

**Investigation into the collision between
the UK registered cargo vessel**

Hoo Robin

and the Republic of Ireland registered cargo vessel

Arklow Marsh

on the River Trent on 2 March 1999

Marine Accident Investigation Branch
Carlton House
Carlton Place
Southampton
SO15 2DZ

Tel: 023 8039 5500

File: 1/3/166

**Extract from
The Merchant Shipping
(Accident Reporting and Investigation)
Regulations 1999**

The fundamental purpose of investigating an accident under these Regulations is to determine its circumstances and the causes with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame.

CONTENTS

	Page
ABBREVIATIONS AND ACRONYMS	
SYNOPSIS	1
SECTION 1 - FACTUAL INFORMATION	3
1.1 Vessel and Accident Information	3
1.2 Background to the Accident	4
1.3 Narrative of Events	4
1.4 Environmental Information	8
1.5 Manning and Certification - <i>Hoo Robin</i>	8
1.6 Alcohol and other Drugs	8
1.7 The Method of Navigation - <i>Hoo Robin</i>	8
1.8 The Use of VHF Radio on the River Trent	10
1.9 The Role of Humber VTS	10
1.10 Data Search of Strandings and Collisions on the River Trent	11
1.11 Actions taken since the Accident	11
SECTION 2 - ANALYSIS	12
2.1 The use of VHF	12
2.2 The Cause of the Collision	12
2.3 Manning and Bridge Resource Management - <i>Hoo Robin</i>	13
2.4 Fatigue	14
2.5 Alcohol and other Drugs	14
2.6 The Role of Humber VTS	14
SECTION 3 - CONCLUSIONS	16
3.1 Findings	16
3.2 Causes	16
3.3 Contributory Factors and Underlying Causes	17
SECTION 4 - RECOMMENDATIONS	18
ANNEX	19

ABBREVIATIONS AND ACRONYMS

AB	-	Able Seaman
ABP	-	Associated British Ports
gt	-	Gross Registered Tons
kW	-	kilowatt - unit of power
m	-	Metre - unit of length
MAIB	-	Marine Accident Investigation Branch
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Note
UTC	-	Universal Co-ordinated Time
VHF	-	Very High Frequency (Radio)
VTS	-	Vessel Traffic Services



Reproduced from Admiralty Chart 4014 by permission of the Controller of HMSO and the UK Hydrographic Office

SYNOPSIS

(all times are Universal Co-ordinated Time)

The accident was notified to the Marine Accident Investigation Branch (MAIB) by HM Coastguard at 2053 on 2 March 1999. An investigation began on 8 March and was conducted by MAIB Inspector, Captain N Beer.

On 2 March 1999, *Hoo Robin*, a low air draught coaster of 58m in length (**Photograph 1**) left the berth at Gunnes on the River Trent bound for Antwerp. As the vessel made her way down-river against the last of the flood tide, her master contacted a number of inbound vessels as he approached them to agree the side on which they should pass. At about 1830 he became concerned when an approaching vessel did not move over to the side of the river that he thought had been agreed. Confusion arose and *Hoo Robin* attempted to cross the other vessel's bow at the last minute. A collision occurred in which both vessels were damaged. There were no injuries and there was no pollution as a result of the accident.

The collision was caused by *Hoo Robin*'s last minute course alteration.

The underlying factors were:

- poor Very High Frequency (VHF) radio procedures;
- bridge undermanning;
- probable fatigue;
- lack of effective Vessel Traffic Services (VTS) coverage and
- a lack of clarity as to the required actions on the part of approaching vessels.

Recommendations have been addressed to Associated British Ports, Humber Marine Services and *Hoo Robin*'s owners, R Laphorn and Co Ltd.

