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“The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an such investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame.”

**NOTE**

This report is not written with litigation in mind and, pursuant to Regulation 14(14) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012, shall be inadmissible in any judicial proceedings whose purpose, or one of whose purposes is to attribute or apportion liability or blame.

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## Collision between the ro-ro passenger ferry *Red Falcon* and the motor cruiser *Phoenix* Thorn Channel, Southampton, England 29 September 2018

### SUMMARY

On 29 September 2018, the UK registered roll-on roll-off passenger ferry *Red Falcon* and the privately-owned motor cruiser *Phoenix* collided in the Thorn Channel, Southampton, England. Both vessels were heading for Cowes on the Isle of Wight. The ferry was carrying 20 crew and 182 passengers, and the motor cruiser had four persons on board. *Phoenix* was pinned against the ferry's bow for 18 seconds and was seriously damaged. *Red Falcon* was not damaged. There were no injuries and no pollution.

The MAIB investigation identified that the lookout on both *Red Falcon* and *Phoenix* was solely by eye. However, *Red Falcon*'s bridge team did not see the motor cruiser on the starboard bow due to their focus on a sailing vessel close on the port side, which was potentially impeding the next intended course alteration. *Phoenix* was also obscured by the sun's glare. *Phoenix*'s owner did not see the ferry approaching on the motor cruiser's port quarter because he was looking ahead.

Image courtesy of Phil Rowley ([www.marinetraffic.com](http://www.marinetraffic.com))



*Red Falcon*

Following the accident, an internal investigation by the Southampton Isle of Wight and South of England Royal Mail Steam Packet Company Limited, *Red Falcon*'s owner, identified several areas of navigational watchkeeping practice to be improved. In view of this action, no recommendations have been made.



*Phoenix*

# FACTUAL INFORMATION

## Narrative

At 1600<sup>1</sup> on 29 September 2018, the ro-ro passenger ferry *Red Falcon* departed Southampton with 182 passengers on board for a routine crossing to East Cowes, Isle of Wight. On the bridge were the master, who had the conn, and a deckhand, who was steering the vessel and controlling the speed. At the same time, the 10m motor cruiser *Phoenix* departed Hamble, Hampshire, with its owner at the helm accompanied by three adults. The motor cruiser was also bound for Cowes. It was a clear, bright sunny day with a light easterly wind and good visibility.

At 1627, *Red Falcon*'s master called Southampton VTS<sup>2</sup> on VHF<sup>3</sup> channel 12 to advise that the ferry was passing the Hook buoy (**Figure 1**). The ferry was making good a course of 140° at 13.5 knots (kts)<sup>4</sup>. Meanwhile, the chief officer took over from the deckhand, and sat down behind the central propulsion control console. The master was seated on the starboard side of the bridge (**Figure 2**).

By that time, *Phoenix* had crossed the main channel at about 8kts and was southbound to the west of Castle Point buoy (**Figure 1**). Between 1627 and 1632, VTS radar tracking, which was intermittent, indicated that the motor cruiser's speed was briefly reduced at some point, resulting in an average speed of 6kts for the period.

At 1632 *Red Falcon* passed to the east of Castle Point buoy (**Figure 3**) and an unknown motor cruiser passed down the ferry's starboard side. Moments later, the ferry commenced a slow turn to starboard into the Thorn Channel. During the turn, the master and chief officer discussed the fine weather and several small slow-moving recreational craft on the Calshot

Reproduced from Admiralty Chart 2038 by permission of HMSO and the UK Hydrographic Office

