GILLES MARTIN-RAGET

Oracle tactician and 2012 Olympic gold medallist Tom Slingsby – who was also onboard for the comeback of comebacks four years ago in San Francisco – realises that this time around the game really is up

Tough call

It's Team New Zealand and Luna Rossa who will be choosing the boat for AC36… James Boyd

Flying/low-riding, monohull/multihull… in theory at least, the choices are limitless. So what fine vessel will Emirates Team New Zealand and Luna Rossa agree upon for the 36th America's Cup?

Had any of the signatories of the AC Framework Agreement won the 35th Cup, then this would not be up for discussion: it would be the AC50 catamaran for another cycle. But Team New Zealand were the only team not to sign, arguing it contravened the Deed of Gift, that nowhere states that the Defender and Challenger can agree the format of events beyond the present one. The Kiwis may also have been underwhelmed with another part of the agreement – a two-year Cup cycle, as opposed to a longer period of their choosing which would better protect the 'rarified' nature of the Cup regatta while allowing international funds to roll into the coffers of the Kiwi economy.

For unlike most other Cup teams, Team New Zealand is a properly national effort. While the New Zealand government didn't give them money directly to fight the 35th America's Cup (they were able to get some government funding for R&D via the Callaghan Innovation Grant), they did fund the previous campaign in San Francisco to the tune of NZ$36 million. Given conservative estimates had hosting the Cup in 2000 and 2003 as having contributed NZ$1.2 billion to the New Zealand economy, this funding was effectively a gamble towards winning the Cup and the potential jackpot of hosting the next event.

So now having won in Bermuda it is payback time. There would probably have been uproar in Cupland had ETNZ announced a five-year gap before the 36th Cup (as they did before 2000), but even so with the next event nearly four years away in 2021 there are likely to be pre-regattas or World Series-type events aplenty held in New Zealand in the intervening period.

Although derided by the Kiwis, the America's Cup Framework Agreement was depictive of the unprecedented degree the Defender and most of the challengers worked together (some would say colluded) for the 35th America's Cup. Ironically it was Luna Rossa that, when they took over from the defunct Team Australia as Challenger of Record, decided this role should become a joint effort between all the challengers. Unfortunately this decision returned to haunt them when they objected to the mid-cycle change to the AC50 so vehemently that Patrizio Bertelli pulled the plug on his campaign. For the 36th Cup, at this sensitive stage at least, it seems that the relationship between Defender and Challenger of Record returns to its traditional status as more of a closed shop.

And what of the boat? This will certainly be one of the most complex decisions. One argument is that ETNZ would be mad to change boats from the AC50 given they hold such a technological advantage over the other teams. But perhaps this is irrelevant. The Kiwis seem to have the right people and processes in place within their design and sailing teams, and the interaction between them, that perhaps it doesn't matter what boat they are tasked with developing.

Given the AC50 was the creation of their nemesis, Oracle Team USA, and born of a controversial rule change that, like Luna Rossa, they objected to at the time, it seems unlikely they will stick with the AC50. But they might go for something similar – beefed up to accommodate the switch from the flat waters of Bermuda's Great Sound to the less benign waters off Auckland.

While waterline length is not really an issue when your hull is constantly travelling a few feet above the water, Grant Dalton has implied that he would like a larger boat. 'It's the America's Cup – the boats need to be impressive' is his thinking. But in foiling length isn't as big a contributor to speed as righting moment and if Dalts wants to embrace a 'stadium sailing' format, perhaps off downtown Auckland rather than way out in the Hauraki Gulf, then there is no need for a larger, more costly boat.

So what parts of the AC50s might they keep? That Bermuda's flying catamarans represented a technological cutting edge in sailing befitting of the America's Cup is undeniable. Architects of the 34th and 35th America's Cup Russell Coutts and Larry Ellison deserve praise for creating an environment that allowed teams to make such quantum leaps in sailing technology. It was amazing how quickly we became used to seeing boats hitting 40kt+ reaching and, more amazingly, sailing upwind at 30kt+, regularly sailing at three or four times wind speed and getting around the entire racetrack without touching down.