Photograph 1



Hoo Robin

SECTION 1 - FACTUAL INFORMATION (all times are UTC)

1.1 Vessel and Accident Information

Vessel 1

Name	:	<i>Hoo Robin</i>
Built	:	UK, 1989
Type	:	General cargo, single deck
Call Sign	:	MKTF4
Port of Registry	:	London
Length	:	58.27m
Gross Tonnage	:	794
Draught	:	2.4m (in ballast)
Propulsion	:	Diesel, twin directional propellers
Propulsive Power	:	536kW
Speed	:	9 knots
Class	:	Bureau Veritas
Owner/Operator	:	R Laphorn and Co Ltd
Crew	:	5

Vessel 2

Name	:	<i>Arklow Marsh</i>
Built	:	Germany, 1988
Type	:	General cargo, single deck
Call Sign	:	EJR
Port of Registry	:	Arklow, Republic of Ireland
Length	:	73.84m
Gross Tonnage	:	1524
Draught	:	4.6 m (loaded)
Propulsion	:	Diesel, MaK, single propeller
Propulsion Power	:	749kW
Speed	:	11.5 knots
Class	:	Germanischer Lloyd
Owner/Operator	:	Arklow Shipping

Accident

Date of Accident	:	2 March 1999
Time of Accident	:	1830
Type of Accident	:	Collision
Place	:	River Trent
Weather	:	Dark, good visibility
Sea Conditions	:	Inland waters
Injuries	:	None
Damage	:	Damage to both vessels
Pollution	:	None

1.2 Background to the Accident

Hoo Robin is one of 22 vessels owned and managed under the UK flag by R Laphorn and Co. She generally operates between UK and continental ports and is manned by a complement of five people. When at sea, two officers: the master and mate, alternate on bridge watch on a flexible routine based on five hours on duty followed by five hours off. In port, the mate oversees cargo work and the master has responsibility for overseeing engine maintenance and general administrative duties. The master frequently also has responsibility for pilotage either as the holder of a pilotage exemption certificate, or because *Hoo Robin* is exempt from carrying a licensed pilot by virtue of her size. In addition there are two able seamen (ABs) and one AB/cook. The ABs serve as lookout on the bridge at night and in poor visibility and carry out maintenance tasks at other times.

Arklow Marsh is owned and operated by Arklow Shipping, a Republic of Ireland based company which operates 24 similar ships in North European waters. On 2 March 1999 *Arklow Marsh* was inbound for the Fina berth at Gunnes on the River Trent with a cargo of 2015 tonnes of phosphates in bulk.

The work routine on coastal vessels like these can be punishing. Port calls are short and hectic. Cargo work usually starts on arrival and the vessel generally departs as soon as possible after completion of the work. The requirement to carry out pilotage, poor visibility or bad weather frequently disrupts the watchkeeping routine at sea, reducing the amount of rest time available. The quality of rest is frequently affected by rough sea conditions or a noisy port environment.

In the four days before the collision, *Hoo Robin* had discharged her cargo at one port on the River Weser, and had made a ten-hour passage in poor visibility to a berth on the River Elbe. She had loaded her cargo and made a fifty-hour passage which started in poor visibility and continued, in gale or near gale force winds and rough seas, to the entrance to the River Humber. She then made a five-hour river passage under the master's direction before arrival at Grove Wharf, Gunnes, on the River Trent at 1750 on 1 March.