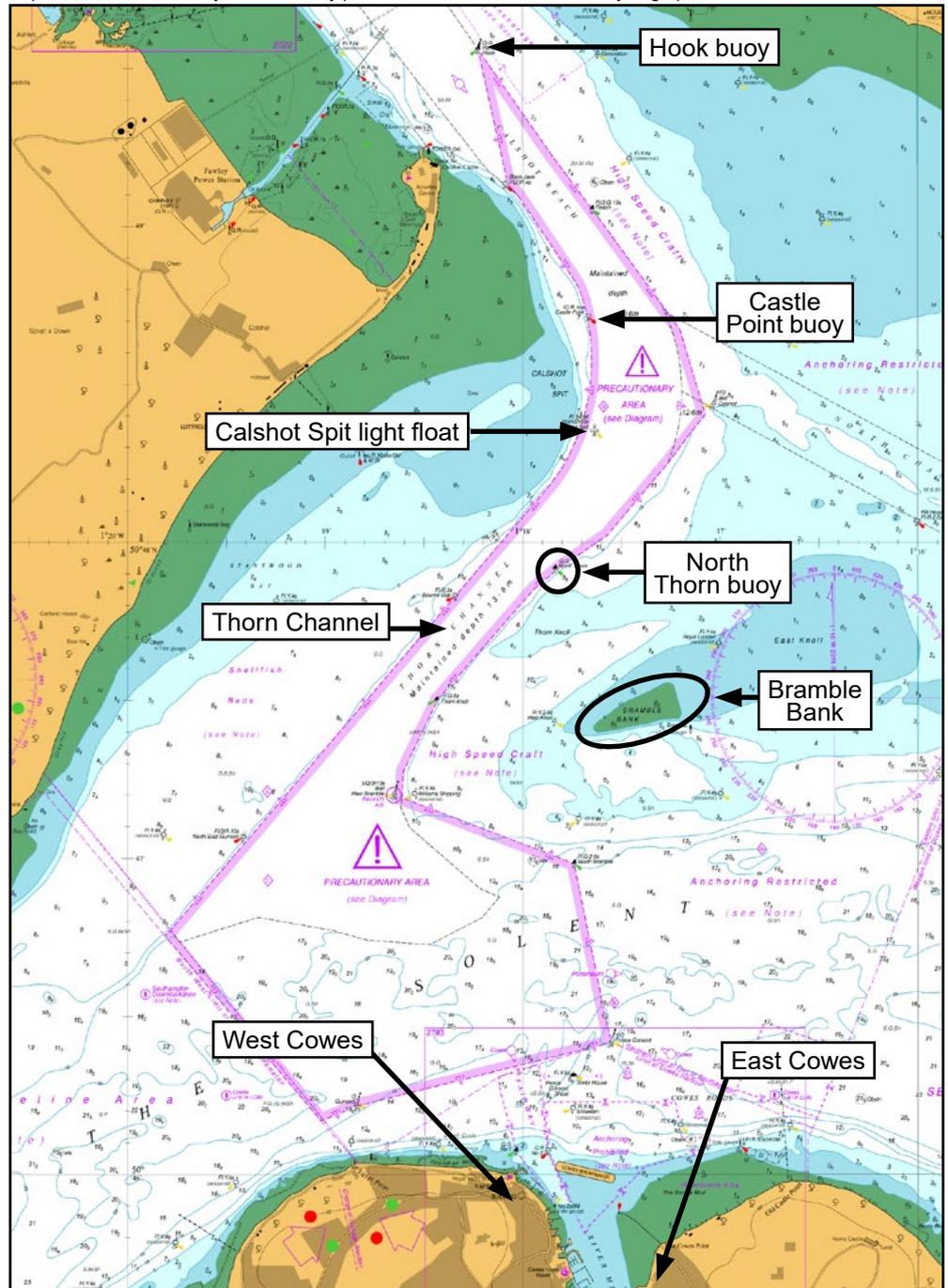


Figure 1: Extract of Admiralty chart 2038

<sup>1</sup> All times are UTC+1

<sup>2</sup> Vessel Traffic Service

<sup>3</sup> Very High Frequency

<sup>4</sup> All courses and speeds are 'over the ground'



**Figure 2:** Red Falcon's bridge at 1627 (CCTV image)



**Figure 3:** VTS radar at 1632

Spit Bank to the west of the channel. None of these vessels were assessed to be a potential problem. At the time, *Phoenix* was southbound to the west of the Calshot Spit light float and was making good approximately 6.5kts.

*Phoenix* entered the Thorn Channel at 1634.16, making good 188° at 7.3kts. The motor cruiser's skipper was at the helm looking ahead, one of the passengers was seated on the port side of the cockpit facing the skipper and the two remaining passengers were in the cabin below.

