Report of the investigation of a fatal accident to a

crew member on board

Solstice II (BF 56)

25 miles south-west of Rockall

13 May 2000

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

Report No 22/2001

Extract from

The Merchant Shipping

(Accident Reporting and Investigation)

Regulations 1999

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

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GLOSSARY OF ABBREVIATIONS

CCTV	Closed Circuit Television
kW	kilowatt
MGN	Marine Guidance Note
MRSC	Maritime Rescue Sub-Centre
SFIA	Sea Fish Industry Authority
UK	United Kingdom
UTC	Universal Co-ordinated Time

SYNOPSIS

While the 40m Banff-registered, twin rig trawler *Solstice II* was fishing the grounds off Rockall, a member of the crew was fatally injured.

The accident was notified to the MAIB (Marine Accident Investigation Branch) on 13 May 2000 and an investigation began that day.

Four members of the six-man crew were aft shooting the trawl. One was forward, operating the two port side sweep-line winches on the main working deck, while the skipper, in the wheelhouse, was operating the two starboard winches.

Once the double sweeps were clear of the winches, the skipper took control of all four, and continued shooting the single sweeps. The man who had been operating the port winches made his way aft, passing between the rotating winch drums to join his colleagues. As he did so, his arm caught in the space between the supporting upright and the flange of the rotating drum and he was dragged into the winch. His injuries were fatal.

A possible cause of the accident was the crewman losing his footing on the spare trawl, and being dragged into the winch by his arm while he was trying to prevent his fall. Factors that contributed to his death included the lack of safety guards fitted to the winches, the casualty placing himself in danger, and the inability of the skipper to operate both winches, and effectively monitor the actions of the crewman on deck. It was also found that the risk assessment was ineffective in that it did not reflect safe standard operating procedures specific to *Solstice II*.

Recommendations have been addressed to the skippers and owner of *Solstice II*, Mr D B Anderson (the person who carried out the risk assessment) and to the MCA. These can be seen in Section 4.

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *SOLSTICE II* AND ACCIDENT

Vessel details

Registered owner	:	Findon Fishing Company Ltd, Buckie, Banffshire
Agent	:	Denholm Fishselling Ltd, Buckie, Banffshire
Port of registry	:	Banff
Registration number	:	BF 56
Type	:	Fishing vessel stern trawler (Twin Rig)
Built	:	1998
Construction	:	Steel
Gross tonnage	:	611
Length overall	:	40m
Length registered	:	33.30m
Breadth	:	10.50m
Depth	:	7.23m
Propulsion	:	1250kW Mann B&W Alpha Diesel single screw bow thruster

Accident details

Time and date	:	Approx 0500 (UTC +1) 13 May 2000
Location of incident	:	57° 35’ North 014° 12’ West
Injuries	:	1 fatality
Damage	:	None

Figure 1 & 2 - *Solstice II*

1.2 DESCRIPTION OF THE VESSEL

Solstice II was built in 1998 for distant fishing grounds at the Ailsa-Troon shipyard.

Equipped for twin rig bottom trawling, she carried the latest technical equipment for catching and processing fresh fish. Her design incorporated many of the features common to a modern stern trawler, with two decks above the waterline and the wheelhouse set forward. The accommodation and galley were on the starboard side below the upper deck, with the fish processing area to port.

On the upper deck, a three-quarter length non-watertight shelter housed the two main split trawl winches. They were positioned amidships on the port and starboard sides.

In addition, six sweep-line winches were positioned forward. They were adjacent to each other in pairs, the first on the centre line as far forward as practicable, and the remaining two pairs set diagonally aft of the forward ones and along the port and starboard sides of the deck. The space between each pair of winches was approximately 0.7metre. The winches were used for hauling and storing the sweeps and part of the trawls. The area was well illuminated.

The port and starboard pairs of winches could be operated locally by controls situated immediately abaft them on each side. Each set of controls operated the two winches on that side. The operating positions were partly protected from the winches and fishing gear by steel channels approximately 1 metre high, and used to guide the sweeps and trawls along the deck. A tannoy communication system linked these positions to the wheelhouse.

