Report on the investigation of

the collision between the

Cayman Islands registered reefer

# *Pasadena Universal*

and the Cyprus registered bulk carrier

# *Nordheim*

in the Dover Strait

on 12 January 2000

Marine Accident Investigation Branch
First Floor Carlton House
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Southampton
United Kingdom
SO15 2DZ

**Report No 35/2000**

**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 cause 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.

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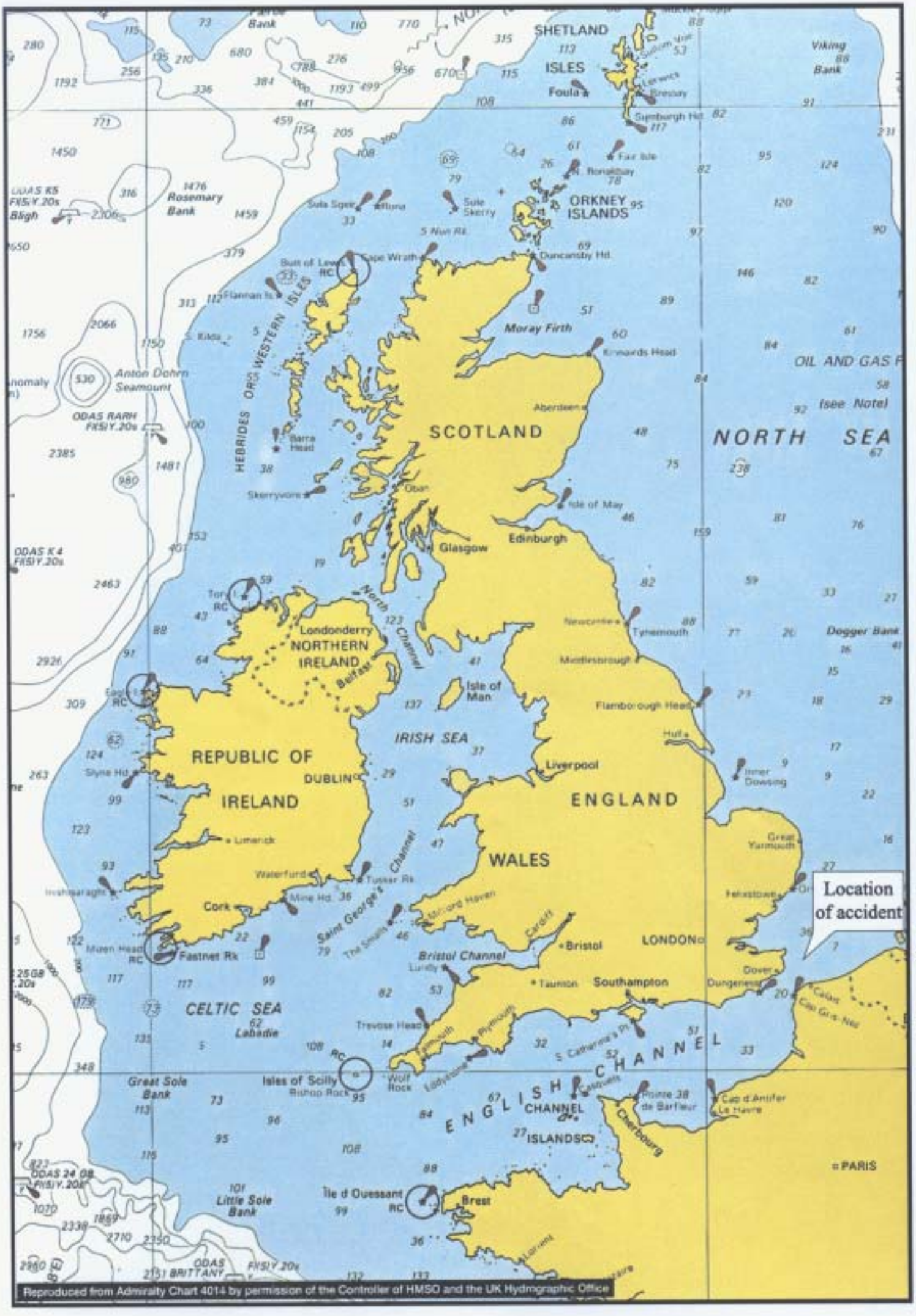
# GLOSSARY OF ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ARPA | Automatic radar plotting aid |
| GPS | Global positioning system |
| IMO | International Maritime Organization |
| kW | kilowatt |
| m | metre |
| UTC | Universal co-ordinated time |



# SYNOPSIS

At about 2153 (UTC) on 12 January 2000, the Cayman Islands registered reefer *Pasadena Universal* collided with the Cyprus registered bulk carrier *Nordheim*. Dover Coastguard informed the MAIB of the accident at 2302 that day. Captain N Beer and Captain P Kavanagh carried out the investigation.

*Pasadena Universal* was on passage in ballast from Antwerp, Belgium to the Panama Canal. The master, the third officer and a helmsman were on the bridge; the master had been there since leaving port at 1200. As the ship approached F3 lightfloat from the east, the master decided to alter course earlier than the passage plan dictated because of a possible close quarters with a number of ships on various courses in the south-west bound traffic separation lane. The F3 lightfloat is about 22 miles east of North Foreland in Kent, England, and marks the separation between the south-west and north-east traffic lanes in the southern North Sea. The master passed south of F3 lightfloat, and then made directly for the next waypoint, making good a course of 225° true and a speed of 20 knots.

*Nordheim* was on passage from Hamburg, Germany to Saint-Malo, France. The chief officer was on watch with a lookout stationed on the port bridge wing. The courses steered were 210° and 215° to make 204° true, and she was making a speed of about 12.3 knots. The chief officer saw a ship nearly right astern overtaking his ship and opening to starboard. As he approached the next waypoint with what he assumed to be the overtaking ship about one mile astern, he began to alter course to starboard using the automatic helm, 5° at a time on to a new course of 230° true.

*Pasadena Universal* had *Nordheim* about 30° on her starboard bow, but the master altered course to allow *Nordheim* to pass ahead, after which the two ships were on diverging courses. He then decided to alter course to port to pass between *Nordheim* and a fishing vessel, which was now on *Pasadena Universal*'s port bow but to starboard of *Nordheim*. The third officer on *Pasadena Universal* suddenly saw that *Nordheim* had become very close, and despite taking avoiding action the two ships collided.

While *Nordheim*'s chief officer was altering course, *Pasadena Universal* came in to view and he tried in vain to alter course to port away from her. He had been unaware of the approaching *Pasadena Universal*, and thought she was the overtaking ship he had seen earlier, which in fact was 6 miles away at the time of the collision.

