

Report on the investigation of

the collision between

Scot Isles

and

Wadi Halfa

Dover Strait

29 October 2008

Marine Accident Investigation Branch
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Pursuant to the IMO Code for the investigation of Marine Casualties and Incidents (Resolution A.849(20)), the MAIB has investigated this accident with the co-operation and assistance of the Egyptian Authority for Marine Safety.

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.

Cover photograph of *Scot Isles* courtesy of French Customs
Cover photograph of *Wadi Halfa* courtesy of FotoFlite

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AB	-	Able seaman
AIS	-	Automatic Identification System
ARPA	-	Automatic Radar Plotting Aid
Cable	-	0.1 nautical mile
CEC	-	Certificate of Equivalent Competency
CNIS	-	Channel Navigation Information Service
CoC	-	Certificate of Competency
COLREGS	-	International Regulations for the Prevention of Collisions at Sea 1972 (as amended)
DOC	-	Document of Compliance
DPA	-	Designated Person Ashore
GPS	-	Global Positioning System
GT	-	Gross tonnage
kW	-	Kilowatt
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Note
PEC	-	Pilotage Exemption Certificate
SMS	-	Safety Management System
SOLAS	-	International Convention for the Safety of Life at Sea
STCW	-	International Convention on Standards of Training, Certification and Watchkeeping 1978 (as amended)
TSS	-	Traffic Separation Scheme
VHF	-	Very High Frequency
VTS	-	Vessel Traffic Services

Times: All times used in this report are UTC+1, unless otherwise stated

SYNOPSIS



At 0449 on 29 October 2008, the UK registered general cargo vessel *Scot Isles* was in collision with the Egyptian bulk carrier *Wadi Halfa* in the Dover Strait.

The watchkeeping officer on *Scot Isles*, which was on passage from Rochester to Antwerp and crossing the NE traffic lane of the Dover Strait Traffic Separation Scheme, did not detect *Wadi Halfa* before the collision.

The watchkeeping officer on *Wadi Halfa*, which was on a NE course in the NE traffic lane, saw *Scot Isles* when she was very close but, despite taking evasive action, could not prevent the collision.

Scot Isles suffered extensive shell plate damage on her starboard side which resulted in the loss of 60 tonnes of marine gas oil into the sea. *Wadi Halfa* was damaged, less severely, on her port side and was able to resume her passage to Bremen.

The vessels were within French coastguard jurisdiction when the accident was reported and, once the extent of damage and pollution was realised, the French authorities directed *Scot Isles* to proceed to Dunkirk to facilitate repairs and an investigation into the accident.

As a result of a complacent attitude to bridge watchkeeping on both vessels, safety barriers, which would have warned the bridge watchkeeping officers of the risk of a collision, were not in place. No lookout was present on either bridge at the time of the collision, and the vessels' radars and other bridge equipment were not used effectively.

A Safety Flyer has been published which identifies the key safety lessons from this investigation. Recommendations have been made to the International Chamber of Shipping, the UK Chamber of Shipping, The Nautical Institute and the International Federation of Shipmasters' Associations designed to promulgate the contents of the Safety Flyer to those organisations' membership to highlight to ship operators and seafarers the importance of effective bridge teams and the maintenance of proper navigational lookouts.

Image courtesy of French Customs



Scot Isles

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *SCOT ISLES*, *WADI HALFA* AND ACCIDENT

Vessel details	<i>Scot Isles</i>
Registered owner	: Hohebank Shipping Limited
Manager	: Intrada Ships Management Limited
Port of registry	: Rochester, England
Flag	: United Kingdom
Type	: General cargo vessel
Built	: 2001, Tille Scheepsbouw Kootstertille B.V, Netherlands
Classification society	: Germanischer Lloyd
Construction	: Steel
Length overall	: 89.95 metres
Gross tonnage	: 2595
Engine type and power	: Wartsila 6L26A, 7950kW
Service speed	: 10.5 knots
Other relevant info	: 1 x bow thruster, 205kW
 Accident details	
Time and date	: 0449, 29 October 2008
Location of incident	: Dover Strait
Persons on board	: 8
Injuries/fatalities	: 0
Damage	: Extensive damage to starboard side shell plating, frames and bridge wing.
Pollution	: 60 tonnes marine gas oil spilled into the sea

Image courtesy of FotoFlite



Wadi Halfa

Vessel details***Wadi Halfa***

Registered owner	:	National Navigation Company, Egypt
Port of registry	:	Alexandria, Egypt
Flag	:	Egypt
Type	:	Bulk carrier/general cargo vessel
Built	:	Hyundai Heavy Industries, Korea, 1984
Classification society	:	Lloyd's Register
Construction	:	Steel
Length overall	:	184.9 metres
Gross tonnage	:	22895
Engine type and power	:	Hyundai-Sulzer 5RTA58, 1950kW
Service speed	:	14.2 knots

Accident details

Time and date	:	0449, 29 October 2008
Location of incident	:	Dover Strait
Persons on board	:	41
Injuries/fatalities	:	0
Damage	:	Material damage to port side shell plating

1.2 BACKGROUND

Scot Isles, a UK registered, single hold general cargo vessel, operated in NW European waters and was engaged primarily to carry timber and timber products from Scandinavia. On the morning of the collision, she was crossing the Dover Strait Traffic Separation Scheme (TSS) from the Thames estuary to Antwerp.

Wadi Halfa, an Egyptian registered, bulk/general cargo vessel, traded worldwide. She was in ballast, on passage from Egypt to Germany, in the NE traffic lane when the collision occurred.

1.3 NARRATIVE

1.3.1 *Scot Isles*

Scot Isles arrived in Rochester at 0100 on 28 October 2008 to discharge her cargo of timber. Cargo discharge began at 0800 and was completed by 1530. The chief and second officers shared the cargo watches in port. The chief officer was on duty from 0800 - 1200 when he was relieved by the second officer.

During the day, the vessel's classification society was changed and the surveys and documentation associated with this process occupied much of the master's time from 0900 until the required cargo and related clearance documentation was completed at 1900. The vessel then awaited the tide before sailing.

