

## The Lucky Yachtsman

By John Quinn

My story is not new it dates back to the 1993 Hobart Race. But I guess it is similar to some of the frightening experiences we hear about from last year's race. In the 93 Hobart Race I was sailing my J35 Mem. At the time, the J35 was a competitive boat under the IMS handicap, although it was designed in 1985. Mem had been selected with Atara to form the NSW "A" team in the Southern Cross Series. Our team was leading the series going into the Hobart Race.

The race started in a good North Easter with a fair amount of East in it. A Sou'Wester came in at 20-knots at around 1700 hrs when we were just South of Coalcliff. The wind gradually increased and was gusting to above 30-knots by midnight. Generally it was W/S.W. occasionally heading us. Mem was sailing at around 8.5 knots with one reef in the main and no.4.

Throughout the next day the wind gradually headed to S.W. and increased. We lost our wind gear so the wind speeds are estimates or what others have told me. We had changed to the storm jib and put a second reef in the main by midday and Mem continued to average above 8-knots. The seas had increased so she was pounding fairly heavily.

During the radio "sched" at 1500 hrs we were well positioned. The majority of the fleet was further East of the rhumb line. Our teammate Atara was also well placed.

At around 1900 hrs we were South of Merimbula and about 50 miles East of the rhumb line. The wind had increased to over 40 knots and we were beginning to feel the impact the Bass Strait seas. We dropped the main and prepared to set the trysail. However, we found Mem was still sailing course under storm jib only at above 7-knots so we put the trysail below. While we were changing sails a large rogue wave came from the beam and broke over us. I was tempted at the time to turn, drop all sails and run for shelter. However, we were part of a team and the adrenalin was pumping.

The sea was now so rough we could no longer steer from the side deck, so the helmsman was sitting on the cockpit floor. I took over the helm at 2200 hrs when the wind was gusting at over 50-knots. In fact the crew of Atara told me later that they had gusts of over 70-knots. We were travelling at over 7-knots - on course slightly "started". The sea was now around 4 metres and little Mem was slamming fairly heavily. There was no way of slowing her more but we were steering fairly easily through the waves.

At midnight we were 45 miles ESE of Gabo Island and that's when it happened. Another rogue wave hit us on the beam and broke over us. How large we don't know; nobody saw it. It is clear that the top of the mast and the top spreaders went into the water and we suspect the lower leeward spreader as well. Peter Rothwell was tipped out of his bunk and walked along the cabin side and roof where the spinnakers ended up. The top opening icechest was emptied onto the floor.

On deck 3 of us were catapulted and washed across the leeward side of the boat and into the water.

John Marwood went around the mast and across the foredeck.

Teki Dalton was washed out of the cockpit.

I had the force of the helm thrusting to leeward and was catapulted and washed over the rails. I felt the safety harness take up and then break. I had grabbed a line as I went overboard. probably the spinnaker sheet but this was yanked out of my grip as the boat righted herself.

Jeff Starling fell off the weather rail and was suspended by his harness, hanging with his legs in the water while little Mem was on her side. The force and speed of her righting herself flicked him under the weather rail.

Four of us were in the water. Of the 5 on deck only Simon Madzair remained on board. He had been thrown over the coach house.

So I was in the water as the boat drifted away pretty quickly. The people below started the motor very quickly but they had to get all the lines out of the water before using it. I saw someone jump to the stern to get the safety gear away but the boat was 20 yards away before he got there.

Gradually the lights of Mem disappeared and I was on my own. I was in the water for 5 hours from midnight to 5am.

I am only here today because of the intervention of God in the form of the incredible navigation and seamanship of the crew of "Ampol Sarel" who drifted the giant tanker down the wind line almost on top me. And the courage of the crew of Atara who was looking for me, during the gale, in a boat that was badly damaged.

I was nearly killed, despite all my experience, because I made two basic mistakes of seamanship.

First, I should not have entered the Sydney to Hobart in a yacht as light as the J35. They are an ideal fun, club, regatta and coastal racing yacht. Terrific for the racing I do most Saturdays. But I believe they are not safe for one Hobart in every 7.

Secondly, when the first rogue wave came on board I should have realised that we were running into conditions that were likely to be beyond the limit of Mem. As the seas increased I should have turned, dropped the jib and run with warps until we could shelter, behind Green Cape.

Yet by today's standards I feel that the J35 is quite a moderate boat. I believe that a number of the new I.M.S. boats and their I.O.R predecessors are not safe boats for racing in the Tasman Sea and Bass Strait.

The history of the severe Hobart Races since 1956 tell a story: -

1956 - 30 boats started and 28 finished (93%)

1963 - 44 boats started and 34 finished (77%)

1970 - 61 boats started and 47 finished (77%)

And then

1984 - 150 boats started and only 46 finished (31%)

1993 - 108 boats started and only 37 finished (34%)

1998 - 115 boats started and only 44 finished (38%)

Many of the reports coming back from the 98 Hobart are reminiscent of the 79 Fasnet, severe knock downs and boats being rolled, descriptions of boats remaining inverted for a number of minutes, rigs failing, crew being taken off by helicopter.

