

# Marine Incidents in Victoria

Fatal Incident in Port Phillip Bay

On 1 May 2004

Involving Recreational Vessel “Adams Den”

DECEASED: GRAEME PAUL

Coroner’s Case No. 1505/04



## **1. PURPOSE**

Marine Safety Victoria (MSV) is the principle maritime authority and safety regulator for Victorian waters. Its role includes responsibility for the investigation of significant maritime incidents with specific functions to identify breaches in the Marine Act 1988 and identify deficiencies in safety systems and regulatory frameworks.

In the context of incidents involving recreational vessels and fatality, the focus of MSV is on the lessons that can be learnt from the incident and, as appropriate, corrective action or improvements in safety systems that can be made.

The aim of this report, therefore, is to identify the critical factors leading to the incident and fatality, examine the existing safety regimes pertinent to these factors and, as appropriate, identify potential developments in safety frameworks, systems and programs, both regulatory and non-regulatory.

It is not the purpose of this report to duplicate evidentiary material otherwise presented in the brief of evidence nor to provide a detail breakdown of the sequence of events.

## **2. EVIDENTIAL BASIS**

This report is based on the MSV review of evidence collected by both the Water Police and Marine Safety Victoria. This review of evidence was undertaken by the MSV Liaison Officer assigned to this case and in co-operation with the allocated police investigator.

## **3. THE INCIDENT.**

On 1<sup>st</sup> May 2004 Mr Graeme Paul was the skipper of his 10 metre yacht Adams Den, competing in the Association Cup yacht race being hosted by the Royal Yacht Club of Victoria (RYCV) on Port Phillip Bay off Brighton. At about 14:20, whilst running before the wind under spinnaker, the boat broached to when hit by a strong gust of wind. Trying to correct the course of the vessel, Mr Paul hauled hard on the tiller of the yacht which broke at the rudder head, resulting in him falling overboard. The crew of Adams Den were not able to recover Mr Paul and called on a mobile phone for assistance.

At about 14.30 the crew of a passing competitor, Another Challenge, noticed a person in the water. They immediately stopped racing and went to assist, recovering Mr Paul at about 14.35 and transporting him to an awaiting ambulance at Brighton pier. The ambulance officers were unable to revive Mr Paul and a subsequent autopsy found death was by drowning.

## 4. FACTORS CONTRIBUTING TO THE INCIDENT

### 4.1. Vessel and Equipment

Vessel type - Adams 10 sailing yacht



From the above picture, the following should be noted:

(a) The open nature of the vessel with no guardrails or handholds and low foot rails, having a very large cockpit area, open to the sea at the stern. These provide minimal restraint to prevent a crewmember going overboard if losing balance or stumbling etc.

**Factor 4.1 (a) the design and outfit of the vessel (no guardrails or handholds) provided inadequate restraint to prevent crew members going overboard.**

(b) The empty outboard motor bracket on the transom. The motor itself is stowed up forward inside the cabin when racing.



On such yachts, the motor needs to be mounted at the stern for use as shown left on a picture of a motor mounted on a sister vessel. It is impractical however to lift the heavy motor up, carry it back down the cockpit and mount it quickly in a rough sea, in the event of an emergency.

**Factor 4.1 (b) because the rudder broke and it was not practicable to mount the auxiliary motor, the crew were unable to effect a man overboard rescue themselves as they had no way to steer the boat back to retrieve Mr Paul.**



The picture above shows the very grainy structure of the broken cast aluminium rudder head fitting on Adams Den. A fitting of this type would certainly have been under heavy stress at the time of the incident and would need to be at full design strength to eliminate the chance of failure. On close examination this 15 year old fitting does show some hairline cracks behind the broken area, suggesting progressive deterioration over time.

**Factor 4.1 (c) the rudder head fitting of the vessel is of a material and construction (cast aluminium alloy) that requires close inspection as it ages because it is susceptible to corrosion and cracking. This can weaken it beyond its ability to withstand original designed loadings, which appears the case in this incident, causing it to fail.**



Mr Paul lodged a declaration of compliance for Adams Den of equipment to Yachting Australia Special Regulations Category 5 and was issued with the sticker shown left. (It is noted that the Association Cup race was being run under the lower requirements for Category 6). When examined on 3<sup>rd</sup> May 2004 a number of deficiencies in the equipment required to be on board and available for use were noted. Some related to Category 5 but some even for Category 6.

**Factor 4.1 (d) the vessel could not demonstrate any equipment or method by which crew could be retrieved from the water as required by the Category 6 regulations.**



The principal equipment deficiency was the inoperative state of the VHF radio pictured left (required under Category 5 to be on board and operational, but not required under Category 6). Communication had to be made by cellular mobile phone which gives point to point communication only and provides uncertain coverage.

