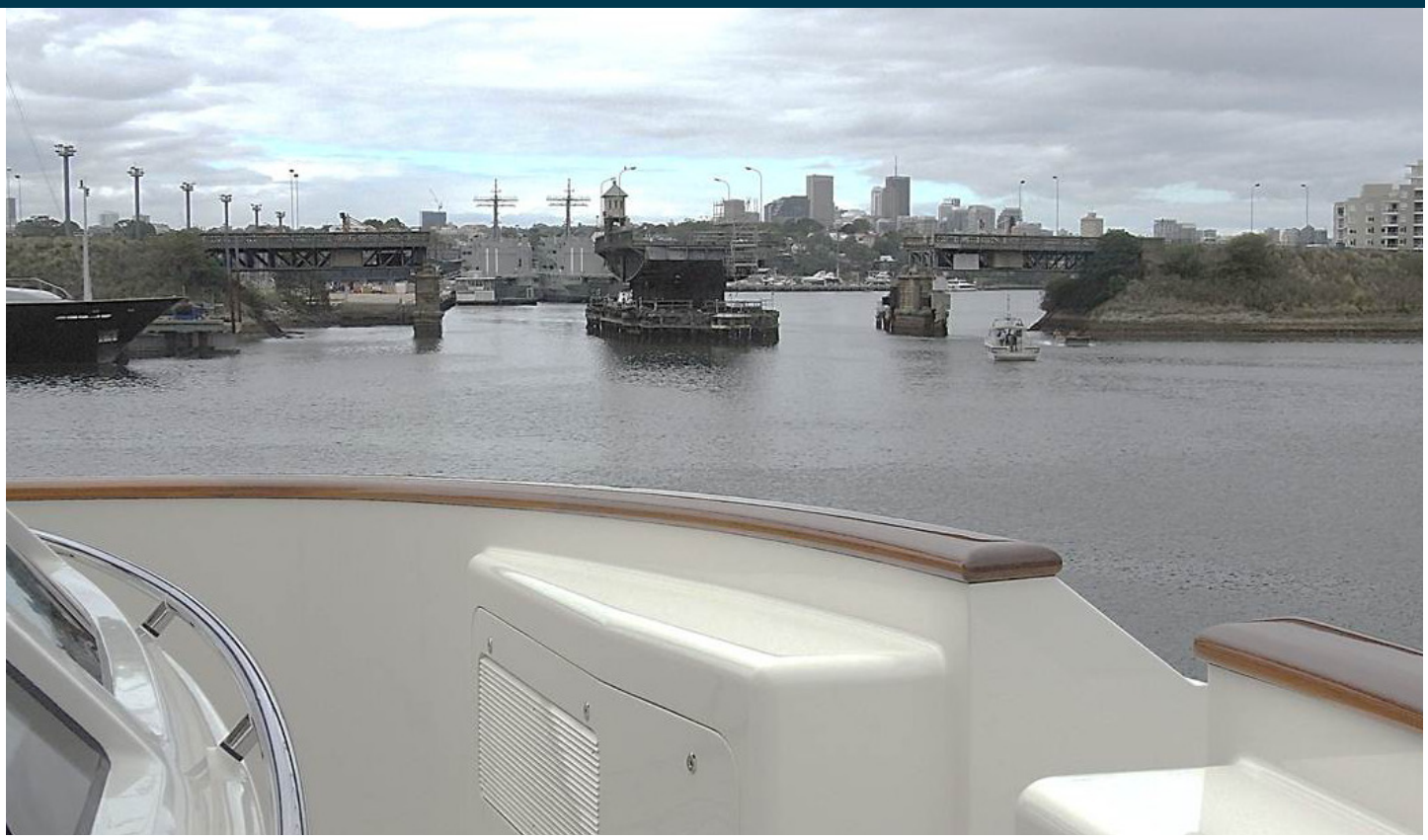
Australian Government
Australian Transport Safety Bureau

Fatality on board the motor yacht *Calliope*

Rozelle Bay, New South Wales | 8 February 2013



Investigation

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Addendum

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Safety summary

What happened

On the afternoon of 8 February 2013, the 42 m Cayman Islands registered motor yacht *Calliope* departed from the Sydney Superyacht Marina in Rozelle Bay for a cruise around the harbour.

As *Calliope* transited the Glebe Island Bridge, it was off course and veered towards the bridge structure. To minimise any damage to the vessel, the crew attempted to walk a fender between the yacht's hull and any possible points of contact. During this process, a crew member, leaning over the side of the yacht positioning the fender, was caught between the yacht and one of the bridge mounted fenders. The crew member was pulled over the yacht's side and into the water.

The crew member was retrieved from the water shortly afterwards but died as a result of the injuries he had sustained.

What the ATSB found

The ATSB found that a passage plan for the voyage had not been completed and, therefore, the risks associated with the voyage were not appropriately assessed or communicated to the crew. It was also determined that the yacht's master could not reference any navigational aids from his conning position in front of the navigational bridge. Hence, he was not in a position to properly monitor the yacht's progress.

The ATSB also concluded that while *Calliope* was in voluntary compliance with elements of the Large Commercial Yacht Code (a United Kingdom instrument which had been adopted by the Cayman Islands), the yacht did not have to comply with these requirements because it was deemed to be a pleasure yacht. Similarly, the yacht did not have to carry a pilot while operating in Sydney Harbour because it was considered to be a recreational craft.

What's been done as a result

Calliope's management company has advised that the ship's safety management system procedures have been updated to require the completion of a passage plan for all voyages. Procedures for transiting bridge openings will be also be issued. A specialist consultant will also be engaged to conduct on board audits of the safety management system.

The Cayman Islands Shipping Registry has advised that the effectiveness of the Large Commercial Yacht Code in meeting the fundamental requirements of a documented safety management system will be raised with the United Kingdom as the authors, publishers and custodians of the Code.

The harbour master for the Port of Sydney has highlighted the details of this accident as part of a review of the NSW Marine Safety Act.

Safety message

Flag States and port administrations should consider the risks associated with operating a vessel when determining regulatory compliance requirements, rather than making such determinations based on the vessel's mode (commercial or private) of operation.

Contents

The occurrence

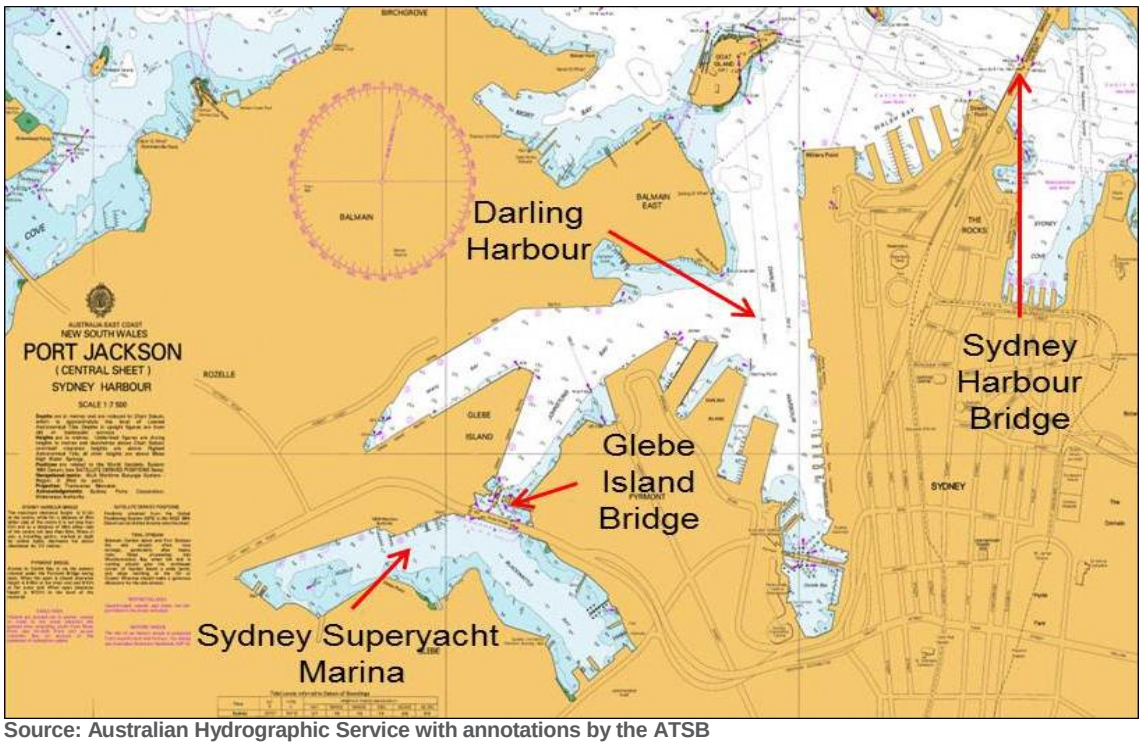
On the morning of 7 February 2013, the 42 m motor yacht *Calliope* (Figure 1) arrived off Sydney following a voyage from Auckland, New Zealand.

Figure 1: *Calliope*

Source: ATSB

At about 0830,[1] *Calliope* entered Sydney Harbour. The master conned the yacht through the harbour, to the Sydney Harbour Bridge, where the Sydney Superyacht Marina manager met the yacht in the marina tender and escorted it into Darling Harbour and then towards the marina in Rozelle Bay (Figure 2).