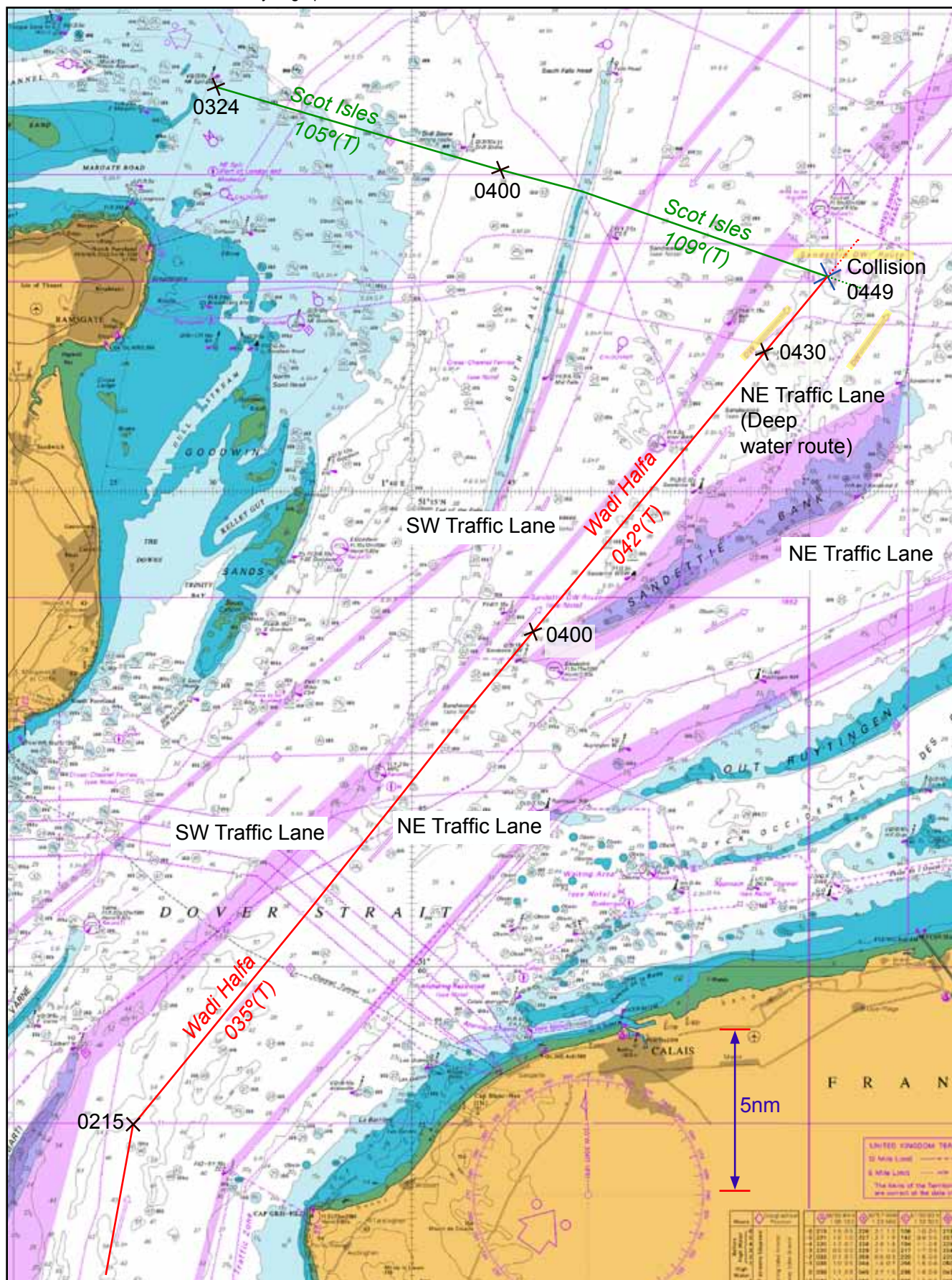
The vessel sailed at midnight, in ballast, bound for Antwerp. The master held a pilotage exemption certificate (PEC) for the Medway and took the conn of the vessel for departure. On the bridge with him were the second officer, who was the 0000 - 0400 watchkeeping officer and a lookout, who kept the 0000 - 0600 watch.

At 0150 on 29 October, the vessel left the Medway pilotage area and entered the Thames estuary. The master then handed over the conn to the second officer and left the bridge. The bridge watch alarm was not activated.

Scot Isles cleared the Thames estuary and at 0324 the second officer set a course of 105°(T) as the vessel approached the northern Dover Strait (**Figure 1**).

At 0400, the vessel was 4 miles from the SW traffic lane of the Dover Strait TSS, when the chief officer took over as the bridge watchkeeping officer. He adjusted the set up of the starboard radar, which was equipped with an Automatic Radar Plotting Aid (ARPA), to the 6 mile range scale, ship's head up, relative motion. He offset the centre of the radar display to provide a range of about 9 miles ahead. The port radar was not in use.

Although there were several targets on the radar screen, none of them was acquired on ARPA to assess whether a risk of collision existed.



Extract from chart BA 2449, with passages of both vessels

The Automatic Identification System (AIS), located beside the starboard radar and which provided the names and relative positions of the six nearest vessels to *Scot Isles*, was not being monitored.

At 0410, *Scot Isles* altered course to 109°(T), and at 0421 she began to cross the SW traffic lane of the TSS. The vessel's position was not plotted on the chart after 0400, so this reconstruction is based on radar replay information obtained from the Channel Navigation Information Service (CNIS) at Dover following the accident (**Figure 2**).

AIS data courtesy of the MCA

Figure 2



Radar replay screen shot from CNIS, 0449 29 October 2008

At about 0435 the lookout reported to the chief officer, who was sitting in the wheelhouse chair (**Figure 3**), the red navigation light of a vessel at about 3 points (34°) to starboard of *Scot Isles*. The lookout then advised the chief officer, who made no comment, that he was leaving the bridge to undertake his safety rounds. The chief officer had not registered the lookout's report of the other vessel.

At 0443 *Scot Isles* began to cross the NE traffic lane (**Figure 1**).

The chief officer became aware of the accommodation lights of a vessel very close on *Scot Isles*' starboard quarter. He moved towards the wheel, intending to put the helm to port, when at 0449, the collision occurred.



Scot Isles - interior of wheelhouse

1.3.2 *Wadi Halfa*

Wadi Halfa sailed from Alexandria, Egypt, on 17 October. She was in ballast with a draught of 5.29m bound for Bremen, Germany.

At about 0215 on 29 October, the master arrived on the bridge, as previously arranged, to be present as the vessel passed Cap Griz Nez and entered the Dover Strait, in the NE traffic lane (**Figure 1**). At 0345, as the vessel entered the Sandettie deep water route, the master left the bridge.

The chief officer relieved the second officer as the bridge watchkeeping officer at 0400. Also on the bridge for the 0400 - 0800 watch were a cadet and an able seaman (AB). The cadet was being trained in navigation and the AB was the designated lookout for the watch.

At 0430 the vessel altered course to 041°(T) and, at about 0435, the chief officer allowed the lookout to leave the bridge for a toilet break. The cadet had remained in the chart room area, which was curtained off from the wheelhouse (**Figure 4**) to prevent light pollution, from 0400. He is reported to have been recording the vessel's position every 10 minutes using the vessel's Global Positioning System (GPS) display.

The chief officer was in the wheelhouse, occasionally looking at the starboard side radar (**Figure 4**). He had set up this radar, which had ARPA, on the 6 mile range scale, in relative motion, north-up with the centre offset to give a range of about 9 miles ahead. Although there were targets on the radar, none of them were acquired to assess whether a risk of collision existed.

The lights of vessels on reciprocal courses in the SW traffic lane were seen from the wheelhouse of *Wadi Halfa*. However, no vessel was observed approaching from the port side until, at 0448, the chief officer saw the white masthead navigation lights and green sidelight of a vessel very close on the port bow.

The chief officer then put the helm (**Figure 4**) hard to starboard and called out to the cadet to come out from the chart room to call the master. *Wadi Halfa* had started to turn to starboard when, at 0449, the collision occurred.

