

First do no harm

The ORC approach to handicapping is not the easiest one: the system uses a VPP based on the yacht's measured hull shape and sailplan to predict sailing performance across an enormously diverse variety of boat types. The ratings distilled from these predictions are similarly diverse, from the simplest single-number option to Triple Number, to the most complex option – Performance Curve Scoring. Organisers choose the option they believe matches their customers' expectations and their own level of scoring expertise.

As with any handicapping system there are those who will feel badly treated that an 'unfair' rating is conferred on their boat or other boat types are viewed by the system rather too 'favourably'. The ORC is always open to hearing about these concerns, but the complaints rarely address all of the factors that contribute to rating accuracy. Such as: has the boat been fully and properly measured? Did the scoring system used represent the actual conditions? And even more elusive... that admission that perhaps they sailed anything but a perfect race. Context can often be difficult to confirm!

That said, the ORC has a longstanding annual process to review suggestions for improvement from the fleet. Submissions are routed through national rating offices, who articulate the issues, which rules or policies may be involved, and they may make suggestions on improvement. The matters are then assigned to the relevant committee – ITC, Special Regulations, measurement and so on – and recommendations made for approval by ORC Congress.

These submissions are a mix of the political, the technical...



If they'd been more discrete... as soon as the crew of the 1967 One Tonneur Roundabout were pictured trapezing offshore an emergency rule change was rushed in to ban the practice (this can still be done today on the grounds of safety). Paul Elvstrøm tried again with his Half Tonneur Bes and with the same outcome

and the hopelessly utopian. Those assigned to ITC are often complex and need time to research, so this is the time of year when the ITC members, led by chairman Andy Claughton, are most active examining issues related to the VPP, ratings and sometimes scoring as well. 'Our handicapping product based on predicted polar tables and the different scoring methods is broadly successful,' says Claughton. 'There is continued enthusiasm for our championship events with nearly 8,000 certificates issued and renewed this year. But we want to remain responsive to our users so the submission process is important in informing technical development.'

The other part of the ITC remit is to encompass newer boat types that are appearing. 'The expansion of the US fleet this year, for example, has brought in boat types that have not been represented in ORC for many years, including the long, narrow and light ULDB Sleds at one end and the cat-rigged centreboarders at the other. These are not new designs, but they are relatively new to our fleet, so we need to make sure we can accommodate them fairly.'

'The members of the ITC constitute a massive repository of performance prediction knowledge, practical design experience and analytical skills, so the annual submissions are also important to

keep us focused on the day-to-day concerns of racing crews and race organisers. Without them ITC discussions might too often turn towards esoteric science projects.'

Another example is a submission from the US this year posing a commonly asked question: what is ORC doing to rate planing boats against non-planing boats? Claughton says this is easy to answer: 'ORC polar curves already do this. All boats have three regimes that move smoothly from one to the next as speed increases: displacement mode, which is how all boats sail upwind; semi-planing, where the boat is going faster, say on a broad reach, the bow will rise up, perhaps now with all the crew aft; and finally planing where the boat is lifting out of the water at high speed – the preserve of light boats in strong winds.'

'The hull resistance curves in the VPP cover all three regimes, while the VPP also decides whether and when your boat is light enough, or the wind strong enough to go through the gears from displacement mode to semi-planing and planing.'

'This is at the heart of the ORC process: it will give you the right handicap relative to your opponents for each wind speed and point of sailing... if you can embrace the beauty and apparent complexity of Performance Curve Scoring. ORC offers single-number scoring but this will inevitably be flawed where a wide variety of types race the same course. Two boats may have a similar General Purpose Handicap (GPH), calculated by averaging polar speeds, but very different performance profiles.'

'For example, Boat A is wide and light and tender, it will be slow upwind but fast reaching and running as the wind strengthens. Boat B is heavy and narrow, it will go the same speed upwind and downwind, and occasionally a knot or two faster reaching. So Boat B will do better in light winds on windward-leeward courses, because Boat A never sees her sweet spot. On the other hand, on a reaching course Boat A is favoured because her poor upwind performance is never exposed. Using the Performance Curve method each boat is handicapped using the correct speed prediction.'

So the planing/no-planing question is about scoring, not physics; the challenge for the ORC is to demystify the Performance Curve process so that more organisers feel able to manage it, and more sailors are offered the opportunity to see what it's like.

'We have also worked hard this year on improving the hydrodynamic force simulations and Jason Ker and his team have made some 800 CFD runs which will give us better confidence in our predictions for both the ULDB Sleds and the new offshore scows.'

'But it's worth pointing out that effective handicapping is not simply about perfecting the VPP to produce the ratings. Given we want to handicap all types of boats, using measurement and computational methods that are appropriate to a predominantly amateur leisure activity makes perfection unattainable.'

'We have made the VPP appropriately sensitive to the important physical characteristics of a sailing yacht, but there is still some sausage-making in the process. And context is important, particularly in the speciality fleets like the superyachts, multihulls and even sportboats. This is where observations and insights are key.'

'But we're in a very different position to back when designers waited for the annual rule changes to start work. Now it's the other way around, we're expected to fairly handicap what designers produce. We assume what they are doing is broadly correct, indeed we've seen over the past decade much less gaming of the system to produce boats that sail poorly but rate well. We want elegant sea-kindly yachts that sail fast to be happy racing in ORC fleets.'

'As a guiding principle we're also mindful of the Hippocratic Oath which is often paraphrased as "First do no harm". If the system is working well for most boats in the fleet, which we believe it is, then we have to be careful not to implement changes that jeopardise this at the expense of accommodating the handful on the edges of the design space.'

'The ITC will keep taking its lead from the annual submissions. As in most walks of life, the squeaky wheel gets the grease.'

Dobbs Davis