Figure 2: Port Jackson - Section of navigational chart Aus202



Source: Australian Hydrographic Service with annotations by the ATSB

[1] All times referred to in this report are local time, Australian Eastern Daylight Time (AEDT), Coordinated Universal Time (UTC) + 11 hours.

Calliope passed through the opening of the disused Glebe Island Bridge at low tide (Figure 3) and by 1010 was safely berthed with its stern to the wharf (a Mediterranean moor) at the marina.

Figure 3: Glebe Island Bridge opening

Source: ATSB

The crew then washed down the exterior of the yacht and, at about 1630, finished work for the day. The chief mate remained on board as the duty officer and all the other crew members went ashore, returning later that evening.

On the morning of 8 February, the crew prepared the yacht for the arrival of the owners and several days of local cruising. Bunkering started at 0730 and was completed by 1000. A departure briefing was led by the chief mate in which he explained the height the yacht's fenders would be positioned for the outbound transit through the Glebe Island Bridge. No other risks associated with the transit through the bridge opening were foreseen or identified at that time.

Meanwhile, the master checked the weather and tidal conditions and determined that low tide was at 1320[2] and the winds were southerly at force[3] 4 (11 to 16 knots[4]).

At 1245, the yacht's owners and their guest arrived on board and, shortly afterwards, the chief mate provided them with a safety briefing. The master and the owners agreed that the voyage would begin with a cruise of Sydney Harbour during lunch before they headed to Broken Bay, the next bay north of Sydney. They intended to stay in Broken Bay, before returning to Sydney on 11 February.

Preparations were made to sail and, at about 1320, the master started both main engines. He connected the bridge remote control pendant and tested the operation of the bow thrusters and rudder.[5] He then tested the on board ultra-high frequency (UHF) radio communications by calling the chief mate.

At 1333, the master used the very high frequency (VHF) radio located inside the navigational bridge to advise the Sydney Harbour Vessel Traffic Service (VTS) of his intention to depart the marina. In reply, he was told that the yacht was 'cleared to depart the berth and do a slow cruise through Sydney Harbour'.

The chief mate positioned the crew at their mooring positions, based on his knowledge of their experience and competence. Two crew members were positioned on the fore deck and four crew members were positioned around the main deck to tend the mooring lines. The main deck crew were also instructed to tend the fenders.

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2 Low tide was actually at 1420, 1 hour later than calculated, as no allowance had been made for NSW daylight saving time.

3 The Beaufort scale of wind force, developed in 1805 by Admiral Sir Francis Beaufort, enables sailors to estimate wind speeds through visual observations of sea states.

4 One knot, or one nautical mile per hour equals 1.852 kilometres per hour.

5 The yacht was not fitted with a stern thruster.

The fenders were usually retrieved after clearing the berth, but on this occasion it was decided that they would remain in place until the yacht had passed through the Glebe Island Bridge.

The master assumed a conning position on the port bridge wing which gave him an unhindered view of the yacht's side for the departure manoeuvre. The chief mate positioned himself on the starboard quarter to advise the master of clearances on that side of the yacht.

At 1341, *Calliope* cleared the berth and the master moved to a central position in front of the navigational bridge (Figure 4).

Figure 4: Conning position

Source: ATSB

At about the same time, the chief mate told the crew to raise the fenders in preparation for passing through the Glebe Island Bridge. When this was completed, he stood down the stewards, but kept the remaining crew in position to standby the fenders (Figure 5).

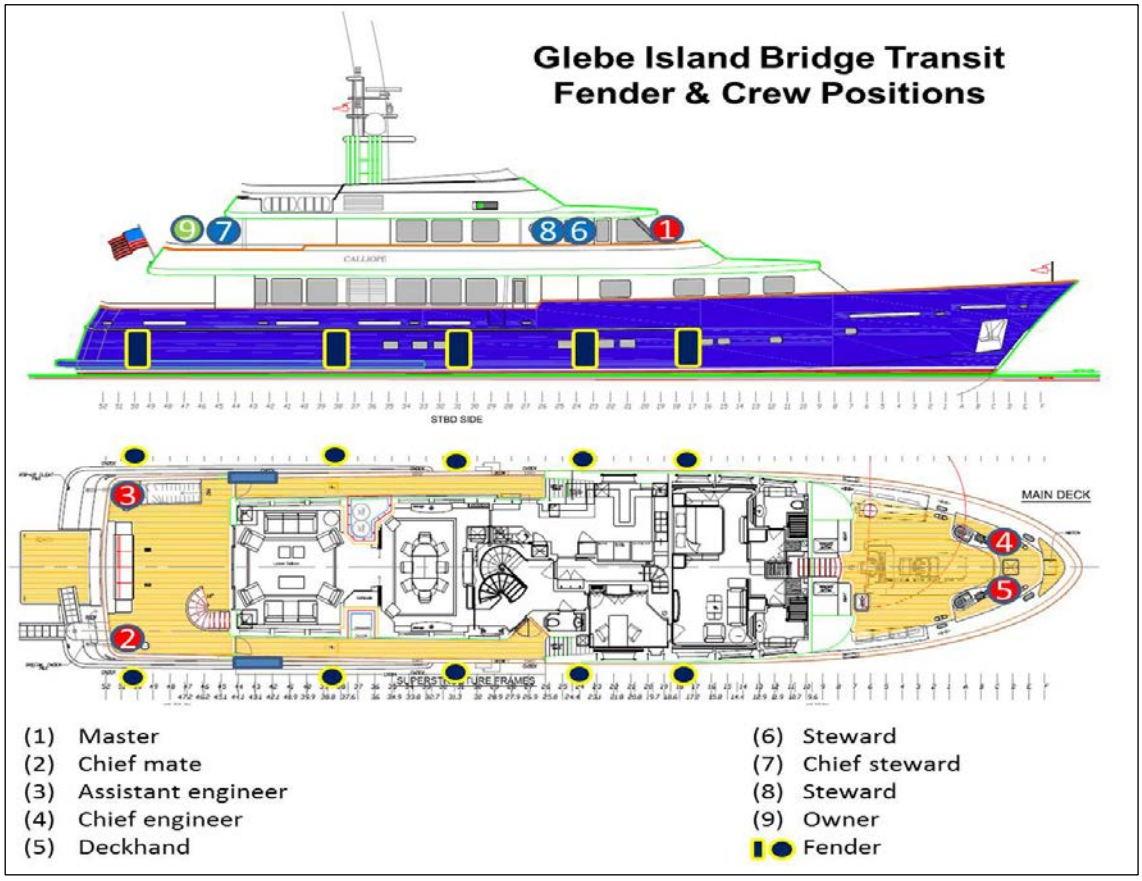
The owner and the stewards made their way to the yacht's bridge to observe the transit through the Glebe Island Bridge and harbour. The master set *Calliope*'s speed at about 4 knots, the usual speed achieved when both main engines were idling, which was also the speed limit for the area. The yacht was now about 1 cable[6] from the bridge.

The master turned *Calliope* to visually line it up with the bridge opening. While doing so, he thought that the yacht was off course and being pushed to starboard by the current. To counter this movement, he de-clutched both main engines and used the bow thruster to push the bow to port.

At 1346, *Calliope*'s bow entered the opening between the bridge structures. Soon afterwards, the chief mate advised the master, by UHF radio, that he needed to move the stern to port. The chief mate thought that contact with the bridge structure was imminent so he walked forward along the starboard main deck to reach and then re-position the fender just forward of the fashion plate. He lifted the fender hook from the capping rail and released the fender so he could move it (Figure 6).

[6] One cable equals one tenth of a nautical mile or 185.2 m.

