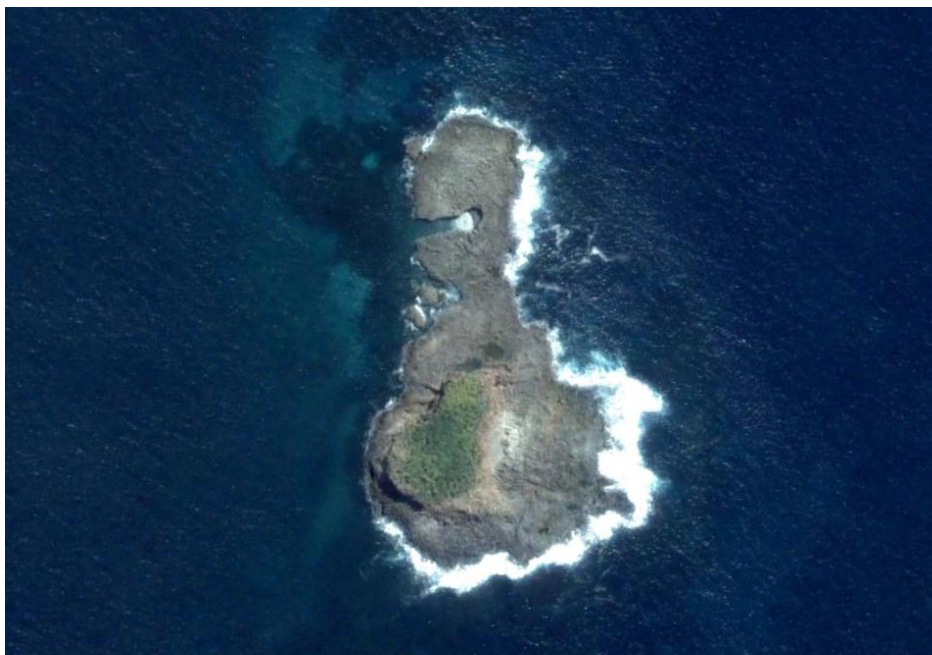


FLINDERS ISLET YACHT RACE INQUIRY

Cruising Yacht Club of Australia Internal Inquiry



Oxenbould, Kellett and Brooks

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LIST OF ACRONYMS

AIS	Automatic Identification System
AMSA	Australian Maritime Safety Authority
Cat 1,2,3,4	Offshore Yacht Racing Categories 1,2,3,4
CEO	Chief Executive Officer
CYCA	Cruising Yacht Club of Australia
DOP	Dilution of Precision
DSC	Digital Selective Calling radio system
EDST	Eastern Daylight Saving Time
EM	Emergency Management
EMT	Emergency Management Team
EPIRB	Emergency Position Indicating Radio Beacons
GPS	Global Positioning System
Group 1 Cat 2	Comprising Sydney to Gold Coast and Sydney Offshore Newcastle Races
Group 2 Cat 2	Comprising 2 Flinders Islet Races, 1 Bird Island Race and 1 Cabbage Tree Island Race
HF	High Frequency radio transmissions – beyond line of sight
LOE	List of Entries
MAC	NSW Police Marine Area Command
NPC	Newcastle Port Corporation
PBX	Private Branch Exchange telephone system
PFD	Personal Flotation Device
PKPC	Port Kembla Port Corporation
PLB	Personal Locator Beacon
PLL	Personal Location Light
POB	Persons on Board
PwC	The yacht <i>Pricewaterhouse Coopers</i> formerly known as <i>Shockwave V</i>
RC	Race Committee
RO	Race Officer
RORC	Royal Ocean Racing Club
RRS	Racing Rules of Sailing
SAR	Search and Rescue
SlS	Sailing Instructions
SOLAS	Safety of Life at Sea Regulations
SOPs	Standing Operating Procedures
SPC	Sydney Port Corporation (Sydney Harbour and Port Botany)
SSSC	Safety at Sea Survival Course
UTC	Coordinated Universal Time
VHF	Very High Frequency radio transmissions – line of sight
VTIC	Vessel Traffic Information Centre
YA	Yachting Australia
ZOC	Zone of Confidence

INTRODUCTION

Terms of Reference

1. The Board of the Cruising Yacht Club of Australia (CYCA) provided Terms of Reference on 17 November 2009 for an Internal Inquiry into the Flinders Islet Yacht Race Incident that occurred in the race conducted 9 /10 October 2009.
2. The specific incident to be investigated occurred at about 2.35am on Saturday 10 October 2009, when the boat *Pricewaterhouse Coopers (PwC)* was lost after running aground on Flinders Islet. Club Members Andrew Short and Sally Gordon perished in the loss of the vessel. The remaining crew members were rescued and some had to be treated for exposure and minor injuries.
3. On 19 November the Commodore advised all members by email of the inquiry and invited written submissions. A copy of the Terms of Reference is at Annexure A.
4. In the same race there was a second incident involving a person overboard from the boat *Patrice Six*. The person was safely recovered after spending about 12 minutes in the water. The Inquiry also examined this incident to determine if there are any lessons from it which are relevant to the more general directions of the Terms of Reference.
5. A preliminary report was requested by 12 December, primarily to see if there were any early findings that should be incorporated into the 2009 Rolex Sydney Hobart Yacht Race. That report concentrated on what happened on the night of 9/10 October and was provided on 13 December. The final report was requested by 31 December but this deadline was extended by the Commodore to 26 January 2010, following an approach from the Chair over some delays being experienced in obtaining information necessary for a more detailed analysis.
6. This final report supersedes the preliminary report.

Inquiry Committee

7. The Terms of Reference nominated Rear Admiral Chris Oxenbould AO RAN (Rtd) as the Chair of the Inquiry. Following consultation between the Chair and the Board, Past Commodores David Kellett AM and John Brooks were approached and agreed to form the Inquiry Committee. Brief resumes of the three committee members are at Annexure B.
8. The Inquiry committee interviewed over 30 people representing *PwC* and other yachts participating in the race as well as people who were involved in the conduct and administration of the race and experts in some of the areas considered. The committee also received three submissions within the nominated time and a further two following the release of the preliminary report. Lists of the people interviewed and those who provided submissions are at Annexure D.

Cooperation with Police Inquiry

9. The Marine Area Command of NSW Police is also investigating the incident at Flinders Islet and preparing a report for the Coroner. Members of the Inquiry committee met with the detectives involved with the investigation and there was a free exchange of information. The detectives indicated they were due to report to the Coroner in the second week of January 2010. They indicated that an extension to that time might be sought and also commented that they did not expect a criminal investigation into the accident.

10. The detectives advised the Inquiry that in keeping with the requests from both families, no autopsies were conducted on the deceased crew members and that on the information provided the Coroner was satisfied that the deaths occurred due to drowning.

DEDUCED FACTS

Race Organisation

11. The Flinders Islet Race, which started on Friday 9 October 2009, was the third race of the 2009-2010 CYCA Blue Water Pointscore. The CYCA was the Organising Authority for the race and it was classified as a Category 2¹ (Cat 2) event. The CYCA Sailing Program 2009-2010 incorporates the Notice of Race and Sailing Instructions. The race was governed by the Racing Rules of Sailing 2009-2012 and other associated rules. Specifically boats and crews were governed by the prescriptions and special regulations of Yachting Australia.

12. In accordance with the Sailing Instructions the Sailing Committee of the CYCA was the Race Committee for the race and was responsible for conducting the race as required by the rules. The Race Committee was assisted by the Sailing Office of the CYCA in the administration and conduct of the race.

13. The Sailing Program describes two different types of Cat 2 races. The first group of Cat 2 comprises the Sydney Gold Coast Yacht race and the Sydney Offshore Newcastle race. The second group of Cat 2 races comprise 1 Bird Island race, 2 Flinders Islet races and 1 Cabbage Tree Island race. The main differences are that the first group have separate and specific Notices of Race and Sailing Instructions, a nominated Race Chairman and Race Committee (separate from the Sailing Committee), a nominated Vetting Committee to check all documentation provided by competing boats, a designated Emergency Management Team, a weather briefing before the race and a radio relay vessel.

14. In the second group of races the vetting of race documentation for competing boats rests with the Sailing Office and checked as required by the Race Chairman and Race Committee, in effect the

¹ Category2: Offshore races of extended duration along or not far removed from shorelines or in large unprotected bays or lakes, where a high degree of self-sufficiency is required of the boats.

Sailing Committee. The Emergency Management task rests with the club's management. The administration for this group of races is more closely aligned with the administration for a Cat 3² race and certainly different from the first group on Cat 2 races.

15. For the Flinders Islet race starting on Friday 9 October, Denis Thompson was appointed by the Race Committee as the Race Officer to conduct the race. John Hurley is listed in the Sailing Program as the Principal Race Officer but he was undergoing treatment for a serious illness and was unable to perform the duties. John was, however, involved as the Acting Sailing Manager. Denis is a very experienced and well respected race officer but this was his first experience as Race Officer for a CYCA Cat 2 event. He provided a report following the race and it is at Annexure D. Stephen Craig, a member of the Sailing Office staff, was designated as the Sailing Office contact and was on call to assist from ashore as required.

16. The Sailing Office has been very helpful to the Inquiry and provided a dossier of useful information. The Inquiry interviewed the Acting Sailing Manager, John Hurley, and the Race Officer, Denis Thompson. We also discussed the administration and conduct of the race with the Chair of the Sailing and Race Committees, Rear Commodore Gary Linacre and the CYCA Chief Executive Officer, Mark Woolf.

17. The Sailing Office has experienced considerable staff turmoil with the Sailing Manager on maternity leave and the Acting Sailing Manager dealing with a serious medical condition and receiving ongoing treatment. The supporting staff is quite small and with a mixture of experience. They are committed and keen and are doing a reasonable job under testing circumstances which are typical for the task – a hectic office with many competitors providing incomplete documentation late. The Race Chairman and Club CEO expressed some reservations over the current arrangements in the Sailing Office.

18. The Race Officer was embarked in the committee boat *Offshore* and started the race as programmed in the vicinity of Point Piper. After the start *Offshore* returned to the CYCA clubhouse to disembark crew not required to remain on the boat overnight and returned to the finishing line at the entrance to Rushcutters Bay. Denis Thompson and Steve Kidson, a volunteer race official, remained on the vessel and maintained watch on the race HF³ and VHF⁴ radio frequencies. The Race Officer had a personal laptop computer with internet access to gain the latest weather information.

19. The communications available were not fully effective. The Race Officer was unable to monitor the person overboard situation from *Patrice Six* on VHF Channel 16 or establish HF communications with a boat that reported the sighting of the flares from the crew of *PwC*. The Race Officer's telephone

² Category 3: Offshore race across open water, most of which is relatively protected or close to shorelines.

³ HF: High Frequency radio transmission used for long range communications beyond the line of sight.

⁴ VHF: Very High Frequency radio transmissions used for shorter range communications, generally limited to the line of sight between aerials.

number was not promulgated to emergency authorities, interested third parties, the nominated emergency contacts for boats or more widely to the fleet and the families of the crews. A mobile number for *Offshore* was listed on the Green Sheet⁵ with a limited distribution. A safety schedule was conducted at 5 minutes past midnight and a full race schedule at 7.05am on HF 4483 KHz in accordance with the Sailing Instructions. The Race Officer did not have telephone numbers for each competing boat to use as a backup.

20. The Race Officer was also limited by the information he had readily available. He was provided with a clipboard containing a list of competitors with sail numbers and the number of persons on board (POB), radio schedule sheets, finishing sheets, changes to the Sailing Instructions and the latest weather information. There were no further details of persons on board, boat emergency contacts, boat telephone numbers or any other specific boat details. Three sets of clipboards with the information provided by the Sailing Office for the Race Officer and the other race officials were onboard *Offshore*.

21. If any more detailed information was required the Race Officer was to obtain it from the Sailing Office through Stephen Craig, the designated contact and he was available in the office until after the start and then on call by phone.

22. There was a mistake in the data on 2 of the 3 clipboards. One clipboard had been amended to reflect late changes to crew lists and the number of POBs. The boats affected were *PwC* and *Tow Truck*. The crew of *PwC* had been increased from 15 to 18 and this was noted on one clipboard but not the other 2. Importantly the change had not been made on the clipboard provided to the Race Officer. The correct numbers were shown on the clipboard of the radio operator who was verifying the number of POB prior to the start and who assumed the Race Officer had the same information. This subsequently added to the confusion when trying to confirm the numbers onboard *PwC* and the numbers missing. When the Race Officer was asked by the police to verify the numbers on board *PwC* he consulted his clipboard and reported 15 unaware that this was incorrect due to the late amendment.

23. Following a cursory examination, other gaps and minor errors were identified in the documentation. On *PwC's* crew list, for example, 2 crew members did not have their Personal Locator Beacons (PLBs) listed and the weight and age for Nicholas Short was wrong. Furthermore one of the PLBs activated by the crew after the grounding was not registered with the Australian Maritime Safety Authority (AMSA) and consequently there was no nominated point of contact to be informed of the emergency.

24. The collation and gathering of all the information necessary for a Cat 2 event is very manual, time consuming and tedious. Furthermore it is not easily accessible and is difficult to audit and check. The recent requirement for each crew member to have a registered PLB for Cat 2 races has added

⁵ Green Sheet: An Information sheet provided to all boats before a race confirming race requirements and providing notices to competitors, list of entries and handicaps and important contact numbers

considerably to this task. There is a strong argument to develop a more automated system of submitting, collating and displaying race documentation.

25. A separate but significant issue was that neither the Race Committee nor the Sailing Office informed any external authorities or interested parties that the race was being conducted. There was an apparent misapprehension that this would be done by NSW Maritime based on the sailing program that was submitted as part of the application for an Aquatic Licence to conduct the CYCA's races. This is not the case and consequently the NSW Police, Marine Area Command (MAC), the State Emergency Services, Sydney Port Corporation (SPC) and Port Kembla Port Corporation (PKPC) did not know the event was being conducted.

26. This was particularly critical for the PKPC as they had six shipping movements planned for that evening and Flinders Islet is immediately adjacent to the entrance channel for Port Kembla. In rounding the islet yachts are required to enter and cross the shipping channel. In itself this should not be a problem as commercial shipping and racing yachts mix quite commonly in Sydney Harbour, Botany Bay and Newcastle Harbour as well as overseas in far more congested waters. The residual risk can, however, be mitigated further by forewarning shipping and yachts that they will be operating in the same waterway at the same time.

27. The CYCA conducted a Debrief of the Flinders Islet race on Friday 30 October which was chaired by the Commodore, Matt Allen and a copy of the Minutes from the meeting are at Annexure E. The recommendations from that meeting are discussed as part of the Inquiry's analysis and findings at paragraphs 129 to 130.

Weather

28. A complex low pressure system in the Tasman Sea and a strong high to the southwest of Tasmania created a strong wind gradient on the east coast of NSW and across the race course in the days preceding the race. Gale force⁶ winds and very heavy seas were experienced earlier in the week and a strong wind warning⁷ was in force for all NSW coastal water and Sydney closed waters immediately preceding and at the start of the race.

29. The strong wind warning for the race course area was relaxed by the Bureau of Meteorology shortly after the start at 10.00pm on Friday 9 October. The prevailing forecast for the remainder of Friday was updated at this time for winds from the south at 20/25 knots easing, with seas of 2 to 2.5 metres on an abating swell of 3 to 4 metres, breaking dangerously inshore. The forecast for Saturday 10 October was south to south east winds 10-20 knots and easing later in the day with seas of 1 to 2 metres

⁶ A Gale Warning is a statement which warns of winds averaging from 34 knots and up to 47 knots in coastal waters and high seas areas.

⁷ A Strong Wind Warning is a statement which warns of winds averaging from 26 knots and up to 33 knots in coastal waters.

abating to less than 1 metre on a south east swell of 2 -3 metres. The minimum overnight temperature at the airport was less than 11°C.

30. The rough weather preceding the race led to a meeting of the Chairman of the Race Committee, Gary Linacre, and the Race Officer, Denis Thompson on Thursday and a further conversation on Friday; to consider appropriate actions should extreme weather prevail. In view of the improving weather forecasts and the conditions being experienced no action was considered necessary and the race started as programmed.

Pricewaterhouse Coopers Incident

31. This account of what happened has been obtained from talking with five crew members of *PwC* and briefly with Kylie Short. All of these people interviewed spoke freely about the incident and there was a very large degree of consistency in what they reported. There were some minor differences in the accounts after the boat grounded which reflect the shock and confusion at the time. The Inquiry is reporting what it believes to be the most likely sequence of events.

Pre-Start

32. Preparation for the race was fairly routine and normal for *PwC*. The boat was berthed at the CYCA marina at Rushcutters Bay and during the day crew members brought their gear onboard and gear was offloaded that would not be needed for the race. Late in the afternoon of the Friday 9 October, at about 4.30pm, the crew list was amended to add three extra members – Peter Geddes, Nicholas Short and Mitchell Short. This change was permitted at the Race Committee’s discretion and allowed by the CYCA Sailing Office.

33. The total crew was now 18. Andrew Short was to sail as the skipper, principal helmsman and navigator, Matt Pearce was providing advice on tactics and Gary Vaughan was part of the afterguard⁸. Sally Gordon was a member of the crew and was an experienced navigator but she was new to the boat and not used in this role.

34. The crew was experienced and knew the boat well having sailed and campaigned it extensively since it was purchased in 2008. About 11 of the crew were regular members including 5 who had sailed with Andrew Short for over 25 years. A safety brief was held before the start and at the start all crew were wearing their combined Personal Floatation Device (PFD) and safety harness, with the exception of Andrew Short. His PFD was available in a sheet bag near the steering position.

35. *PwC* was equipped with two Garmin GPS chart plotters, a 5012 on deck and a 5008 at the navigation station. The plotter fitted on deck was attached on the starboard side to the brace on the mainsheet winch. Both units were similar touch screen displays but with different screen sizes. They were connected on a common system and both shared a Garmin ‘BlueChart g2 Vision’ SD card with

⁸ Afterguard: an informal group of experienced crew members who provide advice and input into race tactics – normally sit aft in the boat near the skipper and helmsman.

advanced cartography, 3 dimensional maps and satellite images. The system was only capable of autonomous positioning⁹ and was not equipped to receive differential¹⁰ Global Positioning System (GPS).

36. The departure from the CYCA was orderly. The crew had a meal at the club, without alcohol, and the boat left the marina about 50 to 60 minutes before the start. The prevailing conditions in the harbour were a south to south west breeze of about 10 knots and passing showers with reduced visibility. The starting line was considered short and a conservative start was planned without pressing the line. A reef was put into the mainsail before the start in preparation for the expected conditions offshore.

The Race

37. A spinnaker was set for the downwind start and was taken down inside South Head shortly after passing the Sow and Pigs reef. A No 3 headsail was hoisted and *PwC* was comfortably setup for the conditions experienced outside the harbour. After about 2 miles on the first tack to sea, the genoa halyard broke. There was a struggle to pull the sail down and rehoist it with a spare halyard. In doing so the bowman popped his shoulder and once the evolution was over was sent below decks to rest in a bunk.

38. The sail down the coast to Flinders Islet was cold and uncomfortable. The wind was moderate from the south to south west at about 20 knots and maximum gusts of about 28 knots. At times the wind dropped to about 15 knots for a few minutes but was followed by another series of stronger gusts. There was also some passing rain showers and big shifts in wind direction of up to 40°. The wind was swinging to the south west on closing the coast and back to the south east offshore. The seas were about 1 to 1.5 metres on a 2 to 2.5 metre swell. These conditions were not extreme but there was little opportunity for conversation on the rail and there was some seasickness.

39. *PwC* experienced a problem with the starboard steering wheel slipping and not functioning properly. This was resolved in about 30 minutes and did not prove to be a subsequent problem. Andrew Short did voice some concerns about the accuracy of the chart plotter and that there was an apparent discrepancy between the displayed positions on the two plotters. This may have been that one chart plotter had reverted to the base chart installed in place of the 'BlueChart' card. Andrew also commented after closing the coast and tacking that the boat was closer to the shore than the deck chart plotter indicated. Both systems were rebooted and apparently the skipper's concerns were satisfied.

⁹ Autonomous Positioning is the least precise form of positioning that a GPS receiver can produce. The position fix is calculated by one receiver from satellite data alone. The most common system fitted in yachts and recreational vessels

¹⁰ Differential positioning is the precise measurement of the relative position of two receivers tracking the same satellites simultaneously. A receiver in a known position computes the GPS position and measures the actual errors and transmits the necessary correction to systems which are able to receive the correction signal.



The sail down the harbor after the start from *Living Doll*
(Photograph Courtesy Christophe Launay)

40. In interviews with the Inquiry some *PwC* crew commented that they had previously observed errors on the chart plotter. An example was given that on entering Sydney Harbour the plotter indicated the boat had crossed South Reef and the Sow and Pigs Reef when the yacht had clearly been in safe water. A similar example was provided during the Hamilton Island race week. This could have been a problem with the update interval in creating the past track or possibly a setup, installation or calibration problem on *PwC*.

41. The boat approached the islet by sailing to the port layline¹¹. The race course required all competitors to leave Flinders Islet to port, passing to the west of the islet before rounding the southern point and departing to the east of the islet. The track selected by *PwC* required the yacht to pass close to the northern point of Flinders Islet before rounding the mark. When *PwC* tacked to port to close the islet it was sailing a course of about 250°T and was 6 to 7 miles from Flinders Islet with the distance being obtained from the chart plotter. The wind had continued to ease and was now about 15 – 20 knots and shortly after tacking the reef was shaken out of the main.

¹¹ Layline: the course required to round the mark sailing as close as practicable to the wind

42. About 4 miles from the islet the wind backed about 40° to the south east, allowing the boat to lift to a course of about 210°. On this course *PwC* was overstanding¹² the mark and was heading south of the islet. However, due to the fluctuating wind direction being experienced that night, the crew expected the wind to veer and the boat to be knocked back to a more westerly course. The skipper decided to hold the course and gain some windward advantage.

43. The weather was now beginning to clear. Stars and the moon were visible, the rain had stopped and the visibility was reasonable. There was an expectation of a 'pleasant night sail' on the run back to Sydney. As the boat approached Flinders Islet the time was noted as 2.20am but the distance to the islet was not noted.

44. About 3 miles from the islet the boat had not experienced any change in the wind direction and the sheets were cracked and the course altered about 20° to starboard sailing roughly for the northern end of Flinders Islet. The high ground at the southern end of the islet could be clearly seen on the port bow silhouetted against the background shore lights of Port Kembla. Comment was made of a 'stuff up' in overstanding the rounding mark.

