

Report of the Chief Inspector of Marine Accidents
into the collision between the Fishing Vessel
WILHELMINA J
and MV **ZULFIKAR**
with the loss of six lives
on 10 April 1991

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17 July 1992

*The Right Honourable John MacGregor OBE MP
Secretary of State for Transport*

Sir

In pursuance of Regulation 9 of the Merchant Shipping (Accident Investigation) Regulations 1989, I submit my Report following the Inspector's Inquiry into the collision between the fishing vessel WILHELMINA J and MV ZULFIKAR, with the loss of six lives on 10 April 1991.

I wish to place on record appreciation for the co-operation which was extended to the Inspectors who carried out the Inquiry.

I am, Sir,
Your obedient servant

Captain P B Marriott
Chief Inspector of Marine Accidents

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1. SUMMARY

(All times in the Report are GMT except where otherwise noted)

MFV WILHELMINA J, a 26 metre United Kingdom registered beam trawler, left Portsmouth on the 9 April 1991 to trawl for scallops in the English Channel in the vicinity of fishing grounds known as Horseshoe Bank. She had a crew of six. At approximately 0200 hrs on 10 April WILHELMINA J was in collision, in thick fog, with MV ZULFIKAR, a 142 metre 8714 gross tons Cyprus registered cargo ship. The vessel was on a passage from Eemshaven (Germany) to Port Said (Egypt). The collision happened about three miles west of the termination of the southwest bound lane of the Dover Strait Traffic Separation Scheme.

At 0345 hrs, on the advice of his Sub-Managers, the Master of ZULFIKAR reported the collision to HM Coastguard. An extensive search operation was mounted involving fishing vessels, merchant ships, warships, two RNLI lifeboats and a Coastguard rescue helicopter. Two empty life-rafts, lifebuoys and flotsam from WILHELMINA J were found. An Emergency Position Indicating Radio Beacon was also picked up but it had not transmitted. A new wreck was detected on the seabed, which was later identified as that of WILHELMINA J. The search was finally terminated at 1200 hrs on 11 April. No survivors or bodies had been found.

On 2 July the wreck of WILHELMINA J was raised so that a search for bodies and an inspection of the wreck could be made. The bodies of the Skipper and the Engineer were found inside the wreck, but the bodies of the other four crew members have not been found. The wreck of WILHELMINA J was returned to the seabed.

The proximate cause of the collision was a failure by ZULFIKAR and a possible failure by WILHELMINA J, to obtain early radar warning of the risk of collision and take avoiding action. ZULFIKAR was not keeping a proper radar lookout and made an incorrect assumption on the basis of scanty radar information.

PART 1 FACTUAL ACCOUNT

2. PARTICULARS OF FV WILHELMINA J AND CREW

2.1	Port of Registry	:	Portsmouth
	Fishing Number	:	P 742
	Registered Length	:	24.35 metres
	Overall Length	:	26.22 metres
	Breadth	:	6.13 metres
	Depth	:	2.28 metres
	Gross Tonnage	:	81.90 tons
	Built	:	1966 in Holland
	Engine	:	Stork Werkspoor, 492 kW
	Speed	:	10 knots
	Owner	:	Johnsons Sea Enterprises Ltd Portsmouth

2.2 Navigation, Communications and Fishing Gear

Decca Navigators Mk 21 and Mk 53

Furuno Radar Type FR805DA

Wagner Mk 4 Autopilot

Sailor MF Radio type T122/R106

Sailor VHF Radio type RT144B

York Mk II R/T Distress Emergency Watch Receiver

Motorola Mobile Telephone

Mariner Portable Transmitter/Receiver type 16

Lokata EPIRB (Emergency Position Indicating Radio Beacon) type LK406

Track Plotter type 350T

Racal Decca Video Plotter type CVP 3500

2.3 Lifesaving Appliances

- 2 RFD 6 man inflatable life-rafts with hydro-static release units
- 6 Life-jackets
- 4 Lifebuoys
- 12 Pains-Wessex Parachute Distress Rockets

2.4 Certification

UK Fishing Vessel Certificate issued under Fishing Vessels (Safety Provisions) Act 1970 13 November 1989, valid until 31 January 1994.

Report of Inspection Radio (SUR 69 Radio) dated 12 January 1989.

2.5 Crew

WILHELMINA J was manned by a crew of six.

- Skipper : Certificate of Competency Class 2 (Fishing) - issued 16 January 1990. Appointed Skipper in December 1989. Entered fishing industry 1982. Aged 24 years.
- Mate : Basic Fire Fighting and Prevention Certificate - issued March 1990.
Basic Sea Survival Certificate - issued July 1990.
Appointed Mate in January 1991.
Entered fishing industry 1985.
Aged 25 years.
- Engineer : Entered fishing industry about 1984.
Aged 35 years.
- Deckhands : Of the three deckhands, one aged 23 years, held a Basic Sea Survival Certificate and a Basic First Aid Certificate. Another, aged 26 years, held a Basic First Aid Certificate, whilst the third deckhand, aged 26 years, held no qualifications.

2.6 Construction

WILHELMINA J was a steel hulled beam trawler with the wheelhouse sited two thirds aft from forward. Aft of the wheelhouse, at a lower level, was the galley/messroom. The superstructure was extended forward at deck level to provide a winch house. Stepped on the port and starboard sides of the winch house on an 'A' frame mast section were two derricks from which was suspended the beam trawling equipment. An enclosed whaleback housing was forward. Below deck, aft of the engine room space, there was a sleeping cabin for the crew. Between the engine room and the fish room forward of it was a cross bunker tank for oil fuel. Forward of the fish room was a net store with further tank spaces below it for fuel oil and ballast water.

Access from the outside deck to the whaleback space, winch house, machinery space, wheelhouse and galley/messroom was by means of steel weathertight doors which could be opened from both sides. At the aft end of the galley/messroom there was an additional access door of the stable type which could also be opened from both sides. There were three access doors into the wheelhouse; one each on the port and starboard sides reached by steel rungs on the superstructure sides and an inside door from the enclosed lobby on the starboard side, which was entered from the outside deck. The access to the engine room was also from this enclosed lobby. These doors could also be opened from both sides. Access between the wheelhouse, engine room and galley/messroom could therefore be effected without going to the outside deck. Access to the crew sleeping cabin was from the port forward corner of the galley/messroom, by means of a hatchway in the deck with an inclined ladder below it. Additionally, there was an emergency escape providing direct access from the sleeping cabin to the outside deck; this could be opened from both sides.

A photograph of the vessel is shown in Figure 1.

3. PARTICULARS OF ZULFIKAR AND CREW

3.1	Type	:	"Freedom" type Cargo Ship
	Port of Registry	:	Limassol, Cyprus
	Gross Tonnage	:	8714 tons
	Overall Length	:	142.25 metres
	Breadth	:	19.85 metres
	Summer Draught	:	9.04 metres (29 feet 8 inches)
	Summer Displacement	:	19,126 tonnes
	Built	:	1970 in Japan
	Engine	:	Pielstick/IHI slow speed diesel engine developing 5130 BHP
	Speed	:	14 knots normal, but due to defective turbo charger service speed was 12½ knots
	Owner	:	Silveray Shipping Co Ltd, Limassol
	Managers	:	SNP Ship Management and Consultation Bureau, Bombay, India (responsible for recruitment, appointment of crew and safe manning)
	Sub-Managers	:	Holbud Ltd, Leman Street, London (responsible for technical, commercial and safe operations)

A photograph of the vessel is shown in Figure 2.

3.2 Navigation and Communications Equipment

This vessel was provided with the usual bridge and navigational equipment for a cargo ship of her type, which included:

Tokyo Keiki Gyro Compass

Automatic Pilot

Bridge Control Console for direct manoeuvring of main engine (inoperative)

Electric Telegraph
Decca Radar type RM 416 (inoperative)
Kelvin Hughes Radar type 1600
Marconi VHF Radio (inoperative)
Ndi VHF Radio
Sailor 2182 Khz Distress Watch Receiver
Internal telephone system to accommodation
Automatic Fog Signal Timer

The Kelvin Hughes 1600 radar was sited on the port side of the wheelhouse, towards the after bulkhead. Gyro compass input was not provided for this set and the display was a 'ships head up relative' mode. To assist the operator in the determination of relative motion of targets, the set was provided with an electronic plotting aid, which incorporated a 3-minute timer. By means of an electronic marker, a chosen target could be 'entered' at regular intervals. A vector representative of the targets projected relative track and relative speed could then be displayed. This provided a visual indication of the time to the closest point of approach (CPA), which could be estimated by counting the 3-minute elements on the projected vector. The predicted range of the target at CPA could then be obtained by using the variable range marker (VRM) or the fixed range rings on the display. There was no automatic element in this electronic aid and it indicated only relative motion.

The chart room was located aft of the wheelhouse and separate from it. Charts, sailing directions and other nautical publications were provided as required by international convention.

3.3 Crew

There was a total crew of 27, which included the Master, three deck officers, two deck cadets and five deck ratings.

The following personnel are referred to in this Report:

Master : Certificate of Competency Master (Foreign Going) issued by the Government of India March 1987.
Radar Observer Course 1981.
Appointed Master November 1990.
First went to sea 1977.
Aged 31 years.

