

Report on the investigation into
the grounding of

Pride of Canterbury

“The Downs” – off Deal, Kent

31 January 2008

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Extract from
The United Kingdom Merchant Shipping
(Accident Reporting and Investigation)
Regulations 2005 – Regulation 5:

“The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005 shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an 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 13(9) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005, 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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CONTENTS

Page

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

SYNOPSIS 1

SECTION 1 - FACTUAL INFORMATION 2

1.1	Particulars of <i>Pride of Canterbury</i> and accident	2
1.2	Background information	3
1.3	Narrative	3
1.4	Damage sustained	8
1.5	Manning – deck officers and master	11
1.6	Relevant Fleet Regulations	11
1.7	Primary means of navigation	12
1.8	Environmental conditions	12
1.9	The Downs	12
1.10	Training	14
1.10.1	Electronic chart system training	14
1.10.2	Bridge team management	14

SECTION 2 - ANALYSIS 15

2.1	Aim	15
2.2	Position monitoring and the use of the VMS	15
2.3	Contingency planning	16
2.4	Bridge team management	17
2.4.1	Distractions	17
2.4.2	Watch handover procedures	17
2.4.3	Speed and steerage way	18
2.4.4	Passage planning	18
2.4.5	Control of navigation	18
2.5	Fatigue	19
2.6	Similar accidents	19

SECTION 3 - CONCLUSIONS 20

3.1	Safety issues identified during the investigation which have resulted in recommendations	20
3.2	Safety issues identified during the investigation which have not resulted in recommendations but have been addressed	20

SECTION 4 - ACTIONS TAKEN 21

4.1	P&O Ferries	21
4.2	MAIB	21

SECTION 5 - RECOMMENDATIONS 22

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ARPA	-	Automatic Radar Plotting Aid
BTM	-	Bridge Team Management
COG	-	Course over Ground
con	-	Control of Navigation
CPP	-	Controllable pitch propeller
ECDIS	-	Electronic Chart Display and Information System
ECS	-	Electronic chart system
ENC	-	Electronic Navigation Chart
ENS	-	Electronic Navigation Systems
IHO	-	International Hydrographic Organization
IMO	-	International Maritime Organization
ISM Code	-	International Management Code for the Safe Operation of Ships and for Pollution Prevention
kts	-	knots
kW	-	kilowatt
LRS	-	Lloyd's Register of Shipping
MCA	-	Maritime and Coastguard Agency
MCR	-	Maximum Continuous Rating
MGN	-	Marine Guidance Note
MSC	-	Maritime Safety Committee (of IMO)
MSN	-	Merchant Shipping Notice
OOW	-	Officer of the Watch
QM	-	Quartermaster (helmsman)
RoPax	-	Roll on Roll off Passenger ferry

SMS	-	Safety Management System
SOG	-	Speed over the Ground
SOLAS	-	International Convention of Safety of Life at Sea
STCW	-	Standards of Training, Certification and Watchkeeping for Seafarers
TSS	-	Traffic Separation Scheme
UK	-	United Kingdom
UKHO	-	United Kingdom Hydrographic Office
UTC	-	Universal Co-ordinated Time
VDR	-	Voyage Data Recorder
VMS	-	Voyage Management System

Times: All times used in this report are UTC unless otherwise stated

Figure 1



Pride of Canterbury



SYNOPSIS

On 31 January 2008, the Roll on Roll off Passenger ferry, *Pride of Canterbury* (**Figure 1**), grounded on a charted wreck while sheltering from heavy weather in an area known as 'The Downs' off Deal, Kent. The vessel suffered severe damage to her port propeller system but was able to proceed unaided to Dover, where she berthed with the assistance of two tugs.

The vessel was on a scheduled crossing from Calais to Dover in severe weather when she learned that Dover Port was to be temporarily closed due to the weather and sea conditions. She proceeded to The Downs to wait for the reopening of the port.

The master instructed the bridge team to slow steam in the area and he gave verbal instructions on the geographic limits to be imposed. No formal passage plan was formulated and nothing was marked on the paper or electronic chart.

The vessel had been in the area for over 4 hours when, while approaching a turn at the northern extremity, the bridge team became distracted by a fire alarm and a number of telephone calls for information of a non-navigational nature. The vessel overshot the northern limit of the safe area before the turn was started. The officer of the watch (OOV) became aware that the vessel was passing close to a charted shoal, but he was unaware that there was a charted wreck on the shoal. The officer was navigating by eye and with reference to an electronic chart system which was sited prominently at the front of the bridge, but he was untrained in the use and limitations of the system. The wreck would not have been displayed on the electronic chart due to the user settings in use at the time. A paper chart was available, but positions had only been plotted on it sporadically and it was not referred to at the crucial time.

The vessel's owner has reviewed its training programme and implemented a number of measures to prevent a re-occurrence of the accident.

The MAIB has published a Safety Flyer, for circulation to ferry and other ship operators, which details the lessons learned from the accident and advises operators:

- To review their training requirements/provision with respect to the use of electronic chart systems, especially where a system that is not approved as the primary means of navigation is provided and sited prominently on the bridge.
- Where navigating bridges are the focus for frequent requests for non-navigation related information, to ensure that systems are in place to prevent watchkeepers from becoming distracted at critical times.
- To ensure that plans are in place to identify likely contingency areas in advance of the intended voyage, and that any dangers or hazards within these areas are clearly identified.
- Of the need to ensure that the principles of effective bridge team management are understood and practised by bridge teams at all times.

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *PRIDE OF CANTERBURY* AND ACCIDENT

Vessel details

Registered owner	:	P&O Ferries Ltd
Manager(s)	:	P&O Ferries Ltd
Port of registry	:	Dover
Flag	:	United Kingdom
Type	:	RoPax
Built	:	1991 Bremerhaven
Classification society	:	Lloyd's Register
Construction	:	Steel
Length overall	:	179.7m
Gross tonnage	:	30,635
Engine power / type	:	4 x Sulzer 8ZAL40S, total MCR 21,120kW
Service speed	:	21.00 kts
Other relevant info	:	Twin CPP propellers, each with a high lift Barkemeyer flap rudder Two bow thrusters each 2,000kW

Accident details

Time and date	:	1251 on 31 January 2008
Description and location of accident	:	Struck a chartered wreck, wire swept to depth of 1.8m, in position Lat 51 14.48 N Long 001 28.78E
Persons on board	:	275 passengers and 101 crew
Injuries/fatalities	:	None
Damage	:	Loss of the port propeller controllable pitch hub and about 1 metre of the tail shaft. Some distortion to the tail shaft tube, bearings and associated framing.

