

Review Committee Report on the
Fatal Accident Involving *Imedi*
During the 2018 Chicago Yacht Club Race to Mackinac
on July 21, 2018
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Introduction:

Following the loss of Jon Santarelli during the 110th running of the Race to Mackinac in July 2018, the Chicago Yacht Club appointed a Committee with a broad range of experience to review the incident in order to make recommendations regarding the lessons that may be learned from it. The objective of this inquiry is to reduce the chance of similar accidents by thoroughly reviewing the events and examining the use of safety equipment. The recommendations following this review have been developed by the Committee based on its assessment of the events and are designed to enhance safety in the sport. The Committee notes there was some variation in the crew's recollection of events likely due to their varying positions and activities at the time. The Committee wishes to thank the Chicago Yacht Club for its support in implementing the review and also to thank those who provided the information on which this report is based, including eleven of the *Imedi* crew who offered both written reports and interviews describing their impressions of what happened. In addition, the Club wishes to thank all members of the Committee for their time, effort, and dedication in undertaking this vital task for the sailing community. The Committee's detailed report follows.

Brief overview: Essential elements of the incident. All times are Central Daylight Time.

On July 21, 2018, at approximately 14:26 CDT, Jon Santarelli, slipped overboard from the cockpit of the TP 52, *Imedi*, as she sailed northeast from the 14:00 start of the Race to Mackinac. The *Imedi* crew immediately tacked and circled back to Jon's position in the water, never losing visual track of him, but were unable to stop the boat close enough to retrieve Jon, due to the 20-25 knot winds and 6-8' seas. They circled again and came closer to Jon on the second attempt, this time with the engine running, but just as they got close to Jon, a wave forced the boat up and over Jon and he went under the boat from starboard to port. *Imedi* circled a third time, and this time they were able to stop the boat very close to Jon, but as they tossed Jon a line and he raised his arms, he sank below the water and was not seen again. His life jacket, which was reported as set for automatic inflation, never inflated and he was never seen to try to manually inflate it. In the subsequent search, *Imedi* was joined by the Coast Guard, CFD, CPD, three helicopters, several other power boats and eight Race to Mackinac entrants who had stopped racing to help search. The search was called off at



Figure 1: Jon Santarelli

dark, after five hours with no results. A week later, on July 28th, Jon's body was found floating 4 nautical miles east of the Chicago Harbor Entrance.

Chicago Yacht Club assembled a Committee of local and national sailors to review the incident, in an attempt to understand it and make offshore racing safer. This report is a result of that Committee's efforts. The report begins by setting forth the background with respect to the race, the weather conditions, the boat, and the crew, followed by a detailed description of what occurred. It concludes with recommendations regarding the lessons learned from the incident. The appendices include more details and supporting information.

Lessons to be Learned: As a result of the Committee's investigation, it became clear that there are lessons to be learned from this incident with respect to malfunctioning personal safety gear, use of additional safety equipment on board, and vessel control under challenging conditions.

Safety Issues to be examined in this report include:

1. Command structure effecting clear and timely communications during an onboard crisis
2. Safety gear functionality and crew understanding of its use
3. COB recovery routines practiced for specific vessel and expected conditions
4. Adequate training for effective response by a person in the water.

The Report:

1. **The Race:** the Chicago Yacht Club Race to Mackinac is run annually in mid-summer. The race is a 333-mile race from Chicago Yacht Club, East of Monroe Harbor Lighthouse to Mackinac Island Lighthouse, Mackinac Island, Michigan. Past years have included participation of as many as 460 boats and 3,000 crew members. The course covers the entire length of Lake Michigan which is subject to many weather extremes during the summer. With a history of several incidents, the Organizing Authority, the Chicago Yacht Club Regatta Association, and the CYC Mac Committee developed specific safety requirements that were spelled out in the 2018 Notice of Race, Sailing Instructions, and Safety Equipment Regulations. See [Appendix A](#) for further notes on these race documents. A few excerpts follow:

1.1. Overall Responsibility: 1.2: The safety of a boat and her crew is the sole and inescapable responsibility of the "person in charge", as per RRS 46, who shall ensure that the boat is seaworthy and manned by an experienced crew with sufficient ability and experience to face bad weather. S/he shall be satisfied as to the soundness of hull, spars, rigging, sails and all gear.

S/he shall ensure that all safety equipment is at all times properly maintained and safely stowed and that the crew knows where it is kept and how it is to be used.

- 1.2. *Safety Equipment: Man Overboard, 3.7.1:*** A boat shall carry a Lifesling or equivalent man overboard rescue device equipped with a self-igniting light stored on deck and ready for immediate use.
- 1.3. *Chicago Specific Requirement 5.12, Annual Man Overboard Practice*** – Man-overboard procedures appropriate for the boat's size and speed shall be practiced aboard the boat within six months prior to the race. At least two-thirds of all crew members racing on the boat during the Race must participate in this practice. A Crew Overboard Drill Certificate of such practice shall be signed by participating crew members and kept aboard the boat. The certificate shall be downloaded from the Race Documents section of the Mac website. Practice of the "Quick Stop" man-overboard procedure is strongly recommended.
- 1.4.** Excerpts from 2018 Race to Mackinac Safety Requirements: US Sailing SERs modified for the race are included in [Appendix A](#) below
- 1.5.** Race to Mackinac Inspection History: Approximately 20% of the competitors are inspected before the start of the race. As boats finish the race at the island they are inspected at random when inspection slips and inspection staff are available. Any new competitor, or a competitor who has changed from previous years, such as a new boat, is automatically inspected before the start of the race. Approximately 15% of the competitors are inspected on the Island after the finish of the race. *Imedi* has been inspected for the required safety equipment after the finish of the race on Mackinac Island twice in recent years, in 2016 and 2017, and in both cases passed inspection. *Imedi* was not inspected before the start of the race during these years or in 2018.
- 1.6.** A Skipper's Meeting was held prior to the race with the following statement: "Invited Competitor/Person in Charge (PIC) is responsible for reading and understanding the NOR, SI, RRS and rating certificates." Several times during the skippers' meeting the forecast for strong winds was repeated with the admonition to remember the DSC-VHF red emergency button.
- 1.7.** A Chicago Yacht Club Race to Mackinac Emergency Action Plan (CYCRTM MEAP) included comprehensive and detailed contingencies for a variety of scenarios from Minor to Life-threatening. The Plan was provided to the Race Management team and reviewed in detail during in-person meetings with the Coast Guard prior to the race. It was noted that there was

no emergency medical team on staff with Chicago Yacht Club or the Race to Mackinac Committees. (See the CYCRTM MEAP in [Appendix A](#))

1.8. There were detailed instructions for race management specified in the On-Water Director’s Statement included in [Appendix N](#).

2. The Weather: Weather briefings were broadcasted live via the race page and social media. Two of the most nationally well-respected weather advisors, Chris Bedford and Commanders’ Weather, gave forecasts for July 21 calling for strong winds, with the warning for “showers and possible squalls moving west into lake from Michigan shore.” This warning was repeated at a weather briefing given to all skippers before the race. This was not an unusual forecast for this race but was “one of the most dynamic in memory.” The prediction turned out to be accurate. Crews knew what to expect.

2.1. Weather Briefings were given for each day of the expected race duration tailored for specific classes with Optimum Route Analyses included. See [Appendix B](#) for detail.

3. The Boat: Transpac 52 (TP 52, see more detail in [Appendix C](#))

3.1. The sailing yacht, *Imedi*, was a Transpac 52 (TP 52), which has raced on Lake Michigan for the last decade. It was owned by Mark Hauf, who was listed as the Invited Competitor for this race but was unable to sail due to health issues. The TP 52 is a high-performance boat built and sailed to fit within a set of specified dimensions, a box rule. The current rules specify a single-masted, fixed keel monohull with a single rudder and maximum hull length of 15.85 meters (52 ft), beam width of 4.43 meters (14.5 ft), keel draft of 3.5 meters (11 ft) and spinnaker hoist height of 22.4 meters (73 ft), along with a minimum total weight of 6,975 kilograms (15,377 lb.) and maximum keel bulb weight of 3,800 kilograms (8,400 lb.).

3.2. The TP 52 has a large open cockpit, with the vang control located far aft (behind the steering wheels in the center of the deck) and remote from likely handholds and jacklines.

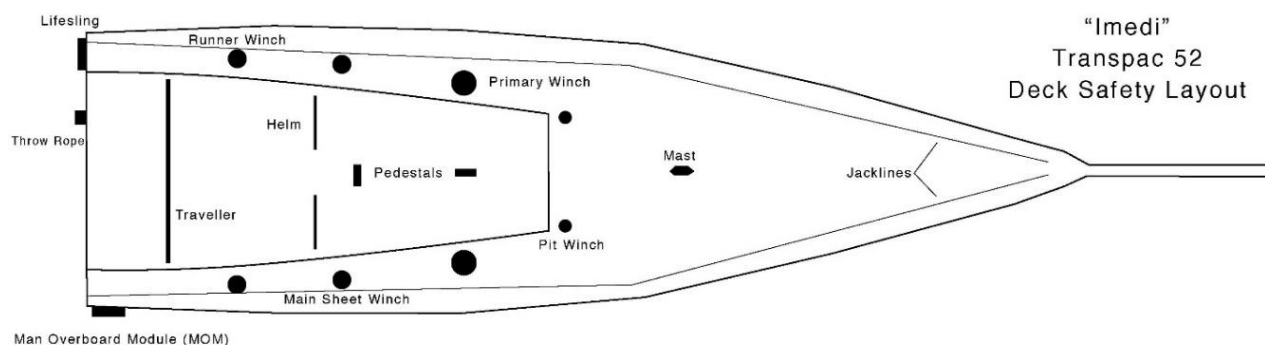


Figure 2: *Imedi* Jacklines- Hydraulic vang controls were on centerline between the wheels

3.3. Imedi's sequences for reducing sail required time and organization:

3.3.1. Main Sail (approximately six people to drop, three people to hoist):

- Attach snatch block to pit mount
- Run main halyard from base of mast below deck (keel stepped mast) through snatch block to primary winch
- Once on primary winch, open main halyard clutch at base of mast below deck
- Primary winch operator lowers main sail

3.3.2. Head Sail (approximately 2 people to drop, three people to hoist)

- Wrap head sail halyard on pit winch
- Open head sail clutch
- Lower head sail in coordination with foredeck team

4. The Crew: See [Appendix F](#).

4.1. Thirteen crew members were on board for the start. The Invited Competitor (owner) was not on board. He had appointed a Person in Charge (PIC) who had many seasons of racing aboard *Imedi*. All crew members were experienced offshore racers in boats similar to *Imedi* and had raced in similar conditions. In total, the crew members had completed 245 Races to Mackinac plus many other off-shore and overnight races. Four had current 1-day Safety-At-Sea training, two crew had current 2-day training, four crew had expired (pre-2013) training and three crew had no SAS training. In order to respect their privacy, no crew names are used in the report.

5. Synopsis of Events on Imedi: From when *Imedi* left the dock to when they returned. For a condensed version of the navigator's Expedition Log of *Imedi's* track, see [Appendix G](#).

5.1. Date/time of Incident: 21 July 2018, 14:26

5.2. Vessel: TP 52, *Imedi*

5.3. Crew reports: The following report is based on oral and written reports from 11 different crew members, which varied significantly. These differences are likely because their positions on the boat afforded different points of view.

5.4. Left Burnham Harbor dock: 11:37, after a brief ("a few minutes") on-board crew meeting.

5.5. COB practice: 12:02: before start, under power inside break water, hat thrown in water

5.6. Sails Up: approximately 12:30

5.7. Start of race: 14:00, Turbo start, upwind on port tack

5.8. COB Incident:

5.8.1. Start: 14:26, Stop 14:32, COB Position per Expedition 41 55.731n, 087 31.055w

5.8.2.Contact USCG: 14:33 +/- (after recovery attempt)

5.8.3.Stopped search: 20:00

5.8.4.Back at Dock: 20:44

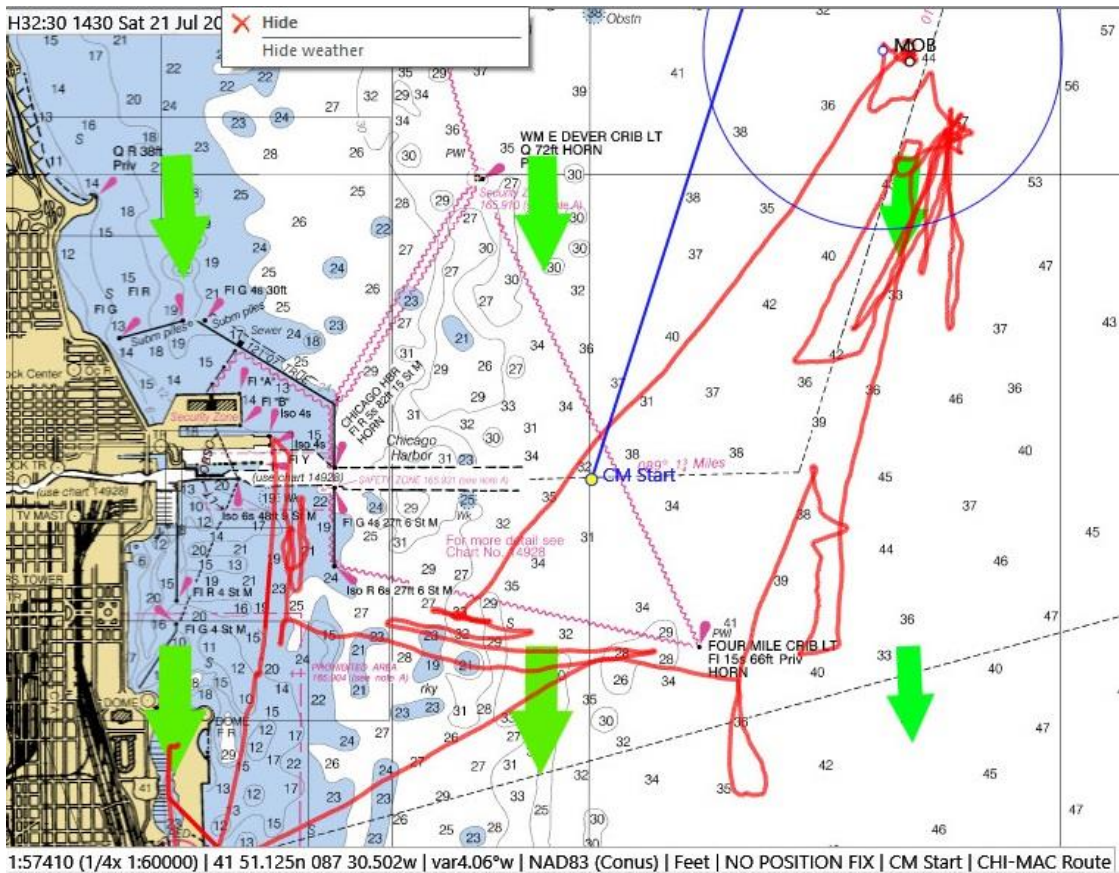


Figure 3: Imedi Expedition Track

6. Details of Events on Board Imedi:

6.1. Pre-race safety: Several of the crew brought their own life jackets, but Jon used a boat-supplied life jacket, which he donned while sitting on the rail heading out to the start. It has been verified by the crew that the boat-supplied life jackets were inspected about a week before the race as part of a complete safety equipment inspection per the race requirements. It was stated that the Hammar MA1 inflation devices showed green, but no expiration date was noticed. The life jackets were fitted with manual AIS, whistle and light; a safety knife was provided separately. All boat-owned life jackets were stowed in a bag marked “PFDs” and each crew member would grab one as needed; they were not assigned to specific crew members. About half the crew wore life jackets at the start and during the incident. It was also stated that Jon rigged the jack lines, which would be used at night, but were not used by any crew member at the time of the incident.

6.2. Pre-departure Dock Talk – Time approx. 11:00: The crew had a short, 2-minute meeting before they left the dock. Details covered are not known.

6.3. COB Drill – Time approx. 12:02: It has been stated by the crew that the COB drill was performed under power before they passed Navy Pier on the way out to the start. Prior to the drill they discussed the COB steps as first tacking, then taking sails down so they could motor during the maneuvers. There was no discussion of the Lifesling or the MOM. Several crew members were down below due to the rain. During the drill, they threw a hat in the water and used a boat hook to try to retrieve it. There were differing reports from crew members as to whether the hat was recovered, and the extent separate tasks were assigned to each person. One crew member said practice in calm air/flat water doesn't prepare crews adequately and future crews should practice in heavy air conditions while trailing something from the boat.

