Report of the investigation
of the fire on board the
fishing vessel

BE READY

while fishing 30 miles
north-west of the Orkney Islands
on 22 January 2000

Marine Accident Investigation Branch
First Floor, Carlton House
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Southampton
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Report No 30/2000

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 causes with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far, as is necessary to achieve the fundamental purpose, to apportion blame.

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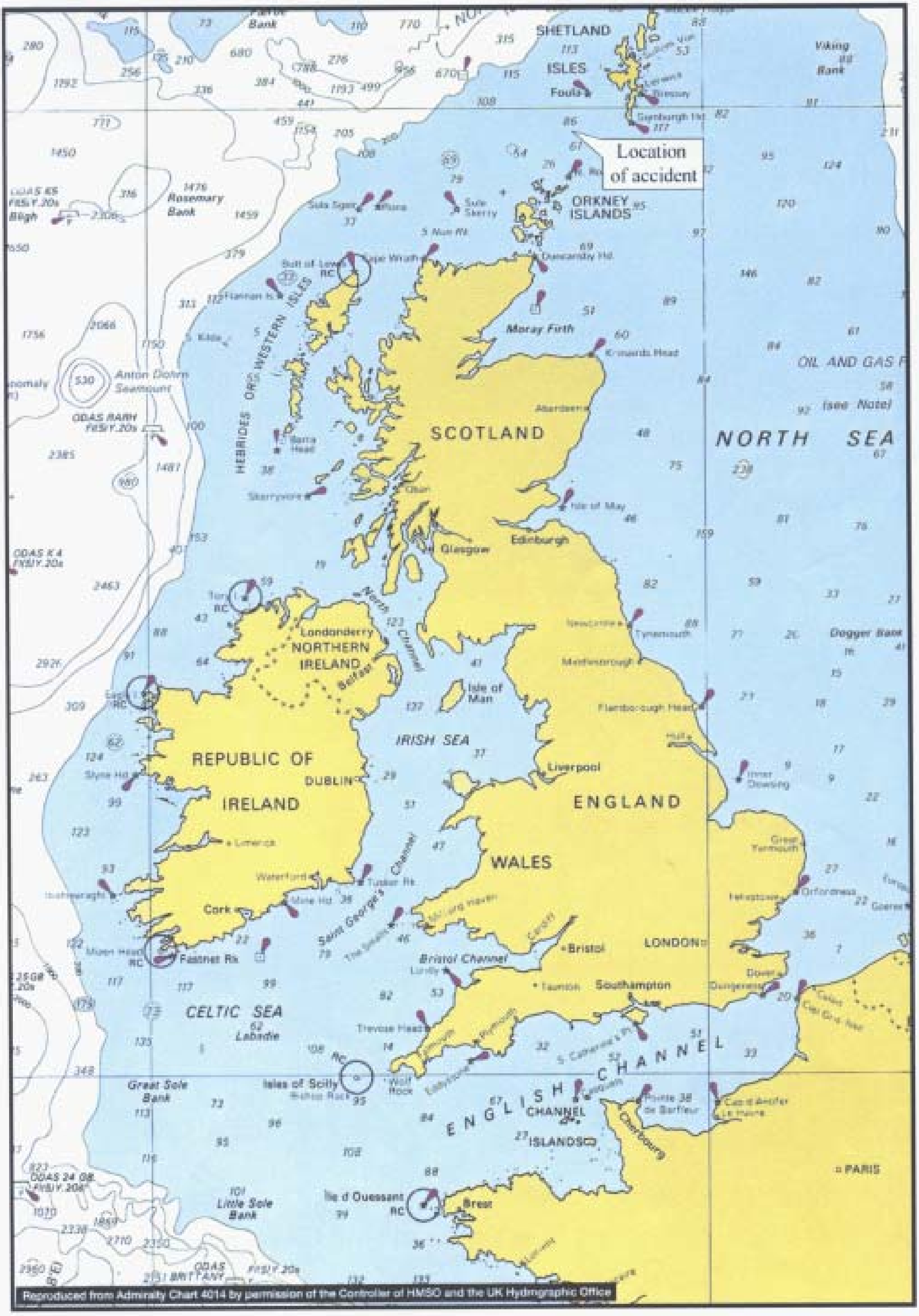
GLOSSARY OF ABBREVIATIONS, ACRONYMS & TERMS

A60	-	A fire door capable of containing a fire for 60 minutes
BST	-	British Summer Time
CCTV	-	Closed Circuit Television
CG	-	Coastguard
DSC	-	Digital Selective Calling
EPIRB	-	Electronic Position Indicating Response Beacon
ETA	-	Estimated Time of Arrival
GMDSS	-	Global Maritime Distress and Safety System
GPS-DGPS	-	Global Positioning Satellite - Digital GPS
LB	-	Lifeboat
MCA	-	Maritime and Coastguard Agency
MF	-	Medium Frequency
MRCC	-	Maritime Rescue Co-ordination Centre
MRSC	-	Maritime Rescue Sub-Centre
Navtex	-	Navigational Telex
RFD	-	Name of a liferaft manufacturer
RNLI	-	Royal National Lifeboat Institution
UTC	-	Universal Co-ordinated Time
VHF	-	Very High Frequency
Halon	-	Type of fire extinguishing gas
Hi-line	-	Weighted line lowered to vessel as guideline for helicopter winchman
Plotter	-	Type of integrated chart/sonar used to find fish
"Roller Coaster"	-	Name of fishing area about 60 miles west of Shetlands



SECTION 1 - FACTUAL INFORMATION (all times UTC)

1.1 PARTICULARS OF VESSEL (Figures 1 and 2)

Name	:	*Be Ready*
Official No	:	A12645
Fishing No	:	LK377
Port of Registry	:	Lerwick
Gross Tonnage	:	86
Registered Length	:	22.39m
Overall Length	:	24.35m
Breadth	:	7.23m
Maximum Draught	:	3.32m
Year of Build	:	1985, Campbeltown
Construction	:	Steel, with aluminium superstructure
Type	:	Seiner/Trawler
Main Engines	:	Cummins 408kW
Crew	:	5
Owners	:	Be Ready Fishing Co Ltd Scalloway, Shetland
Date and Time	:	22 January 2000, about 0218 UTC
Place of Incident	:	30 miles north west of The Orkney Islands
Position of Incident	:	59° 49' N, 003° 28'W
Injuries	:	Minor
Damage	:	Wheelhouse, accommodation, and aft spaces on shelter deck. Smoke/soot and minor heat damage in engine room.

SYNOPSIS

At 0338 UTC on Saturday 22 January 2000, the Maritime Rescue Co-ordination Centre (MRCC) Pentland, notified the Marine Accident Investigation Branch (MAIB) of a fire on board the fishing vessel *Be Ready*. The situation was monitored throughout the weekend, and on Monday 24 January an investigation began, when the vessel was towed into Lerwick.

Be Ready is a 24m fishing vessel operating out of Scalloway, Shetland. She has a regular crew of either four or five operating on back-to-back fishing trips. She left Scalloway on Monday 17 January, with a crew of four, for the fishing grounds 60 miles west of Shetland, returning briefly the following Thursday for a new set of trawl boards plus an additional deckhand. She then returned to the same area and re-started trawling.

