ACCIDENT REPORT

Report on the investigation of a man overboard

from the creel fishing vessel

# *Annie T* (CY 1)

with the loss of one life

in the Sound of Mingulay, Scotland

on 4 October 2015


VERY SERIOUS MARINE CASUALTY REPORT NO 21/2016 NOVEMBER 2016

MAIB
MARINE ACCIDENT INVESTIGATION BRANCH

**Extract from**

**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.



All MAIB publications can be found on our website: www.gov.uk/maib

For all enquiries:
Marine Accident Investigation Branch
Spring Place
105 Commercial Road
Southampton
United Kingdom
SO15 1GH

Email: maib@dft.gsi.gov.uk
Telephone: +44 (0) 23 8039 5500
Fax: +44 (0) 23 8023 2459

Press enquiries during office hours: 01932 440015
Press enquiries out of hours: 020 7944 4292

# CONTENTS

**FIGURES**



**ANNEXES**

## GLOSSARY OF ABBREVIATIONS AND ACRONYMS

| | | |
|---|---|---|
| ALB | - | All Weather Lifeboat |
| C | - | Celsius |
| CPR | - | Cardio-Pulmonary Resuscitation |
| EFF | - | European Fisheries Fund |
| FISG | - | Fishing Industry Safety Group |
| GRP | - | Glass Reinforced Plastic |
| ILO | - | International Labour Organization |
| kg | - | kilogram |
| kts | - | knots, nautical miles per hour |
| kW | - | kilowatt |
| LOA | - | Length Overall |
| m | - | metre |
| “Mayday” | - | The international distress signal (spoken) |
| MCA | - | Maritime and Coastguard Agency |
| MGN | - | Marine Guidance Note |
| MOB | - | Man overboard |
| MSN | - | Merchant Shipping Notice |
| N | - | Newton |
| PFD | - | Personal Flotation Device |
| PPE | - | Personal Protective Equipment |
| RNLI | - | Royal National Lifeboat Institution |
| s | - | second |
| Seafish | - | Sea Fish Industry Authority |
| SFF | - | Scottish Fishermen’s Federation |
| SFV | - | The Code of Practice for the Safety of Small Fishing Vessels, MGN 502(F) |
| UTC | - | Universal Co-ordinated Time |
| VHF | - | Very High Frequency |
| WIFA | - | Western Isles Fishermen’s Association |

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

## SYNOPSIS

On 4 October 2015, at approximately 1320, a crewman from the 9.15m creel fishing vessel *Annie T* was carried overboard by the fishing gear when his foot became caught in a bight of rope. The skipper recovered the crewman back on board about 10 minutes later but he was unable to resuscitate him.

The accident occurred because the crewman was in an unsafe position and became entangled in a rope while shooting creels. Neither the skipper nor the crewman wore lifejackets during fishing although three new, unused, constant wear lifejackets were found on board the vessel following the accident.

In 2013, the Fishing Industry Safety Group began an intensive campaign to encourage fishermen to wear constant wear lifejackets. Following recommendations from the MAIB, the Maritime and Coastguard Agency committed to introducing mandatory requirements to wear PFDs by the beginning of 2015 if this campaign was not successful. The evidence from 35 MAIB investigations into fishing vessel accidents since 2013 shows that this campaign had not reduced the fatality rate resulting from fishermen falling overboard. Furthermore, despite the distribution of free or subsidised constant wear lifejackets, fishermen's behaviour regarding their use had not changed noticeably.

A review of evidence from other countries shows that educational campaigns to encourage people to wear constant wear lifejackets or PFDs have little effect unless backed by legislation. The MAIB has concluded that further delay in introducing mandatory requirements to wear lifejackets or PFDs on the working deck of commercial fishing vessels will inevitably result in more unnecessary loss of life.

*Annie T*'s skipper has introduced a mechanism in the creel shooting process that eliminates the need for crewmen to come into contact with fishing gear during shooting operations.

The Maritime and Coastguard Agency has been recommended to make arrangements to prioritise the introduction of legislation that will require the compulsory wearing of constant wear lifejackets or PFDs on the exposed decks of all commercial fishing vessels. In addition, they have been recommended to issue guidance on the recovery of a person overboard for fishing vessels under 15m length overall.

# SECTION 1 - FACTUAL INFORMATION

## 1.1 PARTICULARS OF *ANNIE T* AND ACCIDENT

| | |
|---|---|
| **SHIP PARTICULARS** | |
| Vessel's name | *Annie T* |
| Flag | UK |
| Classification society | Not applicable |
| Fishing registration /RSS Number | CY 1 / C18643 |
| Type | Potter |
| Registered owner | Privately owned |
| Manager(s) | Not applicable |
| Construction | GRP |
| Year of build | 2006 |
| Length overall | 9.15m |
| Registered length | 8.60m |
| Gross tonnage | 5.3 |
| Minimum safe manning | Not applicable |
| Authorised cargo | Not applicable |
| **VOYAGE PARTICULARS** | |
| Port of departure | Vatersay |
| Port of arrival | Vatersay |
| Type of voyage | Coastal |
| Cargo information | Lobster |
| Manning | 2 |
| **MARINE CASUALTY INFORMATION** | |
| Date and time | 4 October 2015 at approximately 1320 |
| Type of marine casualty or incident | Very Serious Marine Casualty |
| Location of incident | 56° 50'.00 N; 7° 35'.00 W, Sound of Mingulay, Western Isles |
| Injuries/fatalities | One fatality |
| Damage/environmental impact | None |
| Ship operation | On passage |
| Voyage segment | Mid-water |
| External & internal environment | Calm seas, wind force 3, sea water temperature 12.6°C, fine and clear weather, good visibility |
| Persons on board | 2 |


**Figure 1:** Fishing vessel *Annie T*

## 1.2 NARRATIVE

### 1.2.1 The accident

At around 0720 on 4 October 2015, the skipper of *Annie T* **(Figure 1)** and his crew member Gerard Gillies (known as Gerry) set off from Vatersay to their lobster fishing grounds at the southern edge of the Western Isles. The environmental conditions were benign and *Annie T* was making a speed of about 3.5 knots (kts) through the water while shooting the gear. They worked five fleets of creels that were located to the west of Pabbay island for 2 to 3 hours and, at about noon, sailed around Mingulay to an area to the east of the Sound of Mingulay **(Figure 2)**. Once in the Sound, they hauled and re-shot a further two fleets of creels, working one fleet at a time. Gerry was wearing oilskins, wellington boots and gloves. Neither he nor the skipper was wearing a lifejacket or any other buoyancy aid.

