



Australian Government
Australian Transport Safety Bureau



ATSB TRANSPORT SAFETY REPORT
Marine Occurrence Investigation No. 252
Final

Independent investigation into the grounding of the
Marshall Islands registered passenger ship

Van Gogh

at Devonport, Tasmania
23 February 2008



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CONTENTS

DOCUMENT RETRIEVAL INFORMATION	v
THE AUSTRALIAN TRANSPORT SAFETY BUREAU	vii
TERMINOLOGY USED IN THIS REPORT	ix
EXECUTIVE SUMMARY	xi
1 FACTUAL INFORMATION	1
1.1 <i>Van Gogh</i>	1
1.2 Devonport	2
1.3 The incident	4
2 ANALYSIS	9
2.1 Evidence	9
2.2 <i>Van Gogh</i> 's handling characteristics	9
2.3 The use of the engines	11
2.4 Tug use	13
2.5 Bridge resource management	14
2.5.1 Master/pilot information exchange	14
2.5.2 Passage planning	16
2.6 Use of English on the bridge	18
3 FINDINGS	19
3.1 Context	19
3.2 Contributing safety factors	19
4 SAFETY ACTIONS	21
4.1 Safety action taken by Club Cruise Entertainment	21
4.2 Safety action taken by Tasports	22
4.3 ATSB recommendations	22
APPENDIX A : EVENTS AND CONDITIONS CHART	23
APPENDIX B : SHIP INFORMATION	25
APPENDIX C : SOURCES AND SUBMISSIONS	27

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Figures 2, 3 and 5 are provided courtesy of the Tasmanian Ports Corporation.

Abstract

At about 1817 on 23 February 2008, the Marshall Islands registered passenger ship *Van Gogh* grounded briefly on the western shore of the Mersey River during a departure from Devonport, Tasmania. The ship was under the conduct of a harbour pilot who had taken over the conduct from the master about five minutes before, after the master had manoeuvred the ship off the berth.

As the ship left the berth, it began to be set towards the bulk carrier *Goliath* berthed ahead. *Van Gogh* was under the influence of the ebb tide and fresh water that was flowing from the Mersey River's catchment following heavy rain in the area in the previous 24 hours.

Van Gogh was difficult to manoeuvre at low speed because of its twin propellers and single rudder configuration. This, combined with the strong ebb tide and fresh water outflow in the river at the time of departure, resulted in there being insufficient water flow over its rudder to enable the pilot to manoeuvre the ship as he intended. In addition, the master did not inform the pilot that the crew would be using the ship's engines independently during turns in the river. This resulted in the pilot being concerned that his orders were being countermanded because he saw that the engine telegraph levers were not as he had ordered.

Following the grounding, the pilot successfully manoeuvred the ship back into the channel and the ship departed the port without further incident. There was no damage to the ship and no pollution resulted.

The report identifies a number of safety issues and acknowledges the safety actions which have been taken by Club Cruise International and the Tasmanian Ports Corporation to address them.

THE AUSTRALIAN TRANSPORT SAFETY BUREAU

The Australian Transport Safety Bureau (ATSB) is an operationally independent multi-modal bureau within the Australian Government Department of Infrastructure, Transport, Regional Development and Local Government. ATSB investigations are independent of regulatory, operator or other external bodies.

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 enhance safety. To reduce safety-related risk, ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not the object of an investigation to determine blame or liability. However, 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 proactively initiate safety action rather than release formal recommendations. However, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation, a recommendation may be issued either during or at the end of an investigation.

The ATSB has decided that when safety recommendations are issued, they will focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on the method of corrective action. As with equivalent overseas organisations, the ATSB has no power to implement its recommendations. It is a matter for the body to which an ATSB recommendation is directed (for example the relevant regulator in consultation with industry) to assess the costs and benefits of any particular means of addressing a safety issue.

TERMINOLOGY USED IN THIS REPORT

Occurrence: accident or incident.

Safety factor: an event or condition that increases safety risk. In other words, it is something that, if it occurred in the future, would increase the likelihood of an occurrence, and/or the severity of the adverse consequences associated with an occurrence. Safety factors include the occurrence events (e.g. engine failure, signal passed at danger, grounding), individual actions (e.g. errors and violations), local conditions, risk controls and organisational influences.

Contributing safety factor: a safety factor that, if it had not occurred or existed at the relevant time, then either: (a) the occurrence would probably not have occurred; or (b) the adverse consequences associated with the occurrence would probably not have occurred or have been as serious; or (c) another contributing safety factor would probably not have occurred or existed.

Other safety factor: a safety factor identified during an occurrence investigation which did not meet the definition of contributing safety factor but was still considered to be important to communicate in an investigation report.

Other key finding: any finding, other than that associated with safety factors, considered important to include in an investigation report. Such findings may resolve ambiguity or controversy, describe possible scenarios or safety factors when firm safety factor findings were not able to be made, or note events or conditions which ‘saved the day’ or played an important role in reducing the risk associated with an occurrence.

Safety issue: a safety factor that (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 operational environment at a specific point in time.

Safety issues can broadly be classified in terms of their level of risk as follows:

- **Critical safety issue:** associated with an intolerable level of risk.
- **Significant safety issue:** associated with a risk level regarded as acceptable only if it is kept as low as reasonably practicable.
- **Minor safety issue:** associated with a broadly acceptable level of risk.

EXECUTIVE SUMMARY

On the evening of 23 February 2008, the crew of the Marshall Islands registered passenger ship *Van Gogh* prepared the ship for its departure from Devonport, Tasmania.

At 1800¹, the ship's crew began to let go the mooring lines and, at 1810, the master began to manoeuvre the ship off the berth. At 1812, the harbour pilot took over the conduct (con) of the ship for its passage out of the port. As it left the berth, the ship immediately began to be set towards the bulk carrier *Goliath* berthed ahead. *Van Gogh* was under the influence of the ebb tide and fresh water that was flowing from the Mersey River's catchment following heavy rain in the area in the previous 24 hours.

No tug was used for the ship's departure. *Van Gogh* was difficult to manoeuvre at low speed because of its twin propellers and single rudder configuration. This, combined with the strong ebb tide and fresh water outflow in the river, resulted in there being insufficient water flow over its rudder to enable the pilot to manoeuvre the ship as he intended.

At about 1817, *Van Gogh* grounded briefly on the western shore of the Mersey River. Following the grounding, the pilot successfully manoeuvred the ship back into the channel and the ship departed the port without further incident. There was no damage to the ship and no pollution resulted.

The investigation found that the pilot was not aware of the minimum speed required for *Van Gogh* to be able to gain steerage or the rate of the water flowing out of the river at the time of departure. When he departed from the agreed departure plan and gave the order to come ahead on the ship's engines at 1812, there was insufficient sea room available immediately ahead for the ship to build up speed and gain steerage.

The pre-departure information exchange between the master and the pilot did not include the ship's poor handling characteristics at slow speed, the minimum steerage speed or the fact that the ship had a tendency to turn up into the wind. In addition, the master did not inform the pilot that the crew would be using the ship's engines to assist any turns during the departure. The use of the ship's engines in a way that differed from the pilot's orders, in addition to the amount of Russian language being used on the bridge, resulted in the pilot becoming concerned during the pilotage that his orders were being countermanded.

The report identifies a number of safety issues and acknowledges the safety actions which have been taken by Club Cruise International and the Tasmanian Ports Corporation to address them.

¹ All times referred to in this report are local time, Coordinated Universal Time (UTC) + 11 hours.

1

FACTUAL INFORMATION

1.1 *Van Gogh*

Van Gogh is a Marshall Islands registered passenger ship (Figure 1). It is owned by Maritiem and Leasing, Bahamas and operated by Club Cruise Entertainment, Netherlands. It is classed as a ✕1A1 Ice-C Passenger Ship with Det Norske Veritas (DNV).

The ship was built in 1975 by OY Wartsila AB, Finland as a passenger/car ferry. In 1992, it was converted to a passenger ship.