At about 0215 on the Saturday morning, 22 January, the vessel was trawling slowly in a north-easterly direction, when the mate, who was on watch, discovered a fire in the galley. The skipper and crew were called and gathered in the wheelhouse, passing the galley on their way. Although all saw the fire through the open galley door, nobody shut the A60 fire door. A short abortive attempt was made to fight the fire, but by that time the accommodation itself was starting to burn. The skipper called the coastguard on the VHF, told them of the fire, but lost direct contact. He attempted to stop the main engine, but the controls failed to respond. The coastguard asked Kirkwall lifeboat to launch, and a rescue helicopter to get airborne at 0219. Using a "Mayday Relay", local contact was made with fishing vessels in the area, and communication re-established with the casualty.

Having realised that the fire was beyond their control, *Be Ready*'s crew launched both liferafts. With the vessel still going slowly ahead, both liferafts were lost when they became entangled with the trawl wires aft. The crew of five then moved forward and waited for the rescue vessels, maintaining contact via a hand-held VHF set. Weather conditions were force 8, rough seas with wintry showers.

The fishing vessel *Mizpah* was first on scene, followed by the helicopter. The helicopter tried twice to get a Hi-line aboard, but conditions were too bad. *Mizpah* then made two close passes, bow to bow, managing on the second attempt to pass a line connected to a liferaft to the casualty. Once the liferaft was alongside the bow, the crew entered the liferaft using a rope ladder over the starboard side. With all five aboard, they moved away from the burning vessel and were then lifted into the helicopter and taken to Lerwick hospital for a check-up. Apart from minor burns and bruises, there were no injuries.

The galley fire is thought to have been caused by a drying cloth hung above a hot heating element on the cooker. Once alight, and fanned by strong draught from an open window into the starboard side shelter deck and an open door on the port side, the fire rapidly gained strength and entered the accommodation.

When the fire had burnt itself out, the tug *Anglian Monarch* boarded and towed *Be Ready* to Lerwick. She was alongside by 0930 on Monday 24 January 2000.

Figure 1

General view, port side, of *Be Ready* alongside at Lerwick

Figure 2

General view of stern

1.2 BACKGROUND TO VOYAGE

Be Ready is owned by the Be Ready Fishing Company Limited, of Scalloway, Shetland. The company consists of five part owners, one of whom is the current skipper. She is registered in Shetland, and over the last ten years has usually been manned by the same crew.

Be Ready operates with two crews in rotation, either four or five in number. All crew members have had several years' experience in the fishing industry, with three having been with the vessel since she was built in 1985. Three of the crew became part owners in 1989.

The skipper and his son operated *Be Ready* on a 6 to 10 day back-to-back trip. This enabled her to spend more time on the fishing grounds. On departure on 17 January 2000 the vessel had no recorded mechanical or electrical faults. There had been a fuel pump failure during the previous trip, but shore contractors had replaced it.

1.3 NARRATIVE

1.3.1 The vessel left Scalloway at about 1900 on Monday, 17 January, for an area known as the "Roller Coaster", some 60 miles west of Shetland. At that time she sailed with a crew of four.

After arriving at the fishing grounds between 0100 and 0200 the next morning, the trawl was shot and the vessel settled into her normal fishing routine. Fishing continued until the following Thursday morning, when damage to the trawl boards required the vessel to return to Scalloway for replacements. *Be Ready* arrived back in port at about 1700, where an additional crew member joined, together with replacement trawl boards.

The vessel left port to return to the fishing grounds at 1900, arriving at the "Roller Coaster" at 0200 on Friday 21 January. The weather at that time was about force 6.

1.3.2 Fishing started on arrival, and continued throughout the day; the weather having moderated to about force 3 or 4. At 2000 the nets were hauled, and all the crew started work on sorting the fish. By about 2045, the fish had been removed and sorted. With the results not being as good as expected, the skipper turned the vessel south and proceeded to steam in that direction for about 3 hours.

Just before the fish work was completed, the deckhand/cook entered the galley and made preparations for the evening meal, during which time the electric cooker, which was fixed on the starboard aft bulkhead in the galley, was switched on.

With the vessel steaming to the new position and the fishing gear ready for reshooting, all the crew visited the galley/messroom for their evening meal, each watchkeeper being relieved in turn. After the meal, the gear was reshot at about 2330. The skipper then turned in, followed by the engineer and mate, while the cook and the remaining deckhand stayed up talking in and around the galley.

Before the engineer retired to his bunk, he checked the engine room as normal. This was sometime between 2330 and midnight. One of the deckhands stayed talking with the cook until about midnight, when both men went to their bunks.

1.3.3 At midnight the mate took over the watch. The vessel at this time was still towing and heading in a north-easterly direction. The skipper had left instructions that he should be called at 0300, when he next intended to haul the nets. The vessel was making about 2.8 knots on a clean bottom. During the evening the weather had deteriorated, and was reported as north-west force 6 or 7, with a heavy swell and showers.

At about 0215 the mate, who was in the wheelhouse, heard a loud crack followed by what seemed to be other cracking sounds from the galley area below. He immediately went below, looked in the galley, and saw flames running up from the back of the cooker to the deckhead.

He started shouting, *"Fire, Fire..."* to alert the crew, before returning back up to the wheelhouse. No attempt was made to shut the galley door or sound the fire alarm.

1.3.4 The skipper, along with the other three crew members, immediately climbed the ladder from the accommodation to the main deck and went forward towards the wheelhouse entrance. In doing so, they all passed close to the galley door, noted both the extent and the fierceness of the fire, but again no attempt was made to close the galley door.

When the skipper reached the wheelhouse he pressed the emergency telex button to send a distress message out straightaway. He then used the VHF set to call the skipper of the fishing vessel *Mizpah* which was in the vicinity, telling him that *Be Ready* was on fire, that the call was urgent, and that they needed assistance at once. *Be Ready*'s position on the plotter was used as the reference point.

The mate took a fire extinguisher from the wheelhouse, and returned to the main deck, intending to try and fight the fire. The blue extinguisher, a dry powder type, worked, but failed to make any impression on the fire, which had increased in size, and spread into the cross-alleyway. Seeing this, he went back up to the wheelhouse and out on to the top of the shelter deck aft to join the engineer and deckhand in releasing the liferafts. While the skipper was using the VHF, the cook started looking for items of clothing, as all of them

had left the accommodation in nothing much more than underwear. At no time did any of the crew hear any smoke or heat detector alarm sound.

1.3.5 The Pentland coastguard received a VHF call from *Be Ready* at about 0215, when she reported that they had a fire on board, that they were about 30 miles northwest of the Orkney island of Westray, and required assistance. The weather was poor, with strong north-westerly winds reaching gale force 8, rough seas with frequent wintry showers. Communications were poor as the hand-held VHF set being used was at the limit of its range. The coastguard attempted to make contact using medium frequency radio, but were unsuccessful. At 0219 the coastguard rescue helicopter from Shetland, Rescue Oscar Charlie was scrambled, and the RNLI Kirkwall lifeboat was requested to launch.

