Report on the investigation of

the grounding of

mfv *Lomur*

in the approaches to Scalloway, Shetland Islands

14 June 2001

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Extract from

The Merchant Shipping

(Accident Reporting and Investigation)

Regulations 1999

The fundamental purpose of investigating an accident under these Regulations is to determine its circumstances and the cause with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame.

CONTENTS

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

GPS	-	Global Positioning System
m	-	metres
MCA	-	Maritime and Coastguard Agency
mfv	-	Motor fishing vessel
MGN	-	Marine Guidance Note
MRSC		Maritime Rescue Sub-Centre
SVQ	-	Scottish Vocational Qualification
UK	-	United Kingdom
UTC	-	Universal Co-ordinated Time
VHF	-	Very High Frequency

SYNOPSIS

Lomur was entering the Middle Channel in the approaches to Scalloway, Shetland Islands, in the early morning of 14 June 2001, to land her catch. At 0635, she ran aground. The skipper, who was on watch in the wheelhouse, had fallen asleep and the course was not adjusted to keep the vessel in the channel. The watch alarm was working, but the skipper fell asleep almost immediately after it had been reset.

Maritime Rescue Sub-Centre (MRSC) Shetland reported the accident to the MAIB by telex at 0832 UTC on 14 June, and an investigation started later that day.

It is considered that several factors caused the skipper to fall asleep:

- He had slept for only 7 hours in the previous 3 days.
- He was alone in the wheelhouse.
- Wheelhouse practices and ergonomics allowed him to remain seated while carrying out his watch, including resetting the watch alarm. This kept him inactive.

The skipper's lack of sleep was largely the result of the vessel having a crew of only three, and fishing close inshore with tows of short duration.

Recommendations to the owner are aimed at ensuring *Lomur* is sufficiently manned so she can operate safely in varying conditions, and at eliminating the factors which can turn fatigue into sleep.

A recommendation to the MCA is aimed at clarifying the guidance provided to fishing vessels with respect to risk assessment.

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *LOMUR* AND ACCIDENT

Vessel details

Registered owner	:	Lomur Fishing
Port of registry	:	Lerwick
Flag	:	UK
Type	:	Fishing
Built	:	Johan Drage AS, Rognan
Construction	:	Steel
Registered length	:	23.19m
Length overall	:	25.80m
Gross tonnage	:	175
Engine type	:	Oil engine

Accident details

Time and date	:	0635(UTC-1) 14 June 2001
Location of incident	:	60° 08.7N 001° 21.44W Hoe Skerry, 2 miles west of Scalloway, Shetland Islands
Persons on board	:	Three
Injuries/fatalities	:	None
Damage	:	Buckled hull plating

1.2 BACKGROUND INFORMATION

Lomur was purchased in 1996 by Lomur Fishing, a company co-owned by three fishermen, one of whom was the skipper at the time of the grounding. The remaining co-owners also worked on the vessel as skipper and engineer, but were not on board on this occasion. The vessel had been painted in Peterhead between 23 May and 2 June 2001 and, after loading her nets in Lerwick, she sailed for the fishing grounds on 5 June. She landed her catch in Scalloway on 10 June, then sailed the next day for the fishing grounds west of Eshaness. However, following the receipt of reports that fishing was good closer inshore, the skipper changed his plan and headed for the fishing grounds in the vicinity of the Foula Shoal instead. *Lomur* grounded on 14 June 2001 while returning to Scalloway to land 90 boxes of fish.

1.3 NARRATIVE

All times are UTC-1 and all courses are true.

Lomur hauled her nets at 0530 on 14 June 2001 and started a 16-mile passage towards Scalloway from a position to the west of Vaila. Course was about 130° at a speed of 9 knots **(Figure 1)**, and steering was by autopilot. The skipper was on watch in the wheelhouse and read several telex messages before sitting in the starboard wheelhouse chair at about 0540. The remaining crew worked the fish until about 0600, then joined the skipper in the wheelhouse to discuss fish tallies and to smoke cigarettes. Several minutes later, the deckhand went to bed, and the engineer went down below to check the engines. He then drank a cup of coffee in the mess room. Alone again in the wheelhouse, the skipper called the fish market in Scalloway via mobile telephone for about 5 minutes to advise them of the catch he would be landing that morning.