6.4. Imedi track during COB attempts:

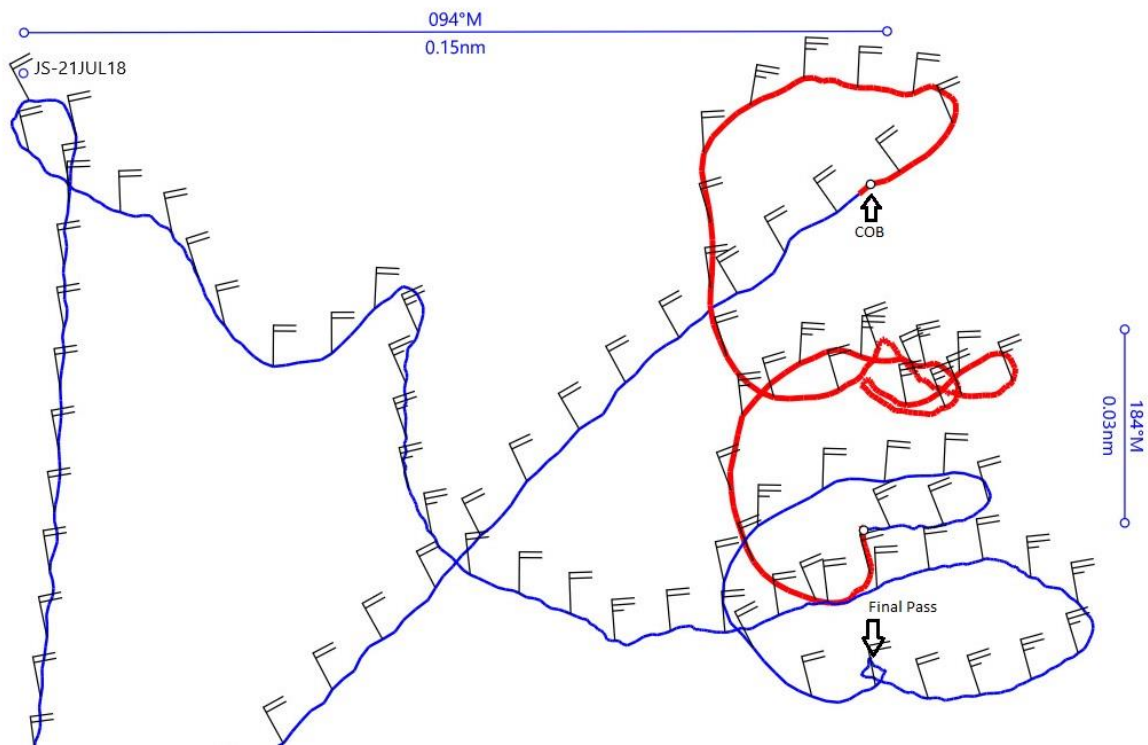


Figure 4: MOB recovery attempt track from approximately 14:24:45 to 14:41:52

For a movie of Imedi's track during the recovery attempt, see <http://www.honeynav.com/lmedi/>

6.5. Start – Time 14:00: Conditions were as expected: wind 18-25 kts from just west of north with 5-8-foot seas. *Imedi* was carrying a full main and #4 jib. The water temperature was about 70 degrees and the boat felt under control. The crew stated they, including Jon, had handled these conditions many times before and they were confident they could manage the conditions now. *Imedi* started at the east end of the start line with *Denali*³ to leeward and *Merlin* to weather. The driver was working with the main trimmer to keep the boat balanced and driving through the waves, sailing at approximately 50 degrees TWA with boat speed averaging 9.5 kts and heel angle between 20 to 30 degrees. The PIC was confident in the crew and their ability.

6.6. Upwind on Port: *Imedi* was on a long port tack about a half hour and five miles into the race with everyone except the driver on the rail as they planned to take a long tack across the lake. Due to the puffy conditions, *Imedi* needed a person to help fine-trim the main. Jon, who was normally on foredeck, was asked to grind at the aft pedestal for the main trimmer, which required easing quickly in the puffs, and then grinding in rapidly as the puff died. At one point, the driver noticed the vang was slack and said, “someone snug the vang.” Jon being closest (the vang controls are in the center of the TP 52’s wide cockpit, just aft of the pedestal Jon was operating) moved aft to do so.

6.7. COB – Time 14:26: With the large sea state the fleet encountered steep waves in sets. As Jon was aft adjusting the vang, he lost his balance and footing, rolled down to the lower lifelines, got stuck for a few seconds, then fell through the lifelines into the water. In the process, there are inconsistent reports that Jon may have hit the leeward stanchion with considerable force as he went over.

6.7.1. A crew member noticed that the main was flogging slightly and looked around, knowing Jon would normally respond to the mainsail trimmer’s command for more trim. He saw the pedestal was empty and, looking further aft to the vang controls, saw Jon had his arm draped around a leeward stanchion and was being dragged thru the water, waves full in his face. He yelled “Man Overboard” and jumped down to try to reach Jon but was unable to get to him before Jon lost his grip and slid under the lifelines. Jon was wearing foul weather gear and a life jacket, which did not hydrostatically inflate as it should. There was also a manual-inflate option, but no one saw Jon attempt to reach the firing mechanism.

6.7.2. The driver, who had been focused on the wind and waves, heard “He’s going overboard” and turned in time to see Jon near the aft corner of the boat, still in contact with the boat. When Jon lost his grip, the driver immediately turned the boat to windward, *yelling to*

drop the jib. At that point Jon was clearly visible to several of the crew: floating on his back, face up, with his feet floating in front of him as he adjusted his glasses a short distance off the back of the boat.

6.7.3. One crew member who was forward, hiking at the shrouds, heard the "man overboard" call and like everyone, got off the rail and looked back. He could not initially see Jon, only *Denali*³ a boat length or two below them and about four boat lengths behind. Then he saw a person in the water less than two boat lengths away and apparently doing well, with his head staying above the water. Some crew members only heard the unexpected call to tack, not realizing what had happened.

6.7.4. The designated spotter was hiking on the port quarter, heard the COB call, saw Jon in the water, and immediately went on point, keeping eyes on him and arm pointed in the direction of where he was located throughout the subsequent maneuvers. Another crew member heard the MOB call and immediately extended an arm to track him, until noticing the other crew member further aft was tracking him.

6.7.5. The crew member who was sitting furthest aft on the rail, heard the "MOB" call, turned to see Jon in the water behind the boat, and noticed the "spotter" on the transom. He says the boat's response was quick and things were hectic but controlled. In his words, "people onboard weren't frantic because Jon wasn't frantic."

6.8. Immediate post-COB actions: As the driver called for a tack and the boat turned into the wind, the pit person asked to drop the jib to improve boat control, knowing the jib would have come straight down on deck at that time. But he heard a strong "No!" Meanwhile, the helmsman, realizing the boat couldn't sit head-to-wind (a TP 52 with high aspect foils goes into irons very easily and if the boat loses hull speed the boat will stall), first laid off on port to gain speed, then turned onto starboard tack in preparation to circle back to Jon.

6.9. Tack to Starboard: As the boat turned to port, through head to wind, and onto starboard tack (turning 180 degrees), there was yelling to "dump the main, dump the sails, dump everything" because the boat was trimmed all the way in, overpowered, and heeling way over. The grinder moved to the starboard side mainsheet drum and started easing the main sheet off the drum to help maneuver the boat.

6.9.1. When the boat tacked to starboard, there was some concern that the rig might come down. The driver yelled to get the sails down but realized it was unrealistic since it takes so long to get the main down. (*Imedi* does not have the ability to reef their main.) They

peeled off on starboard tack and headed downwind (south) to set up for coming back into the wind near Jon's position. It was difficult to slow the boat with the seas and wind. They let out the jib sheets, which allowed the jib to wrap around the headstay. This had the effect of partially "furling" the sail, but also made it impossible to fully drop later and the crew had to be extra careful on the foredeck with the luffing jib and whipping sheets.

6.9.2. The boat very quickly reached the point where the driver felt they needed to complete the circle and have momentum to carry the boat back upwind to Jon's position without regard to the sails.

6.10. Gybe: The boat sailed down below Jon and the driver gauged where he should gybe and then come head-to-wind to get close to Jon. The boat got back to Jon, now on the starboard side of the boat, within 1.5 minutes. There was no engine on at this point and the driver aimed the boat about 15 feet from Jon, expecting him to swim to the boat. But Jon made no effort to do so and the boat's momentum took it past Jon.

6.10.1. The spotter, who never lost sight of Jon, commented that when they came around to attempt to retrieve him, Jon was floating on his back, treading water. However, the *Imedi* crew were dealing with large waves which were making the attempts to rescue him extremely difficult. The sails were flogging, and the boat was very unstable. As reported by several crew members, crew communication in this first phase was difficult.

6.10.2. Someone asked if the engine was on. There were instructions from aft being yelled forward to get the jib down. As the bow person went forward, the boat jibed to port, and the boom did a hard swing overhead across to starboard. When the boat stabilized, there was an attempt to get the jib down with crew in position to release the jib halyard, one person on the bow, and someone from aft calling to "drop the jib, drop the jib." But the jib was wrapped around the forestay and stuck halfway down.

6.10.3. In a subsequent interview, the driver demonstrated with props how on all three passes, the boat tacked away onto starboard tack, sailed down below Jon, gybed, and then went head-to-wind with Jon on the starboard side of the boat in an attempt to pass as close as possible to him. Others had conflicting memories of their maneuvers (certain crew reported that Jon was off the port side which may be the result of where and when they observed Jon as the boat maneuvered back to him).

6.10.4. Meanwhile, the crew of the competitor, *Denali*³, saw Jon go into the water. They immediately dropped their jib and went head to wind to be prepared to render assistance.

They watched as *Imedi* circled around to pick up Jon, was unable to slow enough and sailed on passed, and saw Jon immediately start swimming after *Imedi*. The *Denali*³ crew commented on board, “Look at that guy swimming!” *Denali*³ continued to monitor the situation from as close as they thought prudent but did not feel they had an opportunity to help without getting in the way of *Imedi*’s maneuvers as *Imedi* was never more than 200’ from Jon and was having difficulty given the windspeed and sea state. It appeared to them that Jon would have been able to manage a Lifesling if it had been deployed.

6.11. 1st Pass – Time approx. 14:28: Round up on Port to leeward of Jon:

6.11.1. As the boat turned up into the wind, the crew reported that Jon looked comfortable in the water, but his life jacket had not inflated. He had turned to face south, away from the waves. First, he was paddling, then lying on his back with his glasses on, looking up at the boat. One of the crew called to Jon to “pull the tab” to inflate his life jacket, but Jon did not respond, and the crew member’s impression was Jon felt comfortable and for whatever reason didn’t think he needed it. There was no waving of his arms or other signs of distress. See [Appendix K](#) for Signs of Drowning

6.11.2. On the first pass, the driver got very close to Jon (about 7 yards) with Jon to weather of the boat. The crew thought they would be able to grab him, but a wave took Jon away from the boat. He was then still on his back, but wave crests were crashing over him.

6.11.3. There were varying accounts from the different observers on the boat. There were several comments that the first approach was with Jon on the port side of the boat, but this was likely earlier in their maneuvers as the driver stated they approached with Jon on the starboard side on all three passes. The distance estimates to Jon on the first pass varied from 6 feet to a boat length away. These differences are likely attributable to the various locations of the crew in addition to what they were focused on doing, given the boat handling challenges at the time.

6.11.4. One crew member was at the starboard primary winch reaching over the side as they passed Jon. He said Jon tried to reach back, but they missed. Meanwhile, the spotter was always moving from side to side in the back of the boat to keep pointing at Jon and never lost sight of him. At this point the driver started yelling for the engine, which required someone going below.

6.12. Tack #2, port to Starboard, jib a problem

6.12.1. The engine was started by a crew member who reported, “The engine is on,” but apparently that was not heard as another crew member went forward shortly afterward to turn it on. The jib was flogging and two of the crew were on the bow trying to control it while pulling it down. With the sail about halfway down, the boat quickly turned downwind, and this powered up the jib, yanking the two crew forward against the cabin top and pulpit. One was stunned when hit with the sheets and took a while to regain his bearings. The slackened sheet allowed the battens to wrap around the forestay and made it impossible to drop the jib further.

6.13. Bear away #2 on port and second jibe. The crew reports that some of the jibes had no one tending the running backstays and at least one was “violent.”

6.14. 2nd Pass – Time approx. 14:30: Round up to Jon #2, Jon on starboard, then under boat to port

6.14.1. As they approached on the second pass, they did the same maneuver as the first, but this time were able to turn tighter because they had the engine. They got closer to Jon this time. He was right at the beam of the boat, near the starboard shrouds. They were so close the driver couldn’t see him. One crew member thought Jon was starting to aspirate some water and having trouble staying afloat. He heard Jon call out the name of a crew member who was lying on the deck under the lifelines at the starboard side stay ready to grab Jon, with another crew member next to him holding a line to pass to him. The boat was now head to wind and pitching up and down between waves. The crew member under the lifelines started to slide overboard and yelled “grab my legs.” Another crew member grabbed his harness to pull him back aboard but then lost his balance due to the motion of the boat and fell backwards toward the cockpit. At that point a big wave lifted the boat and Jon, being in the trough of the wave, went under the boat to the other side. The two at the rail started yelling, “He’s under the boat, shut the engine off, shut the engine off!” The driver had already put the engine in neutral since he didn’t know where Jon was. The driver was asking “where is he” so he knew when to go back in gear.

6.14.2. Before anyone could react, Jon popped up on the port side about 20-30 feet from the boat. Jon was still floating and appeared to be still conscious with his face up out of the water, but the spotter thought Jon looked water logged with water going over his head and face.

- 6.14.3. When Jon reappeared on the port side, he seemed unharmed with his glasses still on and they tried to pass the port tack line to Jon, but he was too far from the boat by that time. According to one crew, the point he went under the boat was about 5 feet aft of the bow and he came up on port looking fine and about six feet away at the closest point. Another crew said he was treading water and seemed okay but wasn't really "there with us" and "most of the basic things he couldn't do."
- 6.14.4. At this point a crew member threw Jon the horseshoe cushion with rescue strobe attached, but it was caught in the wind and missed him. The crew called to Jon to swim for the ring, but he did not do so. The ring was about 15 feet away from Jon, drifting closer, but he didn't appear to be making any effort to get to it. They kept yelling "ring" "ring" "ring," but Jon didn't acknowledge or reach out for it. Several lines were thrown, but they were blown back to the boat, not reaching Jon. There was some worry that as more lines went out, including the Lifesling tow line, they would run the risk of fouling the prop.
- 6.14.5. Another crew member looked aft and reported seeing two things in the water: the first was an orange buoy with a float and antenna attached, which he assumed was theirs; the second thing was what he thought was the Lifesling, but later found out was the horseshoe life preserver off the back of the boat. His thought at the time was: the Lifesling is deployed, engine is on, jib is (mostly) down, seemed they were moving into a better position to rescue Jon. But then someone yelled "get something that floats! Get anything and throw it to him." So, he went below and crawled aft starboard where fenders were stowed, grabbed one and threw it into the cockpit.
- 6.14.6. During this attempt, the person who was controlling the runners went down below to turn on the engine but was on deck for all passes. He knew the GLERL site was forecasting a drift estimate of 200m/min at 195°, which was consistent with his drift pattern. He did not see Jon go under the boat, but afterwards could see his head was above water and his glasses were on, but his PFD didn't inflate. He felt Jon was the best swimmer on the boat by far, and assumed he was treading water. Looking back on it, he thinks Jon may have been hurt in some way, given the damage to the stanchion he hit.
- 6.14.7. The driver said the boat almost stopped in the big waves and he tried to hold the bow into the wind, but as soon as they saw Jon come out and move aft on the port side, he felt a) they had to go around again and b) Jon was safely to port of the prop. So, he got ready to spin the boat fast for a similar maneuver.

6.15. Tack #3, Bear away, jibe, round up to Jon #3, The driver did the same spin maneuver again, this time with full help from the engine. Those on the bow trying to pull down the jib remembered seeing Jon still above water, then saw a wave break over him temporarily putting him under water.

6.16. 3rd Pass – time approx. 14:32:

6.16.1. The boat approached the last time with the bow into the wind 1/2 boat length to leeward of Jon. They used the motor to get up to just to windward of him, with the idea that the wind would blow them down to him. The driver hung over the starboard side of the boat so that he could maneuver as close as possible. When Jon was just 6' off the starboard shrouds, still above water, a crew member leaned over the side to hand him the starboard tack line. The boat was so close the crew positioned at the shrouds could almost touch him. Jon raised his arms to reach for the line but was clearly struggling at that point. Someone said that he was going down and it looked like he was having difficulty treading water. Then to the crew's horror, he sank, going under with his glasses still on and his hands reaching up. He appeared to go down without a struggle, like he just calmly gave in. As he slipped below the surface, the crew could see his reflective hood underwater until it disappeared 2-3 feet down and they never saw him again.