At around 1315, the skipper and Gerry were preparing to shoot a fleet of creels. Gerry was aft of the sorting table on the starboard side of the deck and the skipper was in the wheelhouse, looking aft through the window **(Figure 3)**. Gerry threw the first buoy out through the transom opening at the stern, and the first weight and the creels followed. When the last creel had gone, Gerry followed his usual practice and moved towards the second weight, which had been placed on the deck near the wheelhouse door. He did this in order to carry it towards the stern of the vessel before letting it go. At around 1320 Gerry crossed the running line, and the skipper saw him fall to the deck. The skipper immediately put the throttle to full astern to try and prevent Gerry from being dragged overboard, but Gerry was pulled along the deck and into the sea through the transom opening **(Figure 4)**. The skipper put the throttle to neutral and ran aft to the cat-catcher[1]. He could see Gerry in the water approximately 3-3.5m astern and to starboard. Being a non-swimmer, he was panicking as he tried to tread water. One of Gerry's boots was seen floating near him. The skipper shouted to him to ask if he was free of the rope and Gerry replied that he was.

[1] A platform overhanging the stern that is used for stowing gear.

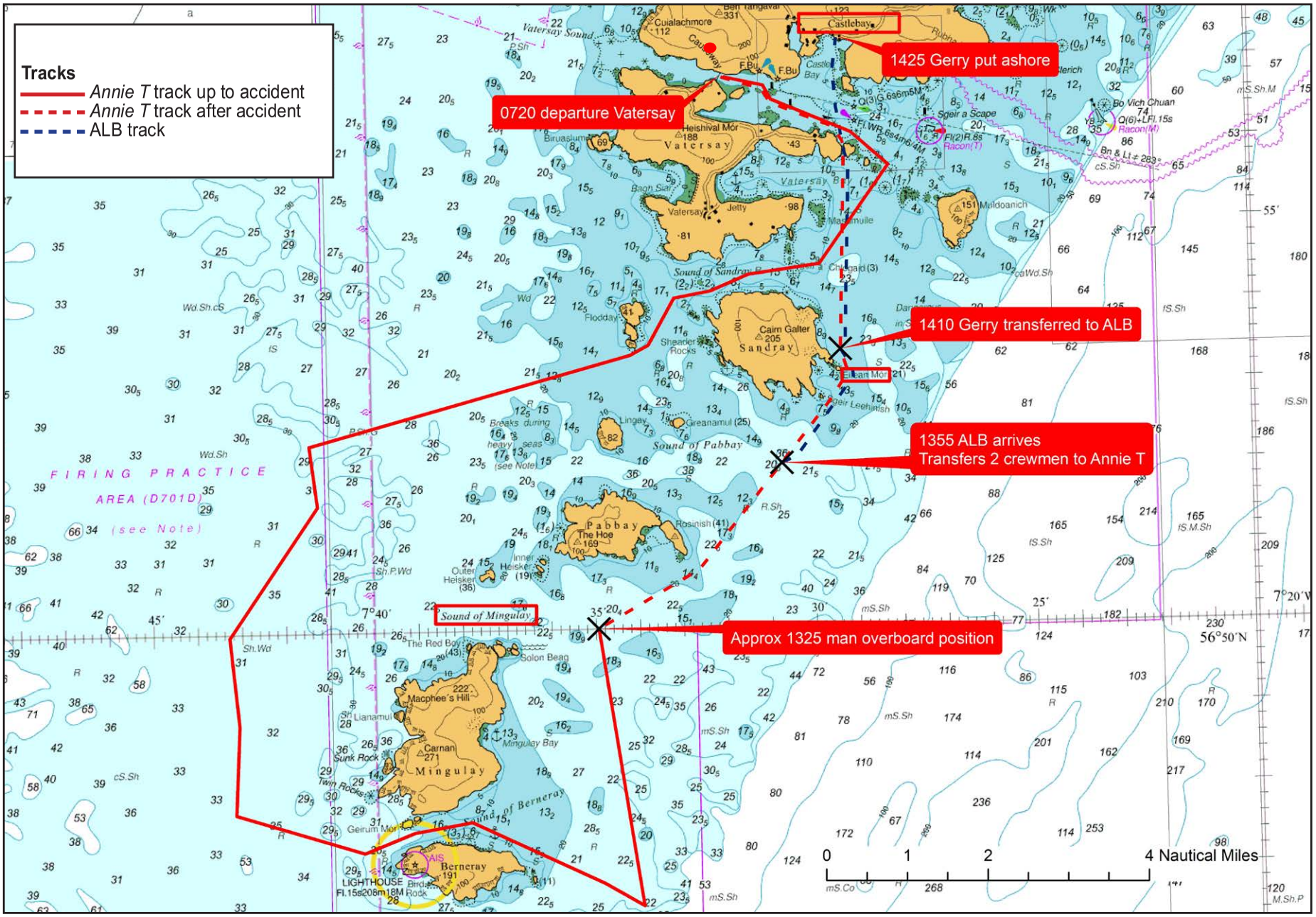


**Figure 2:** Apporoximate route of *Annie T* on the day of the accident

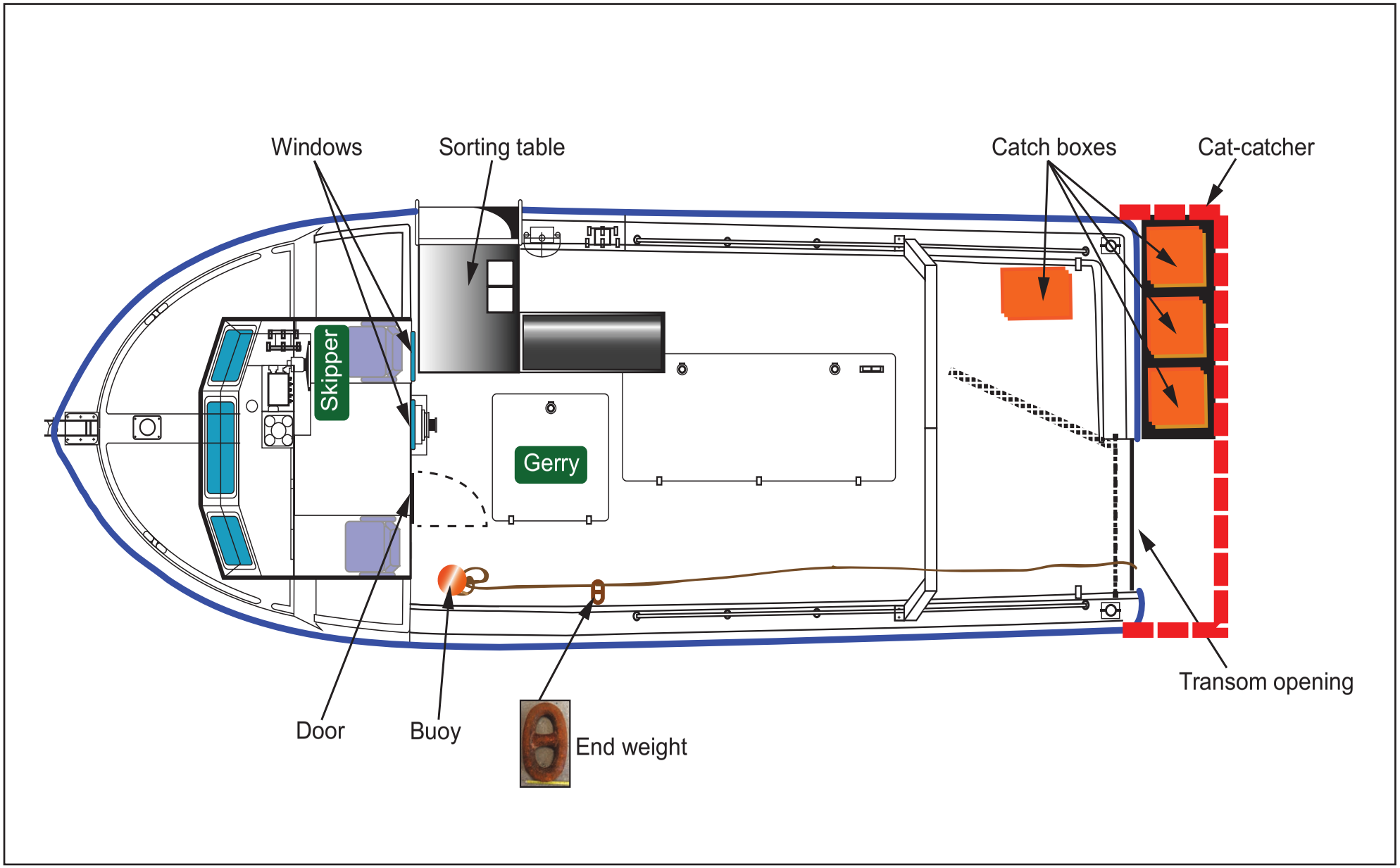


**Figure 3:** Position of the skipper and crewman just before the accident

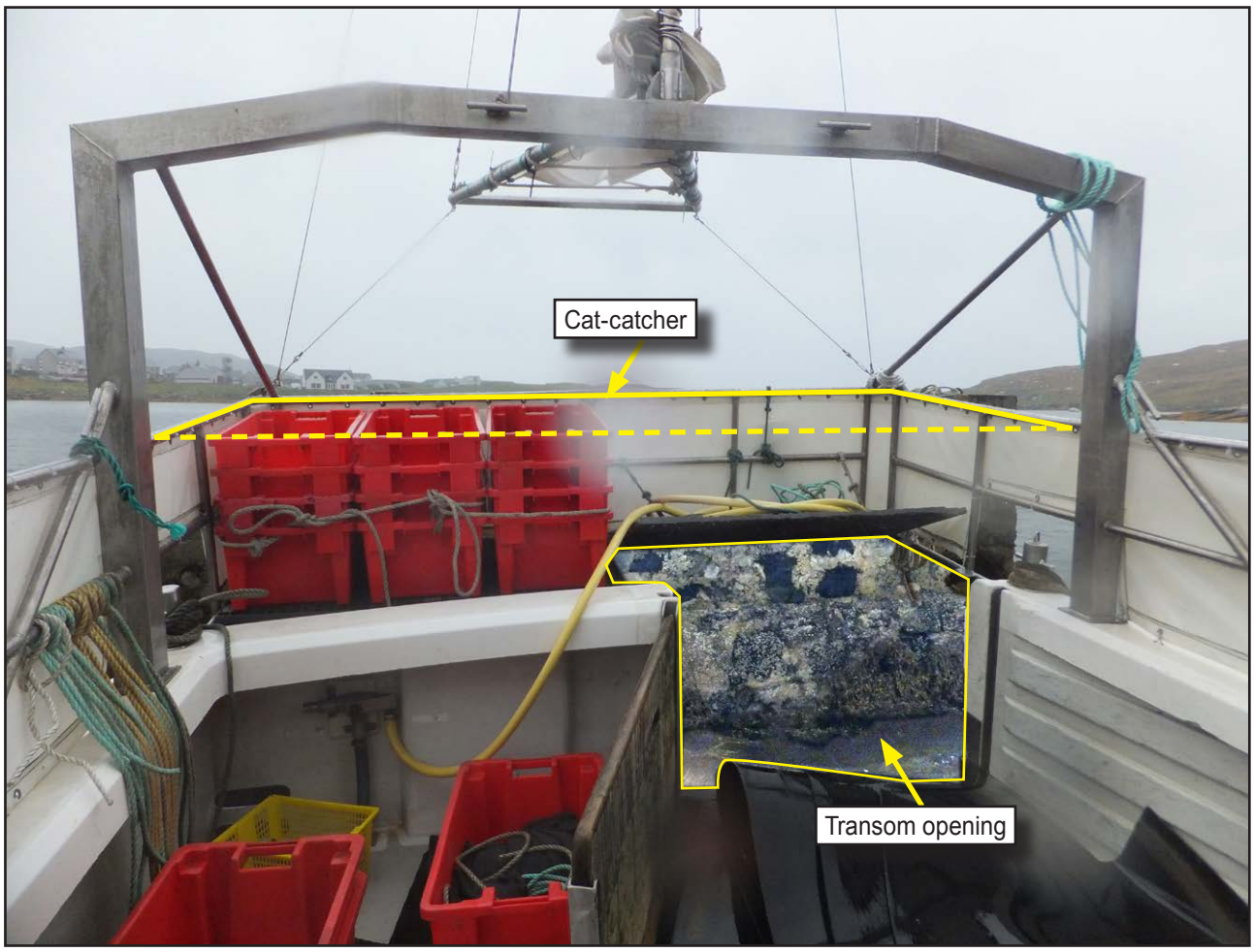


