

Report on the investigation of the  
capsize of the fishing vessel  
***Laura Jane (SE80)***  
with the loss of one life  
in Plymouth Sound  
on 7 May 2018



**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.

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## **GLOSSARY OF ABBREVIATIONS AND ACRONYMS**

ALB	-	All weather lifeboat
CPR	-	Cardio Pulmonary Resuscitation
DP	-	Designated person
FISG	-	Fishing Industry Safety Group
GPS	-	Global Positioning System
ILB	-	Inshore lifeboat
kg	-	kilogram
kts	-	knots
LOA	-	Length overall
m	-	metre
“Mayday”	-	The international distress signal (spoken)
MCA	-	Maritime and Coastguard Agency
MGN	-	Marine Guidance Note
mm	-	millimetre
MOD	-	Ministry of Defence
MSF	-	Marine Survey Form
MSIS	-	Marine Survey Instructions to Surveyors
MSN	-	Merchant Shipping Notice
nm	-	nautical mile
RNLI	-	Royal National Lifeboat Institution
s	-	seconds
Seafish	-	Sea Fish Industry Authority
SFCS	-	Seafish Construction Standards for new fishing vessels less than 15 metres length overall

## **DEFINITIONS**

Open vessel	-	An open vessel is one where water coming into the vessel normally drains to the bilge.
Decked vessel	-	A decked vessel is a vessel with a continuous watertight weather deck that extends from stem to stern, and has positive freeboard in all loading conditions.

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

## SYNOPSIS

At 1311 on 7 May 2018, the single-handed fishing vessel *Laura Jane* capsized off Mount Batten Breakwater in Plymouth with the skipper, Christopher Robin Comber, trapped in the wheelhouse. The vessel remained afloat with a few centimetres of the wheelhouse protruding above the water. Numerous small vessels converged at the scene immediately after the accident, but no survivors were found. Two Royal National Lifeboat Institution lifeboats based in Plymouth arrived at the scene within 15 minutes of the capsizing.

One of the lifeboats towed *Laura Jane* to the nearby Batten Bay beach, arriving at around 1400. Two lifeboat crew members then broke a wheelhouse window and extracted the skipper, who was found immersed in water. He was unconscious and not breathing. The lifeboat crew and, later, paramedics from the emergency services, tried unsuccessfully to resuscitate him. He was then airlifted to Derriford Hospital, where he was pronounced deceased at 1450.

The MAIB investigation established the following:

- The weight of the fishing gear on *Laura Jane* reduced its freeboard to the extent that water entered the vessel through its freeing ports, causing it to capsize.
- Between 2012 and the vessel's loss, the Maritime and Coastguard Agency (MCA) inspected the vessel a number of times, during which they categorised it first as a decked vessel and subsequently as an open vessel. During these inspections the presence of low level freeing ports, which did not satisfy the recommended minimum requirements for either category, was not challenged, in part due to surveyors misinterpreting the scope of the inspection they were undertaking.
- *Laura Jane's* owner had not undertaken a stability assessment of the vessel, as recommended in guidance published by the MCA, and assumed it was safe to operate as it was passing MCA inspections.
- The skipper had not completed the mandatory Safety Awareness and Risk Assessment training course or any stability awareness training.

The MAIB has published a safety flyer to the fishing industry to disseminate the key lessons from this accident. The MCA has introduced revised inspection aide-mémoires, including specific requirements to record the vessel's freeboard and to confirm that freeing ports are not fitted to open vessels.

*Laura Jane's* owner, Oceanic Drifter Ltd, has been recommended to ensure that crew employed on its vessels possess all mandatory safety training course certificates, and to require its skippers to complete the voluntary Seafish <16.5m skipper's certificate scheme with a view to enhancing their stability awareness. Oceanic Drifter Ltd has also been recommended to carry out stability assessments, in accordance with published guidance, of any <12m fishing vessels that it may own.