At about 0610, the vessel passed Skelda Ness and altered course to port, to head towards the entrance to the Middle Channel. Course was now about 090°. About 20 minutes later, as *Lomur* passed the northern point of the Cheynies, course was adjusted several degrees to starboard to enter the Middle Channel, and the watch alarm was reset. The skipper remained seated and kept the vessel in autopilot during both of these alterations and, soon after the second, he fell asleep. *Lomur* continued on the course set on the autopilot until she grounded on Hoe Skerry at about 0635. The skipper was woken by the noise of the vessel grounding, and was thrown from his chair. Immediately, he put the pitch control to zero on the aft control position, then applied 60%-70% pitch astern. As this had no effect, and *Lomur* remained firmly aground, the engine was then taken out of gear **(Figure 2)**.

The skipper contacted several other fishing vessels in the area, including *Donvale II* and *Tussan,* which closed to assist. *Tussan* passed a line between *Lomur* and *Donvale II,* which made three unsuccessful attempts to pull *Lomur* clear of Hoe Skerry. The tow-rope parted twice and, on the third occasion, one of *Donvale II*'s staghorns, to which a tow wire had been secured, failed. The

coastguard was alerted at 0806 by a telephone call from *Lomur's* agents, Westside Fishermen. As communications could not be established via VHF radio with any of the fishing vessels off Scalloway, a helicopter was activated and the Aith lifeboat launched. *Lomur* was successfully pulled clear of Hoe Skerry by the fishing vessels *Sunbeam* and *Donvale II* at 1545, and towed to Scalloway. The coastguard helicopter confirmed there had been no pollution.