6.16.2. Several crew members thought about clipping into a line and jumping in after him, whether it would be better without a PFD to dive down to him or safer with a PFD, and whether their foulies and boots would make it hard for them to help before they too would need rescuing. The next step would have been to secure Jon to the spin halyard to hoist him out of the water. But as the boat was blown downwind, Jon was quickly 10-15 feet away with no way of reaching him and the lake swallowed him. One crew member noticed the MOM-8, Lifesling, and throw rope were all still on the aft rail, undeployed.

6.17. After 3rd Pass, Start of search:

6.17.1. As the crew on deck started the struggle to pull down the main and get the boat under control, one crew member went below where he hit the radio distress button and called the Coast Guard and other boats in the area. He notified them of the MOB, that the crew had lost sight of Jon and that he had gone under. He gave the CG their position, Jon's description, and the boat information. He had to repeat himself several times over the noise of the boat's engine, equipment banging on deck and waves hitting the hull. The estimate from the time Jon went over the side to the time the navigator called the CG was

about 15 minutes. (See [Appendix I](#) for reports from the rest of the fleet on the transmission to the CG.)

6.17.2. In that time *Denali*³ came by and yelled the distance and bearing to their MOB location, which they had entered as they saw Jon go overboard. This position was 30° and 3/10th of a mile from *Imedi*'s current position. *Denali*³ then started coordinating a search. After 45 minutes, the CG and Chicago Fire Department were en route by boat and a civilian helicopter was overhead. Shortly thereafter *Merlin*, *Ocean*, *Actros*, *Caliente* and *Alpha Puppy* joined the search as well. On *Imedi*, they started at the MOB spot given them by *Denali*³ and drove SW, downwind, at about 210° and 220°, running that direction for about two miles then returning upwind to the MOB spot. The other boats and the Coast Guard were searching either parallel to *Imedi* or east and west across their path and further south. They repeated that search for about three hours, then started moving their path .5 mile east and .5 mile west of that line.

6.17.3. They searched for Jon until sunset when the CG suspended the search. *Imedi* then returned to its slip at Burnham Harbor. Jon's body was recovered a week later, located by the Chicago 911 dispatch approximately 4 NM east of the Chicago Harbor Entrance. The body was identified as Jon's and transferred to the coroner's office.

7. Observations:

- 7.1. From onboard crew – agreed observations: the 11 crew members who offered written statements and interviews agreed that after Jon slid off the aft leeward starboard corner of the boat, he was alive and able to keep himself afloat even though he never tried to inflate his life jacket manually. Throughout the three passes of their recovery attempt, they kept Jon in view and passed very close to him but were not able to secure contact with him through the gear they deployed (one horseshoe ring and several loose lines).
- 7.2. From other boats: observations from *Denali* and *Arctos*, both in written reports submitted to the CYC per requirements and a telephone interview with *Denali*³'s owner, indicated that *Imedi* took immediate action in its attempts to recover Jon. However, the attempts at recovery seemed to be hampered not only by the failure of Jon's life jacket to inflate, but also by the crew's difficulty with controlling and maneuvering the boat in the existing wind and sea conditions. In addition, the constant proximity of *Imedi* to the COB made it imprudent for another boat to engage in the attempted recovery.

Recommendations: The Committee makes the following recommendations, based on its review of the *Imedi* events:

- I. **Understand the importance of a *comprehensive dock-talk before departure***, to include:
 - a. Define the command structure: who is in charge, 2nd in charge.
 - b. Define procedures and each crew member's role in COB as well as other emergency scenarios. (see Station Bill: [Appendix D](#))
 - c. Understand electronic DSC and COB signals and how to operate them quickly.
 - d. Have stated rules for when to wear life jackets and use tethers.
 - e. Review safety equipment location map, noting any recent changes. (See [Appendix D](#))
- II. **Highlight the importance of following established COB procedures**, including:
 - a. Initial COB "spotter" is the only crew member assigned this duty during the maneuver, freeing others for equally important roles.
 - b. Simultaneously with COB identification, immediately deploy Man-Overboard-Module (MOM) and enter COB location into GPS.
 - c. Broadcast COB event and location, activate DSC button, and continue appropriate emergency communications on VHF 16 until emergency is resolved.
 - d. Establish vessel control for safe maneuvering, which may require reducing sail area.
 - e. Deploy Lifesling as soon as possible and practically prudent.
 - f. Deploy as much additional flotation, including other, non-standard rescue items (e.g. fenders) as practically prudent so as not to impede boat handling.
- III. **Inspect all safety gear and ensure individuals know how to use it:**
 - a. Fit and review functioning of life jackets, tethers, AIS personal beacons, etc.
 - b. Insure all COB gear is functional, (e.g. Lifesling, throw rope, MOM, boat hook).
 - c. Train crew on the importance of immediate COB gear deployment to provide additional flotation to the COB and visibly mark the location for the crew.
 - d. Insure COB gear is positioned to allow safe access within 5 seconds of COB.
- IV. **Practice for COB situations specific to the boat and expected conditions:**
 - a. Insure clear, timely commands from one source to avoid confusion.
 - b. Establish control of the boat and ability to hold position before attempting recovery.
 - c. Know which recovery procedures are best for *your* boat in the current conditions.
 - d. Know that the boat itself can become a dangerous factor adding significant risk to any COB recovery attempt. Have a practiced plan for reboarding the COB, e.g. Lifesling or

long halyard with harnessed crew, to minimize the time in close proximity to the COB and allow the COB to be hoisted aboard quickly. For some vessels, using a “swimmer of the watch” may be prudent to minimize the potential danger of proximity to the COB. This option has been successful on professionally-crewed boats, which maintain a boat length distance from the COB, send a rescue swimmer on a spooled retrieval line to tether to the COB, and then have the crew winch them both back and onboard with a halyard snapped to the retrieval line. A rescue swimmer is typically only used on professionally-crewed boats and should only be considered if the swimmer is fully trained and qualified to perform that function and has extensively practiced on that boat with that crew.

- e. In the absence of the ability or willingness to deploy a rescue swimmer, the Lifesling can serve a similar end by connecting the COB to the boat without bringing the boat alongside the COB. Once the COB is in the Lifesling, a halyard can be used to quickly hoist them aboard so that the COB spends minimal time adjacent to the boat, thus minimizing potential injury from the boat.

V. **As a person in the water, take immediate measures to manually activate any safety equipment**, including if necessary manual backup systems for inflatable life jackets.

VI. **Enhanced Training is warranted regarding the maintenance and use of inflatable life jackets:**

- a. Numerous incidents have been reported from multiple sources regarding failure of automatic inflation systems arising from not being familiar with manufacturer’s recommendations for inspection, maintenance and operation procedures.
- b. Steps should be taken to raise awareness to the importance of proper inspection, maintenance, and replacement of inflatable life jackets.
- c. Those wearing inflatable life jackets should be fully familiar with and be ready to utilize the manual backup systems for automatic inflation, including the manual pull inflator and oral inflator.
- d. Boat-supplied life jackets should be assigned to and fitted to specific crew members.

Abbreviations

AIS – Automatic Identification System, an automatic tracking system that uses [transponders](#) on ships and boats. Individuals may carry personal locator devices which transmit locations to these transponders.

CFD – Chicago Fire Department

CG – Coast Guard

COB – Crew overboard

CPD – Chicago Police Department

CYCMC – Chicago Yacht Club Mac Committee, the organizing committee responsible for putting on the Chicago Yacht Club Race to Mackinac

CYCRTM – Chicago Yacht Club Race to Mackinac

DSC – Digital Select Calling, a standard for sending pre-defined digital messages via the medium-frequency (MF), high-frequency (HF) and very-high-frequency (VHF) maritime radio systems. It is a core part of the Global Maritime Distress Safety System (GMDSS).

GPS – Global Position System

MEAP – Mac Emergency Action Plan, a document used to manage emergencies during the race.

MOM – Man Overboard Module, a device that provides an inflatable lifebuoy.

NM – Nautical Miles

PFD – Personal Flotation device (life jacket)

PIC – Person in Charge

SAS – Safety at Sea, a course taught by US Sailing, the National Governing body of the sport of sailing, that teaches participants safe, sport-standard ways to deal with an emergency on board and methods to prevent emergencies from happening.

TP 52 – Transpac 52, a grand prix race boat, racing worldwide. Imedi is an early generation boat.

TWA – True Wind Angle

Appendix A: Race Background, Safety Regulations (Mac-specific SERs), NOR, SI, MEAP

Complete documents are available online at <https://www.cycracetomackinac.com/the-race/safety/>

Race History:

Starting in 1898 with a mere five boats, the Race to Mackinac has evolved into a world-class sporting event. After the first race in 1898, the Race to Mackinac was not held for five years until the second race in 1904. By 1906, the race had developed a healthy following and, in that year, the original Mackinac trophy was purchased. The race has seen occasional sustained violent weather in the blows of 1911, 1937, 1970, 1995 and 2011. After gale force winds took down most of the fleet in the Mac of 1911, the finish in the 1912 and 1913 races was changed to Harbor Springs on Little Traverse Bay instead of Mackinac Island. Race organizers felt the shorter distance was safer. From 1914 until 1916 the Mac was back to its full distance until WWI. From 1917-1920 there were no Mac races due to the strains of the War, which took away yachtsmen and put many boats out of commission. Since 1921, the Race to Mackinac has run consecutively every year, remains the longest annual freshwater distance race, and is recognized as one of the most prestigious sailing races in the world. In recent years the race has averaged 320 boats and 3,000 crew with a record 460 boats in 2008 for the 100th running of the race.

The challenges of the race bind together generations of Midwestern sailors who have been members of the Mac's own exclusive club, the Island Goats Sailing Society (IGSS) for veterans of 25 or more races. IGSS was founded in 1958 for the purpose of preserving the tradition of the longest freshwater sailing classic and promoting off-shore racing. The organization now stands strong with more than 370 active members.

The Mac's appeal was summarized in the 1920s by Donald F. Prather, a race winner, in words that appear in the introduction to the Chicago Yacht Club's history of the race: "It is not just a desire to win which impels yachtsmen to undergo the hardships of the long race, but it is something far greater – possibly the modern reflection of the ancient love of the art of seafaring, the rigorous discipline, the peerless craftsmanship, the full life that comes to the sailor and no other, and the opportunity to match skills with other men and other ships. The Mackinac Race has always been eventful. It has always had its epic side."

A favorite story told at the Chicago Yacht Club concerns the humbling of Ted Turner by the Mac. When he brought his Twelve Meter American Eagle to Chicago in 1970, Turner expected an easy ride and went so far as to characterize Lake Michigan as a "mill pond." After two days of battering by a northerly gale, he contritely announced, "I hereby publicly retract anything and everything I have ever said about inland sailing." Turner went on to win the America's Cup and much else, and when he returned to Lake Michigan in 1978 there was another northerly that his tactician, Gary Jobson, remembers as one of the coldest and roughest races he has sailed.

The Mac Race has been fortunate to not have experienced any loss of life due to a sailing related occurrence from its inception in 1898 until 2011, when the boat "Wing Nuts" capsized during a violent

storm causing two crew members to perish. Over the Race's long history, there have been a few crew overboard incidents. Up until 2018, all crew had been recovered successfully.

Today, sailors from Maine to California make this race an invariable part of their summer. Moreover, each year the Mac hosts sailors from as far off as Hong Kong, New Zealand and Australia. Although the Mac remains primarily an amateur event, this race has a proven track record of attracting some of the finest sailing talent in the sport. The monohull record of 23 hours, 30 minutes, and 34 seconds was set by Roy Disney's *Pyewacket* in 2002, and Steve Fossett on *Stars and Stripes* set the multihull record of 18 hours, 50 minutes, and 32 seconds in 1998. Both records still stand today. The unpredictable weather and fickle winds on Lake Michigan make the Race to Mackinac a supreme test, which many competitors feel rivals any ocean race. As one veteran sailor put it, "It's fun, but it's serious fun."

The 2018 Notice of Race specified:

2. RULES

g. PFD Rule – CMSR Compliant PFDs shall be worn by all crew members while on deck from sunset to sunrise and all other times deemed appropriate by Person-In-Charge.

4. INVITATIONS AND ELIGIBILITY

4.1 Participation shall be by invitation from the CYCMC to a specific individual (the Invited Competitor). The Invited Competitor will be invited to apply to enter a specific boat in a specific Division. The invitation is not transferable.

The following items in §5.7 through §5.11 are required before Pre-Race Sign-In Close:

5.7 Safety Compliance – Certification of compliance with the CMSR, to be completed online via the Race website.

6. INVITED COMPETITOR, OWNERS AND PERSON-IN-CHARGE

The Invited Competitor shall be a current member of US Sailing or the corresponding National Authority if not a resident of the United States. The Invited Competitor shall designate the Person-in-Charge. If the designated Person-in-Charge is other than the Invited Competitor, the Person-In-Charge may additionally represent the entered boat in all matters and sign race documents (other than the Boarding Pass) on behalf of the Invited Competitor.

The Invited Competitor shall be responsible for the conduct of the entire crew before, during and after the Race while at Race related locations for Race related events.

18.1 Pre-Race Safety Inspections

a. CYCMC may perform a Pre-Race Safety Inspection on any boat.

b. Scheduled Pre-Race Safety Inspections - CYCMC may require boats to participate in Scheduled Pre-Race Safety Inspections. Invited Competitors will be notified if their boat is required to participate in a Scheduled Pre-Race Safety Inspection. These inspections shall take place no more than two (2) months prior to the Race. Additionally, boats not required to participate in Pre-Race Safety Inspections may request that CYCMC perform a Scheduled Pre-Race Safety Inspection.

The 2018 Sailing Instructions, 20.3, specified:

“Boats retiring from the Race, OR having a personal injury requiring medical attention, OR sustaining damage to the boat(s) exceeding \$5,000 to repair shall complete the online Mac Incident/Retirement Report Form located on the main Entry Menu (login at

<http://competitor.cycracetomackinac.com/register/>) within two (2) weeks of the boat’s Start.”

Imedi Started with the Turbo Division, the 19th start of 20 starts on Saturday, July 21, 2018

CYCRTM MEAP: The Chicago Yacht Club Race to Mackinac developed a Mac Emergency Action Plan comprising contact information, communication levels and information flow, specifics for the Chicago starting area, Lake Michigan mid-race scenarios and the Mackinac Island area.

This is an overview:

- The Cruising Division starts at 1500 Friday, July 20, 2018; the Racing Division starts at 1100 Saturday, July 21, 2018.
- The race is a 333-mile race from Chicago Yacht Club – East of Monroe Harbor Lighthouse to Mackinac Island Lighthouse, Mackinac Island, Michigan.
- The Chicago Yacht Club Mackinac Committee is in charge of organizing the race. The Mackinac Committee hands over management of the race operations to the CYC Race Committee from the Warning signal through the finish of the last boat. The U.S. Auxiliary Coast Guard and Chicago Police Department assist with the safety of the starting area, then the U.S. Coast Guard escorts the fleet from Chicago to Mackinac Island.
- The Chicago Yacht Club Communications Team manages Club communications as usual. For race-specific communications, LM Public Relations manages communications in advance, through, and following the 110th Race to Mackinac.
- The MEAP provides guidance to the Race Management team for the Race to Mackinac but *in any emergency scenario that relates to the health and well-being of a person or group of people, notify 911 immediately.* There is no emergency medical team on staff with Chicago Yacht Club or the Race to Mackinac Committees.
- The overall goal of the plan is to mitigate any injury to any person or damage to any property in relation to the Race. The secondary goal is to ensure the smooth continued running of the race and all ancillary activities. The tertiary goal is to ensure that the reputation of the Race and the Chicago Yacht Club is maintained.
- To achieve these goals: The Plan Identifies and categorizing emergencies as to their severity; Acts as a basic outline in responding to emergencies; Provides guidance to external-facing communications to racers, their families and friends, CYC members, the media and the general public; and Provides a reporting solution to ensure there is an opportunity to debrief after the emergency has been resolved.

MEAP ROLES AND RESPONSIBILITIES

- Operational emergencies will be managed by individuals identified in the plan.

- The Race Committee and the PRO will focus on race management issues, as most emergencies will occur during the running of the Race. The safety of the other competitors and ensuring quality race management for those competitors shall be their goal once the MEAP is implemented.
- The Public Relations Team will manage outward facing communication (dealing with the press, Race communication outlets, and media platforms).
- CYC volunteer leadership (the Mac Committee Chair, the Commodore, and the Rear Commodore) shall be consulted on all emergencies as identified herein and shall provide overall guidance and direction.
- CYC staff, led by the General Manager, will provide support and advice as set forth in the plan.

CYCRTM MEAP ROLES CONTACTS (2018)

PERSON IN CHARGE (PIC)

On-site in Chicago prior to the race start will be:
 Commodore Leif Sigmond,
 CYC General Manager Dwight Jenson,
 On the Water Director Jay Kehoe,
 Race Chairman Sarah Renz,
 Vice Chairman Chris Thomas,
 PRO Olaf Anderson and
 CYC Race Committee Chairman Nancy Arnold.