45. The No 1 spinnaker had previously been brought on deck but had not been hooked up. Noting the abating wind the question was asked whether there was time available to change to the No 3 spinnaker. The decision was made to change spinnakers and this was done in an orderly manner in the time available for what was perceived as a 'simple rounding'. The spinnaker setup was easy on the windward side with sufficient time to check all sheets and lines. The spinnaker in its bag on the port, windward rail, did partially obscure the view forward from aft. Matt Pearce worked forward in the place of the injured Bowman and was not available in the stern of the boat as tactician.

46. About 2 miles out from the islet, the course was again altered to starboard and the sheets eased further. The true wind angle was now about 70° to 80° on the port bow and *PwC* had picked up speed to about 12 to 13 knots as reported by the crew but probably more.

47. Andrew Short was steering and had been except for a few minutes break since before the start – about 7 hours. On the port tack approaching the islet he mainly used the port wheel and was navigating from the chart plotter sited on the starboard side near the starboard wheel. There was not a good line of sight to the plotter from the port wheel and he occasionally ducked into the centre of the boat to access the chart plotter while the mainsheet trimmer held the wheel. He also occasionally moved to the starboard wheel to view to leeward but this view would be partially obscured by the eased headsail.

¹² Overstanding: being able to sail upwind of the mark when sailing to windward and potentially sailing further than necessary to round the mark – having sailed beyond the optimum layline.

48. Andrew Short showed no concern about the navigation situation and was apparently content with what he was observing on the chart plotter and could see ahead. He did not ask for any reports from the bow of the boat or ask any crew member to lookout forward.



The Port Kembla shoreline and Flinders Islet viewed from the north east – Islet to left of centre on horizon – Bright light in centre last residue of a flare – smoke to the right from flare
(Photograph Courtesy of Christophe Launay – *Living Doll*)

49. *Loki* was sighted having rounded the islet and heading north. There was a good degree of confidence that *PwC* would be able to run *Loki* down and pass on the return to Sydney.

50. One mile out from Flinders Islet the complete silhouette could be seen against the background lights. It was just over an hour after high water (HW Port Kembla 1.12am EDST at 1.10 metres) and there would have been about 1 metre of water above the chart datum.

51. Close to the islet Matt Pearce, in the bow, felt the boat surge and begin to surf. He heard breaking waves and when he looked forward was shocked by what he saw with the boat heading directly for breaking water and the low rock shelf at the northern end of Flinders Islet. He yelled aft 'come away, come away' when they were only about 200metres from the rocks and less than 30 seconds from running on to them. Matt Pearce ran aft towards the mast.

52. Andrew Short responded immediately and the boat began to pick up speed, possibly exceeding 15 knots. Matt yelled 'keep coming away, keep coming away' and as Andrew kept altering course to starboard, Matt could see the northern edge of the islet on the port bow.

The Grounding and after

53. The boat was now on a north north westerly heading and from the mast it appeared that it might just miss the islet. At about 2.35am on Saturday 10 October 2009, *PwC* ran aground about 30 metres or a boat length from the edge of the visible rocks. The boat stopped dead like a car crash. People were thrown about on deck and gear was thrown about below decks. Matt Pearce was tethered to the port jackstay and ended up at the forestay from the mast. The boat was upright, pointing north west and all crew were onboard. The bow ended up about 10 metres from the visible rocks.



Flinders Islet

54. The sheets were dumped to depower the sails and prevent the boat driving further on to the rocks. Almost immediately the boat was subjected to sets of waves breaking on to it. The sea and swell were coming from the south and there appeared to be a bombora working off the eastern extremity of the islet that was increasing the size of the waves and they were bending around towards the west to break on the shore.

55. *PwC* quickly slewed to port and ended facing west at about right angles to the coastline. The wind angle was 60° to 70° on the port bow. The boat was pitching on the fore and aft line with the wave motion. The bow was still clear of the rocks but the rudder was striking the bottom and making an awful sound.

56. The initial reaction was to try and get the boat off the rocks. Peter Geddes was directed below to start the motor. The engine started but ran only for about 30 seconds. It revved wildly when the propeller was clear of the water and stopped abruptly when a rope is thought to have fouled the propeller. The motor would not restart.

57. Following some conversation with Andrew Short, Peter Geddes was then directed to send a 'Mayday' but just as he was about to transmit all power was lost in the boat. All lights were extinguished and it was pitch black below decks and a flooding mess with gear and sails strewn everywhere. The soft pack liferafts were also free but were inaccessible under all the debris and sails and unable to be moved on deck in the circumstances.

58. Peter Geddes reported the situation to Andrew Short who was still at the port wheel. Andrew had a handheld VHF radio but was unable to get it to operate. Peter Geddes returned below deck to assist the bowman who had been thrown from his bunk and was pinned under some sails or the liferafts and was unable to get free. Mick Stuart had to assist to release the bowman. The flares were also grabbed from below and placed on deck.

59. About 1 ½ minutes after grounding a wave caught the stern and swung it to port with the bow turning to starboard and pointing north north west. The starboard side was now exposed to the swell and *PwC* rolled very heavily to port. Either because of a wind shift or the momentum of the roll to port the boat gybed with the main boom swinging violently from the starboard side to the port side. There was no starboard runner on to support the mast and the port runner was subjected to the shock loading of the impact of the boom and the force of the mainsail. The rig was over-stressed and the mast broke and fell over the port side. The bow was still clear of the rocks. About this time the bulb of the keel, weighing about 8.5 tonnes, probably broke off the keel fin.

60. The boat was then picked up by another set of waves and the bow slewed back to port around to a south westerly heading and *PwC* moved alongside the Islet with its starboard side bashing against the rocks and the hull being slowly moved to the south west. The boat was sustaining considerable damage and the rudder broke off.

61. Matt Pearce and Peter Geddes were attempting to gather people into the cockpit. Andrew Short was still at the port wheel, Nicholas Short was in the cockpit but not tethered and Sally Gordon was in the cockpit and tethered to port jackstay.

62. The port side was broadly exposed to waves breaking on the islet. The waves would lift the boat and cause it to roll to starboard and strike rocks and then as waves receded the boat would be sucked about 6 metres clear of the rocks and roll back to port bringing the boat beyond upright and heeling to port. The waves were large at 2.5 to 3 metres and solid green water was coming over the port side. Very turbulent broken water would then recede back across the boat and cause it to roll to port. The rolling motion was violent and the angle of heel to starboard at least 45°. The crew were being swept around the deck, it was difficult to hang on and they were underwater for considerable time, having difficulty breathing.

63. One set of waves, when receding, sucked Sally out of the cockpit and most likely under or through the port lifelines. Peter Britt yelled 'Sally in the water'. Andrew Short was still onboard and at the port wheel. He also saw Sally go overboard and also raised the alarm and directed assistance to her. Matt Pearce and Peter Britt went forward to try and get Sally but they could not pull her onboard using her tether. After several attempts they noticed she was not responding to them. There was another call of 'big wave' and as the boat rolled back to starboard they could not hang on to port lifeline stanchions and were swept across deck to the starboard side.

64. This big wave came from slightly behind Andrew Short – still not wearing a PFD or safety harness – and forced him against the wheel and swept him and the port wheel overboard. He was heard to call for help but it was not possible to provide any assistance. This wave also swept Nicholas Short off the boat and it is likely he was washed over the starboard side between the hull and the rocks and under the boat before being swept to the north and clear of the islet. Once clear of the yacht he inflated his PFD and was later rescued by the police boat.

65. The same wave lifted the boat further onto the Islet and provided an opportunity to get off. Matt Pearce and Peter Geddes called for the crew to get onto the islet. The boat was in a very fortunate position for the crew to abandon the yacht as they could virtually step onto a rock platform and have easy access to higher and safer ground. They were also very fortunate to get off without sustaining any serious injuries as the surge and movement of the boat and the breaking seas made it very dangerous. They all got off quickly in about 30 seconds.

66. The total time from the initial grounding to all being off the yacht was only about 4 to 5 minutes. A lot happened very quickly.

On Flinders Islet

67. Once on the Islet there were further thoughts of trying to get back on board and retrieve Sally Gordon. The situation was, however, assessed as too dangerous. Some crew members moved around the islet to try and gain a view of the port side to observe Sally. They first moved to the south but had to backtrack to the north as the boat continued to slew around to port. They were unable to sight her again.

68. The hull with the rig over the port side was being bashed and moved about by the waves. *PwC* continued to slew to port and ended up heading east and facing out to sea. On this heading the back of the boat broke and it slowly self destructed from the stern as it was being pounded against the rocks.

69. The remaining crew gathered together on the islet and after a quick headcount determined there were 15 on land and 3 were missing – Andrew, Sally and Nicholas. There were no major injuries to those on the islet but they had no communications. There was no handheld VHF set and, somewhat surprisingly, no mobile telephones. Consideration was again given to returning onto the yacht to get one of the spare handheld VHF radios or a mobile phone but it was again dismissed as being too dangerous.

70. Some crew members had a Personal Locator Beacon (PLB) and they had the boat's flares on the islet. Very quickly two flares were ignited and these were sighted by *Yendys*, *Ragamuffin*, *Quest* and *Living Doll*, as well as other yachts in the race. *Yendys* recorded the time as 2.42am and this is the best time reference available, putting the grounding at about 2.35am.

71. The crew reported that the flares were fired overhead of the Port Kembla pilot cutter that was operating in the area on the way to a ship. *PwC's* crew were unaware of any reaction by the cutter but the cutter's crew reported the sighting to the Port Kembla Vessel Traffic Information Centre (VTIC) who informed the police and initiated the search and rescue (SAR) operation. Two PLBs were also activated. AMSA recorded the initial alerts from the two beacons as 2.46am and 2.48am and explain the beacons could have been activated up to 3 minutes before this time. This would confirm the time recorded by *Yendys*. The crew could see some illuminated torches in the water and thought one was being held and waved. This could have been Nicholas Short and reflects what he said he did.

72. Within about 15 minutes two power boats approached Flinders Islet, a police boat and the pilot cutter. The crew were able to pass a message to the pilot cutter by shouting that there were 15 on the islet and 3 in the water. After a further 10 to 15 minutes the four yachts which ceased racing and joined the search and rescue effort were sighted from the islet. About an hour after getting on the islet a helicopter which had been involved in the search approached and commenced winching crew members on board the aircraft to ferry them ashore to Port Kembla for transfer to Wollongong Hospital by ambulance. Four separate lifts were required to get all 15 crew members off Flinders Islet.

Search and Rescue Operation

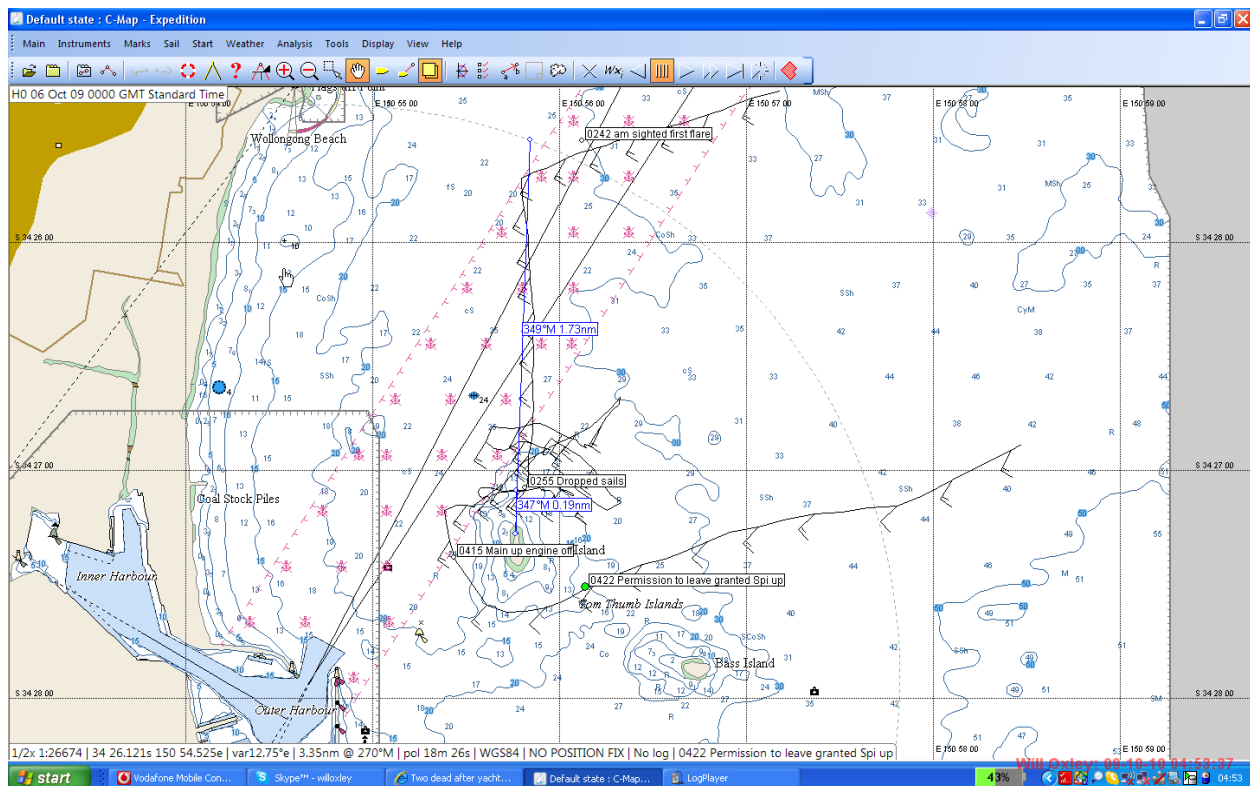
73. The Search and Rescue (SAR) operation was conducted by a combination of the yachts which were in the immediate vicinity and a number of external resources that were close at hand. The latter group included units and personnel from the NSW Police Marine Area Command (MAC), the Port Kembla Port Corporation (PKPC) and the Ambulance Service of NSW rescue helicopter. The water police at the scene arranged the initial additional resources and the MAC Coordination Centre was activated and later assumed responsibility as the SAR Coordinator and arranged the additional necessary shore support.

The Yachts

74. Representatives of the four yachts, *Yendys*, *Ragamuffin*, *Quest* and *Living Doll* were interviewed and asked about their experience in the race and their involvement in the search and rescue operation early in the morning of Saturday 10 October 2009. Each of the accounts was very consistent and a clear picture of the operation is available.

75. All of these boats were well prepared for a hard race noting the weather experienced over the preceding days and the residual swell and sea conditions. Onboard these boats were some of Australia's most experienced and successful ocean racers. Of note, all crews were wearing their combined safety harness and PFD and they were put on before the start of the race. *Yendys* reported this as a standard practice for night sailing.

76. The weather experienced on the sail to Flinders Islet matched that reported by *PwC* – predominantly south westerly winds with maximum gusts of 28 knots and some marked shifts in direction of 40° or more. The seas were 1 to 2 metres on a 2 to 3 metre swell. It was cold and the visibility was reduced in showers. Altogether it was uncomfortable but not extreme. A repeated comment was that the weather was not as bad as expected: but it was a hard beat to windward. On approaching Flinders Islet the weather moderated with winds of 15 to 20 knots and generally improving conditions and visibility



Track chart from *Yendys* – approaching Flinders Islet and SAR

77. The four boats sailed a similar track in their approach to Flinders Islet. All boats closed the coast on port tack about 1 to 2 miles north of the islet and planned to tack on to starboard when they could lay the mark and pass safely to the west of the islet. This was a different approach and tactics to *PwC*. At about 2.10am, *Quest* experienced a major wind shift, an easterly slant of about 50° which provided a few minutes of sprung sheet sailing and the boat was making 13.5 to 14 knots in the prevailing conditions.

78. At 2.42am, the time recorded by *Yendys*, a white and a red flare were sighted by all four yachts. The initial reaction was some confusion, not knowing whether it was a yacht in distress, another type of boat such as a fishing trawler in distress or people partying on the islet. All boats were monitoring VHF Channel 16 and there was no distress call. All boats continued sailing towards the flares as in the conditions sailing was faster than motoring to close the source of the flares.

79. The Navigator of *Yendys*, Will Oxley, commenced calling all boats expected to be in the area in an attempt to determine which boat might be in distress. No response was received from *PwC* and it was assumed to be the boat in trouble.



Living Doll participating in the search to the north of Flinders Islet – Light in sky is time exposure of helicopter's searchlight

(Photograph Courtesy Christophe Launay)

80. As the yachts approached the islet they took their sails down and motored, setting up a search pattern across the line of debris that was streaming north from the site of the wreck. Crews expressed surprise at the amount of flotsam in the water – foul weather gear, sea boots, small pieces of wreckage, torches, yacht equipment – one skipper said he thought ‘the boat must have exploded’.

81. Some people were sighted on the islet. After some confusion on the VHF radio as to the number of people onboard *PwC* and the number of people missing, it was established that 3 people were in the water. The yachts continued their search patterns independently but in a sensible manner to comb the wreckage streaming north. There was no overall coordination by the police boat or any of the Port Kembla Port Corporation personnel.

82. Communication between the boats was on VHF Channel 16. The circuit was reported as not being overloaded and that the information being passed was appropriate to the situation and relatively minimal.

83. *Quest* sighted Nicholas Short in the water and observed that he was alive. While making an approach to recover him they were cut off by the police boat who recovered Nick from the water. *Quest* continued its search and came upon Andrew Short. Initially the crew thought it had sighted an empty jacket but on a closer approach realised it was Andrew. He was brought onboard over the stern and placed in the recovery position and examined by first-aid trained crew. Andrew was assessed as deceased and CPR was not commenced. A crease was noted on Andrew’s forehead consistent with a blow.

84. When it was determined that the third person had been accounted for *Quest* proceeded to Port Kembla harbour to transfer Andrew’s body to the authorities.

85. At the same time, *Ragamuffin* was carrying out a similar search pattern and sighted a yellow jacket in the water which turned out to be Sally Gordon floating face down. When Sally was recovered onboard *Ragamuffin* she was not wearing her PFD and harness and had an injury to her head. The crew commenced CPR and continued it for 30 minutes as the boat proceeded to Port Kembla harbour where Sally was transferred to the care of ambulance paramedics.

86. The other boats interviewed commended the work done by Will Oxley, the navigator of *Yendys*, in coordination of the search and resolving issues as they emerged. Will also had the private phone number of the Race Officer, Denis Thompson, and rang Denis to provide situation reports from the scene.

External Resources

87. The response from the external resources was very swift. Fortunately the water police had a boat at immediate notice in Port Kembla Harbour as they were anticipating some protest activity at the port’s coal loader. The police launch only had a crew of 2 instead of 4 which they would normally have for an offshore search and rescue task. This restricted their ability to communicate and coordinate any

search activity. The Port Kembla Port Corporation also had a pilot cutter underway in the area attending shipping movements at the port.

88. The pilot cutter observed the flares which had been ignited by *PwC*'s crew and passed the information to the Port Kembla VTIC. At about 2.50am the VTIC called the water police and they were on station in about 5 – 7 minutes in their launch *Vanguard*. They would have been on station before 3.00am, less than 30 minutes after *PwC* ran aground and about the same time that the 4 yachts began searching the area. They had no radio communications with the crew on the islet. The pilot cutter closed the islet and established by shouting to the crew on Flinders Islet that there was a total crew of 18 and 3 people were missing in the water. A search was commenced amongst the flotsam and wreckage from the yacht.

89. The police launch recovered Nicholas Short. Shortly after *Ragamuffin* recovered Sally Gordon and the yacht was then escorted by the police launch into Port Kembla. The police launch had alerted other services and police and ambulance crews were at Port Kembla boat harbour to meet *Ragamuffin* and the police launch. A helicopter had already been requested by the ambulance officers as there were survivors on the islet and people reported in the water. The Marine Rescue NSW was also alerted and monitored the activities on VHF radio at the Hill 60 Search and Coordination Centre.

90. When *Quest* recovered Andrew Short all personnel were accounted for and the yacht was led into Port Kembla boat harbour by the pilot cutter.

91. The MAC Search and Rescue Coordinator was notified of the incident at 3.00am and the MAC Search and Rescue Coordination Centre was fully operational at 3.45am. At the Post Operation Debrief the MAC expressed concern at not knowing the race was being conducted that evening and that they did not have a point of contact with the CYCA as the organising authority for the race.

92. An ambulance rescue helicopter was mobilised at 3.10am and initially tasked for a beacon search by AMSA and it remained operational until 5.50am. The aircraft was based at Albion Park and was on station quickly. The helicopter was not fitted with a Forward Looking Infra Red (FLIR) sensor or night vision goggles and conducted its search with a searchlight.

93. Contact was made between the police and the Race Officer at 3.30am with the police seeking confirmation of the number of people on board *PwC*. The Race Officer passed the information he had from his clipboard and the incorrect total of 15. This number conflicted from what was being provided at the scene by the crew and created some confusion. The problem of the late crew change and inaccurate clipboards was not identified and finally resolved until 4.25am. Nevertheless the correct numbers were quickly ascertained at the scene and everybody was accounted for with the recovery of the 3 people from the water and the crew from the islet.

94. Once released from the search the helicopter was used to winch the crew from the islet and transfer them ashore to the triage centre and ambulances at Port Kembla boat harbour. From the triage centre all the crew were transported by ambulance to Wollongong Hospital. The last 2 casualties were transported to the hospital at 6.04am.

Emergency Management

95. The emergency management procedures used by the CYCA for all its races are derived from a set of Standard Operating Procedures (SOP) that have been incorporated into a manual and are reviewed frequently: at least before three times a year before each of the major races. The level of application of these procedures is varied for the different categories of races. An Emergency Management Team (EMT) is not designated for all Cat2 races and one was not in place for the Flinders Islet race of 9/10 October.

96. In its place the Race Officer, Denis Thompson, was the initial point of contact and coordinator for any emergency and would decide on the necessary action to be taken. As mentioned previously, this was Denis' first experience as a Cat 2 race officer for the CYCA but he was an experienced race officer and well briefed on the emergency arrangements by both the CEO and the Acting Sailing Manager. The brief required Denis to contact the CEO and the Chairman of the Race Committee in the event of any serious emergency.

97. The emergency was first raised by the igniting of flares and the activation of 2 PLBs by the crew on the islet. The flares were sighted by yachts in the vicinity and PKPC's pilot cutter who informed the port's VTIC and they in turn informed the police. Transmissions from the PLBs resulted in the Australian Maritime Safety Authority (AMSA) being informed of the activation and AMSA in turn notified the registered point of contact. The police and nominated point of contact were being notified about 2.50am.