1.4 ACTIONS FOLLOWING THE COLLISION

1.4.1 Scot Isles

The master, woken by the sounds and vibration caused by the collision dressed and went to the bridge; he did not hear the general alarm, although the chief officer is reported to have sounded it.

The second officer, who had also been woken by the sound of the collision, dressed and went to the master's cabin to report that he could see smoke through his cabin window and thought the vessel was on fire.

They both then went to the bridge, where they found the chief officer standing beside the starboard bridgewing door, in an apparent state of shock. Smoke was billowing outside the wheelhouse.

Looking around the wheelhouse, the master saw that the vessel was in autopilot, with the engine full ahead. On the radar he observed a target, about 6 cables astern, which he assumed was the other vessel involved in the collision.

The master asked the chief officer what had happened and was informed that an overtaking vessel had collided with *Scot Isles*, causing damage to the starboard bridgewing. The master looked at this damage (**Figure 5**) and realised that the smoke, which the second officer had initially thought to be a fire, was in fact from the bridgewing smoke float which had been activated by the collision.

From the wheelhouse, the master could see no other damage to the vessel. He then reduced the vessel's speed, maintained her course and began to assess the situation. He referred to the post collision checklist, Card 10, of the vessel's Safety Management System (SMS) (**Annex A**).



Wadi Hafa - interior of wheelhouse



Scot Isles - damage to starboard bridging

He instructed the second officer and AB to check for damage. They checked the accommodation and engine room and returned to the bridge to advise the master that there was no damage in those areas. They did not carry out a check of the main deck or of the cargo hold.

At 0501, the master responded to a VHF radio call from *Wadi Halfa*. The vessels exchanged details and confirmed that both crews were unharmed and that neither vessel appeared to have suffered any significant damage as a result of the collision.

At 0542 Dover coastguard called *Scot Isles* on VHF radio, having been advised by the French coastguard that the vessel had been involved in a collision. The master confirmed that there were no injuries, pollution, or water ingress and that there was only minor damage to the starboard bridging high above the waterline.

At about 0550, the French coastguard contacted *Scot Isles* and instructed her to remain in her current position, within French jurisdiction, pending an inspection by the French authorities.

The master contacted the company's designated person ashore (DPA) at about 0555 and reported the collision and the damage to the bridging.

At 0630 a French naval helicopter arrived overhead of *Scot Isles* and carried out a searchlight inspection of the hull. The extensive damage to the starboard side shell plating, amidships, was now illuminated (**Figure 6**).

Image courtesy of French Navy

Figure 6



Scot Isles - photograph of damage to the hull

The master then sent the second officer and an AB to carry out a full inspection of the main deck and hold. They reported that the bulkhead in the hold was buckled, but intact, in way of the damage and that there was no water ingress.

At twilight, about 0645, the master saw evidence of oil in the water beside the vessel, emanating from number two starboard wing fuel tank, which had been ruptured by the collision. He then instructed the engineers to list the vessel to port and to transfer oil from the damaged tank into another fuel tank to prevent further pollution.

At 0850, two French marine officials boarded *Scot Isles* to inspect the damage and assess the pollution. They informed the master that, due to the extent of the damage (**Figure 7**), all the oil in the tank had been lost into the sea and that he should cease transferring from the tank.

The vessel was then directed to proceed to Dunkirk for repairs and further inspection, where she arrived at 1400 the same day.



Scot Isles - damage overview

1.4.2 *Wadi Halfa*

Immediately after the collision the chief officer, who was still on the wheel, instructed the cadet to call the master and stop the engine. In fact, the master had already been woken by the vibrations and sounds of the collision and he arrived on the bridge while the cadet was still calling him on the telephone.

The master then took the conn and was informed by the chief officer that *Wadi Halfa* had been overtaking the other vessel when the latter had suddenly and unexpectedly altered course to starboard in front of *Wadi Halfa*.

Other off duty officers soon arrived on the bridge and the master instructed one of them to identify the other vessel's name from AIS and to contact her on VHF radio. At 0501, the two vessels exchanged details, confirmed that no one had been injured and that neither vessel was seriously damaged.

The master then informed the crew, over the tannoy system, of the collision and advised them to standby for further instructions.

The chief officer was sent to carry out a check of the vessel for damage, while the other officers were instructed to maintain the logbook and undertake VHF radio communications.

At 0505 the master reported the collision to the French coastguard and advised that he had exchanged details with *Scot Isles* and had confirmed that the other vessel did not require assistance.

The chief officer returned to the bridge and told the master that the only apparent damage to *Wadi Halfa* was a small hole in number one port wing ballast tank, approximately 25cm long and about 50cm below the main deck level (**Figure 8**).

The French coastguard then gave approval for *Wadi Halfa* to resume her passage to Bremen, where she arrived on 30 October.

Figure 8



Wadi Halfa - shell plate damage to number one port wing ballast tank

1.5 SCOT ISLES – BRIDGE PERSONNEL

1.5.1 Master

The master was a Polish national. He held a Polish International Convention on Standards of Training, Certification and Watchkeeping 1978 (as amended) (STCW) II/2 certificate of competency (CoC) as master (unlimited), issued in 2000 and a UK certificate of equivalent competency (CEC). He also held a PEC for the Medway, issued in October 2008.

He had been a master for 14 years, had been employed by the manager, Intrada Ship Management Limited, since 2005 and was appointed to *Scot Isles* in 2006, when the vessel had been acquired for trading in NW European waters. He had been master of the vessel since then and worked cycles of 10 weeks on duty, followed by 5 weeks leave.

The master was the 0800 - 1200 and 2000 - 2400 bridge watchkeeping officer when the vessel was at sea. He did not keep a watch in port.

On 28 October, he went to bed at about 0200 and woke at 0800. He was occupied for most of the day with the vessel's change of classification society, although two of the manager's superintendents were on board to supervise the process. At 1900 the master went ashore to a nearby shop, returning at 2000. He then got some rest, before the vessel sailed at midnight.

On 29 October, when the vessel had cleared the Medway pilotage area, he left the bridge and went to bed at about 0200. As was his custom, he wrote no night orders for the passage to Antwerp. He considered it was safe to leave the bridge as the vessel was in a Vessel Traffic Services (VTS) area, and assumed that Thames VTS and CNIS would provide guidance to the second officer if required.

1.5.2 Chief officer

The chief officer was a Polish national. He held a Polish STCW II/2 CoC as chief mate (unlimited) and had applied for a UK CEC. He had been a chief officer since 1984 and had sailed on many vessels of similar size and engaged on similar trades to *Scot Isles*.

He had joined the vessel 2 weeks before the accident; this was the first time he had worked for the manager. At sea he kept the 0400 - 0800 and 1600 - 2000 bridge watches and in port worked the 0600 - 1200 and 1800 - 2400 cargo watches.

During the evening of 27 October, he had about 3 hours sleep before the vessel arrived in Rochester. On 28 October he went to bed from 0130 until he woke at 0700, when he had breakfast and was on cargo watch from 0800 – 1200.

During the afternoon, he did some paperwork and took some rest, though did not get to sleep. He was not required to keep a cargo watch at 1800 and so he walked ashore to a local shop. He returned at 2000 and then rested until being called for sailing at 2345. He returned to his cabin at 0015 on 29 October and slept until 0345 when he was called for his bridge watch.