CYCRTM MEAP EMERGENCY LEVELS

Emergencies shall be categorized by the Person In Charge (PIC), based on severity, into one of three levels:

Gold	Silver	Bronze
Life-threatening	Serious	Minor
Death	Man Overboard Recovered and Racing	Injury not requiring assistance. Still racing.
Life threatening	Boat Damaged but racing	Boat retired due to time
Man overboard	Boat retired due to sea sickness of MINOR injury	Random phone calls/inquiries
USCG intervention		
Sinking/capsize		
Lost mast, keel or rudder		
Retiring due to MAJOR injury		
Life-raft sighted, no comms		

The Chicago Mackinac Safety Requirements for 2018 have been truncated below. The complete document is available at <https://www.cycracetomackinac.com/the-race/safety/>

2018 Chicago Mackinac Safety Requirements

Effective Date: January 14, 2018

Revision 2018.1f - Substantive Revisions 1/14/18

Section Name	US Sailing SER #	Requirement
Overall: Responsibility	1.2	The safety of a boat and her crew is the sole and inescapable responsibility of the "person in charge", as per RRS 46, who shall ensure that the boat is seaworthy and manned by an experienced crew with sufficient ability and experience to face bad weather. S/he shall be satisfied as to the soundness of hull, spars, rigging, sails and all gear. S/he shall ensure that all safety equipment is at all times properly maintained and safely stowed and that the crew knows where it is kept and how it is to be used.
Overall: Equipment and Knowledge	1.4	All equipment required shall function properly, be regularly checked, cleaned and serviced, and be of a type, size and capacity suitable for the intended use and size of the boat and the size of the crew. This equipment shall be readily accessible while underway and, when not in use, stored in such a way that deterioration is minimized.
Safety Equipment: Personal	3.1.1	Each crewmember shall have a life jacket that provides at least 33.7lbs (150N) of buoyancy, intended to be worn over the shoulders (no belt pack), meeting either U.S. Coast Guard or ISO specifications. Alternatively, each crewmember shall have an inherently buoyant off-shore life jacket that provides at least 22lbs (100N) of buoyancy meeting either U.S. Coast Guard or ISO specifications.
Safety Equipment: Deck Safety	3.2.1	A boat shall carry jacklines with a breaking strength of at least 4500 lb. (20kN) which allow the crew to reach all points on deck, connected to similarly strong attachment points, in place while racing.
Safety Equipment: Man Overboard	3.7.1	A boat shall carry a Lifesling or equivalent man overboard rescue device equipped with a self-igniting light stored on deck and ready for immediate use.
Safety Equipment: Man Overboard	3.7.2	A boat shall have a man overboard pole and flag, with a lifebuoy, a self-igniting light, a whistle, and a drogue attached. A self-inflating Man Overboard Module, Dan Buoy or similar device will satisfy this requirement. Self-inflating apparatus shall be tested and serviced in accordance with the manufacturer's specifications. These items shall be stored on deck, ready for immediate use, and affixed in a manner that allows for a "quick release".
Safety Equipment: Man Overboard	3.7.3	A boat shall have a throwing sock-type heaving line of 50' (15m) or greater of floating polypropylene line readily accessible to the cockpit.
Safety Equipment: Man Overboard	3.8.2	A boat shall have a watertight handheld VHF radio or handheld VHF radio with waterproof cover. The radio shall have DSC/GPS capability with an MMSI number properly registered to the vessel.

Safety Equipment: Emergency Communications	3.15	A boat shall carry an electronic means to record the position of a man overboard within ten seconds. This may be the same instrument listed in 3.14.
Chicago Specific Requirement	5.3	Halyards – No mast shall have less than two (2) halyards, each capable of hoisting a sail.
Chicago Specific Requirement	5.6	A boat shall have a mechanical propulsion system that is quickly available and capable of driving the boat for 10 hours at a minimum speed in knots equivalent to the square root of LWL in feet (approximately 75% of theoretical hull speed; 1.81 times the square root of the waterline in meters) and finish the race with fuel sufficient to continue motoring at that speed for 10 hours.
Chicago Specific Requirement	5.9	Personal Safety Knife – A knife, straight blade or, if folding, able to be opened with one hand, to be attached to or carried on each crew member at all times. The Personal Safety Knife must be readily accessible at all times including while wearing foul weather gear and PFD/Harnesses.
Chicago Specific Requirement	5.13	Annual Man Overboard Practice – Man-overboard procedures appropriate for the boat's size and speed shall be practiced aboard the boat within six months prior to the race. At least two-thirds of all crew members racing on the boat during the Race must participate in this practice. A Crew Overboard Drill Certificate of such practice shall be signed by participating crew members and kept aboard the boat. The certificate shall be downloaded from the “Race Documents” section of the Mac website. www.cyracetomackinac.com . Practice of the "Quick Stop" man-overboard procedure is strongly recommended
Chicago Specific Requirement	5.17	Each crewmember shall have a safety harness and compatible safety tether not more than 6'7" (2m) long with a minimum tensile strength of 4500 lb. (20kN). The tether shall have a snap hook at its far end and a quick release shackle at the harness end that is releasable under heavy load
Chicago Specific Requirement	5.18	Life jackets shall be equipped with a whistle, a waterproof light, be fitted with marine-grade retro-reflective material, and be clearly marked with the boat's or wearer's name, and be compatible with the wearer's safety harness. If the life jacket is inflatable, it shall be regularly checked for air retention and shall be equipped with leg or crotch straps.
Chicago Specific Requirement	5.21	Boats shall have mainsail reefing equipment that will allow the luff of the mainsail to be reduced by at least 10%. In lieu of this requirement, boat may carry a storm trysail that is capable of being attached to the mast and sheeted independently of the boom with area not greater than 17.5% of mainsail luff length multiplied by the mainsail foot length.

Appendix B: Weather: Pre-Race Weather Synopsis and Actual Observed Conditions

The Chicago Yacht Club Mackinac Race Committee contracts with Chris Bedford, CCM (Sailing Weather Service, LLC) to provide pre-race weather forecasts to all competitors beginning the week of the Race, culminating with in-person briefings at the Skippers meeting held prior to the Cruising Division Starts on Friday morning and the Racing Division Starts on Friday Afternoon. Daily updates are provided via a link to the Chicago Yacht Club Weather Support Page (www.sailwx.com/race-to-mackinac) beginning the Monday of Race week.

In one of the many updates provided during the week the following was stated:

Overview

The weather pattern setting up for this race is one of the most dynamic in memory. By that I am referring to the overall complex weather map evolution over the course of the race. Certainly, previous years have been “dynamic” with respect to thunderstorms and frontal systems. However, this year we have a seasonally unusual low-pressure system that will cross the lake and then be quite slow to move along.

The Cruising fleet will start as a strong low pressure is approaching from the West. There will be S'ly winds for the start, moderate strength. A risk of showers and thunderstorms. Around mid-night, Saturday morning, much of the cruising fleet will sail north of the low/trough and wind will turn E'ly. This wind will increase and build as they head north Saturday and back left to NE and moderate or possibly fresh strength for later Saturday and into Sunday.

Sea state will become an issue for boats away from the Michigan shore and further north – especially as the wind backs more NE. Later Sunday and especially on Monday, the wind will ease and it could actually get quite light/variable during the day on Monday – with nighttime land breezes and daytime lake breeze becoming part of the mix

The racing fleet will more than likely start when the low is over the lake northeast or east of Chicago and moving slowly east to southeast. This will put them in the NE flow on the western periphery of the low pressure. Winds will be veering NW to N and most likely moderate to fresh (15-25). That said, if the low is still in close proximity, winds could be lighter and more variable until the low moves further away AND the fleet gets a little distance up the lake. Winds will become more NE as the low moves away to the southeast – holding moderate and possibly fresh pressure Sunday. Conditions will moderate quickly Monday on the northern part of the lake – especially after Grey's Reef.

Sea state will be an issue for all the racing fleet from Saturday into early

Monday Morning.

By the 08:00 CDT forecast update on the morning of the Racing Division starts (07/21) the center of the forecasted low-pressure system had passed onto the eastern half of lower Lake Michigan and a northeasterly flow had settled into the western half of the lake with wind speed of around 10 knots and wave heights of 2 feet or less. The wind forecast map for 1300 CDT (one hour prior to *Imedi's* start time) showed northerly winds of 20+ knots and a wave forecast of around 5+ feet.

Historic weather buoy data from the Harrison Dever Crib and the Wilmette Weather Buoy show actual conditions at the time of the man overboard incident consistent with the forecasted information. A condensed summary of the captured actual weather data is on the following page:

Weather Observations at Time of Incident

Harrison Dever Crib

Time (CDT)	Harrison Dever Crib					AIR	WTR
	WDIR	WSPD	GUST	WVHT	DPD	TEMP	TEMP
11:00	340	21.0	21.9	na	na	67.1	na
11:30	340	22.9	24.1	na	na	67.5	na
12:00	340	22.9	24.1	na	na	67.8	na
12:30	350	22.9	26.0	na	na	68.9	na
13:00	350	22.9	25.0	na	na	70.0	na
13:30	340	21.0	22.9	na	na	69.6	na
14:00	340	21.9	22.9	na	na	68.5	na
14:30	350	21.9	25.0	na	na	69.6	na
15:00	350	24.1	26.0	na	na	70.2	na
15:30	350	22.9	24.8	na	na	70.9	na

Wilmette Weather Buoy

Time (CDT)	Wilmette Weather Buoy					AIR	WTR
	WDIR	WSPD	GUST	WVHT	DPD	TEMP	TEMP
11:00	350	19.4	26.0	6.0	5.39	68.0	70.0
11:30	352	19.2	26.2	6.3	5.38	68.2	70.0
12:00	352	20.2	27.4	6.7	5.41	68.9	70.0
12:30	3	19.6	27.2	6.8	5.67	68.9	69.8
13:00	360	20.0	26.0	6.7	5.00	68.7	69.8
13:30	352	18.8	25.0	6.8	5.78	68.5	69.8
14:00	351	17.8	23.1	6.4	5.61	69.1	68.5
14:30	352	16.5	21.7	6.3	5.75	69.1	69.8
15:00	4	16.1	23.5	6.5	5.76	70.0	70.0
15:30	6	16.7	24.1	7.2	6.15	70.2	69.8

Legend:

Imedi Start Time

Approx Man Overboard time

WDIR=Wind Direction Degrees True

WSPD=Wind Speed in Knots

WVHT=Significant Wave Height in Feet

DPD=Dominant Wave Period

AIR TEMP & WATER TEMP = Degrees Fahrenheit

Location from Man Overboard Position:

Harrison Dever Crib - 2.3 nm @ 249 degrees

Wilmette Weather Buoy - 14 nm @ 334 degrees

Appendix C: Vessel Specifics: TP 52, year, upkeep, cockpit layout, sail handling specifics, photos

Imedi is a third generation Farr® Transpac 52, built by Cookson Boats of New Zealand and competed in Europe before being brought to Lake Michigan. She was converted to a prod with A-sails raced competitively under IRC, ORR and PHRF ratings.



The TP 52 has a large open cockpit, with the vang control located far aft and remote from likely handholds and jacklines.

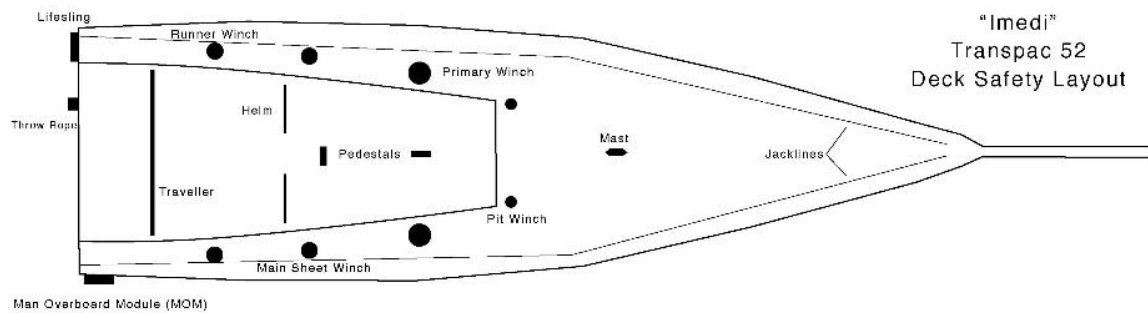


Figure 5- Imedi Deck Layout: Hydraulic vang controls were on centerline between the wheels



Figure 6 Underwater fins subject to stalling and Open afterdeck with minimal handholds

Appendix D: Safety Equipment

Per crew reports, *Imedi* had a MOM, a Lifesling and a Throw Rope mounted on the aft pulpit as well as a horseshoe with strobe light attached. The only item deployed during the rescue attempt was the horseshoe.

Other safety equipment – fenders from below were thrown for added flotation. Jack lines were installed on the side decks, but not used. About half the crew wore life jackets, some belonged to the boat and some were owned and brought aboard by the individual crew member.

Note: It is important for everyone on board to understand what role is expected of each crew member in any emergency. Best practice is to post a Station Bill with specific crew names assigned to each position for all likely onboard emergency situations.

The following is Comanche’s Station Bill, courtesy of Marine SafetyWorks.

EMERGENCY STATION LIST

CHAIN OF COMMAND	MAN OVERBOARD	COLLISION, FLOOD, GROUNDING, DAMAGE, LOSS OF RUDDER/RIG	FIRE	CAPSIZE	ABANDON SHIP
SKIPPER	In command	In command	In command	In command	In command
SAILING MASTER	Co-ordinate number off Shout "Man Overboard"	Co-ordinate number off Manage crew	Co-ordinate number off Shout "FIRE"	Co-ordinate number off	Co-ordinate number off
NAVIGATOR	<ul style="list-style-type: none"> Man-overboard button Coordinate search pattern 	<ul style="list-style-type: none"> Electrics, communication equipment (portable if req) Collision: radio vessel 	<ul style="list-style-type: none"> Communication/SAR equipment in preparation for abandon ship 	<ul style="list-style-type: none"> Portable communication and SAR equipment 	<ul style="list-style-type: none"> Portable communication and SAR equipment
RADIO OPERATOR	<ul style="list-style-type: none"> URGENCY CALL if requested by Skipper/master 	<ul style="list-style-type: none"> DISTRESS OR URGENCY CALL if requested by Skipper/master 	<ul style="list-style-type: none"> DISTRESS OR URGENCY CALL if requested by Skipper/master 	<ul style="list-style-type: none"> DISTRESS CALL 	<ul style="list-style-type: none"> DISTRESS CALL from boat if time permits then portable
ENGINEER	Engine if required, ensure sheets stowed, stand by for leg down	Bilge pumps, electrical/engine requirements	Shut down electrics	Secure crew	Stop engine Shut off fuel lines
HELMSMAN	Helm	Helm (Keel in centre if nec.)	Helm	Secure crew	Secure boat
ON WATCH CAPTAIN	Coordinate boat manoeuvres; UPWIND: Control boat, clear lines, motor then drop main DOWNWIND: Control boat, drop gennaker, clear lines, motor engaged before main drop	Coordinate boat manoeuvres	Coordinate boat manoeuvres	Get aft grab bag and additional items if possible	Prepare crew if time with personal and boat safety equipment
OFF WATCH CAPTAIN	Coordinate recovery	Damage assessment/control	Fire assessment/attack Co-ordinate extinguishers and other equipment to stop fire	Get aft grab bag and additional items if possible	Flares Lifejackets
CREW ON DECK	FIRST SPOTTER: Call man overboard. Do not take eyes off victim. Point to victim at all times. Alongside recovery	Secure/trim boat If capsize - Sheet tails out back of boat or try to get sheets around rudder or keel	Secure/trim boat	Get aft grab bag and additional items if possible	Liferafts
CREW ON DECK	SECOND SPOTTER: Throw recovery module. Throw See-Blitz.	Secure/trim boat If capsize - attempt dry roll	Secure/trim boat	Get aft grab bag and additional items if possible	Liferafts
CREW ON DECK	Throw glow sticks (night) or dye (day), flotation equipment	Secure/trim boat If capsize - attempt dry roll	Secure/trim boat	Get aft grab bag and additional items if possible	Set of flare/EPIRB
CREW	Assist MOB recovery	Damage control	Fire attack	Grab Bags	Grab bags
CREW	Assist MOB recovery	Damage control	Fire attack	Lifejackets	Water/Food
FIRST AID	First Aid duties	First Aid duties	First Aid duties	First Aid duties	First Aid
SAFETY OFFICER	Man-overboard retrieval gear	Close watertight doors & hatches, coordinate safety equipment and repair.	Coordinate safety equipment required and stand by liferaft if necessary.	Coordinate all safety equipment needed	Prepare life rafts to deploy and deploy
SWIMMER	Prepare to retrieve MOB	Prepare if necessary		Prepare if necessary	