**Figure 4:** Transom, showing opening for shooting creels

### 1.2.2 Recovery and revival efforts

The skipper cut the rope at the vessel's stern and, using the controls on deck, manoeuvred *Annie T* to position Gerry on its starboard side. He then threw a rope, which Gerry was able to hold on to with both hands. The skipper then threw a life buoy, that did not have a line attached, to Gerry but it floated away before he could grab it. Using the rope, the skipper then pulled Gerry towards the middle of the vessel and tied his end of the rope to a cleat. The skipper then tied a bowline knot in the end of another line and passed it to Gerry, who had now lost both his boots. Gerry managed to put one foot through the loop of the bowline, then let go the first line and held on to the one around his leg with both hands as the skipper used the hauler **(Figure 5)** to heave him up. However, as Gerry's upper body emerged from the water he let go of the rope, fell backwards and disappeared under the water.

The skipper ran to the wheelhouse and, at 1326, transmitted a "Mayday" on the very high frequency radio (VHF) that included *Annie T*'s position. The coastguard responded and asked him to repeat the vessel's position. Just after the skipper had done this, he saw Gerry resurface off the vessel's starboard bow. Gerry was face-down with his arms spread slightly away from his body.

The skipper returned to the deck controls and manoeuvred *Annie T* to bring Gerry amidships on the starboard side before attempting to secure a rope to him using the vessel's grappling hook **(Figure 6)**. After failing to lift Gerry with his hands, he


**Figure 5:** Hauler (**inset:** controls)

**Figure 6:** Grappling hook used to lift the casualty

managed to hook the grapple onto several layers of Gerry's clothing and was able to lift him back on board using the hauler. Having laid Gerry on the deck the skipper thought he detected a faint pulse.