If *Pasadena Universal*'s master had been fully aware of the sea room to the west, he might have taken the safer action of leaving the fishing vessel and *Nordheim* well to port. Contrary to Rule 2(a) of the *International Regulations for Preventing Collisions at Sea*, he failed to anticipate *Nordheim*'s possible navigational alteration of course, and erroneously assumed that she would remain on her course during the time *Pasadena Universal* would pass between the two vessels.

If *Nordheim*'s chief officer had been aware of *Pasadena Universal*, and had appreciated her rapid speed of approach, he might have given himself the option of delaying the navigational alteration of course. In this regard, he failed to maintain a proper lookout in accordance with Rule 5 of the *Collision Regulations*.

The MAIB has no safety recommendations to make at this time.

Photograph 1

*Pasadena Universal* alongside in Dover harbour

Photograph 2

*Nordheim* alongside in Saint-Malo harbour

## PARTICULARS OF *PASADENA UNIVERSAL/NORDHEIM* AND ACCIDENT

### Vessel details (Photographs 1 and 2)

| | | | |
|---|---|---|---|
| Name of vessel | : | *Pasadena Universal* | *Nordheim* |
| Registered Owner | : | Uglands Reefers Ltd | Nordheim Shipping Co |
| Manager(s) | : | Interocean Ugland Management AS | Reederei "NORD" Klaus E Oldendorf |
| Port of registry | : | Georgetown | Limassol |
| Flag | : | Cayman Islands | Cyprus |
| Type | : | Refrigerated cargo | Bulk carrier |
| Built | : | 1983 in Japan | 1976 in Japan |
| Classification society | : | Lloyds Register | Germanischer Lloyd |
| Construction | : | Steel | Steel |
| Length overall | : | 149.88m | 117.61m |
| Gross tonnage | : | 9,273 | 5,306 |
| Engine power | : | 9,047kW | 5,306kW |
| Service speed | : | 19 knots | 14 knots |

### Accident details

| | | | |
|---|---|---|---|
| Time and date | : | 2153 (UTC) 12 January 2000 | |
| Location of incident | : | Latitude 51° 16.0' N and Longitude 001° 48.6'E in the south-west bound traffic separation scheme, 15 miles east-south-east of Ramsgate | |
| Persons on board | : | 24 | 19 |
| Injuries/fatalities | : | None | None |
| Damage | : | To port bow and quarter | To starboard bow and superstructure |

# SECTION 1 - FACTUAL INFORMATION

## 1.1 NARRATIVE

All times are UTC, unless otherwise stated. All courses are true.

### 1.1.1 Events leading up to the collision - *Pasadena Universal*

On 7 January 2000, *Pasadena Universal* arrived in Sheerness from Cape Town. After discharging half of her cargo of grapes, she sailed on the afternoon of 10 January for Antwerp, where she berthed in the early hours of the following morning. After discharging the remainder of her cargo, she sailed in the afternoon of 12 January in ballast for the Panama Canal.

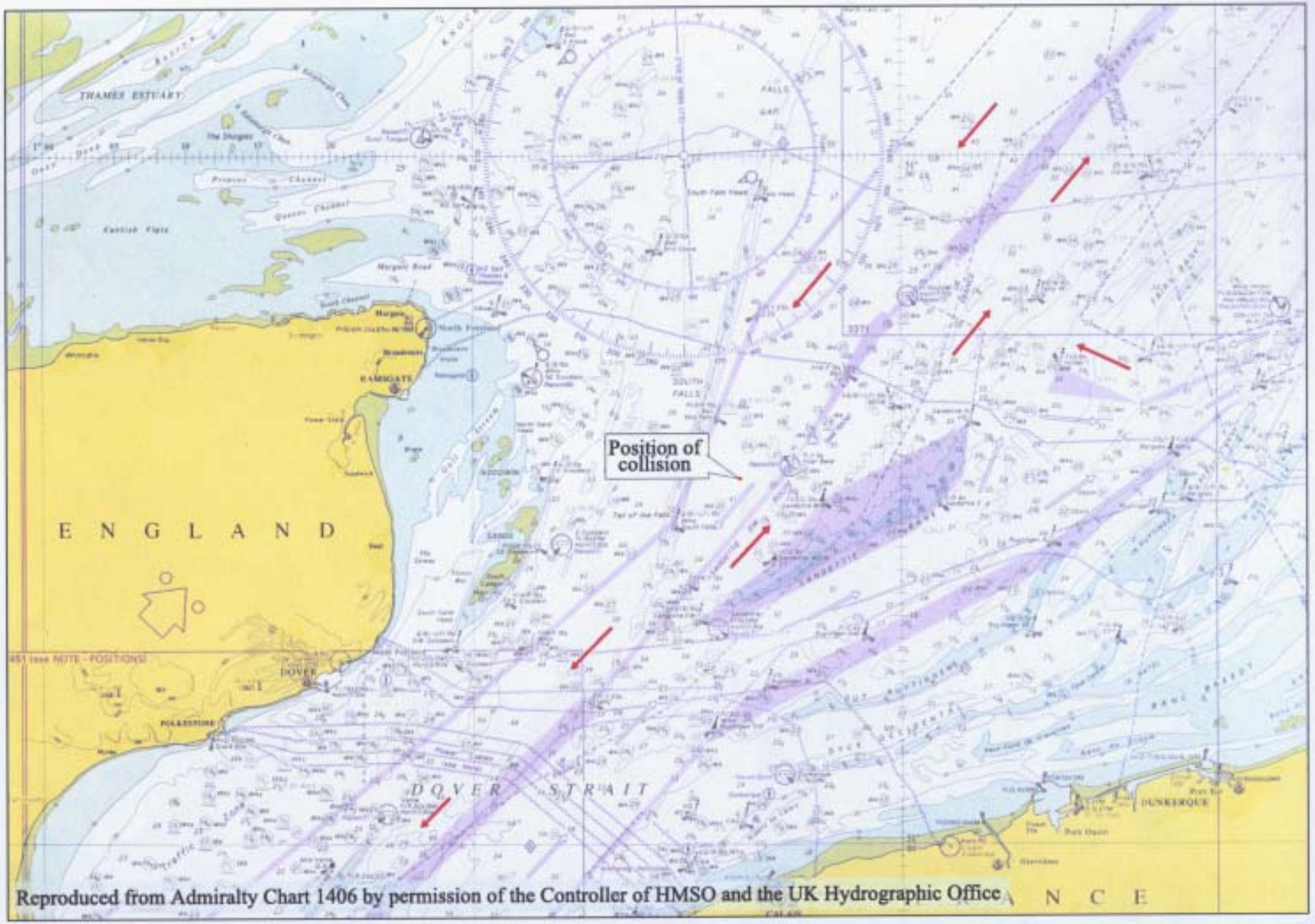
The charterers had requested a speed of 18 knots, although there was a possibility that the ship could be diverted to pick up a cargo in Europe. The passage plan went as far as Ushant, France, after which there were two optional routes across the Atlantic, depending on the weather.

