How to keep safety up to speed

By Tana Moore • Drawing by Tom Stanley

On Dec. 11, 2009, during the final round of the UIM/WPPA Class One World Powerboat Championships in Dubai, the VICTORY 1 boat flipped after hitting a wave on the fifth lap. Usually crew members walk away from such racing accidents, with perhaps a few bruises and new war stories. But, within seconds, Victory Team pilot Mohammad Bin Majid Al Muhairi and French throttleman Jean-Marc Sanchez were dead. These champion racers were securely belted into an enclosed aircraft-style cockpit, with air systems, in a 41-foot carbon/kevlar/epoxy catamaran built for speeds over 100 MPH. What went wrong?

Maybe the answer is not in those few seconds, but in the last 30 to 40 years of racing.

On the plus side, race boats are definitely safer now than they ever were; advanced composite hulls with enclosed safety capsules, secure seats and state-of-the-art safety harnesses offer greater protection to drivers and throttlemen than ever before.

However, Offshore racing is many times faster (from 30 MPH or so in the 1960s to 200 MPH today). Class 1 boats like VICTORY can typically exceed 160 MPH.

Meanwhile, course conditions have not changed; Offshore racing means rough water and stiff wind. Four-foot swells are common. And water itself is a terrible adversary. Crash videos show the impact of water on boats and bodies as similar to hitting concrete. In fact, Tiger Performance CEO Sonny Hawkins says water is worse than concrete. Water is invasive; it changes shape, concentrating at weak points and blasting anything in its way with enormous pressure. Water entering a cockpit can do more damage than the actual impact of a crash.

Another issue unique to boat racing is that the angle of impact can vary amazingly. Unlike car racing, which primarily sees front and side impacts, a race boat may hit the water at different angles—and several times—before coming to rest.

In the VICTORY crash, the boat flew up in the air, landing upside down and backward, still moving at high speed (approximately 125 MPH). The impact tore the top hatch loose, breaking it in half and forcing it through the front bulkhead of the cockpit. The driver's seat was dislodged and pushed under the dash; the rear deck collapsed; the aft deck section was torn off, folded in half and jammed between the dash and the canopy.

All of this happened in just over two seconds.

Rescue crews had trouble pulling Al Muhairi and Sanchez from the boat, but transported them quickly to a hospital. Sadly, it was too late.

Footage of the boat after the accident shows the front and rear decks basically destroyed.

The following day, the entire Class 1 fleet, including crew and officials, gathered at the accident site for an emotional tribute.

Teammate and Fazza throttleman Nadir Bin Hindi said, "We are still in shock. Not only have we lost two of the best pilots in the world, we have lost our friends and brothers. It is heartbreaking for all of us…"

How to avoid future tragedy? Some racers have responded by stepping away from competition; others are working to make their boats stronger and safer.

The UIM/World Professional Powerboating Association set a speed limit of 100 MPH for boats that do not conform to new capsule guidelines. Boats that do not comply with general 2010 specifications may not be raced at all. In addition to new requirements for water deflectors and "crunch zones" around the cockpit, their recommended target is a hull structure that can withstand impact pressure of 50 tonnes per square meter. (A tonne is 2,200 lbs.)

Technology has its own momentum, inexorably driving motorsports to higher and higher levels. That momentum should drive safety as well. Race boats must become safer in proportion to their faster speeds—or else slow down.

Sonny Hawkins believes that speed has gotten ahead of safety. He said bluntly, "There's no need to go 200 miles an hour in Offshore. There's a limit to what you can provide safety to."

Hawkins looks at Offshore racing as a competitor, who likes going fast as much as anybody. However, he looks at safety equipment with the eyes of an engineer. He and Tom Stanley have designed what they call the "Offshore Safety Cockpit of Tomorrow". It could be retrofitted into an existing hull. The cockpit incorporates a sturdy chrome-moly roll cage, ¾" thick Lexan canopy chemically welded to the cockpit shell, a Lexan window in the bottom escape hatch, and heavy-duty handles and hinges. It's one viable approach, based on sound engineering principles and input from international racing organizations. Of course, other racers have their own ideas about how to make boats safer. Hawkins would like to see any safety equipment subjected to review by the world sanctioning bodies, and undergo significant testing. Faced with yet another tragedy in Offshore racing, perhaps it is time for the sport to come together with common safety rules.