Now we are used to such speeds, can the next Cup boats really be slower? Given how steep the learning curve still was with the AC50s, even during the last stages in Bermuda, I would be fascinated to see what a second generation of these boats might look like, especially with some rule tweaks.

A problem for some is that these new ultra-fast boats have created an entirely different sport. In fact, with all its wings, foils, reaching starts, boundaries, tiny headsails, no rope, hydraulics, cyclists and supersonic speeds, the spectacle we saw in Bermuda takes as much explaining to regular sailors as regular sailing does to non-sailors. This trend will continue if the present stakeholders stick with flying boats and allow progress to continue further (bring it on!).

The reality is that like jet fighters, AC50s (or their equivalent) are now too fast to be sailed efficiently by human beings. For example, it was generally agreed that the more unstable your foils were (either through their section shape or how horizontal their tips were), the faster they were, but the more they required trimming.

The Team New Zealand solution to this was to have their third man forward, Blair Tuke, with his head in a tablet screen. This is believed to have been displaying how the rake of the leeward/working daggerboard should be trimmed and, as on some video game for three-years-olds, Tuke appeared to be following this on the screen with his finger, this movement in turn controlling the leeward board's rake. Given this job could have been carried out by a monkey, it is hard to see why anyone would object to it being fully automated?

If trimming foil rake was via a high-speed, automatic fly-by-wire system, it would allow more extreme foils to be used while at the same time being potentially safer than if a human were in charge.

Keeping the grinders on the AC72 and AC50s (that evolved into cyclists on the Kiwi boat) was a conscious decision by Russell Coutts, who reasoned that it was important for elite-level sport to display ▷

INGRID ABERY

Job done. Stunned, exhausted, relieved, happy, four of the key men of ETNZ make one final effort for the camera – Glenn Ashby, Matteo de Nora, Pete Burling and Grant Dalton can at last start to relax a bit

athleticism. But the grinding/cycling to maintain hydraulic pressure on the AC50s seemed artificial and far removed from the sailing (two guys sailing the boat, four in the gym), although there was the counter-argument that seeing grinders constantly priming hydraulic systems was little different from witnessing grinders cranking in rope.

While it required huge fitness and a giant pair of arms (or in the Kiwis' case, legs), as well as ultra high-efficiency hydraulics and control systems, it was slightly absurd that this was such a big deal when it could so simply have been dealt with by fitting a tiny engine (as on the two giant multihulls that contested the 2010 Cup in Valencia). A top cyclist can produce around 400 watts or 0.5Hp per hour. So five professional cyclists can bang out 2.5Hp. This is electric motor territory, so surely a smart 21st-century solution would be harnessing solar or even wind power to replace grinders? Or the latest lithium-iodide battery cells.

Unfortunately, with computer controlled foils and an engine replacing the grinders – suddenly just two people are left on the boat…

So on high-speed boats like this, which jobs can humans do better than machines? Clearly it will be some time before a machine can read the wind up the racecourse from onboard better than a human with knowledge, experience and a keen pair of eyes. Equally a computer could be set up with the boat's full performance data input, the Racing Rules of Sailing and a team's playbook to make all the tactical calls – but where would the fun/art be in that?

Another job-creating option would be to replace the wing and wherever possible make rope mandatory. Compared to soft-sail rigs, wings are awesome in their efficiency and they are able to keep flow attached and the power on, especially through manoeuvres.

The AC50s were going upwind at 30kt+ and, thanks to the wing (as well as the foil design), their speed only dropped to around 20kt during manoeuvres, therefore making foiling tacks possible even in impossibly light winds. Understandably, wings have a big fan base in Cupland.