The waypoints were entered in to the GPS set, which indicated the course to make good and the distance to go to the next waypoint. The GPS was interfaced with the radar. This too showed the course to make good and the distance to go to the next waypoint. The courses were marked on the charts, and the navigating officers took positions and plotted them on the chart at regular intervals.

*Pasadena Universal* left her berth at 1200 on 12 January 2000 and the lock 3 hours later. At 1740 the river pilot disembarked and a sea pilot took his place. At 1950 the pilot disembarked. An hour later the ship altered course to a course of 289°, which took her to waypoint No 173 close north-west of the F3 lightfloat **(see extract of chart opposite)**.

At 2106, the ship was approaching the F3 lightfloat and, because of a possible close quarters with a number of vessels in the traffic separation scheme on various courses, the master decided to alter course early at 2112 to enter the south-west bound lane **(see diagram 1 - in section 2)**. The third officer and a helmsman on the wheel were on the bridge with the master. At 2120, the ship passed close to the F3 lightfloat on her starboard side and began a shallow entry into the traffic lane through the separation zone. By 2124, she was making good a course of 225° and a speed of 20 knots over the ground.

*Pasadena Universal* was overtaking *Nordheim*, which was about 30° on her starboard bow **(see diagram 2 - in section 2)**. Between 2124 and 2142 the relative bearing of *Nordheim* changed little. At about 2143 the master decided to alter course to starboard to allow *Nordheim* to pass ahead, for which the radar gave a clearing distance of 8 cables **(see diagram 3 - in section 2)**. Once *Nordheim* had passed ahead, the master concentrated on a fishing vessel, which was now on the port bow of *Pasadena Universal* at about 1 mile and to starboard of *Nordheim*. He did not want to pass the fishing vessel on his port side, because of the proximity of South Falls sandbank. He assessed that the fishing vessel was on a parallel course to his own intended track and her nets would be extended out into the seaway to the north-east.


THAMES ESTUARY
Position of collision
E N G L A N D
DOVER STRAIT
DUNKERQUE
Reproduced from Admiralty Chart 1406 by permission of the Controller of HMSO and the UK Hydrographic Office

The master decided to pass between *Nordheim* and the fishing vessel, and accordingly altered course to port.

The third officer moved to the port side of the bridge to look at the radar and saw the green side light of *Nordheim* very close. He told the master, who ordered hard-to-starboard, knowing that he was risking his ship cutting across the fishing vessel's nets. However, he thought that once he was clear of *Nordheim*, he would be able to alter back to port to avoid the fishing vessel and her gear.

Despite the avoiding action, *Pasadena Universal*'s port bow made contact with *Nordheim*'s starboard bow. The ships parted and, as *Pasadena Universal* was swinging to starboard, her port quarter made contact with *Nordheim*'s accommodation superstructure and starboard side in way of No 3 hold. The fishing vessel passed down the port side of *Pasadena Universal.*

### 1.1.2 Events leading up to the collision - *Nordheim*

*Nordheim* left Hamburg at 1018 on 11 January 2000 with a cargo of potash for Saint-Malo. The passage plan included waypoints, which were entered in to the GPS set and plotted on the charts. The chief officer took over the watch at 1900 (2000 ship's time). A lookout was posted on the port bridge wing. The automatic helm was engaged.

At 2106, the chief officer altered course at waypoint No 12 to 204° but allowed 6° leeway and steered 210°. At 2130 he increased the leeway by 5° and steered 215°. The ship's speed over the ground was about 12.3 knots. At this time he became aware of a ship astern fine on the starboard quarter. From the radar he noted that the ship was overtaking his own vessel. He went out on the starboard wing and saw that the overtaking ship's two white mast lights were open and deduced that she would pass down his starboard side. He also had a fishing vessel between 1 and 2 points on his starboard bow.

The chief officer plotted a position at 2243, which put the ship to port of track. He observed what he assumed to be the overtaking ship on his starboard quarter about one mile astern. Because he was approaching waypoint No 13, he began to alter course to starboard, intending to steer a new course of 230°. He altered course 5° at a time so that the automatic helm would not overshoot the course too much. However, it did overshoot to 235° but port helm then started to bring the ship's head back to 230°. The fishing vessel was about 1 mile away. The chief officer was about to select 225° to bring the head back quicker to port, when he saw *Pasadena Universal* overtaking on his starboard side, about 100m away. He moved his hand, which was still on the automatic helm control knob, to bring the ship's head further to port, but the 5° off-course alarm sounded. The chief officer changed over to hand-steering and applied 15° of port helm, but was unable to prevent a collision.

### 1.1.3 Events after the collision

Both ships reported to Dover Coastguard that they had been in collision with another vessel. Both vessels were damaged, but there were no injuries or pollution. *Pasadena Universal* was holed above the waterline and the Dover Coastguard tug was tasked to

escort her to Dover harbour. *Nordheim*'s damage did not threaten her watertight integrity, and she continued her passage to Saint-Malo.

With the coastguard tug standing by, *Pasadena Universal* anchored off Dover, and then went alongside in the early afternoon of 13 January 2000.

*Nordheim* docked in Saint-Malo early the following day.

## 1.2 ENVIRONMENTAL CONDITIONS

At the time of the collision, the wind was south-west force 6 to 7. It was fine, partly cloudy and the visibility was 10 to 12 miles.

It was several days after spring tides and the tidal stream was setting in a south-westerly direction. Low water occurred in Dover at 2135.

The incident occurred in the hours of darkness.

## 1.3 *PASADENA UNIVERSAL*

### 1.3.1 The ship

The vessel is a refrigerated cargo ship with a capacity to carry vehicles. She has three holds forward of the engine room and superstructure and one aft, one conventional propeller and a bulbous bow. She was in ballast at the time of the collision.

### 1.3.2 The crew

The 59 year old master had been at sea all his working life. He had obtained his master's certificate of competency in 1976, and had served as master since 1978. He had been employed by the ship's owner since 1992 and joined *Pasadena Universal* on 10 October 1999. This was his first time on board the ship, but he had served on sister ships. He normally spent six months on board, followed by three months leave.

The third officer was 47 years old. After leaving school, he had been a radio officer for 25 years. One year before the collision, he had obtained a third officer's certificate of competency after undertaking six months as a bridge assistant and six months at college. He joined *Pasadena Universal* on 6 December 1999; this was his second voyage as third officer.

All 24 members of the crew were Polish nationals and the deck department consisted of the master and three deck officers, a bosun, three able seamen, two ordinary seamen and a deck cadet. There were six engineer officers, four engineer ratings and three catering staff.

