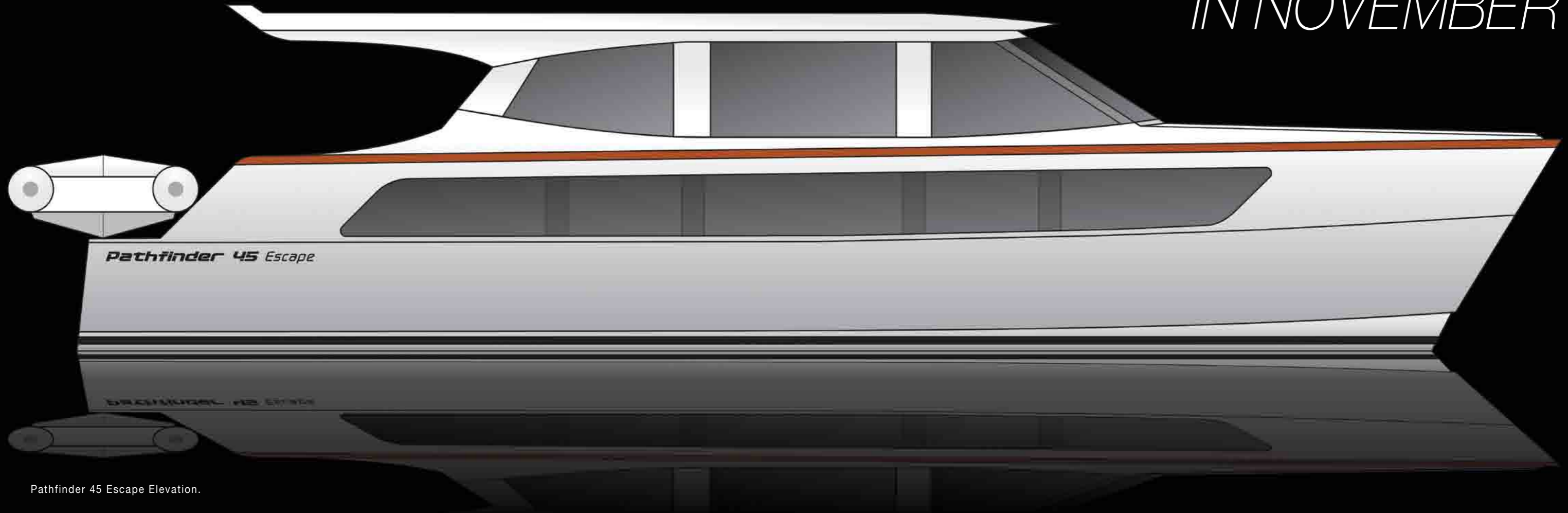


NEWS FROM THE SHED IN NOVEMBER



Pathfinder 45 Escape Elevation.

| story PETER BRADY

The fishing boat we have under construction is closing up fast, with all the moulded structural components now bonded together and the machinery going in. I've been researching the latest developments in the fishing industry while the boat is being built and as part of that research, have been watching the TV programme *Australian Lobster Men*. It's interesting to note that the set ups and equipment have changed very little since I started boatbuilding in 1973 when a lot of the work we did was on fishing boats.

The big innovation being introduced to rock lobster boats at that time were grooved single line pot haulers or whizz wheels as they were called then and they were a huge jump in safety and efficiency over drum capstans because they eliminated the possibility of dangerous over-rides when pulling the lines in. The pot haulers hands-off operation also meant that on smaller one person boats, the skipper could concentrate on driving the boat around the line as it came in, rather than having to focus on keeping the feed direction and tension correct on the winch drum. In New Zealand at that time the pot haulers were mounted vertical on a boom to keep the line and pot

clear of the side of the boat, however in Tasmania all boats now appear to mount the pot hauler horizontally and use a tilting rack to land the pots on, presumably to minimise the pot swinging around once clear of the water, so other than small differences in local techniques, any fisherman from the 1970s could walk straight on board a rock lobster boat today and still be quite familiar with its deck layout and equipment set up. Electronics are the most obvious change to have taken place since the 1970's going from a black and white paper chart type depth sounder with maybe a radar and auto pilot on the larger boats and single side band radio communications, to these days a colour radar,

multiple colour digital screen sounders, sonar, GPS with chart plotters and auto pilots integrated, AIS, Sat phone and EPIRBs being the norm. This different world of electronic aids has made the placement of pots and the documenting of their location much more accurate and has greatly improved safety, which must be a comfort to fishing families.