Using VHF radio the skipper apprised the coastguard of the situation, and he was instructed to head for shore as soon as possible. Setting the throttle to full ahead and the steering to autopilot in the direction of Barra, the skipper returned to the casualty and commenced cardio-pulmonary resuscitation (CPR) and rescue breaths. He also covered Gerry with oilskins to prevent further heat loss from his body. The Castlebay all-weather lifeboat (ALB) met *Annie T* at 1355. As the sea was beginning to get choppy, it was decided not to transfer Gerry to the ALB; instead two lifeboat men boarded *Annie T* and took over the resuscitation effort from the skipper. At 1410, once in sheltered waters, Gerry was transferred onto the lifeboat, from which he was put ashore at Castlebay at 1425. He remained unconscious throughout.

The ALB was met by local ambulance service personnel at Castlebay, who continued the resuscitation efforts until 1432 when Gerry was transferred to a coastguard rescue helicopter. The helicopter crew reported that Gerry was in a state of cardiac arrest when they took charge of him. However, they continued the resuscitation efforts en-route to the Western Isles Hospital in Stornoway where they arrived at 1517. Gerard Gillies was pronounced deceased at 1635.

### 1.2.3 Postmortem examination

The postmortem report stated the cause of death to be *due to (or as a consequence of) salt water immersion* and the secondary cause was noted as Ischaemic heart disease[2]. The report confirmed that there were no *definitive signs of drowning* and went on to state that given his history of hypertension and heart condition, Gerry might have suffered a cardiac arrest *secondary to the stress of the situation*. There was no evidence of alcohol in his bloodstream.

## 1.3 CREW AND VESSEL

### 1.3.1 Crew

*Annie T*'s skipper, who was also its owner, was 39 years old and was a resident of Barra in the Western Isles of Scotland. He held an unrestricted under 16.5m skipper's certificate issued by the Sea Fish Industry Authority (Seafish) and had completed all the mandatory safety training courses including the safety awareness course for experienced fishermen. He had been fishing since he left school and had owned *Annie T* since 2010. During his career, he had never experienced a man overboard (MOB) incident.

The crew member, Gerard Gillies, was 42 years old and had completed all the mandatory safety training courses. Although he had worked with the skipper on a number of vessels in the past, he joined *Annie T* as a regular crew member in February 2015. He worked as a share fisherman. He was a non-swimmer and was taking medication for high blood pressure.

### 1.3.2 Vessel

*Annie T* was a Cygnus model creel fishing vessel built in 2006. The main propulsion was a single screw, fixed pitch propeller driven by a 194kW Cummins diesel engine. In addition to the controls in the wheelhouse, the engine and steering could be controlled from the starboard side of the working deck, where the hauler control was located. The engine controls were active at both locations but the steering needed to be switched to either wheelhouse or deck control **(Figure 5)**.

The vessel was last surveyed by an MCA surveyor in July 2011. No major deficiencies were noted at the time and no significant modification had been carried out on the vessel since.

## 1.4 CREEL FISHING

### 1.4.1 Assembly of a fleet of creels

*Annie T* was fishing for lobsters on the day of the accident. A fleet of lobster creels consisted of 25 creels, each weighing around 20kg when dry, spaced approximately 28m apart[3], and hung by short tail ropes from a 900m long back rope. At either end of the back rope, separated by 80-90m of rope, were a marker buoy and a 36kg steel weight **(Figure 7** and **inset)**.

---

[2] Ischaemic heart disease, also known as Coronary Artery Disease, is a condition that affects the supply of blood to the heart.

[3] 1 metre = 0.54 fathoms

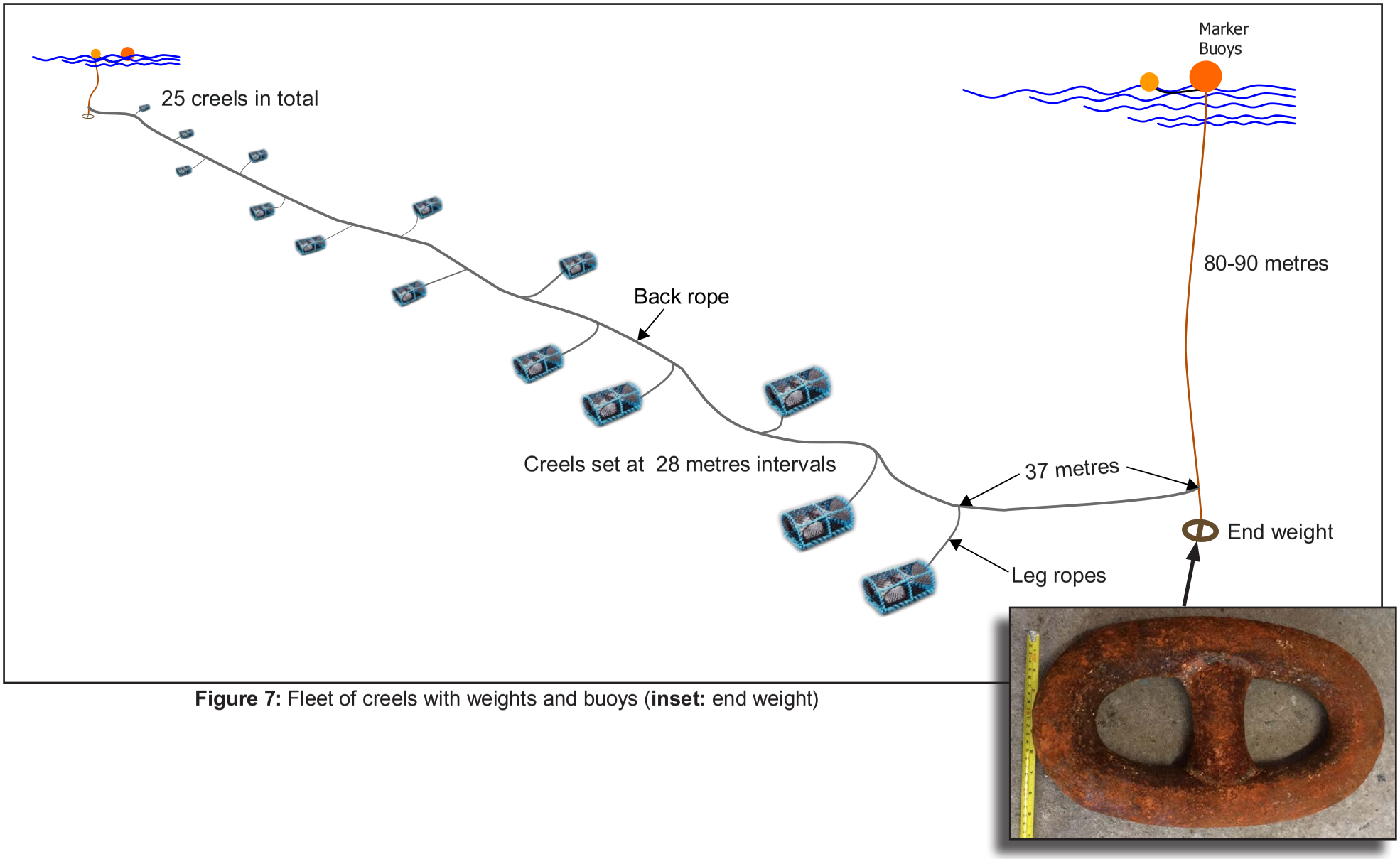


**Figure 7:** Fleet of creels with weights and buoys (**inset:** end weight)

### 1.4.2 Working the fleets

On the day of the accident, the skipper and Gerry worked one fleet of creels at a time. As the creels were hauled in, the catch was emptied into containers stored at the starboard aft end of the vessel and on the cat-catcher. The creels were then rebaited and stored on the port side ready to be shot. The weight and buoy at the tail end were placed near the wheelhouse door.

