



Coroners Court of Victoria

Paddle craft fatalities in Victoria: a medico-legal examination

Date	5 October 2016
Agency	Maritime Safety Victoria
Investigators	Dr Lyndal Bugeja Coroners Court of Victoria Ms Ashne Lamb Coroners Court of Victoria

Table of Contents

Abstract	2
Introduction.....	3
Method	4
Study Design and Setting.....	4
Data Source	4
Case Identification	4
Inclusion Criteria.....	5
Data Collection	5
Data Analysis	5
Study Approvals.....	6
Results	6
Trend Over Time.....	6
Deceased and Incident Characteristics	7
Presence and Utility of Safety Equipment.....	7
Contributing Factors.....	8
Outcome of Coronial Investigation	9
Discussion	9
Appendix A – Coroners’ Comments and Recommendations	11

Abstract

During the last five years, over a third of recreational boating fatalities in Victoria have occurred amongst occupants of paddle craft (canoes and kayaks), an increase from 17% observed in the previous five years. Given this increase in paddle craft involvement in recreational vessel fatalities, this study sought to identify and describe the presence and pattern of individual, vessel and waterway factors that contributed to these deaths.

A population-based retrospective case series study was conducted using information generated for the coroners' death investigation of occupants of paddle craft during the period 1 July 2000 and 30 June 2016. Cases were identified using the Coroners Court of Victoria's (CCOV) Surveillance Database and verified by Maritime Safety Victoria (MSV). Each coronial record was reviewed and data was extracted on: socio-demographic characteristics of the deceased; incident characteristics; presence and utility of safety equipment; contribution of individual, vessel, waterway and atmospheric factors; utility of alert mechanisms; and outcome of the coroners' investigation.

During the study period, 107 deaths occurred amongst occupants of recreational vessels on Victorian waters, of which 19 (17.8%) were occupants of a paddle craft. All were male and the median age was 36 years. In all but one death, the cause of death included drowning, in six alcohol was detected and in three cannabis was detected. The most frequently identified contributing factor was absence of lifejacket use. Other co-occurring contributing factors in a large number of deaths comprised hazardous environmental conditions and absence of a means of indicating distress in a timely manner.

The risk of death amongst paddle craft occupants could be reduced if changes were made to the safety equipment requirements, in particular the type of lifejacket required to be worn and the carriage of distress notification devices. Consideration could also be given to establishing mechanisms for measuring the number of paddle craft vessels owned in Victoria and the introduction of an education or training requirement for paddle craft operators.

Introduction

During the last five years (2011-12 to 2015-16), over a third (n=10, 34.5%) of recreational boating fatalities have occurred amongst occupants of paddle craft (canoes or kayaks). This represents an increase from 17% (n=3) that occurred during the previous five years (2006-07 to 2010-11). What has also been observed in recent years is a dramatic increase in the number of paddle craft sold in Victoria. However, as these vessels are not required to be registered, the number of paddle craft is difficult to estimate.

As a result of these observations, paddle craft have been identified as a target area in Victoria's Boating Safety Action Plan 2015-2018. The strategic directions are to: *improve the distribution of safety information at point of sale by direct partnership with paddle craft wholesalers and retailers; and increase safety consciousness among the paddling community through education and enforcement.* While public awareness, education and enforcement are crucial components of any injury prevention strategy, there are some additional considerations to ensure that water vessel recreation adheres to the Safe System approach.

Maritime Safety Victoria, Victoria's safety regulator for maritime operations, has adopted the Safe System approach, first developed in Australia as the conceptual framework to reduce the risk of road transport crashes. The Safe System approach recognizes that humans are fallible and that other safety measure must be in place to minimise the consequences of human error. In the marine environment the Safe System comprises: safe people (e.g. wearing lifejackets, carrying personal locating beacons); safe vessels (e.g. seaworthy vessels); and safe waterways (e.g. speed limits).

The application of the Safe System framework to paddle crafts shows that some strategies are in place in the event that an occupant enters the water suddenly and unexpectedly. The primary safety strategy is the requirement for occupants of paddle craft to wear a life jacket while the vessel is underway. There is some anecdotal evidence that lifejacket wear is poor amongst these occupants.

