Joint safety investigation into the collision of the Maltese registered passenger ship

CELESTYAL CRYSTAL

with the Marshall Islands registered tanker

STI PIMLICO

In the Çanakkale Strait’s Traffic Separation Scheme

On 27 June 2015

201506/030

MARINE SAFETY INVESTIGATION REPORT NO. 10/2016

INTERIM
The MSIU gratefully acknowledges the assistance and cooperation of the Office of the Maritime Administrator of the Republic of the Marshall Islands and the Turkish Accident Investigation Board within the Ministry of Transport, Maritime Affairs and Communications, during the safety investigation of this accident.


As the full safety investigation report will not be published within 12 months of the accident date, this interim safety investigation report is published, pursuant to Regulation 13(1) of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011.

This interim safety investigation report is not written, in terms of content and style, with litigation in mind and pursuant to Regulation 13(7) of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011, shall be inadmissible in any judicial proceedings whose purpose or one of whose purposes is to attribute or apportion liability or blame, unless, under prescribed conditions, a Court determines otherwise.

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NOTICE

The information contained in this interim safety investigation report is derived from the initial notification and subsequent investigation of the occurrence to date. Readers are cautioned that there is the possibility that new evidence, which may alter the circumstances as depicted in this interim safety investigation report, may become available during the course of the safety investigation.

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LIST OF REFERENCES AND SOURCES OF INFORMATION

ECDIS from MV Celestyal Crystal

Managers of MV Celestyal Crystal

Master and crew members of MV Celestyal Crystal

Office of the Maritime Administrator of the Republic of the Marshall Islands

Voyage Data Recorder from MV Celestyal Crystal

VTS recordings from the Turkish Accident Investigation Board
<table>
<thead>
<tr>
<th>Glossary Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIS</td>
<td>Automatic Identification System</td>
</tr>
<tr>
<td>ARPA</td>
<td>Automatic Radar Plotting Aid</td>
</tr>
<tr>
<td>Colregs</td>
<td>International Regulations for Preventing Collisions at Sea 1972 (as amended)</td>
</tr>
<tr>
<td>ECDIS</td>
<td>Electronic Chart Display and Information System</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
</tr>
<tr>
<td>GMDSS</td>
<td>Global maritime distress safety system</td>
</tr>
<tr>
<td>GT</td>
<td>Gross tonnage</td>
</tr>
<tr>
<td>ILO</td>
<td>International Labour Organisation</td>
</tr>
<tr>
<td>kW</td>
<td>Kilowatt</td>
</tr>
<tr>
<td>LOA</td>
<td>Length overall</td>
</tr>
<tr>
<td>LT</td>
<td>Local time</td>
</tr>
<tr>
<td>m</td>
<td>Metres</td>
</tr>
<tr>
<td>MSIU</td>
<td>Marine Safety Investigation Unit</td>
</tr>
<tr>
<td>nm</td>
<td>Nautical miles</td>
</tr>
<tr>
<td>OOW</td>
<td>Navigational officer of the watch</td>
</tr>
<tr>
<td>RPM</td>
<td>Revolutions per minute</td>
</tr>
<tr>
<td>SOG</td>
<td>Speed over ground</td>
</tr>
<tr>
<td>SOLAS</td>
<td>Safety Of Life At Sea</td>
</tr>
<tr>
<td>STCW Convention</td>
<td>International Convention on Standards of training, Certification and Watchkeeping for Seafarers, 1978, as amended</td>
</tr>
<tr>
<td>TSS</td>
<td>Traffic Separation Scheme</td>
</tr>
<tr>
<td>UTC</td>
<td>Universal Time Coordinated</td>
</tr>
<tr>
<td>VDR</td>
<td>Voyage data recorder</td>
</tr>
<tr>
<td>VHF</td>
<td>Very high frequency</td>
</tr>
<tr>
<td>VTS</td>
<td>Vessel Traffic Services</td>
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SUMMARY

At about 0126 (UTC +3) on 27 June 2015, the passenger ship *Celestyal Crystal* collided with the product tanker *STI Pimlico* about 0.7 nautical miles off Gelibolu Lighthouse in the Çanakkale Traffic Separation Scheme.

