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The Superyacht REPORT

TRUTH • OPINION KNOWLEDGE • IDEAS AND EXPERT INDUSTRY ANALYSIS

THE TRIMARANS ARE COMING

An analysis of the design and business proposition of trimarans, as they gain popularity for superyacht owners.
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M/Y *FOREVER ONE*

How this 54m, approaching completion at ISA, was designed to fulfil her owner's wish to stand out from the crowd.
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COMPOSITES

The technique of using composites alongside traditional building materials as exemplified on board M/Y *Invictus*.
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TSR talks to Alloy Yachts about their decision to present their first ever concept at the 2013 Monaco Yacht Show.
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ASSINA CONCEPT, DESIGNED BY ROLAND FRIEDBERGER.

THE TRIMARANS ARE COMING

With a radical set of designs in the water, in build and on the drawing boards of select designers and naval architects around the world, three-hulled superyachts are on the rise. **Don Hoyt Gorman** asks what makes them worthy of consideration as a platform for owners, and how designers, architects and builders feel about the challenges these unique vessels present.

After *Adastra* splashed down a couple years ago, with its staggering looks paired with industry-leading architecture from John Shuttleworth, it seemed almost as if the superyacht trimaran mould had been broken. Who would dare compete with *Adastra*'s visionary owners, who'd succeeded in building a yacht so visually iconic and seaworthy?

"People are starting to pick up the idea of trimarans now, I think," Shuttleworth told me recently. "We've been working on designs up to 80m for this concept and we find that it scales up very well. As you scale up, the weight of the interior cabinetry stays the same, proportionately, so of course the hull carries the weight much better. We think that over about 60m we start to get the same kind of space as you'll have in a conventional monohull, but with the kind of fuel savings we achieved on *Adastra*."

The interest level is high – given the very few people in the world who have the confidence or experience to design and build them. "There are people who can quite clearly see that the trimaran form is something to consider for the future," Shuttleworth said. "I suspect the reason we're not seeing more of them in build is that, like other superyachts, they're quite a lot of money for a rather radical leap in design. But in the end, I'm sure more will be built."

According to French multi-hull designer and naval architect Jean-Jacques Coste, the multi-hull form is becoming more and more successful because the boats are, as he says, "very interesting". "You have stability, comfort, performance, volume … many things you don't get with monohulls," he says. "We won't fill the seas with multi-hulls, but I think we'll see more and more of them."

He should know: as of writing this, Coste has two 53m composite power trimarans in build at the relatively young Latitude Yachts shipyard in Riga, Latvia. He's also working on a 60m project and another for a client who's looking to build a superyacht trimaran around the 100m mark – in my opinion, one of the most intriguing and exciting new build proposals out there at the moment.

In Perth, Australia, Misha Merzliakov is also working on a design for a 102m superyacht trimaran for a client. Coming from Australian commercial builder Austal's design team, which developed a 102m commercial ferry trimaran platform, Merzliakov understands the architectural capabilities and limitations of the voluminous end of the trimaran design spectrum as well as anyone.

"What's interesting is you get people who are blown away by it and have to have it, like this particular client I'm working with now," Merzliakov said, "and then there are other clients who are more traditional and cautious about designs they aren't familiar with. My client wanted a high-volume yacht that could go really fast. We said, speed means big engines and a big fuel bill, and he didn't mind that; he wanted to go quickly. Austal had already done the work to solve the question and built a hull that was really slippery and slender. Now I'm working on styling and interiors."