## SECTION 1 - FACTUAL INFORMATION

### 1.1 PARTICULARS OF *LAURA JANE* AND ACCIDENT

<b>SHIP PARTICULARS</b>	
Vessel's name	<i>Laura Jane</i>
Flag	United Kingdom
Classification society	Not applicable
Port letters and number	SE80
Type	Gill netter/potter
Registered owner	Oceanic Drifter Ltd
Manager(s)	Oceanic Drifter Ltd
Construction	Glass reinforced plastic
Year of build	1980
Length overall	6.1m
Registered length	6.0m
Beam	2.26m
Gross tonnage	1.13
Minimum safe manning	Not applicable
Authorised cargo	Not applicable
<b>VOYAGE PARTICULARS</b>	
Port of departure	Plymouth
Port of arrival	Plymouth (intended)
Type of voyage	Coastal
Cargo information	Fish
Manning	1
<b>MARINE CASUALTY INFORMATION</b>	
Date and time	7 May 2018, 1311
Type of marine casualty or incident	Very Serious Marine Casualty
Location of incident	170m off Mount Batten Breakwater, Plymouth, 50° 21.61' N, 004° 8.22'W
Fatalities	1
Damage/environmental impact	None
Ship operation	On passage
Voyage segment	In transit
External & internal environment	Calm seas, wind force 3, sea water temperature 11.5°C, fine and clear weather, good visibility
State of tide	Ebbing
Persons on board	1



## 1.2 NARRATIVE

### 1.2.1 Events leading up to the accident

At 0554 on 7 May 2018, the single-handed fishing vessel *Laura Jane* (**Figure 1**), with the skipper, Christopher Robin Comber (Robin), on board, entered the Sutton Harbour lock at Plymouth (**Figure 2**). The vessel was not carrying any fishing equipment such as nets, weights or buoys.

After a few minutes, the vessel left the lock and, at 0606, tied up at the Barbican landing stage. Footage from a fixed camera mounted on Mount Batten Breakwater

shows the skipper making his way up the landing stage and returning a few minutes later carrying a rectangular object roughly 2m wide. At 0630, *Laura Jane* departed from the landing stage and the fixed camera footage shows the vessel passing Mount Batten Breakwater at 0636. The vessel was on an even keel with its antifouling hull coating extending well above the waterline.



Figure 1: *Laura Jane* (inset: bilge overboard discharges)