Hawkins would also like to see Offshore coalesce into common international classes. It would not only make safety rules simpler to follow, he says, it would make the sport more marketable.

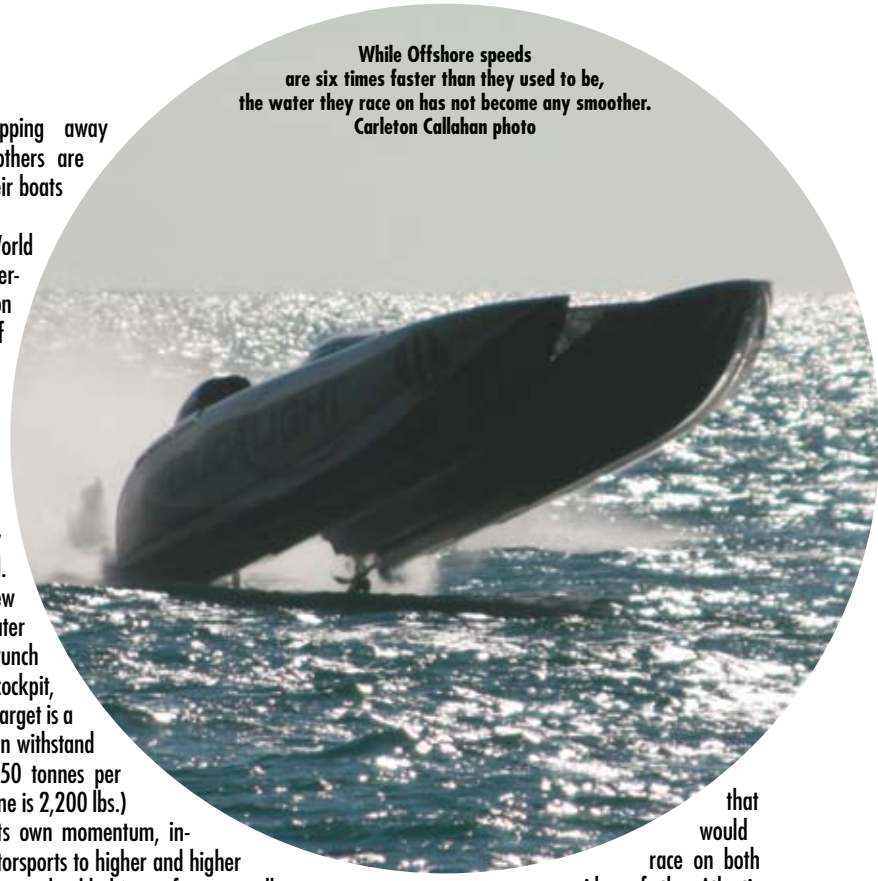
London-based Powerboat P1 Management Ltd. has already exported its successful racing series to the United States in the form of three vee-bottom classes under a North American subsidiary, Powerboat P1 USA.

Hawkins proposes adding three catamaran classes that would race on both sides of the Atlantic as well. He recommends the WPPA's X-Cat class and Class 1, which are similar to existing U.S. classes. APBA would have to adopt those classes, but X-Cat style boats already exist in the USA. He also proposes the current OSS Cat Light class as a good candidate for UIM and APBA racing. The possibility of more racers at more international venues, greater visibility, and more sponsorship is intriguing.

However, Hawkins begins and ends with safety:

"Our goal is to increase the overall quality and safety of our sport," he said.

Below is an exploded view of the "Offshore Safety Cockpit of Tomorrow". To see a slide show on the concept, go to www.tigerperformance.com.



While Offshore speeds are six times faster than they used to be, the water they race on has not become any smoother. Carleton Callahan photo