ACCIDENT REPORT

Report on the investigation of the

fatal accident to a crew member on board

the scallop dredger

Olivia Jean (TN35)

north-east of Aberdeen, Scotland

28 June 2019

MAIB

MARINE ACCIDENT INVESTIGATION BRANCH

VERY SERIOUS MARINE CASUALTY REPORT NO 5/2021 MAY 2021

The United Kingdom Merchant Shipping

(Accident Reporting and Investigation)

Regulations 2012 – Regulation 5:

"The sole objective of the investigation of an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 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 14(14) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012, 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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For all enquiries:

Marine Accident Investigation Branch
First Floor, Spring Place
105 Commercial Road
Southampton
SO15 1GH
United Kingdom

Email: maib@dft.gov.uk
Telephone: +44 (0)23 8039 5500

Press enquiries during office hours: +44 (0)1932 440015
Press enquiries out of hours: +44 (0)20 7944 4292

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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

CCTV	-	Closed-circuit television
FSM Code	-	Fishing Safety Management Code
IFVC	-	International Fishing Vessel Certificate
ILO	-	International Labour Organization
ILO188	-	International Labour Organization Convention No.188 Work in Fishing Convention
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Note
mm	-	millimetre
MSN	-	Merchant Shipping Notice
nm	-	nautical mile
Seafish	-	Sea Fish Industry Authority
STCW	-	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 (as amended)
UTC	-	Universal co-ordinated time
VHF	-	Very High Frequency

TIMES: all times used in this report are UTC+1 unless otherwise stated.

Olivia Jean

SYNOPSIS

At about 2200 on 28 June 2019, an Indonesian engineer on board the scallop dredger *Olivia Jean* was fatally injured after being struck on the head by one of the vessel's scallop dredge towing bars while working on deck. The vessel was approximately 39 nautical miles east of Aberdeen, Scotland.

The engineer had replaced two worn dredges on the starboard towing bar and stood clear as the skipper used the winch and derrick to raise and realign the dredge gear. During the process, the engineer forgot to remove one of the towing bar's securing chains, and the dredge gear became snagged. Although the skipper had shouted instructions to the engineer to remain clear as he attempted to free the gear, the engineer stepped between the gear and the vessel's accommodation and wheelhouse superstructure as the snagged bar released and swung inboard.

The engineer suffered crush injuries to his head and was airlifted from the vessel and taken to hospital for emergency treatment. He died 12 days later.

The MAIB investigation identified that:

- The deck operations at the time of the accident were not being properly supervised or controlled. The deck crew were working independently of each other and the skipper and engineer both became task focused after things started to go wrong; neither had a full understanding of the situation as it developed.

- Communication on board *Olivia Jean* was adversely affected by a lack of a common language and a poor level of English language proficiency among the foreign crew.

- The crew did not re-assess the risks of the work required when an unexpected problem had occurred.

- The controls listed in the vessel's risk assessments were not being followed. Had the crew been wearing head protection while working on deck during dredge gear lifting operations, the severity of the engineer's head injuries might have been reduced.

- The vessel's safety management system was incomplete and was not being used or maintained on board *Olivia Jean*.

- The safety culture across the fleet of fishing vessels managed by TN Enterprises Ltd was weak.

Recommendations have been made to *Olivia Jean*'s managers, TN Enterprises Ltd, aimed at improving the safety management on board its fleet, through the utilisation and full implementation of a fishing safety management system, as recommended by the Maritime and Coastguard Agency in its Marine Guidance Note 596 (F) - Fishing Safety Management Code: *Helping to improve the management of safety on Fishing Vessels*.

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *OLIVIA JEAN* AND ACCIDENT

SHIP PARTICULARS	
Vessel's name	*Olivia Jean*
Flag	United Kingdom
Classification society	Not applicable
IMO number / fishing numbers	7907867 / TN 35
Type	Scallop dredger
Registered owner	Olivia Jean Ltd
Manager(s)	TN Enterprises Ltd
Construction	1980
Year of build	Steel
Length overall	33.86m
Registered length	29.99m
Gross tonnage	242
Minimum safe manning	Not applicable
Authorised cargo	Fish/shellfish

VOYAGE PARTICULARS	
Port of departure	Peterhead, Scotland
Port of arrival	Peterhead, Scotland
Type of voyage	Coastal
Cargo information	Scallops
Manning	5

MARINE CASUALTY INFORMATION	
Date and time	28 June 2019, about 2200
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	39 nautical miles to the north-east of Aberdeen
Place on board	Main deck
Injuries/fatalities	1 fatality
Damage/environmental impact	None
Ship operation	Fishing
Voyage segment	Mid-water
External & internal environment	Light winds, calm seas, dark light
Persons on board	5

1.2 BACKGROUND

Dredging for scallops involves a series of dredges being dragged along the seabed behind a towing bar **(Figure 1)**. *Olivia Jean*'s dredges each consisted of a rigid triangular frame, a spring-loaded toothed bar and collecting bags. The spring-loaded toothed bars raked through the seabed and flipped the scallops into the collecting bags. Each collecting bag, known as a 'belly', was made up of interlinked steel rings and welded washers that formed a chain mesh. The action of dragging the belly across the seabed caused the steel rings and washers to wear, and therefore, the bellies needed to be inspected regularly and changed periodically.

Olivia Jean was fitted with hydraulically operated outer hull tipping doors, which were designed to mechanically invert the dredges and empty the scallops onto the vessel's catch conveyors **(Figure 2)**. As the dredge gear was hoisted out of the water and alongside the vessel, the crew attached securing chains to the forward and aft ends of the towing bars to hold them steady and away from the tipping doors. The securing chains were shackled to pad eyes on the deck and attached to the towing bars by hooks. When the tipping doors started to rotate, the teeth that ran along their bottom outer edge engaged with the dredge bag tipping rings. As the dredges began to invert, the towing bars simultaneously lowered into their deck crutches. *Olivia Jean*'s dredge gear winches and tipping doors were controlled from a central console in the wheelhouse.

1.3 NARRATIVE

At about 1630 on 27 June 2019, *Olivia Jean* departed Peterhead and headed to fishing grounds about 30nm off the coast. Shortly after midnight (28 June), *Olivia Jean* arrived at the fishing grounds and its crew began to dredge for scallops. The dredges were routinely towed for about 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.

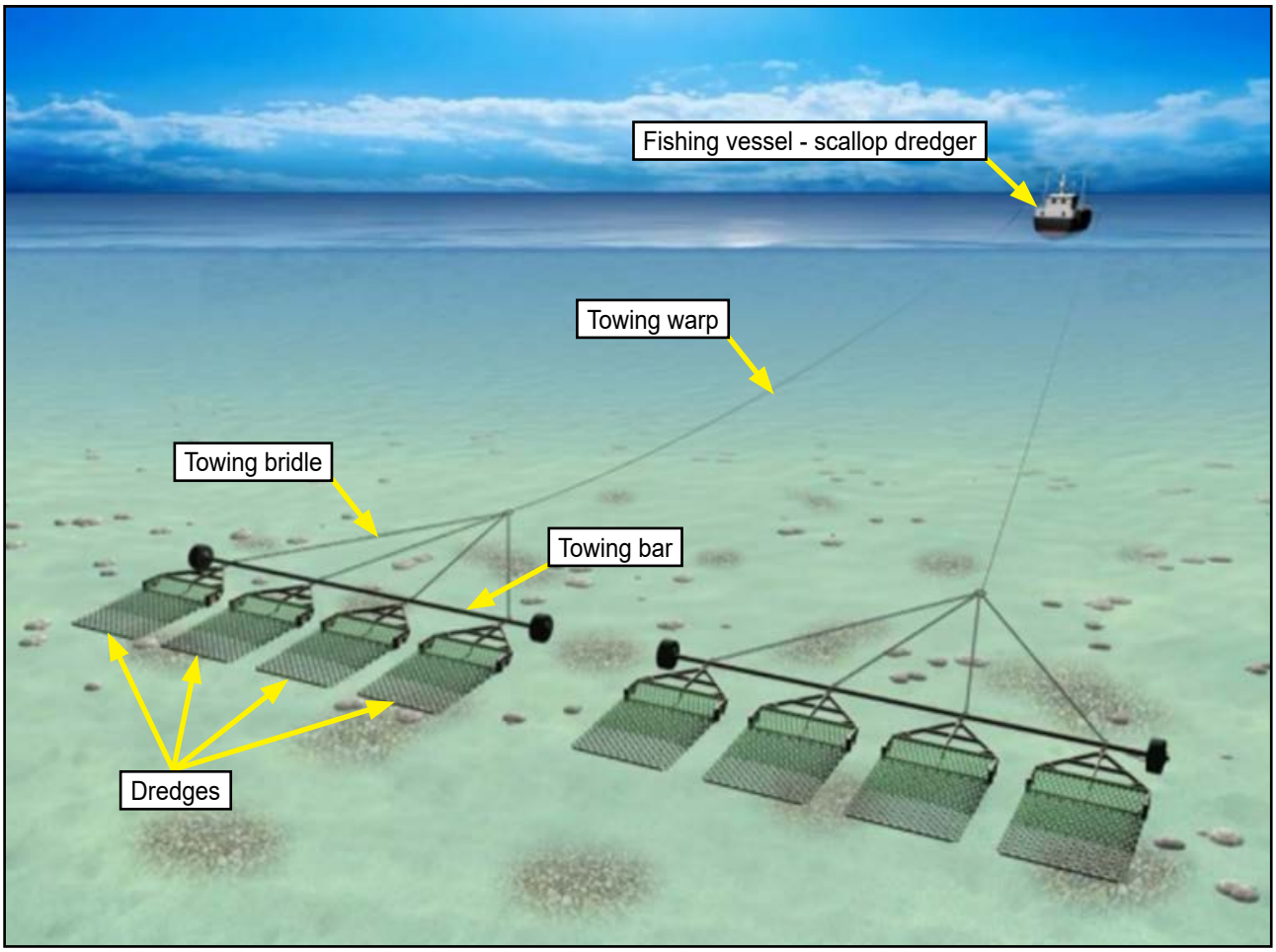
In the late afternoon, after a series of disappointing hauls, the skipper decided to move to another fishing ground about 39nm to the north-east of Aberdeen. During the short voyage, the skipper inspected the dredge gear and noticed that one of the dredge bellies on the port towing bar and two dredge bellies on the starboard towing bar were damaged and needed to be changed. One of the deckhands was tasked to work on the port side bar and the vessel's engineer, Riyanto Yoyok, to work on the starboard side. The skipper was in the wheelhouse alone, and the mate and the second deckhand were asleep in their bunks below.