- 2nd Officer : Certificate of Competency Mate (Home Trade) issued by the Government of India March 1978.
Radar Observer Course 1979.
Transitional Certificate as First Deck Officer (Ocean Going) 1600 GRT or more issued by Government of Panama.
Appointed to ZULFIKAR October 1990.
First went to sea 1973.
Aged 41 years.
- Navigation Watch Rating : Letter of Appointment as Cadet issued 1990.
Appointed to ZULFIKAR, his first ship, November 1990 but on crew list as Able Seaman.
Aged 18 years.
- 3rd Engineer Officer : 3rd Engineers Certificate issued by Government of Panama 1990.
Appointed to ZULFIKAR May 1990.
First went to sea 1974.
Aged 40 years.

4. NARRATIVE

The following account is based solely on the evidence given to the Inspectors by the various parties.

- 4.1 The fishing vessels NELLIE and WILHELMINA J sailed from Portsmouth at about 0900 hrs on 9 April 1991 and the two vessels, both beam trawlers similar in size, proceeded to a fishing ground known as "Horseshoe Bank" which is about 8 miles west of the western exit of the Dover Strait Traffic Separation Scheme, to dredge for scallops. They arrived at the fishing ground to the east of the "Horseshoe Bank", at about 1400 hrs and both vessels continued to fish during the course of the afternoon. Some time between 1600 hrs and 1800 hrs they agreed, by portable telephones, to establish a mutual working frequency on Channel 15 VHF, with the dual watch facility set on Channel 16. Conversation on VHF about the traffic situation and their manoeuvres around each other followed at sporadic times. The vessels were trawling in an east-north-easterly direction, followed by an alteration of course to bring the vessels back on a west-south-westerly trawl. NELLIE was making these turns in an anti-clockwise direction, and it is probable that WILHELMINA J was making her turns in the same direction.
- 4.2 Between 2100 hrs and 2200 hrs the visibility became restricted by fog patches and the two vessels lost visual sight of each other. Occasionally the visibility improved to about a quarter of a mile and, during one of their passings, the working lights on WILHELMINA J were seen from NELLIE. Some time between 0130 hrs and 0200 hrs on 10 April the Skipper of NELLIE had a conversation with the Mate of WILHELMINA J. This was to be the last known communication with WILHELMINA J.
- 4.3 At about 0205 hrs, calls to WILHELMINA J by VHF and portable telephone were made because it was thought best to keep in contact in the restricted visibility. There was no response to these calls and it was assumed that the other vessel, thought to be heading at that time in a general easterly direction, was occupied with the hauling or shooting of gear. Further unsuccessful calls to WILHELMINA J were made at about 0240 hrs. Both the Skipper and the Mate were becoming slightly concerned for the other vessel, because of her lack of response to their calls in what was now severely restricted visibility.
- 4.4 At about 0415 hrs the Mate on NELLIE heard an Urgency PAN PAN message to all ships on VHF. The message was from Solent Coastguard and gave the position of a collision between a ship named ZULFIKAR and an unknown small vessel. Another attempt was made to contact WILHELMINA J, again without success so they contacted Solent Coastguard and informed them of the loss of contact with WILHELMINA J. They suspected that WILHELMINA J was the 'unknown small vessel', the whereabouts of which was now a matter of urgency. However, the position given was to the east of where they had been fishing. It appeared, to them, somewhat unusual that WILHELMINA J had moved away from what had proved to be good fishing grounds. The gear on NELLIE was hauled in and they proceeded to the given position, to assist in the search.

4.5 ZULFIKAR had loaded a full cargo of 13000 tonnes of bagged sugar at Eemshaven, Germany and sailed for Egypt on the afternoon of 8 April 1991. The Deck Officers were working the conventional three-watch system, with the Chief, 2nd and 3rd Officers keeping the 4 to 8, 12 to 4 and 8 to 12 bridge watches respectively. The 3rd Officer was uncertificated; the Master therefore retained charge of the 8 to 12 watch and initialled the 3rd Officer's log book entries.

The ship's clocks were being retarded, by ten minutes each night watch, as the vessel proceeded west towards the Dover Strait and English Channel. The times therefore given in this Report in respect of ZULFIKAR's movements are not GMT but ship's time (ST) which was different for each night watch; however for significant times GMT is given in parenthesis.

4.6 The weather up to noon on 9 April was favourable with moderate seas and good visibility and ZULFIKAR had made good an average speed of 10.8 knots. However, by 1600 hrs ST the visibility was starting to deteriorate due to the onset of fog patches. The Falls Light Vessel was passed at about 1930 hrs ST: ZULFIKAR was now approaching the Dover Strait and following the southwest bound traffic lane. At 2000 hrs ST the Master took over the 8 to 12 watch from the Chief Officer, and Dover was passed at 2100 hrs ST.

The vessel was still encountering patches of fog, with visibility reduced to about half a mile. As these patches of fog were approached, fog signals were started using the automatic timer for the whistle. The engines were left on 'Full Away'. The port radar was operational, on ship head up relative display, with the range set to three miles when in fog. The bridge procedure when in fog was that the Master kept the radar watch, the 3rd Officer plotted positions on the chart and the cadet kept a visual lookout on the bridge wing. When the 3rd Officer needed to take radar positions, the Master stood aside to allow him to do this.

4.7 At 2300 hrs ST, Dungeness was passed and at midnight ST, the watches changed. The 2nd Officer relieved the 3rd Officer in the presence of the Master. The 2nd Officer was accompanied by the navigation watch rating who relieved the cadet on the wing of the bridge. The fog had persisted during the 8 to 12 watch and in his log entry for midnight the 3rd Officer recorded "fog with poor visibility". The vessel was steering by automatic pilot and the fog signal was being sounded continuously by automatic timer. In the engine room, the 3rd Engineer Officer had taken over the 12 to 4 watch, accompanied by a watch rating. The engines were on 'Full Away' sea speed of 110 rpm. The ship's speed at this time was about 10½ knots over the ground.

4.8 Some time between five and fifteen minutes past midnight ST, the Master told the 2nd Officer that he was going down to his cabin. It was still thick fog and the loom of the foremast navigation light could just be discerned. The forecastle head was not visible. The Master did not leave any written or verbal night orders to supplement his Standing Orders. After leaving the bridge, he changed into his night clothes and went to bed on his day room settee. He was able to sleep although the whistle, which was over the aft superstructure, was sounding every two minutes.

- 4.9 When he started his watch, the 2nd Officer had the radar set to the higher ranges, so that he could take radar bearings and ranges of the land to fix the ship's position. The automatic pilot was set to a course of 239° Gyro (239° True), the gyro error being allowed as Nil. At 0104 hrs ST (2344 hrs GMT) ZULFIKAR was 14 miles to the south-east of Beachy Head and course was altered to 255° Gyro (255° True). The course now being followed would take the vessel some 120 miles down Channel to the next Traffic Separation Scheme off the Casquets and the exit from the Dover Strait Traffic Scheme was some 23 miles ahead. The visibility had deteriorated further and the 2nd Officer was unable to see the loom of the foremast navigation light. The limit of his visibility in a forward direction was about 60 metres from the bridge.
- 4.10 At 0116 hrs ST (2356 hrs GMT) a radar bearing and range of Beachy Head put the vessel on the course line, in the middle of the traffic lane. Further positions, by the same means, were plotted at 0142 hrs ST (0022 hrs GMT) and 0150 hrs ST (0040 hrs GMT). At 0215 hrs ST (0105 hrs GMT) the 2nd Officer fixed the position by a radar bearing and range of the Greenwich Buoy, which was 10 miles to the south-west. After plotting this position on the chart, he transferred the plot to the next chart. While the 2nd Officer was carrying out these navigational duties, the watch rating remained on the wing of the bridge. Further radar fixes were taken of the Greenwich Buoy at 0230 hrs ST (0120 hrs GMT) and 0245 hrs ST (0135 hrs GMT). By this time, ZULFIKAR had 2½ miles to run before clearing the traffic lane. The wind, which had been south-westerly, had now almost dropped. The vessel had the benefit of the south-west going tidal stream and had made good an average speed of 12 knots since 0150 hrs ST (0040 hrs GMT). The radar showed another vessel on the starboard quarter which was slowly overtaking ZULFIKAR.
- 4.11 The 0245 hrs ST (0135 hrs GMT) radar fix was taken with the display set at the 12 miles range. The 2nd Officer, after plotting the fix on the chart, returned to the radar and changed the display to the 6 miles range. He noticed a small echo about two points on the port bow at a range of 3 miles. He set the electronic marker over the echo, watched it for a while and then concluded from its apparent relative motion that the echo would pass on the port beam at a CPA of one mile. At 0300 hrs ST (0150 hrs GMT) the 2nd Officer changed the radar display back to the 12 miles range in order to take another bearing and range of the Greenwich Buoy, which was now 5 miles away on the port beam. He plotted the position in the chart room, returned to the radar and changed the display to the 3 miles range. He saw that the echo he had observed earlier was now about 3½ points forward of the port beam at a range of 8 cables (0.8 miles). The echo was inside (to the north) of the projected relative track and had therefore closed in relative bearing.
- 4.12 Thick fog persisted. The 2nd Officer shouted to the watch rating who was standing on the port bridge wing to report if he could see a light or hear anything. Suddenly, the echo started to cross to starboard relatively. He then saw the loom of a light fine on the port bow and he immediately ran to the wheel and told the watch rating to call the Master immediately to the bridge.

The watch rating also saw a white light fine on the port bow, very close and crossing to starboard, before he left the bridge to call the Master. He did not hear sound signals from any other vessels. Before the Master arrived a collision occurred.