### 1.4.3 Creel shooting

To shoot the gear, Gerry would throw the first marker buoy overboard and then watch to ensure the first weight was pulled through the transom opening. Occasionally he would help the first weight overboard by pushing it with his foot. The skipper would steam *Annie T* ahead at around 3.5kts and the tension on the back rope, which was flaked out on the deck inboard of the creel stack, would pull successive creels through the transom opening. Gerry would remain forward of the creel stack until all the creels had been shot, when he would carry the second weight towards the vessel's stern so as to prevent damage to the bulwark frames. After the weight went overboard the 80m-90m line between the weight and the buoy would pay out, finally taking the second marker buoy overboard.

## 1.5 LIFEJACKETS

During the investigation, three Mullion Compact 150 Newton (N) buoyancy, constant wear lifejackets were found on board *Annie T* in the storage space forward of the wheelhouse. They were unused and in their original packaging **(Figure 8)**.

These lifejackets had been provided free of charge by the Scottish Fishermen's Federation (SFF) under the Personal Flotation Device (PFD) initiative supported by the European Fisheries Fund (EFF).

The lifejackets provided under this scheme for *Annie T* and other local vessels had been delivered to the Western Isles Fishermen's Association (WIFA) in Stornoway by the Scottish Fishing Federation (SFF) in April 2014. A local fisherman from Barra had then collected the lifejackets and passed three of them to *Annie T*'s skipper.

## 1.6 COLD WATER IMMERSION

The human body's typical reaction to immersion in cold water (under 15°C) is normally considered in four stages:

1. Cold water shock

   Cold water shock takes place within the first 30s to 2 minutes and is generally associated with a gasp reflex as the body comes into contact with the cold water, along with hyperventilation and a dramatic increase in heart rate and blood pressure. If the head goes underwater during this stage, the inability to hold one's breath will often lead to water entering the lungs in sufficient quantities to cause death. The increased heart rate and blood pressure can result in cardiac arrest, especially if the casualty has an existing cardiovascular condition. Panic can cause the hyperventilation to continue even after the initial physiological effects have subsided.


**Figure 8:** Lifejacket in its original package (inset: lifejacket strap)

2. Cold incapacitation

   Cold incapacitation usually occurs within 2-15 minutes of entering the water. The blood vessels are constricted as the body tries to preserve heat and protect the vital organs. This results in the blood flow to the extremities being restricted, causing cooling and consequent deterioration in the functioning of muscles and nerve ends. Useful movement is lost in the hands and feet, progressively leading to the incapacitation of arms and legs. Unless a lifejacket is worn, death by drowning occurs as a result of impaired swimming.

3. Hypothermia

   Hypothermia occurs when the human body's core temperature drops below 35°C (it is normally about 37°C). Depending on circumstances, this can occur after 30 minutes. The body's core temperature can continue to drop even after the casualty has been recovered from the water if the re-warming efforts are not effective.

4. Circum-rescue collapse

   Circum-rescue collapse can occur just before, during or after rescue due to a variety of mechanisms that result in unconsciousness or death. Collapse just before rescue may occur when a casualty relaxes mentally resulting, among other things, in a sudden drop of stress hormones, possibly leading to drop in blood pressure.

## 1.7 REGULATIONS AND GUIDANCE

### 1.7.1 Health and safety

Regulation 5 of the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, states that an employer has a general duty to:

> *"ensure the health and safety of workers and other persons so far as is reasonably practicable".*

Marine Guidance Note (MGN) 492 (M+F) Health and Safety at Work: Protecting those not employed by the ship owner **(Annex A)**, states that 'other persons' includes, inter alia, share fishermen. In order to fulfil this general duty, an employer is required to endeavour to:

- avoid or minimise risks
- evaluate unavoidable risks and take actions to minimise them, and
- adopt safe work patterns and procedures.

Although it is recognised that collective protection methods, such as the safe systems of work, should always be given priority ahead of wearing personal protective equipment (PPE), such as wearing PFDs, PPE should be provided for use by workers when risks cannot otherwise be avoided or reduced to a satisfactory level.

Guidance on these regulations was provided in MGN 20 (M+F) Implementation of EC Directive 89/391, Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997.

### 1.7.2 Safe systems of work

The Industry Advisory Note on potting safety, published in January 2011 by Seafish **(Annex B)**, and the MCA's Fishermen's Safety Guide, published in May 2014 **(Annex C)**, specifically warn of the danger to crew members who are not separated from the running gear when shooting creels.

The Seafish document identified the main hazards encountered in potting (creel fishing). It recommended several methods to reduce or eliminate the risks of being carried overboard by the fishing gear, including:

- Rope pounds or divisions to physically separate the crew member from the back rope.

- Detachable pots using a loop and toggle system, allowing the crew to work the gear in a controlled fashion while still being separated by a barrier from the gear.

- Self-shooting systems, which do not require manual intervention.

The Fishermen's Safety Guide includes a section on potting that discusses the layout of working decks and warns that familiar and repeated tasks can cause lapses in concentration, which can result in serious accidents.

In February 2014 the MAIB published a Potting Safety Message **(Annex D)**, which warned that crew should ensure they are standing in a safe area during shooting to avoid the chance of being taken overboard by running gear.

### 1.7.3 Personal flotation devices

The Merchant Shipping and Fishing Vessels (Personal Protective Equipment) Regulations 1999 were explained in Merchant Shipping Notice (MSN) 1731 (M+F)[4]. The regulations required employers to provide personal protective equipment to their workers. Further guidance was given in MGN 311 (F), Working and Protective Gear for Fishermen. Annex 1 to this MGN was titled A Guide to Personal Working Gear and Protective Gear for Fishermen, and provided a comprehensive matrix showing the appropriate safety gear to be worn for a number of common work activities on board fishing vessels.

The matrix highlights the wearing of a lifejacket as a high priority/essential item while working on deck, and the wearing of a safety harness as a priority dependent upon the local circumstances and the location of activity. This guidance was reiterated in MSN 1731 (M+F), which required a lifebuoy with a line attached for immediate use and an appropriate lifejacket to be provided when any work was carried out from a position where there was a reasonably foreseeable risk of falling overboard.