*Celestyal Crystal* sustained major damage to her bow above the waterline and forward of the collision bulkhead. There were only four minor injuries. The vessel proceeded to anchor, where she disembarked her passengers and temporary repairs were made to allow her to sail on a single voyage for permanent repairs.

The safety investigation is still analysing the course of events on board *STI Pimlico*. To this extent, the MSIU was unable to close the safety investigation within the 12 month period prescribed in S.L. 234.49.

This document is an interim safety investigation report, published in terms of regulation 13(1) of S.L. 234.49.
### 1 FACTUAL INFORMATION

#### 1.1 Vessel, Voyage and Marine Casualty Particulars

<table>
<thead>
<tr>
<th>Name</th>
<th>Celestyal Crystal</th>
<th>STI Pimlico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flag</td>
<td>Malta</td>
<td>Marshall Islands</td>
</tr>
<tr>
<td>Classification Society</td>
<td>DNV GL</td>
<td>DNV GL</td>
</tr>
<tr>
<td>IMO Number</td>
<td>7827213</td>
<td>9686871</td>
</tr>
<tr>
<td>Type</td>
<td>Passenger</td>
<td>Chemical / Product Carrier</td>
</tr>
<tr>
<td>Registered Owner</td>
<td>Cristal Trading Opco LLC</td>
<td>Scorpio Ship Management SAM</td>
</tr>
<tr>
<td>Managers</td>
<td>Optimum Shipmanagement Services S.A.</td>
<td>Scorpio Commercial Management</td>
</tr>
<tr>
<td>Construction</td>
<td>Steel (Double hull)</td>
<td>Steel (Double Hull)</td>
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<tr>
<td>Length overall</td>
<td>158.88 m</td>
<td>184.0 m</td>
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<td>Registered Length</td>
<td>134.66 m</td>
<td>176.06 m</td>
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<td>Gross Tonnage</td>
<td>25611</td>
<td>24162</td>
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<td>Minimum Safe Manning</td>
<td>20</td>
<td>Not available</td>
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<tr>
<td>Authorised Cargo</td>
<td>Not Applicable</td>
<td>Bulk liquid</td>
</tr>
<tr>
<td>Port of Departure</td>
<td>Lavrio, Greece</td>
<td>Not available</td>
</tr>
<tr>
<td>Port of Arrival</td>
<td>Istanbul, Turkey</td>
<td>Not available</td>
</tr>
<tr>
<td>Type of Voyage</td>
<td>Short International</td>
<td>Not available</td>
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<tr>
<td>Cargo Information</td>
<td>Not applicable</td>
<td>Not available</td>
</tr>
<tr>
<td>Manning</td>
<td>382</td>
<td>Not available</td>
</tr>
<tr>
<td>Date and Time</td>
<td>27 June 2015 at 0126 (LT)</td>
<td></td>
</tr>
<tr>
<td>Type of Marine Casualty or Incident</td>
<td>Serious Marine Casualty</td>
<td>Serious Marine Casualty</td>
</tr>
<tr>
<td>Location of Occurrence</td>
<td>Dardanelles Traffic Separation Scheme 40° 24′ N 026° 41′ E</td>
<td></td>
</tr>
<tr>
<td>Place on Board</td>
<td>Ship – Forecastle deck / Bulbous bow / over side Over side / cargo tank / freeboard deck</td>
<td></td>
</tr>
<tr>
<td>Injuries/Fatalities</td>
<td>Four minor injuries</td>
<td>None</td>
</tr>
<tr>
<td>Damage/Environmental Impact</td>
<td>None</td>
<td>Cargo spill overboard</td>
</tr>
<tr>
<td>Ship Operation</td>
<td>On passage</td>
<td>On passage</td>
</tr>
<tr>
<td>Voyage Segment</td>
<td>Transit</td>
<td>Transit</td>
</tr>
<tr>
<td>External &amp; Internal Environment</td>
<td>Good visibility. Northerly moderate breeze with slight seas</td>
<td></td>
</tr>
<tr>
<td>Persons on Board</td>
<td>1235</td>
<td>Not available</td>
</tr>
</tbody>
</table>
1.2 Description of Vessels

1.2.1 Celestyal Crystal

The Maltese registered *Celestyal Crystal* (Figure 1) is a passenger/cruise vessel built in 1980 at Wartsila Ab, Turku, as an Ice Class 1A Ro-Ro ferry. She was converted to a cruise ship in 1992. The vessel has a gross tonnage (GT) of 25,611 and is classed by DNV GL.

