

## Fact Sheet: Estuary prawn trawl – Authorised modifications to trawl gear

July 2024



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## Introduction

Department of Primary Industries and Regional Development (DPIRD) research demonstrates that minor modifications to trawl gears have the potential for substantial benefits including improving catches of target species, while reducing bycatch, drag (and therefore fuel use) and habitat impacts, culminating in fewer overall environmental impacts.

Opportunity is available to voluntarily use these and other modifications, some of which are already lawful, and others authorised by a section 37 order. A copy of the section 37 order may be found on the DPIRD website.

The opportunity to modify and trial new net configurations and Bycatch Reduction Devices (BRDs) is part of an ongoing collaborative approach between DPIRD and industry in anticipation of an upcoming process to review and modernise all trawl gear requirements in NSW.

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## Authorised modifications and potential benefits

Note: The modifications authorised by the section 37 order are identified with “\*”.

**Otter boards:** Smaller or more hydrodynamic otter boards may be used to reduce drag/fuel use. Note that changes to otter-board size and design may affect catches of prawns.

**SAFE (simple anterior fish excluder):** A SAFE may be used. A SAFE is a narrow banner of PVC type material attached between the otter boards. Trials demonstrated that fitting a SAFE can reduce the bycatch of fish.

**Sweeps:** Shorter sweeps to reduce the bycatch of finfish may be used. Shorter sweeps can also increase wing-end spread.

**Ground chain:** Less or smaller-gauge chain may be used to reduce drag/fuel use.

**\*Double- or dual- and triple- and quad-rigs:** 2, 3 or 4 trawls of any head line length may be used if the total head line length of all trawls combined does not exceed the total head line length in Table 1 for the waters concerned.

Total head line length	Waters
15 metres	Clarence River
11 metres	Hunter River
11 metres	Hawkesbury River (upstream of Juno Point / Eleanor Bluff)
22 metres	Hawkesbury River (downstream of Juno Point / Eleanor Bluff)

Table 1: Maximum total head line lengths.

Trials show that triple- and quad-rigs had the greatest spread ratios, lowest drag and least fuel consumption. The triple rig could represent the most suitable configuration from an environmental perspective given smaller and fewer otter boards and reduced bottom contact.

**\*Spreading mechanism (beam or frame with sleds):** A beam or frame between two sleds may be used to spread one or more of the nets if:

- a. the sleds are no greater than 150 mm wide at the base (shoe); and
- b. the points of attachment of the head line and footrope (on either side of the beam or frame) are not more than 1 m apart.

**\*Try net (rectangular frame):** A try net may be used, including while one or more main nets are deployed, if the try net is:

- a. constructed of diamond-shaped mesh netting not less than 32 mm or square-shaped mesh netting not less than 27 mm;
- b. attached to a frame not exceeding 0.6 metres in width and 0.5 metres in height; and
- c. does not exceed 2 metres from the centre of the frame to the extremity of the net.

**\*Try net (beam or frame with sleds):** A try net may be used, including while one or more main nets are deployed, if the try net is:

- a. constructed of diamond-shaped mesh netting not less than 32 mm or square-shaped mesh netting not less than 27 mm;
- b. attached to a beam or frame with sleds that are no greater than 150 millimetres wide at the base (shoe); and
- c. the head line and footrope are attached to the beam or frame no more than 1 metre apart.

This form of try net has a smaller footprint and is likely to result in less benthic impact.

**Net hanging ratio:** Alternate hanging ratios may be used to change the lateral opening of the meshes in the net to enhance selectivity.

**Wing heights:** Reduced wing heights may be used to reduce drag and fuel use. Lower wing heights can also reduce the length of the trawl, which has also been shown to reduce bycatch. Reduced wing heights are only likely to be feasible if smaller mesh (refer “Smaller mesh in the body and wings” below) is used to mitigate loss of the sizes of prawns targeted.

**\*Square-shaped mesh to wings and side panels:** The mesh of the wings and side panels of a net may be constructed of mesh not less than 38 mm if the mesh is hung on the bar so that the meshes are square-shaped. Research shows that square-shaped mesh wings and side panels reduce the bycatch of small prawns.

**Net taper:** Steeper side tapers (i.e., 1P5B) may be applied to reduce drag (fuel use) and bycatch. Steeper tapers are only likely to be feasible if smaller mesh is used to mitigate loss of prawns.