1.2 BACKGROUND INFORMATION

Pride of Canterbury is one of seven roll on roll off passenger ferries operated by P&O Ferries limited on the Dover to Calais route. In the winter, each ferry carries out 5 round trips daily, with each crossing lasting about 1½ hours.

Dover Harbour is protected by well designed harbour walls which enable the ferry traffic to keep operating in all but the severest of conditions. Adverse weather conditions caused Dover port to be closed to ferry traffic 5 times over a period of 3 days in 2007.

1.3 NARRATIVE

Pride of Canterbury left Calais for a scheduled crossing to Dover at 0703 on 31 January 2008. There were 275 passengers and 101 crew as well as a number of cars, lorries and trailers on board.

Despite strong winds of up to 50 knots being recorded from the south-west, the channel crossing was uneventful.

At 0812, when *Pride of Canterbury* was about 5 miles from Dover, Dover Port Control contacted the vessel to advise her that traffic movement into the harbour had been temporarily suspended due to winds with a sustained speed of 55 knots being experienced.

At 0815 *Pride of Canterbury* left the south west lane of the Dover Straits Traffic Separation Scheme and headed towards The Downs, an area off Deal in Kent, which P&O and other ferries use as a holding station when Dover Harbour is closed, due to the shelter provided there from the heavy seas experienced during storm force south-westerly winds. **(Figure 2)**

As the vessel approached The Downs, the master explained to the OOW that he wished for the vessel to steam slowly in the area, keeping 1 mile from the coast and clear of the other ferries that were already there. He did not specify any other limits, but it was the normal custom for ferries to avoid passing to the north of a line extending eastwards from Deal Pier and to avoid getting closer than 9 cables¹ to Goodwin Fork buoy. A little later, the master had clarified that he wished the turn on the northern leg to occur when off Deal Bank buoy **(Figure 3)**, and for the vessel to stay at least 1 mile clear of any shallows **(Figure 4)**.

Over the next 4 hours, the vessel steamed slowly in the area, generally running north to the area off Deal Bank buoy and then turning and running south to an area off South Foreland, before turning again onto the northern leg. During the morning, the officer in charge of the watch changed occasionally between the chief officer and the second officer as other duties dictated. The master visited the bridge periodically.

¹ cable = 0.1 nautical mile

Reproduced from Admiralty Chart 1828 by permission of the Controller of HMSO and the UK Hydrographic Office

Figure 2

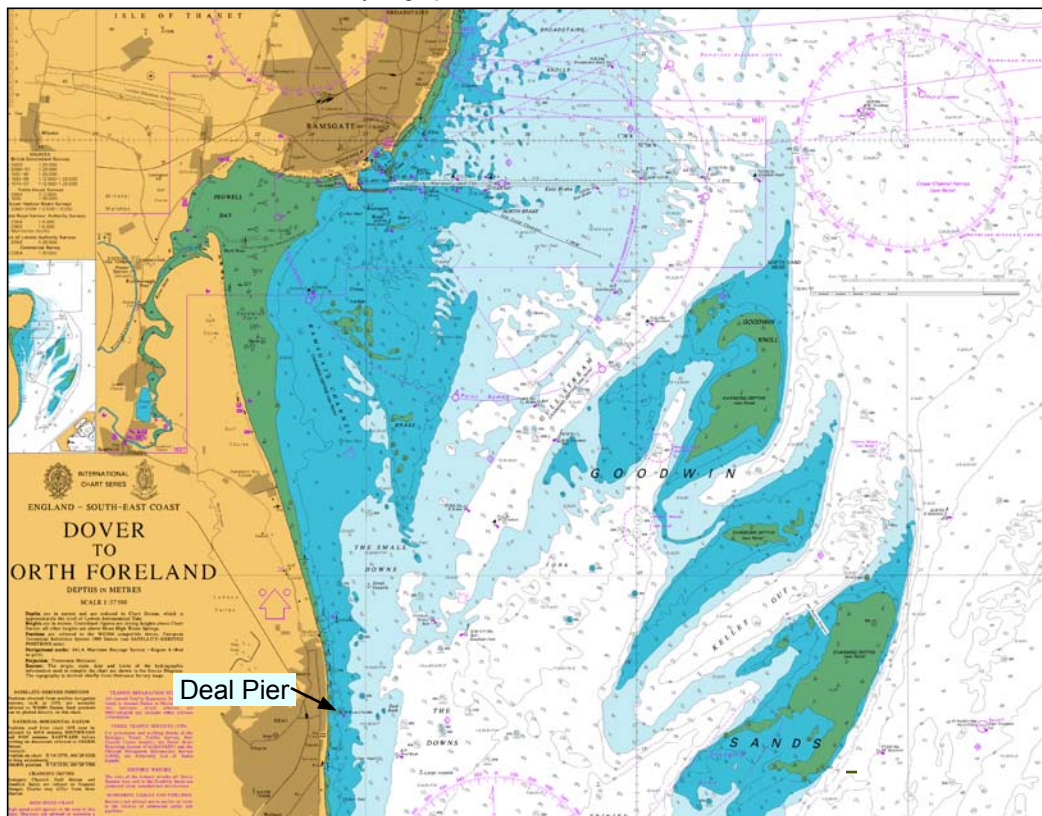
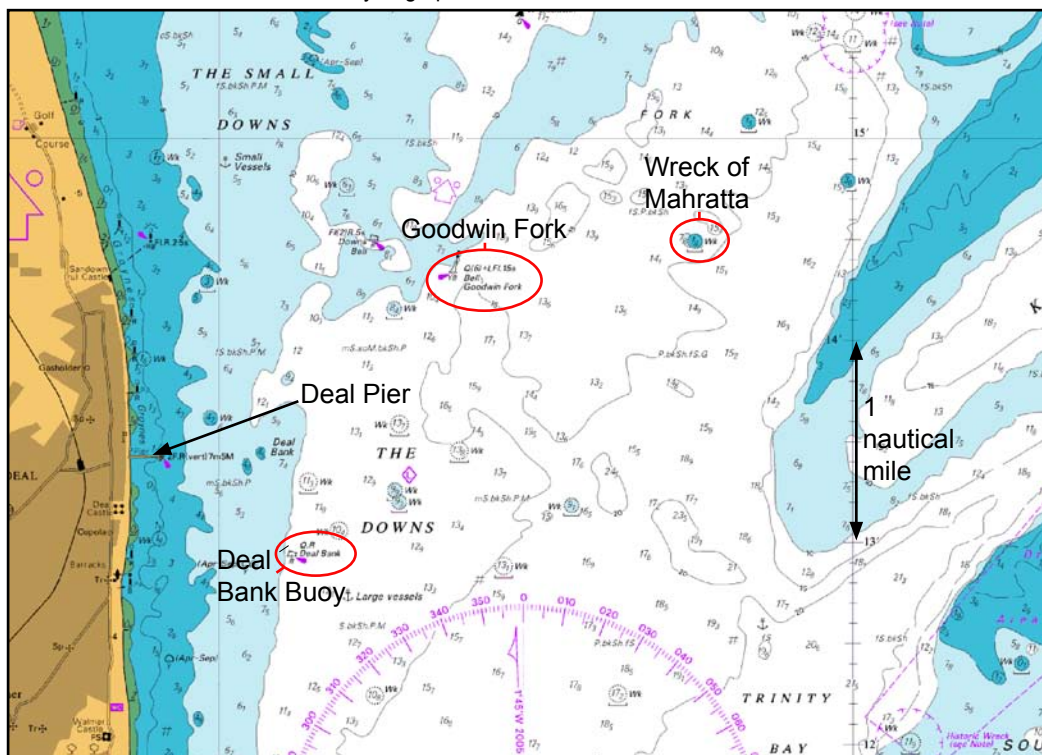


