

**Report on the investigation of
the collision between
Wintertide and MSC Sabrina
off Texel Traffic Separation Scheme
13 June 2000**

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CONTENTS

	Page
GLOSSARY OF ABBREVIATIONS AND ACRONYMS	
SYNOPSIS	1
PARTICULARS OF <i>WINTERTIDE</i> AND <i>MSC SABRINA</i> AND ACCIDENT	2
SECTION 1 - FACTUAL INFORMATION	5
1.1 Background	5
1.2 Reconstruction of events	5
1.3 Bridge manning	5
1.4 Environmental conditions	8
1.5 Narrative	8
1.6 Radar	12
1.7 Navigation lights and fog signals	12
1.8 Conduct of navigation	13
1.9 Company and master's orders	13
1.10 Rule of the road	14
1.11 Manoeuvring characteristics	15
SECTION 2 - ANALYSIS	17
2.1 Conduct of navigation and alterations of course	17
2.2 Use of radar	18
2.3 Safe speed	18
2.4 Decision not to call the master	19
2.5 Action following collision with <i>Concordia</i>	20
2.6 Management of lookouts and sound signals	20
2.7 Action taken to avoid a collision	21
SECTION 3 - CONCLUSIONS	22
3.1 Findings	22
3.2 Cause	24
3.3 Contributory causes	24
SECTION 4 - RECOMMENDATIONS	26
Figure 1	Chart Extract showing planned tracks of both vessels
Figure 2	Diagram showing an approximation of actual tracks prior to the collision
Figure 3	Damage to <i>Wintertide</i>
Figure 4	Damage to <i>MSC Sabrina</i>

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AB	-	Able Seaman
ARPA	-	Automatic Radar and Plotting Aid
BA	-	British Admiralty
CPA	-	Closest Point of Approach
DR	-	Dead Reckoning
EP	-	Estimated Position
GPS	-	Global Positioning System
MAIB	-	Marine Accident Investigation Branch
OOW	-	Officer of the Watch
TCPA	-	Time to Closest Point of Approach
TSS	-	Traffic Separation Scheme
UTC	-	Universal Co-ordinated Time
VHF	-	Very High Frequency



SYNOPSIS

At about 0209 (UTC) on 13 June 2000, the Panamanian-registered container ship *MSC Sabrina* collided with the Netherlands-registered fishing vessel *Concordia*. Fifteen minutes later, *MSC Sabrina* collided with the UK-registered refrigerated cargo ship *Wintertide* at the junction of the Off Vlieland and Off Texel TSS off the Netherlands. The MAIB was informed of both accidents that day, and an investigation into the collision between *Wintertide* and *MSC Sabrina* was initiated. The collision between *MSC Sabrina* and *Concordia*, neither of which were UK-registered, has not been investigated.

Wintertide and *MSC Sabrina* were heading south-south-west in a traffic lane in restricted visibility; *MSC Sabrina* was overtaking *Wintertide* with a speed advantage of about 5 knots. *Concordia* was on passage from Den Helder to her fishing grounds and was crossing the traffic lane from the south-east. The collision between *Wintertide* and *MSC Sabrina* occurred after *Wintertide* altered course to follow her planned track into the Off Texel TSS which put the vessels on a collision course.

Contributory causes included:

- *Wintertide's* OOW rigidly adhering to the planned navigation track;
- The inaccurate radar plotting and monitoring of *MSC Sabrina* by *Wintertide's* OOW;
- *MSC Sabrina's* OOW failing to maintain a proper radar lookout;
- *MSC Sabrina's* speed, which is considered to have been inappropriate, given the prevailing visibility.

Additionally, neither master was called, nor were additional lookouts posted, when the vessels entered restricted visibility.

There are several lessons to be learned from this incident regarding the actions of the OOWs and their deviations from established procedures, company orders, and regulations. The recommendations made aim to promote greater compliance with standing instructions.

PARTICULARS OF *WINTERTIDE* AND *MSC SABRINA* AND ACCIDENT

Vessel details	<i>Wintertide</i>
Registered Owner	: Wissel V
Manager(s)	: Norbulk Shipping UK Ltd
Port of registry	: London
Flag	: UK
Type	: Reefer/Cargo
Built	: 1990 – Lervik in Sign, Norway
Classification society	: Det Norske Veritas
Construction	: Steel
Length overall	: 104.85m
Gross tonnage	: 5,084
Engine power	: 4043kW/Diesel
Service speed	: 16 knots
Other relevant info	: Bow thruster, single controllable pitch propeller
Accident details	
Time and date	: 0223 UTC on 13 June 2000
Location of incident	: 53° 10.5' N, 004° 23.5' E (Off Texel TSS)
Persons on board	: 16
Injuries/fatalities	: 0
Damage	: Severely buckled bulwark and internal damage to the starboard bow. Distorted deck fittings and anchor fluke.



Wintertide



MSC Sabrina

Vessel details*MSC Sabrina*

Registered Owner : Partrederiet msc Sabrina - Copenhagen-Panama

Manager : Mediterranean Shipping Co SA

Port of registry : Panama

Flag : Panama

Type : Full cellular container ship

Built : 1989 - Korea

Classification society : RINA

Construction : Steel

Length overall : 242.6m

Gross tonnage : 35,598

Engine power : 20,853kW/Diesel

Service speed : 21.5 knots

Other relevant info : Bow thruster output 900kW, single controllable pitch propeller

Accident details

Time and date : 0223 UTC on 13 June 2000

Location of incident : 53° 10.5' N, 004° 23.5' E (Off Texel TSS)

Persons on board : 22

Injuries/fatalities : 0

Damage : Loss of watertight integrity above the waterline on the port quarter in vicinity of the steering compartment.

SECTION 1 - FACTUAL INFORMATION

All times are UTC and all courses are gyro.

