Report on the investigation of the injury

to a fisherman on board

the fishing vessel

Olivia Jean TN 35

17nm SSE of Beachy Head in the English Channel

on 10 October 2009

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Grosvenor Square
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United Kingdom
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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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CONTENTS

Annex A	Report of the examination of *Olivia Jean* on 18 October 2009
Annex B	MCA SIAS Record for survey of *Olivia Jean* on 4 November 2009
Annex C	Stability Assessment of *Olivia Jean*, following the accident
Annex D	MAIB Safety Bulletin 1/2010
Annex E	Minutes of the FISG Health and Safety Group meeting held on 18 April 2007
Annex F	Merchant Shipping Notice 1786 (F)
Annex G	Facsimile dated 15 June 2007 from Olivia Jean Limited to the Maritime and Coastguard Agency
Annex H	Chief Inspector's letter to the Maritime and Coastguard Agency of 11 January 2006 listing issues identified during the MAIB investigation into the capsize and foundering of the fishing vessel *Harvest Hope*
Annex I	Maritime and Coastguard Agency - Over 24 metre fishing vessels survey/inspection aide-mémoire

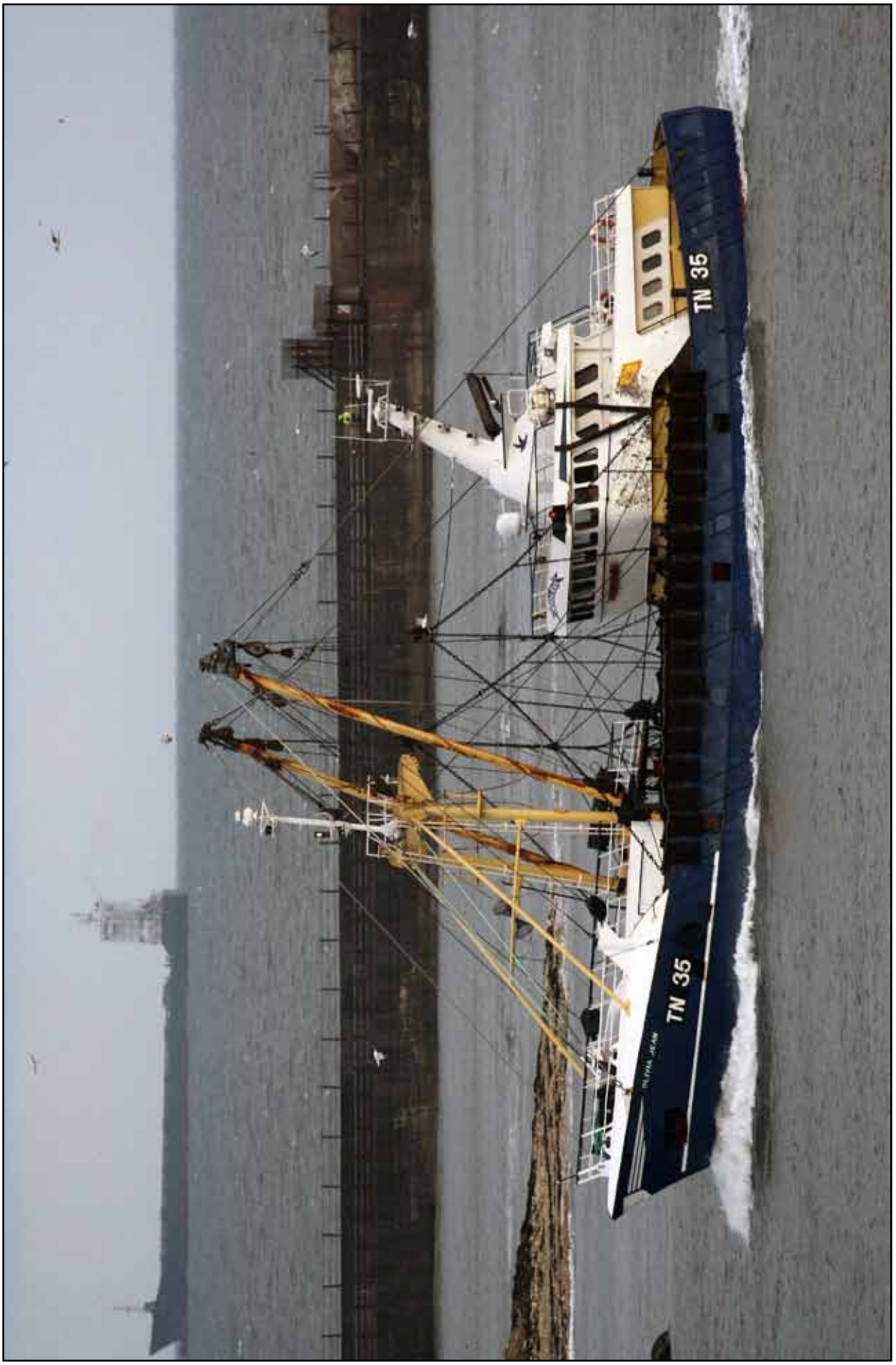
GLOSSARY OF ABBREVIATIONS, ACRONYMS AND TERMS

CM	-	consultative maritime files (MCA filing reference)
CoC	-	Certificate of Competency
COLREGS	-	The International Regulations for Avoiding Collisions at Sea, 1972 (as amended)
Defra	-	Department for Environment, Food and Rural Affairs
EU	-	European Union
FVC	-	Fishing Vessel Certificate
FISG	-	Fishing Industry Safety Group
HRUs	-	Hydrostatic Release Units
IFVC	-	International Fishing Vessel Certificate
kg	-	kilogram
kW	-	kilowatt
LOLER	-	The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006
m	-	metres
MCA	-	Maritime and Coastguard Agency
MD	-	Managing Director
MFA	-	Marine and Fisheries Agency
MGN	-	Marine Guidance Notice (issued by the MCA)
mm	-	millimetres
MOB	-	Manoverboard
MSIS	-	MCA guidance to surveyors
MSN	-	Merchant Shipping Notice (issued by the MCA)
nm	-	nautical miles
PUWER	-	The Merchant Shipping (Provision and Use of Work Equipment) Regulations 2006

RNLI	-	Royal National Lifeboat Institution
ScotNI	-	Scotland and Northern Ireland (MCA survey region)
Seafish	-	Sea Fish Industry Authority
SIAS	-	Ship Inspection and Survey (issued by the MCA)
STCW	-	The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (or STCW), 1978, as amended
TN	-	Identifier for fishing vessels registered in Troon
Trawl Beam	-	The main trawl beam, of which one is carried on each side, also known as a dredge beam or pole

Times: All times in this report are UTC + 1 unless otherwise stated

Image courtesy of Stan Laundon



Olivia Jean

SYNOPSIS

On 10 October 2009, a fisherman was injured by a falling bridle chain on board the fishing vessel *Olivia Jean* when the port side main trawl wire parted as the trawl beam was lifted inboard. The fisherman sustained chest injuries and was airlifted to hospital.

The wire was not adequately checked by the crew and it probably failed because it was worn and brittle. This was the second time that a crewman on board had been seriously injured as a result of a parting wire, and the fourth time that this vessel's trawl wires are known to have failed. An examination of *Olivia Jean* also found:

- Poorly maintained fishing equipment and no evidence of systematic planned maintenance.
- The vessel failed stability criteria for a number of structural reasons and was being operated in a manner that further reduced stability margins.
- Nine crewmen were on board, despite the vessel being limited to a maximum of six.
- Crew were working long hours, with few breaks.
- Documentation, records and evidence of risk assessment were missing.

From the state of the vessel, and the way in which it was being operated, it could be construed that the owner was showing a total disregard for the safety and welfare of his employees and share-fishermen on board.

Following the accident, the Maritime and Coastguard Agency (MCA) surveyed the vessel but still permitted her to sail in a condition that exceeded the limitations stated in her stability book. As a consequence, MAIB issued a Safety Bulletin which recommended the owner to immediately cease fishing operations on *Olivia Jean* until the vessel's stability could be verified and approved by the MCA.

The investigation found that previous action taken by the MCA following the foundering of *Harvest Hope* in 2005, and recommendations from the MAIB's analysis of UK Fishing Vessel Safety 1992 to 2006, had not been implemented effectively. Significant weaknesses in the MCA's administration of survey and inspections were evident, and its guidance to industry had diluted a number of safety regulations to the point that they were ineffective.

While safety remains the owner's responsibility, MAIB believes that deep rooted failings in the MCA's procedures require significant policy changes to improve fishing vessel occupational standards and to ensure the safety of fishermen.

A recommendation has been made to the owner of *Olivia Jean* to review the working practices on board his fleet, and to ensure that lessons are learned from this and previous accidents.

The MCA has been recommended to take into consideration the findings of this investigation when assisting the Department for Transport to address MAIB recommendation 2010/112 (MAIB report 6/2010).

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *OLIVIA JEAN* AND ACCIDENT

Vessel details

Registered owner	:	Olivia Jean Limited
Port of registry	:	Troon, Scotland
Flag	:	British
Official number	:	TN 35
Type	:	Fishing vessel >24m
Built	:	1980, at Maaskant Shipyard, Stellandam
Construction	:	Steel
Length overall	:	33.86m
Gross tonnage	:	242
Engine power and/or type	:	Stork Type 9 FCHD 240 - 739kW

Accident details

Time and date	:	10 October 2009
Location of incident	:	50º30'N 000º30'E, 17nm SSE of Beachy Head in the English Channel
Persons on board	:	9
Injuries/fatalities	:	One injured crewman

1.2 BACKGROUND

This accident was the second serious injury to occur on board *Olivia Jean* in less than 2 years. In November 2007 a crewman was injured when a main trawl wire parted and the trawl block fell on his left foot. He required several operations to save his foot, and has not returned to sea since. Both accidents involved fishing gear failing under load, and each had the potential to cause fatal injuries.

1.3 NARRATIVE

1.3.1 Voyage

At around 0600 on 8 October 2009, *Olivia Jean* departed Shoreham, on the English south coast, to return to fishing grounds in the Traffic Separation Scheme in the central English Channel. The scallop fishing in the area had been good and numerous fishing vessels were in the area, including three of the owner's other vessels.

Three hours later *Olivia Jean* arrived at the fishing grounds **(Figure 1)**, and at 0930 the crew shot the gear away for the first trawl of the voyage. The trawls were routinely towed for just under 2 hours before being hauled on board, the catch emptied and the gear shot away again. The catch was separated from any undersize scallops and detritus, bagged and then lowered into the hold.

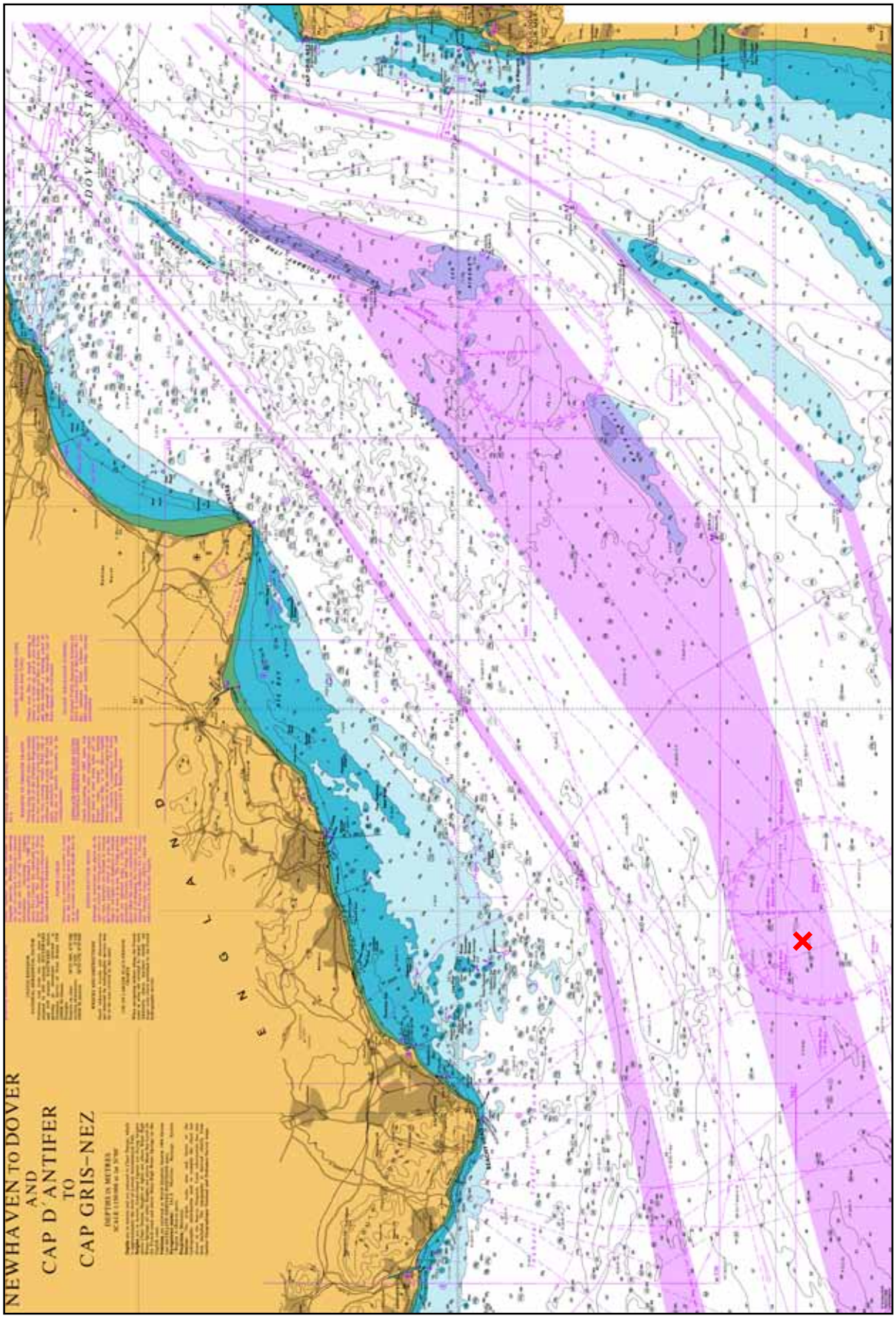
The fishing continued without a break throughout 8 and 9 October. At 0835 on 10 October the crew shot the trawl gear as usual. The weather was good, with clear skies, good visibility, and a Beaufort Force 2 north-west wind. At 1015, the recovery of the fishing gear started, and the men were called to deck by a buzzer that rang in the accommodation. The skipper was in the mess room and the mate was operating alone in the wheelhouse. The deck was manned initially by six fishermen: the senior crewman, three crewmen on the starboard side and two crewmen on the port side. A seventh man arrived on deck just as the accident occurred, to assist the port side crew.

