

Report on the investigation of
the collision between
fv *Harvester* and mv *Strilmøy*
North Sea
4 November 2005

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Extract from
The United Kingdom Merchant Shipping
(Accident Reporting and Investigation)
Regulations 2005 – Regulation 5:

“The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005 shall be the prevention of future accidents through the ascertainment of its causes and circumstances. It shall not be the purpose of an investigation to determine liability nor, except so far as is necessary to achieve its objective, to apportion blame.”

NOTE

This report is not written with litigation in mind and, pursuant to Regulation 13(9) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2005, shall be inadmissible in any judicial proceedings whose purpose, or one of whose purposes is to attribute or apportion liability or blame.

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

ARPA	-	Automatic Radar Plotting Aid
Bhp	-	Brake horse power
COLREGS	-	International Regulations for Preventing Collisions at Sea 1972 (as amended)
CPA	-	Closest Point of Approach
DNV	-	Det Norske Veritas
EBL	-	Electronic Bearing Line
EPIRB	-	Emergency Position Indicating Radio Beacon
FRC	-	Fast Rescue Craft
GMDSS	-	Global Maritime Distress and Safety System
ICS	-	International Chamber of Shipping
kVA	-	kilo Volt Amp
kW	-	kiloWatt
m	-	metre
MCA	-	Maritime and Coastguard Agency
MF	-	Medium Frequency radio
mm	-	millimetre
NMD	-	Norwegian Maritime Directorate
SMC	-	Safety Management Certificate
STCW95	-	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, (as amended)
TCPA	-	Time of Closest Point of Approach
UNCLOS	-	United Nations Convention of Law of the Sea
VDR	-	Voyage Data Recorder
VHF	-	Very High Frequency radio
VRM	-	Variable Range Marker

SYNOPSIS

(All times UTC)

At about 0548 on 4 November 2005, the UK registered fishing vessel *Harvester* was engaged in pair trawling with the UK registered *Ocean Harvest* when she was in collision with the Norwegian registered supply and standby vessel *Strilmøy*. Before *Harvester* sank, all her crew were transferred to *Ocean Harvest*. *Strilmøy* was holed above the waterline in the forepeak tank, and suffered some denting to her starboard side. She was able to continue her voyage.

Harvester and *Ocean Harvest* were owned by their skippers, who were brothers. Each owned a half share of both vessels. They had been pair trawling together for the last 12 years, and regularly fished the area to the north-east of Peterhead. Both fishing vessels had two radars on board, and when fishing, one was used for lookout and the other for maintaining the correct distance from the other vessel of the pair.

Strilmøy was a new vessel, handed over to her owners on 26 August 2005. She was on a regular run, between Stavanger and Peterhead, calling at four oil rigs in the North Sea to deliver stores and pick up returns. She was fitted with a Voyage Data Recorder, and had two radars operating, as well as seven VHF radio sets available on the bridge.

At the time of the collision, the visibility had reduced to about 0.5 mile in fog. The pair trawlers had detected *Strilmøy* by radar at about 5 miles, and the radar plotting aid on *Ocean Harvest* showed that it would pass close ahead of the vessel but very close to *Harvester*. The radar plotting aid on *Harvester* showed that *Strilmøy* was on a collision course. The skipper of *Ocean Harvest* tried to call *Strilmøy* on the VHF radio, shortly before the collision, but received no response. The watchkeeper on *Harvester* started to alter course when *Strilmøy* was about 0.2 mile away, but could not take sufficient action in time to avoid the collision.

The impact woke *Harvester's* crew who, after checking the damage to the vessel, decided to abandon ship. Both of the liferafts were launched and the crew boarded the starboard liferaft, before being picked up by *Ocean Harvest*. On board *Strilmøy*, the engines were stopped and she remained in the vicinity, contacting the fishing vessels to exchange identities and offer assistance. The FRC from *Strilmøy* was launched, initially to check for damage to her own hull, and later, at the coastguard's request, to pick up any flotsam from the wreck, which included the EPIRB.

Harvester sank at 0720, and *Ocean Harvest* returned to Peterhead, where she berthed at about 2300 that evening. The master of *Strilmøy*, after assessing the damage to his vessel, decided that because the hole in the forepeak was above the waterline, and the ingress of water could be controlled with the vessel's pumps, he could safely continue the voyage to Stavanger.

A recommendation has been made to the International Chamber of Shipping and the International Support Vessel Operators' Association to encourage companies to reassess their written instructions with respect to lookout and radar use, and to ensure that the instructions are complied with at sea.

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *STRILMØY*, HARVESTER AND ACCIDENT

Vessel details		<i>Strilmøy</i>
Registered owner	:	Simon Møkster Shipping AS
Manager(s)	:	Simon Møkster Shipping AS
Port of registry	:	Stavanger
Flag	:	Norway
IMO Number	:	9328546
Call sign	:	LMYV
Type	:	Supply and standby vessel
Built	:	2005
Classification society	:	Norske Veritas Classification A/S
Construction	:	Steel
Length overall	:	88.0m
Gross tonnage	:	3331
Engine power and/or type	:	4 x Caterpillar 3516B, 10197 Bhp,7604kW 4 x AVK Generators, 2281 kVA Diesel Electric propulsion
Service speed	:	15.2
Other relevant info	:	Forward Azimuth Thruster – 880kW 2 x Bow Thrusters - 880kW 2 x 2500kW 360° pods aft Fully enclosed bridge with sound reception equipment, located on the Monkey Island.

Figure 1



Strimøy

Vessel details

Harvester (PD 98)
(Ex *Margona* - Ex *Celestial Star*)

Registered owners	:	Mr J and Mr B Stephen
Manager(s)	:	Peterhead Fishermen Limited
Port of registry	:	Peterhead
Flag	:	UK
Type	:	Fishing Vessel
IMO Number	:	7328920
Callsign	:	GUBM
Built	:	1973 Aberdeen
Registered number	:	PD 98
Construction	:	Steel
Length overall	:	26.22m
Length registered	:	23.86m
Gross tonnage	:	154
Engine power and/or type	:	475.00kW

Accident details

Time and Date	:	0550 – 4 November 2005
Sunrise	:	0720
Location	:	59° 16'N 001° 52'E 130 miles north-east of Peterhead
Damage	:	<i>Harvester</i> was damaged and then sank; the bulbous bow of <i>Strilmøy</i> was holed.
Injuries	:	No injuries

1.2 BACKGROUND

1.2.1 *Strilmøy*

Strilmøy had been handed over to her owners on 26 August 2005, a little over 2 months before the collision. The master had been with the vessel during the final stages of the build and handover, and had assisted in designing the final layout of the bridge. She was on a charter to a major oil company to supply three oil rigs in the Norwegian sector of the North Sea, and two rigs in the UK sector. To serve this charter, the vessel would sail from Stavanger with stores for the Norwegian rigs. Having delivered the stores, she would then visit the rigs in the UK sector to pick up any return items. These would be taken to Peterhead, where the stores for the UK sector rigs would be loaded. On the return trip, the stores would be delivered to the UK sector rigs first, and then any returns picked up from the Norwegian sector rigs, before returning to Stavanger. The round trip was expected to take a week (see Figure 2).

The charter required there to be two navigating officers on the bridge when the vessel was operating close to the rigs. The vessel carried a master and three watchkeeping officers, as well as an AB/cadet, who had completed his nautical education, but was accumulating sea time to qualify for his first Certificate of Competency. The watchkeeping officers were two chief officers and a second officer, with the senior chief officer and second officer sharing the 12-6 watch, and the junior chief officer and the AB/cadet sharing the 6-12. The master would also be on the bridge when manoeuvring near the rigs. No additional lookouts were employed because it was expected there should be two navigating officers on the bridge all the time.

The main propulsion of *Strilmøy* consisted of two azimuth pods at the aft end of the hull. These pods could be rotated through 360° to provide thrust in any direction. Additionally, reverse thrust could be provided by changing the propeller pitch on each pod. A smaller 360° azimuth thruster was fitted forward, as well as two tunnel bow thrusters. Engine trials had concluded that the quickest method of stopping the vessel was to turn both main thrusters through 90°, such that they were both pushing “inwards”. Reversing the direction of the propeller pitch took much longer to stop the vessel.

1.2.2 Simon Møkster Shipping AS

Strilmøy was owned and operated by Simon Møkster Holdings. The company was established in 1968, initially running a fleet of coastal vessels, and later moving exclusively to services for the North Sea oil industry. The company is ISO 9001 compliant, and operates under an ISM document of compliance issued on behalf of the Norwegian Maritime Directorate; by Det Norske Veritas.