98. Only one of the PLBs was registered with AMSA so there was only one next of kin who could be informed. This was Natalie Stuart the wife of crew member Mick Stuart. She informed AMSA that her husband was in the Flinders Islet yacht race onboard *PwC* and that it was owned by Andrew Short. She gave AMSA Kylie Short's phone number and then immediately rang Kylie Short.

99. The Race Officer was not part of either of these communications loops. He did receive a weak radio transmission from a yacht at 2.55am stating that red flares had been sighted east of Port Kembla but he was not able to establish two way communications. He relayed this information to the Sydney water police but had no indication whether it was from a competing boat or not. At 3.15am the Race Officer received a phone call from Kylie Short informing him that a PLB from *PwC* had been activated. This was followed almost immediately by further phone calls from the Acting Sailing Manager and AMSA, reporting the same information.

100. At 3.20am the Race Officer phoned the CEO and advised him of the situation but the Chairman of the Race Committee could not be contacted because of a problem with his phone. A stream of information then continued from the water police and also Will Oxley, the navigator of *Yendys*, who had Denis' private mobile number and used that to call and update him from the scene. The police were keen to obtain details of the persons on board *PwC* and confirm the numbers. Unfortunately the Race Officer added to the confusion by advising there were only 15 crew – an incorrect number. The Race

Officer was not aware of the correct number until 4.25am when advised by the CEO who had confirmed the actual number from the data available in the Sailing Office.

101. Throughout this part of the emergency and its management, the Race Officer was in a reactive mode and not in a position to direct support activities. Kylie Short remained remarkably calm and level headed in the situation, especially as the initial link between AMSA and the race officials. Kylie did not have a contact number for the Race Officer but used her personal list of contacts with CYCA staff to obtain a number.

102. The Race Officer would not have been able to assist or add value to the SAR operation but there may have been an opportunity to provide more support and assistance to Kylie Short and next of kin of other crew members. In the circumstances this would have been very difficult and probably impossible. Kylie was being provided information directly from emergency authorities and made her own arrangements while drawing on support from her brother-in-law Matthew Short. Unfortunately on being advised that 'all crew had been accounted for', she interpreted this to mean all were safe and it was not until she arrived at the Wollongong Hospital that she was advised by police and hospital staff that Andrew and Sally had not survived.

103. Some aspects of the Emergency Management Plan worked well and were able to be in place as people arose on Saturday morning and heard the news. The CEO initiated the plan and called the Commodore, Matt Allen, and gained contact with the Race Committee Chair, Gary Linacre. They all met at the club between 5.00am and 5.30am and decided to use the Commodore as the only point of contact with the media and to restrict comment until more details were known. Vice Commodore Howard Piggott was also called and he arranged to come to the club with other Board members to be briefed and man the phones in response to queries from families of other competitors in the race. Matt Allen and Gary Linacre travelled to Wollongong to support Kylie Short and ensure proper arrangements were in place for the other crew members.

104. As Sydneysiders awoke news of the accident was prominent on the radio and TV media and the word quickly got around. There was considerable interest from families of competitors and other parties. Howard Piggott and his team were armed with the necessary details and able to field these enquiries well. A media release was promulgated by the CYCA at about 9.00am announcing what was known and that 2 crew were deceased, one person was rescued from the water and all crew were now accounted for. Later in the morning the police released the names of the deceased.

105. Following the accident, close contact was maintained with the Short and Gordon families to provide whatever assistance was possible in these very distressing circumstances. The accident had a profound impact on the broader sailing community as Andrew Short and Sally Gordon were very well known and respected members. The club cooperated fully with the families and gave what resources it could to provide a fitting and respectful memorial function.

106. In addition counselling was offered and provided to the other crew members of *PwC*, the other crews involved in the rescue and staff involved in the race. All these sections of the emergency management appear to have worked extremely well and were favourably received.

Navigation Systems Reliability

107. The Inquiry has noted the high degree of reliance placed in the chart plotter and associated GPS navigation system in navigating *PwC*. While these systems are capable of being accurate to within a few metres they are also subject to a number of variable errors which can degrade the accuracy significantly. These errors can be associated with the:

- satellite constellation and the visibility of satellites,
- system time errors,
- motion errors associated with a poorly placed aerial on a yacht,
- accuracy of the original chart survey,
- transposing government chart data to commercial products, and
- use of different datums.

108. Most chart plotters display a warning when they are activated stating the system is an aid to use the properly authorised government charts and that you assume total responsibility and risk associated with using the device. The Garmin plotters used by *PwC* contained this warning and the product documentation includes a very comprehensive disclaimer in an 'Important Safety and Product Information' sheet.

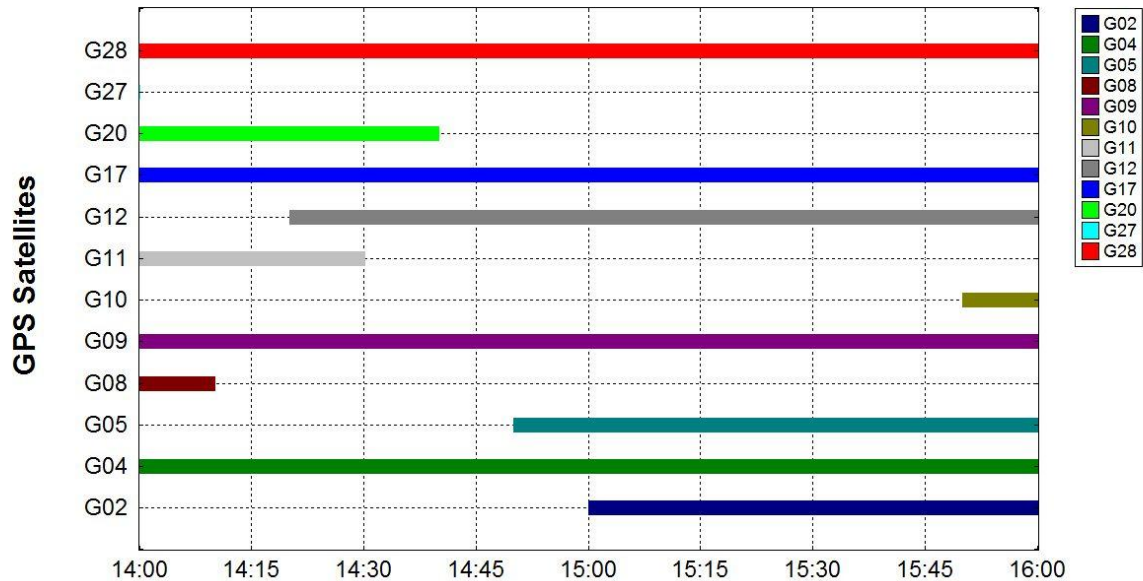
109. The Inquiry interviewed Greg Halls a qualified hydrographic surveyor and a well respected yacht navigator. Greg is currently working on a tunnelling project beneath Botany Bay, associated with the desalinisation plant. In this work they depend upon a very accurate GPS navigation and they monitor the accuracy of the system very closely 24 hours a day. In the early morning of 10 October the surveying had to be stopped between 2.15am and 4.15am because the GPS accuracy was outside the strict parameters set for the project. This coincides with the time *PwC* ran aground at about 2.35am.

110. Closer examination revealed very high Dilution of Precision¹³ (DOP) (see Diagrams 4 and 5) readings shortly before 2.00am (1500 UTC) until after 3.30am (1630 UTC) that could corresponded with an error possibly in excess of 100 metres. At that time there were 6 or 7 satellites visible (Diagram 1) at Flinders Islet. Of these only 3 or 4 were useable (Diagram 2). Greg Halls advises that on a yacht, with a low aerial and subject to heel, that data from a satellite whose elevation is less than 30° should not be trusted because of rapid kinematic characteristics.

¹³ Dilution of Precision (DOP) is an indicator of the quality of a GPS position. DOP takes into account the location of each satellite relative to other satellites in the constellation, as well as their geometry relative to the GPS receiver. A low DOP value indicates a higher probability of accuracy.



Visibility



Station FLINDERS South 34° 27' East 150° 55' Height 0m Elevation cutoff 10° Obstacles 0%
 Time 9/10/2009 14:00 - 9/10/2009 16:00 (UTC+0.0h) Satellites 31 GPS 31 [Almanac.alm (24/06/2008)]

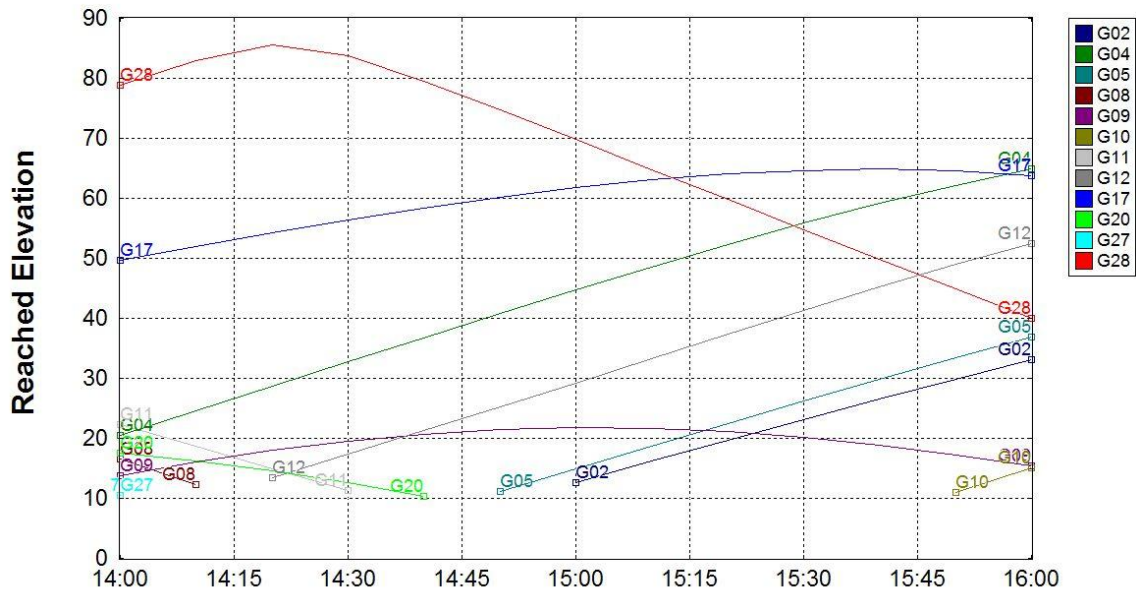
Diagram 1 – Showing the visible satellites at Flinders Island between 1400 UTC (1.00am EDST 10 Oct) and 1600 UTC (3.00am EDST 10 Oct)

111. A close examination of the sky plot (Diagram 3) indicates that 3 (G28, G17 and G12) of the 4 useable satellites were on the same bearing or within 20° of the reciprocal bearing which produces a poor quality fix. This is represented by the high DOP readings between 1.40am and 2.40am on 10 October (Diagrams 4 and 5) and it coincides with the time that PwC would have been approaching the port layline to Flinders Islet and tacked to approach the islet on port tack. At this critical stage navigation solely reliant on GPS and a chart plotter would have been degraded.

112. In order to investigate the magnitude of the error, the Inquiry approached Garmin with a series of questions on how the Garmin GPS 5012 plotter might respond in the constellation configuration which existed at Flinders Islet in the early hours of 10 October. The National Sales and Marketing Manger answered some general questions but, after consultation with his engineering and legal colleagues, responded that they were not able to assess or replicate the conditions we asked about and referred us to a US Air Force Space Command website.



Elevation



Station FLINDERS South 34° 27' East 150° 55' Height 0m Elevation cutoff 10° Obstacles 0%
 Time 9/10/2009 14:00 - 9/10/2009 16:00 (UTC+0.0h) Satellites 31 GPS 31 [Almanac.alm (24/06/2008)]

Diagram 2 – Showing the elevation of the satellites visible at Flinders Islet between 1400 UTC (1.00am EDST 10 Oct) and 1600 UTC (3.00am EDST 10 Oct)

113. Estimating the magnitude of the error with these DOP readings is difficult. The web has many references to calculations of estimated errors with very complicated mathematical models but these all appear to refer to land based sites with fixed aerials that have been placed at an optimum height and a position clear of interference. A GPS aerial on a yacht is a very different situation with its low height and the angle of heel, which affects the horizontal plane of the aerial, plus an environment cluttered with the rig, deck hardware and crew. The errors associated with the DOPs predicted at Diagrams 4 and 5 would be exceeded on board a yacht and especially in the conditions of working to windward in a 20 knot breeze, a lumpy sea and at about 20° of heel.

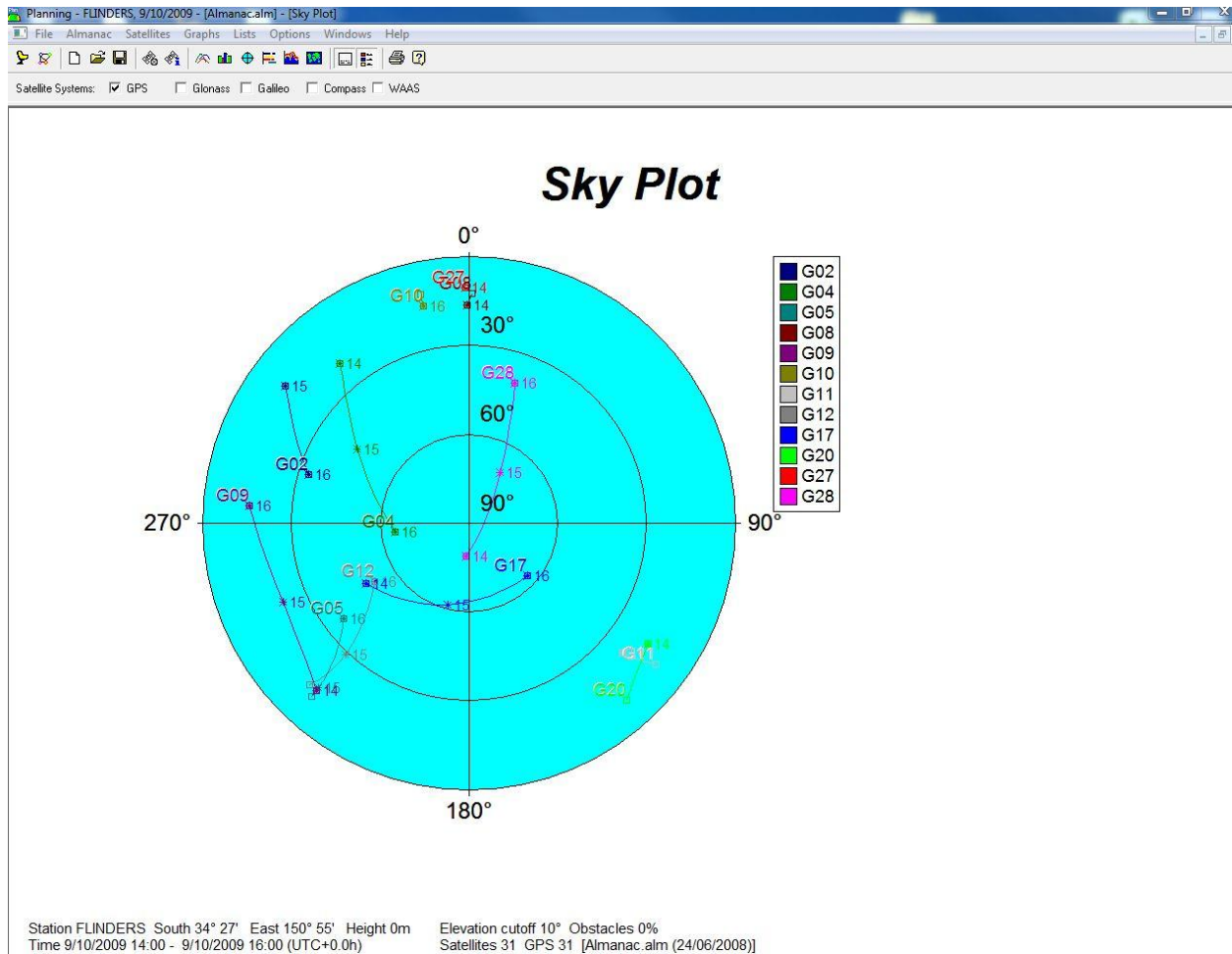


Diagram 3 – Skyplot for Flinders Islet 9/10 October – Between 1400 UTC (1.00am 10 Oct EDST) and 1600 UTC (3.00am 10 Oct SDST)

114. Horizontal DOP provides an indication of the horizontal error of the fix and is most important in marine navigation. The graph of the Horizontal DOP (Diagram 5) shows the abnormality of the readings at the critical time *PwC* approached the islet. The maximum reading of 3 is more than double the normal reading for the day.

115. In addition to the GPS and chart plotter errors, the hydrographic charting accuracy of Flinders Islet is to within a horizontal distance of +/- 50 metres. This represents the accuracy in an area designated Zone of Confidence (ZOC) B. In ZOC B areas the depth is also only charted to an accuracy of 1 metre + 2% of the depth and although uncharted dangers to surface navigation are not expected they may exist. Most of the coast is ZOC C or higher. In ZOC C the position accuracy is +/- 500 metres, the depth 2 metres + 5% of the depth and depth anomalies may be expected. The zones and definitions are contained on paper charts and some electronic charts in ZOC Diagrams. This means that what is displayed on a chart plotter needs to be interpreted and not accepted as 100% accurate and without error.

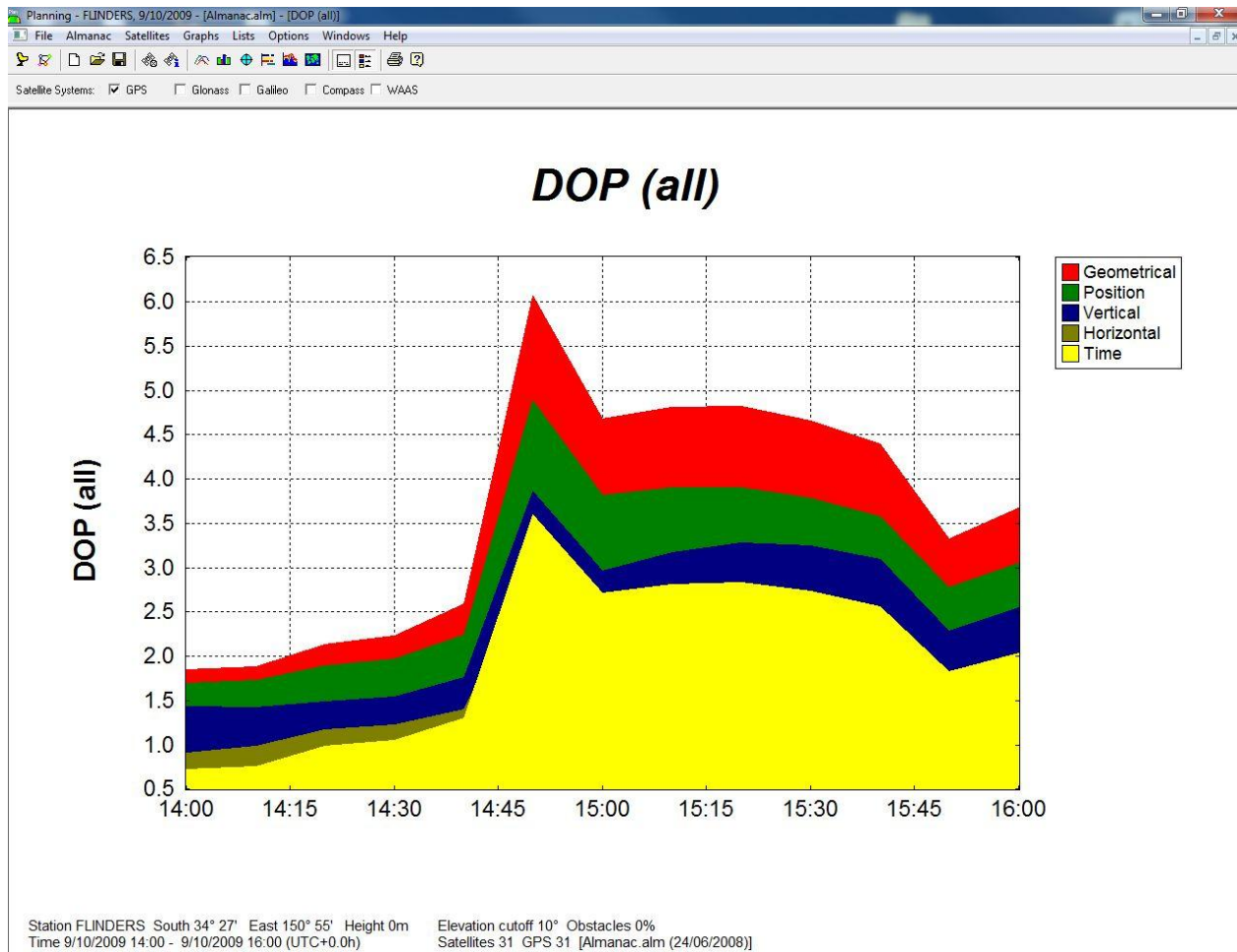


Diagram 4 – DOP Graph for Flinders Islet 9/10 October – Showing large reading (inaccuracy) from shortly before 1440 UTC (1.40am 10 October) to after 1600 UTC (3.00am 10 October)

116. Cumulatively these errors could have exceeded 100 metres or more and have misrepresented the true position of *PwC* relative to Flinders Islet. There is a reasonable probability that this occurred. The navigator of *Yendys*, Will Oxley, also reported a problem with his GPS system and losing differential GPS causing him to change to a less accurate alternative autonomous positioning system. Subsequent conversations with Will suggest this may have been associated with a system problem onboard *Yendys* and the positioning of an aerial.

117. Will provided a detailed track of *Yendys* for the whole race. Close examination of the track does reveal satellite fixing was available for the whole race and there are no jumps in position that would reveal a step change or degradation in accuracy. What it does not rule out, however, is a gradual degradation of accuracy that was smoothed out by the sophisticated receiver on *Yendys* when the high DOP and HDOP readings were recorded.