With *Olivia Jean'*s derricks in the upright position, the tipping doors raised and the dredge bars sitting in their cradles, work began to replace the damaged dredges. The deckhand and engineer released and unthreaded the dredge bar safety chains[1] from the dredge frames and levered the worn bellies off the tipping door teeth. They then unshackled the dredge frames from the bottom of the towing bars and removed the affected dredges. The new dredges were lifted up and shackled onto the bottom of the towing bars.

The towing bars needed to be lifted to allow the crew to refit the safety chains, and to achieve this their securing chains needed to be unhooked. The deckhand unhooked the port towing bar's fore and aft securing chains, but the engineer inadvertently left the starboard towing bar's aft securing chain attached **(Figure 3)**.

[1] A safety chain was woven through each dredge frame to prevent its loss should the shackle securing the frame to the towing bar fail.

Image courtesy of Seafish



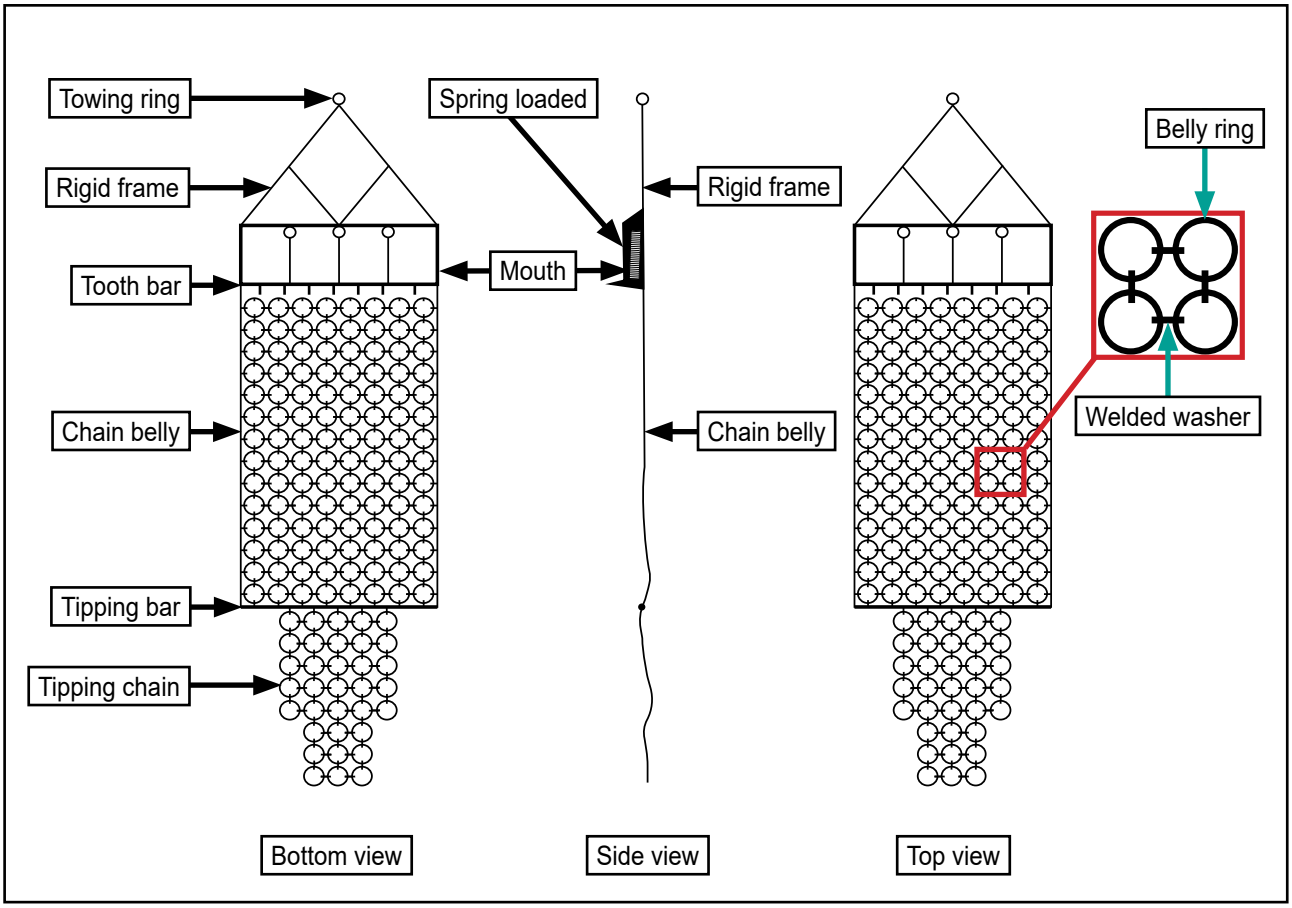


Figure 1: Dredge gear

Image courtesy of Fishing News (https://fishingnews.co.uk)

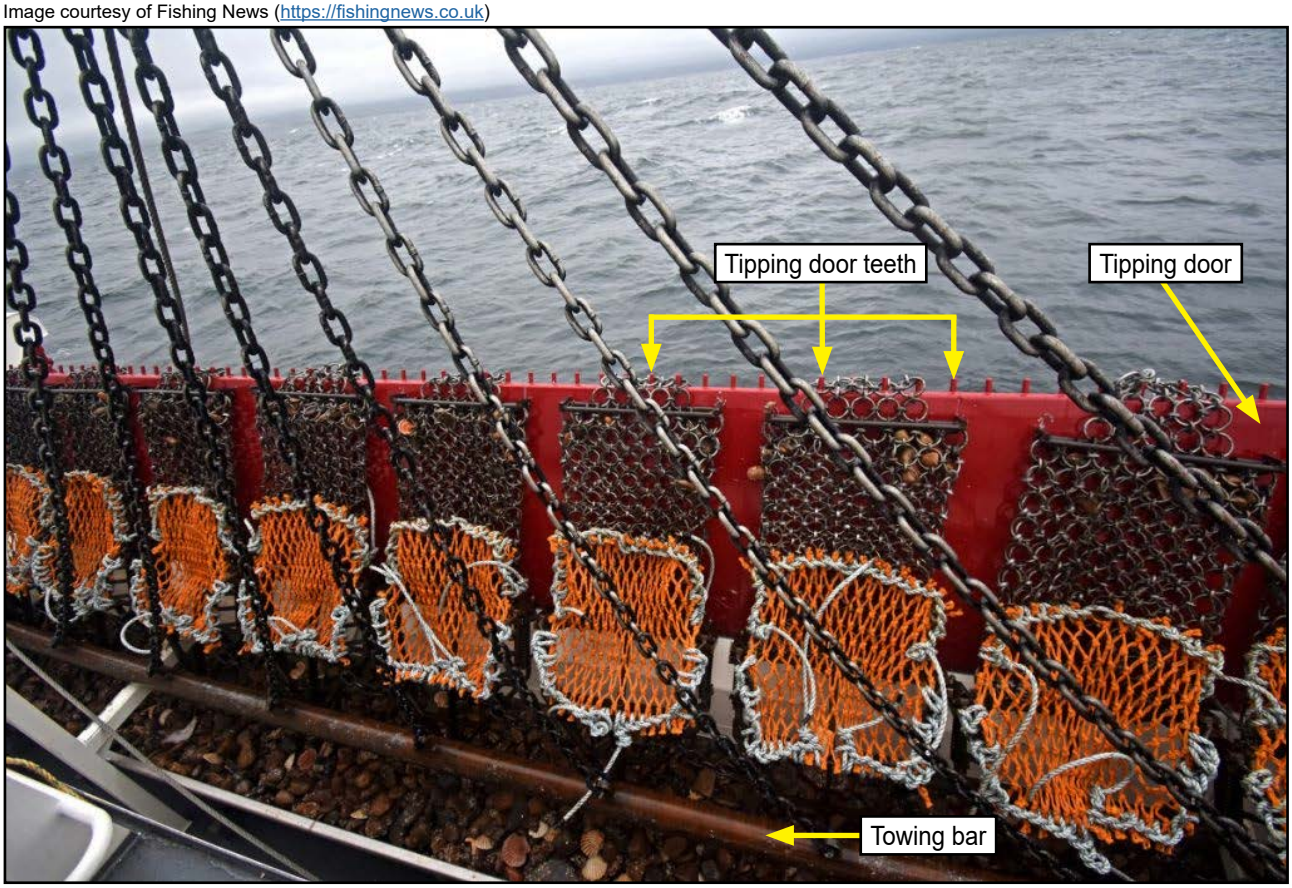


Figure 2: Tipping doors and catch conveyor (similar arrangment)

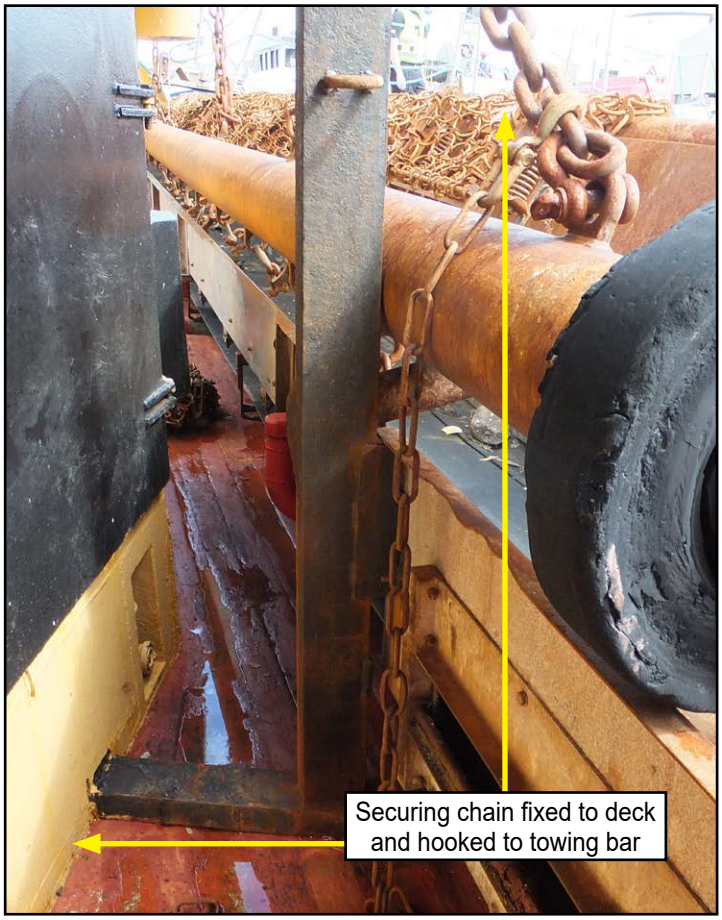


Figure 3: Starboard aft towing bar crutch and securing chain

The skipper, in the wheelhouse, checked that the deckhand and engineer were standing clear of the dredge gear and then lowered the derricks by about 20˚ on both sides. This was to ensure that the towing bars would rest securely against the raised tipping doors when lifted **(Figure 4)**. The skipper lifted the port towing bar first and the deckhand began to reconnect its safety chains. The skipper then turned his attention to the starboard towing bar. Again, seeing that the engineer was standing clear, the skipper began to lift the starboard bar. As he did so, its aft securing chain became taut and only the forward end of the towing bar began to lift. This caused the bar to rest at an angle against the tipping door **(Figure 5)**.