Figure 1

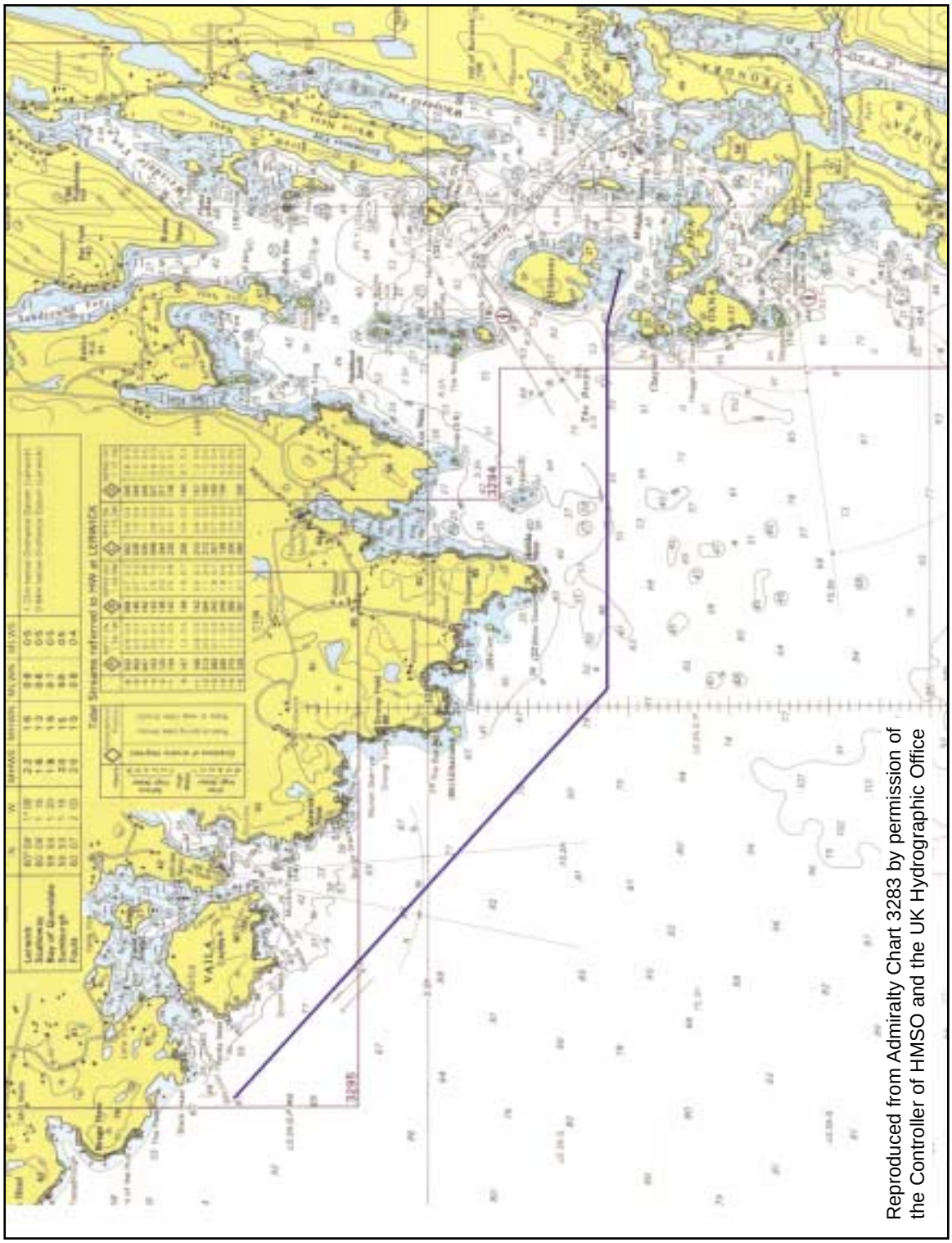


Chart showing the approximate tracks of *Lomur*

Figure 2

Lomur aground on Hoe Skerry

1.4 THE CREW

The crew of three comprised the skipper, an engineer, and a deckhand; all had completed the mandatory sea survival, first-aid, and fire-fighting courses. The skipper had been a fisherman for 11 years and had always served in Shetland-registered vessels. He was awarded a Deck Officer Certificate of Competency (Fishing Vessel) Class 2 in 1994 and a Deck Officer Certificate of Competency (Fishing Vessel) Class 1 in 1996, and was very familiar with the waters around Shetland, including Scalloway. The skipper had not consumed any alcohol since 1 June, and had taken no drugs or medication.

The engineer, who also worked as a deckhand, had been a fisherman for about 10 years, had served on *Lomur* for the last three, and frequently kept watches in the wheelhouse. The deckhand was 17 years old and had been at sea for about a year. He was studying for an SVQ Level 2 and joined *Lomur* for the first time before sailing on 11 June.

The vessel operated with two crews, which usually alternated every 7 days (6 days fishing) with the changeover usually occurring on Thursdays. Routines of this type are believed to have become commonplace among fishermen in the Shetlands over 20 years ago to compete with the working patterns offered by the oil industry in Sullom Voe. On this occasion, however, the skipper and engineer had been on the vessel for 12 days, having joined on 2 June. A fourth deckhand had been employed frequently until about 1998, particularly when

fishing inshore. Since then, however, the vessel had been unable to employ extra crew and operated primarily offshore with a crew of three. The reasons for the difficulty experienced in recruiting a fourth deckhand are not known, but may be related to the increased availability of employment opportunities in aqua-culture and the offshore oil industry in the area. This was the first time in three years the vessel had concentrated on fishing inshore and, realising the vessel was short-handed, the skipper intended to ask one of the off-crew to join *Lomur* when landing her catch in Scalloway.

1.5 ENVIROMENTAL CONDITIONS

Sunrise was at 0342 and visibility was 3 to 5 miles in haze. The wind was a light northerly breeze about force 1 to 2, and the sea state was slight. High water at Scalloway was 0312 and low water was at 0902. The predicted height of tide at the time of grounding was 0.95m. It was neap tides and tidal stream was negligible.

1.6 FISHING ROUTINES/ SLEEP PATTERNS

From first shooting the nets on the night of 11 June 2001, until hauling on the morning of 14 June, *Lomur* regularly fished within 3 miles of the shore. About 12 other vessels were also operating in her vicinity.