However, while it didn't receive the same amount of press in Bermuda as it did in San Francisco, stepping and unstepping a wing remains a time-consuming, logistical headache and wings in their present configuration provide no trickledown value to the sailing world. While it would be tempting to go back to a soft-sail rig, it would be more interesting to get the might of the America's Cup design teams to apply themselves to a high-performance hybrid wing system, along the lines of what VPLP, Chantier Bénéteau, OneSails and several others are actively developing.

Another alternative being mooted is a new style of foiling monohull. It should not be forgotten that the naval architect within Emirates Team New Zealand's design office is Guillaume Verdier who, with VPLP, was responsible for all the flying Imoca 60 monohulls in the last Vendée Globe and who has since won the contract for the new one-design foiling monohull for the 2019 Volvo Race. However, even the latest Imocas were highly compromised offshore boats and hardly depictive of what could be achieved for an inshore design.

Given we are at a 'blank sheet of paper' moment with a new AC boat, a more interesting option would be something like an 80ft-long ultra-lightweight and ultra-narrow version of the fully flying and much awarded DSS-equipped Quant 23, with a minimal bulb and relying on the foil and crew skill to provide most of the stability.

Foiling boats such as this represent the future of inshore monohull racing, and one imagines that if the Kiwi design team could get their catamaran flying when the AC72 rule was specifically worded to prevent it, then it wouldn't require massive intellectual expenditure for them to conjure up the ultimate inshore foiling monohull – but let's hope they keep the rule open enough to allow some real development.

Fortunately, despite all he said at the time in praise of the VO65, Grant Dalton is not a big fan of one-designs. He has confided in the past that projects involving one-designs 'don't feel like projects'. And as the 35th America's Cup proved, partial one-designs do nothing to reduce campaign costs.

All of the above implies that the Kiwis and Luna Rossa wish to keep the next generation of America's Cup boats fast and state of the art. However, there is a strong lobby pushing for more conventional, and this will inevitably mean slower boats.

It has been widely rumoured that Luna Rossa are lobbying for this. However, Francesco Bruni, who was set to be helmsman for the Italian team had they not pulled the plug on their campaign for the 35th America's Cup, refutes this: 'I am pretty sure Mr Bertelli likes sailing in general. Personally maybe he likes monohulls better. What he didn't like in the last Cup was the change of the rules [to the AC50]. He was OK with the AC72 and with the AC62 – he was excited about that and the new technology. That was not the issue.'

A return to heavier, slower boats would be good for the industry as these vessels require more sails and thus more personnel to trim them. It might also attract more billionaires to come and play, although the kind of billionaires who are likely to get a tear in their eye remembering 12 Metres or ACC monohulls would surely be more interested in the burgeoning J-Class?

Many longterm Cup fans believe that competition there is closer to what the Cup 'should be' than the pesky high-speed foiling machines we've seen in the last two America's Cups. Frankly we hope those folks have had their day. Are we seriously going to see Peter Burling and Nathan Outteridge steering boats with spinnaker poles that go the same speed upwind as they do downwind? We hope not.

In fact, one of the revelations of the racing on the Great Sound was that it demonstrated how little difference it seems to make to the closeness of the racing whether you are in Version 5 leadmines or high-speed foiling boats. In both it is equally possible to steal a march on your opponent out of the start, to leave them for dead and to have no contact for the duration of the race. Similarly, you can have two boats that are very evenly matched and can engage and have lead changes, dial-ups, dial-downs and so on. The course boundaries also proved a huge success in keeping racing close. Thanks to the high speed and short duration of the races, there are now far fewer occasions when viewing Cup matches is like 'watching paint dry'.

Besides, the fast-sailing genie is now well and truly out of its bottle. We speak about fast and slow sailing and how today they are different sports. Interestingly just a decade or so ago this was simply the difference between monohulls and multihulls. Today it is between foiling and non-foiling. As Bruni hopes of the potential new Cup boat: 'The most important thing is that foiling has to be embraced. That is more important than monos or multis.' Let's hope he still has the ear of Mr Bertelli. ❑