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## Brisbane to Gladstone 2019: Race Report

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by ij  
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As the winds looked strong enough to make our Super Maxi's to fly the course in less than 24 hours, I chose to participate as such a short race did not interfere too badly with other important schedule, except for some sleep because of a rather early start for Europe.

I did some routing experiments for the first marks before the last weather update before the start. According to my rough calculations, a curvy path towards better winds east of the direct heading to the first mark will be better by impressive 5 meters or so :-). (In general, nothing seems to come free at the top of competition so most opportunities must be seized to win). I had two options for the start: set a direct course and wake up for the first mark around 4:20AM (local), or wait for the last weather update (01:30 AM local) and set an accurate course for the first two marks and only wake up to take the third mark accurately. The latter option is worse on all counts because more safety will be necessary for rounding the marks and also provides less sleep opportunity so I went for the first option at the cost of those few meters that hopefully will not bite me later.

Light on sleep when a start is coming up, I end up being awake near the start time so I managed to get an updated curve to gain even those few meters too (the last weather update made the gain slightly larger too!). Not many boats chose to sail the curve but went for the simple direct route instead. Besides me, **Bimmer** and **batseba** took the curve (**antares\_sydney** also took the "curve" side but with only a single turn rather than a curve). All three of us were well positioned for the next leg turning nearly at the same time. But **Hirilonde** was able to cut very close to the first mark getting even better position higher in the wind.

The next leg was not close-hauled but first provided a little ease tightening somewhat the closer we got to the second mark because of slowly turning wind. The wind speed is also increasing as we sail on towards the second mark. This setting naturally allows gaining speed towards the better wind without a curve that would normally be necessary to produce better acceleration towards the wind. Thus, I simply set direct course to the mark, set up DCs for a safe rounding and went back to sleep.

When waking up again to take the third mark tightly, I notice that out of the usual top boats **Kipper1258** had undershoot the second mark and despite quickly correcting is now clearly behind. But then also many boats are clearly ahead of me already, many because of taking the second mark more tightly than me but I'm unsure what exactly was the reason with the rest (I even suspected earlier I would have had multiple performance losses at the first mark but the high loss was

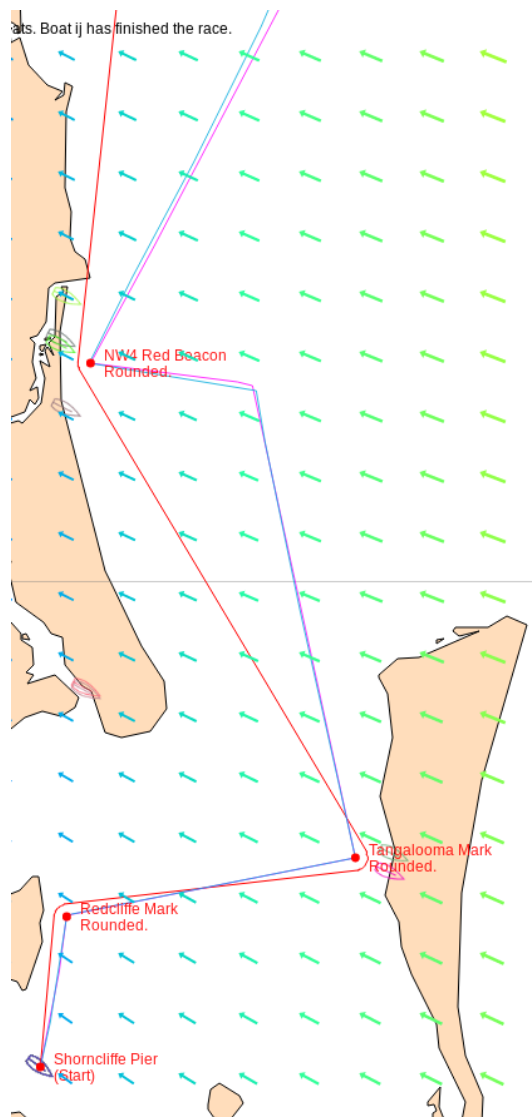


Figure 1: Early (morning) marks (blue is **Bimmer**)

probably just due to our fast boat). But we race on. We sail again towards the coast to the lower wind speeds but our maximum VMG course naturally aligns with the wind gradient so no special trickery is needed, just a gybe aiming to the third mark at the right point.