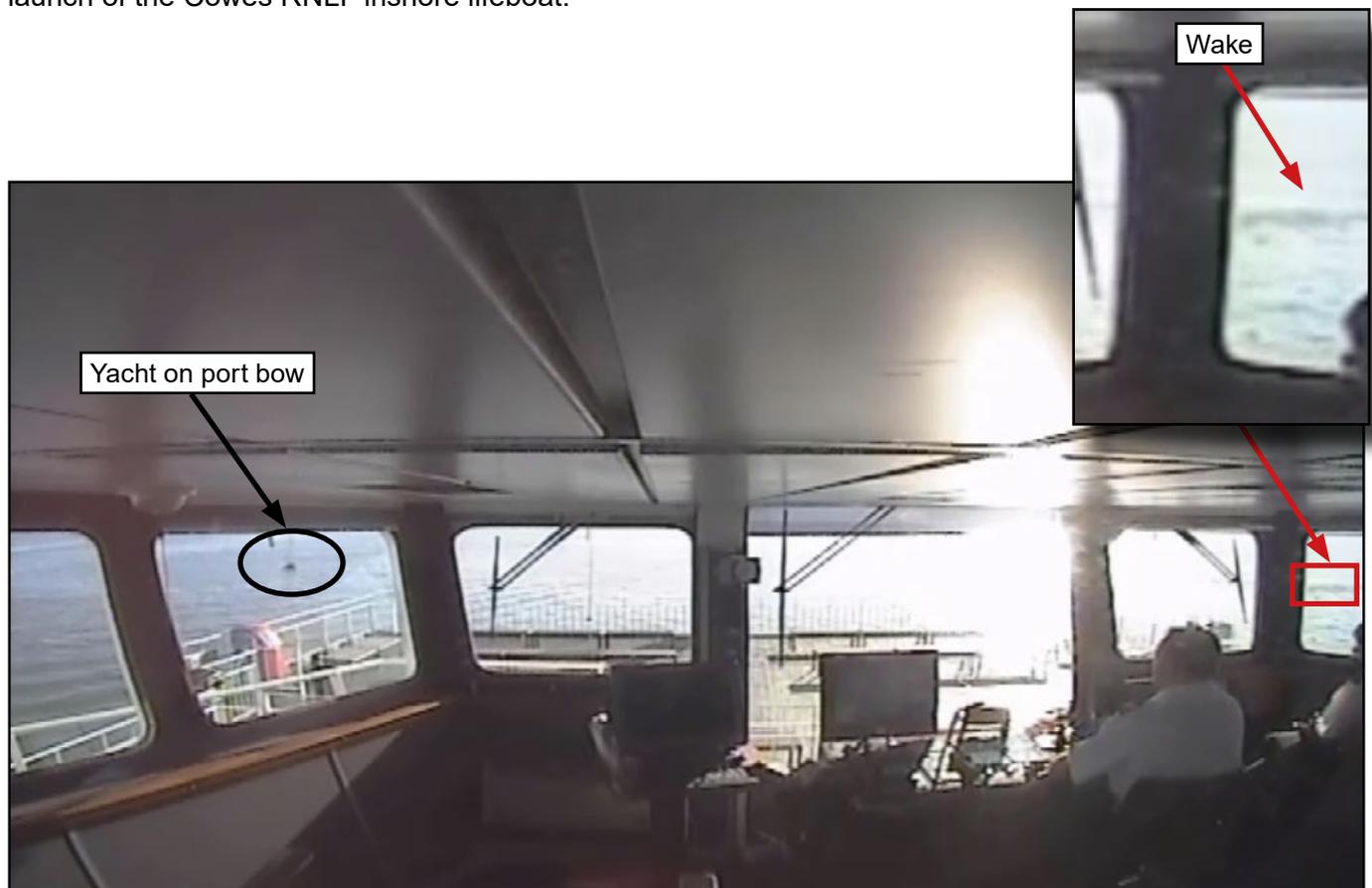
At 1634:30, *Red Falcon's* chief officer steadied the ferry in the Thorn Channel on a heading of about 216°. The bright sun was now about 25° off the starboard bow with significant glare being reflected off the water. However, the master, who was using sun shades over prescription glasses, intended that the ferry remain on this heading for only a very short period before turning to the south to pass west of the North Thorn buoy. He and the chief officer, both of whom remained seated, were aware of a yacht on the port bow (**Figures 4 and 5**) and decided not to turn to the south before the yacht was sufficiently clear down the ferry's port side.

At 1635:25, *Red Falcon* started to turn to port (**Figure 6**). Seconds later, the starboard side of the ferry's bow collided with *Phoenix's* port side. The motor cruiser was pinned against the ferry's bow for about 18 seconds during which time it was pushed over to starboard to an angle of approximately 40° (**Figure 7**).

## Post-collision events

### Phoenix

As *Phoenix* detached from *Red Falcon's* bow, the motor cruiser immediately returned upright and was left in the ferry's wake. Several small nearby vessels quickly closed to assist and found *Phoenix's* occupants shaken but uninjured. The yacht *Tinkerbelle* alerted Solent Coastguard, which requested the launch of the Cowes RNLI<sup>5</sup> inshore lifeboat.