Figure 2

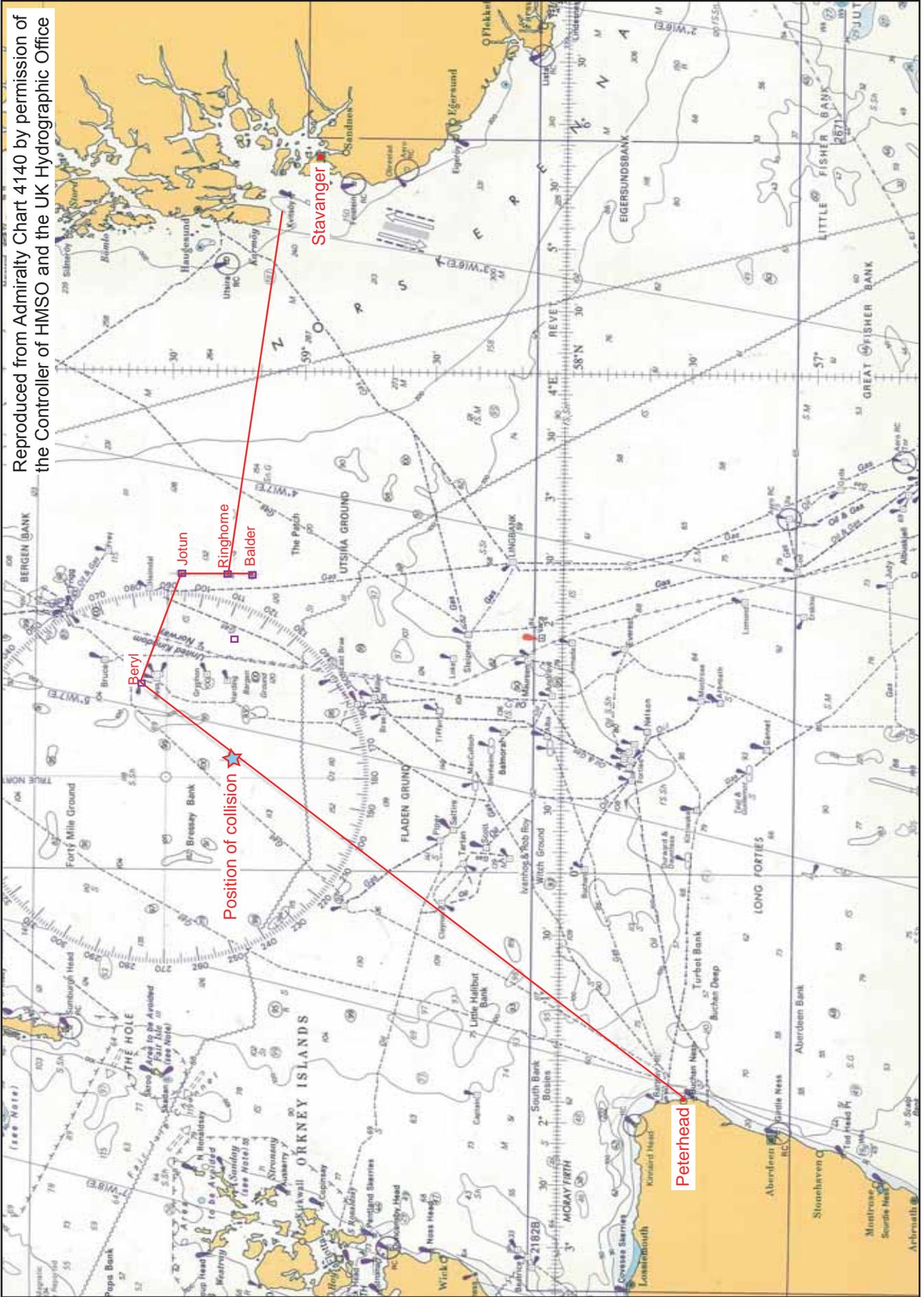


Chart shows Strilmøy's round trip, and position of collision

1.2.3 *Harvester* and *Ocean Harvest*

Harvester and *Ocean Harvest* (see **Figure 3**) were co-owned by two brothers, with each brother owning half the shares in both vessels. They employed a total of 9 crewmen: 4 crew (in addition to one brother acting as owner/skipper) worked each vessel, while the ninth man covered illnesses and holidays, and was the only man who worked on both vessels.

On the fishing grounds, the vessels would take alternate catches. The skipper of *Ocean Harvest* would be on watch while towing for *Harvester's* catch; at the same time his crew would be sorting their catch. The roles would then be reversed. This meant that one of the skippers was on watch at all times, while the towing watch was shared between the remaining four crew members on the other vessel. Since there was always one of the skippers on watch, he effectively took charge of both vessels, and made the decisions regarding course and speed.

Figure 3



Ocean Harvest

1.3 NARRATIVE

(All times UTC)

At about 2200 on Tuesday 1 November, *Harvester* and *Ocean Harvest* sailed from Peterhead. This was later than their planned Monday morning departure because *Ocean Harvest's* fresh water tanks had been washed and treated. They headed for their usual fishing grounds about 130 miles north-east of Peterhead and were expecting to be out for about 10 days. Unusually, there were 6 men on *Harvester*. The vessel's engineer was on his first trip and the additional man was carried to help familiarise him with his duties.

Harvester and *Ocean Harvest* began pair trawling at about 1200 on Wednesday 2 November. The weather was good until the following night, when the wind dropped and it began to get hazy. By midnight, the visibility had reduced to less than a mile, the sea was calm with a low southerly swell.

Strilmøy sailed from Peterhead at 1910 on Thursday 3 November 2005, bound for the Beryl Field, where she was due at 0730 the following morning. On the bridge were the master, junior chief officer and the cadet. The master stayed on the bridge until about 2000, when he handed the con over to the junior chief officer. He went to bed shortly afterwards.

Harvester and *Ocean Harvest* were towing on north/south-bound legs, and at about 0200 they hauled in the gear having completed a north-bound leg. This was *Ocean Harvest's* net, and when they shot away again at about 0230, the crew of *Harvester* went to bed, with the exception of the engineer, who took over for his first towing watch. In *Harvester's* wheelhouse, one radar was switched between the 3 and 6 mile range scale and used for lookout, and the other radar was set on a 0.25 mile range scale to keep station with *Ocean Harvest*. *Ocean Harvest's* skipper was also on watch, and the course for both vessels was set south at 2 to 2.5 knots. Visibility was reducing, and the skipper of *Ocean Harvest* and the engineer of *Harvester* kept contact with each other by radio. Once the catch from the previous haul was stowed, they were the only two crewmen awake on either vessel. Both vessels were displaying the lights for vessels of their size engaged in trawling. However, neither was using the optional searchlights directed at the other vessel of the pair, as allowed under Annex II of the COLREGS, for fishing vessels operating in close proximity. Neither were they sounding fog signals.

On *Strilmøy*, the two officers who kept the 12 - 6 morning watch, were relieved by the junior chief officer at 0445 (0545 ship's time).

Intermittent fog patches, which had been present at the beginning of the 12 - 6 watch had, by the time of the watch handover, developed into continuous fog. *Strilmøy* was equipped with a sound reception device, fitted to the vessel's monkey island, but this was not used as the crew considered that any exterior

sounds were masked by the noise made by the wind and funnel fans. The master was not informed that the visibility had reduced, and had left no standing instructions for the OOW to do so. No fog signal was being sounded. Shortly before the junior chief officer took over the watch, two small targets were noted on the radar, coming from the starboard side at a range of between 11 and 12 miles. These were not *Harvester* and *Ocean Harvest*, but were vessels of similar size, also pair trawling. *Strilmøy* was being steered by autopilot on a course of 045° (T) at a speed of 13.5 knots.

The main propulsion system was a diesel electric drive system which allowed for rapid manoeuvring under all operating conditions. Therefore, as required by Rule 19b of the COLREGS, *Strilmøy* had her engines ready for immediate manoeuvre. The two radars were operating, and the lights for a power-driven vessel of more than 50 metres long were displayed.

The chief officer was alone on watch. The AB/cadet who had been on watch the previous evening, acting as lookout, was unaware that he was required on the bridge for the morning watch, so had started work assisting in cleaning the accommodation. However, the master had told the AB/cadet that he would be required on watch when the vessel was at sea when she had left Stavanger for the current trip. The chief officer did not call him to the bridge for lookout duties, even though he spoke to him by telephone, asking him to bring the cargo manifest to the bridge.

Harvester and *Ocean Harvest* appeared on the radar at 0509. The VDR recording of the 3cm radar shows that the targets were not acquired using the ARPA. The true trails function of the ARPA was operating, and this showed the fishing vessels to be heading south at slow speed. There was no radar function in use to assess the risk of collision with these vessels.