Figure 1: *Van Gogh*



The ship has an overall length of 156.26 m, a breadth of 21.83 m and a deadweight of 2452 tonnes at its summer draught of 6.20 m. It can accommodate up to 717 passengers in 252 cabins and has a maximum crew complement of 260. At the time of the incident, there were 414 passengers and 226 crew on board.

Van Gogh's bridge is equipped with a range of navigational equipment in accordance with SOLAS² requirements. This includes two JMA automatic radar plotting aid (ARPA) radars, two JRC global position system (GPS) units (a NWX-4570 unit and a J-NAV 500 differential global position system (DGPS) unit), a JRC JHS-180 automatic identification system (AIS) unit, a Consilium Marine echo sounder and a Consilium Marine M2 voyage data recorder (VDR). The ship is also equipped with a 'Navi Master' electronic charting system, the display of which is located in the forward part of the wheelhouse, on the starboard side.

Propulsive power is provided by two Pielstick 18PC2-2V-400 four stroke diesel engines which together develop 13 200 kW at 152 revolutions per minute (rpm). However, the engines are usually operated at a reduced speed of 138 rpm. The engines drive two KaMeWa inward turning, controllable pitch propellers through reduction gearboxes, which give the ship a service speed of about 16.5 knots³. The ship has a single semi-balanced rudder mounted on the ship's centreline, which has a maximum angle of 35°. It has a single, 600 kW bow thruster.

² The International Convention for the Safety of Life at Sea, 1974, as amended.

³ One knot, or one nautical mile per hour equals 1.852 kilometres per hour.

At the time of the incident, *Van Gogh* was on a world cruise which began in Falmouth, United Kingdom, on 4 January 2008. The deck and engineering crew totalled 50 Ukrainian nationals and the cruise director and the majority of the cruise director's staff were United Kingdom nationals.

In addition to their own national qualifications, the mates and engineers held the necessary qualifications to enable them to sail on board a Marshall Islands registered ship.

The master held a Ukrainian master's certificate of competency, which was issued in 1997. He had 30 years of seagoing experience, starting his career as an ordinary seaman. He had extensive experience on passenger ships. He had been master of *Van Gogh* for about four years, and had spent two years before that as the ship's staff captain. He had rejoined the ship in September 2007, immediately before a scheduled dry docking in Germany.

The ship's staff captain obtained his first seagoing qualification in 1982 and had worked on various ship types before joining *Van Gogh* in 2003 as staff captain. He had rejoined the ship during its visit to Sydney, about three days before the grounding.

The Devonport pilot on board *Van Gogh* for the departure on 23 February 2008 started his seagoing career in 1987. He had sailed on various ship types during his sea going career, including some time on off shore supply and tender vessels. He held an Australian master's certificate of competency which he obtained in 2001. In 2003, he became the assistant Devonport harbour master and pilot, a position he held until the Tasmanian Ports Corporation (TasPorts) was formed in January 2006 (a company formed when all of the Tasmanian ports merged). He had piloted *Van Gogh* once before, when the ship had visited Devonport in February 2007.

1.2 Devonport

The port of Devonport is situated on the north coast of Tasmania (Figure 2). It lies at the entrance to the Mersey River, and the majority of the city lies on the western bank of the river.⁴

The port contains an interstate passenger and vehicle ferry terminal, and berths which cater for general cargo, livestock, cement, grain, petroleum, salt, gypsum and fertiliser. The deepest and longest berth is Number Four West, which is 198 m long and has a minimum depth of 10.3 m. In 2006-07, 875 ships, transporting over 3,000,000 tonnes of freight⁵, and almost 400,000 passengers, used the port⁶.

The harbour itself is situated about one mile⁷ inside the Mersey River with two berthing areas, one on each side of the river. A dredged channel, with a least width of 79 m and a depth of 9.2 m, leads through the entrance of the river and into a swing basin in the harbour, the maximum width of which is 300 m.

4 Admiralty Sailing Directions, Australia Pilot Volume II (NP14), Tenth edition, 2007.

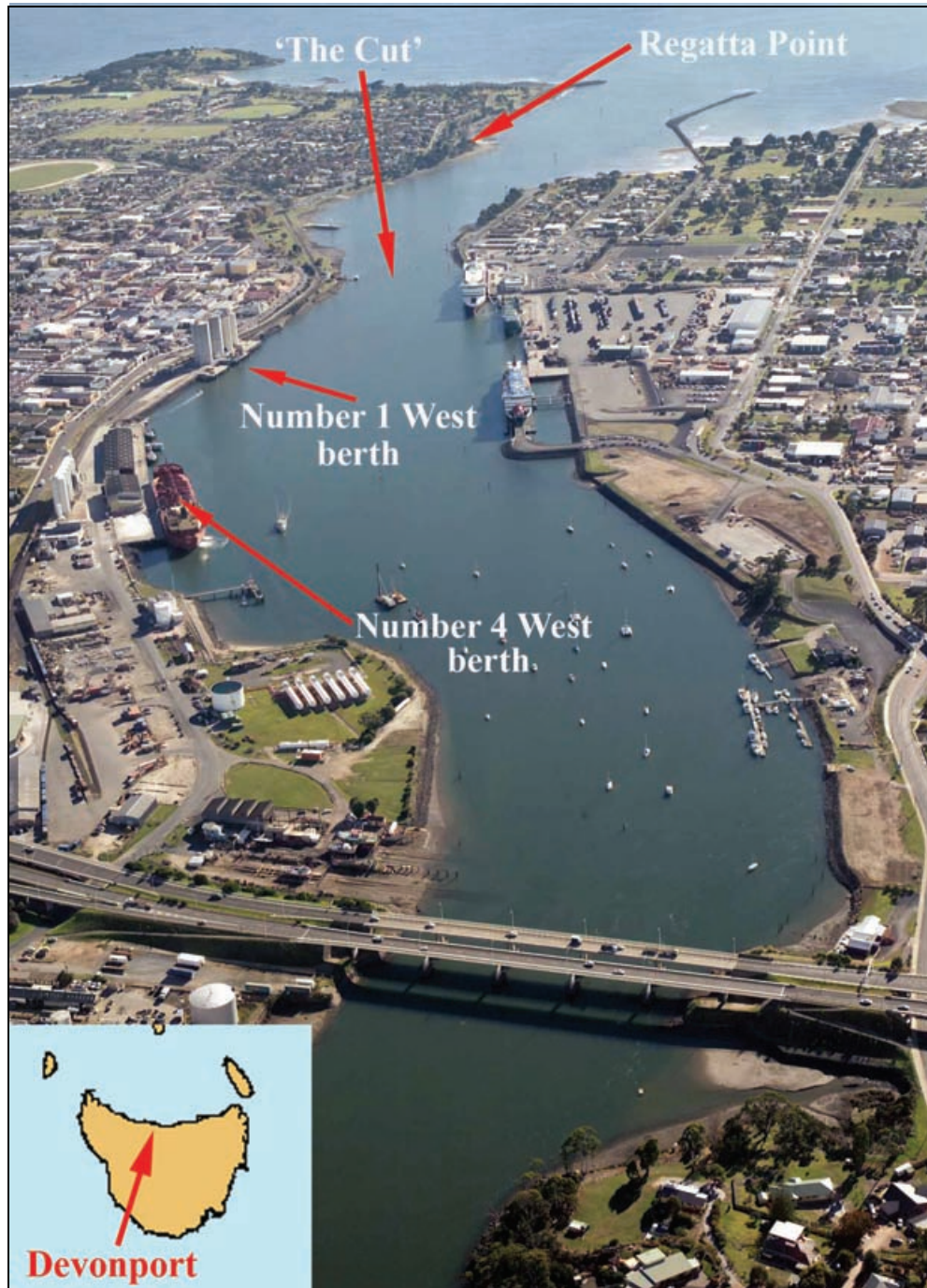
5 TasPorts Tasmanian Freight Statistics – 2006/07.

6 TT-Line Company, Annual Report 2006-2007.

7 A nautical mile of 1852 m.

Tidal streams, both flooding and ebbing, attain a rate of one to two knots inside the river. After heavy rain, fresh water outflows from the river's catchment, combined with an ebb tide, have been known to increase the rate of the tidal stream to up to four knots⁸. While there is a transmitting electronic tidal height gauge in the Mersey River, there is no current meter capable of measuring and transmitting the speed of the current.