The senior crewman on deck had a supervisory role and co-ordinated the recovery of the fishing gear. The starboard trawl gear was recovered first and the scallops landed onto the conveyor. The senior crewman then went to the port side to assist the two crewmen already there to recover the port trawl gear.

The port side trawl gear was recovered and the trawl beam (also known as the dredge beam or pole) was lifted clear of the water and turned through 90º to lie alongside the vessel. Short safety chains were made fast at both ends of the beam to hold it close to the vessel. The crewman at the forward end of the beam then climbed onto the conveyor belt and attached the Gilson wire to the tipping bar ready to tip the catch on to the conveyor **(Figure 2)**. When he had done this, he climbed down onto the deck.

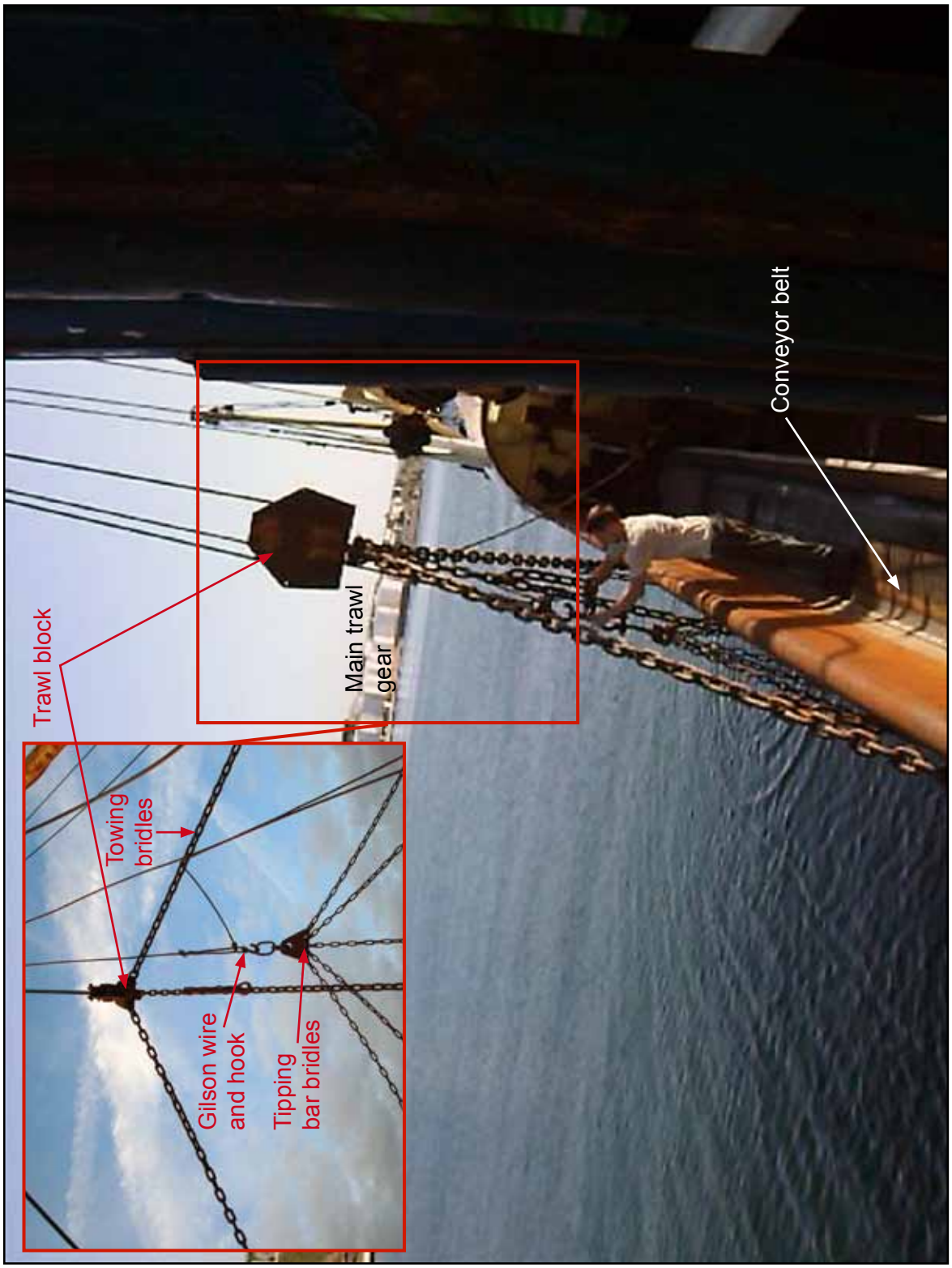
Reproduced from Admiralty Chart BA 2451 by permission of
the Controller of HMSO and the UK Hydrographic Office

Figure 1



Location of accident

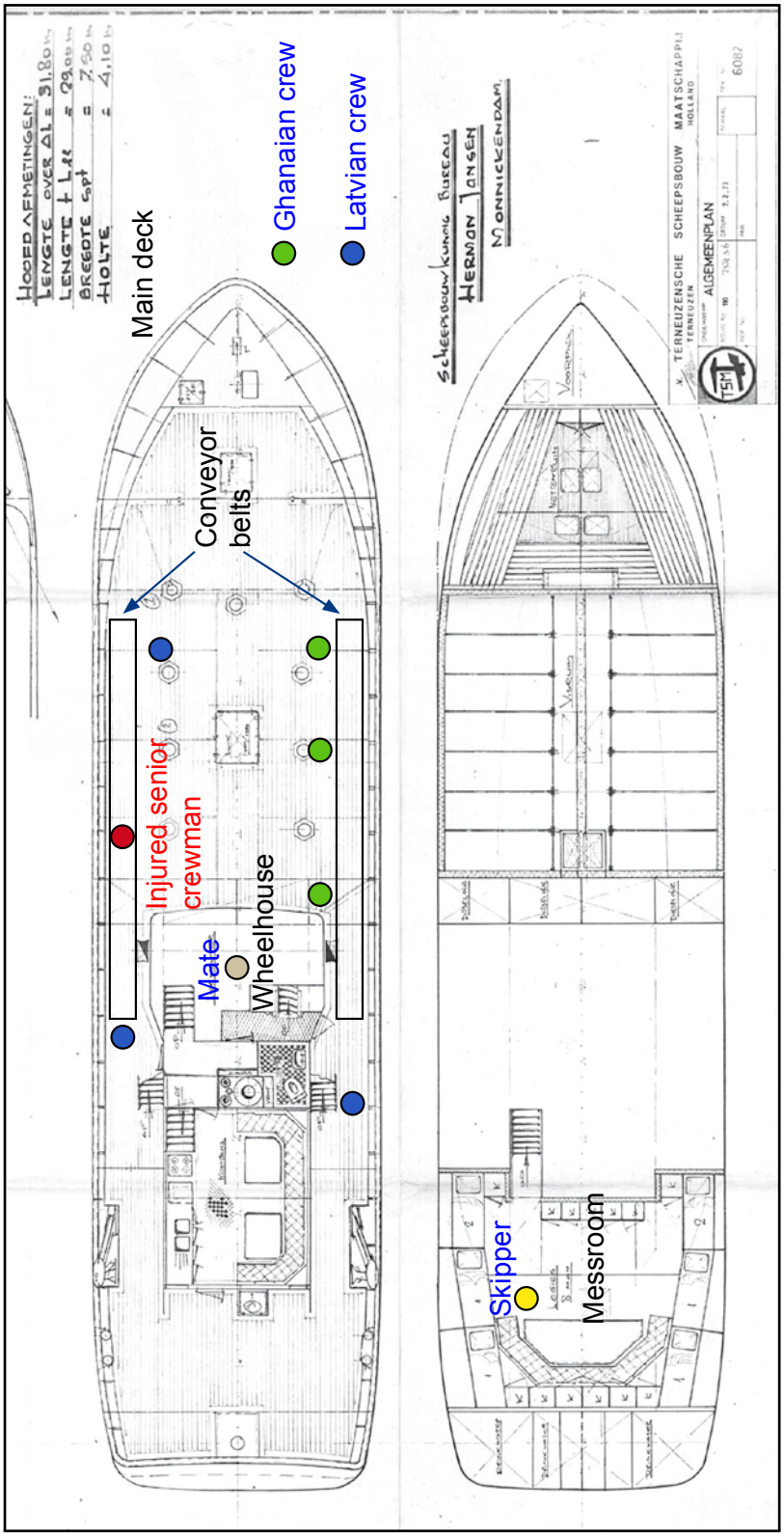
Figure 2


Trawl block
Towing bridles
Gilson wire and hook
Tipping bar bridles
Main trawl gear
Conveyor belt

1.3.2 Accident

At about 1020, the senior crewman climbed on to the conveyor belt, aft of the main trawl wire, to check the port gear before the catch was tipped out **(Figure 3)**.

Figure 3



In the wheelhouse, the mate heaved in the main trawl wire, which lifted the port trawl beam with its dredges full of scallops. As the beam came up and the safety chains came under tension, the main trawl wire parted. The main beam and tipping bar fell outboard but the safety chains prevented them from falling into the sea and being lost. The moving block of the purchase, known as the trawl block, and the bridle chains fell inboard. The senior crewman, standing on the conveyor with his back to the gear, was hit by the bridle chains on his left side and he fell to the deck. He was in considerable pain and had difficulty breathing.

From the wheelhouse, the mate contacted the company's managing director (MD) to discuss what action should be taken. The MD's son was on the fishing vessel *Mattanja* close by. He manoeuvred his vessel to assist *Olivia Jean*'s crew, and also phoned the MD to discuss what action should be taken as *Olivia Jean* altered course and headed back towards Beachy Head.

About an hour after the accident, at 1135, the mate contacted the coastguard and requested helicopter assistance. The coastguard established communication between a doctor and *Olivia Jean*'s mate. The doctor confirmed that, due to the apparent seriousness of the fisherman's injuries, immediate evacuation was necessary. At 1213 the Lee-on-the-Solent coastguard helicopter was tasked.

The senior crewman was transferred to a makeshift stretcher. The stretcher was then manhandled over the conveyor and broken fishing gear to the aft deck to await evacuation.

1.3.3 Evacuation

At 1231 the rescue helicopter was on-scene, and the injured crewman was lifted on board at 1235. During the flight to hospital the crewman was noted to be passing in and out of consciousness.

At 1300, the MAIB requested the coastguard to advise *Olivia Jean*'s skipper that the broken wire rope should be retained on board.

At 1326, the injured crewman was landed to Eastbourne General Hospital. The initial assessment was that he had suffered a possible spinal injury and a suspected punctured lung, but he was later diagnosed with broken ribs and heavy bruising to the left side of his chest.

At 1415, an MAIB inspector telephoned *Olivia Jean*'s mate and reiterated the requirement to retain the broken wire on board.

Olivia Jean arrived alongside in Shoreham at around 1800 that evening. At some time after the accident, and most likely after the boat arrived alongside, the broken ends of the failed main trawl wire were cut off and the wire was turned around end-for-end on its drum. Both ends of the parted wire were then thrown away.

1.3.4 Actions following the accident

MAIB inspectors attended *Olivia Jean* on 12 October. Their initial findings, and the absence of the parted trawl wire, prompted a subsequent visit to the boat when it returned from its next fishing trip.

MAIB inspectors made a second visit to *Olivia Jean* when it returned to Shoreham on 18 October. Their examination **(Annex A)** identified the poor condition of the work equipment fitted, the absence of all key vessel certificates and documentation, and a number of crew on board, including the skipper, who were not properly qualified. Attempts to locate the discarded trawl wire were unsuccessful.

On 4 November a Maritime and Coastguard Agency (MCA) surveyor attended the vessel to follow up on the accident and carry out an intermediate International Fishing Vessel Certificate (IFVC) survey. The surveyor suspended the survey due to the deficiencies that he found, and prevented the vessel from sailing until completion of the survey. He recorded the survey findings on the MCA's Ship Inspection and Survey (SIAS) database, stating the vessel had been detained **(Annex B)**.

On 6 November another MCA surveyor attended the vessel to continue the survey. He reviewed the actions taken on board by the crew, and by a work squad sent by the MD. Further defects were discovered during the continuation survey, and these were recorded on the survey form. Several deficiencies needed to be rectified, and the surveyor instructed the skipper that the MCA was to be notified when the required improvements had been made. The surveyor was satisfied that sufficient progress had been made for him to endorse *Olivia Jean*'s IFVC. The surveyor ensured, with the assistance of the harbourmaster, that the vessel did not leave harbour until a qualified skipper was on board. At the end of that week, the owner informed the MCA that all the identified deficiencies had been rectified.

1.4 *OLIVIA JEAN*

1.4.1 Background

Built in 1980, *Olivia Jean* was originally a beam trawler. She was purchased by Olivia Jean Limited in 2007, her name was changed from *Sasha Emiel* and she was converted to scallop dredging.

1.4.2 Maintenance

Olivia Jean was last taken out of the water in Ijmuiden, Netherlands, in January 2008 for repairs and replacement of worn gear. It was anticipated that the next repair period would be in January 2010.

1.4.3 Crew

The number of crew on board *Olivia Jean* varied; there is evidence to suggest that the vessel had been to sea with up to 15 crewmen on board. At the time of the accident, there were nine crewmen on board.

- The skipper

  The skipper was Latvian and had joined the previous month for his first contract on board a fishing vessel. He was employed to navigate the vessel to and from the fishing grounds but did not operate the winches for the fishing gear. He held a current Standards of Training, Certification & Watch Keeping Convention (STCW) 2/II certificate issued in Latvia, but did not hold the necessary UK fishing vessel Certificate of Competency (CoC), nor had he attended the required fishing industry courses.

- The mate

  The mate was British and was a share-fisherman. He co-ordinated all fishing operations on board, operating winches from the wheelhouse and manoeuvring the vessel during the hauling and shooting process. He was the de facto skipper, and signed the Marine and Fisheries Agency (MFA) declarations as skipper. He had attended all the required Seafish training courses, however he held no fishing vessel CoC. He had worked on the MD's fleet of vessels for the last 6 years and on *Olivia Jean* for the last year.