Pentland Maritime Rescue Sub-Centre (MRSC) started a "Mayday Relay" broadcast, initially on VHF and MF radio and subsequently using VHF and MF DSC and Navtex. The VHF broadcast drew a number of responses from local fishing vessels, with *Boy John* and *Mizpah* both saying that they would attend. By now, *Be Ready*'s skipper was talking to *Mizpah,* with *Boy John* relaying the information to the coastguard.

1.3.6 Meanwhile, on board *Be Ready* the starboard liferaft had been released first but, with the vessel still going ahead at about 2½ to 3 knots, the crewmen were unable to pull it back alongside. The liferaft, under the influence of the vessel's forward motion, drifted aft towards the stern with the painter eventually becoming entangled with the starboard sweep. The liferaft was lost. The port liferaft was then launched, but this was also lost in the same way.

With flames now at the wheelhouse door, the skipper called for assistance on both VHF channel 16 and the fishing channel. He tried to stop the vessel by pulling back the pitch lever and the engine revolution governor, but nothing happened. He then tried pushing the emergency stop on the starboard side of the wheelhouse, but this too failed to stop the engine.

The skipper left the wheelhouse, taking his VHF handset with him, and went aft with the intention of entering the shelter deck from the port side aft to operate the main engine fuel shut-offs. These were fitted at shelter deck level, on the port side, front of the wheelhouse. The shelter deck doors aft were closed due to the weather and, with smoke and flames visible through the door surrounds, he abandoned the idea and returned to the wheelhouse.

1.3.7 Although flames were then in the wheelhouse, the skipper made a further attempt to slow down the main engine by engaging the hydraulic system. At the same time, he operated the engine room Halon fire extinguishing gas system as the gas bottles were in the wheelhouse. Once that was completed, he went aft and joined the mate, who had gone down into the accommodation cabin via the emergency escape hatch, to get the lifejackets. These were passed up and both men then carried them forward past the burning wheelhouse to the bow area where the rest of the crew had collected.

Although the crew were all scantily clad, they found in the forecastle head, some oilskins which they put on, together with the lifejackets. The main engine was still operating with the weather about force 8 or 9. The skipper was also keeping in touch with the fishing vessel *Mizpah* by using his hand-held VHF set.

1.3.8 At about 0228 *Boy John* was in direct communication with *Be Ready*'s skipper, who told the coastguard that all five of the crew were mustered on the bow of their vessel waiting to be rescued. With the fire still raging in the wheelhouse, the crew could do nothing more than huddle together on the forecastle and wait for the helicopter and other fishing boats to arrive.

Mizpah arrived on scene at 0316, but due to the severity of the weather was unable to close with *Be Ready*. At this time, the coastguard tasked *Anglian Monarch* to proceed from her anchorage towards the casualty, while at the same time rig stand-by vessel *Highland Spirit* was also asked, and agreed, to proceed towards the distress position. Shortly afterwards at 0330, the helicopter arrived, and attempts to recover the crew started.

At about the same time, the Kirkwall lifeboat, which was on her way to the casualty, reported that she was experiencing very heavy sea conditions in the Westray Firth, and was becoming damaged. It was decided, therefore, that she should seek shelter off the island of Westray and await the outcome of the helicopter's attempt to airlift the crew.

The helicopter tried twice to get a line on board the vessel, but each time the Hi-line became snagged on the forward mast. At the first attempt, the Hi-line broke. On the second, the crew was unable to pull the winchman across and on to the bow. This method of evacuation was therefore abandoned.

1.3.9 At 0417 both the helicopter and *Mizpah* were joined on scene by the fishing vessels *Boy John* and *Euroclydon*. Following the failure of a direct winching operation, the helicopter crew suggested that the crew abandon the vessel so that they could be picked up individually from the sea. None of *Be Ready*'s crew were in favour of that suggestion.

At this point, *Mizpah*'s skipper brought his vessel close in and tried to throw a line from the bow of his vessel to the men on the bow of *Be Ready*. Despite the best efforts of both crews, the continual movement of the vessels, combined with wind force 8, prevented the line being passed. Seeing that only a pass very close to the bow of *Be Ready* was likely to succeed, *Mizpah*'s skipper arranged for an inflated liferaft with a long line attached, to be prepared on his vessel. The free end of the long line was passed forward where a crew member stood ready to heave it across to *Be Ready*'s bow as they passed.

Mizpah then circled and passed close across the port bow of *Be Ready*, successfully passing the line the first time. Unfortunately this then broke. On a second attempt, the line was again retrieved and secured. Directly the skipper of

Mizpah was sure that the crew on board *Be Ready* had secured the line, the liferaft was released into the sea. While some crew members hauled the liferaft towards the starboard side of *Be Ready*, others moved a rope ladder that had been hung over the port side of the bow round to the starboard side.

1.3.10 With the rope ladder secured, and the liferaft pulled to a position underneath the starboard bow, the crew attempted to board the liferaft, using the ladder. With all crew members wearing lifejackets, each man climbed down the ladder and jumped on to the top of the liferaft canopy. Once there, they moved to the end of the liferaft and entered it, sitting well clear of the area that was being used to jump on.

When all five of the crew were in the liferaft, the securing rope was cut and the liferaft allowed to drift away from the still burning *Be Ready*. While the crew were abandoning the vessel, the rescue helicopter maintained station above *Be Ready*'s bow, and used her searchlight to provide lighting in the general area.

As soon as it was clear of *Be Ready*, the helicopter moved in and dropped her Hi-line to the liferaft. This was grasped by the crew. The winchman came down on the lifting wire, and the process of airlifting the crew in pairs began. All five were reported as being on board by 0445. The helicopter then returned to Shetland where *Be Ready*'s crew were disembarked at Gilbert Bain Hospital, Lerwick, at 0543. Apart from shock, smoke inhalation, minor burns and bruises, none of the crew suffered any serious injury.

1.3.11 With the vessel abandoned and all the crew safely on their way to Lerwick, the distress situation was cancelled at 0508. All vessels which had responded to the distress situation were released, with the exception of the rig stand-by vessel *Highland Spirit*. She was asked to proceed towards the abandoned vessel, and to monitor its drift until the coastguard tug *Anglian Monarch* arrived on scene.

The RNLI lifeboat, which was still sheltering off the isle of Westray, returned to her station at Kirkwall.

Anglian Monarch arrived on the scene at 1114, allowing *Highland Spirit* to be released to return to her stand-by duties. *Anglian Monarch* shadowed the drifting fishing vessel until the fire burnt itself out and the weather moderated. When weather conditions allowed, *Be Ready* was boarded and a line secured for towing the vessel to Lerwick. She was towed into Lerwick harbour at 0930 on 24 January 2000.

1.4 CREW PARTICULARS

Be Ready's crew had all worked on her for some years, so could be described as being very familiar both with the vessel and her equipment.

Ellis Samuel Fullerton, the 27 year old skipper, has been at sea for six years, and is the holder of a Class 2 fishing certificate. He has spent three years on board the vessel, and has attended sea survival and fire-fighting courses.

Robert Graham Hutchison, the 49 year old mate, has been at sea for 35 years, 15 of which were on board *Be Ready*. He has no fishing certificates. He has not attended either the sea survival or fire-fighting courses due to his age.