Chart showing general detail of The Downs area off Deal

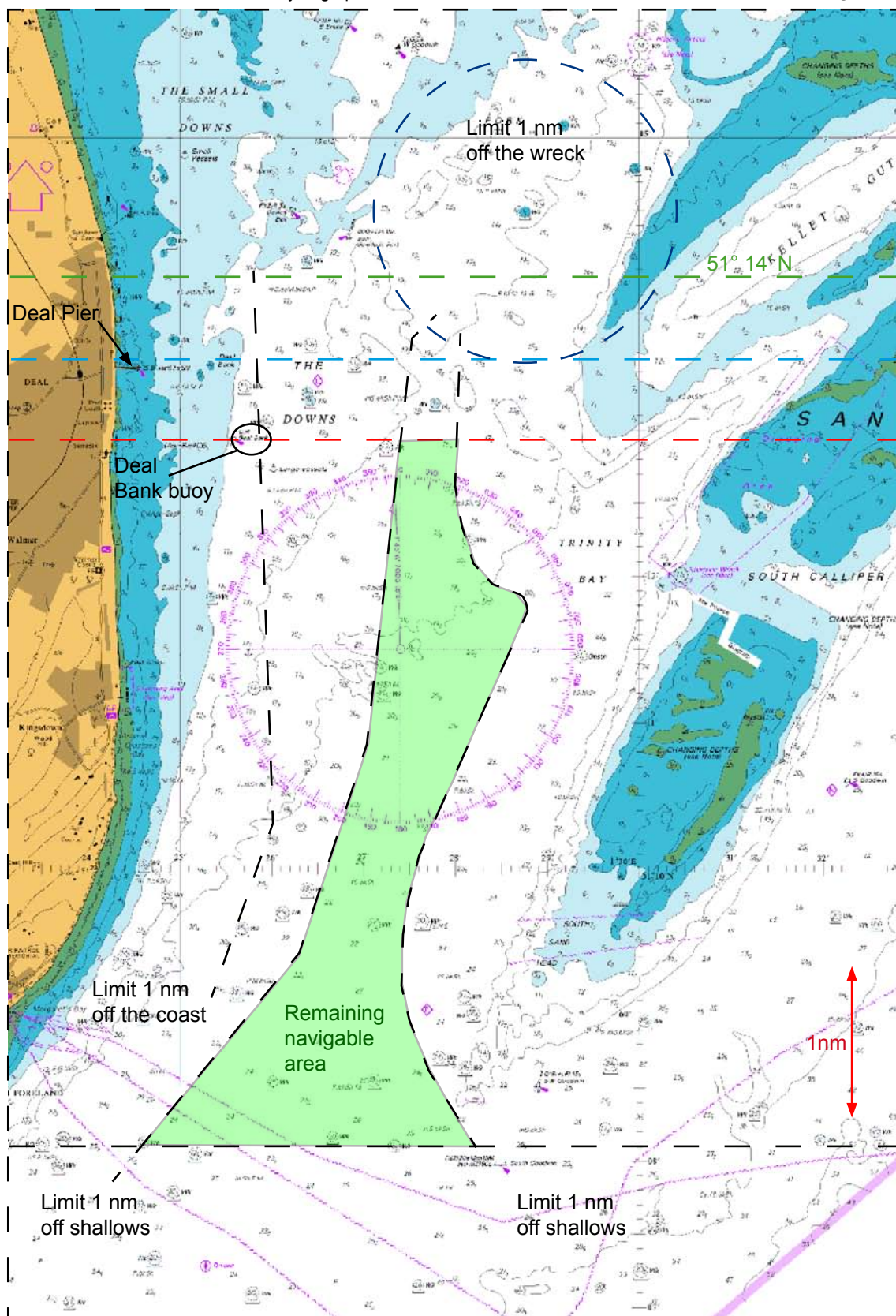
Reproduced from Admiralty Chart 1828 by permission of the Controller of HMSO and the UK Hydrographic Office

Figure 3



Detail of figure 2

Figure 4



- Navigable area taking account of master's restrictions
- Northern limit on the final run
- Northern limit on the 2nd run
- Northern limit on the 1st run

Some difficulties were experienced in maintaining the balance between the desired slow steaming and having sufficient steerage way, and to assist with this, a helmsman was kept on the wheel. During turns, the speed would usually be increased to assist the process. On one occasion the master countermanded the OOW's instruction to the helmsman in order to speed up the turn. Passenger comfort was a concern because the sea area, although affording some shelter from the prevailing south-westerly seas and swells, provided little shelter from the south-westerly winds which were blowing that day.

The navigation during the period was carried out almost entirely with reference to the Sperry Voyage Management System (VMS) and by eye. In addition, the paper chart for "The Downs" area was placed on the main chart table. Although this chart was still marked with some "No Go" areas from an earlier voyage, these were not re-assessed or amended to ensure they complied with the master's verbal instructions for this operation.

