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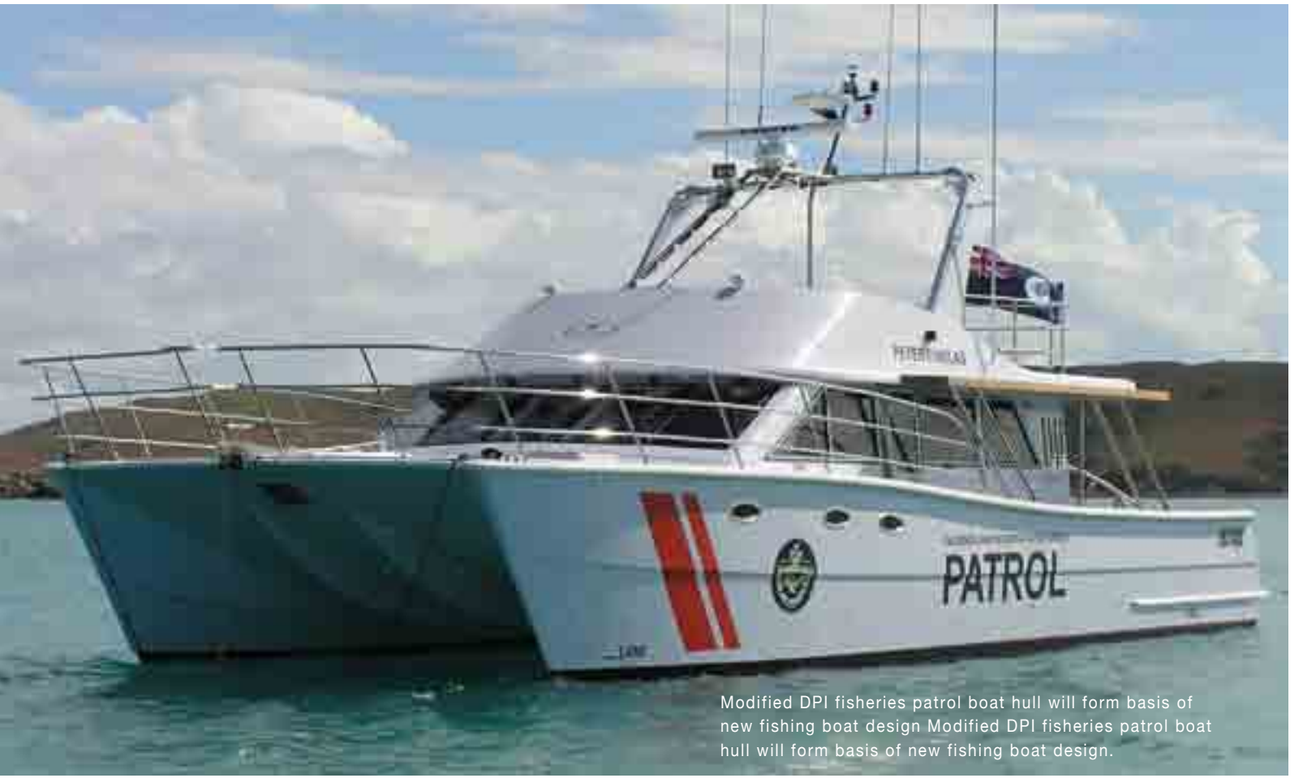


Modified DPI fisheries patrol boat hull will form basis of new fishing boat design Modified DPI fisheries patrol boat hull will form basis of new fishing boat design.

| story **PETER BRADY**

It's amazing how things come around in circles in the world of design and boatbuilding, meaning that no drawing or idea is ever wasted because they often form the basis for another project in the future.

In the last edition of *Australian Multihull World*, I wrote about my wide beam trailerable sailing Campacat design finding a second wind nearly 30 years later in conjunction with Justin Clarke and the development of the trailerable powered Transformercat.

And this month we have just had another example of these time loops, taking an order for an ultra fuel efficient long range fishing boat for a developmental fishing project, but capable of a number of other roles.