Nigel Paul Clark, the 39 year old engineer, has been at sea on board fishing vessels for about 12 years, the last four on *Be Ready*. He holds a Class II engineer's certificate and has attended both a four day and a one day, fire-fighting course. He has also completed a sea survival course.

Robert Craig Hutchison, the 27 year old deckhand, has been at sea for 11 years, all of which were spent on board *Be Ready*. He has no fishing certificates, but has attended a sea survival course.

Ryan Arthur, the 20 year old deckhand/cook, has been at sea for four years, all of it on *Be Ready*. He has completed courses in sea survival, fire-fighting, and first-aid.

1.5 DESCRIPTION OF VESSEL (Figures 3 and 4)

1.5.1 *Be Ready* is a 24.35m steel hulled fishing vessel, fitted with a full length shelter deck. The enclosed forward section is of aluminium and the aft section steel and non-watertight. The hull is divided from forward into forecastle store, fishroom, engine room and fuel bunkers, lower accommodation, and steering gear compartment aft.

The aluminium wheelhouse is built at the forward end of, and on top of, a steel deckhouse constructed on the main deck. The deckhouse casing houses a combined galley/messdeck right forward, with an alleyway leading aft from a small lobby on the port side. This alleyway aft has access to the engine room, lower accommodation and dry provision store on the port side, with shower and toilet area and oilskin locker on the starboard side. The lobby also gives internal access to the wheelhouse via a short stairway, as well as an external access on to the port side main deck. An emergency escape from the lower accommodation to the open main deck, starboard side aft, is fitted on the aft end of the steel deckhouse **(see Annex 1 - general arrangement)**.

1.5.2 The vessel is fitted with a Cummins KT38M, 550 bhp diesel engine, driving a controllable pitch propeller (CPP) through a Heimdal reduction gearbox. Deck machinery hydraulic pumps are driven off the gearbox, with the auto trawl pump being main engine driven. Port and starboard auxiliary engines drive alternators supplying 415/240v ac and 24v dc electrical systems.

Main engine control consoles are fitted on both port and starboard sides of the wheelhouse, with a main engine emergency stop button fitted on the starboard

Be Ready - Plan of galley layout

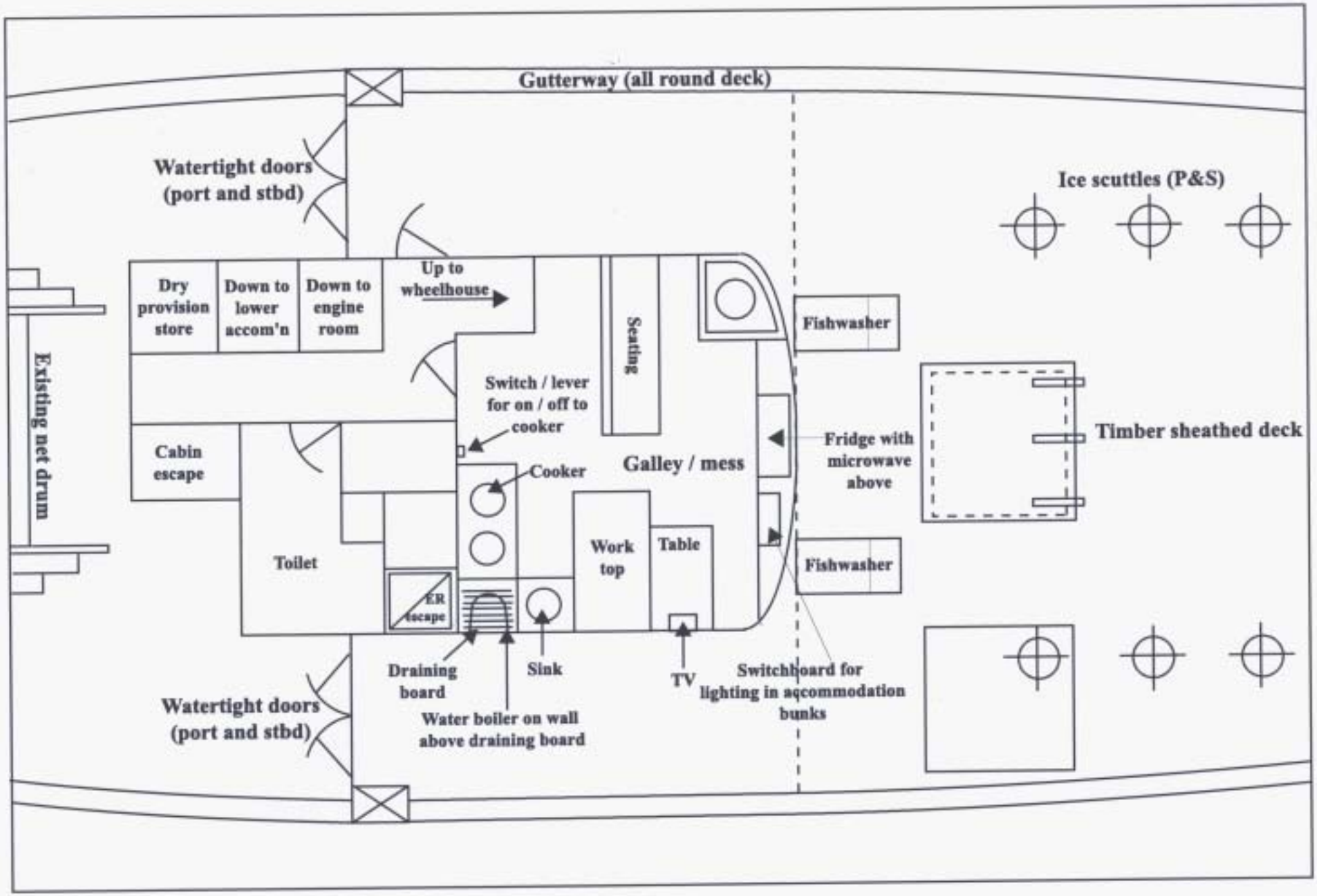


Figure 3

side. The control system is all electric. On the aft bulkhead are three control levers for the engine room Halon flooding system. This fire-fighting system, together with a fire alarm system (two heat + two smoke) is fitted in lieu of full engine room structural fire protection. A freezer gas alarm, and a bilge alarm system are also fitted. A CCTV system provides coverage of the top deck and lower deck aft, with a talk-back system linking the wheelhouse to the shelter deck aft, the galley, the lower accommodation and the shelter deck forward. In addition to the normal VHF and medium wave radio installation there is a hand-held VHF set and a mobile phone.

Remote stops are fitted in the wheelhouse for the main and auxiliary engines, fuel transfer pump, and the inlet fans. An emergency fuel shut off system covering the daily fuel service tank, and the main port and starboard fuel tanks, was fitted on the main deck on the port side and can be accessed from the front of the deckhouse.

1.5.3 The galley/messroom contains various cooking equipment, including a cooker on the aft bulkhead, with a water boiler fitted above a sink unit close to the cooker. The electrical isolator switch for the cooker is also on the aft bulkhead, between the side of the cooker and the galley/messroom entrance door **(see Figure 3)**. The galley door was to A60 standard.