There was however one other standout difference I did notice in how the modern boats are set up now compared to 45 years ago and that is in the use of a variety of stabilising or roll reducing devices mounted on most of the boats on the program, and on closer inspection, on many of the fishing boats that come into The Yard Brisbane, using a variety of set ups to reduce rolling. Working on a stable platform is obviously more comfortable and less likely to bring on sea sickness, however the greatest advantage of increased stability is the safety factor that comes from not having gear moving around the deck or tipping over when the vessel rolls. So if minimising roll has become that important to fishermen, then they should love the displaning power cat as not only does it have an inherently far higher stability, but this stability does not come at a cost of increased drag and therefore fuel consumption that all other roll reducing devices such as flopper stoppers, bilge keels or stabilisers do. This is another huge

advantage for the displaning power cat to add to its fuel economy, high cruising speed, range, usable deck space, shallow draft and manouvourability. The hard part of getting a boat like the Pathfinder CF45 into the market is not designing and building the boat as this is a combination of experience and common-sense, it is in demonstrating its advantages to the market as the Australian fishing industry is in small pockets spread around thousands of miles of coastline. The industry is also naturally conservative so it does take time and patience when developing a new type of boat for it to be seen, then analysed and if found to be advantageous, to be adopted.

As I discussed in my last article it has been an interesting challenge going back to designing and building a more minimal boat in the form of the fishing boat as well as working on the TransformerCat project as this has its own complexities in making a 40ft power cat trailerable, with a minimal fit out to keep weight down.

These two projects are the total opposite to the Pilothouse 52 *Fine Alley* which was launched earlier this year and will be featured in the next magazine (sorry about the delay for those following her story but her owners have been on an extended overseas trip). *Fine*

Alley' ranked alongside the *Peter Finglas* a Queensland DPI patrol boat we built in 2007 and the 26ft power catamaran *Double Happiness*, a tender for super yacht *Double Haven* built in 1999 as having been the most complex design and build project we have undertaken. *Fine Alley's* complexity was in its comprehensive equipment level and bespoke fit out, the *Peter Finglas* was for the difficulty in fitting, launching and retrieving a 5m long RIB weighing nearly a tonne into the back of



Basic bilge keels fitted to a fishing boat to reduce rolling.

a 13m power catamaran and *Double Happiness* was for fitting so much equipment into a superyacht quality power catamaran, capable of over 30kts, that was absolutely set in its size and weight parameters by the fact that it had to be lifted over *Double Haven's* fold down transom that formed a dock and then into the back of the superyacht.

The upside in developing these new more minimal boats are that they follow on from three other minimalist design and build proposals that we had put a lot of work in to, but did not end up building. The first of these was a charity project based on a modern interpretation of the Wharram *Pahi 63*. In researching the original Wharram design philosophy, we took a long hard look at their strengths and weaknesses and how they could be improved. The designs were and still are a very simple and clever concept and are perfectly suited to modular construction and just like my first sailing cats morphed into the displacing power cat, I

saw a way that the projects design concept could be adapted to make a very cost effective displacement speed power cat.