The third mark comes, we round it and head back to the open waters to the better winds. This seems an important mark for the order in the race and I'm already clearly behind. **Bimmer** rounds in a clear lead, then followed by **batseba**, **Billy**, **Hirilonde**, me (and perhaps some other I've forgotten). There are some differences in the angle to head out between the boats now. Out of the top boats, I take the most extreme angled route out, then **Bimmer** and **batseba** and the rest take more direct routes. **Kipper1258** who is somewhat behind exceeds even my

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angle out. Our goal is 153.5E around where the wind is going to be its strongest. I slowly gain better wind, more speed and thus start to slowly climb towards north compared with the boats sailing west of me.

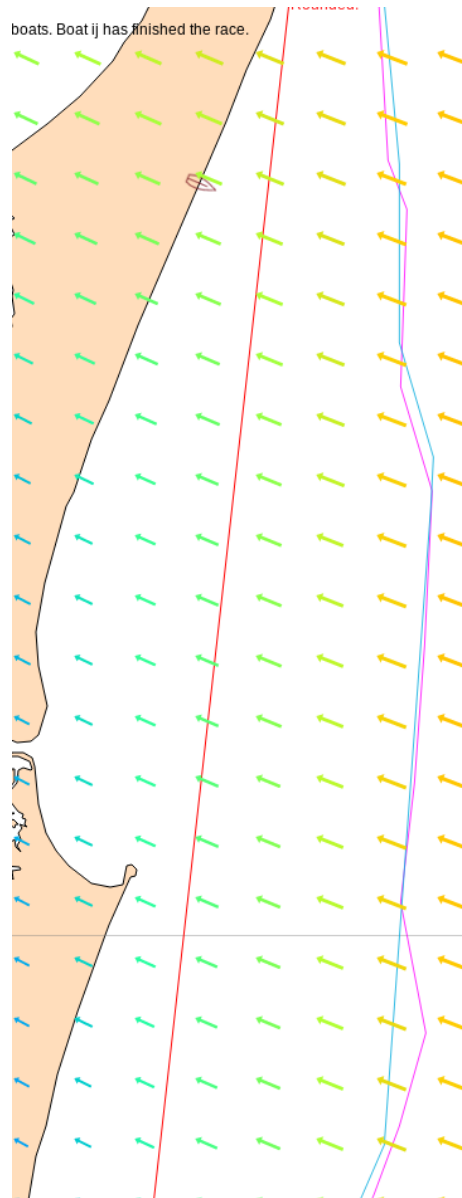


Figure 2: Polar notch imposed course alteration (blue is **Bimmer**)

Sailing at 153.5E is slightly tricky because our polar has a notch right where we should be heading. Notches elsewhere in the polar are no different from the valleys at TWA 0 and 180 (think of polar butterfly) and one ought to not sail into them but alternate between the edges of the notch similar to tacking/gybing when in head/tailwind. As we near 153.5E, we start to get close to notch TWAs. Too bad

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that the edge angle is not consistent and needs to be varied as the wind speed varies. Due to lack of tools for the task at hand (I really should build one), I spend considerable amount of time fine tuning the TWA angles (with the help of AGL and reading the polar). To my surprise, many boats keep sailing into the notch, **Bimmer** in particular allowing me to slow start gaining on him and finally overtaking.