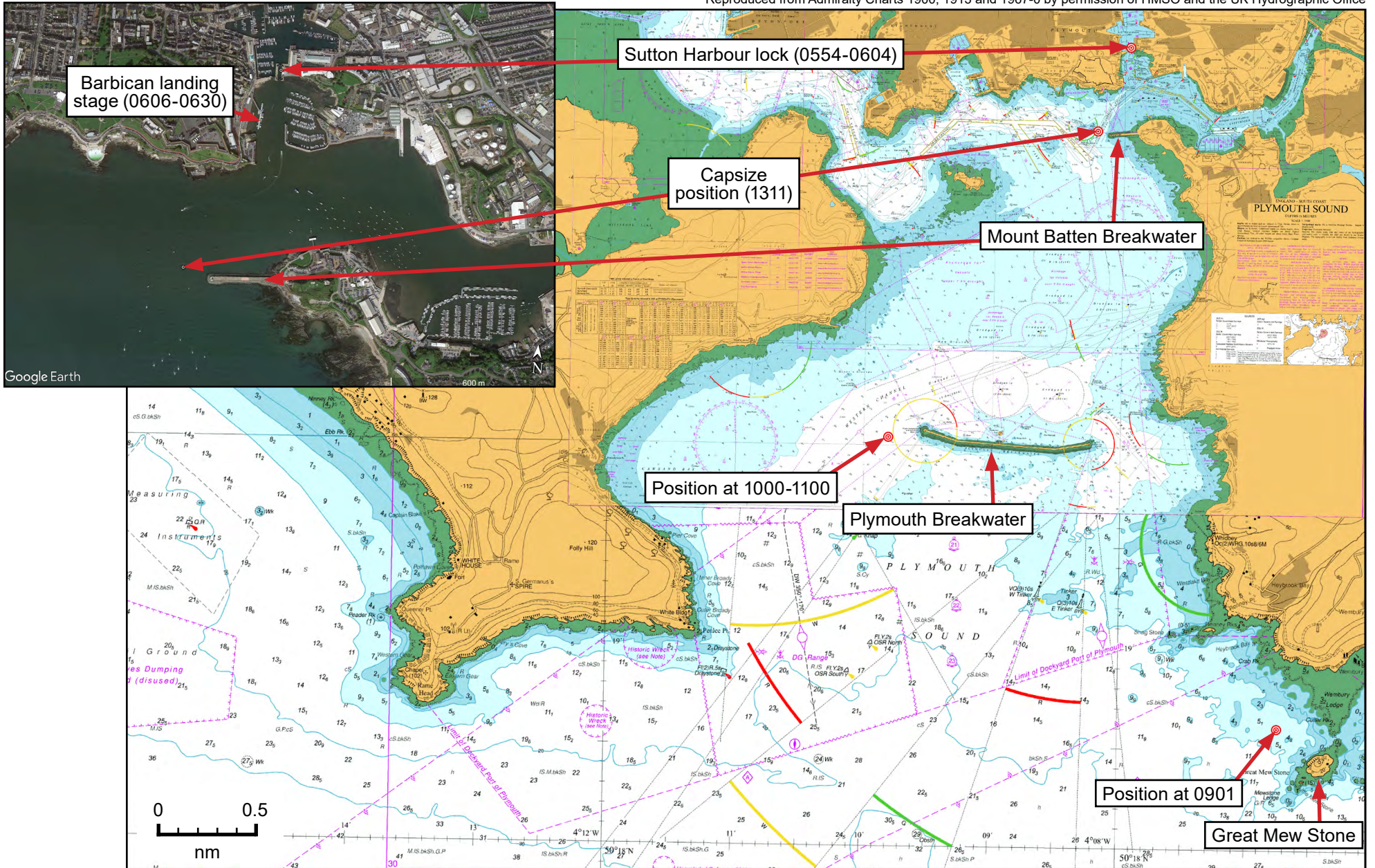


Figure 2: Movements of *Laura Jane* on 7 May 2018

*Laura Jane's* global positioning system (GPS) plotter recorded the vessel was near the Great Mew Stone at 0901. Between 1000 and 1100, the skipper of another fishing vessel saw *Laura Jane* fishing half a mile off the western end of Plymouth Breakwater.

*Laura Jane* was next seen off Mount Batten Breakwater at 1309. It had a substantial stern trim (**Figure 3a**). The vessel's speed at the time was approximately 5 knots (kts), which reduced to around 2.5kts a minute later. Shortly afterwards the turbulence from the propeller was seen to stop for a few seconds, and then start again before the vessel turned to port (**Figure 3b**). At 1311, after travelling a few more metres, *Laura Jane* capsized to starboard and remained afloat on its side with a few centimetres of its wheelhouse protruding above the water (**Figure 3c**). No distress calls were received from the vessel and there was no resulting pollution.

### 1.2.2 Emergency response

Having witnessed *Laura Jane's* capsize, several vessels in the vicinity immediately converged at the scene. One yacht's skipper alerted Plymouth Vessel Traffic Service, who transmitted a "Mayday" call alerting all vessels in the area, and several '999' emergency calls were made by members of the public. At 1313, Coastguard Operations Centre Falmouth tasked the Royal National Lifeboat Institution (RNLI) to assist.

Images courtesy of M Subs Ltd



**Figure 3a, b and c:** The capsize

A canoe instructor, who was near Mount Batten Breakwater with her students, arrived at the scene approximately 3 minutes after the capsizing. She called out to get the attention of any potential survivors, but there was no response. Vertical jets of water were seen coming out of two openings on *Laura Jane's* port side. Fishing nets

were floating around the vessel. A boat with a man in a diving suit approached *Laura Jane*, but others who were gathered there dissuaded him from diving because of the risk of him becoming entangled in the nets.

At approximately 1325, Ministry of Defence (MOD) police boats, responding to the “Mayday” call, arrived on scene and the skipper was observed inside the wheelhouse. By this time, around 20 vessels were on scene and one of them had taken hold of a line from *Laura Jane*.