Over the same period we have seen yacht design change dramatically. The boats have become much lighter, the limit of positive stability is generally a smaller angle, crew is being used as

ballast, cockpits and cabin structures offer little protection, the motion of the boats has become more severe. The rigs are significantly lighter and we are seeing high levels of failure.

The displacement to length ratios of boats of the 1950's, 60's and early 70's were typically between 300 and 230. By the early 1980's the ratio had dropped to around 190 and 180. The J35 is around 160, many of the newer boats have the ratio around or below 120. The displacement to length ratio has more than halved since the early 1970's.

I think the lightness of the modern boats is also influencing the tactics used in severe conditions. In the 60's we would reef the boats down to triple reefed mainsail or trysail then sail high into the wind at speeds below the normal working targets but sufficient to drive over or through the waves. The boat would virtually sail itself. However, I am not sure that this is a safe option for a light displacement boat. These days' fore-reaching appears to be the popular tactic. Pulling away and sailing quite fast while steering around the waves. The first technique to my mind requires far less attention from a tired helmsman and gives an easier motion and therefore is kinder to both crew and boat.

The limit of positive stability for the ocean racing boats of the 60's were generally above 125 degrees and frequently over 130 degrees. Whereas today many of the newer boats are just over the 115 degrees, required by the safety standards.

The crew is now used as ballast sitting on the rail in hard reaching and working conditions. Not only are they very vulnerable it is unlikely that they are getting sufficient sleep, food or water. One of our very experienced crewmembers holds a doctorate in pharmacology. On our return from our 93 race he was analysing his reactions in the emergency during which he had lost the sense of time and had difficulty concentrating. These symptoms, he tells me, are typical of someone who is suffering from low blood sugar that is hypoglycaemic, dehydration and/or has had insufficient sleep. This occurred despite the fact that we had continuously passed up drinks and various foods. In the old boats the crew is able to shelter in a deep cockpit, behind a dodger or coach house or below deck. Eating and drinking can take place in relative comfort. At least half the crew is normally asleep at one time in comfortable bunks that are generally below or close to the waterline where the motion is minimised. The heavier hulls with deep sections provide a far less violent motion than the modern light boat with flat sections.

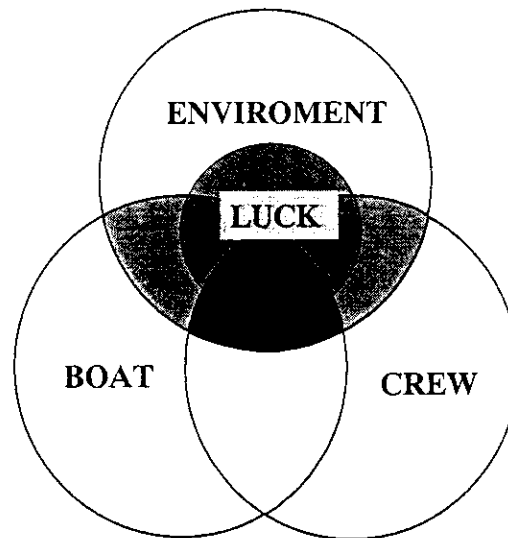
The rig is the primary source of power for any yacht its loss takes away our ability to manoeuvre and therefore exposes us to greater risk and reduces the stability of the boat. It also exposes both the crew and hull to injury until it is cut away. The more violent movement of the boat plus the physical and emotional strain on the crew are sapping strength.

As a Yachtsman the thing I find crazy is that these problems plus others have been recognised for many years. After the 1979 Fastnet disaster when 15 people lost their lives considerable testing was carried out and a number of publications appeared that pointed out risks associated with the modern lightweight boat. The great Olin Stephens stated "modern racing boats and the cruisers derived from them are dangerous to their crews". C.A. Marchaj who's book "Sailing Theory and Practice" sits on many yachty's shelves wrote "Seaworthiness the forgotten factor", first published in 1986. In 1990-91 our own Alan Payne all but predicted the disaster of the 1998 Hobart race during an after dinner speech at the CYCA. Yet here we are in 1999 with a handicapping system which does little to discourage unsafe practise. I hasten to add that I know that the IMS racing boat is different to the IOR boats, which were the focus of much of the

literature. However, many of the problems with the IOR boats of the 70's and 80's are common to a number of the modern IMS offshore racing boats.

In looking at the issues I believe it is vital that one considers the whole system or all the factors that effect the welfare of a yacht at sea. These are represented in the chart, which is an adaptation of one in Marchaj's book.

### Factors affecting a yacht's welfare at sea



It is important to recognise the three factors are not entirely independent of one another.

On the top is the environment , which is of course the wind and sea state. High wind speed is not necessarily a problem to a good boat and crew, it is the waves it creates that is the hazard. A large wave is not itself a problem, it is the breaking wave that will knock down or capsize a yacht. A boat up wind or sufficiently down wind of the break will be unaffected. This then brings in the element of luck. No matter how good the boat and crew there can always be a storm and wave that will overwhelm them so if you're in the wrong place at the wrong time your gone. I have positioned luck on the chart where it is because I believe in the saying that a good crew in a good boat makes their own luck, to some extent. The environment is something we can't change all we can do is to predict it more accurately and avoid whenever possible the extreme conditions.

