

GITAG

Gear Innovation and Technology Advisory Group

Phase 2

- aimed at inviting industry to submit ideas
- trialing innovations
- associated data collection and appropriate scientific analysis.

Working with Industry

- Management Group – key partners
- Advisory Group:
 - Whitefish Sector
 - Nephrop Sector
 - North Sea
 - West Coast
- Advisory Group key to providing both advice and expertise to the project as well as disseminating outputs back to industry.

Current Projects - Approved

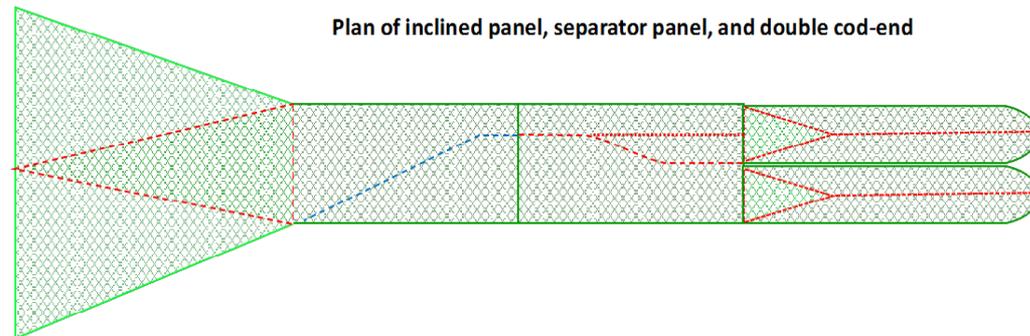
- Amity Phase 2
- Faithlie – SQ mesh 4 panel codend
- Serenity – 120mm mesh trawl
- Lunar – 4 panel cod end 110
- Valhalla – sqm deterrent cone

Amity Project Original Concept – noting that the skipper is now using 400 mm Sq Mesh for the panel.

Gear Innovation and Technology Advisory Group (GITAG)