1.5.3 Second officer

The second officer was also a Polish national. He held a Polish CoC as an officer of the watch and had applied for a UK CEC. He first went to sea in 1985, serving as a bridge watchkeeping officer until 1996 when he then worked on an oil drilling rig until resuming his seagoing career at the beginning of 2008.

He had joined *Scot Isles* in September 2008, and this was his first trip with the manager. He kept the 0000 - 0400 and 1200 -1600 bridge watches at sea and in port worked the 0000 - 0600 and 1200 - 1800 cargo watches.

1.5.4 Lookout

The lookout was a Filipino national. He had been an AB for 15 years and had joined *Scot Isles* in February 2008 on a 10 month voyage contract. This was his second contract with the manager, having served on a similar sized vessel, trading in the same area, for 10 months in 2007.

He kept the 0000 - 0600 and 1200 - 1800 watches, as the lookout when the vessel was at sea, and assisting with cargo operations or keeping a gangway security watch when the vessel was in port. When working as the bridge lookout he was required to undertake safety rounds of the vessel's accommodation space and engine room every hour.

On 28 October, he was called for the vessel's departure from Rochester at 2345 and went forward for unmooring. He arrived on the bridge, to act as lookout, once the vessel had left the berth, at about 0015 on 29 October.

He was on the bridge at 0400 when the chief officer relieved the second officer. He did not comprehend or listen to the conversation between the officers as they always communicated with each other in Polish. When on lookout duties he tended to move around the bridge in order to maintain a full appreciation of the surrounding environment, but he did not look at the radar, and was not encouraged to do so. He did not converse with the watchkeeping officers, other than to report ships.

At about 0435 he reported to the chief officer the presence of a red light at about 3 points to starboard, and then left the bridge to conduct safety rounds. He was in the engine room when he felt the collision; he then returned to the bridge. He did not hear the general alarm.

1.6 WADI HALFA – BRIDGE PERSONNEL

1.6.1 Master

The master was an Egyptian national and held a CoC as master (unlimited). He had been in command for 6 years and had served exclusively as master of either *Wadi Halfa* or her sister vessel during that period.

On 29 October, he was on the bridge from 0215 - 0345, as the vessel proceeded through the Dover Strait, and left the bridge as the vessel entered the Sandettie deep water route. He was confident that CNIS would alert the vessel to any potentially hazardous situations. He had elected to use the deep water route (**Figure 1**) despite the fact that *Wadi Halfa*'s draught was less than 6m and the deep water route is recommended for use by vessels with a draught of 16m and above (**Annex B**).

Although he normally wrote night orders, he omitted to do so on this occasion.

1.6.2 Chief officer

The chief officer, an Egyptian national, held a CoC as master (unlimited), which he had obtained in 2007. This was his first trip as a chief officer, having joined the vessel in May 2008. He had been employed by the owners since first going to sea in 1999.

He kept the 0400 - 0800 and 1600 - 2000 bridge watches at sea. The vessel had been on passage for 12 days before the collision and the chief officer had maintained a settled watchkeeping routine during that period.

1.6.3 Lookout

The lookout was an Egyptian national and a qualified AB (STCW II/4). He had been an AB for 8 years and had joined the vessel 5 months before the accident. He kept the 0400 - 0800 and 1600 - 2000 watches.

On 29 October he was on the bridge, as lookout, from 0400. He had observed and reported several vessels to the chief officer. He was not encouraged to use the radar to assist him in his duties as lookout. At 0435, he was given permission by the chief officer to leave the bridge and went to his cabin to use the toilet. He was still in his cabin when the collision occurred.

1.6.4 Cadet

The cadet who was on the bridge at the time of the collision was on his fourth trip at sea. He kept the 0400 - 0800 and 1600 - 2000 watches as part of his training programme.

He was at the chart table, which was curtained off from the wheelhouse, (**Figure 4**) from 0400. He remained there, and is reported to have recorded the vessel's position every 10 minutes from the GPS, until the chief officer called him into the wheelhouse. When he entered the wheelhouse he saw the green sidelight of a vessel very close on the port bow just before the two vessels collided.

1.7 SAFETY MANAGEMENT SYSTEMS

1.7.1 *Scot Isles*

Scot Isles held a safety management certificate which was issued in April 2007. The manager's Document of Compliance (DOC) was issued by the Maritime and Coastguard Agency (MCA) in October 2007.

An internal audit of the vessel's Safety Management System (SMS) was carried out on 22 February 2008, when no defects were found. The last external audit was completed on 31 May 2008; this found four deficiencies, none of which related to bridge operations.

In the SMS, the company had issued guidance on responding to emergencies. Card 10 (**Annex A**) listed the actions required following a collision, with tick boxes for ease of use. These included the requirement to place the crew on 'stand-by'.

Also in the SMS were instructions which required the master to maintain a night order book to amplify his standing orders and to ensure that the bridge watch alarm was used when the vessel was on passage.

In October 2005, the manager issued Fleet Directive B-Deck-2 Keeping a Safe Navigational Watch (**Annex C**); this required navigational watch ratings to be fully familiar with bridge and basic equipment and that they be actively encouraged to become part of the bridge team.

In September 2008, the manager issued a safety circular (**Annex D**) referring to fleet directives and reminding bridge watchkeepers of the principles of good watchkeeping practice.

1.7.2 *Wadi Halfa*

Wadi Halfa's safety management certificate was issued in October 2007. The owner's DOC was issued in December 2007.

The external renewal audit undertaken in October 2007 identified seven non-compliances; these mainly related to poor standards of maintenance.

An internal audit of the SMS was carried out in May 2008; this identified non-compliances relating to voyage passage planning, port checklists and maintenance standards in the engine room.

In November 2003, the owner issued a procedure (**Annex E**) for bridge organisation with the objective of providing "*guidance to masters and watchkeeping officers to ensure the safe navigation of its vessels and compliance with the applicable International Rules and Regulations (SOLAS, STCW and COLREGS)*" (sic).

1.8 ENVIRONMENTAL CONDITIONS

Wind: Northerly, Force 3 (Beaufort scale)

Sea: Slight to Moderate

Visibility: Good

Weather: Occasional rain showers

Tide: Slack water

1.9 CHANNEL NAVIGATION INFORMATION SERVICE (CNIS)

Dover Strait is one of the busiest shipping lanes in the world. Vessels are tracked and recorded by both radar and AIS. Shipping movements in the area are monitored by the English and French coastguard from radar stations located at Dover and Cap Gris Nez respectively.