As we turn towards Breaksea Spit Light mark, I thought I have good enough angle and some surplus too with 137.75ish TWA (137 was an edge of the polar notch so far). However, with wind speeds excess of 15.5kn, the notch extends such that the edge is around TWA 138 and I fail to notice this until halfway into the mark. **Bimmer** turns later and is therefore not taking any polar notch penalty. Unwilling to take the performance penalty of double gybe, I run some calculations and determine that at best, he can end up into a tie with me but likely the diminishing wind strength will eat away some from our speed difference so that I stay ahead so I keep sailing. At the mark, **Bimmer** also overshoots the mark a bit and I'm still roughly 0.04nm ahead.

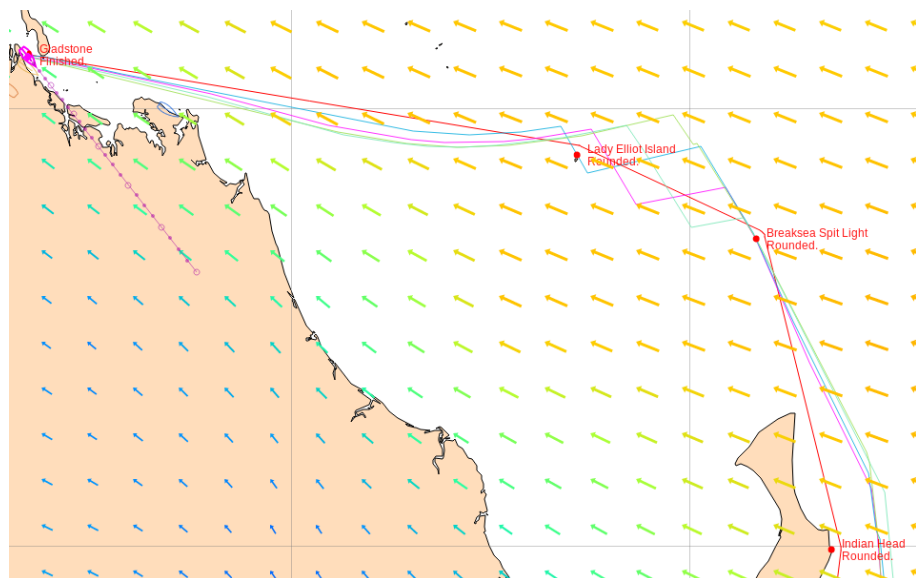


Figure 3: Flying to finish (blue is **Bimmer**, turquoise is **Billy**, green is **Hirilonde**)

The rest of the race is downwind until a wind rotation and then a quite straight-forward finish. The remaining marks do not have any impact on my route as the wind speed gradient keeps me well north of them. I gybe much earlier than **Bimmer** to have both downwind legs with favorable wind angle change (our high speeds allows sailing against the large scale wind rotation due to a fast lateral change in position of the boat). When our paths cross in between, the distance between us still seems to be around 0.04nm despite that a visual inspect shows my edges of the polygon being clearly shorter (perhaps just a server tick difference doing its trick here).

**Billy** and **Hirilonde** are approaching from east slightly south of my intended last gybe point before the wind rotation. But even with my later gybe, I keep a position clearly closer to the finish line and will be holding the height advantage on top of that. On the second crossing with **Bimmer**, I'm still in lead (but due to being

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busy with other stuff I could measure the actual distance).

With all boats now clearly behind, just some fine-tuning after the last weather update and I sail to win. **Bimmer** sails lower than rest of us but near the finish line makes a sudden turn for the upper mark (I suspect this was due to a locked waypoint in qtVlm he forgot to release before optimizing the route). **Billy** and **Hir-ilonde** take 2nd and 3rd places, whereas **Bimmer** misses the upper mark allowing **Kipper1258** to finish fourth despite the mark rounding blunder early into the race. **Bimmer** is soon followed by another Danish boat **batseba** missing the upper mark, perhaps the early start has taken its toll (they wake up soon enough to finish within top 10 though)? :-)