*Celestyal Crystal* is owned and operated by Cristal Trading Opco LLC, and the technical management is carried out by Optimum Shipmanagement Service S. A. (Ship management was previously carried out by Louis Ship Management and Celestyal Cruises as part of the Louis Group), based in Piraeus, Greece. The Company owns and operates six vessels under the Maltese flag.

![Figure 1: MV Celestyal Crystal](image)

The vessel has a length overall of 158.88 m and a beam of 25.20 m. Her depth is 15.56 m and the maximum deadweight is 1,703 tonnes at a summer draught of 5.91 m (Figure 2). *Celestyal Crystal*’s propulsive power is provided by four 12-cylinder Wartsila medium speed, four-stroke diesel engines, producing 4,781 kW at 500 RPM. These drive two, controllable pitch propellers at 170 rpm through reduction gearboxes. *Celestyal Crystal* is also fitted with two 590 kW bow thrusters. The vessel’s service speed is about 21.0 knots\(^1\).

The vessel is traded by her operators on cruises in the Mediterranean and South America.

\(^1\) One knot is equal to 1.852 kmhr\(^{-1}\).
Figure 2: MV Celestyal Crystal – General Arrangement Plan
1.2.1.1 Bridge layout and equipment on Celestyal Crystal

Celebryal Crystal’s navigation bridge layout is a fully enclosed integrated design and would be considered standard for a ship originally built as a Swedish ferry in 1980 (Figures 3 and 4). The main conning console includes the radars, ECDIS, VHF radio communications, engine and thruster controls, and autopilot.

![Figure 3: Port side view of the bridge and main console](image)

The chart table is located on the starboard side of the main console and the main GMDSS station is situated within the bridge area, but on the port aft side. The ECDIS and two radar displays are housed in the forward part of the console and a further radar display has been retro-fitted at the aft end of the centre of the console (Figure 4). The starboard forward radar display is for the bow radar, but was not operational at the time.
The hand steering position is located at the forward bulkhead, forward of the main console under the bridge windows (Figure 5). The helmsman has to look down to the gyro repeater and rate of turn indicator which are situated almost at floor level. From this position, the forward view is limited.
The vessel had a dual SAM Electronic Chart Display and Information System (ECDIS) that was being used as the primary means of navigation. The reason for maintaining paper nautical charts in addition to ECDIS was the reliability issues of ECDIS hardware/software and the incomplete ENC coverage of trading areas.

_Celestyal Crystal_ was also equipped with the following navigation equipment:

- Two Global Positioning Systems (GPS);
- Gyro and Magnetic Compasses;
- Two radars – S-Band SAM Electronics and X-Band Kelvin Hughes radars with automatic radar plotting aid (ARPA);
- Automatic Identification System (AIS);
- Doppler Log;
- Bridge Navigation Watch Alarm System;
- Automatic Pilot;
- Echo Sounder; and
- Voyage Data Recorder.

Additionally, the vessel carried radio equipment in accordance with the Global Maritime Distress Safety System (GMDSS) requirements. At the time of the collision, all the navigational equipment was reported to be operating satisfactorily except the bow radar, but this was in excess of the SOLAS requirements.

1.2.2 _STI Pimlico_

_STI Pimlico_ is a double hull, Marshall Islands registered chemical/ products carrier, owned by Scorpio Ship Management SAM and managed by Scorpio Commercial Management of Monaco. The vessel was built by Hyundai Mipo Dockyard Co. Ltd., Korea in 2014 and is classed by DNV GL.

_STI Pimlico_ has a length over all of 184.00 m, a moulded breadth of 27.40 m and a moulded depth of 17.60 m. It has a summer draught of 11.916 m and a summer deadweight of 38734 tonnes. The vessel has six pairs of cargo tanks (and two slop
tanks), fitted to port and starboard and separated by a continuous longitudinal bulkhead.