**Figure 4:** Image from *Red Falcon's* bridge CCTV at 1634

<sup>5</sup> Royal National Lifeboat Institution

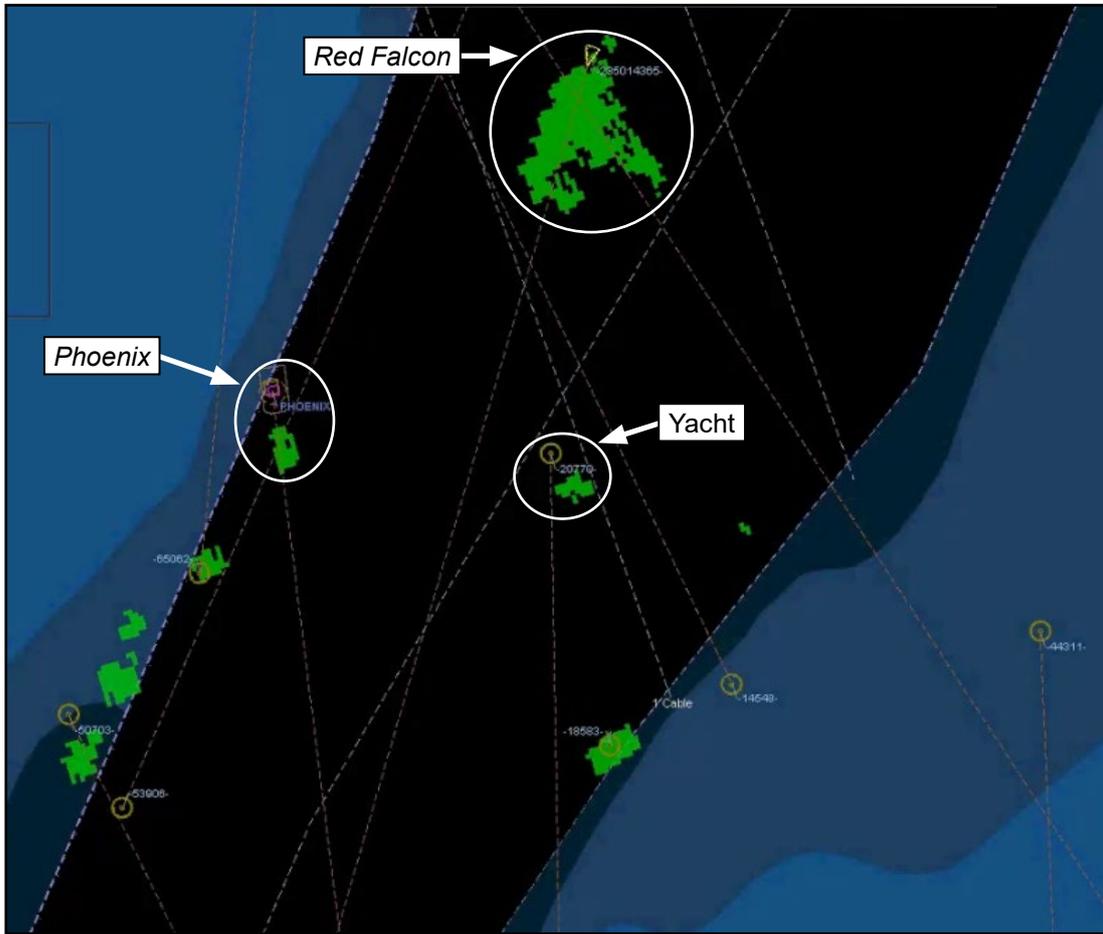


Figure 5: VTS radar at 1634.31

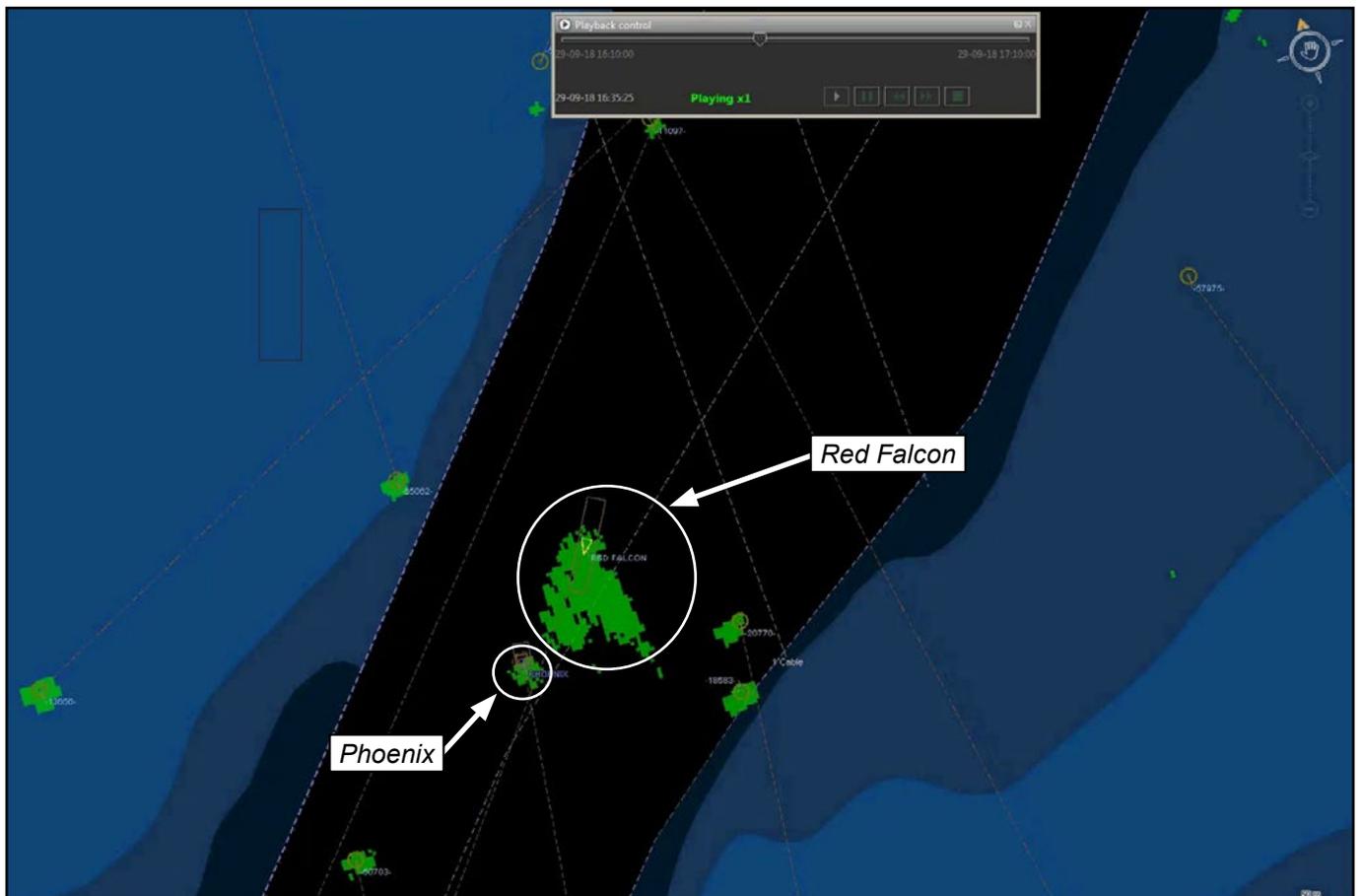


Figure 6: VTS radar image at 1635.25



**Figure 7:** *Red Falcon* and *Phoenix* collision at 1635.41

*Phoenix*'s starboard engine had stopped and could not be re-started. However, the motor cruiser was able to continue its passage to Cowes using its port engine and escorted by the lifeboat. At 1720, *Phoenix* moored alongside Shepherd's Wharf in West Cowes, where it was met by the Cowes harbourmaster. *Phoenix*'s owner appeared to be coherent and not under the influence of alcohol.

### [Red Falcon](#)

*Red Falcon*'s master and chief officer were unaware of the collision and continued to turn the ferry to port. Meanwhile, several of the ferry's passengers who had witnessed the collision from an upper deck, alerted the onboard service manager. At 1644, the service manager went to the bridge and relayed the passengers' reports to the master and chief officer. The master and chief officer felt sure that *Red Falcon* had not been involved in a collision and, as the ferry was already committed to entering the River Medina in a strong tidal stream, decided to continue into East Cowes.

At 1653, *Red Falcon* berthed at East Cowes where the master and chief officer reviewed the ferry's CCTV<sup>6</sup> recordings. Footage of the collision was found (**Figure 7**) and a check for damage identified marks and debris on the ship's forward belting. At 1715, the master informed Southampton VTS and Red Funnel's Head of Ferry Operations of the collision. The ferry then sailed for Southampton, where its master and chief officer were tested for drug and alcohol use on arrival. The test results were negative.

### **Damage**

Damage to *Phoenix* included a 5m split in the hull to deck join, hull deformation, and detachment of sections of superstructure. The motor cruiser was declared a total constructive loss by its insurers. *Red Falcon* was not damaged.

### **Vessels**

#### [Red Falcon](#)

*Red Falcon* was one of three Raptor Class ro-ro passenger ferries, owned and operated by The Southampton Isle of Wight and South of England Royal Mail Steam Packet Company Limited, commonly known as Red Funnel. The company operated approximately 11,800 Raptor ferry services a year between Southampton and Cowes.