In addition to these local controls, both sets of winches could be operated by dual controls in the wheelhouse and monitored by CCTV.

A hatchway at the port side operating position on deck led down via steps to the forward end of the fish processing area on the main deck. Aft of the fish processing area was a further set of steps, which led back to the upper deck.

Solstice II held a United Kingdom Fishing Vessel Certificate issued on 28 October 1998 which was valid until 1 June 2002.

1.3 BACKGROUND TO THE VOYAGE

Solstice II was built by her current owner and replaced a previous vessel called *Solstice I*.

The owner also owned *Audacious II*, and both vessels worked the fishing grounds off Rockall. Their catch was landed mainly at the port of Lochinver.

Solstice II operated with a six-man crew on trips that lasted approximately ten days. At the end of each trip they would be replaced by another crew, to work a rotational basis of one trip on and one trip off.

Until about six weeks before the accident, *Solstice II* had been operating with a seven-man crew on a basis of two trips on and one trip off. The rota was changed, and the manning reduced, to allow the crew more time ashore.

1.4 THE CREW

Under *The Fishing Vessels (Certification of Deck Officers and Engineer Officers) Regulations 1984,* the vessel was required to carry at least one holder of a Class 1 and one holder of a Class 2 Deck Officer Certificate of Competency (Fishing Vessel). In addition to this the vessel was required to carry at least one holder of a Class 1 and one holder of a Class 2 Engineer Officer Certificate of Competency (Fishing Vessel).

The skipper was an experienced fisherman and held a Class 1 Deck Officer Certificate of Competency (Fishing Vessel). He had been engaged as skipper in *Solstice II* since 1998.

The mate, also an experienced fisherman, held a Class 2 Deck Officer Certificate of Competency (Fishing Vessel). He had been engaged in *Solstice II* for two trips.

The engineer held a Class 1 Engineer Officer Certificate of Competency (Fishing Vessel). He had worked in the fishing industry on various vessels for 16 years, and had served in *Solstice II* for approximately 12 months.

The remainder of the crew, three deckhands, were all experienced fishermen and had been engaged on board the vessel for some time.

All six crewmen had completed basic training in sea survival, first-aid and fire-fighting.

1.5 SWEEP-LINE WINCH OPERATION (SHOOTING)

Each pair of sweep-line winches accommodated the sweeps and part of the headline and footrope from one trawl. When the fishing gear was aboard, in addition to any trawls on the net drums, three trawls were part laid out along the upper deck.

Only two of these trawls were used at any one time; leaving a spare on deck.

During the shooting operation two trawls were shot over the stern of the vessel, and the sweeps paid out from each set of winches. The sweeps were made up of a 30m long double section, which attached to the headline and footrope of each trawl, followed by a single section.

When the double sweeps were being shot it was necessary to monitor them in case they became twisted. With a seven-man crew, one man was stationed at each control position until the double sweeps were clear of the drums.

Once the sweeps were clear, the two men would inform the skipper. He, too, could tell when they were clear by looking from the aft end of the wheelhouse. The toe of the trawl going down the stern ramp, indicated the double sweeps were clear. He then took control of both pairs of winches from the wheelhouse, until the remainder of single sweeps had been shot. The crewmen knew when the skipper had control of the winches, as the control levers would give a slight 'kick'. Both men would then make their way aft to join the remainder of the crew while the single sweeps were being shot under the skipper's control.

With a six-man crew, only one man was stationed forward, normally operating the port winches. The skipper would operate the starboard side winches from the wheelhouse and monitor his operation by CCTV. The CCTV had been re-positioned to monitor the starboard side more effectively.

Once the crewman had finished operating the sweep-line winches he would make his way aft by first coming forward of the winches, then passing aft between them and over the spare trawl.

1.6 ENVIRONMENTAL CONDITIONS

The weather at the time of the incident was a south-easterly wind of force 3 to 4 with a low south-easterly swell. The visibility was moderate to good.

1.7 NARRATIVE OF EVENTS (Times are UTC + 1)

Solstice II sailed from Lochinver on 4 May 2000, bound for the fishing grounds off Rockall.

On arrival she began fishing, and continued to do so until the morning of 13 May.