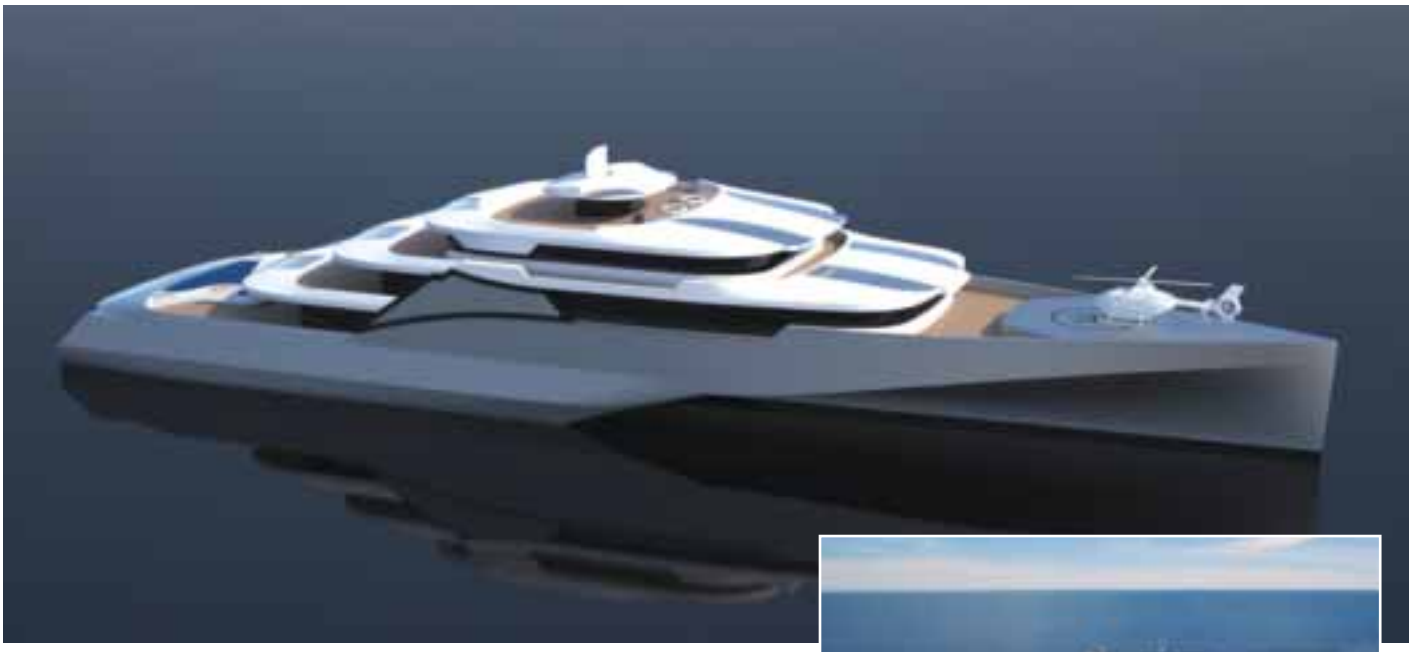
ADASTRA, DESIGNED BY SHUTTLEWORTH DESIGN
PHOTO: ORION SHUTTLEWORTH
WWW.SHUTTLEWORTHDESIGN.COM

TRIMARANS: DESIGN POINTS

Trimaran designs lie along a spectrum that defines the relative size and positions of superstructure and outriggers (more properly known on trimarans as amas). At one end of this spectrum is the truly radical racing style sailing catamaran in which all of the living compartments are located within the central hull, with the amas rigged far out to either side. At the other end of the spectrum are the commercial and military designs like the ferries and littoral combat ships with long, thin amas incorporated into huge, voluminous superstructures above them. *Adastra* and Coste's designs lie somewhere between the middle and racing end of the spectrum, while Merzliakov's and Friedberger's designs are at the volume end.

- All trimarans are designed to take advantage of the reduced drag the long, thin hulls afford, but with varying volume-carrying requirements.
- Trimarans don't have keels, which saves weight.
- They're practically impossible to sink by virtue of their multiple hulls.
- Sailing trimarans, like catamarans, don't heel like monohulls, which in turn makes life a bit more comfortable for those aboard if they're not keen on sailing's traditional motions.
- Motion in a rough sea is preferable to that of either a monohull or a cat.
- Trimarans generally consume 40 to 60 per cent less fuel to move the same size vessel through the water, depending on type.
- A good multi-hull is a light multi-hull: built of carbon or aluminium, trimarans benefit from low structural volume and lightness. Steel as a construction material is not a useful option.