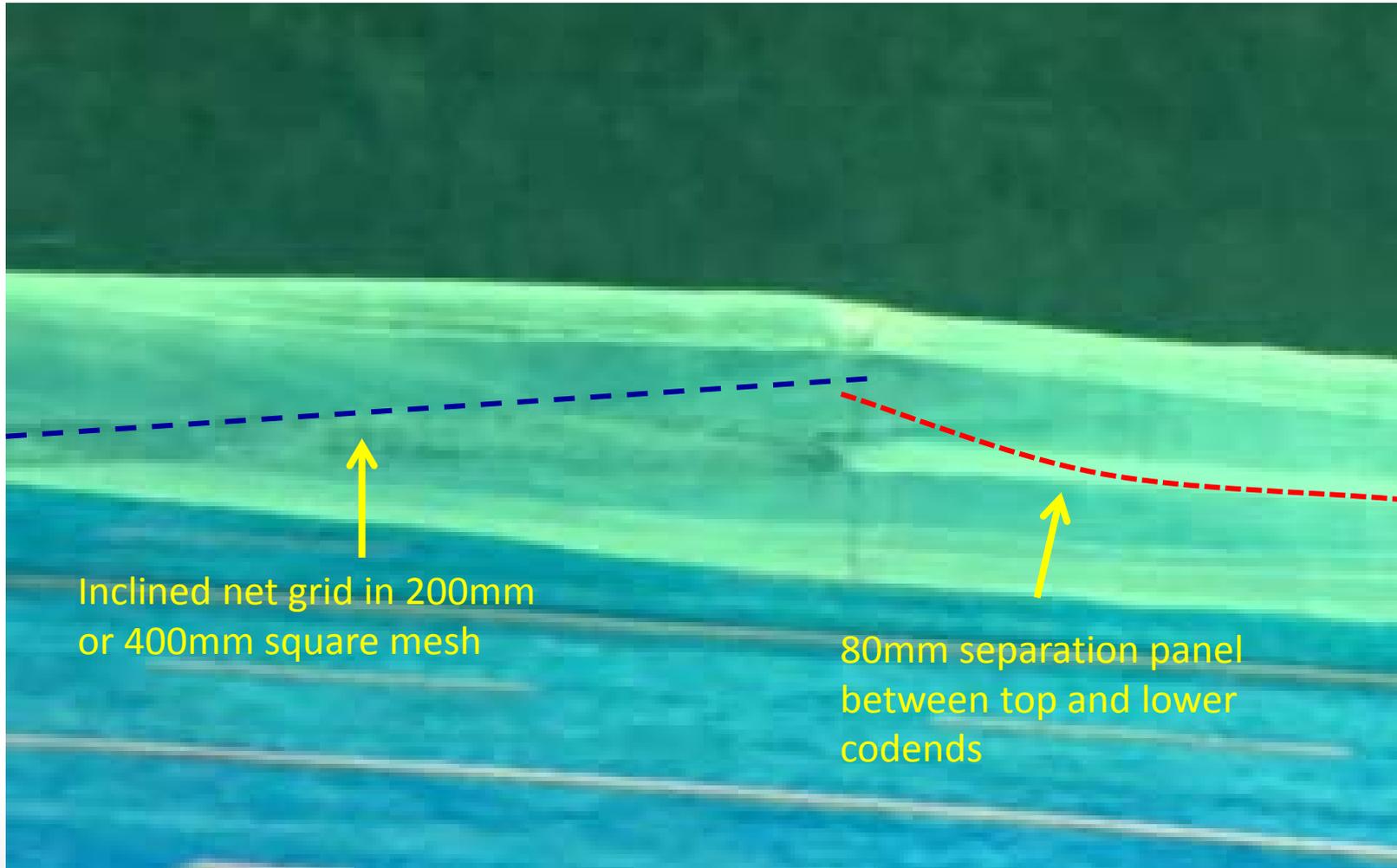
GITAG is an industry based body established in August 2015 to foster flexible working partnerships between active fishers, industry and public bodies, gear technologists and science; aimed at scoping and contracting projects, trialling innovations to existing gear categories, piloting new gear configurations and types with associated data collection and appropriate scientific analysis.

Proposal:- Jimmy Buchan, FV Amity (PD177)



- Separation of fish from prawns and the subsequent retention of prawns
- Inclined panel of 200mm
- Separator panel of 80mm
- To prove it is practically possible to separate prawns from fish
- Once separation is confirmed, consideration could be given to retention of non-target species.