- The senior crewman

  The injured senior crewman was British and was a share-fisherman. He had been at sea for the last 8 years, and had worked on board *Olivia Jean* for the last 6 months. He had completed the required Seafish courses when he first went to sea. He co-ordinated the work on deck and assisted the other crewmen where necessary.

- The Latvian crew

  Three Latvian crewmen were employed on fixed term contracts of around 6 months, and all had completed the relevant safety courses in Latvia. One of the crew had worked with the fleet for 5 years, while the other two were on board *Olivia Jean* for the first time.

- The Ghanaian crew

  Three Ghanaian crewmen were employed on board on 18 month fixed term contracts. Two of them were not fishermen by trade and had not worked on fishing boats before joining *Olivia Jean*. All three had expected to work on merchant vessels on deep sea trades on 4-month long contracts. They had not received any specific fishing vessel safety training prior to their employment on board, and could not produce their passports or certification when MAIB's inspectors visited the vessel as these were being held in the company offices in Annan, Scotland.

The senior skipper, who was not on board *Olivia Jean* at the time of the accident, was the MD's son. He co-owned *Olivia Jean*, was a regular skipper on board and held a Class 1 fishing vessel CoC. At the time of the accident he was skipper on board *Mattanja*, fishing close by *Olivia Jean*; he had been *Olivia Jean*'s skipper for the trip prior to the accident.

1.4.4 Managing Director

The MD of Olivia Jean Limited co-owned *Olivia Jean* and TN Trawlers Limited; the combined fleet consisted of five scallop dredgers and one smaller fishing boat. The fleet fished around the UK and Irish waters, tending to fish as a fleet when the catch volumes permitted.

The company offices and workshop were located in Annan, Scotland, from where equipment supply and boat repair were managed. Employed fitters and welders repaired fishing gear when it was delivered to their workshops, or travelled to the boats to carry out repairs when required.

1.4.5 Certificate of Competency

As a fishing vessel with a registered length of 29.99m, ie under 30m, *Olivia Jean* was required to carry two qualified crew, one with a Class 2 and one with a Class 3 fishing vessel CoC. There were no fishing vessel certificated personnel on board at the time of the accident.

1.4.6 Working routine

The working routine on board varied depending upon the area of operations, and the amount of catch that required sorting and stowing also varied considerably. When the vessel departed port, either the skipper or the mate would navigate towards the fishing grounds, around 4 hours away in this particular area. The crew would then prepare and shoot away the gear. Fishing would take place in a continuous cycle until the vessel was loaded, after which it returned to port to land the catch. The length of the trip, typically between 4 and 7 days, depended on the success of the fishing and the need to land the catch while it was still fresh.

When dredging for scallops, the skipper and mate shared bridge watches. The remaining crew, led by the senior crewman, operated three men per side to recover the gear, empty the catch, shoot the gear away and then sort the catch. The crew were able to take short breaks between catches, and occasionally one or two crewmen would be stood down for one trawl cycle to rest. However, when the fishing was good, as it was around the period of the accident, all hands were on deck to sort the catch and very little time was available for rest. Evidence suggests that crew were unable to get more than brief breaks and had no proper sleep for the duration of the trip.

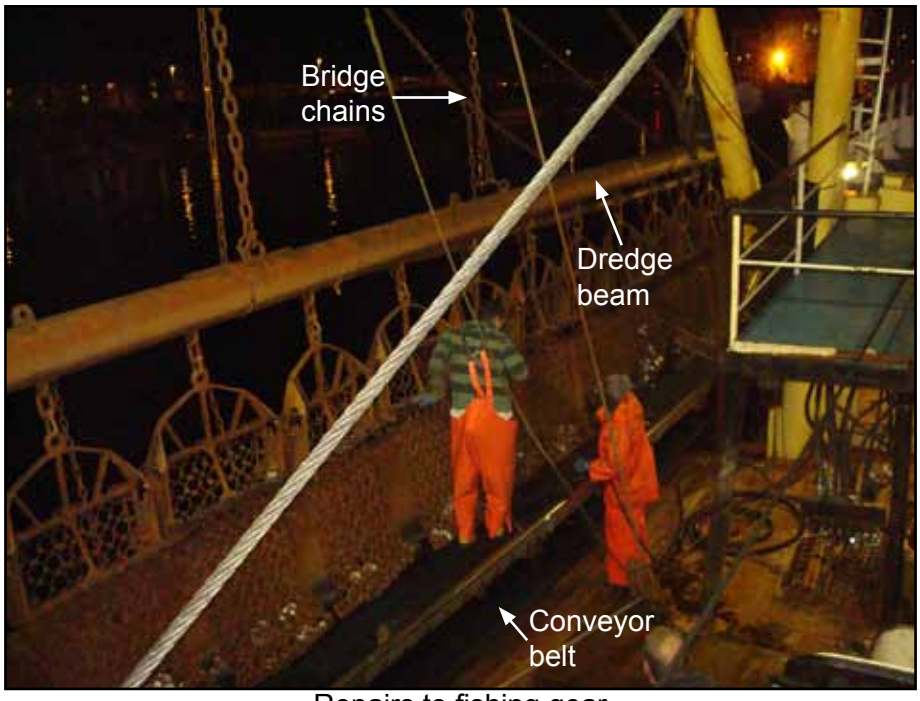
The hours worked by the crew were not recorded.

Between trips, *Olivia Jean* usually remained in port for a day, and sometimes overnight, in order to discharge the catch and prepare for the next trip. Once alongside, the catch was discharged to a lorry **(Figure 4)**. Each bag was manhandled from the hold to the crane, discharged in lifts of ten bags, and the bags were then individually loaded and stacked onto the lorry. Once the catch was landed, the boat would be re-stocked with ice and provisions, washed down, and repairs carried out to the dredging gear as required **(Figure 5)**. The crew could then rest before the boat departed once again for the fishing grounds.

Figure 4

Catch loaded to lorry

Figure 5



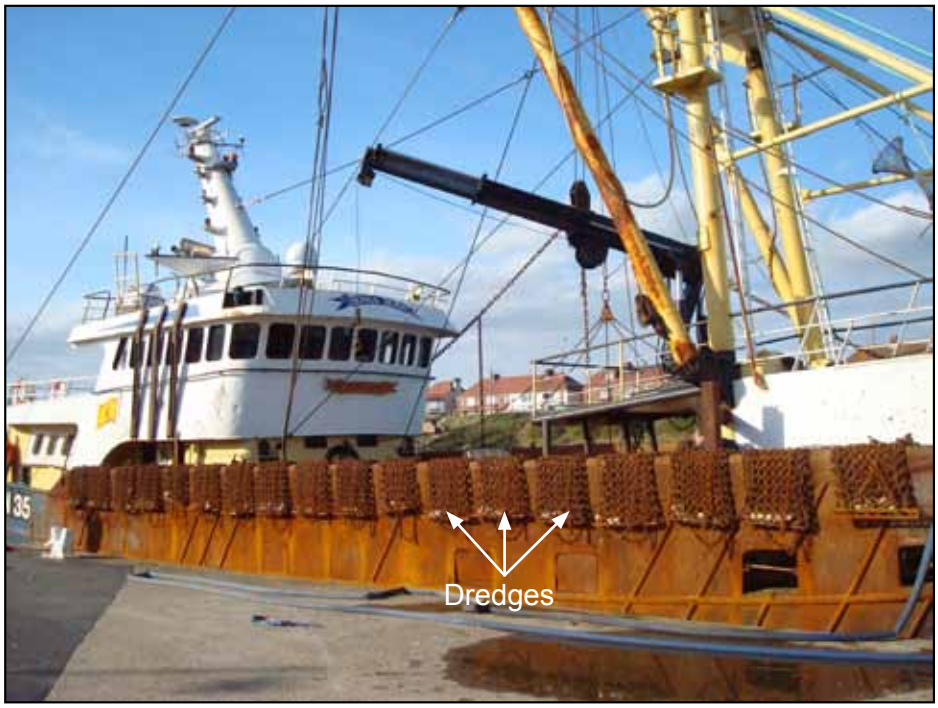
Repairs to fishing gear

1.5 *OLIVIA JEAN*'S FISHING GEAR

1.5.1 Trawl gear and the main working deck

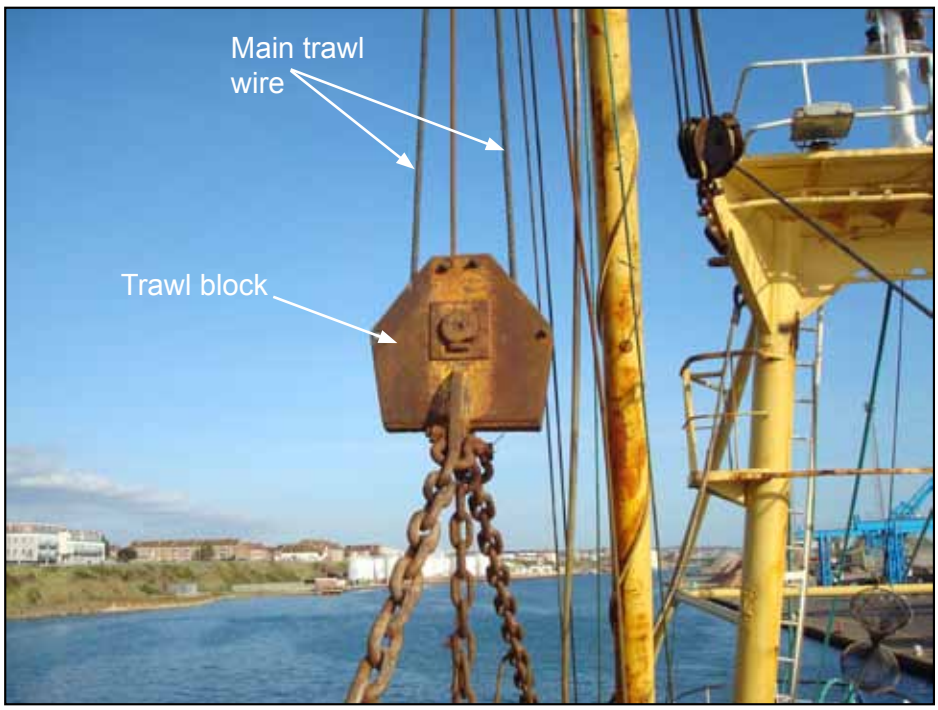
Olivia Jean's two trawl beams were each fitted with 18 conventional chain-mesh scallop dredges **(Figure 6)**. The main trawl wire was rigged in double purchase, with large trawl blocks attached to each of the trawl beams. This meant that the blocks **(Figure 7)** were towed along the seabed.

Figure 6



18 dredges per side

Figure 7



Double purchase trawl block

Beam securing chains, referred to by the crew as safety chains, comprised short lengths of chain attached to pad eyes at deck level. Fitted with a hook at the other end, the safety chains were arranged to enable the forward and aft ends of the trawl beams to be secured to the ship to prevent them from swinging as they were lifted at sea.

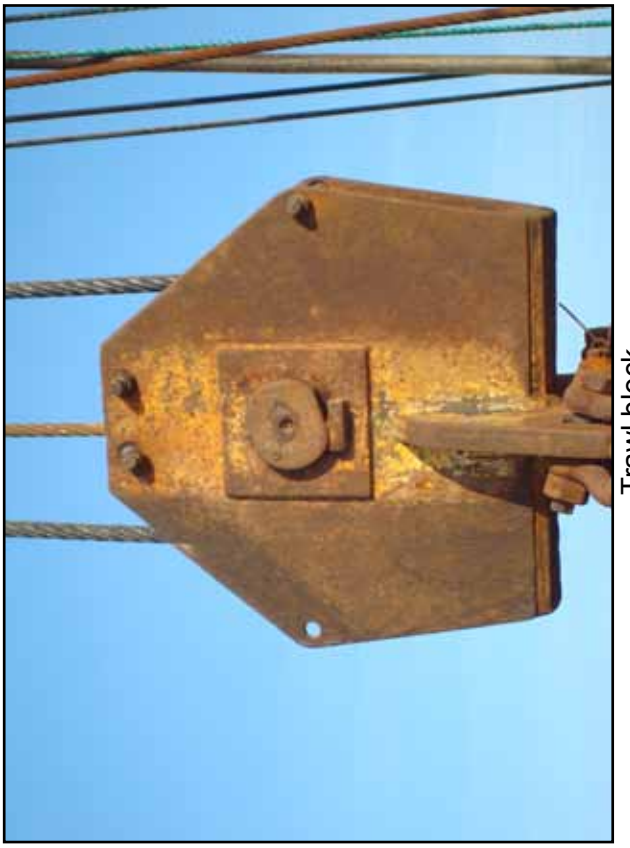
1.5.2 Examination

The examination, on 18 October 2009, of *Olivia Jean*'s work equipment **(Annex A)** revealed many safety critical deficiencies. These included:

- No identification or test markings of any kind were visible on any part of the trawl system.
- No preventers or similar safety devices were fitted to any blocks or suspended loads.
- The trawl beam attachments to the lifting chains were poorly designed and manufactured. These attachments were fabricated using shackles not designed for lifting and cut links of trawl chain. Many shackles and chain links were badly worn **(Figure 8a)**.
- Weld repairs to the trawl beams and tipping bars were inadequate. Both beams and bars were cracked in several places **(Figure 8a)**.
- The trawl blocks were worn, damaged and with parts found missing **(Figure 8b)**.
- The port Gilson wire was damaged, deformed and not lubricated **(Figure 8b)**.
- Various parts of the safety chains were worn and distorted by overload; the assembly was made up from a mixture of ill-matched components **(Figure 8a)**. The hooks in use consisted of either a proprietary item, or something similar fashioned from a section of shackle **(Figure 8b)**. New spare hooks, unused, were found in the deck store.
- Both derrick base pivots were cracked and splayed **(Figure 8b)**.
- Both derricks **(Figure 8b)** were found with numerous cracks.