As part of its investigation into the death of a crew member who fell into the water from the scallop dredger *Maggie Ann*, the MAIB commissioned an expert opinion from Professor Mike Tipton, Professor of Human and Applied Physiology at the University of Portsmouth. In his expert opinion, Professor Tipton summarised the main advantages of wearing a lifejacket as:

- Keeping the airway and face clear of the water.

- Decreasing cooling due to additional insulation against the cold, reduced need to exercise and fewer periods of head immersion.

- Decreasing cardiac workload due to reduced need to exert oneself.

- Increasing detection and enabling more effective means of recovery from the water.

[4] MSN 1731 (M+F) applied at the time of the accident, but was replaced by MSN 1870 (M+F) in January 2016.

### 1.7.4 Manoverboard recovery and drills

The MCA's publication, Fishermen's Safety Guide: A guide to safe working practices and emergency procedures for fishermen, in relation to dealing with an MOB emergency states, inter alia:

> *Deploy a scrambling net or ladder if possible. Have a heaving line ready to throw to the person in the water in case it is difficult to manoeuvre alongside them. A boat hook can assist in getting the person back alongside.*

The mandatory safety equipment to be carried on board fishing vessels under 15m length overall (LOA) was described in MSN 1813(F), The Fishing Vessels Code of Practice for the Safety of Small Fishing Vessels. MOB recovery equipment was not included.

Further guidance was available in MGN 502(F), Code of Practice: Safety of Small Fishing Vessels, which described further voluntary steps intended to improve the safety of fishing vessels under 15m LOA. Aspects of this code will become mandatory when they are included in MSN 1871(F), which is due to supersede MSN 1813(F) in 2016. MSN 1871(F) was not intended to make the carriage of MOB recovery equipment mandatory for under 15m fishing vessels although monthly drills, including MOB drills, will be required.

### 1.7.5 Self-certification

Section 3.5 of MGN 502(F) requires that the vessel owner, or a competent person employed by him, inspects the vessel annually to confirm that: *safety equipment carried onboard the vessel has been suitably maintained and serviced…safety and other specified equipment continues to comply with the checklist…and a health and safety risk assessment has been completed*. The owner is required to sign a self-certification declaration and retain a copy on board. The skipper was unable to produce any evidence that any annual self-certification had been carried out on board *Annie T*.

## 1.8 PREVIOUS / SIMILAR ACCIDENTS

The MAIB has investigated many fatal man overboard accidents from fishing vessels and these are discussed in **Annex E** to this report.

The following are examples of accidents due to crew members becoming caught in a bight of rope, both during fishing and mooring operations.

*Purbeck II*[5], May 1999: A crew member from the 11m potting vessel was dragged overboard when a bight of back rope became caught around his neck. Fortunately he made a full recovery after being retrieved from the water.

[5] https://www.gov.uk/maib-reports/person-overboard-from-potter-purbeck-ii-off-st-alban-s-head-dorset-england

*Velazquez*[6], July 2007: An able seaman on the container vessel was pulled overboard, through a panama fairlead, when his left foot became trapped in the bight of a messenger rope during towage operations. He landed in the water and managed to clear himself from the line and swim to the surface. He lost the tip of a finger in the accident but was otherwise unharmed.

*Noronya*[7], 2008: A crewman's leg became caught in a bight of the back rope and was dragged over the side of the crabber. He was not wearing a lifejacket, and he was never found.

*Blue Angel*[8], January 2011: A fisherman on board the 8.24m potter was dragged overboard when his leg became caught in the back rope of a fleet of creels that was being shot over the stern. He was submerged for several minutes at a depth of nearly 40m, and was fortunate to survive.

*Forth Guardsman*[9], March 2011: An able seaman on the landing craft became trapped between a mooring wire and the ship's rail during a mooring operation. He was thrown overboard across the guardrail and died from his injuries after he was recovered.

*Ernest Bevin*[10], August 2011: A seaman on the ferry sustained severe head injuries and drowned when he was dragged overboard by a rope during mooring operations.

*Sea Melody*[11], December 2013: A crewman from the general cargo vessel was pulled overboard from the forward mooring area when his foot became caught in the bight of a mooring rope as the vessel was shifting berth. He was never found.

*Barnacle III*[12], May 2014: A crewman on the 11.35m creel fishing vessel was dragged overboard when his leg probably became caught in the buoy line, either as he was walking the fleet's end weight towards the vessel's stern, or shortly afterwards. He was not wearing a PFD and did not survive.

## 1.9 A REVIEW OF LIFEJACKETS

As part of this investigation, the MAIB completed a review of its investigations into fishing vessel accidents since January 2013, casualty statistics, relevant studies and lifejacket campaigns and regulations from around the world. This review is at **Annex E** and its findings are referred to in the analysis section of this report.

---

6 https://www.gov.uk/maib-reports/person-overboard-from-container-vessel-velazquez-during-towing-operations-with-tug-smit-collingwood-on-the-river-mersey-england-with-1-person-injured

7 https://www.gov.uk/maib-reports/person-overboard-from-crabber-noronya-off-orkney-scotland-with-1-loss-of-life

8 https://www.gov.uk/maib-reports/person-overboard-from-potter-blue-angel-off-gigha-scotland-with-injuries-to-1-person

9 https://www.gov.uk/maib-reports/person-overboard-from-landing-craft-forth-guardsman-during-mooring-operation-south-of-jura-scotland-with-loss-of-1-life

10 https://www.gov.uk/maib-reports/person-overboard-during-unmooring-operation-on-the-woolwich-ro-ro-passenger-ferry-ernest-bevin-on-the-river-thames-england-with-loss-of-1-life

11 https://www.gov.uk/maib-reports/person-overboard-during-mooring-operation-on-general-cargo-vessel-sea-melody-at-groveport-on-the-river-trent-england-with-loss-of-1-life

12 https://www.gov.uk/maib-reports/person-overboard-from-creeler-barnacle-iii-off-tanera-beg-scotland-with-loss-of-1-life

# 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 ACCIDENT MECHANISM

Gerry Gillies was pulled overboard when one of his legs became caught in a bight in the moving back rope as he stepped over it to pick up the weight at its end. The back rope would have been moving along the deck and into the water at the vessel's speed of 3.5kts (1.8 metres per second). Gerry was approximately 4-5m from the stern of *Annie T* when he was seen to fall down on deck, and therefore would have had very little time in which to release himself. The skipper displayed quick thinking as he immediately put the vessel's engine astern on seeing Gerry fall; however, *Annie T* could not have been stopped in time to avoid him being dragged overboard. Gerry was probably not dragged under the water because his foot came out of his wellington boot and this released him from the rope.

The air trapped in Gerry's oilskins might have given him some initial buoyancy but, being a non-swimmer and not wearing a lifejacket, it would have taken a tremendous effort from him to remain afloat. This effort, combined with cold water shock and the debilitating effect of cold incapacitation, resulted in him being unable to hold onto the recovery rope as it lifted him clear of the water and, coupled with his pre-existing heart condition, might have precipitated cardiac arrest.