Amity Net in Flume Tank



Amity Net

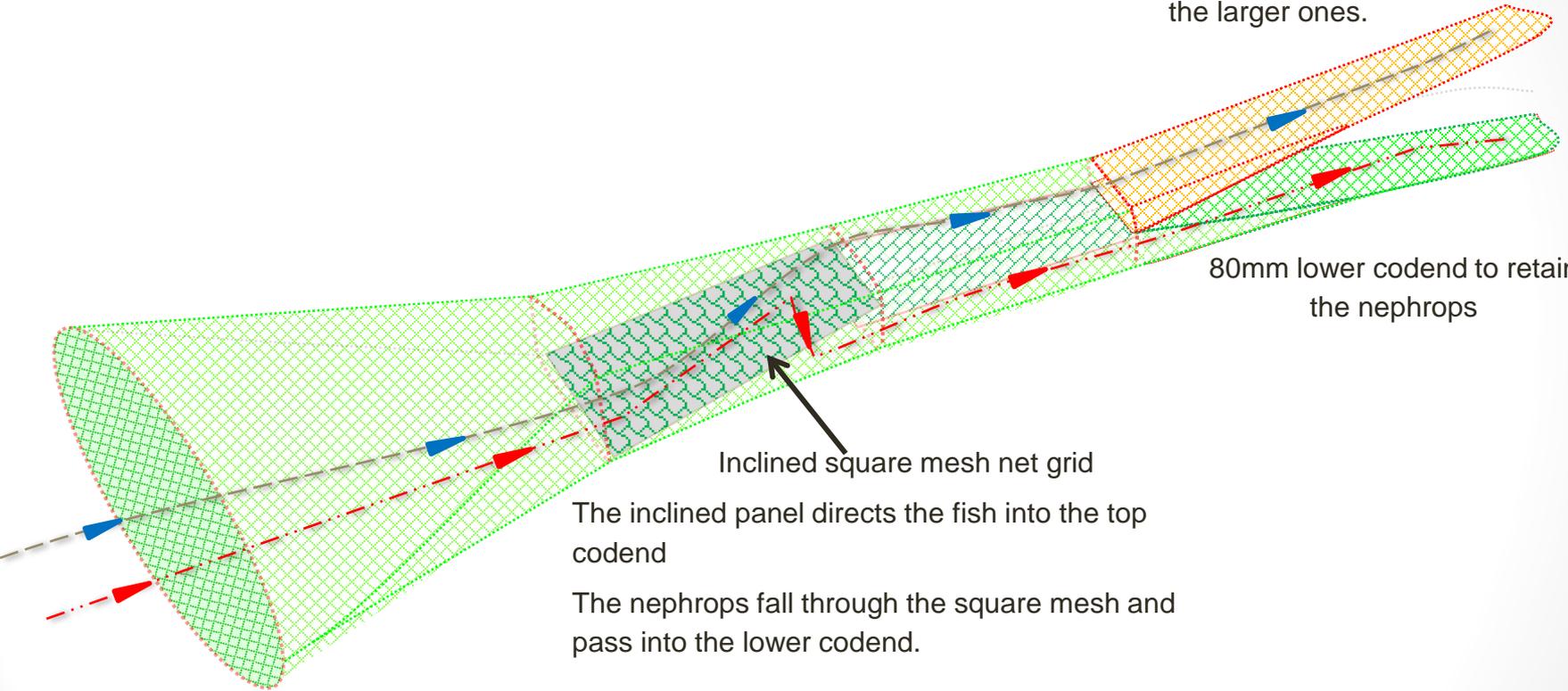
110 mm upper codend to
release all small fish and retain
the larger ones.

80mm lower codend to retain
the nephrops

Inclined square mesh net grid

The inclined panel directs the fish into the top
codend

The nephrops fall through the square mesh and
pass into the lower codend.