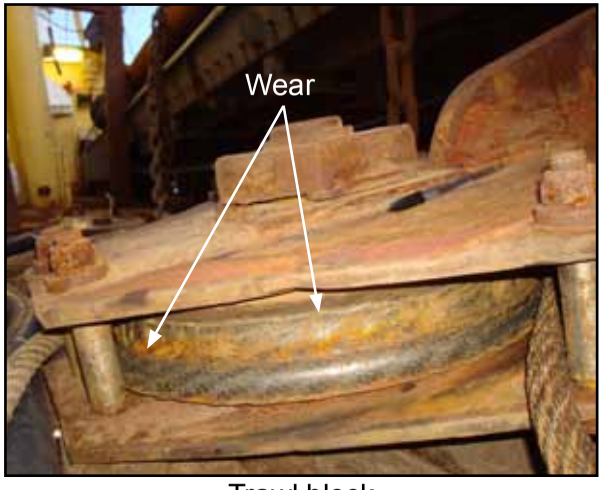
Trawl beam modifications

Safety chain



Trawl block

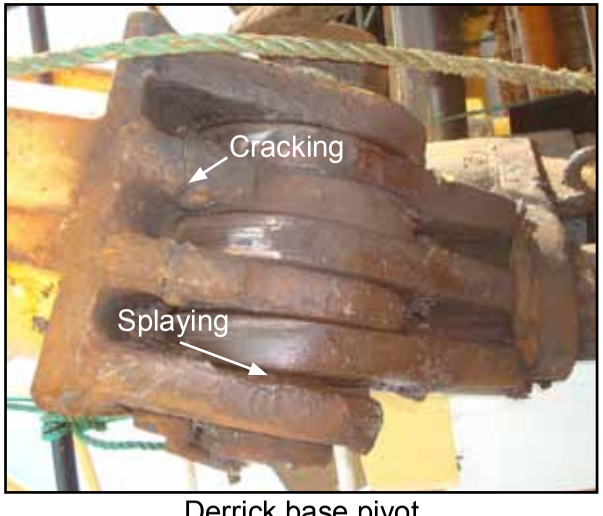
Trawl beam connections



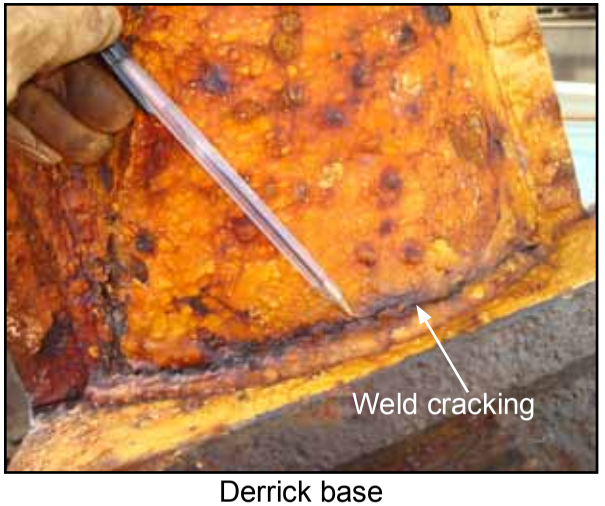
Trawl block

Safety chain hook

Gilson wire



Derrick base pivot



Derrick base

Figure 8b

1.5.3 Conveyor system

The vessel was equipped with a conveyor system on each side of the main deck. The main purpose of these labour-saving devices was to allow rapid and easy discharge overboard of the discards from each dredge bag; the discarded material was carried forward and then out through a freeing port/garbage chute. To facilitate this, the bulwarks had been raised by about 400mm during the vessel's conversion to scallop dredging.

As fitted, the configuration of the conveyor system had several important safety implications:

- With the fishing gear "landed on deck", it was effectively draped over the bulwarks and on top of the conveyor system. This made it impossible to move safely from aft to the main working deck, and the only route was by climbing over the top of the gear and conveyor system **(Figure 9)**.

Figure 9

Port side access

- With the gear cleared away over the side, the conveyor formed a ready access platform. However, it then presented additional hazards: the bulwark height above the conveyor was below minimum requirements; and the conveyor itself was a bouncy surface for the crew handling the dredges to stand on.
- When moving, the system appeared to have potential to injure the crew due to the entrapment and shearing hazards. No 'emergency stop' push buttons were seen.

1.6 LIFE SAVING APPLIANCES

Life Saving Appliance deficiencies included:

- Both liferaft Hydrostatic Release Units (HRUs) had expired in June 2008.
- The lights on the port and starboard manoverboard light & smoke units were found defective when tested.

The vessel did not carry a rescue boat.

1.7 MAIN TRAWL WIRE

The main trawl wire that parted was supplied as a 700m length of 26mm diameter steel wire rope constructed of 6 strands, with 26 wires per strand wire and a lubricated fibre core **(Figure 10)**[1]. The wire had been supplied in November 2008 and was stored at the owner's workshop until it was delivered to the vessel. There were no records of when the wire was supplied to *Olivia Jean*, but it was most likely fitted to the port wire drum at the end of 2008.

Figure 10

Main trawl wire (Bulldog grips incorrectly rigged)

[1] The bulldog grips shown in Figure 10 are incorrectly rigged (see the Code of Safe Working Practices for Merchant Seamen, Annex 20.1)

The frequency that wires were replaced, worn ends were cropped, or reversed end-for-end, varied. Typically, the wire was changed when the crew thought it had become brittle. A trawl wire could last up to a year, or require replacement after only 3 months. Practice on board was for each end of the wire to be shortened twice, allowing four ends to be used before the wire was replaced with a new wire.

The trawl wire supplier stated that:

> *Factory lubrication during manufacture provides initial protection to a wire rope, but once the rope is in use due to constant flexing over sheaves and drums, this lubricant is gradually forced out and needs to be replaced.*
>
> *A suitable lubrication schedule offers the following advantages.*
>
> *1.) Protects the rope from corrosion both external and internal.*
>
> *2.) Reducing internal and external friction thereby reducing internal and external abrasive wear and bending stresses.*
>
> *3.) Preserves the fibre core when used.*
>
> *The frequency of lubrication varies with the operating conditions. A penetrating easy to apply lubricant is preferable to a heavier type that may solidify in cold weather.*
>
> *In practice fishing vessels would seem not to re-lube their wire, therefore visual inspection is key.* [sic]

1.8 STABILITY

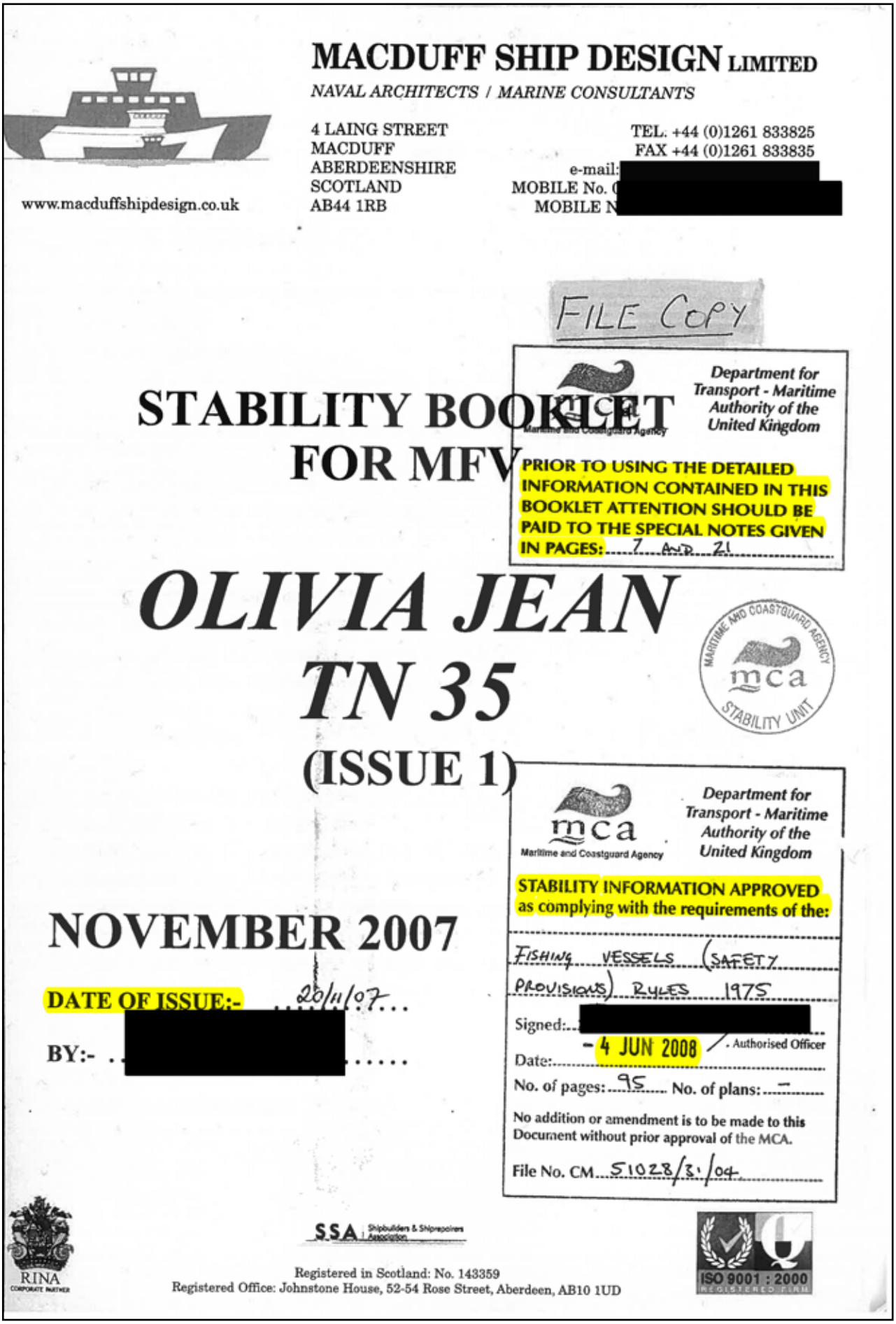
1.8.1 History

In June 2007, the MCA commenced a renewal survey of *Olivia Jean* following the current owner's purchase of the vessel.

In July 2007, the MCA advised *Olivia Jean*'s owner that the vessel had failed to meet the required stability criteria following an inclining test. Following this, the vessel's white fish handling system was removed, the derricks were shortened, and a watertight bulkhead was fitted at the aft end of the whaleback. In November 2007, a stability consultant employed by the owner informed the MCA that *Olivia Jean* complied with all stability and freeboard requirements, and he sent them the updated stability book for approval **(Figure 11)**.

The stability book front cover refers the reader to, among other things, page 21 **(Figure 12)**, which provides "Voyage cycle & working instructions" for the boat's operation. Page 21 states, inter alia, that:

- *A maximum of 500 bags of scallops (40kg per bag) will be carried.* [20000kg]
- *The vessel operates as a scallop beam trawler, she carries 2 sets of scallop gear each consisting of 14 dredges per side. The beams are 16.5 metres long and the derricks are 13 metres long.*



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Department for Transport - Maritime Authority of the United Kingdom

PRIOR TO USING THE DETAILED INFORMATION CONTAINED IN THIS BOOKLET ATTENTION SHOULD BE PAID TO THE SPECIAL NOTES GIVEN IN PAGES: 7 AND 21

STABILITY BOOKLET FOR MFV

OLIVIA JEAN

TN 35

(ISSUE 1)

MARITIME AND COASTGUARD AGENCY mca STABILITY UNIT

Department for Transport - Maritime Authority of the United Kingdom

mca Maritime and Coastguard Agency

STABILITY INFORMATION APPROVED as complying with the requirements of the:

FISHING VESSELS (SAFETY PROVISIONS) RULES 1975

Signed: [redacted] Authorised Officer

Date: - 4 JUN 2008

No. of pages: 95 No. of plans: -

No addition or amendment is to be made to this Document without prior approval of the MCA.

File No. CM 51028/31/04

NOVEMBER 2007

DATE OF ISSUE:- 20/11/07

BY:- [redacted]

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SSA Shipbuilders & Shiprepairers Association

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Stability book cover

Figure 12

VOYAGE CYCLE & WORKING INSTRUCTIONS

1. The voyage duration has been taken as 6 days comprising 1 day out to grounds, 4 days fishing and 1 day returning to port.

2. The vessel is assumed to depart with 28.62 tonnes of oil fuel (98%) in all tanks, and to arrive in port with 4.21 tonnes (10%) in all tanks.

NB Daily service tank assumed full in all conditions.

3. The vessel is assumed to depart with 23.16 tonnes of fresh water (100%) in the forward port and starboard tanks and to arrive in port with 2.32 tonnes (10%).

4. 3 tonnes of ice are carried in the hold on departure for fishing. The vessel is fitted with an ice machine and will retain a 3 tonne bunker of ice during fishing operations.

5. A maximum of 500 bags of scallops (40kg per bag) will be carried. The weight of empty plastic sacks has been assumed as negligible.

Note: Conditions have not been included for the bulk stowage of catch either in the hold or on deck. Should the skipper wish to carry bulk fish the effects on stability should be calculated.

6. The fishing gear aboard at the inclining experiment is detailed in inclining report. The gear included in conditions is detailed in table on page 22. The vessel operates as a scallop beam trawler, she carries 2 sets of scallop gear each consisting of 14 dredges per side. The beams are 16.5 metres long and the derricks are 13 metres long.

7. It is extremely important that no alterations are carried out to the vessel or fishing gear until the effects on stability have been calculated.

8. All openings into watertight spaces to be kept shut and securely fastened at sea when not in use. In the event of the vessel's gear becoming fast, the skipper should ensure that all crew members are above deck and correctly attired with appropriate life saving and foul weather protection, before attempts are made to free the gear. All openings into watertight spaces including access doors, hatches, vents etc to be securely fastened before attempting to free a fastener.

9. The engine room small tanks (other then the daily service tank) are included in the lightship.

10. This vessel is fitted with water ballast tanks in the transom port and starboard, these are NOT to be filled under any circumstances.

Extract from *Olivia Jean*'s stability book

The stability book and IFVC were issued on the condition that *"No alterations are to be undertaken which may affect the stability or seaworthiness of the vessel"*, and that such actions may lead to the cancellation of that certificate.

The owner and skipper acknowledged receipt of the approved stability book on 5 February 2008. Although the stability book was issued in February 2008, its cover states that it was approved by the MCA on 4 June 2008. A full term IFVC was issued by the MCA on 4 June 2008, valid until 7 July 2011.

1.8.2 Modifications

In early 2009, 3000kg of ballast was placed in the vessel in preparation for the fitting of a deck crane; half the ballast was placed in the forward engine compartment and half into the next compartment aft. In July 2009, a HIAB deck crane **(Figure 13)** weighing 750kg was fitted above the main deck, supported by 530kg of additional steelwork. Around the same time, the conveyor belt system on each side of the vessel was replaced.