## 2.3 WORKING PRACTICES

The shooting operation on board *Annie T* involved a crew member carrying the back rope's end weight aft in order to prevent it damaging the vessel's bulwark frames as it was dragged across the deck during the shooting process. Gerry had followed this procedure ever since he started working on *Annie T*, and had carried it out on the seven fleets of creels he had already shot away that day.

Being caught in a bight of rope or wire is a common accident mechanism that is not limited to fishing vessels, as is evident from the other accidents investigated by the MAIB listed in section 1.8. On a small potting vessel such as *Annie T*, the deck space is very limited when stacked with creels, a large pile of back rope and trays of catch. During shooting, it is not unusual for the gear to become tangled and move in unexpected ways across the deck. Therefore, remaining on deck, unseparated from the gear as it is being shot, is inherently dangerous and should be avoided under all circumstances.

The principle of separating personnel from moving gear is a fundamental safety tenet and is emphasised in safety publications from Seafish, the MCA and the MAIB, as detailed in section 1.7.2 of this report. *Annie T,* with its transom opening, was designed for self-shooting and could have been operated safely. However, the practice of man-handling the weight during creel shooting prevented the crew from adhering to the safe working practice of separating people from the running gear.

## 2.4 RISK ASSESSMENT

*Annie T*'s risk assessment was not documented as there was no requirement for such documentation on fishing vessels under 10m in length. Annual self-certification was required by the MCA but there was no evidence that it had ever been completed in the 5 years that the skipper had owned the vessel. Therefore, identification of the risks inherent in the operation of the vessel and the means of mitigating those risks were reliant on the skipper's mental assessment of such issues.

The skipper was aware of the hazards involved in the shooting operation. This was why he was keeping an eye on the process while simultaneously navigating the vessel. Running the engine full astern on seeing Gerry fall down, and cutting the rope with a knife kept specifically for such contingencies after he went overboard, demonstrate that the skipper had already considered the actions to take in the event of an MOB. However, he had not appreciated how difficult it would be to recover a casualty from the water. Furthermore, he had not considered how Gerry, a non-swimmer, would cope if he fell into the water, or the effects that sudden immersion in cold water would have on him.

Never having experienced an MOB during his career at sea, the skipper perhaps nurtured a false sense of confidence in a fundamentally unsafe method of work. Over a period of time, he had come to trust the methodology he had adopted, perhaps believing that the absence of incidents in the past was proof that his system of work was safe.

The circumstances of this accident show that the skipper's perception of the risks involved when shooting creels was incomplete and that, consequently, the control measures in place were inadequate.

## 2.5 MOB RECOVERY

The skipper's efforts to recover Gerry from the water were severely hampered by the lack of dedicated equipment. Had a ladder, scramble net or some other dedicated means of MOB recovery been available it could have changed the outcome of this accident.

The skipper had to work with what was available to him; his only option being to use the hauler and a line with a bowline in it. However, the loop of rope around one of his legs resulted in Gerry pivoting from a point on his leg or thigh when the rope was hauled out of the water. In order to be recovered back on board, he had to grip the rope with sufficient strength to counterbalance his own weight and remain upright. The initial trauma of falling into the water, the effects of cold water shock and the subsequent efforts to stay afloat would have weakened Gerry considerably, and it is not surprising that he lost his grip and fell back into the water.

Currently, there is no mandatory requirement for fishing vessels under 15m LOA to carry dedicated manoverboard recovery equipment, and the available guidance on the subject of manoverboard recovery is scant. This accident underlines the need for regular MOB drills to be carried out, with particular emphasis on the recovery of the casualty. Nearly 89% of fishing vessels in the UK fleet are under 15m LOA[13]. In this context, the move towards mandating emergency drills on such vessels is a welcome one. It must be hoped that these drills will prompt owners and skippers to ensure that they have appropriate equipment on board their vessels with which to recover a casualty from the water.

[13] Data from the Marine Management Organisation

## 2.6 PERSONAL FLOTATION DEVICES[14]

As demonstrated repeatedly, MOB incidents happen at the most unexpected times and often during benign environmental conditions. The MAIB has investigated numerous fatal accidents where the casualty had been in the water for a very short time, but did not survive due to the effect of cold water shock. A PFD keeps the casualty afloat and can prevent the inhalation of water both during the initial gasp reflex and subsequently. Furthermore, the buoyancy afforded by a PFD allows the casualty to remain still, conserving energy and significantly reducing the cardiac workload while the recovery is completed.

Had Gerry been wearing one of the constant wear lifejackets available on board *Annie T* while he was working on deck it is likely that he would have survived this accident.

### 2.6.1 Casualty statistics

The MAIB casualty statistics show no downward trend in the rate of commercial fishermen dying as a result of falling overboard; in fact, over the last 15 years there appears to be a slight upward trend **(Annex E, Figure 2)**. The worldwide statistics indicate that an MOB incident is between five and eight times more likely to end up as a fatality when the casualty is not wearing a PFD.

This accident adds to the long list of similar accidents where fishermen have lost their lives because they have failed to wear a PFD. Therefore, it would be reasonable to conclude that, the benefits of wearing a PFD on the exposed decks of fishing vessels have been established beyond any reasonable doubt. The corpus of evidence has accumulated to a level where it is imperative that strong and decisive action is taken immediately to prevent further unnecessary deaths.

### 2.6.2 Free PFD initiative

It may be too early to draw any firm conclusions about the effectiveness of the initiative, started in 2013, to offer free PFDs to commercial fishermen in the UK. However, the MAIB has started 35 investigations involving commercial fishing vessels since January 2013. Relevant findings from these investigations include:

- Of the 22 cases where Constant Wear Personal Flotation Devices (CWPFDs) were relevant to the outcome of the accident, they were available on board in 17 cases and worn in 3 cases.

- 14 lives could have been saved had the casualties been wearing CWPFDs while working on deck and CWPFDs were available on board in 9 of these cases.

- In some cases, the free PFDs supplied to fishermen had never been removed from their packaging, and in one case they had been left at home.

Even when PFDs have been freely provided and are available on board, evidence from accident investigations indicates they are seldom worn. This undermines the argument that the cost of procuring PFDs deters fishermen from wearing them.

[14] The factual matter in this section is drawn from **Annex E: Lifejackets: a review, MAIB**.

### 2.6.3 Reluctance to wear PFDs

In addition to the cost, which has been discussed above, arguments offered by fishermen for choosing not to use a CWPFD on deck include:

- the risk of it becoming snagged in the fishing gear
- the bulkiness of the CWPFD
- discomfort
- the risk of inadvertent activation of the auto inflation mechanism.

The development of light and comfortable PFDs suitable for use by fishermen has now removed these arguments against their use on the exposed decks of fishing vessels at sea. This has been confirmed by the successful RNLI trial and trials in the USA **(Annex E)**. Furthermore, crew on workboats serving the offshore oil and windfarm sectors, cable layers, dredgers and other specialised vessels have an excellent record of wearing PFDs while on deck, despite carrying out onerous tasks with the danger of becoming snagged in the working gear.