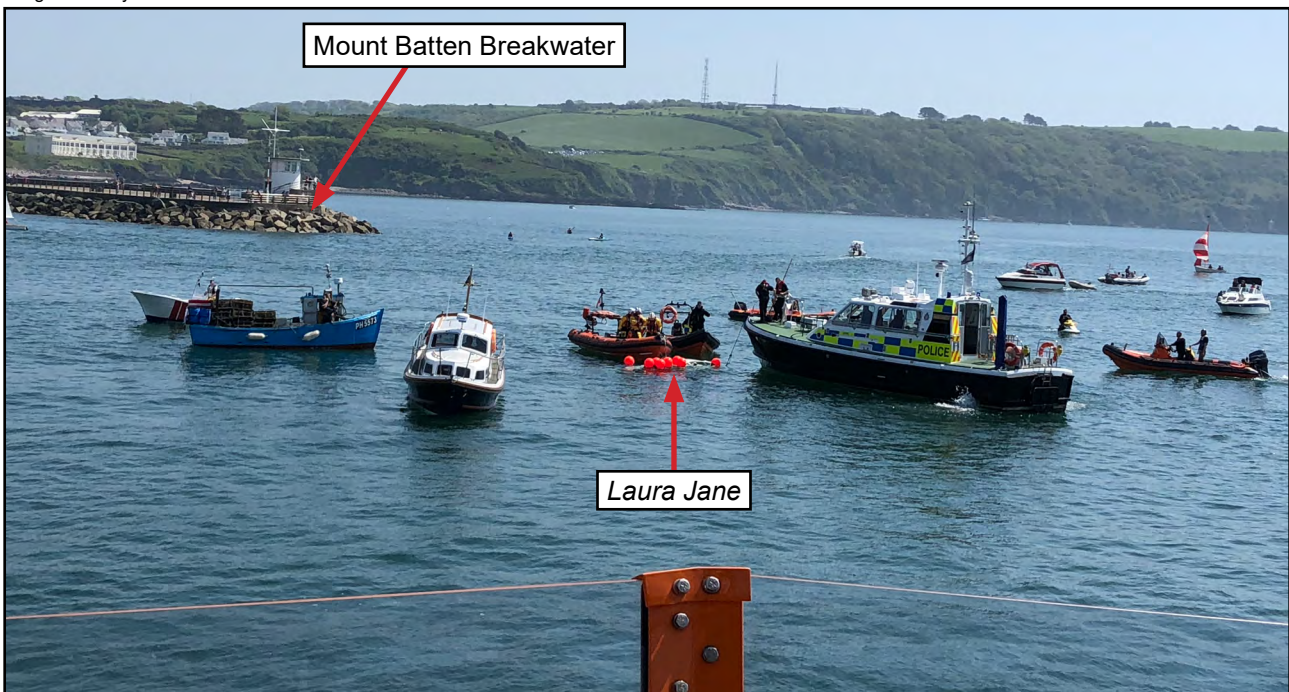
By 1326, the RNLI inshore lifeboat (ILB) had arrived at the scene and had started attaching more lines to the capsized vessel. By 1330, the all weather lifeboat (ALB) had arrived and had taken control of the rescue operation while the MOD police ensured that other boats did not interfere (**Figure 4**). The ALB coxswain assessed that breaking a wheelhouse window could sink the vessel; he had concluded that the water being ejected from its port side was due to a diminishing air pocket. He decided instead that *Laura Jane* should be towed into shallow water. The ILB dragged *Laura Jane* to Batten Bay, where the vessel was beached port side up with the wheelhouse window protruding above the water in an ebbing tide (**Figure 5**).

At around 1400, two RNLI crew members broke open a wheelhouse window with an axe and extracted the skipper through the window opening, carried him to the beach, and immediately commenced cardio pulmonary resuscitation (CPR). The skipper was unconscious and not breathing. At 1407, a rapid response vehicle arrived at the scene with a paramedic, who took over the CPR. Within the next few minutes two more ambulance vehicles arrived. At 1424, an air ambulance helicopter landed at Batten Bay beach and then transferred the skipper to Derriford Hospital, where he was pronounced deceased at 1450.