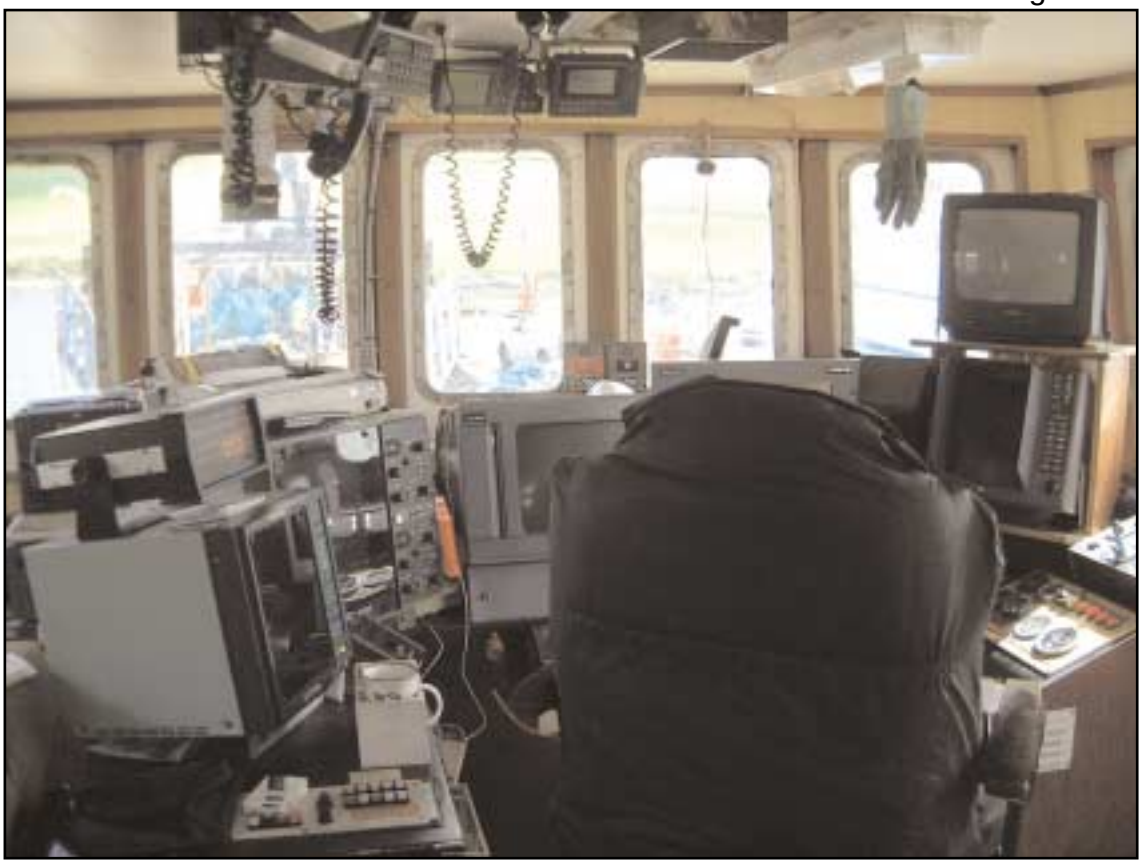
From 11 to14 June, the fishing gear was shot and hauled on ten occasions with the duration of the tow lasting between 2.5 and 7 hours. The skipper spent much of the time in the wheelhouse and managed only 7 hours sleep from getting up on 11 June until falling asleep at about 0630 on 14 June. This sleep had been taken in one period of 3 hours, and two periods of 2 hours.

1.7 WHEELHOUSE EQUIPMENT AND LAYOUT

The navigation equipment fitted in the wheelhouse included: a Furuno radar, two Fishmaster video plotters, two GPS receivers, a Koden echo sounder, an autopilot, and a watch alarm. The watch alarm had to be reset every 10 minutes, but was not integral to the autopilot and could be disabled by the use of a switch. The wheelhouse had a chair fitted either side of the centre line, but nearly all of the wheelhouse equipment, including the watch alarm, engine controls and instrumentation, was located around the starboard chair in a cockpit-like configuration **(Figure 3)**. An aft-facing engine control console was also fitted. Recreational electronic equipment fitted in the wheelhouse included a television and a radio-cassette player, neither of which were in use at the time of grounding.