The engineer on *Harvester*, and the skipper on *Ocean Harvest*, noted *Strilmøy* at about the same time, at about 5 miles. Both started tracking *Strilmøy* with their automatic plotting aids, and noted that she would pass ahead of *Ocean Harvest* but was on a collision course with *Harvester*. This was approximately 14 minutes before the collision. The two fishermen confirmed with each other that they had seen *Strilmøy*, and continued plotting her approach.

At 0547, the VDR on *Strilmøy* recorded a VHF call from *Ocean Harvest*, during which the skipper asked “supply vessel, can you see us?” Shortly afterwards, *Harvester*’s watchkeeper started to alter course to starboard to try and avoid the imminent collision. Thirty seconds after the VHF call, *Strilmøy* struck *Harvester* on the starboard side under her ‘A’ frame. The impact rolled *Harvester* heavily to port, waking the crew, and throwing those sleeping on the starboard side of the cabin out of bed. The crew checked the engine room and fish hold, and discovered water entering both spaces. The bilge pumps in the engine room and

fish hold were started, and these seemed to be coping initially with the flooding in the engine room. Further checks revealed a split in the hull in the fish hold below the waterline, and a second split in the bulkhead separating the fish hold and engine room. The impact had breached the starboard fuel tank, and fuel was mixing with the water in the bilges and entering the fish hold. The crew put on their immersion suits, and some also donned their lifejackets. Both liferafts were launched from the wheelhouse roof, and both inflated correctly.

Ocean Harvest's skipper saw the collision take place. He saw the lights of his brother's vessel heel to port, and then his view of *Harvester* was blocked by *Strilmøy's* hull. A short while later, his brother called on a private VHF channel and confirmed that they were still afloat, that there were no injuries, but that the damage to the vessel was severe. Further conversation between the brothers included the decision to cut the fishing net adrift. Initially, *Harvester* was to cut her warps to save the net, but when the angle grinder failed to work, the gear was cut away from *Ocean Harvest*. Meanwhile, *Strilmøy* remained alongside *Harvester*. The low swell was causing *Harvester* to roll into *Strilmøy's* hull, causing further damage. This also made it dangerous to enter the starboard liferaft, and *Harvester's* skipper moved his vessel ahead to avoid further damage.

On *Strilmøy*, the OOW did not observe the target of *Harvester* on the radar, and first saw the vessel when she was estimated to be about 50 metres away from his vessel. This would have allowed the OOW only about 7 seconds to avoid the collision. His initial reaction was to attempt to alter course to starboard by adjusting the azimuth pods. However, because they were steering in autopilot, this action was blocked until an adjustment of greater than 60° was attempted. As the initial adjustment had not worked, the next option was to stop the vessel. This was most rapidly achieved by turning the azimuth thrusters through 90° so that they were opposing each other. This could stop the vessel in about 150m from full speed, so was insufficient to avoid the collision. The master arrived on the bridge 30 seconds after the collision, having been woken by the impact. Seeing *Harvester* alongside to starboard, and noting that her gear was still deployed and leading under his own vessel, he pressed the auto-stop for the azimuth pods to ensure that he caused no further problems by getting the wire wrapped around the thrusters. *Strilmøy* was temporarily unable to manoeuvre, and *Harvester* remained alongside. Because *Harvester* was no longer pulling the gear through the water, her fishing gear slowly cleared as the weight came off the nets. Once *Strilmøy's* master could see that the gear was clear, he moved his vessel away by about 20 metres.

Two minutes after the collision, VHF radio contact was established between *Strilmøy* and *Ocean Harvest*. It was agreed that *Strilmøy* would remain nearby in case further assistance was required. *Strilmøy's* FRC was made ready, but not launched, because the master was aware that *Ocean Harvest* was going alongside *Harvester* to rescue the crew.

The two fishing vessel skippers agreed that *Ocean Harvest* would transmit a “Mayday Relay” message. This was sent by MF and acknowledged by Shetland Coastguard at 0622. Contact was established between the coastguard and *Strilmøy* at 0642, and it was suggested that the vessel should proceed to Lerwick as the nearest port of refuge. At 0655, the ETV *Anglian Earl* was tasked to standby the casualty, and then to escort *Strilmøy* to Lerwick. However, *Strilmøy*’s master decided to continue to Stavanger, and because there was no pollution from his vessel, and the vessels were outside UK waters, there were no powers to insist that *Strilmøy* proceed to Lerwick.

By 0654, all the crew of *Harvester* had been evacuated to *Ocean Harvest*. At 0720, *Harvester* sank in position 59° 16.’2N 000°52.’2E. At 0746, *Strilmøy* was asked by Shetland Coastguard to use its FRC to pick up any debris, and to hand it to *Ocean Harvest*. This they did, and at 0833 all vessels left the area, *Strilmøy* to continue to Stavanger via the oil fields, and *Ocean Harvest* to Peterhead. At 0949, the ETV was released and returned to her station.

Ocean Harvest arrived in Peterhead at 2300 that evening.

1.4 ENVIRONMENTAL CONDITIONS

Rising and setting data for 4/11/05		Time (UTC)
Sunrise	:	0723
Sunset	:	1526
Moonrise	:	1135
Civil twilight	:	0638
Nautical twilight	:	0550

The weather at the time of the collision was as follows:

Wind	:	Calm
Sea	:	Calm
Swell	:	Less than 1m, southerly
Visibility	:	0.5 mile in fog.

The British Admiralty chart number 292 (North Sea Offshore Charts Sheet 1), which covers this area of the North Sea, has a tidal observation point (tidal diamond) situated in position 59°20’N 00° 49’E, which is within 5 miles of *Harvester*’s sinking position. The predicted tidal stream at this point at 0654 was 006°(T) at 0.5 knots.

1.5 DAMAGE AND FLOODING

1.5.1 *Harvester*

Harvester sustained a split in her side, approximately 25cm long and 2.5cm wide, at the after end of the fish hold below the waterline. The starboard side of the bulkhead was also damaged between the engine room and fish hold, at the junction with the vessel's side. Further damage was sustained to the superstructure around the wheelhouse, 'A'-frame and side railings (**see Figure 4**).

The split in the vessel's side caused flooding of the fish hold, and the split in the bulkhead allowed the seawater to flood between the fish hold and the engine room. The progressive flooding into the engine room was controlled by the bilge pumps, and these pumps remained running until just before the vessel finally sank. The flooding into the fish hold could not be controlled by the available pumps, so the fish hold filled with water. This caused *Harvester* to sink bow-first, about 1 hour and 40 minutes after the collision (**see Figure 7**).

1.5.2 *Strilmøy*

A damage survey was carried out on 5 November 2005 at Stavanger. The surveyor's report observed that there was an indented area of plating on the starboard side of the bulbous bow from the stem aft and including frame 13, at a height of between 4600mm and 5200mm. A hole measuring approximately 50mm x 120mm penetrated the hull at frame 133. Internally, the stringer at 'tween deck level at the bow, and the stringer below it, were slightly dented. Frame 134 was also found to be distorted. Scraping to the boot-topping along the starboard side of the vessel to the stern was cosmetic and did not require repair (**see Figures 5a, 5b and 5c**).