Propulsive power is provided by a 6-cylinder B&W 6S50ME-B9, slow speed direct drive diesel engine, producing 10680 kW at 117 RPM. This drives a single, fixed pitch propeller at a service speed of 14.0 knots.

1.3 Manning and Crew on board Celestyal Crystal

Celestyal Crystal was manned with a compliment of three navigation watchkeeping officers and six bridge watchkeeping ratings (Quartermasters). In addition, the vessel had a master, a staff captain, and a safety officer who all worked day work hours and all of whom possessed a Master’s Certificate of Competency. There was also an apprentice officer onboard. The master, staff captain, safety officer and other watchkeeping officers were all Greek nationals. The bridge watchkeeping ratings were Filipino and Indonesian nationals.

The working language on board was English.

Celestyal Crystal was manned in excess of the Minimum Safe Manning Document issued by the flag State Administration. As the vessel was manned with three navigating officers, the watchkeeping hours were divided between the three officers on a '4-on, 8-off' basis as follows:

- Chief mate: 0000 to 0400, 1200 to 1600
- Chief mate: 0400 to 0800, 1600 to 2000
- Second mate: 0800 to 1200, 2000 to 2400

The navigating officers also had to attend mooring stations when calling at and departing ports.

1.3.1 Master

The master was 55 years old and first went to sea as a cadet in 1982. He obtained his Certificate of Competency in 1998 and had revalidated his license in February 2012
for another five years. The master had an 'Endorsement Attesting the Recognition of a Certificate' from Transport Malta’s Merchant Shipping Directorate dated 08 May 2012.

The master has been sailing in this rank since 1998 and his experience has mainly been on cruise ships. He joined Louis Ship Management⁵ in April 2007 as a Master. He had previously sailed on Celestyal Crystal in 2013 and earlier in 2014 and re-joined Celestyal Crystal on 11 July 2014.

1.3.2 Chief mate (12-4)
The chief mate was 54 years old and had 33 years of seagoing experience. He obtained his Master’s Certificate of Competency in April 2007. He had an 'Endorsement Attesting the Recognition of a Certificate' from Transport Malta’s Merchant Shipping Directorate dated 08 August 2014.

The chief mate joined Louis Ship Management in 2007 and this was his second contract on board Celestyal Crystal. His initial contract on board was from 06 June 2014 to 10 November 2014. He then re-joined on 26 November 2014 and has since remained on board.

1.3.3 Quartermaster (12-4)
The Quartermaster was 51 years old and had 22 years of seagoing experience. He had certificates as an Able Seaman and Rating Forming Part of a Navigational Watch issued in April 2015 by the Republic of the Philippines. He joined Louis Ship Management in 2003 as an ordinary seaman and was promoted to Quartermaster in 2007.

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⁵ Louis Ship Management was renamed Optimum Shipmanagement Services S.A.in 2015.
1.4 Environmental Conditions

On 27 June 2015 at 0100 local time (approximately 26 minutes before the collision) the Navarea MET Forecast provided the following information.

Wind speed Beaufort 4 or 5  
Wind direction North Northeast  
Wave height Slight

Weather conditions recorded in the deck logbook at midnight were:

Wind speed Beaufort 2  
Wind direction Northeast  
Barometric pressure 1012 mb  
Sea Smooth  
Visibility Clear

The visibility was reported good throughout the night.

1.5 Narrative

1.5.1 Events dynamics on Celestyal Crystal

*Celestyal Crystal* was engaged on a series of cruises from Greece that consisted of three, four and seven days duration.

At 1200 on 26 June 2015, the vessel departed Lavrio, Greece at the start of a seven day cruise with 853 passengers and 382 crew on board. The vessel had completed the same cruise on a number of occasions, and the first port of call was Istanbul with an ETA of 0900 on 27 June 2015.

The draughts on departure were 6.24 m forward and 5.82 m aft. Prior to leaving port, an emergency drill was held for all newly embarked passengers as required by SOLAS and the watertight doors were closed. The average speed required to reach Istanbul was 16.8 knots, which was below the ships full service speed of 19.5 knots.