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<sup>6</sup> closed-circuit television

*Red Falcon* was of double-ended design with controls and equipment duplicated at both ends of the bridge to enable travel in either direction. Propulsion and steering were provided by two, five-bladed Voith Schneider units.

Bridge equipment included an X-band radar display with ARPA<sup>7</sup>, and an ECS<sup>8</sup>. The radar and the ECS displayed AIS<sup>9</sup> targets and were sited to the left of the propulsion and steering controls (**Figure 2**). On 29 September, the radar was set to relative motion with either the 1.5nm or 3nm range scale selected. It was also off-centred to maximise the look ahead distance.

A CCTV monitor, capable of simultaneously displaying images from up to four cameras, was fitted on the starboard console in front of the master's chair. The primary uses of the CCTV monitor were to assist with berthing, and incident review.

The bridge had good all-round visibility through framed windows, some of which were fitted with type-approved anti-glare solar blinds. The shadow zone<sup>10</sup> ahead of the ferry was 65m.

### [Phoenix](#)

*Phoenix* was a privately owned, 10m Doral motor cruiser that was built in 2005. The boat was powered by two Mercury Mercruiser diesel engines and was capable of speeds up to 35kts. *Phoenix* carried an electronic chart plotter but was not fitted with an AIS transceiver or a VHF radio. The helm and cockpit area was covered by a canvas, open-backed canopy.

### [Crews](#)

#### [Red Falcon](#)

*Red Falcon*'s master and chief officer held appropriate qualifications for their positions on board. The master was 61 years old and had worked for Red Funnel as a full-time master on the Raptor ferries since 2012. The chief officer was 25 years old and had worked periodically for Red Funnel since 2014. Both worked 13-hour shifts in a duty cycle of 4 days on followed by 4 days off.

29 September was the first day of the master and chief officer's duty period and they had joined *Red Falcon* at 1230 in Southampton. The master and the chief officer had completed one round trip to Cowes prior to the accident.