1.6 RECORDED DATA

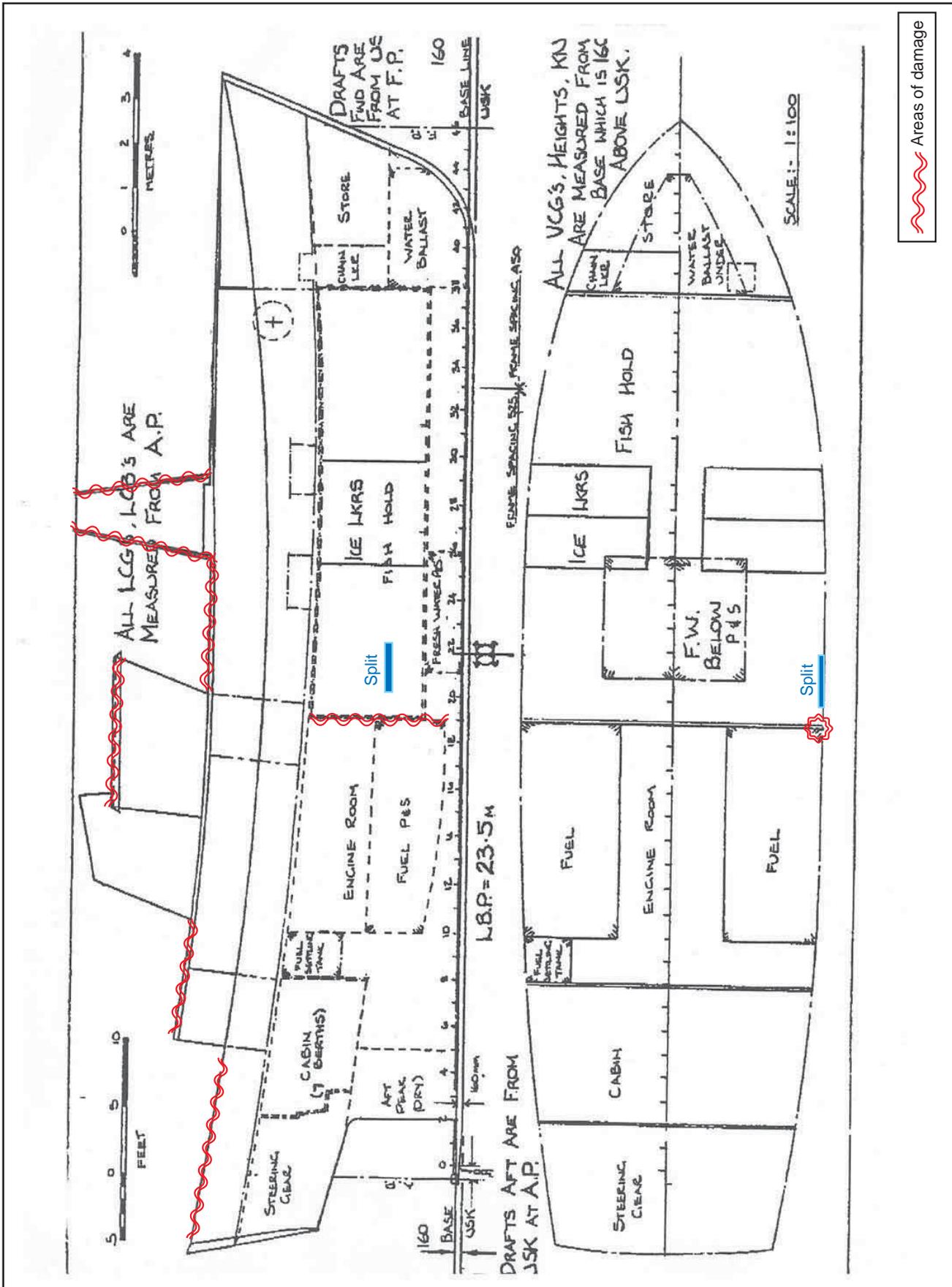
The owner of *Strilmøy* was able to provide MAIB with a copy of the vessel's VDR information. From this, it was possible to analyse the activity on the bridge at the time of the accident.

No recorded data survived from *Harvester*, however, *Ocean Harvest* was using a fishfinder, and, by extrapolation of the recorded GPS positions on this equipment, it was possible to reproduce the assumed track of *Harvester*.

The tracks obtained from *Ocean Harvest's* fishfinder and *Strilmøy's* VDR have been extracted and combined for display on a Geographic Information System chart (**see Figure 6**).

Further information was available from the scene of the collision because a number of the trawlers' crews took photographs and video images using their mobile telephones (**see Figures 7a, 7b, 7c, 7d, 7e and 7f**).

Figure 4



Damage to Harvester PD98

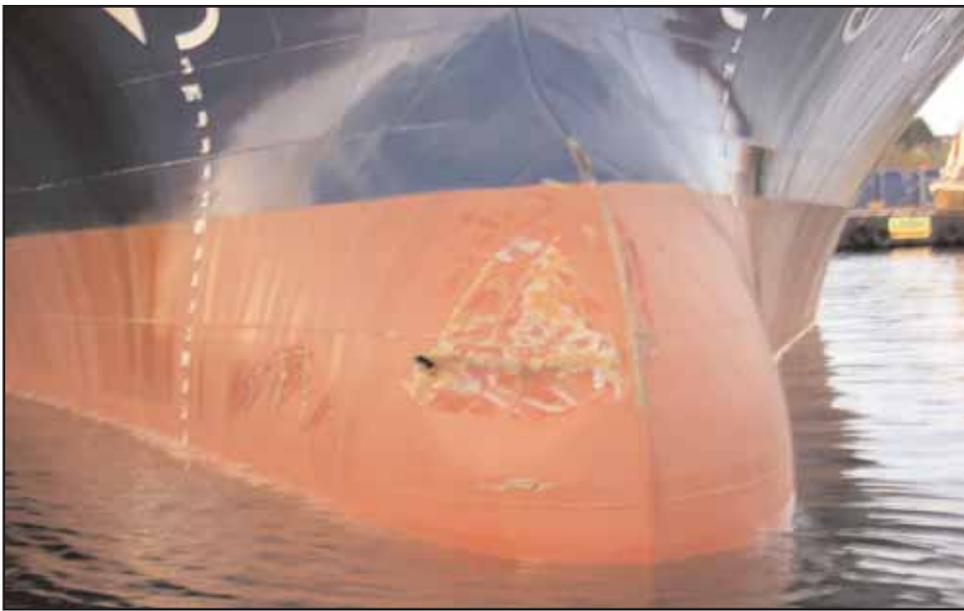


Figure 5a
Damage to *Strilmøy's*
bulbous bow

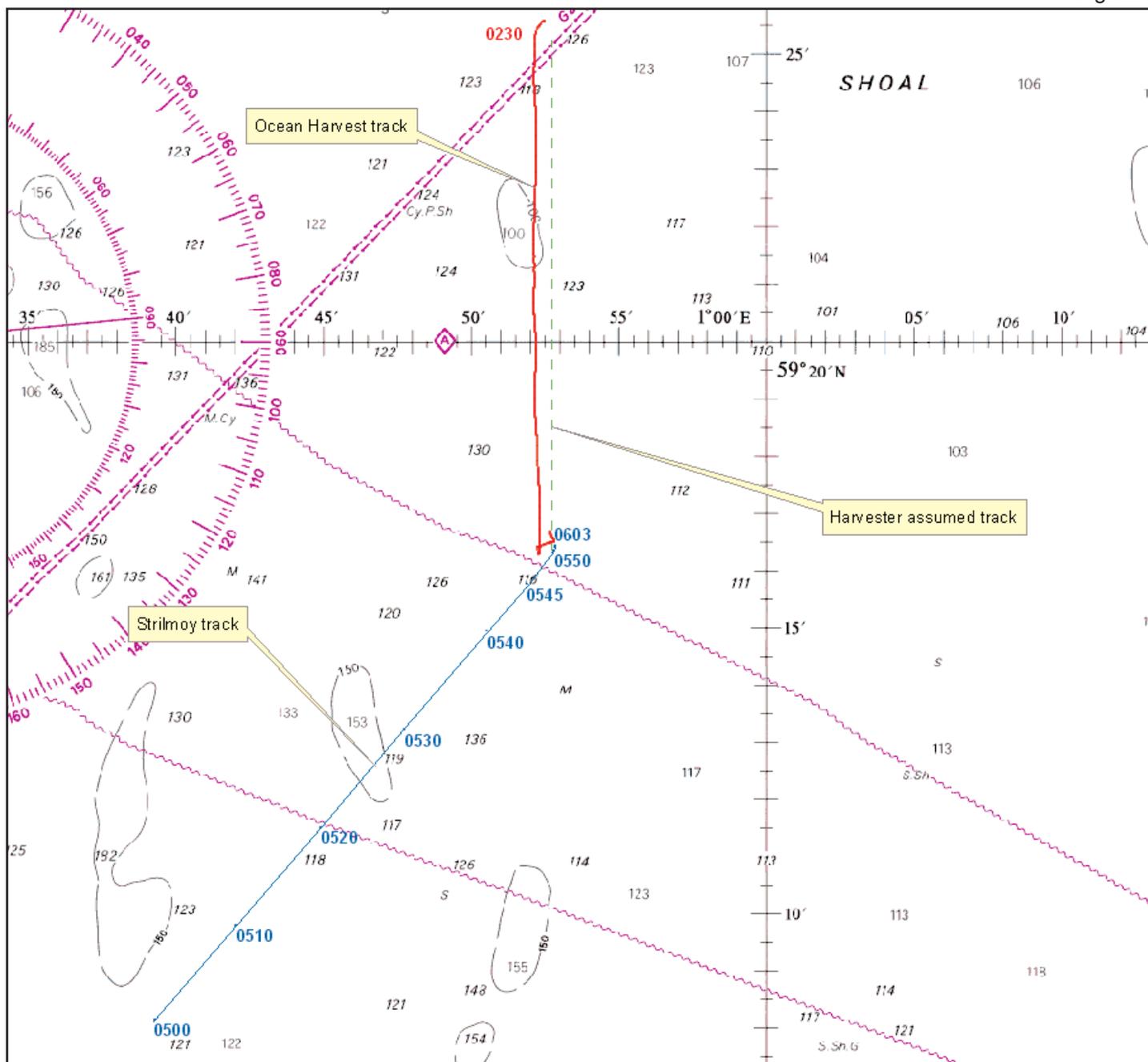


Figure 5b
Damage to *Strilmøy* (bow)



Figure 5c
Damage to *Strilmøy* (stern)

Figure 6



Tracks of *Ocean Harvest* and *Strilmøy*, and assumed track of *Harvester*

Figure 7a



Figure 7b



Pictures taken with mobile phone cameras

Figure 7c



Figure 7d



Figure 7e



Strilmøy and Fast Rescue Craft

Figure 7f



Photograph showing lights and visibility on scene

1.7 CREW

1.7.1 *Strilmøy*

Strilmøy carried a crew of 12, which included the master, two chief officers and a second officer. The master held a Class 1 (Deck) Certificate of Competency, with no limitations. The bridge watchkeeping officers shared a two watch system. The senior of the chief officers and the second officer kept the 12 - 6 watch, with the junior chief officer and an AB/cadet keeping the 6 - 12 watch.