"You have stability, comfort, performance, volume … many things you don't get with monohulls."
– Jean-Jacques Coste



ABOVE: DESIGN FOR A 102M SUPERYACHT TRIMARAN, BY MISHA MERZLIAKOV FROM AUSTAL'S DESIGN TEAM THAT DEVELOPED A 102M COMMERCIAL FERRY TRIMARAN PLATFORM (RIGHT).

THE KNOWLEDGE

Aleksandr Busarovs, project manager at Latitude Yachts, working on Coste's two 53m trimarans.
Jean-Jacques Coste, designer, who has two 53m power trimarans in build at Latitude Yachts in Riga, with a 60m and a 101m concept in development.
Roland Friedberger, designer of 140m Assina concept.
Francis Lapp, owner of Sunreef Yachts, which is selling a 47m trimaran concept.
Craig Loomes, design director, LOMOcean Design Ltd, New Zealand
Berkeley March, head of design at Palmer Johnson, whose SuperSport series uses port and starboard sponsons.
Misha Merzliakov, designer working on a superyacht version of Austal's 102m commercial ferry for a client.
Will O'Hara, director of Pi Yachts, who commissioned the three-masted Dragonship sailing trimaran.
John Shuttleworth, designer and architect of *Adastra.*

LOOKS & LIFE

As their key visual and architectural feature, trimarans' amas are their most distinguishing feature. The size, shape, length and location of amas are the product of the most focused calculations by the architects designing the trimarans.

As Shuttleworth explained, his calculations for larger versions of *Adastra* are working out, but he is indeed doing calculations: these forms don't simply scale up by doubling everything. Most catamaran designers will point out that if the two hulls are too close together, one hull's bow-wave will cause resistance on the opposite hull. On trimarans, the issue is one and a half times greater, which is why if you look at any of the trimarans pictured in this article, you'll see a wide variety of ama shapes and distances from the hull. All of these designs are done to tune the seakeeping of the vessel and to calibrate resistance and propulsion performance.

Life aboard a large trimaran is exactly the same as aboard a monohull – it doesn't have an alternative arrangement like that of a catamaran, and so in many ways it's an easier idea to convey to existing yacht owners. But it is also a light boat and a wide boat: the form benefits from the trimaran's remarkable stability, but it's going to be inconvenient if you want to get into St Tropez in August. Tris can also have huge deck areas and shallow draught that make them ideal for cruising the sunny tropics of the Caribbean and South Pacific.

Trimarans on the sailing end of the spectrum, however, have less volume. Coste says that a good thumbnail conversion (unless it's an Austal-style commercial platform) is that a 60m trimaran will have the equivalent useable guest volume of a 30m monohull. He also says that the cost to build is equivalent to a 35m. He ballparked €40 million for a 60m trimaran. So if you're calculating for volume, Coste said that trimarans should cost about 15 per cent more per gross tonne, but offer significantly more in terms of outdoor space, unaided stability (you can deduct the cost of stabilisers) and efficiency, range and speed. It seems like a fair trade-off. He's working on plans for clients for a 60m and a 101m.

As Merzliakov, who comes from the latter end of the spectrum, points out, you can stand back and tell where the designer comes from by the way they've designed the boats. "Some are from sailing, with a low, wide stance, and others are from commercial ferries, which carry more internal volume."

On the largest trimarans, the 100m+ platforms with enormous volume, the use of internal space presents its own challenges. "The 102m platform from Austal is cavernous, so a lot of the design work I'm doing is to

create interest," Merzliakov says. "The traditional longitudinal corridor with cabins to port and starboard is a bit benign; but you have a lot of latitude. The biggest challenge is getting the light in, because the ratio of floor area to window area is rather large, so you have to be clever with your arrangement to let light in to those spaces. And then you can look at bringing more light in from the top." Utilising the Austal platform's 27m beam, Merzliakov is looking at an interior design that incorporates two light atriums that separate the main living areas within the hull.