At 0500 that day, the crew were in the process of shooting the fishing gear. Four crewmen were aft on the upper deck, shooting away the trawls, one crewman was forward on the port side operating the port sweep-line winches, and the skipper was in the wheelhouse operating the starboard side sweep-line winches. The skipper was monitoring his operation via the CCTV system.

Once the trawls were shot, the double sweeps were paid out. When the skipper saw the toe of the net going down the stern ramp he took control of both pairs of winches and began paying out the single sweeps.

When the trawls and sweeps were shot, both trawl doors were connected, ready for shooting the main trawl warps. By this time the crewman who had been operating the sweep-line winches normally would be aft. He was not, but his colleagues were not concerned, and attributed his absence to explainable reasons such as having gone to the toilet, or remaining forward repairing the spare trawl. The skipper was unaware whether the crewman was aft or not.

Although he could see the deck via CCTV, effectively his view was confined to the starboard side.

At about the same time, one of the crewmen who had been working aft went forward to heave the middle trawl further up the deck, and attend to the tail ends from the winches.

As he did so, he noticed someone's boots lying on the deck at the base of the inner port side winch. He called out, but got no reply. Realising there was something very wrong, he rushed to the wheelhouse and informed the skipper.

It soon became apparent that the crewman who had been working the port winches had been fatally injured. The nature of his injuries were synonymous with his arm being caught in the space between the supporting upright and the flange of the rotating drum and being dragged into the winch.

The skipper contacted MRSC Stornoway, informed them of the situation, and set course for Lochinver.

Solstice II arrived in Lochinver at approximately 0800 on 14 May 2000. A doctor, who had been called to the scene, pronounced the crewman dead. His body was then transferred ashore.

1.8 FISHERMEN AND SAFETY

Fishermen and Safety, a booklet published by the MCA, contains the following advice:

Fishing Dangers

- *Every type of fishing method has its own particular dangerous aspects and it is essential that crew members are made fully aware of all risks and dangers which they have to contend with. Various general risks and advice are given below:*

- *Before shooting or hauling make sure that all gear on the deck is stowed properly so that there is nothing to trip or fall over.*

- *Make sure the winch operator can see you and is aware of you before handling gear.*

- *Step back and give clear signals when you are ready for the winch to be operated.*

Winches, Haulers, Deck Cranes etc

Each year, at least one UK fisherman is killed by being caught in the winch or by other accidents with deck machinery.

Such accidents do not only happen with inexperienced fishermen; many experienced men, with years at sea, also suffer such accidents.

Fishing is a highly repetitive operation; shooting or hauling every few hours. The fishing operation soon becomes a highly practised routine with each man knowing exactly what to do and when.

Machinery is very unforgiving - treat it with respect.

- *A clear system of signals should be used to communicate with the operator.*
- *If you are operating a winch, or similar machinery, do not leave the controls until the task is complete and the winch is secure.*
- *The person at the controls must have a clear view of the operation and must be able to see that everyone involved is standing clear before operating the winch.* ***Do not assume that they are clear****.*

1.9 THE MERCHANT SHIPPING AND FISHING VESSELS (HEALTH AND SAFETY AT WORK) REGULATIONS 1997

The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, which came into force on 31 March 1998 require both employers and employees to carry out certain duties.

Advice about complying with the Regulations is given in *Marine Guidance Note MGN 20 (M + F)* entitled *Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997*.

Section 2 states:

Under the Regulations, 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. The principles for ensuring health and safety are:

(a) the avoidance of risks, which amongst other things includes the combating of risks at source and the replacement of dangerous practices, substances or equipment by non-dangerous or less dangerous practices, substances or equipment;

(b) the evaluation of unavoidable risks and the taking of action to reduce them;

(c) adoption of work patterns and procedures which take account of the capacity of the individual, especially in respect of the design of the workplace and the choice of work equipment, with a view to alleviating monotonous work and to reducing any consequent adverse effect on workers health and safety;

(d) adaptation of procedures to take account of new technology and other changes in working practices, equipment, the working environment and any other factors which may affect health and safety;

(e) adoption of a coherent approach to management of the vessel or undertaking, taking account of health and safety at every level of the organisation;

(f) giving collective protective measures priority over individual protective measures; and

(g) the provision of appropriate and relevant information and instruction for workers.