### 1.3.3 Navigational equipment and practices

The ship was equipped with the following:

*Furuno* GPS Navigator

*Shipmate* RS5700 GPS

One *Racal Decca Bridgemaster* radar* and two non-daylight radars, the latter of which were not in use at the time of the collision.

(* The radar had a partial ARPA facility and a GPS input, giving course and distance to the next waypoint. The waypoint(s) were shown together with the course line(s), which was displayed as a red dashed line. It was in the north-up gyro stabilised mode and on the 6-mile range scale.)

A *Tokyo Keiki Palpaa PR-4000* automatic and manual steering position.

A gyro repeater mounted at the centre line, forward bridge window.

A *Tokyo Keiki* course recorder.

On the day of the collision, the master had carried out general administration work before leaving Antwerp at 1200, after which he was on the bridge continuously (except for meals) until after the accident.

The three navigating officers carried out the conventional bridge watches of 4 hours on and 8 hours off. The third officer relieved the chief officer at 2000 (ship's time) after having worked about 9 to 10 hours that day on various tasks about the ship.

While the master had the con, the third officer's tasks on the bridge were acting as lookout, plotting the ship's position on the chart, reporting in to Dover Coastguard and changing the time on the ship's clocks. When he plotted the ship's position, he told the master where the ship was in relation to the course line. The master confirmed to the third officer that he understood.

A company's *Bridge Management Passage Plan Appraisal* checklist had been completed.

### 1.3.4 Damage

**(Photographs 3 and 4 refer)**

On the port bow, there was a 15m long gash in the hull, which had a hole at the fore end. There was a series of scrape marks and gashes in the hull in way of the port quarter.

## 1.4 *NORDHEIM*

### 1.4.1 The ship

The vessel is a conventional bulk carrier with three holds forward and the engine room/accommodation superstructure aft. There is one conventional propeller.

Photograph 3


The damage to the port bow of *Pasadena Universal*

Photograph 4

The damage to the port quarter of *Pasadena Universal*

### 1.4.2 The crew

The 56 year old chief officer first went to sea in 1962 as a navigating cadet on foreign-going general cargo ships. Although he spent one year ashore in the early 1990's, he worked for several companies and on various types of ships over the ensuing years, mainly as chief officer and master on coastal vessels. He started working for *Nordheim*'s company, Reederei "NORD", in 1995 and joined the ship in August 1999. This was his first voyage on the ship but he had served for about seven months on her sister ship.

There were 19 members of the crew, consisting of:

| | | |
|---|---|---|
| master | - | Egyptian |
| second officer | - | Egyptian |
| chief officer | - | Croatian |
| chief engineer | - | Briton |
| second engineer | - | Polish |
| two fitters | | " |
| cook | | " |
| fourth engineer | - | Sri Lankan |
| deck cadet | | " |
| oiler | | " |
| bosun | - | Kiribatian |
| three able seamen | | " |
| ordinary seaman | | " |
| two motormen | | " |
| steward | | " |

### 1.4.3 Navigational equipment and practices

The ship was equipped with the following:

*Furuno FR 2010* radar*

(* This was the main operational radar with an ARPA facility, giving bearing, distance, true course, and speed of selected echoes and their closest point of approach (CPA), and time of CPA (TCPA). It was in the north-up gyro stabilised mode.)

*Kelvin Hughes 1600* radar

*Magnavox MX 2000* GPS set

*Koden KGP-98* GPS set

*Gylot (Tokyo Keiki)* manual and automatic steering position

A gyro repeater on each bridge wing.

The chief officer took the navigational watches from 0600 to 1200, and from 2000 to 2400; the second officer from 0000 to 0600 and from 1200 to 1600; the master took the watch from 1600 to 2000.

A written passage plan was in place for the voyage between Hamburg and Saint-Malo; prepared before departure from port.

### 1.4.4 Damage

**(Photographs 5, 6 and 7 refer)**

The forecastle starboard bulwark was crumpled inboard. The shell plating at the break of the forecastle was indented. The bulwark on the main deck, in way of No 3 hold was indented. There was damage to a bulwark and deck edge on the starboard forward corner of the accommodation superstructure.

## 1.5 INFORMATION ON TRAFFIC SEPARATION SCHEMES

### 1.5.1 International Maritime Organization (IMO)

The following are quotations taken from IMO's *Ships' Routeing*:

> *The practice of following predetermined routes originated in 1898 and was adopted, for reasons of safety, by shipping companies operating passenger ships across the North Atlantic. Related provisions were subsequently incorporated into the International Conventions for the Safety of Life at Sea.*
>
> *The 1960 Safety Conventions referred to the same practice in converging areas on both sides of the North Atlantic. The Contracting Governments undertook the responsibility of using their influence to induce the owners of passenger ships crossing the Atlantic to follow the recognised routes and to do everything in their power to ensure adherence to such routes in converging areas by all ships, so far as circumstances permit.*
>
> *In 1961 the institutes of navigation of the Federal Republic of Germany, France and the United Kingdom undertook a study of measures for separating traffic in the Strait of Dover and, subsequently, in certain other areas where statistics indicated an increased risk of collision. Their studies resulted in proposals for separation of traffic in those areas as well as for certain basic principles of ships' routeing. These proposals were submitted to the IMO, the specialised agency of the United Nations responsible for maritime safety and efficiency of navigation, and were generally adopted. This initial step was further developed by IMO and the basic concept of separating opposing traffic was applied to many areas throughout the world.*

The following definitions are relevant to this case:

Photograph 5


General view of *Nordheim*'s starboard bow showing the damage

Photograph 6

Detail of damage to the starboard bow of *Nordheim*

Photograph 7

Damage to the boat deck on the starboard side of *Nordheim*

***Routeing system***

*Any system of one or more routes or routeing measures aimed at reducing the risk of casualties; it includes traffic separation schemes, two way routes, recommended tracks, areas to be avoided, inshore traffic zones, roundabouts, precautionary areas and deep-water routes.*

***Traffic separation scheme***

*A routeing measure aimed at the separating of opposing streams of traffic by appropriate means and by the establishment of traffic lanes.*

***Separation zone or line***

*A zone or line separating traffic lanes in which ships are proceeding in opposite directions; or separating a traffic lane from the adjacent sea area; or separating traffic lanes designated for particular classes of ship proceeding in the same direction.*

***Traffic lane***

*An area within defined limits in which one-way traffic is established. Natural obstacles, including those forming separation zones, may constitute a boundary.*

***Area to be avoided***

*A routeing measure comprising an area within defined limits in which either navigation is particularly hazardous or it is exceptionally important to avoid casualties and which should be avoided by all ships, or certain classes of ships.*

### 1.5.2 Admiralty chart 5500

The above chart, titled *Mariners' Routeing Guide English Channel and Southern North Sea*, gives advice on passage planning. The following are relevant extracts:

