

## Taking on the superyacht challenge

It all started a year ago when the Superyacht Racing Association (SYRA) began to have a look at how to improve their existing system of rating large luxury yachts that for a few weeks each year gather to race under handicap. Members of the ORC's International Technical Committee (ITC) were invited to observe the racing and it quickly became clear that the existing ORC VPP had some tools that, with modification, might work on this fleet.

Yet the handicapping of widely disparate superyachts represents one of the most formidable challenges any rule authority can undertake; a superyacht fleet typically includes schooners, sloops and ketches of varying lengths with displacements ranging from 50 to over 600 tons.

Nonetheless, within a few months ORC chairman Bruno Finzi had



**Call starboard... and make my day. Wally Yacht's first big step away from their 'traditional' sleek, flush-deck look is with the Bill Tripp-designed 50m sloop *Better Place* (above). Surely there can be few yachts so aptly named?**

agreed on a plan for ORC to co-develop a new VPP-based rating system with SYRA that would have some important features sought by the superyacht fleet: a searchable database of measurement data; an online service of application and issuance of certificates; a variety of ratings available for organisers to use at events; and the flexibility to apply a clearly defined Observed Performance Factor (OPF) when handicap adjustments were needed for boats with unusual features that were not adequately modelled by the VPP.

So a superyacht working party was formed among the technical staff, chaired by Andy Claughton, with a clear mission: develop a new rule in time for the first event in early March in Virgin Gorda.

Fortunately the tools in the ORC system were already in place to be modified to accommodate various unusual features seen on superyachts. For data not taken by direct measurement the new 'ORCs' system allows hull and sail plan geometries to be supplied by the designer and stability information provided by the Yacht Stability Booklet.

But for superyachts additional configuration information is needed to complete the handicapping process. This can include details of items of significant windage, such as the size and location of furlled sails carried while racing, the size and location of satellite domes, and frontal and side area of the hull and superstructure... Other important inputs are the locations of the yacht's tanks and their load conditions, and locations and weights of chains and anchors onboard.

This and all other input data are shown on an ORCs' certificate, along with a drawing of the boat and its sail plan.

For the new rule a completely revised aerodynamic force model was developed. This had to capture the different performance envelopes of sloop, schooner, ketch and yawl rigs. These new coefficients were derived from published wind tunnel data combined with basic aerodynamic fundamentals.

It was important to capture the vastly different behaviour of the fleet. A modern sloop can tack in less than 30 seconds, while a fully fitted superyacht might take five minutes to get back up to speed. The key to equitably assessing these effects was to find a reliable metric to characterise a yacht's place on the spectrum. Eventually it was found that the yacht's vertical centre of gravity relative to her flotation waterline offered a reliable measure of how nimble a yacht might be and this factor could then be used to adjust the dynamic allowance, tacking allowance and added resistance in waves for each type of yacht.

This data is then used as input to a modified version of the same VPP used for ORCi and ORC Club ratings, with the output being a matrix of six ratings for Low, Medium or High winds in Flat or Rough seas.

While not familiar to some cultures, Time-on-Distance rating formats must be used here because the typical superyacht regatta employs a pursuit start format, where each yacht has an individual start time customised to its rating based on the course length and the wind and sea condition chosen for that race. This format is popular for superyachts since it avoids the complex and potentially dangerous interactions seen at a conventional start among very large, expensive and not always manoeuvrable vessels.

One problem with the pursuit-style start format is what to do when there are close ratings between yachts, where they may become entangled at their starts. 'This was one of the more interesting dilemmas I have come across in my 22 years of race management,' said Peter Craig, race manager for the St Barth's Bucket.

'In short, the new ORCs' rule rounds to 30 seconds for starts in the interest of safe racing – a priority at all superyacht events. When the first two races were re-scored because of an inadvertent measurement issue, the rounding factor was the difference in determining the class winner. With two yachts overlapped at the finish of the deciding race, the suggestion for dual class winners by both boats is an example of good sportsmanship in line with the spirit of the Bucket.'

Having managed innumerable big events, Craig pushed the ORC team hard to deliver what was expected. He says a strong selling point for ORCs' was the transparency of the process, plus the continual efforts of the ORC and SYRA in refining the rule for its accuracy (at St Barth's the ORCs' rule was on version 38).

For Finzi the investment made by ORC in ORCs' is worth it. 'This was a gamble in a way because it is quite difficult to understand these boats and how they perform. But the technical team has done a fantastic job under a demanding deadline. The end result is we have a new rule system that has a published set of policies, procedures and a process to implement changes and, most importantly, a satisfied group of new customers.'

Volvo Ocean Race winner Mike Sanderson, tactician on *Elfe*, said in St Barths, 'The ORCs' system is going to be brilliant. It's going to take superyacht racing from being pure entertainment to something where we can compete properly and know how to change things each year to perform better.'

'Before, it was a performance-based rule, where if you do well today, tomorrow you won't do so well... Now it's a measurement-based rule so the main variables are how well you've prepared, how good your sails are, and how good your crew is... you should be able to win no matter which boat you've got and that's a really cool thing.'

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