

Perfect purse seine

Experience with the new deep capelin purse seines

In the autumn of 2012 Hampidjan completed setting up two deep capelin purse seines for HB Grandi. These have a 637 metre corkline and a depth of 198 metres. They have been in use for one season so far, and it was fitting that the first trial should take place on board *Víkingur* AK-100, one of the oldest pelagic vessels in the Icelandic fleet which arrived brand new in its home port of Akranes on the 21st of October 1960. *Víkingur* has from the start been a lucky ship, either at the top



Plenty to do pumping fish

of the list of top catchers or among the top few vessels. *Víkingur*'s skipper is currently Gunnar Gunnarsson. He sailed to test the first of the new deep seines as soon as there was an opportunity when the sea-

son opened on the first of October 2011, searching for capelin off the west-fjords and was immediately aware of marks. The weather ensured that there was no chance of shooting the gear those first days, al-

though *Víkingur* docked at Vopnafjörður a week later with 1000 tonnes on board. This had been caught in five shots over two nights of fishing.

Perfect

"That's a perfect purse seine," Gunnar Gunnarsson told Catch On. "It shoots easily, it's purses well and it's easy to stack back in the net bin. The only thing that needed to be fixed was to lengthen the leadline, although that in itself has nothing to do with the design of the gear. Our power block doesn't let you



Víkingur AK-100 steaming to Vopnafjörður with full tanks

hold back the corkline on the way to the net bin, so the leadline lags behind due to its weight and the corkline is so light that it runs ahead. This means that the corkline and the leadline need to be evened out while hauling so that they shoot away properly next time.”

Strong

“The seine sinks well as the netting is made of heavier twine than used to be normal in deep seines. The thinnest twine is 210/24, which is around 1mm, while the heaviest twine in the bag is 210/72 at around 2mm. This is a very strong purse seine and it suits the difficult conditions we’re working under off the north and west coast in winter. We easily managed to get the



A deep purse seine being taken on board from Hampidjan's net loft

gear down to 107 fathoms without losing the corkline under the surface. We had a very nice mark at 60 fathoms that we managed to stop escaping before we pursed up, so this really is a true deep purse seine.”

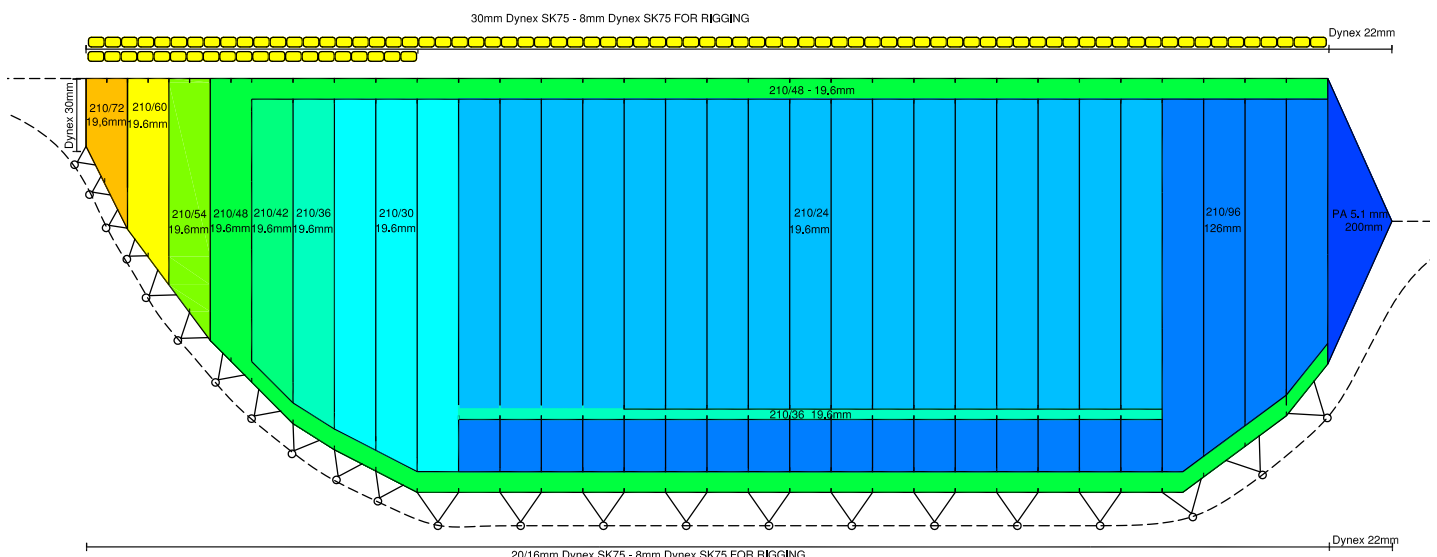
Snurrevod net

“There were no problems pursing. The gear

came right up. We have so-called Snurrevod netting in a 126mm mesh size at the bottom of the gear which really helps pursing. It’s important to purse quickly to stop any fish escaping as the gear closes up. It also makes a difference that the leadline is 3-4kg lighter than on older purse seines. I’m impressed with this