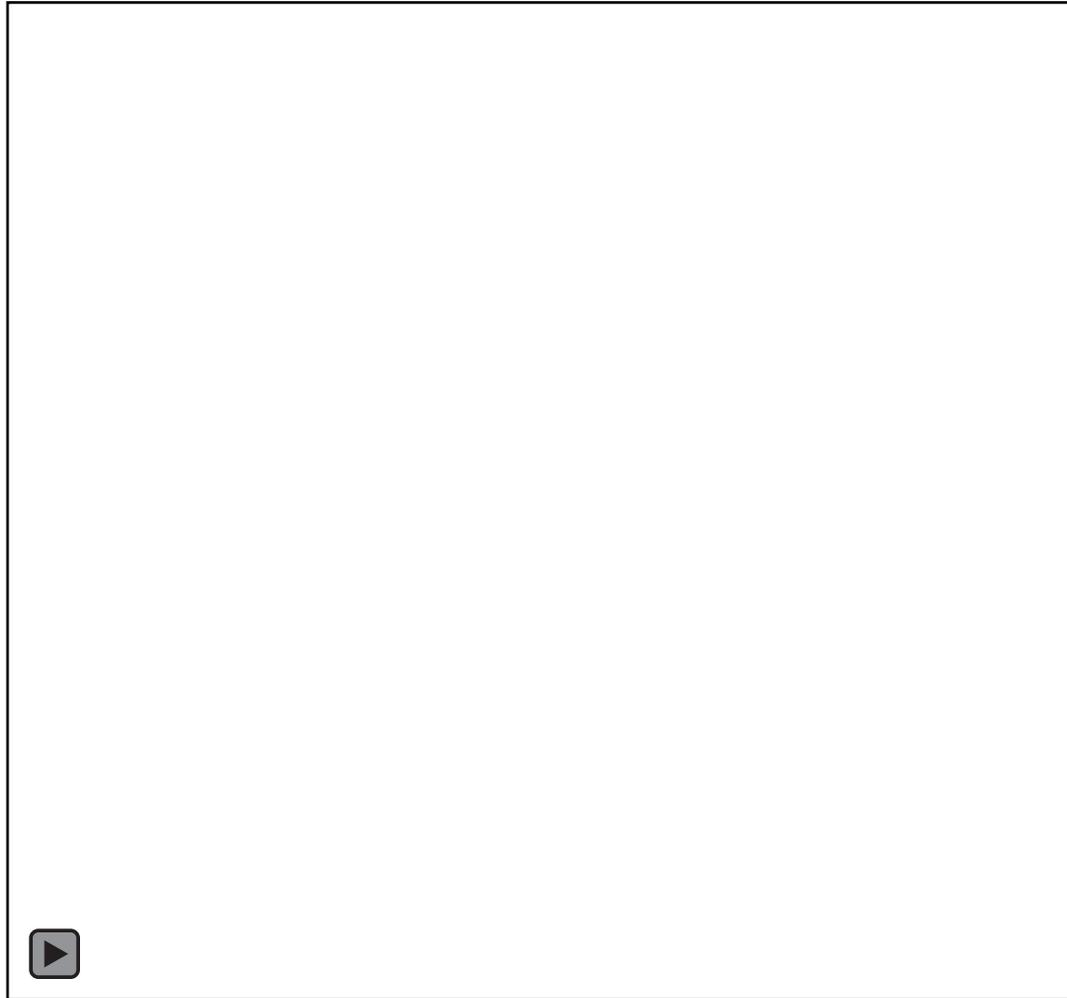
Next Steps

- Review all data from the trials conducted to date with the vessel skipper and owner
- Fine tune the selectivity measures and the optimum cod end size
- Record final design of net
- Carry out full observed trip with control and test cod ends with the preferred twine
- Compile report for the trial and present the data to the GITAG team and onwards to Marine Scotland.
- Make all data available to industry

