

Report on rudder loss incidents in the 2022 Rolex Sydney Hobart Yacht Race.

This report is produced in accordance with World Sailing [Regulation 38](#) and Australian Sailing [Special Regulations Part 1, 2.02.5](#) for Safety Reporting.

Australian Sailing is committed to learning from these incidents and sharing these learnings with other clubs throughout Australia.

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Summary

Four boats experienced loss of a rudder fin in the 2022 Rolex Sydney Hobart Yacht Race. Three were due to impact with an underwater object, one was other general failure. Three had a single rudder fin, one had twin rudder fins. There were no critical injuries because of the incidents.

Before the race

1. All four boats provided the Organising Authority evidence of structural inspection of the keel and rudder fins in accordance with the Special Regulations and race documents.
2. For the boat experiencing general failure, the rudder has been inspected of the boat 4 times in 4 years and inspected by shipwrights and the owner. There were no signs of any stress or wear, and the boat has custom built JP3 self-aligning bearings that allow the stock to flex under load.

The incidents

Four boats experienced loss of a rudder fin in the 2022 Rolex Sydney Hobart Yacht Race. All four incidents happened during daylight hours and in different conditions.

- 06:20 in 30 knots with 2.5m waves
- 07:00 in 30 knots with 5.5m waves
- 13:00 in 25 knots with 2.0m waves
- 16:30 in 20 knots with 1.5m waves

Three were due to impact with an underwater object, one was general failure.

3. The boats that experienced impact reported:
 - a. *"Hit object and rudder lost. All crew thrown forward when impact made. Inspection below deck to see if any ingress of water. No Ingress of water. All sails brought down and secured. Pan-Pan urgency call was made. Drogue deployed and engine started, and tried to steer in a West direction. Not successful but drogue used to slow us down in the sea state. Police Rescue arrived and commenced tow to Eden. 24 hrs later we arrived at Eden."*
 - b. *"At the time the mandatory position report was underway with race control so our navigator was on the radio and we were able to immediately notify them of our situation. Race control coordinated assistance for us immediately (tow). On deck once the rudder was lost, sails were lower and secured and the drogue was deployed from the bow. Initially we were of the understanding that the police boat was on their way however sometime later we were advised they had been diverted to a more serious medical emergency. Sometime during the afternoon, were advised that the police boat was on its way however they would be picking up the crew off another boat who had also lost the rudder about 20nm east of us. the advice was that both boats would be abandoned at sea with tows to be organized in the days that followed. We did not receive direct contact from the police boat until they were about 20 minutes away. This was at about 5pm."*
 - c. *"The boat is equipped with twin rudders. Whilst the damaged rudder made steering difficult because the blade was pushed up into hull and the twin rudders are not independent, we were able to return to Sydney motor sailing with reduced steerage."*
4. The boat experiencing general failure reported:
 - a. *"Boat spun around 180 violently and ended up stern upwind. Pulled down sails. Tried drogues, storm gear in water with chain, tried spin pole out beyond the stern with a topping lift to hold blade down with and without a board attached, nothing worked under motor or sail, could not get boat to go in a straight line."*
5. Only one boat reported water ingress. This occurred when the stern was submerged and was because the stock was fragmented. Rudder bearing seal, however, was fine. The other boats reported that there was no water ingress related to their rudder failure.

Emergency methods of steering

The boats relying on emergency methods of steering reported:

6. *"The single drogue worked only to a point in the sea state and the wind. It did have us heading towards land but with very little control."*
7. *"Having deployed the drogue (emergency steering device) from the bow to steady the boat initially, we discussed at length the logistics and safety of trying to retrieve the drogue to set up and reset from the stern for emergency steerage. We decided that it was too unsafe to firstly try to retrieve the drogue and secondly we did not feel that the drogue would be an effective means of keeping the boat on a straight course in the sea state. Without a doubt the boat would have been out of control broaching on every wave. It was challenging enough keeping a straight course when the rudder was attached."*

Other comments concerning emergency methods of steering included:

8. *"Certain sterns have no room to place an emergency rudder system. The drogue system would be the only system that could have worked."*
9. *"Having 2 drogues operating may have allowed us to have better control."*
10. *"Many emergency steering systems under Special Regulation 4.14.2 will only, maybe, work in flat water in the harbour at night when it is dead still. From our experience you can't motor or*

sail in waves. My belief is Cat 1 should be the same as Cat 0 and you need a stern hung rudder box that can be installed with pintles and gudgeons and then you can slot a blade in it vertically to motor / sail to port; nothing else works."