Figure 5: Fender and crew positions for transiting the Glebe Island Bridge



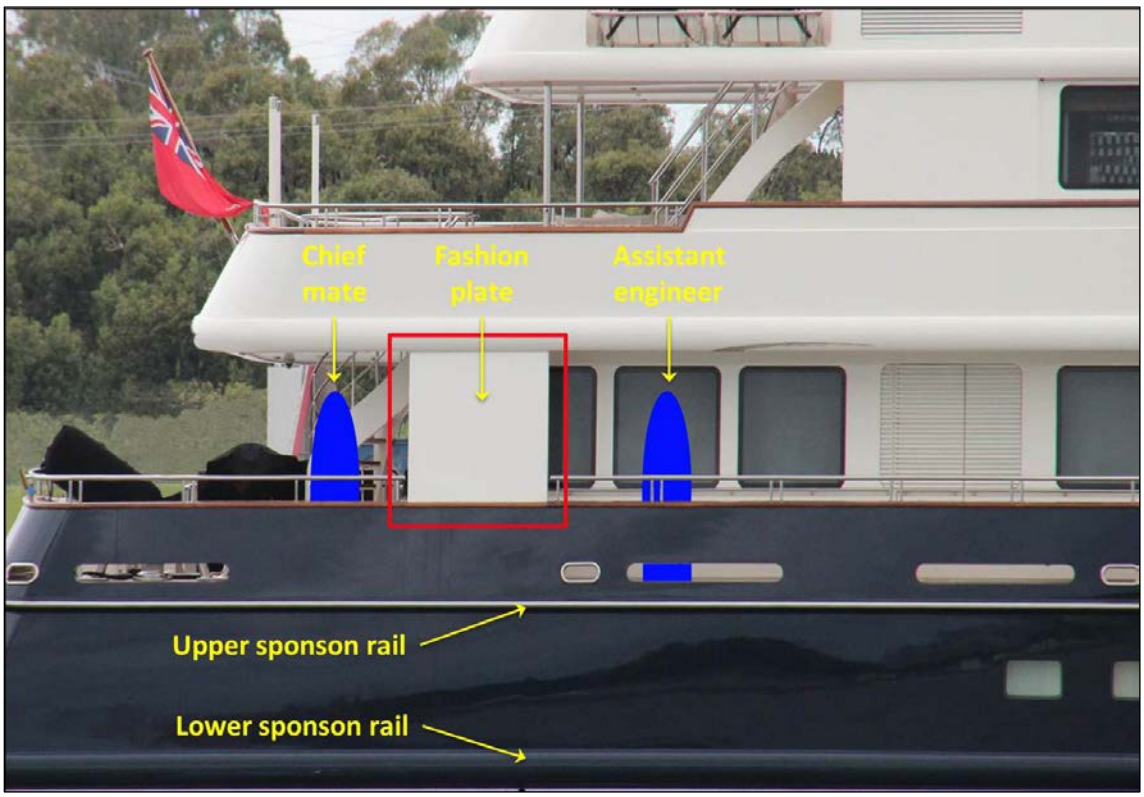
Source: Cayman Islands Shipping Registry with annotations by ATSB

Figure 6: Fender Hook position on capping rail

Source: ATSB

The chief mate positioned the fender so that it was between the yacht's upper sponson rail (Figure 7) and any possible points of impact on the bridge structure. Thinking that he would need to move the fender aft, past the fashion plate, he called for help from the assistant engineer who was positioned on the port quarter. The assistant engineer moved quickly to help and took control of the fender. The chief mate then walked aft, past the fashion plate, in preparation for receiving the fender.

Figure 7: Position of chief mate and assistant engineer prior to the accident



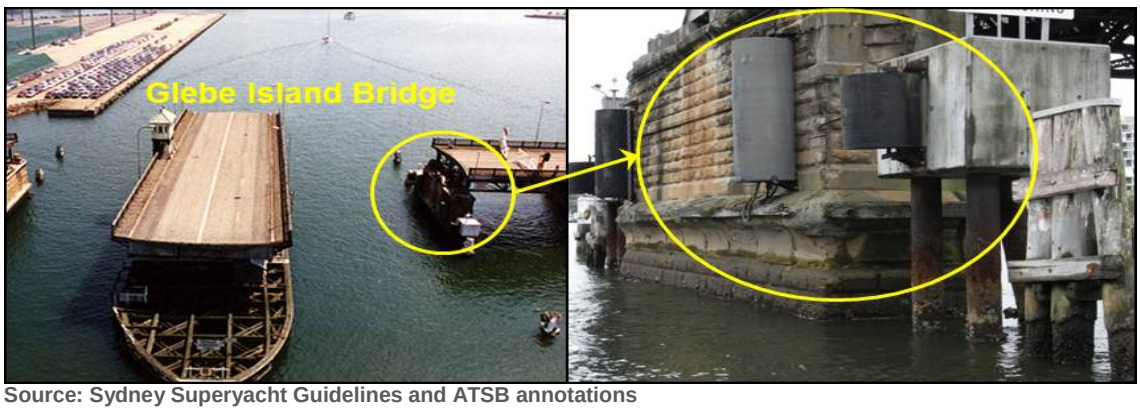
Source: ATSB

The chief steward, watching from the starboard bridge wing, told one of the stewards to go and assist. This steward quickly made her way down from the bridge to the starboard aft main deck, passing the assistant engineer and chief mate in the process.

As the yacht moved through the bridge structure, the assistant engineer walked the fender aft until he reached the fashion plate. He leaned over the side and positioned the fender between the upper sponson rail and the bridge structure. He was distracted by what he was doing and did not notice that *Calliope* was closing on one of the bridge mounted fenders which was going to pass very close to where he was working.

At about 1347, the assistant engineer was caught between the yacht's fashion plate and a bridge mounted fender (Figure 8). He was pulled over the yacht's side and into the water.

Figure 8: Glebe Island Bridge structure and fenders



Source: Sydney Superyacht Guidelines and ATSB annotations

The steward immediately shouted ‘man overboard’. The master heard the call and shouted to a nearby small recreational boat for assistance. At about the same time, the chief mate made his way to the bridge to inform the master. He briefed the master and was given a mobile telephone and told to contact the authorities using the emergency triple zero (000) telephone number.

As the small recreational boat moved southward through the bridge to provide assistance, it passed a fishing boat that was proceeding northwards through the bridge. The crew of the recreational boat shouted ‘man overboard’ and, when they saw the man in the water, two of them jumped in to assist.

At 1349, the skipper of the fishing boat contacted VTS via VHF radio and requested ‘urgent assistance at the Pyrmont Bridge, we have a man overboard…’

The crew of a New South Wales Water Police boat heard the radio call and advised VTS that they were on their way to Pyrmont Bridge and were about 1 minute away. The skipper of a nearby passenger ferry in Johnstons Bay also heard the radio call and contacted VTS to offer assistance.

Calliope’s master had overheard the VHF radio discussions and was aware that assistance was on its way. He maintained his focus on clearing the bridge and, once clear, instructed the chief engineer to prepare the starboard anchor for letting go.

At about 1351, the assistant engineer was retrieved on board the fishing boat. As he showed no signs of life, the skipper informed VTS that he was deceased. The skipper then made contact with the water police and corrected the accident location to ‘Glebe Island Bridge’. The water police acknowledged and advised that they were about 2 minutes away.

At about 1354, *Calliope’s* starboard anchor was let go and the yacht was brought up, about 2 cables north of the bridge.

At about 1356, the water police boat arrived and the police officers boarded the fishing vessel. They then escorted the fishing vessel to the water police base at Balmain.

The water police later boarded *Calliope* while the yacht was at anchor and instructed the master to return to the marina. At 1530, the yacht berthed at the Sydney Superyacht Marina.

Context

Calliope

Calliope is a 42 m, 453 GT,[7] motor yacht. At the time of the accident, the yacht was owned by Callisto Marina Holdings, Cayman Islands, and managed by Marine Construction Management, United States of America. It was registered in the Cayman Islands and classed with Lloyd's Register (LR).

The yacht was fitted with all of the required navigational aids, including, a magnetic compass, an echo sounder, a Global Positioning System (GPS) unit, a rudder angle indicator, radar, an Automatic Identification System (AIS) unit, an Electronic Chart System (ECS) and a means for taking visual bearings.

Crew

Calliope had a crew of nine, consisting of a master, chief mate, deckhand, chief engineer, assistant engineer, chef, chief steward and two stewards. All the crew were suitably qualified for the positions they held on board the yacht.

The master had 25 years of yachting experience and progressed from deckhand to master in 2000. He held a United Kingdom issued master's certificate of competency for a yacht of less than 3,000 GT. He had been with the yacht's owners for 10 years and had spent the previous 3 years on board *Calliope*.

The chief mate had 8 years of yachting experience and progressed from deckhand to chief mate in 2010. He had held a United Kingdom issued chief mate's certificate of competency for a yacht of less than 3,000 GT since 2009. He had worked on board *Calliope* since May 2010.

Calliope was the first yacht the assistant engineer had worked on board. He had been on board for nearly 3 years and had completed the required basic marine training courses and an Approved Engine Course.

Cayman Islands Shipping Register

The Cayman Islands Shipping Registry (CISR) is a division of the Maritime Authority of the Cayman Islands (MACI) and is the registry for about half of the world's super yachts.[8]

The CISR's responsibilities include vessel registration, marine surveys and auditing services, implementation of policies to ensure maritime safety and the prevention of marine pollution. The responsibility for casualty investigation remains with the MACI.

The CISR reissued a shipping notice in 2010 clarifying the distinction between private and commercial yachts and the varying requirements that apply to them. In short, yachts of 24 m or more in length and engaged in trade must comply with the Large Commercial Yacht Code (the Code) and the Vessels in Commercial Use Regulations 2002. Privately operated yachts not engaged in trade do not have to comply with these requirements, but the CISR strongly recommends that they do.

Large Commercial Yacht Code (the Code)

The Code sets the required standards for safety and pollution prevention. These requirements were developed by an industry group and consider size and operations of the vessels. The standards applied are either set by the existing relevant international convention or an equivalent standard where it is not considered reasonable or practicable for yachts to comply with the international convention. The Code had been submitted to International Maritime Organization

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[7] Gross tonnage is a measurement of the enclosed internal volume of a ship and its superstructure with certain spaces exempted

[8] Super yachts are larger pleasure yachts, usually defined as being in excess of 24 m in length.

(IMO) by the United Kingdom as an 'Equivalent' under SOLAS[9] I/5, LL Article 8 and STCW[10] Article IX. This equivalence was circulated to Member States by way of IMO Circular Letter No 2910 of 20 October 2008.