Figure 13

Additional HIAB crane fitted in 2009

At the stability consultant's request, the MD supplied him with details of the ballast's positioning so that the additional weights and locations could be sent to the MCA for its consideration. The consultant then advised the owner that an additional 1000kg of ballast needed to be placed in the fish room's forward bilge. The owner did not confirm to the consultant that the additional 1000kg of ballast had been placed on board, and consequently none of the additional weights fitted during 2009 were submitted to the MCA by the consultant for approval.

The consultant understood that further alterations were planned to help improve stability. These included additional engine room ballast and the creation of buoyancy above the waterline by enclosing an aft shelter, but both measures were outstanding at the time of the accident.

1.8.3 Catch

It is a requirement that catch weights are declared to the Marine and Fisheries Agency (MFA). The weights of *Olivia Jean*'s six catches, landed at Shoreham prior to the accident, are shown in the table below.

Date landed at Shoreham	No of Bags	Estimated weight (kg)	Declared total weight (kg)
10 Sept 2009	1033	30	30990
15 Sept 2009	1216	30	36480
21 Sept 2009	1618	30	48580
28 Sept 2009	1440	30	43200
3 Oct 2009	1556	27	42012
7 Oct 2009	1402	30	42060

Table 1

1.8.4 Stability Assessment

Based on the information available, MAIB carried out an assessment **(Annex C)** of *Olivia Jean*'s intact stability in various loaded conditions. The additional weights added to the boat since its last lightship test, in conjunction with the known catches being landed, showed that the boat failed to meet the required stability in several conditions. This assessment led MAIB to publish Safety Bulletin 1/2010 **(Annex D)**, with recommendations to both the owners and to the MCA to ensure that *Olivia Jean* complied with the required stability criteria.

1.9 LIAISON WITH INDUSTRY – FISHING INDUSTRY SAFETY GROUP (FISG)

FISG is the recognised forum for discussion of fishing industry safety standards and includes representation from the MCA, fishermen's federations, ship builders, fisheries departments, Seafish, marine insurers and other organisations with a direct interest in the safety of UK fishing vessels and their crews. FISG has an advisory role in the development and implementation of safety standards, and has the following terms of reference:

> *As part of the overall process of determining and applying policy in safety standards for fishing vessels and their crew, to advise the Department for Transport through the Maritime and Coastguard Agency on the development of proposals and their implementation*

FISG meets twice yearly and is supported by a number of sub-groups, which meet as required.

1.10 REGULATIONS APPLICABLE TO *OLIVIA JEAN*

1.10.1 LOLER/PUWER

The Merchant Shipping and Fishing Vessels (Lifting Operations and Lifting Equipment) Regulations 2006 (LOLER) and The Merchant Shipping (Provision and Use of Work Equipment) Regulations 2006 (PUWER) came in to force on 24 November 2006. In September 2006, the MCA provided guidance on their implementation in MGN 331 (PUWER) and MGN 332 (LOLER). MGN 332 stated that:

> *2.2 In line with the provisions of the EC Directive, the Regulations do not, in general, prescribe measures to be taken by an employer but instead place the onus on the employer to ensure that all lifting equipment that is fitted on board is appropriate for its intended purpose and is safe to use.*

Extensive guidance was provided in MGN 332, and included:

> *5.1 In service survey, inspections, thorough examinations and certification are to be carried out as required by the Regulations.*
>
> *5.2 Records and service history should be kept of equipment, of dates when and where it is brought into use, its safe working load, any repairs, modifications, tests and examinations carried out.*

The MCA's booklet *"LOLER and PUWER - Advice for ALL Fishermen working on United Kingdom flagged Fishing vessels",* published in November 2006, stated that:

> *Hauling equipment and any other equipment that is normally submerged (or enters the water) in the general course of fishing operations is NOT subject to LOLER. But where the trawl winch, or other similar equipment, is used for lifting operations, that use is included by LOLER.* [sic]

Implementation of the regulations and their impact on the industry was discussed at a FISG Health & Safety Group meeting on 18 April 2007. The meeting minutes **(Annex E)** showed that the meeting was attended by MCA managers and principal surveyors, and industry body representatives. The minutes stated, inter alia:

> *Trawl blocks and all other blocks and fair-leads that are associated with the deployment and hauling of gear should not require to be certified or SWL marked as this equipment was frequently built to purpose.* [sic]

The MCA's subsequent guidance[2] to employers and the self-employed, as well as for MCA surveyors, published in 20 September 2007, stated that:

> *For LOLER to apply the principal function of the work equipment should be to lift a load. Winches or similar equipment used for hauling loads "horizontally" would not attract the application of LOLER but would be subject to PUWER. If such winches etc are also used for lifting then LOLER will also apply.*

One consequence of stating that certain equipment was not subject to LOLER, was a change in the level of expertise required of the person tasked with inspecting the equipment. MGN 331 (PUWER) defines a competent person as:

> *a person possessing the knowledge or experience necessary for the performance of duties under these regulations.*

Whereas MGN 332 (LOLER) provides a more extensive description of a competent person, which includes:

> *whereas a "competent person" able to carry out tests of lifting equipment may need to be provided by a company specialising in such testing. It should also not be assumed that possession of a Certificate of Competency means that the person holding that Certificate is automatically a "competent person" for the purpose of these Regulations.*

MGN 332 goes on to add:

> *Additionally it is essential that the competent person is sufficiently independent and impartial to allow objective decisions to be made.*

The guidance issued by the MCA on 20 September 2007, stated:

> *"A competent person" for the purpose of the carrying out of "Thorough Examinations" under LOLER or "Inspections" under PUWER could be the skipper or a crew member or a shore-based worker with the appropriate knowledge or expertise.*

---

[2] Guidance on the application of Merchant Shipping and Fishing Vessels (Provision and Use of Work Equipment) Regulations 2006 and the Merchant Shipping (Lifting operations and Lifting Equipment) Regulations 2006 to fishing vessels, dated 20 September 2007.

In practice, an MCA surveyor might check lifting equipment, such as the landing davit, during survey and inspection, and would advise owners and skippers on 'best practice'. However, many MCA surveyors considered the guidance on PUWER and LOLER to be unclear, and they did not feel confident to declare that lifting equipment was deficient or to detain a fishing vessel on the grounds of the PUWER and LOLER Regulations.

1.10.2 Risk Assessment

Guidance on The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 is provided to the fishing industry in MGN 20 (M+F). This guidance note states that it is the:

> *Duty of employers to protect the health and safety of workers and others affected by their activities…The basis of all safety measures should be an assessment by the employer of any risk to workers' health and safety from their work activities.*

The MCA guidance to surveyors in MSIS 27 states that all fishing vessels over 15m must have a written risk assessment. No guidance is provided on what constitutes an acceptable standard of risk assessment, and MCA surveyors do not endorse risk assessments in case this is perceived as a validation of the work practices on board. That a completed risk assessment is present on board is sufficient to satisfy the requirement of the survey.

The 1997 Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations require vessel operators to prepare a written statement of their health and safety policy when more than five workers are on board, but this does not apply to the requirement for risk assessment. The interpretation by some MCA surveyors that a written risk assessment is required only when there are more than five employed crew on board, is based on a "rule of thumb" rather than a legislative provision.

Risk Assessment guidance to fishing skippers and owners is freely available in the "Fishing Vessel Safety Folder" published by Seafish with the support of MCA. This pro forma booklet enables operators to produce a simplified and accessible onboard risk assessment.

Despite regulatory requirement, there were no written risk assessments or pro forma booklets found on board *Olivia Jean* during the MAIB visits on 12 and 18 October 2009.

1.10.3 Working time

The Fishing Vessels (Working Time: Sea-Fishermen) Regulations 2004 prescribe the maximum working hours and rest entitlement for workers on board United Kingdom Fishing Vessels. These regulations state a worker's working time:

shall not exceed an average of 48 hours for each 7 days, and that a worker's minimum rest periods shall be-

- *10 hours in any 24-hour period, and*
- *77 hours in any 7-day period.*

The regulations also state that class exceptions may be granted by the Secretary of State provided that consultation with employers and workers' representatives has taken place, and that the exception will protect the health and safety of workers.

Guidance on the application of the regulations is provided in Merchant Shipping Notice (MSN) 1786(F) **(Annex F)**. This MSN states that the regulations do not apply to the self-employed, including self-employed share-fishermen.

The fishing industry's Code of Best Practice, annexed to MSN 1786(F) **(Annex F)**, on working time constitutes an approved exception to the regulations. This Code prescribes circumstances in which exceptions from the standards may be permitted in specific fisheries; these include beam trawlers, white fish trawlers, nephrop trawlers and crabbers. The Code of Best Practice is recognised and commended by: the National Federation of Fishermen's Organisations; the Scottish Fishermen's Federation; The Northern Ireland Fishermen's Federation and other sea-fishermen represented on FISG.

The Beam Trawler exception states:

Operational and Technical Factors:

Beam trawlers target prime species in the main. It is not possible to tow the gear for long periods of time, as the catch will be subject to damage and spoilage due to abrasion in the net. Long tows would result in increased debris (sand/stones) in the gear damaging catch and increasing weight in the gear. This would risk the safety of the vessel. Work time is therefore concentrated around regular hauls throughout the trip.

Compensatory Rest Factors:

- *Compensatory rest is available in periods steaming to and from the grounds, between hauls and between trips.*
- *Short tows, small quantities of prime fish result in relatively short time on deck and longer overall periods of rest.*
- *Due to extreme weather conditions it is not uncommon for this class of vessel to lose up to 130 working days per year.*

Although scallop dredgers are often modified from beam trawlers, there is no specific exception that applies to scallop dredgers.

MSIS 27 provides no guidance as to the records required to be kept of the hours worked by fishermen. The aide-mémoire used by MCA surveyors during the survey and inspection of over 24m fishing vessels does not include a requirement to check hours of work or rest.

The employer is required to keep records adequate to demonstrate that employed sea fishermen are receiving the minimum rest to which they are entitled, subject to any exceptions. At the time of the accident, seven of *Olivia Jean*'s nine crewmen were employed on fixed length contracts, but there were no hours of work and rest records for them on board.

1.10.4 Employed crew and share-fishermen

Historically, crews on most fishing boats were predominantly "share-fishermen", ie their wages were based on a share of the profits (or losses) from the catch.

The continued expansion of the European Union (EU) enabled seamen from eastern European countries to migrate to the UK to find work on fishing vessels. This alleviated a manning shortage in the industry and increased the number of employed crew working on board. In recent years, the employment of migrant workers from countries outside the EU, such as the Philippines and West Africa, has also increased the number of employed crew, particularly on board larger boats.

The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997's enabling Statutory Instrument SI 1997:2962, Regulation 3 states that, "*These Regulations shall apply to all activities of workers on United Kingdom ships*", whereby a worker is described as "*any person employed by an employer under a contract of employment".*

The legal interpretation[3] of the word "worker" has, in practice, dissuaded the MCA from enforcing alleged breaches of health and safety regulations on fishing vessels where share-fishermen are involved. This is because share-fishermen have long been defined as self-employed for taxation purposes, ie not as "*any person employed by an employer under a contract of employment".*

The interpretation to exclude the self-employed, however, appears to contradict Regulation 5, which describes the General Duties of an employer to, *"ensure the health and safety of workers and other persons so far as is reasonably practicable"*. Regulation 5 mirrors the "land based" Health and Safety at Work Act 1974 which makes no distinction between the employed or self-employed.

Following its Analysis of UK Fishing Vessel Safety 1992 to 2006, as part of recommendation 2008/173, the MAIB recommended that the MCA should:

---

[3] Time Law Reports 3 May 2002, reporting Todd and Other v Adams and Another, Court of Appeal ruling on widows and dependants' claims for damages following the loss of the FV *Margaretha Maria*, which sank on 17 November 1997.

Clarify the requirements of The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 to ensure that they apply in respect to all fishermen on board fishing vessels, irrespective of their contractual status.

The MCA accepted the recommendation, which it aims to implement by the end of 2010.

1.10.5 Rescue craft requirements

The Fishing Vessels (Safety Provisions) Rules 1975 use a registered length of 24.4m as a threshold above which various design features and required systems become mandatory. Fishing vessels with registered length >24.4m, with fewer than 16 crew members, are required to carry either:

- A lifeboat (capable of being launched from a davit) and at least one inflatable liferaft, both capable of accommodating the entire crew; or
- A lifeboat or inflatable boat, capable of being launched on one side of the vessel, and at least two inflatable liferafts with an aggregate capacity to accommodate twice the number of persons on board.

Olivia Jean did not carry a rescue boat, and the MCA issued the vessel with an exemption certificate which included the following conditions:

1. *The vessel will not carry more than 6 crew.*
2. *The vessel normally operates within easy reach of shore rescue facilities.*
3. *The vessel carries a Jacob's ladder.*

On 15 June 2007, the MD sent a facsimile to the MCA confirming that *Olivia Jean* would not carry more than six persons and would comply with the conditions of the exemption certificate **(Annex G)**.

1.10.6 Carriage of certificates and documentation

Other regulations required *Olivia Jean* to carry the following in-date/current documents: International Fishing Vessel Certificate, radio licence, official logbook, crew agreement and approved stability book.

On 18 October 2009, when the MAIB examined *Olivia Jean*, none of the required documentation was on board.

1.11 PREVIOUS ACCIDENTS INVOLVING THE OWNER'S FLEET

1.11.1 *Olivia Jean*

In November 2007, a 23 year old crewman on board *Olivia Jean* was injured when the starboard main trawl wire parted and the starboard trawl beam fell to the deck, causing the trawl block to fall about 5m on to the crewman's right foot. The skipper completed another trawl before returning to his intended port many hours later. The injured crewman was landed ashore and made his own

way to hospital by taxi, where it was apparent to the medical staff that immediate surgery was required to save his foot. The accident was not reported to the MCA or the MAIB. The MCA's enforcement branch subsequently opened a case file which, at the time of this accident, was left open with insufficient evidence to bring an effective prosecution.

During the investigation, MAIB obtained evidence indicating that the main trawl wire had parted on two other occasions between November 2007 and the most recent accident. On one occasion the gear was lost on the seabed; on the other occasion the gear fell inboard as it was recovered, but did not cause injury.