Given the increase in the frequency and proportion of paddle craft involvement in recreational vessel fatalities and the paucity of evidence on the profile of contributing factors, Maritime Safety Victoria commissioned the Coroners Court of Victoria (CCOV) to conduct an analysis of the medico-legal death investigation. The purpose of this analysis was to identify and describe the presence and pattern of individual, vessel and waterway factors that contributed to deaths of paddle craft occupants in Victoria.

Method

Study Design and Setting

This study was a retrospective population-based case series examination of deaths of occupants of paddle craft that occurred in Victoria, Australia. Victoria has 150 designated waterways, 1800 kilometers of coastline, three large enclosed harbours and many inland lakes and rivers.

Data Sources

The *Coroners Act 2008* (Vic) requires all unexpected and unnatural deaths to be notified to the coroner. Where a death is determined by a coroner to meet the definition of “reportable”, an investigation is conducted. The information generated for the coroners’ investigation of paddle craft deaths was the primary data source for this study. Information varies by case type, but for unnatural deaths usually comprises: the police report of the death to the coroner; the coronial brief [e.g. witness statements, incident reconstruction and photographs]; post-mortem forensic medical and scientific examination reports; and the coroners’ finding.

For the purposes of case verification, Maritime Safety Victoria’s (MSV) Marine Safety System (MSS) was queried. The MSS comprises information on all marine incidents that occur in Victorian waters since 2000.

For comparison with other Australian jurisdictions, data was sought from the National Coronial Information System (NCIS). The NCIS is a data storage, retrieval, analysis, interpretation and dissemination system for coronial information. It contains data about deaths reported to an Australian coroner from 1 July 2000 (1 January 2001 for Queensland), and to a New Zealand coroner from July 2007 (for closed cases only).

Case Identification

Paddle craft deaths were identified by searching the CCOV’s Surveillance Database, an internal electronic case management database of information on all coronial investigations. The paper-based coroners’ record was reviewed for deaths where the variable “incident category” was classified as “unintentional – transport” and the variable “incident type” was classified as “water vessel”. Cases identified by the CCOV were manually linked to cases identified by MSV on the variables: “Deceased Given Name”; “Deceased Surname”; “Deceased Sex”; “Date of Incident”; and “Incident Location”.

For paddle craft deaths that occurred in other Australian jurisdictions, a query design search was conducted of the NCIS. The search criteria comprised completed coronial investigations classified as resulting from external causes, unintentional intent and involving a water craft. The unit record results were reviewed by one researcher (AL) to identify deaths of paddle craft occupants in Australian jurisdictions other than Victoria. It should be noted that only deaths where the coroners' investigation has been complete can be accessed and therefore the frequency of deaths identified is likely under-reported.

Inclusion Criteria

Each record was reviewed by two researchers (LB and AL). Consensus on eligibility of complex cases was reached by discussion and validated by MSV. Cases met the inclusion criteria where the incident:

- occurred on a Victorian waterway;
- involved an occupant of a paddle craft, e.g. canoe, kayak etc.; and
- occurred between 1 July 2000 and 30 June 2016.

Data Collection

Where a paddle craft death met the inclusion criteria, the coronial record was reviewed and the following information was extracted and recorded in the Statistical Package for the Social Sciences (SPSS) V.22:

- demographic characteristics of the deceased (e.g. sex, age, activity, swimming ability)
- incident characteristics (e.g. day of week, month of year)
- waterway name, type and location
- vessel make, model, length and type
- presence and utility of safety equipment
- elements of heightened risk
- methods of raising the alarm
- coronial inquest, comments and recommendations

Data Analysis

A series of univariate and bivariate descriptive statistical analyses were performed to describe the: frequency of deaths over time and as a proportion of all recreational vessel deaths; deceased and incident characteristics; presence and utility of safety equipment; contribution of individual, vessel, waterway and atmospheric factors; utility of alert mechanisms; and outcomes of the coroners' investigation.

Study Approvals

Approval was granted by the State Coroner and CCOV Chief Executive Officer to conduct the study and the Victorian Coroners for access to and reporting of coronial information.

Results

Trend Over Time

During the period 1 July 2000 to 30 June 2016, 107 deaths occurred amongst occupants of recreational vessels on Victorian waters. Of these, 19 (17.8%) were occupants of a paddle craft. The majority of the deaths have occurred since 2005-2006 (n=15), peaking in 2011-2012 (n=4). In recent years (from 2013-2014 to 2015-2016), six deaths of paddle craft occupants have occurred. While the annual frequency of these deaths was small, an increasing trend was observed amongst deaths of paddle craft occupants while a decreasing trend was observed amongst deaths of occupants of other types of recreational vessels (Figure 1).