The second was a proposal to a charter company for a bare boat charter vessel based on the glamping philosophy which is what a Wharram is, except without the glamour. In reality bare boat charter is glamorous camping on the water as you have to be self-sufficient and self-contained. Bareboat charter vessels can only operate at up to 10kts in speed at a very small distance from port in sheltered waters, so setting them up as an offshore capable high speed cruiser does increase their 'life after charter' value (and I am more guilty than most in trying to make every design meet every possible requirement) but the compromise often makes them unviable for the business they were originally intended for. Again on the theme of what's old is new again, virtually all cruising started out in converted work boats that were very basic in their fit out and amenities because the thought process was to escape to a more simple lifestyle, not to take everything with you as we tend to do today. Bringing the glamping concept back into boating, particularly with a modular construction method that would allow a kitset to be easily transported and assembled anywhere, may just be the key to opening up a completely new market.

The third minimal project was a 45ft commercial Sports Fishing day boat that could be upgraded at a later date for coastal cruising: this design ultimately formed a lot of the basis and planning for the commercial fishing boat currently under construction.

When working on the charity project, we put everything involved in design, construction and fit out back on the table including what the boat was powered with. Frustratingly we could have built the charity boats more economically if the charity's representative had not wanted to keep the boats so like the original Wharram in some of its details, but also wanted all the mod cons and a low maintenance modern construction which was the total opposite to the Wharram philosophy. As an aside – should anyone be interested in a modern interpretation of the Wharram type, I have the design work done and it was a very cost effective way of putting a large ocean capable sailing catamaran on the water.

So what was the outcome of this re-evaluation of design priorities and features?

1. Whatever we designed or designed and built, we wouldn't deviate from our core values of robust construction and seaworthiness, because this is the reason we have a 100% safety record to date.

2. We needed to revisit the finishes, as many interior linings and upmarket Corian type domestic benchtop materials are not only very expensive, but also very heavy.

3. We needed to reassess equipment levels as the complexity and therefore the cost of the boats had been steadily rising. Having a boat like the *Paul Robert* back in the shed has been a stark reminder of how comfortable and capable a boat can be without gensets, multiple bathrooms and every mod con on board. When I think back to the first Scimitars we built in 1997 and how minimal they were compared to today's boats, yet how upmarket they seemed at the time with an inverter to power a jug or toaster.

Some bare boat charterers will always demand a luxurious fit out, but others would be happy with a much simpler boat with a more modest finish if it meant they could actually afford to charter the vessel: after all, you have multiple levels of comfort and finish on cruise ships and in all other forms of holiday accommodation and facilities, so why not in bare boats? Would more people charter a bare boat if the cost was lower? I would have thought so, but it is only the charter companies that can answer this question and as unfortunately the large charter companies and boatbuilders are now so intertwined in their business interests, it is hard to know who is leading who.

4. We needed to look at engines and revisit the option of outboards, as technologies have changed significantly in the last few years and the power cat design is gravitating from the niche offshore long-range cruising emphasis to the more sizable short hop coastal and overnight market.

Whilst diesel inboards are the ultimate in offshore reliability, a great many house boats and powerboats in general use petrol engines both inboards and outboards and when you add up the costs of survey engineer's fees, the diesel engines themselves plus shafts, props and complete separate steering systems at sub 10kts in sheltered waters, I have had to reconsider the modern outboard as a serious alternative.

The latest versions of the diesel outboard are probably the best of both worlds in terms of safety and simplicity of mounting, however at the moment their much higher purchase price than diesel inboards takes away any purely financial advantages to using them. Petrol engines have always been considered less safe than diesels for boats and certainly with inboards it is hard to argue, however with outboards the safety issue is in reality no different than safely dealing with the tender's petrol tank or a gas cooker or barbecue. Outboards were also considered less environmentally friendly and there is no doubt that the old premixed 2 strokes were not a good look just like 2 stroke motor bikes in

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TOP: Stabiliser foils fold up when not in use on another fishing boat to reduce drag.

ABOVE: The use of stabiliser foils and bilge keels for more anti-roll effect shows how important it has become despite the increased drag they create.

days gone by. But, just like motor bikes, outboards are now mostly 4 stroke with the remaining 2 strokes on the market much more sophisticated, using a variety of technologies to meet current pollution standards.