Following the grounding, the watch alarm was replaced with an alarm with a 3-minute interval, although it was still not integral to the autopilot.

Figure 3



Lomur - photograph of the inside of the wheelhouse

1.8 NAVIGATION

The passage from the Foula Shoal to Scalloway was conducted by eye. Paper charts were available, but no tracks were plotted and, although tracks had been input into the video plotters, neither was used. The radar was operating but also was not used.

Middle Channel is one of three approach channels to Scalloway, the others being the North and South Channels. The following extract from *North Coast of Scotland Pilot* refers to the Middle Channel:

This channel is much encumbered by dangers, and as its use cannot be recommended without local knowledge, and extreme caution, directions for it are not given.

It was the usual practice for the skipper to keep the wheelhouse watch for entry to and departure from all harbours, and for an additional person to accompany him.

1.9 CREW SIZE

Merchant ships are required to be manned at, or above, a level determined by their flag states. This minimum level of manning is detailed on a ship's safe manning certificate. Corresponding regulations, however, do not apply to fishing vessels.

1.10 MARINE GUIDANCE NOTES (MGN)

Although the skipper was aware that the MCA issued MGNs to the owners, operators, skippers and crews of fishing vessels, none of the following were held on board.

1.10.1 Keeping a safe navigational watch on fishing vessels

Regarding fitness for duty, MGN 84 (F) states:

Both the skipper and the watchkeepers should take full account of the quality and quantity of rest taken when determining fitness for duty. Particular dangers exist when the watchkeeper is alone. It is all too easy to fall asleep, especially while sitting down in an enclosed wheelhouse. Watchkeepers should ensure they remain alert by moving around frequently, and ensuring good ventilation.

1.10.2 Risk assessment

The Merchant Shipping and Fishing Vessels (Health and Safety) Regulations 1997 came into force on 31 March 1998 and are applicable to all United Kingdom ships, including fishing vessels. Guidance on the application of these regulations is provided in MGN 20 (M+F), which highlights the requirements for employers to conduct risk assessments and states:

..it is the duty of employers to protect the health and safety of workers and others affected by their activities so far as is reasonably practicable.

Among the principles for ensuring health and safety highlighted in the MGN is:

adoption of work patterns and procedures which take into account the capacity of the individual…..

Also included in the detailed guidance on thoroughness of a risk assessment, however, is:

Regulation 7(1) requires that a suitable and sufficient assessment be made of the risks to the health and safety of workers arising in the normal course of their duties. This requirement to assess risk relates only to risks which arise directly from the work activity being undertaken and which have potential to harm the person(s) actually undertaking that work, or who may be directly affected by that work. The requirement to assess risk does not extend to any consequential peril to the ship resulting from the particular work activity, nor to any external hazards which may imperil the ship, either of which may cause harm to those on board or to others. These aspects are covered by other regulations.

At the time of the grounding, Lomur Fishing had not conducted a risk assessment for the activities undertaken in *Lomur.*

SECTION 2 - ANALYSIS

2.1 CAUSES OF FATIGUE

2.1.1 General

As the skipper had only managed about 7 hours sleep, taken in three separate periods, during the 3 days before the grounding, it is almost certain that he fell asleep while on watch in the wheelhouse, through fatigue caused by inadequate rest. Disrupted sleeping patterns, and lack of sleep while trawling, are common and recognised causes of fatigue among fishermen. On this occasion, the problem was exacerbated by fishing inshore, the duration of the tows, and by operating with a crew of three, one of whom was very inexperienced.