Puzzled by the situation, the skipper left the central control console and crossed the wheelhouse to the starboard window to take a closer look. He quickly realised that the aft securing chain was still attached to the towing bar and saw that the engineer had climbed on to the conveyor belt in readiness to connect the safety chains. On seeing this, the skipper decided to lower the towing bar to slacken the securing chain so that it could be unhooked.

The skipper shouted his intentions to the engineer and told him to get down from the conveyor belt. The engineer acknowledged the instruction and climbed down onto the deck. When the skipper returned to the centre console he saw the engineer had moved clear of the dredge gear and to a position of safety. The skipper then began to lower the towing bar. As he did so, the forward end of the towing bar became snagged on the tipping door teeth. To free the gear, the skipper attempted to lift and slew the towing bar by raising the derrick and hauling on the towing warp winch. This was successful, and the towing bar swung free.

While this was going on, the engineer had walked aft, out of the skipper's line of sight, and stepped into the narrow gap between the dredge gear and the vessel's accommodation superstructure. As he did so, he was struck on the head and pinned against the vessel's accommodation bulkhead by the swinging towing bar.

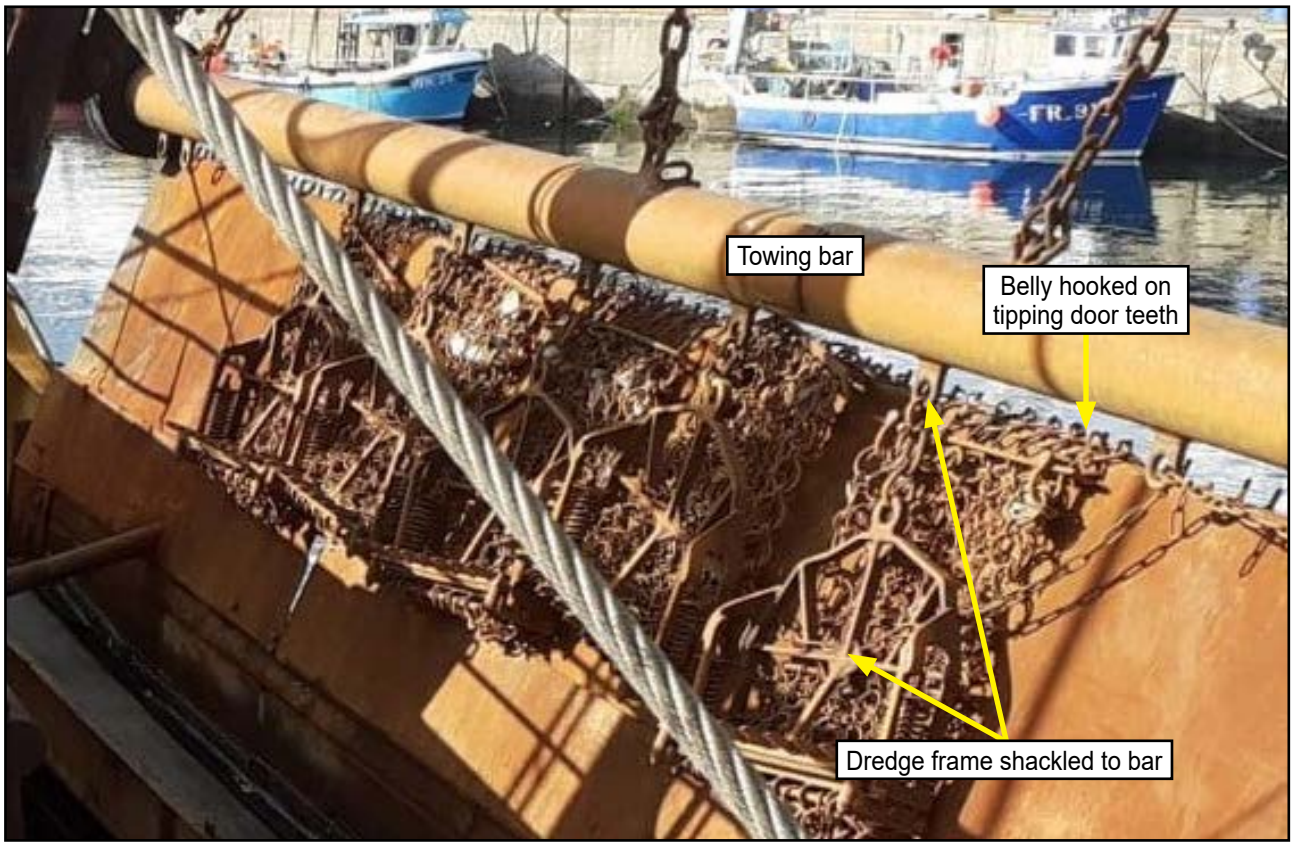


Figure 4: Towing bar resting on upturned tipping door

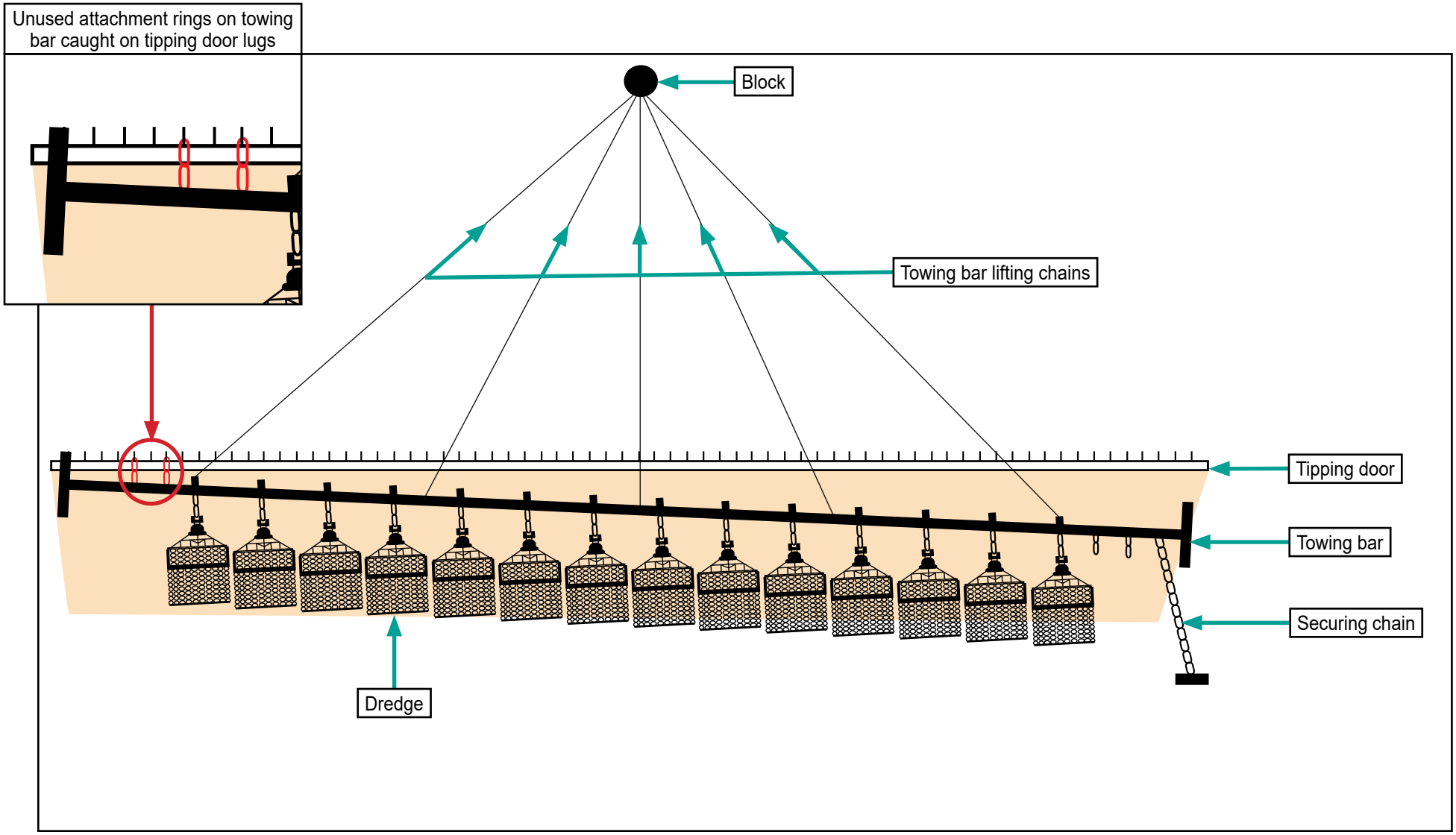


Figure 5: Starboard towing bar snagged by its aft securing chain

When the skipper attempted to lower the towing bar he noticed that it had not dropped properly, and stopped the winch. He shouted to the engineer through the centreline wheelhouse window but, when there was no answer, he went to the starboard side window, looked out, and saw the engineer trapped between the towing bar and the accommodation bulkhead **(Figure 6)**. He dashed back to the central controls and lifted the towing bar to release the engineer. He also shouted to the deckhand on the port side of the deck, and instructed him to go and help the engineer. The skipper sounded the general alarm to alert the rest of the crew, then ran down into the accommodation and told them to get up and go onto the deck to help. He then ran onto the deck to see what was happening.