Portable fire extinguishers are fitted in:

Accommodation	1 dry powder + 1 foam
Engine Room	1 dry powder + 2 foam
Alleyway	1 foam
Galley	1 dry powder
Wheelhouse	1 dry powder

Two 8-man RFD liferafts are fitted aft of the wheelhouse and secured using Hammar hydrostatic release units.

A Jotron Sarsat EPIRB is fitted on top of the wheelhouse aft.

1.6 THE WEATHER

When the skipper arrived at the fishing grounds about 60 miles west of Scalloway (known as the "Roller Coaster"), at 0200 on Friday 21 January, he reported the weather as locally force 6. This moderated during the morning, and for the rest of the day it was between force 3 to 4.

As evening approached, the weather deteriorated steadily, until at midnight, gale force winds in the order of force 8 to 9, together with heavy seas, were affecting the vessel.

At the time of the incident, about 0200 the next day, the coastguard recorded the conditions as:

Figure 4

Galley with cooker and hot plates

Wind force 8 Wind direction 315° Sea state 6
Sea swell 3 Visibility 3

1.7 KIRKWALL LIFEBOAT

1.7.1 At 0223 on Saturday 22 January, the coastguard called Kirkwall RNLI lifeboat to attend the casualty; she launched at 0250 and advised the coastguard that she was proceeding at 0258. The weather conditions were very poor and the lifeboat recorded local conditions at launch and during passage as:

Gale force: 9 Wind force: 41-47 knots Direction: 338°
Sea State: Very High Swell Height: 5.0 metres
Visibility: Poor 1 cable to 1 mile.

The distance from launch site was given as 25.4 nautical miles.

1.7.2 The general weather conditions were very poor with the RNLI official report stating:

Fishing vessel "Be Ready" reported on fire and drifting 20 miles north of Westray. LB launched to assist. Proceeded, but due to increasing severity of the sea conditions the speed possible became slower and slower. On passage at west end of Westray Firth shipped a large sea, which caused the damage. The LB was doing 2 or 3 knots at the time, the wave passing right over the boat CG was kept informed of progress and damage (reported as slight despite what was reported in the press). Sea conditions continued to be severe and ETA was estimated at a further 3 to 4 hours. In consultation with CG it was decided to hold the LB in position as the helicopter was on scene at that time and attempting to lift survivors. Once survivors had been picked up by the helicopter, the LB was released to return to station. On several occasions on the run home, the vessel "pooped" with waves breaking on top of the after deck and wheelhouse. The boat handled in these conditions extremely well.

1.7.3 The damage suffered by the lifeboat consisted of:

Bowthrust failed or faulty
Radar defective
Window/windscreen/porthole damaged.

Despite this damage the lifeboat remained seaworthy, was back at her station at 0555 and was ready for re-launch at 0600.

1.8 VESSELS INVOLVED

1.8.1 A number of vessels responded to the distress call made at 0217, and were used by the coastguard as and when circumstances required. The vessels involved were:

Fishing vessel	Called	On scene	Released
Boy John	0223	0413	0528
Mizpah	0228	0332	0526
Charisma	0238	-----	0534
Euroclydon	0242	0417	0528

Two other vessels were involved, the coastguard tug *Anglian Monarch* and the rig stand-by vessel *Highland Prince*. Neither was in the immediate area of the casualty, but both were contacted by the coastguard at about 0320 and asked to proceed to the casualty. Both agreed.

1.8.2 All vessels in the immediate area responded willingly to the distress call and proceeded to the scene as quickly as circumstances and the weather permitted.

1.9 EXTENT OF DAMAGE (Figures 5 to 7)

1.9.1 The fire damage was extensive and affected the shelter deck, main deck, wheelhouse and funnel deckhouse casing, accommodation, engine room and hydraulic deck machinery.

Steel and aluminium shelter, deck, and side plating was buckled and distorted with other areas heavily affected by smoke.

The aluminium wheelhouse was burnt out with melted aluminium and buckled steel structure. All wheelhouse equipment was destroyed.

The deckhouse and accommodation were gutted with distortion to casings.

Lower crew accommodation and steering gear compartment were burnt out with steering gear affected by heat.

The engine room suffered less damage, although bulkheads were buckled and distorted in places. Machinery was affected by heat and smoke with all electrical equipment suffering heat damage.

Full details of the damage survey are in **Annex 2**.

1.9.2 Although the damage was severe, the hull remained watertight, with the result that the vessel was subsequently disposed of in an "as is, where is" condition to new owners for rebuilding.

Figure 5

View looking aft from top of whale back

Figure 6

Looking aft from wheelhouse front

Figure 7

Main deck portside looking aft

SECTION 2 - ANALYSIS

2.1 CAUSE OF FIRE

2.1.1 The severity of the fire and the extent of damage to the vessel wheelhouse and accommodation made it very difficult to determine the precise origin of the fire. The majority of statements made by the crew, however, identified the origin as being in the galley, and more particularly, in the area of the galley stove.

The crew also stated that, apart from leaving the electric hotplate on to provide background heating, it was common practice for dish towels to be hung above the cooker to dry. Jerseys and other clothing were also hung over the cooker isolating switch, next to the cooker itself.

Further comment was made that the bulkhead lining in the galley, behind which the main engine exhaust ran, often became warm to the touch.

At the time of the fire, all crew members reported that the galley door was, as usual, hooked open, and that it was normal for a small window to be left open on the starboard side above the sink for ventilation.

2.1.2 Although there is no doubt that the fire originated in the galley, and on or in the vicinity of the cooker, the actual cause of the fire must be speculative. That speculation gives rise to the following scenario:

a. A wet/damp drying towel is flung/hung over the string line secured above the cooker hotplate.
b. The deteriorating weather causes increasing vessel movement disturbing the position of the drying towel.
c. The drying towel, now much lighter due to loss of moisture, is also affected by the draught coming through the open window from the starboard shelter deck.
d. The drying towel falls down on to the hotplate, smoulders and catches fire.
e. Flames from the burning towel, fanned by the draught from the open window, spread on to the bulkhead behind the cooker and possibly on to clothes hung on the cooker isolating switch.
f. Once the flames had established a hold, it was likely that the bulkhead itself would have started to burn, aided by accumulated oil and grease which would have adhered to the formica covering and in the cracks which would undoubtedly have been present in this age of vessel.

2.1.3 None of the crew, despite their fire training, made any attempt to close the galley door. Such an action would have contained the fire, slowed its spread, and possibly allowed the crew time to activate the vessels fire-fighting equipment. As it was, with the door hooked back into the alleyway, the

through draught set up between the open window and the open door was allowed to fan and encourage the fire.

This vessel had an exemption relating to an A60 separation between the engine space and the accommodation, because she was fitted with both a fire detection and a Halon fire extinguishing system in the engine room. There was no exemption regarding the provision of A60 standard insulated bulkheads and doors around the galley. There is also a requirement for the galley door to be fitted with self-closing arrangements, NOT a hooked back device. (See Note at the end of this report.)