*Heavy traffic and offshore dangers make it essential that the passage is planned before entering the English Channel and the southern North Sea.*

*Vessels should make use of the full width of the traffic lanes and open waters to reduce collision risks. Individual judgement is required on the exact track to follow, having due regard to any prohibitions that may affect own vessel.*

*In these waters too many vessels ground, stray into the wrong traffic lane, fail to obey the Collision Regulations, or collide with other vessels and buoys. Most casualties or near-misses could be avoided by detailed passage planning.*

*West bound vessels leaving the West Hinder traffic separation scheme and crossing the north-east bound lane of the Dover Strait traffic separation scheme should keep to the north-east limit of the deep water route.*

### 1.5.3 Collision Regulations

The following extracts from Rule 10 of the *International Regulations for Preventing Collisions at Sea* (*Collision Regulations*) are relevant to this case:

*(a) This rule applies to traffic separation schemes adopted by the Organization and does not relieve any vessel of her obligation under any other Rule.*

*(b) A vessel using a traffic separation scheme shall:*

*(i) proceed in the appropriate traffic lane in that general direction of traffic flow for that lane;*

*(ii) so far as practicable keep clear of a traffic separation line or zone;*

*(iii) normally join or leave a traffic lane at the termination of the lane, but when joining or leaving from either side shall do so at as small an angle to the general direction of traffic flow as practicable.*

*(e) A vessel other than a crossing vessel or a vessel joining or leaving a lane shall not normally enter a separation zone or cross a separation line except:*

*(i) in cases of emergency to avoid immediate danger;*

*(i) A vessel engaged in fishing shall not impede the passage of any vessel following a traffic lane.*

(**Footnote:** The Annual Summary of Admiralty Notices to Mariners (section 17) Admiralty Sailing Directions Dover Strait Pilot and the Mariner's Handbook also refer to traffic separation schemes.)

## 1.6 STATUS OF VESSELS WITH REGARD TO THE *COLLISION REGULATIONS*

Under the *Collision Regulations*, *Pasadena Universal*, a power-driven vessel, travelling at about 20 knots and having approached more than two points abaft *Nordheim*'s port beam, was an overtaking vessel. *Nordheim*, also a power-driven vessel, travelling at about 12 knots, was an overtaken vessel. The vessel, which was observed by the chief officer **(vessel 2 in diagram 1)**, was also an overtaking vessel with regard to *Nordheim*, but not to *Pasadena Universal*.

The fishing vessel was probably engaged in fishing **(vessel 5 in diagram 1)**.

# 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, if any, with the aim of preventing similar accidents occurring again.

This section will determine how *Pasadena Universal* and *Nordheim* collided in good visibility and reasonable weather.

## 2.2 THE COLLISION

### 2.2.1 *Pasadena Universal*

With regard to this ship, the events leading up to the collision were in two stages:

1. the approach and entry in to the traffic separation scheme; and

2. the approach to, and the collision with, *Nordheim*.

Referring to point 1. above:

When the ship approached F3 lightfloat, the Dover Coastguard's radar print-out showed that the master had the following vessels in his vicinity **(see diagram 1 opposite)**:

The courses and speeds (over the ground) of the vessels were:

Vessel 1 - 216° at 12.8 knots;

Vessel 2 - 220° at 15.0 knots;

Vessel 3 - 139° at 4.8 knots;

Vessel 4 - 216° at 6.2 knots;

*Nordheim* - 205° at 12.3 knots;

Vessel 5 - courses variable at less than 1 knot; and

Vessel 6 - 292° at 18 knots.

The waypoint (No173), for altering in to the south-west bound traffic lane, was close to the north-west of the F3 lightfloat. However, the master departed from the plan because of the movements of vessels 1 to 4 above. He altered course much earlier than the passage plan dictated, and the ship went to the south of the lightfloat. The ship passed the lightfloat by between one and two cables and therefore she had entered the area to be avoided around the lightfloat **(see section 1.5.1)**. The purpose of this particular area to be avoided was to keep vessels away from the lightfloat and thereby help prevent vessels colliding with it and causing damage.