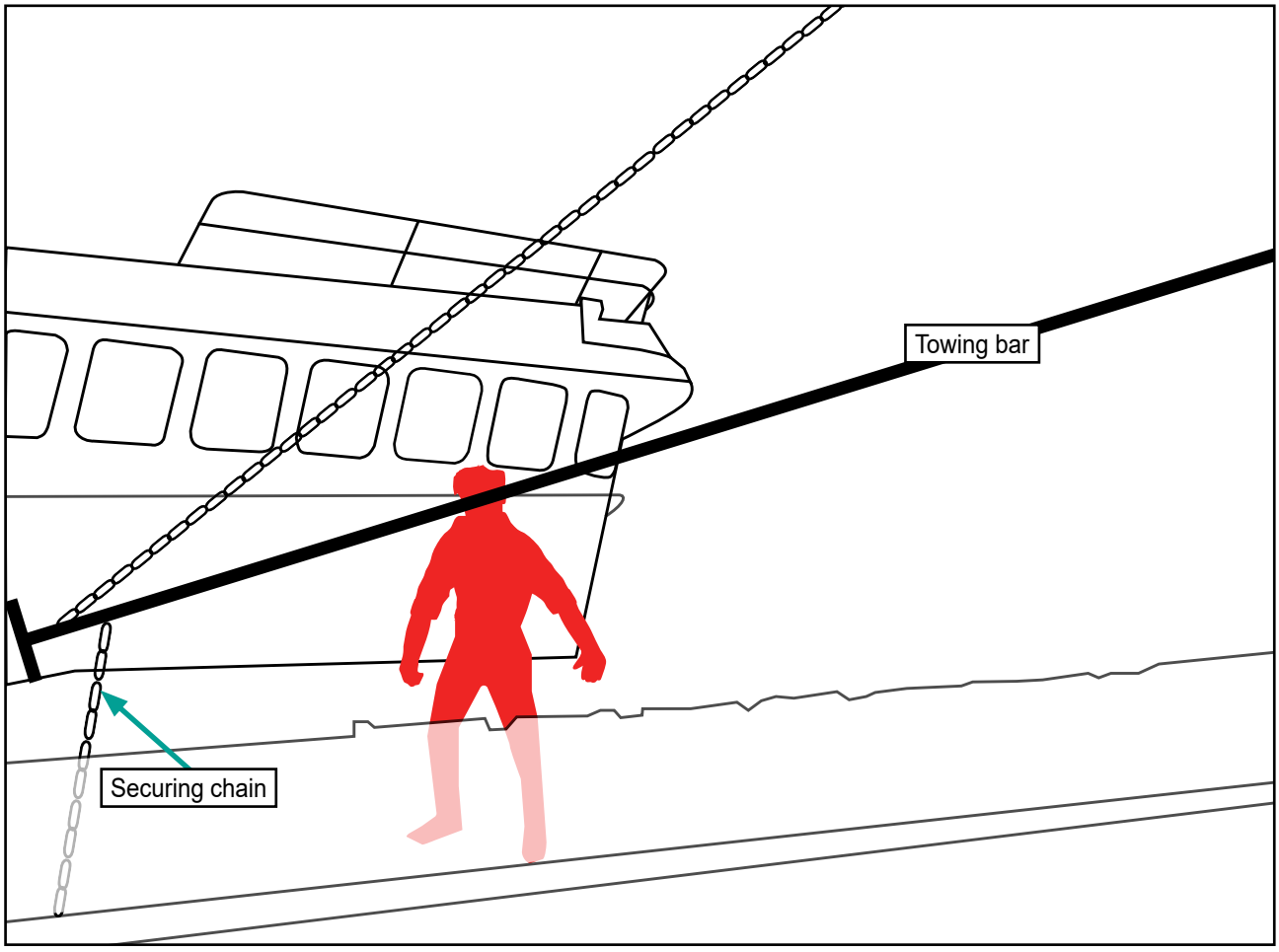


Figure 6: Engineer caught between towing bar and accommodation

1.4 POST-ACCIDENT

When the deckhand arrived at the accident site, he found the engineer lying face down on the conveyor; he was unconscious and it was obvious that he had suffered a serious head injury. When the mate and second deckhand arrived on deck they helped move the engineer to a safer position.

At 2204, the skipper made a Very High Frequency (VHF) radio call to the coastguard and requested immediate medical assistance by helicopter. Through the coastguard's medical assistance system, the skipper received advice from a doctor while waiting for the helicopter to arrive. The crew moved the engineer to the deck area behind the wheelhouse where there was more room to attend to him. At 2252, a rescue helicopter arrived on scene, and a doctor was lowered onto *Olivia Jean*.

Following the doctor's assessment of the engineer's condition, he and the engineer were winched off *Olivia Jean*'s deck and airlifted to hospital. *Olivia Jean* made its way back to Peterhead, arriving at 0300 on 29 June.

Olivia Jean's engineer spent 9 days in the intensive care unit at the Aberdeen Royal Infirmary, before being transferred to a specialist neurological unit at the Edinburgh Western General Hospital, where he died on 10 July 2019.

1.5 POSTMORTEM EXAMINATION RESULTS

The postmortem report stated that the engineer's cause of death was head injury. The report stated that there were no other notable injuries.

1.6 ENVIRONMENTAL CONDITIONS

At the time of the accident, there was light wind with calm seas and clear visibility. It was dark.

1.7 CREW

1.7.1 Background

Olivia Jean had a crew of five: the skipper, mate, engineer and two deckhands. The skipper and mate were both British nationals, the engineer was Indonesian, and the two deckhands were Sri Lankan. The skipper generally worked days and the mate worked nights. The engineer and the deckhands split their own hours so that there were always two available for working on deck when required. Neither the engineer nor the deckhands were given the responsibility of overseeing the deck operations, they were all considered to have the same rank or status. *Olivia Jean*'s crew typically fished for 7 days before returning to port to land their catch.

1.7.2 Language and communication

English was the working language on vessels operated by *Olivia Jean*'s managing company, TN Enterprises Ltd. The Maritime and Coastguard Agency (MCA), as the regulator for UK flagged fishing vessels, required[2] that one officer on board be proficient in English and expected a common language[3] between the crew. It was therefore the responsibility of the vessel owner or manager to ensure that this requirement is met.

Olivia Jean's foreign crew were employed through a crewing agency based in Fraserburgh, Scotland. The crewing agency sourced its fishermen from different parts of Eastern Europe and around the world. There was no formal method used for assessing the verbal and written proficiency in English of the foreign fishermen it recruited, although the vessel managers did, on occasion, undertake video calls with prospective crew.

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[2] MSN 1825 (F) - Certificates of Equivalent Competency: Fishing Vessels Training & Certification Guidance Part F2.

[3] MGN 596 (F) - FISHING SAFETY MANAGEMENT CODE: Helping to improve the management of safety on Fishing Vessels.

1.7.3 Engineer

The engineer, Riyanto Yoyok, was 37 years old and had spent most of his career working on large fishing vessels in Indonesia. He had joined *Olivia Jean* in September 2018 and was employed with dual responsibility to work as the vessel's engineer, and as a third deckhand as needed. He held an Engineer Officer Certificate of Competency Class 2 for a fishing vessel issued by the Government of Indonesia and had completed several safety courses in Indonesia. He was reported to have limited English language proficiency.

At the time of the accident the engineer was wearing oilskins, safety boots and an inflatable personal flotation device.

1.7.4 Skipper

The skipper was 30 years old and was a career fisherman. He had worked for TN Enterprises for 18 months and was *Olivia Jean*'s senior skipper. He held a Deck Officer (Fishing Vessel) Class 2 Certificate of Competency issued by the MCA and had completed all the safety courses required to work on a UK fishing vessel[4].

1.7.5 Mate

The mate was 34 years old and was a career fisherman. He held no formal certificate of competency but had completed most of the elements for a Deck Officer (Fishing Vessel) Class 2 Certificate of Competency. He had also completed a bridge watchkeeping training course and basic sea survival, firefighting and prevention course, first-aid, and health and safety courses.

1.7.6 Deckhands

The two deckhands were both experienced fishermen, one had joined *Olivia Jean* in December 2018, the other had transferred from another company owned vessel 9 days before the day of the accident, and was working on deck when the accident happened. Neither had attended all the safety courses required for the crew of UK fishing vessels and both had limited English language proficiency.

1.8 *OLIVIA JEAN*

Olivia Jean was built in 1980 as a beam trawler. Previously named *Sasha Emiel*, the vessel was purchased by Olivia Jean Ltd in 2007, was renamed *Olivia Jean*, and converted for scallop dredging. It was fitted with its hydraulic tipping doors in 2010.

Olivia Jean's towing bars stretched the length of the main working deck, from the forecastle to just aft of the wheelhouse. They were designed to tow up to 18 conventional dredges, but to comply with regulations for dredging in Scottish waters the number of dredges had been reduced to 14 per side. This was achieved by removing two dredges at either end of the towing bars, leaving their attachment rings free **(Figure 7)**. It was these unused rings at the forward end of the towing bar that became snagged on the tipping door teeth.

The main towing warps were rigged through double sheave blocks at the derrick heads, and through large single sheave blocks attached to the chain towing bridles.

[4] New entry fishermen must complete basic safety courses in sea survival, elementary first-aid; fire-fighting and health and safety. Fishermen with 2 years' experience must also complete a 1-day safety awareness and risk assessment course.