1.11.2 *Philomena*

In 2001, a deckhand on board the scallop dredger *Philomena* was fatally injured when he was struck on the head, as the vessel's port towing bar swung inboard when the vessel rolled to starboard in moderate to rough seas in the Moray Firth.

The investigation identified that contributory factors leading to the accident included:

- The victim's lack of familiarity with the vessel's equipment procedures.
- The lack of risk assessment for the shooting and hauling procedures.

Recommendations were made to the owner to:

- Improve his hauling and shooting procedures so the skipper could better monitor and control his crew.
- Ensure the crew were better trained in the use of the equipment.
- Ensure that the crew wore the appropriate protective clothing.

1.11.3 Other accidents involving TN Trawlers' vessels

MAIB's records show the following accidents/hazardous incidents involving TN Trawlers' fleet.

- FV *Philomena*:
    - 1999 - collided with an anchored nuclear waste carrier.
    - 2000 - a crewman crushed his fingers after he took hold of a running wire that dragged his hand into a block.
    - 2000 - minor collision with another fishing vessel in harbour.
    - 2005 - a crewman required stitches to his forehead after being hit by a steel holding hook which opened up at a weld whilst lifting the dredges on board. The crewman was sent home after being discharged from hospital.

- 2008 - a crewman was resting his hand on the cradle when the skipper lowered the tow bar onto the deck. The crewman's hand was crushed between a chain bag and the cradle.

- FV *Mattanja*:
  - 2000 - near collision with a small cargo ship.
  - 2006 - close quarters situation with another fishing vessel in restricted visibility.

1.12 OTHER ACCIDENTS

1.12.1 FV *Danielle*

On 6 June 2006, a deckhand on board the UK-registered scallop dredger Danielle became trapped by a rope that was being used on a winch whipping-drum. He sustained serious arm and chest injuries and was evacuated by RNLI lifeboat and ambulance to hospital, where his arm was amputated.

The MAIB investigation found that the accident would probably have been prevented if a risk assessment had recognised the hazards associated with the dredge tipping operation, and had appropriate control measures been adopted to improve the working environment before the accident.

1.12.2 FV *Maggie Ann*

On 12 February 2009, a deckhand on board the UK-registered scallop dredger *Maggie Ann* fell overboard as he was emptying a dredge bag. He had been standing on the port trawl beam, which was suspended and almost level with the gunwale, when the dredge bag lifting becket parted. Despite the efforts of the skipper and crew, the deckhand sank below the sea surface before he could be rescued.

The MAIB investigation identified a number of safety issues, including the operation of the fishing gear and a lack of understanding of risk assessments.

1.12.3 FV *Korenbloem*

In November 2009, a deckhand on board the scallop dredger *Korenbloem* fell overboard while the vessel was preparing to shoot the port side scalloping gear. He was standing on top of the catch in the scallop tray which was constructed at almost the same height as the bulwark. The vessel was in the Dover Strait and the weather was very rough, with strong winds.

Two deckhands who had been working on the starboard side jumped into the water and managed to recover the deckhand. He was airlifted and taken to a nearby ship, where he was pronounced dead, most likely as a result of being crushed between the towing beam and the vessel's hull.

The findings of the investigation into this accident were combined with the findings from the investigations into two similar accidents and published in May 2010 in the MAIB's Trilogy report *Korenbloem*, *Osprey III* and *Optik*, No 6/2010. The recommendation from this report is at Section 1.16.2.

1.12.4 MAIB's Analysis of UK Fishing Vessel Safety 1992 to 2006

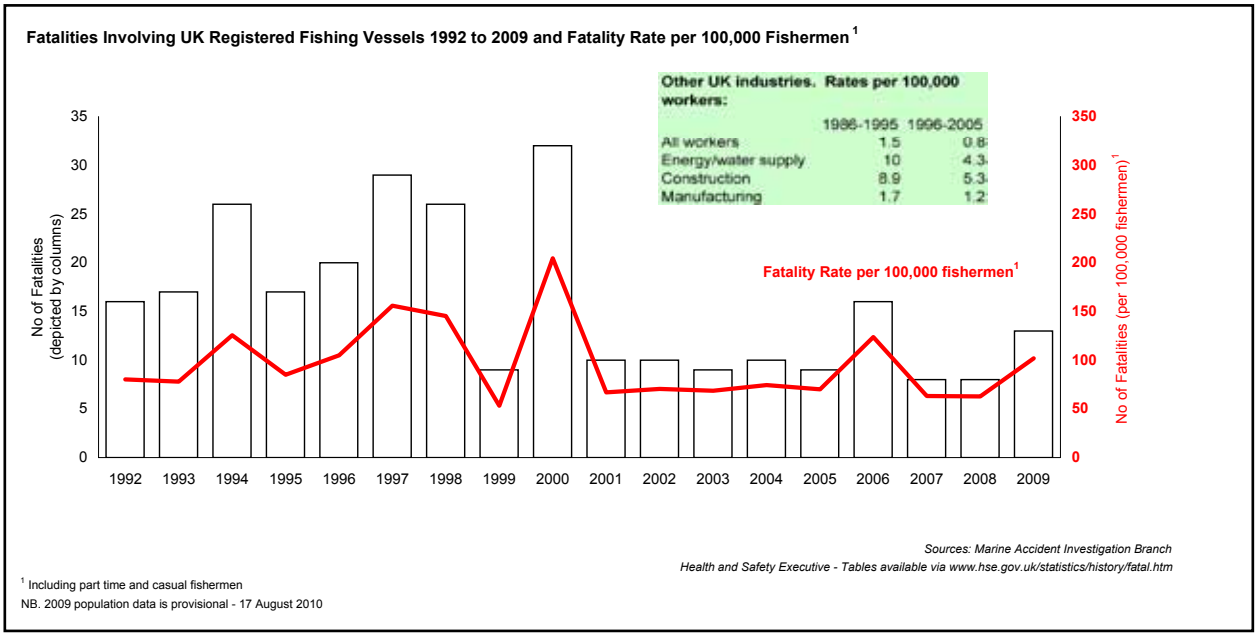
The fishing vessel study concluded:

> *It is evident that given the nature of the machinery and heavy gear on board fishing vessels, combined with vessel movement, many of the injuries sustained by fishermen are extremely serious, and potentially life-threatening. Two MAIB investigations of accidents in 2006 on board Danielle and Sian Elizabeth are a timely reminder of the appalling injuries sustained by crew members when things go wrong during fishing operations. Both investigations identified issues of concern regarding the risk assessments for these vessels.*

1.12.5 Fatal accidents in the fishing industry

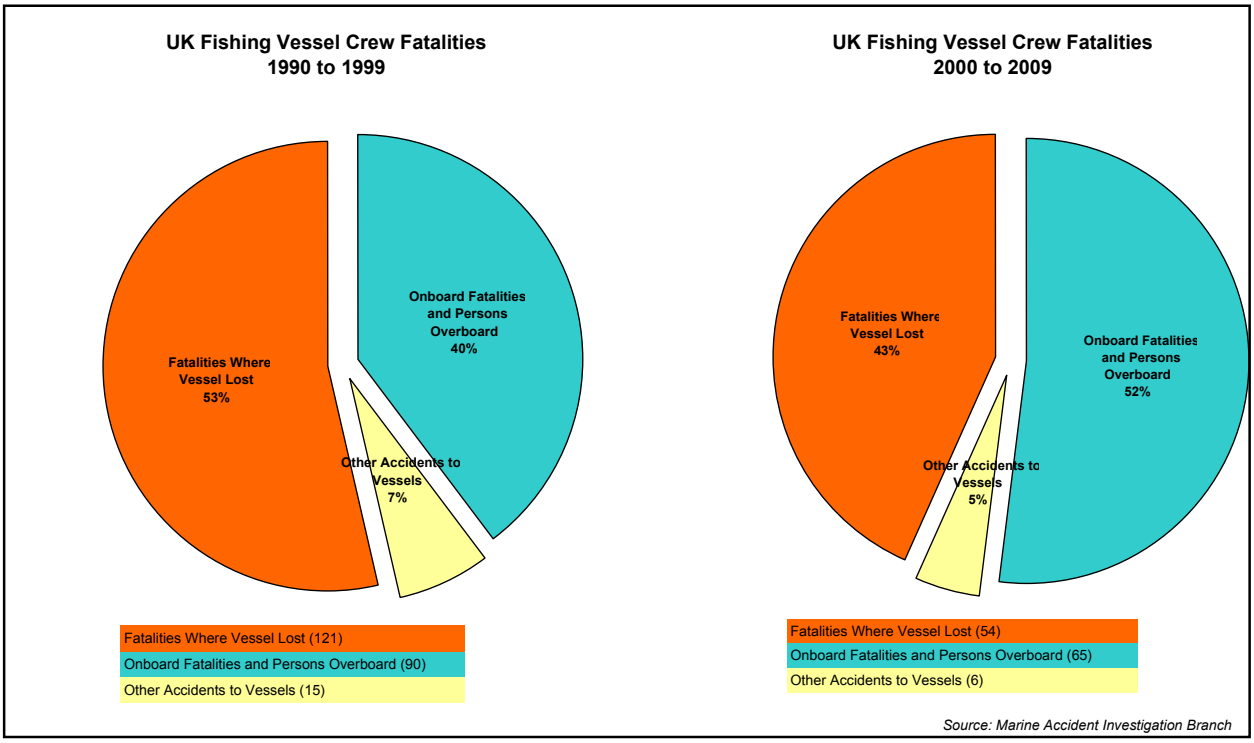
Due to the relatively small number of fishermen in the UK, actual fatality numbers are quite low, averaging 11 deaths per annum since 2001. However, the fatality rate is high, at 126 deaths per 100,000 fishermen over the 15 years considered by MAIB's recent fishing vessel safety study. In 2009 this figure was 102 deaths per 100,000, with 13 fatalities recorded **(Figure 14)**.

Figure 14



Analysis comparing the decade 1990-99 with 2000-09 shows a steady ratio of fatal accident types (vessel loss: occupational accident/MOB: other, eg fire). However, whereas in the 1990s most fishermen were lost in vessel loss accidents (average 2 per vessel loss), in the 2000s this figure had dropped to 1.5 per vessel loss and the predominant cause of death was MOB and occupational accidents **(Figure 15)**. Although the number of fatalities has decreased over the two decades, the population of fishermen has similarly declined, therefore the fatality rate has remained broadly the same.

Figure 15



1.13 SAFETY CULTURE

The MAIB's "Analysis of UK Fishing Vessel Safety 1992 to 2006" recorded that:

> *… there would appear to be, for some owners, skippers and crew a fatalistic acceptance that safety at sea cannot be improved. Many accidents to vessels and crew members have resulted from dubious work activities and attitude to risk on board, ie the onboard safety culture.*
>
> *Often, risk taking during a hazardous work activity becomes the norm, and it is not until the inevitable accident happens that it becomes apparent that the operation could have been carried out in a safer manner, without compromising work efficiency.*
>
> *Onboard safety culture would appear to be greatly influenced by vessel owners – if an owner shows little concern for his crew members' wellbeing, there is less chance of the crew behaving responsibly. This has been evidenced time and again, whereby some owners' vessels are regularly involved in accidents and intervention by the regulators appears*

to have little effect. This hardcore of people does, unfortunately, show the rest of the industry in a bad light. The study proposed that more stringent enforcement of regulations is required as a means of protecting crew members against those vessel owners and skippers who resist education and guidance to improve safety, and continue to operate their vessels in an unsafe manner.

Vessel maintenance is also frequently influenced by the owner's safety culture. Not all owners recognise the benefits of keeping vessels well maintained, and some choose to operate continually under a corrective maintenance regime, spending only when they need to spend. This is based on the mistaken belief that they are taking maximum profit from the business by not spending on pre-emptive maintenance. In some cases owners have even ignored the need for corrective maintenance and have continued to operate their vessels with knowingly damaged equipment, rather than spend money on repairs.

1.14 MCA SURVEY AND INSPECTION

1.14.1 Background

The survey regime for a UK fishing vessel with a registered length greater than 24m corresponds with the certification cycle denoted in the Fishing Vessel (Safety Provisions) Rules 1975. Vessels are therefore surveyed every 48 months for the issue and renewal of UK Fishing Vessel Certificates (FVCs). These rules also require that vessels are inspected every 2 years, plus or minus 3 months, from the UK FVC's issue date. Other surveys include an annual survey of radio equipment and additional survey following any major repairs.

On 1 December 1999, the Fishing Vessels (EC Directive on Harmonised Safety Regime) Regulations 1999 came into force implementing the Torremolinos Convention requirements. These regulations primarily affected "new" fishing vessels, with contracts placed after 1 January 1999, and existing vessels, such as *Olivia Jean*, continued to comply with the original 1975 Rules. However, from 1 January 2000, International Fishing Vessel Certificates (IFVCs) were to be issued to all UK fishing vessels of 24m and over, based on 4-yearly renewal surveys and biennial inspections.

The MCA notified the MD by letter whenever an IFVC renewal survey was due for one of his vessels; however, it did not notify him when intermediate surveys were pending, and the MD did not request the MCA to conduct these surveys.

1.14.2 *Harvest Hope* and internal MCA review

On 28 August 2005 the fishing vessel *Harvest Hope* came fast while trawling in the vicinity of seabed pipelines, approximately 40 miles north-east of Peterhead. The aft net drum space immediately began to flood through the port transom door, which had been inadvertently left open from the previous voyage. During the investigation, a number of issues were identified regarding the vessel's stability approval and regulation.

Consequently, MAIB's Chief Inspector wrote to the MCA on 11 January 2006 listing **(Annex H)** the issues identified during the investigation. As one of its actions in response, the MCA established an internal inquiry into its survey and inspection procedures:

> *to investigate into certain issues relating to the survey, certification and inspection raised by the MAIB as part of their enquiry into the capsize and foundering of the Fishing Vessel Harvest Hope.*

The internal inquiry identified several areas for improvement, including:

- Oversight of design and construction
- Matters affecting watertight integrity
- Survey, inspection and certification regime
- Management of ship files and SIAS (Ship Inspection And Survey) recording, and
- The MCA Document Management System.