- 4.13 The Chief Officer who was in bed was woken by, in his words, "an unusual movement of the ship". He got out of bed to dress and go to the bridge. While the watch rating was calling the Master, the 2nd Officer had changed over the switch on the steering console from automatic to hand steering and then put the wheel hard-a-port. When the Master arrived in the wheelhouse he found the 2nd Officer at the wheel, and also saw the loom of a white light passing quickly on the starboard side of the bridge. The 2nd Officer told the Master that a small vessel had just brushed past the bow. The Master did not remember hearing the whistle at the time he was called and he now went to the emergency hand control for the whistle, which was just forward of the steering console, and sounded a prolonged blast. He then looked at the gyro repeater and saw that the heading was 215°.
- 4.14 Meanwhile, the Chief Officer had arrived on the bridge and the Master told him to take the wheel, so that the 2nd Officer could get a position from the radar and plot it on the chart. The Master had already told the 2nd Officer to bring the ship back to the course of 255° gyro and the vessel was still swinging back to starboard as the Chief Officer took the wheel. On leaving the wheel, the 2nd Officer went to the VHF radio and made a call on Channel 16 to the effect, "vessel brushed past cargo vessel please respond on Channel 16" but there was no response. The Master also attempted a similar call but again received no reply. He then went to the radar, changed the range down to 3 miles, and saw a small echo on the starboard quarter at a range of about one mile.
- 4.15 The Master telephoned the engine control room and was answered by the engine watch rating. The Master told him to tell the 3rd Engineer to reduce the engine speed to 95 rpm, which was full ahead manoeuvring speed; the watch rating left the control room to take this instruction to the 3rd Engineer, who was working on one of the generators. The 3rd Engineer went to the Control room and carried out the instruction. According to the revolution and speed data on the vessel, full ahead manoeuvring speed was equivalent to a ship's speed of 12 knots, at normal full load. The 2nd Officer then took a radar fix, plotted it on the chart and timed the position as 0315 hrs ST (0205 hrs GMT) which put ZULFIKAR about 6¼ miles to the north-west of the Greenwich Buoy. The 2nd Officer then took over the wheel from the Chief Officer the ship being, by this time, back on the original course of 255° gyro.
- 4.16 At about the time the Chief Officer was relieved on the wheel by the 2nd Officer, the Chief Engineer arrived in the wheelhouse. The Master told the Chief Engineer that there had been a likely collision or contact with another vessel and he instructed the Chief Officer and the Chief Engineer to sound the ballast and fuel tanks and the bilges. The Chief Officer was also told to look for collision damage overside. An AB rating arrived on the bridge and he took over the wheel from the 2nd Officer, who reverted to his position fixing duties.

- 4.17 The Chief Officer went down to the main deck and with a torch looked over the port and starboard sides, working his way progressively forward. When he arrived on the forecastle head he found a section of radio aerial lying on the deck. He also saw with the aid of his torch a small indentation in the stem near the water-line. A sounding of the forepeak ballast tank, which had previously been empty, now showed a sounding of 8.53 metres (28 feet) of water. The Chief Officer returned to the bridge and reported his findings to the Master; he was told to leave the section of radio whip aerial where he had found it.
- 4.18 The Master then made a calculation on the rate of ingress of water into the forepeak tank and from this calculation he concluded that the hole in the forepeak was only a small one. At 0340 hrs ST (0230 hrs GMT) the 3rd Engineer, who had remained in the Control Room after the reduction to manoeuvring speed, was telephoned from the bridge and instructed to increase speed to 110 rpm. The visibility had improved slightly and it was now possible to see just beyond the forecastle head.
- 4.19 The Master had formed the conclusion that the other vessel had been contravening the Collision Regulations and, consequently, had deliberately concealed its identity by not responding to his VHF radio call. He therefore decided to report and protest about the actions of this unknown vessel, which had caused damage to his ship. At approximately 0440 hrs ST (0330 hrs GMT), approximately, he made a link call by VHF radio to the Operations Manager of Holbud Ltd, at his home in London. He told the Operations Manager that he had "had a brush" with a small craft, "most likely a fishing trawler", and outlined the circumstances of the collision and the damage to his own vessel. The Master added that the other vessel "had no business to be there". The Operations Manager asked the Master if he knew anything of the other vessel and what had happened to it and the Master replied that he had seen it on radar after the collision. The damage was then discussed and the Master was told to make a closer inspection of it in daylight and to report back. The Operations Manager further asked the Master if he had reported the matter to anyone else and the Master replied in the negative. The Operations Manager then told the Master to contact Dover Coastguard immediately, inform them about the incident and take their instructions. The Master was further advised to lodge a protest with the Coastguard.
- 4.20 At 0455 hrs ST (0345 hrs GMT), after his conversation with the Operations Manager, the Master called Dover Coastguard on VHF radio Channel 16. ZULFIKAR was by this time 18 miles from the position of the collision, having made good an average speed of 10 knots against the tidal stream. The visibility had started to improve. The Master started his Report to the Coastguard by stating that he wanted to lodge a protest and he followed with details of the time and circumstances of the collision. The report was acknowledged. At 0512 hrs ST (0402 hrs GMT) ZULFIKAR had a VHF call from Dover Coastguard, asking her for further details about the collision. In answer to specific questions, the Master said that he had reduced speed to 4 knots after the impact, tried unsuccessfully to communicate with the other vessel and saw its echo on radar moving away in a north easterly direction.

Dover Coastguard acknowledged this further information. At 0530 hrs GMT, about 3½ hours after the collision, the Master contacted Solent Coastguard to ask if any assistance was required. He gave his vessel's position as 50°20'N 0°56'W, which was about 33 miles from the collision area. Solent Coastguard responded by saying "I think you are a bit far away from the area; you may proceed".

- 4.21 By 0700 hrs ST there was sufficient daylight to allow a visual inspection of the collision damage. The engine was stopped at 0706 hrs ST and after the vessel had lost way the Master went forward to look over the bow at the stem. The damage, as seen from the deck, appeared to the Master to be slight and gave him no cause for further concern. ZULFIKAR resumed her passage to Egypt at 0848 hrs ST. Later that morning, the Master learned of the sinking of WILHELMINA J and the loss of her crew.

Figure 3.1 indicates the locality of the collision and Figure 3.2 shows ZULFIKAR's course line and charted positions, as plotted by the ship's officers.

PART II EMERGENCY ACTION AND SALVAGE

5. SEARCH OPERATION

- 5.1 At 0357 hrs, a few minutes after the initial report of the collision from ZULFIKAR, Dover Coastguard notified Solent Coastguard, since the collision had occurred within the Solent sub-centre district. Dover Coastguard followed this notification with further information gained from their call to ZULFIKAR at 0402 hrs. They also requested the Royal Corps of Transport vessel ARDENNES which was passing through the area, to keep a sharp lookout. An urgency PAN PAN broadcast to all shipping was made by Solent Coastguard.
- 5.2 NELLIE, together with the fishing vessels SUSAN BIRD, SEAFALKE, PETER CORNELIA and PETRONELLA responded to the broadcast and proceeded to the collision area. It soon became apparent that WILHELMINA J, which was known to have been fishing in the vicinity, had not been in communication for more than two hours. At 0422 hrs the Coastguard helicopter R174, based at Lee-on-Solent, was alerted. At approximately 0500 hrs NELLIE recovered on empty life-raft from the water and a second empty life-raft was recovered by another vessel. The Newhaven and Shoreham Lifeboats were immediately alerted and requested to proceed to the scene. Other flotsam, including fish boxes, was being recovered by searching vessels. The visibility had improved to about two miles. At 0525 hrs HMS NORFOLK, which was exercising in the English Channel proceeded to assist and act as On-Scene Commander. R174 arrived on scene at 0538 hrs to assist the surface vessels already searching. Two lifebuoys were picked up and there was a widespread slick of light fuel oil on the sea. The designated search area, centred about five miles north of the Greenwich Buoy and extending over an area of 50 square miles was modified as tidal conditions changed and evidence was found.
- 5.3 Soon after arriving on scene R174 located and recovered the Emergency Position Indicating Radio Beacon (EPIRB) from WILHELMINA J. The beacon had not been activated. The Newhaven lifeboat arrived on the scene at 0635 hrs followed about ten minutes later by the Shoreham Lifeboat. At 0700 hrs HMS NORFOLK arrived in the area and took over as On-Scene Commander. The merchant ships NORDIC RAINBOW and CANFORD had also joined the search. R174 was running short of fuel and at 0755 hrs a refuelling operation was successfully accomplished with HMS NORFOLK. Recovered flotsam was transferred to PETRONELLA for return to Portsmouth. At 1050 hrs R174 refuelled again from HMS NORFOLK. Since both life-rafts had already been recovered empty, it was known that any survivors who might be in the water would have a limited survival time. At 1134 hrs it was decided that the maximum possible survival time was well passed and the search operation was terminated for that day. At 1230 hrs FV SEAFALKE detected a new wreck on the seabed 6½ miles north-west of the Greenwich Buoy. On the morning of 11 April, R174 returned to the scene for a further search which covered an expanded area of some 100 square miles.

Considerable flotsam was found over most of the area, together with two small light oil slicks, one of which was close to the position of the new wreck earlier detected. The search operation was terminated at 1200 hrs on 11 April. No survivors or bodies were found.

- 5.4. The wreck found by SEAFALKE was subsequently identified as WILHELMINA J. It was lying in 52 metres of water in Latitude 50°29'.2N Longitude 0°06'.7W.