My introduction to the fishing industry goes back 46 years to when my eldest brother was lost at sea while crayfishing in Fiordland on the west coast of New Zealand's South Island. Three months after it happened, I spent some of the time between finishing high school and starting my boatbuilding apprenticeship as a deckhand on a crayfishing boat, just north of where he went missing. To say this experience was an eye opener would be the understatement of the century and compared to my suburban upbringing, it was like being dropped in to the Wild West both in terms of the characters that made up the fishing industry and the remote and rugged conditions. It was also a crash course in understanding what commercial fishing and fishing boats were all about, plus it gave me a deep respect for the sea and its power which has been reflected in all my designs to date.

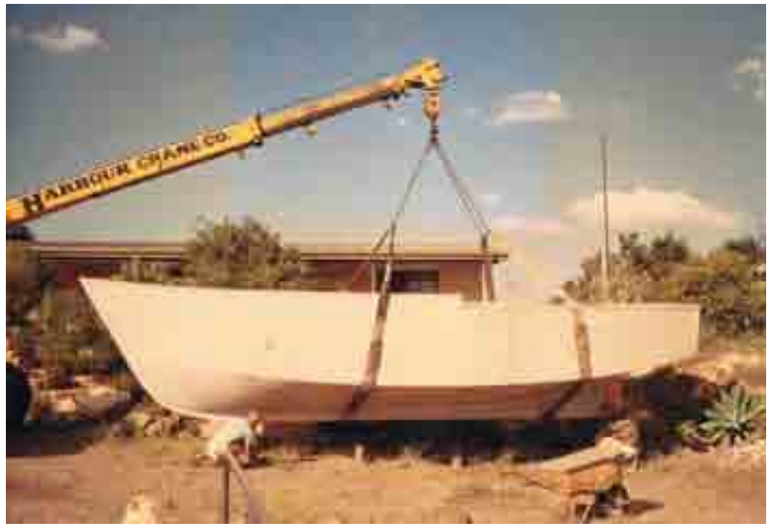
CONTRARY TO HOW IT WOULD BE VIEWED TODAY, I LEFT SCHOOL AT 15, NOT BECAUSE I WASN'T DOING WELL AS I HAD ALREADY ACHIEVED FIVE SUBJECTS IN SCHOOL CERTIFICATE AND WAS EXPECTED TO GO ON TO UNIVERSITY, BUT BECAUSE I KNEW THAT I **WANTED TO BE A BOAT DESIGNER** MORE THAN ANYTHING ELSE

Contrary to how it would be viewed today, I left school at 15, not because I wasn't doing well as I had already achieved five subjects in School Certificate and was expected to go on to university, but because I knew that I wanted to be a boat designer more than anything else. At that time there were two paths open to me to achieve this goal: the first was through architecture as there was no training in Naval Architecture in NZ at that time and I had already been accepted into Polytech (the equivalent of TAFE) to study this if I wanted. The second option was through boatbuilding, where I would get paid and also gain practical experience and given that I hated sitting in classrooms, it was a bit of a no-brainer. Going through boatbuilding turned out to the right decision, as the NZ system featured a large component of design in its course and was at the cutting edge of boatbuilding technology. Our tutor at the Tech in Auckland where I went for three weeks each year was the boatbuilder-designer Alan Wright who was very encouraging of my ambition as he had come through the same system himself.

My deeper connection to fishing boats started the first day I walked into Miller and Tunnage to begin my apprenticeship. Fishing boat repair and maintenance was the backbone of their work, although pleasure

boats were slowly becoming their only new builds with fishing boat construction starting to slow down as the industry contracted.

In 1979 I went into business as a 21 year old with my brother Jim who had come through the GRP side of boatbuilding and together we took on repairs, maintenance and alterations to fishing boats as well as other work. During this partnership, our biggest repair and alteration job was the Jean, a 47ft fishing boat which had hit a channel marker and sunk. The repairs entailed replacing a large section of planking, frames and bulwarks on the starboard side where she had hit the marker. The alterations included designing and building a new wheelhouse which was moved further forward on the boat so that the winch and trawl gear arrangement could be modernised. Using a combination of my woodworking and Jim's GRP experience, we laid up gel-coated GRP panels stiffened with Coremat (the latest technology of the time) then glued and glassed the panels to a timber frame to form a one piece, low maintenance structure. This was the project that sparked my interest in composite panel construction and that interest has continued to this day and forms a large part of this new boat. This composite wheelhouse was also the first time in NZ that windows bonded in with silicon were approved for use on a commercial vessel.