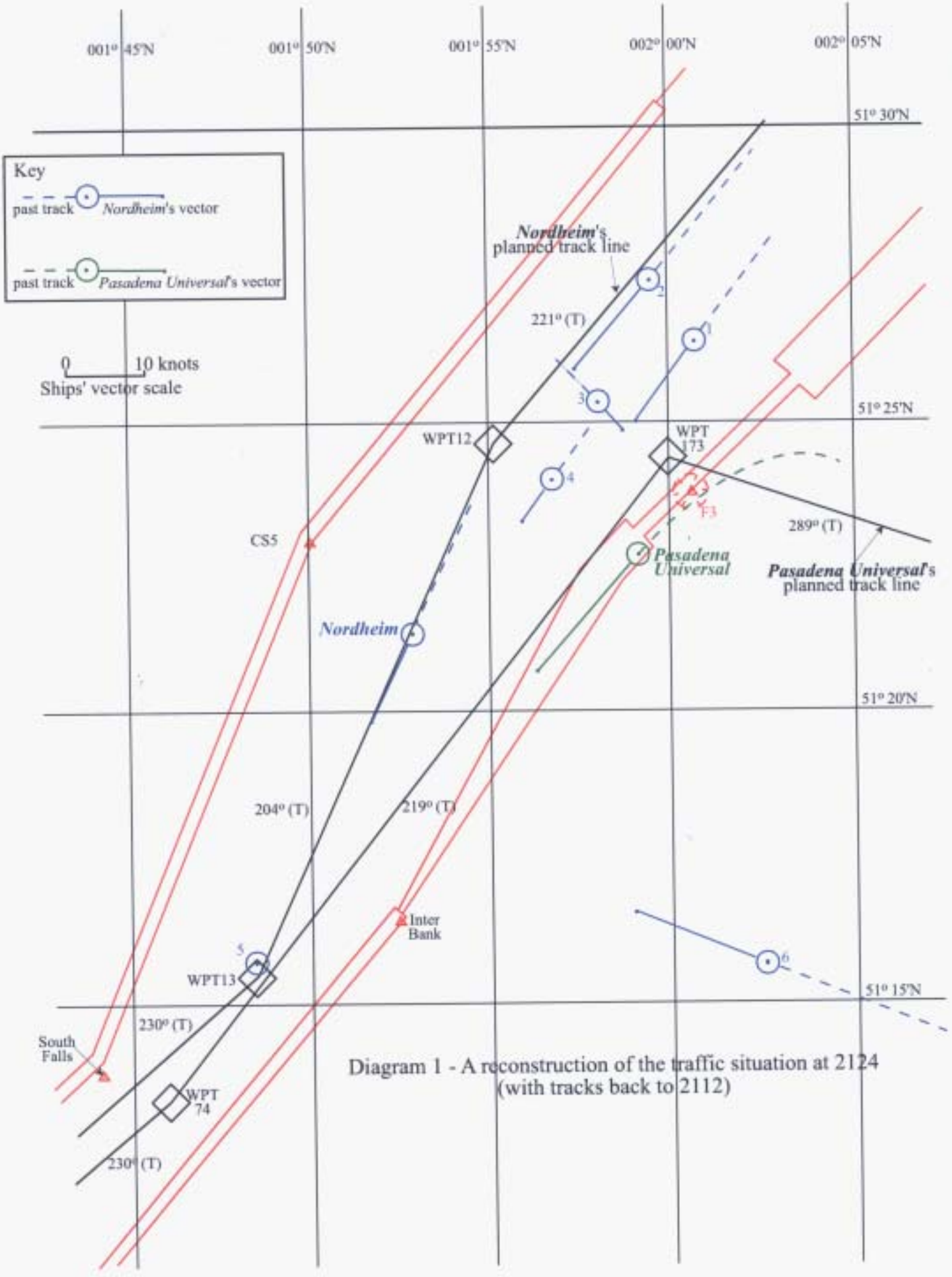



Diagram 1 - A reconstruction of the traffic situation at 2124
(with tracks back to 2112)

Had the master adhered to the passage plan, he would have needed to make a large and acute alteration of course from 289° to 219°, and he would have closed vessels 1, 2 and 3. This action might have caused some concern to those other vessels, as they might not have known whether *Pasadena Universal* was going to turn to the south-west, or if she was going to cross the traffic separation scheme at right angles.

Despite entering the area to be avoided, the master entered the lane at a small angle to the general direction of traffic flow, as directed by Rule 10(b)(iii) **(see section 1.5.3)**. However, instead of joining the planned track as soon as possible, he set a new course directly for waypoint No 174. In doing so he travelled for about 3 miles in the traffic separation zone, contrary to Rule 10 (b) (ii).

While the early alteration of course was a justifiable action, the execution of the manoeuvre was not best carried out. He passed too close to the lightfloat and stayed in the separation zone too long without good reason.

Referring to point 2. above:

By 2124, *Pasadena Universal* was making good a course of about 225° and she had *Nordheim* about 30° on the starboard bow by about 4.3 miles **(see diagram 2)**. At 2130, the course recorder and the radar plot show that the ship altered course to port by 5°. From the latter time, the relative bearing of *Nordheim* began to slowly open to starboard as the range continued to decrease.

There was a slow moving fishing vessel (vessel 5) about 1 to 2 points on the starboard bow.

At 2143, again both the course recorder and the radar plot showed that there was alteration to starboard to 228° and then at 2148 there was another alteration of course to 234° **(see diagram 3)**. At the latter time, *Nordheim* passed ahead of *Pasadena Universal* at about 5 cables. The master believed that the two ships were safe because they were on diverging courses, and he turned his attention to the fishing vessel (vessel 5).

The master had two options: either alter course to port and go between the fishing vessel and *Nordheim*, or pass to the west of the fishing vessel. He did not take the latter option as he feared that he might become too close to the South Falls sandbank. The master erroneously assumed that *Nordheim* would remain on her course during the time he would pass between the two vessels. He would have had the South Falls buoy ahead of him at this time, and the traffic lane was narrowing to a minimum width of 2 miles. Instead, he decided to take the first option, and at 2150 altered course to port to make 223° so that the fishing vessel would pass down his starboard side. *Pasadena Universal* was quickly passing *Nordheim*, but the master did not realise that the other ship was beginning to make a number of alterations of course to starboard towards his own ship. At 2152, the ship made an alteration of course to starboard, at which point *Nordheim* was just forward of *Pasadena Universal*'s port beam and closing rapidly. When the third officer alerted the master of the closeness of *Nordheim* it was too late to avoid a collision. The bows of both ships came in to contact and then further contact was made aft as the two ships swung away from each other.