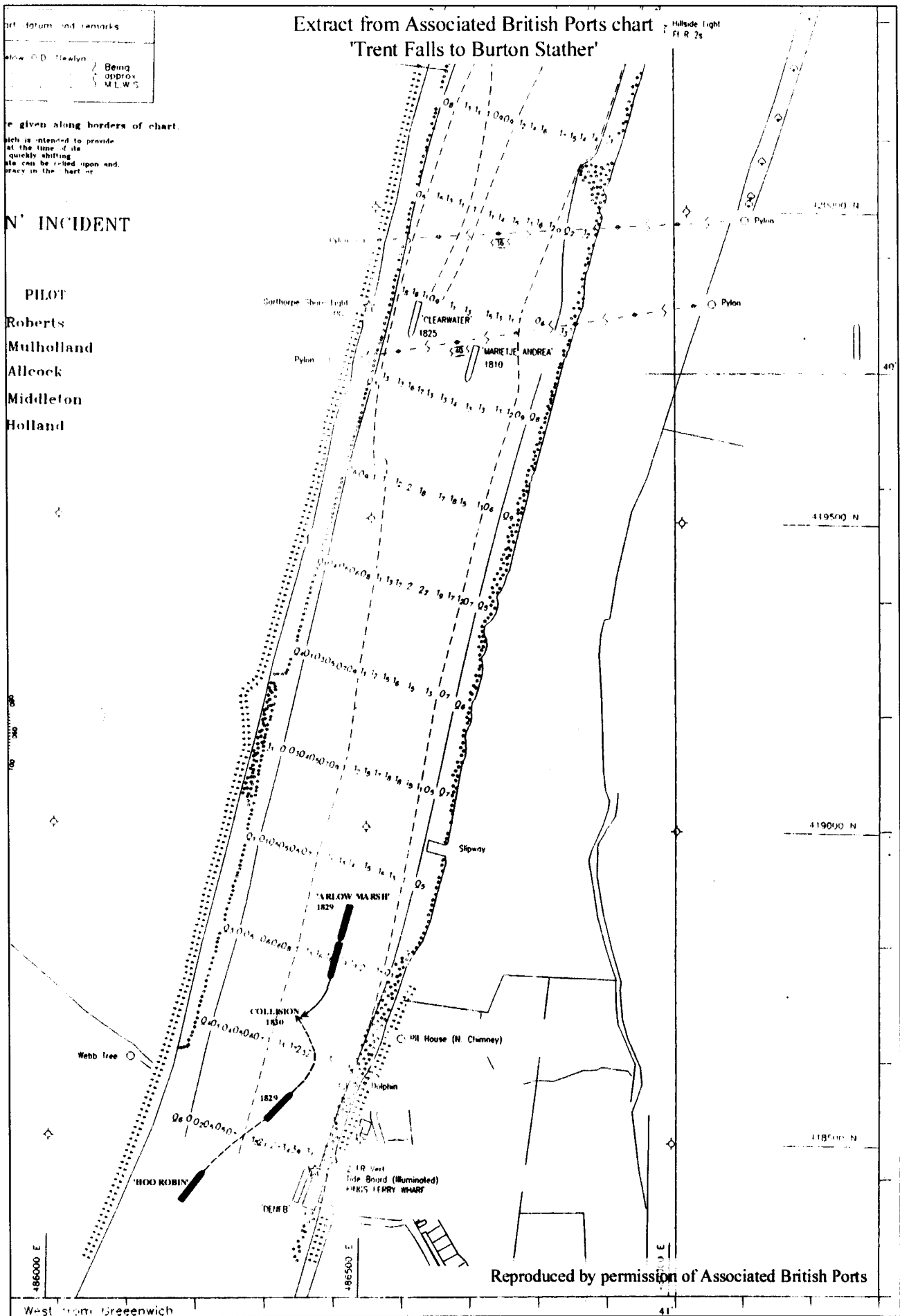
Between 0620 and 1510 on 2 March she discharged her cargo and prepared for a ballast voyage to Antwerp.

1.3 Narrative of Events (Figure 1 - Chart extract)

Hoo Robin left Grove Wharf at 1748 on 2 March. As soon as she was clear of the berth the ABs and the cook went into the accommodation to get a meal, and the mate went to the bridge to assist the master who was piloting the vessel. The visibility was good, it was just getting dark and it was nearing the end of the flood tide. Her maximum draught was 2.4m.

At 1805 *Arklow Marsh* (maximum draught 4.6m) passed Apex light and entered the River Trent inbound for Keadby with a licenced pilot on board. Three other small cargo vessels were inbound at about the same time; *Clearwater* and *Marietje Andrea* were ahead of her and *Ara* was half-a-mile astern. There were also a number of barges inbound and outbound.

Figure 1



Hoo Robin, and the other vessels, broadcast their positions on VHF Channel 17 when passing key points in the river (see Annex). *Hoo Robin* contacted both *Clearwater* and *Marietje Andrea* as she approached them and agreed to pass both of them red-to-red (ie on each other's port side).

At about 1825 the master on *Hoo Robin* sent the mate below to have a meal and take some rest, so that he would be ready for the next watch. After their meals the ABs had returned to the deck to continue battening down and preparing for sea.

Arklow Marsh called "Trentships" on VHF radio at 1826 notifying all ships that she was passing under the wires at Garthorpe inbound for Keadby. A few seconds later *Hoo Robin* called "Trentships" saying that she was outbound at Burton Stather.

At 1828 *Arklow Marsh* called her destination berth at Keadby and notified them that she was 30 minutes away and "just coming up to Stather". Those on *Arklow Marsh* could see *Hoo Robin* ahead and on the west side of the river, showing a broad green sidelight and they assumed there would be a green-to-green passing.