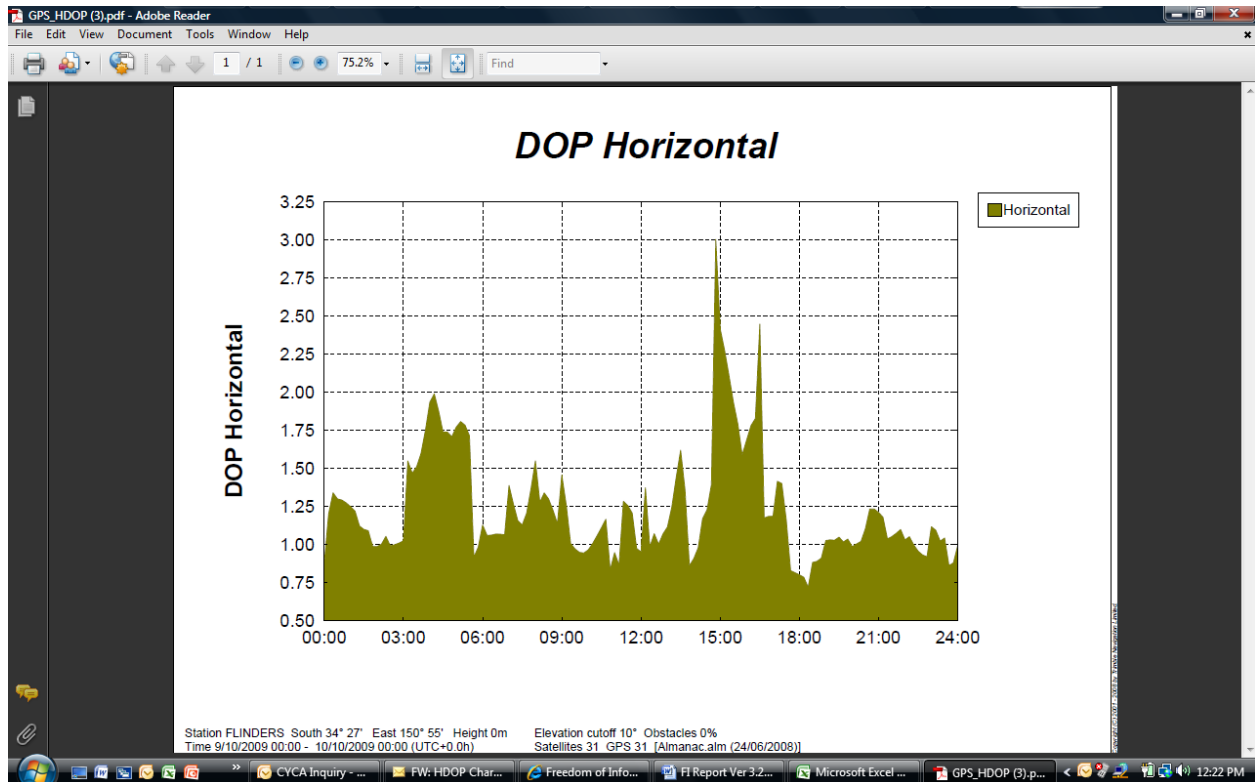


Diagram 5 – HDOP Graph for Flinders Islet 9/10 October – Showing large reading (inaccuracy) from shortly before 1500 UTC (2.00am 10 October) to after 1630 UTC (3.30am 10 October) and its abnormality for that day

118. The Inquiry is not able to determine precisely the likely positional error between 1.40am (1440 UTC) to 2.35am (1535 UTC) as *PwC* approached the islet and ran aground. It is however clear that the system accuracy was degraded and that navigating by chart plotter and GPS alone would be even more perilous than doing it in normal conditions.

Salvage Report

119. No formal report on the salvage of *PwC* was available to the Inquiry. The committee did, however, interview John Messenger, a former Commodore of the club and experienced yachtsman. John was working as a salvage assessor for Club Marine Insurance who had the insurance cover on *PwC*. He had worked closely with the police divers who inspected the wreck site to gather information for the police inquiry and used contract divers to reconnoitre the site and recover what was necessary for insurance purposes.

120. Two hand drawn sketches were provided that had been produced by the police divers. John had also reviewed an underwater video taken by the police of the site and the wreckage on the sea bed. The information provided to the Inquiry was consistent with what was expected after interviewing the crew of *PwC*. The keel bulb was found separate from the keel fin; about 6 metres inshore and 10 metres to

the north, suggesting that the bulb sheared shortly after grounding and the boats subsequent violent movements were without the dampening effect of the bulb. The 8.5 tonnes of bulb is about 3 metres long and was found in a hole about 3.5 metres wide and 2.5 to 3 metres deeper than the surrounding rock ledge.

121. The keel fin and the surrounding grid frame remained intact. The rigging and wreckage were found to be moving laterally with the wave surge. The keel bolts through the hull were also intact and surprisingly there was not even a crack between the fin and the hull. The fin was found to be in a relatively deep gutter in the sea bed that was wide enough for the fin to twist and move laterally as the boat was rolled and slewed by the wave motion, as reported by the crew. The depth of water in the gutter was about 7.5metres and the surrounding rock shelf was about 3.7 metres. The remaining grid frame and keel were found to be facing north, with the motor completely separated from the hull and to the south. There was a small piece of bow section to the north. This would indicate the boat continued to slew to port and the north as it broke up.

122. A great deal of wreckage was found strewn along the coast and there were some very small pieces. This type of wreckage was also reported by the yachts involved in the SAR operation.

Patrice Six Person Overboard

123. During the Flinders Islet race there was a separate incident from the *PwC* grounding that involved a person overboard from *Patrice Six*. This was not specifically included in the Terms of Reference for the Inquiry but was examined as there were some issues that were related to the more general matters being investigated. The Inquiry talked with the skipper of *Patrice Six*, Tony Kirby and the navigator, Denis Doyle. They had prepared a report on the incident and this is included at Annexure F.

124. *Patrice Six* is a 12.35 metre sloop and an entrant in the Blue Water Pointscore series. The boat has a very experienced crew with the owner and skipper, Tony Kirby, having competed in 26 Sydney to Hobart Races at the time and the navigator, Denis Doyle, had competed in 16 Hobart races. The person overboard incident occurred at about 10.30pm on Friday 9 October, 2 ½ hours after the start.

125. The conditions at the time were bumpy and as reported by the other yachts in the race. The crew were not wearing PFDs and were not tethered to the boat. All crew on deck were carrying strobe lights and PLBs as required by the YA Special Regulations for Cat 2 races. On clearing the harbour the boat had been sailing close-hauled on the starboard tack and the incident occurred when the boat tacked for the first time on to the port tack.

126. A crew member, Angelique Keir, was sitting on the windward rail and when transferring sides during the tack and slipped on the cabin top and fell over the leeward guardrails and into the sea. Other crew tried to grab her but were unsuccessful. The crew reacted well and professionally, reflecting their experience. They marked the position with a lifebuoy, strobes and a torch (that unfortunately sank) as well as marking a man overboard on the chart plotter and tried to maintain visual contact. The boat returned through the search area and did not make contact on the first pass. Contact was made on the

second pass, initially through hearing her calls, but the crew were unable to illuminate her with the torches they had available. A life sling was deployed and Angelique was recovered onboard and provided first aid treatment. The recovery is estimated to have taken less than 12 minutes.

127. Angelique had remained calm and did not panic. She told her skipper that she had drawn on what she had learnt at the Safety and Sea Survival Course and was confident the crew would recover her. She used her initiative and knowledge to employ a sea boot to aid her floatation but could not see the boat or any of the aids used to mark her position because of the sea state. Angelique considered activating her PLB but decided to wait a few minutes and see if the boat was able to recover her.

128. During the incident *Patrice Six* initiated a 'Pan Pan'¹⁴ call on VHF Channel 16¹⁵. Despite other yachts being in the immediate vicinity and being required to maintain a listening watch on Channel 16, only one yacht, *Nips n Tux*, responded to the call and stood by to provide assistance. Sydney Coast Guard did respond and shifted *Patrice Six* to Channel 22, a working frequency, to gather information. Sydney Coast Guard alerted the water police and set up a phone communication between the yacht and the police.

ANALYSIS AND FINDINGS

129. Noting the deduced facts and the Terms of Reference, the Inquiry identified the following areas to analyse in more detail to determine its findings:

- race organisation, including the administration leading up to the 2009 Flinders Islet race and the conduct of the race,
- the *PwC* incident,
- the search and rescue operation,
- emergency management procedures and arrangements, and
- Special Regulations pertaining to eligibility for boats and crew, training of crews, safety requirements and safety equipment.

¹⁴ Pan Pan: An urgency call on radio signifying an emergency but no immediate danger to life or the vessel itself. A level of emergency less than a 'Mayday' which signifies imminent danger to life or to the vessel itself

¹⁵ VHF Channel 16: International distress and calling channel for VHF radio

Race Organisation

CYCA Debrief of the Flinders Islet Race

130. After the Flinders Islet race and the PwC incident, the Commodore of the CYCA, Matt Allen, convened a debrief meeting on Friday 30 October. Minutes of the meeting are at Annexure E. A number of recommendations to be implemented prior to the Cabbage Tree Island race (started Friday 6 November 2009) were determined at the meeting and are listed at Table 1. The inquiry generally agrees with the recommendations and has made some qualifying comments for consideration in the longer term planning of Cat 2 races.

Meeting Recommendations for Cabbage Tree Island Race (6 Nov)	Inquiry Comments for Subsequent Category 2 Races
Develop a protocol to communicate list of entries (LOE), persons on board (POB), Sailing Instructions (SIs), relevant CYCA contacts to Marine Area Command (to distribute to relevant local area commands), Port Authorities and Volunteer Marine Rescue (VMR).	The importance of informing external agencies is agreed and should be expanded to include the Australian Maritime Safety Authority (AMSA). Not all listed authorities need all the information. The most important issue is awareness of the race, the number of entries and an available point of contact should more information be required.
Provide start vessel with contact numbers for all yachts in the race.	Agreed as a backup to radio communications. Phones should not be used as primary communications links at sea.
Provide a laptop to the start vessel with links setup to the relevant websites.	Agreed. Real value would be obtained if the race (crew lists etc) and boat documentation was in an electronic form and could be accessed from the start boat.
Provide designated boat buddies and AMSA with contact numbers for race management.	Strongly agree. Recommend a permanent number be established for the Race Officer for all Cat 1 and Cat 2 races and widely promulgated in the Sailing Program and Instructions, the 'green sheet' etc so that becomes well known and that the Race Officer is readily accessible to all competitors and boat emergency contacts.
Add race management contact numbers on 'green sheets'.	Agreed.
Consider time limit for lodgement of crew changes.	Noted but the reality of Friday night starts is that there is likely to be some last minute changes as crew are delayed by business or travel and this should be accommodated without forcing a boat to retire.

Apply Category 2 disciplines for major races to overnight races. Sailing Committee Members to be on call.	Strongly agree.
Number of POB each yacht to be advised to the Port Authority.	Do not think this is necessary as long as the Port Authority is aware of races being conducted in their vicinity and the number of competitors. Ports need a point of contact (Race Officer) should more information be required.
Race Briefing, advise competitors of shipping movement in the area.	This information is available on the port web sites but remains subject to change. Crews should be advised to obtain the information and incorporate it into their race and passage plans.
Remind skippers of duty of care , Re PFDs and PLBs.	Agreed
Advise Newcastle Marine Rescue race is on and seek assistance with radio communications.	Noted

Table 1 – Recommendations from Commodore’s Debrief Meeting and Inquiry Comments

131. The Inquiry has identified a number of issues from its analysis of the race organisation. The Inquiry would like to stress that in its opinion none of these issues caused or contributed to the *PwC* accident and subsequent outcomes. The points are offered as a useful list of matters which have emerged from the Inquiry for the CYCA to consider for improving race management of Cat 2 races. The main issues are:

- Consistency in administering and conducting Cat 2 races
- Improved procedures for race documentation
- Better supporting systems for the Race Officer

132. The 2009 Flinders Islet race appears to have been fully compliant with the Racing Rules of Sailing promulgated by Yachting Australia.

Consistency for Cat 2 Races

133. As identified at the debrief meeting and discussed at paragraphs 13 and 14 of this report, the current Sailing Instructions provide for two groups of Cat 2 races. Group 1 comprises the Sydney Gold Coast race and the Sydney Offshore Newcastle race and Group 2 the remaining races in the Blue Water Pointscore series to Flinders Islet, Bird Island and Cabbage Tree Island.

134. The difference in administration of the two groups is quite significant. Group 1 has the benefit of separate and specific Notices of Race and Sailing Instructions, a nominated Race Chairman and Race Committee (separate from the Sailing Committee), a nominated Vetting Committee to check all

documentation provided by competing boats, a designated Emergency Management Team, a weather briefing before the race and a radio relay vessel. Group 2 is administered by the Sailing Committee and run by the Sailing Office in a similar manner to the lower category of races conducted by the club.

135. The Group 2 races have been run effectively in this manner for many years. Following the Flinders Islet debrief meeting members of the Sailing Committee were designated specific responsibilities for the forthcoming Cabbage Tree Island race and the administration of the race was reviewed as an agenda item at the routine committee meeting.

136. The Group 1 races are longer than the Group 2 and the Sydney Offshore Newcastle race is a more recent addition to the sailing program. This may provide the rationale for the current arrangement but the Inquiry considers that category and not length should dictate the necessary level of administration and organisation.

137. Alternatively, consideration could be given to changing the race classification for some Group 2 races from Cat 2 to Cat 3. The principal difference between the two categories is that Cat 2 races are “where a high degree of self-sufficiency is required of the boats”. As an example, the YA Special Regulations require liferafts to be carried in Cat 2 races but not Cat 3. The current classification is considered appropriate and suitable for overnight races on the east coast of Australia out of Sydney and it would not be appropriate to downgrade any of the Group 2 Cat 2 events to Cat 3.

138. The Inquiry considers that the reduced level of administration contributed to a number of deficiencies in the administration of the 2009 Flinders Islet race. These include the failure to notify interested external authorities of the race and some deficiencies in race documentation. Furthermore, the higher level of administration would have provided a better and more clearly defined chain of responsibility, better communications with the fleet and a more robust and resilient arrangement for emergency management.

139. In light of this analysis the Inquiry suggests the CYCA review the administration procedures for all Cat 2 races in its sailing program.

Procedures for Race Documentation

140. The amount of documentation required for a boat to participate in a Cat 2 race is significant and growing. Boats in the Group 2 events are required to provide:

- a. Completed entry form
- b. YA Special Regulations Equipment Compliance Form for Cat2 or higher
- c. Verification of stability
- d. Verification of construction
- e. Current rating certificate if applicable
- f. 406 EPIRB certificate
- g. Liferaft certificates
- h. Radio Inspection certificate
- i. Radio Operator Certificates for 2 crew members

- j. Senior First Aid Certificates for 2 crew members
- k. YA Sea Safety and Survival Course Certificates for 30% of crew members
- l. Declaration of crew experience for 50% of crew members
- m. Crew list with name, address, age, weight, jacket colour, next of kin contact details, PLB registration numbers¹⁶ and two 24 hour emergency boat contacts (not being persons sailing)
- n. General Disclaimer and Acknowledgement of Rights Form to be signed by each crew member
- o. Certificate of Currency of Insurance
- p. Entry Fee

141. All this information is required as late as 12.00 midday on the Wednesday preceding a start at 8.00pm on the Friday. Late changes are accepted at the discretion of the Race Committee. Some of the required information, such as certain certificates, does not create much of a problem for regular competitors as copies are held on a boat file in the Sailing Office. These files are updated when the certificates are renewed. The crew lists, disclaimers and percentage or number of crew with various qualifications, experience and training create the most work, especially when late changes are made. New casual entries can also create an extra burden.

142. Initially there were 33 entries for the 2009 Flinders Islet race, which was reduced to 25 before the start, and the associated documentation for about 300 individual crew members. In reviewing the documentation some of it was incomplete and some data was missing. An audit had been completed to ensure compliance with the Sailing Instructions and it showed a clean sheet with all entry requirements being met. It was clear from annotations on the documentation that considerable effort had been expended on the audit task.

143. The system is manual and tedious with minimal electronic support. Since 1 July 2009, the requirement for each crew member to have a PLB when on deck has introduced the need to record the PLB HEX Identification number – about 300 for the race. These numbers comprise 15 letters and digits and each time the number is transcribed there is a risk of error. For the Sydney Gold Coast race it is estimated to have taken 60 hours to check the PLB HEX numbers for 82 entrants. In order to check the PLB is registered in the user's name, as required by the rules, the numbers should be cross checked with AMSA who administers the registration but this is not being done for the Group2 Cat 2 races.

144. The Inquiry considered options of developing a master electronic database for all competitors but was concerned it would become unreliable relatively quickly as people change addresses and contact details and the expiration of listed qualifications and certificates. The effort in maintaining the integrity of the database would overcome any advantage and the responsibility for its accuracy would belong with the club as the database manager. Rather, the Inquiry considers the responsibility for the

¹⁶ PLB registration numbers are not included as a requirement in the SIs but competitors have been notified separately

accuracy of the data must remain with the skipper of the boat but the data should be provided in an electronic form that can be easily collated into a race database that could produce specified reports.

145. For example, electronic templates could be provided for the entry form and crew lists. The crew lists could contain all the required information with respect to names, addresses, contact details, PLB numbers, YA membership, qualifications, certificates etc. The templates would load onto a race database and be able to provide reports to check and audit compliance with the sailing instructions or forward data to AMSA or other external authorities for checking or for information. This data would also be available electronically to the Race Officer and could be designed to facilitate late changes or amendments with the associated checks which might impact on a boat's eligibility.

146. The onus for providing the correct data would, appropriately, remain with the skipper. The task would not be burdensome after the first entry had been prepared and would only require to be updated for subsequent races to reflect any changes in crew or other details. From reviewing the race documentation it is apparent that some boats already operate a similar system and have their crew list on an electronic form and update it as required for each race. Currently, this information is not able to be read electronically by the Sailing Office or collated onto a database.

147. The alternative of remaining with the existing process would require extra resources in the Sailing Office. The personnel issues of leave and ill health have created a considerable strain and the current arrangements are probably operating beyond its capacity for a sustainable effective output. The Inquiry considers the club must develop an efficient and effective long-term solution to the handling of race documentation.

148. A separate issue concerns the specific monitoring of YA membership and compliance with Racing Rule of Sailing 55. The provision of this detail only appears to be done sporadically by race entrants in the preparation of crew lists. Specifically the data was not available for *PwC's* crew and on a subsequent check, three did not appear to be YA members and six or more did not appear to be current members. This could put into jeopardy any claims on the YA insurance or other benefits should they be needed. The Sailing Office was unclear on the current club policy on the requirement to record YA numbers.

149. The Inquiry suggests that the CYCA reiterate the requirement to competitors to provide their YA membership number with the crew list.

Supporting Systems for the Race Officer

150. The Race Officer, Denis Thompson, certainly had a challenging race for his first experience with a CYCA Cat 2 event. He performed well but his task was made more difficult by the level of support he had available and the fact that he had not been involved in the planning of the race and was coming to it cold. Ideally for Cat 1 and Cat 2 races the Race Officer should be a member of the Race Committee. The central role of the Race Officer in representing the Organising Authority and charged with the safe conduct of the race needs to be clearly acknowledged and promulgated. Specific areas where the support could be improved are:

- a. radio communications to provide coverage of the race course,
- b. supporting documentation, and
- c. being the nominated point of contact for any PLB or EPIRB activation.

Radio Communications

151. The monitoring of VHF and HF radio communications from *Offshore* at anchor in Rushcutters Bay is ineffective. The line of sight VHF communications generally only work when the yachts are in the harbour. Offshore HF communications are unreliable due to the shielding of the aerial by the surrounding land. This has been a long-standing problem. At times *Offshore* has been moved around the harbour and even put to sea to try and maintain better communications, especially for the radio schedules, but with limited success. In the Group 1 Cat 2 races and the Cat 1 Sydney to Hobart race better communications are provided by a radio relay vessel at sea accompanying the fleet.

152. The advantages of reliable communications with the fleet are significant for the Race Officer. Any emergency or incident can be reported immediately facilitating a coordinated response and the timely provision of support. Competing boats are required by the Sailing Instructions to maintain a continuous listening watch on VHF Channel 16. If VHF coverage of the race course is available the Race Officer should be able to communicate with any boat at any time. When a radio relay vessel is used it maintains a continuous watch on both the HF and VHF race frequencies and is therefore able to be contacted by a competing boat at any time of the day.

153. Technical solutions are available to provide good VHF and possibly HF cover of the Group 2 race courses and could extend to Cabbage Tree Island in the north and Flinders Islet in the south. This would involve the expense of establishing a series of aerials and repeater stations. The Royal Yacht Club of Tasmania has put such a VHF system in place and can communicate with boats along most of Tasmania's coastal waters from its club house at Sandy Bay in Hobart. Opportunities may exist to share existing facilities operated along the NSW coast by Marine Rescue NSW. The establishment of a proven network would preclude the need for a radio relay vessel for races covered by the network.

154. Other recent developments in technology have led to the widespread fitting and availability of Digital Selective Calling (DSC) on VHF radio. There are a number of associated features which could have significant benefits for race communications. These include distress alerting and position polling. The former automatically sends a distress message at the press of a button and the latter allows you to receive an automatic position report when you know a vessel's identification number. The applicability of DSC should be investigated further.

155. The Inquiry considers the CYCA must investigate the feasibility of establishing a VHF and HF communications network, initially to cover the courses between Cabbage Tree Island and Flinders Islet and the applicability of DSC to race communications. If feasible the Inquiry suggests a network and the use of DSC should be implemented as a priority.

Supporting Documentation

156. The documentation provided to the Race Officer was the bare minimum to conduct the race and was, unfortunately, inaccurate leading to some confusion in the SAR operation. The arrangements to

access more data were cumbersome and slow. The Race Officer exercises the authority of the Organising Authority and is in charge and the central point of contact for the safe conduct of the race. He or she needs to be well informed and have all relevant information readily available.

157. Carrying all the current hard copy information onboard *Offshore* is impractical. The needs of the Race Officer are another strong reason to support the development of an electronic race database that may be accessed by the Race Officer. This should also allow the rapid transfer of accurate information to interested third parties, such as a boats crew list to the police in the event of an emergency.

158. The Inquiry also considers that relevant sections of the Standard Operating Procedures (SOPs) should be available for the Race Officer that provide a check-off list for the actions that the Race Officer needs to consider and the people and external agencies who need to be informed for all emergencies that may arise during a Cat 2 race. PLB Point of Contact

159. Fortuitously, the notification of the PLB activation, following the *PwC* incident, got to the right people. Two PLBs were activated from Flinders Islet. Only one was registered and therefore there was only one contact for AMSA to make. The initial contact was quite disturbed by the call but was able to provide important details to AMSA and inform Kylie Short.

160. Kylie remained very level headed and contacted the Race Officer through her personal list of contacts with CYCA staff. Kylie's reaction was extremely commendable noting she had to deal with the personal trauma of her husband and two sons being on the boat plus initiating some response from the Organising Authority and race officials. This was a very tenuous communication trail that took about 30 minutes and could have been severed at a few points.