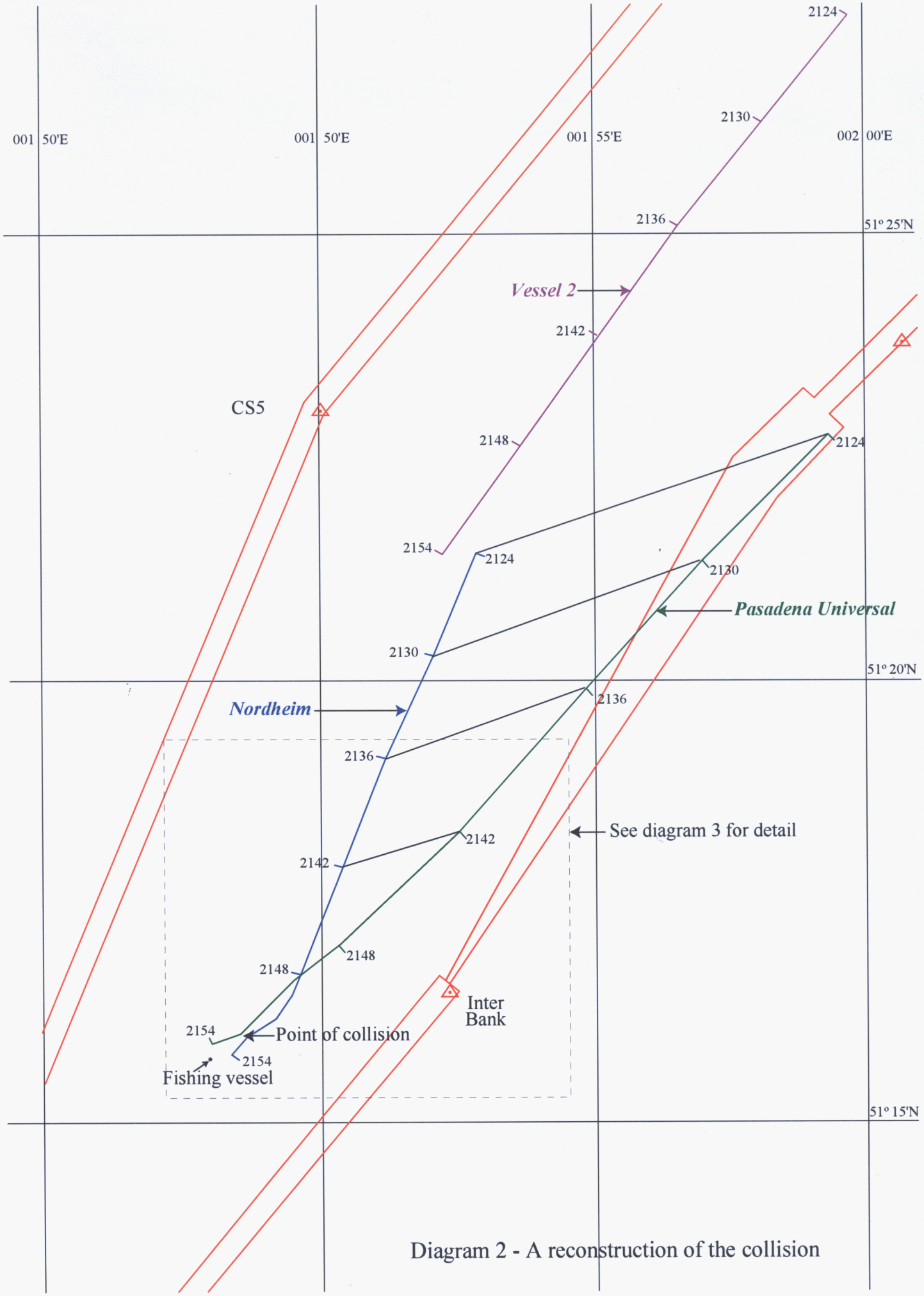



Diagram 2 - A reconstruction of the collision

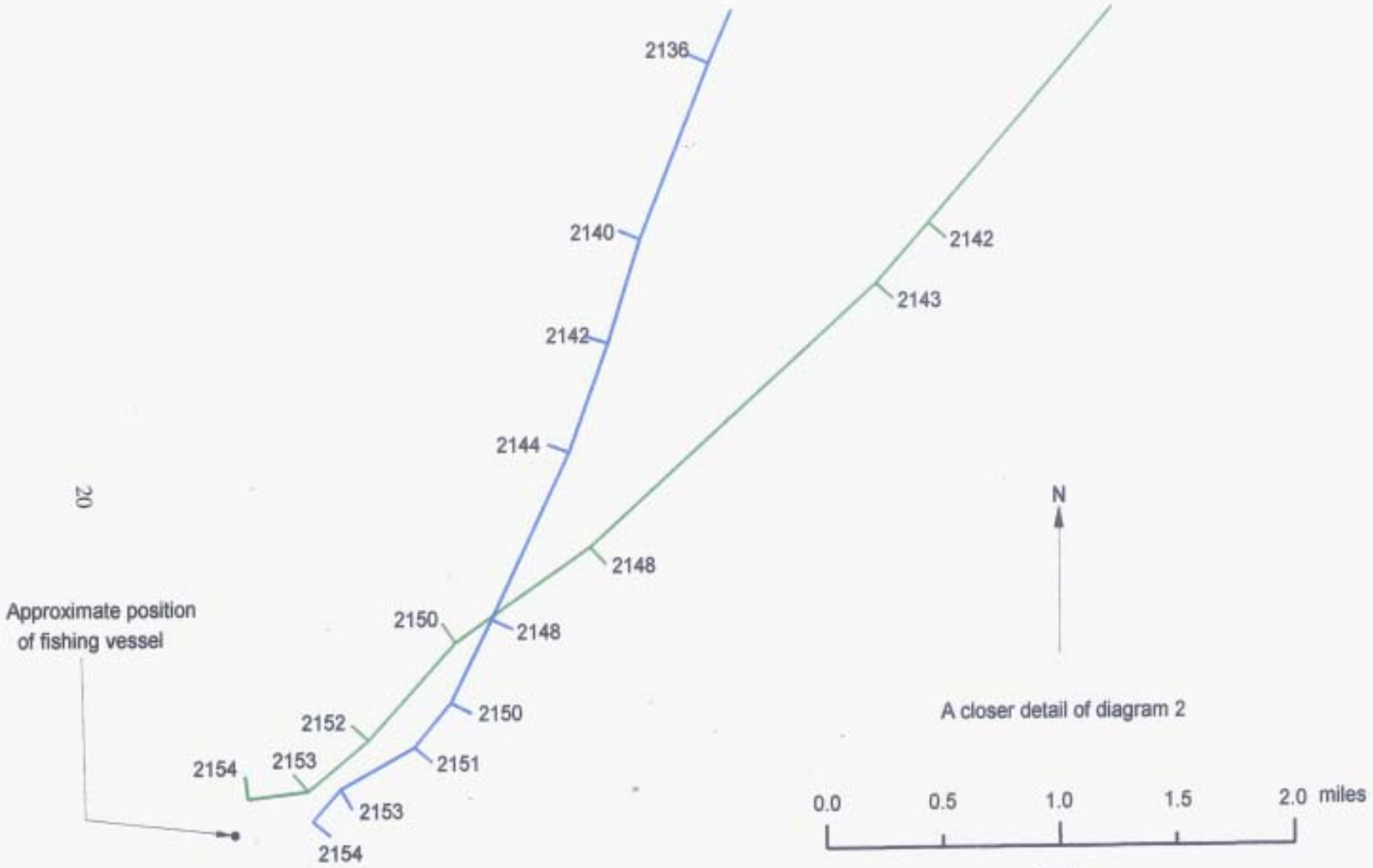

2136
2140
2142
2144
2148
2150
2152
2154
2153
2151
2150
2148
2142
2143
2154
2153
Approximate position
of fishing vessel
N
A closer detail of diagram 2
0.0
0.5
1.0
1.5
2.0 miles
Scale



Diagram 3

By deciding to go between the fishing vessel and *Nordheim* the master left little margin for error if something unforeseen happened. Although the traffic lane was nearly two miles wide, he had enough sea room to the west (given the draught of the ship), in which to avoid both vessels. Therefore, the master may not have been fully aware of the ship's position in relation to areas of safe navigation. The chart was not marked with no-go areas. Perhaps the master was relying too much on the track lines and waypoints on the radar, and was not making regular referrals to the plotted positions on the chart. If he had been fully aware of the sea room to the west, he might have taken the safer action by leaving the fishing vessel and *Nordheim* well to port.

Contrary to Rule 2(a) of the *Collision Regulations*, the master failed to anticipate *Nordheim*'s alteration of course, and erroneously assumed that she would remain on her course during the time he would pass between the two vessels.

Contrary to Rule 8(d) of the *Collision Regulations*, the master did not pass *Nordheim* at a safe distance, and did not check the effectiveness of his action, until the other vessel was finally passed and clear.

### 2.2.2 *Nordheim*

The chief officer became aware of an overtaking vessel, which was fine on the starboard quarter. The coastguard radar plot indicated this was vessel 2, which at 2124 was 7.4 miles away and which closed to 6.2 miles at the time of the collision.