Figure 2: Aerial photo of Devonport and the Mersey River



⁸ Admiralty Sailing Directions, Australia Pilot Volume II (NP14), Tenth edition, 2007.

Marine operations and the management of the port are the responsibility of the Tasmanian Ports Corporation (Tasports), a registered private company fully owned by the Tasmanian Government.

Tasports assess all vessel movements in the port, with the prevailing wind being an critical part of the assessment. A more stringent assessment is made for an arrival or departure when wind speeds in excess of 35 knots are predicted.

Pilotage in the port is compulsory for all ships with non-exempt masters.

1.3 The incident

On the afternoon of 23 February 2008, the Marshall Islands registered passenger ship *Van Gogh* berthed in Devonport, Tasmania, following a voyage from Sydney, New South Wales. Rough seas had delayed the ship's arrival by about five hours, resulting in its passengers' planned activities being curtailed. The ship was due to depart that evening for Fremantle, Western Australia, after which it would leave Australian waters to continue its world cruise.

The ship had been swung on arrival and was berthed port side to at Number Four West berth. Departure was scheduled for 1800 and preparations on board started at about 1600 in accordance with ship board procedures. All of the necessary systems and equipment were tested and found to be operational. Draughts for departure were recorded as 6.20 m forward and aft.

The weather for departure was fine and clear with a westerly wind at force⁹ four (11 to 16 knots). The predicted high and low tides that afternoon were at 1417 and 2049, with heights of 3.06 m and 0.66 m respectively. The ship would therefore be sailing on an ebbing tide. Twenty four hours prior to the ship's departure, Devonport and the surrounding area had received a significant amount of rain. Consequently, there was a large amount of fresh water flowing out of the Mersey River with the ebb tide.

At 1745, a harbour pilot boarded *Van Gogh*. He conducted the pre-departure briefing/information exchange with the master, staff captain and first mate. As part of the information exchange, the pilot and master agreed that the master would manoeuvre the ship off the berth and into the swing basin where the pilot would take over the conduct of the ship for the passage out of the port. They all agreed on the departure passage plan and the pilot and master signed it.

For the departure, the ship was in hand steering mode, with an experienced helmsman at the wheel. The first mate would, amongst his other duties, be monitoring the helmsman and controlling the engine telegraphs when the master was no longer controlling the telegraphs directly from the bridge wing. The staff captain would be relaying orders from the master and pilot, when they were on the bridge-wings, to the remainder of the bridge team inside the wheelhouse.

There were two other ships in Devonport that evening. The self-discharging bulk carrier *Goliath* was alongside Number One West berth and the roll on/roll off general cargo ship *Searoad Mersey* was alongside Number Two East berth. The passenger ferry, *Spirit of Tasmania I*, had arrived off the port and, following an

⁹ 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.

agreement between its master and *Van Gogh*'s pilot, was waiting outside the port until *Van Gogh* had departed before entering the port.

At 1800, *Van Gogh*'s engines were put on standby and the crew started to let go the mooring lines. By 1810, all the lines had been cast off. The master and pilot were on the port bridge wing, with the master controlling the engines and bow thruster directly from controls on the bridge wing. Using a number of engine, helm and bow thruster movements, he manoeuvred the ship off the berth.

Just as the ship started to lift off the berth, the westerly wind increased. Both the pilot and master were aware of this and the pilot estimated that the wind was now gusting to 20 knots.

As soon as the ship came off the berth, it started to come ahead under the influence of the tide and fresh water out flow. At 1812, as the ship continued to move off the berth, the pilot said to the master 'come ahead now captain'. The master agreed with this, and moved both telegraphs to harbour full ahead. Both men understood that, as per their prior agreement, the pilot would now take over the conduct of the ship. The ship's speed¹⁰ was about 2.5 knots at this time.

As soon as the pilot took over the conduct of the ship, it became apparent to him that the ship was being set down onto *Goliath* and that it was not handling as he had expected.

Figure 3: CCTV image of *Van Gogh* approaching *Goliath*



At 1812½, the pilot ordered starboard 15° on the rudder. This was shortly followed afterwards by a confirmation order of full ahead on both engines, and at 1813, the rudder was ordered hard to starboard.

¹⁰ Speeds referred to in the report are 'made good / over the ground'.

At 1813, the ship's speed was about six knots and it was making good a course of 358° (T), closing on *Goliath* (Figure 3). The pilot ordered one long blast on the ship's whistle to be sounded. At about 1813½, *Van Gogh's* bridge passed abeam the bridge of *Goliath*, about 20 m off. Shortly afterwards, when *Van Gogh's* port quarter was about 10 m off *Goliath's* midships, and a potential collision had been avoided, the pilot ordered *Van Gogh's* helm to be put amidships.

As *Van Gogh* passed, *Goliath* was affected by interaction¹¹ and surged both ahead and off the berth by about 5 m, breaking a forward spring mooring line.

At 1814, *Van Gogh's* speed was still about six knots and the pilot ordered hard to port on the rudder and full ahead on both engines. This was quickly followed by an order of hard to starboard. After this order, the pilot noticed that the starboard engine telegraph lever was not in the same position as the port one. He again requested full ahead on both the engines. Both levers were then moved to full ahead.

When *Van Gogh* had cleared *Goliath*, the master and pilot moved into the wheelhouse. At about 1815, they moved to the starboard bridge wing. From there they were able to check the ship's progress as it approached the eastern shore. The pilot was concerned that the ship, after the earlier unusually large rudder movements, would approach the eastern shore too closely, possibly grounding or colliding with a navigation beacon (known locally as the Wheeler Street beacon) located to the north of the passenger ferry berth.

As the pilot moved through the wheelhouse to the starboard bridge wing, he noticed that the engine telegraph levers were not in the full ahead position as he had earlier requested. He again asked for full ahead on both engines.

Just after 1815, with the ship's speed at almost nine knots on a course of 012° (T) and to starboard of the line of the leading lights, the pilot ordered hard to port on the rudder. By this time, the ship was rapidly approaching the Wheeler Street beacon. The pilot then ordered hard to starboard to prevent the ship's stern from colliding with the beacon and to begin to bring the ship around the Police Point beacon and into the channel for the final leg of the outward passage. Immediately the helm was put hard over to starboard.

Just after 1816, when *Van Gogh* cleared the Wheeler Street beacon, the pilot and the master returned to the wheelhouse. The ship's speed was almost 10.5 knots and it was on a northerly course. The pilot, thinking that the helm was amidships, contrary to his earlier order, again ordered hard to starboard. The ship did not respond and the pilot, again thinking that the helm was still in the midships position, ordered hard to starboard for the third time.