#### [Phoenix](#)

*Phoenix*'s owner was 56 years old and had purchased the motor cruiser in 2016. He had owned several boats previously and had been boating in the Solent since 2001. The owner did not hold any boating or marine qualifications and had no knowledge of local regulations and guidance. His understanding of the COLREG's<sup>11</sup> was limited to an awareness that vessels approaching from behind were required to keep clear.

The passengers on board *Phoenix* were the owner's wife and extended family. Before departing for Cowes, the group had eaten a pub lunch in Hamble during which the owner had consumed 2 pints of beer (4.8% abv<sup>12</sup>). As one of the group was nervous about boating, the owner had kept *Phoenix*'s speed significantly slower than usual during the passage to Cowes.

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<sup>7</sup> Automatic Radar Plotting Aid

<sup>8</sup> Electronic Chart System

<sup>9</sup> Automatic Identification System

<sup>10</sup>A shadow zone is the area ahead of a vessel that is obscured from the view from the bridge conning position by the vessel's structure or cargo. The zone will vary depending on height of eye and position on the bridge

<sup>11</sup> International Regulations for Preventing Collisions at Sea 1972

<sup>12</sup> Alcohol by volume

## The Solent

The Solent separates the Isle of Wight from the UK mainland. It is a busy commercial shipping area, with the shallows of Bramble Bank combined with unique tidal patterns constraining many larger vessels to the deep-water channels. The area is also extremely popular with recreational boaters of all types and water sport enthusiasts.

Associated British Port (ABP) Southampton is the statutory harbour authority for the Solent. In April 2014, it issued a guidance leaflet<sup>13</sup> for leisure users to help deconflict leisure craft and commercial traffic. The leaflet included the following advice:

- *Be alert. Keep a good lookout at all times, especially astern!*
- *Avoid crossing the bows of on-coming commercial traffic.*
- *Avoid ship channels when possible. Cross them quickly and at right angles.*
- *Recreational users of the port must familiarise themselves with, and observe, the COLREGS, Port of Southampton Bye-Laws and Local Notice to Mariners.*

The leaflet also showed the recommended points for leisure craft to cross the Thorn channel. ABP's Notice to Mariners No 02 of 2016 repeated that small vessels<sup>14</sup> should cross the main shipping channels at right angles.

## ANALYSIS

### The collision

Reconstruction of the tracks of *Red Falcon* and *Phoenix* in the Thorn Channel (**Figure 8**) shows that when the ferry steadied on a heading of about 216° at 1634:30, the motor cruiser had just entered the channel. The ferry was overtaking the motor cruiser, which was within 0.2nm on a bearing of 240°, with a speed advantage of about 6kts. The bearing of *Phoenix* from *Red Falcon* remained steady as the distance between the vessels reduced until the vessels collided at an angle of between 30° and 40°. No avoiding action was taken on board either vessel because *Red Falcon*'s master and chief officer were unaware of *Phoenix*, and the driver and other occupants of the motor cruiser were unaware of the ferry.

### Lookout on board *Red Falcon*

Only a visual lookout was maintained on board *Red Falcon*, which was usual practice given the visibility and traffic density, and *Phoenix* was one of several small recreational craft on Calshot Spit Bank (**Figure 3**) that were discussed by the ferry's bridge team during the turn into the Thorn Channel. The master's assessment that none of these craft were of concern was probably based on their slow speed, that they were outside the main channel, and that the ferry would be steadying on its new heading for only a short period. He did not notice that *Phoenix*, which had seemingly briefly reduced speed between 1627 and 1632, was making good almost 8kts and was also entering the Thorn Channel. Consequently, as *Red Falcon* was steadied on about 216° at 1634:30, the bridge team's attention turned to the yacht on the ferry's port bow (**Figures 4 and 5**) that was impeding the next intended course alteration to the south. In addition to watching the yacht, the chief officer would also have been concentrating on steadying and keeping the ferry on its new heading.

Between 1634 and the collision just before 1636, not only was *Red Falcon*'s bridge team's focus largely to port, but also their view of *Phoenix* during this period was obscured by the sun's glare. The low sun (19°) was bearing 240° and therefore coincident with the bearing of *Phoenix* from *Red Falcon*. Although

<sup>13</sup> [http://www.southamptonvts.co.uk/admin/content/files/PDF\\_Downloads/Yachtsmans-guide-LowRes.pdf](http://www.southamptonvts.co.uk/admin/content/files/PDF_Downloads/Yachtsmans-guide-LowRes.pdf)

<sup>14</sup> Southampton Harbour Byelaws defines a small vessel as any vessel of less than 20 metres in length or a sailing vessel