2.1.4 An insurance surveyor who attended the vessel after the fire on its arrival in Shetland, reported as follows:

The galley door we would advise, was of A60 construction, and fitted with spring loaded hinges for self-closing. However, the door and door frame were buckled by the heat of the fire and its condition prior to the fire could not be determined. Although it was noted that the door handle was missing.

Whilst as previously stated, we could not determine the cause of the fire, it was suggested by crew members that the fire may have been caused by an electrical fault on the cooker, or excessive heat from the main engine exhaust, which passes through a trunking in the deckhouse casing immediately aft of the galley cooker.

Examination of the main electrical circuit breaker board showed that all the circuit breakers, including the cooker circuit breaker had tripped. We therefore consider it unlikely that the fire was due to an electrical problem.

Inspection of the main engine exhaust trunking showed no obvious sign of the fire having originated from within the said trunking. Although the area was soot/smoke blackened, the lagging on the exhaust pipes was intact and appeared in good order. Also the rock wool insulation, which forms part of the A60 fire barrier, between the galley and other parts of the vessel, was still intact and in place on the galley deckhead and aft bulkhead, including behind the cooker. Therefore, even if the main engine exhaust had been excessively hot, it is unlikely to have caused a fire, in our opinion.

2.2 ACTIONS OF CREW

2.2.1 The actions of the watchkeeper on discovering the fire were generally correct. He investigated a noise from the galley area, saw that a fire had broken out, and immediately sounded the alarm. What he failed to do, was to shut the galley door.

On hearing the shouts of the watchkeeper, the remaining four members of the crew who were asleep in the lower accommodation, climbed the ladder on to the main deck and made their way up into the wheelhouse. In doing so, they

all passed the open galley door, saw the flames, and carried on. Nobody, not even those who had attended a fire course, thought to shut the galley door.

This door opens into the alleyway, and was secured in the open position against the starboard alleyway bulkhead. By releasing the door and allowing it to shut under the self-closing mechanism, the fire would have been contained within an insulated A60 compartment. It is not possible to say whether such an action would have necessarily prevented the destruction of the wheelhouse and accommodation, but it would certainly have contained the fire within a protected area.

The open window on the starboard or weather side of the galley also added to the severity of the fire. In the general confusion, no attempt was made to either close or block this window.

2.2.2 There is no doubt by the time the fire was discovered, it had secured a firm hold and was presenting a very visible and frightening spectacle. At that time, most of the crew had been awakened abruptly after a relatively short time asleep, and were probably still half asleep and in a state of confusion, not knowing what or where the shouting was all about.

Once in the wheelhouse, some sort of order started to emerge with the mate attempting to fight the fire with a dry powder extinguisher. It is interesting that of the five crew, three had attended fire-fighting courses, but it was one of the two who had not, who attempted to fight the fire. This is not a reflection on the quality of the fire-course, but rather a comment on the attitude of an individual to an emergency situation. This same individual was also instrumental in re-entering the lower accommodation to collect lifejackets for the crew.

Although attendance at courses on fire-fighting, first-aid, and sea survival provides a solid background in the basics, this incident illustrates the importance of each crew knowing their vessel and practising various emergency scenarios. Unfortunately galley fires are not unusual, but the procedure is the same ashore in the home, as it is at sea - shut all doors and windows. It may not save the vessel, but it gives you that valuable commodity - TIME.

2.2.3 The crew's action in launching the liferafts when the vessel was still going ahead, also calls for comment. Although the skipper was quite properly seeking assistance from the coastguard, one of the first things that should have been done was to either operate the main engine shut down immediately, or move the propeller pitch into neutral. The delay in carrying out this action was a significant factor in the subsequent loss of the two liferafts. One of the first actions of the mate, when he returned to the wheelhouse after alerting the crew to the fire, should have been to bring the vessel to a standstill.

Stopping the vessel's forward movement would have prevented the liferafts from being dragged aft and allowed the crew to board at a suitable time.

2.2.4 Many of the points identified above would have been included in the fire and safety training courses previously undertaken by the crew, particularly in relation to fire risks within galleys. It is unfortunate that these lessons of good practice were not heeded.

It would be a prudent course of action for the owner to obtain copies of the revised Maritime and Coastguard Agency (MCA) publication "*Fishermen and Safety*" published in March 2000, and issue one to each member of the crew. The outcome of this incident fortunately did not involve any loss of life or serious injury, but it so easily could have done.

2.3 RESCUE SERVICES

2.3.1 The response of the rescue services to the emergency was immediate and positive. Despite poor communications due to the VHF set being used at extreme range, the coastguard managed to obtain the essential information before contact was lost. Other radio communication systems were used in an effort to re-establish contact, but were unsuccessful. It was only when a "Mayday Relay" was broadcast on VHF radio, that contact was re-established using another fishing vessel within the vicinity.

The co-operation between the coastguard and fishermen was in this case a significant factor in subsequent rescue attempts. Once the fishing vessel *Boy John* had made contact with the casualty using a hand-held VHF set, the coastguard was able to obtain up-to-date details regarding local weather conditions, the condition of the crew, and progress of the fire.

Not only was this communication link vital, it also allowed *Mizpah* to concentrate on assessing the situation at first-hand without having to maintain contact with the coastguard.

2.3.2 *Mizpah*'s action was commendable. In wind force 8 conditions, a sea state 6 with a heavy swell, both vessels were rolling and pitching heavily. This was further complicated by *Be Ready* responding to the unpredictability of wind and wave forces - all steering capability having been lost in the fire. The only good aspect of the situation was that the vessel's nets were still down, and acted as a sea anchor.

Mizpah's skipper acted in the highest traditions of the sea. Having assessed the situation after the failure of the helicopter rescue, he twice approached the casualty, bow to bow, in an effort to pass a heaving line connected to an inflated liferaft. It was only on the second attempt that he was successful. To approach another vessel in those sea conditions requires not only the highest level of ship handling skill, but also courage and determination and confidence in both his own vessel and the capability of his crew. He not only risked his own life and that of his vessel, but also the lives of his crew. That risk was

accepted by all *Mizpah*'s crew, and it is largely through their efforts that the crew of *Be Ready* were rescued.

2.3.3 The actions of those on the Shetland rescue helicopter, *Rescue Oscar Charlie*, should also be mentioned as they were operating in very poor weather conditions. Despite this, they twice attempted to effect a winching rescue, but were defeated by a combination of weather conditions and the limited space available for a safe lift. The use of the helicopter lighting during *Mizpah*'s rescue attempts provided valuable assistance to both *Be Ready*'s and *Mizpah*'s crews during the crucial phases of passing a rope between the vessels.

The subsequent airlifting of *Be Ready*'s crew from the liferaft under difficult conditions followed a textbook rescue.