**Factor 4.1 (e) the inoperative radio precluded all direct and immediate communication with the race management team on the water, listening on the designated race control channel 73. Furthermore, no general broadcast “mayday” message on the designated emergency channel 16 could be sent to rescue services such as Coast Radio Melbourne, Water Police or Coast Guard and/or any fellow competitors. This certainly delayed the coordination and mounting of a rescue response.**



The vessel was equipped with 6 PFDs type 2 and 2 PFDs type 1, as shown left. During the race, all crew on board constantly wore a PFD with the notable exception of Mr Paul. Most of the crew provided their own inflatable PFDs type 1 (constant wear life jackets) such as Stormy Seas vests or yoke types.

**Factor 4.1 (f) Mr Paul did not wear a PFD at any time.**

## 4.2. Operational Factors

On the day of the incident the weather was overcast with squally showers crossing the race area. The wind at the Faulkner Beacon over the time of the racing varied between speeds of 10 knots to gusts of 35 knots, blowing from the west south west to south direction. This would generate very different sea conditions across the racing course at any point in time. As the racing course was 2 miles in length and potentially about the same in width, it would have been difficult to judge the conditions at any one place over the duration of the race. For example the wind observations at the Faulkner Beacon show a wind speed increase from only 10 knots immediately before the time of the incident to almost 30 knots at the time Adams Den broached to, with a direction change from South West to South (45 degrees).

**Factor 4.2 (a) the weather conditions varied considerably from one part of the racing area to another and over the day, making it very difficult for both the race officer and**

**competing skippers to make weather related judgements and decisions (in the absence of any mandatory rulings or instructions).**

Adams Den was crewed by 5 people plus skipper Mr Paul. When the vessel broached to (changed course abruptly to port and heeled heavily over to starboard) the mainsheet hand, crewmember Alan Sheers sitting on the port side, fell into the boat and out of the back of the open cockpit over the stern on the starboard side. He managed to keep hold of the mainsheet and was hauled back aboard by other crew members. Mr Paul, also sitting on the port side, pulled the tiller of the vessel hard towards him to try and correct the violent swing of the vessel to port. At this point the cast aluminium rudder head attaching the tiller broke and Mr Paul fell out of the boat over the unguarded side and into the water. As the crew were concentrating on pulling Mr Sheers on board at that moment, nobody actually observed Mr Paul going overboard. Because the tiller was no longer attached, Mr Paul had nothing to connect him back to the boat and drifted rapidly astern. It took a few moments for the crew to realise Mr Paul was in the water astern and even though a life ring was thrown it was well out of reach of Mr Paul.

**Factor 4.2 (b) although experienced, the crew had discussed but never practiced a man overboard recovery on this boat. They were, not surprisingly, unprepared for the situation where, in addition to a man overboard, the vessel had lost steerage. It took some time for the crew to get the sails under control and as the outboard motor was stowed forward for the race and it was not practicable to fit it due to the rough sea conditions at the time they had no way to steer, so they elected to anchor the boat. Had the crew managed to steer the vessel and retrace their course to Mr Paul, it is unclear how they would have lifted him from the water as there was no demonstrable man overboard retrieval procedure or equipment on board.**

As the VHF radio was inoperative, they had to rely on using a mobile phone to call for assistance. The race officer on board the RYCV starting vessel Thorsen was called but the connection was poor and there was some confusion as to the message being sent. The crew then rang the RYCV office ashore to call for assistance. There is no doubt the lack of rapid direct VHF radio contact from Adams Den out on the water delayed the rescue effort considerably. If a broadcast emergency call from Adams Den had been made on VHF Channel 73, the race officer and all others listening in, would have had a much faster response to the incident. If a call had been made on the emergency frequency Channel 16 then other well trained and equipped rescue resources such as the Water Police or Coast Guard could have been brought in. Experienced club members who came to the assistance of the office staff should be commended for their efforts in finally sorting the communications out and coordinating the shore based emergency response.

**Factor 4.2 (c) the difficulty in communication via cellular phone from the vessel to the RYCV clubhouse base station and then by radio from the club to the race committee vessel out on the course caused delay to the rescue response.**

Another Challenge was also competing in the same race and was some distance ahead of Adams Den sailing against the wind, back up the next leg of the course (in the opposite direction to that of Adams Den). They noticed a person in the water, immediately stopped racing and initiated a well rehearsed man over board rescue plan. They arrived close to Mr Paul at the same time as an RYCV mark laying boat, which had eventually been dispatched to look into the incident. After a brief discussion it was agreed that the crew of Another Challenge would retrieve Mr Paul as they had practiced and were confident in their man overboard retrieval procedure. They also had current training in CPR and emergency first aide training and were confident to take on this task as well. The plan was quickly executed and within a few minutes Mr Paul was lifted from the water using the boats sail winches and laid on the deck. The crew immediately initiated CPR and maintained this during the trip back to Brighton and the awaiting ambulance. They should be commended for their planning and efforts which were learned as a result of man overboard experiences in past Sydney to Hobart yacht races.