gear, and it’s good to see two new purse seines being taken on board HB Grandi’s vessels. It’s quite a few years since deep seines were last made in Iceland and good to know that purse seining is going to continue in future.”

CAPELIN PURSE SEINE 630x198m



Cosmos Trawl doing well in Morocco

Skagen-based sales manager Leif Lykke speaks to Catch On

Sardine and mackerel off West Africa

Cosmos Trawl has supplied two Gloria Helix pelagic trawls to a pair of Swedish trawlers that began fishing off the Moroccan coast in 2005. The skippers and crews of Nordic and Monsund started using a Helix self-spreading trawl while fishing from Dakhla, in the southern part of Morocco. After we were able to deal with the teething problems with this type of gear, we have been able to make good progress on this market over the years. Around half of the 25 boats fishing from Dakhla are using Gloria Helix trawls that we have supplied in the 600 to 10000m stretched mesh opening range.



Leif Lykke Sales manager.

Quality makes the difference

It wasn't easy to get a foothold to begin with, as we weren't on this market with the cheapest fishing gear. We have placed a great deal of emphasis on using the best quality materials, such as Helix ropes, Dynex lines and Hampidjan's own Dynet and nylon netting. Many of these vessels are also showing their age and as they don't have a great deal of engine power, it's

important that the fishing gears are light and manoeuvrable. It has to be remembered that much of their power has to be diverted to chiller systems to keep the catch cool, as the sea temperature in these waters is between 20 and 25°C. This power is generally taken off the ship's main engine, at the expense of its towing power.

Plenty happening in Dakhla

There has been a great deal of progress in pelagic fisheries from Dakhla. It's close to fishing grounds and a trip is only 24 to 36 hours. The fish are graded by size and species ashore in Dakhla, from where most of it is trucked iced or chilled for processing at factories further north. Quayside space is being increased at Dakhla for the growing fleet of vessels at what people call the golden heart of Morocco. For many years there have been foreign fishing vessels that operate in Moroccan waters, and these have transhipped their catches in the outer harbour at Dakhla, which provides business opportuni-

ties for the local economy. It can also be said that the activities of these factory vessels in Dakhla were the spark that has since led to the development in fishing and processing ashore that continues today.

Mixed crews

There are a good few Swedish, Danish and Icelandic fishermen to be found in the Dakhla fleet, but there are now more and more local fishermen as they are becoming increasingly skilled at fishing with pelagic trawls. These trawls were not used at all by the local fleet until foreign fishing vessels began using this method in Moroccan waters some decades ago.



Pelagic trawler Miftah from Dakhla, pumping fish ashore



Claudia

In August this year Greenlandic shrimp trawler Claudia GR-6-20 was rigged out with a set of Dynex Warps.

The boat is from Nuuk, but lands its catch iced in boxes at the village of Aassiaat, which is on an island at the southern end of Disco Bay in Western Greenland.

Fishing gear overhauled

Claudia was built in 1978 and has worked hard since then. After engineer Rafn Gardarsson had inspected the trawler a few months earlier, several issues around the deck

layout were addressed to make it possible to use Dynex Warps. The towing blocks in the stern gallows were located in such a way that they were sometimes in contact with the casing, and marks in the steel showed where the wire had worn grooves in the metal. According to Rafn Gardarsson, the upper gallows needed to be shifted back a distance roughly equal to its own width. By relocating the towing blocks, there is relatively little chance that the Dynex Warps can be in contact with the ship's casing.