In addition Section 10, *Competent person; "protective and preventive services"* states:

The employer must appoint a competent person to take responsibility for health and safety, who will advise the employer on compliance with the regulations. If there is no one competent among existing workers, a competent person may be employed from outside the company, or the employer may "appoint" himself.

With regard to the duties of employees Section 17, *Duties of Workers* states:

Workers are required to:

(a) take reasonable care for their own health and safety and that of others on board who may be affected by their acts or omissions;

(b) co-operate with anyone else carrying out health and safety duties - including compliance with control measures identified during the employer's or company's evaluation of risk;

(c) report any identified serious hazards or deficiencies immediately to the appropriate officer or other authorised person;

(d) make proper use of plant and machinery, and treat any hazard to health or safety with due caution.

1.10 RISK ASSESSMENT

Advice on carrying out risk assessments is also given in *Marine Guidance Note MGN 20 (M + F)* entitled *Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997*.

Annex 1, *Risk Assessment* Section 3 *Principles of risk assessment* states:

3.1 A "risk assessment" is intended to be a careful examination of what, in the nature of operations, could cause harm, so that decisions can be made as to

whether enough precautions have been taken or whether more should be done to prevent harm. The aim is to minimise accidents and ill health on board ship.

3.2 The assessment should firstly identify the hazards that are present and then establish whether a hazard is significant and whether it is already covered by satisfactory precautions to control the risk, such as permits to work, restricted access, use of warning signs or personal protective equipment, including consideration of the likelihood of the failure of those precautions which are in place.

Section 5, *What should be assessed?* states:

5.1 The assessment should cover all risks arising from the work activities of workers on the ship. The assessment is not expected to cover risks which are not reasonably foreseeable.

5.2 Employers are advised to record the significant findings of their risk assessment. Risks which are found to be trivial, and where no further precautions are required, need not be recorded.

However, risks, which are deemed to be moderate to intolerable, require the introduction of control measures or the operation to be prohibited.

Section 8, *When to assess?* states:

8.1 Risk assessment should be seen as a continuous process. In practice, the risks in the workplace should be assessed before work begins on any task for which no valid risk assessment exists. An assessment must be reviewed and updated as necessary, to ensure that it reflects any significant changes of equipment or procedure.

1.11 RISK ASSESSMENT IMPLEMENTATION *(SOLSTICE II)*

The owner of *Solstice II* commissioned D B Anderson of Alford, Aberdeenshire, to carry out a risk assessment in accordance with the Regulations.

Mr Anderson had carried out several risk assessments for other fishing vessels, mainly on the north-east coast of Scotland. He made one visit to *Solstice II* some time during June 1999, when a different skipper was on board.

The skipper on board at the time of the accident could not recall Mr Anderson ever having been aboard the vessel, and there is no recollection of his having contact with any other members of the crew.

Mr Anderson did, however, consult with the skipper and brought a completed risk assessment file to his home. The skipper considered it and then put it on board the vessel.

Mr Anderson understood that the skipper was the competent person as required by the regulations. The skipper, however, understood that the mate at that time was the competent person. No discussion ever took place as to who was the competent person. The mate signed the cover sheet of the risk assessment, but never read it. Of the remaining crew at that time, four others signed it, including the deceased. By the time the accident occurred, a new mate had taken over.

At the time of the accident, two crew members, including the replacement mate, had never seen or even knew of the risk assessment. One crew member knew of its existence, but had never read it. None of them had ever been involved in any discussion regarding risk assessment.

Contained in the risk assessment file was a standard SFIA (Sea Fish Industry Authority) pro-forma risk assessment document, which had been completed by Mr Anderson. In addition to this, there was another risk assessment document which had been compiled and completed by Mr Anderson.