The Code states that vessels under 500 GT (like *Calliope*) should have a safety management system (SMS). Annex 2 of the Code provides guidance on how to develop and implement an effective SMS.

The Code stipulates that commercial vessels of 24 m or more in load line length and of 500 GT and more, are required to comply with the requirements of the International Safety Management (ISM) Code.[11]

Safety management on board Calliope

While it was not mandatory for *Calliope* and its operators to comply with the requirements of the ISM Code, they had developed a SMS which was in accordance with the guidance contained in Annex 2 of the Large Commercial Yacht Code.

Risk assessment

A risk assessment process was detailed in *Calliope*'s SMS. The master was designated as the responsible person for ensuring that key shipboard operations were identified and deciding if a formal risk assessment should be carried out and documented. The chief mate, who was also the yacht's safety officer, was responsible for carrying out and recording the risk assessments.

Training

The SMS did not refer to specific training requirements but did require familiarisation of job specific tasks. Before crew members could work on the yacht they were required to have the mandatory STCW Code[12] basic training qualifications, consisting of personal survival techniques, fire prevention and firefighting, elementary first aid and social responsibilities.

Sydney Superyacht Marina

The Superyacht Marina in Rozelle Bay was built for the 2000 Sydney Olympic Games. Entrance to the marina is through the disused Glebe Island Swing Bridge. The swing spans are 18.7 m on the western (Glebe Island) side, and 18.8 m on the eastern (Pyrmont) side, with fixed fendering arrangements attached (Figure 8).

Sydney Harbour pilotage

Vessels of any size and length used solely for recreational purposes do not require a pilot or a holder of a local knowledge certificate[13] to be on board in order to operate on Sydney Harbour. However, the masters of these vessels may request a pilot for any passage within the harbour.

In support of these requirements, the operators of the Sydney Superyacht Marina encourage masters of superyachts to engage the services of a pilot if they are in any doubt regarding the port guidelines and/or their ability to safely manoeuvre their yacht within the harbour.

The investigation

This safety investigation was conducted by the ATSB with cooperation from the Maritime Authority of the Cayman Islands in accordance with the requirements of the IMO Casualty Investigation Code (MSC.255(84)).

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9 The International Convention for the Safety of Life at Sea, 1974, as amended.

10 Seafarer's Training, Certification and Watchkeeping Code, International Maritime Organization, 1995.

11 The ISM Code is contained in the International Maritime Organization's Resolution A.741 (18) as amended.

12 STCW Code - Seafarer's Training, Certification and Watchkeeping Code, International Maritime Organization, 1995.

13 A certificate of local knowledge permits the holder to operate small commercial vessels within the port.

Safety analysis

The accident

Calliope departed from the Sydney Superyacht Marina in Rozelle Bay on 8 February 2013 for a cruise around the harbour. As the yacht transited the Glebe Island Bridge, it was off course and veered towards the bridge structure. The manoeuvre had not been planned and the tidal conditions were incorrectly calculated. From a conning position in front of the navigational bridge, the master could not reference the navigational aids and he was reliant on visual cues only for monitoring the yacht's position.

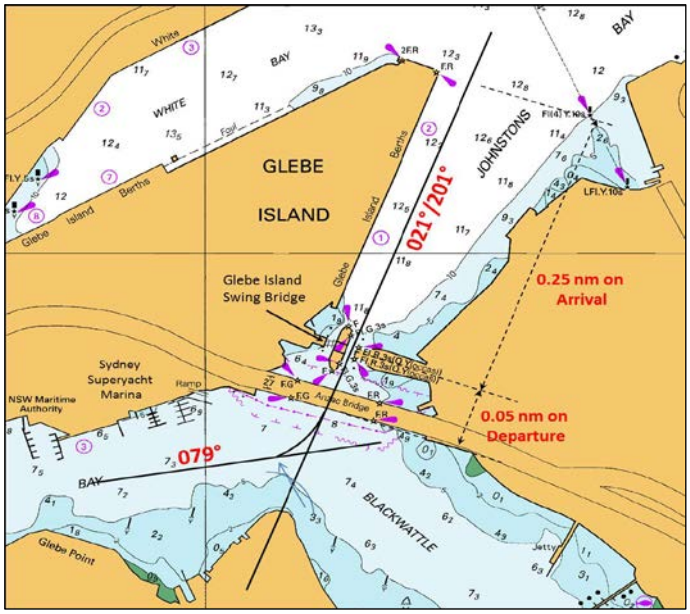
Prior to the departure, the master calculated the tidal conditions for the intended transit through the bridge, but he did not consider the impact of daylight savings time. This resulted in an erroneous belief that the tide was just beginning to flood when it was actually just finishing the ebb.

The passage from the berth to the bridge was treated as a routine berthing manoeuvre and a course had not been planned from the berth through the bridge opening. The master had intended to visually line the yacht up in the centre of the bridge structures, as he had done when arriving.

The safe transit of the bridge requires a vessel to be in the centre of the structures. On arrival through Johnstons Bay, a vessel's master has about a 2.5 cable[14] approach, approximately parallel to Glebe Island berths 1 and 2, to align the vessel in the centre of the bridge structures. However, on departure from Rozelle Bay the master has to complete an alteration to port and has about a ½ cable approach to align the vessel in the centre of the bridge structures before the transit (Figure 9).

On this occasion, *Calliope*'s master had to complete an alteration to port of about 58° prior to the transit through the bridge opening. At a speed of 4 knots and a 1 cable radius of turn, this required a rate of turn of about 40° per minute. The tide from astern would have increased the difficulty the master had in maintaining control over the vessel.

Figure 9: Transit of Glebe Island Bridge



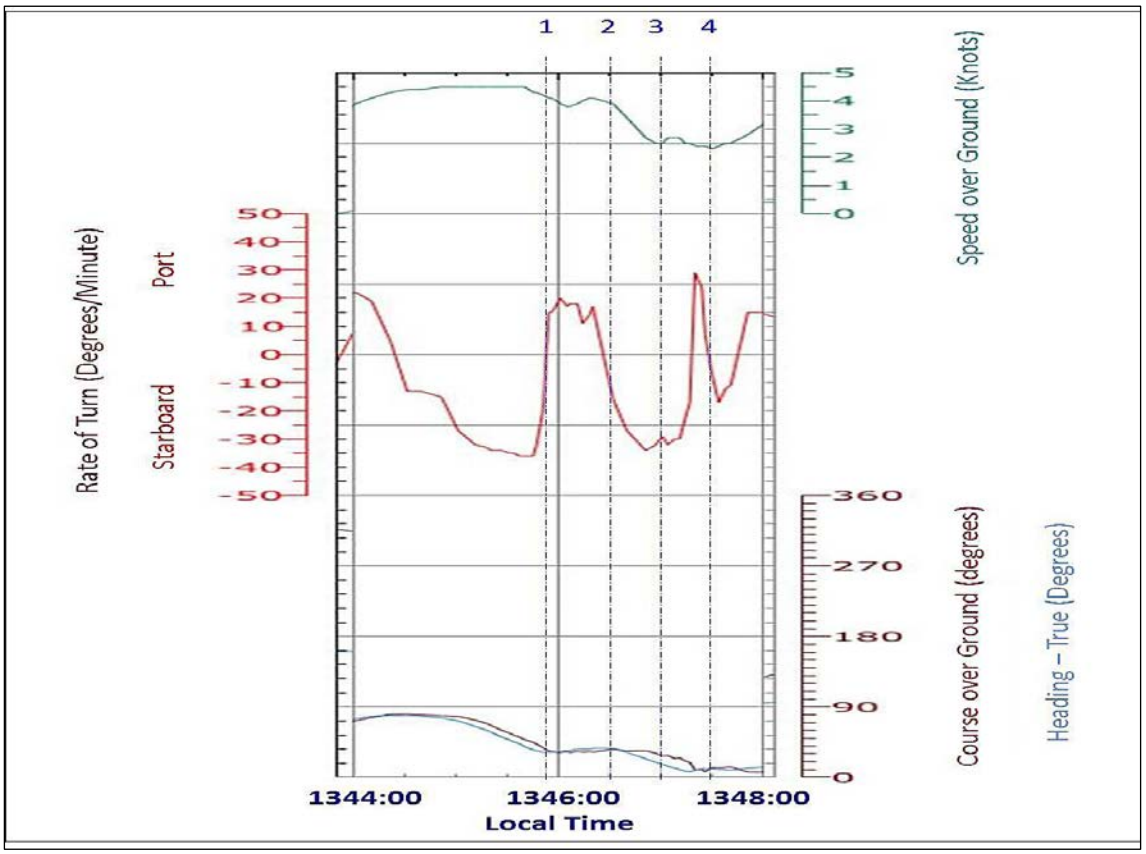
Source: Australian Hydrographic Service with annotations by the ATSB

As *Calliope*'s master was completing the alteration to port, he was advised by the chief mate that he needed to bring the stern to port as it was closing on the bridge structure. The master attempted to correct the yacht's position, but he could not do so because of the yacht's speed and its proximity to the bridge.