Figure 7: Towing bar with dredge frames removed (aft end)

1.9 DREDGING OPERATIONS

To haul the dredge gear, the towing bars were first brought to just below the water surface on each side using the main towing warp winches. With the vessel's engine placed into neutral, the derricks were then lifted slowly to bring the dredge gear out of the water and to the vessel's sides. The securing chains were hooked on to the towing bars as they were being raised by the skipper. Each towing bar was then lifted clear of the vessel's bulwark and tipping doors until the securing chains were taut, holding the bar steady with the dredge bags against the tipping doors. The hydraulic tipping doors were then raised. As the tipping doors rotated, their teeth engaged with the dredge bag tipping rings, inverting the dredges and causing their contents to empty on to the catch conveyor below. The skipper then lowered the bar into its cradle. Once the bar was safely stowed into its cradle, the crew stepped forward and shook the bellies to empty the final contents.

To shoot the dredge gear, the towing bar securing chain hooks were released, the derricks lowered by about 20˚ and the towing bars raised so that they rested against the tipping doors. The vessel's engine was then put into forward gear and the tipping doors were lowered to release the dredges. The derricks were then lowered to their horizontal towing position, dropping the dredge gear into the water. The force of the passing water brought the towing bars perpendicular to the side of the vessel ready for lowering to the seabed.

1.10 VESSEL SAFETY MANAGEMENT

1.10.1 TN Enterprises Ltd

TN Enterprises Ltd managed a fleet of scallop dredgers from its headquarters in Annan, Dumfries and Galloway, Scotland. The vessels were typically manned with British skippers and mates, and a mix of nationalities in the remaining crew positions. These included eastern European, Sri Lankan, Indonesian and Ghanaian nationals. While the skipper controlled the day-to-day safety management of fishing

operations on board *Olivia Jean*, the certification, management procedures and policies, planned maintenance and generic risk assessments were controlled by the vessel managers.

The company used the online SafetyFolder[5] service to manage safety across its fleet. The service was provided for free and was managed by a committee of users and fishing organisations who develop the service to best suit the industry.

TN Enterprises had previously engaged the services of a marine safety officer to review its safety management system and implement changes fleetwide. This initiative was an action taken following an earlier accident on board *Olivia Jean* and subsequent MAIB investigation [see section 1.13.1]. As a result of this, the company introduced a type-approved electronic modular fleet management system. This was found to be too complex for its operational needs, so within a few years the company reverted to the SafetyFolder service.

1.10.2 Fishing Safety Management Code

The FSM Code recommended a framework for supporting the safe operation of fishing vessels by providing guidance for establishing a safety management system. It was developed to assist owners to comply with the International Labour Organization (ILO) Convention No.188 *Work in Fishing Convention* (ILO188). The MCA's Marine Guidance Note (MGN) 596 (F) *Fishing Safety Management Code: Helping to improve the management of safety on Fishing Vessels* provided guidance on the contents of the FSM Code and how to ensure management systems remained current and relevant.

The FSM Code suggested that a safety management system should include the following documents:

- Safety management manual
- Company safety and environmental policies
- Crew training and qualification records
- Planned maintenance system
- Vessel operations (procedures and risk assessment)
- Testing / certification of life saving appliances and fire-fighting equipment
- Accident and incident reporting
- Documentation evidence of reviews of safety management system and self-audits
- Environmental management and pollution prevention
- Records of drills and safety training.

[5] www.safetyfolder.co.uk is a free service offered to the UK fishing industry.

Although the company used the online version of the SafetyFolderacross its fleet, a paper copy was held on board *Olivia Jean*. The online and on board versions of the SafetyFolder had not been kept up to date and contained different entries. There were no written operating procedures available on board.

1.10.3 Training

Fishermen serving on board UK registered fishing vessels must complete the mandatory safety training courses as detailed in MGN 411 (M+F) – *Training and Certification Requirements for the Crew of Fishing Vessels and their Applicability to Small Commercial Vessels and Large Yachts*. Before starting work as a fisherman all new entrants must have completed a 1-day Basic Sea Survival course. Within 3 months of starting work, all new entrant fishermen must complete the following courses:

- 1-day Basic Fire Fighting and Prevention course;
- 1-day Basic First Aid; and
- 1-day Basic Health and Safety.

In addition to the courses required of new entrants, all experienced fishermen (2 years or more) and fishermen coming from outside the UK, regardless of whether they hold a Certificate of Competency, must complete a 1-day Safety Awareness and Risk Assessment course.

There were accepted equivalent courses for basic sea survival, basic first-aid, and basic fire-fighting and prevention that could be undertaken outside the UK. There was no accepted equivalent for the Basic Health and Safety or the Safety Awareness and Risk Assessment course, which was delivered at numerous colleges and training centres located around the UK. None of *Olivia Jean*'s deck crew had completed this mandatory training despite having worked on vessels operated by TN Enterprises for some time, and having had ample opportunity to attend a training centre.

When new crew joined *Olivia Jean,* they were given an induction tour of the vessel by the skipper that included a brief on the location and use of operational and safety equipment. *Olivia Jean*'s safety folder contained a pro-forma checklist **(Annex A)** for crew inductions, but no records were kept, and the pro-forma was not followed.

New crew were trained in the use of the fishing gear, and their roles during fishing operations were explained to them. The training was completed in English, and mainly conducted by either the skipper or mate, with translation by other crew members when required. The operational training did not follow a structure or checklist and was principally conducted on an 'ad hoc' basis. Anecdotal evidence presented during the investigation revealed that the failure to release the towing bar securing chain hooks had happened on board on more than one occasion prior to the accident.

The training on board included periodic safety drills, which were recorded in the vessel's safety folder and logbook. These took the form of either a practical or a table-top exercise. The most recent recorded safety drill was completed on 10 June 2019 and was noted to have gone well.

1.10.4 Fishermen's Safety Guide

The MCA's Fishermen's Safety Guide provides guidance on safe working practices, on lifting operations being planned and supervised, and emergency procedures for fishermen, and is available for free online[6]. Section 5 of the guide, *Fishing operations*, contained information and guidance on the *General considerations for working and lifting equipment*, which included:

- *Are lifting operations planned, supervised and carried out in a safe manner by people who are competent?*
- *Has a suitable Risk Assessment been carried out before the operation begins?*
- *The hauling and hoisting gear should have appropriate safety devices for emergencies, including emergency stop facilities. A duplicate set of emergency stop facilities is to be provided in the wheelhouse.*
- *The gear operator must have a clear view of the gear and any crew member working near it.*
- *If hauling gear is controlled from the wheelhouse, the operator must also have a clear view of the crew working near the gear, either directly or via any other suitable medium.*
- *A reliable communications system must be used between the wheelhouse and the working deck and the crew shall be trained in the use of hand signals.*

1.10.5 Health and safety general duty

Guidance within the MCA's MGN 20 (M+F)[7] *Implementation of EC Directive 89/391 Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997* stated 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 principles of these general duties applicable to *Olivia Jean*'s owner/manager included, inter alia:

- Avoiding or minimising risks;
- Evaluating unavoidable risks and taking action to minimise them;
- Adopting safe work patterns and procedures; and
- Providing adequate and relevant information and instructions for workers.

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[6] https://www.gov.uk/government/publications/fishermens-safety-guide.

[7] MGN 20 (M+F) was withdrawn on 8 July 2020 and, for fishing vessels only, was replaced with MGN 587 (F) Amendment 1 - *INTERNATIONAL LABOUR ORGANIZATION WORK IN FISHING CONVENTION (No. 188) Health and safety: responsibilities of fishing vessel owners, managers, skippers and fishermen.*

Although the fishing vessel owner (or manager) always has the overall responsibility for the safety of fishermen on board their vessels - whether employed or share fishermen - the day-to-day responsibility rests with the skipper. Section 2 of the Fishermen's Safety Guide, *Managing safety – Responsibility for safety*, stated that in fulfilling their responsibility for safety, the MCA expects skippers to:

> *a) Provide supervision to ensure that fishermen work safely at all times.*
>
> *b) Manage fishermen in a manner which respects safety and health, including prevention of fatigue.*
>
> *c) Arrange regular on board occupational safety and health awareness training.*

The MCA's Merchant Shipping Instructions to Surveyors No.27 stated that all fishing vessels should have a written risk assessment. No guidance is provided on what constitutes an acceptable standard of risk assessment, and MCA surveyors do not endorse individual risk assessments during safety inspections 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 inspection.

1.10.6 Risk assessment

The MCA's Merchant Shipping Notice (MSN) 1873 Amendment 1 (F) – *The Code of Practice for the Construction and Safe Operation of Fishing Vessels of 24m Registered Length and Over,* stated:

> *6.1.1.1 Owners have a duty of care to ensure that their vessels are operated without endangering the safety and health of the crew and any other persons legitimately on board the vessel.*
>
> *6.1.1.2 The crew shall be given training and instructions on health and safety matters on board fishing vessels, and in particular, on accident prevention.*

To help fishing vessel owners, managers and skippers meet their obligations, the SafetyFolder service contained information, guidance, pro-formas and generic examples of risk assessments for different types of fishing operations. The paper safety folder carried on board *Olivia Jean* and the risk assessments contained in it **(Annex B)** were last reviewed on 12 February 2018. The online version was last reviewed by the company on 19 March 2019.

The onboard safety folder contained risk assessments for:

- boarding and leaving;
- general working on board;
- engine room;
- vessel safety; and
- beam trawling/dredging.

The online version of *Olivia Jean*'s safety folder included additional risk assessments for shoreside activities, shooting and hauling, and handling the catch.

The risk assessments were generic in nature, and written in English, the working language of the vessel. There were no records to show that the crew had read any of the vessel's risk assessments.

The risk assessment for *beam trawling/dredging* had identified the towing bars (referred to as beams in the risk assessment) as a hazard, and the crew being struck or crushed by them as a specific risk. The documented control measures to reduce this risk were:

> *crew are well clear of gear time of hauling as vessel fitted with automatic system ppe*[8] *and hard hats*[9] *provided* [sic]

The risk level was assessed as medium, with the likely consequence or outcome being *head injuries crushing*.

Shooting the gear, towing bar retrieval and stowing the gear were also identified in the risk assessment as hazardous activities that could result in head or crush injuries. The control measures to mitigate these risks included the use of hard hats and the provision of a closed-circuit television (CCTV) system that allowed the winch operator in the wheelhouse to view the blind spots at the after end of the working deck. The CCTV display screen was located on a console behind and to the left of the skipper working at the winch controls **(Figure 8)**.