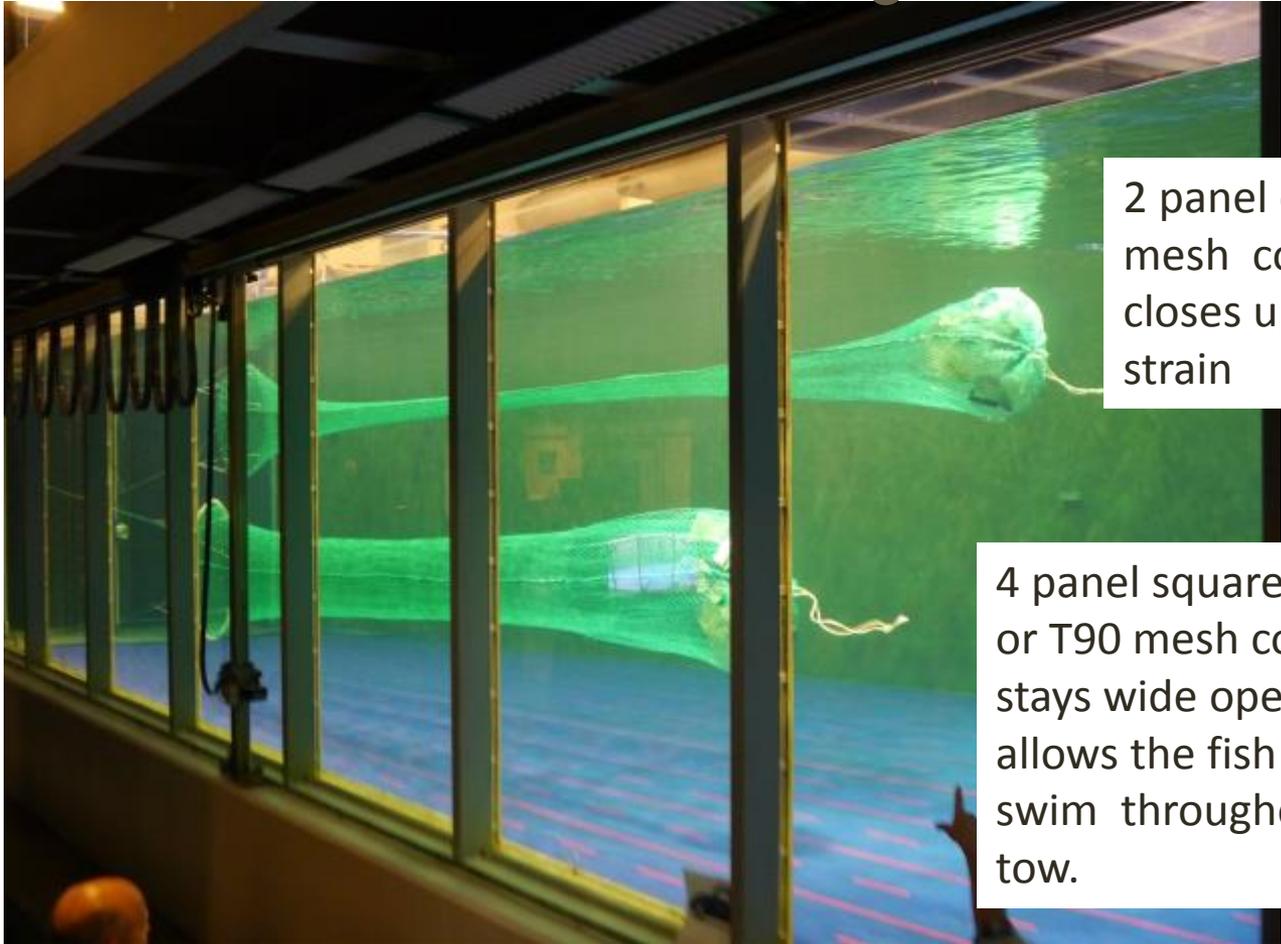
Phase 2 - Faithlie



Faithlie Four Panel SQM Codend



Faithlie Four Panel SQM Codend



2 panel diamond mesh codend closes up under strain

4 panel square mesh or T90 mesh codend stays wide open and allows the fish to swim throughout the tow.

This improves quality, selectivity and reduces stress on the fish.

Project Rationale

- The more usual diamond mesh, that is fairly standard in trawl gear, tends to have a variable opening and will actually close up as the codend fills with fish, thereby it may reduce selectivity during the tow.
- A diamond mesh on 100mm will only open to a diamond shape, about 25mm at its widest point when in the codend and extension of a trawl.
- In a square mesh codend the meshes stay wide open throughout the tow and do not close up at all as the codend fills with fish. A 100mm mesh in square mesh will be open to a constant 50mm square shape. This gives the small fish much more chance to escape capture. Square mesh is sometimes called T45 coming from mesh turned through 45 degrees from the normal towing direction.

Aims of the Project

- Improve the selectivity of the pair seine nets.
- Prevent the capture of small round fish
- Eliminate the discarding of small round fish
- Help the fishermen maximise the returns from their allocated quota.
- Demonstrate to industry the benefits of using square mesh codends.
- Produce a prototype design that is practical for the fishermen to use.
- Reduce the drag of the gear thereby reducing fuel consumption.
- Improve the catch quality.
- By using knotless netting for the codends there will be less abrasion on the fish therefore it should be in prime condition when taken onboard.
- Achieving this will enable the industry to catch their allocated quota in a more profitable, sustainable and environmentally acceptable manner.