During the morning, the bridge team became distracted several times, including by a request from the driver of a refrigerated lorry on the car deck to run his engine and his cooling plant. Permission was given, however on starting up the plant, the fire detection system activated, resulting in further distractions to the bridge team while a fire watch was arranged and the zone was isolated.

Because it had been necessary to adjust *Pride of Canterbury's* course and speed several times to avoid other vessels, the watchkeeper suggested to the master that the track of the vessel be extended slightly further north on the next leg into clearer water (**Figure 4**). The master agreed.

Later, at around 1230, as the vessel was on the northerly leg, the bridge team, which at this time included the master, the chief officer, lookout and a helmsman, were distracted for a few minutes by a series of telephone calls requesting information.

At 1239 the helmsman reported that the vessel had lost steerage, and speed was increased. The speed had increased to 9.5 kts by the time Deal Pier was abeam to port, but this was not appreciated by the bridge team due to the various distractions.

The master then took four further telephone calls and, at 1244, *Pride of Canterbury* passed 51° 14 N making a speed of 7.3 knots. At this time, the car deck fire alarm activated again, and the whole bridge team became involved in discussions about finding a way to operate extra ventilation on the car deck to prevent the fire alarms being activated by the lorry's exhaust. At 1245, the bridge team's focus returned to the navigation of the vessel when the master commented that the chief officer should not take the vessel any further north. In reply, the chief officer stated his intention to make a turn to starboard and

ordered the helmsman to execute the turn. The helmsman repeated this order and immediately applied hard starboard helm, without further comment from the master or chief officer.

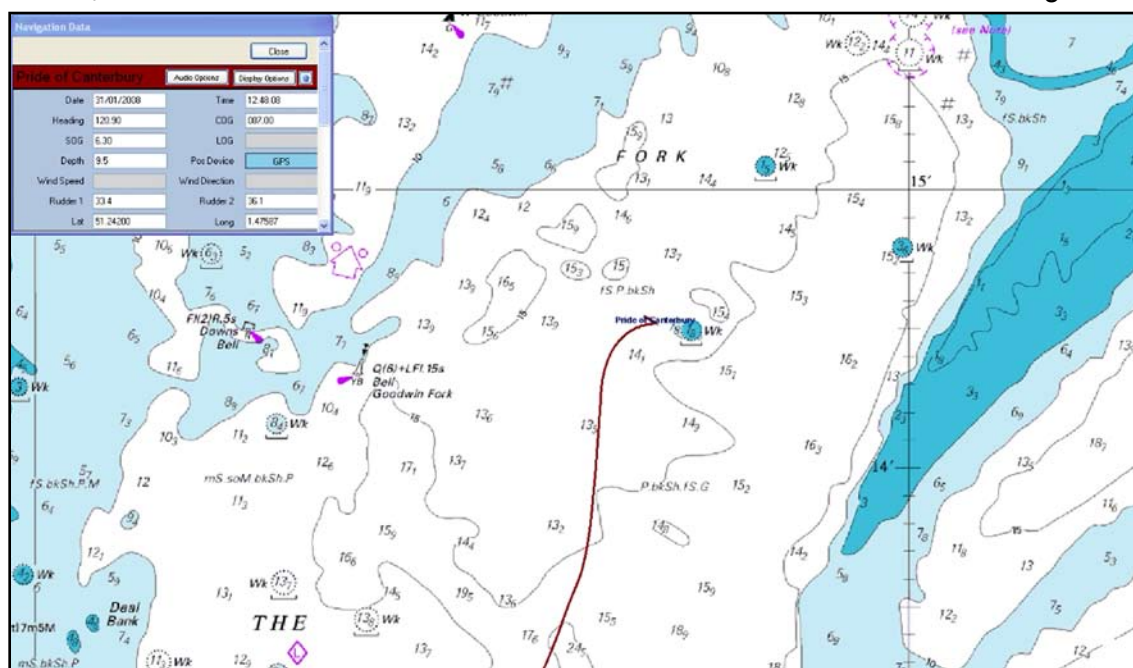
Pride of Canterbury began to turn at 1246, passing northwards through latitude 51° 14.25 N. Soon afterwards, the master noticed a nearby shallow patch on the VMS. Although some concern was expressed about the proximity of this, the turn was allowed to continue, but full speed was applied to the port engine in an attempt to tighten the turn; it was hoped that *Pride of Canterbury* would complete the swing without entering the shallow area.

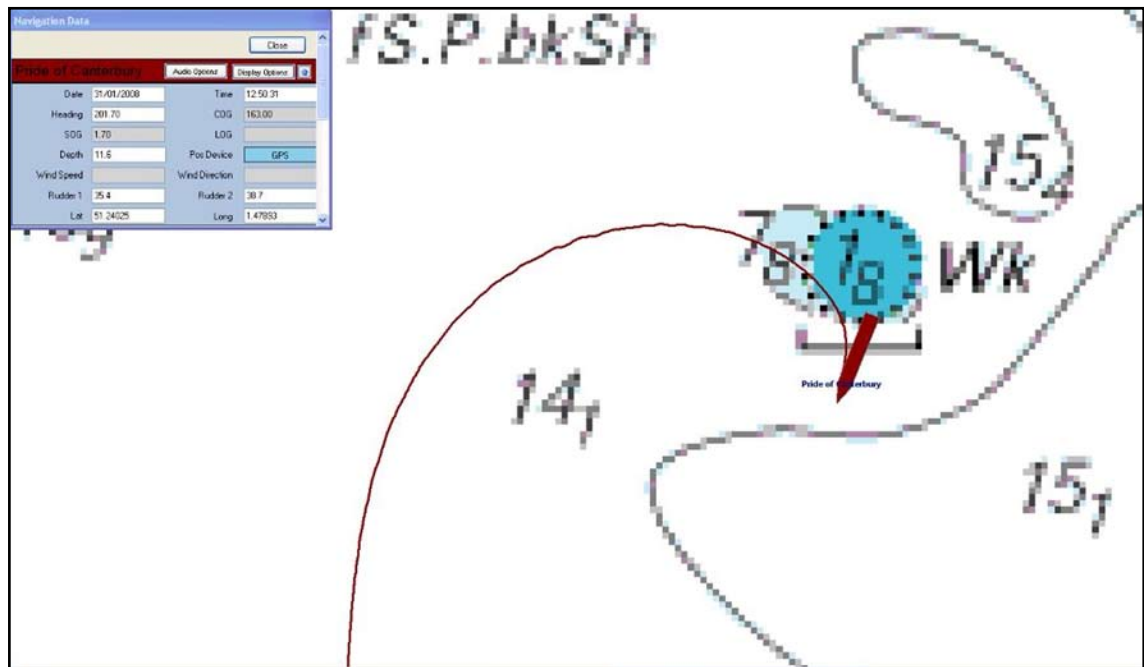
The chief officer suggested that the vessel ought to go astern, but this was dismissed by the master and the turn continued. A countdown of the reducing depth under the vessel's keel was read off from the echo sounder by the second officer.