161. Kylie contacted the Race Officer, Denis Thompson, at 3.15am some 40 minutes after the accident. Denis had previously received a weak transmission, possibly from *Sailors with Disabilities* at 2.55am reporting the sighting of red flares to the east of Port Kembla. He was unable to establish radio communications with that yacht.

162. At 3.17am, very shortly after speaking to Kylie, the Race Officer was contacted by AMSA and informed of the situation – *PwC* aground, water police and pilot cutter attending, 3 people in the water.

163. The communications had limitations and did not adequately cover the race course and the Race Officer was not the first point of contact for AMSA. As a result, the Race Officer was restricted in his ability to manage and coordinate the situation and to look after the interests of the competitors and the club. He performed well in the circumstances but did not have the necessary tools to do his job.

164. This communications chain also created a situation where the emergency management arrangements could not function optimally as they were lagging in the information flow. The next of kin were receiving information directly from AMSA and the Emergency Services. The club was not at the forefront of that loop and therefore was restricted in the support it could provide to the families. Kylie Short travelled to Wollongong Hospital expecting to ferry all the crew back to Sydney. She was not aware of what had befallen Andrew and Sally and was told by police and hospital staff after she arrived.

165. The Inquiry notes arrangements which have been implemented following the Flinders Islet race to make competitors aware of the contact details for the Race Officer and supports these measures. Contact details for the Race Officer onboard *Offshore* were included as a mobile phone number on the Green Sheet but the distribution is limited. The number should be more widely known and a permanent number for all Cat 1 and Cat 2 races and promulgated in the Sailing Program, regular communications with competitors and to all Emergency Contact persons or 'Boat Buddies' who are nominated on the crew lists of boats plus the external authorities. The phone number could be a 1 300 or 1 800 or another number which accesses the club's private branch exchange (PBX) system. A PBX number can be diverted to the Race Officer wherever he or she may be and incorporate alternatives if the Race Officer cannot be contacted.

166. Noting the central and coordinating role of the Race Officer, a more certain means of communications is necessary in the event of an EPIRB or PLB activation. The Inquiry has spoken with the Acting General Manager, Emergency Response Division at AMSA, Alan Lloyd, and he was very helpful. In response to a Freedom of Information request (Annexure G) he proposed that the club pass to AMSA a list of crew members and the beacon HEX identification numbers. AMSA has offered to check these numbers to ensure all beacons are properly registered to the nominated crew member and the AMSA's Search and Rescue System (Nexus) would be updated for the duration of the race to contact the race organiser rather than the nominated next of kin.

167. The Inquiry strongly supports AMSA's proposal as a means of ensuring all beacons are correctly registered and the Race Officer receives notification of an emergency as quickly as practicable and is well placed to coordinate the necessary actions. This would include informing and assisting the next of kin and draw on the assistance of the Emergency Management Team.

Secondary Issues

168. During the Inquiry's interviews with competing crews three ideas were raised by several crew members. The first was the issue of an 8.00pm start for these Group 2 Cat 2 races, the second whether Flinders Islet was a sensible rounding mark and the third the need for a full midnight radio schedule on the first night at sea for the Group 2 Cat 2 races.

169. 8.00pm start. This issue provide a very diverse range of opinion. Those supporting the current start time argued it was not possible to start earlier for this type of race at the end of a normal working day and that it provided a good training opportunity, honing boat organisation for major races. Those opposed argued it increased the level of risk, especially at the start of the season, and that there would be an advantage to have some hours of daylight for the start and to settle into a routine as the boats put to sea.

170. Flinders Islet as a Rounding Mark. This issue was raised by some crew members and by the PKPC representative at the Emergency Services Operational Debrief. The concerns raised were that the islet was not lit, was difficult to see, very close to the entrance channel to the port and there was an

increase in shipping at Port Kembla. The Inquiry noted these concerns but considered the issues are integral parts of ocean racing and a fundamental part of the sport. All passage courses are bounded by land at some part and many have unlit dangers, islands and headlands which will be passed at night. This test of navigation is part of ocean racing. Similarly ocean racing frequently mixes with commercial shipping in harbours, off the coast and in congested shipping lanes such as the English Channel; by both day and night.

171. Midnight Radio Schedule. The idea was proposed by only one or two crew members. The argument being that it was a long time from the start at 8.00pm until the 7.05am radio schedule the following morning. With the risks associated with vessels starting after dark and having to settle into the prevailing conditions there was value in having a roll call to check communications and ensure all vessels were safe and without any problems.

172. The Inquiry considers these issues outside its direct Terms of Reference and did not impact in any way on the *PwC* incident. We make no findings or recommendations with respect to them while noting the CYCA might like to consider them as part of the normal review of its sailing program and instructions.

Pricewaterhouse Coopers Incident

173. The Inquiry has concluded the grounding was a genuine accident – an unwanted mishap that was unexpected and unplanned. The Inquiry could not identify a single reason or cause of the accident but we have identified a series of errors in judgement, which by themselves could have been inconsequential, but combined are contributory factors to the tragic grounding. The most significant factor was the general navigation of *PwC* and this was probably compounded by the inaccuracy of the GPS at the critical time the boat approached Flinders Islet.

174. The contributory factors identified are:
- a. General navigation
 - i. Lookout and sea room
 - ii. Reliance on chart plotter and GPS
 - iii. GPS inaccuracies,
 - b. Organisation of the boat, and
 - c. Fatigue and overload.

175. What is clear is that the incident developed very quickly into a life threatening emergency and was pretty well resolved after only 4 to 5 minutes. During this time the crew were fighting desperately for their lives and effectively unable to go below or draw on any other equipment or support than what they had with them.

General Navigation

176. From the information available it would appear that *PwC* was being navigated with a very high degree of reliance on the chart plotter on deck and GPS. As discussed earlier in this report the system is subject to a number of errors and the picture presented needs to be interpreted and not relied upon as being infallible. Statements from the crew suggest that the chart plotter was the sole input into the boat's safe navigation and it was being used to determine a safe distance to pass to the north of the islet and clear of dangers.

177. What is difficult to understand is why a visual reference was not made to the islet. The crew report seeing the high ground to the south of the islet when at least 4 miles away. At 3 miles out a course was shaped to steer roughly for the northern edge of the islet. They could see the whole islet including the low ledge to the north when 1 mile away. The Inquiry cannot understand why the course was not adjusted to pass clear to the north and why with 18 people onboard somebody did not draw attention to the fact the boat was heading straight for the rocks.

178. The crew report that Andrew was content with what he was observing on the chart plotter to which he was making frequent reference. He showed no concern about the navigation situation and was not seeking any confirmation from the bow or any other crew member sitting on the windward rail. The conclusion is that the chart plotter must have been indicating the boat was safe and would pass the island at a safe distance. This may have been the case with the GPS inaccuracies being experienced at that time.

179. If this is the case, the failure to lookout ahead and adjust the course to clear the islet and off lying dangers proved fatal.

Organisation of the Boat

180. The organisation on the boat was relaxed and reflected the way Andrew Short liked to sail. He was the skipper, the navigator, the tactician and the principal helmsman. There were many experienced sailors onboard and some had been sailing with Andrew for over 25 years. This was the way Andrew sailed and they were accustomed to it.

181. In interviewing other crews it was apparent that there is a very marked difference in the way boats are organised and managed. This also appeared to vary a little from race to race depending upon the length of the race, weather conditions and other factors. For many the Flinders Islet race in the prevailing conditions was a sprint where a formal watch system was not necessary.

182. The style of organisation onboard *PwC* contrasts significantly to the other boats whose crews were interviewed. The brunt of the workload fell on Andrew Short as the skipper, navigator and helmsman and that evening he was on the helm for all but a few minutes – a total time of about 7 hours.

183. The other boats reflected a far more regimented approach. Crew members were assigned specific tasks; there was a nominated skipper, a separate navigator and a rotation of helmsmen normally after about 90 minutes on the wheel. This allowed people to concentrate on their specific

tasks and provided more flexibility to cope with emergencies or any other situation that might arise during the race. Not only is this considered a safer approach it also probably provides a competitive advantage.

184. The Inquiry firmly supports the second style of management but acknowledges the prerogative of any skipper or owner to lead or manage their boat as they wish.

185. The relaxed organisation onboard *PwC* is also reflected in some aspects of its preparation for the race. The stowage of the liferafts below decks would not appear to meet the specific YA Special Regulations for these types of liferafts and probably contributed to them not being able to be deployed if they were needed. One of the two PLBs that were activated was not registered with AMSA as required by the YA Special Regulations. Most probably not all crew members on deck had PLBs as required by the YA Special Regulations. In a normal race none of these issues would be significant but they were in this race but fortunately were not, themselves, fatal.

Fatigue and Overload

186. Andrew had been steering the boat for nearly 7 hours. This was after a full working day. This has the potential to lead to fatigue and the organisation onboard, with little support or relief for the single person skipper, navigator and helmsman, could lead to overload. It possibly did but there is no direct evidence that this was the case. His crew reported Andrew was functioning as normal and they had 'absolute confidence' in his ability. That said it is inexplicable why the boat did not sail a safe course around a danger that could be seen.

187. If Andrew had been more alert he might have reacted more radically to Matt Pearce's dramatic call from the bow to 'come away' as he ran aft to the mast. At this stage the boat was reported to be about 200 metres from the shore and at 15 knots about 20 seconds from grounding. A crash gybe to reverse course or parallel or open from the danger might have saved the boat but in the conditions could have caused the rig to be overloaded and the mast to break. This would have been a difficult split second decision, especially if the chart plotter was indicating you were safe and clear of the danger

188. The Inquiry considers that although some findings with respect to the *PwC* incident are unclear there are a number of lessons to be learnt about general navigation and boat organisation.

Search and Rescue (SAR)

189. Notwithstanding the tragic loss of life, many aspects of the SAR operation were very successful. There was virtually no chance of rescuing Andrew or Sally once they went over the side of the boat. However, accounting for all 18 crew members within about an hour of *PwC* running aground on small islet 3 to 4 kilometres off the coast in the very early hours of a Saturday morning is indicative of a very successful response and search. Fortuitously, assistance was close at hand and it galvanised quickly to achieve the result. The structure and organisation was informal and it was not copybook or perfect: but it worked well in this case and reflected the professionalism of those involved.

190. The Inquiry did receive a written submission from Richard Grimes and it is at Annexure H. The submission states that this incident represents a failure in SAR coordination along with other quoted examples. The assessment with respect to the *PwC* incident is not agreed. Richard did, however, make a number of suggestions with respect to developing an Australian Yacht Race SAR package modelled on the procedures used by the International Maritime Organisation and the International Civil Aviation Organisation. The principal thrust being the establishment of a SAR Commander at the scene (Scene of Action Commander) and the coordination of communications.

191. The Inquiry considers that the latter proposal has merit and some broad guidelines would be useful to yacht crews if others, such as the police or emergency services, are not available or are unable to take charge. The proposal should be proposed to Yachting Australia for development and incorporation as an Advisory Appendix to the Special Regulations.

Emergency Services Operational Debrief

192. An Emergency Services Operational Debrief was held at Port Kembla on Friday 23 October. The club was represented along with the police and ambulance services, the PKPC and NSW Maritime.

193. The Key points raised which were of interest to the CYCA were the need to:

- a. advise emergency agencies and the port corporations of ocean races in advance,
- b. establish a communications link between the agencies, ports and the Race Officer,
- c. have accurate data on crews and boats that can be passed to the emergency agencies quickly by the Race Officer and passed to the MAC for further dissemination prior to the race – electronic files,
- d. establish a Scene of Action Commander with a link to the coordination centre ashore – the coordination centre would liaise with AMSA, Defence and other agencies as required to gain additional resources, and
- e. select the Scene of Action Commander who has the best communications, platform and training.

194. The air ambulance rescue helicopter crew did raise a concern about being able to see the navigation lights on yachts and the potential difficulty in sighting a PFD light at a search altitude of about 500 feet. The crew suggested the use of strobe lights by people in the water. This is already covered in the Special Regulations through the requirements for crew members to carry a Personal Location Light – either a strobe or SOLAS compliant – when on deck at night.

195. The representative of the PKPC also raised the issue of yachts being equipped with VHF Automatic Identification System (AIS) transponders so that their positions would be displayed on the equipment that all ships, over 300 tonnes, are required to carry. While these transponders are becoming more widely available and reasonably priced, they would be another expensive piece of equipment that is required to be fitted to a yacht. Further study is needed to determine the cost benefit and whether they are necessary for yacht racing in Australia where the density of commercial shipping is

relatively low by international standards. The Inquiry suggests the CYCA propose to YA a review of the benefits of AIS transponders and their fitting to racing yachts.

196. There were some minor communications and coordination issues between the police and ambulance services which were identified at the operational debrief to be resolved between the two services. The CYCA was also invited to attend some briefings on the police emergency management and the control and coordination of these types of operations.

197. The issues raised at the operational debrief meeting regarding the advance notice of races, links with the Race Officer and SAR procedures are already incorporated in the Inquiry's findings.

Emergency Management (EM)

198. Initially the CYCA emergency management did not work well because of poor communications and race administration shortcomings. It took over two hours for an EM team to assemble, principally because a team had not been nominated and difficulties were encountered in contacting the Race Chairman. The initial setup was therefore ad hoc. Moreover, the standard operating procedures were not followed. An operational log was not kept and as late as 7.10am the water police were still working through the Race Officer and apparently unaware the EM team was in place and should have been best placed to deal with their enquiries.

199. The club was not able to provide any direct support to Kylie Short when first notified of the incident. In the circumstances with Kylie talking directly to the emergency agencies, it was simply not possible.

200. The club quickly regrouped and was there to assist both families as best it could. Arrangements were in place to handle the large number of enquiries from interested parties as the news broke on Saturday morning. The media was well handled. There was considerable coverage and interest and most of it was accurately reported without undue sensationalism. The arrangements with respect to the memorial services were appropriately handled to meet the requirements of the two families and the needs of the broader sailing community who had lost two well respected and much liked sailing mates.

201. The Inquiry considers that an EM team should be in place and on call for all Cat 2 races and available to implement the SOPs should it be necessary.

Special Regulations and Sailing Instructions

202. The Terms of Reference identified a number of specific areas related to the YA Special Regulations, Notice of Race and Sailing Instructions where the Inquiry was asked to make findings and recommendations. As part of the interviews conducted, each of the crews was asked to comment on these areas, some written submissions were also received.

Eligibility for Boats and Crews

203. Following reports on the amount and type of wreckage an email submission was received from Derek Kelsall expressing concerns over the structure and strength of modern racing yachts. A similar comment was made by one of the crews interviewed, expressing the benefits of stronger scantlings and a disproportionately small impact on performance.

204. This subject was considered to be an area beyond the expertise of the Inquiry committee. Some enquiries were made of experts and the Inquiry formed the view that the way *PwC* broke up was not surprising. We were advised that a carbon hull has tremendous strength when intact but when breached became very brittle and would break as it did because of a lower yield point of the carbon material before failure. A steel or aluminium hull would have remained more intact for longer as those materials have a higher yield points.

205. The crew praised the strength of the boat and that it stayed together and allowed them to abandon the yacht directly onto the islet in an orderly fashion. They also reported the extreme power of the waves breaking onto the boat and the shore. The limited salvage report indicated the astonishing strength around the keel, with the frames and keel bolts remaining undamaged and no crack between the keel fin and the hull.

206. There was no other significant comment from the crews regarding the eligibility for boats and crews. There was general agreement that the current regulations are about right. There was strong support for the Safety and Sea Survival Course (SSSC) and this is commented on under training of crews.

Training of Crews

Safety and Survival at Sea Course (SSSC)

207. There are a number of issues which have emerged with respect to training. The first is a positive and the very strong support that has emerged for the SSSC. Several crews commented on the benefits of the course. In particular the crew of *PwC* commented on its value through the understanding of flares and PLBs; how they were to be used and what reaction they would create. The Inquiry also believes it gave some crew members the confidence to take charge and demonstrate the leadership that was required in their situation.

208. Angeliqe Keir from *Patrice Six* also made comment to her skipper that the course gave her the confidence not to panic and the knowledge to create the extra flotation that she needed without a PFD.

209. Several crews suggested that although the existing regulations were working there was room to increase the percentage of crew who are required to have completed the course. Some suggested it should be as high as 100%. While this has some merit the Inquiry considers it is not practicable and would put another hurdle for skippers to find and attract crews for these races. This would especially be the case for new crew who are looking to sample ocean racing to see if it has appeal and are reluctant to make a commitment to the course and its cost before deciding. The Inquiry suggests the CYCA should

encourage all crew members to undergo the training but not increase the regulated requirement at present.

Navigation Training

210. The Inquiry has reached several significant findings with respect to navigation and several of the crews interviewed expressed their concern over some common practices. Over recent years the advent of chart plotters and GPS has created a very simple method of navigating boats. In many ways it is similar to the systems that are widely fitted in cars where you select a destination, enter a way point and the machine will take you there.

211. The clarity and presentation of the information on the chart plotter can be misleading and does need to be interpreted. As discussed in this report there are a number of errors which can exist in the GPS itself and the cartography loaded into the navigation aid. The aid is an electronic device with its associated vagaries and dependence on a power supply. The errors are not constant and can be minimal with an accuracy of only a few metres, but they can also vary quite quickly and dramatically to the point of not being able to obtain a position fix.

212. All chart plotters come with a warning that they are only aids to navigation and that the operator should refer to the appropriate government charts and that the operator has ultimate responsibility for the safe navigation of the vessel. The Garmin 5012 warning with its 'Important Safety and Product Information' goes even further stating "...do not attempt to operate or watch video input while operating or navigating your boat. Operating or watching the video input while the boat is moving could cause an accident or collision resulting in property damage, serious injury, or death." Clearly this is going too far and would preclude taking advantage of these aids and a sensible balance needs to be struck.

213. The concern expressed by some crews is that the more general warning is not heeded by many operators. Rather the operators place unrealistic confidence in the navigation aid. Confidence that is generated by observing the system when it is at its most accurate and able to define which pen you are in at the marina and not acknowledging that at times it will have cumulative errors of up to several hundred metres or more. The fact that the chart plotter and GPS displays on a crisp, clear, colour screen; the position, heading and estimated future position of your vessel which is clear of close by dangers does not mean that is the case.

214. A safety margin needs to be added when using a GPS chart plotter but more importantly a second source of positional information should be used to check and verify the boats position relative to the danger. This could be a visual reference if the danger can be seen, visual clearing bearings, depth soundings, radar clearing ranges, visual or radar fixes placed on a chart or any other means.

215. Another concern expressed was that chart plotters lead to casual passage planning. At best the passage plan is done by placing a few way points on, at times a small screen, with a cursory glance at the compressed detail available on the plotter. Close reference to the more detailed paper hydrographic

charts, as directed by the chart plotter warning, is not being practised. This may be reasonable in local waters that are well known and especially around Sydney where there are few unmarked navigation dangers. But it is a poor practice when venturing further afield and potentially unsafe.

216. The chart plotters are a great navigation aid but need to be used with caution. They have created a situation where people can put to sea with little understanding of navigation and the associated seamanship.

Boat Organisation

217. Closely related to the issue of navigation training is that of boat organisation. In the small sample of crews interviewed the Inquiry noted a very marked difference in the way boats were organised and prepared for the race.

218. The Inquiry is strongly of the view that a more regimented process is the best practice. It provides the best use of resources available by sharing the load with more minds working on issues and problems. It has the advantage of being safer, more flexible, able to deal with and monitor more things at the same time. Furthermore, a more structured organisation balances the workload and mitigates the very real issue in the sport of fatigue. Together a less stressed and less fatigued crew is also likely to sail better and have a competitive advantage.

219. These last two issues – navigation training and boat organisation – are grouped under training. But the Inquiry is not suggesting a regulated solution of mandated courses or training. We acknowledge the right of a boat skipper or owner to run the boat as they wish. We also acknowledge that the issues are as much cultural as they are skill based. At the same time the CYCA, as the pre-eminent ocean racing club in Australia has a responsibility to create a positive influence on that culture where it is possible. The club has done this in the past and has a proud history of its role in developing the sport of ocean racing in Australia and a broader influence internationally.

220. The Inquiry suggests that the club uses whatever medium is available to promote the best practice in navigation and boat organisation: promote articles in yachting magazines and encourage selected skippers and crew to contribute articles or make themselves available for interview; use the club's magazine *Offshore Yachting* to promote the same sort of articles; conduct or promote seminars and presentations etc. Culture is always a challenge to change but this is a very important for ocean racing safety.

Safety Requirements

Wearing of Personal Flotation Devices (PFDs) at Night

221. A continuing contentious issue is whether the wearing of PFDs¹⁷ at night should be compulsory and it raises the more vexed issue of what level of regulation is necessary. Should the decision be left to the skipper and if it is made compulsory, how can it be policed?

222. The lessons on this issue from the *PwC* incident are unclear but generally support the advantage of wearing a PFD at times of heightened risk. Nicholas Short was fortunate that he was wearing a PFD and was able to inflate it when clear of the boat – it probably contributed to his safe recovery. Andrew Short was not wearing a PFD and his outcome may have been different if he was wearing a PFD but that is not certain.

223. Sally Gordon was wearing a PFD and a safety harness and was tethered to the boat but she was found without this equipment. The assumption is that Sally was pulled out of her harness by the force of the waves and floated clear of the boat but this cannot be proved. Sally's predicament may have been better if she was able to release her tether line from her harness and float free and inflate her PFD; again this is only speculation.

224. In the separate incident on *Patrice Six*, Angelique Keir, was not wearing a PFD. She used some of the techniques learnt at the SSSC and was recovered following a display of good seamanship, in less than 12 minutes. For most of the time she could not be seen from the boat and she could not see the boat. She was lucky.

225. Of note, the decision had been made onboard *PwC* for all crew to wear PFDs. Andrew Short was the only person who did not comply with, most probably, his own direction. Of the four boats interviewed who were involved in the SAR – *Ragamuffin*, *Quest*, *Yendys* and *Living Doll* – all decided to and did wear PFDs. These decisions were made before the start and most probably influenced by the recent weather and expected residual sea conditions. As mentioned previously, these boats contained some of Australia's most experienced and successful ocean racers.

226. The sensible comment was made 'it's best to put them on early as when things go bad you don't have time to go below to get your PFD and put it on'. This was the situation on *PwC* and also *Patrice Six*.