The engineer and deckhand were not wearing hard hats at the time of the accident. It was evident that the hard hats held on board *Olivia Jean* had been used in the past **(Figure 9)**, but the vessel's deck crew did not routinely wear them on deck at sea when shooting, hauling or stowing the gear.

1.11 FISHING VESSEL INSPECTIONS, SURVEYS AND CERTIFICATION

Olivia Jean was issued with an International Fishing Vessel Certificate (IFVC). IFVCs are valid for 4 years. However, fishing vessel owners have an obligation to arrange for, and to present their vessels to the MCA for annual inspections and intermediate surveys.

TN Enterprises had failed to present *Olivia Jean* for its mandatory IFVC annual and intermediate inspection and surveys on several occasions, one of which had resulted in the vessel being detained in January 2018. The owners had also missed a requirement to present *Olivia Jean* for annual inspection before 30 September 2018. In addition, during its inspection on 27 May 2019 the MCA had noted that no stability checks of the vessel had been undertaken in the 9 years prior to the accident.

Olivia Jean had been inspected or surveyed nine times by MCA surveyors during the 5-year period prior to the date of the accident. During a survey conducted on 5 June 2019, a total of nine serious safety related deficiencies had been identified, which were required to be completed before the vessel next proceeded to sea. A

[8] PPE means personal protective clothing.

[9] A hard hat is a type of safety helmet predominantly used in workplace environments to protect the head from injury due to falling objects or impact with other objects.

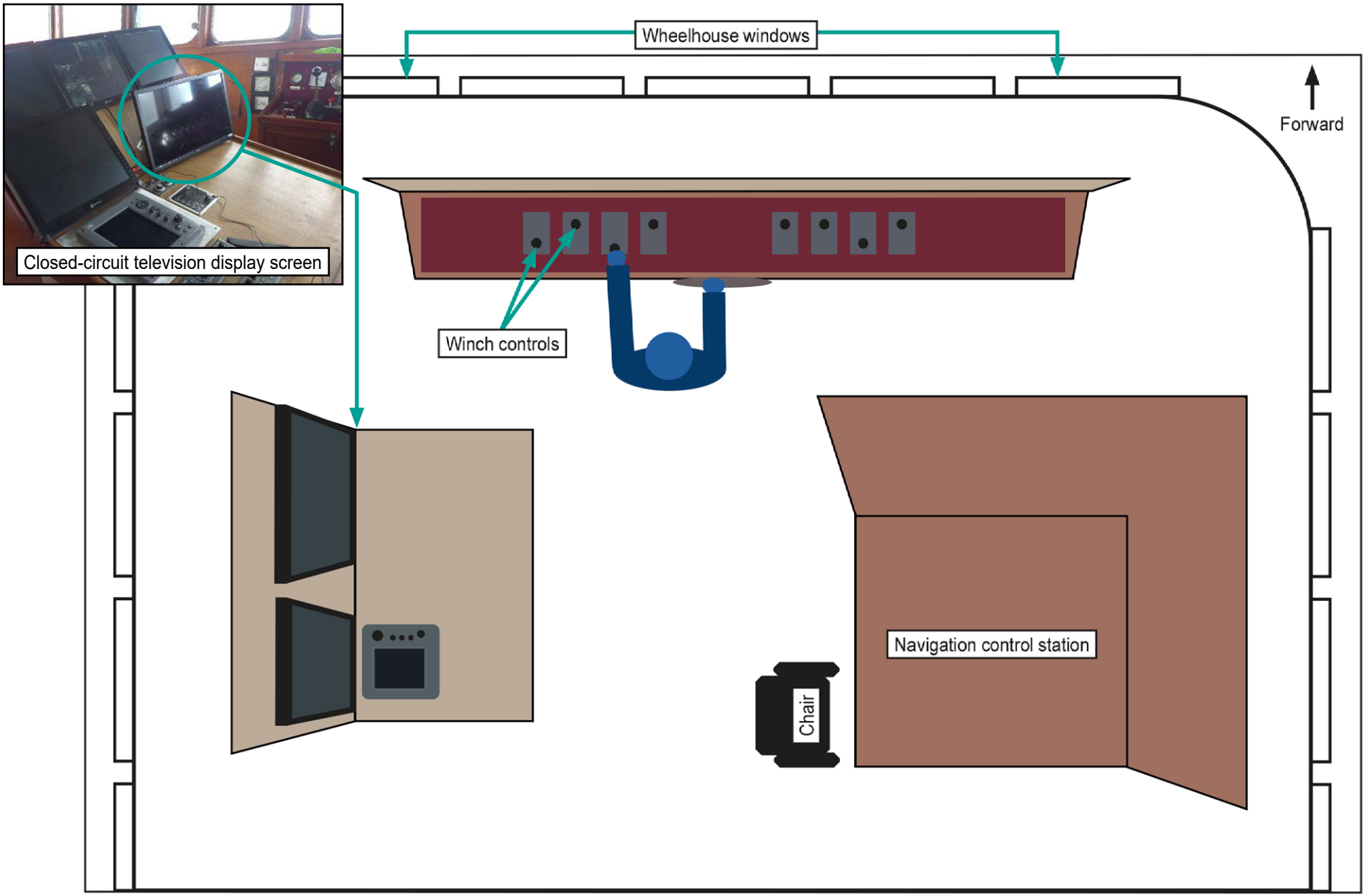

Figure 8: Position of closed-circuit television display screen in the wheelhouse

Figure 9: Crew hard hats on board *Olivia Jean*

post-accident inspection by an MCA surveyor on 30 June 2019, identified that six of these deficiencies had not been completed before the vessel had proceeded to sea. One of these deficiencies was for a lack of evidence that the crew had attended the mandatory safety awareness and risk assessment courses.

1.12 SUBSEQUENT SIMILAR ACCIDENT INVOLVING *OLIVIA JEAN*

Following the engineer's accident, *Olivia Jean*'s managers painted an area of the foredeck that was visible from the wheelhouse and designated it as a 'safe zone' for the crew when the fishing gear was being lifted **(Figure 10)**.

Just after 0600 on 2 August 2020, a crew member suffered chest injuries when he was struck by a towing bar during a dredge gear shooting operation. Despite being told to remain within the marked safe zone, he stepped into an unsafe area and was struck by the towing bar when it unexpectedly moved. The injured fisherman, a UK national, was taken to hospital for emergency treatment.

1.13 PREVIOUS SIMILAR ACCIDENTS INVOLVING THE OWNER'S FLEET

1.13.1 *Olivia Jean* (October 2009)

In October 2009, a fisherman was injured by a falling bridle chain when the vessel's port side towing warp parted as the towing bar was lifted inboard. The fisherman sustained chest injuries and was airlifted to hospital.

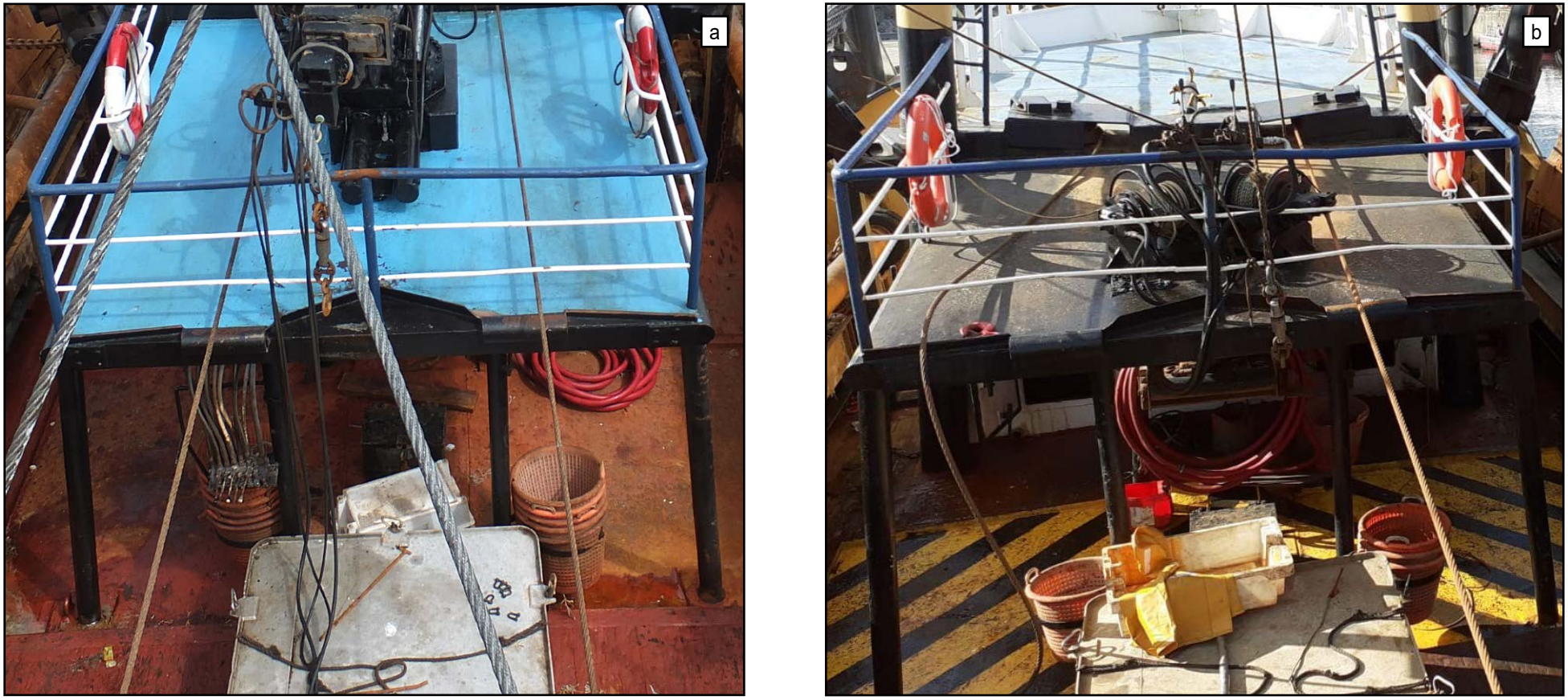

Figure 10: View of foredeck from wheelhouse before painting (a) and after painting (b) of safe zones (and making other deck equipment modifications)

As part of the MAIB investigation, an examination of *Olivia Jean* 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.