6. SALVAGE OPERATION

- 6.1 WILHELMINA J was lifted above the surface by a salvage barge on the morning of 2 July. Interested parties present included the Maritime Attaché from the Cyprus High Commission in London and Inspectors from MAIB. A party of police divers also attended, to search for bodies in the wreck. Only two bodies were found: the Skipper's which was in the crew sleeping cabin, and the Engineer's which was found inside the starboard access space to the wheelhouse and engine room, near the door to the outside deck which was open.
- 6.2 The collision damage was a deep impact on the starboard side of the hull extending from the bulwark downwards, past the bilge keel, to a point 85cms from the bar keel. There was a deep hole into the engine room in way of the bilge keel and a vertical split in the sheer strake just below deck level. There was further impact damage on the forward corner of the wheelhouse top in way of the starboard navigation light. The starboard hull damage was located nearly amidships, just aft of the 'A' section mast and just forward of the wheelhouse front. At the after end of the hull, the stern plating was found to be flattened in way of the bulwark, which was split at the top, and the sheerstrake. The rudder stock had been bent to port and the rudder was broken off (the rudder had been located on the sea bed beside the stern). There was further damage at the forward end of the hull where the foremast had been pulled out of the deck. The after part of the forecastle deck, through which the foremast passed, had been bent upwards. It is known that this forward damage was caused during an earlier lifting attempt.
- 6.3 Inspection of the turns of wire on the winch drums showed that the fishing gear was out at the time of the accident. The starboard derrick was in the horizontal position, the forestay leading from the head of this derrick to the bollard on the whaleback having parted. (The port derrick had been put in the raised position for the lifting operation). The section of whip aerial found on ZULFIKAR fitted into the standing section fixed to the top of the mast on WILHELMINA J. The thread of the screw fitting was worn and the tightening grub screw was seized.
- 6.4 The engine controls in the wheelhouse were inspected: the clutch control was at the ahead setting and the separate throttle control was set for about one quarter to one third power. The helm control was the spring loaded tiller type and the helm indicator showed 'Port 22½°'. The four winch controls in the wheelhouse were all at the 'stop' setting. The port forward wheelhouse window had been forced open from within. The starboard aft wheelhouse door was found tied in the open position.
- 6.5 Inspection of the navigating equipment showed the following evidence:
- The Mk21 Decca Navigator was set to the operational mode on Decca Chain 1B; the clocks read Red BOO.9, Green D37.35 and Purple H52.65.

The Mk53 Decca Navigator was fitted with touch activated electronic controls; their settings could not therefore be established.

The Type 350T track plotter had the power switch set to the 'off' position.

The Racal-Decca video plotter had the power switch set to the 'on' position.

The Furuno radar had the power switch set to the 'on' position, but the other controls were electronic and their settings could not be established.

The selector switch on the control panel of the Wagner Auto pilot had five settings, which read from left to right 'Follow Up', 'Rudder Indicator', 'Off', 'Compass Repeater' and 'Auto Pilot'. The switch was found set to 'Compass Repeater'.

Switch settings on the electrical switchboard in the wheelhouse were as follows:

ON - port, starboard and stern navigation lights, white all-round fishing light, outside deck and flood lights, accommodation lights, fish room, window wipers, Mk 53 Decca Navigator, track plotter, radar, compass illumination, echo sounder, auto pilot, R/T radio and watch receiver and wheelhouse sockets.

OFF - white masthead navigation light, green all-round fishing light, not-under-command lights, engine room lights, searchlight.

The control settings on the communications equipment were as follows:

The Sailor R/T transmitter/receiver was set to Simplex working with the receiver set on 198 kHz long wave; the AF Gain and power supply switches were set to OFF.

The York R/T distress frequency watch receiver was set with the volume at nearly maximum, but the on/off switch was a push button type and the setting could not be established.

The Sailor VHF transmitter/receiver was set to Channel 15 with dual watch facility for Channel 16; the volume was set to nearly maximum, the dimmer was set to minimum and the handset was in the clamp; the power switch was set to ON.

- 6.6 The Watchkeeper's chair, which had a fixed mounting on the wheelhouse deck, had been torn from its base in an aft direction. Some navigational charts were found on the chart table and in the chart drawer; as far as could be ascertained, none of them had been in use on the night of the accident. No life-jackets were found in the wheelhouse. A personal wallet was found on the deck near the Watchkeeper's chair; it had belonged to the Mate.

- 6.7 In the crew cabin no life-jackets could be found, but two were found in the galley/messroom: they were under the settee cushion. Two lifebuoys had remained with the wreck: one was still in the stowage rack on the port side of the superstructure: the other was caught by the lifeline on the starboard side. Both lifebuoy light/smoke signals were in their clamps on the port and starboard sides of the superstructure.
- 6.8 The weathertight door from the deck to the whaleback enclosed space had been forced inwards and torn from its mountings; the door was found inside the store, near the entrance. The fish hold hatchway coaming and weathertight lid had been distorted inwards by water pressure. Inside the fish hold were found about two dozen bags of scallops.

The wreck of WILHELMINA J was returned to the seabed on the evening of the 2 July 1991.

PART III CONSIDERATION OF POSSIBLE FACTORS

7. DAMAGE TO THE VESSELS

- 7.1 Inspection of the wreck of WILHELMINA J showed that the deep impact in the starboard side of the hull was collision damage (see Figures 4.1 and 4.2). The breaching of the machinery space in way of the impact, well below the water-line, would have led to very rapid flooding of that space. The machinery space was one of the two major compartments in the vessel, entirely aft of amidships and separated from the fish room by a cross bunker fuel oil tank extending above the water-line. Flooding would therefore have been confined initially to the after half of the hull. The fish room, the net store and the whaleback space, all in the fore part of the hull, formed individual weathertight compartments. The consequent residual buoyancy at the forward end and rapid flooding at the after end would have led to a considerable trim by the stern as the vessel sank.

This would appear to be the most likely explanation for the damage found at the after end of the hull. The whaleback space and the fish room withstood considerable pressure before their final flooding, as evidenced by the water pressure damage to the fish room hatch coaming and lid and the bursting inwards of the weathertight door to the whaleback space. It is therefore most probable that these forward spaces, by their residual buoyancy had held the vessel in an almost vertical attitude until the after end struck the seabed, initially in way of the soft rounded cruiser form stern and the rudder. The flattening of the stern was very unlikely to have been caused by a steel-on-steel collision contact since the paintwork was virtually intact (see Figure 4.3).

- 7.2 At the time of the collision ZULFIKAR was drawing about 28 feet (8.53 metres) forward. The Master's assessment of the extent of the collision damage was founded on what he could see at and above that water-line. He had assumed that the indents visible in way of the 27 feet (8.23 metres) draught mark and just below it had caused the hole and consequent flooding of the forepeak ballast space. This was later proved not to be the case after the discharge of most of the cargo from the forward holds of the vessel at Port Said, Egypt.

The stem was not in fact holed in way of the 27 feet (8.23 metres) draught mark. The hole was in way of the 17 feet (5.18 metres) draught mark, which was about 10 feet (3 metres) below the water-line at the time of the collision (see Figures 5.1 and 5.2). It measured 15cms in height and 45cms in width (about 6 inches x 18 inches) and was almost exactly symmetrical about the middle of the stem (see Figure 5.3).

There was lesser collision damage to the stem extending upwards from the hole for a distance of about 20 feet (6 metres) to a point about 10 feet (3 metres) above the collision water-line. Additionally there was a deep indent below the hole in way of the 16 feet (4.87 metres) draught mark and an isolated saucer-shaped indent in the bow plating on the port side some 7 feet (2 metres) above the load water-line and about the same distance aft of the stem. Blue paint marks were discovered on various parts of the stem damage.

8. EVENTS LEADING TO THE COLLISION

- 8.1 The only evidence available to help reconstruct the events leading to the collision is that from the 2nd Officer of ZULFIKAR, combined with the actual position of the wreck, together with the collision damage and the status of various items of equipment noted when it was salvaged. It was also known that WILHELMINA J was near the ENE extremity of the fishing ground at the time of the collision. None of the times, bearings and distances of the radar echo which the 2nd Officer took to be WILHELMINA J are very accurate. His first radar observation was taken sometime between 0245 hrs ST (0135 hrs GMT) and 0300 hrs ST (0150 hrs GMT) and he estimated the relative bearing and range to be "about two points on the port bow at 3 miles". The radar observation prior to the collision was taken sometime after plotting the 0300 hrs ST (0150 hrs GMT) position and the echo was seen "about 3½ points forward of the port beam at a range of 0.8 miles (8 cables)". The collision followed shortly after this, and the 2nd Officer recorded the time as 0305 hrs ST (0155 hrs GMT) in the log book.
- 8.2 It is not known what course and speed WILHELMINA J would have been making. Evidence from the wreck showed that she had her fishing gear out at the time of the collision but it should not be inferred from this that she was making way, particularly at the time when ZULFIKAR's 2nd Officer first noted the radar echo. If she had not been making way and remained stopped for a minimum of 3 minutes (the plotting aid on ZULFIKAR's radar functioned only for a minimum plotting interval of 3 minutes) she would have to have averaged 5.6 knots from a standing start. It therefore appears unlikely that WILHELMINA J was stopped when first detected.
- 8.3 There is also the possibility that the echo detected initially was not that of WILHELMINA J and that she was not detected at all until the final moments before the collision when the 2nd Officer looked again at the radar and saw an echo at close range to port. It is hard to accept that an 82 tonnes steel trawler in almost calm sea conditions was not noticed on ZULFIKAR's radar, when the radar was found to be performing satisfactorily after the collision. The radar was in use every 15 minutes for the purpose of position fixing. Even if no radar watch had been kept for other vessels between the times these fixes were taken WILHELMINA J should have been apparent and presenting a clear echo for some considerable time before the collision. It therefore appears likely that the initial echo detected was that of WILHELMINA J.
- 8.4 A further factor is the actual position where the wreck of WILHELMINA J was found. This was Latitude 50°29'.2N Longitude 0°06'.7W which is the same position as given by the readings on the Mk21 Decca Navigator when the wreck was salvaged. This is some 2 miles west of ZULFIKAR's charted 0300 hrs ST (0150 hrs GMT) position. The 0315 hrs ST (0205 hrs GMT) position which was taken at least 5 minutes after the collision put ZULFIKAR almost over the position of the wreck. There is the possibility that WILHELMINA J was initially pushed ahead of ZULFIKAR after the impact, but the accuracy of the 0315 hrs ST (0205 hrs GMT) position must be in doubt, particularly if in the circumstances it was taken hurriedly.