With regards to the survey, inspection and certification regime the MCA's inquiry report recommended:

- *Collection of data on fishing vessel certification to be reviewed with a view to:*
  - *Removing the need for two databases to be maintained*
  - *Establishing a system based on e-forms/ web intelligence; and*
  - *Developing and implementing the comprehensive procedures necessary.*
- *Revise Guidance to Surveyors and Procedures to include explicit instructions on the maintenance of complete records of survey, inspection and certification and associated documentation in original form within registered CM files.*

MAIB has not received written confirmation that the proposed recommendations have been completed, although several of the recommendations are known to have been implemented.

1.14.3 Guidance to surveyors

MCA guidance to surveyors and inspectors is provided in MSIS 27 for the purpose of ensuring compliance with various statutory instruments covering fishing vessels. The guidance also provides fishing vessel owners with information on the MCA's survey procedures.

An aide-mémoire is provided to surveyors for the survey of fishing vessels of all lengths **(Annex I)**. This aide-mémoire states that, among others, the following checks should be made:

- *Safety of operation of fishing gear, winches, wires, blocks, nets, lines etc. (LOLER & PUWER Regulations).*
- *Risk assessments: Copies on board / available in risk assessment folder.*

1.14.4 MCA records

The MCA's main records of fishing boats are held in consultative maritime (CM) files. *Olivia Jean's* records were held in three CM files: CM 03 (Fishing Vessel Survey Safety Equipment), a working file, held by the MCA Marine Office in Aberdeen whose surveyors had carried out the most recent IFVC survey; and CM 01 (Fishing Vessel Survey Construction) and CM 04 (Fishing Vessel Survey Stability), both held at the MCA's central store in Cardiff.

The information contained within the CM files included:

- the current approved stability book
- previous correspondence between the MCA, the owner and his consultant on lightweight tests and stability
- a copy of the current IFVC
- a copy of the exemption certificate that stated that *Olivia Jean* should carry no more than six crewmen.

1.14.5 MCA SIAS database records

The MCA's Technical Support Team maintains the SIAS computerised database, which should contain a record of all the surveys and inspections conducted on a vessel.

At the time of the accident, the last SIAS record for *Olivia Jean* had been entered on 8 July 2007; the record referred to the survey to renew *Olivia Jean*'s IFVC following the change of ownership. No records were entered on SIAS to record the MCA's actions following the crewman's foot injury accident on board in 2007, or following the vessel's detention in Brixham for not carrying a certificated skipper in 2009.

1.14.6 Co-ordination of survey effort

The MCA's survey responsibility is divided into three regions: Eastern (England), Western (England and Wales) and ScotNI (Scotland and Northern Ireland).

The majority of fishing vessels, particularly the smaller vessels, operate from their home port and are well known to the local MCA surveyors. Monitoring of fishing vessels that trade around the coast is achieved by means of a spreadsheet co-ordinated at MCA's head office, which is sent to the regional

managers monthly. The October 2009 spreadsheet indicated that *Olivia Jean* was assigned to the Plymouth Marine Office in the Western Region. However, at the time of the accident, *Olivia Jean* was operating in the Eastern region. The October 2009 spreadsheet also showed that *Olivia Jean* was not overdue for interim certification. Her intermediate survey was scheduled to occur between 7 April 2009 and 7 October 2009 (the accident occurred on 10 October 2009).

1.15 ACCIDENT NOTIFICATION AND ENFORCEMENT

1.15.1 Accident notification

Due to ongoing industrial action the coastguard's daily report of operational activity[4] is no longer being compiled, with the unintended consequence that the MCA's marine offices and enforcement branch are not receiving direct, timely notification when an accident has occurred.

1.15.2 Enforcement

In recent years the MCA has successfully prosecuted a small number of owners/skippers for violations of regulations[5]. At the time of this investigation there had been no successful prosecutions under the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997.

1.16 PREVIOUS ACTIONS TAKEN BY MCA

1.16.1 Education

The MCA's ScotNI region introduced a scheme whereby a dedicated inspector conducted fishing vessel inspections which included crew education in safe operation. Prior to publication of the MAIB's Analysis of UK Fishing Vessel Safety 1992 to 2006, the MCA stated that it intended *"to extend nationally the practice of utilising specialised teams of inspectors to inspect fishing vessels of 9 metres and over, currently on trial".*

However, since publication of the analysis, no expansion of the initiative has taken place. Indeed, it is understood that the process is no longer conducted - even in the MCA's ScotNI region.

1.16.2 Relevant recommendations

a. MAIB's report following the investigation into the accident on board *Danielle* recommended the MCA to:

2007/118 *Introduce a section in the statutory documentation associated with the survey and inspection regime for fishing vessels to ensure that the status of each vessel's risk assessment is recorded by surveyors.*

This recommendation has been implemented.

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[4] MCA reference document CG3 Chapter 7, Section 1

[5] As listed on the MCA's website.

b. MAIB's report following the dual investigation into the accidents on board *Shark* and *Royalist* recommended the MCA to:

2008/147 *Amend its survey and inspection procedures for 24 metre in length and over fishing vessels, to include measures to:*

- *Alert owners to Intermediate Surveys in the same manner as for Renewal Surveys and, in consultation with Defra, establish administrative procedures that will lead to fishing vessel licence suspension in the event of non-compliance*.

This recommendation has been accepted but has not yet been implemented. However, a procedure for issuing reminder letters has been in place since October 2009.

c. MAIB's Analysis of UK Fishing Vessel Safety 1992 to 2006 recommended the Maritime and Coastguard Agency to:

2008/173 *In developing its plan to address the unacceptably high fatality rate in the fishing industry, identified in its study of statistics for the years 1996 to 2005, are recommended to consider the findings of this safety study, and in particular to* [among others]:

- *Clarify the requirement for risk assessments to include risks which imperil the vessel such as: environmental hazards; condition of the vessel; stability etc.*
- *Clarify the requirements of The Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 to ensure that they apply in respect of all fishermen on board fishing vessels, irrespective of their contractual status.*
- *Ensure that the current mandatory training requirements for fishermen are strictly applied.*
- *Conduct research on the apparent improvement in safety in other hazardous industry sectors, such as agriculture, construction and offshore, with the objective of identifying and transferring best safety practice from those industries to the fishing industry.*

This recommendation has been accepted but has not yet been implemented.

The Department for Transport and the Maritime and Coastguard Agency were recommended to:

2008/174 *Agree the coherent resourced plan for reducing the fatality rate in the fishing industry (see Recommendation 2008/173).*

This recommendation has been accepted but has not yet been implemented.

d. MAIB's report following the investigations into the fatal accidents on the following fishing vessels *Korenbloem*, *Osprey III* and *Optik* recommended the Department for Transport to:

2010/112 *Recognise the consistent and disproportionate rate of fatalities in the UK fishing industry and take urgent action to develop a comprehensive, timely and properly resourced plan to reduce that rate to a level commensurate with other UK occupations.*

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

The senior crewman was standing on the port conveyor belt on the main deck as the port-side fishing gear was lifted. The port main trawl wire parted and the bridle chains fell onto him, causing his injuries. He then fell from the conveyor on to the deck.

MAIB's investigation found that *Olivia Jean* was operated in a condition that breached numerous regulations and that the MCA's survey and inspection regime had not identified the failings that existed on board. The owner was, therefore, able to operate *Olivia Jean* to his own standards, rather than those stated by the regulator - a risk the owner was willing to accept.

2.3 OLIVIA JEAN LIMITED AND TN TRAWLERS LIMITED

2.3.1 Failure mechanism

Both the broken ends of the port main trawl wire were discarded before they could be examined by MAIB, so the failure mechanism cannot be stated with certainty. The most likely cause of the failure is that the wire had become brittle, corroded and worn due to heavy use, regular immersion in seawater and lack of lubrication. The wire probably broke in the vicinity of the trawl block in an area where it was heavily worked when the fishing gear was recovered, and suffered abrasion from the seabed during fishing operations.

It is unfortunate that the trawl wire was apparently deliberately discarded despite instructions that it should be retained, as analysis of the fracture might well have helped prevent future accidents on board similar fishing vessels.

2.3.2 Previous failures

Olivia Jean's main trawl wire had parted on at least four occasions in the last 2 years, twice incurring serious injury. However, the owner had not learned from the previous wire partings and accidents, and had made no attempt to improve the safety of the vessel's operation. The trawl wire was not greased during operation so it was even more critical that regular, thorough visual inspections were carried out to ensure that it continued to be suitable for use. The owner had not reviewed the suitability of the main trawl wire, nor set criteria for replacing the wire to reduce the likelihood of further failures during operations.

2.3.3 Condition of work equipment

The MAIB examination of *Olivia Jean* following the accident identified numerous examples of poorly maintained fishing equipment that could have failed and resulted in injury or fatality. The port trawl block had missing parts, damage and excessive wear; the safety chains were worn; and both of the derrick heels were cracked: all these items could have failed at any time during fishing operations.

There was no planned maintenance system on board *Olivia Jean* and although the owner employed fitters and welders who were sent to repair the fleet as required, the poor condition of *Olivia Jean*'s work equipment and the history of recent wire failures indicates that this was not effective. By delaying maintenance to the last possible moment the owner and senior crew risked misjudging the likely time of failure, with the result that some equipment broke before it could be repaired or replaced. This policy has now resulted in two serious injuries to crew on board *Olivia Jean*, and clearly does not comply with the intent of the Health and Safety regulations.

Until such time as *Olivia Jean*'s owner and senior crew adopt a policy of systematic and pre-emptive maintenance, the risk that her crew could suffer serious and potentially fatal injuries will remain unnecessarily high.

2.3.4 Stability

The almost total absence of any of the mandatory documentation on board *Olivia Jean* when she was examined by MAIB inspectors prompted the Branch to review the vessel's CM files, landing records and other papers. In turn, this identified that *Olivia Jean* was routinely operating outside the limitations of her stability book, specifically:

- the continued use of 18 dredges per side instead of the specified 14 dredges, and
- regularly carrying well in excess of the approved maximum weight of catch.

The stability book approval had also been invalidated by a number of un-assessed modifications, including a crane and supporting structure, and new conveyor systems on each side.

A stability analysis conducted by MAIB confirmed that the modifications and the departures from the working restrictions resulted in *Olivia Jean* failing a number of stability criteria for the stability book loading conditions. With more than double the allowed catch on board, the vessel failed numerous stability criteria. This analysis led to MAIB issuing Safety Bulletin 1/2010 **(Annex D)**.

By operating his vessel in this manner, the owner was taking un-quantified risks with the lives of his crews.

2.3.5 Accident response

Following the accident on board *Olivia Jean* in 2007, in which a crewman was seriously injured, no attempt was made to transfer him quickly to a hospital despite the extent of his injuries. Similarly, after this accident, the coastguard was not informed of the accident until an hour had elapsed, during which time the mate discussed the injured man's condition with the MD and *Mattanja*'s skipper but did not seek professional medical advice.

In the UK, medical advice can be obtained using the services of the coastguard either indirectly or via Medlink calls to duty doctors who are available 24 hours a day. Following each of these accidents the delays in seeking medical assistance for the injured men apparently did not affect the medical outcome. However, the skipper and mate of *Olivia Jean* were not qualified to make that judgment and they took significant risks with the health of their injured crew by not seeking immediate assistance or, as a minimum, medical advice as soon as it was clear that the men could not be treated effectively on board.

2.3.6 Crew welfare

At the time of the accident, *Olivia Jean* was being operated by a crew of nine, of whom seven were foreign nationals on fixed term contracts. Some of the crew had come to the UK expecting to work on merchant vessels on deep sea trades. Instead, they found themselves working excessive hours contrary to the regulations for employed crew, in an arduous work environment, in a trade for which they had received no training. Having expected 4 month contracts, they had been told that their contracts were of 18 months duration. There was no crew agreement on board *Olivia Jean*, and the company was holding all of the Ghanaian crewmen's papers and passports, allowing them no opportunity to leave his employ.

As *Olivia Jean* did not carry a rescue craft, the MCA has issued the vessel with an exemption certificate. This permitted her to operate with not more than six crewmen on board, and normally within easy reach of shore rescue facilities. Around the time of the accident the vessel was operating with nine crewmen, and previously she had fished with 15 crew on board when one of the owner's other vessels had been unserviceable. In a written acknowledgement to the MCA, the owner had confirmed that he would operate *Olivia Jean* with no more than six crew, but he had not complied with this instruction.

Fishing has the potential to be a dangerous activity, and it is for that reason that the Seafish training courses are mandatory. However, by employing un-qualified sleep-deprived crew, in excess of the maximum number specified on the vessel's rescue boat exemption certificate, while operating the vessel outside the safe operating parameters set by the stability book, and delaying the medical assistance, it could be construed that the owner was showing a total disregard for the safety and welfare of his employees and the share-fishermen on board.

2.4 MARITIME AND COASTGUARD AGENCY

2.4.1 Survey responsibility

Olivia Jean had been surveyed in 2007 and was due an intermediate IFVC survey between March and October 2009. The MCA's survey spreadsheet showed that the last region to carry out a survey was the Western Region, but at that time[6] there was no requirement for any marine office to remind the owner that the forthcoming survey was due. However, *Olivia Jean* was detained in 2009 by the MCA's Brixham surveyor for lack of certified crew on board. Once this deficiency had been rectified the vessel was allowed to sail, but without the opportunity to conduct the imminent intermediate survey having been taken. By adopting a passive approach to intermediate IFVC surveys the MCA did not conduct the due survey within the allocated time frame; a survey that, in this case, might well have been instrumental in preventing the accident.

For his part, *Olivia Jean*'s owner was aware that an intermediate survey was due during 2009, but he took no action either to schedule the survey or to prepare his vessel for it.

The MCA's survey regime appears to have elicited only the most limited level of compliance from *Olivia Jean*'s owner, who seems to have been willing to accept detentions and delays as a possible consequence of MCA inspections, and then conduct only the required remedial action.

2.4.2 Dilution of regulations

LOLER/PUWER

The LOLER and PUWER regulations were introduced to ensure greater work place safety, and concurrent MGNs provided robust guidance to the marine and fishing industries on how to comply with the new regulations.

As part of its consultation with industry over the implementation of regulations, the MCA tabled the new LOLER and PUWER regulations at FISG. During a FISG Health & Safety Group meeting on 18 April 2007, it was clear that the fishing industry was resistant to aspects of the new regulations, and counter-proposals were tabled. Based on the argument that many items of fishing equipment were bespoke to a specific vessel, the industry proposed that such items should be excluded from complying with the rules. The MCA acquiesced, and in its subsequent guidance document gave dispensations that exempted much fishing equipment from having to comply with the LOLER regulations. Ultimately, even the limited impact of the diluted regulations was negated by the guidance to surveyors, which would appear to have left many unsure about their ability to enforce the LOLER regulations.

