NZ skipper proves long life of Dyneema

NEW ZEALAND-based skipper Richard (Rick) Burch is certainly not a 'me, too' skipper when it comes to selecting gear for trawling.

Working largely alone and without many sources of information, he has been successful in using many of the techniques that have been in extensive development elsewhere in the world.

This includes the use of Dyneema in his fishing gear and even for the trawl warps.

His efforts have cut his vessel's fuel consumption, given his nets more spread and reduced catches of small fish – confusing the authorities along the way. Quentin Bates reports.

Above: *Nancy Glen* has no wire on board and the only chains are short lengths in top bridles to make adjustments easier. Even the donkeys the trawl is towed off are made from lengths of Dynex.

Nancy Glen's main target species of tarakihi. Left: Hampidjan NZ netmaker Herbie Williams (left) with Skipper Rick Burch and *Nancy Glen*'s crewman Jordan McQuitty.

"I WOULDN'T even look at having wire on board again," says New Zealand skipper Rick Burch who operates his 40-footer *Nancy Glen* with trawl warps made of Dyneema-based Dynex.

When Rick Burch left Cornwall, England, to live in the southern hemisphere he soon found his way back into fishing after arriving in New Zealand.

He first went lining and later trawling for orange roughy when that fishery was booming with 100 tonne-plus hauls taken on a 75 ft. boat.

Having always taken a special interest in fishing gear development, he was keen to respond when he recently read my interview in *FNI* with Skipper Birgir Thór Sverrison of the Icelandic trawler *Vestmannaey*, who had been using Dynex warps for several months.

Although Skipper Birgir Thór Sverrison was impressed with the performance of his new warps, he had no idea how long they would last.

Now we have the answer! Rick Burch called me from the wheelhouse of *Nancy Glen* on his way to start a trip on his usual grounds off the east coast of New Zealand's North Island.

Rick Burch told me he has been using the same set of uncovered Dynex warps since 2004 and has only recently replaced the Dynex headline bridles that have been in constant use since 1997.

The work Skipper Burch has done in getting several new technologies to work is remarkable, especially since all his experiments have been carried out under commercial conditions, with the pressing need to earn a living and no subsidies or other support to tap into.

Over several long conversations he tells me that he took the decision to step back from fishing on larger boats in the 1980s to concentrate on catching inshore. In spite of a drop in earnings at the time, this was something he felt had a more secure future.

Looking for a boat that would be suitable for this kind of fishing and finding nothing suitable in New Zealand, he chanced on a copy of our sister weekly newspaper *Fishing News* and an advertisement to sell *Nancy Glen*, a Cygnus Marine GRP-hulled fishing vessel based in Scotland.

The upshot was a couple of long-distance phone calls and *Nancy Glen* was shipped to New Zealand as deck cargo on a freighter.

Rick Burch says: "The boat was like nothing seen in New Zealand before. This was a 40 ft. boat that could carry 15 tonnes."

Nancy Glen is still going strong, fishing from Hawkes Bay. But what is remarkable about what Rick Burch has been doing is that he has been way ahead of the game in making use of new fishing gear technology.

"We used to see articles in *Fishing News* about Swan Net and these Irish pelagic boats that were paying huge prices for some fantastic rope they used in their deckie ropes," he says. It wasn't until later that he realised this was Dyneema.

"I called Hampidjan when they opened up here and asked if they made trawls for 40 ft. boats as well as big trawlers. At the time I wasn't sure if they could design the front end of the net that I wanted, but I asked if they could build the rear end in Dynex – no problem.

"So we had a Bob Milligan trawl with a PE front section and a 1.10 mm Dynex rear part. Immediately the water flow was better and we were towing quicker, although the Dynex is so thin that we were seeing a lot more gilled fish," he recalls from their first trials with Dyneema more than ten years ago.

The next step was to replace the top bridle with

The T90 trawl after being re-cut with a taper. Only a few floats are needed to keep the gear square. Just six 6 in. floats and two 9 in. floats are needed.
Inset: the T90 trawl in its original configuration before being re-cut.

A haul of gurnards in a multi-mesh codend made in T90 configuration netting, with a few meshes of diamond mesh right at the bottom.

Sweeps are made in Dynex rope. The eye is made using a pipe thimble in stainless steel as galvanised thimbles do not last long enough. With the gear under tension, 30 cm of rubber cookies keeps the sweeps clear of the ground.

10 mm Dynex rope, allowing a few floats to be taken off. After that the whole headline was replaced with Dynex.

"We had been using stainless steel or galvanised wire before – and Dynex is just so much easier to use: no twists, easier to fix the floats." He reports that the 10 mm Dynex top bridles have been replaced with new 9 mm Dynex bridles only within the last few months after more than ten years of use.