Plates added to strengthen Claudia's winches

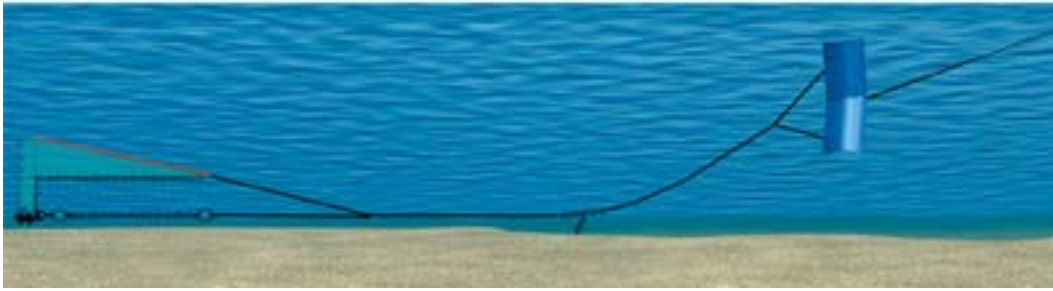
Beefed-up winches

To make the most of the winch system on board, the decision was taken to strengthen the barrel of each winch significantly. This was done by welding two layers of pre-rolled plating onto them, increasing the plating thickness from 17mm to 57mm. This has double advantages in firstly reducing the

risk of a fracture occurring in the steel or of the barrel stretching, and secondly by achieving a more secure joint against the cheeks of the drum, therefore reducing the likelihood of them coming adrift from the barrel under the stress of constant use. The trawl blocks were also overhauled, in that they were carefully



Shrimp trawler Claudia from Nuuk in Greenland



Thyborøn pelagic doors used to square Claudia's shrimp trawl

ground smooth, along with the block housings, and stainless steel bars were used in the wire steering. To finish, 915m of 22mm Dynex Warps were stretched as they were loaded onto the drums. The winch upgrade was carried out at a cost of approximately EUR 27.000.

Lower running costs

Claudia's owners expect that these improvements will cover their own costs over the coming years in the form of lower running costs, due mainly to reduced fuel costs attributable to the low weight of the Dynex Warps at weight in water of only 100kg compared to 3200kg for the conventional 22mm steel wire ropes. It is also clear that the working lifetime of Dynex Warps is as much as five times longer than that of today's steel wire.

8-12% less fuel

Claudia tows its gear with the trawl doors

flown five to ten metres off the bottom, so the Dynex Warps are expected to touch the bottom only under exceptional circumstances. Experience with this type of gear indicates that with steel wire warps, a reduction in fuel consumption of between 8 and 12% can be expected, and this can be even greater with the addition of Dynex Warps.

Fishing gear

Skipper and owner Jørgen

Eriksen tows a 2350 mesh shrimp trawl with weights at the front ends of the sweeplines and single bridles running from these to the 6,5m² Thyborøn trawl doors. He reports that he uses shorter warps on shallow grounds, as the warps do not lie in a downward curve as steel warps do, running instead direct to the catching vessel and therefore with no need to lift the doors high over hard ground.

Pioneer

Jørgen Eriksen catches approximately 2000 tonnes of shrimp every year, and expects that Dynex Warps will increase the amount that Claudia can catch. He is a pioneer in using these lightweight warps in Greenland, and it will be interesting to follow the progress of this young skipper's dedication and concentration in making use of one of the most far-reaching developments in recent years in trawl gear technology by fishing with Dynex Warps.