Both documents identified the majority of risks associated with the operation of fishing vessels, but neither was specific to *Solstice II.*

In the SFIA document, hazards associated with the operation of winches included unguarded winches and machinery, unguarded moving ropes and wires, and a winch operator not being able to see operations on deck. The consequences were identified as serious injury or death, and the risk was considered to be moderate. Suggested control measures were guards, when fitted, to be in place and maintained, personnel to keep clear of revolving winch drums and a second man to be used if the winch operator was unable to see.

In the other document, under the heading of *Steaming and Fishing,* hazards were identified in the operation of winches. The risk was deemed to be high and the control measures were as follows: winches will always be manned when in operation, and the crew must be visible to the winch operator at all times. Added to this statement was that cameras were to be used for this purpose.

The documents had a clear policy statement covering safety and its implementation on board the vessel. Both policies expressed the owner's intentions with regard to risk assessment; how to undertake it and review it, and crew members' obligations, contribution and comment.

However, the skipper and the crew had little knowledge of the health and safety regulations and the advice given in *MGN 20 (M + F)* concerning risk assessment. The owner knew there was a requirement for a risk assessment to be carried out in accordance with the regulations, but had no part in its implementation, apart from instructing Mr Anderson to carry it out.

1.12 ON-BOARD PROCEDURES

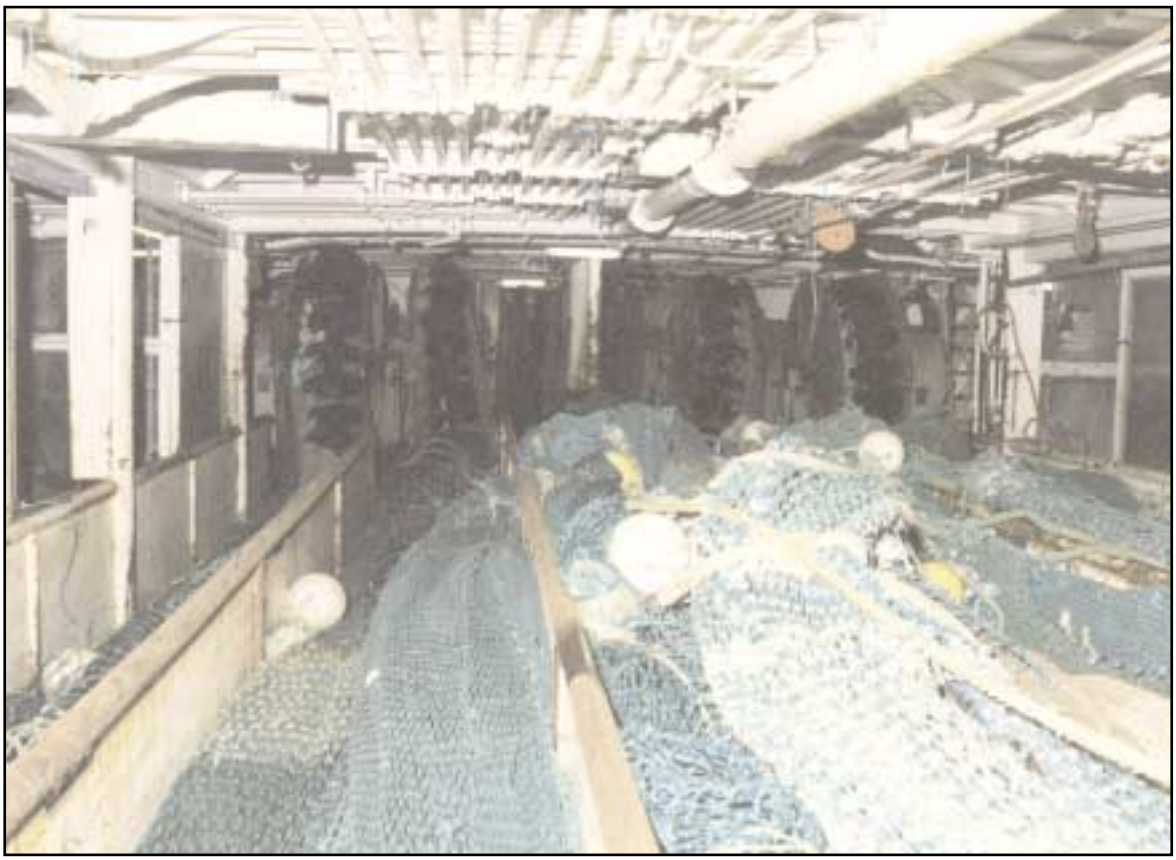
When the completed risk assessment was put on board, the skipper could not recall any changes being made to the way on-board procedures were carried out.