Analysis of the navigational information obtained by the ATSB from *Calliope*'s on board navigation equipment and the Sydney Harbour VTS recordings indicates that the master did not have positive control over the yacht. *Calliope*'s rate of turn, course, heading and speed all varied significantly prior to the transit of the bridge (Figure 10). The rate of turn fluctuated between 30° per minute to port and 35° per minute

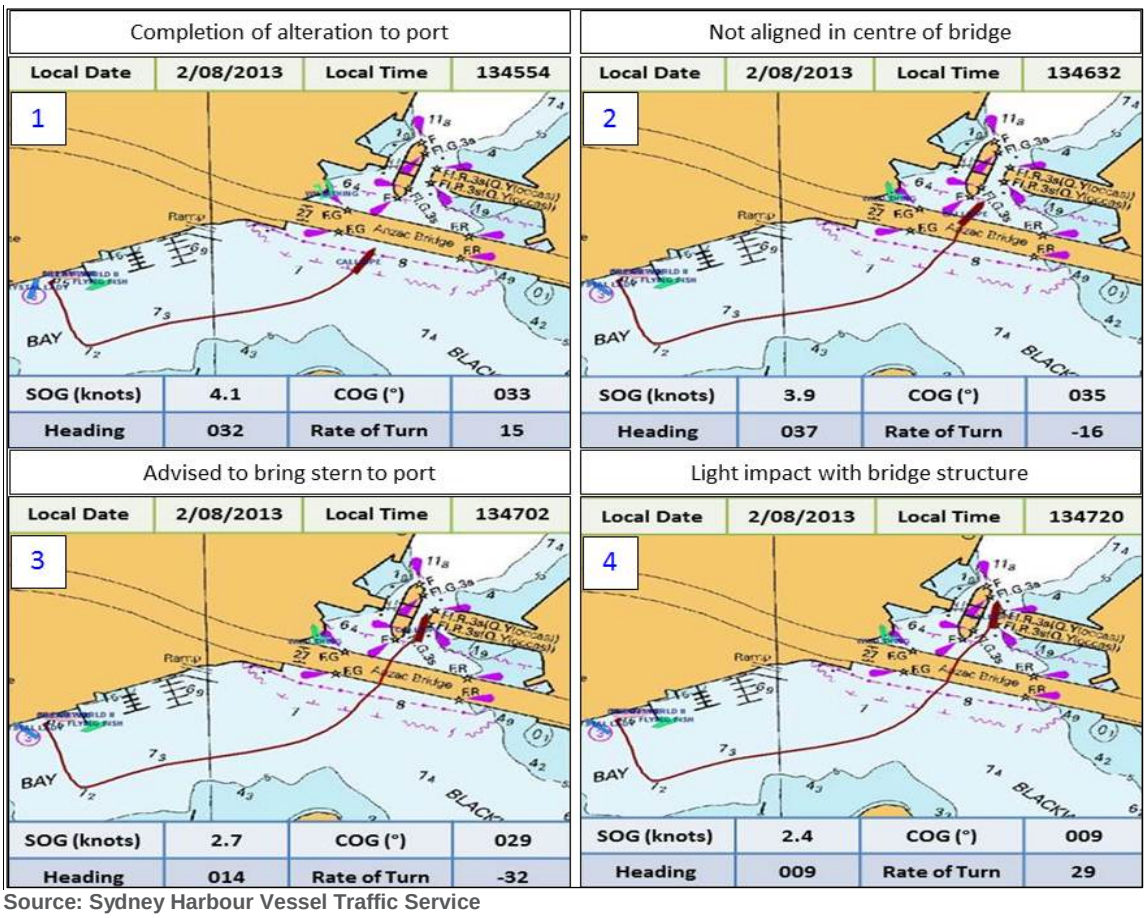
[14] One cable equals one tenth of a nautical mile or 185.2 m.

Figure 10: *Calliope*'s rate of turn, course, heading and speed



Source: ATSB

Figure 11: Navigational information relating to *Calliope*'s track from berth to bridge



Source: Sydney Harbour Vessel Traffic Service

to starboard and the yacht's heading swung over 30°. As a result, the yacht was not on a steady course when it was transiting the bridge and veered into it (Figure 11).

Conning position

It was common practice for the master to position himself outside the bridge (Figure 12) when he manoeuvred *Calliope* at low speeds, using the bridge remote control pendant. He was then able to walk across the front of the bridge, from bridge wing to bridge wing, to observe the sides of the yacht during manoeuvring.

Figure 12: Conning position during manoeuvring

Source: ATSB

The master used the remote control pendant to control the bow thruster and propeller direction by engaging the engines either ahead or astern. It was his habit to set the rudders amidships, as it was known to him that they were slow to respond when using the remote pendant. As a result, he did not use them during manoeuvring, despite having a remote rudder angle indicator to reference. Likewise, he knew that the bow thrusters were slow to respond when using the controls inside the navigational bridge. Therefore, his preference was to control them with the remote unit.

Navigational aids such as the radar, ECS, engine indicators, speed log, compass headings, rate of turn indicator, echo sounder, wind anemometer and VHF radio were fixed inside the navigational bridge. By assuming a conning position outside the bridge, the master could not reference any of this navigational equipment. He could only reference the remote rudder angle indicator.

When departing the Sydney Superyacht Marina on 8 February, the yacht's position was only monitored visually by the master, from a position approximately above the pivot point.[15] While he was focused on looking ahead, the chief mate (positioned at the stern) provided additional information regarding the yacht's progress.

The master stated that, as soon as he was well clear of a berth, he would usually move to the controls inside the bridge. However, he considered this to be an exceptional circumstance as there was a bridge to go through immediately after, so he stayed at the bridge front with the remote unit.

The master's conning position forward of the bridge was of benefit when completing manoeuvres such as a Mediterranean moor in which the yacht is often positioned between similar vessels with its stern to the wharf. In such manoeuvres, the master was able to look along the sides of the yacht to get a feel for vessel position and movement. Further, during these manoeuvres the yacht's speed was very low, moving astern and the dangers associated with the adjacent yachts were often confined to being near the waterline.

In contrast, when transiting the Glebe Island Bridge, without leading lights, the master only had the short foredeck of *Calliope* for positional reference. Furthermore, the yacht was travelling at a much higher speed and was facing dangers which were well above the waterline. These risks were not recognised or assessed as the master considered the transit a standard manoeuvre and decided to take up a conning position outside of the yacht's bridge.

In short, the master could not reference all the available navigational aids to monitor the yacht's position and speed or its predicted movement from his conning position outside of the navigational bridge.

Planning

On board *Calliope,* passage planning was undertaken either by the master or the chief mate, both of whom had demonstrated their ability to apply the knowledge required for this subject when they received their qualifications. A summary of the stages of initiating and completing a passage plan include:

Appraisal and planning:

- identifying the most suitable route by consulting all relevant documentation
- determining all aspects affecting navigation
- conducting pre-sailing briefings
- using an ECS.

Execution and monitoring:

- fixing and cross checking the yacht's position by means of visual and/or by electronic navigational aids
- monitoring the yacht's progress by ECS and parallel indexing[16] with reference to the planned track in ocean, coastal and estuarial waters and port approaches.

However, there were a number of shortcomings in all stages of the passage planning process on board *Calliope.* The ship's safety management system (SMS) contained a pre-departure checklist listing a need for a 'pre-departure briefing' and a passage plan that was 'clear and available for watch-keepers'. It did not contain any guidance for when and how to complete a passage plan or conduct navigational briefing meetings with the yacht's crew. Therefore, this was left to the discretion of the master.

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[15] Pivot Point is the itinerant vertical axis about which a ship rotates during a turn.

[16] Parallel Indexing is a real-time radar monitoring technique used to verify that the vessel is maintaining its intended track and will therefore pass a radar mark at a predetermined range.

On 18 May 2012, during an annual survey, the attending CISR surveyor made the following recommendation regarding the effectiveness of the SMS at that time:

> The SMS was found well maintained. Notwithstanding, in the next period, in addition to regular maintenance of the system, the captain should focus on amending procedures for risk assessment to include more detailed actions for mitigation of risk, and to include procedure for voyage planning. Also, the captain should devise effective procedure for maintaining charts and nautical publications for intended voyage(s) up to date.

These recommendations had not been effectively integrated into the SMS at the time of the accident.

In contrast to the elements of sound navigational practice when passage planning, *Calliope*'s past passage plans had only consisted of a course input into the ECS, consideration of tidal information, and meeting the VTS and VHF reporting requirements. Further, these limited passage plans were routinely completed only for voyages that included overnight passages.

Because the crew were unfamiliar with Sydney Harbour, they used the internet to research for information about the harbour and aspects of the Glebe Island Bridge. However, they were unable to find any information and did not know how to obtain any further advice. The Harbour Master's Directions[17] and Sydney Harbour Superyacht Guidelines[18] detailed the operating requirements of Sydney Harbour such as:

- directions for navigation
- legislation to be observed
- pilotage services
- passage plans
- VHF communications
- VTS (Vessel Traffic Service) information
- descriptions of the primary bridges in Sydney Harbour
- berth information.

It is unclear whether the master or crew accessed these guidelines and whether they had considered the use of a pilot. When interviewed, the master indicated that he was confident of his abilities to navigate/negotiate Sydney Harbour without a pilot's assistance. On approach to the Glebe Island Bridge, it was the master's expectation that the 'crew would just react to any abnormal situations'.