SECTION 3 - CONCLUSIONS

3.1 FINDINGS

3.1.1 *Be Ready* was properly registered in Shetland and manned by experienced fishermen.
(Ref: 1.2, 1.4)

3.1.2 Of the five crew members, only the mate and one deckhand had not attended a fire course.
(Ref: 1.4)

3.1.3 When the fire was discovered at about 0215 on 22 January 2000, the mate was on watch with the other four crew members asleep in the lower accommodation.
(Ref: 1.3.3, & 1.3.4)

3.1.4 The galley door, an A60 self-closing fire door was, as usual, hooked open.
(Ref: 2.1.1, & 2.1.4)

3.1.5 None of the five crew members, who all passed by the galley on their way to the wheelhouse, attempted to close the galley door.
(Ref: 1.3.4, & 2.1.3)

3.1.6 The only attempt to fight the fire was made by the mate who had not attended a fire course.
(Ref: 2.2.2)

3.1.7 The delay in stopping the vessel's forward movement by putting the propeller pitch in neutral or operating the emergency main engine stop, was a significant factor in the subsequent loss of both liferafts.
(Ref: 2.2.3)

3.1.8 The limited damage in the engine room was probably due to the release of Halon into the space by the skipper.
(Ref: 1.3.7)

3.1.9 The origin of the fire is unlikely to have been caused by an electrical fault, as an examination of the main electrical circuit breaker board in the engine room showed that the breakers had all tripped.
(Ref: 2.1.4)

3.1.10 Co-operation between coastguard, helicopter, and fishermen was good, with clear communication being maintained between all parties during the rescue.
(Ref: 2.3.1)

3.1.11 The fishing vessel *Boy John* provided excellent radio communication between the coastguard and vessels on scene.
(Ref: 2.3.1)

3.1.12 The skipper of the fishing vessel *Mizpah* showed the highest level of ship handling skill and courage during the passing of a liferaft between the two vessels.
(Ref: 2.3.2)

3.1.13 The actions of the rescue helicopter *Rescue Oscar Charlie* in carrying out an airlift rescue in very bad conditions, as well as providing overhead lighting during the critical passing movements of *Mizpah*, should be noted.
(Ref: 2.3.3)

3.2 CAUSE OF THE FIRE

Although there is no doubt that the fire originated in the galley, and on or in the vicinity of the cooker, the actual cause of the fire must be speculative. Based on crew statements, it is possible that a drying towel or some similar article, fell off the drying line on to a galley stove hotplate, ignited, and set up a train of events leading to the loss of both accommodation and wheelhouse.

SECTION 4 - RECOMMENDATIONS

The **Be Ready Fishing Co Ltd, Scalloway** is recommended to:

1. Ensure that the skipper and crew of any fishing vessel that they own or operate, is fully aware of the importance of self-closing A60 galley fire doors;

2. Make sure that the skipper and crew are aware of the need to carry out basic fire and emergency drills on a regular basis;

3. Issue guidance to crew members on the dangers of hanging items of clothing or material above hot heating elements;

4. Consider fitting a heat and/or smoke detectors in galley areas.

The **Maritime and Coastguard Agency** is recommended to:

5. Include in any revised edition of *Fishermen and Safety,* a paragraph in the section headed *Galley* relating specifically to the dangers of suspending drying cloths and items of clothing above galley stove hotplates. Comment should also be made about the importance of ensuring that self-closing A60 galley fire doors close easily, and are not wedged or secured open.

NOTE

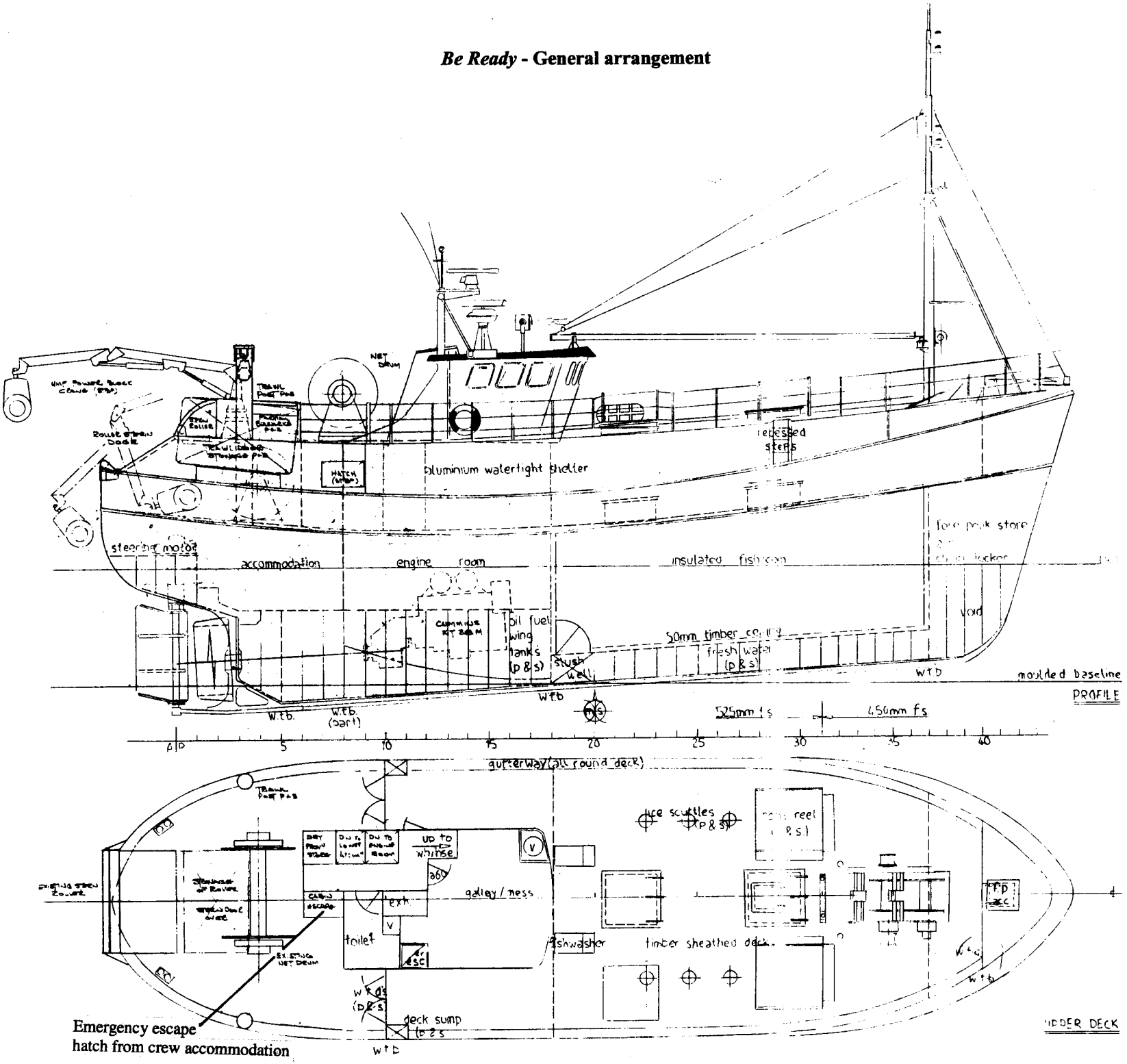
A similar incident on the UK registered trawler, *De Kaper (GY 269)* found that a fire which had started in the immediate vicinity of the engine room door, spread rapidly into the accommodation due to the engine room door being secured in the open position.

In both this and the *Be Ready* case, the integrity of the in-built fire protection was destroyed, due to an open fire-resistant door.