Nothing changed when the crew rotation system was altered or when the number of crew was changed from seven to six. No new risk assessment took place, and no changes were made to operational procedures.

Following the accident, one or two members of the crew expressed some concerns about the safety of operating the winches from the wheelhouse before all the crew had been accounted for aft. However, neither the skipper nor the owner had been notified of these concerns before the accident.

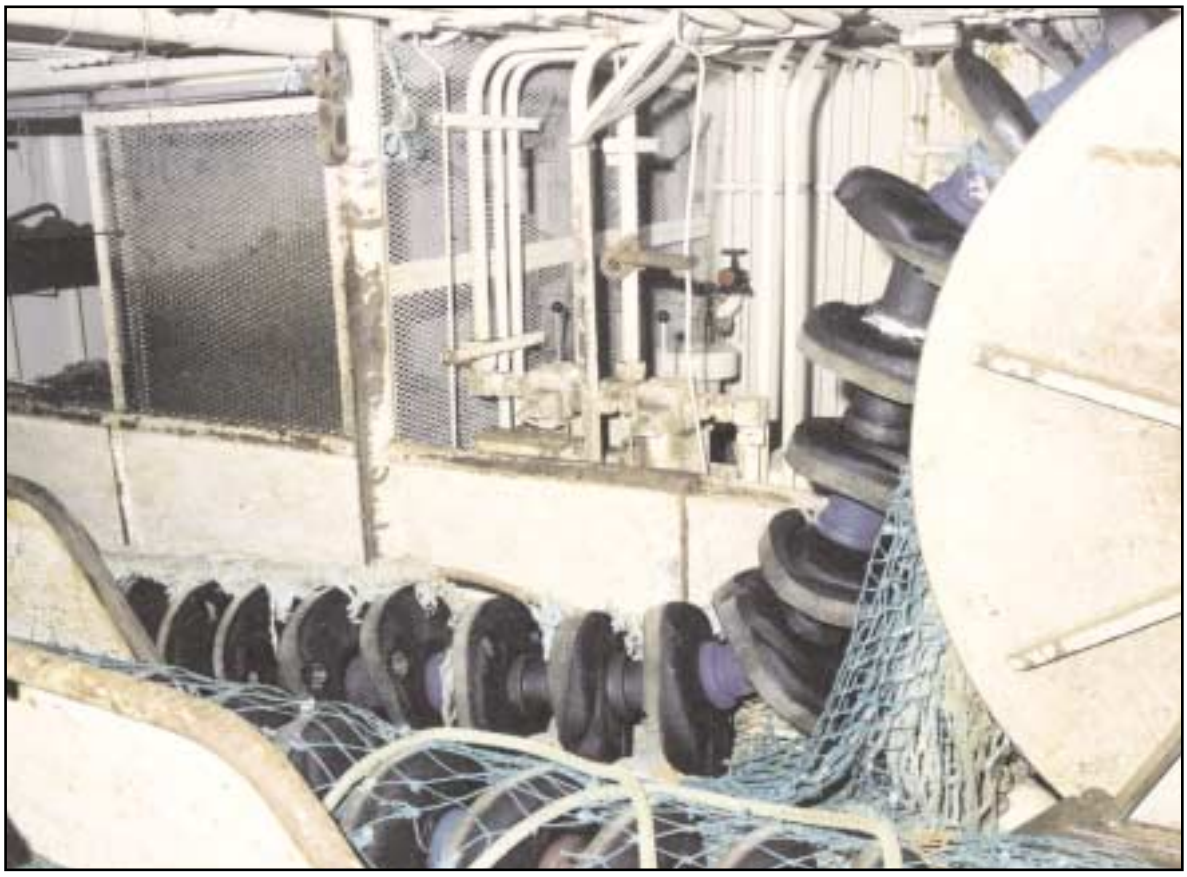
The skipper, who was aware that the crewmen operating the winches forward routinely made their way aft by passing between rotating winches, did not recognise that this might have been unsafe. It was a procedure that had been considered acceptable over a period of time.