The investigation report[10] also highlighted that:

- *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.*

The report included the following recommendation to *Olivia Jean*'s owner and TN Enterprises Ltd:

> *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.*

1.13.2 *Olivia Jean* (November 2007)

In November 2007, a 23 year old crewman on board *Olivia Jean* was injured when the starboard towing warp parted and the starboard towing bar fell to the deck, causing a block to fall about 5m onto the crewman's right foot. The skipper completed another dredge before returning to his intended port many hours later. When the injured crewman was landed ashore he 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.

[10] MAIB report 10/2010: www.gov.uk/maib-reports/parting-of-trawl-wire-on-converted-scallop-dredger-olivia-jean-off-beachy-head-england-with-1-person-injured.

The accident was not reported at the time, and the MAIB became aware of it only while undertaking the investigation into the accident that occurred in October 2009. They also obtained evidence indicating that the towing warp had parted on two other occasions between November 2007 and October 2009. 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.

1.13.3 *Philomena*

In 2001, a deckhand on board the scallop dredger *Philomena* was fatally injured when he was struck by a towing bar. The fisherman's head was crushed against the side of the wheelhouse when the towing bar swung inboard as the vessel rolled heavily in moderate to rough seas in the Moray Firth.

The MAIB investigation report[11] identified that contributory factors leading to the accident included:

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

The report also identified that hard hats were available on board but were not used by the crew, and concluded that "...*the severity of his injuries might have been reduced had the fisherman been wearing head protection*."

The vessel's owner was recommended 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.

1.14 OTHER RELEVANT ACCIDENTS

1.14.1 *Geeske* (BM140)

On 9 December 1998, during the final hauling operation, a deckhand on board the scallop dredger *Geeske* was struck on the head by the fishing gear as it was dropped onto the deck. Despite the efforts of the crew to try to save him, the deckhand subsequently died.

The MAIB investigation report[12] concluded that:

> *The main cause of the accident was that the winch operator could not see the full extent of the dropping zone when he released the port fishing gear.*

[11] MAIB report 34/2001: www.gov.uk/maib-reports/crush-incident-while-shooting-fishing-gear-on-scallop-dredger-philomena-in-the-moray-forth-scotland-with-loss-of-1-life.

[12] MAIB report published 5 August 1999: www.gov.uk/maib-reports/person-struck-by-port-fishing-gear-on-twin-beam-scallop-dredger-geeske-while-hauling-fishing-gear-off-beachy-head-england-with-loss-of-1-life.

The report also concluded that the skipper's verbal instructions for the hauling operation were not followed; if they had been, the deckhand would have remained in a safe zone and therefore would not have been struck.

The vessel owner was recommended to make alterations to allow winch operators a clear view of the gear dropping zones and to conduct a risk assessment and produce written procedures for hauling operations. The MCA was recommended to consider the hazards identified in the investigation report when reviewing risk assessments during scallop dredger safety inspections.

1.14.2 *Ocean Harvest II*

The Chief Inspector of Marine Accidents wrote to the MCA after the sinking of *Ocean Harvest II* on 7 March 2006 suggesting "...*that courses should be provided that are suitable for those that do not have English as their first language*."

1.14.3 *Immanuel V* and *Scath Ros*

After a collision between fishing vessels *Immanuel V* and *Scath Ros* on 19 July 2005, which resulted in the sinking of *Scath Ros*, the Chief Inspector of Marine Accidents wrote to both companies advising them "...*to ensure all crewmembers can communicate effectively in a common language, especially during emergency situations*."

SECTION 2 - ANALYSIS

2.1 AIM

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

2.2 FATIGUE

Olivia Jean had been at sea for less than 24 hours and there was no evidence to suggest that any of the crew were tired or had not been well rested. Therefore, fatigue was not considered a contributing factor to this accident.

2.3 THE ACCIDENT

2.3.1 Overview

Olivia Jean's engineer was struck on the head and suffered a fatal crush injury because he stepped into a narrow gap between the dredge towing bar and the vessel's accommodation superstructure while the skipper was trying to free the snagged gear. No one witnessed the accident, but it is likely that the engineer was struck when the towing bar swung inboard after being released from the snagging.

This is not the first time crew members have been seriously injured while working on deck during fishing gear lifting operations on board *Olivia Jean*. A very similar fatal accident occurred in 2001 on board another vessel operated by the same owners/managers [see section 1.13.3]. It was therefore unsurprising that the risk of crew being struck or crushed by the towing bars when shooting, hauling and stowing the dredge gear had been identified in the vessel's generic risk assessments. The control measures to mitigate the risk included the crew standing well clear of the gear, the wearing of hard hats and the provision of a CCTV system to allow the winch operator to monitor the deck.

The reasons why the engineer entered an obvious danger zone, and the skipper continued to operate the dredge gear winches, will be analysed in this section of the report. The likely underlying factors that contributed to the accident will also be discussed. These include the oversight and control of the crew working on deck during fishing operations and the management of safety on board *Olivia Jean*.

2.3.2 Entry into the danger zone

Immediately before the accident, the skipper told the engineer that he was going to lower the towing bar, and instructed him to stand clear. The skipper's intention was to slacken off the aft securing chain so that the engineer could unhook it. However, as the skipper lowered the gear, the unused dredge attachment rings on the forward end of the towing bar snagged on the tipping door teeth. Shortly after this happened, the engineer walked aft and stepped into the narrow gap between the dredge gear and the accommodation superstructure.

Olivia Jean's engineer was an experienced fisherman, he had been on board *Olivia Jean* for 9 months and was a keen and willing worker. Given that the skipper had specifically warned him to keep clear while the gear was being lowered, it is likely

the engineer had not realised that the forward end of the towing bar had become snagged on the tipping door. Instead, he probably thought that the skipper had finished lowering the gear and that it was safe to go aft and unhook the securing chain.

It was also possible that the engineer's earlier mistake, when he forgot to unhook the aft securing chain, had influenced his actions. An eagerness or perceived pressure to make good for his omission might well have affected his judgment and decision making.

2.3.3 Continued operation of the deck winches

The skipper had a clear view of the area on deck where he saw the engineer move to, after instructing him to stand clear. He also had a CCTV screen in the wheelhouse to help monitor the blind spots aft of the wheelhouse and accommodation superstructure. Despite this, the skipper continued to operate the derrick and towing warp winch after the engineer had moved from the safe area on deck toward the snagged dredge gear. This was because the skipper did not notice that the engineer had moved out of his line of sight and was unaware of his intentions.

While trying to free the snagged towing bar, the skipper's attention was drawn to the derrick head and towing warp, causing him to look upwards and not down on the deck. Furthermore, the CCTV display screen, which was sited behind the central control console, could not be easily seen when operating the winches. It was therefore apparent that the skipper had been unable to closely monitor the deck crew while he was attempting to unsnag the gear.

2.3.4 Use of personal protective equipment

Head injury was identified in *Olivia Jean*'s risk assessments as a potential consequence of being struck by the fishing gear while working on deck. To reduce the likelihood of suffering a serious or fatal injury during such an event, the use of hard hats was listed as a control measure. TN Enterprises had provided hard hats, but they were not being worn by the engineer and deckhand working on deck at the time of the accident.

It was evident from the condition of the vessel's hard hats **(Figure 9)** that the crew had used them in the past. However, they were not routinely worn on deck at sea when shooting, hauling and stowing the dredge gear. Given that the crew routinely wore other personal protection equipment, including auto-inflation lifejackets while working on deck, the reasons for not using the head protection during hazardous lifting operations at sea must have been more complex than a general reluctance to comply with recognised safety standards. The crew might have found the hard hats uncomfortable to wear or considered them a hindrance.

Industrial hard hats are primarily designed to provide impact and penetration protection from falling objects, but some are built to resist lateral deformation and provide protection from compressive forces. *Olivia Jean*'s engineer suffered catastrophic crush injuries to his head, therefore it is difficult to assess the difference a hard hat would have made in this instance. Nevertheless, had the engineer been

wearing a hard hat, particularly one designed to resist lateral deformation, it is likely that the extent of his injuries would have been reduced, and therefore his chances of survival increased.

2.4 OVERSIGHT OF DECK OPERATIONS

2.4.1 Supervision and control

The hoisting and lowering of *Olivia Jean*'s dredge gear was a hazardous lifting operation and, as such, needed to be planned, supervised and carried out in a controlled manner. On board *Olivia Jean*, the skipper and mate operated the derricks and dredge gear winches from the central control console in the wheelhouse, while gear handling and dredge emptying was conducted on deck by the two deckhands and the engineer.

As none of the crew had been nominated to take charge and supervise the deck work, the oversight of safety remained firmly the responsibility of either the skipper or mate in the wheelhouse. The winch operator's reliance on the crew fully understanding what was going on, and the use of CCTV to monitor both sides of the working deck aft **(Figure 11)**, made their ability to supervise and control the deck crew extremely difficult. This was particularly so when several activities were being undertaken at the same time.

Figure 11: View from the wheelhouse winch controls of foredeck

Immediately prior to the accident, *Olivia Jean*'s deck crew were working independently of each other, and with the skipper focused on unsnagging the gear, he was almost totally reliant on the crew's experience, their understanding of the training they had been given, and their appreciation of what was expected of them. This might have worked effectively during routine hauling and shooting operations, but when things started to go wrong a much higher degree of oversight was needed. This might have been better achieved by nominating one of the deck crew to take the lead and coordinate the deck work. Establishing responsibilities and working relationships on board ships is a very important part of securing safe working practices, and promoting a culture of safety.

The skipper and engineer had both become task focused after things had started to go wrong, and neither had a full understanding of the situation as it developed. Had they stopped and re-assessed the risks associated with the task in hand, the likelihood of the engineer entering such an obvious danger zone would have been significantly reduced, and the likelihood of the skipper seeing the danger and intervening would have been increased.

2.4.2 Communication

Olivia Jean's skipper and mate were both Scottish nationals and spoke English. The crew on deck at the time of the accident were Indonesian and Sri Lankan nationals. The deckhands and engineer were able to communicate with the skipper and mate sufficiently well to complete routine fishing operations, but had limited levels of English comprehension.