As the turn continued, the VMS display indicated that *Pride of Canterbury's* bow had swung clear of the shallow patch. Full starboard helm was maintained, and it appeared to the bridge team that the shallows had been cleared. However, at 12:50:40, a loud noise was heard and vibrations were felt as she struck, what was later identified as, a submerged wreck (**Figure 5a & b**). Alarms were received on the bridge indicating that there was a problem with the port controllable pitch propeller (CPP).

Courtesy of the MCA

Figure 5a





Detail of track record of *Pride of Canterbury* approaching the wreck of *Mahratta*

Damage control procedures were activated, and it was discovered that the port propeller had been severely damaged. However, the vessel was subsequently able to berth at Dover later in the day when the port reopened.

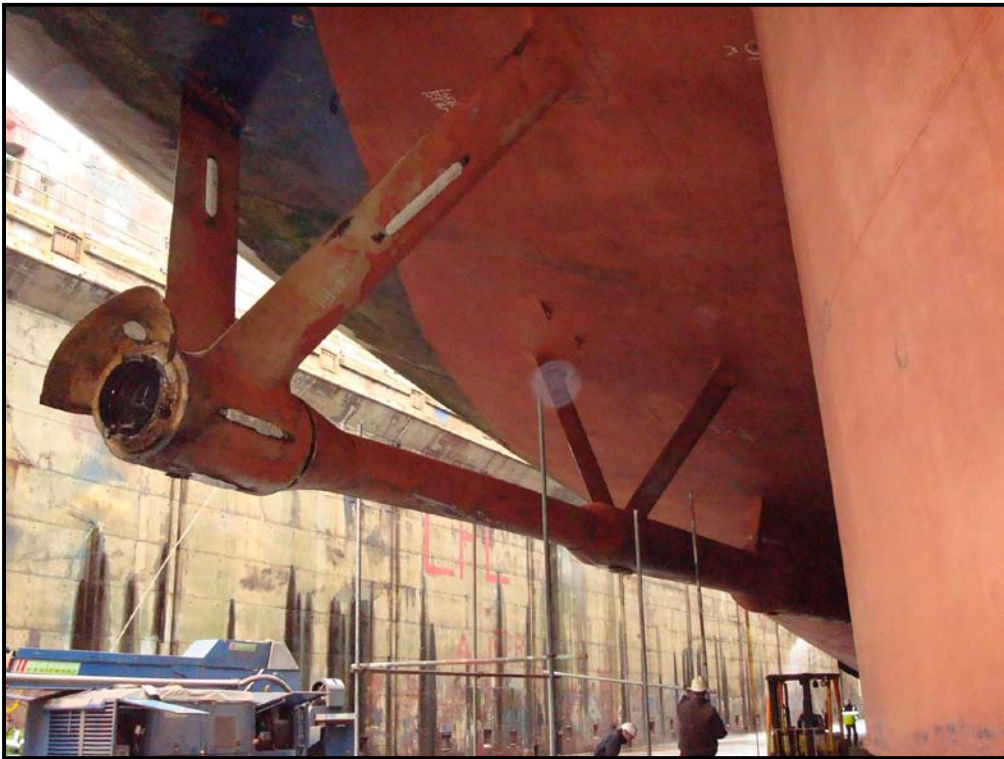
1.4 DAMAGE SUSTAINED

Once *Pride of Canterbury's* passengers and freight had been discharged, a diver's survey of the hull established there was severe damage to the port CPP. With the vessel already scheduled to undergo a routine dry docking in Falmouth within the next few days, a classification society surveyor inspected the vessel and imposed a condition of class which permitted her to make a single voyage to Falmouth for repairs. The voyage to Falmouth was uneventful. Once in the dry dock, inspection of the vessel confirmed the extent of the damage as follows:

- Loss of the port CPP hub.
- Loss of about 1m of the port tail shaft.
- Port after stern tube, centre stern tube, stern tube bearings - all damaged and misaligned.
- Two sections of the port intermediate tail shaft bent.
- Misalignment of associated framing, extending to gearbox and main engines.
- The port rudder stock bent.

(Figures 6, 7, 8 and 9)

Figure 6



Port side missing CP propeller and hub

Figure 7



Starboard CP propeller and hub

Figure 8



Figure 9



1.5 MANNING – DECK OFFICERS AND MASTER

A normal period of duty for the officers lasted 7 days followed by 7 days on leave. On each voyage, *Pride of Canterbury* was manned by six deck officers divided into two teams, each comprising a:

- Master
- Chief or first officer
- Second officer

The teams normally changed over at 0600 and 1800 each day. During the changeover, command of the vessel was formally handed over to the incoming duty master. In addition, at any time, there were two teams of officers on leave but assigned to *Pride of Canterbury*. Of a total of four masters assigned to the ship, one was appointed as the ship's senior master.

The senior master had the overall responsibility for setting and maintaining operational policy on board the vessel, and for ensuring that company requirements were adhered to. This was achieved mainly by the promulgation of documented orders in the form of "Senior Masters' Standing Orders to Masters" and "Standing Orders for Officers".

The master and chief officer on watch at the time of this accident were both long-serving employees of P&O Ferries, with many years of service. They were familiar with the procedures and general constraints of waiting in The Downs. The other watchkeeper on the bridge during the waiting period was a recently joined second officer who had been with P&O Ferries for 6 months; this officer had only 1 previous experience of waiting in the area.

The officers on duty at the time of the accident were serving the eighth day of a period of duty which had been extended due to the imminent planned refit.

1.6 RELEVANT FLEET REGULATIONS

There were no specific procedures in the P&O Ferries Fleet Regulations to cover the circumstance when a port, such as Dover, closes. The regulations did, however, contain generic instructions and advice for masters to follow whenever a vessel was prevented from following her intended voyage plan, as follows:

"In the event that circumstances such as traffic density or heavy weather dictate a substantial deviation from the plan, the OOW must ensure that the proposed new track is safe and proper in every respect. It is to be plotted on the chart and the ship's position properly monitored...."