2.1.2 Inshore fishing

Fishing skippers usually take the wheelhouse watch when entering and leaving port, shooting and hauling the fishing gear, and when the rest of the crew are employed handling the fish. At other times, such as when on passage and when towing, the watches in the wheelhouse are divided among the crew, particularly when operating in open water with low traffic density. This allows skippers to take rest periods, albeit of a short duration. When towing close inshore, however, the opportunities for skippers to take rest periods can be considerably reduced. This is because of the increased number of vessels usually encountered, the close proximity to navigational dangers, and the increased risk of fasteners, which generally require the skipper's knowledge and experience in the wheelhouse. On this occasion, the skipper's apparent reluctance to leave the wheelhouse, when fishing in the vicinity of the Foula Shoal with many other vessels, was, therefore, understandable but significantly reduced his opportunities to rest.

2.1.3 Duration of tows

Several of the tows lasted only 2.5 hours and, while this might have helped to improve the quality of the fish, the opportunities for the skipper to leave the wheelhouse and take rest would have been reduced further. During a tow lasting about 7 hours, the fish processing is usually completed in sufficient time for the skipper to be relieved in the wheelhouse and get a reasonable amount of rest before he is required in the wheelhouse for the next haul. As the duration of the tow is reduced, however, the period between the completion of the fish processing, and hauling, becomes shorter until it is no longer feasible for the skipper to be relieved and take rest.

2.1.4 Crew size and experience

However, the skipper might have been prepared to leave the wheelhouse and rest more frequently had additional experienced crew been available to share the wheelhouse watches while towing. As the deckhand was on his first trip, it

would have been inappropriate and unsafe to allow him to keep a wheelhouse watch alone. Therefore, the engineer was the only suitably experienced person available whom the skipper trusted in the wheelhouse. The skipper was aware, however, because the engineer was also working on deck, his opportunities to rest would also have been reduced considerably if he was expected to share the watchkeeping duties.

2.2 PREVENTION OF FATIGUE

In recent years, the size of crews on fishing vessels has noticeably reduced. About 5 to 10 years ago it would have been common for a vessel of *Lomur'*s size to have a crew of five or six. This reduction has chiefly been caused by one or a number of the following: improvements in equipment, difficulties in recruitment, and commercial pressure resulting from worsening economic conditions in the fishing industry. In the absence of regulations requiring prescriptive manning levels of fishing vessels, similar to that applying to merchant ships, the responsibility for ensuring that vessels are manned at levels at which they can not only catch fish, but also be operated safely, lies primarily with the owners and skippers. To determine the size of crew appropriate for a vessel, owners and skippers must, therefore, consider several factors including:

- a vessel's size, activity, area of operation, equipment, and working patterns;
- the availability and experience of crew;
- any risk assessment conducted; and
- financial considerations.

Because many of these factors are variable, a change in one or more will inevitably require an adjustment to the others, if a safe operation is to be maintained.

It is evident in this case that, while fishing 24 hours a day for 3 days, close to the shore, and with tows of a short duration, *Lomur'*s crew of three was insufficient to combat the risk of fatigue. The skipper was unable to take adequate rest periods, and his intention to ask one of the off-crew to join while the vessel was in Scalloway, was recognition of this. It is, therefore, concluded that *Lomur* was inadequately manned for the pattern and duration of work she was conducting. It is also possible that a crew of three would have been insufficient to deal with some emergencies and that, even if she had been operating offshore, the risk of fatigue might have increased the longer the vessel remained at sea. Therefore, it is considered that when operating *Lomur* under similar conditions to those between 11 to 14 June, and possibly when operating offshore for prolonged periods, the number of crew needs to be increased. In view of the reported shortage of fishermen in the Shetland Islands, which led Lomur Fishing to be unable to recruit a fourth hand, an adequate level of manning might only be achieved if the owner revises its current two-crew system.

2.3 COUNTERING FATIGUE

2.3.1 General

Given the skipper's lack of sleep, it is not surprising that he was tired, but tiredness alone does not cause a person to fall asleep. Other preconditions are also required. The skipper was alone in the wheelhouse on a calm summer morning, sitting on a chair within reach of all key equipment, and with the steady throb of the engine being the only noise. He was also navigating by eye in very familiar waters, and steering by autopilot. Such an environment encouraged inactivity and undoubtedly caused the skipper to feel comfortable and relaxed and, therefore, more likely to succumb to the effects of fatigue, and to fall asleep. Had the guidance provided in MGN 84(F) been readily available and followed, this might not have been the case. Ensuring wheelhouse watchkeepers are properly rested is one way of reducing the risk of fatigue, but other actions, including those stated in the MGN, are also required.