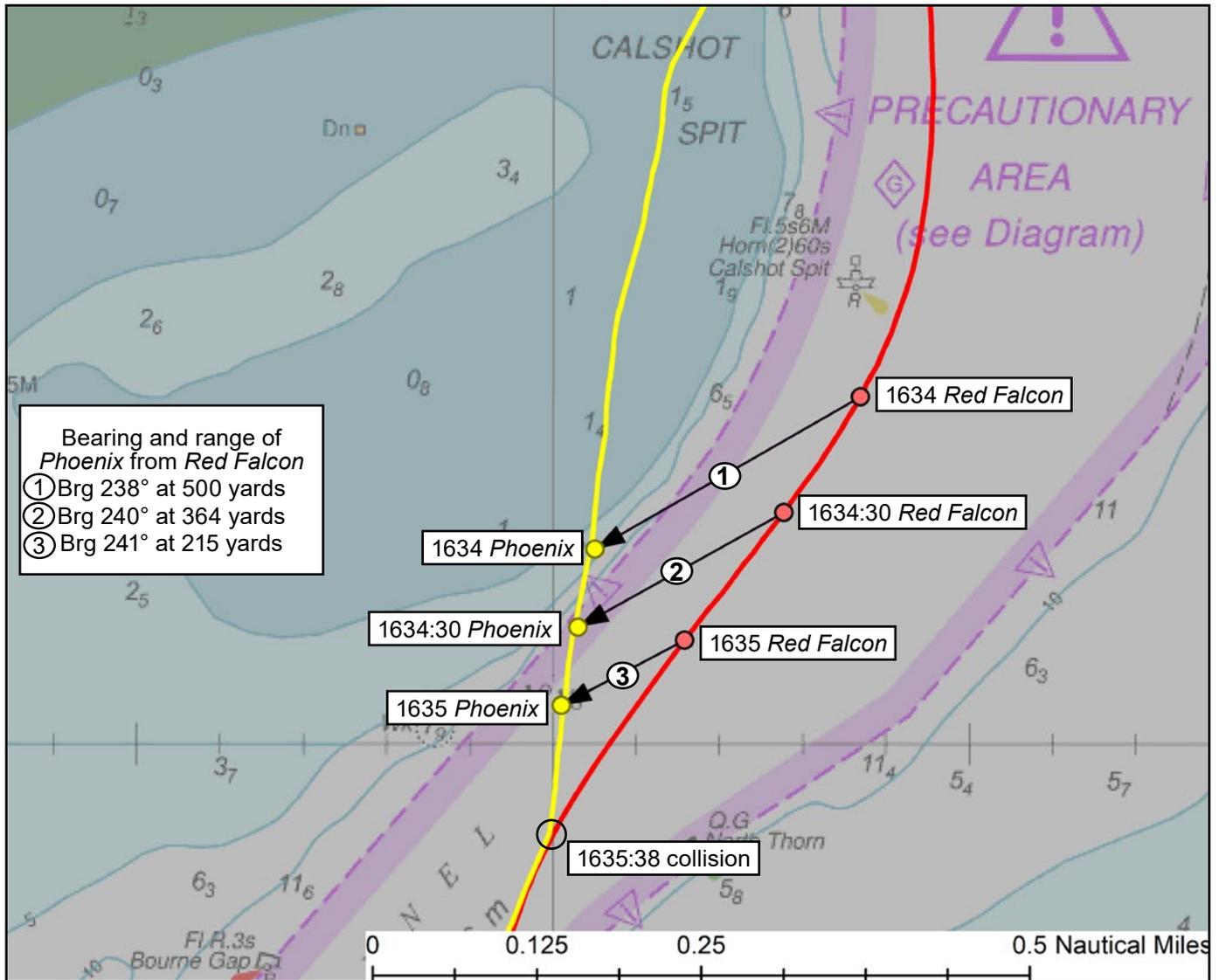


Figure 8: Red Falcon and Phoenix track history

the master wore sun shades over prescription spectacles, without the sun blinds, which were not used because of the imminent alteration of course to port, Phoenix would have been very difficult to see. Replay of the CCTV recordings indicated that Phoenix emerged from the sun's glare (Figure 9) only 14 seconds before it was lost from view as it entered the shadow zone ahead.

From the master and chief officer's seated positions, the shadow zone ahead was extended beyond 65m and the likelihood of Phoenix and its wake (Figure 4) being obscured by the window frames on the starboard side of the bridge (Figure 2) was also increased. In addition, both officers were unable to effectively monitor the radar display. Given the bridge layout and the adverse impact of the sun on effective visual lookout, it would have been appropriate for at least one of the bridge team to stand up and frequently check blind spots and the radar.

### Actions on board Phoenix

When Phoenix entered the Thorn Channel, the motor cruiser's owner/driver was only looking ahead, and none of the boat's passengers were in positions from which Red Falcon could be seen. Consequently, neither the owner nor the passengers were aware of the ferry's proximity until it hit them.

Phoenix's owner had been a recreational boater in the Solent for 17 years, but he was used to travelling at much faster speeds in his motor cruiser and was not cognisant of the potential hazards posed by driving into the Thorn Channel at a relatively slow speed and at a shallow angle without first looking



**Figure 9:** *Red Falcon's* bridge at 1635.07 (CCTV image)

astern for other traffic. Although the owner's understanding that overtaking vessels were obliged to keep clear was in line with the COLREGs, his assumptions that *Phoenix* would be seen, and that all overtaking vessels were able to manoeuvre to keep clear, were misplaced.