The company considered these generic instructions, requiring the creation of a passage plan for any deviation, to be sufficient guidance. **(Annex 1)**

During periods of critical navigation, a system known as “Red Bridge” was routinely implemented. At this time, a red light was switched on in the information office to indicate that non essential communication with the bridge should not take place. This normally occurred whenever the vessel’s engines were placed on “standby”. However, there was no guidance on whether the operation of waiting off a closed port was considered to be a “standby” situation, and the bridge team had not placed the vessel on “standby” while awaiting the port of Dover to reopen.

1.7 PRIMARY MEANS OF NAVIGATION

Pride of Canterbury was fitted with a Northrup Grumman Sperry electronic chart system, described in the manufacturer’s user manuals as a Voyage Management System (VMS) – NAVIECDIS (**Annex 2**) and type approved to be a fully functional ECDIS (**Annex 3**). However, in the company’s regulations it was referred to as the Voyage Monitoring System (VMS). The VMS was provided with four display screens located prominently on the bridge (**Figure 10**), connected to a single computer which ran the manufacturer’s software programme.

For ECDIS to be used as the primary means of navigation, approval is required from the MCA that the ECDIS arrangements comply with the Chart carriage requirements of SOLAS V Reg 19. Guidance has been issued in the interpretation of this regulation as applied to UK ships (**Annex 4**), which states training should be provided for the operators of the system.

Although the VMS was loaded with electronic navigational charts (ENC) for the vessel’s area of operation, the system had not been approved by the MCA as the owner’s policy was for the VMS to be used as an aid to navigation only, with *Pride of Canterbury*’s paper charts being utilised as the primary means for navigation. Relevant admiralty charts were supplied to the vessel for this purpose.

1.8 ENVIRONMENTAL CONDITIONS

Weather conditions at the time of the accident were as follows:

Wind	SW 10 to 11
Sea / Swell	High
Tide	1.5 – 2.0 kts from the north-east
Visibility	Fair with sea spray

1.9 THE DOWNS

The Downs (**Figures 2 and 4**) is a sea area to the north-east of Dover, which provides a degree of shelter from a south-westerly wind, but has the benefit of reduced swell. Its main advantage as a waiting area lies in its close proximity to Dover, which allows vessels to re-enter service quickly once the port reopens.

Figure 10



Bridge Conning Position, indicating 2 of the 4 VMS Monitors

Using the 10m depth contour as the demarcation of the safe area, The Downs has a navigable area of 3.0 miles across at its widest point, reducing to 2.3 miles further north, towards Deal Pier, and a length of 6.5 miles north to south. The Downs is enclosed by land to the west and the Goodwin Sands to the east and north east. To the north are further shallows called The Small Downs.

1.10 TRAINING

1.10.1 Electronic chart system training

None of *Pride of Canterbury*'s bridge team, who were on watch during the period the vessel was navigating in The Downs, had undergone any generic training in the use of ECDIS. Only the master had attended the equipment manufacturer's own electronic chart system course.

1.10.2 Bridge team management

P&O Ferries had an established programme of Bridge Team Management (BTM) training, which had been suspended in 2004, once its cadre of navigating officers had completed the programme. The training programme was suspended because, at that time, it was felt that standards of BTM had been raised to very high levels across the fleet, and any new entrants would quickly assimilate the company requirements during their induction period.

Neither the master nor the chief officer of *Pride of Canterbury* had received any formal BTM training since 2000; the second officer had attended BTM training in 2005 when employed by another company.

SECTION 2 - ANALYSIS

2.1 AIM

The purpose of the analysis is to determine the contributory causes and circumstances of the accident as a basis for making recommendations to prevent similar accidents occurring in the future.

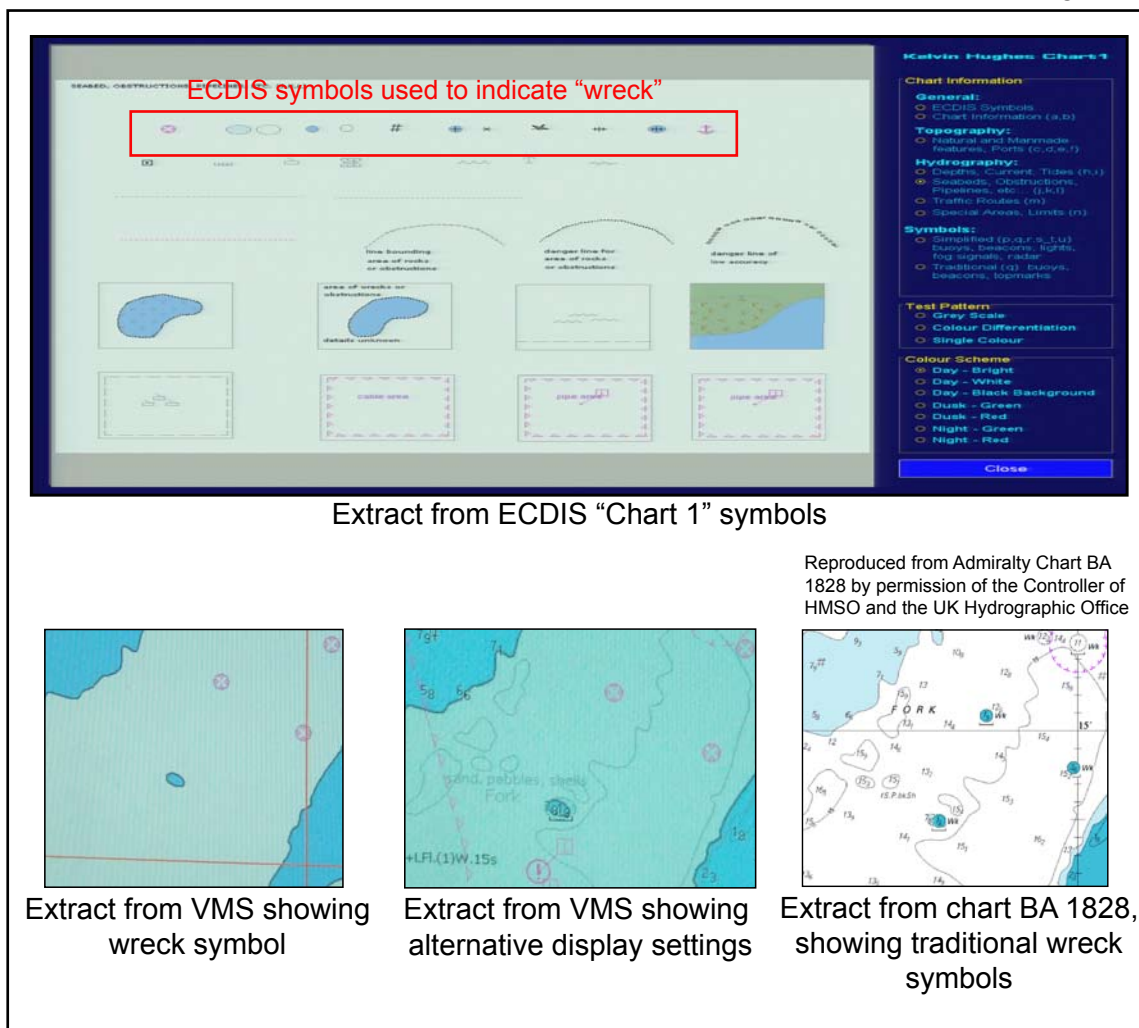
2.2 POSITION MONITORING AND THE USE OF THE VMS