227. The arguments supporting the compulsory wearing of PFDs at night are mainly based on the potential to save your life if you fall into the water and the argument is supported by the new designs of inflatable PFDs which are easy to wear, comfortable and don't interfere with your ability to sail the boat. The argument against is based on the fact that they are not required in all circumstances such as a calm, balmy night with a smooth sea and crew should not be compelled to be constricted by a PFD on these

¹⁷ Modern PFDs are generally assumed to be an inflatable device and part of a safety harness which may or may not have a tether line attached. These types of PFDs are widely used as they are comfortable to wear and unobtrusive allowing crew to work freely on the boat.

occasions. This counter argument continues that the decision should rest with the skipper as to whether the risk of somebody going over the side is real and threatening and requires PFDs to be worn.

228. The issue is troubling State marine regulators across the country as well as yachting regulators around the world. If you now venture into Victorian waters yacht crews are required to wear PFDs at times of heightened risk and these are defined to include: at night from 1 hour after sunset to 1 hour before sunrise; in restricted visibility; if on your own; and if a gale warning or severe weather warning is current for the area. This applies on all Victorian waters – coastal, enclosed and inland – and is in effect for Port Phillip Bay. NSW is in the process of reviewing its PFD regulations and has released a discussion paper for comment.

229. Chris Bull, a successful and well known international yachtsman and past Commodore of the Royal Ocean Racing Club in the UK provided a submission to the Inquiry stating that the RORC has a special regulation of its own, prescribing the following for races of Cat 3 and above:

‘A harness and lifejacket shall be worn when on deck

- a) between the hours of sunset and sunrise
- b) when alone on deck
- c) when reefed
- d) when the true wind speed is 25 knots or above
- e) when the visibility is less than 1 nautical mile’

230. Clearly the issue is topical and any regulation needs to be able to cater for the wide variations across a racing fleet in experience and boat organisation. What we have observed from the Flinders Islet race is an inconsistency about the assessment of the risk and the need to wear PFDs. There has also been a clear demonstration of the suddenness of the need to be wearing a PFD and the potential consequences of not wearing one.

231. The evolution of PFD design over recent years has produced a lightweight and comfortable device that is unobtrusive and does not restrict you working on the boat. The PFD design development has also been matched by a similar evolution in racing yachts which travel at faster speeds, are more open in their deck design and require crews to sit exposed on the side of the boat. There is less protection for the crew, possibly a higher likelihood of being washed over the side and possibly a longer time required to sort out a fast running yacht and return to the person in the water.

232. The changes in PFDs have been matched with a greater acceptance of the need and value of these devices across the maritime industry and boating in general. The Occupation Health and Safety requirements have caused most marine industry employers to require boats crews to wear PFDs when underway. Regulations are changing to meet these trends. The consequences of not wearing a PFD at night and at times of increased risk appear far greater than the inconvenience of wearing one.

233. The Inquiry considers that it is an appropriate time for the CYCA to review existing regulations with respect to the compulsory wearing of PFDs at night and at times of heightened risk and decide

whether a submission should be made to Yachting Australia to amend the current Special Regulations or the club should amend its Sailing Instructions.

234. An associated issue concerns the safety harness and tether which provide a great deal of security for the crew in assisting them to remain onboard the boat in rough conditions, or when knocked over by a wave or when having slipped on the deck. There are countless stories of crew being retrieved quickly aided by their tether. There are also situations which are easy to imagine where the tether is under considerable strain and unable to be released when it may be the best option for the crew member to save their life; most notably in a boat capsized. Several crews proposed that a quick release mechanism for the tether from the harness be developed so that it could operate when the tether is under full strain. A cutting device, one of which is now commercially available (Spinlock S Cutter), could be another alternative. The proposal is supported for further investigation.

Personal Locator Beacons (PLBs)

235. There are several issues to consider with respect to PLBs. These devices reflect the modern technology available and provide an excellent means of attracting attention when needed and pinpointing a search. However there is a marked difference in the usefulness of the two models available and if they are not registered correctly much of their value and usefulness can be wasted.

236. Since 1 July 2009 it has been mandatory to have a PLB carried by or attached to each member of the crew in a Cat 1 or Cat 2 race when on deck. The PLB is required to be registered with the National Registration Authority (AMSA) and have the sticker issued by AMSA attached to the device. This is a relatively new requirement and as discussed with respect to Race Organisation has significantly increased the administrative burden for the Organising Authority. The regulation is difficult to police and can only be done with the cooperation of the skipper and crew.

237. Of note the provision of a PLB or EPIRB HEX identification number is of little use by itself. Compliance with the regulation is ultimately a skipper's responsibility and it can only be checked by sighting the beacon or checking the identification number and registered owner with AMSA. The fact that 1 of 2 PLBs from *PwC* was not registered demonstrates a need for this check.

238. Days after the grounding AMSA subsequently received 4 further PLB activations. The Inquiry has received conflicting accounts from the crew as to whether all members had PLBs with them on deck and whether the 15 who reached the islet each had a PLB. AMSA surmises the 4 PLBs floated free from *PwC* when it broke up and self activated. The PLBs detected after the incident were the manual activation type and the likely explanation is that they self activated on being washed ashore when water ingress and contact with the circuit board would set them off. The likelihood is that not all of the crew on deck had a PLB and it is confirmed that not all PLBs were registered.

239. Anecdotally, one crew member lost a PLB which was in a bum bag that was torn off before the grounding incident. With the many appendages on a yacht and the likelihood of this occurring, the utility of a bum bag to carry such important piece of lifesaving equipment is questioned. There is probably a strong case to support special pockets in foul weather gear or upper deck clothing for the carriage of PLBs and Personal Location Lights (PLLs).

240. In discussion with AMSA, the authority strongly stressed the advantages of GPS equipped PLBs. On activation a PLB fitted with GPS will provide the Cospas Sarsat¹⁸ beacon detection system a nearly immediate position that is accurate to within 120 metres. The non-GPS fitted beacon will not provide any position for, typically, 90 minutes and it could be as long as 5 hours: plus the accuracy of the position is no better than within 5 kilometres. The difference is stark and certainly could determine whether the recovery of a person in the water was successful or not. The cost difference between the 2 beacons (GME MT410 and GME MT410G in Whitworths' catalogue) is about \$120 and just less than 30%.

241. One of the PLBs from *PwC* was fitted with GPS and one was not. This meant there was a position immediately but it was not possible to confirm straight away that both beacons were associated with the same incident. It was the unregistered beacon that was GPS fitted which meant that beacon had a position but no contact and the one with a contact had no position. In short the PLBs were not able to provide the Rescue Coordination Centre at AMSA with the picture that should have been clear. Fortunately the use of the flares and the other resources that were immediately available resolved the issues and provided the necessary support.

242. A further issue relates to the nominated point of contact in the event of a PLB activation and its importance to race. The tenuous sequence of communication of the emergency has been discussed along with an unsolicited proposal from AMSA that the Race Officer is made the point of contact for all PLB and EPIRB activations associated with a race. The Inquiry strongly agrees with this proposal.

Watch on VHF Channel 16

243. During interviews with crews the difficulty in maintaining an adequate watch on VHF Channel 16 was raised. When *Patrice Six* lost a person overboard a 'Pan Pan' was called on Channel 16. Only one boat, *Nips N Tux*, responded and stood by. The incident occurred at about 10.30pm on Friday 9 October only 2 ½ hours after the start. There should have been more boats in the immediate area that could have responded and stood by if necessary.

244. The problem may have been compounded by Coast Guard Sydney who directed *Patrice Six* to Channel 22 as a working frequency and thereby cutting down the chatter on Channel 16. Other boats may have been alerted if there was a stream of transmissions on Channel 16 and then assessed an appropriate response. *Yendys* did hear the 'Pan' and calculated they were 11 miles from the incident and then missed the transmissions on Channel 22. They did hear the cancelling of the 'Pan' on channel 16 when the person was recovered.

245. Fortunately the incident had a good outcome but it does raise a potentially significant issue. Channel 16 is a vital link with boats in close vicinity and provides the best means of attracting support when it is critical, possibly lifesaving. The requirement to maintain a continuous watch on Channel 16 is stated in the Sailing Instructions.

¹⁸ Cospas-Sarsat is a satellite system designed to provide distress alert and location data to assist in SAR operations using spacecraft and ground facilities to detect and locate the signals from distress beacons operating on 406 MHz

246. The Inquiry considers boats should be reminded of their responsibility in maintaining a continuous watch on Channel 16 and review the arrangements they have in place to ensure it is effective.

Safety Gear on Boats

Stowage of Liferafts

247. *PwC*'s crew considered deploying a liferaft but was unable to get access to or launch a raft. The boat carried soft pack liferafts which were stowed below decks next to the mast. After the grounding the mess below decks was described as a 'death trap' – it was flooded, the motion was violent, there were heavy bags of sails, the liferafts and other gear which could pin you down and trap you. It was also pitch black.

248. A single crew member could not lift a liferaft. Two or more crew would have found it extremely difficult to work together in the conditions to lift a raft onto the deck. Fortunately the liferafts were not required.

249. The YA Special Regulation 4.19.2 (c) does allow boats with an age of series date before 06/2001 to use liferafts packed in a valise "not exceeding 40 Kg securely stowed below deck adjacent to the companionway". In addition Special Regulation 4.19.3(a) requires "each liferaft shall be capable of being got to the lifelines or launched within 15 seconds". *PwC* met the age date criteria but the liferafts were not adjacent to the companionway and could not be launched in 15 seconds.

250. The crew strongly recommended that all liferafts should be stowed on deck. The Inquiry notes the current requirements for newer boats and suggests boats with an age date before 06/2001 be reminded of the applicable Special Regulations.

Mini - Grab Bag

251. The situation onboard *PwC* developed very quickly after the grounding and similar scenarios can be imagined following a major collision, catastrophic keel or hull failure, hitting a container or large sea life etc. Practically, the crew was unable to go below and gather any personal gear or boat's equipment and had to survive with what they had on deck. They were fortunate to get the flares and had some PLBs but did not have the EPIRB or handheld VHF radio. The radio would have been a great advantage in assisting the SAR effort and quickly resolving issues that arose.

252. The YA Special Regulations recommend the use of a grab bag and lists a number of items for consideration as contents including 'dry' survival suits, first aid kit, radar transponder, waterproof handheld GPS etc. This leads to a relatively large bag which is usually stowed below. The crew of *PwC* suggested the need for a smaller bag that was stowed and readily accessible from the cockpit.

253. The smaller grab bag would contain the equipment that was considered vital for lifesaving following a catastrophic accident. Suggested items were an EPIRB, a handheld VHF radio, and two flares. This equipment could be part of the inventory normally carried in the larger grab bag with the expectation that both bags would be taken from a boat in a more orderly evacuation. The EPIRB may

not be necessary if everybody on deck has a PLB, especially if they were fitted with GPS, and the contents would need to be examined with respect to the course. A mobile telephone might be a suitable inclusion in some circumstances.

Torches and Searchlights

254. All boats involved in the SAR remarked on the inadequacy of the commonly used Dolphin torch when searching at sea at night. *Patrice Six* made the same comment after dealing with its person overboard. In the case of *Patrice Six* they could hear the person in the water yelling but the Dolphin torches were too weak to illuminate her. All spoke of the benefits of a handheld portable spotlight and the intention to obtain one for these types of emergencies and more general use.

Emergency Lighting

255. The crew of *PwC* described in vivid detail the difficulty of doing anything below decks when the boat was aground and without power. They strongly advised the provision of some sort of emergency lighting. This could be provided by strategically placing a few battery powered LED Touch Lights which are readily available, inexpensive and easy to fit.

Personal Equipment

256. The crew of *PwC* also recommended the need for each crew member to carry a small personal torch. This was considered necessary for dealing with the mayhem in the darkness on the boat and also when they got ashore onto the islet. Tasks like preparing and igniting flares were made difficult because of the lack of light. Personal location or strobe lights, which they were required to carry, were of little use.

RECOMMENDATIONS

257. The loss of life and the boat *PwC* reaffirmed that ocean racing is conducted in a very challenging environment which can prove to be fatal if not treated with caution and respect. *PwC* was crewed by experienced sailors who knew each other and their boat well. Their race turned to a tragedy very quickly and their experience was not enough to save two lives.

258. Despite the tragedy of the night there was considerable good fortune which prevented even further loss of life. Search and rescue resources were very quickly at hand. The fact that, in the conditions, 15 of the crew were able to virtually step ashore onto Flinders Islet without sustaining any serious injury is close to miraculous. While some lessons are to be learnt the SAR operation and local emergency management performed well.

259. Noting the risks involved, the sport of ocean racing has a good record of safety and the regulation of the sport is effective. Initiatives over recent years have been beneficial and created a culture of continuous improvement. This was clear from some crews interviewed by the Inquiry and their obvious commitment to safety was most impressive and demonstrated a very healthy safety culture among the top performers in the fleet. The challenge to race organisers is to ensure that this culture is consistent across the whole fleet and is supported by an appropriate level of regulation.

260. Good seamanship, navigation and management on a boat significantly reduce the risks. These skills at sea need to be supported by sound race administration and organisation. The Inquiry's findings and recommendations are put forward to enhance these fundamental skills and improve safety overall.

261. The Inquiry makes the following recommendations for the CYCA Board to consider:

Race Organisation

- a. Review and develop a consistent level of administration for all Cat 2 races with a common standard and set procedures and processes to ensure:
 - i. a clear hierarchy of responsibility with adequate supervision and oversight, and
 - ii. all relevant external authorities are informed of races and provided with contact details of the Race Officer, an agreed level of documentation and easy access to additional data as required.
- b. Investigate with a commitment to implement electronic forms for race entry and the provision of as much race documentation as practicable, to provide:
 - i. an easy means to audit the completeness and integrity of the entry data provided by competitors,
 - ii. a fast and accurate means of making information available to the Race Officer and disseminating data to interested third parties as required, and
 - iii. an accurate means of dealing with changes to entry data and late amendments with the necessary checks of compliance with race entry requirements.
- c. Reiterate the requirement to provide YA membership numbers with crew lists.
- d. Upgrade and provide additional support for the Race Officer through:
 - i. clearly identifying and widely promulgating the Race Officer as the point of contact for the Organising Authority for the conduct of the race,

- ii. providing the relevant sections of the sanctioned Standing Operating Procedures for all envisaged race emergencies to provide a check list for the Race Officer,
- iii. widely promulgate the means of contacting the Race Officer to all interested parties and assign a permanent 1 300 or 1 800 number or a number giving access to the club's PBX system for the Race Officer that would be common for all Cat 1 and Cat 2 races,
- iv. investigate the feasibility and implement if practicable, as a priority, a reliable VHF and HF communications network that will provide coverage of the race courses, initially from Cabbage Tree Island to Flinders Islet,
- v. evaluate the applicability of Digital Selective Calling for VHF race communications,
- vi. arrange with AMSA to accept the services offered to the club to check the registration of all PLBs and EPIRBs prior to a race and make the Race Officer the point of contact for any PLB or EPIRB activation during the race, and
- vii. provide the Race Officer electronic access to race documentation and other data such as weather forecasts.

Pricewaterhouse Coopers Incident

- e. The recommendations from the specific *PwC* incident pertain to navigation and boat organisation and have been included under 'Training of Crews'.

Search and Rescue

- f. Propose to Yachting Australia the evaluation and development of guidelines for yachts involved in SAR emergencies and incorporation as an Advisory Appendix to the Special Regulations.
- g. Propose to Yachting Australia the need to review the cost benefits of AIS transponders being fitted to racing yachts.

Emergency Management

- h. Provide a dedicated Emergency Management Team for each Cat 2 race.

Special Regulations and Sailing Instructions

Training of Crews

- i. Note the strong support for Safety and Sea Survival Course and encourage all regular offshore sailors to complete the course,
- j. Promote best practice in yacht navigation and boat organisation through whatever medium is available (magazine articles, presentations, seminars) in an attempt to strengthen the culture of safety and good seamanship throughout the racing and cruising fleets. In particular:
 - i. the appropriate use of navigation aids, such as GPS chart plotters, that heed the warnings provided by manufacturers and makes allowances for the system inaccuracies and limitations, and
 - ii. sound organisation of yachts that spread the workload, counters fatigue and ensure compliance with all instructions and regulations.

Safety Requirements

- k. Review the existing regulations with respect to the compulsory wearing of PFDs at night and at times of heightened risk to determine if a submission should be made to Yachting Australia to amend the current Special Regulations or the club should amend its Sailing Instructions.
- l. Propose to Yachting Australia the requirement for a quick release or cutting mechanism for a tether from a safety harness when it is under full strain.
- m. Reiterate the need for all PLBs and EPIRBs to be properly registered with AMSA.
- n. Reiterate the requirement for all crew to carry a PLB when on deck.
- o. Encourage all offshore crews to use GPS fitted PLBs and consider an approach to Yachting Australia to make the GPS fitted PLBs mandatory after a nominated date and period of grace. (A similar argument exists for EPIRBs)
- p. Caution crew about carrying vital lifesaving equipment, such as PLBs, in 'bum bags' and the potential for them to be ripped off and lost over the side.
- q. Reiterate the responsibility for boats to maintain an effective continuous watch on VHF Channel 16.

Safety Gear on Boats

- r. Remind boats with a age date before 06/2001, which are allowed to carry liferafts below deck, of the applicable Special Regulations and the requirement for the liferaft to be less than 40 Kg, adjacent the companionway and able to be launched in 15 seconds.
- s. Propose to Yachting Australia the requirement to carry a mini – grab bag that is readily accessible from the cockpit and contains vital equipment in the event of a catastrophic accident – equipment would include a VHF Handheld Radio, 2 flares and possibly an EPIRB.
- t. Recommend to all boats competing in overnight races the following equipment:
 - i. A handheld portable spotlight,
 - ii. The fitting of battery powered emergency lights, and
 - iii. A small personal torch for each crew member.

Chris Oxenbould AO
Rear Admiral RAN (Rtd)
Chair

David Kellett AM
Member

John Brooks
Captain
Member

ANNEXURE A

Terms of Reference

TERMS OF REFERENCE - CYCA INTERNAL INQUIRY INTO THE FLINDERS ISLET YACHT RACE INCIDENT

Preamble

- (A) An incident occurred about 2.50am on Saturday morning 10 October 2009 when the boat *Pricewaterhouse Coopers* was lost having run aground on Flinders Islet. Club members Andrew Short and Sally Gordon perished in the loss of the vessel. Other crew members had to be treated for exposure and minor injuries.
- (B) CYCA is required to provide a report to NSW Maritime in respect of the incident.
- (C) The Board of Directors of CYCA has resolved to hold an Inquiry into the incident on the basis of these Terms of Reference and have invited Rear Admiral Chris Oxenbould AO RAN (Retired) to Chair the Inquiry.
- (D) The Inquiry is concurrent with a police inquiry and is limited in its extent to enquiring as to the incident without seeking to apportion blame on any person.

Constitution and administrative matters

1. Rear Admiral Oxenbould is to be the Chair of the Inquiry, assisted by up to four Committee Members, as he, in consultation with the Board, shall select having regard to these Terms of Reference.
2. CYCA, through its CEO Mark Woolf, is to provide the Secretariat to the Inquiry. The costs and expenses of the Inquiry will be borne by CYCA.
3. The Inquiry has no power of compulsion on any person. Every person who gives evidence must be advised concerning their entitlements to privacy and privilege against self incrimination.
4. The Inquiry will meet at such times and in such places as the Chair of the Inquiry shall determine.

Terms of Reference

5. The Inquiry is to provide its final report to the Board of CYCA by 31 December 2009 with a preliminary report and recommendations to be delivered by 12 December 2009.
6. The Inquiry may seek input from crew on competing boats, members of the race committee, the Bureau of Meteorology, emergency services organisations and such other persons as the Inquiry sees fit. The Inquiry may receive written submissions.
7. The incident is subject to official enquiries and those that wish to provide oral or written submissions or comments to the Inquiry should be advised that the findings and recommendations of the Inquiry and submissions received may be made available to those other enquiries. Subject to applicable law, confidential submissions may be made to the Inquiry.
8. The Inquiry will examine all the circumstances pertaining to the 2009 Flinders Islet race. In particular the inquiry will:
 - (i) consider the administrative procedures in place leading up to the 2009 Flinders Islet race;
 - (ii) examine the conduct of the race from the point of view of the Race Committee and the competing boats;
 - (iii) review the emergency management procedures in place and their effectiveness;
 - (iv) consider the Special Regulations for Category 2 yacht races as promulgated by Yachting Australia,and make findings and recommendations as to:
 - (v) safety requirements and the deploying of safety gear on boats, and any changes in the Special regulations that ought be referred to Yachting Australia for further consideration;
 - (vi) search and rescue procedures;
 - (vii) emergency management procedures;
 - (viii) the requirements for eligibility of boats and crew, and the rules and regulations applicable to boats in Category 2 races conducted by CYCA, as specified in the Notice of Race and Sailing Instructions;
 - (ix) the training of crew; and
 - (x) such other matters relating to the conduct of the race as the Inquiry considers appropriate.
9. The Board will accept a minority report.
10. The Board may from time to time provide additional terms of reference to the Inquiry.

By direction of the Board
Mark Woolf
Chief Executive Officer
Cruising Yacht Club of Australia

Contact Details

The Chairman
Flinders Islet Race Inquiry
Cruising Yacht Club of Australia
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ANNEXURE B

Inquiry Team – Short Resumes

Rear Admiral Chris Oxenbould AO RAN (Rtd)

Chris Oxenbould had a distinguished career of over 37 years in the Royal Australian Navy, in which he specialised as a navigator and gained substantial command experience. On retiring from the Navy in 1999 he worked with the NSW Government and maintained his interest in maritime matters as the Chief Executive of Newcastle Port Corporation 2001-04 and CEO of NSW Maritime, the state's maritime regulator, from 2004-08. Chris has been an active sailor for most of his life, competing in 10 Sydney to Hobart races and several seasons of offshore racing out of Sydney and a season in England. He was Chairman of the Sydney Hobart Race Committee in 2000 and 2001. He currently owns a Bavaria 42 which he uses for social sailing and twilight racing.

David Kellett AM

David Kellett is a former Commodore of the CYCA with extensive ocean racing experience having participated in 35 Sydney to Hobart yacht races (20 times as skipper) and many years of ocean racing on the east coast of Australia and in America and England. He is a former Race Director of the Sydney to Hobart race as well as a former Chairman of the CYCA Sailing Committee. For the past 11 years, David has been a member of the International Sailing Federation Executive Board. He has been a Yachting Australia Board member for the past 6 years and Chairman of the YA Offshore Committee for periods totalling 17 years and is a former President of Yachting New South Wales. David is still actively sailing and competing.