**Factor 4.2 (d) the RYCV course mark laying boat (which can also be used as a rescue boat), designated by the race officer to look into the incident, did not have the capability to retrieve Mr Paul from the water and provide him with first aid assistance. It was by chance that a competent fellow competitor happened to be on hand to attempt the rescue.**

The Association Cup was hosted by the Royal Yacht Club of Victoria (RYCV), nominated as the organising authority on behalf of Yachting Victoria (YV). The RYCV organised and managed the event through a regatta committee and on the day of the event through a race committee (both functions of its standing sailing committee).

A Notice of Race and a set of sailing instructions were issued by RYCV setting out the rules under which the event was to be sailed. These included the following statements:

- 2.02 - All keelboats competing must meet the Yachting Australia Special Regulations Part 1 or better for Category 6.
- 2.03 - Rule 40 (Y Flag), when displayed, will apply only to boats without lifelines fitted. It is recommended that flotation devices be worn at all times if lifelines are not fitted.
- 13.01 - Competitors should keep a listening watch on for three minutes after the start on VHF Channel 73
- 16.01 - Boats intending to protest an incident in the racing area shall inform the race committee by hail or by radio (VHF 73).
- 8.01 - Boats and their equipment may be inspected and/or check measured 24 hours prior to the start ..... etc.

There is no mandatory requirement under the YA Special Regulations for anybody other than the yacht skipper to carry out a safety equipment check before a boat competes in a race. It is unclear to which Category such checks would be made against. The race was run under Category 6 but most competing vessels would have been declared to have other (and generally much higher) Category equipment on board (and have a sticker to match displayed). Most competing vessels were offshore capable racing yachts with Category 4 or higher declarations, required to be fitted with lifelines, rails, VHF radio etc. Adams Den was itself declared to Category 5.

**Factor 4.2 (e) the system of self declaration (with no further independent auditing) used for ensuring all the required safety equipment is on board a boat before the category sticker is issued (at the start of the racing year) was not sufficient to ensure Adams Den competed in this event with all this equipment available and operational.**

The YA Special Regulations specify and require, equipment to be carried appropriate to defined categories of circumstances the race is to be sailed under.

- For Category 6 these circumstances are “Short races close to the shoreline in protected waters, in daylight hours only and with effective rescue availability”.
- Effective rescue availability is defined as “Requires the Race Committee to have in place an effective rescue procedure taking into account the local conditions, length of race, remoteness, availability of rescue craft and services, and quality of communications”.

According to the guidance of the ISAF Race Management Manual (RMM), a prime responsibility of the race committee (RYCV) is to be responsible for the safety of all competitors.

MSV would recommend that all yacht clubs develop a risk management plan and maintain standing race management protocols, guidelines or instructions to race officials. Clubs should use documented standard safe operating practices for race officers and rescue boat crews with

emergency management procedures for office staff. There are no standard requirements for the training and certification of race officials or patrol vessel crews and for the equipment to be carried on race management craft or its use.

The RYCV controlled the race on the day through the race officer stationed out on the course in Port Phillip Bay on the starting vessel Thorsen. He was assisted by two “course setting” boats and a third carrying YV official observers. The two 5.5 metre rigid hull inflatable (RHIB) course setting boats, each manned by two volunteers (experienced yachtsmen but with no formal rescue, safety or first aid training), doubled as “patrol (rescue) boats” when called for. The 6.4 metre “whaler” observer boat was also available as a back up patrol boat if needed. All four race committee boats maintained constant contact with each other and the RYCV shore base using VHF radios on channel 73. The course setting boats were each carrying two or more large inflatable racing buoys with associated anchors and anchor lines for their course setting duties. In this regatta there were approximately 70 boats with an average crew of 5 – 10 each, giving approximately 500 competitors. The RMM suggests an ideal base line of 1 patrol boat for every 10 competitors with factors such as type of boat competing, age of competitors, exposure of race course and prevailing weather conditions being taken into account. This level of rescue boat cover would be appropriate for dinghy racing, where there is a high level of incident risk and therefore a greater chance outside rescue assistance would be needed. For a race such as the Association Cup sailed in keelboats, a reduced number of rescue vessels based on a lower assessment of risk could be used.