1.1 BACKGROUND

Wintertide, a refrigerated cargo ship, carried fertiliser from Europe to South America, returning with fruit. She sailed from Koping, Sweden on 9 June 2000 with a cargo of 3,439.75 tonnes of ammonia nitrate. After bunkering in Copenhagen on 10 - 11 June, she headed for Santa Marta, Colombia. She entered the south-south-west bound lane of the Vlieland North TSS at 0015 on 13 June.

MSC Sabrina, a container ship, operated between Europe and North America and Mexico on a 42-day cycle. She sailed from Bremerhaven, Germany on the evening of 12 June with 1,710 containers weighing 32,779.9 tonnes for Felixstowe; her required speed for the passage was 17.5 knots. She joined the Vlieland TSS from the Terschelling-Germanbight TSS at 0110 the following day.

1.2 RECONSTRUCTION OF EVENTS

Discrepancies exist between the times recorded by the two vessels, even taking account of the different time zones being kept (*Wintertide* UTC + 2 and *MSC Sabrina* UTC + 1 hour 20 minutes). *Wintertide* logged the collision at 0223, while *MSC Sabrina* recorded its occurrence between 0210-0213. Thames Coastguard intercepted a VHF radio call from *MSC Sabrina* to *Wintertide* at 0223, immediately following the collision. Accordingly, it is estimated the accident occurred between 0220 and 0223. Timings in this report are considered to be accurate to within 3 minutes.

Information regarding the sequence of events on board *MSC Sabrina* before the collision has been obtained from a number of sources. However, the MAIB has been unable to interview *MSC Sabrina*'s OOW, or view statements he might have made to other parties.

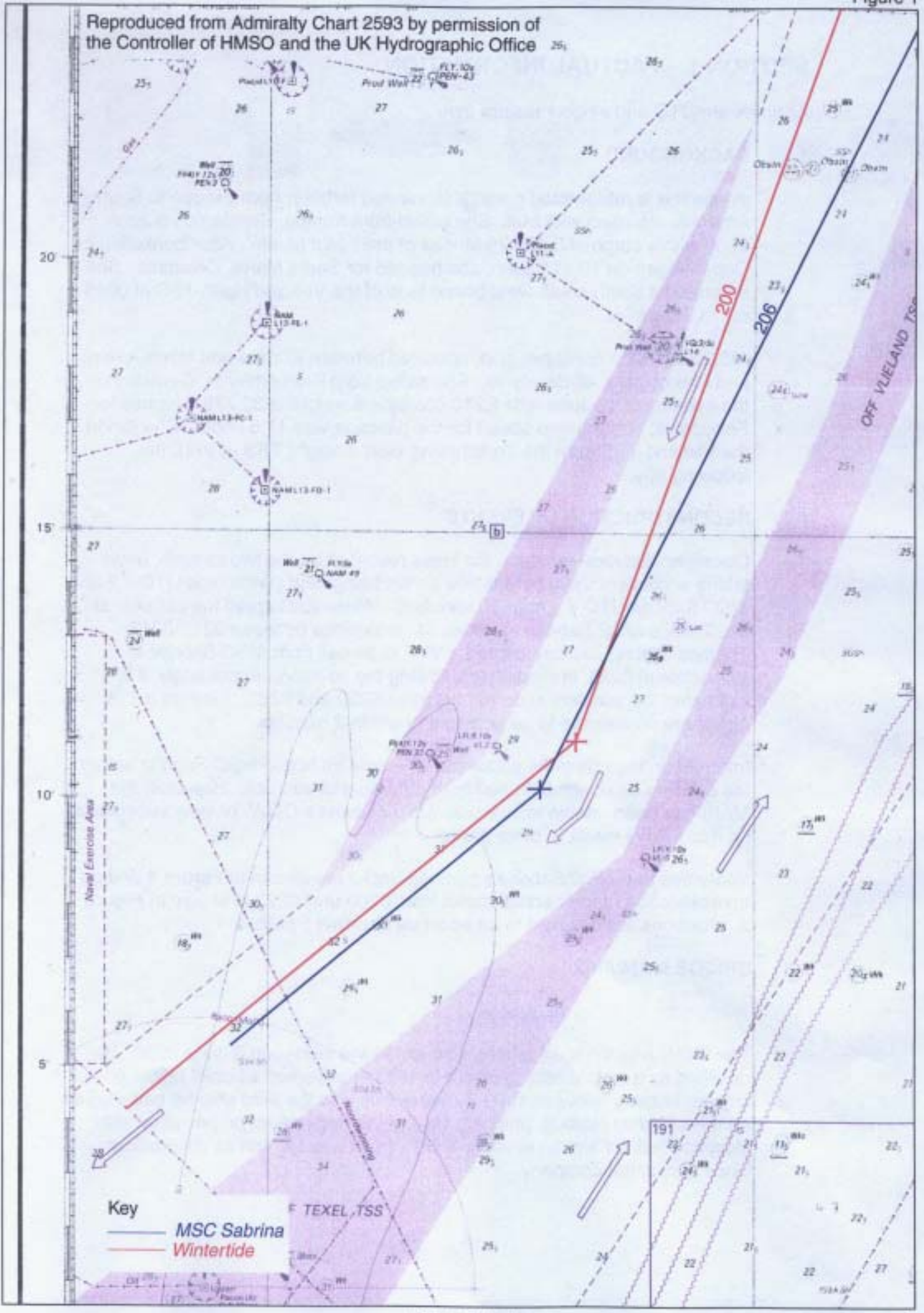
Wintertide and *MSC Sabrina*'s planned tracks are shown at **Figure 1** and an approximation of their actual tracks from 0200 until 0223 is shown at **Figure 2**. Positions are believed to be accurate to within 5 cables.