- 8.5 Another possibility which has been considered is that after plotting the 0300 hrs ST (0150 hrs GMT) position, the 2nd Officer decided to alter course to starboard. Between 0215 hrs ST (0105 hrs GMT) and 0300 hrs ST (0150 hrs GMT) the vessel had made good a course of $253\frac{1}{2}^{\circ}$ True and was 0.7 miles (7 cables) south of the course line so the 2nd Officer might have decided to alter course to starboard to 270° True to bring the vessel back on the line. The 0315 hrs ST (0205 hrs GMT) charted position makes this a possibility (even though the accuracy of this position is in doubt) because this puts the vessel back on the course line. If it is assumed that the 2nd Officer had not seen any radar echo of WILHELMINA J, based on the knowledge of the position of the wreck, this could have put WILHELMINA J one point on the starboard bow prior to the alteration. The alteration would then have put her fine on the port bow of ZULFIKAR at a range of just two miles. Collision would then have followed. It seems highly unlikely that the 2nd Officer would have made such an alteration of course because an alteration as great as 15° would not be necessary and also it would create a close quarter situation with the vessel which was overtaking ZULFIKAR. To further discount this theory there would have been no reason for the 2nd Officer to say that he put the wheel to port (see Sections 4.13-4.14) if he did not do this. On the contrary, if he wanted to justify the apparent course made good from 0300 hrs ST (0150 hrs GMT) to 0315 hrs ST (0205 hrs GMT), he would have been more likely to claim that he put the wheel to starboard (see Figure 3 for charted positions).
- 8.6 Taking all these possibilities into account and assuming that the course and speed of ZULFIKAR was constant at 255° True and 12 knots using the principles of radar plotting with a number of variables with regard to the time, bearing and distance of the radar echoes, various reconstructions have been carried out. The most likely possibility is that the initial radar detection was at 0256 hrs ST (0146 hrs GMT) and that the collision occurred 14 minutes later at 0310 hrs ST (0200 hrs GMT). Further, WILHELMINA J was probably trawling on a course of about 350° True at a speed of about $3\frac{3}{4}$ knots. The position of the collision was most likely to be Latitude $50^{\circ}29'.2N$ Longitude $0^{\circ}06'.3W$.
- 8.7 Comparisons of the damage incurred by each vessel suggest the following to be the most likely chain of events. The stem of ZULFIKAR struck the starboard side of WILHELMINA J from a direction slightly forward of the beam. The initial contact would have been with the forward guy pennant of the starboard derrick. This would have caused the wide area of scuffing on the ship's stem above the 32 feet (9.75 metres) draught mark. At about the same instant the head of the derrick could have caused the indent in the port bow plating. The forward derrick guy then parted and the derrick was pushed aft. The stem hit the bulwark and topside of WILHELMINA J, forcing a violent heel to port. This had the effect of dislodging the top section of the whip aerial on the mast of WILHELMINA J and it fell and landed on the forepart of the fo'c'sle deck of ZULFIKAR.

- 8.8 WILHELMINA J was probably pushed bodily ahead and progressively heeled further to port, then ZULFIKAR's stem breached the machinery space of the fishing vessel at the turn of the bilge. This would have been in way of ZULFIKAR's stem between the 26 feet (7.92 metres) and 28 feet (8.53 metres) draught marks, where there was considerable indentation. WILHELMINA J was further pushed over until the bar keel pierced the relatively soft stem of ZULFIKAR, causing the hole at the 17 feet (5.18 metres) draught mark. When measured, the bar keel was 14cm (5½ inches) deep and 5cm (2 inches) wide in way of the impact damage. It is therefore considered highly probable that this is in fact what did occur.
- 8.9 The preceding chain of events would have occurred within seconds. Once WILHELMINA J became detached from ZULFIKAR's stem, she would have rapidly foundered. It is considered highly unlikely that she was still in an upright condition when ZULFIKAR's bridge passed her and therefore equally unlikely that the light claimed to have been seen passing the bridge was from WILHELMINA J.

9. EVENTS AFTER THE COLLISION

- 9.1 It is very unlikely that the crew of WILHELMINA J would have had time to don life-jackets. No life-jackets were found on the two bodies recovered, yet only two unused life-jackets could be found in the wreck. It is therefore possible that the four men whose bodies have not been recovered did leave the vessel with life-jackets, but what is perhaps more likely is that the missing life-jackets were washed out of the accommodation during or after the foundering. All the crew could swim and the fact that two life-rafts and two lifebuoys were found empty on the surface supports the theory that the foundering happened very quickly. There was clearly no time to call for assistance on VHF; it was still set to Channel 15 with the handset clamped in place.
- 9.2 It is possible that all the crew, with the exception of the Skipper, were in their working clothes at the time of the collision. They might have recently shot the gear, or they might have been standing by to haul it. The discovery of the body of the Engineer, fully clothed, supports this theory. The Skipper and the Mate would have been working a watch-and-watch system with the rest of the crew turning to as necessary to handle the gear. It is almost certain that the Mate was on watch and in the wheelhouse, since his wallet was found there and he had spoken to the Skipper of NELLIE on VHF not more than half an hour before the collision. It is equally almost certain that the Skipper was off watch and in the sleeping cabin at the time, because his body was discovered there unclothed apart from underpants. The emergency escape from the crew cabin had not been used.
- 9.3 The EPIRB floated free but failed to transmit though the strobe light did operate. The exact reason for this failure cannot be determined.

The EPIRB is fitted with a switch on the control panel above the flotation collar which may be set to ARMED or SAFE. It is also fitted with a 'break-seal' for manual activation with the unit in situ. If set to ARMED the transmitter will self-activate on floating free or when the break-seal is manually removed. If set to SAFE the transmitter will not activate, by any means. Activation of the strobe light is independent of the radio transmitter.

When the EPIRB was recovered from the water by the search and rescue helicopter crew the aerial was found to be broken off near the base allowing sea water to penetrate the unit. This damage could have happened if the EPIRB fouled an obstruction on its way to the surface. The setting of the ARMED/SAFE switch is not certain because it was possibly altered by the helicopter crew when trying to turn off the strobe light. The break-seal was missing but it is not known when it was removed. As it is set in a recessed slot it seems unlikely that it could have been dislodged on the way to the surface; it was not removed by the helicopter crew and if it had been removed at an earlier time while the unit was in situ then the signal would have been transmitted unless the switch was in the SAFE position.

With these unknown factors it is impossible to say exactly why the EPIRB failed to transmit; however had it operated properly HM Coastguard could have been alerted much earlier.

PART IV FURTHER COMMENT AND DISCUSSION

10. FAILURE OF ZULFIKAR TO STOP

10.1 The Master, in evidence, said that when he arrived on the bridge after being called he saw a white light passing close on the starboard side. The speed of ZULFIKAR was about 12 knots at that time, which is equivalent to about 6 metres per second. With the distance from the bridge to the stem being 114 metres an object stopped in the water would therefore be passed by the bridge 19 seconds after it was passed by the stem. It is considered unlikely that the Master could have gained the bridge in less than 20 seconds after the collision, since the watch rating had to go down to his cabin to call him. A possibility is that WILHELMINA J, after being pushed ahead subsequent to the impact detached herself, returned to the upright and was then passed by the bridge, still displaying a white light on her mast. Whilst this must be a possibility it is considered to be a highly unlikely one, for reasons discussed earlier in this Report. However if such a light was seen passing the bridge, there is no indication of what it might have been. The Master, on his arrival on the bridge, was told that the other vessel had 'brushed past' the bow. He justified his decision not to stop by citing the white light which passed the bridge and the echo he later saw on his starboard quarter, by radar (this echo was probably the ship which was overtaking ZULFIKAR). However, he did not establish contact with the other vessel and get positive confirmation as to whether or not she needed assistance; neither did he make contact with the Coastguard and this may have contributed to the loss of life. The two calls made, one by the Master and the other by the 2nd Officer (see Section 4.14), were not given an urgency prefix and they cannot be heard on Coastguard tape recordings; neither did NELLIE recall hearing them.

10.2 Under Section 422 of the Merchant Shipping Act 1894, the Master of every British ship has a clear duty "In every case of collision to render to the other vessel such assistance as may be practicable and may be necessary to save them (her crew) from any danger caused by the collision, and to stay by the other vessel until he has ascertained that she has no need of further assistance". There is a similar obligation in the International Convention on Collisions agreed in 1910. Section 27 of the Merchant Shipping Act 1970, as amended by Section 32 of the Merchant Shipping Act 1988, makes it an offence for the Master of a ship registered in the United Kingdom to "omit to do anything required to prevent his ship from causing the death of any person not on board his ship".

If ZULFIKAR had been a United Kingdom registered ship, the Master would have had a clear and overriding duty to establish communication with WILHELMINA J, offer assistance to her and report the collision immediately.