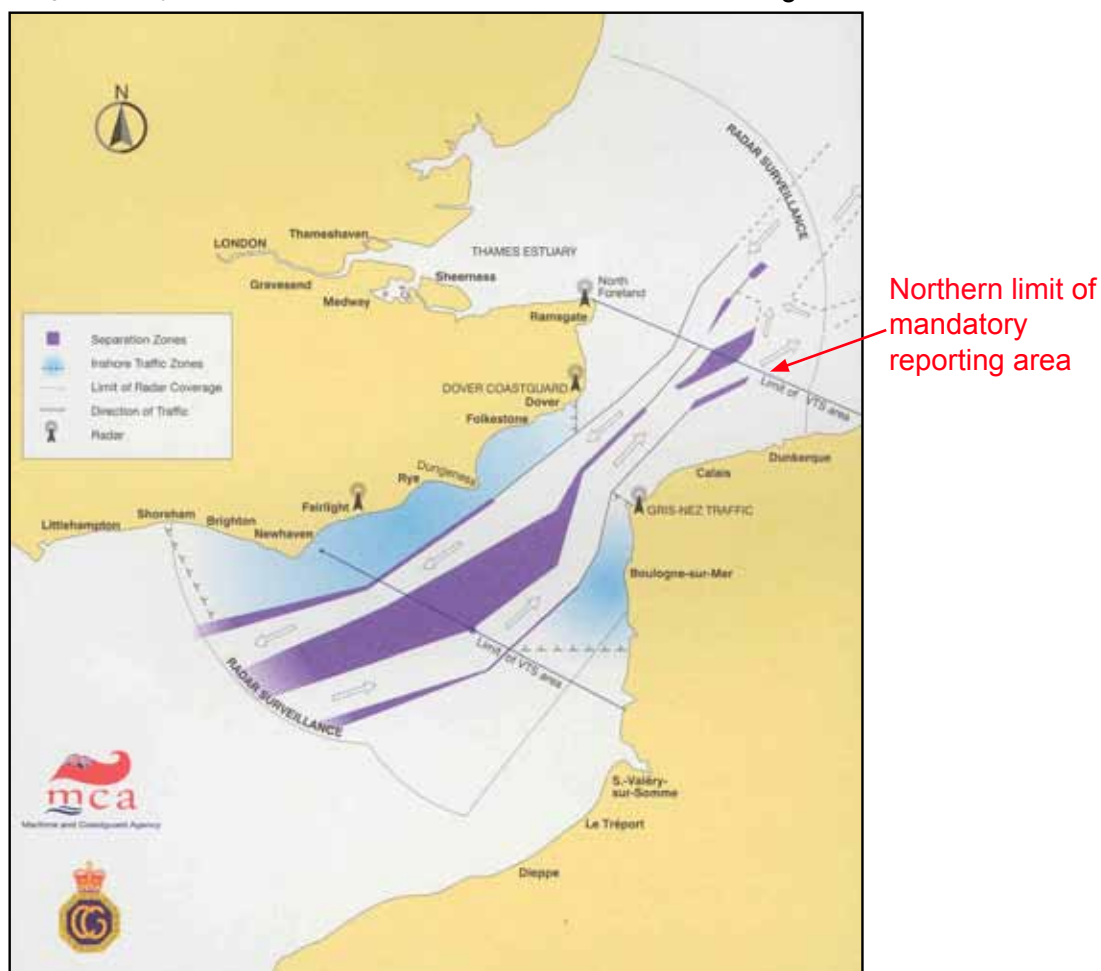
Dover and Cap Gris Nez provide a coastal vessel traffic information service. Each station broadcasts information on VHF radio about weather and navigational hazards as part of the joint CNIS. Their broadcasts also include information on deep draught vessels, vessels under tow and on vessels engaged in special operations. A broadcast is also transmitted for any vessel that appears to be in contravention of the COLREGS to warn other vessels that a potentially hazardous situation exists in a particular part of the TSS.

A mandatory reporting scheme for vessels over 300GT using the TSS was introduced in 1999. SW bound vessels are required to report to Dover coastguard and NE bound vessels report to Cap Gris Nez.

To assist mariners transiting Dover Strait, the MCA published Marine Guidance Note (MGN) 364 (M+F), which contains specific reference to the Sandettie deep water route (**Annex B**).

Wadi Halfa reported to Cap Gris Nez when she entered the NE bound traffic lane, while *Scot Isles* was not required to make a report as her passage was conducted outside of the mandatory reporting area (**Figure 9**).

The tracks of both vessels were recorded on radar by CNIS at Dover and the radar plot for 0449, 29 October (**Figure 2**) shows their historic tracks at the time of the collision.



Dover Strait TSS - mandatory reporting area

1.10 KEEPING A SAFE NAVIGATIONAL WATCH

A number of publications contain relevant advice for masters and watchkeeping officers on the essentials of keeping a safe navigational watch. Among these are:

- MGN 315 (M) – Keeping a safe navigational watch on merchant vessels
- MGN 137 (M+F) – Lookout during periods of darkness and reduced visibility
- STCW Chapter 8 – Standards regarding watchkeeping.

All of the above publications emphasise the need to maintain a proper lookout at all times. MGN 315 (M) (**Annex F**) provides detailed guidance on both the requirements for posting a lookout and the relationship between the bridge watchkeeping officer and the lookout.

1.10.1 COLREGS

Rule 5 defines the duty to maintain a proper lookout:

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

Rule 15 defines the action to be taken in a crossing situation:

When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

The other rules considered relevant to this accident are included in full at **Annex G**.

1.11 PREVIOUS INCIDENTS

In 2004 the MAIB published a Bridge Watchkeeping Safety Study¹ which reviewed 1,647 collisions, groundings, contacts and near collisions involving merchant vessels over 500GT reported to the MAIB between 1994 and 2003.

In relation to collisions, the study found that:

- 65% of vessels involved in collisions were not keeping a proper lookout
- 33% of all accidents that occurred at night involved a sole watchkeeper on the bridge
- on 19% of the vessels involved in the collisions, the bridge watchkeeping officers were completely unaware of the other vessel until or, in some cases, after the collision.

In November 2004 *Scot Explorer*, which was also managed by Intrada Ships Management Limited, collided with the fishing vessel *Dorthe Dalsoe*.

The MAIB carried out a full investigation of this accident (report 10/2005 refers)².

The report concluded that, while the fishing vessel was the give-way vessel and should have kept clear, *Scot Explorer* did not maintain a proper lookout and should have made better use of her radar, including ARPA, to facilitate an earlier determination that a risk of collision existed. At the time of the collision the designated lookout on *Scot Explorer*, who was also the ship's cook, was in the galley preparing a meal.

¹ MAIB Safety Study 1/2004,
http://www.maib.gov.uk/publications/safety_studies/bridge_watchkeeping_safety_study.cfm

² MAIB Investigation Report,
http://www.maib.gov.uk/publications/investigation_reports/2005/scot_explorer.cfm

A recommendation was made to the International Chamber of Shipping to highlight to ship owners that the accident could have been avoided if a dedicated lookout had been on the bridge during hours of darkness.

In September 2008, *Scot Venture*, managed by Intrada Ships Management Limited, collided with the fishing vessel *Golden Promise*. The MAIB carried out a Preliminary Examination into the accident³ and Intrada issued a safety circular (**Annex D**) reminding bridge officers of the principles of good watchkeeping practice.

1.12 BRIDGE RESOURCE MANAGEMENT

The need to maintain an effective bridge team at all times is one of the key themes of the Bridge Procedures Guide, issued by the International Chamber of Shipping⁴. The guide states that, inter alia:

At all times, ships need to be navigated safely in compliance with the COLREGS and also to ensure that protection of the marine environment is not compromised.