Rick Burch was looking to conserve fuel before prices had started to rise alarmingly, so he went back to Hampidjan for a trawl to replace his previous 6.30 metre lift gear.

Believing that the bulk of his catches were taken at two to three metres off the ground, he asked for a long wing set of gear containing less material. Geiri Pétursson's suggestion was a 150 ft. footrope Albatros trawl with a 2.50 metre opening.

"I said then that there isn't a 40 ft. boat that can tow a 150 ft. trawl, but Geiri just said: 'Have faith.' So we took the trawl made with a Dynex headline and bolchlines, seized with 1 mm Dynex twine and rigged so that it could be cut back to an 80 ft. trawl."

"There are a lot of forests here and a lot of rivers – and there are plenty of logs in Hawkes Bay. The Albatros trawl has excellent ground contact and I reckon we caught every one of them!"

"We have a 250 hp Gardner, de-rated to 220 hp and turning a 52 in., five-bladed prop. We could pull this 150 ft. trawl with no problems, although we did eventually have to cut it back to 80 ft. because of the logs," he says.

Hampidjan offered a Turbo End and Rick Burch admits that he wasn't originally keen on the idea, but had enough faith in Geiri Pétursson to try it. This was a section of netting in a T90 'turned' configuration ahead of the codends – the 'swimming section' in New Zealand terms, or the tunnel as we call it in England.

"This was a winner. We were losing about 70% of the small fish – the anchovies and sprats that would normally catch in the meshes. It seems that, with the water flow through this section of the net, the pressure was washing these small fish out.

"Before we had seen a lot of gilled fish but, with the Turbo End, most of them went and that was the first thing we noticed."

Dynex sweeps, then warps

RICK BURCH explains that he began using Dynex in the headline legs, then the headline and backstrops. His next step was to replace the lower legs with Dynex.

It was natural progression to start replacing sections of the conventional rope-bound wire sweeps with 20 fathom lengths of 10 mm Dynex.

Dynex used by *Nancy Glen* is not protected with a special jacket and the only protection used on the sweeps is a few dozen 45 mm rubber cookies over the first foot or so of rope in each section to help keep it clear of the ground when under tension.

He says: "On the Albatros net we use 140 fathoms of sweep and 10 fathoms of bridle, which is a set-up we have used for around three years with only minor alterations."

At the same time, he wondered at the comment made when the trawl had been delivered that the 'hammerlocks had been weighed.'

"It's all about weight. Every kilo that you pull through the sea costs fuel that has to be burned. It didn't take long before I decided to get rid of all the wire.

"Here we were using 11 mm Dynex rope with a 20-tonne breaking strength. So, in 2004, I asked Geiri: 'why can't we use this for our warps?'"

"Geiri said that two boats in Spain were trying it out and, as a supplier, he couldn't recommend that we do it before the trials were complete. But he could supply Dynex if we wanted it – and did we want to take our new warps home on the plane that night?"

The result was that Rick Burch took two 150 fathoms lengths of 11 mm, 18.90 tonne breaking strength Dynex rope home and added them onto the 150 fathoms of 12 mm steel wire on the boat's drums.

"We still had the original Spencer-Carter trawl blocks on board, but the steel sheaves can chip as the shackles go through them and we didn't want to risk the Dynex on that.

"So, instead, we use sheaves made in Nylathon, a high-grade nylon used for bearings and these have been there ever since. We grease them once a month and there are no problems at all.

"This changed the whole picture." Before upgrading his gear for the new materials and methods, a normal trip would stretch *Nancy Glen's* fuel capacity to its limits.

"Spread went up and fuel went down. *Nancy Glen* was built as a day boat and we can carry 3400 litres. Now we burn between 1800 and a maximum of 2400 litres on a six to seven-day trip, landing six or seven tonnes of fish."

"It wasn't long before I decided to get rid of all the wire and I wouldn't even look at having wire on board again. Dynex handles easily – you can splice it sitting in the wheelhouse chair.

"We've once had to cut the warps when the PTO (power take off) cut out and we lost power to the winch. Then we cut through the warps and buoyed off the gear while we went to get it fixed.

"We came back, tied a bowline and a couple of sheet bends to haul the gear back on board and it was fine."

"It's a waste of time bringing the warp up on to the quay to measure it. We did it once after the first month or so – and it was an inch out over 150 fathoms and that was down to some twists in one warp.

"So we don't bother with that any more and there's no downtime in measuring warps."

He explains that, with no steel wire left on board and with only a single pair of swivels between the sweeps and the splits, there is no chain anywhere in the gear either, apart from a few feet in the upper bridle used to make adjustments to fine-tune ground contact and allow the gear to sit harder or lighter.

All of the Dyneema rope on board is spliced with eyes in stainless steel pipe thimbles. Rick Burch stresses that the thimbles need to be in stainless steel, as the normal galvanised ones you would use with wire aren't up to the job as the Dynex outlasts the galvanised metal.