- 10.3 Cyprus has for many years been a member nation of the International Maritime Organisation (IMO) and has ratified most of the major international conventions relating to the safety of ships, including the Convention on the International Regulations for Preventing Collisions at Sea, 1972, and the International Convention on Collisions agreed in 1910.
- 10.4 Neither the United Kingdom Government nor the Government of Cyprus had any known powers to order ZULFIKAR to stop or divert to a port, after the circumstances of the collision became known. However, both MAIB and the Cypriot Authorities made a number of requests to the owners and sub-managers for the vessel to be diverted to enable the Master and crew to be interviewed. The vessel eventually stopped off Lisbon, where MAIB Inspectors and the Maritime Attaché from the Cyprus High Commission were able to board and commence their investigation.

11. MANNING OF ZULFIKAR

11.1 The manning of vessels registered in Cyprus is mainly regulated by the following Cypriot statutory instruments:

- Merchant Shipping (Masters and Seamen) Laws, 1963 to 1984 (Part II - Composition of Personnel of a Ship (Safe Manning) - Certificates of Maritime Competency);
- The International Convention on Standard of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW) (Ratification) and on Connected Matters Law, 1985;
- The Merchant Shipping (Composition and Number of Crew) Regulations, 1984.

Officers and ratings serving on board Cyprus registered vessels are not required to hold any licence or certificate issued by the Government of the Republic of Cyprus, permitting them to perform duties on board but, they must be in possession of an appropriate, recognised and valid certificate of competency for the post they hold on board. A list of States whose certificates of competency have been recognised by Cyprus is published; it includes India but not Panama.

11.2 The 2nd Officer's Certificate of Competency, issued by the Indian Authorities, was only valid for the Indian Home Trade and his Transitional Certificate of Competency, issued by the Panamanian Authorities, was not recognised by the Government of Cyprus. The 12-4 bridge watchkeeper had only been at sea for five months and no evidence was produced that he had fulfilled the minimum requirements of experience and training necessary to be a member of a navigational watch.

12. MANNING OF WILHELMINA J

- 12.1** As a United Kingdom registered fishing vessel of over 24 metres in length, operating in the limited fishing area, WILHELMINA J was required to carry two qualified deck officers; a Skipper holding a Class 2 Certificate and a Mate holding a Class 3 Certificate. The Fishing Vessels (Certification of Deck Officers and Engineer Officers) Regulations 1984 prohibited the owner from appointing any person to act in a capacity for which he was not qualified. The Skipper was duly qualified as he held a Class 2 Certificate, but the Mate was not qualified. It is almost certain that the Mate was in charge of the watch at the time of the collision.
- 12.2** From the evidence of the owner of WILHELMINA J, the Mate was appointed as temporary Mate on the recommendation of the Skipper, to replace the permanent Mate so that the latter could attend college to study for a Certificate. In the case of temporary appointments, it is open to an owner to apply to the Department for exemption from the Regulations. Before granting such an exemption, the person nominated will be interviewed by a nautical examiner of the Department, who will need to be satisfied that the nominee is competent to carry out the duties of a watchkeeper. The examiner will also need to be satisfied that the nominee has an adequate knowledge of the Collision Regulations and the use of radar. No application for exemption for the Mate to act in that capacity was made to the Department and he was therefore appointed in contravention of the Regulations.
- 12.3** The Fishing Vessels (Safety Training) Regulations 1989 require every fisherman employed in a United Kingdom registered fishing vessel, other than holders of Certificates and fishermen born before 1 March 1954, to undergo training in basic survival at sea, fire fighting and first aid. The Sea Fish Industry Authority issue the course certificates and the dates by which these training courses must have been undertaken depend on the age of the fishermen. The crew of WILHELMINA J were required to have completed these courses, except for the Skipper (who held a Certificate of Competency) and the Engineer (who was not required to have completed the course until March 1993). The Basic Sea Survival portion of the training is relevant to this Report and it is a matter of regret that two of the deckhands had not completed that element of their training.

13. RESPONSIBILITY

13.1 Actions Related to ZULFIKAR

In the 24 hours prior to the collision, the 2nd Officer had been well rested. After coming off watch at 0400 hrs ST on 9 April he slept until about 1030 hrs ST, and after completing his afternoon watch he had a further period of sleep from about 1800 hrs ST until the call for his watch at midnight.

This was the Master's first appointment in command. His decision to leave the bridge after midnight was no doubt influenced by the fact that he was retaining charge of the 8 to 12 watch and would need to get sleep when he could. However, this did not justify leaving the bridge in the severe conditions of visibility then prevailing. If he had remained on the bridge, a continuous radar watch could have been kept, WILHELMINA J probably would have been detected earlier, her course and speed plotted and the collision possibly avoided. His absence from the bridge was a contravention of the standing orders to Masters, issued by Holbud Ltd, which says that the Master must be on the bridge when poor visibility prevails and during fog.

Concerning the Master's failure to order 'Stand-by Engines' he said that his reason for not so doing was that everything in the traffic lane was going the same way and it was not necessary to change from heavy oil to diesel oil. This is not considered a valid reason because the ordering of 'Stand-by Engines' does not necessarily imply that fuel should be changed over, as is the case when approaching a port. Advice has been given (by the engine builder) that ZULFIKAR's main engine could be manoeuvred on heavy fuel, but subject to certain conditions.

The necessity for the ordering of 'Stand-by Engines' was, therefore, to ensure that the Engineer Officer on watch was immediately available to slow down or stop the main engine and, if necessary, reverse it. The 3rd Engineer was not in the control room when the Master ordered a reduction in speed after the collision. The Master's failure to order 'Stand-by Engines' was, therefore, a contravention of the Collision Regulations which require the engines are made ready for immediate manoeuvre in restricted visibility. It was also a contravention of the Holbud Ltd standing orders which says that in fog, speed is to be reduced and either the Chief or Second Engineer is to be in the engine room.

13.2 Contraventions of Collision Regulations by ZULFIKAR

It is considered that there were a number of contraventions of the International Regulations for Preventing Collisions at Sea (the Collision Regulations) by the 2nd Officer, as Officer in charge of the bridge watch; the Master must share responsibility for some of these contraventions, which were being committed at the time he left the bridge. The contraventions are as follows:

- Rule 2: The failure to have the vessel on hand steering was a neglect of the ordinary practice of seamen, in the poor visibility prevailing.
- Rule 5: There was a failure to keep a proper lookout, both visually and by radar. The visual lookout should have been kept from the forward end of the ship and another rating should have been on the bridge, for steering duties. The radar lookout should have been continuous which would have been possible if the Master had remained on the bridge. WILHELMINA J should have been detected at a range greater than 3 miles; this would have given more time for the 2nd Officer to assess the situation and take effective avoiding action.
- Rule 6: The vessel was not proceeding at a safe speed. Even if a continuous radar watch had been maintained the engines should still have been on stand-by ready for immediate manoeuvre.
- Rule 7: There was a failure to use all means to determine if risk of collision existed. The radar echo was not observed for a long enough period before making the assumption that the other vessel would pass clear, this was scanty radar information. No radar plotting was carried out to assess the other vessel's course and speed.
- Rule 10: There was a failure to navigate with particular caution, since the vessel was near the termination of the traffic lane.
- Rule 19(b) There was a failure to have the engines ready for immediate manoeuvre. The order had not been given to 'Stand-by Engines' and the Engineer on watch was not present in the control room.
- Rule 19(e) No action was taken when it was apparent that risk of collision had developed. No attempt was made to stop or reverse the engines.

13.3 Possible Manoeuvres of WILHELMINA J prior to Collision

WILHELMINA J was fitted with radar equipment which, so far as is known, was operating satisfactorily when the vessel sailed for the fishing ground. The radar was running at the time of the collision, the fishing gear was out, the engine was running ahead at slow speed and the steering was on hand control. It appears from this evidence that WILHELMINA J was engaged in normal fishing operations at the time, (except that the all round green fishing light was switched off). What however is not known is whether WILHELMINA J detected ZULFIKAR by radar, and if so whether any action was taken.

In the absence of any survivors, it is difficult to reconstruct action in the wheelhouse of WILHELMINA J in the quarter hour or so before the collision. Her radar equipment should have been well capable of detecting ZULFIKAR at a range of at least six miles. It would only have taken a few minutes to recognise a developing close quarters situation, since WILHELMINA J was much the slower vessel. The Watchkeeper, on recognising that the other vessel was on a collision course, should have considered the best action to take because Rule 19 of the Collision Regulations, which applies to the conduct of all vessels in restricted visibility, places an obligation on both vessels to take action to avoid a close quarters situation.

If WILHELMINA J was trawling on a northerly course (see Section 8.6) then she would have detected ZULFIKAR about 2 points forward of her starboard beam. In this case the best action to take would have been to stop or make a substantial alteration to starboard. Providing this action was taken in ample time a close quarters situation would have been avoided by a safe margin, on the assumption that ZULFIKAR failed to take action herself and maintained her course and speed.

From the evidence discussed earlier in this report, it appears that WILHELMINA J proceeded on a collision course with ZULFIKAR and neither vessel took action to avoid the collision. It is possible, but highly unlikely, that the radar equipment on WILHELMINA J was defective or the vessel herself was for some reason disabled and unable to take avoiding action in time. The fact that she was towing fishing gear should not have prevented her from taking effective avoiding action, provided ZULFIKAR was detected and the situation appraised at an early enough stage.