Although the VMS was not approved for use as the primary means of navigation, the officers on *Pride of Canterbury* were using it as if it was, despite the fact that many of them, including the chief officer, who was in charge at the time of the accident, were not fully trained in its use.

An ECDIS can only legally be used as the primary means of navigation if it uses official electronic navigational charts (ENC), and if a back-up system is provided and operator training has been completed. This back-up can be a full set of paper charts for the intended areas of navigation, or a second ECDIS. When these requirements are met, the system can be submitted for approval to the vessel's Flag State for use as the primary means of navigation. In the UK, the MCA will not approve an ECDIS system unless all users are properly trained in its use.

Even though the unit provided on *Pride of Canterbury* had full ECDIS functionality, and was loaded with official ENCs, it was clearly stated in the company Fleet Regulations that the VMS was intended only as an aid to navigation, and that paper charts were the principal means of navigation. Despite this, the distribution of monitors on the bridge encouraged the OOW to utilise the VMS to such an extent that it had become the “de facto” primary means of navigation. As a consequence, only limited use was made of the paper charts held on board.

The lack of proper training in the use of ECDIS possibly led to the wreck being undetected. It is possible that the wreck on the shallow patch was displayed, but that the ECDIS symbol was misunderstood. Display options permit differences between the symbols displayed on paper charts and on ENCs (**Figure 11**). Another explanation, which is also linked to a lack of proper training, is that the “misapplication” of certain user settings may result in a dangerous underwater obstruction not being displayed on the screen. If the initial value for the safety contour is selected without understanding the constraints, and the option for display of obstructions is set inappropriately, an ECDIS may not display the underwater hazards with sufficient clarity to alert the navigator. If a passage plan had been drawn using the VMS, and the VMS safety check function had been used, the presence of dangers on the route would have been automatically highlighted. However, no passage plan for the area of The Downs was formulated.



The wreck was clearly displayed on chart BA 1828, but because the bridge team were not systematically fixing the vessel's position on the chart, it did not assist them in detecting the obstruction.

2.3 CONTINGENCY PLANNING

Port closures may occur for several reasons and, when this is a likely possibility, should be catered for in any good passage plan. When a vessel is used on a specific route, plans covering such a contingency can be accurately developed well in advance.

At the time of the accident, there were detailed passage plans created and supplied by the Company for all normal operational routes. However, none of these plans considered the effect of a port closure. While Company Regulations gave generic instructions on the re-assessment and plotting of new tracks, a generic passage plan, including clear operational limits for the vessel to wait in The Downs area, might have been of considerable benefit to the bridge team on *Pride of Canterbury*.

2.4 BRIDGE TEAM MANAGEMENT

2.4.1 Distractions

The time required to wait off Dover until it reopened was not considered by *Pride of Canterbury*'s staff to require the vessel to be in 'standby', and therefore no consideration was given to implementing the "red bridge" operating condition. Consequently, during the course of the morning, the bridge team had a number of distractions, which could have been avoided.

There were several phone calls made to and from the bridge giving updates on the weather and estimations as to when Dover may reopen. These calls were taken by whichever member of the bridge team was available, including several that were made and answered by the quartermaster while he was employed on the wheel.

Had the vessel been placed on standby and in "red bridge" a full briefing would have been necessary from the master to the bridge team explaining in detail what was expected of them. The fact that this did not happen meant that there was no common understanding of exactly how the master wished the operation to wait in The Downs to be conducted. The limits verbally instructed by the master were not formally drawn onto the chart or re-assessed before he agreed to the ship being taken north of his original limit. Consequently, there was a lack of immediate concern when the vessel was abeam the Goodwin Fork Buoy.

If the bridge team had been operating within a more formal framework it is probable that they would not have tolerated the frequent distracting phone calls to and from the bridge. Also, it is likely that more attention to the safe navigation of the vessel would have been given if *Pride of Canterbury* had been operating in The Downs area under standby conditions.

2.4.2 Watch handover procedures

The normal operating procedure on P&O's cross-channel ferries was for one officer to take the con for the whole crossing. When the port of Dover closed and *Pride of Canterbury* began navigating in the area of The Downs, no schedule was established to ensure the navigational watches were changed at pre-determined times. The handovers occurred on an ad-hoc basis, which depended largely on mealtimes and what additional duties the officers had to complete.

The handovers themselves were not structured, and on occasions important information was not passed on to the new watchkeeper. Frequently, there were distractions during the handovers; there were also occasions where the handovers were allowed to take place in the middle of manoeuvres.

If more rigorous procedures had been followed by the OOWs during their watch handovers, it is likely that the master's verbal instructions on his navigational requirements would have been understood by all.

2.4.3 Speed and steerage way

During the morning, there were several occasions when speed was reduced below the minimum needed to maintain steerage. *Pride of Canterbury*'s bridge team detected this problem each time it occurred, but a plan to effectively control the vessel's speed to prevent this happening was never discussed or implemented; the bridge team simply reacted to loss of steerage.

Although it was the master's stated plan for *Pride of Canterbury* to proceed slowly up and down the waiting area, on occasions the vessel's speed was increased to over 10 kts without discussion with, or otherwise informing, the master of the problems being encountered in maintaining effective steerage.

The increased speeds required to overcome the vessel's problems with steerage just prior to the grounding meant that less time was available for the bridge team to notice, and avoid, the shallow patch and wreck.

2.4.4 Passage planning

IMO Res A.893(21) contains guidance on passage planning and requires each passage to be appraised, planned, executed and monitored. The bridge team on *Pride of Canterbury* did not follow these basic steps, despite further guidance given within the Company's regulations.