With the exception of the master and the cook, the crew worked a 6-on 6-off watch system. Tours of duty for the entire crew were a month on, followed by 1 month's vacation.

1.7.2 The *Strilmøy* officer of the watch

The junior chief mate of *Strilmøy*, who was officer of the watch (OOW) at the time of the collision, held a Deck Officer Class 1 Certificate of Competency, as well as a master fisherman certificate. He was 42 years old and had been at sea since the age of 15. He had been employed by Møkster Shipping AS between 1988 and 1990 as chief mate. He had then been skipper of a fishing vessel between 1990 and 2005. In March 2005, he rejoined Møkster Shipping AS as chief mate. He had joined *Strilmøy* for the first time at the end of August, and was on board the vessel for the final stages of handover, as well as her delivery voyage. On his current, second tour of duty, he had been on board *Strilmøy* for exactly 1 month.

The junior chief officer had passed a medical examination in May 2005. This examination included a test of visual acuity. To meet the NMD standards, the unaided requirement is for the better eye 5/20, and the worse eye 5/30. Aided, both eyes should be 5/5, which is normal vision (more commonly referred to as 20/20 vision). The eyesight standards are given in Forskrift 19 Oct 2001 No 1309 issued by the NMD. It is also a requirement that if glasses are required to meet the visual acuity standards, a second pair must be carried. As a result of this examination, the junior chief officer was issued with an unrestricted medical certificate, even though he required glasses for reading.

Following the collision between *Strilmøy* and *Harvester*, the junior chief officer stated that, with his glasses on, he could see targets on the radar, and without them he could not. Further eyesight tests have resulted in the issue of a medical certificate endorsed to require him to wear glasses while on watch.

1.7.3 *Harvester*

The skipper of *Harvester* held a Deck Officer Certificate of Competency (Fishing Vessel) Class 1, and an Engineer Officer Certificate of Competency (Fishing Vessel) Class 2. The vessel's engineer also held an Engineer Officer Certificate of Competency (Fishing Vessel) Class 2. As the vessel was under 24m

registered length and was less than 750kW engine power, this met the requirements of SI 1984 No 1115 (as amended by SI 1995 No. 1428). All 6 crew members had attended the mandatory fishermen's safety courses.

1.7.4 *Ocean Harvest*

The skipper of *Ocean Harvest* held a Deck Officer Certificate of Competency (Fishing Vessel) Class 2, and an Engineer Officer Certificate of Competency (Fishing Vessel) Class 2. The vessel's engineer also held an Engineer Officer Certificate of Competency (Fishing Vessel) Class 2, and had been working with the same skipper for 13 years.

1.8 TRAINING FOR NEW SHIP

Strilmøy was handed over to the owners at the end of August 2005. The master had been appointed to the vessel before the handover, and had been present for the sea trials. The remainder of the deck officers had also been appointed to the vessel before handover, and were on board for the 36 hour delivery voyage to Stavanger. They had therefore seen the vessel in operation before taking over for the first time.

Strilmøy's bridge is fitted with a Kongsberg engine control system, as are six other vessels in the Simon Møkster fleet (**see Figure 8**). Since all the officers had sailed at least once in these other vessels in the fleet, the management company judged that they were already proficient in its use, and no further training was thought necessary before joining this new vessel. The navigation equipment was also very similar to the fit on the other vessels and, again, no further training was thought necessary.

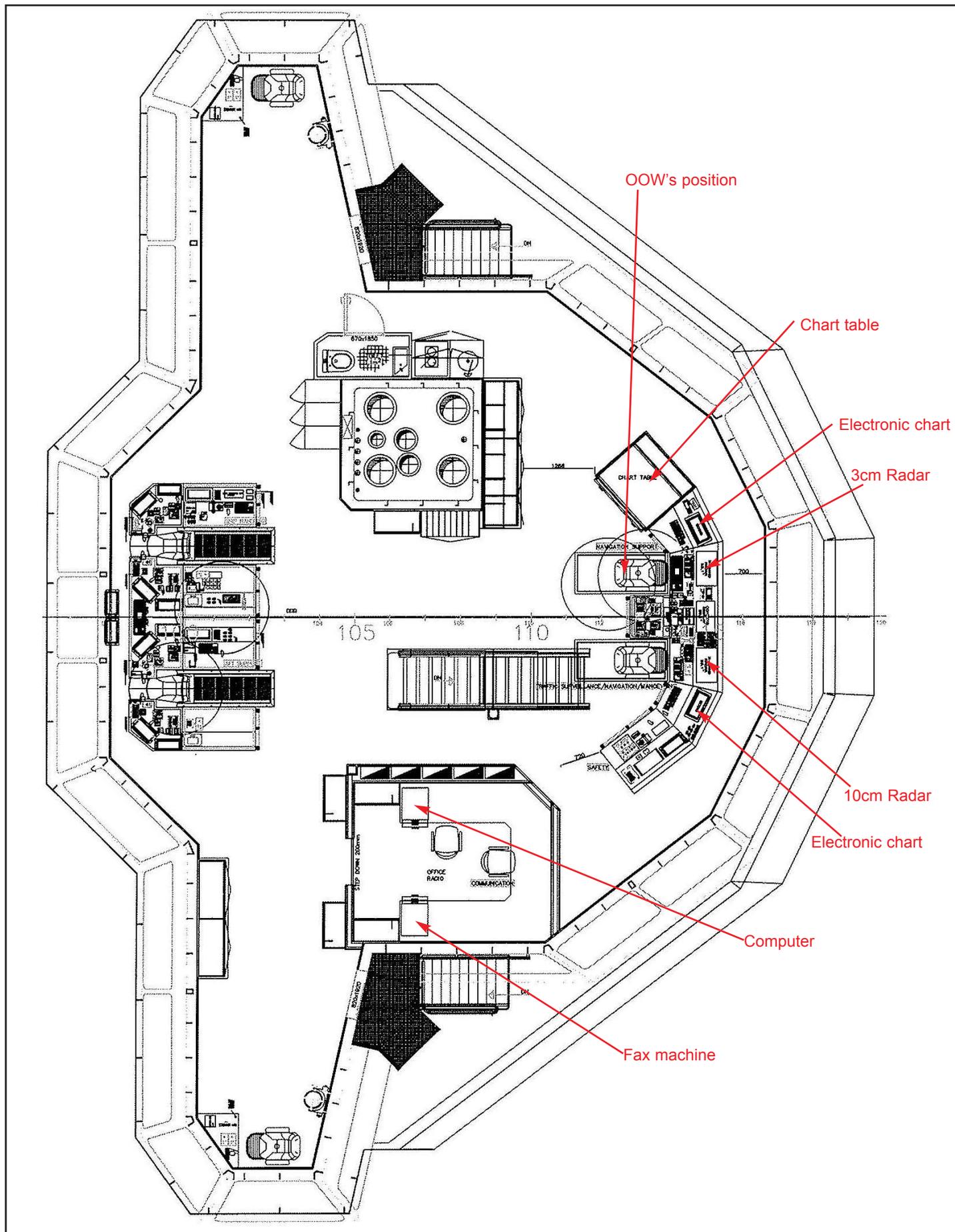
1.9 COLREGS

The International Regulations for Preventing Collisions at Sea (1972) (COLREGS)(as amended) are designed to enhance safe navigation, by prescribing the conduct of vessels underway, specifying the display of internationally-understood lights and sound signals and setting out collision avoidance actions where risk of collision exists.

Part B, the steering and sailing rules, are the rules determining actions to avoid collision, and is divided into three sections. Section I applies in any condition of visibility, Section II to vessels in sight of one another, and Section III to vessels in restricted visibility.