Figure 3



Upper deck

Figure 4



Port side operating position

Figure 5

Inner port side sweep line winch

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 THE ACCIDENT (RECONSTRUCTION)

There were no eyewitnesses to the accident, but the evidence suggests that the crewman who was killed was in the process of making his way aft between the winches when he possibly lost his footing.

In an effort to prevent himself from falling, he possibly reached out for support with his arm, which then caught in the space between the supporting upright and the flange of the rotating winch drum. With nobody aware of what was happening, he was dragged into the winch.

The only tripping hazard on the deck at the time of the accident was the spare trawl. It is concluded therefore, that this was a possible cause of his fall. The spare trawl was stowed on the deck in its normal position. It was neither possible, nor practicable, to stow it elsewhere. The only option available to the casualty was to avoid walking over the trawl, and, had this been done, it is probable the accident would have been avoided.

2.3 ACTION BY THE CASUALTY

It was the normal practice for the crewmen who had been operating the sweep-line winches to make their way aft by passing between the rotating winches.

It was a practice that had been going on for some time without incident and, because of this, the crewmen did not consider it unsafe.

There was an alternative way of getting aft. It involved going below to the lower deck via the hatch and steps by the port side operating position, and then returning to the upper deck via a similar hatch aft. This alternative route was rarely used because it was far less convenient.

It was extremely dangerous for the crewman to make his way aft by passing between the winches when they were rotating. Had he not placed himself in danger by taking this route, as opposed to the alternative one, the accident would not have happened.

2.4 ACTION BY THE SKIPPER

As soon as the double sweeps had been shot, the skipper normally took control of the winches and began shooting the remainder of sweep while the winch operator made his way aft. With two crew working forward, there was always the provision for each man to keep an eye on the other. With one man working forward, there was not.

The skipper could not effectively monitor the port side of the deck because the CCTV had been repositioned to monitor the starboard winches.

When the number of crew was reduced from seven to six, it made an already dangerous situation worse. Not only was the provision for the crewmen to monitor each other lost, but the skipper was unable to monitor the port side effectively.

The only ways to effectively monitor the safety of the crewman making his way aft, was to ensure he used an alternative route, or to stop the winches until everybody was accounted for aft. This agrees with the advice given in *Fishermen and Safety.*

The skipper was unwise to continue operating the winches when he was unable to monitor the crewman, whom he knew would be making his way aft and past the rotating winch drums.

The risks would have been reduced had the skipper stopped the winches until such time as the crewman was known to have to have arrived safely aft. The delay involved would have been minimal.

2.5 ON-BOARD PROCEDURES

The risk assessment originally produced for *Solstice II*, identified a number of general hazards including the dangers of rotating winch drums. It had suggested appropriate control measures, but these had not been implemented in the form of specific safe standard operation procedures.

An effective ongoing risk assessment would have subsequently identified the additional hazard which a reduction in manning created.

Had the on-board procedures been changed to reflect specific safe standard operating procedures, the accident could have been avoided.

2.6 RISK ASSESSMENT (*SOLSTICE II*)

When the risk assessment was being carried out, there was insufficient consultation between Mr Anderson, the owner, the skipper and the crew.

The risk assessment produced for *Solstice II*, was more of a general assessment than one dedicated specifically to this particular vessel.

There was no consultation between Mr Anderson and the crew. When the assessment was put on board, some of the crew signed it, but there is no evidence to show they had either read or understood it. The others never signed it and nobody knew who the competent person was, or was supposed to be.

In addition, there was no safety management system in place to monitor the performance and, as a consequence, the risk assessment on board *Solstice II* was of little value.

For any risk assessment to be effective, safe standard operating procedures need to be ship specific, definitive, and most importantly, understood by those whom the risk assessment is meant to benefit.

2.7 FISHERMEN AND RISK ASSESSMENT

It is becoming apparent from MAIB investigations that many fishing vessels have not carried out a risk assessment and implemented safe standard operating procedures in accordance with *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997*.