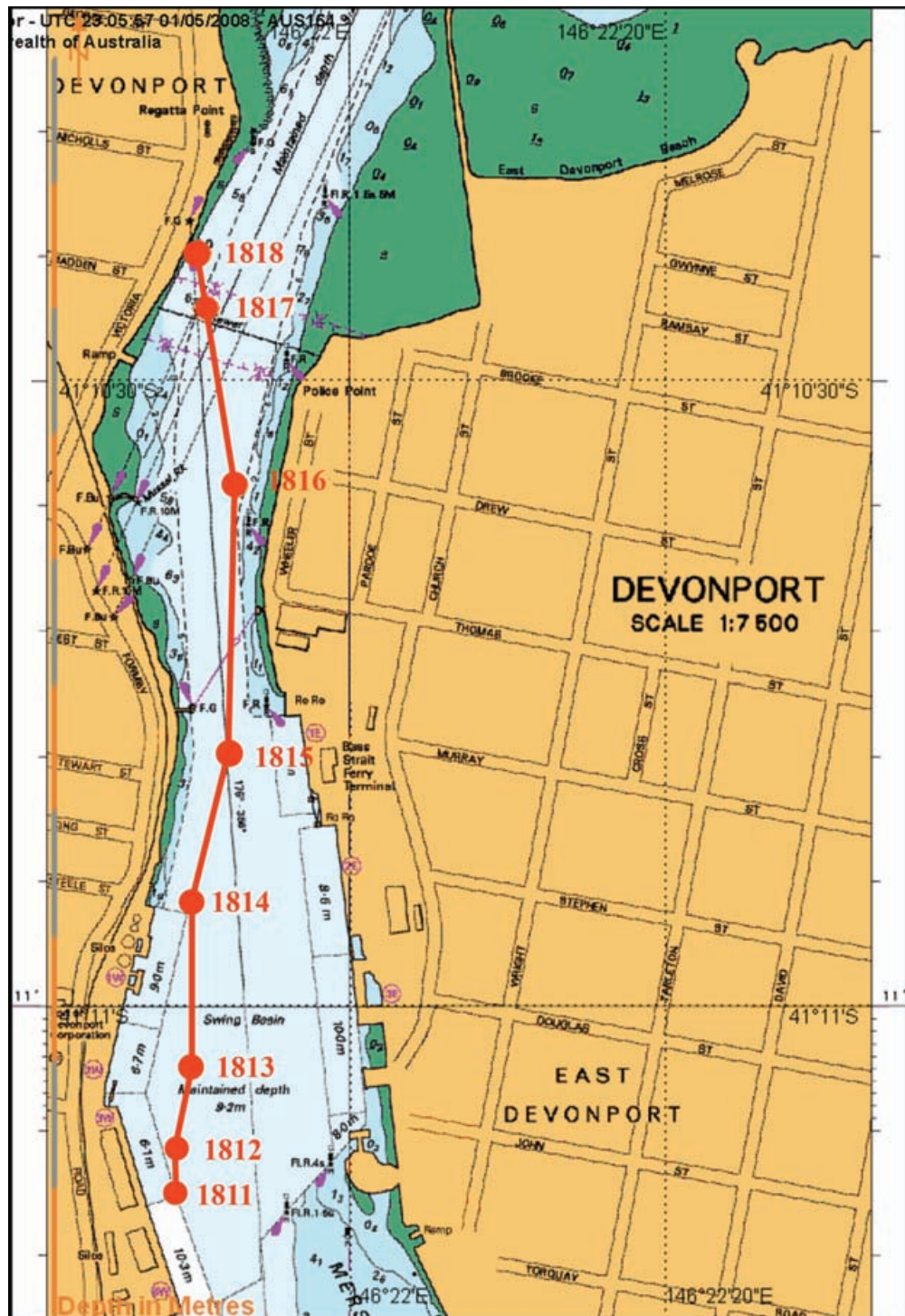
At this time, the pilot observed that there was a fair amount of conversation taking place between members of the ship's bridge team, all of it in Russian.

The ship was not responding to the starboard helm order. The pilot now believed that it was highly likely the ship would ground on the western bank of the river. At 1816½, he ordered full astern on both the engines and the master took over the control of the telegraph levers. The pilot decided not to let go the ship's anchors to slow the ship because of the ship's proximity to a submerged sewer line.

¹¹ A hydrodynamic effect which causes a pressure differential between two passing ships, resulting in a lateral displacement of one or both ships towards or away from each other.

Aware that the bank was soft and made up of sand and shale, he said to the master that if the ship did ground, 'we will come off and we will keep going'. The master replied 'OK'.

Figure 4: Section of navigational chart Aus 164 showing *Van Gogh's* passage



By 1817, the ship's speed had fallen to six knots. At about 1817½ at a speed of about one knot, *Van Gogh* briefly grounded in the vicinity of the leads near Regatta Point on the western shore of the Mersey River (Figures 4 and 5). Immediately following the grounding, under the influence of the ebb tide and wind, the ship's stern started to swing to starboard. In an attempt to stop the swing into the river, and

possibly blocking the channel, the pilot immediately ordered full astern on the starboard engine, full ahead on the port engine and full starboard thrust on the bow thruster.

At about 1818½, the pilot ordered the starboard engine stopped and the port engine to be left at full ahead. By 1820, the pilot had control of the ship and ordered engine and helm movements to bring it safely back into the channel. When the ship was in the channel, the pilot twice asked the master whether the ship had sustained any damage and, on each occasion, the master replied that there was none. The ship continued out of the channel without further incident.

Figure 5: CCTV image of *Van Gogh* at time of grounding



Before disembarking, the pilot told the master that ‘obviously, this has been a non-standard departure’ and that the relevant authorities would need to be notified.

At 1828, the pilot disembarked the ship and returned to Devonport. He immediately reported the grounding to the Australian Maritime Safety Authority (AMSA) and Marine and Safety Tasmania (MAST).

Van Gogh's master ordered soundings of the forward compartments of the ship to ensure there was no water ingress. The soundings indicated that the ship's hull had not been breached. The ship then proceeded to Fremantle. The master reported the incident to AMSA on Sunday 24 February.

On 28 February, *Van Gogh* arrived in Fremantle, where the ship underwent an underwater inspection of the forward section of its hull. No damage was found.

2.1 Evidence

On 26 February 2008, two investigators from the Australian Transport Safety Bureau (ATSB) interviewed the pilot in the Tasmanian Ports Corporation (Tasports) office in Bell Bay, Tasmania. Copies of relevant documents and the port's closed circuit television (CCTV) vision of the ship on departure were taken.

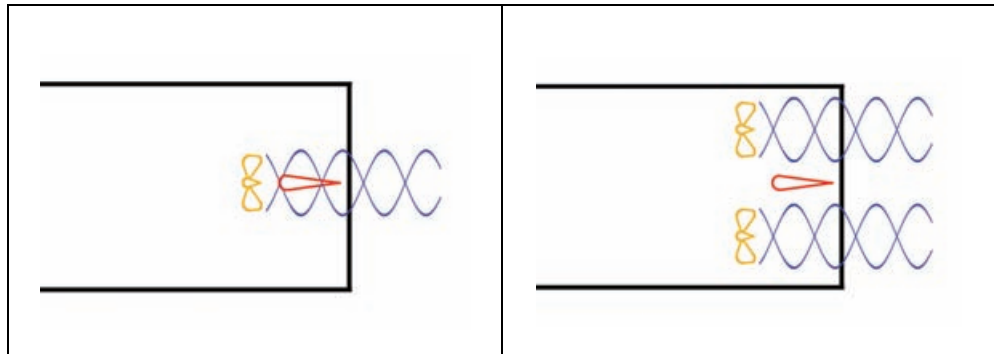
On 28 February, the investigators attended *Van Gogh* when the ship arrived in Fremantle. The ship's master, staff captain, first mate and helmsman were interviewed and copies of relevant documents and records were taken. The evidence included a copy of the ship's tracks from its electronic charting system, copies of log books, standard passage plans, check lists, crew statements, the pilot's departure plan for Devonport and various procedures. The information for 23 February from the ship's voyage data recorder (VDR), and one of its hard disks, were also taken.

The times contained in the analysis are taken from the ship's VDR data.

2.2 *Van Gogh's* handling characteristics

A ship's rudder is effective in providing a turning moment to the ship only when there is a flow of water over its surface. In the case of a single propeller/single rudder configuration ship (Figure 6 (a)) and a twin propeller/twin rudder configuration ship, accelerated water flow from the propeller/s directly over the rudder blade/s enhances the manoeuvrability of the ship, even at slow speeds.

Figure 6 (a) & (b): Single propeller/single rudder versus twin propeller/single rudder



However, in the case of twin propeller/single rudder configuration ships (Figure 6 (b)), like *Van Gogh*, the water flow from the propellers does not pass directly over the rudder, which is set on the ship's centre line. Even with the helm 'hard over', the rudder may be either wholly or partially outside the water flow from the propellers. This means that the ship's response to the rudder is poor at low speeds because the rudder is reliant upon the ship's motion through the water, and not the propeller wash, to generate water flow across it in order to generate the turning moment in the ship.

According to *The Shiphandler's Guide*¹²,

This is most noticeable when the ship is getting underway from stopped. The ship takes a long time to answer the helm and travels some distance in the interim time interval. If this type of ship is exposed to any adverse manoeuvring conditions, such as shallow water or contrary winds and tides, it is likely to become seriously unmanageable at slow speeds and considerable care should be exercised, with some emphasis upon the need for tug support.