### 1.2.3 Vessel recovery

*Laura Jane* was recovered by an MOD salvage team on 9 May at the request of the Queen’s Harbour Master of Plymouth. They reported that the wheelhouse door was found shut. The vessel was taken to a secure location at Millbay Docks in Plymouth,

Image courtesy of RNLI



**Figure 4:** Scene shortly after capsized

Image courtesy of Maritime and Coastguard Agency



**Figure 5:** RNLi rescue effort

where MAIB inspectors and Maritime and Coastguard Agency (MCA) surveyors attended. All wheelhouse windows, except the one that was broken during the rescue attempt, were found intact (**Figure 6**).

Nine marker buoys were found tied to the vessel, and five jumbled up gill nets and their associated chain weights were found at the vessel's stern, where a temporary pen had been constructed using a rectangular frame (**Figure 7a**). The nets and weights were estimated to weigh approximately 300kg (**Figure 7b**). Two 20-litre jerry cans of diesel were found on board in addition to around 30 litres of diesel in the fuel tank. Solid ballast, in the form of four blocks of steel, each weighing 25kg, were located on board, three in the aft section next to the fuel tank and one in the storage section forward of the wheelhouse.



Figure 6: *Laura Jane* at Millbay Docks after recovery



Figure 7a: Temporary net-pen



Figure 7b: Nets recovered from *Laura Jane*

## 1.3 COMPANY AND CREW

### 1.3.1 Company

*Laura Jane* was owned by Oceanic Drifter Ltd, the controller of which also had 50% ownership of three sightseeing boats, three ferries and two angling boats. A designated person<sup>1</sup> (DP) was employed to manage the passenger vessels in the fleet. The DP's primary role was to look after the passenger vessels, but he also helped with the technical maintenance of *Laura Jane*. The fishing gear for *Laura Jane* was stored in a shed directly assessable from the Barbican landing stage.

### 1.3.2 The skipper

The skipper, Robin Comber, a UK national, was 52 years old and had approximately 30 years' experience in the fishing industry. Of the four mandatory Sea Fish Industry Authority (Seafish) safety training courses, he had completed Basic Sea Survival and Basic Fire Fighting courses in 1989. There was no record of him having completed Basic First Aid or Safety Awareness and Risk Assessment courses, nor any stability awareness training. He was not wearing a lifejacket at the time of the accident.

Robin Comber had been the skipper of *Laura Jane* for just over 1 month, and was described by those who knew him as hardworking and enthusiastic.

<sup>1</sup> A designated person is required by the Merchant Shipping (Domestic Passenger Ships) Regulations 2001

The postmortem examination report concluded that Robin Comber's death was attributed to drowning. The report also noted that he suffered from '*cardiomegaly and left ventricular hypertrophy*<sup>2</sup>'. The toxicology report stated that there were '*no significant toxicological findings*'.

## 1.4 VESSEL

### 1.4.1 General construction

Built in 1980, *Laura Jane* was a glass reinforced plastic gill netter/potter of 6.0 metres registered length. The vessel had a net hauler on the starboard side behind the wheelhouse. It had a storage space forward of the wheelhouse and was fitted with a sealed deck with buoyancy spaces below. Six freeing ports were cut into the hull above the sealed deck, three on either side, with stainless steel half-pipes fitted on the outside (**Figure 8**).