In providing their evidence, the 2nd Officer and watch rating of ZULFIKAR recalled seeing a 'white light' in the moments before the collision. When the switchboard in the wheelhouse of WILHELMINA J was inspected, it was found that the white all-round fishing light was switched to 'on' and the green all-round light was switched to 'off'. It is difficult to suggest an explanation for this. After hauling gear and prior to re-shooting, a trawler, strictly speaking, ceases to be 'engaged in trawling'; she does however remain 'engaged in fishing' and fishermen usually continue to show the same lights so long as they are on the fishing grounds and engaged in fishing operations. It therefore seems unlikely that the Watchkeeper had switched off the green all-round light between sweeps and forgotten to switch it on again.

In the event, the lack of the green all-round light had no effect on the circumstances of this collision. However, if each vessel had sighted the other visually in time for effective action to be taken, the appearance of the single white light on the mast would almost certainly have been a contributory cause to any collision which followed, since ZULFIKAR would have justifiably assumed WILHELMINA J to be a crossing power-driven vessel which was obliged to give way.

PART V CONCLUSION

14. FINDINGS

The Inquiry carried out by the Inspectors has covered great detail. Since there were no survivors from WILHELMINA J a degree of supposition was necessary by the Inspectors concerning her movements before the collision and her subsequent sinking.

The Inspectors have considered a number of possible courses of events which might have led to the collision. All of these possibilities have been thoroughly analysed which results in all but one as being considered unlikely.

The Inspector's findings clearly identify not only the immediate cause of the accident and a number of factors which were contributory to that cause but also a few that were not necessarily contributory.

I consider that the findings given in this section of the report are a true reflection of the actual events which occurred on that night. Further, I support their other findings which they have made as a result of their inquiry.

It is well known that both the Master and the 2nd Officer were tried in a Cypriot Court on charges in respect of this accident and were acquitted on all counts. A number of the Inspectors' findings may appear to be at variance with the Court's decision; but they have my full support.

The findings of this Inquiry are as follows:

- 14.1 On 10 April 1991 MFV WILHELMINA J was engaged in beam trawling in the English Channel, in international waters. At about 0200 hrs GMT in position Latitude 50°29'.2N Longitude 0°06'.3W, when steering a course of about 350° True at a speed of about 3¾ knots, she collided with MV ZULFIKAR. The visibility was severely restricted by thick fog. WILHELMINA J was seriously damaged by the collision and foundered in position Latitude 50°29'.2N Longitude 0°06'.7W. There were no survivors from her six crew.
- 14.2 The proximate cause of the collision was a failure by ZULFIKAR, and a possible failure by WILHELMINA J, to keep a proper radar watch to obtain early warning of the risk of collision and take avoiding action in ample time. This was a contravention of the International Regulations for Preventing Collisions at Sea. ZULFIKAR made an incorrect assumption that WILHELMINA J would pass clear on her port side, as indicated by an electronic plotting aid. The plotting aid had been entered with scanty radar information.

- 14.3 The Master of ZULFIKAR was seriously at fault in the management of his vessel. He failed to ensure that the bridge was properly manned when the vessel was navigating in thick fog in busy coastal waters. To navigate safely required a continuous radar watch by a competent person and another competent person to oversee the general navigation of the ship and visual lookout. Proceeding in these conditions without reducing speed made such manning arrangements imperative, with the engines ready for immediate manoeuvre, if risk of collision was to be avoided.
- 14.4 It is probable that the collision happened as follows. The stem of ZULFIKAR struck the starboard side of WILHELMINA J from a direction just forward of the beam. WILHELMINA J was heeled violently to port, when the top section of the whip aerial fixed to the mast was dislodged and fell on to the forecastle deck of ZULFIKAR. The stem of ZULFIKAR made a deep impact in way of the starboard bilge keel, opening the machinery space to the sea. WILHELMINA J continued to heel to port whilst being pushed bodily ahead of the ship, until the bar keel holed the relatively soft stem of ZULFIKAR, causing a hole in her forepeak ballast tank. The collision was probably of sufficient force to be heard and felt on the bridge of ZULFIKAR. WILHELMINA J rapidly foundered by the stern. The bodies of the Skipper and the Engineer were recovered from inside the wreck when it was raised. The bodies of the other four crew have not been found.
- 14.5 A possible contributory cause to the loss of life was the failure of the Master of ZULFIKAR to report the collision until about two hours after it had happened. He was seriously at fault in his failure to stop his ship, find out what had happened to the other vessel and report the circumstances of the collision immediately. Even if he had not succeeded in locating or communicating with WILHELMINA J, his immediate report would have led to a much earlier search operation and lives might have been saved.
- 14.6 Another possible contributory cause to the loss of life was the failure of the EPIRB to transmit. The EPIRB successfully floated free from WILHELMINA J as she sank, but it did not transmit, though the strobe light did operate.
- 14.7 The 2nd Officer of ZULFIKAR, who was in charge of the watch, held a Certificate of Competency which was valid only for the Indian Home Trade. He also held a Transitional Certificate of Competency issued by the Panamanian Authorities, but such certificates are not accepted by the Government of Cyprus.
- 14.8 The radar on ZULFIKAR was operating satisfactorily and probably did detect WILHELMINA J at a greater range than 3 miles, possibly 6 miles. The echo of WILHELMINA J was first noticed by the 2nd Officer about 1½ points on the port bow at a range of 3 miles, about 14 minutes before the collision. It is not likely that WILHELMINA J was stopped in the water at that time.

- 14.9 The 2nd Officer should have changed from automatic to hand steering and called another watch rating to the bridge.
- 14.10 When the 2nd Officer returned to the radar and observed the echo of WILHELMINA J for the second time, it was at a much closer range than 8 cables, as was stated by him.
- 14.11 The white light claimed to have been seen passing the bridge of ZULFIKAR after the collision, is highly unlikely to have been from WILHELMINA J.
- 14.12 The echo which the Master saw on the starboard quarter by radar, after the collision, was probably that of the ship which had been overtaking ZULFIKAR. It is doubtful that the Master could have assessed the approximate true course of the echo from a brief observation of its relative motion.
- 14.13 When attempts were made to call the vessel they had collided with by VHF, the Master and 2nd Officer of ZULFIKAR were at fault in their failure to use the Urgency PAN PAN prefix. If they had done so, HM Coastguard and other vessels in the area might have been alerted to the situation.
- 14.14 The International Regulations for Preventing Collisions at Sea were contravened by ZULFIKAR. The main contraventions were:
- Rule 5: Failure to keep a proper lookout, visually as well as by radar.
- Rule 6: Failure to proceed at a safe speed.
- Rule 7: An incorrect assumption was made on the basis of scanty radar information.
- Rule 10: Failure to navigate with particular caution near the termination of a traffic lane.
- Rule 19: Failure to have the engines ready for immediate manoeuvre.
- 14.15 The Managers and Sub-Managers of ZULFIKAR were at fault in permitting deficient manning on the vessel. In particular, the 2nd Officer did not have an appropriate certificate, and the 3rd Engineer had a certificate which is not accepted by the flag state.
- 14.16 The owners and sub-managers of ZULFIKAR acted irresponsibly in their initial refusal to assist the investigation by diverting the vessel so that the United Kingdom and Cypriot authorities could interview the Master and crew.
- 14.17 WILHELMINA J was a structurally sound vessel with a valid Fishing Vessel Certificate issued by the Department of Transport.

- 14.18 It cannot be determined whether or not ZULFIKAR was detected in enough time for WILHELMINA J to take action to avoid the collision. WILHELMINA J was provided with radar equipment capable of detecting a ship such as ZULFIKAR at a range of at least 6 miles.
- 14.19 WILHELMINA J was required to navigate with particular caution, since the fishing ground was near the termination of a traffic separation scheme. She may not have been making the appropriate sound signals for a vessel engaged in fishing in restricted visibility.
- 14.20 The Mate of WILHELMINA J, although he had been a fisherman for six years, was not qualified to take charge of the watch. He held neither a Certificate of Competency nor an Exemption to permit him to serve in that capacity. The owners were at fault in appointing him to the vessel in breach of the Regulations and the Skipper was at fault in allowing him to take charge of the watch, particularly when navigating in thick fog near the termination of a busy traffic lane. However, this may not have contributed to the causes of the collision.
- 14.21 The owners of WILHELMINA J were also at fault in appointing to the vessel two crew members who had not completed Basic Sea Survival training courses, in breach of Regulations. However, this may not have contributed to the loss of life.
- 14.22 HM Coastguard did all that was necessary to mount the search operation as soon as possible, when it was confirmed that WILHELMINA J was missing. The search was pursued efficiently and willingly, many different craft having offered to help. The search was continued until the maximum survival time of about 4 hours was well passed. All who took part, both afloat and ashore, performed their allotted tasks in the best traditions of the sea.

15. RECOMMENDATIONS

The Inquiry into this accident and the findings of the Inspectors result in a number of recommendations being made which, if implemented, should generally improve safety of life at sea. All these recommendations are addressed to the Marine Directorate, Department of Transport, for their attention.

In the course of the Inquiry an interim recommendation was made to the Marine Directorate on 24 June 1991 concerning the hazards posed by the coincidence of fishing grounds and traffic separation schemes. For completeness it is repeated below as Recommendation 1.