The radar plot shows that, until 2140, the ship made 204° over the ground; 198° between 2140 and 2144; and 205° between 2144 and 2150. At about 2143, the chief officer plotted the ship's position and saw that he was approaching waypoint No 13. He decided that because he was left of track, he would alter course early on to the true course of 230°. At this point he observed that what he assumed to be the overtaking ship he had seen earlier on his starboard quarter, was now about one mile astern. He went to the automatic pilot at centre line of the bridge and, using the course setting control began to alter course to starboard by 5° at a time. The radar plot shows that between 2150 and 2151 the ship made 220° over the ground. However, the automatic helm overshot the intended course of 230° and the ship made 240° over the ground during the next two minutes until the collision.

The chief officer, standing by the automatic helm, did not see *Pasadena Universal* until she came in to sight on his starboard beam. Although then he tried to alter course to port it was too late to avoid the collision.

The chief officer thought that the colliding ship was the overtaking ship he had seen earlier (vessel 2). He was unaware, either by sight and/or by radar, that *Pasadena Universal* had initially approached *Nordheim* from the port quarter and had crossed his stern at close range. *Pasadena Universal*'s presence had not been reported to the chief officer by the lookout, who was stationed on the port bridge wing. Therefore, the bridge team was not keeping a proper lookout under Rule 5 of the *Collision Regulations*.

Although the chief officer was aware of an overtaking ship about 1 mile astern, it is apparent that he did not appreciate her rapid speed of approach, and that his visual

observation of what he assumed to be the same ship some 6 miles on the starboard quarter, convinced him that it was safe to alter course to starboard at that time.

Had he been aware of *Pasadena Universal* and her rapid speed of approach, he might have given himself the option of delaying the navigational alteration of course.

# SECTION 3 - CONCLUSIONS

## 3.1 FINDINGS

### 3.1.1 *Pasadena Universal*

1. The master had command and control of the vessel throughout the incident. [1.3.3]

2. The third officer was engaged in plotting the ship's position, relaying navigational information to the master, and acting as lookout. [1.3.3]

3. There was a helmsman on the wheel. [1.3.3]

4. Because of the traffic situation in the south-west traffic lane, the master decided to depart from the passage plan and alter course early and pass south of the F3 lightfloat. [2.2.1]

5. While the early alteration of course was a justifiable action, the execution of the manoeuvre was not best carried out, by passing too close to the lightfloat and staying in the separation zone too long without reason. [2.2.1]

6. The former action made the ship enter the area to be avoided and the latter action was not in accordance with Rule 10(b) (ii) of the *Collision Regulations*. [2.2.1]

7. The master did not make for the planned track but steered directly for the next waypoint, which was displayed on the operational radar screen. [2.2.1]

8. Once on the new course, *Nordheim* was about 30° on *Pasadena Universal*'s starboard bow. There was a slow moving fishing vessel between 1 and 2 points on her starboard bow. [2.2.1]

9. *Pasadena Universal* was the overtaking vessel with regard to *Nordheim*. [1.6]

10. The master altered course to allow *Nordheim* to pass ahead at about 5 cables. [2.2.1]

11. The master then believed that the two ships would be safe, as they were on diverging courses. [2.2.1]

12. The master turned his concentration to the fishing vessel, which he saw was on a parallel course to his own intended track. [1.1.1]

13. He decided to pass between *Nordheim* and the fishing vessel, as he did not want to go too far to the west, because of the shallow waters of the South Falls sandbank. [2.2.1]

14. This was a mistaken assumption and he could have safely gone in that direction. The chart was not marked with no-go areas. [2.2.1]

15. Perhaps the master was relying too much on the track lines and waypoints on the radar and was not making regular referrals to the plotted positions on the chart. This might have led him to believe that he was in an area of safe navigation. [2.2.1]

16. By deciding to go between the two vessels, the master left little margin for error if something unforeseen happened. [2.2.1]

17. The bridge team was not aware that *Nordheim* was altering course towards *Pasadena Universal*, until the third officer saw her closing his own ship. [2.2.2]

18. Avoiding action was too late to prevent a collision. [2.2.2]

### 3.1.2 *Nordheim*

1. The chief officer had the navigational watch throughout the incident. [1.1.2]

2. There was a lookout on the port bridge wing and the automatic helm was engaged. [1.1.2]

3. The chief officer became aware of an overtaking vessel fine on the starboard quarter. [2.2.2]

4. From the other ship's navigation lights, he saw that she would pass down his starboard side. [2.2.2]

5. At 2124, the other ship was 7.4 miles away and at the time of the collision she was 6.2 miles away. [2.2.2]

6. He wrongly assumed that this was the ship that he was in collision with. [2.2.2]

7. He was unaware that *Pasadena Universal* had initially approached from the port quarter and had crossed his stern at relatively close range. [2.2.2]

8. The lookout had not reported the approach of *Pasadena Universal*. [2.2.2]

9. The bridge team was not keeping a proper lookout under Rule 5 of the *Collision Regulations*. [2.2.2]

10. Although the chief officer was aware of an overtaking ship about 1 mile astern, it is apparent that he did not appreciate her rapid speed of approach and that his visual observation, of what he assumed to be the same ship some 6 miles on the starboard quarter, convinced him that it was safe to alter course to starboard at that time. [2.2.2]

11. Had he been aware of *Pasadena Universal* and her rapid speed of approach, he may have given himself the option of delaying the navigational alteration of course. [2.2.2]

## 3.2 CAUSES

### 3.2.1 *Pasadena Universal*

1. *Pasadena Universal*'s master attempted to pass between *Nordheim* and the fishing vessel, leaving little margin for error. [2.2.1]

### 3.2.2 *Nordheim*

1. *Nordheim*'s chief officer altered course to starboard at a time when *Pasadena Universal* was overtaking at close proximity. [2.2.2]

## 3.3 CONTRIBUTORY CAUSES

### 3.3.1 *Pasadena Universal*

1. The master might not have been fully aware of his ship's position in relation to areas of safe navigation, because he might have been more focused on the radar track information than the chart. [2.2.1]

2. The master failed to anticipate *Nordheim*'s alteration of course to starboard and erroneously assumed that she would remain on her course during the time he would pass between the two vessels. [2.2.1]

3. The master did not pass *Nordheim* at a safe distance and did not check the effectiveness of his action until the other vessel was finally passed and clear. [2.2.1]

### 3.3.2 *Nordheim*

1. The chief officer was unaware of the approach of *Pasadena Universal*. [2.2.2]

2. A proper lookout was not maintained on board *Nordheim*. [2.2.2]

3. The chief officer's visual observation of what he assumed to be the overtaking ship about one mile astern apparently convinced him it was safe to alter course to starboard at that time. [2.2.2]

4. The chief officer did not appreciate *Pasadena Universal*'s rapid speed of approach. [2.2.2]

## SECTION 4 - RECOMMENDATIONS

The MAIB has no safety recommendations to make at this time.

**Marine Accident Investigation Branch**
**November 2000**