**Factor 4.2 (f) the difficulties in organising a response to this incident demonstrates the problems in meeting the requirement to provide effective rescue availability in such unforeseen circumstances.**

The first race of the day had been run without incident in winds of up to 25 knots mainly from the South to South East. The second race was started with the wind averaging about 17 knots from a similar direction. The race officer elected not to fly code flag “Y” (which if flown at the start indicates, in accordance with RRS rule 40, that lifejackets must be worn by all crew in vessels without lifelines), in his judgement weather conditions at the time of the start did not warrant the mandatory wearing of PFDs. It should be noted that even if the “Y” flag is not flown at the start of a race, it remains the stated responsibility of the skipper of a boat (or indeed an individual crew member) to make ongoing decisions during a race as to whether a PFD should be worn, bearing in mind the conditions at that point in time.

**Factor 4.2 (g) in the race officers opinion conditions at the time of the start of the race (the only time he can raise the “Y” flag) did not warrant such a requirement. Given the prevailing weather conditions at the time of the start, the BOM weather forecast and in the absence of any standing instructions or guidelines from the RYCV regatta committee, he made such a judgement as best he could. This was based on the information he had to hand from his own observations (from his position at one end of a two mile long race course) and his previous experience.**

### **4.3. Waterway Factors**

There are no waterway management issues in this case.

## 5. PREVENTATIVE BRIEF.

### 5.1. Contributing Factor 4.1 (a)

It is recommended that yachting authorities review the requirements of YA Special Regulations for Category 5 equipment, Section 3.11 “Lifelines, Stanchions and Pulpits” and Section 3.12 “Toe Rails” which for Category 5 are currently only “recommended”. Section 3.17 “Hand Holds” which currently refers to below decks only, should also be expanded to include above deck use, the objective being to provide the boat with a greater degree of man overboard prevention measures.

### 5.2. Contributing Factor 4.1 (b)

It is recommended that yachting authorities review the requirements of YA Special Regulations for Category 5 equipment, Section 4.14 which mandates emergency steering for “night sailing” only and Category 6 where it is restricted to “recommended”. Alternatively, an expansion of YA Special Regulations Section 3.23 “Engine and Fuel” could be made requiring “Monohulls” in addition to “Multihulls” to mount outboard motors at all times thus providing an auxiliary steering method. The objective being to allow the vessel a chance of returning back to retrieve a man overboard if he falls over the side when the steering tiller breaks.

### 5.3. Contributing Factor 4.1 (c)

The Adams 10 Class Owners Association has already been contacted by the Water Police investigator with a recommendation they inform all owners to check this fitting, especially on older vessels and replace it if it shows any signs of undue deterioration.



Most other Adams 10 class vessels have been retrofitted over the years with generally stronger and more resilient stainless steel fittings as shown in the left hand picture of a sister vessel.

### 5.4. Contributing Factor 4.1 (d)

It is recommended that yachting authorities review the requirements of YA Special Regulations Section 4.26 which for Categories 1 to 6, requires “boats to be able to demonstrate equipment or a method by which crew may be retrieved from the water”. It does not provide any more details such as who should this be demonstrated to, how often, what standard should be achieved (i.e. how quickly, under what circumstances etc.).

### 5.5. Contributing Factor 4.1 (e)

It is recommended that yachting authorities review the requirements of YA Special Regulations Section 3.24 “Marine Radio” which currently requires Category 5 vessels to carry an operation VHF radio on board but only “recommends” this for Category 6 craft. The availability of immediate on the water distress communication would add considerably to the safety of all competitors in organized Category 6 and above yacht races.

**5.6. Contributing Factor 4.1 (f)**

Marine Safety Victoria has undertaken a review of the requirement for compulsory wearing of PFDs whilst on the water. This has been conducted on a risk management basis and recommendations have been made to the Minister for consideration.

It is recommended that yachting authorities review the requirements of YA Special Regulations Section 5.01 "Personal Flotation Devices" which only require crews of Category 5 vessels to wear PFDs during "night sailing" and require Category 5 (other than night sailing) and Category 6 crews to wear PFDs when the "Y" flag is flown by the race organizer.

**5.7. Contributing Factor 4.2 (a)**

Race organizers should ensure that both race officers and competitors have access to the latest and most accurate weather information possible in order for them to adequately judge the best course of action.

Yachting authorities and club race organizing committees should set up appropriate guidelines for their race officials (based on an analysis of the risks faced in their particular circumstances e.g. the club, available facilities, the event location, the event type, the type of competitors etc.) to assist them in making appropriate weather related judgments about the management of races.