The crew is clearly critical to the boat's welfare: - their experience, fitness, condition and alertness, their preparations for the passage including all aspects of the boat. The crews choice and implementation of the tactics and their suitability for the conditions and boat are vital. The way they take care of themselves, help their fellow crewmembers and share the tasks is important for their cohesion.

Moving on to the boat the welfare of it and the crew it carries depends on its' seaworthiness. It's resistance to capsize, strength of hull, gear and rig, ability to work it's way off a lee shore in hard conditions and directional stability. Not to be forgotten is the protection it gives to the crew and the facilities it provides to allow the crew to maintain their fitness and health. The

motion of the boat and availability of hand holds all play a part in crew welfare. The design of the boat will also impact the tactical options available to the crew. I believe there is considerable evidence that sailing high into the wind at reduced speed and “heaving-to” under a parachute are the safest tactics and therefore I look for a boat that is suitable for these tactics. I will accept that for fully crewed racing boats there may be alternatives. However as soon as you use the term “cruising” it must be recognised that cruising boats are typically sailed by small crews, frequently female and male partners. The boat must allow the crew to lock up and go below in severe conditions. The maximum number of tactical options must be available to the crew so they can choose the best for their circumstances. That means the boat must be suitable for heaving-to under deeply reefed mainsail, with or without jib, as well as parachute. If anybody disputes this conclusion then I refer you to “Storm Tactics” by Lin and Larry Pardey, The 1994 Pacific Storm Survey by Kim Taylor and Heavy Weather Sailing by K. Adlard Coles.

I believe that it is vital that the discussion or debate about the modern light boat must be based on sound scientific principles and consider all factors affecting the welfare of a yacht and crew. Arguments based on the experience of a small number of boats have too often been used in support of the modern boat. Small samples must be treated with caution because of the number of uncontrolled variables and the significant role of luck.

In closing I pose the question “Is it worth it?” The following two tables compare my 29 year old Cole43 with a typical modern IMS 40 foot racer.

## Is it worth it?

### Cole 43 v's a new IMS 40 footer

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• <u>True wind spd.</u></li> <li>• 6 knots</li> <li>• 12</li> <li>• 20</li> </ul> | <ul style="list-style-type: none"> <li>• <u>Predicted inc boat spd.</u></li> <li>• 16 %</li> <li>• 12</li> <li>• 9</li> </ul> |
| <ul style="list-style-type: none"> <li>• <u>CALL IT 20%</u></li> </ul>   |   |

The IMS system predicts that the new boat is 16% faster in 6 knots of true wind, 12% faster in 12 knots and 9 % faster in 20 knots. We know the measurement system **does not** do what it promised and predict performance fairly so lets say the new boat is overall 20% faster.

The second table shows some of the things that were done to get this 20% improvement.

## Is it worth it ?

How was the 20% achieved?

- Av. sailing length
  - Displacement
  - Working sail area
  - Beam
  - Crew weight
- + 5%
  - - 46%
  - + 14%
  - + 12%
  - 820Kg

First, the boat's sailing length is 5% longer by chopping the ends off. So strictly we should be comparing it with a Cole45 if such a boat existed.

Secondly, the displacement has been reduced by 46% so the displacement to length ratio is well below 120.

Thirdly, the sail area has been increased by 14% and to hold the boat upright the sections have been flattened, beam increased by 12% and 820kg of crew stuck out on the rail.

Let's put that into perspective; if you came to me as a businessman and said you had improved productivity by 20% over 30 years I would be surprised if you hadn't gone out of business 25 years ago. What would GM and Ford think of a vehicle that had improved performance by 20% by increasing fuel consumption by 14% and compromised safety?

Typically, a Hobart race takes us about 4.5 days in my Cole43; the new 40 footer can be expected to finish 18 hours ahead ie a little under 4 days. If we want to get to Hobart fast we still catch the plane. Cole43's have circumnavigated the world with small cruising crews, the previous owner of my own boat sailed around Australia two handed non-stop in under 60 days. What will the modern 40 footer be capable of? Is it worth it?

Before he died Alan Payne told me about a project he worked on with another designer. They found they could design a heavy displacement boat of the same sailing length as an IMS boat that would beat the IMS boat upwind by a considerable margin and have the same speed down wind. However it would not perform well under the measurement rule. I believe we have wasted 30 years of development because the measurement systems have pushed us in the wrong direction.

## **Severe Hobart Races since 1956**

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- 1977- 131 72 55%
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- True wind spd.
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- 16 %
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- 9
- CALL IT 20%



# Is it worth it ?

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- **Av. sailing length** • + 5%
- **Displacement** • - 46%
- **Working sail area** • + 14%
- **Beam** • + 12%
- **Crew weight** • 820Kg

**Factors affecting a yacht's welfare at sea**