In accordance with his usual practice for day trips, the master considered a passage plan unnecessary for the voyage on 8 February due to the perceived simplicity of the voyage. However, the completion of a passage plan would have probably ensured that the risks associated with transiting the Glebe Island Bridge, Sydney Harbour and the ocean passage to Broken Bay were appropriately considered and effectively treated.

Safety Management System

Calliope's safety management system (SMS) detailed the risk assessment process for vessel operations and reactions to emergency situations. Checklists were used for shipboard tasks such as arrival at and departing from a berth and a familiarisation was required before they were undertaken.

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[17] Directions given by the Harbour Master for navigation in Sydney Harbour and Botany Bay (www.sydneyports.com.au).

[18] Guidelines to assist Superyacht masters with their preparations for a visit to Sydney Harbour and to provide a reference document during their visit (www.sydneyports.com.au).

Calliope was a 453 GT vessel, therefore compliance with the ISM Code and the implementation of an SMS were not mandatory requirements. However, *Calliope*'s owner and management company (Marine Construction Management) had developed an SMS. In accordance with the requirements of the Large Commercial Yacht Code, they stipulated that the SMS would be reviewed every 3 years. They did not specify a requirement for any further internal or external audits of the system.

In submission, the Cayman Islands Ship Registry stated that:

> The requirements for a safety management system for large commercial yachts of under 500GT are given in Annex 2 of the Large Commercial Yacht Code and mandated by section 30.2 of the Code. Annex 2 only requires ' simple procedures' for on board operations and does not include requirements for auditing or checking the effectiveness of the system beyond the 'three year owner's review' in paragraph 21 of the Annex.

Furthermore, Marine Construction Management did not consider that there was a need for regular formal internal and external audits of the SMS because the yacht was surveyed annually and the company reviewed the vessels meeting minutes, incident reports, familiarisation records, risk assessments and maintenance records.

However, an annual survey confirms that the yacht remains in conformance with all relevant regulatory requirements and remote review of limited documentation only confirms that some parts of the SMS are being complied with, whereas an internal or external SMS audit verifies that the SMS is adequate, appropriately implemented and complied with.

Familiarisation and training

A familiarisation checklist was to be completed by each crew member within their first two weeks on board, and included a requirement for an understanding of mooring and anchoring operations. An inspection of the familiarisation checklists following the accident proved inconclusive as the records were not maintained and completed copies were not kept on board the yacht.

As the SMS did not contain or refer to any guidance and training material, mooring training and instruction was provided by the chief mate. This training was based on his experience and was learned firsthand, on-the-job.

Fendering

Fendering operations routinely involved all crew members whenever the yacht berthed, such as in Mediterranean moors. However, the SMS did not contain any training material or guidance for fendering. The only references were in the checklist 'Preparations for arrival into port', which stated 'ensure all fenders are in place and properly inflated. Make sure there is at least one roving fender on standby.'

The crew members involved with the berthing operation were briefed but specifics such as risk assessments and safety instructions were not detailed. For example, there was an unwritten rule that all crew members were expected to 'never lean over the side of the boat'. However, this 'rule' was only passed on by word of mouth. Therefore, it is unknown if it was understood or applied by all crew members in all situations. Certainly, the assistant engineer did not apply it in this instance.

On this occasion, passing through the Glebe Island Bridge was an unfamiliar operation for all the crew members. However, as no issues were experienced on the inbound transit the day before, it was treated as being the same as any other routine berthing operation.

Had the risks been assessed, the bridge transit planned and crew sufficiently briefed, it is likely that a fender would not have been positioned outboard of the fashion plate. Hence, the need to lean over the side would have been removed.

In this unfamiliar situation, the assistant engineer became distracted[19] by the task at hand. With his attention diverted by the fender, he did not notice the impending crush situation unfolding.

Conclusion

Calliope's SMS did not provide the crew with adequate guidance or contain specific requirements regarding passage planning, training and familiarisation. Individual crew familiarisation records and risk assessment forms were not retained or available at the time of the investigation on board the yacht and there was no documented system of auditing or checking to ensure the adequacy of the SMS and rectification of audit findings or the effectiveness of its implementation.

Vessels engaged in commercial and private operations

The Cayman Islands Merchant Shipping (Vessels in Commercial Use for Sport and Pleasure) Regulations 2002, in respect of large yachts, give effect to the Large Commercial Yacht Code. The Code is applicable to yachts of 24 m or more in load line length and is intended to provide greater safety, by virtue of the construction, equipment, operation and manning requirements.

For a yacht like *Calliope*, compliance with mandatory or recommended standards was dependent on the operational mode of the vessel (commercial or private). Since *Calliope* was available for charter from July to September each year, during this period it was considered a commercial vessel and was required to comply with the requirements of the Code. As *Calliope* was not engaged in any commercial activities during the Sydney cruise, it was operated as a private yacht and was not required to comply with any requirements of the Code.[20] However, the yacht's owners and operators had decided to do so voluntarily.

The risks posed to the safety of life at sea and the environment by two identical yachts, one commercially operated and one privately operated, are the same. Furthermore, the risks posed by a larger (for example 70 m) privately operated yacht are greater than that posed by a smaller (for example 25 m) commercially operated yacht. Therefore, the application of the Code based on mode of operation is at odds with a modern risk based approach to safety regulation.

In submission, the Maritime Authority of the Cayman Islands stated that:

> … the wider question remains as to the suitability of the "pleasure vessel not engaged in trade" exceptions granted under the SOLAS and Load Line Conventions. The Code being an accepted equivalence to these conventions has the similar application criteria as the conventions themselves, except that the application of the Large Yacht Code goes beyond that of SOLAS in requiring compliance by commercial yachts below 500 GT.

Pilotage

Traditionally, a pilot was engaged as a specialist advisor for local knowledge and practised ship handling skills. The pilot advised the master on the conduct of the ship in waters in which the pilot has local knowledge of tides, conditions, channels and port operations.

While this still holds true, pilots, pilot associations, port authorities and governments increasingly see the role of pilotage as a port risk mitigation function. The principal purposes are safety and the reduction, to the greatest extent possible, of the physical, environmental and financial risks associated with ships navigating within a port and its limits. Pilotage, therefore, is now considered to be one of a port's primary risk mitigation strategies.

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19 Distraction can be understood as a type of inattention, where a person's attention is diverted by a particular event or object.

20 The differences in these standards are summarised in Appendix A.

According to the Harbour Master's Directions for the Sydney Harbour and Botany Bay, pilotage is compulsory for all vessels, unless they are exempted under section 75 of the *Marine Safety Act 1998* which states that exempted vessels include:

- a vessel whose master is the holder of a marine pilotage exemption certificate under the Act that applies to that port and vessel
- a recreational vessel[21]
- a vessel of less than 30 m in length
- a vessel of any class declared by the regulations to be an exempt vessel.

On 7 February 2013, *Calliope* entered Sydney Harbour without a pilot on board. Then, on 8 February, the yacht sailed from Rozelle Bay also without a pilot on board. Since *Calliope*'s master did not hold a pilotage exemption or a certificate of local knowledge for the port, the yacht must have been considered to be a recreational vessel for it to be exempt from the requirement to carry a pilot.

Had *Calliope* been carrying passengers on a commercial charter it would not have been considered to be a recreational vessel and hence would have had to carry a pilot. It could be argued that *Calliope* should not have been considered to be a recreational vessel on 7 and 8 February as it did not meet the Harbour Master's Directions definition of a recreational vessel because it was over 30 m in length and, at times, chartered on a commercial basis.

Regardless of whether *Calliope* was considered to be a recreational vessel or not, the risks the yacht posed to the port were the same. It was a 42 m vessel that was capable of carrying 8 passengers, 9 crew and 17,680 litres of diesel at a speed of 16.5 knots. Hence it should have had to comply with the requirements of a similarly sized commercial vessel operating in the harbour.

Post-accident actions

Flotation devices

When the assistant engineer was dragged into the water a man overboard situation arose. The immediate reaction of the crew members nearby was to raise the alarm and for the chief mate to proceed to the bridge to notify the master. No flotation or life-saving equipment was deployed, such as the life buoy fitted nearby or cushions on seats on the after deck. This was despite the fact that the on board man overboard procedures and checklists directed the crew to jettison life buoys or floating objects in such an emergency.

Calliope's crew indicated that they thought the assistant engineer was dead and hence they did not respond to the man overboard as per the procedures. However, in such a situation, the very least a flotation device will do is mark the approximate area of the person in the water so that their position can be more easily found or returned to by rescuers.

The nearest lifebuoy to the crew on the deck was located behind the open door on the deck next to the fashion plate and fitted with a white cosmetic cover so that it blended in with the white accommodation block of the yacht. As such, it would not have been readily visible to those at the scene of the accident and may have been the reason why it was not deployed during a stressful emergency situation.

Emergency communications

Soon after the man overboard, the chief mate went to the bridge to inform the master who gave him a mobile telephone and instructed him to call the emergency triple zero (000) telephone number. According to the crew, the use of the mobile telephone, rather than the VHF radio, was a conscious decision that was made to avoid disturbing and upsetting the owner, his guests and others who were present on the bridge when the emergency occurred.

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[21] A recreational vessel is a vessel used solely for recreation and which is not used or allowed or authorised to be used in the course of any business or in connection with any commercial transaction.