TOP: Our first new build was a 26ft fishing boat.

ABOVE: Peter's biggest project in New Zealand was the rebuild of the Jean after she had hit a channel marker and sunk.

We moved to Australia in 1981 as did so many NZ boatbuilders, when the NZ government introduced a 20% tax on the industry overnight. My first job was with Geoff Jackson altering the moulds for the Stratus 12, a 40ft sailing catamaran. Geoff also come from a fishing boat background and could see the potential of power catamarans as fishing boats, so way back then I drew a power cat version for him of the Stratus with the same forward angled windows that I have drawn on the new boat.

In 1987, I started my first new build in Australia which was a 26ft line fishing boat from a set of plans the owner had purchased and I then modified. This was also the first job that Lorma worked on with me and it led to my first full design and build project – the motorsailing catamaran *Centurion* for another ex-New Zealander. Coincidentally, he had been fishing and deer shooting over in Fiordland at the same time when my brother was lost. We also built a Leopard Power Cat in 2002 for another NZ fisherman who was also in Fiordland at that same time and we spent many hours discussing different boats and people we had met during that time. He remembered my brother and I remembered his boat tied up near us at the wharf in Milford Sound, as his favourite colour was purple and you do not see many fishing boats with purple wheelhouses, so it stuck in my memeory.

Although my direct connection to the fishing industry faded during the 90's, Ron, another of my brothers who had taken up crayfishing in the late 70's went on to become the Chairman of the NZ Rock Lobster Industry Council, so through him I was able to keep up with the changes in fishing techniques and equipment, plus how the boats were being adapted to suit these changes.

In 1999 during one my visits to Western Australia to talk to the boatbuilder and government departments regarding survey requirements for my design of *James Scheerer 2*, a displaning power cat research vessel, I got an insight into the massive size of the crayfishing industry there and just how suitable the displaning catamaran was for it. During her construction in Geraldton, the local fishermen were vocally sceptical that we could achieve 21kts on a 17.6m vessel from 2 x 230hp engines, but were definitely interested in the stability and wide deck areas of cats as work boats. The planing type had been a disappointment to them and it was difficult to convince them that the displaning type did not have the same problems maintaining fuel economy and performance when loaded. They were genuinely amazed she did everything that we had claimed when she was launched, as well as being very impressed by her ride and seakeeping qualities. Unfortunately the owner Craig suffered from a serious back problem within a year of its launch preventing him commercially operating the *James Scheerer 2*, so she moved around to the East Coast and was taken out of commercial operation. With no working example to follow, then the fishing downturn on the heels of the GFC meant that the momentum for change was lost.

When the crayfishing industry in Australia began moving towards a quota based system like NZ, I could see an even greater potential for my displaning power cats, as fuel efficiency was now a more of a key to profitability. In 2005 using the experience I had gained from designing a number of commercial power cats in the late 1990's and early 2000's, I began seriously

promoting the potential of displaning power catamarans to the fishing industry and wider commercial vessel market. Surprisingly it was the Qld Department of Primary Industries that responded first when they ordered the *Peter Finglas* – a fisheries patrol boat in 2006 and the new vessel will be based on a modified version her hulls. Since this time I have continued to push the financial and operational benefits of the displaning power cat to commercial operators, but it has been a bit of a waiting game until this first fishing boat order with the GFC and then a restructuring of many aspects of the fishing industry making it hard to cut through.

Jean composite panel wheelhouse finished with first bonded in windows.

This first commercial fishing version of the Pathfinder 45 is intended to explore new opportunities in the North Queensland line fishing industry and is in 2B Survey for up to 200nm offshore. The design however would also be equally at home in the crayfishing industry as the requirements are very similar, just trading off some fuel carrying capacity and therefore range and weight, for the ability to carry the weight of crayfish pots.