Initially, *Harvester* and *Strilmøy* could not see each other visually, so Section III, Rule 19 of the COLREGS applied. In this condition, all vessels are give-way vessels and so both should have taken action to avoid collision. Where the action consists of an alteration of course, the rules 19d(i) and 19d(ii) detail the action to be avoided, namely:

- i. an alteration to port for a vessel forward of the beam, other than for a vessel being overtaken;*
- ii. an alteration of course towards a vessel abeam or abaft the beam.*



Bridge layout

It further states in Rule 19c:

Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules of Section I of this Part.

As stated above, the Rules of Section I apply in any condition of visibility. These include the Rules concerning Lookout, Safe Speed, Risk of Collision and Action to Avoid Collision. The requirement of Rule 19c implies that, in restricted visibility, there should be additional attention paid to these aspects.

When the vessels were in sight of one another, then the Rules of Part B Section II applied. These eight rules include the detail of the action to be taken in crossing, overtaking, and head-on situations, as well as defining the action of the “stand-on” and “give-way” vessels. In the final moments before the collision, the rules of this section now applied. *Harvester* became a stand-on vessel, and *Strilmøy* was still a give-way vessel. For *Harvester*, Rule 17 (Action by the Stand-on vessel) now applied. This states in part:

“i) Where one of two vessels is to keep out of the way the other shall maintain her course and speed.

ii) The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules.”

To summarise, before the vessels could see each other, Rule 19 applied, and both of the vessels should have taken avoiding action. Once they could see each other, *Strilmøy* should still have taken avoiding action, and *Harvester* maintained course and speed. Once it became apparent to the watchkeeper on *Harvester* that *Strilmøy* was not taking any action, then he was required to take action to avoid collision by his manoeuvre alone.

Rule 35 of the COLREGS and STCW95 both require the sounding of fog signals when any vessel is operating in or near an area of restricted visibility. None of the vessels involved in this incident was sounding the required signals.

There was no requirement for the watchkeepers on the fishing vessels to have received any formal training in either watchkeeping or the COLREGS, provided that one properly certificated crew member was carried. This means that fishermen, with no formal qualifications or experience, may be required to stand watch on some fishing vessels. In order to improve the overall knowledge of basic watchkeeping issues and principles, Seafish is introducing a bridge watchkeeping training course for unqualified fishermen (at no charge) from March 2006.

1.10 LOOKOUT REQUIREMENTS

The regulations concerning lookout are given in the COLREGS Rule 5, and in the code for Standards Training and Certification of Watchkeepers 1995 (STCW95). The UK Maritime and Coastguard Agency gives further advice in the form of Merchant Shipping Notices (MGN 137 M+F, Lookout During Periods of Darkness and Restricted Visibility, MGN 202 M+F, Navigation in Fog). This additional advice was not applicable to *Strilmøy* since she was not a UK registered vessel. However, similar advice is given by the Norwegian Administration, and required by the Norwegian Maritime Act.

STCW 95 Section A VIII/2 part 3.1 describes the principles to be observed in keeping a navigational watch.

Section 12 states the responsibility of the officer of the watch for safe navigation of the vessel, and compliance with the COLREGS. Section 13 reinforces the requirements of rule 5 of the COLREGS, and further explains that lookout shall serve the purpose of:

Maintaining a continuous state of vigilance by sight and hearing as well as by all available means, with regard to any significant change in the operating environment;

Fully appraising the situation and the risk of collision, stranding and other dangers to navigation; and

Detecting ships or aircraft in distress, shipwrecked persons, wrecks, debris and other hazards to safe navigation.

Section 14 requires that:

The look-out must be able to give full attention to the keeping of a proper lookout and no other duties shall be undertaken or assigned which could interfere with that task.

Section 15 requires that the duty of helmsman and lookout are separate, and the helmsman cannot be considered to be the lookout except on small ships where there is an uninterrupted view all round. It also states that the officer in charge of the navigational watch may be the sole lookout in daylight with the proviso that on each occasion the situation has been carefully assessed and it is safe for this to happen.

STCW95 also states that the management company of a ship have a responsibility for ensuring that the obligations given in the code are given 'full and complete effect'. It also reinforces the requirement for lookout given in Rule 5 of the COLREGS.

MCA advice to fishing vessels on lookout responsibilities is explained in MGN 84(F) Keeping a Safe Navigational Watch on Fishing Vessels.

“4.5. Unfortunately it is not possible to rely on every give-way vessel to keep clear. It is therefore vital to monitor the movement of ALL traffic. Remember that a vessel engaged in fishing does not always have the right of way. In restricted visibility, even with gear extended, a fishing vessel has no special privileges.”

In February 2006, the MCA updated its advice on keeping a safe navigational watch, by issuing two Marine Guidance Notes. These were:

MGN 313 Keeping a Safe Navigational Watch on Fishing Vessels, and
MGN 315 Keeping a Safe Navigational Watch on Merchant Vessels.

1.11 INTERNATIONAL SAFETY MANAGEMENT CODE

The International Safety Management (ISM) Code requires that a company's safety management system should ensure compliance with mandatory rules and regulations. This is achieved by including in the safety management system, instructions and procedures to ensure the safe operation of ships, and protection of the environment in compliance with relevant international and Flag State legislation. In addition to these requirements, the Code requires that the company should establish procedures to identify, describe, and respond to potential emergency shipboard situations.

The owners of *Strilmøy* held an ISM Document of Compliance valid for the operation of offshore supply and standby vessels. Det Norske Veritas (DNV), on behalf of the NMD, had issued *Strilmøy* with an Interim Safety Management Certificate which was due to expire on 25 February 2006.

Short term Interim Safety management certification, usually valid for 6 months, is issued by, or on behalf of, the Flag State to allow new, or newly purchased vessels to commence trading and generate the evidence required during the subsequent full SMC audit to demonstrate that the ISM system is operating effectively.

SECTION 2 - ANALYSIS

2.1 AIM

The purpose of the analysis is to determine the contributory causes and circumstances of the accident as a basis for making recommendations to prevent similar accidents occurring in the future.

2.2 FATIGUE

An analysis of the hours worked by *Strilmøy's* OOW, and the rest he obtained leading up to the accident, indicated that fatigue was unlikely to have been a contributory factor. Similarly, although analysis of the hours of work and rest of the engineer lookout on *Harvester* determined there was a 'low risk' of fatigue, the lookout had detected the presence of *Strilmøy* at an early stage and had taken some action to try to avoid the collision. There is no indication that the actions or decisions taken by either of the crews were influenced by fatigue.

2.3 THE COLLISION

The collision was caused by the poor lookout being kept on *Strilmøy* and the late action taken by *Harvester*. *Harvester* was not noticed by the OOW until approximately 50 metres ahead of *Strilmøy*, by which time any action taken by *Strilmøy* was too late to avoid a collision. Action taken by *Harvester*, could have been taken earlier and been more substantial, however, incidents of close passing were a common occurrence to the crews of *Harvester* and *Ocean Harvest*, and an assumption was made that *Strilmøy* would eventually alter course. The action taken by *Harvester* resulted in a reduced angle at which the two vessels collided, and probably prevented the fishing vessel from being rolled over by the impact with *Strilmøy*.

2.4 LOOKOUT

Research by MAIB showed that over 58% of all the collisions and groundings investigated by the MAIB over a 5-year period to 2004, can be attributed to single-handed bridge watchkeeping.

2.4.1 *Strilmøy*

Strilmøy's OOW was alone on the bridge. It was dark and the visibility was poor. Both of these facts should have required an additional lookout on the bridge in accordance with STCW 95 Section 15. A lookout was available, and the master had expected the lookout to be on the bridge, although there were no written instructions to this effect.

With the OOW alone on the bridge, and with fog reducing the visibility to about 0.5 mile, one could expect a higher degree of alertness to the requirements of keeping a lookout as described in Rule 5 COLREGS. This would include sight, hearing, radar, etc. and would include the use of an additional lookout.

From the VDR recording of noise on the bridge it can be ascertained that there was activity on the bridge from when the watches changed to the time of the collision. This indicates that the OOW was awake and doing things. However, the recording shows that the activity was not just that which would be expected from someone keeping the watch. There are sounds recorded consistent with drawers being opened and closed, as well as with paper charts being unfolded and parallel rulers being opened and closed. Analysis indicates that the OOW's attention was not focussed on the task of lookout, but on some other task.

2.4.2 *Harvester* and *Ocean Harvest*

The towing watch on *Harvester* was being taken by the vessel's engineer for his first time. He had taken towing watches before, but not on this vessel. The routine the two vessels had adopted was that one of the skippers was on watch at all times when engaged in pair trawling. This meant that the on watch skipper took control of the fishing operation and co-ordinated the course and speed of both vessels. To assist the watchkeeper on *Harvester*, a plastic laminated sheet was attached to the bridge front. This gave details of when the skipper was to be called, such as when approaching land, or when in doubt. This would have been used when *Harvester* was on passage to and from the fishing grounds, when it was likely that neither of the skippers was awake.