An effective bridge organisation should manage efficiently all the resources that are available to the bridge and promote good communication and teamwork.

The need to maintain a proper look-out should determine the basic composition of the navigational watch. There are, however, a number of circumstances and conditions that could influence at any time the actual watchkeeping arrangements and bridge manning levels.

Effective bridge resource and team management should eliminate the risk that an error on the part of one person could result in a dangerous situation.

³ MAIB Preliminary Examination, http://www.maib.gov.uk/publications/completed_preliminary_examinations/completed_preliminary_examinations_2008/scot_venture.cfm

⁴ ICS Bridge Procedures Guide, Fourth Edition, 2007

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 SCOT ISLES

2.2.1 Master

At 0150 on the morning of the collision, when the vessel had cleared the Medway pilotage area, the master left the second officer as the sole watchkeeping officer for the passage in the Thames estuary. He considered that Thames VTS and CNIS would alert the vessel to any potentially hazardous situations and would provide advice on collision avoidance situations.

It is not the role of a VTS to relieve vessels of their duties under the COLREGS to maintain a proper lookout and to take proper action to prevent collision. VTS provides navigational safety information to vessels in its area, but the service should not be regarded as a substitute for maintaining a safe navigational watch at all times.

The master did not leave night orders, and did not normally do so. It was his assumption that, because the bridge watchkeeping officers all held certificates of competency, they did not require any further guidance.

Night orders were required to be completed by the vessel's SMS and are an effective way of alerting watchkeepers to specific hazards at any stage of a passage. They provide an additional safety barrier to prevent unsafe practices and act as a stimulus to bridge watchkeeping officers by raising their awareness of the risks likely to be encountered and by providing guidance on how to mitigate those risks.

In this case night orders could have been used to identify key areas of concern relating to the passage across the traffic lanes of the Dover Strait TSS. In this respect the master's requirements with reference to: maintaining a proper lookout, desired interval for position fixing on the chart, use of ARPA for radar plotting, safe passing distances from other vessels and navigational marks, as well as the effective use of AIS could have been listed.

Evidence also indicates that it was the master's custom not to post a lookout during his bridge watches and that he did not require the bridge watch alarm to be used.

The manager had issued a fleet directive on keeping a safe navigational watch and a safety circular to bridge watchkeepers referring to the Bridge Procedures Guide. The MCA provides guidance in MGN 315(N) on maintaining a safe navigational watch.

Despite his knowledge and experience, the specific requirements contained in the manager's SMS and the national and international recommendations with respect to bridge watchkeeping, the master had become complacent. This factor, which had not been identified by the manager, set a low benchmark for others on board *Scot Isles* to follow.

2.2.2 Chief officer's watchkeeping

The chief officer took over as the bridge watchkeeping officer at 0400 on a dark night in relatively benign weather conditions. The vessel was clear of the Thames estuary and there were only a few other vessels in the vicinity.

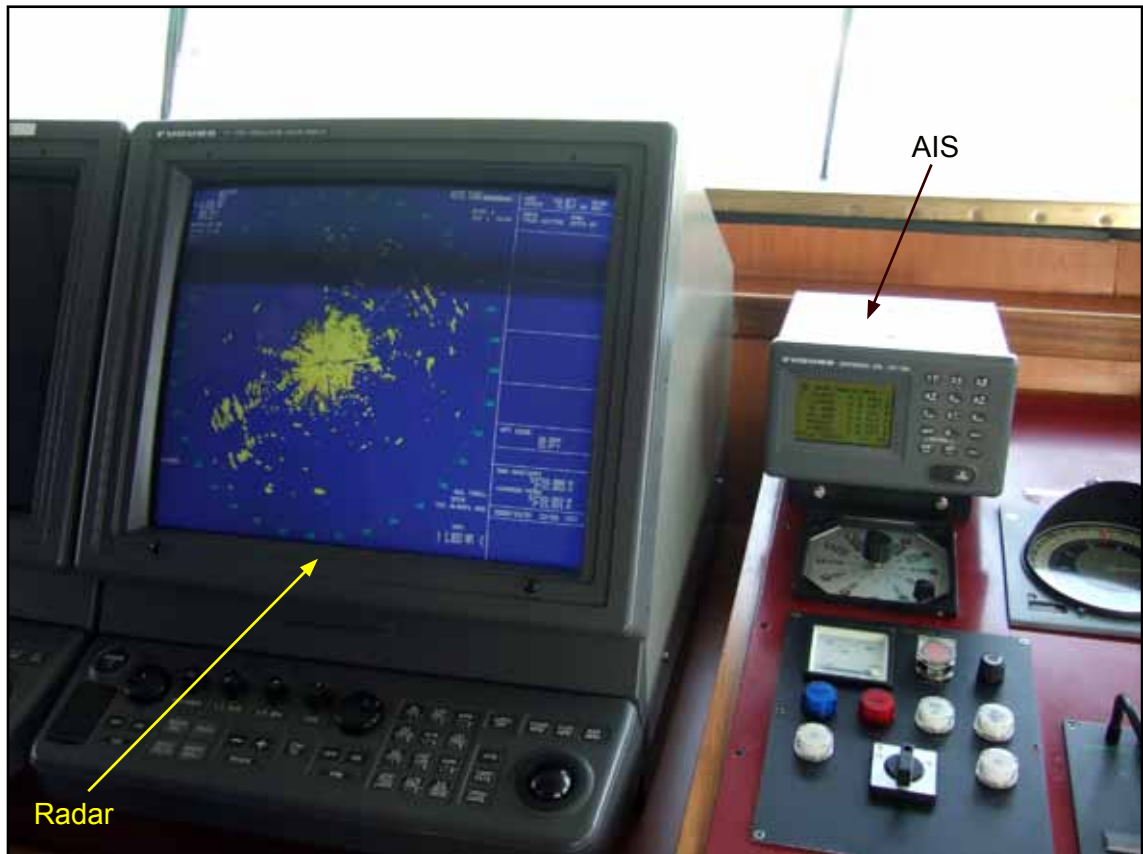
As the vessel proceeded towards the SW traffic lane, in open water, the chief officer was faced with no immediate risks to the safe passage of the vessel. The Filipino lookout was on the bridge, but it was not customary for the watchkeeping officers to talk to the lookouts. When the lookout reported a red light to starboard, and then advised that he was leaving the bridge to undertake safety rounds, the chief officer made no comment. As this was not abnormal, the lookout was unaware that the chief officer had not registered his report.

The absence of a lookout demonstrated a complacent attitude to watchkeeping when the vessel was crossing the traffic lanes of a TSS.

Safe crossing of a traffic lane in a TSS requires the bridge team to be alert and to maintain situational awareness. This is achieved by effective bridge resource management, which was lacking in this case. The lookout should not have been allowed to leave the bridge when he did.

The chief officer was sitting in front of a radar fitted with ARPA, but this facility was not used to acquire and plot any of the radar targets, which could have enabled an early assessment of risk of collision to be made. The information displayed on the AIS receiver (**Figure 10**), located beside the starboard radar, giving the names and relative positions of the closest six vessels, was also not used.

The chief officer failed to maintain a proper lookout by sight or use of the navigational equipment available to him. This was contrary to Rule 5 of the COLREGS.