No tracks were laid down on the paper chart for the vessel to follow, nor were there clear markings to indicate where the vessel must not go. There was no attempt to systematically plot and monitor her position. Some positions were plotted on the paper chart, but they were at infrequent intervals and were of little use to effectively monitor the vessel's track.

Without specific instructions, especially clearly defined no-go areas and a northern limit, being available and marked on the chart, it was not easy for the OOW to ensure that the master's wishes were complied with. Had the paper chart been marked with all limitations required by the master, including subsequent modifications, it would have been clear that the plan could not have been easily complied with (**Figure 4**).

2.4.5 Control of navigation

During the channel crossing and throughout the period of waiting in The Downs, the con always remained with the OOW. However, advice and suggestions were given to these officers by the master, and there were occasions when orders given by the OOW were countermanded, or substantially modified, by him. It is therefore questionable whether the OOWs truly believed they had full control of the vessel, and this possibly led to a reluctance to take action independently, or without approval from the master.

The ultimate responsibility for the safety of navigation of the vessel always rests with the master, and this responsibility cannot be delegated. However, to avoid confusion, it is essential that the master, when on the bridge, clearly indicates to the OOW whenever he is taking over, or handing back, navigational control of the vessel.

2.5 FATIGUE

While the watch rota system and duty schedule used on *Pride of Canterbury* ensured that all officers and crew operated within the statutory requirements for rest periods, there was anecdotal evidence to suggest that at the end of a normal 7 day duty period some officers could feel tired.

The combination of an additional day on duty, and the increased workload involved in re-arranging contractors for an evacuation drill practice for the following day, and services for refit, could have contributed to the reduced situational awareness demonstrated by members of the bridge team.

2.6 SIMILAR ACCIDENTS

September 1995 – A cross channel ferry grounded in strong winds while approaching Calais. It was found that there was a lack of pre-planning and monitoring of the vessel's position.

August 2004 – A cross channel ferry grounded while approaching the port entrance. The helm had been placed the wrong way, and was not noticed by the bridge team. Although an ECDIS was fitted, and in use, no warning was given indicating that the equipment's "predicted movement area" safety feature had not been correctly enabled.

January 2008 – During a transit of the English Channel, a very large container vessel, with a fully approved ECDIS, ran aground on the Varne Bank. The report on this accident is yet to be published, but it is believed that depth contours were inappropriately set, and the "predicted movement area" safety feature had not been enabled.

May 2008 – A cargo vessel with a fully approved ECDIS grounded on Haisboro Sands. The ECDIS track monitoring and safety checks had not been conducted and, hence, no warnings were given. The "predicted movement area" safety feature had not been enabled.

SECTION 3 - CONCLUSIONS

3.1 SAFETY ISSUES IDENTIFIED DURING THE INVESTIGATION WHICH HAVE RESULTED IN RECOMMENDATIONS

1. Electronic chart systems are commonly sited prominently in a position near to, or in front of the central control position on ships, encouraging masters and watchkeepers to use them as the primary means of navigation. Where such systems are not approved as the primary means of navigation, consideration should be given to measures which can be taken to ensure that officers use the paper charts for the safe navigation of the ship. [2.2, 2.6]
2. Where an electronic chart system is fitted as an aid to navigation, proper generic and/or type specific training in its use should be provided to all navigating officers to ensure a thorough understanding of its display and functionality. [2.2]
3. Various members of the bridge team on *Pride of Canterbury* were required to provide administrative information or respond to non navigational situations at a time when their full attention was required to navigate the vessel safely. [2.4.1]

3.2 SAFETY ISSUES IDENTIFIED DURING THE INVESTIGATION WHICH HAVE NOT RESULTED IN RECOMMENDATIONS BUT HAVE BEEN ADDRESSED

1. Bridge team management on board *Pride of Canterbury* was ineffective:
 - There was no contingency plan for the vessel to wait for the reopening of Dover port in the area of The Downs. [2.3]
 - There was no formal passage planning for the navigation of the vessel while waiting in The Downs. [2.4.4]
 - The information exchange at watch handovers was not performed in a systematic way. [2.4.2]
 - The vessel's position was not systematically plotted on the paper chart. [2.4.4]
 - Although the officer of the watch nominally had the con, the master occasionally countermanded his orders, but did not formally take back control of *Pride of Canterbury*. This provided the potential for confusion among the bridge team as to which officer was responsible for the safe navigation of the vessel. [2.4.3;2.4.5]

SECTION 4 - ACTIONS TAKEN

4.1 P&O FERRIES

P & O Ferries has:

1. Issued Fleet Directives on:
 - The status of Electronic Navigation Charts.
 - Areas into which the ship cannot safely proceed.
 - Navigational Bridge Organisation Red/Amber/Green Conditions
 - ECDIS alarm settings and danger areas.
2. Issued a Fleet Circular on:
 - Use of Parallel Index Techniques.
3. Reviewed all ships' passage plans. The passage plan booklet has been amended to include plans for "waiting off" the ports of Calais or Dover. Plans for "waiting areas" in other ferry sectors have also been developed. A copy of these plans has been passed to other operators in the sector for information; the plans were formally introduced at the meeting of Dover Strait Ferry Navigation Committee on 10 September 2008.
4. Discussed the accident at the Senior Masters' Forum, and senior masters have reviewed their standing orders regarding bridge team leadership behaviour and levels of alertness.
5. Re-introduced BTM training, and the frequency of ECDIS training courses has been increased. Senior management have attended ECDIS courses, and there will be greater focus on monitoring ECDIS skills and usage within future internal audits. After this training has been completed, fleet regulation instructions regarding all aspects of ECDIS operation will be reviewed.
6. Consulted with an industry authority on ECDIS and VMS to assess the capabilities of the equipment fitted within its fleet in order to identify any operational limitations, and guidance in optimising the use of the equipment.

4.2 MAIB

The MAIB has issued a Safety Flyer highlighting the lessons learned from this accident for promulgation to ship owners via Interferry and the International Chamber of Shipping. **(Annex 5)**

SECTION 5 - RECOMMENDATIONS

Interferry and the **International Chamber of Shipping** are recommended to:

2009/101 Promulgate to ship owners/managers the MAIB Safety Flyer describing this accident and the principal lessons to be learned from it.

Marine Accident Investigation Branch
January 2009

Safety recommendations shall in no case create a presumption of blame or liability