Von Gogh's pilot card was provided to the pilot during the information exchange but it did not contain any information relating to the minimum steerage or manoeuvring speed for the ship. While the ship's manoeuvring characteristics diagram, which was posted in the wheelhouse, did show that the minimum speed required for the ship to gain steerage was four knots, the minimum manoeuvring speed was not discussed during the master/pilot information exchange carried out before the ship left the berth.

As a matter of course, the pilot should have ascertained the minimum speed required for the ship to gain steerage during the information exchange. However, in the event that the pilot might forget to ask for this information, Tasports' standard Devonport pilotage passage plan did not contain any reference to remind the pilot that this information was needed. Consequently, the pilot was not aware of this critical information, and he did not actively seek it.

In their submission, Club Cruise stated that:

Seeing that the vessel had been under pilotage by the same pilot within the previous year, the master assumed the pilot was aware of the minimum speed required for manoeuvring. In retrospect, the master understands that it would have been better for him to verify his assumption prior to departure.

There was no transmitting current meter in the Mersey River. In addition to not knowing what the minimum steerage speed for the ship was, the pilot was not able to determine the rate of the outflow in the river at the time of departure. Had that information been available to him, the pilot would have been able to gain a more accurate appreciation of the effect the water flow might have on the ship when it left the berth.

At 1812, when *Van Gogh's* pilot told the master to come ahead on the ship's engines, the ship was not making way under its own power. It was being set down onto *Goliath* and, although it was making good a speed of up to six knots, as much as four knots could be attributed to the tidal outflow. Therefore, the ship's speed through the water was only about two knots, significantly less than the minimum four knots required for steerage. Because the ship was moving with the water and not through it, there was little water flow past the rudder and the ship was not responding to helm orders.

The master and pilot should have taken the ship off the berth and onto the line of the leading lights in the centre of the swing basin, as per the pilot's passage plan. Had they done this, the ship would have had sufficient sea room immediately ahead of it to enable its speed through the water to build up to the point where there was sufficient water flow over its rudder to enable it to be steered effectively.

12 Captain R.W. Rowe. *The Shiphandler's Guide*, The Nautical Institute, 1996, p 119.

Between 1813 and 1814, *Van Gogh* closed to within ten metres of *Goliath* before the rudder started to become effective as the ship began to make way through the water to generate sufficient water flow over the rudder. By that stage, *Van Gogh* was close enough, and moving fast enough (about six knots relative to the stationary ship), to subject *Goliath* to interaction, which pulled it off the berth and caused it to surge ahead.

Van Gogh's speed increased as it moved away from *Goliath*. The large helm movements ordered by the pilot resulted in the ship overshooting the centreline of the channel and quickly moving towards the eastern shore of the river and the Wheeler Street beacon.

The pilot did not know the minimum speed required for *Van Gogh* to gain steerage, or the rate at which the water was flowing out of the river at the time of departure. At 1812, when the pilot told the master to 'come ahead', the sea room immediately ahead of the ship was insufficient to enable *Van Gogh* to safely build up speed and gain adequate steerage.

2.3 The use of the engines

Van Gogh is configured with twin, inward turning, controllable pitch propellers (CPPs) and a single rudder. One of the advantages that a twin propeller ship has over a single propeller ship is that the propellers can be operated independently to enhance the ships turning ability at low speed. During a turn, the inboard propeller can be backed¹³ so that it exerts a turning couple on the ship which, when combined with the rudder's turning force, assists the ship to turn at low speed. Alternatively, the pitch setting of a CPP on the inboard side of the ship can be reduced to zero or almost zero. At low speeds, the drag produced can provide an effective braking force on that side of the hull, which will also assist the turn.

Advice obtained by the ATSB from the manager of the Australian Ship Handling Centre (Port Ash) is that the engines on twin CPP/single rudder ships must be used independently to steer the ship until sufficient headway is obtained and the rudder becomes effective, after which the engines should only be used together to maximise the rudder's effect.

The independent use of the engines at moderate speeds is not an affective way to improve a ships ability to turn and may, in fact, have the opposite effect. According to *The Shiphandler's Guide*¹⁴:

.... there is often an automatic tendency with inexperience, to rely upon backing one engine to tighten a difficult turn, at a bend in a channel for instance. Whilst this is absolutely fine at low manoeuvring speeds it is very unwise at a moderate speeds, for example over five or six knots. This is because transverse thrust is a poor force, in comparison to rudder force and it will actually result in a reduction of the vessels rate of turn and a larger turning circle.

Because of *Van Gogh*'s poor manoeuvrability at low speeds, and in beam wind conditions, it was normal practice on the ship for 'hard over' helm orders to be 'augmented' by splitting the ship's engines to assist the ship to turn.

¹³ Put astern.

¹⁴ Captain R.W. Rowe. *The Shiphandler's Guide*, The Nautical Institute, 1996, p 127.

At 1810, the master took the ship off the berth using a combination of pitch movements in line with handling a ship with twin propellers. When the pilot took over the conduct at 1812, he ordered full ahead on both the engines and the master moved both engine telegraph levers to the full ahead position. However, at this time, the ship was not making way under its own power and therefore, was unable to steer by its rudder alone.

At about 1812½, as *Van Gogh* approached *Goliath*, when the pilot ordered starboard 15°, the master reduced the starboard propeller's pitch to about the half ahead setting, in order to assist the turn to starboard, away from the rapidly neared *Goliath*. The pitch was further reduced at 1813 to a slightly ahead setting. By this time, the ship was travelling at a speed through the water of two or three knots and still not responding to rudder movement.

Given the information above, at 1812, the pilot should have ordered the use of the ship's engines independently to steer the ship until the rudder became effective, when the ship's speed through the water had reached four or five knots. The master's 'splitting the engines' was appropriate as *Van Gogh* approached *Goliath* because of the ship's very low speed. This action enabled the ship to turn away from *Goliath* in the time before the rudder became effective and steerage was gained. However, the action of splitting the engines was carried out without the knowledge of the pilot.

As *Van Gogh*'s speed increased above five knots through the water, the master, still without the pilot's knowledge, continued to split the engines when the pilot gave a large helm order. This happened at 1813¾ when the pilot ordered hard to starboard (starboard propeller pitch was reduced to half astern setting), and again at 1814 when the rudder was brought back to midships (starboard pitch setting was increased to full ahead and the port pitch setting was reduced to full astern).

At about 1815½ when the pilot ordered hard to starboard to begin the turn around the Police Point beacon, the starboard propeller pitch setting was reduced to about dead slow ahead. The pilot, then seeing that the telegraph levers were not as he had ordered them, said to the master that 'we are full ahead now captain' and the starboard telegraph lever was returned to the full ahead position, only to be reduced to full astern and then to dead slow ahead, just after 1815¾.

While the pilot thought that the helm had been returned to midships in the short time before 1816, the VDR data shows that the helm remained as he ordered at about 1815½. It was only the propeller pitch settings which changed without his knowledge.

After *Van Gogh* cleared *Goliath* and its speed increased, the action of splitting the engines probably had a detrimental effect on the ship's ability to turn. This action, when combined with *Van Gogh*'s tendency to 'round up' into the wind which, in this case, would have been to port, resulted in the ship not turning to starboard at about 1816, just after passing the Police Point beacon. Had both propeller pitch settings been left at full ahead at this critical time, as ordered by the pilot, with the rudder hard to starboard, the ship may have made the turn around the beacon and departed the port without further incident.

Had the pilot used the engines independently when he took over the conduct of the ship at 1812, he would have had more effective control over the ship's heading. Furthermore, had the master not used the engines independently after *Van Gogh*

cleared *Goliath*, the ship's ability to turn would probably have not been detrimentally affected.

2.4 Tug use

The Tasports' vessel entry and departure parameters for Devonport, are contained in the Port Guidelines. These parameters contain the following information with regard to tug requirements within the port:

A general list can only be given, as at times circumstances may be that less/more tugs may be used.

Vessels less than 100m will normally not require a tug except at No. 5 West L.P.G. berth or at the discretion of the Duty Pilot.