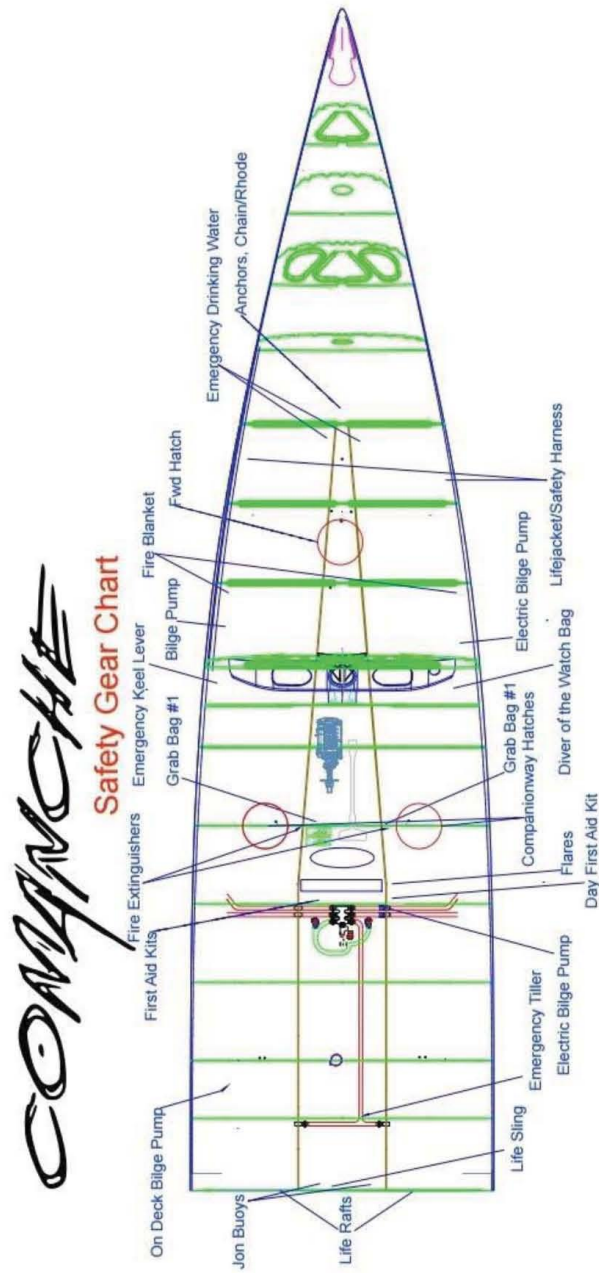
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The names of individual crew members would be substituted for the positions and each crew member would be assigned a number, which allows the crew to “count off” when appropriate.

A Safety Equipment Stowage Chart was not available from *Imedi*. This example from Comanche is courtesy Marine SafetyWorks:

COMANCHE STOWAGE DIAGRAM



© Marine SafetyWorks, 2004, 2018

Appendix E: Inflatable Life Jacket Failures

All reports are consistent that Santarelli was wearing an inflatable life jacket at the time he went overboard, and it did not inflate. Nor is there any indication that the manual pull or the oral inflator was attempted to be utilized by him. Had the life jacket inflated, there would have been considerable additional time to effectuate a retrieval of him once he went overboard.

Santarelli's body was recovered on Saturday, July 28, which was one week after he had gone overboard. Upon being advised of the recovery, the Chicago Yacht Club (CYC) promptly asked the Coast Guard to determine whether in fact he was wearing a life jacket and whether it was operational. The Coast Guard advised CYC on Monday, July 30, based on their conversations with the Medical Examiner's Office, Santarelli was wearing his life jacket but that it had not inflated.

Less than two days later, on Wednesday, August 1, the Coast Guard notified CYC that it could not perform a full analysis of the jacket because it had been incinerated without the Coast Guard's prior knowledge. However, the CO₂ cartridge was still available for their review and in the possession of the Santarelli family. Neither CYC nor the Coast Guard was aware of any plans to dispose of the jacket in any fashion.

Due to the week-long exposure of Santarelli's body to the water, there was significant decomposition at the time of recovery. Therefore, the Medical Examiner's office, without the knowledge of the Coast Guard, put his personal belongings, including the life jacket, in a bio-hazard bag that was placed alongside the body at the time it was transported for cremation. That is why it was incinerated.

Based on its subsequent review of the CO₂ cartridge that had been in the life vest, which the Coast Guard coordinated with the Santarelli family, the Coast Guard advised CYC that it did not appear that the cartridge had been triggered to inflate Santarelli's life jacket and therefore the auto inflate feature had not properly functioned. That conclusion was reached based on the fact that the foil at the neck of the cartridge had exploded outward from the heat of the incinerator, thereby indicating that there was still CO₂ in the cartridge at that time.

The life jacket Santarelli was wearing had been provided to him by *Imedi's* owner. A legal representative of the owner provided CYC the following information on October 5, 2018:

[T]he subject life jacket and inflator have apparently been destroyed by the Cook County Medical Examiner's office. Given that fact it cannot be determined with absolute certainty the exact manufacturer and model of the jacket and inflator. A similar type jacket bears the name SSM-Barcelone, Spain and contains a Hammar MA1 inflator.

The Hammar MA1 inflator is a hydrostatic type inflator that is utilized in a number of different brands of inflatable life jackets. Based upon interviews with the crew, the life jackets came with the boat, and thus could be as much as 12-13 years old. Whether the inflator mechanism in the jacket Santarelli was wearing had ever been replaced is unknown.

It is possible that other PFDs on *Imedi* were of the same age, type and maintenance history as the PFD the Jon wore and that did not inflate. The Committee attempted to access those PFDs for research but were not able to inspect or test them.

Based upon discussions with the U.S. Coast Guard and a review of published reports, failures of automatic inflator life jackets are not uncommon. In fact, the Coast Guard explained that based upon their experience, they train their personnel to the point of “muscle memory” to pull the manual inflation cord on an inflatable jacket when they hit the water, and not to even wait for the automatic feature to function. According to the Coast Guard, they have experienced instances that without such training a person who unexpectedly finds themselves in the water does not have the cognitive presence of mind to react by either pulling the manual cord or using the oral inflator. This is clearly an area that warrants additional training for the boating public utilizing such vests.

Moreover, numerous issues have been found to exist as a result of inadequate maintenance of inflatable life vests. This issue caused the Coast Guard to issue Marine Safety Alert 13-16 on September 12, 2016. The Safety Alert is entitled: “We’re Not Inflating the Importance of this Message. Check for Problems Before Your Life Depends on It!” and states at the beginning:

This safety alert reminds all inflatable life jacket users of the importance of performing periodic maintenance on their equipment. Instances of fatal accidents where inflatable life jackets failed to properly inflate have been documented. When a life jacket fails to inflate properly, the results can be life threatening.

The Safety Alert goes on to make the following recommendations, which the Committee believes need to be reemphasized to the boating public:

The Coast Guard **highly recommends** routine maintenance, service, and inspection in accordance with the manufacturer’s instructions.

The following inflatable life jacket inspection guidance is for informational purposes only and does not supersede any manufacturer recommendations or instruction:

- 1) Each voyage, prior to getting underway:
 - a. If there is a service indicator check it to ensure it is GREEN.

If the service indicator is RED, the mechanism has been fired or is incorrectly fitted.

- b. Check for visible signs of wear or damage by ensuring that there are no rips, tears or holes; that the seams are securely sewn; and that the fabric, straps and hardware are still strong.
- c. For auto-inflating life jackets, ensure all auto components are armed and not expired. Following the manufacturer's instructions, reveal the inflation system and oral inflation tube. Check that the CO2 cylinder is firmly secured. Examine it for rust or corrosion. If you remove the CO2 cylinder for inspection, be sure to carefully replace it without over-tightening.
- d. Repack the lifejacket as per manufacturer's instructions. Ensure the pull-tab lanyard is accessible and unlikely to be caught when being worn.

2) Periodic checks as recommended by the manufacturer or when in doubt:

- a. Inflate the bladder using the oral tube and leave it overnight in a room with a constant temperature. If the bladder loses pressure, take the lifejacket to an authorized service center for further tests. Do not attempt to repair a life jacket yourself. If there is no obvious loss of pressure, deflate the life jacket by turning the cap of the inflation tube upside down and pressing it into the inflation tube. Gently squeeze the inflatable life jacket until all air has been expelled. To avoid damage do not wring or twist the life jacket.
- b. Repack the lifejacket as per manufacturer's instructions. Ensure the pull-tab lanyard is accessible and unlikely to be inadvertently snagged when being worn.

Store your life jacket in a dry, well ventilated location away from dampness and out of direct sunlight. It's important to rinse your life jacket with fresh water after salt water exposure and dry it thoroughly prior to storage. If your life jacket is set for auto-inflation, remove the auto-inflation cartridge prior to rinsing. The life jacket manufacturer may have specific requirements, so read the instructions on the lifejacket.

The Committee believes that there should be enhanced dissemination and emphasis to the boating community with respect to the matters set forth in this Safety Alert.

Similarly, a 2014 study by the Royal National Lifeboat Institution in England revealed that out of 6,752 inflatable lifejackets checked at their lifejacket clinics, 587 or 8.7% would not have

functioned. Furthermore, anecdotal information reported after this incident as well as what has been observed at Safety at Sea practice drills all underscore that inflatable life vest failures are not uncommon. Specifically, among the 29 inflatable life vests at a recent Safety at Sea practice session at CYC this past November, there were three failures – two due to expired inflator mechanisms and one due to the device being set for manual inflation only. Similar experiences have been reported to the Committee from other Safety at Sea sessions. Nor is the issue limited to sail racing. Fatalities have also been reported from inflatable life vest failures from various types of watersports only underscoring the scope and magnitude of this safety issue. See <https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/CG-5PC/INV/Alerts/1316.pdf>.

Accordingly, the Committee believes better training in the use and maintenance of inflatable life vests is critical, and in that regards CYC held its first Life Jacket Clinic on December 9, 2018. Approximately 150 persons attended. Programs on maintenance and use were presented as well as onsite assistance in rearming life vests. More such clinics are scheduled for the Spring.

Had Santarelli's life jacket functioned, the relatively warm water temperature would have reduced any significant risk of hypothermia, and thus there would have been considerable additional time to retrieve him from the water if he had remained afloat.



Figure 7 Boat-issued life Jacket and life jacket label



Figure 8 CO₂ Inflation cylinder from Jon's life jacket showing it had not been pierced prior to the incineration

Appendix F: Crew Details and Training Before Race as Reported on Registration System

Mac Race	Completed Crew	Total Nights Racing	Avg Nights/Crew	Total Overnight Races	Avg Races/Crew	% Crew w/SaS	Crew w/ Safety@Sea	Total Days Safety@Sea	Avg Year Safety@Sea	Crew With 1st Aid	% Crew 1st Aid	Avg Year 1st Aid
2018	2,697	243,534	92	75,859	28.1	42.3	1,141	2,787	2013	1,196	44.3	2010
2017	2,514	223,789	91	72,707	28.9	36	906	2,610	2012	1,023	40.7	2005
2016	2,665	204,037	78	70,543	26.5	34.4	916	2,506	2011	1,042	39.1	2002
2015	2,489	194,812	80	1,706	0.6	-	-	-	-	-	-	-

Crew Race and Training Statistics						
Crew "Duties"	Qualifying Races	# of Overnights	# of Macs	SAS Course, Type	# of Days	1st Aid
"Trimmer"	3	17	3	2-day	2	Am Red Cross
"Foredeck"	27	125	21	1-day	1	0
"Grinder"	12	45	1+?	1-day	2	1st Aid, CPR
"Watch Captain"	32	67	31	1-day	1	0
"Trimmer"	55	162	34	1-day	1	Am Red Cross
"Navigator"	39	120	32	1-day	2	Am Red Cross
"Person-in-Charge"	50	160	34	1-day	1	0
"Trimmer"	52	110	25	1-day	1	Am Heart Assoc
"Trim"	104	110	0?		0	CPR Professional
"Driver"	75	300	17	1-day	1	0
"Bow"	58	200	22	2-day	2	0
"trimmer"	20	200				0
"Mast"	3	5	1		0	0 Am Red Cross

Appendix G: Crew Statements (10) – Ten crew members provided written statements with their observations of the incident. These are a few examples of their speculations on what may have been done differently and advice for future similar incidents:

- Several of the crew considered jumping in the water to try to retrieve Jon, but the sea state made that appear unwise. In hindsight they thought they should not have approached him as closely as they did and instead should have thrown more flotation. Once the engine was started, they worried about fouling the prop. The COB module on the stern was never released and the throw bag/heaving line was never thrown. There was no discussion of the Lifesling or MOM.
- There is no cockpit-mounted COB button on the boat which was a problem marking position. (Although one crew member reported there was an on-deck iPad with an MOB function that apparently was never activated.) The COB button on the GPS was never pressed to lock Lat Long. They relied on *Denali*³ coordinates for the COB location. The DSC button was pushed and received on other boats at 14:33, crew on deck were not aware of this and had difficulty communicating with navigator who was busy communicating with the USCG.
- No tethers were being used at the time of incident.
- Normally the communication was very effective onboard, and everyone knew what to do. However, that management style worked fine until someone was in the water. Then people were out of place and people either didn't respond or too many people responded to orders.
- The sea state wasn't the biggest issue, it was the windspeed. The main was a handful. No big wave washed over Jon. The boat just tipped, and he slipped. There's nothing to hang onto in the back of a TP 52. (There is an absence of hand holds between the lifelines on a TP 52 at this location on the boat. (See photo in [Appendix C](#))
- Importance of continuing to sail the boat and keep in control of the yacht.
- PFDs were with the boat when it was purchased but had been rearmed at different intervals. AIS was on the inside of each boat-supplied PFD, attached to oral inflation tube. These AIS devices were manually activated. The AIS were added maybe around 2012/13. Boat supplied PFDs were inspected by a crew member one week before race. Process was not looking at if expiration was past due, but instead if they were compliant with requirements from Mac such as whistle, AIS, etc.
- The team had sailed numerous times in substantially similar conditions one year before, with at least 70% of the same crew. They considered deployment of the Lifesling but were afraid they would run over it and have it tangle in the prop given how close they were maneuvering.

Suggest practicing that. They had their eyes on Jon the whole time so didn't see a reason to deploy the MOM. There were some communication issues given that there wasn't a COB button on deck. After the sails down, they were trying to get the COB location from the navigator to go back to, but he was communicating with CG so some communication problems with that. Checked PFDs after incident and they were all green. There is a problem in PFD design that you can't see the CO2 cartridge in the vest and can't confirm the connection.

The Navigator's condensed Expedition Log from when *Imedi* left the dock to when it returned.