On Coste's two 53m projects, they've developed a full additional electric drive system contained within the port and starboard amas that use generators and batteries to drive up to six knots of speed for two hours via props and shafts that can be folded up into the ama hulls when not in use. These will be deployed for silent running and for manoeuvring in marinas and harbours. In the main hull, a pair of MTUs will provide main drive power.

"The owner likes to fish, so running off the electric drive will be both silent and fuel efficient," Coste said. "I'm really happy about this project because I think it will be a good test to verify the concept and we'll be able to then build the subsequent boats with some really fine features." Coste said these first two 53m trimarans will reach 30 knots in rough seas and will manage a transatlantic sea at 15 knots.

For the two 53m projects, the choice of shipyard was interesting: Latitude Yachts is relatively unknown in the industry, having been set up with the aspiration to build superyachts. But with Coste as well as French naval engineering firm Rivoyre Ingenierie – who've handled projects for Philippe Briand, Couach, H2X, Bill Tripp, JFA, Drettmann, Ultraluxum and many others – the Latitude team is well supported to deliver on the designs. They already have one of Coste's Blue Coast 88 catamarans in the yard, at the hull stage and on hold for the moment.

> "You can stand back and tell where the designer comes from by the way they've designed the boats. Some are from sailing, with a low, wide stance, and others are from commercial ferries, which carry more internal volume."
> – Misha Merzliakov

Prior to winning the job to build these two 53m trimarans, Latitude was doing refit work on some 60m Moscow river restaurant boats. "It's great motivation for our employees to know that they're part of a pioneering project," said Aleksandrs Busarovs, project manager at Latitude Yachts.

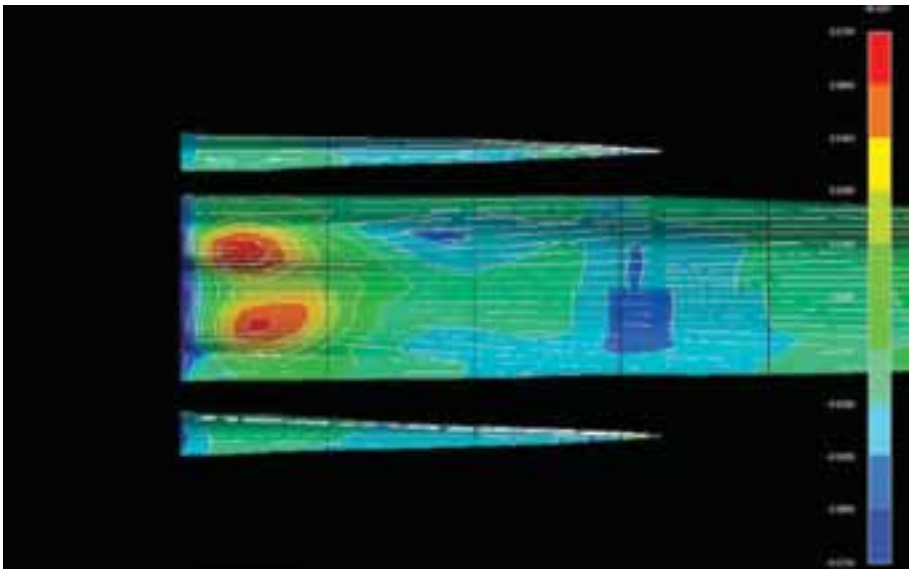
LATITUDE YACHTS' 53M PROJECT GALAXY

PALMER JOHNSON'S SPONSONS

American monohull builder Palmer Johnson have had a radical new yacht design in gestation for years now, fresh from the febrile imagination of award-winning designer Berkeley March. Having plucked the designer straight out of his Young Designer of the Year award a few years ago, the yard has invested in his vision of a technically advanced hullform that should provide both fuel efficiency and a uniquely high degree of stability.

"From a purely naval architectural point of view, the PJ SuperSport 48 behaves like a trimaran, but from a superyacht perspective it should be seen as a monohull," March explained to me. "The design had to be fast, efficient, stable with great sea keeping as well as needing high volume within a sleek appearance. There is nothing like it in its size or form; what's out there are typical trimarans with sponsons wide apart or positioned very close on a small lightweight, high-speed planning craft hull form."