2.3.2 Wheelhouse manning

Although it was usual practice for the skipper to be accompanied in the wheelhouse when entering and leaving harbour, this was not the case on this occasion. As the engineer was in the mess room drinking a cup of coffee when the vessel grounded, it is concluded that the practice was one of routine, rather than a requirement. Had the engineer also been in the wheelhouse, his presence might have either raised the skipper's alertness and prevented him from falling asleep, or at least alerted the sleeping skipper as the vessel neared Hoe Skerry.

2.3.3 Watch alarm

A useful function of watch alarms is that since they must be reset at a regular interval, they can help keep a watchkeeper awake. This becomes more effective the further the watchkeeper has to move from a wheelhouse chair to do this. In this case, when the skipper reset the watch alarm at 0630, he barely had to move, and fell asleep almost immediately after. Had the skipper needed to move from his chair to reset the watch alarm, it is possible this activity might have prevented him from falling asleep when he did.

A major function of a watch alarm, is to wake a sleeping watchkeeper. To be effective, however, this must be done in sufficient time to allow action to avoid an accident. It follows, therefore, that the interval set on a watch alarm needs to be commensurate with traffic density and the proximity of navigational dangers. In this case, with *Lomur* on passage through confined waters, the watch alarm did not wake the skipper in time to take action to avoid Hoe Skerry because it was set at a 10-minute interval. The subsequent fitting of a watch alarm with a 3-minute interval is, therefore, considered to be prudent.

2.3.4 Staying active

A tired watchkeeper who is sitting down with little to do, is more likely to fall asleep than one who is busy. The skipper's decisions to navigate by eye, and to remain in autopilot, contributed to his inactivity. Although navigation by eye through the Middle Channel was reasonable, in view of the sea and weather conditions and the skipper's local knowledge of the waters, the use of electronic aids to navigation would have been beneficial. Not only would they have provided a check on the skipper's visual assessment, they would also have given him more to think about and so helped to keep him more alert.

A lesser reliance on the autopilot would also have been advantageous. Had the skipper chosen to change to manual steering for the course alterations before the grounding, such action would have been navigationally prudent in confined waters, and demanded a greater degree of concentration from the skipper.

2.4 RISK ASSESSMENT

A realistic calculation of the number of crew required to safely operate a fishing vessel in varying circumstances, can only be achieved through a comprehensive risk assessment for the various onboard activities. This should take into account work patterns and the capacities of individuals, and consideration of the dangers of fatigue outlined in MGN 84(F). This had not been conducted at the time of the grounding.

Even if a risk assessment had been made in accordance with the guidance provided in MGN 20 (M+F), its effectiveness in highlighting the risk of grounding through fatigue, and prompting appropriate measures to be taken to reduce the risk, is questionable. This is because the MGN specifically excludes the need for a risk assessment on hazards which imperil the ship, which are "*covered by other regulations"*. While this may be true for merchant vessels, where the risks caused by fatigue are tackled by regulations covering manning and work/rest periods, it is not true for fishing vessels.

The skipper's decision to fish inshore, where good fishing had been reported, rather than offshore as planned, was understandable, but highlights the need for risk assessment to be a continuous process. Had the skipper fully considered the effects of his change of plan, the increased risk of fatigue could have been anticipated, and measures to reduce or counter the risk taken.