Imedi Log File, 21 July 2018																
Event	CDT	Bsp	Awa	Aws	Twa	Tws	Twd	Leeway	Set	Drift	Hdg	Heel	Lat	Lon	Cog	Sog
Left Dock	11:37:17	1.37	56.2	12.9	77	12.9	345.4	-15.24	234.7	1.43	274	-2.2	41.86336	-87.6099	253	2.65
COB Drill, start	12:01:59	2.98	-25.9	24.2	-14.7	22.3	334.4	3.66	175	0.26	7	2.6	41.87012	-87.6002	12.7	2.72
COB Drill, end?	12:05:07	4	-29.3	24	-34.8	20.6	338.3	1.3	13.4	0.03	14	1.6	41.87111	-87.5996	15.3	4.03
Turbo Class Start	14:00:00	8.68	-30.6	25	-52.2	18.3	334.3	3.31	143.8	2.76	25	19.4	41.87875	-87.5708	49.8	8.04
COB, start	14:26:27	8.48	-53.7	25.8	-62.8	21.9	327.7	3.62	133.5	4.46	41	19.9	41.92865	-87.5188	70.6	9.49
	14:26:28	8.94	-54.9	26.1	-65.8	21.9	334.9	3.94	129.7	1.45	45	23.4	41.92867	-87.5187	54.2	9.16
	14:26:29	9.07	-53.9	26.3	-67.3	22	337.8	3.86	177.2	0.95	47	24.4	41.9287	-87.5187	56.1	9.24
	14:26:30	9.13	-51.7	26.6	-67.9	22.1	332.3	3.71	97.1	0.91	45	23.3	41.92872	-87.5186	53.7	9.21
	14:26:45	5.31	41.9	24.6	7.6	21.2	19.3	-4.47	45.1	2.14	310	-9.7	41.92905	-87.5184	328.8	5.39
	14:27:00	5.07	79.1	23.2	76.2	22.9	12.2	-4.91	332.4	2.35	275	-9.7	41.92907	-87.5188	290.7	6.58
	14:27:15	10	171.4	10.7	170.9	21.1	354.7	-0.48	233.5	1.37	179	-4.2	41.92859	-87.5192	181.5	10.71
	14:27:30	8.8	-51.6	24.5	-97.5	20.6	349.4	2.06	188.9	1.67	67	12.3	41.92812	-87.5188	79.3	8.1
	14:27:45	2.19	-35.7	22.4	-39.9	22.1	338.5	3.52	192.3	0.63	18	1.3	41.92829	-87.5186	26	1.57
	14:28:00	0.16	-35.1	22.9	-36.4	22.9	337.5		151.5	2.35	14	1.9	41.92823	-87.5185	148.8	2.23
	14:28:15	0.01	-54.3	20.7	-48.4	20.7	339.8		75	0.91	35	3.5	41.92817	-87.5184	74.6	0.92
	14:28:30	0	-52.6	23	-54.5	23	338.6		101.7	3.5	35	2.5	41.92812	-87.5182	102.5	3.47
	14:28:45	0.76	22.9	22.5	-0.6	22.1	358.9	-139.54	23	1.66	330	-6.2	41.92821	-87.518	10.2	0.91
	14:29:00	5.7	29.1	26.7	57.7	23.1	343.4	-3	75	2.17	309	-7.5	41.92811	-87.5185	327	4.64
	14:29:15	0.52	-46.6	24.3	-26.2	24.3	339.3	-57.12	247.5	0.68	25	6.3	41.92816	-87.5186	259.2	1.17
	14:29:30	0.04	-69	23.3	-69.7	23.3	346.8		127.6	2.32	54	4.4	41.92809	-87.5185	128.4	2.3
	14:29:45	1.59	-14.3	25.5	-37.4	23.7	342.8	21.35	77	1.96	4	4.1	41.9281	-87.5183	56.8	3.29
	14:30:00	4.94	48	26.7	45.9	23.1	7.2	-4.16	204.2	3.5	297	-7.8	41.92822	-87.5185	259.5	6.01
	14:30:15	10.9	179.1	11.8	151	22.2	346.9	0.09	242.4	1.88	184	0.8	41.92789	-87.5192	190.8	12.01
	14:30:30	4.93	-43.1	22.9	-85	21.2	354.7	5.19	244.2	1.58	42	9.7	41.92752	-87.5187	45.4	3.41
	14:30:45	2.93	-21.8	25	-21	22.8	337	2.57	235.7	1.08	4	1.6	41.9277	-87.5186	347.5	2.35
	14:31:00	0.4	-60.7	23.2	-50.3	23.2	343.1	62.5	106.6	1.12	38	5.2	41.92772	-87.5186	92.8	1.45
	14:31:15	0.3	-47.6	21.7	-47.2	21.7	336.5	160	106.7	1.97	29	3.6	41.92772	-87.5184	109.6	2.25
	14:31:30	1.18	-38.7	23.2	-45.2	21.9	351.1	43.48	57.9	2.24	26	4	41.92775	-87.5182	65.5	3.38
	14:31:45	6.08	63.5	23.3	56.2	21	11.3	-4.26	275.6	2.1	284	-12.1	41.92788	-87.5184	278.5	8.18
	14:32:00	9.54	143	12.5	133.9	22.2	353.5	-0.97	281	2.01	206	-6.6	41.92766	-87.5191	217.9	10.28
	14:32:15	7.38	-44.4	23.6	-91.3	20.1	352.9	2.94	241.9	1.95	54	10.5	41.92722	-87.5187	60.3	4.88
	14:32:30	0.72	3.2	22.3	-7.8	22.3	351.3	62.69	261	1.66	350	2.5	41.9273	-87.5186	278	1.05
	14:32:45	0.34	-19.4	22.6	-13.7	22.6	342	67.34	243.2	2.84	4	3.8	41.92732	-87.5186	236.2	2.45
	14:32:46	0.28	-22.3	22.4	-15.5	22.4	343.5		226.3	0.88	6	3.4	41.92732	-87.5186	212.7	0.54
COB End	14:32:47	0.24	-27.7	22.1	-18.3	22.1	343.5		202	1.28	11	3.1	41.92731	-87.5186	205.2	1.05
Stopped Search	20:00:46	2.36	-15.4	25.7	-22.8	23.6	337.7	1.15	191.7	0.46	358	0.5	41.8695	-87.54	0.4	1.93
Docked	20:44:17	0	-178.1	9.1	-177.8	9.1	3.2		348.2	0.26	184	0.3	41.8637	-87.6099	348.2	0.26

On subsequent review of the large scale image of his Expedition plot (see Figure 4 at 6.4 in The Report narrative), the navigator thought there may have been four passes total, with the first two very close to each other. He thinks it was approximately 4 ½ to 6 minutes from the COB call to the final loss of Jon.

Appendix H: Crew Interview Questions

The Committee interviewed ten crew members with the understanding that we would use the information, but not identify the individual responses.

Imedi Crew Interview Questions

Name: _____ Boat: _____ Date/Time: 15Oct18____

Interviewers: Nick Berberian, Ronald White, Sally Honey, Shawn O'Neill; Notes taken by Matt Knighton and Jay Kehoe

I. Sailor's Experience & Training

A. How long did you know Jon? How many races with him? Did any of those involve similar or worse conditions or present any particularly difficult challenges?

B. How did Jon appear on the day of the Race? Did you observe anything unusual with Jon or with any of the crew members? How did you feel?

II. Preparation/Safety Gear

A. Was there a safety briefing at the dock or on board before the start? (Ask once only)

B. Were any safety drills performed aboard the boat before the race? (Ask once only)

C. If so, what specific drills with what equipment? Who participated? (Ask once only)

D. Were you wearing a PFD, if so, what make? Yours or boat-issue? Integrated harness?

E. If wearing a PFD with harness, did you have a tether attached to the harness?

F. Were PFDs manual or auto-inflation? Had they been inspected in the last year?

H. Was the use of tethers & harnesses discussed? Were jacklines rigged on the boat? (Ask only once)

III. Crew Duties

A. What were your duties/position aboard the boat for the race?

B. Had you performed these duties in other races?

IV. Incident Strategy

A. Who was involved in setting or modifying the recovery strategy?

B. Was it clear to you what the strategy was for retrieving the COB?

C. Was an initial recovery strategy modified during subsequent attempts?

D. Did sea state form a part of the recovery strategy?

E. Was there any discussion of deploying specific COB gear, Lifesling?

F. Why was some of the available COB gear NOT deployed, e.g. Lifesling?

V. Location/Status of Crew Prior to Incident

A. Where were you on the boat at the time of the incident? Others?

B. Who was at the helm at the time of the incident? Did the helmsperson change during the recovery attempt? (Ask once only)

VI. Status of boat prior to Incident

A. Did the sails that were set seem appropriate for the weather conditions?

B. Had the boat shipped any large seas prior to the incident?

VI. Loss of Crew

A. Please describe in detail what you observed about the COB during each pass?

B. Do you think Jon was injured while being washed overboard?

C. Did you ever see Jon try to inflate his life jacket, via oral tube or pull tag?

D. Did you observe the boat hitting Jon? If so, how many times?

E. Was the red DSC button pressed on your boat? If so, received by others?

F. In hindsight, is there anything you believe should have been done differently?

G. Is there anything else about the incident you would like to share with us?

Appendix I: CYC Incident Statements: *Imedi*, *Denali*, *Arctos*, CYCRTM Race Chair

Three Views from race boats: The following are reports submitted to the race committee from *Imedi* and two other boats involved in the rescue attempt.

1. *Imedi* Report to CYC:

Chicago Yacht Club Race to Mackinac Incident/Retirement Report

The Invited Competitor (or other person identified below) has submitted this report as required by the Sailing Instructions to help the Chicago Yacht Club Mackinac Committee and US Sailing identify ways to enhance the safety of future races.

"Boats Retiring from the Race, having a personal injury requiring medical attention, or sustaining damage to the boat(s) exceeding \$5,000 to repair shall complete the online Race to Mackinac Retirement / Injury / Incident Report Form located on the Entry Menu ... within two (2) weeks of the boat's Start. Failure to complete the form may result in the Invited Competitor not being invited to compete in future races."

Incident Report Date:	23/Jul/2018
Invited Competitor:	Mark Hauf
Owners/Charterers:	Mark Hauf
Boat:	<i>Imedi</i>
Sail Number:	USA52725
Date:	23/Jul/2018

Type of Report

Serious Incident AND Retired from Race

Location & time of incident or decision to retire:

30 minutes into the race, 4 miles off shore, 5 miles northeast of the starting area. *Imedi* had a crew member go overboard, Jon Santarelli. The sailing team immediately went into our practiced MOB procedures, but after three attempts to recover him, he passed beneath the surface and presumed drown. We then were in a recovery mode. Please see attached description of our efforts.

Reasons for and factors contributing to decision to retire or incident:

* Other

Narrative of events leading to retirement or incident and subsequent actions, including a evaluation of performance of your crew. Include details of communications (VHF, cell phone, EPIRB, etc) during and subsequent to the event.

To: Chicago Yacht Club Race to Mackinac Race Committee July 22, 2018

I am Alan Lincoln (Linc) Yates, I was the "Person in Charge" on board *Imedi* for the Chicago Yacht Club 2018 race to Mackinac. This is my record of the events that occurred shortly after the start of the Turbo section (1400 hrs) in this year's Mac race causing the loss of life of Jon

Santarelli. I am the tactician and second helmsman on our sailing team. I was responsible for organizing the crew and keeping the boat and crew safe. At the time of the Man Overboard I was sitting face outboard directly behind the helmsman.

The conditions were difficult, but having sailed last year's race under similar conditions with most of the same crew, I was confident that we could manage them. It was blowing 18 - 25 kts from just west of north with 5 - 8 seas. We had a full main up and our code 4 jib, sheeted in and averaging 50 degrees TWA at an average speed of 9.5 kts.

We started at the east end of the start line in the company of *Denali 3* to leeward and they were eventually slightly behind and Merlin was to weather and eventually directly ahead of us. Bill Zeiler was on the helm at the time working with our main trimmer to keep the boat balanced and drive the waves. Jon was working with the main trimmer on the aft grinder pedestal, facing to windward. Approximately 30 mins into the race I heard a little commotion behind me and Bill Tait sitting on the rail yelled man overboard and pointed to the leeward rail behind me and I turned to see Jon fully in the water passing by the transom. I saw his face clearly, so I knew that it was him. The crew immediately went into man overboard action. I confirmed that we had a spotter pointing at his location.

The helmsman immediately called for a tack and we rounded around to weather of him and tried to make the approach with Jon on the port or windward side of the boat, but the wind pushed us away too quickly to get close and we sailed past. The helmsman then gybed the boat and we started another approach with Jon again to windward of the boat, and again we could not get close enough. At that point I threw the horse shoe life ring with the light strobe attached, but that was into the wind and it landed 10 feet short of him. Other crew were throwing lines out as well, but I could see that most were blowing back to the boat and not reaching him. At this point we needed more maneuverability and the engine was turned on. I was worried that as more lines went out we would run the risk of fouling the prop. At this time we could see Jon treading water and observed that the PFD that he was wearing had NOT inflated. Bill Tait was yelling at him to pull the manual inflator. As far as I know his PFD never inflated. He was wearing red foul weather gear and the PFD was on top of that. I do not know if he had boots on or not. He is a good swimmer and in good shape. He recently completed a triathlon.

This time the helmsman gybed the boat and approached Jon on our starboard side to windward of Jon with the idea that the wind would blow us down to him. That became a struggle to keep from running Jon over, but we got very close, to the point that the crew was hanging lines over the side hoping that he could grab them and I saw him reach, but miss. As we passed by that third time I could see Jon flailing his arms a little and shortly there after he sank below the surface and I knew he was gone. Several of the crew, including myself, expressed the thought of going in after him, but all thought the better of it. One tack around and two gybe rounds did not take more than fifteen minutes. During which time myself and the crew were consumed by simply maneuvering and the boat in the difficult conditions. Both gybes were violent without any running back stays on.

Following our third attempt and Jon's disappearance we got our navigator on the radio and to hit the distress button and to call other boats and the coast guard. At this point we got the sails down in a struggle. In that time *Denali 3* returned to us and they started coordinating a search. Shortly thereafter Merlin, Ocean, and Actros, Caliente and Alpha Puppy joined the search as well. On *Imedi*, we started at the MOB spot and drove SW, down wind, at about 210 and 220 degrees running that direction for about two miles then returning upwind to the MOB spot. the other boats and the Coast Guard were searching

either parallel to us or east and west across our path and further south. We repeated that search for about three hours at which time we started moving our path .5 miles east and .5 miles west of that line. We could not find Jon. I can not express my grief.

Alan Lincoln Yates *Imedi* Racing

The communication and interaction with other boats was handled by our Navigator, Richard Hayes. I will have to wait for his written statement to give further detail.

Describe any injury or illness:

Jon Santarelli presumed dead upon drowning

Weather conditions:

18 - 25 kts from the north in steep 5 - 8 foot waves occasionally 10 ft

Did the boat proceed to Mackinac Island? If not, what port did the boat go to after retirement or incident?

Stayed on site until 8:00pm when search was suspended due to darkness, we returned to our slip in Burnham harbor.

List all safety gear deployed or used. Was any deployed gear not retrieved?

The horse shoe with strobe attached was thrown, but did not reach Jon. Lines were thrown, but in the wind proved ineffective. The horse shoe was identified later by another searching boat, but I do not know if was recovered

Did you experience performance deficiencies of any of the safety gear utilized? Be specific of make and model.

As we circled Jon the crew recognized that the PFD Jon was wearing did not inflate. I'll have to provide make model later when I return to the boat.

Was the accident, gear failure, injury, or illness preventable? If yes, how?

I am not sure how to test an inflatable PFD without setting them off.

Is there any other information you can provide relative to the event?

Complete description above. We have asked the other crew members to write their description of the incident and their roles in the recovery. I will provide them as I receive them.

Amendment July 28, 2018: After reading some of the other accounts, I now realize that as we approached Jon the third time and got very close, that the boat must have blown over Jon. The other crew said he went under the boat as we came off a big wave. The reason this is important to me is that after we failed to pick him up, the boat was in neutral and being blow back and to starboard. That is why Jon was struggling to stay afloat and I watched him drown from the port rail. Hindsight tells me that our approaches should have been to windward of Jon, keeping a safe distance, getting more floating devices in the water that were attached to the boat, then hauling the MOB to the boat, instead of the boat to the MOB.

2. Denali^3 Report to CYC

2018 Chicago to Mackinac Supplemental Incident Report

S/V Denali ^3 USA 84003

William F. McKinley Owner & PIC

July 25, 2018

Overview –

We started the race in Turbo Section at 14:00 CDT. I started the boat and continued to be at the helm throughout the day and during all events which will be detailed. The conditions were challenging but not difficult and clearly not “survival mode”. Wind was generally 18 to 22 knots with gusts to 25 knots. We had a J3 up and a reefed main (first reef). After starting, wind direction generally was 340 to 350 degrees, seas were 4 to 6 feet high with the occasional 7-8 footer. All the boats in our class were on port tack and handling the conditions well, generally with BS of 9 to 9.5 knots (except for the largest boats). Most boats had slightly eased sheets due to sea conditions and/or footing to the expected header and the MI shoreline.

Incident -

Approximately 26 minutes after our start or 1426 CDT, we were sailing just to leeward of the S/V *Imedi*. One of the crew on board D^3 noted that it looked like *Imedi* was attempting to tack as she was sailing erratically. Another of the crew on board D^3 yelled man-overboard on *Imedi* (having seen him actually tumble into the water). I immediately put the bow up into the wind and slowed down. At this point in time we were approximately 3 boat lengths to leeward of *Imedi*. At this time we did see the MOB in the water and to the best of our view, he was conscious and in control. Shortly thereafter our MOB button was activated. Because we were heading away from the MOB, we tacked back to starboard and maintained a position approximately 4 boat lengths downwind of *Imedi*.

Imedi tacked or gybed back onto starboard and attempted to pick up the MOB. They were not successful in this attempt and just missed the MOB (he did not appear to have an inflated PFD). At this point in time the MOB started swimming towards the *Imedi* swimming quite strongly given the conditions (I would estimate that he swam a full boat length in a NW direction) but was unable to get to the *Imedi* or any lines in the water (we did not see any lines off *Imedi* but given the conditions and the fact that we were 4-6 boat lengths away it would have been difficult to actually see them). We did not observe a MOM in the water, life jackets or other “throwables”. At this point in time we lowered our prop (we have a retracting prop) and dropped our jib. Again we stayed approximately to 4-6 boat lengths downwind from *Imedi* in order to give them sea room to maneuver but at the same time maintain eye contact with the MOB. To the best of my recollection, *Imedi* made two more attempts to pick up the MOB. On the last pass (3rd I believe) we did not see the MOB above the water. At this point in time we engaged our engine at full power and motored to the general location where we last saw the MOB establishing multiple lookouts both to port and starboard as well as the bow. We immediately hoisted our bowman to the first spreader in order to get a better vantage point over the seas.