The SuperSport 48, which should deliver in 2015, in effect has a very slender hull form which immediately gives it an enormous advantage over vessels of similar volume, while its sponsons – the tiny amas at port and starboard aft quarters – have been designed to dampen roll (as well as to carry fuel). It's a stunning piece of design … precisely the kind of audacious thinking that should drive the next generation of superyacht design thinking. It's the triple-hull approach, reimagined. Something about that third dimension seems to afford designers a level of flexibility that monohull and even cat designs can't achieve.



TOP: THE SUPERSPORT 48 IN BUILD AT PALMER JOHNSON
ABOVE: CFD ANALYSIS OF THE SUPERSPORT 48

"There are people who can quite clearly see that the trimaran form is something to consider for the future."
– John Shuttleworth

OTHER DESIGNS

Elsewhere, designers are pushing the form, with a couple of notable recent forays, one by a German designer formerly of Messerschmitt Yachts, Roland Friedberger, and another by the McPherson Design team.

Looking for a form that maximised both safety and entertaining space, Friedberger was drawn to the trimaran form. "On a recent refit project, the client prioritised a logical layout that would help the crew with planning and serving parties. With more beam, it makes sense. The last refit I designed was a 70m with 15m+ beam. That was great: the feeling was of a big square salon." With that realisation, Friedberger set about developing a concept that could provide the same feeling. His 130m Assina concept (see render on opening spread) has a beam of 28m, the equivalent of a 130-140m monohull.

"You can get a lot of guests aboard and know they'll be safe and comfortable; for example, 400 people moving to one side of the yacht won't roll the decks. Most salons have a maximum beam of about 15-17m; here we have 28m with a panoramic view. The two-deck superstructure is above the central hull. Within the hull are two decks over the tech deck, so wherever you want to go, it's not far, because most is the aft area of 60m x 28m. The front deck is sport, helideck/hangar and private owner's area."

Friedberger's design is simple without the thousands of curved and complicated forms that present endless challenges for shipyards. "It's a very straight design," Friedberger says. "Everything in this concept is buildable; nothing is there to waste money just for design." But is there any real interest in a big trimaran like Friedberger's? He'd like to think so, of

DRAGONSHIP, A THREE-MASTED TRIMARAN FROM PI YACHTS, WHO COMMISSIONED THE DESIGN FROM ROB MCPHERSON.

course. “Is there is a market for the Assina concept? Yes, I hope so, but I don’t know. If my visions are crossing the concept ideas of investors, and there are some parts of their visions and mine that are heading in the same direction …”

From Wales, the Dragonship concept has made a wide round of appearances on coolhunting blogs and has popped up in conversation at design symposia. Utterly improbable, and yet apparently as audacious an idea as the ultra-secretive *White Pearl* project in northern Germany, the three-masted trimaran features retractable amas that tuck in alongside the main hull when not actively stabilising the main hull. “We wanted a design that offered huge marina and bay credibility for the future owner,” said Will O’Hara of Pi Yachts, who commissioned the design from Rob McPherson. “Many superyacht owners want a unique vessel and trimarans currently offer just that, along with incredible stability.”

CONCLUSION

Lest one dismiss trimarans as just one degree more bonkers than a catamaran in terms of a superyacht platform, let this report set you straight. Trimarans, by virtue of their third dimension, are phenomenally more flexible and diverse a form than monohulls or catamarans. They offer volume and speed, as well as the potential for efficiency and stylistic possibilities that are leagues ahead of virtually anything in build today.

In conducting this report, I’ve been amazed and delighted by the viability of the designs on offer, the strength of the architectural thinking supporting them and the very real possibility that within the next few years, we may well see a handful of major trimaran projects hit the water. As long as these projects are on the shop floors, we can’t claim to lack innovation … designers and, more importantly, clients are willing to go where few have gone before. ■

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