All berths	1-2-3 East	1-3-4 West		
100-130m	Any tide	1 tug	Berthing	As required by Pilot
130-205m	Any tide	2 tugs/or 3		
100-130m	Any tide	1 tug	Departure	
130-205m	Any tide	1 – 2 tugs		

The parameters, as they are presented in the document, are difficult to understand with any degree of certainty. However, it is clear that Tasports allow a pilot to have overall discretion when it comes to deciding on tug use within the port.

Having given the pilot this overall discretion, Tasports provide very little guidance for pilots with regard to what considerations or limits should be taken into account when deciding when or whether a tug is to be used. The parameters could be considered the 'minimum requirements' for the port under 'normal conditions', as they do not list the issues which should be considered when conditions in the port are not 'normal'.

Apart from 'any tide', no guidance is offered regarding factors such as wind speed and direction, fresh water out flows when combined with an ebb tide, ships which might be equipped with a particular manoeuvring/propulsion system, ships which might have unusual or difficult manoeuvring/handling characteristics or any combination of these or other factors. The pilot is expected to carry out planning for a departure, especially when conditions within the port could be considered to be adverse, without guidance or assistance.

When he carried out his planning, and the associated risk assessment, for *Van Gogh*'s departure on 23 February, the pilot made the decision that a tug would not be required. His decision was based on the fact that the ship, being berthed port side to (ship's head out), did not need tug to assist the ship to turn in the river before it made its way out of the port. He also assessed that the ship 'had no hindrances to its manoeuvrability'. However, a reasonable risk assessment undertaken by the pilot should have highlighted the prudent use of a tug for this departure. A tug would have provided a means of reducing the risks associated with handling this type of ship at low speed, especially as it left the berth, particularly given the state of the tide and the unknown rate that water was flowing out of the river at the time of the ship's departure.

Tasports did not provide its pilots with sufficient guidance to enable them to appropriately consider the risks associated with a ships departure so as to be able to decide whether a tug was needed for ships departing the port. As a result, *Van Gogh's* pilot did not adequately consider the poor handling characteristics of the ship, and the possible effect that the tidal outflow might have on the ship when he decided to depart Devonport without the assistance of a tug.

2.5 Bridge resource management

Efficient pilotage is dependent on the effectiveness of the communications and information exchanges between the pilot, the master and other bridge team personnel and on the mutual understanding that each has for the functions and duties of the others¹⁵.

The utilisation of bridge resource management (BRM) principles is the most effective way of making this happen. These principles include: closed loop communications, briefing/debriefing, challenge and response, delegation, situational awareness, and short term strategies.

These principles provide a method of organising human and other resources on the bridge to reduce the level of operational risk. The key safety aspect is to put in place defences against 'single person errors', which can result in a serious casualty.

Central to the practice of effective BRM is good, interactive, 'closed loop' communication, through briefing in the master/pilot information exchange, to create a shared mental model of the passage plan and to define limits. The system should encourage challenge of decisions and elicit appropriate responses to establish open and effective communication between members of the bridge team.

The concept of a shared mental model helps explain how teams, regardless of the environment in which they operate, are able to cope with difficult and changing task conditions. Shared mental models serve three critical purposes: they help people to describe, explain and predict events in their environment. Any team that must adapt quickly to changing tasks might draw on shared or common mental models for those tasks. In order to adapt effectively, team members must be able to predict what their team mates are going to do, and what they are going to need to be able to do it¹⁶.

2.5.1 Master/pilot information exchange

A proper information exchange between the pilot and the master/bridge team is an essential safety element when a ship is in pilotage waters. The pilot knows and understands the workings of the port and brings an understanding of local conditions that may affect the conduct of the ship. The master and other members of the bridge team should know their ship, its handling characteristics and the status

¹⁵ International Chamber of Shipping *Bridge Procedures Guide*, Fourth Edition, 2007, Section 6.6.

¹⁶ Cannon-Bowers, J. A., Salas, E., & Converse, S. A. (1993). Shared mental models in expert team decision making. In Mathieu, J., Heffner, T., Goodwin, G., Salas, E., and Cannon-Bowers, J., (2000). *The influence of Shared Mental Models on Team Process and Performance*. Journal of Applied Psychology 2000, Vol 85, No. 2 (pp. 273-283), American Psychological Association Inc, 2000.

of its equipment. The exchange of such information is no guarantee that incidents will not happen, but the briefing and proper planning reduce the risk of an adverse event.

Section 6.3 of the fourth edition of the International Chamber of Shipping (ICS) *Bridge Procedures Guide* states that:

The pilot and master should exchange information relating to the pilot's intentions, the ship's characteristics and operational parameters as soon as possible after the pilot has boarded the ship.

At 1745, after the pilot boarded, he held a pre-departure briefing with the relevant members of the ship's bridge team where he discussed his departure plan. During the briefing, he ascertained the ship's draughts, confirmed the number and type of propellers and rudders that the ship was equipped with and the details of the bow thruster. He discussed the state of the tide for the departure, the estimated under keel clearance, the last mooring lines to be let go, and confirmed items on the port's standard checklist (Figure 7) and that a tug would not be used or be standing by.

Figure 7: Section of pilot's departure plan

Is watchkeeping officer involved ?	Yes / No
Pilot has voice recorder operating ?	Yes / No
Pilot card sighted ?	Yes / No
Thruster operational ?	Yes / No
Main engine OK & tested astern ?	Yes / No
Two steering motors on & steering tested ?	Yes / No
Anchors cleared & ready for use (+ crew standing by Forward) ?	Yes / No
Who is to monitor helmsman ?	Master / OOW / Pilot
Planned passage discussed & agreed ?	Yes / No
Any vessel defects ?	Yes (No)
Weather Discussed ?	Yes / No
Gyro Error ?	- / °

It was normal practice on board *Van Gogh* for helm orders to be 'augmented' by 'splitting' the ship's engines. However, the master did not discuss, or inform the pilot of this critical information during the pre-departure information exchange. As a result, on several occasions during the departure, the pilot saw that the engine telegraph levers were not as he had ordered. Understandably, he thought that someone in the bridge team was 'countermanding' his orders during the hectic activities on the bridge in the five minutes which passed between when he took over the conduct of the ship and its grounding. This was an unnecessary distraction for the pilot.

The information on the voyage data recorder (VDR) shows that no one was changing the pilot's engine orders at the time he was giving them. While the pilot's orders/directions were not actually 'countermanded' at the time he gave them, they were certainly not followed, albeit for reasons which the master and the bridge team thought were best to fulfil the pilot's instructions with regard to manoeuvring the ship in the situation that they were faced with after clearing *Goliath*.

If the master was concerned that the pilot may not have been aware of how his ship would respond in the prevailing circumstances, he should have discussed the issue with him during the master/pilot information exchange as a matter of course.

In their submission, Club Cruise stated that:

As for the engine telegraph levers; the master's view is that the orders of the pilot were followed by the crew. The master moved through the wheelhouse and to the bridge wings as well, and reached the telegraph levers before the pilot did.

Moving the engine levers was undoubtedly done with the best intentions, and practically as a routine matter, but we do consider the master not informing the pilot about his intentions and actions a critical error in the process.

Even though the pilot was concerned that his orders were being countermanded, at no time during the pilotage did he challenge the master as to why the engine telegraphs were not as he had ordered them. While it is acknowledged that events were moving at a fast pace, had he done so, the master could have explained why he was using the engines in such a manner.

The master did not discuss the ship's poor handling characteristics at slow speed or the fact that the ship had a tendency to turn up into the wind. He also did not tell the pilot that the engines would be 'split' during the passage out of Devonport. This resulted in the pilot becoming concerned during the pilotage that his orders were being countermanded. By not following the pilot's directions, the master and his bridge team did not observe the principles of effective BRM and good seamanship under pilotage.

2.5.2 Passage planning

The importance of having a passage plan for pilotage cannot be over-emphasised. Without a proper and functional passage plan there can be no shared mental model, no challenge and response opportunities, no real knowledge and understanding of roles and responsibilities of the bridge team members and no defined limits.