The reasons why the use of constant wear lifejackets has not become the norm in the fishing industry are explored in the MCA and RNLI sponsored report of 2009[15] on behavioural change. This concluded that the main reasons fishermen do not habitually wear PFDs are that they do not appreciate how difficult it can be to rescue a casualty from the sea, and they do not understand just how debilitating cold water shock can be. In this context, the importance of the training element of the free PFD initiative is clear, and it is unfortunate that it has not been completed in all cases. *Annie T*'s skipper received no training or safety briefing when he was passed the PFDs, and it is not known how many other fishermen received their free PFDs without the accompanying safety briefing. However, while undoubtedly valuable, it would require more than a single briefing to alter fishermen's attitudes towards safety.

### 2.6.4 Arguments raised against mandatory use of PFDs

It can be argued that the employer's general duty, as described in Regulation 5 of the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997, is sufficient to ensure that fishing vessel owners and skippers require PFDs to be worn on their vessels when it is appropriate to do so. The relationship between a skipper/vessel owner and his crew, where these are share fishermen, is not currently perceived to be an employer-employee relationship. Nevertheless, the applicability of these regulations to share fishermen has been unambiguously delineated in MGN 492 **(Annex A)**. It is therefore a fallacy to suggest that skippers/vessel owners are not responsible for the health and safety of share fishermen just because they are technically not considered 'employees'. The implementation of the provisions of the International Labour Organization Work in Fishing Convention (ILO188), currently expected to be in 2017, will hopefully resolve this conundrum.

[15] Turner, S et al: MCA Lifejacket Wear – Behavioural Change (Client - Maritime Coastguard Agency & the Royal National Lifeboat Institution), December 2009

It has been suggested that any requirement to wear PFDs would be difficult or impossible to monitor and therefore enforce. However, many maritime regulations can be considered difficult or impossible to enforce; for example, the requirement to keep a proper lookout during navigation. These are areas where the authorities traditionally rely on good onboard management and written records as the only realistic means of ensuring that crews are complying with mandatory requirements.

Other arguments raised against mandating PFD usage include the possibility of insurance companies refusing claims where the regulation has not been upheld. While unpalatable, this possibility could serve to incentivise fishermen to comply with the regulation.

### 2.6.5 Mandating PFD usage

Research has demonstrated that campaigns succeed in changing entrenched behaviour only when backed by mandatory regulations. The studies carried out in the leisure sector in the UK, USA, Australia and New Zealand demonstrated a noticeable increase in the wearing of PFDs when mandatory requirements were introduced.

The South African Maritime Administration reported a dramatic reduction in fishing vessel fatalities following the introduction of a requirement for fishermen to wear PFDs. Several European countries have also introduced mandatory requirements regarding the use of PFDs on fishing vessels. None of these countries have reported any negative impact resulting from the introduction of such legislation.

The MAIB has been investigating fatal man overboard accidents since its inception, and since 1991 it has made eight recommendations promoting the wearing of PFDs by fishermen **(Annex E, Table 4)**. In response to these recommendations, the MCA committed to *put in place arrangements to require fishermen to wear Personal Flotation Devices (PFDs) by December 2012*. However, this date was subsequently slipped to 2016, and the MCA's current target is to introduce legislation by 2020. Part of the delay can be explained by the MCA's and FISG's desire to allow sufficient time for the free PFD initiative to bear fruit. Although several methods to measure the effectiveness of this campaign were proposed during the FISG meetings, it was concluded by the FISG that the only data that can be reliably used was that collected by the MAIB. The evidence from MAIB investigations is that the campaign has not been successful in reducing the fatality rate and there has been minimal change in the safety behaviour of fishermen.

The number of fishermen who die each year as a result of not wearing PFDs has continued unabated in spite of the MCA's and the fishing industry's efforts to educate and persuade fishermen to wear such equipment when working on the open deck. Action to mandate the wearing of PFDs on commercial vessels appears to be a sensible and proportionate measure to prevent further unnecessary loss of life.

# SECTION 3 - CONCLUSIONS

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

1. Gerry Gillies was pulled overboard when one of his legs became caught in a bight in the moving back rope as he stepped over it to pick up the weight at its end. [2.2]

2. As Gerry was a non-swimmer and was not wearing a lifejacket it would have taken tremendous effort from him to remain afloat. [2.2]

3. The effects of cold water shock and a pre-existing heart condition might have resulted in him suffering a cardiac arrest. [2.2]

4. The practice of man-handling the weight during creel shooting prevented the crew from adhering to the safe working practice of separating people from the running gear. [2.3]

5. The skipper's perception of the risks was incomplete, and consequently the control measures in place were inadequate. [2.4]

6. The availability of a ladder, scramble net or some other means of MOB recovery could have changed the outcome of this accident. [2.5]

7. Had Gerry been wearing one of the constant wear lifejackets available on board *Annie T* while he was working on deck it is likely that he would have survived this accident. [2.6]

## 3.2 OTHER SAFETY ISSUES DIRECTLY CONTRIBUTING TO THE ACCIDENT[16]

1. *Annie T*'s skipper received no training or safety briefing when he was given the constant wear lifejackets under the free PFD initiative. [2.6.3]

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

1. This accident adds to the long list of similar accidents where fishermen have lost their lives because they have failed to wear a PFD. It is now imperative that strong and decisive action is taken immediately to stop further unnecessary deaths. [2.6.1]

2. That many fishermen lack an appreciation of how difficult it can be to recover a casualty from the sea, and do not understand the debilitating effects of cold water shock, are considered the primary reasons why they habitually do not wear lifejackets. [2.6.3]

[16] These safety issues identify lessons to be learned. They do not merit a safety recommendation based on this investigation alone. However, they may be used for analysing trends in marine accidents or in support of a future safety recommendation.

3. For fishing vessels under 15m LOA, the available guidance on the subject of MOB recovery is scant, and there is no mandatory requirement to carry MOB recovery equipment. [2.5]

4. The number of fishermen who die each year as a result of not wearing PFDs has continued unabated in spite of the MCA's and the fishing industry's efforts to educate and persuade fishermen to wear such equipment when working on the open deck. Action to mandate the wearing of PFDs on commercial vessels appears to be a sensible and proportionate measure to prevent further unnecessary loss of life. [2.6.5]

# SECTION 4 - ACTION TAKEN

## 4.1 MAIB ACTIONS

The **MAIB** has:

Published a safety flyer **(Annex F)** to disseminate the main lessons of this accident in the fishing industry.

## 4.2 ACTIONS TAKEN BY OTHER ORGANISATIONS

The **skipper of *Annie T*** has:

- Introduced a remote release system that prevents the need to man-handle the gear while it is being shot.
- Stopped the practice of man-handling the weight attached to the back rope.

## SECTION 5 - RECOMMENDATIONS

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

**2016/146** Prioritise the introduction of legislation that will require the compulsory wearing of personal flotation devices on the working decks of all fishing vessels while at sea.

**2016/147** Issue guidelines regarding manoverboard recovery equipment for fishing vessels under 15m in length.

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

Marine Accident Report