Scot Isles - wheelhouse, location of AIS receiver

The vessel's position was not plotted on the chart after 0400. The GPS display was monitored to ensure the vessel remained within the tram lines displayed on screen. This was poor navigational practice, as reference to a chart would have helped the chief officer to maintain situational awareness. Regular use of the chart provides the watchkeeper with a stimulus from the essential information it contains to assist the conduct of a safe passage.

Analysis of the damage caused to both vessels indicates that the chief officer probably did not see *Wadi Halfa* before *Scot Isles* was struck amidships.

He first became aware of the other vessel when he looked out of the starboard aft facing wheelhouse window and saw the accommodation lights of *Wadi Halfa* just before the second impact, when she struck the starboard bridgework of *Scot Isles*.

There is no evidence to conclude that the chief officer was unduly fatigued or that he fell asleep during the period leading up to the collision. However, it is likely that his apparent lethargic approach to his watchkeeping responsibilities was due to a lack of stimuli because of the following:

- There was no routine interaction between him and his dedicated lookout, who, in any case, had been allowed to leave the bridge over 10 minutes before the collision
- There were no night orders left by the master to alert the watchkeeper to the risks of the passage across the TSS and the requirement to be extra vigilant
- ARPA was not used to acquire and plot targets
- Positions were not plotted on the chart
- The AIS was not monitored
- The bridge watch alarm was not activated
- He remained seated throughout his period of watch
- He had become complacent in his approach to watchkeeping.

2.3 WADI HALFA

2.3.1 Master

The vessel's passage through the Sandettie deep water route to the NW of the Sandettie bank was contrary to the advice given on the chart (BA 2449) and in the Admiralty Sailing Directions for the Dover Strait (NP 28), which states that the deep water route is for the use of vessels with a draught of 16m or more.

Wadi Halfa's draught was less than 6m, and the decision to use the deep water route was inappropriate. Masters should not disregard the advice provided in approved navigation publications as this sets a poor example to bridge watchkeeping officers.

The master left the bridge before the chief officer took over the watch. Although he left no night orders on this occasion, he did so the night before and the night following the accident (**Annex H**). These required that all officers kept a sharp lookout, gave a wide berth to all ships, and frequently checked the vessel's position.

However, these orders were not significantly different from those he wrote when the vessel was in open waters. The night orders should be used to provide an additional stimulus to the bridge watchkeeping officers by amplifying the need for vigilance when navigating in areas where greater densities of traffic and/or other navigational hazards are expected. In this case, rather than provide explicit guidance to his watchkeeping officers, the master assumed that the CNIS would alert the vessel to any potentially hazardous situations.

Despite his knowledge and experience, the owner's required procedures and the recommendations promulgated internationally with respect to bridge watchkeeping, *Wadi Halfa's* master, like *Scot Isles'*, had become complacent. This was a factor that had not been identified by the owner, and which did not engender best practice in his bridge watchkeeping personnel.

2.3.2 Chief officer's watchkeeping

The chief officer took over as the bridge watchkeeping officer at 0400. The vessel was heading NE in the Sandettie deep water route and there were no other vessels in the immediate vicinity. It was a dark, clear night and conditions were calm. A cadet and lookout were also on the bridge.

The chief officer allowed the lookout to leave the bridge, for a toilet break, at about 0435, and allowed the cadet to remain in the chart room area from 0400.

The chief officer was then the sole lookout and, in similar circumstances to those occurring simultaneously on the bridge of *Scot Isles*, the ARPA was not used to assess the risk of collision and the AIS display was not monitored. A proper lookout by sight and by using all available means was not maintained, contrary to the requirements of Rule 5 of the COLREGS.

Just before the collision, the chief officer saw the green sidelight of *Scot Isles* close to port. He put the helm hard to starboard and *Wadi Halfa* had started to swing to starboard when contact occurred. Although this action was too late to avoid collision, it probably prevented *Wadi Halfa* striking *Scot Isles* in the latter's accommodation area, with serious potential consequences.

The increased risks when the lookout left the bridge were not appreciated. There is no evidence to conclude that the chief officer was unduly fatigued. However, he demonstrated a complacent attitude to his bridge watchkeeping responsibilities and could have made better use of available resources.

2.4 LOOKOUT

2.4.1 Use of lookouts

Neither vessel made best use of manpower available to form an effective bridge team. It was not customary, on either vessel, for the watchkeeping officers to discuss the navigation plan with their lookouts. In an area of high navigational risk this represents an individual, and a systemic failure, of bridge resource management on both vessels.

When the lookouts were allowed to leave their respective bridges, ironically at almost exactly the same time, there was no realisation that a significant safety barrier had been removed and that the risk of collision had increased accordingly.

Although bridge equipment was available to assist both chief officers in keeping a proper lookout in the absence of a dedicated lookout, this was not used effectively. In any event the use of such equipment should complement, and not replace, the requirement to maintain a proper lookout by sight.

2.4.2 Requirement to maintain a lookout

The need to maintain a proper lookout should determine the basic composition of the navigational watch. A dedicated lookout should be an integral part of the bridge team, as promoted by MGN 315 (M) and the Bridge Procedures Guide.

2.5 ACTIONS FOLLOWING COLLISION

2.5.1 *Scot Isles*

On arrival in the wheelhouse, the master presumed that the crew were awake, as he had seen some of them on his way to the bridge. Although he had not heard the General Alarm being sounded, he did not sound it or carry out a full muster.

If the point of impact had been further aft or if the bulkhead in the hold had been breached, *Scot Isles* and her crew would have been at great and immediate risk. A prompt muster, using the General Alarm, should have been carried out to ensure everyone was accounted for and alert to the vessel's predicament.

The vessel's SMS Emergency Response Card, Card 10, for collisions at sea (**Annex A**), required the crew to be placed on 'stand-by'. Clear advice to sound the General Alarm at an early stage after a collision should be included in such checklists.

After the collision, the master arranged for the engine room and accommodation spaces to be checked for damage and was advised that there was none in those areas. However, the deck and hold were not checked and the full extent of the damage, to the hull on the starboard side amidships, was not realised until illuminated by a helicopter more than an hour after the collision.

In assuming that only *Scot Isles'* starboard bridgework had been damaged during the collision, the master relied on information provided to him by the chief officer, who was in a state of shock, and on what could be seen from the wheelhouse (**Figure 11**). A thorough inspection of the entire vessel, which should have included sounding all tanks and spaces, should have been undertaken following the collision.

The vessels' details were exchanged by VHF radio a short time after the collision, when it was established that neither vessel required assistance. However, *Scot Isles* made no contact with the nearest Coastal State until an hour after the accident, when she was called by the French coastguard.

Figure 11



Scot Isles - view looking forward from wheelhouse

A prompt, which required the master to inform the nearest coastal state in the event of a collision, was not included on the relevant SMS checklist. Early notification of all accidents and incidents to the nearest coastal state will ensure appropriate shore resources can be briefed and placed on standby, thereby allowing a more effective response, should the situation worsen. Without such a prompt, it is entirely understandable that masters will, in the heat of the moment, not be focused on the need to inform the coastal authorities of a developing problem. It is therefore essential that the requirement should be formally incorporated into the shipboard contingency plans.