Captain John Brooks FRAeS

Captain John Brooks is retired after 40 years experience in the aviation Industry, serving in the Royal Canadian Air Force (6 ½ years), Qantas Airlines (25 years) and Singapore Airlines (8 years). In the airlines he was a Boeing 747 and 707 Captain. Throughout his life he has been a very active sailor and sailing administrator. John has participated in 15 Sydney to Hobart, 2 Fastnets, 1 Transpac and 9 Sydney to Mooloolaba/ Gold Coast races plus many other international events. He was the Commodore of the CYCA 1984 – 1986, a member of the Board of the CYCA Youth Sailing Academy for 4 years and Leader of the CYCA Emergency Management Team and Chairman of the CYCA Emergency Management Committee for 6 years. He currently serves on CYCA Training and Development Committee (since 2003) and as Vice President – World Sailing Speed Record Council (ISAF) (since 2001).

ANNEXURE C

Lists of People Interviewed and Written Submissions

The Inquiry committee interviewed the following people who assisted in preparing this Report. Those marked with an '*' were interviewed by phone the others were interviewed in person.

Name	Representing/Expertise
Peter Geddes Gary Vaughn Michael Stuart Matt Pearce Kylie Short Nicholas Short	<i>Pricewaterhouse Coopers</i>
Syd Fisher Phil Eadie Tony Ellis	<i>Ragamuffin</i>
*Michael Hiatt Geoff Bonus Troy Trindill	<i>Living Doll</i>
Geoff Ross *Will Oxley	<i>Yendys</i>
John Messenger	Past Commodore/ Experienced Offshore Yachtsman/ Salver
Mike Green John McCuaig	<i>Quest</i>
Mark Woolf	CEO CYCA/ Emergency Management
Gary Linacre	Rear-Commodore CYCA/ Chair of Sailing Committee/ Chair of Race Committee
John Hurley	Acting Sailing Manager CYCA
Denis Thompson	Race Officer for the Flinders Islet Race
Greg Halls	Qualified Surveyor/ Experienced Yacht Navigator/ Past Chairman Sydney Hobart Race Committee

*Commodore Rod Nairn RAN	Hydrographer of Australia
Robyn Morton	Experienced Emergency Management Team Member and Race Official
Tony Kirby Denis Doyle	<i>Patrice Six</i>
*Matt DeMoss	National Sales and Marketing Manager, Garmin Australia
Inspector Tony Brazzill Detective Senior Constable Matt Brown	NSW Police Force, Marine Area Command
*Alan Lloyd Debra Galwey	Acting General Manager, Emergency Response Division, AMSA

The following written submissions were received before 4 December 2009.

Name	Issue
Steve Kidson	Assisted Race Officer for the Flinders Islet Race – offered his log of events
Derek Kelsall	Concern over the scantlings and construction of <i>PwC</i> and the way the boat broke up
Richard Grimes	Comments and recommendations for adoption of SAR procedures

The following submissions were received following the Commodore's message announcing some of the findings of the Preliminary Report.

Name	Issue
Robert Trevan	Drew Committee's attention to some potential errors with GPS, principally datum mismatch
Chris Bull	RORC's regulations pertaining to the wearing of PFDs

ANNEXURE D

Race Officer's Report

Flinders Islet Race 10th October 2009

The race documentation was onboard when I arrived at the Club on Friday afternoon at about 1730 hrs. Some of the start crew had arrived early and picked up the documentation from the office. Amongst the start boat equipment bag were three clipboards with all the relevant race information attached including list of starters with crew numbers listed, radio position schedule sheets, changes to sailing instructions, weather and any other data required. There was one board for the Race Officer, one board for the designated scribe and one spare board.

"Offshore" left the dock at approximately 1840 hrs to set up the starting line. The starting area was designated in the sailing instructions as in the vicinity of Point Piper. The committee boat was at anchor by 1920 hrs in a location of approximately S33° 51.80' E 151° 14.88'. The pin end was streamed in to position by the Red Duck at approximately 1930 hrs at a distance of approximately 400 metres and an angle of 280° from the start boat.

When the boat was at anchor the fleet started to call "Offshore" as required by the sailing instructions with a positive intention to start and confirm of the number of Persons on Board (POB). The calls were received by the scribe for checking against the start list confirming the POB were as recorded by the Club. As the time of the first starting signal drew closer the scribe advised me there was one boat that had not called in at that time. After a visual count of boats it was determined that all boats that were in the vicinity of the starting area had called the committee vessel and the missing boat was "Rhumba". The scribe also confirmed that two boats had discrepancies in the number of POB as listed on the sheets. These two boats were "Lahana" (one less) and "Copernicus" (I think) (also one less).

The race started on time at 2000 hrs in approximately six to ten knots of wind from about 210°. There were passing showers in the area which limited visibility at times. Approximately 20 minutes after the start "Offshore" pulled up anchor and started to make its way to Rushcutters Bay to drop off the crew that were not required for the rest of the night. At this time a call was heard from "Rhumba" on VHF channel 72. We were unable to establish contact with the boat on channel 72. We were able to contact the sailing office who relayed the owners' phone numbers to "Offshore". Telephone contact was made with the one of the owners of "Rhumba", who confirmed they were still moored at MHYC and were not starting in the Flinders Island Race that evening.

After dropping of the excess crew, "Offshore" was anchored in position at the finishing line at the entrance to Rushcutters Bay. All radios were on the correct frequencies for a listening watch for the duration of the race.

2115 hrs

"Offshore" received a message that "Lahana" had withdrawn from the race and was proceeding back to Sydney Harbour and all was well on board the yacht. We were unable to make further contact with "Lahana" on channel 72 due to the proximity of the land and we did not have the boat's telephone number as part of the race information.

2355 hrs

A radio call on channel 72 was received from "Patrice Six" advising that they had a Man Over Board (MOB) at approximately 2230 hrs. The crew member had been retrieved safely and had received First Aid onboard "Patrice Six". "Patrice Six" had advised Coastal Patrol and Water Police of the situation. Water Police advised they would meet "Patrice Six" on return to port. "Patrice Six" had further advised that "Nips n Tux" had stood by to give assistance if it was required. "Patrice Six" subsequently returned to port and "Nip n Tux" continued racing.

1135 hrs

An updated weather forecast was downloaded from the Bureau of Meteorology. The updated forecast was issued at 2200 hrs had cancelled all wind warnings and indicated a moderating breeze and sea state. Winds 20/25 knots from the south, easing to 15/20 knots with seas 2.5 to 3 metres, abating 1.5 to 2 metres.

0005 hrs

The Safety Sched was conducted on HF 4483 khz with three boats called; "Loki", "More Witchcraft" and "Zephyr" to check that all was OK. All was OK on board each boat and "Zephyr" reported winds of 20 to 30 knots from the south with 2 to 3 metre seas. "Patrice Six" called and she reported her position as 33° 52' 151° 18' which put her north of Bondi on her way back to port.

0100 hrs

"Patrice Six" reported to "Offshore" verbally as she came past the boat on her way to the Club. I contacted Di Pearson with this information for media purposes.

0255 hrs

A weak (strength 2) transmission was received from, very probably, "Sailors with Disabilities" reporting "Red flares had been sighted to the east of Port Kembla". Radio contact was unable to be established with that vessel. I immediately telephoned Sydney Water Police and relayed this information to them.

0315 hrs

I received a phone call from Kylie Short stating that a Personal Locator Beacon (PLB) had been activated from the vessel "Price Waterhouse Cooper" (PWC). We were unable to relay any other information to her.

0316 hrs

John Hurley telephoned and said that Kylie Short had also contacted him with the same information.

0317 hrs

Noel Molloy from AMSA called to advise that a PLB had been activated near Flinders Island and that three vessels were standing by at the scene. AMSA further advised a Water Police vessel and a Port Kembla Harbour Control vessel were attending the incident. The information was received from AMSA that "Andrew Short Marine" was aground and there were persons in the water.

0320 hrs

I called Mark Woolf and advised him of the situation.

0330 hrs

Sydney Water Police rang to advise "Andrew Short Marine" was aground near Flinders Island and ten people were on the island. Other people were being recovered from the water. Water Police asked for the POB for "Andrew Short Marine" ("PWC" for this race) and we advised from our sheet there were fifteen POB

0335 hrs

John Hurly rang and we advised him of the situation. John had most of the info already.

0335 hrs

Will Oxley, navigator on "Yendys", rang and advised that they were currently in the search area half a mile from Flinders Island. "Yendys" advised three persons had been recovered from the water, one on "Ragamuffin", one on "Quest" and one on the Water Police Boat. "Yendys" further advised that possibly two persons recovered were not breathing. We advised "Yendys" that ten persons were on the island and two were unaccounted for at this stage. "Quest" and "Ragamuffin" were heading for Port Kembla with the recovered persons on board.

0345 hrs

I rang Mark Woolf to locate the Next of Kin information from the Club files.

0350 hrs

Jeremy (?) from Sydney Water Police called to confirm the POB and to get all the Next of Kin information. Again from my sheet I confirmed fifteen POB. The Water Police confirmed that it appears there were two deceased persons and two still missing.

0355 hrs

I rang Mark Woolf to request the NOK data be prepared for Water Police.

0420 hrs

Will Oxley from "Yendys" called to say "Living Doll" had retired from the race and was returning to Sydney and "Yendys" was about to resume racing.

0425 hrs

Mark Woolf called to say he had compiled the NOK data and I gave him the contact details for Sydney Water Police. At this time the sailing office confirmed there were eighteen POB on "PWC" as there had been a late change in the crew numbers. This change in POB had been hand written on one of the sheets that came on to the boat. I immediately contacted Water Police with this new information and they told me they already had confirmation of eighteen POB.

0435 hrs

Mark Woolf contacted "Offshore" and confirmed there were fifteen persons on the island, one on Water Police Boat, one on "Ragamuffin" and one on "Quest". All eighteen persons had been accounted for. It appears there are 2 deceased.

0450 hrs

Roger Wragby contacted "Offshore" advising that he was standing by in the sailing office.

0530 hrs

Noel Molloy from AMSA called to confirm all survivors had been air lifted from Flinders Island and all eighteen had been accounted for.

0532 hrs

I contacted Mark Woolf and updated him with all the information we had. "Loki" radioed from abeam Hornby Light that they were on the way to the finishing line.

0545 hrs

Mark Woolf called and we advised information from the Communication Log including info from 0005 hrs Safety Sched.

0559 hrs

"Loki" crossed the finishing line and we verbally provided the crew of "Loki" a brief up date on the situation.

0705 hrs

Conducted the position sched for the race on HF 4483 khz and asked competitors to come alongside after finishing for further instructions.

0710 hrs

Water Police contact "Offshore" to obtain further crew and boat information to assist with investigation. At this time we advised that this information could be obtained from CYCA office through Mark Woolf.

As each boat crossed the finishing line a brief outline of events was relayed to them and asked that Commodore Matt Allan be the media spokesperson about the incident.

At approximately 1546 hrs the last boat crossed the finishing line and "Offshore" retrieved its anchor and returned to its berth at CYCA.

Issues

During the pre-start sign on procedure one person on the start boat took note of the intention to start and the POB for each racing boat. At the time the scribe advised the rest of the starting boat crew that two racing boats did not match the POB as listed, neither of these boats was "PWC". Subsequently when the Water Police asked for the POB for "PWC" I read directly from my list that showed "PWC" as fifteen POB. The information that there were eighteen on board "PWC" was only hand-written on one of the sheets that came on the starting vessel and the other sheets were not corrected and updated. When Water Police requested the NOK data it took some time to access the data from the sailing office. Initially I considered ringing Roger Wragby direct as he was the closest to the Club; however I contacted Mark Wolf who then put the required actions in train. It appears Stephen Craig could have accessed this information from a remote connection of the office computer from his home even though he lives furthest away from the club.

These two issues did not impact on the rescue at all but did slow the flow of information to the Water Police.

Recommendations:

When late information comes to the sailing office all clip boards to be updated in full and all out of date sheets be discarded. This should be the last task completed prior to the information sheets being delivered to the starting boat or picked up from the sailing office.

The full electronic file of each boat to be emailed to the starting boat before it leaves for the start. This way any information required can be accessed by the crew on board and if required the information can be sent electronically to AMSA or Water Police as quickly as possible.

The issues and recommendations are not to be treated as critical but are made as suggestions to improve the excellent procedures that are already in place at CYCA.

Denis Thompson
Race Officer

ANNEXURE E

Minutes of the CYCA Debrief of Flinders Islet Race

FLINDERS ISLET DEBRIEF

MINUTES OF MEETING OF THE CYCA DEBRIEF OF THE FLINDERS ISLET RACE CONDUCTED ON 9-10 OCTOBER 2009 HELD AT THE CRUISING YACHT CLUB OF AUSTRALIA ON FRIDAY 30 OCTOBER 2009 AT 9:30AM.

ATTENDANCE: COMMODORE MATT ALLEN
 VICE COMMODORE HOWARD PIGGOTT
 REAR COMMODORE GARRY LINACRE
 CHRIS OXENBOULD
 MARK WOOLF
 CHRISTINA DEL CONTE
 DENNIS THOMPSON
 JOHN HURLEY
 STEPHEN CRAIG

APOLOGIES: JUSTINE KIRKJIAN

ITEM 1: OPEN – COMMODORE MATT ALLEN

Commodore M.Allen welcomed everyone to the meeting and advised that the objective of the meeting was to review what transpired during the race to Flinders Islet and to outline any improvements to procedures that may surface as a consequence of the debrief being conducted.

It was noted that the Water Police continue to conduct their own investigations into the incident.

If an agreed set of improvements were determined then these should be documented and relayed to the yachting authorities and NSW Maritime once approved by the Board and the Water Police have completed their enquiry.

ITEM 2: TWO STAGE PROCESS

C.Oxenbould reported that the emergency services in Port Kembla have completed their debrief. There has been no decision on the cause of the incident. Investigators were present at this debrief. The report will be released sometime in December and a coronial inquest may be convened in the first part of next year. The coroner will then decide whether he will make his findings public.

He recommended that it was beneficial for the Club to conduct its own enquiry so that the sport had some input into refining its administrative procedures, the structure of which should be endorsed by the Board. The report should then be made available to the NSW Maritime and the NSW State Coroner if requested.

Crew members on board *PriceWaterhouseCoopers* and other competitors that went to the aid of those from the stricken vessel should be interviewed and their comments assembled.

H.Piggott recommended that an agreed criteria be prepared of the facts of what happened.

C.Oxenbould recommended that a committee of three persons be commissioned by the Club and the terms of reference should be agreed by the Board ie

- i) Conduct of the race;
- ii) Incident;

and that the report be presented to the Sailing Committee, Audit, Planning & Risk Committee or the Board of Directors. The report should also be made available to NSW Maritime.

It has been requested by Port Kembla that the local port authority should be advised when the Club is planning to conduct a race in the area. It was noted that there were also two incidents of close quarters with cargo vessels during the race.

Shipping activity has increased well over 200% in the region as traffic has been de-centralised away from Sydney.

The Committee then raised the question, Is Flinders Islet therefore an appropriate rounding mark of the course ?

C.Oxenbould recommended that the port authorities of both Port Kembla for races travelling south, and Newcastle for races travelling north should be advised if there is racing on in order that the port authorities can communicate this information to vessels in the immediate area.

It was highlighted that the next race to Flinders Islet is due to be held in February 2010.

C.Oxenbould offered to act as Chairman for the Club's enquiry. Commodore M.Allen endorsed the appointment on behalf of the Board who were unanimous in their support of the appointment.

He mentioned that the sport of sailing was greatly self-regulating as opposed to recreational boating which has little regulations at all.

Commodore M.Allen recommended that any smaller issues be modified through the Sailing Instructions effective immediately, and if possible a list of recommendations be prepared from today's debrief. These should be advised to the Audit, Planning & Risk Committee and referred to the Board.

ITEM 3: REPORT BY PRINCIPAL RACE OFFICER D.THOMPSON

Report as prepared by Principal Race Officer D.Thompson was tabled (attached).

He advised that the Flinders Islet Race was the first offshore race that he had been engaged as PRO for the CYCA. As such a meeting was convened the day prior with M.Woolf and J.Hurley. One of the topics discussed at meeting was an overview of emergency management procedures and he had a level of confidence with the procedures that the Club had in place for the race.

The Sailing Office had prepared the paperwork for the start vessel *Offshore*. At the time of the start the weather conditions were moderate, 10 knots SSW direction, and considered safe. There was no doubt on whether or not to commence the race.

Ezy Street and *Lahana* had a differing number of persons on board than the crew lists that had been lodged by them. *Rhumba* did not start, and this was established via a phone call to the owner. Once the race had commenced the start team on board *Offshore* maintained a listening watch.

D.Thompson stated that he did not have at hand all the contact phone numbers for the vessels in the race.

At 2355 a message was issued by *Patrice Six* to the start vessel that they had successfully retrieved a crew member that had been in a MOB situation at 2230.

D.Thompson stated that he did not hear the 'PAN PAN' issued by *Patrice Six* nor any of the radio traffic. T.Kirby later confirmed that he spoken to the Water Police on Ch 16. The MOB had lost their PLB from out of their pocket when they went overboard.

An updated weather forecast was received at 2330 and a safety sked conducted at 2400.

D.Thompson recommended that a laptop be made available on the start vessel to enable access to weather information and the like. S.Craig suggested that a page on the CYCA website could be set up with links to relevant websites.

Yachts *Loki* and *More Witchcraft* requested a radio check to be conducted. *Loki's* signal was okay however *More Witchcraft's* was weak. Following the radio check, the start team commenced a 3 hours on, 3 hours off watch pattern.

At 0255 a message was received on *Offshore* from, believed to be *Sailors with disAbilities*, that red flares had been sighted east of Port Kembla. Sydney Water Police were then contacted and advised of this information.

At 0315 a phone call was received by D.Thompson from K.Short advising him that she had been contacted by AMSA and that a PLB had been activated from the vessel *PriceWaterhouseCoopers*. (K.Short had contacted S.Finsten, CYCA Dock master and he referred her to D.Thompson. K.Short did not have the start vessel contact number.)

D.Thompson recommended that the nominated Next of Kin and AMSA be supplied with the relevant contact numbers for those involved in Offshore races.

At 0335 W.Oxley from *Yendys* contacted the start team and appraised them of the situation at Flinders Islet.

D.Thompson then commenced to obtain the crew information. At this time Sydney Water Police phoned to establish the number of persons on board the vessel and NoK information. According to the paperwork on board *Offshore* there were 15 on board.

The Sailing Office later verified that there were 18 PoB as there had been a last minute change with additional crew added. The updated information was then passed onto the Water Police who confirmed that two persons were deceased, some missing and others were on the Islet.

At this point D.Thompson and S.Kidson conferred on whether the race should be abandoned with yachts requested to take up search activity. It was established that most of the fleet were too far north and determined that the race should continue.

The start vessel remained on station for the finish of the race. As yachts crossed the line they were requested to come alongside and were informed of the situation and that Commodore M.Allen would be the spokesperson for the Club. The last yacht completed the race at 1545.

D.Thompson stated that at 1630 on the day of the start crew information had been added to the start vessel sheets by pencil, and that not all the sheets had been

updated. He recommended that there be a time limit instigated for permissible crew changes to allow the Sailing Office to complete an update of the paperwork required for offshore races. An electronic file, or hard copy of all crew information be made available for the start boat team.

G.Linacre recommended that the same disciplines as for the Category 2 long races be applied for overnight races. One person from the Sailing Office is to be responsible for any change of crew information. Members of the Sailing Committee are to be on call for each Category 2 race. Any requirements should be formalised at the Sailing Committee meeting prior to the impending race.

M.Woolf made reference to the Emergency Management Standard Operating Procedures that are already in place for long races.

It was suggested that the boat contact information be available on the laptop for the start vessel via the 'S' drive that is on the server for the Sailing Office. S.Craig advised that 90% of the crew lists are faxed to the Sailing Office.

J.Hurley recommended that the contact details for CYCA race personnel be added to the Sailing Instructions, or commonly referred to as 'green sheets'. He commented that the red duck is available at any time to send out hard copy information to the start vessel.

Number of persons on board competing yachts are to be advised to the port authorities, marine area command, NSW Marine Rescue and NSW Maritime for each race.

ITEM 4: ITEMS FOR CONSIDERATION

Should the Club be racing around Flinders Islet given the increased shipping traffic in the area and in light of the fatal accident ? Perhaps Bass Islet would be better as a rounding mark. Perhaps an offshore mark might be laid at the same latitude as Flinders Islet, however further east. Sailing Committee to deliberate further.

H.Piggott was reluctant to change the course prior to the findings of the Coroner being released.

The investigations of a VHF repeater to be placed on South Head to allow for full and audible communication to be considered.

Should a race briefing, similar to what is provided to skippers prior to long races be introduced for all Category 2 races ? This could be conducted by the Race Officer via VHF prior to the start or incorporated into the Boat Owner's Forum that is held each September.

Should an exclusion zone be introduced for all islet / island marks ?

Competitors to be advised of major shipping movements in those areas that the race ventures into. Examine the proximity to the port entrances.

A review of the course for the Cabbage Tree Island race was completed.

M.Woolf confirmed that the Club resources were available during the entire time with the Club being open throughout the night. The Acting Sailing Manager was on call, with calls also being taken by J.Kirkjian who is currently on maternity leave.

Conclusion on PFDs is to be drawn from the official findings. H.Piggott suggested however, that skippers be reminded of their duty of care towards crew members reminding them of the recommendations for the wearing of PFDs and the carrying of PLBs.

Reference Racing Rules of Sailing, Special Regulations;

- 5.01 (e) – PFDs
- 5.05.1 - PLBs

Air Ambulance in the region have been requested to apply for funding from CYCA SOLAS for purchase of night vision goggles.

Recording of VHF activity to be obtained from the Port Kembla Port authority.

Offer through D.Graham for a CYCA representative to attend DEMO briefings.

A register of PLBs to be maintained.

M.Allen suggested that the ORCV be contacted to ascertain their safety procedures for overnight races.

C.Oxenbould and M.Allen to discuss the formation of the Committee and outline terms of reference.

Newcastle Marine Rescue to be advised of the Cabbage Tree Island Race and assistance to be sought with relay of radio communication.

Meeting closed at 12:15pm.