The guidance provided by ABP to recreational boaters in the Solent, which is aimed at deconflicting the movements of recreational craft and commercial shipping, is clear and comprehensive. However, although such guidance is readily available on ABP's website, and is disseminated through various sailing and boating clubs, the actions of *Phoenix's* owner indicates there are recreational boaters in the Solent that the guidance has yet to reach.

### **Improving situational awareness**

In busy waters such as the Solent, which accommodates large numbers of recreational craft and commercial shipping movements, the importance of maintaining an effective visual lookout is paramount. In this case, the visual lookout was not supported by radar due to the good visibility and other means of supporting situational awareness were not available.

*Phoenix* was not fitted with an AIS transceiver or a VHF radio, both of which are routinely carried on many recreational craft. An AIS transceiver would have enabled the display of *Phoenix* as an AIS target on *Red Falcon's* ECS, which was readily visible to the ferry's chief officer, and the display of *Red Falcon* as an AIS target on board *Phoenix*. Similarly, a VHF radio would have alerted the motor cruiser's owner to the ferry approaching from the north when its master reported to VTS on passing the Hook buoy at 1627.

However, one means of maintaining situational awareness that was available but was not used on this occasion, was sound signals. As *Red Falcon* started to turn into the Thorn Channel at 1632, the ferry was not obliged to make a sound signal as the manoeuvre was a planned alteration rather than a manoeuvre 'authorized or required' by the COLREGS<sup>15</sup>. Nonetheless, given the proximity of the vessels on Calshot Spit Bank (**Figure 3**), the sounding of one short blast could have alerted their occupants, including *Phoenix's* owner, to the ferry's presence and intended movement.

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<sup>15</sup> COLREGS Rule 34 'Manoeuvring and warning signals'

## CONCLUSIONS

- No action to avoid collision was taken on board either *Red Falcon* or *Phoenix* because the ferry's master and chief officer did not see the motor cruiser closing on the starboard bow, and the driver and passengers on board *Phoenix* did not see the ferry approaching on the motor cruiser's port quarter.
- *Red Falcon's* master and chief officer were focused on a yacht off the port bow, and the sun's glare on the starboard bow would have made *Phoenix* very difficult to see.
- The effectiveness of the lookout maintained on *Red Falcon's* bridge was reduced because the master and chief officer remained seated throughout the vessel's transit through the Solent, and did not lower the bridge window sun screens.
- From their seated positions, the master and chief officer could not monitor radar targets or check the blind arcs created by the bridge's window frames.
- *Phoenix's* owner did not see *Red Falcon* because he did not look astern for other traffic when entering the Thorn Channel at a shallow angle. His knowledge of the COLREGS was very limited and he was not aware of local guidance intended to deconflict recreational craft and commercial shipping.

## ACTION TAKEN

The **Southampton Isle of Wight and South of England Royal Mail Steam Packet Company Limited** has:

- Completed its own investigation report, which made recommendations connected with bridge manning, bridge watchkeeping procedures, the use of window blinds and the positioning of radar displays, which are intended to improve navigational watchkeeping practices.
- Issued a circular to all staff warning of the dangers of repetitive tasks and a fleet-wide letter regarding the conduct of navigation.

## RECOMMENDATIONS

In view of the actions taken, no recommendations have been made

## SHIP PARTICULARS

Vessel's name	<i>Red Falcon</i>	<i>Phoenix</i>
Flag	British	Not applicable
Classification society	Not applicable	Not applicable
IMO number	9064047	Not applicable
Type	Class IV passenger ro-ro ferry	Motor Cruiser
Registered owner	Southampton Isle of Wight and South of England Royal Mail Steam Packet Company Limited (known as Red Funnel)	Private
Manager(s)	As above	Not applicable
Year of build	1994	2005
Construction	Steel	Glass Reinforced Plastic
Length overall	93.22m	10.11m
Gross tonnage	4128	Not applicable
Minimum safe manning	8	Not applicable

## VOYAGE PARTICULARS

Port of departure	Southampton, UK	Hamble, UK
Port of arrival	Cowes, UK	Cowes, UK
Type of voyage	Commercial	Pleasure
Manning	8	Not applicable

## MARINE CASUALTY INFORMATION

Date and time	29 September at 1635	
Type of marine casualty or incident	Serious Marine Casualty	
Location of incident	Solent in position 50° 47.9'N 001° 18'W	
Place on board	Starboard side bow	Port side
Injuries/fatalities	None	None
Damage	None	Constructive total loss
Ship operation	On passage	On passage
Voyage segment	Transit	Transit
External & internal environment	Daylight with bright sun, good visibility and light winds. Predicted high water times in Southampton were 1420 and 1636, and the predicted tidal stream in the vicinity of the collision was ebbing to the south-west at 1.2kts.	
Persons on board	20 crew and 182 passengers	4