For the next approximately 60 minutes we ran a grid search based upon our GPS position of the MOB. Running just upwind of the initial MOB position to approximately 1 mile south. We additionally coordinated a pattern with *Imedi* off to our starboard. Within approximately 10 to 15 minutes we were joined in the MOB search by other yachts from the race and eventually by

the Coast Guard. During the first hour our navigator helped establish communications with the Coast Guard and *Imedi*, and provided as much details as we could as to the initial positioning of the MOB. Approximately 1 hour after searching, we dropped off a particularly steep wave. Our bowman got slammed into the mast and we immediately brought him down to access his situation. At that time first-aid was administered to his hand. There was a significant and deep cut around his thumb joint. He was attended to by two trained medical personnel on board (a dentist and a ski patrol). We continued our search pattern for approximately another 30 minutes. After discussing the level of pain and trauma with our bowman (and determining that there were sufficient SAR assets on site) I made the decision to abandon our search efforts and to get our crew into shore and to a hospital. Final conclusion on our bowman's injuries: extensive bruising and three stiches in his hand. He is anticipated to make a full and complete recovery.

Conclusion –

First and foremost I believe that *Imedi* acted in a seamanship manner.

What we could have done better

- 1) We waited a minute or two to initiate our MOB button. We train to hit our MOB button when we lose someone overboard on our ship, but should have done it immediately when we saw the person go over on *Imedi*. I can only assume my hesitation was that I could see the MOB and *Imedi* was taking proper procedures to pick up the individual.
- 2) After discussion with my navigator who was at his station, there was no immediate Mayday from *Imedi*. As soon as we saw the individual go over we should have announced it over the radio and taken charge rather than waiting for *Imedi*. I can only imagine how stressful the situation was on *Imedi* as I know we were at full alert.
- 3) We should not have risked our crew by keeping him up the mast as long as we did. I am sure fatigue was one cause for his inability to maintain his hold when we encountered the wave.

What could make the Race Safer -

While none of my recommendations would have probably saved the MOB, I nonetheless believe that we can learn from this incident and create a safe situation

- 1) Require all sailors to have PLBs on their life jackets. This season I purchased one for each of my crew members and have them programmed into our computer. These can be picked up on any boat's AIS.
- 2) Require replacement of Co2 cartridges every two years in inflatable pfd's.
- 3) Require all boats to broadcast their AIS position continually. If this event had happened at night or with limited visibility, the consequences could have been far worse
- 4) Require all boats to have a main that can be reefed. Modern fractional boats are a challenge to sail in higher winds with their large roach mains. If you have to tack or gybe with a full main in high winds under high stress, problems can occur. Putting in a reef is easy, and the boats handle substantially better with the lowered center of effort. Also in strong winds it is unlikely that a boat that cannot reef would put up a storm-trysail due to performance issues unless you were in true survival mode.

Lastly I want to commend my crew for their work under a difficult and stressful situation.

William F. McKinley
Owner & PIC
S/V *Denali*³

3. *Arctos* Report to CYC

Incident Report

Chicago Mackinac Race 2018

Arctos 97999

By: Charles M. Bayer, Jr., Skipper

July 24, 2018

The start of the Turbo class was at 1400 CDT on July 21st, 2018. *Arctos* was one of the lowest rated boats in the class. The conditions at the start were approximately 20 to 22 kts from 340 degrees mag to 350 degrees. (See our Expedition Software Log in Excel submitted separately for wind logging, boat speeds, heading and location, etc.) I had our crew put on their inflatables before the start given the conditions.

We conducted a man over board drill before the start because this crew was new to the boat and I was new to driving it. The prior week I ran over the fender we used to simulate a MOB going about 6 knots before the Port Huron International Race. Knowing how a boat reacts and its momentum is important.

While the crew had conducted MOB drills many times before with me in the weeks prior (it was not all together) and we might have qualified under the rules, I insisted despite the nasty conditions at the start.

I drove at the start and after a few minutes flopped over to port and were heading approximately 30 degrees magnetic with an apparent wind angle of 24 degrees. We had a #3 and a full main. An occasional puff required the mainsail trimmer to work with the helmsman to keep the boat on its feet. We were going well and were the weather boat in the class, doing surprising well against the TP 52s.

This was the first time I sailed *Arctos* in this much wind. Being the smallest/slowest boat in the class we wanted to stay high to avoid the inevitable bad wind that would come from the likes of Wizard and Il Mostro.

We observed Chris Duhon's TP52 turn around approximately 15 minutes into the race, we assumed due to a gear failure. She sailed back.

I drove for approximately ½ hour and turned over the wheel to Bob DeClercq and went below to navigate and set up the satellite phone for Yellowbrick tracking and to download weather Grib files.

Arctos has a new VHF (with DSC capability) together with a RAM remote control microphone at the helm location. Additionally, we had a handheld VHF (also DSC capable) on deck to listen to the OCS calls at the start.

At approximately 14:37, I heard a "**Man over Board**" call from on deck. I immediately hit our GPS MOB button and also engaged the DSC emergency location button on the VHF at the Nav station. After writing down our location (lat long), I went to the companionway. The boat was heeled over and the helm's call was to leave the jib up. We were travelling at approximately 14+ knots on a beam reach. I wondered why we had not done a quickstop. After 1 minute or two, it became apparent the MOB came from another boat and was just repeated on board to get our crew to action. I was relieved and the panic adrenalin subsided but only a bit. I immediately returned to the Nav station to disengage/turn off the emergency DSC on our VHF. I did not want to confuse rescuers as to the location of the emergency by broadcasting multiple DSC emergency calls. At this time I heard *Imedi* (a female voice I think on channel 16) identify the boat and that there was a man overboard and that he went under and did not come up. This was within 3 or 4 minutes of our onboard MOB call. The coast guard was talking to *Imedi*. I wrote down the Latitude and Longitude that was reported verbally on the radio and returned on deck. The crew on deck had their own remote RAM mike and heard the same information. I never wrote down

the lat lon being broadcast and displayed on our VHF by the DSC emergency call. I should have. It was a new radio and I didn't know how to work it well enough.

Bob DeClercq, the driver, had been sitting by the weather wheel facing to leeward while driving. He had observed *Imedi* about ¼ mile to leeward and 10 boat lengths behind doing some erratic maneuvers for a few minutes (4 or 5) before the emergency call went out. They even thought they were retiring like the other TP52, Mockingbird. I never heard a "May Day May Day" call but heard "Man over Board" on the radio and the DSC emergency beep was emitted. My crew reported hearing the MAY DAY calls.

After reaching for about a minute or two, we dropped the #3 headsail on deck and arrived at the location where we saw *Imedi* searching. It couldn't have been more than a few minutes at most. A few other boats also were in the vicinity and came to also help, notably *Denali 3* was close when we arrived. We decided to search to the South of the group assuming the MOB had drifted with the wind and waves. We dropped the main, turned on the engine and had the crew (all 15) stand on either side of the boat visually scouring the water. We placed a man on the boom to get elevation to see better given that the sea state made it difficult to see very far from the boat. Two pair of binoculars were sent forward of the mast to scan the horizon. The sea-state, wind and white caps, and grey overcast cloudy weather made it particularly difficult to see contrast on the water while searching. We excitedly observed motion or something on the water in our search efforts multiple times but was ultimately a large bird or driftwood in each instance.

I returned down below to man the radio and navigate us back to the reported original location. I also turned off the "Stealth mode" switch on our AIS (class B) so rescuers could identify boats and locations particularly us. I did not initiate an emergency call on our AIS. An emergency button is provided and it broadcasts distress on the AIS channels. It has a separate antenna and its own GPS but acts just like our VHF transmitting on channel 70 but also transmits Call sign, speed, heading, COG, SOG, etc. I don't believe it is reliably monitored, only boats with AIS receivers could "hear" it.

By now a lot of radio traffic was being heard and vessels were stepping all over each other on the radio. *Denali 3* took the lead and asked for location updates to conduct a search. The Coast Guard asked for and received a cell number for *Imedi*. Bob DeClercq advised we search in areas to the South of the main group of search boats. About 45 minutes into the search, a local helicopter arrived (not a USCG but a white one.) They circled overhead so we assumed we were in the right locations. About ½ hour later a USCG helicopter arrived on scene near us and was dropping buoys or flares into the water. At first we thought it was a raft or life ring and hopefully and optimistically we proceeded directly to the drop spot but we later realized it was to demark a search area or to calculate the set and drift of the water. The helicopter did not return to the dropped marker.

There were several radio calls that offered slightly different locations of the MOB but they were all within a ¼ mile of each other and maybe due to the DSC location updates being broadcast as *Imedi* searched the area or the initial verbal location broadcast. I plotted them on Expedition at the time. See attached screen shot. Better radio procedures may have helped us coordinate a better search. After about an hour and half to two hours, the USCG reported on channel 16 that the SET from the original MOB location was **196 degrees**. We figured the drift was anywhere from 1 knots to 2 knots with the wind and waves. By now it was after 1600. The initial report that the life jacket did not inflate and "he went under and did not come up" was not rebroadcast on the radio again. I did not tell my crew to keep their hopes up and searching hard. "He has a blue inflatable and red foul weather gear" is all that was rebroadcast on the VHF.

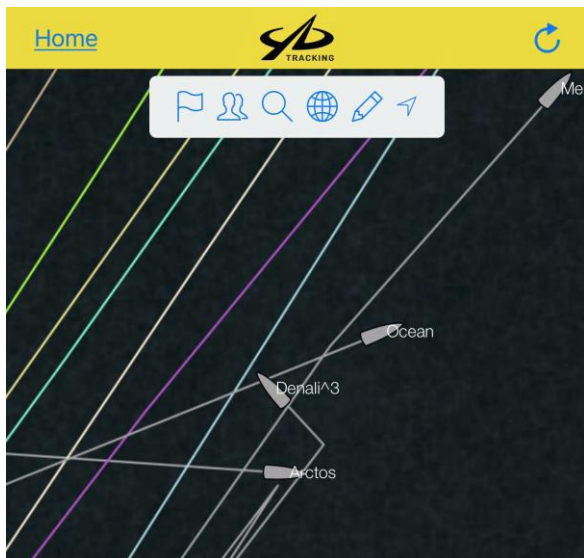
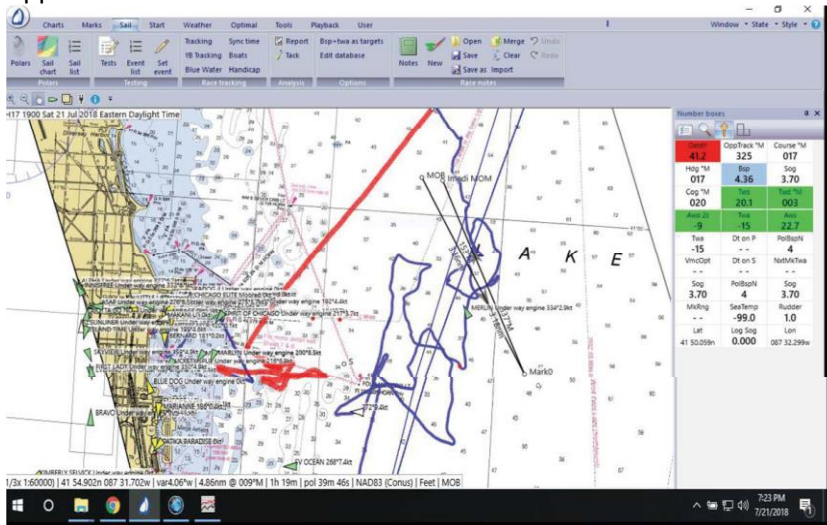
Arctos positioned itself further South of the main search group hoping to cover that area. This was about 3 nm SSW of the MOB location. By now there were about 4 or 5 **more** vessels searching including a Chicago fire department vessel and a larger (100 foot?) coast guard vessel. Boats crisscrossed

the area downwind of the initial location. Several Man overboard modules were reported found and their location given. I heard on the radio that one of the found Man Over Board modules (MOMS) was off another boat in the race. We found and passed a big NEON yellow/green MOM whose location had been previously reported on the radio – it had no identification but we left it in the water. It may have been *Imedi's* MOM or a coast guard dropped one, we don't know.

After about 3 hours, I decided that the 196 degree SET did not make sense and we went east especially because one of the reported MOMS or life jackets was found at a bearing of more like 150 degrees from the original MOB location. The wind direction and sea state were coming from 340-350, meant that the MOB would be SET east of South.

As the sunlight started to get dim we retired and powered back to CYC Monroe harbor. Our crew was emotional and physically spent and the will to continue the competition was not there.

Charles M. Bayer, Jr.
 Skipper
 SV *Arctos* USA 97999
 Appendix



ARCTOS: What we did right / what we did wrong

Radio Procedures – the information that was transmitted, particularly lat/lon positions was often different and conflicting. Several radio broadcasts were transmitting over the top of important information being disseminated (stepping on them). The Coast Guard asked for and obtained cell phone numbers for precisely this reason but left the amateurs without some information that could have been used to help. *Denali 3* should be commended for coordinating some of this information. I think if a more typical MAYDAY call went out (it may have but I did not hear it) that other boats might have dropped out to help. I am somewhat surprised that a lot more boats in the Turbo class did not hear the emergency calls and respond. Having radios or speakers on deck is important.

I am not sure if I should have turned on our DSC emergency call or not or if I should have triggered our AIS emergency buttons. Better emergency radio procedure classes/articles would have helped me perform better. A lot of traffic was on channel 16 but channel 22 (Coast Guard) and channel 11 was also used. I used channel 68 to ask other searchers (*Oceans*) to repeat the location of recovered life jackets. Dual or Quad channel monitoring/scanning would have been useful had I known how to set it up on the new radio.

Search patterns – were largely left up to the boats helping and little or no communication was provided in this area. *Arctos* chose to search areas where others were not but I am not sure our judgement was correct. *Oceans* was helpful on the radio and they set up a parallel transit about 200 yards apart with another boat (I believe *Merlin*) and did provide some direction. We did not know where to search.

Lack of Communications – At least 2 MOMs were found and information on their locations and whose MOMS they were was not forthcoming. Life jackets were also reported recovered. I will make sure that *ARCTOS'* name is stenciled on our MOM going forward – *Arctos'* MOM 9 was recently recertified but I have no way of knowing if the contents were properly labelled when it was recertified.

The Coast Guards deployment or drop of buoys was not announced or explained. I feel we could have been more helpful if we knew what efforts others were making. I understand the USGS do the SAR (Search and Rescue) for a living and involving amateurs, especially in these conditions, can lead to more problems. However the searchers from the Chicago Mack race were hopefully a little better than your average boater in seamanship skills.

Timing – I believe there was a delay of several minutes, maybe as much as 5+ minutes, between the MOB event and the call for help or the DSC button going off. I would advise asking for help immediately, period. Several boats were in the area could have gotten there sooner if the call went out immediately rather than assuming *Imedi* dropped out and then were doing 'crazy ivans' before the call went out.

Life safety equipment – I believe a small AIS is required on life jackets in some offshore races, Bermuda. I think this is an excellent idea. While costly, it might have saved a life. I personally am going to jump in a pool with my inflatable to test it and buy extra CO2 cylinders and salt tablets. Just manually blowing it up and testing that it holds air annually is not enough. The emergency auto inflate working is important – the life jacket auto-inflate might have saved him as the manual tube seems to not have been tried or didn't work – the MOB either had a shock when he hit the water or was injured and couldn't blow up the jacket manually in time.

4. Race Chair Message to Competitors

****110th CYCRTM RACE UPDATE #14****

Dear Competitors,

Welcome to Mackinac Island and the finish line of the 110th Chicago Yacht Club Race to Mackinac. Congratulations on completing a very challenging race.

Tragically, within 30 minutes of the Turbo section start on Saturday, *Imedi* reported a Man Overboard incident over the radio. Immediately, the seven nearby competitors suspended racing and assisted in the search. Nearly 20 CYC, US Coast Guard, Chicago Fire Department and Chicago Police boats and three helicopters joined the effort. It was true sportsmanship to see such an immediate outpouring of support. Thank you to the crews aboard *Arctos*, *Merlin*, *Caliente*, *Ocean*, *Arma*, *Denali 3*, *Alpha Puppy*, and *Nirvana*.

While we can't change the result of losing our friend Jon Santarelli, we can come together to honor him with a moment of silence at the Awards Presentation tomorrow. We have an amazing community amongst fellow Mac Race sailors, and we appreciate your honoring Jon's family, friends and crew during this time. To learn more, CYC Rear Commodore Nick Berberian hosted a comprehensive press conference with Chicago media that share the facts as we know them about the incident. The race website has and will continue to post updates related to Jon and the Race.