Of those vessels which have complied, the crews often only have, at best, a basic understanding of the concept behind risk assessment, its implementation, operation and management.

As long as this situation remains, risk assessments will have little effect on the improvement of safety in the fishing industry.

In addition to the guidance given in *MGN 20 (M + F)* on the main elements of risk assessment and its implementation, an enhanced programme of education across the fishing industry would certainly benefit fishermen.

SECTION 3 - CONCLUSIONS

3.1 FINDINGS

.1 A risk assessment had been carried out for *Solstice II*. [1.11]

.2 The crewman was making his way aft between the winches when the accident happened. [2.2]

.3 The crewman possibly lost his footing on the spare trawl. [2.2]

.4 The crewman's arm caught in the space between the supporting upright and the flange of the rotating winch drum possibly when he reached out for support to prevent his fall. He was then dragged into the winch. [2.2]

.5 Passing between the winches to get aft was an unsafe practice, but had been going on for some time. [2.3]

.6 There was a safe alternative way of getting aft. [2.3]

.7 The crewman placed himself in immediate danger. [2.3]

.8 When the crew was reduced to six, the skipper was unable to effectively monitor a crewman moving aft. [2.4]

.9 An effective way to monitor the crewmen would have been to stop the winches until everybody was accounted for by sight, at the aft end of the vessel. [2.4]

.10 The skipper was unwise to continue operating the winches when he knew a crewman would be making his way aft along the deck. [2.4]

.11 The risks would have been reduced had the skipper stopped the winches until such time that the crewman was known to have arrived safely aft. [2.4]

.12 Although the risk assessment identified a number of general hazards and suggested appropriate control measures, these had not been implemented in the form of specific safe standard operating procedures. [2.5]

.13 An effective ongoing risk assessment would have subsequently identified the additional hazard which a reduction in manning created. [2.5]

.14 When the risk assessment was carried out, there was insufficient consultation between the parties involved. [2.6]

.15 The risk assessment which was produced for the vessel was not specific to *Solstice II.* [2.6]

.16 There was no recognised competent person. [2.6]

.17 There was no safety management system in place to monitor performance. [2.6]

.18 An enhanced programme of education in respect of risk assessment would be beneficial to all fishermen. [2.7]

3.2 CAUSE

A possible cause of the accident was the crewman losing his footing on the spare trawl and being dragged into the winch by his arm while he was trying to prevent his fall.

3.3 CONTRIBUTORY CAUSES

.1 The crewman placing himself in danger.

.2 The skipper operating the winches while being unable to monitor effectively the crewman on deck.

.3 An assumption by the skipper that all was clear.

.4 Possibly the tripping hazard on deck.

.5 Insufficient consultation between the parties involved regarding risk assessment.

.6 No recognised competent person.

.7 The lack of an effective ongoing risk assessment.

.8 The lack of specific safe standard operating procedures.

.9 Complacency of the crew in their acceptance of an unsafe procedure.

.10 No safety management system in place to monitor performance.

SECTION 4 - RECOMMENDATIONS

Interim recommendation, MAIB Safety Bulletin 2/2000 [issued June 2000]:

The owner of *Solstice II* is recommended to:

1. Ensure that control measures identified as a result of health and safety risk assessments for this or any other owned vessels are implemented, as appropriate, in the form of safe standard operating procedures specific for each vessel.

Further recommendations:

The skippers and owner of *Solstice II* are recommended to:

2. Review safe routes on board to ensure that no one passes between rotating winch drums.

3. Ensure that any on-board risk assessment is fully understood by the crew, and a competent person is appointed in accordance with *The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997*.

Mr D B Anderson is recommended to:

4. When carrying out future risk assessments for fishing vessels, endeavour to consult fully with the owner, skipper and crew in all aspects of the assessment.

5. Ensure that all future risk assessments carried out for a fishing vessel are specific to that vessel.

The Maritime and Coastguard Agency is recommended to:

6. Consider introducing an enhanced programme of education across the fishing industry in respect of risk assessment.

Marine Accident Investigation Branch
May 2001