Recommendations to be Implemented Prior to the Cabbage Tree Island Race

<i>Item No:</i>	<i>Recommendation</i>
1.	Develop protocol to communicate LOE, POB, SIs, relevant CYCA contacts to Marine Area Command (to distribute to relevant local area commands), Port Authorities and VMR.
2.	Provide start vessel with contact numbers for all yachts in the race.
3.	Provide a laptop to the start vessel with links set up to the relevant websites.
4.	Provide designated boat buddies and AMSA with contact numbers for race management.
5.	Add race management contact numbers on 'green sheets'.
6.	Consider time limit for lodgement of crew changes.
7.	Apply Category 2 disciplines for major races to overnight races. Sailing Committee members to be on call.
8.	Number of persons on board each yacht to be advised to the Port Authority.
9.	Race Briefing, advise competitors of shipping movements in the area.
10.	Remind skippers of duty of care, Re PFDs and PLBs.
11.	Advise Newcastle Marine Rescue race is on and seek assistance with radio communications.

ANNEXURE F

Patrice Six – Person Overboard Incident

Report on MOB incident on Patrice Six in the Flinders Islet Race 09/10/09

Tony Kirby-Skipper Denis Doyle-Navigator

At app. 2228h 09/10/09 in Pos. 34 01S 151 25E (app. 12nmls SE of South Head)
TWD 175deg (m) TWS 18-24kts Swell 2-2.5 mts Waves 1.5mts + Choppy conditions Cold wind.

Patrice was close-hauled on starboard tack hdg. app 135deg- Patrice tacked onto port and crew moved into their positions for the new heading. Crewperson Angelique Keir on the weather side of the boat lost her grip and footing and fell across the cabin top and over the leeward rail and into the water, some crew were able to make a grab for her and only just missed retrieving her immediately. MOB was called and crew deployed lifering and strobes, a torch was also thrown but in this instance was seen to sink fairly quickly, Crew with torches maintained visual contact. Angelique was not wearing a PFD but was equipped with a Strobe light and PLB. Boat was brought under control and put onto a reach and crew were organised, TK was off watch but heard the MOB call and had pressed the MOB command on the GPS, P then gybed and sailed back along the reciprocal course, visual contact was lost but strobe lights were clearly visible, P sailed to these lights but AK had been separated from them and was not seen on the first pass, headsail was dropped at this time. P continued on starboard reach as TK came on deck and decision was made to drop the mainsail and bring the boat under engine power, TK took command on deck at this time (app. 2232h) and DD went below to broadcast emergency call and assume navigation and communications. All trailing sheets and misc. Gear was tidied up and boat returned to search area. DD broadcast PanPan call on VHF 16 and Coastal Patrol responded immediately and made contact with Sydney Water Police. Nips N Tux also responded and was proceeding to assist, this was only boat in race fleet to respond. TK and DD communicated about situation and direction to MOB area, all crew were now available to keep a lookout and within a few long minutes heard AK calling and were able to make visual and voice contact. Lifesling was deployed and Patrice manoeuvred into position and Angelique was brought aboard, her wet clothing removed and then wrapped in sea rugs and made comfortable below. We estimate that AK was in the water for a maximum of 12 mins. We also note that she was washed and drifted nearly 60-70 mts to leeward from her original position in that time.

2242 Following the successful recovery DD contacted Coastal Patrol and Nips N Tux to advise them of same. Water Police made a request to come out to pick AK up for medical attention but we were able to advise them that as a racing yacht we had qualified persons on board trained in the procedure for treatment of hypothermia and shock and were returning to the marina and would monitor her condition constantly, a full report and

personal details were supplied to Const. Gerard Holland on our return at app.0200 10/10/09. During the return DD contacted Offshore on VHF 72 to advise them of the incident and also reported in on arrival at the Start/Finish line.

Patrice Six would like to commend the crew for their actions in the situation, although there was a great sense of urgency there was little confusion and no panic.

Patrice also highly commends the actions of AK by putting her SSSC training to work by securing her buoyancy, an upturned seaboot, activating her strobe light and remaining calm until the boat returned for her. She did report some anxiety at first but then recalled her training and acted accordingly.

Also thanks to Coastal Patrol and Water Police for their assistance and offers of help which we were happily not to need.

Patrice also acknowledges Nips N Tux coming to our assistance and standing by until we had successfully recovered AK. We note with some disquiet that Nips was the only yacht in the fleet to acknowledge our PanPan call for Immediate assistance in a MOB situation.

Tony Kirby-Skipper - Patrice Six

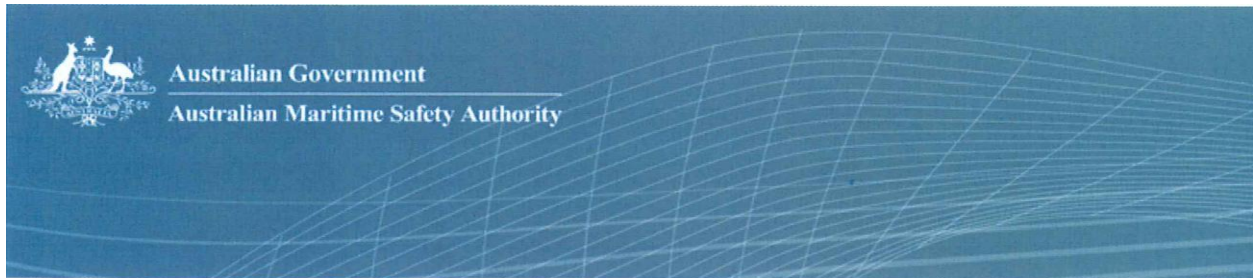
Denis Doyle-Navigator

COMMENTS:

- 1) To only get 1 response from fleet indicates fleet is not monitoring VHF 16 satisfactorily. Also note that Offshore did not copy our messages until they were called on VHF 72 on our return trip to harbour.
- 2) After establishing with contact with Coastal Patrol on VHF 16 they asked me to change to VHF 22. I do not understand why as it meant leaving the emergency channel and cutting off comms with any other vessel closer. All procedures and message content from Patrice were as per regulations. No other traffic heard.
- 3) Coastal Patrol made contact with Water Police and I was then given a phone no. and asked to contact them by mobile phone. VHF comms were very clear at this time. I then had to find a phone which happened to be on a network where the connection dropped out almost straightaway, I then had to find another phone, switch it on and make contact. This procedure was awkward and time consuming.
- 4) Returned to VHF 16 and maintained contact with CP and Nips
- 5) Clearly signed off with CP and Nips when situation resolved. All comms with WP were by mobile phone including final report on safe return to marina berth.

ANNEXURE G

Freedom of Information Response from AMSA



7 January 2010

Rear Admiral Chris Oxenbould
Chairman
Flinders Islet Race Inquiry
Cruising Yacht Club of Australia
New Beach Road
Darling Point NSW 2027

Dear Rear Admiral Oxenbould

Re: Freedom of Information Act 1982 application in relation to an incident in the Flinders Islet Yacht Race

I refer to your request in which you sought access to the documents under the *Freedom of Information Act 1982*, the ('FOI Act'), in relation to the above incident.

The Australian Maritime Safety Authority has made a decision in regard to those documents.

I have decided to grant you full access to the documents which describe the detection of the beacons involved in the incident. I have also decided to waive the application fee and the processing fee associated with your application.

Accordingly, I enclose for you:

- Two documents describing in detail the specifics of the detection of the activated beacons.

In explanation of these rather technical documents and your specific questions the following information is also provided.

The Cospas Sarsat beacon detection system automatically transmits a message when a beacon is activated. In Australia, this message is sent to the AUMCC¹ which is co-located in RCC Australia.

The time stamp on the first beacon was 091546 UTC² Oct 2009 (100246 EDST Oct 2009). The AUMCC transmit time was 091548 UTC Oct 2009 (100248 EDST). This beacon had a HEX ID of 3EF633EB3F81FE0 and was GPS-equipped, providing a position of 34 27.16 South 150 55.48 East.

¹ Cospas-Sarsat is a satellite system designed to provide distress alert and location data to assist search and rescue (SAR) operations, using spacecraft and ground facilities to detect and locate the signals of distress beacons operating on 406 Megahertz (MHz). The position of the distress and other related information is forwarded by the responsible Cospas-Sarsat Mission Control Centre (MCC) [in Australia, this is referred to as AUMCC] to the appropriate national SAR authorities. Its objective is to support all organisations in the world with responsibility for Search and Rescue (SAR) operations, whether at sea, in the air, or on land.

The time stamp on the second beacon was 1548 UTC Oct 2009 (101548 EDST). The AUMCC transmit time was 091550 UTC Oct 2009 (101550 EDST). This beacon had a HEX ID of 3EF633E9BF81FE0. This beacon was not GPS-equipped and therefore no positional information was provided at the time of the initial alert. The positional information for a beacon that is not GPS-equipped cannot be resolved at the time of the initial alert.

The first beacon (identified as a Personal Location Beacon (PLB) with HEX ID of 3EF633EB3F81FE0 was not registered with AMSA and therefore there were no point of contact for RCC to use to gain further information. This beacon remains unregistered.

The second beacon (also a PLB) with a HEX ID of 3EF633E9BF81FE0 was registered in AMSA's 406 MHz beacon database. This beacon was registered to Michael Stuart. Natalie Stuart was noted as the Next Of Kin and point of contact.

First Beacon (unregistered)

3EF633EB3F81FE0 - Australia	MISSED ALERT	091744 UTC OCT 2009
3EF633EB3F81FE0 - Australia	POSITION RESOLVED ALERT	091555 UTC OCT 2009
3EF633EB3F81FE0 - Australia	POSITION RESOLVED ALERT	091548 UTC OCT 2009
3EF633EB3F81FE0 - Australia	INITIAL (ENCODED) ALERT	091546 UTC OCT 2009

Second Beacon (registered to Michael Stuart)

3EF633E9BF81FE0 - Australia	MISSED ALERT	091744 UTC OCT 2009
3EF633E9BF81FE0 - Australia	POSITION RESOLVED ALERT	091555 UTC OCT 2009
3EF633E9BF81FE0 - Australia	INITIAL ALERT	091548 UTC OCT 2009
3EF633E9BF81FE0 - Australia	(UNLOCATED) ALERT	091548 UTC OCT 2009

Review rights

Section 54 of the FOI Act gives the applicant the right to apply for an internal review of the decision refusing to grant access in accordance with their request. An application for review of this decision must be made in writing within 30 days of receipt of this letter and must be accompanied by an application fee of \$40.00.

No particular form of review application is required but it is desirable to set out in the application the grounds on which the applicant considers that the decision should be reviewed.

² Universal Time (UTC)/Greenwich Mean Time. RCC Australia is located in Canberra, ACT; and was operating in Eastern Daylight Savings Time. (EDST) at the time of the incident. EDST, calculated by adding 11 hours to UTC time. The six figure date-time group comprises the date in the first two digits and the 24 hour clock time in the following four. Here 091548 UTC Oct 09 reads as 0248 a.m. on 10 October 2009.

An application for review of this decision is to be addressed to:

The Freedom of Information Officer
The Australian Maritime Safety Authority
GPO Box 2181
Canberra ACT 2601

Complaints to the Ombudsman

Section 57 of the Act provides that a person may complain to the Ombudsman concerning action taken by an agency in the exercise of powers or the performance of functions under this Act. Please note that the Ombudsman usually does not investigate a complaint until after an internal review has been completed. Similarly, a review cannot be conducted concurrently by the Ombudsman and the Administrative Appeals Tribunal.

A complaint to the Ombudsman may be made orally or in writing and should be directed to the following address:

Commonwealth Ombudsman
GPO Box 442
Canberra City ACT 2601
Toll free: 1300 362 072
Website: www.ombudsman.gov.au

The Ombudsman usually prefers applicants to seek internal review before complaining about a decision.

Yours sincerely



Alan Lloyd

ACTING GENERAL MANAGER
EMERGENCY RESPONSE DIVISION

3EF633E9BF81FE0-091548 UTC OCT 2009-(UNLOCATED) ALERT-NZGEO2

Printed On: 060111 UTC JAN 2010

Printed By: Debra Galwey

To:

CC:

Subject: 3EF633E9BF81FE0-091548 UTC OCT 2009-(UNLOCATED) ALERT-NZGEO2

Document Id: 9311990

Filed On: 2009/7049 - 3EF633EB3F81FE0 - Sloop SHOCKWAVE Grounding

Body:

AURCC
AUMCC TRANSMIT TIME : 15:50 UTC 09-10-09
FORMAT FILE: RCC406D.FMT
a. 30 CHARACTER HEX MSG : 9F7B19F4DFC0FF04F1AC379F3C0010
BEACON ID : 19F4C000
b. NUMBER OF POINTS/INTEGRATIONS : 002
c. LUT/MCC ID : NZGEO2 WELLINGTON GEOLUT, NEW ZEALAND
SATELLITE PASS/ORBIT TRACKED : G11/ 1
SAT. ORBIT WHEN BCN. DETECTED : GOES 11/ 1
d. ENCODED POSITION : DEFAULT EMBEDDED LOCATION
/BEGINMSG
/39052 00000/5030/09 282 1550
/122/5030/211/01
/5123/+02972.1 001.9 +02.27/09 282 1548 32.58/02
/9F7B19F4DFC0FF04F1AC379F3C0010
/LASSIT
/ENDMSG
/BEGINALERT
1. DISTRESS COSPAS-SARSAT (UNLOCATED) ALERT
2. MSG NO: 39052 AUMCC REF: 3EF633E9BF81FE0
3. DETECTED AT: 09 OCT 09 1548 UTC BY GOES 11
4. DETECTION FREQUENCY: 406.0280 MHz
5. COUNTRY OF BEACON REGISTRATION: 503/ AUSTRALIA
6. USER CLASS:
NATIONAL LOCATION
PLB - SERIAL NO: 026579
7. EMERGENCY CODE:
EMERGENCY TYPE: NIL
MARITIME EMERGENCY TYPE: NIL
8. POSITIONS:
RESOLVED - NIL
DOPPLER A - NIL
DOPPLER B - NIL
ENCODED - 00 00 00 N
- 000 00 00 E
ENCODED - UPDATE TIME UNKNOWN
9. ENCODED POSITION PROVIDED BY: INTERNAL DEVICE
10. NEXT PASS TIMES (UTC):
RESOLVED - NIL
DOPPLER A - NIL
DOPPLER B - NIL
ENCODED - NIL
11. HEX ID: 3EF633E9BF81FE0 HOMING SIGNAL 121.5 MHZ
12. ACTIVATION TYPE: NIL
13. BEACON NUMBER ON AIRCRAFT OR VESSEL NO:
14. OTHER ENCODED INFORMATION: NIL

15. OPERATIONAL INFORMATION:

LUT ID: NZGEO2 WELLINGTON GEOLUT, NEW ZEALAND
16. REMARKS: NIL
END OF MESSAGE
/ENDALERT
RCC406D.FMT

3EF633EB3F81FE0-091546 UTC OCT 2009-INITIAL (ENCODED) ALERT-NZGEO1
Printed On: 060111 UTC JAN 2010

Printed By: Debra Galwey

To:
CC:
Subject: 3EF633EB3F81FE0-091546 UTC OCT 2009-INITIAL (ENCODED) ALERT-NZGEO1
Document Id: 9311986
Filed On: 2009/7049 - 3EF633EB3F81FE0 - Sloop SHOCKWAVE Grounding
Body:

Unregistered

AURCC
AUMCC TRANSMIT TIME : 15:48 UTC 09-10-09
FORMAT FILE: RCC406E.FMT
a. 30 CHARACTER HEX MSG : 9F7B19F5A89C96E08A73B7160C0C7D
b. NUMBER OF POINTS/INTEGRATIONS : 002
c. LUT/MCC ID : NZGEO1 WELLINGTON GEOLUT, NEW ZEALAND
SATELLITE PASS/ORBIT TRACKED : G11/ 1
SAT. ORBIT WHEN BCN. DETECTED : GOES 11/ 1
d. ENCODED POSITION : COARSE AND FINE EMBEDDED LOCATION
/BEGINMSG
/39051 00000/5030/09 282 1548
/122/5030/211/01
/5122/+02982.7 000.8 -00.94/09 282 1546 10.90/02
/9F7B19F5A89C96E08A73B7160C0C7D
/LASSIT
/ENDMSG
/BEGINALERT
1. DISTRESS COSPAS-SARSAT INITIAL (ENCODED) ALERT
2. MSG NO: 39051 AUMCC REF: 3EF633EB3F81FE0
3. DETECTED AT: 09 OCT 09 1546 UTC BY GOES 11
4. DETECTION FREQUENCY: 406.0280 MHz
5. COUNTRY OF BEACON REGISTRATION: 503/ AUSTRALIA
6. USER CLASS:
NATIONAL LOCATION
PLB - SERIAL NO: 026582
7. EMERGENCY CODE: NIL
8. POSITIONS:
RESOLVED - NIL
DOPPLER A - NIL
DOPPLER B - NIL
ENCODED - 34 27 16 S
- 150 55 48 E
ENCODED - UPDATE TIME UNKNOWN
9. ENCODED POSITION PROVIDED BY: INTERNAL DEVICE
10. NEXT PASS TIMES (UTC):
RESOLVED - NIL
DOPPLER A - NIL
DOPPLER B - NIL
ENCODED - NIL
11. HEX ID: 3EF633EB3F81FE0 HOMING SIGNAL 121.5 MHZ
12. ACTIVATION TYPE: NIL
13. BEACON NUMBER ON AIRCRAFT OR VESSEL NO:
14. OTHER ENCODED INFORMATION: NIL

ENCODED POSITION ACCURACY - 4 SECS. IN LAT AND LONG

15. OPERATIONAL INFORMATION:

LUT ID: NZGEO1 WELLINGTON GEOLUT, NEW ZEALAND
16. REMARKS: NIL
END OF MESSAGE
/ENDALERT
RCC406E.FMT

5. Has AMSA any general comments on the SAR operation following the grounding or any other comments which might assist the Inquiry?

AMSA welcomes the opportunity to comment on the incident and provides the following comments/recommendations for the Inquiry to consider.

1. *'Racing Rules of Sailing'* [Australian Government – Australian Sports Commission ISBN 9780958808583] requires carriage of a 406 MHz EPIRB and PLBs (paras 4.18 and 5.05 refer).

- Consider rewording the handbook to strongly recommend that GPS-equipped PLBs and EPIRBs are carried; ideally mandate for GPS-equipped models.
- Consider rewording the handbook to indicate that individuals take responsibility for ensuring that the contact details are correct in the 406 MHz beacon database, particularly when they are involved in a race and when a race organiser acts as a POC for a race.

Note:

AMSA's 406 MHz beacon database is accessible on-line. Individuals can access their beacon details on-line and make amendments or they can contact the AMSA 406 MHz database team who will amend details over the phone.

2. As part of the planning for races, race organisers would routinely collate information on the race participants eg. **yacht name/race sponsor name**, number and names of POB, NOK details including contact phone numbers, Beacon HEX ID etc. If this information is provided to AMSA in advance of the race:

- the 406 MHz beacon database can be checked and verified.
- the point of contact in AMSA's Search and Rescue System (Nexus) can be amended to the race organiser *for the duration of the race*. If a beacon associated with the race is activated, the note in Nexus would advise RCC Australia to contact the race organiser rather than the nominal NOK.
- AMSA can provide a report detailing non-compliance for race organisers to follow up on.

3. It is important that the registration and carriage of PLBs and EPIRBs during yacht races is enforced.

- Determine where responsibility lies in regard to enforcement and then adapt as follows:
 - - If a beacon is not registered, the yacht is not allowed to race
 - - If a beacon is not carried, the yacht is not allowed to race

4. Yacht Races should be notified to AMSA, well in advance of the race. Notification should include details of the race participants and the Crisis Management Plan.

5. *'Racing Rules of Sailing'* requires that each member of the crew shall either carry a PLB or have a PLB attached to them when they are on deck (para 5.05 refers). This incident raised questions

as to the storage below deck of PLBs. AMSA was alerted to beacon activations up to several days after the incident. It is assessed that a number of beacons floated free from the yacht and self activated. The PLBs detected after the incident were of the manual activation-type. The most likely explanation for them self-activating is that the PLBs hit the rocks when they were freed from the yacht, resulting in water ingress and contact with the circuit board set them off. The following points remain to be investigated:

- Were all persons on deck wearing a PLB?
- Where were the PLBs stowed below decks ie were they attached to lifejackets, were they contained within a storage cabinet?
- If any PLBs have subsequently been recovered, have they been referred to the manufacturer for inspection.

Note:

AMSA's 406 MHz beacon database is accessible on-line. Within a few days of the incident, the beacon registration details were changed to "lost".

6. One of the crew members lost a PLB overboard before the impact as his bum bag was torn from his waist.
 -
 - Recommend that the carriage requirements are reviewed in favour of additional spare safety equipment items being carried so that they are available in case of loss or damage.

Other discussion points

7. Cat 1 and Cat 2 race procedures
8. Procedure of mass activations:
 - If an individual believes that they are alone in the water (activate beacon)
 - Group ie liferaft (ensure 2 beacons are activated).

ANNEXURE H

SAR Submission from Richard Grimes

Australian Yacht Races and Search and Rescue

Background

There have been numerous incidents during Australian yacht races over the past two decades that have resulted in a search and rescue (SAR) task being performed. The SAR assets that have been involved in these operations have included both air and marine assets. Effective use of these assets has been hampered by control, coordination and communications shortcomings. Such problems decrease effectiveness of the operation and, arguably, survivability for people involved in each incident. High profile examples include the recent 2009 Flinders Island Race involving the yacht Shockwave, with two lives lost, and the Sydney to Hobart Yacht Race in 1998, with six lives lost.

Specifically the lack of an on-scene SAR commander to control and coordinate assets has often resulted in the search being conducted in the wrong location or without a deliberate and methodical pattern. The SAR effectiveness is further compromised by the use of Channel 16 for conducting SAR tasks as competition for the channel with other traffic, including aligned SAR activities, results in transmission clutter.

The International Maritime Organisation (IMO) has a set of procedures for SAR situations in the form of the *Captains Handbook*. These procedures align with those produced by the International Civil Aviation Organisation (ICAO). Neither of these existing resources is currently used for SAR operations in Australian yacht races.

Recommendation

It is recommended that:

- existing resources recognised internationally be used as the basis for an Australian Yacht Race SAR package for yacht skippers and their crews (IMO & ICAO procedures);
- this AYR SAR package be implemented through the current yacht race briefing system by the individual race host club to a selected number of boats from each division, who would then take on the role of SAR coordinator if needed.;
- medium term planning should include training at a yacht club level for all skippers and navigators (at minimum) on an annual basis; and
- The package be included in and/or extended for maritime qualification such as:
 - Race Lead SAR course,
 - Yacht Masters Course;
 - Coxwains Course;
 - Masters 5 course; and
 - Similar courses.

For your consideration,

Richard Grimes
0405 192 824