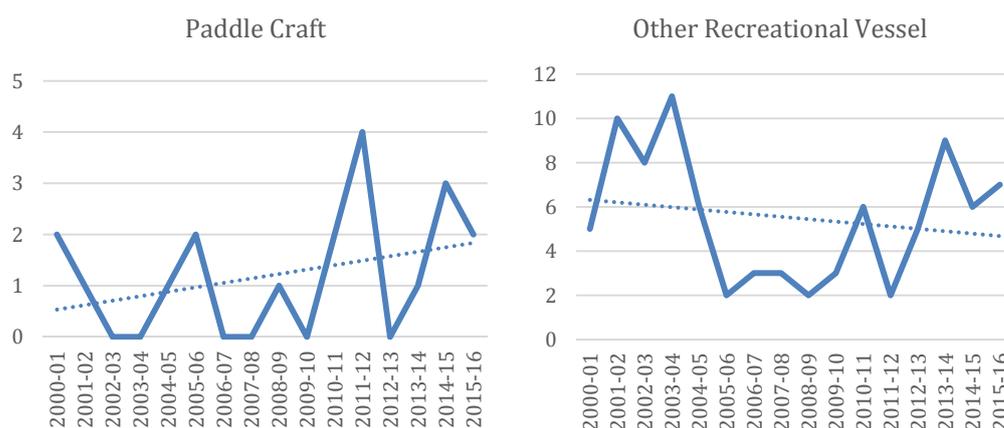


Figure 1: Annual frequency (financial year) and trend of deaths amongst recreational vessel occupants in Victoria, 2000-2001 to 2015-2016

Jurisdictional Frequency

During the period examined, 71 deaths of occupants of paddle craft were identified in Australia. The annual median frequency was 4.5 deaths (IQR: 3 – 5.25 deaths), and ranged from one death in 2003-2004 to nine in 2008-2009. As with the Victorian analysis, the annual frequency of Australian deaths was small making it difficult to examine trends, however the annual frequency trended slightly upwards over time. By jurisdiction, the majority of paddle craft deaths occurred in New South Wales (n=29, 40.8%) followed by Victoria (n=19, 26.8%). There were no deaths identified in Western Australia, Northern Territory or the Australian Capital Territory.

Deceased and Incident Characteristics

An examination of the socio-demographic characteristics of the 19 paddle craft occupants showed that all were male. The median age was 36 years (IQR: 29.5 – 49 years) and ranged from 20 to 76 years. In the majority of incidents, the activity was reported as pleasure cruising (n=15). In the remaining four incidents the activity was reported as fishing, training and racing. In the 14 deaths where swimming ability was reported, five were described as *strong* swimmers, a further five as *good* and the remaining four as *average* or *poor*.

In all but one death, the medical cause of death included drowning. Amongst the 17 deaths where information on the results of post-mortem toxicology was available, nine (52.9%) had a blood alcohol concentration (BAC) of zero. A further four had a BAC of < 0.05g/100mL, two had a BAC of > 0.05g/100mL and in the remaining two, the deceased's body was not recovered within a timeframe where tests for alcohol consumption could be performed with accuracy¹. In three cases where alcohol was detected, post-mortem toxicology also detected the presence of cannabis.

Deaths involving occupants of paddle craft occurred throughout the year, however two-thirds occurred during the spring months of October (n=5) and November (n=2). A further four occurred in the month of July. Almost half (n=9, 47.3%) occurred on weekends and a further four occurred on a Friday.

Presence and Utility of Safety Equipment

Lifejackets

In 11 (57.9%) of the deaths, a lifejacket was available, seven of which were worn; five reportedly correctly. Where information was reported on the available lifejacket type (n=8), four were a PFD Type 3, two were a PFD Type 2, one was a buoyancy vest and the remaining one was described as a Type 5 that did not comply with Australian Standards.

Mechanisms for Raising an Alarm

Flares, marine radios and EPIRBs were not available in any of the paddle crafts involved in fatalities during the study period.

¹ Drummer OH, Kennedy B, Bugeja L, Ibrahim JE, Ozanne-Smith J. Interpretation of postmortem forensic toxicology results for injury prevention research. *Injury Prevention*. 19(4):284-9, 2013.