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[6] The MCA's procedure for issuing letters reminding owners of forthcoming surveys, introduced as a response to recommendation 2008/147, did not commence until after this accident.

A risk assessment of the hauling/shooting processes on scallop dredgers should have identified the hazard to deck crews posed by trawl beams being lifted in and out. Specifically, when the beams are being moved at height over the deck and there is dynamic movement of the vessel, a situation is created where it is possible for the equipment to fall on to and so injure personnel working on the deck. Such an accident has occurred twice on board *Olivia Jean*. While the equipment fitted to *Olivia Jean* might be bespoke, the operation of lifting in/out the trawl beams is generic to the majority of scallop dredgers. The purpose of the LOLER regulations is to ensure that all lifting equipment fitted on board is *"safe to use"*; in this case it was not.

In light of this accident, there is a need for the fishing industry's 'exemptions' from complying with LOLER to be reviewed, with the aim of ensuring that any lifting equipment which, should it fail, could fall onto crew is subject to the regulation. In the wake of this review, the guidance on LOLER and PUWER to both surveyors and the industry should be clarified to ensure that lifting and working equipment on board fishing vessels is properly maintained and surveyed.

Risk Assessment

As *Olivia Jean* was subject to the >24m fishing vessel code, and was carrying seven employed crew, the MCA required there to be a written risk assessment on board. However, when the MAIB visited the vessel on 18 October 2009 no evidence of a risk assessment document was found, and the crew were unaware of its existence. The absence of a risk assessment document was discovered by the MCA's surveyor during the IFVC survey on 4 November 2009 resulting, among other items, in the vessel being detained. An old risk assessment document was produced, which satisfied the subsequent re-survey requirement. That risk assessment was not checked, however, to verify that the risk of trawl beams falling on crew had been considered and that appropriate mitigation measures had been developed.

At present, MCA surveyors and inspectors encourage the use of the fishing vessel risk assessment, and they are required to ensure that a copy is on board at the time of survey. The MCA does not require its surveyors to verify that a particular risk assessment is effective, and it does not endorse the working procedures on board fishing vessels.

Proactive checking of work procedures and risk assessments might not be an appropriate activity for MCA surveyors. However, as the regulatory body, the MCA has an implicit duty, following a serious injury accident, to determine whether or not the owner/operator of a vessel was providing a safe place of work for his employees. Such a determination will, by necessity, involve a comprehensive review of the vessel's work procedures and risk assessments.

Until MCA surveyors review workplace practices on board fishing vessels following serious accidents, and then take the necessary remedial action, it will not be effective in regulating the fishing industry.

Working time and fatigue

Evidence collected during this investigation indicates that *Olivia Jean*'s deckhands were working almost continuously for 5 to 7 days at a time, with very few, short opportunities to rest. In port, the crew's working routine was only slightly less arduous given the vessel's rapid turnaround times.

There is no direct evidence that this accident occurred as a result of fatigue. However, over-tensioning the main trawl wire by heaving in against the safety chains would be a typical example of a fatigue-induced error. Certainly, the deck crew's extended working hours would not have left them much time for preventative maintenance, and the arduous nature of their work might well have induced them to choose 'rest' over 'maintenance' had they been given the choice.

The Fishing Vessels (Working Time: Sea-Fishermen) Regulations 2004 were introduced to control fishermen's hours of work and to ensure they had sufficient rest periods. These regulations allowed for exceptions to be made for specific fishing operations. Following consultation with the fishermen's federations represented at FISG meetings, the MCA approved the majority of fishing operations to have exceptions from complying with the regulation. There is no specific exception for scallop dredgers, yet the absence of hours of work records on board *Olivia Jean* was not challenged by the MCA's surveyors when they surveyed the vessel subsequent to the accident.

The consequence of the exceptions from the working time regulations is that owners and skippers, if they choose to, can work fishermen for long hours, with impunity. When the fishing is good there is often a strong desire to keep fishing until the boat has reached its full capacity, and to keep turn-round times in port short in order to maximise productivity. In these circumstances there is a high probability that fishermen will be affected by fatigue, and that this will increase the risk of accidents.

The fishing industry's current extensive exceptions from complying with the working time regulations should be reviewed to ensure that there are effective arrangements in place to effectively record and control the risk of fatigue on board fishing vessels.

2.4.3 Information available to surveyors

The MCA surveyor who attended *Olivia Jean* on 4 November 2009 to carry out an intermediate FVC survey after the accident was unaware that:

- the vessel's stability was marginal
- the stability book limited the vessel to 20 tonnes of catch

- the stability book limited the vessel to 14 dredge bags per side
- the stability book had been approved before the crane was added and had not been reviewed since
- the exemption certificate limited the number of crew on board to six.

This information was contained in the MCA's CM files held in Aberdeen and Cardiff, but it was not included on the MCA's SIAS records for the vessel as these had not been updated. As a consequence, there was no mechanism for the surveyor to quickly apprise himself of the vessel's survey history when he was required to conduct a short notice survey on an itinerant vessel such as *Olivia Jean*. Without this information, the surveyor who attended the vessel on 4 November 2009 was only able to survey against a generic checklist, and his colleague who completed the survey on 6 November did likewise. The vessel, therefore, was allowed to sail with a renewed certificate, but deficient in stability and with crew in excess of safe levels.

Had both surveyors had access to the vessel's records, they could have prevented the vessel from proceeding to sea until the deficient items were rectified.

Following capsize and foundering of *Harvest Hope* in 2005 the MCA conducted an internal inquiry into its survey and inspections procedures. The review identified a number of areas for improvement and made remedial recommendations, a summary of which is at section 1.14.2.

This accident has identified that there are still significant weaknesses in the MCA's administration of survey and inspection, and that urgent action is required to restore confidence that these regulatory functions are effective.

2.4.4 MCA's response to previous accidents

MAIB has records of several accidents occurring on board vessels owned by TN Trawlers Limited and Olivia Jean Limited, including one fatality and a number of personal injuries. Consequently, the similarities between the accident on 10 October 2009 and the previous one in November 2007 were immediately apparent.

MCA surveyors attended *Olivia Jean* on 4 November 2009, 19 days after the accident and after MAIB had sought clarification of the vessel's certification status from the MCA. Had the MCA been proactive in monitoring and recording fishing vessel accidents, it should have identified that TN Trawlers Limited's and Olivia Jean Limited's vessels had a history of significant accidents. Armed with this knowledge, the MCA should have ensured that it reacted swiftly to subsequent accidents involving these companies' vessels by conducting additional inspections to determine whether they were being operated safely.

Most accidents involving fishing vessels around the UK's coast are notified to the coastguard, and in some cases this information is passed on to the MCA's duty surveyor for that area. However, due to ongoing industrial action the MCA's marine offices and enforcement branch are not receiving timely notification of accidents.

The MCA needs to establish a process that results in surveyors attending vessels in the wake of accidents involving death or serious injury to ascertain whether or not the working environment was safe and the vessel was being operated safely.

2.4.5 Regulatory effectiveness

This investigation has identified a number of weaknesses in the MCA's regulation of the fishing industry, including:

- The LOLER, PUWER, and Working Hours regulations have been emasculated to the point of ineffectiveness following consultation with industry and are not being enforced because the guidance to surveyors is contradictory or confusing.
- Aspects of the Health and Safety regulations are not being enforced due to confusion over their applicability to vessels manned by a combination of employed and share-fishermen.
- The administration of fishing vessel survey and inspection has significant weaknesses that are diluting the effectiveness of the surveys.
- There is no mechanism for monitoring vessels' accident rates.

The net effect with respect to *Olivia Jean* is that the owner was able to continue operating the vessel in breach of multiple regulations.

While safety remains the owner's responsibility, those owners who choose not to comply with the regulations are able to risk the safety of their vessels and their crews, apparently unchallenged by the administration charged with regulating the industry.

As encapsulated in MAIB's recently published Trilogy Report recommendation 2010/112, MAIB believes that a policy change is required within the MCA to improve fishing vessel standards and fishermen's occupational safety. Specifically, this should encompass: improving its administration; resolving regulatory ambiguity; reducing inappropriate concessions; and providing clear and robust guidance to its surveyors and the fishing industry at large. These actions should be backed by a robust policy of detention and, where necessary, enforcement against owners and operators who flout the regulations and routinely place the lives of their crews at risk.

SECTION 3 - CONCLUSIONS

3.1 SAFETY ISSUES DIRECTLY CONTRIBUTING TO THE ACCIDENT WHICH HAVE RESULTED IN RECOMMENDATIONS

1. Parting of the trawl wire caused the bridle chains to fall and injure the fisherman standing on the conveyor below. The mechanism for the wire failure is not known, however it is thought the wire's strength had been reduced as it had become brittle and worn through extensive use. [2.2]

2. There was no formal inspection or maintenance routine for the main trawl wires or for other fishing gear on board, and the condition of *Olivia Jean*'s fishing gear was such that failure resulting in serious injury could have occurred at any time. [2.3.3]

3.2 OTHER SAFETY ISSUES IDENTIFIED DURING THE INVESTIGATION ALSO LEADING TO RECOMMENDATIONS

1. *Olivia Jean*'s main trawl wire has parted on at least four occasions in the last 2 years, twice resulting in serious injury. However, the owner had not learned from the previous accidents, and had made no attempt to improve the safety of the vessel's operation. [2.3.2]

2. The MAIB's stability analysis confirmed that the addition of weight to *Olivia Jean* resulted in the vessel failing a number of stability safety criteria, and this was compounded by the vessel routinely operating outside the limitations imposed in her stability book. [2.3.4]

3. By not seeking immediate medical advice the skipper and mate were taking unnecessary risks with the health of their crew. [2.3.5]

4. By employing unqualified, sleep-deprived crew, with crew numbers in excess of the vessel's rescue boat exemption certificate, the owner was disregarding the safety and welfare of his crew. [2.3.6]

5. The MCA's survey regime elicited only the most limited level of compliance from *Olivia Jean*'s owner who was willing to accept detentions and delays as a possible consequence of inspections and then conduct only the required remedial action. [2.4.1]

6. The main trawl wire that failed on *Olivia Jean* was not subject to inspection under LOLER. Consequently, there is a need for the fishing industry's exemptions to compliance with LOLER to be reviewed. Following this, the guidance on LOLER and PUWER to both surveyors and the industry should be clarified to ensure that lifting and working equipment on board fishing vessels is properly maintained and surveyed. [2.4.2]

7. The MCA has an implicit duty, following a serious injury accident, to determine whether or not the owner/operator of a vessel was providing a safe place of work for his employees. This evaluation will involve a comprehensive review of the vessel's work procedures and risk assessments. Until MCA surveyors review workplace practices on board fishing vessels following serious accidents it will not be effective in regulating the fishing industry. [2.4.2]

8. Evidence indicates that *Olivia Jean*'s deckhands were working almost continuously for 5-7 day periods at a time with very few opportunities to rest. To reduce the risk of fatigue-induced accidents the fishing industry's extensive exceptions from the working time regulations should be reviewed to ensure the risk of crew fatigue on board fishing vessels is properly controlled. [2.4.2]

9. Due to a lack of information about *Olivia Jean*'s survey history, MCA surveyors allowed her to sail with an endorsed IFVC but deficient in stability and with crew in excess of permitted levels. Despite being the subject of an internal review, there are still significant weaknesses in the MCA's administration of survey and inspection and urgent action is required to ensure that these regulatory functions are made effective. [2.4.3]

10. Had the MCA been proactive in monitoring and recording fishing vessel accidents, it should have identified that TN Trawlers Limited's and Olivia Jean Limited's vessels had a history of significant accidents. The MCA should establish a process that results in surveyors attending vessels in the wake of accidents resulting in death or serious injury to ascertain whether or not the vessel was being operated safely. [2.4.4]

11. In the case of *Olivia Jean*, the MCA's ability to establish and impose the regulations has been ineffective, and the owner was able to operate the vessel in flagrant breach of existing regulations. A policy change is required within the MCA to improve fishing vessel standards and fishermen's occupational safety. [2.4.5]

3.3 SAFETY ISSUE IDENTIFIED DURING THE INVESTIGATION WHICH HAS NOT RESULTED IN RECOMMENDATIONS

1. The failure mechanism could not be established because the trawl wire was not retained by *Olivia Jean*'s crew. [2.3.1]

SECTION 4 - ACTION TAKEN

In January 2010, the Marine Accident Investigation Branch issued Safety Bulletin 1/2010 – Safety Critical Stability issues identified onboard the beam scallop *Olivia Jean*, following which:

- **Olivia Jean Limited**:
    - Ceased operation of *Olivia Jean* on 11 January 2010 until a stability assessment could be carried out and agreement reached with the MCA that the vessel complied with her stability requirements.
- The **Maritime and Coastguard Agency** has:
    - Issued a Prohibition Notice preventing *Olivia Jean* from sailing until her stability had been verified.
    - Permitted the vessel to make a single voyage to a repair yard provided that stability conditions for the voyage are submitted and approved by the MCA before sailing.
    - Agreed to carry out a survey of the vessel following repairs, until which time the vessel will not be permitted to fish.

SECTION 5 - RECOMMENDATIONS

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

2010/123 Consider the findings of this investigation when assisting the Department for Transport to address MAIB Recommendation 2010/112, including the need to improve fishing vessel standards and occupational safety by:

- Reviewing the application of LOLER, PUWER, risk assessment and working time regulations on board fishing vessels to ensure that they are suitable for the task of improving safety and reducing accidents; and,
- Providing clear and robust guidance to its surveyors and the fishing industry at large.
- Ensuring that accurate records are maintained such that surveyors are provided with the information required to survey fishing vessels effectively.
- Improving its recording of accidents on vessels' SIAS records to identify trends and act upon them.

Olivia Jean Limited and **TN Trawlers Limited** are recommended to:

2010/124 Ensure their vessels are operated within the restrictions and limitations of their certification and any additional requirements imposed by the regulatory authorities.

2010/125 Establish proactive and auditable management and maintenance procedures that will ensure:

- A safe working environment is provided to vessel crews
- Fishing equipment is maintained in a good state of repair and is suitable for the intended task
- Lessons learned from accidents and equipment failures are used to improve onboard working practices.

Marine Accident Investigation Branch
August 2010