The Fishermen's Safety Guide highlighted the importance of a reliable means of communication between the wheelhouse and the working deck. Communication between the wheelhouse and the personnel on deck was achieved by the skipper shouting instructions and making hand gestures through the open wheelhouse windows. The skipper was not able to verify their levels of understanding other than by observing them follow his instructions.

Verbal repetition and positive reporting are extremely effective methods of communication in dynamic and safety critical environments. These communication techniques are common practice on ships' bridges when communicating helm orders and manoeuvring instructions. For example, when the master orders a helmsman to steer a course, the helmsman is expected to repeat the order and then report once he has actioned it. Repetition and positive reporting help ensure that everyone who needs to hear a key message has heard it; furthermore, it provides assurance that correct action has been taken. Had this level of communication been used on board *Olivia Jean*, the likelihood of the engineer failing to release one of the towing bar securing chains, or his omission going unnoticed, would have been much reduced. Similarly, the likelihood of him approaching the fishing gear while the skipper was operating the winches would have been reduced.

It was apparent that *Olivia Jean*'s deck crew were not able to communicate effectively with the skipper, or with each other, because of their lack of English comprehension or alternative common language. This was almost certainly a major factor in this accident and demonstrates an obvious need for TN Enterprises to ensure its crews have a satisfactory understanding of the working language on board its vessels.

2.5 CREW TRAINING

When *Olivia Jean*'s crew members arrived in the UK, they were taken directly to their vessels. On joining *Olivia Jean*, the crew were given initial induction training, during which the vessel's working practices and the use of safety equipment were explained. However, because the skipper did not follow the induction checklist provided in the safety folder, no written record of the induction was maintained. There was no formal methodology to confirm crew understanding of the equipment operation, safe systems of work or processes on board.

The crew were not given the opportunity to attend the required *Safety Awareness and Risk Assessment* course before they were put to work. This was typical practice for many of the foreign crew employed to work on vessels managed by TN Enterprises.

MGN 411 was quite clear in requiring fishermen from outside the UK to complete the *Safety Awareness and Risk Assessment* course before commencing work for the first time on a UK registered fishing vessel. However, this requirement was frequently misapplied by both fishing vessel owners and the MCA. This pragmatic approach was taken in order to allow vessel owners, managers and skippers up to 3 months to arrange for their crew to attend the course. In the case of the crew on board *Olivia Jean*, this lenient approach was abused. TN Enterprises had ample opportunity to arrange for the crew to attend the course, but ignored the mandatory requirement.

The safety awareness and risk assessment course, specifically designed for experienced fishermen, covered aspects of how accidents happen, and provided guidelines on how to prevent them and how to minimise damage and injury when they did happen. The knowledge gained during the course would probably have increased the level of safety consciousness among *Olivia Jean*'s crew, and might have had an impact on the ways of working on board.

2.6 SAFETY MANAGEMENT

TN Enterprises used the SafetyFolder service to help manage safety across its fleet. It maintained online versions of the SafetyFolder for each vessel and paper copies were held on board. *Olivia Jean*'s safety folder had been reviewed several times, but it was not complete and was not up to date. The paper version held on board differed to the online version, and records of training were not being maintained.

The investigation identified several shortcomings with regard to the safe operation of *Olivia Jean*, in particular: the managers regularly failed to present the vessel to the MCA for its mandatory safety inspections and surveys; there was no evidence to suggest that the crew had read or understood the vessel's risk assessments; and the majority of those on board had not completed the required safety training courses. Nevertheless, *Olivia Jean* did have a safety management system in place and its managers had conducted generic risk assessments for dredging operations and shooting and hauling the gear.

It was apparent that the company had made efforts to improve its operational practices following the MAIB investigation into the accident on board *Olivia Jean* in 2009 [see section 1.13.1]. The engagement - for a short period of time - of a company marine safety officer had brought focus to an area of operation that had

been severely lacking. Nonetheless, it was also evident that TN Enterprises Ltd was not fully meeting the minimum standards for safety management recommended within the FSM Code. Its application of the SafetyFolder system was not effective or complete. Furthermore, several of the safety issues identified in 2010 were again identified during this investigation.

2.7 SAFETY CULTURE

Safety culture defines the ways in which safety is managed on board a vessel and it is reflected in the shared attitudes, beliefs, perceptions and values of the crew in relation to safety. Fishing vessel owners, managers and skippers have the pivotal role of embedding and driving a strong safety culture among their crews. If they do not portray a positive approach towards safety management then it is likely their crew will adopt similar attitudes, and a poor safety culture will result.

The strength of the prevailing safety culture within an organisation or on board a vessel can often be difficult to measure or quantify. The way people carry out work tasks when left alone or unsupervised can provide a powerful indication of both localised and widespread safety culture. Other typical indicators include accident rates, levels of procedural compliance, and the priority given to cost and time over safety.

TN Enterprises Ltd had a history of serious accidents to deck crew, and during this investigation another similar accident occurred on board *Olivia Jean* [see section 1.12]. Fortunately, on that occasion the crew member was not fatally injured when he was struck by a towing bar. The number of serious accidents that have taken place on board fishing vessels managed by TN Enterprises Ltd, the company's failure to proactively arrange vessel safety inspections and surveys, a continued reluctance to address identified safety deficiencies before sailing, and the lack of required training for crew on board its vessels are all strong indicators of a weak safety culture. It is clearly apparent that TN Enterprises Ltd needs to take significant steps to improve safety standards on board its vessels and improve the safety culture across its fleet.

SECTION 3 - CONCLUSIONS

3.1 SAFETY ISSUES DIRECTLY CONTRIBUTING TO THE ACCIDENT THAT HAVE BEEN ADDRESSED OR RESULTED IN RECOMMENDATIONS

1. *Olivia Jean*'s engineer suffered fatal crush injuries because he stepped into the narrow gap between the dredge gear and the accommodation superstructure while the skipper was trying to free the snagged gear using the hauling winch. [2.3.1]

2. The engineer was probably struck by the towing bar as it swung inboard when the skipper released the snagged gear. [2.3.1]

3. The engineer might not have been aware that the gear had become snagged, and thought it safe to approach the dredge gear when it came to rest. His actions might have been influenced by an eagerness to make good his earlier omission, when he forgot to unhook the aft securing chain. [2.3.2]

4. The skipper lost oversight of the deck crew. He was unaware that the engineer had moved toward the dredge gear and continued to operate the winches after he entered the danger zone. [2.3.3]

5. Had the crew been wearing head protection while working on deck during dredge gear lifting operations, as required by the vessel's risk assessments, the severity of the engineer's head injuries would probably have been reduced. [2.3.4]

6. The deck operations at the time of the accident were not being properly supervised or controlled. [2.4.1]

7. The skipper and engineer had both become task focused after things started to go wrong, and neither had a full understanding of the situation as it developed. [2.4.1]

8. The deck crew's lack of proficiency in English, the working language of the vessel, undoubtedly had an adverse effect on the levels of communication on board *Olivia Jean*, and potentially contributed to a lack of understanding of the skipper's intentions when re-positioning the dredge equipment. [2.4.2]

9. TN Enterprises Ltd's safety management system did not meet the standards recommended in the FSM Code, and some of the shortfalls identified during this investigation were similar to those identified in previous MAIB investigations. [2.6]

3.2 OTHER SAFETY ISSUES DIRECTLY CONTRIBUTING TO THE ACCIDENT

1. Safe zones for the crew, clear of the dredge gear and in line of sight of the winch operator during hauling and shooting operations, had not been identified. [2.4]

2. The crew had not completed the mandatory *Safety Awareness and Risk Assessment* training required by MGN 411 for all foreign seafarers before joining a UK flagged fishing vessel for the first time. [2.5]

3. The company employed foreign nationals across its fleet, but did not use a consistent method for assessing levels of English language comprehension before they were engaged and did not ensure that they could understand written shipboard documentation. [2.6]

3.3 SAFETY ISSUES NOT DIRECTLY CONTRIBUTING TO THE ACCIDENT THAT HAVE BEEN ADDRESSED OR RESULTED IN RECOMMENDATIONS

1. The company was not meeting the recommended minimum standards of safety management contained within the Fishing Safety Management Code guidance. [2.6]

2. The company had implemented the SafetyFolder system but had failed to keep it up to date either online or in paper copy on board *Olivia Jean*, and each copy contained different information. [2.6]

3.4 OTHER SAFETY ISSUES NOT DIRECTLY CONTRIBUTING TO THE ACCIDENT

1. The siting of the CCTV display screen in the wheelhouse behind an operator at the winch controls, meant that it could not be seen easily when the operator was controlling the winches.

2. Preventative measures put in place by the company because of this accident were ineffective and had allowed a very similar accident to occur in August 2020 when a crew member became injured on deck. [2.7]

3. The safety culture on board *Olivia Jean* and within TN Enterprises Ltd was weak. [2.7]

SECTION 4 - ACTIONS TAKEN

The **MAIB** has:

- Issued a Safety Flyer to the Fishing Industry **(Annex C)**.

TN Enterprises Ltd has:

- Reviewed its onboard risk assessments.
- Identified and marked safe zones on deck for crew during hauling and shooting operations.
- Improved the lighting on the working deck by the placement of additional lights.
- Produced a safety video to aid crew training with regard to positive reporting and standing in a safe position on deck.
- Replaced *Olivia Jean*'s old hard hats with safety helmets that it considers more comfortable to wear.
- Contracted a specialist vessel safety management company to audit safety procedures, inspect its vessels and monitor regulatory compliance.
- Agreed a temporary specific point of contact with the MCA regarding *Olivia Jean* survey issues.

SECTION 5 - RECOMMENDATIONS

TN Enterprises Ltd is recommended to:

2021/106 Review its fleet operations and ensure that the mandatory requirements of International Labour Organization Convention No. 188, The Work in Fishing Convention, and applicable Maritime and Coastguard Agency codes of practice are adhered to. In particular; take action to ensure its safety management system fully implements the recommendations made by the Maritime and Coastguard Agency in its Fishing Safety Management Code.

2021/107 Undertake a review of the levels of English language comprehension of its foreign crews and ensure that they share a common language.

2021/108 Introduce a pre-employment formal evaluation process to establish the standard of English of its potential crew members.

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

Marine Accident Report