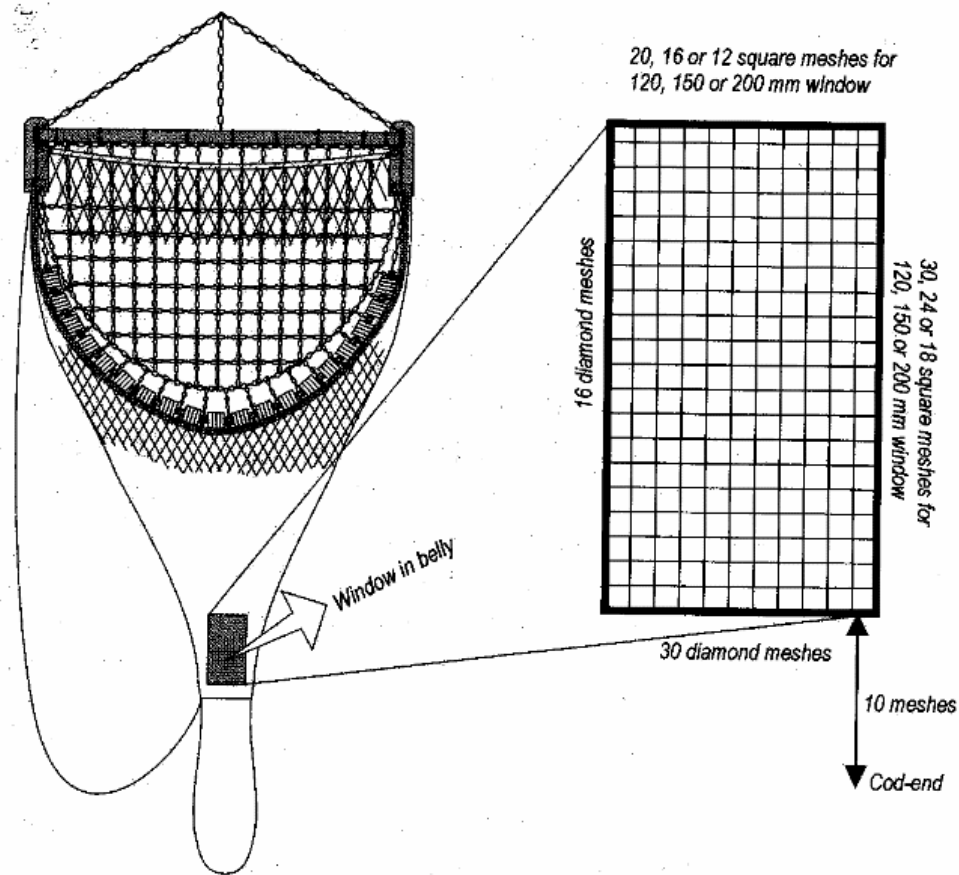300pk (221kW) - 7m   700pk (516kW) - 9m   1200pk (882kW) - 10.5m

- Small loss of flatfish
- High escape for roundfish
  - Whiting and haddock up to 75 %
  - Cod up to 20 %

Release panels in the belly

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"BRP" (Benthic release panel)

20, 16 or 12 square meshes for 120, 150 or 200 mm window

16 diamond meshes

30, 24 or 18 square meshes for 120, 150 or 200 mm window

Window in belly

30 diamond meshes

10 meshes

Cod-end

- High release of benthic invertebrates
- Loss of sole can occur

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"e-BRP" (Benthic release panels with electric field)