1.3 BRIDGE MANNING

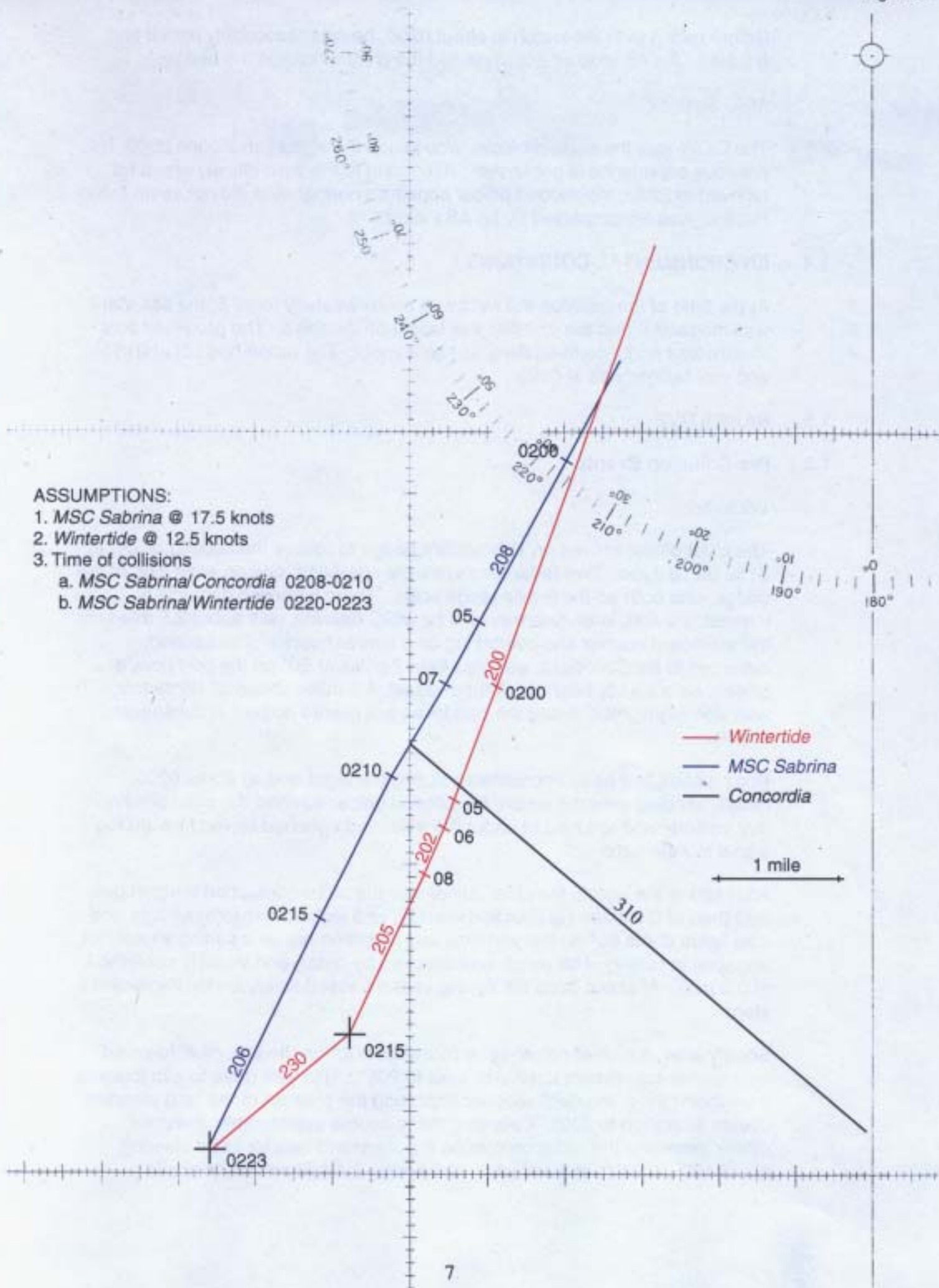
Wintertide

The OOW was the chief officer, who joined the vessel on 8 June 2000. He qualified as a watchkeeping officer in 1993, and served as chief officer on smaller vessels between 1996-7. *Wintertide* was the third ship he had worked on managed by Norbulk Shipping UK Ltd (he had served on her sister ship *Wiseda Frost* for almost seven months), but it was his first as chief officer since joining the company.

Reproduced from Admiralty Chart 2593 by permission of the Controller of HMSO and the UK Hydrographic Office



Planned tracks



ASSUMPTIONS:

1. MSC Sabrina @ 17.5 knots
2. Wintertide @ 12.5 knots
3. Time of collisions
 - a. MSC Sabrina/Concordia 0208-0210
 - b. MSC Sabrina/Wintertide 0220-0223

Approximation of actual tracks

Before taking over the watch at about 0200, he was reasonably rested and felt alert. An AB lookout accompanied the chief officer on the bridge.

MSC Sabrina

The OOW was the second officer, who joined the vessel on 7 June 2000; his previous experience is not known. According to the third officer, whom he relieved at 2240, the second officer appeared normal, and did not seem tired. He, too, was accompanied by an AB lookout.

1.4 ENVIRONMENTAL CONDITIONS

At the time of the collision the wind was south-westerly force 5, the sea state was moderate, and the visibility was less than 2 cables. The predicted tidal stream was north-north-easterly at 1 to 2 knots. The moon had set at 0158 and civil twilight was at 0225.

1.5 NARRATIVE

1.5.1 Pre-Collision Events

Wintertide

The chief officer arrived on *Wintertide's* bridge to relieve the second officer at 0152 on 13 June. Two radar displays were operating, one on each side of the bridge, and both on the 6-mile range scale. There were two contacts of interest: the first, later determined to be *MSC Sabrina*, was about 2.5 miles on the starboard quarter and overtaking on a similar course. The second, assumed to be *Concordia*, was less than 2 miles at 50° on the port bow, and closing on a steady bearing. A third vessel, 4.5 miles ahead of *Wintertide*, was also highlighted during the handover, but played no part in subsequent events.

Fog patches had been encountered during the night and, at about 0200, before handing over the watch, the second officer advised the chief officer that visibility had reduced to about 0.5 mile, and switched on the forward fog signal to automatic.