Importantly though, it should be understood that having a passage plan which is not followed is just as ineffective as not having a plan in the first place.

During the pre-departure briefing, the pilot and the master agreed that the master would manoeuvre the ship off the berth and then, when it was positioned safely in the swing basin, the pilot would take over the con and take the ship to sea.

As part of the departure plan, the pilot provided the master and bridge team with a section of the Devonport chart on which he had drawn his intended route off the berth into the swing basin and then from there to sea (Figure 8). His plan, as expressed on the section of the chart, was to have the ship brought to the middle of the swing basin, onto the line of the leading lights and clear of any potential dangers ahead, and then to go ahead on the engines and commence the passage out of the river.

Once the briefing had concluded, the master and pilot signed off on the plan, indicating that they both agreed with it. The bridge team now had a shared mental model of how the outward pilotage should proceed.

However, the pilot did not follow the agreed passage plan. At 1812, when the ship was only 60 m off the berth, with its bow pointing towards *Goliath* ahead, and not in the centre of the swing basin on the leads, the pilot made the comment to the master that he could ‘come ahead now’. The master did not challenge the pilot’s departure from the plan. Trusting the pilot’s judgement, he simply agreed to the pilot taking over the con and pushed to engine telegraph levers ahead

In his submission, the pilot stated that:

At 1812, the vessel was technically in the swing basin, and in the opinion of the pilot, able to be safely navigated out to the position shown on the chart with the use of the starboard rudder as ordered in the ensuing seconds following the handover.

However, the ship did not have enough speed through the water to enable it to respond to the pilot’s starboard rudder order.

The pilot did not follow the agreed passage plan and came ahead on the ship’s engines too soon after the ship came off the berth. The ship was not positioned on the leads, in the centre of the swing basin, as per the pilotage plan. As a result, the ship was set down onto *Goliath* as it came ahead under the influence of the ebb tide and fresh water outflow.

2.6 Use of English on the bridge

Section 1.2.1 (Use of English) of the ICS *Bridge Procedures Guide* states that:

Communications within the bridge team needs to be understood. Communications between multilingual team members, and in particular with ratings, should either be in a language that is common to all relevant bridge team members or in English.

When a pilot is on board, the same rules should apply.

During the passage, the pilot felt that his orders were being countermanded because on several occasions, he saw that the engine telegraph levers were not as he had ordered. At the time, conversations between members of the ship’s crew were being conducted in Russian. The pilot was not conversant in Russian and he did not understand what was being said. This did not allow the pilot to participate in these conversations, which he could have if they were conducted in English.

While the ship’s VDR replay shows that the pilot’s directions were not being countermanded, the use of Russian on the bridge did cause the pilot concern. Some operational orders were given in Russian and there was no attempt to relay them in English so the pilot could understand what was being said.

In their submission, Club Cruise stated that:

It is understandable that the use of Russian in presence of an English-speaking pilot, whether or not the communication was between bridge team members, may have caused anxiety and perhaps some confusion, and constituted poor bridge management practices.

In this instance, because the pilot only spoke English, all communications on the bridge should have been in English. Had they been, the pilot would have been aware that what was being said at the time was not connected with the movement of the telegraph levers.

3.1 Context

At 1810 on 23 February 2008, the Marshall Islands registered passenger ship *Van Gogh* departed Devonport, Tasmania. The master manoeuvred the ship off the berth into the swing basin, and at 1812, the harbour pilot took over the conduct of the ship for the passage out of the port.

As the ship left the berth, it immediately began to be set towards the bulk carrier *Goliath* berthed ahead. *Van Gogh* was under the influence of the ebb tide and fresh water that was flowing from the Mersey River's catchment following heavy rain in the area in the previous 24 hours.

Van Gogh was difficult to manoeuvre at low speed because of its twin propellers and single rudder configuration. This, combined with the strong ebb tide and fresh water outflow in the river at the time of departure, resulted in there being insufficient water flow over its rudder to enable the pilot to manoeuvre the ship as he intended. Following a near collision with *Goliath*, the ship built up speed and gained steerage. The bridge team continued their usual practice of backing the propellers' pitch in an attempt to 'augment' the pilot's helm orders. However, their actions probably had a detrimental effect of the ship's ability to turn in the channel.

At about 1817, *Van Gogh* grounded briefly on the western shore of the Mersey River. Following the grounding, the pilot successfully manoeuvred the ship back into the channel and the ship departed the port without further incident. There was no damage to the ship and no pollution resulted.

From the evidence available, the following findings are made with respect to the grounding and should not be read as apportioning blame or liability to any particular organisation or individual.

3.2 Contributing safety factors

- The master/pilot pre-departure information exchange did not include the ship's poor handling characteristics at low speed, the ship's minimum steerage speed or the fact that the ship had a tendency to turn up into the wind.
- The master did not inform the pilot that it was the practice on board for the engines to be used independently during pilotages.
- *Van Gogh*'s pilot card did not include the ship's minimum steerage speed. *[Safety issue]*
- The Tasmanian Ports Corporation's standard Devonport pilotage plan did not contain any reference to ensure that the pilot was aware of the minimum steerage speed of the ship. *[Safety issue]*
- The agreed passage plan was not followed. When the pilot took the conduct of the ship at 1812 and gave the order to come ahead on the ship's engines, there was insufficient sea room immediately ahead to enable the ship to build up sufficient speed to obtain steerage.

- The master's use of the ship's telegraphs to independently control the propellers' pitch during turns, without the pilot's knowledge, had a detrimental effect on the ship's ability to turn to starboard around the Police Point beacon.
- A tug was not used for the ship's departure. Given the ship's propeller/rudder configuration and the state of the ebb tide and fresh water outflow, a tug would have been beneficial in assisting the ship to manoeuvring at low speed.
- Tasmanian Ports Corporation did not provide its pilots with sufficient guidance to enable them to appropriately decide whether a tug should be used for ships departing the port. As a result, *Van Gogh's* pilot did not adequately consider the poor handling characteristics of the ship, and the possible effect that the tidal outflow might have on the ship when he decided to depart Devonport without the assistance of a tug. *[Safety issue]*
- There was no transmitting current meter in the Mersey River. Therefore, the pilot was not able to accurately determine the rate of the tidal outflow and the effect it might have on the manoeuvrability of the ship. *[Safety issue]*

3.3 Other safety factors

- Not all communications on the bridge during the departure were conducted in English to enable the pilot to be party to what was being said. *[Safety issue]*

4.1 Safety action taken by Club Cruise Entertainment

The ATSB has been advised that the following safety actions have been taken by Club Cruise Entertainment as a result of the grounding on 23 February 2008.

Master/pilot information exchange:

The pilot card has been altered to include speed requirements, and the master is now paying extra attention to relay this information to pilots during pre-arrival and pre-departure briefings. We have given the masters of our other vessels the order to critically review their pilot card as well as pre-arrival and pre-departure briefings.

A fleet wide circular has been distributed asking our masters to conduct a meeting with the bridge team, reflecting on their own performance and discussing principles of good seamanship and bridge resource management (BRM), and to provide feedback to the Fleet and Technical Department about the outcome.

We have asked the masters to ensure another meeting is held within two months to evaluate the team's performance once again. The aim is to provide for continuous monitoring and improvement of the teams' performance standards.

Observing departure and arrival practices has also been put on the agenda for the next internal audits on all our vessels. The training DVD 'Stranger on the Bridge' has been sent onboard, and made part of the company's training program.

Both the master and staff captain of *Van Gogh* will be sent to a refresher course for BRM.

Language:

After receiving the draft report, we felt there was an urgent need for reiterating the Company Policy on the working language onboard to our crew.

We have distributed a fleet-wide circular to our vessels stating that English should always be used when on duty, and when in a non-private setting, and that consideration should be given to the fact that the use of other languages in presence of people from different origins may cause people to feel apprehensive and uncomfortable.

During our next internal audits, we will pay extra attention to the use of English onboard our vessel, and the abilities of our crew to communicate in English.

Additionally we will periodically monitor VDR data for the use of English and take necessary actions to avoid and reduce the use of languages other than English whilst on duty.