The drawbacks to using outboards in my opinion are not the actual motors themselves or the safety issue of petrol's more flammable nature than diesel. It is: the outboards lack of decent sized alternators to charge the house batteries.

The weight of the outboard right out the back out the boat and the amount of buoyancy it requires to support it.

In large seas with a non planing hull, pitching can lift the propeller right out of the water one second then nearly drown the motor the next.

As with all design challenges, these issues can be minimised in their negative effect on the overall package with a bit of thought and planning. Small diesel gensets can be used to both power the boats domestic systems and charge the house batteries and having a small diesel fuel tank as well as the main petrol tanks is no different than carrying petrol for the tender on diesel powered boats. If the outboard engines are moved slightly further forward into hulls rather than mounting them off the transom this will help to carry the weight along with fuller and flatter aft sections. Power cats with outboards may not be as affected by pitching as sailing cats, as I have a feeling that the sailing cats I've raced on that had a habit of lifting the outboards out of the water when motoring in a slop did so because they were relatively fine in their ends and had the weight of the rig above, exacerbating the pitching moment particularly when there were no sails up to provide drive. I make this comment because the trimaran I raced offshore on in the 1970s was a heavier boat with full ends and an outboard in a well and I don't remember it ever being a problem.

Although petrol outboards have historically not had the low down torque of the older style diesel inboard to push heavier hulls, the manufacturers have now created particular models with lower ratio heavier duty gearboxes that are better suited to powering non-planing hulls and it would be to these I would look.

What fitting an outboard to bare boat charter boats or to a pleasure boat does, is remove the cost and reduction in accommodation space of a conventional engineroom, which has all the survey requirements in terms of fire proof materials, fire suppression systems and air intake shut offs. When this is added to the cost of enginebeds, shafts, couplings, stern tubes, props, rudders and all the labour to fit these items, it could make savings in the order of \$100,000.

Yes I know that an outboard will not last as long as a diesel and will require more maintenance, however they are also easy to work on when carrying out the maintenance and a lot easier to replace. It is also important to remember that whilst bareboat charter work is hard on the boat in terms of wear and tear, the engines do not necessarily clock up huge hours. One charterer who likes to move around may wrack up 20 hours of engine time over a seven day period, but another may just motor to the first anchor and not move for seven days, only clocking up two to four hours of engine time.

SO WHERE HAVE ALL THESE CONSIDERATIONS TAKEN US?

The simple answer is in a slightly new direction in terms of broadening our design portfolio to include a new

range of displacing power cats with a more minimalist approach, making space and a relaxed lifestyle the priority, but also with the goal of making the boats more economical to build and own. For all the reasons I have discussed in my articles over the last 10 years, it is very hard to compete with the imports on cost unless you approach power cats from another direction. Regardless of all the claims made of innovation and breakthroughs, everything I see coming onto the market from overseas is similar to what we have been building for years dressed up to meet the latest fashion, so the only way to stay in front is to set the trend not follow it and that is what we intend to do with the Pathfinder Escape range. It is based on a well proven hull and composite construction base so buyers will know exactly what they are getting in terms of sea keeping, yet the styling and interior is all fresh thinking.

With the Escape series we have gone back to the future and are using the boats length to make the hulls easily driven and minimise any motion, but won't fill this length up with gear. Aimed primarily at the bareboat charter market, it provides comfortable privacy for four couples with two large bathrooms that can be easily accessed from each bedroom, but the 45 Escape would be equally as suitable for family cruising be it either for weekends or live-aboard.

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In the initial proposal I put to the charter company, I used a more traditional reef boat style, however in coming back to the design I have redrawn the boat with a more contemporary style which includes a recessed hull window strip for letting more natural light in and providing a view out of all the bedrooms. This is the advantage of our variable dimension mould which has the ability to dramatically change the look of the boat by just changing the height and shape of the sheer line and using blanks to create alternative features. However, the one styling constant is the bow rake with its proven sea keeping qualities and the dry decks it creates, as these are features well worth keeping. If I was to follow the current fashion of plumb bows the boats overall length would be nearly 4ft shorter, however I do not believe the trade-off is worthwhile as it is the gradual pick up of buoyancy created by the rake that helps reduce pitching.