After taking the watch, the chief officer saw the radar contact on the port bow was then at 0.6 mile. He checked visually, and sighted a masthead light and side lights about 60° on the port bow and identified her as a fishing vessel not engaged in fishing. Her range was checked by radar, and visibility confirmed at 0.5 mile. At about 0205 the fishing vessel passed safely under *Wintertide's* stern.

Shortly after, the chief officer set a course of 202° on the autopilot, followed by a further adjustment 2 minutes later to 205°. This was done to aim towards a waypoint set in the GPS receiver indicating the position of the next planned course alteration to 230°. Following these course adjustments, the chief officer assessed the radar contact on the starboard quarter to be steering about 199° to 200°, at a speed of 19.5 knots. He estimated she would

overtake after the alteration to 230° but not precisely when, or at what distance.

The GPS waypoint alarm sounded at 0215 and the chief officer ordered the AB lookout to change to manual steering and alter course to 230°. When steady on the new course, steering was changed back to autopilot and checked by the AB.

At 0216, the vessel on the starboard quarter was at 1 mile and assessed to be passing astern with a CPA of 0.45 mile to port; at 0219 she was at 0.6 mile with an assessed CPA of 0.25 mile to port. At this point the chief officer reduced the radar range scale to 3 miles, then to 1.5 miles soon after. He then looked over the starboard quarter, but could not see the vessel. The radar was checked again and, although now in the clutter, the echo was still discernible and at a range of 0.4 mile. The vessel was still not visible.

By 0221, the chief officer could no longer see the radar echo close astern, so he moved to the port bridge wing to search astern using binoculars. He believed the vessel would pass astern and on to *Wintertide's* port quarter. He also informed the lookout, who had remained inside the bridge since shortly after coming on watch, that he was unable to see the vessel close astern.

Moments later, as the chief officer re-entered the bridge, he saw the loom of a forward masthead light, and the dark silhouette of a fast moving ship passing very close on *Wintertide's* starboard side. The chief officer immediately switched to manual steering, and applied 20° of port rudder. He then gave the helm to the AB lookout, before moving the propeller pitch to 'Dead Slow Ahead'. The other vessel passed to starboard at a converging angle of about 20° and, as *Wintertide* began to swing to port, the other vessel struck *Wintertide's* starboard bow with her port quarter. The collision occurred at 0223, and the chief officer immediately sounded the general alarm.

The master, who was asleep in his cabin when the ships collided, was woken by the impact. From his window he saw a large ship passing ahead at an angle of 10° to 15°. He went directly to the bridge, but by the time he arrived, the other vessel was no longer visible.

Prior to the collision, other than regular position broadcasts by tug *Almgra*, the OOW did not hear any other vessels using the VHF radio.

MSC Sabrina

MSC Sabrina entered the south-south-west lane of the Off Vlieland TSS at 0110. The second officer was aware, both visually and by radar, of a vessel proceeding in the same direction about 5 miles on the starboard bow. By 0200 the vessel was at 2 miles on the port bow; she was no longer visible and had a CPA of 8 cables to port. Soon after, the second officer observed a second radar contact on the port bow, range unknown, on a course of 290° to 300° at 11 knots with a CPA of zero in 8 to 10 minutes. Until 0209 course was adjusted between 206° and 210° to follow the planned track.

At 0209, the second officer saw a bright white light and the green side light of a fishing vessel close on the port side. The fishing vessel was seen to slow down but still collided with *MSC Sabrina's* port side aft in the vicinity of the accommodation ladder. At about the same time the OOW manoeuvred the ship 12° to port and then 26° to starboard before returning to the base course of 206°. The vessel appears to have been swinging throughout this manoeuvre, touching but not steadying on either 198° or 224°. The manoeuvre lasted about 7 minutes, but it is not known whether it began before or after the collision. After the collision, the second officer attempted to call the fishing vessel on VHF radio, but received no reply. It is not known what VHF radio channels were used, or what language the second officer was speaking. Speed was maintained at 17.5 knots.

At 0210, the master was woken by a telephone call from the second officer, advising him there was a strong wind, and also that a group of fishing vessels was in the vicinity, and asking him to go to the bridge. After dressing, the master arrived on the bridge 5 to 6 minutes later, and was advised by the second officer that a small vessel had passed very close by, or even collided with, *MSC Sabrina's* port side amidships.

The master checked the Furuno radar and observed the closest contact was 3 to 4 cables just forward of the port beam; its CPA was zero and its true radar vector was converging about 30° towards *MSC Sabrina's* course. The master ordered the second officer to put the helm hard to starboard. It is not known whether the second officer switched to manual steering before carrying out this instruction. A few seconds later the master saw the bows of a ship and a masthead light emerge from the fog at a range of about 1 to 1.5 cables and assessed that the vessels were still on converging courses. Soon after, *MSC Sabrina's* port quarter struck the other vessel's starboard bow. No sound signals from *Wintertide* were heard on board *MSC Sabrina* at any time.

Concordia

The fishing vessel *Concordia*, on passage from Den Helder to her fishing grounds, was crossing the Off Vlieland TSS steering 310° at 11 knots. Soon after altering course to starboard to pass under *Wintertide's* stern at about 0205, she sighted *MSC Sabrina* immediately ahead. *Concordia* came to full astern but still collided with *MSC Sabrina*. It is not known what VHF radio channels *Concordia* was monitoring, or if she heard the calls *MSC Sabrina* made on VHF radio.

1.5.2 Post-Collision Events

Wintertide

After exchanging identities and details of damage with *MSC Sabrina* via VHF radio, *Wintertide*, resumed passage at a reduced speed until visibility improved. She arrived at Falmouth on 14 June for repairs to her damaged bow.