The master on *Hoo Robin* could see two inbound vessels ahead of him, and by the angle of their lights he assessed one to be close to Cliff End and the other one, which was nearer, to be at Hillside. Just after 1828, in order to make contact with the nearest vessel, he called the "vessel approaching Hillside" on VHF Channel 17. *Arklow Marsh* was the nearer vessel but she was half-a-mile past Hillside light; *Ara* which was half-a-mile north of Hillside light responded and a red-to-red passing was agreed. *Hoo Robin* altered her course sharply to starboard. As her aspect changed she began to show a red light to *Arklow Marsh*, whose pilot altered course slightly to starboard.

A few seconds later the master on *Hoo Robin*, being concerned that the nearest ship, which he thought was the one with which he had been in communication, was close ahead and still on his starboard side, asked whether he (the pilot on *Ara*) was sure he wanted a red.

There was no immediate reply, and then the pilot on *Arklow Marsh* asked *Hoo Robin* "are you sure you have the right ship Captain?" A few seconds later the pilot on *Ara*, through radio interference, started to explain the traffic situation as he saw it.

The master on *Hoo Robin* apparently heard the word "green" through the radio interference and, seeing by then that the nearest ship was very close ahead, he altered course hard-to-port broadcasting his intentions over the VHF radio. At the same time *Arklow Marsh* put her helm hard-to-starboard and then her engines astern. Although *Arklow Marsh's* head began swinging to starboard, *Hoo Robin's* was swinging to port following her around.

At 1830 *Arklow Marsh's* bow collided with *Hoo Robin's* starboard side causing damage to both vessels (**Photograph 2**). Both vessels stopped and drifted or stemmed the tide to let other vessels pass while they assessed the damage. Subsequently *Arklow Marsh* was able to continue to Keadby and *Hoo Robin*, despite taking water into her hold, was able to move under her own power to Hessle where she berthed at 2040.

Photograph 2



Damage to starboard side of *Hoo Robin*

A full inspection revealed serious damage to *Hoo Robin*. There had been no injuries and no pollution.

1.4 Environmental information

Spring tides were predicted with high water at Burton Stather due at 1858 on 2 March with a height of 5.1m. The predicted height of tide at Burton Stather at the time of the collision was about 5.0m and the last of the flood tidal stream was still running. It can be seen from the chart extract that at 1830 both vessels could navigate using nearly the full width of the river in the area of the collision.

Sunset occurred at about 1740 and by 1830 it was nearly dark.

The visibility was mainly clear but there were occasional rain showers with a fresh south-westerly wind.

1.5 Manning and Certification - *Hoo Robin*

Hoo Robin was fully certificated according to national and international regulations. Her complement of five was in accordance with her safe manning certificate.

The master, Said Ahmadian-Tehrani, was 59 years old. He first went to sea with the Iranian Navy and came to live and work in Britain in 1981. He joined R Laphorn and Co Ltd as mate in 1986. He has a Class 4 certificate of competency with a command endorsement dated February 1986. He was promoted to master in 1991 and has served on *Hoo Robin* since 1994. His normal work routine is to serve 11 weeks on the vessel followed by four weeks leave. However the arrangement is flexible and on this occasion he had joined the vessel on 16 October 1998.

The mate, Abdul Mannan Khan, who has a Class 3 certificate of competency, joined the vessel in January 1999. The remaining three crew members, who were from the Cape Verde Islands, joined the vessel on 19 March 1998.

1.6 Alcohol and other Drugs

No toxicological testing of anyone involved was carried out after the accident. No other evidence was established to connect the use of alcohol or drugs with the circumstances of this accident.

1.7 The Method of Navigation - *Hoo Robin*

Hoo Robin is a low air draught dry cargo coaster. Her low wheelhouse is situated aft on the vessel abaft her single hold. The watchkeeper's field of view from the wheelhouse is restricted by the nature of the vessel but is adequate for safe navigation. The wheelhouse is well equipped with old but functional instruments (see **Photograph 3**). All the navigational

instruments including the radar were working correctly on 2 March. The master, who was alone on the bridge at the time of the collision, was standing and steering using the azimuthing propulsion units. The radar and VHF radio are sited within reach of the steering position.