Contributing Factors

Individual

The most frequently identified contributing factor at the individual level was absence of lifejacket use. As mentioned above, almost two-thirds (n=12, 63.1%) of the deceased's were not carrying (n=8) or wearing (n=4) a lifejacket. Operator impairment was a factor identified amongst six of the deaths, where the post-mortem forensic toxicology results indicated that the deceased may have been affected by alcohol and / or cannabis at the time of the incident. In two cases, the deceased had a BAC greater than 0.05g/100mL, one of whom also had evidence of recent cannabis consumption. Two deceased had a BAC less than 0.05g/100mL and evidence of cannabis consumption and a further two had a low BAC with no evidence of cannabis use. Operator inexperience (n=4) and poor to average swimming ability (n=4) were also identified as contributing factors amongst some deceased persons.

Vessel

Among the 17 deaths where information was available, vessel length ranged from 1.75 metres to 6.4 metres. The majority (n=15, 88.2%) measured 4.8 metres or under in length. It should also be noted that three of the 19 paddle craft were motorized. In one case it was identified that the vessel was not appropriate for the prevailing weather conditions, however it was noted that the vessel itself was in good condition². In two deaths (which occurred from one incident) modifications were made to the vessel that impacted on its seaworthiness³.

In all 19 deaths there was no mechanism on board the paddle craft or the individual for raising an alarm, i.e. flares, marine radio or EPIRB. In five cases, this inability to raise an alarm immediately was identified as a factor that delayed efforts to locate and successfully perform a rescue.

Waterway

Eleven of the 19 (57.9%) deaths occurred on inland waterways, a further six on enclosed waterways and the remaining two on coastal waterways.

Atmospheric

In seven (36.9%) deaths adverse environmental conditions were identified as a contributing factor.

² Court Reference Number 20112918.

³ Court Reference Numbers 20114499 and 20114500.

Outcome of Coronial Investigation

Amongst the 16 deaths where the coronial investigation has been completed, three proceeded to an inquest⁴. In six deaths the Coroner made recommendations (note in one of these deaths the recommendations were identical as two persons died in the same incident), and in a further two, the Coroner made comments (Appendix A).

Discussion

This study has shown that a combination of hazardous environmental conditions, absence of lifejacket use and means of indicating distress within a timely manner contributed to a large number of these deaths.

Paddle craft are relatively unstable vessels and in moving water and / or unpredictable environments, the possibility of sudden and unexpected water entry is high. Like other forms of recreational boating, paddle craft are often operated by a single occupant. This is not only due to their small size and design that only accommodate one occupant, but also the nature of the activities for which paddle craft are used, e.g. pleasure cruising and fishing.

The current regulatory framework for paddle craft occupants requires the wearing of a lifejacket Type 1, 2 or 3 when the vessel is underway. While these lifejackets are designed to keep the wearer's head above water, only lifejacket Type 1 maintains the body in a safe floating position. In addition, no distress notification devices are required to be worn by occupants or carried on the vessel.

The risk of death amongst paddle craft occupants could be significantly reduced if changes were made to the safety equipment requirements, in particular the wearing of lifejackets, the type of lifejacket required to be worn and the carriage of distress notification devices. This would need to be accompanied by an enforcement regime and supported by ongoing public awareness and education. This multi-faceted approach to prevention was found to be successful in reducing deaths amongst occupants of small motorised recreational vessels⁵.

⁴ Court Reference Numbers: 20002454; 20084865; 20120608.

⁵ Bugeja L, Cassell E, Brodie LR, Walter SJ. Effectiveness of the 2005 compulsory personal flotation device (PFD) wearing regulations in reducing drowning deaths among recreational boaters in Victoria, Australia. *Injury Prevention*. 20(6):387-392, 2014.

These findings support recommendations made by Victorian Coroners over recent years that occupants of paddle craft be required to:

1. wear a lifejackets Type 1; and
2. carry a Personal Locating Beacon (PLB) or Emergency Position Indicating Radio Beacon (EPIRB).

As surveillance is the cornerstone of any public health and safety strategy, consideration should also be given to mechanisms for measuring the number of paddle craft vessels that exist in Victoria. Consideration should be given to an education or training requirement for paddle craft operators as there are currently no requirements for a boating license or other training on vessel operation or water safety. This would serve as an opportunity to train paddle craft occupants on the principles of vessel operation and seaworthiness, understanding waterway and weather conditions and safety measures that will minimize the risk of sudden and unexpected water entry and mechanisms for raising an alarm in the event of water entry. Some strengthening of the safety system currently in place for paddle craft in Victoria has the potential to reduce deaths in this area of water recreation.