1. Marine Directorate are requested to recommend to the Hydrographer of the Navy that the attention of mariners should be drawn to the particular hazard posed by the coincidence of the eastern English Channel scallop fishing grounds and the western portion of the southwest bound lane in the Dover Strait Traffic Separation Scheme. Vessels engaged in fishing and vessels transitting this part of the Traffic Scheme should be reminded of the particular need for caution in this area, it is suggested by means of a Notice to Mariners amending the English Channel Passage Planning Guide and the Sailing Directions.
2. The International Maritime Organization (IMO) should take steps to extend the principles of Port State Control, as presently practised in European ports, on a worldwide basis. Marine Directorate should pursue this with IMO.
3. The Convention on Standards of Training, Certification and Watchkeeping needs to be supported by guidelines on interpretation of the requirements prescribed by the Convention. Marine Directorate should put forward a proposal to this effect for consideration by IMO.
4. Greater emphasis should be placed on the obligations of parties to the IMO Conventions with respect to the application and enforcement of the requirements enshrined in those Conventions. Marine Directorate should bring this to the attention of IMO.
5. Aerials on EPIRBS should not be rigid but flexible as this would lessen the possibility of damage to them from contact with obstructions in the float-free stage. The switch setting labelling, namely 'ARMED' and 'SAFE', does not seem to make it obvious that if set to 'SAFE', the transmitter will not be activated on release. Steps should be taken to ensure the legends on switches are unambiguous.

6. The Lokata EPIRB when in float-free stowage is protected by a float-free cover such that the condition of the unit and its switch settings are not apparent without removing the cover. Consideration should be given to providing a cover whereby the unit and its controls can be seen without having to remove it.

7. Manufacturers of marine communications and navigating equipment should be aware of the difficulty in determining the settings of equipment fitted with electronic touch controls, when gathering evidence after serious accidents.

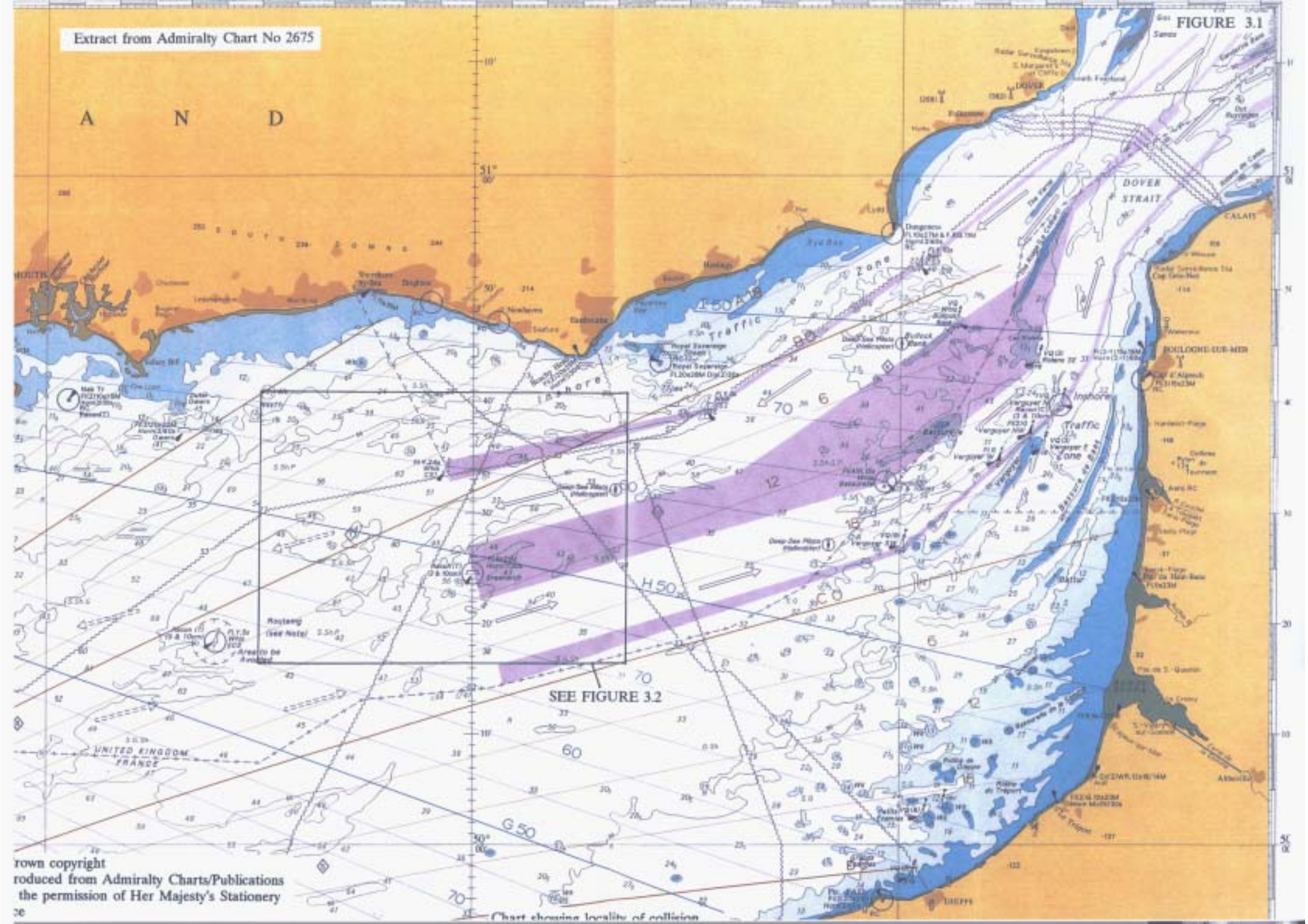


FV WILHELMINA J at sea



MV ZULFIKAR at sea

A N D



SEE FIGURE 3.2

Chart showing locality of collision



WILHELMINA J - WRECK DURING SALVAGE OPERATION



WILHELMINA J - DAMAGE TO STARBOARD SIDE OF HULL



WILHELMINA J - DAMAGE AT STERN

FIGURE 5.1

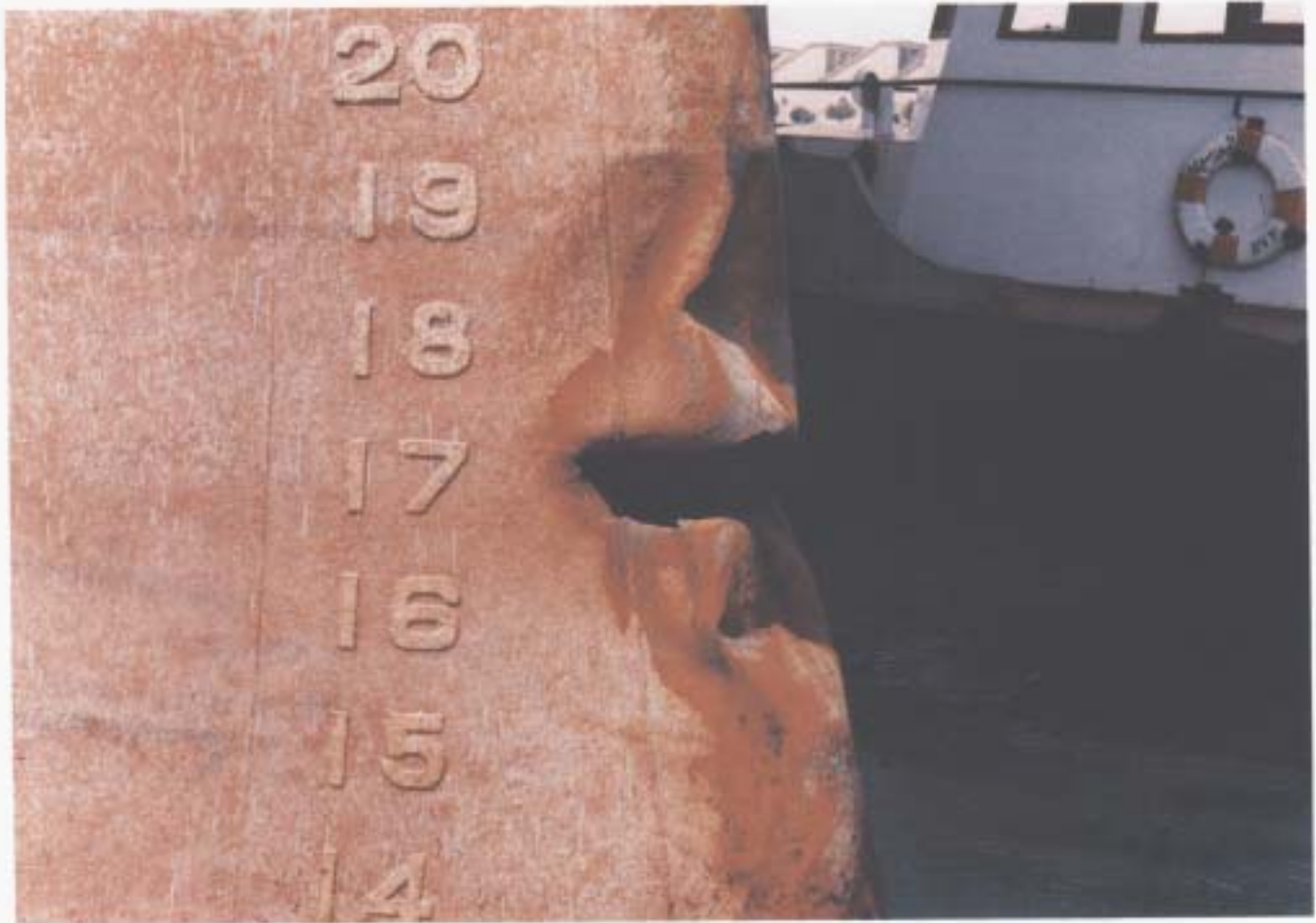


ZULFIKAR - FORWARD VIEW OF DAMAGE TO BOW



ZULFIKAR - SIDE VIEW OF DAMAGE TO BOW

FIGURE 5.3



ZULFIKAR - CLOSE-UP OF MAJOR DAMAGE TO BOW