4.2 Safety action taken by the Tasmanian Ports Corporation

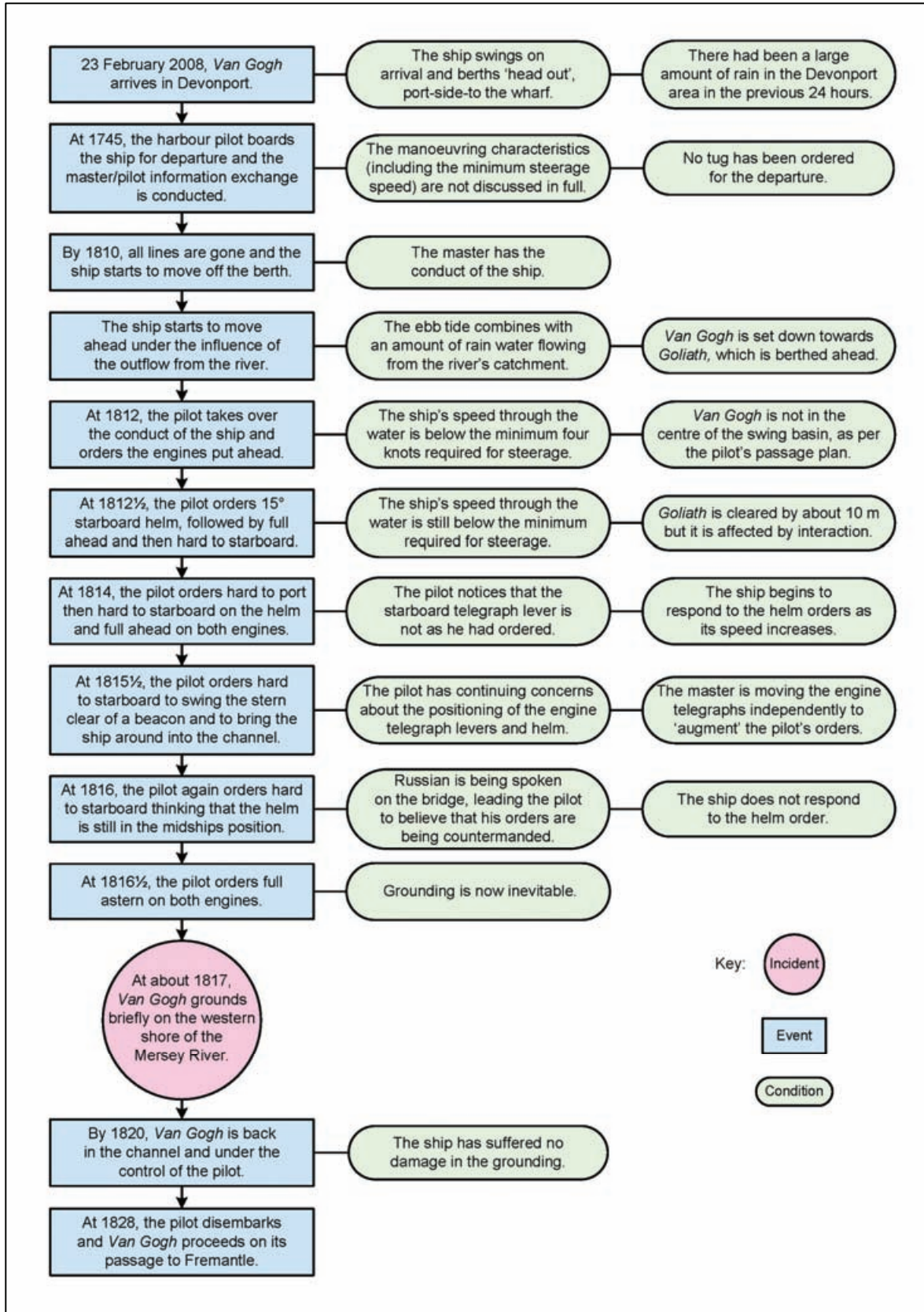
The ATSB has been advised that the following safety actions have been taken by the Tasmanian Ports Corporation (Tasports) as a result of the grounding on 23 February 2008.

- The Devonport pilotage passage plan has been amended to note possible fresh water flows following heavy rains in the Mersey River catchment.
- All Tasports' pilotage passage plans to have a reminder to the pilot to ascertain the minimum steerage speed of a ship being piloted.
- A review of the Port Guidelines is being undertaken further with the development of the Pilotage Safety Management System for Tasports (Devonport included). Tasports' pilotage risk assessment guidelines were revisited formally in May 2008 with amendments made in line with these points concerning incident. These include:
 - Port parameters for vessel size, configuration etc.
 - For each vessel accepted for the port, the conditions under which the vessel can be handled, i.e. tides, winds, under keel clearance etc.
 - And the final decision, the pilot on the vessel on approach or on departure, making the decision to proceed/abort based on the condition prevailing at the time.
- A capital expenditure request has been submitted for a study into the feasibility of an AquaDopp Profiler (a shallow water current profiler) for the Mersey River.
- Alterations have been made to the Mersey River pilot simulator training program to include maneuvers with higher rates of current which mimic the estimated rates due to the freshwater flows.
- The events of 23 February 2008 have been discussed at length at pilot meetings since the incident with constructive peer review.

4.3 ATSB recommendations and safety advisory notices

The ATSB acknowledges the safety actions taken by Club Cruise International and the Tasmanian Ports Corporation to address all the safety issues identified during this investigation. As a result, the ATSB has not issued any recommendations or safety advisory notices.

APPENDIX A : EVENTS AND CONDITIONS CHART



APPENDIX B : SHIP INFORMATION

Van Gogh

IMO Number	7359400
Call sign	V7JW2
Flag	Marshall Islands
Port of Registry	Majuro
Classification society	Det Norske Veritas (DNV)
Ship Type	✕1A1 Ice-C Passenger Ship
Builder	OY Wartsila AB, Finland
Year built	1975
Owners	Maritiem and Leasing, Bahamas
Ship managers	Club Cruise Entertainment, Netherlands
Gross tonnage	15 402
Net tonnage	6057
Deadweight (summer)	2452 tonnes
Summer draught	6.2 m
Length overall	156.26 m
Length between perpendiculars	140.42 m
Moulded breadth	21.83 m
Moulded depth	13.7 m
Engine	2 x Pielstick 6600 kW
Total power	13 200 kW
Bow thruster	1 x 600 kW
Rudder	1 x semi-balanced
Speed (cruising)	16.5 knots
Crew (max)	260
Passengers (max)	717 in 252 cabins

APPENDIX C : SOURCES AND SUBMISSIONS

Sources of information

Master and crew of *Van Gogh*

The Devonport pilot

Tasmanian Ports Corporation

The Australian Ship Handling Centre

References

Admiralty Sailing Directions, Australia Pilot Volume II (NP14), Tenth edition, 2007.

Cannon-Bowers, J. A., Salas, E., & Converse, S. A. (1993). Shared mental models in expert team decision making. In Mathieu, J., Heffner, T., Goodwin, G., Salas, E., and Cannon-Bowers, J., (2000). *The influence of Shared Mental Models on Team Process and Performance*. Journal of Applied Psychology 2000, Vol 85, No. 2 (pp. 273-283), American Psychological Association Inc, 2000.

Captain R.W. Rowe (FNI) Ed. (1996). *The Shiphandler's Guide*, The Nautical Institute.

FORCE Technology DMI, (2003). *Ship Manoeuvre Theory*, 4th Edition, 2003.

International Chamber of Shipping *Bridge Procedures Guide*, 4th Edition, 2007.

Tasports – Port of Devonport *Port Guidelines*, August 2006.

Submissions

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

The final draft of this report was sent to the master and operators of *Van Gogh*, the Devonport pilot, the Tasmanian Ports Corporation (Tasports), the Australian Maritime Safety Authority (AMSA) and the Marshall Islands' Deputy Commissioner for Maritime Affairs.

Submissions were received from the master and operators of *Van Gogh*, the Devonport pilot, Tasports, AMSA and the Marshall Islands' Deputy Commissioner for Maritime Affairs. The submissions have been included and/or the text of the report was amended where appropriate.