Appendix A – Coroners’ Comments and Recommendations

VICTORIA	
Court Reference Number	Text
2000XXXX	<p>COMMENTS: In handing down this finding I must reiterate comments that have previously been made by Coroners that no person should go onto water in any canoe, kayak, boat, yacht or other similar vessel unless wearing a life jacket and be free from the effects of alcohol.</p>
2001XXXX	<p>RECOMMENDATION: It is recommended that Parks Victoria and/or the appropriate authorities give consideration to the erection of appropriate signage at common river entry points directed to river users including kayakers/canoeists and rafters. Such signage might direct intended users to safety and equipment issues and unpredictable river conditions.</p>
2005XXXX	<p>COMMENTS: It is clear that a number of factors contributed to the incident and subsequent death of the deceased including failure to carry appropriate safety equipment, overloading of the vessel, inappropriate use of the vessel for the voyage, inexperience and the weather. Boating enthusiasts need to be more conscious of safety measures, which would have prevented the death of the deceased.</p>
2010XXXX	<p>RECOMMENDATION: That Transport Safety Victoria (TSV) continue to advise operators of human powered craft, to go beyond their regulatory safety requirements by carrying extra safety equipment such as Type 1 PFD, which has more buoyant properties than Type 2 or 3 PFDs, and an Emergency Position Indicating Radio Beacon (EPIRB) or a Personnel Locating Beacon (PLB).</p> <p>RECOMMENDATION: That Transport Safety Victoria consider notification and advice to boating enthusiasts who construct either own vessels of the regulatory requirements for seaworthiness and safety equipment.</p>
2011XXXX	<p>COMMENTS: This death highlights the importance of always wearing a PFD to stay afloat until help arrives. It is apparent that DECEASED was aware of and had adhered to this safety requirement previously, however he did not on the day of the incident as it was wet from use the day prior. The analysis of data from Victoria, one of two jurisdictions in the world to have legislating mandating PFD use, has been shown to be an effective drowning prevention measure for recreational boating. Despite these requirements and an overall reduction in deaths, drownings continue amongst human-powered vessel operators and occupants at an unacceptable frequency.</p> <p>RECOMMENDATION: To promote the awareness of a compliance with PFD regulations amongst human-powered vessel occupants, I recommend retailers of canoes and kayaks, in consultation with Maritime Safety, consider the distribution of the Australian New Zealand Safe Boating Education Group's Paddle Safe brochure to consumers at point of sale for both online and face-to-face transactions.</p> <p>RECOMMENDATION: To promote the awareness of compliance with PFD regulations amongst human-powered vessel occupants, I recommend that Canoeing Victoria, the Victorian Canoe Association Inc. and Victorian Sea Kayaking Club consider the distribution of the Australia New Zealand Safe Boating Education Group's Paddle Safe brochure to their members.</p>