While it is understandable, indeed desirable, that the master would use all means at his disposal to alert the authorities to his distress situation, the use of a mobile telephone emergency call by mariners should be handled with care.

In this case, had the yacht's VHF radio been used to raise the alarm by contacting the Sydney Harbour Vessel Traffic Services (VTS), VTS would have then been in a position to provide the most suitable maritime response. This VHF radio call would have also alerted others in the vicinity to the emergency, many of whom would have been in a position to lend immediate assistance. Fortunately, on this occasion, that call was made by a nearby vessel.

In contrast, a telephone call to the emergency triple zero (000) telephone number is handled by a person with no maritime training located in a call centre. Such a person would be looking for a land-based solution, such as a street address to send the emergency services to. Consequently, time, information and effectiveness of the emergency response may be compromised.

This is not the first investigation the ATSB has conducted where the use of a mobile telephone rather than the recognised marine emergency radio system has been noted.[22] Once again, the ATSB advises that the recognised marine distress systems should be the primary means of reporting emergencies.

[22] See ATSB investigation number 210 – Collision between bulk carrier *Goa* and sailing vessel *Marie Chocolat* on 19 February 2005, available at www.atsb.gov.au/marine.aspx

Findings

From the evidence available, the following findings are made with respect to the crew member fatality which occurred on board the Cayman Islands registered motor yacht *Calliope* in Rozelle Bay, Sydney, on 8 February 2013. These findings should not be read as apportioning blame or liability to any particular organisation or individual.

Safety issues, or system problems, are highlighted in bold to emphasise their importance. A safety issue is an event or condition that increases safety risk and (a) can reasonably be regarded as having the potential to adversely affect the safety of future operations, and (b) is a characteristic of an organisation or a system, rather than a characteristic of a specific individual, or characteristic of an operating environment at a specific point in time.

Contributing factors

- Calliope was not on a steady course nor aligned with the centre of the bridge opening prior to the transit. The yacht's speed and rate of turn did not permit the master to fully control the manoeuvre before contact was made.
- The master could not reference all the available navigational aids to monitor the yacht's position and speed or its predicted movement from his conning position outside of the navigational bridge.
- A passage plan was not completed for the voyage from Rozelle Bay. As a result, the risks associated with the voyage were not identified or assessed, contingencies were not considered and the crew were not appropriately briefed.
- The assistant engineer became distracted by the task at hand and he did not notice the impending crush situation between the yacht and the bridge.

Other factors that increase risk

- ***Calliope*'s safety management system (SMS) did not provide the crew with adequate guidance regarding passage planning, training and familiarisation. Individual crew familiarisation records and risk assessment forms were not retained on board the yacht and there was no system of auditing or checking to ensure the adequacy of the SMS or the effectiveness of its implementation.**
  [Safety issue]
- **The Cayman Islands requirements in relation to a yacht's compliance with the Large Commercial Yacht Code and other relevant legislation are determined by the yacht's mode of operation. As a result, a commercially operated yacht in excess of 24 m in length must comply with the requirements of the Code while a similar sized privately operated yacht that poses the same risks to safety of life at sea and the environment does not. [Safety issue]**
- ***Calliope* was not required to carry a pilot during Sydney Harbour voyages because the yacht was considered to be a recreational vessel, even though the risks it posed to the port were the same as those posed by similarly sized commercially operated vessels. [Safety issue]**

Other finding

- While the emergency services were advised of the accident by mobile telephone, the primary means of emergency notification in port, the vessel's VHF radio, was not used to notify the Sydney Harbour Vessel Traffic Service. Such a call would have also alerted others in the vicinity to the emergency, many of whom would have been in a position to lend immediate assistance.

Safety issues and actions

The safety issues identified during this investigation are listed in the Findings and Safety issues and actions sections of this report. The Australian Transport Safety Bureau (ATSB) expects that all safety issues identified by the investigation should be addressed by the relevant organisations. In addressing those issues, the ATSB prefers to encourage relevant organisations to proactively initiate safety action, rather than to issue formal safety recommendations or safety advisory notices.

All of the directly involved parties were provided with a draft report and invited to provide submissions. As part of that process, each organisation was asked to communicate what safety actions, if any, they had carried out or were planning to carry out in relation to each safety issue relevant to their organisation.

Safety Management System

Number:	MO-2013-003-SI-01
Issue owner:	Marine Construction Management and the Cayman Islands Shipping Registry
Operation affected:	Marine - Shipboard operations
Who it affects:	All persons charged with navigating a vessel at sea

Safety issue description:

Calliope's safety management system (SMS) did not provide the crew with adequate guidance regarding passage planning, training and familiarisation. Individual crew familiarisation records and risk assessment forms were not retained on board the yacht and there was no system of auditing or checking to ensure the adequacy of the SMS or the effectiveness of its implementation.

Response to safety issue by: Marine Construction Management

Marine Construction Management has advised that, at the time of the accident, the company had a system in place whereby it verified that the appropriate safety meetings, safety drills, emergency procedures, risk assessments, crew familiarizations and other aspects of the safety management system (SMS) were being followed, recorded and submitted. Prior to this accident, a review of this verification process was conducted and the results of the review were forwarded to *Calliope*'s master on 25 January 2013.

Since the accident, *Calliope*'s master has been submitting passage plans to Marine Construction Management. The company will also issue an addendum to the vessel's SMS that will require passage plans for every voyage regardless of duration. A written procedure for transiting bridge openings will be written and implemented as part of the ongoing development of the SMS. The company has also engaged the services of a specialist consultant to conduct on board audits of the implementation and continuing use and development of the SMS.

ATSB comment in response:

The ATSB considers that the actions taken and proposed by Marine Construction Management should address this safety issue with respect to *Calliope*.

Response to safety issue by: Cayman Island Shipping Registry

The Cayman Islands Shipping Registry has advised the ATSB that the requirements for a safety management system (SMS) for large commercial yachts of under 500GT are given in Annex 2 of the Large Commercial Yacht Code. Annex 2 only requires 'simple procedures' for on board operations and does not include requirements for auditing or checking of the effectiveness of the system beyond the required 3 year owner's review.

The Cayman Islands Shipping Registry will raise the effectiveness of Annex 2 in meeting the fundamental requirements of a documented SMS with the United Kingdom as the authors, publishers and custodians of the Large Commercial Yacht Code.

ATSB comment in response:

The ATSB considers that the actions proposed by the Cayman Islands Shipping Registry should assist in addressing this safety issue in the broader pleasure yacht industry.

Current status of the safety issue:

Issue status: Adequately addressed

Justification: Together, the actions taken and proposed by Marine Construction Management and the Cayman Islands Shipping Registry should adequately address this safety issue.

Large yacht regulatory requirements

Number:	MO-2013-003-SI-002
Issue owner:	Cayman Islands Shipping Registry
Operation affected:	Marine - Shipboard operations
Who it affects:	All persons charged with navigating a vessel at sea

Safety issue description:

The Cayman Islands requirements in relation to a yacht's compliance with the Large Commercial Yacht Code and other relevant legislation are determined by the yacht's mode of operation. As a result, a commercially operated yacht in excess of 24 m in length must comply with the requirements of the Code while a similar sized privately operated yacht that poses the same risks to safety of life at sea and the environment does not.

Response to safety issue by: Cayman Islands Shipping Registry

The Cayman Islands Shipping Registry has advised that the Large Commercial Yacht Code is an equivalent arrangement under the SOLAS and Load Line Conventions in accordance with SOLAS 1/5 and Load Line Article 8 respectively. This equivalence has been notified to the IMO by the United Kingdom and circulated by IMO Circulars SLS.14/Circ.253 and LL.3/Circ.228 of 16 September 2013. As such, the application of this Code is broadly similar to that of the International Conventions to which it is considered an equivalent arrangement. None of these Conventions are fully applied to pleasure yachts not engaged in trade.

ATSB comment in response:

While the ATSB acknowledges the comments provided by the Cayman Islands Shipping Registry, no safety action has been taken by the Registry to address this safety issue.

ATSB safety recommendation to: Cayman Islands Shipping Registry

Action number: MO-2013-003-SR-007

Action status: Released

The ATSB recommends that the Cayman Islands Shipping Registry should take action to address this safety issue. Such action could include raising awareness of this safety issue and the need for regulatory change amongst the members of the International Maritime Organization.

Current status of the safety issue:

Issue status: Not addressed

Justification: No action taken

Sydney Harbour pilotage requirements

Number:	MO-2013-003-SI-003
Issue owner:	Sydney Ports Corporation
Operation affected:	Marine - Shipboard operations - Navigation
Who it affects:	All persons charged with navigating a vessel at sea

Safety issue description:

Calliope was not required to carry a pilot during Sydney Harbour voyages because the yacht was considered to be a recreational vessel, even though the risks it posed to the port were the same as those posed by similarly sized commercially operated vessels**.**

Response to safety issue by: Sydney Ports Corporation

The Sydney Ports Corporation has advised that;

> The report and its recommendations are welcomed as a constructive input into the effort being made to continually improve safety in Sydney Harbour and elsewhere.
>
> In considering the issue of pilotage for recreational/charter vessels the Harbour Master Sydney has recognised that overseeing and enforcing pilotage regulations based upon the variable functions of a vessel is extremely difficult, whilst the actual risk posed to & by the vessel does not change. In promoting the need for a review of the application of the pilotage regulations the Harbour Master has highlighted the particular details of this incident as part of the review of the NSW Marine Safety Act.