SECTION 3 - CONCLUSIONS

3.1 FINDINGS

1. *Lomur* grounded on Hoe Skerry, in the approaches to Scalloway at about 0635 on 14 June 2001 while returning to Scalloway to land her catch. [1.2,1.3]

2. The vessel had been fishing in the vicinity of the Foula Shoal since 11 June 2001. [1.3]

3. It was daylight and visibility was 3 to 5 miles in haze. The sea was slight. [1.5]

4. She grounded on a falling tide and could not be refloated until 1545 in the afternoon. [1.3,1.5]

5. The crew of three comprised the skipper, an engineer, and a deckhand. [1.4]

6. The skipper was the only person in the wheelhouse when the vessel grounded. [1.3]

7. Navigation was conducted by eye; no tracks were drawn on a paper chart, and electronic aids were not used. [1.8]

8. The skipper was asleep from shortly after 0630 until the vessel grounded. [1.3]

9. The skipper had managed only 7 hours sleep from getting up on the morning of 11 June until falling asleep shortly after 0630 on 14 June. This sleep had been taken in three separate periods. [1.6]

10. The skipper fell asleep while seated in the starboard wheelhouse chair. [1.3]

11. The vessel was being steered by autopilot. [1.3]

12. The watch alarm was working correctly, was set to a 10-minute interval, and was reset by the skipper at about 0630. [1.3,1.7]

13. A risk assessment had not been conducted.[1.10.2]

14. Copies of relevant MGNs were not available on board. [1.10]

3.2 CAUSE

The skipper, who was alone on watch in the wheelhouse, fell asleep, and course was not adjusted to avoid Hoe Skerry. [1.3]

3.3 CONTRIBUTORY CAUSES

1. The need for the skipper to remain in the wheelhouse for much of the time while fishing in the vicinity of Foula Shoal significantly reduced his opportunities to rest. [2.1.2]

2. The short duration of several of the tows reduced the feasibility of the skipper being relieved in the wheelhouse between shooting and hauling the fishing gear. [2.1.3]

3. Only the engineer was suitably experienced to relieve the skipper in the wheelhouse and allow him to rest but, as he was working as a deckhand for much of the time, his opportunities to rest would also have been considerably reduced if he was expected to share the watchkeeping duties. [2.1.4]

4. *Lomur'*s crew of three was insufficient to combat the risks of fatigue when operating 24 hours per day, for 3 days, close to shore, and with tows of a short duration. [2.2]

5. Lomur Fishing had been unable to recruit a fourth hand. [1.4,2.2]

6. An accurate assessment of the number of crew required to operate the vessel safely was not possible without the completion of a comprehensive risk assessment. [2.2]

7. The guidance in MGN 84(F) was neither available, nor followed. [2.3.1]

8. Had the skipper been accompanied by another member of the crew, as was normal practice when entering harbour, the skipper might not have fallen asleep, or might have been woken in time to prevent the grounding. [2.3.2]

9. The watchkeeper could reset the watch alarm while remaining seated in the starboard wheelhouse chair. [2.3.3]

10. The period from when the skipper fell asleep, to the vessel grounding, fell within the 10-minute interval of the watch alarm. [2.3.3]

11. The skipper's navigation by eye while seated, and his reliance on the autopilot, contributed to his inactivity. [2.3.4]

3.4 OTHER FINDINGS

1. It is possible that a crew of three would have been insufficient to deal with some emergencies, and that, even if *Lomur* had been operating offshore, the risk of fatigue would possibly have increased, the longer the vessel remained at sea. [2.2]

2. MGN 20(M+F) excludes the need for a risk assessment on hazards which imperil the ship.[2.4]

SECTION 4 - RECOMMENDATIONS

The owner, Lomur Fishing is recommended to:

1. Determine the numbers and competence of crew required to safely operate *Lomur* in varying conditions and patterns of work.

2. Revise its two-crew system to provide extra manpower when required.

3. Conduct a comprehensive risk assessment of the vessel's activities.

4. Resite the watch alarm reset button, so that it is out of the wheelhouse watchkeeper's reach when he is seated in the wheelhouse chair.

5. Ensure all crew are familiar with the contents of all relevant Marine Guidance Notes.

6. Implement procedures to encourage watchkeepers to remain active while on watch and discourage them from sitting down for prolonged periods.

7. Require the skipper to be accompanied in the wheelhouse when entering or leaving harbour.

8. Ensure that manual steering is used when navigating in confined waters.

The Maritime and Coastguard Agency is recommended to:

9. Review and clarify the guidance provided in MGN 20(M+F) in respect to risk assessment on the safety of the vessel.

Marine Accident Investigation Branch
February 2002