VICTORIA

Court Reference Number	Text
2011XXXX, 2011XXXX	<p>COMMENT: Firstly, the coroner's investigator, <<NAME REDACTED>>, an experienced member of the Water Police Squad, now based in Bairnsdale, commented in his statement that the popularity of canoeing and kayaking on enclosed waterways such as Port Phillip and Westernport Bay has increased over the past few years. These types of vessels are readily and cheaply available on-line and through Outdoor Adventure stores. Apart from possible 'caution notes for safe operation' no training is required for their use. At present apart from having to wear a PFD 1, 2 or 3, no other safety or distress notification items are required. Transport Safety Victoria has expressed concern over the increasing number of drowning deaths involved human powered vessel occupants. Between 1 January 2000 and 31 May 2012, 12 human powered vessel occupants (in kayaks and canoes) died due to drowning in Victoria. Prior to 2005, human powered vessels accounted for 8% of drowning deaths but since that date they have accounted for 33% of all occupant drownings. Given the increase in the prevalence of canoes and kayaks use, and the lack of training or experience required to operate them, Leading Senior Constable Powell suggests operators of canoes and kayaks travelling more than 500 metres from shoreline in enclosed waters be required to carry a current set of flares and a torch, or a Personal Locating Beacon (PLB) or carry an Emergency Position Indicating Radio Beacon (EPIRB).</p>
	<p>Secondly, all vessels age and deteriorate over time. Privately owned vessels that undergo modification do not have to be examined or assessed for their seaworthiness. There is support for seaworthiness inspections from Transport Safety Victoria and Victoria Police. There was also support from a range of stakeholders consulted as part of the review of the Marine Act 1988 which led to the Marine Safety Act 2010. However such a scheme has not eventuated owing to assessments of the financial burden and logistical difficulties. This is notwithstanding that same aspect of seaworthiness is often a relevant and common factor of vessels fatalities.</p>
	<p>I support the recommendation by Coroner White in DECEASED 2008XXXX that '... all non-commercial petrol powered inboard motor cruiser boats or other similar vessels be surveyed on first registration, and therefore on each occasion that a change of ownership registration in respect of any such vessel is sought.'</p>
	<p>RECOMMENDATION: I recommend that the Department of Economic Development, Jobs, Transport and Resources and Transport Safety Victoria considers reviewing and increasing the current regulatory safety requirements for operators of canoes and kayaks travelling more than 500m from shoreline in enclosed waters by requiring them to carry flares and a torch, or a marine radio, or a PLB or an EPIRB.</p>
	<p>RECOMMENDATION: I recommend that Transport Safety Victoria continues to explore potential models for a non-commercial vessel seaworthy inspection and certificate regime as a means of ensuring the seaworthiness of vessels at point of registration, transfer of ownership and after any modification.</p>
2014XXXX	<p>COMMENT: Spillways and irrigation outlets are very broadly distributed across the state of Victoria and in remote locations they are not easily accessible. These locations tend to be used by locals opportunistically, rather than as established boating locations actively managed by waterway managers. Further, waterway managers who have actively sought to exclude vessel operators by the use of signage and fencing have advised that such measures are regularly disregarded and in some circumstances removed so vessel operators are able to reach local</p>

VICTORIA

Court Reference Number	Text
	<p>waterway access points. Such activity by vessel operators complicated enforcement of the rules in remote locations. It is noted in the TSV Marine Enforcement Policy that the enforcement of marine safety rule is the responsibility of multiple agencies including TSV, Victoria Police, and local waterway managers. In attempting to enforce the rules in remote locations, I endorse the multi-agency approach as outlined in TSV's Marine Enforcement Policy and I would support any increase in the capacity of Victoria Police's Water Police Squad to enable Victoria Police to better contribute to the enforcement approach.</p> <p>DECEASED commenced drinking alcohol in the late morning and continued all afternoon. He drank beer, vodka and smoked marijuana. His post mortem blood alcohol reading was significant. In all the circumstances, DECEASED was an inexperienced kayaker who should not have attempted to kayak. Sadly, though warned to avoid the weir, he fell into the water and was swept through the weir. His death is a tragedy. I urge that pursuant to the Vessel Operating and Zoning Rules, consideration be given to ban the operation of human powered vessels near weirs, spillways, and irrigation outlets.</p> <p>Finally, I urge the continuation of education, safety and enforcement campaigns in relation to the appropriate use of human powered vessels, which additionally highlights the potentially lethal consequences of combining alcohol and/or illicit drugs whilst operating human powered vessels.</p>

NEW SOUTH WALES

Court Reference Number	Text
2002XXXXXX	<p>RECOMMENDATION: After considering the evidence given by <<NAME REDACTED>> Surveyor, Waterways Authority, I make the following recommendation to the manufacturers of 12 foot (3.43 metres) Savage Dinghys. That steps be taken to investigate ways which will prevent the dinghy from ... (coroners seal) ... filled with water.</p>
2002XXXXXX	<p>RECOMMENDATION: After considering the evidence given by <<NAME REDACTED>>, Surveyor, Waterways Authority, I make the following recommendation to the manufacturers of 12 foot (3.43 metres) Savage Dinghys. That steps be taken to investigate ways which will prevent the dinghy from ... (coroners seal) ... filled with water.</p>

TASMANIA

Court Reference Number	Text
XXXXX/2007	<p>COMMENT: In remote exposed areas emergency communication equipment should be carried, including an EPIRB, VHF radio, flares, satellite phone and mobile phone. This would be either attached to a lifejacket which would be donned in deteriorating weather conditions, or contained within a bale-out bag which could be attached to the life jacket or tethered to the paddler in deteriorating conditions.</p>

TASMANIA

Court Reference
Number

Text

COMMENT: A further comment is that the failure to establish and include in the Operations Plan a radio call sign and a complete list of equipment carried on board were significant omissions from the Plan. There was at first some uncertainty as to whether a VHF radio was carried. There was also uncertainty about whether a dry suit was carried and this latter question affected an assessment of possible survival times in water and was significant to rescue planning.

