Fishing goes back to the future

CASE STUDY

Key features

- 15m trawler converted to anchor seiner

Key benefits

- Fuel savings of up to 75%
- Larger catch sizes
- Better quality fish
- Less environmental damage
- Payback time of two to three years

Switching from trawling to anchor seining has cut Motueka skipper Ken Franks' fuel bill by more than half.

Since converting his 15m boat the *FV Vanguard* from a trawler to an anchor seiner in 2008 his catch sizes have increased too, and the quality of the fish is better. That means higher profit margins for Mr Franks at a time when rising fuel prices are forcing others in the industry to think about tying their boats up.

"My business is more profitable, and I've future-proofed it—I know I'm set up for the next five to ten years."

Anchor seining is a traditional fishing method which disappeared from New Zealand waters about 50 years ago, largely because at that time it was more technically demanding than trawling.

However, modern fishing gear means that it is now just as easy to anchor seine as it is to trawl. And as fuel costs continue to rise anchor seining is becoming an increasingly attractive alternative to trawling. Anchor seining is more fuel-efficient than trawling because, rather than running the motor to drag a net for long distances, the boat is anchored in one place while the net is winched in.

Mr Franks says he now uses between a half and three quarters less diesel than he did when the *Vanguard* was a trawler.

"When I was trawling I'd burn on average between 1200 and 1800 litres of diesel a week. Now with anchor seining I use between 250 and 400 litres."

Two seine rope reels which hold 3,000 metres of rope each.

> "My business is more profitable, and I've future-proofed it – I know I'm set up for the next five to ten years", says Ken Franks.

His catch sizes are up, too, partly because anchor seining allows him to fish much larger areas than he did when he was trawling. Bigger catch sizes combined with lower fuel use have increased Mr Frank's turnover from just $3.68 per litre of diesel to an impressive $25.42 per litre.

Mr Franks made the switch with the help of an EECA grant. And he's now encouraging other skippers to do the same. He says that even without a grant, the fuel savings alone would pay off the investment in two or three years.

"I highly recommend it. If I was still trawling I'd have been seriously considering tying my boat up, because 30% of my turnover was going into fuel. But now I'm paying much less for fuel and I'm catching a lot more fish. The quality is a lot better too."

What is anchor seining?

Anchor seining, also known as Danish seining, was first developed in Denmark in 1848. It involves herding fish towards a stationary boat using a net attached to two long drag lines or seine ropes.

The drag lines, which can extend as much as 4km from the back of the boat, are then gradually winched in. This winching process herds the fish closer and closer to the track of the net until eventually the net is landed on the deck using a power block.

Anchor seining is similar to Scottish seining or fly dragging, except that in anchor seining the boat is anchored while the net is winched in, while in Scottish seining the boat moves slowly forward during the winching process.

Both methods are more fuel-efficient than trawling. That is because trawlers can steam for up to three hours dragging a net behind them, which burns up a lot of fuel.

Anchor seining can be used to catch bottom-dwelling fish such as flounder and sole, red cod, gurnard and snapper. It is suitable for areas with a flat seabed without too many obstructions, and can be used at depths of up to several hundred metres.

Rediscovering a lost art

Anchor seining was once a relatively common method of fishing in New Zealand. In the 1930 there were more than 50 anchor seiners working in New Zealand, but by the 1950s they had been largely replaced by trawlers.

By 2007, when Mr Franks began investigating ways of cutting his fuel costs, there were no anchor seiners left in New Zealand, and only a handful of Scottish seiners.

"We'd lost the knowledge base about anchor seining."

But although anchor seining had died out in New Zealand the practice was still alive and well in Denmark. It was also increasingly popular in Norway and Iceland.

At that point, Mr Franks had already introduced fuel efficiency measures such as keeping his engine revs low while he was steaming, and trying to limit each fishing trip to just one area. However, he was keen to find a way of making more substantial fuel savings.

"I stumbled across anchor seining during my research," he says. "I was quite surprised, but the potential of it really made sense to me."

And as he soon discovered, while anchor seining was once both more technically and physically demanding than trawling, that is no longer the case. Modern fishing gear such as computerised navigational equipment and motorised rope reels mean it is now just as easy to anchor seine as it is to trawl.

"The only real difference is that when you're seining, once you start hauling you can't stop—it's not physically harder than trawling but it can be more intense."

Converting the *Vanguard*

As one of the first people in the Southern Hemisphere to convert a trawler to an anchor seiner, Mr Franks had to start the process from scratch. He carried out extensive online research, including corresponding by email with a retired anchor seiner skipper in England.

Then he carried out the first stage of the conversion, removing the trawling gear from the *Vanguard* and replacing it with anchor seining gear such as an anchor winch, seining blocks, a seine winch and rope reels.

However, it wasn't until he spent five days in the Baltic Sea on a Danish anchor seiner that Mr Franks really got to grips with the technical requirements of anchor seining. The changes he made following the trip included:

- modifying and refitting some of the seine blocks
- removing the seine winch, and modifying the anchor winch so it could haul the seine ropes
- adding a new hydraulic motor to the anchor winch
- modifying the net
- fitting a new anchor .

The whole process cost about $80,000 (including the cost of the trip to Denmark), but Mr Franks says part of that cost was because of the mistakes he made along the way.

"If I started converting a boat now it would be a lot cheaper—I think you could comfortably do it for between $50,000 and $60,000."

Ken Franks holds the anchoring gear quick release mechanism.

Growing interest in anchor seining

The international fishing community is increasingly interested in anchor seining, largely as a way of cutting fuel costs. Among those who support the practice is Ulrik Hansen, a Danish fishing gear technologist who recently spent a year in New Zealand providing advice about improving fuel efficiency.

He says that as well as being more energy-efficient than trawling, anchor seining has other environmental advantages. In particular, it is believed to have less impact on the seabed than trawling, because the seine and ropes are generally lighter than trawl gear.

Mr Hansen says the quality of the fish caught by anchor seiners is also better, largely because the fish are dragged in a net for only 20 minutes or so before landing, rather than for up to several hours as in trawling. In many cases they are still alive—something he believes could help create exciting new markets for the New Zealand fishing industry.

"The fact that the fish are still alive creates all sorts of possibilities, such as exporting live fish to the Asian markets nearby."

Mr Hansen believes that many New Zealand trawler skippers could follow Mr Franks' example, and convert their boats to anchor seining.

"I think a substantial part of the inshore fleet could benefit from making this change."

If you are going to adopt anchor seining, please consult the Ministry of Fisheries to ensure it is permitted in your area.

Anchor and seine winch combined as one unit.

EECA enables organisations to increase their domestic and international competitiveness by adopting energy efficiency and renewable energy practices.

We work with businesses to identify the opportunities for energy management that are available to them and help them develop energy management action plans to make the most of these opportunities.

Good energy management has many benefits for businesses, including lower costs, increased productivity, reduced greenhouse gas emissions and a positive effect on the brand.

We have a particular interest in:

- encouraging new or under-used technology that can make processes more efficient
- projects that reduce greenhouse gas emissions, and
- developing the wood fuel industry.

For more information contact The Energy Efficiency and Conservation Authority:

EECA HEAD OFFICE:
PO Box 388, Wellington, (04) 470 2200

EECA AUCKLAND:
PO Box 37444, Parnell, Auckland, (09) 377 5328

EECA CHRISTCHURCH:
PO Box 13983, Christchurch, (03) 353 9280

www.eecabusiness.govt.nz

JUNE 2009