Figure 3



Damage to *Wintertide*

Figure 4



Damage to *MSC Sabrina*

MSC Sabrina

Immediately after the collision *MSC Sabrina* reduced speed, started sounding fog signals, and closed all watertight doors. She then exchanged details with *Wintertide*, and informed the Netherlands Coastguard before proceeding to Felixstowe for repairs.

Concordia

The vessel suffered minor damage, but was able to continue passage to her fishing grounds.

1.6 RADAR

Wintertide

Two Krupps Atlas 7600 radar displays, capable of providing true and relative motion information, were fitted. The plotting of radar echoes was semi-automatic; it was not an ARPA. Plotting was achieved by the operator manually updating the position of an echo with a tracker ball. Contact data such as course, speed, CPA and TCPA were calculated within the radar set using the last two manually injected positions, and could be displayed if selected by the operator. The operating manual for the radar advised that the time between two plot positions should be at least forty-five seconds to obtain accurate information.

The radars were also fitted with a 'trial manoeuvre' facility, enabling an operator to simulate a course change and determine the revised CPA of a contact of interest prior to an actual alteration. The chief officer did not use this facility before the alteration to 230°.

MSC Sabrina

The radar most frequently used by the OOW was a Furuno ARPA radar. Two JVC radars, one of which was also an ARPA, were also available. When the master arrived on the bridge just prior to the collision, the second officer had been using the Furuno radar configured to display 'ship's head up' in relative motion with vectors showing true courses.

1.7 NAVIGATION LIGHTS AND FOG SIGNALS

Both vessels were displaying navigation lights appropriate for their length. *Wintertide* had two air-driven whistles, one forward and one aft; both were controlled from the bridge and could be sounded manually or automatically. The OOW switched on the forward sound signal in automatic at about 0200. *MSC Sabrina* had a whistle available, but did not switch it on until after the collision.

1.8 CONDUCT OF NAVIGATION

General

Both OOWs periodically transferred GPS positional information to the chart, but neither maintained an EP or DR position. The planned tracks for both vessels were drawn on the chart in use.

Wintertide

Chart BA 1408, which was not the largest scale chart available for the area, was the chart in use on board *Wintertide*. The intersection of the 200° and 230° tracks at the junction of Off Vlieland and Off Texel TSS was input into the GPS as a waypoint with a 1.75 cable guard zone around it. This was the distance the chief officer had allowed for the ship to travel, from putting the helm over to steadying on the new course. When the ship closed to 1.75 cables of the waypoint, the GPS alarm sounded, indicating that the ship was at the course alteration.

MSC Sabrina

Chart BA 2953, the largest scale chart available for the area, was the chart in use on board *MSC Sabrina*. It is not known if the second officer utilised the waypoint or alarm facilities of the GPS receiver.

1.9 COMPANY AND MASTER'S ORDERS

Wintertide

The following is an extract from the Vessel Operations Manual issued by Norbulk Shipping UK Ltd:

When restricted visibility is encountered or expected, the first responsibility of the Officer of the Watch is to comply with the relevant rules of the applicable regulations for preventing collisions at sea.....In addition, he is to pay particular regard to the sounding of fog signals, proceeding at a safe speed and having the engines ready for immediate manoeuvre. He is also to:

Inform the master

Post a look-out and helmsman and in congested waters revert to manual steering immediately

The Officer of the Watch is also to have the manoeuvring capabilities, particularly the 'stopping distance' of his own vessel clearly in mind.

On the evening of 12 June the relevant extracts of night orders written by the master were as follows:

Entering Vlieland TSS. Pay attention to the crossing vessels. Do not overtake the vessel at a distance less than 1 mile. Many fishing vessels can

be in this area. Call the captain in case of any doubt..... In case of poor visibility call captain immediately.

The chief officer had signed a copy of the company orders and the master's order book to indicate that he had read and understood the contents.

MSC Sabrina

Company orders issued to *MSC Sabrina* were very similar, but also directed the OOW in restricted visibility to put engineers on stand-by and to appreciate that other ships might have different handling characteristics.

Additionally, they directed the OOW to call the master:

when another vessel is about to approach within a mile or whose manoeuvres do not conform with the Rule of the Road, or are liable to endanger the ship.

when visibility is reduced to less than 3 miles or when heavy traffic is passing at a distance of less than half a mile.

On the evening of 12 June the relevant extracts of night orders written by the master were as follows:

...Avoid approach too close to other vessels or fishing boat. Advise me in case of anomaly or doubt.

The second officer signed the page of the master's order book indicating that he had read and understood its contents; it is not known whether he had read or understood the company orders.

1.10 RULE OF THE ROAD

The following are extracts from the International Regulations for the Prevention of Collisions at Sea (Collision Regulations):

Rule 5, concerning keeping a lookout, states:

Every vessel shall at all times maintain a proper lookout 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 risk of collision.

Rule 6, concerning the conduct of vessels in any condition of visibility, states:

Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

In determining a safe speed the following factors shall be among those taken into account:

By all vessels:

the state of visibility;

the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions;....

Rule 19, concerning the conduct of vessels in restricted visibility, states:

“(b). Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility....

(d). A vessel which detects by radar alone the presence of another vessel shall determine if a close quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such an action consists of an alteration of course, so far as possible the following shall be avoided:

an alteration of course towards a vessel abeam or abaft the beam.”

Rule 35, concerning sound signals in restricted visibility, states:

“In or near an area of restricted visibility, whether by day or night, the signals prescribed in this Rule shall be used as follows:

(a) A power-driven vessel making way through the water shall sound at intervals of not more than 2 minutes one prolonged blast....”