COMMENT: The comments made by Marine Surveyor <<NAME REDACTED>> prior to the December departure from Tasmania about the short range of a VHF receiver, too much emphasis on satellite phones for communications, and the amount of backup power source seem to have been borne out and I adopt them too.

COMMENT: So too was the early comment of AMSA about the inadequacy of once a day reporting borne out. When disaster struck rescue services were faced with a last recorded position that was 24 hours old. The tracking beacon that was carried was apparently capable of automatically issuing coordinates at regular intervals, but a choice was made to activate it manually once per day. No doubt questions of cost arise with regard to frequency of reporting, but the choice was made not on grounds of cost, but in order to save battery power, and this lends further weight to the comment by <<NAME REDACTED>>. It seems potentially dangerous that such a tracking beacon should need to have its waterproof cover opened in order to be manually activated. It was this that led directly to the failure of the tracking beacon carried.

COMMENT: To be of value an EPIRB must be activated in an emergency, and if destroyed in the emergency or not activated, it will be of no value.

COMMENT: Although the Inquest received no evidence of this, I am aware from my own knowledge that there are commercially available tracking beacons that automatically transmit position coordinates in real time at pre-determined intervals (indeed, the Southern Lakes helicopter engaged in the search had such a system). Depending on the time interval selected, the beacon's location can be quickly determined with a high degree of accuracy. If disaster strikes the beacon will continue to transmit up-to-date positions, in effect fulfilling at least part of the function of datum buoys. If the beacon should happen to be disabled in the disaster the cessation of transmission will provide an alert and an accurate position. My comment is that the use of such devices will complement the use of EPIRB's, enhance safety, and reduce search costs and risk to SAR personnel.

COMMENT: When RCCNZ was restructured in 2003-04 one of the requirements was that there should be no fewer than two SAR officers on duty at all times. This was because previous experience had shown that if only one SAR officer was on duty he could become overwhelmed by workload if two or more emergencies arose at the same time. There were two SAR officers on duty on the evening of 9 February, <<NAME REDACTED>> and <<NAME REDACTED>>, but when the aircraft emergency arose they both gave their attention to this, to the exclusion of the marine distress call, for a period of 25 minutes. <<NAME REDACTED>> was unable to give an assurance that the loss of those 25 minutes at that stage of the operation was not significant, the reason being that they did not find <<NAME REDACTED>>. I doubt very much whether the loss of those minutes affected the outcome, but both officers devoting their attention to one emergency to the exclusion of the other tends to defeat one of the purposes of the restructuring.

COMMENT: In the case of messages which are difficult to decipher the employment of voice enhancement techniques would be of value to Rescue Coordination Authorities. This has already been addressed by RCCNZ.

TASMANIA

Court Reference Number	Text
	<p>COMMENT: The value of local knowledge should never be underestimated by Rescue Coordination Authorities and while it need not necessarily be adopted in full or even in part, it should be taken fully into account, as I think it was on this occasion.</p>
XXXXX/2010	<p>COMMENT: The dinghy was in poor condition and assessed by <<NAME REDACTED>>, Manager Vessel Standards and Survey, Marine and Safety Tasmania, as being unseaworthy. Of particular relevance was the fact that both forward and aft buoyancy compartments were damaged so as to render them ineffective resulting in the boat not being able to float if it were swamped. If this buoyancy had been in proper condition the boat would have been able to support <<NAME REDACTED>> and <<NAME REDACTED>> until help arrived. Persons using any form of boat or persons providing such craft to others to use ought ensure that the craft is seaworthy and safe for its intended use.</p> <p>COMMENT: Although there was no obligation at law for <<NAME REDACTED>> or <<NAME REDACTED>> to wear life jackets, this tragedy highlights that accidents can happen in light weather conditions in close proximity to shore. Legislative requirements ought be treated as the minimum safety requirements and persons taking part in water based activities should take all reasonable steps that they assess as being necessary to ensure their safety.</p>