ATSB comment in response:

The ATSB acknowledges Sydney Ports Corporations intention to review the Sydney Harbour pilotage requirements, but considers that further action is required to adequately address this safety issue.

ATSB safety recommendation to: Sydney Ports Corporation

Action number: MO-2013-003-SR-006

Action status: Released

The ATSB recommends that Sydney Ports Corporation takes safety action to address the pilotage requirements that apply to privately operated yachts like *Calliope*.

Current status of the safety issue:

Issue status: Not addressed

Justification: While no safety action has yet been taken, the Sydney Ports Corporation review of the application of the pilotage regulations has the potential to address this safety issue.

General details

Occurrence details

Date and time:	08 February 2013 at 1347 AEDT	
Occurrence category:	Accident	
Primary occurrence type:	Fatality	
Location:	Rozelle Bay, Sydney, New South Wales	
	Latitude: 33° 52.012' S	Longitude: 151° 11.148' E

Calliope

Name	*Calliope*
IMO number	1010416
Call sign	ZGAA5
Flag	Cayman Islands
Classification society	Lloyds Register (LR)
Ship type	Pleasure yacht
Builder	Holland Jachtbouw Zaandam
Year built	2010
Owner(s)	Callisto Marina Holdings
Ship Manager	Marine Construction Management
Number of crew	9
Number of passengers	3
Gross tonnage	453
Draught	2.68 m
Length overall	42.28 m
Moulded breadth	8.40 m
Main engine(s)	2 x MTU 16V2000 M72 4 stroke diesel engines
Total power	2,880 kW
Speed	16.5 knots

Sources and submissions

Sources of information

On 11 February 2013, investigators from the Australian Transport Safety Bureau (ATSB) attended *Calliope* while the ship was berthed at the Sydney Superyacht Marina, Rozelle Bay, Sydney, New South Wales. The master and directly involved crew members were interviewed and each provided their account of the accident. Photographs of the ship and copies of relevant documents were obtained, including log books, statutory certificates, reports, manuals and procedures.

During the course of the investigation further information was provided by Sydney Water Police, Sydney Ports, Roads and Maritime Services New South Wales and the Cayman Islands Shipping Registry.

References

NSW Maritime and Sydney Ports - *Sydney Harbour Superyacht Guidelines - Guidelines for Masters Operating Superyachts on Sydney Harbour*, May 2011
Visit http://www.maritime.nsw.gov.au/docs/recboat/SY_guidelines.pdf and view the guidelines.

Sydney Ports Corporation - Harbour Master's Directions Port Information for Sydney Harbour and Botany Bay, December 2012
Visit www.sydneyports.com.au and follow the link on the Marine Services tab to the Harbour Masters Directions.

NSW - Marine Safety Act 1998 No 121, 1 July 2013
Visit www.legislation.nsw.gov.au and follow the links to view the Act.

Merchant Shipping Notice - MSN 1792 (M) Edition 2, The Large Commercial Yacht Code (LY2)
Visit www.dft.gov.uk/mca/mcga07-home.htm and follow the link on the Ships and Cargoes tab to Large Yacht Services to view to Code.

Shipping Notice 14a/2004 (2010 Revision) - Large Private and Commercial Yacht's Compliance with Regulations
Visit www.cishipping.com and follow the link on the Survey tab to Shipping Notices.

STCW 95 Deck Oral Examination Syllabuses Syllabus
Visit www.dft.gov.uk/mca/mcga07-home.htm and follow the link on the Working at Sea tab to Training and Certification to view syllabus pages for working on Yachts.

ATSB report 210 – Collision between bulk carrier *Goa* and the sailing vessel *Marie Chocolat*
Visit www.atsb.gov.au/marine.aspx and follow the links to the Marine safety and investigations and reports to view the reports

Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the *Transport Safety Investigation Act 2003*, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to the Cayman Islands Shipping Registry, the Maritime Authority of the Cayman Islands, the Australian Maritime Safety Authority, Maritime Construction Management, *Calliope*'s master and chief mate, Sydney Ports Corporation, WorkCover NSW, NSW Water Police and the assistant engineers' next of kin.

Submissions were received from the Cayman Islands Shipping Registry, the Maritime Authority of the Cayman Islands, the Australian Maritime Safety Authority, Maritime Construction Management, *Calliope*'s master and chief mate, Sydney Ports Corporation, WorkCover NSW and NSW Water Police. The submissions were reviewed and where considered appropriate, the text of the report was amended accordingly.

Appendices

Appendix A – Summary of the Cayman Islands shipping registry requirements for yachts to operate commercially and privately

Cayman Island Shipping Registry (over 24 m in length)

	Shipping Notice 14a/2004 (2010 Revision) Definition of Private and Commercial	Cayman Islands Merchant Shipping (Vessels in Commercial Use for Sport and Pleasure) Regulations 2002	Large Yacht Code Manning and Operations	Survey Requirements Vessels over 24m in Length
Private Yachts	Operated without any commercial charter hire whatsoever	No Do not need to comply with any Cayman Islands legislation with respect to the Large Yacht Code , manning or operations.	No[1]	When vessel is 400 GT or over: • International Oil Pollution Prevention certificate (IOPP) • International Sewage Pollution Prevention certificate (ISPP) • International Air Pollution Prevention certificate (IAPP)
Commercial Yachts	Engaged in trade by transporting merchandise or carrying passengers for reward or remuneration (other than as a contribution to the actual cost of the vessel or its operation for the period of the voyage or excursion) and offered to the public for "use" are commercially operated.	Yes Cayman Islands Merchant Shipping (Vessels in Commercial Use for Sport and Pleasure) Regulations 2002	Yes[2]	• Large Yacht Code certificate, • International Oil Pollution Prevention certificate • Safety Radio certificate • Safety Equipment certificate • Load Line certificate, (ILLC) Safety Construction certificate • MARPOL certificates Valid for a maximum of 5 years To maintain the validity for the full 5-year term, the yacht must be subject to annual inspections followed by a renewal survey at the end of the 5 years.

1. The CISR policy however is to strongly recommend that private yachts comply with the Vessels in Commercial Use Regulations 2002 and the Large Yacht Code (LY2), as amended.
2. A yacht that has been commercially operated and hence LY2 Code compliant but reverts to privately operated status, either permanently or temporarily, again does not need to comply with the Regulations and the LY2 Code, but again, the CISR reiterates its recommendation to remain in Code compliance.

Large Commercial Yacht Code
(Large means 24 m and over in load line length and the Code of Practice applies to yachts which are in commercial use for sport or pleasure, do not carry cargo and do not carry more than 12 pax)

For Vessels Under 500gt

	Definition of Private and Commercial	Safety Management System	Machinery Electrical Installations Steering Gear Bilge Pumping	Structural Fire Protection	Stability < 85 m	Life-saving Appliances	Navigation Lights, Shapes And Sound Signals	Survey Requirements Vessels over 24m in Length
Private Yachts	Defined by the Administration	Only when in commercial Use						
Commercial Yachts	A vessel which is not a pleasure vessel	< 500 gt as described in Annex* Section 30 LY2	Minimum requirements for machinery, which are to be in accordance with the requirements of one of the Classification Societies	Consistent level of structural fire protection	Damage is assumed not to occur on any bulkhead, deck, or other watertight boundary	Min essential LSA equipment	Nautical charts and nautical publications for passage planning	ILLC Certificate of Compliance International Cargo Ship Safety Radio Certificate IOPP International Tonnage Certificate

Annex 2* Safety Management System For Vessels Under 500gt
The purpose of this Annex is to provide guidance on how to develop and implement an effective safety management system for vessels under 500GT, where full certification to the International Safety Management Code is not a requirement.

Australian Transport Safety Bureau

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

Purpose of safety investigations

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

Developing safety action

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to initiate proactive safety action that addresses safety issues. Nevertheless, the ATSB may use its power to make a formal safety recommendation either during or at the end of an investigation, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation.

When safety recommendations are issued, they focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on a preferred method of corrective action. As with equivalent overseas organisations, the ATSB has no power to enforce the implementation of its recommendations. It is a matter for the body to which an ATSB recommendation is directed to assess the costs and benefits of any particular means of addressing a safety issue.

When the ATSB issues a safety recommendation to a person, organisation or agency, they must provide a written response within 90 days. That response must indicate whether they accept the recommendation, any reasons for not accepting part or all of the recommendation, and details of any proposed safety action to give effect to the recommendation.

The ATSB can also issue safety advisory notices suggesting that an organisation or an industry sector consider a safety issue and take action where it believes it appropriate. There is no requirement for a formal response to an advisory notice, although the ATSB will publish any response it receives.

Australian Transport Safety Bureau

Enquiries 1800 020 616
Notifications 1800 011 034
REPCON 1800 011 034
Web www.atsb.gov.au
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Investigation

ATSB Transport Safety Report
Marine Occurrence Investigation

Fatality on board the motor yacht *Calliope*,
Rozelle Bay, New South Wales, 8 February 2013

297-MO-2013-003
Final – 12 May 2014