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3 The clocks on board were maintained on UTC +3, and all entries in her logbooks UTC +3.
Celestyal Crystal cleared port at 1230 and the vessel was set to ‘full away’, on passage.

1.5.1.1 Events leading up to the collision

Celestyal Crystal transited the Aegean Sea and at 2100, the officer of the watch (OOW) gave two hours’ notice of standby to the engine control room. Standby was set when the vessel would slow down to embark the pilot and transit the Strait of Çanakkale.

Standby was rung at 2254 and the vessel entered the Çanakkale Traffic Separation Scheme. The master took the con and was assisted by the officer of the watch, two quartermasters (one steering) and an apprentice officer. The vessel was on hand steering and speed was reduced to embark the Çanakkale Strait pilot. At 2300, the pilot boarded and the vessel entered the Strait. The Master remained on the bridge with the pilot advising the courses to be set. The ship remained on hand steering throughout the transit, which was uneventful.

At 2400, the watch changed and the 0000-0400 OOW (chief mate) and Quartermasters relieved the 2000-2400 watch.

At 0108, the vessel approached the exit of the Strait and the pilot ordered a course of 035° which the helmsman acknowledged. Speed at this time was 14.7 knots. At 0111, the master started to reduce speed and at 0112 gave the order to open the port side shell door in preparation for the pilot to disembark.

At 0113, the pilot left the bridge. The vessel’s heading and speed was 035° and 7 knots respectively. There were two vessels in the same Northbound traffic lane ahead of Celestyal Crystal. One vessel (STI Pimlico) was heading South in the Southbound traffic lane (Figure 6).
Figure 6: Screenshot of the ECDIS at 0113 as the pilot left the bridge

The pilot disembarked at 0116 and the master ordered the speed to be increased. Thereafter, the master and chief mate discussed *Emona*, the first vessel on the starboard bow, which *Celestyal Crystal* would soon overtake. At 0118, the master asked the chief mate if he was happy to take over the con and after receiving a positive confirmation, left the bridge. In addition to the chief mate, the bridge was manned by the apprentice officer and the quartermaster who was sitting in the seat forward of the console, steering the vessel. The second quartermaster was not on the bridge, having been sent to assist with securing the anchors.

Soon after the master left the bridge, the OOW instructed the quartermaster to steer 033°. At 0122, he instructed him to steer 030° and a minute later 028°, in anticipation of overtaking *Emona* on her port side. The OOW stated that he was monitoring the traffic using the centre radar and the vessel’s position on ECDIS.
At 0123 (Figure 7), the apprentice officer left the bridge. The OOW stated that he noticed from the radar that STI Pimlico was bearing 034° at a distance of 1.06 nm and Emona was bearing 060° at a distance of 0.59 nm. However, at this stage he was becoming concerned about the vessel being overtaken and left the radar position. He also ordered the quartermaster to steer 026°.

![Figure 7: Positions of vessels at 01:23:29](image)

At some time after 0123, the OOW left the radar / ECDIS position and went to the bridge front windows to observe Emona.

Between 0123:23 and 0123:58, the chief mate ordered an alteration of course from 026° to 020° in two degree intervals. At 0123:58, STI Pimlico was bearing 033° at a distance of 0.87 nm and Emona was bearing 066° at a distance of 0.57 nm (Figure 8).

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4 The chief mate’s last recollection of the vessel position.
At about 0124, VTS called Celestyal Crystal on VHF and warned the chief mate of an inbound tanker on her port side and to keep clear, to which he responded, “yes, captain OK”. At 0124:33, VTS called Celestyal Crystal again and advised the chief mate “please come to your starboard side immediately and pass with inbound vessel port to port, red to red clearly.” The chief mate replied “it’s not possible now to go to starboard, negative sir.” The VTS replied with a series of successive questions, “what is your intention?”, “where are you proceeding?”, followed by an immediate advice to “come to your starboard side immediately” and “pass with the inbound tanker port to port.”

Soon after, the VTS asked twice again, “where are you proceeding, Celestyal Crystal?” Following these questions, VTS called STI Pimlico to “take all necessary precautions, in order to avoid a collision.” Immediately, VTS insisted again with
Celestyal Crystal, “where are you proceeding?” Following a confirmation from STI Pimlico’s OOW that he had already taken precautions, VTS asked Celestyal Crystal again to “…be clear from the inbound tanker.”