Both the skipper of *Ocean Harvest* and the watchkeeper of *Harvester* had noted the presence of *Strilmøy* on the radar. They had confirmed by radio that each had seen the radar target, and were content to maintain course and speed. Although the presence of *Strilmøy* had been noted 15 minutes before the collision, no action was taken, even though the risk of collision was correctly assessed. It was not until about 20 seconds before the impact that *Harvester* went to starboard. This was in part due to the regular number of close quarters situations the crew of *Harvester* and *Ocean Harvest* had experienced while pair trawling in clear weather and restricted visibility. They had become accustomed to other vessels altering course when in very close proximity.

Restricted visibility meant that, under Rule 19, the pair trawlers, as well as the supply ship, should have altered course (and/or speed) to avoid collision. Neither did.

2.5 USE OF RADAR

The COLREGS describe in Rule 7(b) (Risk of Collision) that:

Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.

Radar alone will only tell the observer that there is a target on a certain bearing at a certain range. It is the monitoring of the target's movement that will indicate the possible risk of collision.

The radar in use on *Strilmøy* had a number of methods available with which the risk of collision could have been assessed. If an EBL had been lined up with the target, bearing change could have been monitored. Risk of collision is said to exist when the compass bearing of an approaching target does not change appreciably. Since the radar was gyro stabilised, the bearings from the EBL were compass bearings, and risk of collision could have been assessed. Changing the setting of the radar to display relative trails, while cluttering the screen with trails from all targets, would have indicated the approach of the target on a steady bearing.

By using ARPA, systematic observations are carried out automatically for the observer. The ARPA could be used either to manually acquire targets, or to set an auto-acquire zone to acquire any target appearing in the zone. Even if the radar was not frequently monitored, an alarm would have been set to sound when the target information showed that the TCPA and CPA had encroached within pre-set limits. In *Strilmøy*, the ARPA functions were not being used.

From the observation of VDR data from a number of recent incidents, MAIB has noted that many OOWs are only using the true trail function to display target information on radars. The true trail function will only indicate where a target is heading, and will not directly indicate any risk of collision. Assessing risk of collision from the true vector information requires the observer to estimate where his ship and the target will be at some future point, and decide whether or not this is likely to result in a close quarters situation. It is a very imprecise and inappropriate method of determining if risk of collision exists.

2.6 ACTION TO AVOID COLLISION

With the visibility at 0.5 mile, and the two vessels not in sight of one another, Rule 19 of the COLREGS applied (see Section 1.9). This details the actions to be taken by vessels not in sight of one another. At that stage, *Strilmøy* and the fishing vessels should have taken action to avoid collision. Neither side did.

Under Rule 35 of the COLREGS all three vessels should have been sounding fog signals, but were not.

In accordance with the COLREGS, once *Strilmøy* appeared out of the fog, *Harvester* became the stand-on vessel, since she was engaged in fishing and *Strilmøy* was a power-driven vessel, the Rules of Part B Section II now applying (Conduct of Vessels in Sight of One Another). Rule 17 (Action by Stand-on Vessel), meant that *Harvester* could have taken action once it became apparent that *Strilmøy* was not taking sufficient action. There was, however, little time to make this assessment, as the vessels were, by then, at very close range.

The COLREGS also give directions regarding Lookout (Rule 5), Safe Speed (Rule 6), Risk of Collision (Rule 7) and Action to Avoid Collision (Rule 8). These rules apply in any condition of visibility. They deal with the routines to be

adopted by the OOW: that he should be keeping a lookout by all means available; he should be proceeding at a safe speed adapted to the prevailing conditions; he should be assessing the risk of collision; and taking early and substantial action to keep well clear.

2.6.1 Actions by the pair trawlers

The method of fishing and the working routine adopted, had one skipper on watch, with the other vessel following his instructions. At the time of the collision, the actions of the pair were being co-ordinated by the skipper of *Ocean Harvest*, and the watchkeeper of *Harvester*, being on his first trip with the team, might have been expecting to be told exactly what to do.

The pair trawlers had four options: to increase speed, decrease speed, turn to port or turn to starboard. While any action taken sufficiently early would have avoided the collision, the four possible actions would have had varying effect:

- Increasing speed would not have been effective. The idea of increasing speed would have been to cross ahead of *Strilmøy*; this would have endangered the fishing gear. Since she was towing, and the increase in speed would have been slow, the effect would have been limited.
- Slowing or stopping the engines would have had a greater effect, because as soon as the power was reduced, the weight of the net would have pulled the vessel astern, effectively stopping the vessel, and increasing the distance ahead at which *Strilmøy* would pass. This would, however, increase the chance that the propeller would be fouled by the gear.
- Altering course at the time *Strilmøy* first appeared from the fog would have allowed insufficient time for the alteration to take effect, due to the slow speed and the fact that she was towing. An alteration of course to port, rather than starboard, would have been turning away from the net and trying to open the net further. This additional resistance would have further delayed and reduced the effectiveness of the action, as well as putting the vessel beam on to the approaching vessel. Any collision in this attitude could have rolled the vessel over, resulting in the loss of life. An alteration to starboard would have closed the net, and because of the reduced resistance from the net, the alteration of course would have been faster acting, and would more likely have resulted in a glancing blow.

The action decided on was to alter to starboard, but only when *Strilmøy* was very close. This, in part, was because they were fishing. They mistakenly (since it was restricted visibility) considered that they had the right of way. This is contrary to the advice given in MGN84(F) Keeping a Safe Navigational Watch on Fishing Vessels (see Section 1.10). Another possible reason for taking no action, was that in the past 2 to 3 years, they had become used to being passed at close range or for avoiding action, where taken, to be carried out at close range.

The autopilot was used, and *Harvester* turned through between 20° and 30° before the collision. If the steering had been in hand control, rather than in autopilot, hard-over helm could have been applied and a more significant alteration made before the collision. Any problem with the tow, caused by this action, could have been sorted out once the danger of collision had passed.

The watchkeeper on *Harvester* was following Rules 5, 6 and 7 of the COLREGS, but the action taken was not taken early enough to avoid collision.

2.6.2 Actions by *Strilmøy*

The VDR record of the collision shows that no action was taken on board *Strilmøy* until a few seconds before the collision. Although visibility was reduced by fog, the vessel was still maintaining a speed of 13.5 knots and a steady course of 045° (T). Had the two fishing vessels been noticed when they first appeared on the radar screen 38 minutes before the collision, an early alteration could have been made to result in the safe passing. They were not noticed, and no action was taken.

The VDR record does show that action was taken on board approximately 10 seconds before the collision. An initial attempt to alter course was not successful, and the OOW decided to stop the vessel. The most effective method of stopping was to turn both azimuth thrusters through 90°, such that they were operating athwartships in opposition to each other. This stopped the vessel in about 100m.

It is clear that the OOW on *Strilmøy* was not keeping a lookout, so risk of collision could not be assessed, and no action would therefore be taken to avoid collision. The action taken by *Strilmøy* was very late, and resulted only in a slightly reduced impact. Had an effective lookout been maintained, action could have been taken much earlier and collision with *Harvester* avoided.

2.7 MEDICAL

Strilmøy's OOW held a valid medical certificate, which he had obtained in May 2005. This was a requirement before starting his employment with Simon Møkster Shipping AS. The OOW wore glasses for reading, but had met the acuity standards without the need for wearing them. As a result of the collision, he had his eyes re-tested, because he felt that he could not see the radar screen clearly without his glasses. The doctor who re-tested his eyesight concluded that it was surprising that his eyesight problem had not previously been identified. His medical certificate was endorsed to require that he wears glasses when watchkeeping. The OOW is to undergo corrective surgery for his eyesight, at his own request. This surgery was suggested by the doctor, but was not essential.

It is surprising that an experienced OOW, keeping regular bridge watches, claims not to have noticed that he was unable to see clear contacts on the radar. However, notwithstanding the OOW's apparent visual problems, it is clear, from analysis of VDR recordings, that during the period leading to the collision, he was engaged in a number of activities around the chart table area, which had distracted him so that he was not keeping an effective radar lookout.

2.8 INTERNATIONAL SAFETY MANAGEMENT CODE

Simon Møkster Shipping AS had been issued with a Document of Compliance by DNV, and it was valid until 12 November 2009. The company system does not have specific requirements concerning actions in fog, the use of lookouts, and watchkeeping requirements, but refers to the Norwegian Sea Act. This Act puts specific requirements on the master of a vessel to “...ensure that the navigation and management of the ship accords with good seamanship.” The company procedures themselves describe that it is the master's responsibility to take necessary actions. What these actions are, is not detailed.