Photograph 3



The wheelhouse

An Associated British Ports (ABP) Humber chart covering the relevant area of the river, was open on the chart table, but the master was navigating mainly by eye using knowledge of the river gained from previous visits. He had navigated on the River Trent approximately 25 to 30 times as master.

1.8 The Use of VHF radio on the River Trent

VHF radio Channel 17 is assigned for ship-to-ship and local ship-to-shore use by vessels navigating on the River Trent. It is customary on this river for vessels to report their progress to other vessels using this radio channel and the calling signal "Trentships". With information gained this way, individual masters and pilots can be aware of the location and intentions of other traffic.

It is also customary, and in accordance with bye-laws, for vessels with light draught and the ability to navigate outside the deeper water channel, to consider avoiding impeding another vessel which is more constrained by her draught. Barges will generally keep to the shallow water for this reason, and vessels in ballast will often make contact with approaching loaded vessels to offer the other vessel the opportunity to stay in the deeper water and to pass green-to-green if necessary. The amount of river traffic and the particular navigational difficulties in the River Trent makes this local procedure important to ensure safe navigation.

On this occasion, *Arklow Marsh* had, at first, assumed a green-to-green passing with *Hoo Robin* purely from assessing the positions of the approaching vessels, even though no contact had been established between them.

Hoo Robin however, had attempted to contact the nearest ship ahead of her to ask the pilot on that vessel what was wanted from *Hoo Robin*. Unfortunately, the vessel was not correctly identified and another ship responded to the VHF radio call.

Analysis of the VHF Channel 17 radio communications transcripts indicates that the majority of broadcasts are made without the originator, or the station being called, being positively identified. It would appear, generally, only calling stations identify themselves and attempt to identify the intended recipient when first contact is made.

1.9 The Role of Humber VTS

The position of the accident is within the area controlled by Humber VTS but is not within its radar coverage. *Hoo Robin* had notified Humber VTS of her departure from Gunnes Wharf using VHF radio Channel 12. The master had then switched the main VHF radio to Channel 17 to listen to other radio traffic from vessels on the River Trent so that he could monitor their movements. He kept a listening watch on Channel 12 VHF with a second radio. Humber VTS does not monitor the radio traffic on VHF Channel 17 but its equipment does record it.

Without radar coverage and without monitoring the radio traffic on VHF Channel 17, VTS can give only limited information and advice to masters and pilots.

1.10 Data Search of Strandings and Collisions on the River Trent

Thirty six incidents involving grounding or collision on the River Trent have been reported to the MAIB in the last four years. Due to the low under-keel clearance of many vessels using the river, and the shifting nature of the shoal water, stranding is an accepted commercial risk by those operating frequently on the river. For this reason these accidents are not generally investigated by the MAIB and it is unknown how many might have arisen because of confusion between passing vessels.

However the MAIB has knowledge of two other incidents where green-to-green/red-to-red confusion has been a factor in an accident on the River Trent. The first one occurred in February this year and involved *Hoo Robin*. She was inbound, loaded and, because it was neap tides, was constrained to the deeper parts of the channel.

She had the same master as on 2 March, who called and asked an outbound vessel for a red-to-red passing. The outbound vessel replied requesting a green-to-green passing which was agreed. *Hoo Robin* altered course to make room for the other vessel and ran aground.

The second incident was a collision which was investigated by the MAIB. It occurred in September 1992 involving the vessels *Andreas Boye* and *Gannet*. They had agreed to pass green-to-green but, at the last moment, the pilot on *Andreas Boye* came to the conclusion that *Gannet* was not going to manoeuvre in time to make the agreed passing, so he altered to starboard. *Gannet* however, continued turning to her port and the collision occurred.

1.11 Actions taken since the Accident

The enforcement unit of the Maritime and Coastguard Agency investigated this accident but did not pursue a prosecution.

SECTION 2 - ANALYSIS

2.1 The Use of VHF

Communication between vessels on the River Trent to agree the procedures for passing, is considered necessary on some occasions, due to deeper draught river traffic being restricted to the narrow unmarked channel of deeper water.