Communications

The boats provided the following comments on communications with other boats, the Race Committee or emergency services:

11. *"We had a very experienced crew. There was no panic and everyone went to the roles in the emergency. Communications was good with all services. We had one boat come and stand by with us, they stayed until we were certain that the hull was secure and no water was not going to ingress we gave them the okay to go."*
12. *"I believe communication was good and sufficient leading up to and during the rescue. I did not receive any follow up from CYCA after the ordeal. My emergency contact was informed immediately when the incident occurred and were kept up to date throughout the day however the CYCA did not contact any of the crew's emergency contacts which I think is a process that should be reviewed. Neither the police nor tow operator gave any advice on setting up towlines to enable the towing of the boat. Having never been a position of needing to abandon the boat we were not aware of how to do this in a safe and effective manner."*
13. *"We made contact with Race Control (radio relay vessel) to announce our retirement 15 minutes after collision."*

Safety and Sea Survival Course

The boats provided the following comments on the Sea and Safety Survival Course (SSSC):

14. *"One of our crew set up a very good bridle system for the tow. It was ready when the Police rescue arrived and it took less than 10 minutes to get attached to the police tow and on our way. That bridle system worked perfectly for the 24hr tow. We had also had enough time to totally secured every sail and line on the boat before the rescue tow arrived. Therefore the tow set up was quick and stress free, the tow went smoothly with no problems, especially when wind increased to 35knts and big seas. We continued our watches and routine all the way to Eden."*
15. *"I do not recall emergency steering forming part of the course I completed however I do not think that is something that can be taught in a classroom."*

Other comments

The boats provided these further comments:

16. *"The important thing is not to panic. Deal with the issues you have in front of you. Secure your vessel and crew safety is number one."*
17. *"Make stern hung temp rudder boxes and separate blades mandatory The reason it needs to be a cassette is because you can't attach the pintles to the gudgeons at sea with a fixed blade."*
18. *"A proper emergency rudder (on boats without twin rudders and/or spinnaker poles), and not just a drogue-style drag device, should be considered mandatory safety equipment."*
19. *"Sounds easy but it wasn't!"*

Findings drawn from the incidents

20. Rudder loss, due to impact or other failure, is an inherent risk in offshore racing.
21. There were no findings on the cause of the impacts. Anecdotal reports from offshore crews indicate these are sharks, sunfish, pallets, drums, fishing floats and nets, tree trunks, dolphins and whales. The use of Acoustic Deterrent Devices as used on the IMOCAs in the last Vendee (2020-21) may reduce the likelihood of cetacean or other large fish strikes. This technology should be interesting to boat owners.
22. A boat's design and structure, and the availability of spars and points of attachment are factors which limit what emergency methods of steering can be used effectively.
23. The most reliable method of emergency steering is a stern hung rudder box with a dagger rudder blade.
24. Crews practiced at deploying and operating a boat's emergency steering in unfavourable conditions are more likely to effectively use that method, or make an informed decision to change the method.
25. Crews who understand towing systems that work for their boat are able to assist emergency services in the case of emergency.
26. Neither World Sailing's [Offshore Special Regulations Appendix G Model Training Course](#) [Offshore Personal Safety](#), nor Australian Sailing's [Special Regulations Part 1, 6.01.1 Training](#) explicitly mention emergency methods of steering. Certain training providers cover the topic at their own initiative.
27. World Sailing and Australian Sailing are not aligned on which race categories require emergency methods of steering. World Sailing require this to Category 3 races, but Australian Sailing to Category 4 and 5 Night. Neither prescribe which method of emergency steering must be used by a boat.
28. An Organising Authority's communications with crews affected by an emergency have an impact on their wellbeing.

Recommendations

29. Australian Sailing communicate to clubs the imperative to have appropriate levels of support in place for crews personally affected by an emergency.
30. Australian Sailing amend its Special Regulations to align the race categories requiring emergency methods of steering with World Sailing's requirements.
31. Australian Sailing communicate with boat owners and crews on:
 - a. Emergency methods of steering.
 - b. The need to test them and practice in unfavourable conditions.
 - c. The need to determine practical towing systems for their boat.
 - d. The emerging use of Acoustic Deterrent Devices.
32. Australian Sailing communicate with Safety and Sea Survival Centres on emergency methods of steering and where in the syllabus it can be included.
33. Australian Sailing consider amending Special Regulation 6.01.2 to add routine training for the use of emergency methods of steering.

This report has been produced by Glen Stanaway with the assistance of Stacey Jackson and Shane Connelly APM and the cooperation and contributions from the boats that experienced rudder loss.

22 June 2023