Jørgen Eriksen, skipper of Claudia



915 metres of 22mm Dynex Warp on Claudia's trawl drums

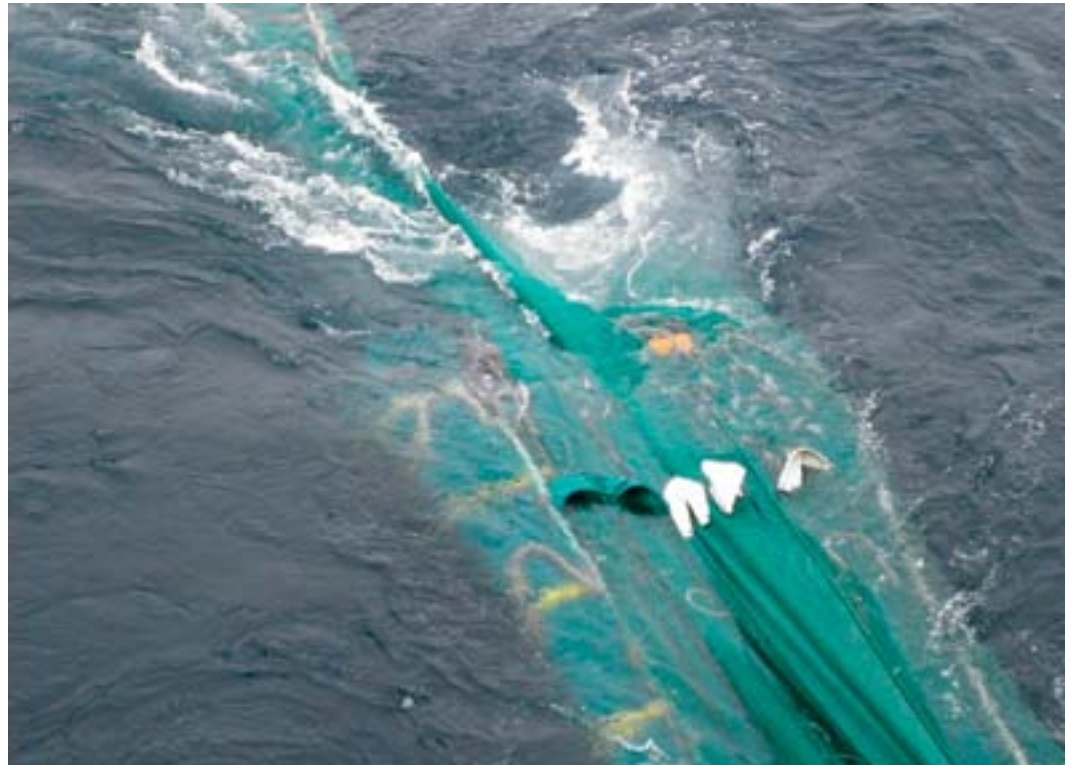
Double codend selectivity

Last summer a research cruise on board Árni Fridriksson was used to examine the selectivity of bottom trawls with a variety of different arrangements behind the belly.

These trials are carried out with the proportion of fish that escapes from the gear, mainly through the codend meshes or the grid bars, is measured. The codend arrangement, along with mesh size and circumference, has a great deal to say on how much of each size range of fish of each species can escape through meshes. In fact, most of those fish that are presented with a trawl escape from it in one way or another. Indications are that catches are generally around 20% of those fish that encounter a trawl, although there are variations in the fishing capacity of the trawl that depend on species and fishing grounds.

Methods

Several methods are used to carry out this research, but this year the chosen method was to put a small mesh 40mm bag over the codend to be tested. This



The Marine Research Institute's selectivity testing codends one of them with a fine-mesh outer bag and canvas spreaders

outer bag was made with canvas spreaders that kept it open and clear of the codend inside. This ensured that any fish escaping from the codend were collected by the outer bag. At least ten tows are needed to test each codend, although the more tows, the more accurate and reliable the results are.

The two layer trawl

Among the gear arrangements that were tested was a horizontally split trawl that was compared with a standard trawl, each with a 135mm codend. The horizontally

split trawl was made with a netting panel between the selvages to divide the belly into upper and lower sections, each leading to its own codend. The upper codend was made in 135mm green PE with a covering, while the lower codend was made from 155mm PE. Both were standard length and with a 120 mesh circumference, that includes the selvedge meshes.

It was clear that up to 90% of haddock found its way into the upper codend, with cod mixed across the two, although

normally the majority of cod was to be found in the lower codend. What was also apparent was that the horizontally split trawl retained much more small fish than a trawl with one belly and codend, or roughly 6cm smaller cod and haddock. We can conclude that in spite of its excellent selectivity in dividing catches, its selectivity in retaining small fish was less than acceptable.

It might be possible to reach other conclusions by putting a narrower codend on the split-level

trawl, as the circumference of the codend has no less significant an effect on selectivity than mesh size. But a narrower codend on a split-level trawl has not been tested, although this could give us better results.

Hampidjan's T90 120mm codend

Another codend tested during these trials was a T90 arrangement. This is made from yellow PE netting that is commonly used today, and known as 'one face' netting, in that all of the knots face the same way. This netting is considerably thicker and stiffer than conventional green PE. It has a mesh size of approximately 120mm. The reason for this is that research both in Iceland and overseas has indicated that the selectivity of the netting increases in this configuration. It can be reckoned that 120mm netting in a T90 configuration is as selective as 135mm netting in a diamond configura-