Ocean Harvester and Harvester

- Skippers were getting 'encouraged' to be able to evidence no discards.
- Approached GITAG and Seafish for suggestions.
- Decision to try 4 panel diamond mesh codends in 127mm netting.
- Too big a loss of small haddock above MCRS
- Then as a GITAG project they trialled four panelled codends in 110mm diamond mesh
- This included use of innovative strengthening ropes to be able to further open the meshes.

Ocean Harvester and Harvester

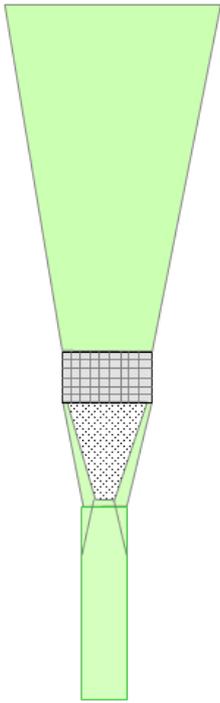
RESULTS

- Big loss of marketable haddock from 127mm four panel codend
- 110mm tended to retain more marketable haddock than the 127mm net
- To release all haddock below MCRS, the boats will lose a high proportion of the four selections of haddock just above MCRS
- These sizes are very sought after in the Scottish market and can command good prices.
- Recently the price on Peterhead market the prices of all four sizes were in the region of £80-£90 per 40KG box.
- It is difficult to release all fish below MCRS and retain all above MCRS!

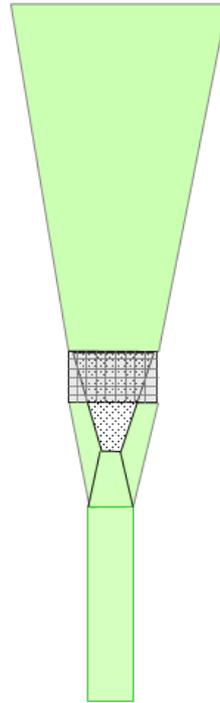
Valhalla

- The Valhalla LK 687 targets a mixed fishery in the waters around Shetland using a traditional Scottish seine net fishing method
- Problems are cod, hake, saithe and however they would want to be able to retain the high value bottom fish for which they have enough quota, such as monkfish, megrim plaice, lemon sole etc.
- They plan to redesign the back end of the net to encourage the release of these round fish species but retain the flats and monks.

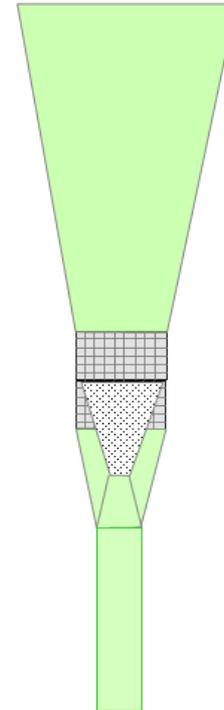
Valhalla



Trial 1 - 160mm square mesh panel ahead of the cone.



Trial 2 - 160mm square mesh section aft of the front edge of the cone.



Trial 3 – two 160mm sections one ahead and one aft of the leading edge of the cone.

Valhalla – additional trials if time permits

- Trial 4 - 200mm square mesh panel in bottom panel of the aft end of the net.
- Trial 5 – 200mm panel with addition of ‘baffles’ behind to delay passage of fish into the codend.
- Trial 6 - IF time allows we may try the baffles with the large square mesh section as well.
- Trial 7 – try a combination of the two or more of the devices.

Projects in Development

- Seine net vessels looking at the issue of capture of small fish
- Innovative designs and materials for example; a cylindrical grid used in the Dutch nephrops fishery
- Smaller nephrop vessels looking to eliminate small fish and maximise use of quota
- Construction of trawls with large mesh throughout and not only eliminate small fish but also reduce fuel costs
- Use of lighter gear to minimise seabed impact
- Trawls to reduce the catch of round fish and maximise the catch of nephrops, flats and monk fish.
- Each project to assist individual skippers to manage the landing obligation whilst maintaining profitability

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