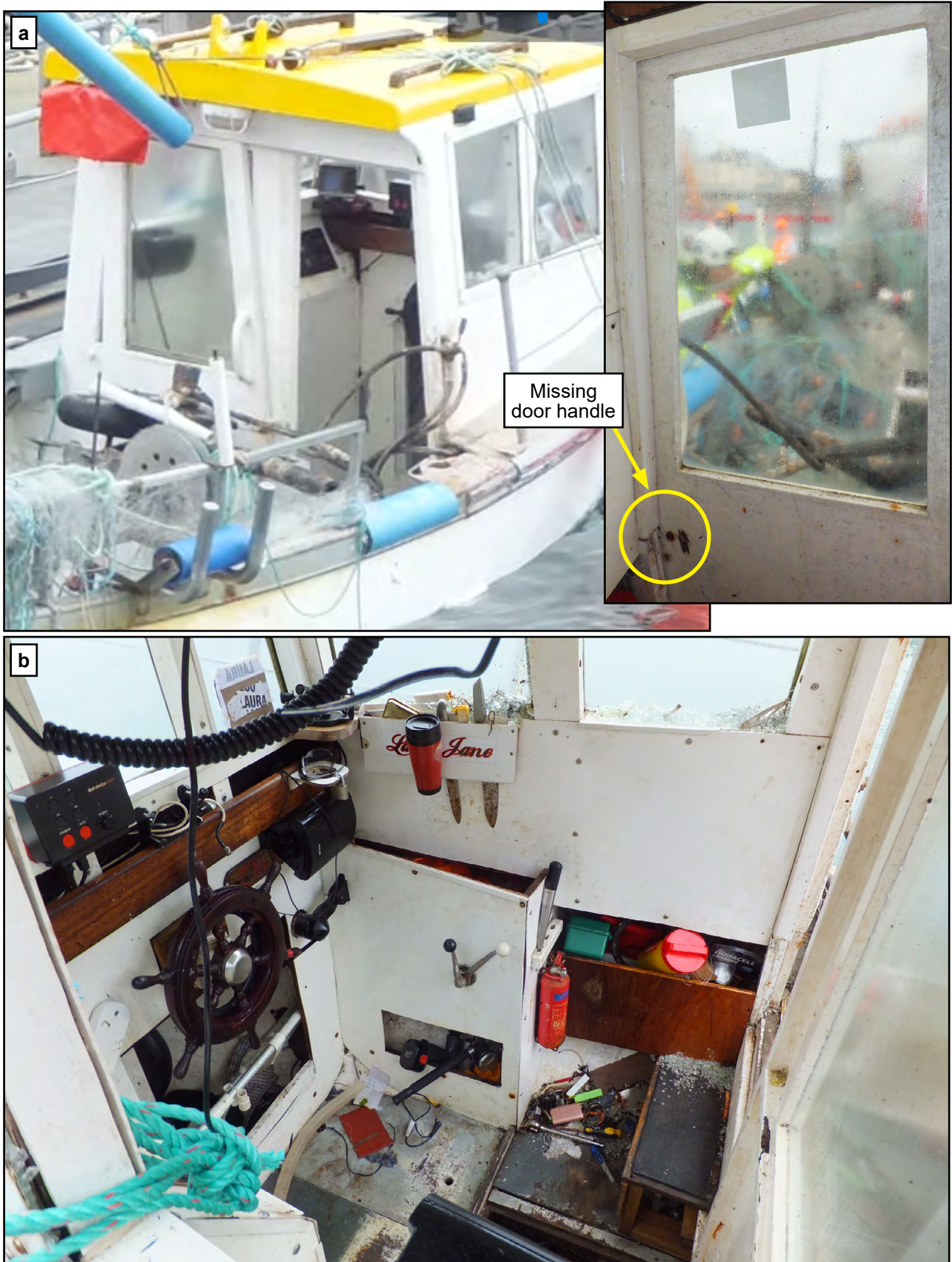


**Figure 8:** Freeing ports (inset a: enlarged view and inset b: stainless steel half-pipe fitted on the hull outside)

<sup>2</sup> Cardiomegaly is the medical term for an enlarged heart; left ventricular hypertrophy is the term for thickening of the muscle wall of the left chamber of the heart.



*Laura Jane's* wheelhouse had sealed glass windows (**Figure 9a**). The inside handle of the wheelhouse door was missing (**Inset**). It could not be established when the door handle was removed. There was a fire extinguisher next to the steering wheel and a large box of tools stored in a niche next to the wheel and engine controls. The wheelhouse was equipped with a very high frequency radio, GPS receiver and plotters for fish finding (**Figure 9b**).