Besides the normal pre-requisites for commercial vessels of rugged reliability and simplicity, the most important requirement for this vessel was the combination of a high economical cruise speed of 15-17kts, coupled with a good load carrying ability that is the displaning power cat's forte. Without this ability to cruise quickly and economically to fishing grounds well offshore, then return just as quickly to port with the catch, the development of this new fishery would not be viable. The learning curve for any new fishing venture is steep and so at first there may be trips with very little reward, making high fuel usage and therefore costs a killer. This ability alone would make the displaning power cat a viable proposition, but when you add in the advantages of a wide stable work platform, turn in its own length manoeuvrability, protected stern gear, the safety of multiple water tight compartments and separate propulsion systems, plus proven rough water capabilities, then you tick all the boxes for this type of work vessel.

BESIDES THE NORMAL PRE-REQUISITES FOR COMMERCIAL VESSELS OF **RUGGED RELIABILITY AND SIMPLICITY,** THE MOST IMPORTANT REQUIREMENT FOR THIS VESSEL WAS THE COMBINATION OF A **HIGH ECONOMICAL CRUISE** SPEED OF 15-17KTS

To carry the weight of a forward set wheelhouse and to gain every ounce of fuel efficiency from the boat, high speed bulbous bows will be fitted and the positioning of the engines, fuel tanks and holds have been laid out to optimise trim from lightship to full load.

She will be powered by two of the 240hp Yanmar 4LHAM-STP's that we have had such a good run with for the last 22 years – perfectly fitting the vessel's philosophy of rugged reliability. This vessel will cruise economically between 15-18kts using 40-48lt per hour combined, with a top speed of 22kts. It is this economy and high cruise speed combined with a 2,400lt fuel capacity that will provide the range to go out beyond the Barrier Reef and explore new grounds, then get the fish quickly back to market or be capable of outrunning bad weather.

I have also been working on some other design proposals based on the Pathfinder 45 hull for the sports fishing market and now that the hulls are wider, I can fit more powerful engines, lifting the potential horsepower up to 440hp each side. This would provide a much higher top speed without losing any of the 17-18kt cruising speed economy and also opens up the market to patrol or search and rescue applications, or for a small offshore capable, fast island ferry service.

This first fishing version will feature accommodation for four in the hulls, however as two of the berths are doubles, it could actually sleep up to seven with another berth possible on the wide settee. The boat will also be set up to undertake a variety of other commercial roles including eco-tourism, scientific research, island deliveries and day fishing charters for up to 40 people in 1D operating mode should the fishing venture not be commercially viable. This ability to multi-task is a huge commercial advantage for displaning power cats, as it not only makes them more bankable from a business perspective, but also ensures a higher resale value in the future.

This vessel will be constructed from vinylester infused composites using Corecell M grade foam in the hulls and GPET recycled foam core in the less structurally demanding areas. She will be built to Lloyds Composite Rules as required by the NSCV Code and whilst Lloyds Composites Rules requires heavier skins than the Australia Standards used under the old USL Code, this is not a bad thing in the case of a commercial fishing boat operating around reefs. With infusion, we will keep the boats weight as light as we can, yet create GRP engineering properties far higher than what would be possible though hand lamination techniques. The use of infusion also dramatically diminishes the perceived and often real weakness of all pre-infusion cored work boats: core to skin delamination as the bonding of the skins to the core created by infusing through the core is unrivalled by any other composite construction method. My DECKIT moulded module construction system will be used for the decks and wheelhouse, as all the testing and certification has been completed for survey. The development of the DECKIT system has substantially moved forward over the last three boats and with some new features, will be even more effective in creating cost effective composite structures that are particularly suited for commercial vessel construction.

This boat is one I have had in my head for just on 40 years now and so am looking forward to getting the first boat underway and then being able to show it on the water. It is exciting to finally be able to take the development of the displaning power catamarans into a market where I always believed they were well suited, but doing it with a client who wants to demonstrate that commercial fishing can be more environmentally friendly and sustainable is even better.

I have been working on design proposals for quite a number of commercial vessels lately for boats up to 18m in length and we are anticipating a lot of interest in this first boat from across a broad spectrum of marine commercial operators.