**\*Smaller mesh in the body and wings (diamond-shaped mesh):** The mesh of the body of the net (including belly, wings, and extension piece) may be constructed of 34 to 40 mm diamond-shaped mesh if steep side tapers are applied and wing depths are reduced as follows:

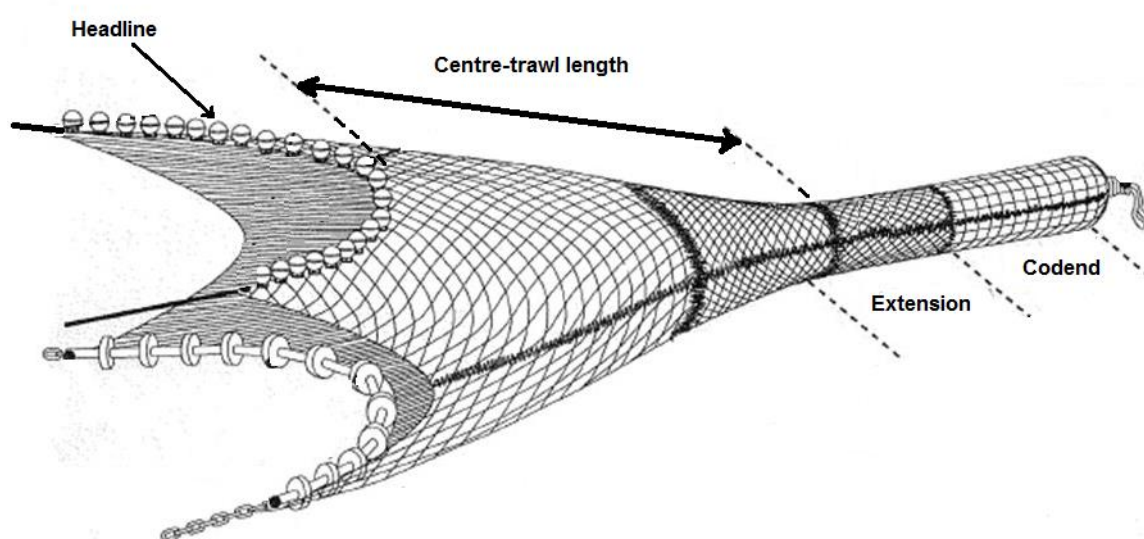
- a. the depth of the wings must not exceed 3.0 m measured in a straight line from the inside edge of the top knot (along the top seam) to the inside edge of the bottom knot (at the bottom seam) along any single line (or row) of meshes when stretched; and
- b. the ratio of centre-trawl length to head line length must not exceed the ratio specified in Table 2 below for the net configuration concerned.



Maximum ratio	Net configuration
0.60	Single gear (1 net)
0.60	Double or dual gear (2 nets)
0.75	Triple gear (3 nets)
0.90	Quad gear (4 nets)

Table 2: ratio of centre-trawl length to head line length

Example for single gear (1 net) subject to a maximum ratio of 0.60: if the head line length is 10 m, the centre trawl length (from the head line to the end of the tapered part of the net) must not be greater than 6 m.



**Note:** An extension piece (if fitted) will be a straight section of netting (i.e., not tapered).

Research shows that 40-mm diamond-shaped mesh in the wings and body of a trawl is larger than appropriate for the sizes of prawns targeted in some of waters of the fishery at certain times (e.g., the Clarence River). Using an appropriate mesh size will facilitate the adoption of other modifications such as steeper side tapers and reduced wing heights that can improve efficiency and minimise environmental impacts.

**\*Conventional netting material:** Square-mesh codends may be constructed of material that is:

- knotted, but only if the material is not less than 29 mm mesh and hung on the bar;
- polyethylene-based; and or
- has a twine diameter greater than 2.5 mm but not more than 3 mm.

**Larger mesh square-mesh codends:** Square-mesh codends may be constructed of mesh larger than the minimum 27 mm to reduce bycatch, including small prawns.

**\*Base plates:** A square-mesh codend may be fitted with a 'base plate' constructed of diamond-shaped mesh if:

- a. the base plate is sewn to the last row of bars of the square-mesh codend;
- b. the base plate is constructed of mesh not less than 40 mm nor more than 50 mm;
- c. the base plate does not consist of a greater number of meshes in circumference than the number of bars in the circumference of the square-mesh codend;
- d. the net is fitted with only one draw or closing string that is positioned (with or without a secondary string) within 9 meshes of where the base plate is sewn to the codend; and
- e. the net is fitted with only one frill or skirt that is attached not more than 3 meshes forward of the draw or closing string.

A base-plate is an industry initiative to help a square-mesh codend hold its shape when in use.

**\*Diamond BRD (Clarence River):** Clarence River endorsement holders may continue to use a diamond BRD (i.e., a diamond shaped hole in the net) if:

- a. each side of the diamond is not less than 11 bars long;
- b. the point of the diamond closest the codend draw or closing string is within 3 meshes of where the square-mesh codend is joined to the body of the net; and
- c. the codend is not more than 80 bars long.

**\*Strengthening ropes:** Strengthening ropes may be fixed to a net to help a BRD and the meshes of the BRD retain their shape, but only if the strengthening ropes are orientated vertically in the net and not around the net.

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## More information

### Management and section 37 order

Commercial Fisheries Management hotline 1300 726 488

### Research and gear construction

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