In its most minimal format for bareboat charter or displacement speed of up to 10kts, the Escape 45 would be powered by two outboards of between 60-90hp: should you want to move up into displacing speeds then more powerful outboards or even diesel

the boat. By using gas for cooking, the demand on the batteries and inverter are reduced and with so much roof space, a large solar panel array and large battery bank may even negate the need for a diesel genset on the cruising version, as a private owner is more likely to be disciplined with power use when compared to a charterer.

The internal layout drawn shows four double cabins in each corner of the boat for increased privacy and a large bathroom between them in each hull that can be accessed directly from either bedroom. I believe this layout provides a good compromise between the build cost and reasonable facilities, but there are a number of different layouts that could be used depending on each individual owner's requirements.

The deckhouse layout features the drive station forward slightly to port and with no visual obstructions other than the deck house structure itself, so the view from the helm will be excellent. We have also been fitting engine and gear remote controls to most boats lately, so with a plug on each side for the remote, it would be possible to dock the boat from the side deck where

take it out into the cockpit as desired. There would be tie down points in the floor to strap the table down in heavy seas, but in our experience they are unlikely to be used, particularly in bare boat charter operations. The use of domestic outdoor furniture and no built in settee just makes good sense both in terms of economics and versatility. I would anticipate that most if not all the cooking in charter mode would be done outside on the barbecue, so being able to take the table out closer into the fresh air makes good sense. All the owners of our boats have reported that they use their outdoor table to both dine and socialise most of the time and the ability to do so on a large stable back deck is one of the reasons they love having a power catamaran. To be able to move the table in or out of the sun or wind is such an advantage in Australian conditions and is one of the obvious differences to European designed boats, which are more set in their arrangements and chase exposure to the sun. Opening the bi-fold doors at the back of the deckhouse will give the boat a real indoor-outdoor feeling and for private cruising, the deckhouse is a blank canvas for alternative layouts.

In terms of interior finishes, the bathrooms could be gelcoat, painted or even wet area board and for the bedrooms, in the past we have used a commercial grade carpet tile that used to be very limited, but now

has a huge range of colours and patterns that can be arranged in quite artistic ways. Being tiles, they are easy to fit and their thick PVC backing and nylon pile make for excellent sound deadening, they are also easy to clean and will not support fungus or mildew growth which was the problem with earlier linings like front runner, plus the tiles have a good fire rating.

So there you have it: my plan for an Australian designed and built, sensible, low maintenance power cat that would be more economical to build and operate and this should be attractive to both the smaller independent charter operators and their owner clients of the boats they manage. With a bit of personalisation the same design would make a very comfortable and capable family coastal cruiser or live-aboard.

Next cab off the ranks is a spacious but minimal diesel long-range offshore cruiser, the 51 Escape.

For further information on the 45 Escape please contact me at peter@pathfinderpowercats.com



Pathfinder 45 Escape plan.

outboards or inboards could be fitted. The outboards are mounted forward of the transoms in a recess with a lid over the top which forms the transom step, keeping the weight of the outboard slightly further forward and the mechanical bits out of reach. If petrol outboards are fitted, then a 4kva diesel genset could be fitted in the aft beam to charge the batteries as this is the equivalent of one 15amp shore power feed coming on board: it could also be petrol if the vessel was non-survey, but extra care would need to be taken to make sure carbon monoxide from the exhaust could not enter

judging distances for charterers would be much easier. These type of remotes work particularly well for power catamarans where the props are so widely spaced as I seldom use the steering when docking and nor do my owners, as the boats can turn in their own length just by using the gears and a little throttle if needed.

Behind the helm station to starboard is the galley with refrigeration and storage on the port side. The dining table is a free standing domestic type with lightweight lounge style outdoor chairs, as the thought process was to be able to have the whole set up either inside or

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