ANNEX 1

Be Ready - General arrangement

Be Ready - General arrangement



ANNEX 2

Damage Survey Report

PIRIE & SMITH LIMITED

Consultant Marine Engineers, Ship Surveyors and Naval Architects

ESG
European Survey Group

4 ALBERT QUAY
ABERDEEN AB11 5QA
Tel: (01224) 586882
Fax: (01224) 581762
After Hours: (01569) 763492

20 HARBOUR STREET
PETERHEAD AB42 1DJ
Tel: (01779) 470126
Fax: (01779) 471394
After Hours: (01779) 473537

Your Ref:
Our Ref: KMcR/HH/S012

SURVEY REPORT

8 March 2000

THIS IS TO CERTIFY that the Undersigned did, on the TWENTY-FOURTH and TWENTY-FIFTH days of JANUARY 2000, proceed to the motor fishing vessel

"BE-READY"

of the Port of Lerwick, Registered Fishing Number KK 317 whilst lying afloat in Lerwick Harbour for the purpose of ascertaining the nature and extent of damage sustained by the vessel, in the following circumstances:

22nd January 2000 02.00 Hours

"Whilst carrying out fishing operations at the "Roller Coaster" fishing grounds, approximately 60 miles west of Scalloway, Shetland Islands, fire broke out in the galley/messroom. The fire quickly spread to other parts of the vessel, necessitating abandonment of the "Be-Ready", with the assistance of the Mfv "Mizpah" LK 57 and the Coastguard-search and rescue-helicopter.

The "Be-Ready was later towed to Lerwick by the Coastguard tug "Anglian Monarch".

For further particulars, please refer to the Skipper and crew statements, the foregoing being a verbal statement made at the time of survey.

On attendance at the vessel, the following was noted:

The "Be-Ready" is a 24.54 metre overall length steel construction vessel, fitted out for trawl fishing, built at Campbeltown Shipyard in 1985, and powered by a Cummins KT38M, 550 BHP diesel engine, driving a controllable pitch propeller through a Heimdal reduction gearbox. Deck machinery hydraulic pumps are driven off the gearbox, with the auto trawl pump, main engine driven. Port and starboard auxiliary engines drive 415/240 volt AC and 24 volt DC electrics.

The hull is sub-divided from forward into forecastle store, fishroom, engine room with fuel bunkers, eight man crew cabin, with steering gear compartment aft.

The vessel is fitted with a full length shelter deck of aluminium watertight construction forward and non watertight steel construction aft. An aluminium construction wheelhouse is fitted over a steel construction deckhouse casing at mid length on centreline.

The deckhouse casing houses the galley/messroom at the forward end with an alleyway leading aft to the toilet/shower space, oilskin lockers and engine and crew cabin access stairways.

The following damages were noted:

Location: Shelter Deck, Main Deck, Hydraulic Deck Machinery, Wheelhouse and Funnel Deckhouse Casing/Accommodation, Crew Cabin and Engine Room

1.0 Shelter Deck

1.1 Aluminium shelter, deck and side plating from the position of the aft most fish discharge hatch and extending aft approximately 5.5 metres abreast the wheelhouse, overheated, buckled and distorted.

1.2 Steel aft shelter deck extending from the aluminium shelter aft to the stern of the vessel, overheated, buckled and distorted to a maximum deflection of 100mm affecting an area of 6.5 metres x 6 metres.

1.3 Underside of shelter deck and working deck area extending from the deckhouse casing forward to stem of vessel, heavily affected by smoke. Forecastle store similarly affected.

2.0 Main Deck

2.1 Aft main steel deck plating over the aft crew cabin overheated, buckled and distorted, affecting an area of approximately 7.2 metres x 6 metres.

2.2 Hardwood deck sheathing over affected steel deck, severely scorched and charred.

2.3 Net drum seating on main deck, overheated and buckled.

2.0 Hydraulic Deck Machinery

3.1 Split hydraulic net drum mounted on shelter top, aft of wheelhouse, scorched with hydraulic pipework and motors (2 off) overheated.

3.2 Split hydraulic net drum mounted on main deck aft of deckhouse, severely overheated, with drum flanges and framework, heavily buckled, motors (2 off) overheated.

Fishing net on net drum severely overheated and melted.

3.3 HAP hydraulic power block crane with slewing mechanism, kingpost and inner boom, hydraulic pipes and cylinders severely overheated.

4.0 Wheelhouse and Funnel

4.1 Aluminium wheelhouse structure severely overheated and melted.

4.2 Steel funnel structure severely overheated and buckled.

4.3 Steel gantry structure over wheelhouse overheated and buckled.

4.5 Wheelhouse electrical, navigational, fish finding, auto trawl and radio equipment, furniture, fittings and linings all destroyed by fire and reduced to ashes.

5.0 Deckhouse Casing/Accommodation

5.1 Steel deckhouse casing severely affected by fire, overheated with bulkheads buckled and distorted.

5.2 Galley/messroom furniture, fittings and linings completely destroyed by fire and reduced to ashes, with the galley cooker casing and rock wool insulation on aft bulkhead and deckhead remaining.

5.3 Alleyway, toilet/wash place and oilskin locker, furniture/fittings and linings all completely destroyed by fire and reduced to ashes.

6.0 *Crew Cabin/Steering Gear Compartment*

6.1 Eight berth crew cabin, furniture, fittings and linings all completely destroyed by fire, with little or no ashes remaining.

6.2 Tenfjord hydraulic steering gear motor affected by fire and severely overheated.

6.3 Rudder stock, "Deep Sea Seal" gland affected by fire with external surface severely overheated and charred.

NB: Sea water noted to be leaking from gland and partly flooding cabin area.

7.0 Engine Room

7.1 Engine room/crew cabin common steel bulkhead, centre 2.5 metre section, buckled and distorted.

7.2 Engine room generally affected by smoke and heat with main and port and starboard auxiliary engines, air filters affected by smoke.

7.3 Two Dennison main gearbox driven hydraulic pumps and engine driven auto trawl pumps with suspect damage due to hydraulic oil loss.

Engine Room contd

7.4 Hydraulic pipework in engine room affected by heat.

7.5 Two 415/240 volt and one 24 volt auxiliary engine driven alternators affected by smoke.

7.6 Main and auxiliary engine electric control and alarm panels and wiring affected by smoke and heat.

7.7 415 volt switchboard and 415 volt and 24 volt distribution boards affected by smoke and heat.

7.8 24 volt switchboard affected by smoke and heat.

7.9 415 volt and 24 volt transformer/rectifier affected by smoke and heat.

7.10 Electrical wiring generally affected by heat.

7.11 Fishroom chilling plant mounted in engine room deckhead with electric motors affected by smoke and heat.

7.12 Deckhead mounted electric motor driven ventilation fans (2 off) affected by smoke and heat.

7.13 Work bench, tool rack, spare gear bins and spare hydraulic hose, located at aft port aft engine room area, severely affected by flame and heat.

7.14 Whale type flush deck mounted hand operated bilge pump located in the port aft area of the engine room deckhead, affected by heat.

ANNEX 3

Photographs - four video stills

Mizpah manoeuvring towards *Be Ready* attempts to rescue the crew

Mizpah manoeuvring towards *Be Ready* attempts to rescue the crew