1.11 MANOEUVRING CHARACTERISTICS

Wintertide

Turning data (90° turn) - Normal Loaded Condition

	Full Speed (16 knots)	Slow Speed (8 knots)
Advance	0.18 miles	0.18 miles
Transfer	0.12 miles	0.12 miles
Time Taken	1.0 minute	1 minute 30 seconds

Stopping Distance - Normal Loaded Condition

	Time	Distance Turn	Starboard
Full Ahead (16 knots)	2.5 minutes	0.4 miles	90°
Half Ahead (12.5 knots)	2.4 minutes	0.2 miles	70°
Slow Ahead (8 knots)	1.7 minutes	0.1 mile	40°

MSC Sabrina

Turning data (90°turn) - Full Load Condition

	Full Speed (22.8 knots)	Half Speed (10.1 knots)
Advance	0.42 miles	0.3 miles
Transfer	0.23 miles	0.14 miles
Time Taken	1.5 minutes	1.7 minutes

Stopping Distance - Full Load Condition

	Time Taken	Distance
From Full Speed (22.8 knots)	11 minutes 10 seconds	2.6 miles
From Half Speed (10.1 knots)	5 minutes 10 seconds	0.39 miles

SECTION 2 - ANALYSIS

2.1 CONDUCT OF NAVIGATION AND ALTERATIONS OF COURSE

Wintertide

The alteration to 230° was made to follow the planned navigational track and, although prompted by the activation of the GPS waypoint alarm, was not essential for the safe navigation of the ship. The OOW could have continued on 205° for about another 4 miles before entering the traffic separation zone. With an overtaking vessel 1 mile on the starboard quarter in visibility of between 2 and 5 cables, the alteration to 230° was imprudent. Rule 13 of the Collision Regulations regarding overtaking is only applicable to vessels in sight each other. As the vessels could not see each other, it is considered that Rule 19 governing the conduct of vessels in restricted visibility is pertinent. The danger of altering towards a vessel abaft the beam in restricted visibility is acknowledged in Rule 19, and, on this occasion, the alteration put the vessels on a collision course.

The alteration indicates reluctance by the chief officer to deviate from the planned track, regardless of the shipping and environmental conditions. The options of reducing speed or standing on the 205° course were also feasible.

A possible explanation for the OOW's action is a reliance on GPS. A passage plan put into a GPS receiver as waypoints is straightforward to follow, with relevant information such as bearing, distance and estimated time of arrival at the next waypoint displayed if required. As a result, the necessity to maintain a predicted EP or DR to determine the time of the next alteration of course is diminished. By not maintaining a predicted EP or DR on the chart, it is possible, in this case, the chief officer denied himself the opportunity to appraise himself of the navigable water and other options available. The use of chart BA 1408, a small scale chart, may also have influenced the chief officer's spatial awareness, by visually condensing the width of the traffic lanes and influencing his perception of the safe water available.

MSC Sabrina

From entering the Off Vlieland TSS until 0209, the second officer adjusted course between 206° and 210° to follow the planned track towards the Off Texel TSS. There is no evidence to suggest he made any alteration to influence the CPA with *Wintertide*. The CPA of 8 cables to port was a function of the planned tracks and passage speeds of the two vessels, rather than the result of a conscious decision made by the second officer. The master's night orders gave no specific distance at which to pass other vessels. Directing the OOW to avoid passing "too close" relied on the subjective assessment of the OOW. In this case, it is considered that 8 cables was a reasonable distance to pass another vessel in a traffic lane, providing the movements of the vessel being overtaken were closely monitored.

2.2 USE OF RADAR

Wintertide

The chief officer on *Wintertide* assumed that *MSC Sabrina* would overtake *Wintertide* after the alteration of course, but did not know when or at what distance. Had he been using his display effectively and plotted *MSC Sabrina* correctly, this information would have been available from the TCPA and CPA readouts. It is not known whether the chief officer knew how to use the 'trial manoeuvre' facility, but utilisation of this, before altering course to 230°, would have warned the chief officer of the resultant change in CPA.

The radar display in use was not an ARPA. The accuracy of the information displayed, such as course, speed, and CPA, relies on a reasonable time interval between manually injected plots, a reliance on the vessel being plotted maintaining a steady course and speed, and the accuracy of the plot by the operator. After altering course to 230°, the chief officer plotted *MSC Sabrina* at 0216 and again at 0219, a reasonable interval, during which *MSC Sabrina's* range reduced from 1 mile to 6 cables and her CPA was assessed to have reduced from 4.5 to 2.5 cables to port. *MSC Sabrina* maintained a course of 206° at 17.5 knots during this period and, providing the chief officer's plotting of the contact was accurate, so too should have been the contact data displayed. However, as the two plots were conducted with the radar on the six-mile range scale, even the smallest movement away from the target echo, while initiating either plot, would have resulted in significant errors. It is, therefore, possible that radar information regarding *MSC Sabrina's* CPA shortly before the collision was inaccurate, and the chief officer incorrectly assumed that she would pass under the stern to the port quarter.

MSC Sabrina

The second officer on *MSC Sabrina* was aware that his vessel was overtaking *Wintertide* and would pass with a CPA of about 8 cables, but it is unknown if she had estimated when or where she would pass. Nor is it known how closely the second officer routinely monitored his radar display. It is possible that, between 0209 and 0216, he was distracted by: the collision with *Concordia*; manoeuvring the ship; attempting to call *Concordia* on VHF radio; and calling the master to the bridge. He was busy, and it is likely that he failed to notice *Wintertide* had altered course to 230° thus putting the two vessels on a collision course. It was only when the master looked at the radar and saw *Wintertide* at 3 to 4 cables just forward of the port beam with a CPA of zero, that the problem became evident.

2.3 SAFE SPEED

General

Rule 6 of the Collision Regulations states the need for all vessels to proceed at a safe speed. Among the factors listed, to be taken into account when determining safe speed, are the state of visibility and the manoeuvrability of

the vessel with special reference to stopping distance and turning ability in the prevailing conditions. The requirement to proceed at a safe speed in restricted visibility is endorsed in the company orders of both vessels, yet neither vessel reduced speed on entering fog, even though visibility reduced to less than 2 cables.