20, 16 or 12 square meshes for
120, 150 or 200 mm window

16 diamond meshes

30, 24 or 18 square meshes for
120, 150 or 200 mm window
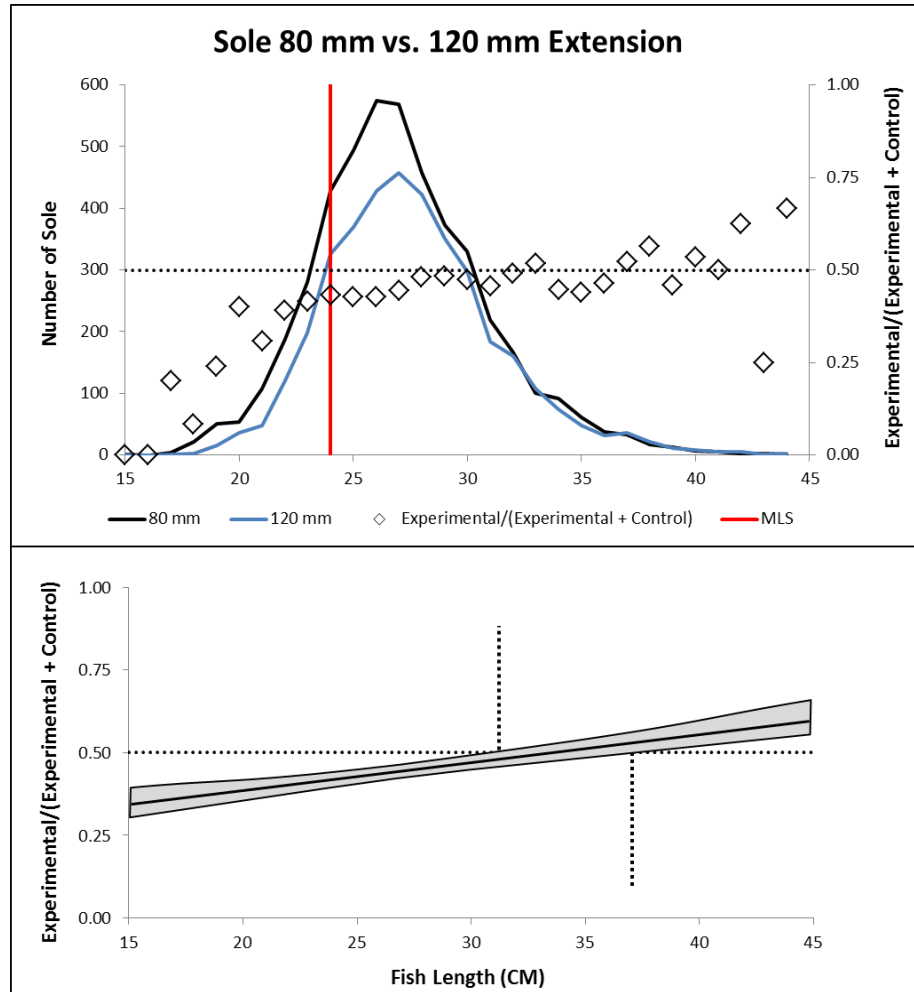
Window in belly