2.5.2 Wadi Halfa

The master arrived on the bridge very soon after the collision. He quickly made a public address broadcast to inform the crew of the accident and was confident that this had been heard throughout the vessel and that his crew were all alert to the situation. As with *Scot Isles*, it would have been more prudent to sound the General Alarm at this stage and to carry out a full muster of the crew to verify that no-one was missing, or had been injured, in the accident.

The master was soon joined on the bridge by off-duty officers whom he organised to undertake checks of the vessel in accordance with a checklist from the vessel's SMS. The checks included taking soundings of tanks and visual

inspections to assess the extent of the damage caused by the collision. He also instructed an officer to maintain a log of events and to use the AIS to identify and contact the other vessel involved in the collision.

Once contact had been made with *Scot Isles*, the French coastguard was informed of the accident. This aspect of the response was very effective and demonstrates the benefit of following a well prepared checklist in such situations.

2.6 ASSESSMENT OF DAMAGE CAUSED TO BOTH VESSELS

The shape of the damage caused to the shell plating of *Scot Isles* (**Figure 12**) matched the profile of *Wadi Halfa*'s bulbous bow. The distance, measured from the bulbous bow to the hole in number one port wing ballast tank on *Wadi Halfa*, corresponds with that from the hull damage on *Scot Isles* to her starboard bridge wing.

Figure 12



Scot Isles and *Wadi Halfa* - comparison of damage

From this evidence it can be seen that the initial point of contact was between the port side of *Wadi Halfa*'s bulbous bow and the starboard hull, amidships, of *Scot Isles*. The two vessels then came together bodily, which resulted in the secondary damage to *Scot Isles*' starboard bridgework and to *Wadi Halfa*'s shell plating in way of number one port wing ballast tank.

2.7 HOURS OF WORK AND REST RECORDS AND FATIGUE

Analysis of the hours of work and rest records for both vessels indicated that they were accurately and reliably completed.

2.7.1 *Scot Isles*

The records for the chief officer show that he had 15 hours of rest in the 24 hour period before the accident. However, his periods of rest were interrupted by the operational requirements of the vessel's arrival and departure from Rochester. As such, his sleep pattern, in the hours preceding the accident, was also disrupted to the extent that the MAIB's fatigue analysis tool indicated there was a moderate risk that he was fatigued at the time of the accident.

2.7.2 *Wadi Halfa*

The chief officer had kept the 0400 - 0800 and 1600 - 2000 bridge watches for the previous 12 days. In addition to his watchkeeping duties, he normally worked from 0900 - 1100 on administrative duties. On this evidence, he averaged 14 hours rest each day and there is nothing to suggest that he was fatigued at the time of the collision.

2.8 SAFETY MANAGEMENT SYSTEM

Both vessels held approved safety management systems but on both there was evidence of ingrained non conformities in relation to the formation of effective bridge teams and the use of lookouts. These deficiencies had not been identified during SMS audits.

Companies should ensure that the importance of effective bridge resource management is reflected in their SMS documentation, that their employees receive training and guidance to establish and maintain such systems on board, and that internal audits adequately measure the extent of compliance.

SECTION 3 - CONCLUSIONS

3.1 SAFETY ISSUES DIRECTLY CONTRIBUTING TO THE ACCIDENT WHICH HAVE RESULTED IN RECOMMENDATIONS

1. The masters of both vessels were complacent, a factor that had not been identified by the respective ship managers and which did not engender best practice in either bridge team. [2.2.1, 2.3.1]
2. It is likely that *Scot Isles*' chief officer's apparent lethargic approach to his watchkeeping responsibilities was due to a lack of stimuli:
 - There was no routine interaction between him and his dedicated lookout, who, in any case, had been allowed to leave the bridge over 10 minutes before the collision.
 - There were no night orders left by the master to alert the watchkeeper to the risks of the passage across the TSS and the requirement to be extra vigilant.
 - ARPA was not used to acquire and plot targets
 - Positions were not plotted on the chart
 - The AIS was not monitored
 - The bridge watch alarm was not activated
 - He remained seated throughout
 - He had become complacent in his approach to watchkeeping [2.2.2]
3. The chief officer of *Wadi Halfa* demonstrated a complacent attitude to his bridge watchkeeping responsibilities and could have made better use of available resources. [2.3.2]
4. When the lookouts were allowed to leave their respective bridges, neither chief officer realised that a significant safety barrier had been removed. On both vessels, available navigational equipment was not used effectively and provided an inadequate substitute for maintaining a proper lookout by sight. [2.4.1]
5. Safety management system non conformities on each vessel with respect to the formation of effective bridge teams and the use of lookouts had not been identified during internal company audits. [2.8]

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

1. An instruction to sound the General Alarm was not included in the SMS post collision checklist on *Scot Isles*. [2.5.1]
2. *Scot Isles* did not advise the nearest Coastal State of the accident. [2.5.1]
3. The post collision checks carried out on *Scot Isles* were not sufficient to identify the major damage to the hull. [2.5.1]

SECTION 4 - ACTION TAKEN

4.1 THE MARINE ACCIDENT INVESTIGATION BRANCH

The MAIB has issued a Safety Flyer (**Annex I**) providing details of the accident and highlighting the dangers of complacency in bridge watchkeeping officers and the importance of establishing an effective bridge team.

4.2 INTRADA SHIPS MANAGEMENT LIMITED

Following the accident, the manager carried out an internal investigation and has taken or intends to take the following action to prevent recurrence:

1. The post collision shipboard checklist has been revised to include requirements to:
 - sound the General Alarm and ensure that all crew are mustered
 - contact the nearest Coastal State and report the accident.
2. Watchkeepers have been reminded to follow the instructions from the Bridge Procedures Guide and fleet directives more diligently.
3. The use of the watchkeeper alarm will be enforced by fleet directives.
4. Ratings are to be better trained to be part of the bridge team.
5. Proper instructions (night orders etc) will be given by the master to watchkeepers, especially in busy areas.
6. Damage control drills will be better rehearsed.
7. Internal audits will ascertain that proper navigational watches are being maintained.
8. Company emergency response checklists will be revised to ensure that masters are reminded to make a thorough assessment of damage.

4.3 NATIONAL NAVIGATION COMPANY, EGYPT

The National Navigation Company carried out an internal investigation into the accident and has taken or intends to take the following action to prevent recurrence:

1. The details of the accident have been circulated to the vessels in its fleet to ensure that lessons are learned to prevent recurrence.
2. The bridge management training needs of its employees are being reviewed.
3. The details of the accident will be briefed to the company's masters when joining its vessels.

SECTION 5 – RECOMMENDATIONS

The **International Chamber of Shipping, UK Chamber of Shipping, The Nautical Institute** and the **International Federation of Shipmasters' Associations** are recommended to:

2009/124 Promulgate to their respective members the MAIB Safety Flyer accompanying this report to highlight the dangers of complacency in bridge watchkeeping officers and the importance of establishing an effective bridge team capable of maintaining a proper lookout, using all available means, at all times.

May 2009
Marine Accident Investigation Branch

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