Hoo Robin was in ballast, and with a maximum draught of only 2.4m, was able to navigate using nearly the full width of the river. She was also proceeding against the tidal stream making slow speed manoeuvring easier. The inbound vessels were loaded and therefore possibly constrained to the deeper water channel in some places. They were also proceeding with the tide. It was correct, therefore, to use the VHF radio to agree a way for the lighter draught *Hoo Robin* to proceed, so as not to impede their passage. However, the master on *Hoo Robin* felt it necessary to contact every approaching vessel to ascertain whether the other vessel wanted a non-standard passing. The *Hoo Robin*'s master was trying to be helpful and co-operative but at the same time was overloading both himself and the VHF radio channel. The information necessary to establish the need for non-standard action is mainly on board the deep draught vessel (its draught, intentions, manoeuvrability etc). It should be up to that vessel to assess its own constraints, and only if necessary, contact the approaching vessel. In doing this the difficulty of correctly identifying the other vessel should be borne in mind. Unless positive contact with the correct vessel is established, red-to-red passing should be assumed.

The transcript of the VHF radio traffic indicates generally poor VHF radio procedures were prevalent. In particular, VHF radio broadcasts were frequently made on Channel 17 without the broadcasting station positively identifying either itself or the station being spoken to.

It is considered that the use of VHF radio is important for safe navigation on the River Trent, but poor VHF radio procedures contributed significantly to the confusion that arose on this occasion.

2.2 The Cause of the Collision

The master of *Hoo Robin* had identified two approaching vessels and made an assumption, based on his view of their navigation lights, that the nearer one was approaching Hillside and the farther one Cliff End. He was correct about the farther one, but crucially, he was incorrect about the nearer. Confirmation of his assessment could have been gained easily from the radar screen, but the radar was not used for this purpose.

The master called on VHF radio identifying the targeted vessel as the one "approaching Hillside", confident that it would be the nearer vessel which would answer. However, he was very wrong in his assessment of the distance, and the nearer vessel was already well beyond Hillside light and had, on two occasions, indicated so on VHF Channel 17. On the first occasion, some four minutes before the accident, the pilot had said that he was passing under the wires at Garthorpe (which is south of Hillside light) and on the second, just a few seconds before *Hoo Robin*'s call, he had called his destination berth at Keadby and told

them he was approaching Stather. The master of *Hoo Robin* appears not to have heard these messages or possibly not to have appreciated their significance. Due to his position south of Hillside light it is not surprising that the pilot on *Arklow Marsh* did not answer, as he did not recognise that the radio call was directed at him.

Instead, it was the pilot on *Ara* who answered *Hoo Robin's* call. Although *Ara* was still half-a-mile north of Hillside light, she was the next vessel to pass that point. In answering the call the pilot clearly identified that he was on board *Ara*, but not that he was half-a-mile north of Hillside. If the master of *Hoo Robin* had monitored the radio traffic efficiently, he would have known that it was *Arklow Marsh* and not *Ara* he needed to speak with. Then this unnecessary confusion would not have arisen.

Those on the bridge of *Arklow Marsh* had seen *Hoo Robin* approaching and assumed that the two vessels would pass green-to-green. As has been stated, it is a frequent practice on the River Trent for outbound vessels in ballast to keep to shallow water on the west side of the river, and for a green-to-green passing with loaded inbound vessels to be arranged. To have assumed that a green-to-green passing would occur without having agreed it with the other vessel is, however, taking this procedure a dangerous stage too far. The assumption by *Arklow Marsh* that a green-to-green passing would take place was a contributory factor. Additionally, at 1830, in the area of the collision, *Arklow Marsh* could safely use almost the whole width of the river. A green-to-green passing was therefore unnecessary. If *Arklow Marsh* had taken early action to position herself correctly for a red-to-red passing, the accident might have been avoided. Both vessels should have assumed a red-to-red passing unless and until the contrary was agreed.

The master on *Hoo Robin* thought that he had been talking to the nearer of the two vessels ahead of him. He was confident that the nearest vessel would move to starboard to enable the agreed red-to-red passing to take place. When this did not happen immediately, the master became concerned because he had become aware at the same time that the other vessel was very close. He could still see her green sidelight and had very little room to pass red-to-red. He asked for confirmation of the passing manoeuvre but his question was not answered immediately. Confusion, made worse by radio interference and poor radio procedures, then arose which culminated in a panic response. This response, the hard-to-port helm manoeuvre, executed at the very last minute by the master of *Hoo Robin*, finally caused the collision. When the pilot on *Arklow Marsh* realised what *Hoo Robin* was doing, there was no time for him to take effective avoiding action.