Strands of the same rope are also used for seizings, with a fathom of Dynex rope cut off and a split into strands for ties.

He says: "If you go round a dozen times, you have a 20-tonne join."

"We are towing the gear with a pair of 140 kg. and 1.30 sq. metre Concord doors, with an additional 20 kg. weight on each door to

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bring them up to 160 kg. When you're fishing at 70 to 80 fathoms and your warps weigh only 200 grammes in water, you need that extra weight to get the gear down."

Looking for extra height

RICK BURCH'S *Nancy Glen* towed the Albatros trawl for some years while on 'bread-and-butter' fishing for tarakihi and flatfish.

Then he began to look again at a high-lift net, this time to target high-swimming barracuda and snapper – and this took him back to Geiri Pétursson and Herbie Williams at Hampidjan in Nelson.

A switch to a complete T90 trawl was contemplated but, eventually, the result was a belly in T90 on a front section in diamond mesh of a net to fish on very soft volcanic mud ground and with a six metre headline height.

"There were problems with this net. It was made in a heavy twine size and, although the doors were on the ground, the net was lifting with any speed. Rick Burch says: "We have no subsidies. We're paying for every minute at sea and can't afford to have gear that's not fishing, so it needed to be sorted out quickly.

"I spoke to Herbie Williams, Hampidjan's net loft foreman who used to work at Boris Trawls in Fleetwood, England. We talked about the telescopic reduction in the belly and I asked if we could re-cut it to a normal taper – so we did. In fact, we re-cut it twice in lighter material and now it fishes pretty good."

A bare Dynex sweep joined to 11 mm Dynex covered with 45 mm rubber discs.

He adds that the relationship with Herbie Williams goes back to when he had been working for a small net company that supplied *Nancy Glen*'s original twin-rig trawls that fished successfully with square mesh codends on flatfish. Since then, Herbie Williams has moved on to Hampidjan.

"We now have a very established relationship and it's great when it's your mate who's making your nets. Now we are towing a trawl with 9 in. diamond mesh in the top wings and square, 6 in. mesh in the lower wings and, behind the fishing circle, we have T90 in 9, 6 and then 4 in. mesh. We are looking at even bigger mesh in the front sections 12, 18 and 24 in. for this high-lift net."

"The T90 is very effective in getting rid of small feed fish. We see other boats hauling around us. Their gear twinkles in the sun as it comes up with all the meshed fish and they tell us they have to shake it out as it comes on board and again as it is shot away. We get just a few dozen caught in the meshes."

This trawl is towed with a maximum sweep length of 250 metres and on 47 metre bridles top and bottom to give a 310 ft. spread. Although *Nancy Glen* can tow it at 3.20 knots, Rick Burch says he prefers to keep below three knots.

This T90 trawl has also seen a lot of experimentation with the sweeps using Dynex rope with cookies on each section, as well as ordinary 28 mm poly rope that apparently works just as well, although he tells me that it is still too early to tell which combinations work best.

Spread up to 300 ft.

"WITH all these changes we can hold our heads up among the 500 hp and larger boats we fish alongside. Our fuel consumption has fallen significantly and we are still fishing with a spread of as much as 300 ft.

"Of course, this is a 40 ft. Cygnus with a 2.50 tonne pull. Warp with an 18.90 tonne breaking load is overkill. We could work with Dynex warp of between 5 and 9 mm, still with a breaking strength of from seven to nine tonnes, but we still have the same winches and they simply weren't made for such small diameters."

Rick Burch has now bought additional lengths of 9 mm Dynex to extend the warps.

"This thinner Dynex goes on the bottom of the drum, so it's not going to get used every day. This gives us the opportunity to work deeper and, with no weight in the warps, it opens up possibilities for mid-watering. We're looking at taking the doors off the bottom as well."

Rick Burch says he has been surprised and disappointed by the lack of understanding of fishing gear from organisations dealing with both fishing and emissions reductions. He feels that these organisations ought to be able to see the potential in his work.

Although there had been some initial interest from the authorities, Rick Burch feels that he has been put firmly in the 'too hard to do' basket by government bodies.

Instead, interest has come from Maori and sport fishers who have a strong interest in gears that have as little effect as possible on the seabed.

Interest from Maori organisations, sport fishing bodies and the Guardians of the Sea charitable trust is already turning into concrete support towards covering lost fishing time in developing new approaches.

"Maoridom is really interested in this and they have a strong interest in preserving the marine environment. They see a definite responsibility for future generations to see resources exploited in a sustainable way."

"This is the future. We are seeing a lot of juvenile fish escaping from the gear and we need to let them go. There's no point in the effort and fuel that goes into catching small fish and benthos.

"We don't need this juvenile mortality. I'm convinced we're really onto something here."

A clean shot of gurnards.