Wintertide

Wintertide was making good about 12.6 knots. Examination of her manoeuvring data shows that at this speed in a normal loaded condition she could complete a 90° turn with an advance of 0.18 miles and be stopped within about 0.2 miles. At 0200, when the OOW assessed visibility at 5 cables, the ship could easily have been stopped or turned within the distance of visibility. Immediately before the collision, although it was evident that visibility had reduced further when the OOW could not see *MSC Sabrina* at 4 cables, it would have been inappropriate to reduce speed with another vessel so close astern.

MSC Sabrina

MSC Sabrina was making good about 17.5 knots. Although the manoeuvring data available requires interpolation between full and half speed in a fully loaded condition, it shows that at this speed, her advance for a 90° turn is in excess of 3 cables, and that the distance required to stop is greater than 1 mile. Both distances were beyond the prevailing visibility at the time of the collision.

2.4 DECISION NOT TO CALL THE MASTER

General

Had the masters been informed of the restricted visibility, it is impossible to determine what actions they would have taken. By not informing them, however, the OOWs denied themselves the benefit of their respective master's watchkeeping experience and judgment.

Wintertide

The OOW on *Wintertide* was directed in the company orders, and the master's night orders for 12 June, to inform the master when entering restricted visibility. Visibility reduced to about 5 cables before the second officer handed over the watch, and had reduced to less than 2 cables at the time of the collision, but neither the second officer nor chief officer called the master. The reasons for this have not been determined, but might have been due to: a belief that the fog patches would soon clear; the lack of a specific range of visibility at which the master should be called in either company or master's orders; personal reasons, such as confidence in their own ability or avoiding loss of face, or; they were wary of disturbing the master in the middle of the night.

MSC Sabrina

The second officer on *MSC Sabrina* called the master at, or about the time of, the collision with *Concordia*. He did not call him when visibility reduced to 3 miles, or when *Concordia* approached within a mile of the ship as required by company orders. His reasons for not calling the master earlier are not known. Since he was new to the ship he might not have read and understood the company orders and, therefore, might not have been aware of the circumstances in which this should be done. The OOW might also have been reluctant to call the master in the middle of the night.

2.5 ACTION FOLLOWING COLLISION WITH *CONCORDIA*

MSC Sabrina's second officer was aware that a fishing vessel had collided with his ship. He attempted to call the vessel via VHF radio but did not get a response, and therefore did not know whether the other vessel was damaged or in difficulty or had injured people on board. The details or extent of the damage to *MSC Sabrina* were also unknown. In this situation the second officer should have reduced speed and remained in a position to render assistance if required. He should have also sounded the general alarm, determined the extent of the damage sustained, and informed the coastguard. He took none of these actions. Other than trying to establish radio contact, *MSC Sabrina* did not make any preparations to assist *Concordia*.

2.6 MANAGEMENT OF LOOKOUTS AND SOUND SIGNALS

Company orders for both *Wintertide* and *MSC Sabrina* state that on entering restricted visibility a helmsman and lookout should be posted. Both officers of the watch were accompanied only by a lookout; the additional ratings were not on duty. With only two people on the bridge it is difficult to maintain a comprehensive visual, radar, and aural lookout, as required by Rule 5 of the Collision Regulations, as well as being ready for immediate manoeuvring. Also, to be effective, an aural lookout should ideally be kept outside a bridge where sounds can be more easily distinguished. Neither of the OOWs directed their lookout to conduct an aural watch specifically from the bridge wing. Additionally, at no time was *Wintertide's* lookout specifically instructed to keep a lookout astern.

Prior to the collision, *Wintertide* was making sound signals as required by Rule 35 of the Collision Regulations and her company orders; *MSC Sabrina* was not. As the wind was from the south-west, it is possible that, had *MSC Sabrina* maintained a proper aural lookout, *Wintertide's* sound signals might have been heard, alerting her presence to the bridge team. It is also feasible that, had *MSC Sabrina* been making sound signals, they might have been heard by *Wintertide's* OOW when he moved to the port bridge wing immediately before the collision, and might have prompted his taking avoiding action.

2.7 ACTION TAKEN TO AVOID A COLLISION

Wintertide

On sighting *MSC Sabrina* moving down the starboard side, *Wintertide's* chief officer reacted quickly and applied 20° of port helm in hand steering and put the propeller pitch to 'Dead Slow Ahead'. This had the effect of reducing speed, and moving the ship's head to port, away from *MSC Sabrina*, thus reducing the severity of the impact. However, the ship's head might have moved to port quicker, and impact might have been reduced further, had maximum helm been applied, at that time. The decision to put the propeller pitch to 'Dead Slow Ahead' was prudent. Had the propeller pitch been put to Stop, the steering might have been less effective, and the paddlewheel effect caused by any astern movement on the engines would have caused the bows to pay off to starboard, towards *MSC Sabrina*.

MSC Sabrina

The master's application of starboard helm on board *MSC Sabrina* as soon as he realised that a collision with *Wintertide* was imminent, resulted in the bow paying off to starboard. The severity of the impact was probably reduced by this action. Before applying starboard helm, however, he did not order the second officer to change to hand steering, and it cannot be established exactly how, or what amount of helm, was applied. It is therefore not possible to determine if more helm could have been applied which might have reduced the impact even further. The master's decision not to reduce speed at this stage was prudent, given the relative positions and courses of the two vessels; any reduction of speed might have caused the impact to occur closer to the amidships sections of both vessels, possibly causing greater damage. However, a speed of 17.5 knots was too fast to enable sufficient action to avoid a collision to be taken when the risk of collision became apparent.

General

With helmsmen on the helm as required by company orders, the response by both vessels might have been quicker.