**5.8. Contributing Factor 4.2 (b)**

In item 5.4 above, it is recommended that yachting authorities review the requirements of YA Special Regulations Section 4.26 which for Categories 1 to 6, requires "boats to be able to demonstrate equipment or a method by which crew may be retrieved from the water". To take this further it is recommended yachting authorities and affiliated clubs require all boat crews, before they take part in organized club events, to set their boats up, train themselves (or the club must arrange this training) and then demonstrate to the satisfaction of the yachting authority, effective man overboard recovery.

**5.9. Contributing Factor 4.2 (c)**

To reinforce the recommendation at Item 5.5 above it is further recommended yachting authorities and affiliated clubs put in place standard operating procedures for dealing with emergency communications and distress situations. Staff or volunteer club members detailed to oversee communications at the club shore base should be adequately trained by the club and practice drills held to ensure they can effectively carry out this role.

**5.10. Contributing Factor 4.2 (d), 4.2 (e), 4.2 (f)**

It is recommended yachting authorities review their current approach to race organization to provide clubs, their officials and competitors with a much more structured set of requirements including associated support such as training materials, courses and accreditation standards. The following attempts to provide some background on the existing arrangements and inadequacies identified:

- The sport of yachting is governed internationally by a peak body called the International Sailing Federation (ISAF). This body produces a publication known as the Racing Rules of Sailing (RRS) of which a revised edition is released every 4 years. The RRS are adopted by national yachting authorities affiliated to the ISAF such as Yachting Australia (YA) who may add their own national provisions. These national rules are administered locally by state yachting authorities such as Yachting Victoria (YV). Yacht clubs organising racing under their management generally require these rules and provisions to be followed by all competitors in the event, as was the case in the notice of race and sailing instructions issued by RYCV for the Association cup.

- Included in the YA edition 2001 – 2004 of the RRS are Special Regulations which include regulations governing structural features, boat equipment, personal equipment and qualifications for racing boats. These special regulations were also to be followed by all competitors in the Association cup.
- The ISAF also produces a Race Management Manual (RMM) giving advice and guidance to encourage standardised procedures for management of yachting events.
- In September 2001 YV produced a Risk Management resource tool for clubs. The objective of this tool was to provide clubs with a methodology by which they could identify the risks involved in conducting sailing competitions and activities, and then adopting strategies and actions designed to reduce these risks wherever possible. The approach is based on the Australian Standard on Risk management 4360:1999 and the National Risk Management Guideline developed by the Standing Committee on Sport and Recreation (SCORS) risk management working party.
- The RYCV has produced a basic safety information sheet for the use of club members and officials.

The RRS with YA prescriptions are very comprehensive with regard to the *racing* conduct of competitors in organised yachting events and the management of the *racing* aspects of the event by the regatta committee. They also contain a wealth of information in the Special Regulations regarding the requirements for structural features, boat equipment, personal equipment and qualifications etc. Whilst the *racing* rules are policed very aggressively by both competitors and regatta committees alike, the application and policing of special regulations and *safety* issues is very much left to individual skippers and crews. Similarly, the application of the ISAF Race Management Manual (RMM) by club regatta committees tends to focus more on the *racing* management aspects of events and much less on the *safety* aspects of event management.

In relation to safe race management, MSV would recommend a risk management approach be taken. This issue was recognised by YV which initiated the production of the YV risk management resource tool. It is recommended the application of such risk management tools be pursued by YV with affiliated clubs as aggressively as the application of racing rules currently are. With the use of such tools, clubs should feel confident to issue standard operating procedures and guidelines for race officials on how they require yachting events to be managed. Regatta committees and the volunteers, who generally run yacht racing, should be confident they are providing adequate duty of care through suitably researched, considered and applied risk management from their clubs. If the culture of clubs concentrating on minimising liability exposure (by not actively pursuing safety issues) can be changed to one of considered risk management and adequate duty of care provision, then competitors and officials in yachting events will be much better served

#### **5.11. Contributing Factor 4.2 (g)**

Item 5.7 above recommends yachting authorities and clubs have adequate information and guidelines in place to keep competitors and race officials up to date with weather conditions. It is further recommended yachting authorities introduce training for race officers (integrated into the current training syllabus and certification process) in the topic of weather evaluation and its effects on racing yachts. The objective of this training being to put race officers in a better position to make considered and consistent decisions on such subjective judgments as weather conditions.

It should be noted that yachting rules rely on skippers being able to make the same judgments as race officials with regard to weather and how they should react to changing conditions. Skippers themselves are not required by yachting authorities to have any training to assist them in making such judgments.