The experience suffered by the master of *Hoo Robin* in February 1999, when he grounded his vessel while trying to comply with a request for a green-to-green passing, may have affected his judgment on this occasion. Possibly it would explain why, when he realised that things were going wrong, he made the snap decision to pass on the side of the approaching ship which gave him considerably more water.

2.3 Manning and Bridge Resource Management - *Hoo Robin*

The mate had been with the master on the bridge for about half an hour after leaving the berth. The master was aware that the mate had not eaten his evening meal and that he would be needed later in the night to keep a watch. Therefore he released him from duty

on the bridge as soon as he thought it safe to do so. This was five minutes before the collision, as *Hoo Robin* approached Burton Stather.

The master was then alone on the bridge. As well as navigating in this difficult area, keeping a lookout and carrying out collision avoidance, he had numerous other tasks to perform. These tasks included monitoring the VHF radio for other traffic movements; keeping a mental plot of the positions and intentions of other vessels; steering the vessel; and using the VHF radio frequently to either report his position to VTS or other users of the river or to make contact with approaching vessels.

This was too much for one person. He did not monitor the movements of other traffic efficiently and did not make good use of the radar. It was these shortfalls that led to his incorrect assessment of the position and identity of the vessels approaching him. It was that incorrect assessment that led finally to confusion and a last minute hard-to-port helm manoeuvre. Collision was then inevitable.

On a vessel with a complement of only five people it is essential to get the balance and priorities right when deciding on how to accomplish all the essential tasks. Personnel need to be fed and rested, hatches need to be battened down, and safe navigational watches need to be maintained. The MAIB believes that it is absolutely essential to have two people on the bridge at night to ensure safe navigation. In confined waters when the master is conducting pilotage, the additional person must be appropriately qualified to monitor and assist in the navigation. If the master had been able to delegate some tasks and fully concentrate on navigating and collision avoidance, the accident probably would not have happened.

2.4 Fatigue

The master had carried out an arduous work routine during the days preceding the accident which has been described in section 1.2. This routine is typical for *Hoo Robin* and vessels like her. Additionally, the master had been on board during the current voyage for about 4½ months. Although there had been an opportunity for him to rest during the afternoon of the day of the accident, while the vessel was in port, it is probable that accumulated fatigue, caused by a busy schedule over a prolonged period, affected his judgment and performance on the evening of 2 March.

2.5 Alcohol and other Drugs

It is considered that neither alcohol nor other drugs were factors in this accident.

2.6 The Role of Humber VTS

Humber VTS does not have the facilities to monitor the precise positions and actions of traffic on the River Trent, as the area is outside its radar coverage. One of the normal roles of a harbour or river VTS is to assist masters and pilots by informing them of other vessel movements and warning them of dangerous traffic situations developing. Humber VTS is

unable to fully perform this role on the River Trent, placing an additional burden on masters and pilots.

SECTION 3 - CONCLUSIONS

3.1 Findings

1. *Hoo Robin* was fully certificated and manned in accordance with national and international regulations. [1.5]
2. *Arklow Marsh* collided with the starboard side of *Hoo Robin* at about 1830 on 2 March 1999, in a position to the north-west of Burton Stather on the River Trent. [1.3]
3. The weather was fine, the visibility good, it was dark and the tide was flooding at the time of the collision. [1.4]
4. The master was the only person on the bridge of *Hoo Robin*. [1.3]
5. The master was experienced in navigating the River Trent. [1.7]
6. *Arklow Marsh* had a licensed Humber pilot on board. [1.3]
7. *Arklow Marsh* did not have time to take effective avoiding action when *Hoo Robin* turned across her bow. [2.2]
8. Although the field of view from the bridge of *Hoo Robin* is restricted, it is adequate for safe navigation. [1.7]
9. Vessels on the River Trent talk to each other frequently using the VHF radio to agree a non-standard passing manoeuvre if the circumstances dictate. [1.8]
10. The accident occurred outside the radar coverage area of Humber VTS. [1.9]
11. The standard of VHF radio procedures on the River Trent is poor. [2.1]
12. Neither alcohol nor other drugs were a factor in this accident. [2.5]