In honor of Jon and the *Imedi* team, please refrain from spreading unconfirmed narratives. We will continue to share any new information as it is available. Our thoughts and prayers are with Jon's family, friends and the *Imedi* team.

Sarah Renz

Race Chairman

110th CYC Race to Mackinac

www.cycracetomackinac.com

Appendix J: Observed Condition of COB During Rescue Attempts

Jon's Physical Condition in the water:

These are some of the crew's comments regarding Jon's condition.

1st pass: During the first pass, Jon seemed comfortable and patient as he floated on his back with his glasses still on. He appeared peaceful and uninjured cresting and bobbing on top of the waves. His arms were not flailing, and it didn't look like he was struggling. It looked like he was leaning back, relaxed. The crew could see that he was wearing a PFD, but no life jacket orange was ever visible. They yelled for him to pull the manual inflation handle, but he appeared not to hear. No one saw Jon try to inflate his life jacket, manually or orally. He never attempted to rip open the PFD to access the oral-inflate tube. He was treading water comfortably, almost smiling, and looked at one crew member straight in the eye twice. Jon was conscious and alert during the first two passes. The crew speculated that perhaps Jon did not attempt to inflate his PFD manually because he was a skilled swimmer and floating comfortably, so he did not think it was necessary.

2nd pass: They could see Jon treading water and observe that his PFD had not inflated. One crew member was yelling at Jon to pull the manual inflator. . .

3rd Pass: As they passed Jon the third time, they could see Jon flailing his arms a little and shortly thereafter he sank below the surface. One crew member saw Jon raise his arms to take the thrown line just before he went down and speculates that perhaps an air pocket was released through his sleeves, reducing his buoyancy.

Some crew members thought Jon could have donned a Lifesling while others thought he was not in a condition to do so and the only way to retrieve him was to put a swimmer in the water.

*Denali*³ crew members speculated that Jon's initial swim may have depleted his energy.

Appendix K: Instinctive Drowning Response

The Instinctive Drowning Response is what people do to avoid actual or perceived suffocation in the water and does not involve waving or calls for help as many people expect. Rather, as reported in the Coast Guard's "On Scene Magazine," signs of a drowning person are as follows:

1. *Except in rare circumstances, drowning people are physiologically unable to call out for help. The respiratory system was designed for breathing. Speech is the secondary or overlaid function. Breathing must be fulfilled, before speech occurs.*
2. *Drowning people's mouths alternately sink below and reappear above the surface of the water. The mouths of drowning people are not above the surface of the water long enough for them to exhale, inhale, and call out for help. When the drowning people's mouths are above the surface, they exhale and inhale quickly as their mouths start to sink below the surface of the water.*
3. *Drowning people cannot wave for help. Nature instinctively forces them to extend their arms laterally and press down on the water's surface. Pressing down on the surface of the water, permits drowning people to leverage their bodies so they can lift their mouths out of the water to breathe.*
4. *Throughout the Instinctive Drowning Response, drowning people cannot voluntarily control their arm movements. Physiologically, drowning people who are struggling on the surface of the water cannot stop drowning and perform voluntary movements such as waving for help, moving toward a rescuer, or reaching out for a piece of rescue equipment.*
5. *From beginning to end of the Instinctive Drowning Response people's bodies remain upright in the water, with no evidence of a supporting kick. Unless rescued by a trained lifeguard, these drowning people can only struggle on the surface of the water from 20 to 60 seconds before submersion occurs.*

(Source: [On Scene Magazine: Fall 2006](#) (page 14))

As set forth in an article by Mario Vittone, a former Coast Guard instructor and accident investigator who extensively writes about safety at sea:

This doesn't mean that a person that is yelling for help and thrashing isn't in real trouble – they are experiencing aquatic distress. Not always present before the instinctive drowning response, aquatic distress doesn't last long – but unlike true drowning, these victims can still assist in their own rescue. They can grab lifelines, throw rings, etc.

Look for these other signs of drowning when persons are in the water:

- Head low in the water, mouth at water level
- Head tilted back with mouth open
- Eyes glassy and empty, unable to focus
- Eyes closed
- Hair over forehead or eyes
- Not using legs – Vertical
- Hyperventilating or gasping

- Trying to swim in a particular direction but not making headway
- Trying to roll over on the back
- Appear to be climbing an invisible ladder.

So if a crew member falls overboard and everything looks OK – don't be too sure. Sometimes the most common indication that someone is drowning is that they don't look like they're drowning. They may just look like they are treading water and looking up at the deck. One way to be sure? Ask them, "Are you alright?" If they can answer at all – they probably are. If they return a blank stare, you may have less than 30 seconds to get to them. And parents – children playing in the water make noise. *When they get quiet, you get to them and find out why.*

<http://mariovittone.com/2010/05/154/> (Note: Vittone expressly disclaims any copyright protection for his article.)

[Appendix L:](#) **Summary of Findings of Medical Examiner's Report**

Members of the Committee reviewed the entire Report of Postmortem Examination of Jon Santarelli that was conducted by the Office of the Medical Examiner for Cook County, Illinois on July 29, 2018.

The detailed report concluded that there were “no significant recent injuries” and no fractures were detected in the head, chest, abdomen, or pelvis. The cause of death was found to be drowning.

[Appendix M: Other Statements](#) (USCG Matt James, CG Lake Mich. Leanne Lusk,)

Statement from CWO 3 James, Commanding Officer, Calumet Harbor:

Jay,

From Calumet Harbor:

Shortly after being released from Patrol Commander duties enforcing the safety zone for the race start, three Station Calumet Harbor response boats were either mooring or in the process of mooring when two of the crews overheard the VHF-16 radio call relaying the distress call from S/V *IMEDI* at 1145L. One response boat-small (RBS) diverted from the Chicago Locks and proceeded to the reported position of distress. The response boat-medium (RBM) got underway from the Chicago Maritime Safety Station as well. At 1500, the RBS was forced to return to Chicago Harbor due to the waves exceeding 6' which is beyond the vessel's operational limitations. The second RBS did not divert because they were already at fatigue limitations. The RBM arrived on scene at 1525L and began conducting search patterns and coordinating with other responding agencies. The first RBM crew had been underway since early that morning and were approaching fatigue policy limitations. The command directed a second crew to get underway and relieve the first RBM. The second crew relieved the first crew on scene at 1711L. They remained on scene and conducted search patterns and on scene coordination until they were released from the search at 2025L. Sector Lake Michigan suspended our involvement in the case that night. We were notified by CPD that the victim had been recovered by divers on 28JUL18.

Station Calumet Harbor command and crew works continuously with CPD, CFD, and other local partners to improve our responses to on the water emergencies. The command reviewed this incident informally with CFD Marine and Dive operations Chief and plan to incorporate this scenario and similar ones into joint training leading into the 2019 boating season. We also plan to continue to support any and all requests from the Chicago boating community to conduct outreach and safety training.

From a command perspective, this loss affected the crew deeply. We work to be the best-prepared and effective partner in the Chicago marine response community. Losing a fellow mariner from our community hurts. We continue to offer our thoughts and prayers to Mr. Santarelli's family and friends.

Available to chat if you need more info.

V/R,

CWO3 Matt James

Commanding Officer

USCG Station Calumet Harbor

Station (small) Chicago

773-768-4093

Statement from CDR Leanne Lusk, Deputy Sector Commander, Coast Guard Sector Lake Michigan:

Jay,

My initial report timeline is a bit different than what Matt reported...I have the following:

At 2:38pm on July 21st, the Coast Guard received notification from the Sailing Vessel *IMEDI* of a man overboard, approximately 4 NM northeast of Navy Pier in Chicago. The Coast Guard then issued an urgent marine information broadcast and launched Coast Guard assets, including a small boat from Station Calumet Harbor, and a helicopter from Air Facility Waukegan. A second small boat from Station Calumet Harbor relieved the first, and another helicopter from Air Station Traverse City relieved the Air Facility Waukegan aircraft. In addition to Coast Guard assets, two Chicago Fire boats and one helicopter, a Chicago Police Marine Unit boat, two Chicago to Mackinac race committee boats, and at least eleven other race participants contributed to the search efforts.

Given the fact that Mr. Santarelli was witnessed submerging and not resurfacing after falling overboard, and numerous boats and aircraft were unable to locate any signs of him on the surface of the water, the Coast Guard made the difficult decision to suspend the search at 9:15pm (CST) on July 21, 2018.

At 12:17pm on July 28th, the Coast Guard was notified via Chicago 911 dispatch that a body had been located approximately 4 NM east of the Chicago Harbor Entrance. A Chicago Police Marine Unit responded to the call and recovered the body and brought it back to CMSS for transfer to the Coroner's Office, noting that it met the description of Mr. Santarelli.

V/R,

CDR Leanne Lusk

Deputy Sector Commander

Coast Guard Sector Lake Michigan

Desk: 414-747-7157

Cell: 414-312-1589

[Appendix N: On Water Director's Statement](#), Jay Kehoe

Leading up to the start of the Racing Start of the Chicago Yacht Club Race to Mackinac on July 21, we monitored the forecast with diligence, knowing that it looked windy. Our pre-race plan was one of prep, for both sailors and organizers: Mac Emergency Action plan, updating and pushing out the forecast as it moved, ensuring competitors knew how bad it could be and definitely playing up the forecast with hopes it would help the sailors prepare for the forecasted weather.

Pre-race preparations: with the forecast calling for strong winds and big seas we updated our Mac Emergency Action plan (in folder).

We updated and enhanced the Competitors meeting presentation with appropriate warnings: check your safety gear, know your limits, review your personal safety plan. These statements were stated several times in both the Cruising Fleet Competitors meeting and Racing Fleet meeting.

Chris Bedford, the official Mac Race Meteorologist, also went online and in person at both meetings advising competitors of the predicted forecast and the likelihood of significant waves and wind, with a strong message that this was not a forecast to be taken lightly.

On the morning of the race, I prepared the RC and PRO for the conditions we would likely experience. We moved RC personnel around to make sure all members were in the safest roles and PFD's were worn if on deck. Race committee left Monroe at 0900 to set up for the start of the race, including a parade of sail in front of Navy Pier.

Conditions at the start were challenging, with waves approximately 6-12' and wind speed of 18-25 kts out of 330 degrees. Unlike previous races, we had most of the fleet sail inside the outer breakwater to avoid the high waves and wind. In previous races we had most of the top boats sail upwind outside of the Starting box looking at sails. In 2018 this did not happen.

All classes went off without a hitch with most boats well off the line, several high-performance boats were reefed and most had up a #3 or #4 jib.

Approximately, 10 minutes after the last start (1410) we broke down the line. Both Signal boats had a significant amount of anchor rode out, so it did take a few minutes.

Both signal boats arrived at Monroe St Clubhouse at approximately 1430. At this time we removed equipment from borrowed Pin boat and moved RC Volunteers to transportation to the Island.

At approximately 1440 I received a call from Mac Chair Sarah Renz, sailing onboard Merlin. She informed me that she saw *Imedi* doing what looked like a 720. We later learned that this was an attempt to pick up a man overboard. At 1445 I received a call at the front desk of the Chicago Yacht Club, from the US Coast Guard, stating there was a man overboard on *Imedi*.

I informed our Rear Commodore and General manager and Communications team. We activated the Mac Emergency Action Plan (MEAP) in Gold level.

I asked three boats to help with looking for the MOB, and they went out to look. These were expert mariners. Our Race Committee boats that had been on station had less than 30% of fuel left and the decision was made to not send those boats out.

I moved up to the Board Room at CYC where I remained managing the situation with the Communications team via Cell Phone and VHF. It was very difficult to manage some of the rescue boats with handheld VHF and extremely difficult to locate *Imedi* via the tracker.

At approximately 1930 almost darkness, I moved from Monroe to Belmont to try and meet Merlin, one of the boats involved in the search. At 2000 I got on the road to Mac Island. With the forecast and the speed of the boats, it was imperative that I leave to be on Island at the finish of the first boat.

On July 28, I received a phone call from (USCG) Commander Lust that Jon's Body was recovered and was being transported to the Medical Examiner's office. On August 1, I received a call from Commander Lust that the body was cremated, and all personal effects were destroyed including Jon's PFD.

Lessons learned from On Water:

Implement a table top emergency plan with CFD, CPD and Coast Guard. Make sure everyone knows what the plan is when things go bad. This should not only involve Station Calumet but also Milwaukee command center. All agencies should be in agreement over the Mac Emergency plan.

All RC going out on the water should wear a PFD. We required it for RC roles that were exposed to the elements, but this should have been mandated for everyone.

Communication cards for all stakeholders must be distributed to all agencies with instructions to go to their watch standers.

Sat phones are needed and only should be used if there is a power failure on the island.

Appendix O: Committee Members:

Christopher Thomas, Committee Chair: Vice Chair Race to Mackinac 2018-2019, Chief Inspector Race to Mackinac 2018-2019. 20 years offshore sailing and racing experience including participating in many Chicago to Mackinac races and owning Tartan Ten and Melges 32 racing boats.

Nicholas Berberian: Chicago Yacht Club Rear Commodore and Spokesperson who provided insight and support to the committee on many levels.

Sally Lindsay Honey: Chair, US Sailing Safety at Sea Committee; member, World Sailing Special Regulations Sub-committee; two-time winner of US Sailing's Yachtswoman of the Year award. A lifetime of racing and cruising from national and world championship one-design regattas to oceanic races including multiple Farallones, Transpacs, Pacific Cups, Bermuda and Race to Mackinac races. Honey worked for North Sails before running her own sailmaking and industrial sewing business. She chaired the US Sailing Independent Review Panel Inquiry into the Low Speed Chase Capsize during the Full Crew Farallones Race on 14 April 2012.

Jay Kehoe: currently CYC On-the-Water Director, Jay leads the volunteer Race Committee at Chicago Yacht Club and manages all the on-water assets and events. Prior to this, Jay served as On-Water Manager, 35th America's Cup, Bermuda (2017); Waterfront Director at Annapolis YC ('08-'13), where he helped run the Annapolis to Newport race and sailed aboard TP 52 Flying Jenny; Education Director at Oakcliff Sailing ('13-'14) where he led Saplings and Acorns on the Block Island Race and Marblehead to Halifax, organizing and teaching safe boat handling and sailing; Head Sailing Coach at Stanford University ('01-'08), Yale University ('97-00), and US Merchant Marine Academy ('00-01). His certifications include: US Sailing National Race Officer, Level 3 Sailing Coach, US Powerboating Safe Boat Handling Instructor. He's a member of the Storm Trysail Club.

Matt Knighton: 2014-15 Volvo Ocean Race, Onboard Reporter, Abu Dhabi Ocean Racing; 35th America's Cup, Communications Director Softbank Team Japan; 36th America's Cup, Communications Director Stars + Stripes Team USA. Knighton grew up sailing on Lake Michigan and has extensive experience racing with TP 52, Turbosled, and Maxi campaigns since 2010 predominantly on the West Coast and Great Lakes having competed in three Chicago Yacht Club

Race to Mackinacs. Experienced in action sports and high-risk media production, his career includes an extensive amount of work offshore including in the Ultim and Imoca 60 classes as well as with experimental foiling stunts such as the Red Bull F4.

Shawn O'Neill: Lifelong sailor, racing one-design small boats since 1976, offshore boats since 1979 and a forty-year Chicago Mac Race veteran competitor. Currently co-owns and actively campaigns a Sydney 38 in the Chicago area. A twenty-one-year Chicago Yacht Club Race to Mackinac Committee Member. Responsibilities on the Committee have included Chairman, Vice-Chairman, and Selections Sub-Committee. Also helped with the formulation of competitor race documents such as Safety Regulations, Notice of Race & Sailing Instructions. Professional background is in the insurance industry and has owned his State Farm Insurance Agency for the past 25 years.

Sarah Buckley Renz: Chair, Chicago Yacht Club Race to Mackinac 2018-2019; Experienced race organizer and communications specialist specifically for America's Cup World Series Chicago, Bermuda Gold Cup, Swedish Match Race Tour and CYC Race to Mackinac in the sailing category. Executive Director of Endeavour Chicago (STEM + Sailing for inner city youth) and Chair for 2018 & 2019 CYC Race to Mackinac. Renz is a proud College of Charleston alum and currently an avid competitor in one-design (J/70 Corinthian) and offshore racing (Farr 40 & Turbo sections) with 17 years of Mac Race experience.

Ronald White: 40 years offshore sailing and racing experience including extensive multihull racing background. US Sailing Director, October 2015 to present; US Offshore Committee Chair, November 2016 to present. Past Chair, Race to Mackinac 1999 & 2000; Chief Measurer, Race to Mackinac 2002-present. Ron has owned and skippered many racing boats including *Cheekee Monkee*, 2006-2012. Currently Navigator: *Areté*, ORMA 60.