At 0125:17, STI Pimlico’s bearing remained almost stationary at 034º but the distance had decreased to 0.38 nm, whereas the bearing and range to Emona was 087º and 0.57 nm respectively (Figure 9). The chief mate then put the propeller pitch to full astern and ordered the helmsman initially to come to hard-a-port. He then realised that this was a mistake, and countermanded the order to hard-a-starboard. The speed of Celestyal Crystal was 14.5 knots.

![Figure 9: Positions of vessels at 01:25:17 (48 seconds before collision)](image)

At 0126:05, Celestyal Crystal’s bow came in to contact with the port side of STI Pimlico almost at right angles, at a speed of 11.5 knots (Figure 10).
1.5.1.2 Post collision events

The master returned to the bridge less than a minute after the collision, having felt the impact in his cabin. As he entered the bridge, he noticed that the two ships were still together, but within seconds the tanker started to swing to starboard and the two ships disengaged. The master reported the collision to VTS and stated that he was checking his vessel for damage.

The ship was stopped in the water and the staff captain and safety officer went to assess the damage. The staff captain checked the collision bulkhead and reported to the master that it was intact with no ingress of water. They then checked the bow thruster compartment on deck no. 2 and found it was dry. Inspection of the impact area showed considerable damage to the starboard bow, but starting two metres above the waterline. The damage assessment party could find no evidence of water entering the ship. The carpenter was instructed to sound all tanks.
The master looked from the starboard bridge wing and could see damage to the starboard bow and the decks forward (Figure 11). The forward deck on deck 5 had been badly damaged in the collision. This area was one of the designated assembly stations\(^5\) for the passengers in the event of an emergency but now was no longer safe. As there were no reports of water ingress and one of the main assembly stations was unsafe, the master made the decision not to sound the General Emergency Signal\(^6\).

At 0134, having received confirmation that the damage to the ship was above the waterline the master made an announcement to the passengers advising them that the ship had been involved in a collision, the damage had been checked and that there was no danger to the vessel. The announcement was subsequently repeated in five different languages to take in to account the multiple passenger nationalities, \textit{i.e.}, Greek, Spanish, French, Turkish and German.

The hotel manager summoned his team and they patrolled all decks and reassured the passengers. Other than a few passengers in the night club, most passengers were in

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\(^5\) A designated area where passengers muster in the event of an emergency on board.

\(^6\) The General Emergency Signal calls all passengers and crew to their emergency stations.
their beds at the time of the collision. Whilst there was some concern voiced by several passengers, there was no sign of panic. A further announcement was made at 0200, including an instruction that smoking was prohibited due to the strong smell of petrol.

Further announcements were made to passengers, but there was a delay before a muster was made to safely account for all passengers and crew and ensure there were no injuries.

The master completed the ‘Collision Checklist’ contained in the SMS and contacted his office. He also requested for a pilot to take the ship to a safe anchorage. The pilot boarded at 0147 and at 0213 the vessel dropped anchor in 40°23.8´ N 26°39.6´ E.

![Figure 12: Celestyal Crystal at anchor](image)

At 0220, a Turkish patrol boat arrived on scene to inspect the damage. The master boarded the patrol boat and when he returned, he made a further announcement at 0247 confirming that the vessel was safe and at anchor.

On 02 June 2015, *Celestyal Crystal* completed her temporary repairs and proceeded to Perama, Greece for permanent repairs.
1.6 Injuries

Despite the force of the collision being sufficient to wake everyone and cause most drawers to open and items to fall off shelves, only four injuries were reported. The two crew members and two passengers were initially seen by the ship’s doctor and subsequently sent ashore to hospital for further examination. The hospital confirmed that all four injuries were strain related injuries.