Having been in service for fewer than 3 months, *Strilmøy* was operating under an Interim Safety Management Certificate, which was valid to 25 February 2006. The issuing of an interim certificate is designed to allow a new vessel to be operated under the company's safety management system while the specific requirements for the new ship are formulated. This temporary certificate had a maximum validity of 6 months, and was also issued by DNV.

The Interim Safety Management Certificate may be issued following verification that 6 factors are in place. These include that: a) the master and officers are familiar with the safety management system and the planned arrangements for its implementation; and b) instructions, which have been identified as essential, are provided prior to sailing. Since all the officers had been with the company before, it is reasonable to assume that they were already familiar with the system. However, the specific instructions for ship emergencies were under development, as were the instructions for watchkeepers. These were not available on board before the collision. A white board on the bridge was used for passing on instructions, and most requirements were passed on verbally.

Detailed instructions concerning actions in fog, calling the master, and the requirements for bridge watchkeepers had not been produced and made available for the vessel before the collision.

2.9 ACTIONS AFTER THE COLLISION

Strilmøy's master did not talk directly to the skipper of *Harvester* at any time. He was in communication with *Ocean Harvest 2* minutes after the collision, and from this stemmed a certain amount of confusion. *Strilmøy's* master was initially unaware of the presence of *Ocean Harvest*, and thought that he was talking to the skipper of the vessel he had hit.

Strilmøy did try to find out about the situation on board the sinking vessel, and whether any assistance was required. Ten minutes after the collision, *Strilmøy* was told that “she was taking on water and wants you to stand by at the moment”. *Strilmøy* acknowledged this, and stood by to offer assistance. It was at that stage that *Strilmøy* confirmed her FRC was ready for use. *Ocean Harvest* then announced that she was going alongside *Harvester* to get everyone off.

2.10 ABANDONING HARVESTER

In abandoning the vessel, both liferafts were launched successfully. The crew had put on survival suits and some had also donned their lifejackets. All six crew managed to enter the liferaft without getting wet, and remained dry as they transferred to *Ocean Harvest*.

During the interviews with the crew following the collision, the MAIB noted that some of the crew had abandoned the vessel wearing just their survival suit, even though the lifejackets were available and were stowed in the same place. There were two types of survival suits provided on board the vessel: the Fladen flotation and immersion suit, and the Main Stream Hurricane System 3 flotation suit. Both suits provide buoyancy to the European Standard EN393. Although these suits provide flotation, they do not turn an unconscious person in the water onto his back. It is therefore necessary to wear a lifejacket as well as the survival suit, to ensure that the user’s mouth and nose remain clear of the water. Although *Harvester’s* crew managed to board *Ocean Harvest* without getting wet, the weather conditions were favourable. Had one of the crew been lost overboard and become unconscious in less favourable conditions, the results could have been fatal.

SECTION 3 - CONCLUSIONS

3.1 SAFETY ISSUES

The following safety issues have been identified in the foregoing analysis. They are not listed in any order of priority.

1. There is no indication that the actions or decision-making of either of the crews was influenced by fatigue. [2.2]
2. The collision happened due to the poor lookout kept on *Strilmøy*, and the late action by *Harvester*. [2.3]
3. *Strilmøy* did not have a dedicated lookout on the bridge as required by STCW. [2.4.1]
4. The VDR record indicates that the OOW's attention on *Strilmøy* was not focussed on the task of lookout. [2.4.1]
5. Restricted visibility meant that, under Rule 19, the pair trawlers and the supply ship should have altered course (and/or speed) to avoid collision. Neither did. [2.4.2]
6. The OOW on *Strilmøy* was not using any radar plotting technique that could be considered a systematic observation of detected objects, as required by the COLREGS. He was not using ARPA. [2.5]
7. Neither vessel was using fog signals as required by Rule 35 of the COLREGS. [2.6]
8. *Harvester* could have taken earlier and more effective action. [2.6.1]
9. *Strilmøy* did not take any action to avoid collision, until it was too late. [2.6.2]
10. Detailed instructions concerning actions in fog, calling the master, and the requirements for bridge watchkeepers had not been produced and made available on board *Strilmøy* before the collision. [2.8]

SECTION 4 - ACTION TAKEN

4.1 SIMON MØKSTER SHIPPING AS

1. ISM procedure concerning bridge operations has been updated to ensure that:
 - the OOW informs the master of reduced visibility;
 - the requirements for duty operations are emphasised;
 - the routine for handing over the watch is formalised; and
 - the requirements with regard to the active use of radar are implemented.
2. Company circular letters have been sent to all vessels, announcing the implementation of the updated procedure, and stressing the routines for bridge watchkeeping operations. A management team is to present this campaign on board all vessels.
3. A personal letter has been sent to all masters in the fleet reminding them of their responsibilities to ensure the correct watch handover procedure is being carried out.
4. Has established a campaign to improve attitudes to rules and watchkeeping.
5. A dedicated book has been issued for documenting night standing orders.

4.2 PREVIOUS RECOMMENDATIONS BY MAIB

Thirteen safety recommendations have been made by the MAIB since January 2004 for accidents involving collisions between vessels. These are listed at **Annex 1**.

SECTION 5 - RECOMMENDATION

2006/177 **The International Chamber of Shipping and The International**
2006/178 **Support Vessel Owners' Association** are recommended to:

Highlight to their national shipowner associations and member companies that this is another accident that could have been prevented had:

- An effective visual lookout been maintained at all times.
- The functionality of radar and ARPA been fully utilised so that the risk of collision with detected objects could be established at an early stage.

Shipowners should be encouraged to review written procedures on lookout and the use of radar and be reminded that shipboard auditing should provide sufficient evidence to verify that ship's staff are in compliance with its instructions. Consideration should be given to the use of VDR playback where available.

Marine Accident Investigation Branch
June 2006

Safety recommendations shall in no case create a presumption of blame or liability

Annex 1 MAIB Recommendations resulting from Collisions since Jan 2004

Number	Made to	Narrative
183/2005	ICS	Remind its members of the advice contained in ICS's <i>Bridge Procedures Guide</i> , particularly with regard to: taking early avoiding action, according to the COLREGS; the prudence of watchkeepers calling the vessel's master at an early stage in the development of a hazardous situation; the value of preparing and training for post collision actions necessary to establish the wellbeing of both vessels involved in a collision.
181/2005	Shipping company	Clarify instructions to its masters regarding: the flag state and STCW requirements on fitness for duty, particularly with regard to the provision of sufficient rest for the vessel's crew; the importance of officers and ratings sharing a watch being able to communicate in a common language; and the procedures to be followed in the event of a collision.
179/2005	Shipping Company	Clarify its instructions to masters regarding the STCW requirements on fitness for duty, particularly with regard to the provision of sufficient rest for the vessel's crew, and the procedures to be followed in the event of a collision.
178/2005	Shipping Company	Clarify its instructions and guidance to its masters and crews on: the use of collision regulations (rules 8a & 16); the use of VHF communications and sound signals in Collision avoidance; and the circumstances when a bridge watchkeeper should call the master.
171/2005	ICS	The ICS is recommended to highlight to its national shipowner associations the value of using the VDR replay to ensure that company instructions are being carried out at sea.
157/2005	Shipping Company	In consultation with the MCA, review the current safety management system, with the aim of developing and enhancing it to achieve voluntary compliance with the ISM code.

Number	Made to	Narrative
154/2005	ICS	<p>Highlight to its national shipowner associations that this is yet another accident which could have been prevented had a dedicated lookout been on the bridge during the hours of darkness. Further, to re-emphasise procedures as outlined in its publication Bridge Procedures Guide, with specific reference to:</p> <p>All available navigational equipment being used to its full potential</p> <p>Larger CPAs to be allowed for.</p>
231/2004	ICS	<p>To highlight to its shipping companies the need to stress the importance of realistic drills to ensure adherence to procedures and effective response in an emergency, and to fully test the roles of all personnel, including the master.</p>
230/2004	ICS	<p>To highlight to its shipping companies the need to reinforce the unacceptability of OOWs leaving the bridge when on watch, through a targeted regime of audit, direction, training and education</p>
172/2004	Fishing Vessel Skipper	<p>Keep a proper lookout as required under Rule 5 of the International Regulations for Preventing Collisions at Sea while fishing, and on passage to and from the fishing grounds</p>
171/2004	Shipping Company	<p>Arrange navigation watches such that at least one certificated officer is on the bridge at any time while the vessel is underway, and that the bridge is never left unattended.</p>
170/2004	Shipping Company	<p>Ensure that a lookout is posted at night in addition to the officer of the watch, in accordance with international regulations.</p>
169/2004	Shipping Company	<p>Keep a proper lookout at all times as required under Rule 5 of the International Regulations for Preventing Collision at Sea.</p>