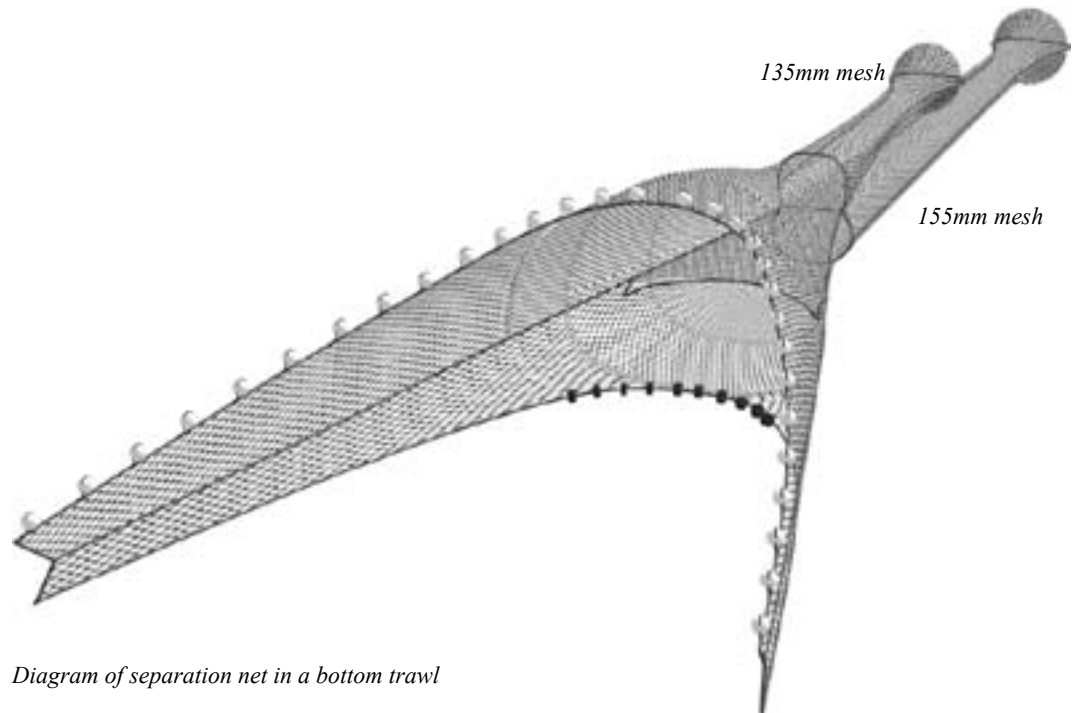


Diagram of separation net in a bottom trawl

tion - although there is more to this as the circumference of the codend and the choice of material also have an effect. In short, the selectivity of the T90 codend in these trials was shown to be too low to be acceptable in allowing its use. On the other hand, this research is continuing in developing a T90 codend in co-operation between Hampidjan, HB Grandi and the Marine Research Institute.

Haraldur Einarsson og Ólafur Ingólfsson, Fishery Biologists at MRI in Iceland

Hampidjan's T90 120mm codend



Separation net in a bottom trawl



Hampidjan's T90 codend

New Thyborøn bottom doors

T14vf, V-doors for Hopen M-2-HO.

Trawler company Remøy Fiskeri Selskab AS, based at Fosnavåg in Norway earlier this year bought a pair of the latest Thyborøn VF14 bottom doors for trawler Hopen, which fishes in the North Sea and off the Norwegian coast.

Specially made

These T14vf doors are designed specifically to be towed above the sea bed, reducing the fishing gear's overall resistance, along with reducing abrasion to both the trawl and the doors. With the right settings, it is straightforward to keep the doors just off the sea bed, which also provides a better gear spread than can be achieved with conventional doors.

T14vf are a design of pelagic door that has been modified for demersal fishing, as the accompanying pictures demonstrate, and this technique has

been used to good effect on several Icelandic trawlers. The T14vf doors make it possible to do away with heavy clump weights at the sweepline ends, which simplifies operating and gear handling.

Happy with the T14vf doors

Hopen's skipper, Pål Lilleroevde, said that the T14vf doors are significantly better than the conventional doors they had been fishing with before. He reported that this is especially true in a turn, regardless of whether they are towing one trawl or two, as the gear spread stays constant and the fishing capacity is not reduced while the course is changed. He commented that fasteners on hard ground are practically a thing of the past, which means that they have more fishing time available and reduced costs.

Less tension, more spread

He told Catch On that the warp tension has dropped after they started using the



Hopen's T14vf V-doors

T14vf doors, falling from 11 tonnes to 9-10 tonnes on each warp, along with a reduction of 5% in fuel consumption.

"We had a pair of 10.50m² Scorpion doors weighing 4600kg and switched to the 10m² T14vf doors that weigh 4500kg. In spite of the size and weight difference, we are seeing a spread of 20% more than we had with the Scorpion doors. This was also the first time that we could tow a pair of 630 mesh trawls at full spread, with great results."

Fishing well on banks

"Sometimes we are fishing on a steep bank in a heavy current, and then we use 300kg clump weights at

the sweepline ends and lift the doors 6-8 metres off the bottom. This keeps the doors very stable and this keeps the gear spread that we want to see under these conditions."

This year Thyborøn Trawl Doors has manufactured and sold 425 pairs of doors, including 40 pairs of T14vf doors from 3m² to 14m².