30 diamond meshes

10 meshes

Cod-end
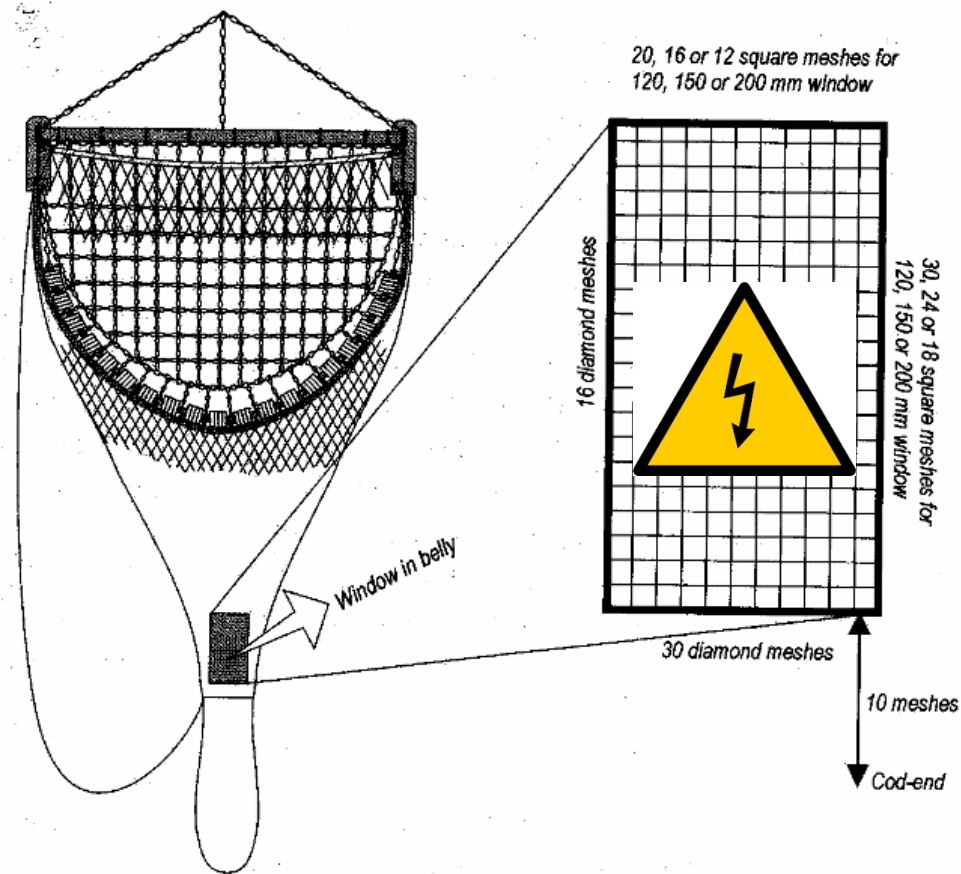
- High release of benthic invertebrates

- **Add a pulse field to the panel to avoid loss of sole**
- **Preliminary results successful**

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Large mesh extension piece

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Large mesh extension piece (120 mm vs 80 mm)

- Improved length selectivity for sole
- No species separation

Alternative meshes in the cod-end
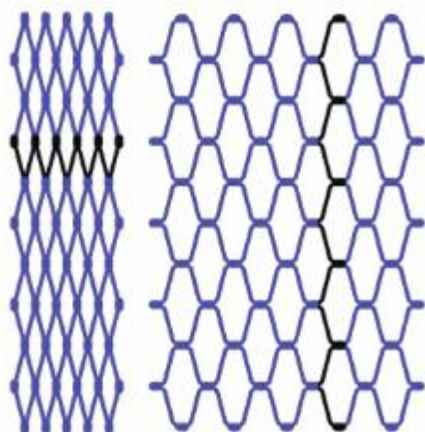
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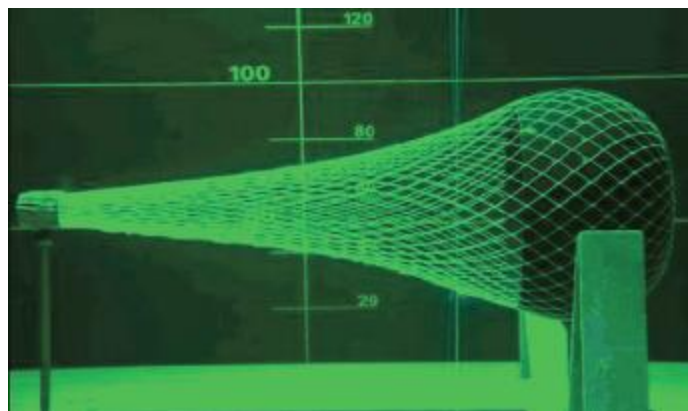# Alternative meshes – "T90 and square mesh, narrow cod-end"

- Better selection for roundfish
- Steeper selection curve for flatfish
- Reduction of benthos catch
- Only improves length selectivity, not species separation

Square mesh

T90

Narrow cod-end

Concluding remarks:

- Species separation in beam trawls is a challenge and usually comes with a loss of marketable sole

- The selective devices available today are unlikely to solve the by-catch problems coming with the landing obligation for many beam trawlers

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Thank you

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