SECTION 3 - CONCLUSIONS

3.1 FINDINGS

3.1.1 General

1. *MSC Sabrina* and *Wintertide* collided at 0223 on 13 June 2000 at the junction of the Off Vlieland and Off Texel TSS. [1.5]
2. Visibility reduced from 5 miles at 0110, to about 5 cables at 0200, and to less than 2 cables at the time of the collision. [1.5]
3. Bridge manning in both vessels was not in accordance with the respective company orders when operating in restricted visibility. [1.5, 1.9]

3.1.2 *Wintertide*

1. The master had not been informed by the OOW when reduced visibility was encountered, as required by company and master's orders. [1.5, 1.9]
2. Company and master's orders did not specify a range of visibility at which the master was to be called. [1.9]
3. The OOW was aware of *MSC Sabrina* overtaking on the starboard quarter but he did not calculate when or where she would pass. [1.5]
4. The chief officer did not utilise the 'trial manoeuvre' facility on his radar display prior to altering course. [1.6]
5. The OOW altered course to 230° to follow the planned track when prompted by a GPS alarm. [1.5, 1.8]
6. The OOW's reliance on GPS and lack of referral to the chart may have contributed to a reluctance to deviate from the planned track. [1.8, 2.1]
7. The OOW did not have to alter course to 230° at 0215; there was sufficient sea room to stand on for a further 4 miles before the ship would have entered the traffic separation zone. [1.5, 1.8, 2.1]
8. The chart in use, BA 1408, was not the largest scale chart available for the area and may have distorted the OOW's perception of the width of the traffic lane and safe water available. [1.8, 2.1]
9. The alteration to 230° put *Wintertide* on a collision course with *MSC Sabrina*. [2.1]
10. The alteration to 230°, although made for navigational reasons, was imprudent and against the spirit of Rule 19 of the Collision Regulations. [1.5, 1.10, 2.1]

11. The plotting of *MSC Sabrina* by the OOW on the 6-mile range scale, following the alteration of course to 230°, was inaccurate; the resulting CPA information was also inaccurate. [1.5,2.2]
12. After the course alteration, the OOW assumed *MSC Sabrina* would pass under *Wintertide's* stern until she became visual on the starboard side. [1.5,2.2]
13. At 12.6 knots the ship could be stopped or turned through 90° within 2 cables. [1.11]
14. A continuous aural lookout was not maintained from the bridge wing. [1.5,2.6]
15. Avoiding action was delayed while the OOW moved from the port bridge wing to the helm and changed to hand steering. [1.5,2.7]
16. Avoiding action was too late to prevent a collision, but may have prevented greater damage. [1.5,2.7]
17. The master did not arrive on the bridge until after the collision. [1.5,2.4]

3.1.3 *MSC Sabrina*

1. The master had not been informed when visibility reduced to less than 3 miles or when *Concordia* came within a mile as required by company orders. [1.5,1.9,2.4]
2. The master's night orders did not specify a minimum range at which to approach other vessels. [1.9]
3. Sound signals required by Rule 35 were not started until after the collision with *Wintertide*. [1.7,1.10,2.6]
4. An aural lookout was not maintained. [1.3,2.6]
5. The collision with *Concordia* occurred about 14 minutes before the collision with *Wintertide*. [1.5]
6. After the collision with *Concordia*, the OOW attempted to contact the fishing vessel via VHF radio but made no preparations to assist. [1.5,2.5]
7. The master was called to the bridge about the same time as the collision with *Concordia*. [1.5]
8. The ship was manoeuvred to port then to starboard between 0209 and 0216 and was then steady on 206° until immediately prior to the collision. [1.5]
9. Speed was maintained at 17.5 knots following the collision with *Concordia*. [1.5]

10. At 17.5 knots the ship required 3 to 4 cables to turn through 90° and required about 1.3 miles to stop; the vessel could not be stopped within the distance of visibility [1.11,2.3]
11. The OOW was distracted by the collision with *Concordia* and failed to notice *Wintertide* had altered course to 230°, putting the two vessels on a collision course. [1.5,2.2]
12. The master's decision not to reduce speed immediately prior to the collision was prudent. [2.7]
13. Avoiding action was too late to prevent a collision but may have reduced the damage sustained to both vessels. [1.5,2.7]
14. It is not known if hand steering was selected prior to taking avoiding action. [1.5,2.7]

3.2 CAUSE

Wintertide and *MSC Sabrina* closed on converging courses and the actions taken by both vessels were insufficient to prevent a collision. [2.2,2.7]

3.3 CONTRIBUTORY CAUSES

1. General

- a. Neither master was made aware of the reduced visibility as required by company orders. [2.4]
- b. Neither bridge was manned as required by company orders.[2.6]

2. *Wintertide*

- a. The alteration to 230° was made to follow the planned track and without due consideration for *MSC Sabrina* overtaking on the starboard quarter. [2.1]
- b. Following the alteration, the plotting of *MSC Sabrina* by radar on a six-mile range scale was inaccurate. The resulting information led the OOW to incorrectly assume *MSC Sabrina* would pass under the stern. [2.2]
- c. The lookout was not instructed specifically to keep a lookout astern [2.6]

3. *MSC Sabrina*

- a. A proper radar lookout was not maintained; the OOW was distracted by the collision with *Concordia* and did not detect that *Wintertide* had altered course and was on a steady bearing. [2.2]
- b. A speed of 17.5 knots was not a safe speed in the prevailing visibility. It was too fast to enable sufficient avoiding action to be taken, when the risk of collision became apparent [2.3, 2.7]

- c. Had *MSC Sabrina* been making sound signals, they might have been heard by *Wintertide's* OOW, and might have prompted avoiding action to be taken sooner [2.6]
- d. An aural lookout, which may have alerted the bridge team to *Wintertide's* close proximity sooner, was not maintained. [2.6]

SECTION 4 - RECOMMENDATIONS

Norbulk Shipping UK Ltd and **Mediterranean Shipping Co SA** are respectively recommended to:

1. Take measures to ensure that all personnel on board their vessels are fully conversant with the contents of standing orders.
2. Take measures to monitor more closely that standing orders on board their vessels are being complied with.

Marine Accident Investigation Branch
March 2001