3.2 Causes

The Immediate Cause

The accident was caused by the last minute decision of the master of *Hoo Robin* to cross to his port side of the river in front of *Arklow Marsh*. The decision was taken in the confusion that arose when the nearest ship ahead, *Arklow Marsh*, did not shape to pass red-to-red. Using the VHF radio, the master of *Hoo Robin* had, mistakenly, agreed a red-to-red passing manoeuvre with another vessel. [2.2]

3.3 Contributory Factors and Underlying Causes

1. It is a frequent practice on the River Trent for approaching vessels to pass green-to-green. [2.2]
2. Poor VHF radio procedures, in general, led to uncertainty as to who was calling and who was responding. [2.1,2.2]
3. The master of *Hoo Robin* incorrectly assessed the positions of the vessels approaching him. [2.2]
4. Those on *Arklow Marsh* assumed initially that a green-to-green passing would take place. [2.2]
5. The workload of the master of *Hoo Robin*, who was alone on the bridge, was too heavy. [2.3]
6. The judgment of the master of *Hoo Robin* was probably adversely affected by the accumulated effects of fatigue. [2.4]
7. The master of *Hoo Robin*'s recent experience of grounding in the River Trent may have affected his judgment on this occasion. [2.2]
8. Safe navigation on the River Trent often requires the correct identification of other vessels and communication between vessels but VTS is not able to assist masters and pilots in this requirement. [2.6]

SECTION 4 - RECOMMENDATIONS

Associated British Ports, Humber Marine Services is recommended to:

1. Issue guidance to pilots and other users of the River Trent on the proper use of VHF radio. Radio traffic should be limited to only essential communication, using correct calling and answering procedures.
2. Issue guidance that all passing manoeuvres on the River Trent should be red-to-red unless special circumstances indicate otherwise. In these exceptional circumstances, positive contact must be established and the identity and position of each vessel confirmed well before a non-standard passing manoeuvre is agreed. If no contact is established a red-to-red passing should be assumed in all cases. The guidance should not apply to river barges which generally keep to the shallowest water.
3. Consider extending the VTS radar coverage and VHF radio monitoring to include the navigable River Trent.

R Laphorn and Co Ltd is recommended to:

4. Ensure that the operation and manning of its vessels allow two appropriately qualified people to be on the bridge when in areas of close pilotage and to instruct its masters accordingly.
5. Remind its masters and officers of the correct VHF radio procedures paying particular regard to the guidance issued by the MCA in MGN 27 (M+F).

TRANSCRIPT OF VHF CHANNEL 17 COMMUNICATIONS

COLLISION - ARKLOW MARSH/HOO ROBIN - 2 MARCH 1999 - RIVER TRENT

Time Base (Seconds to Collision)	From	Message
-218	Arklow Marsh	Trentships, Trentships, Arklow Marsh under the wires at Garthorpe, inbound for Keadby
-200	Hoo Robin	Trentship, Hoo Robin, outward, Burton Stather
-87	Arklow Marsh	AWS, Arklow Marsh, 30 minutes coming up to Stather
-78	Hoo Robin	One vessel approaching Hillside erm this is Hoo Robin over
-73	Ara	Hoo Robin this is Ara
-71	Hoo Robin	Yes, Sir, What do you want
-69	Ara	Er, at the moment, captain, if you give me a red and stay along the Hillside, I'll go across the other side.
-59	Hoo Robin	Yes, sir, a red
-55	Hoo Robin	Sure you want a red
-31	Arklow Marsh	Have you got the right ship captain
-29	Ara	[Radio Interference].... lights and one ship ahead of me
-26	Hoo Robin	Green. Then I'm coming to port
-20	Arklow Marsh	Oh f..... hell
-17	Arklow Marsh	Get your engines running, sir. Full astern, full astern.
000		[Collision]
+21	Hoo Robin	B..... hell, I ask you which ship approaching Hillside and you told me red.
+34	Arklow Marsh	But you are talking to the wrong ship captain [radio interference]..... insurance out....