1.7 Damages to Celestyal Crystal

Celestyal Crystal sustained damage to her starboard bow (Figures 13a-d and 14) that included:

- Deck 2 damage to steelwork from frame 172 to fore end;
- Deck 3 damage to steelwork from frame 173 to fore end;
- Deck 4 damage to steelwork from frame 181 to fore end;
- Deck 5 damage to steelwork from frame 179 to fore end; and
- Internal damage to bulbous bow but no leaks or cracks.
Figure 13a: Damages to the bow
Figures 13b-d: Damages to the bow and forecastle area

Figure 14: Repairs to the bow
1.8 Çanakkale Bogazi (The Dardanelles)

The Sea of Marmara links the Mediterranean to the Black Sea. At the Southwestern end is the Çanakkale Bogazi (The Dardanelles) and at the Northeastern end of the Strait is the Bosporus (Figure 15). The Strait can be entered at any time and there are no draft restrictions, although vessels over 200 m in length or over 15 m draught are advised to pass through the Strait during daylight hours. Pilotage is not compulsory for vessels transiting the entire Strait, however, it is strongly advised because of strong currents and high density of traffic. A Traffic Separation Scheme (TSS) operates in the Strait and is supported by a Vessel Traffic Service (VTS) (Figure 16).

![Figure 15: Canakkale Bogazi (The Dardanelles)](image-url)
The Turkish Strait Marine Traffic Regulations, which are in force since 1998, is the legislation which regulates the traffic in the Turkish Strait. According to this legislation, there are specific requirements for tankers of over 150 m and all ships which are longer than 200 m.

All ships longer than 200 m and tankers between 150 m and 200 m are subject to planning for their passage through the Çanakkale Strait which must be communicated to the VTS, 24 hours before the entry into the Strait. Entry and exit for the Strait have to be also communicated to the VTS. *Celestyal Crystal* had complied with these requirements. Tankers of over 200 m, all vessels over 300 m and towing vessels shall pass only during daytime. Tankers of over 150 m (but less than 200 m) may pass through the Çanakkale Strait during daytime and at night, on condition that during this passage, there should not be a tanker, which is longer than 150 m, and that is sailing in the opposite direction.

*STI Pimlico* had to wait at anchorage due to the Northbound tanker traffic in the Strait. During this time, there were totally three tankers waiting at anchorage.

The speed limit in the Turkish Strait is 10 knots. However, if the vessel steerage at this stage is compromised, it can be increased after consulting with the VTS.

Figure 16: Area where collision occurred
Ships navigating the Turkish Strait are required to keep a safe distance of eight cables from the ships sailing ahead. VTS can ask ships to increase this distance, depending on the type of ship. Slow ships are required to keep as much to the starboard side of the traffic lane as possible, so as to allow faster ships to overtake them. However, vessels shall not overtake other vessels unless there is a necessity; should there be the necessity to overtake a slow ship, the overtaking ship is required to inform the VTS. VTS provides information on the traffic conditions and if the circumstances are safe enough, the ship ahead is informed accordingly. Overtaking manoeuvres should ideally be carried out while ships are on a straight line course.

Overtaking is forbidden between Nara and Kilitbahir Points\(^7\).

### 1.9 The Collision Regulations

The following rules taken from the International Regulations for Preventing Collisions at Sea 1972 (as amended) (Colregs), are relevant to this accident.

- Rule 5 Lookout;
- Rule 7 Risk of collision;
- Rule 8 Action to avoid collision;
- Rule 10 Traffic Separation Schemes;
- Rule 13 Overtaking vessels;
- Rule 16 Action by the give-way vessel;
- Rule 17 Action by the stand-on vessel.

\(^7\) The collision occurred outside these limits.
2 SAFETY INVESTIGATION ACTIVITIES

As soon as the accident was notified to the MSIU on 27 June 2015 at 02:33, arrangements were made for an MSIU representative to be deployed to the accident site. The safety investigator interviewed relevant members of the crew. Other information was also gathered, including documentary evidence.

The MSIU is continuing with the analysis of a range of evidence relevant to this occurrence. Based on the information already available, the MSIU safety investigation will be focusing on several areas including:

- Fatigue and Alcohol;
- Overview of the Traffic;
- Actions of the OOWs and Situation Awareness;
- Look-out;
- Risk of Collision and Action to Avoid Collision;
- Ergonomics of Navigational Equipment;
- Bridge Team Management;
- Actions to Inform passengers After the Collision;
- Post Collision Support to the Master; and
- Actions by STI Pimlico.