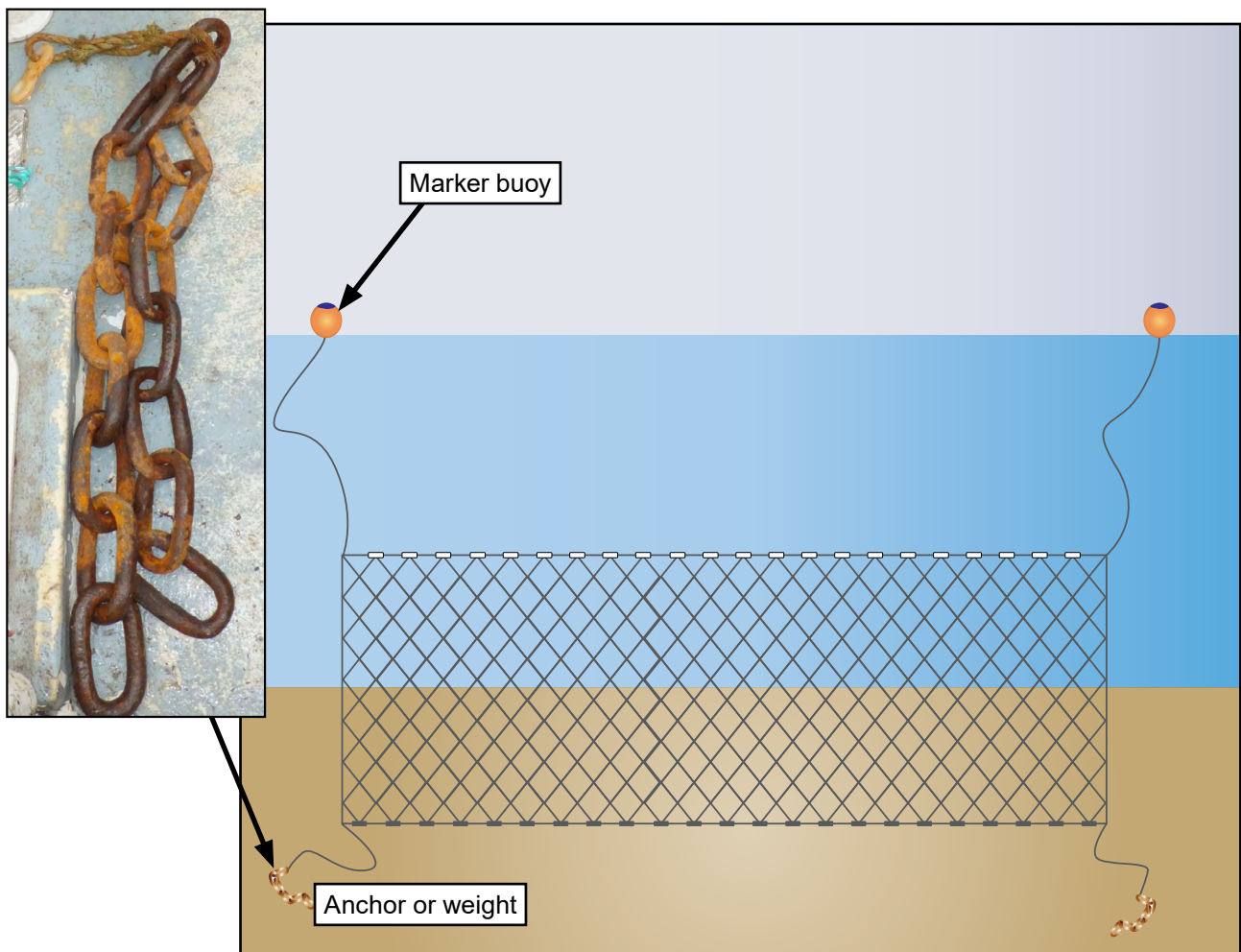
**Figure 9a and b: Wheelhouse (inset: missing door handle)**

The vessel had two electrically-driven bilge pumps, both of which took suction from the wheelhouse and could be switched to automatic or manual running. In addition, a hand-operated bilge pump, with its suction near the aft end of the engine, was fitted on the port side on deck. There was no bilge alarm in the aft part of the vessel. The overboard discharges for all the bilge pumps was on the port side of the hull. The engine cooling water was discharged at the transom through a wet exhaust system (**Figure 1**).

On 16 April 2018, *Laura Jane* had been taken out of the water to rectify leakage through the stern tube. At the same time, the engine exhaust pipe was dismantled and checked for possible leaks. The vessel was put back in the water on 18 April and then tested to ensure that the water ingress had been rectified. Subsequently, the vessel was in regular use until the day of the accident.

#### 1.4.2 Fishing method

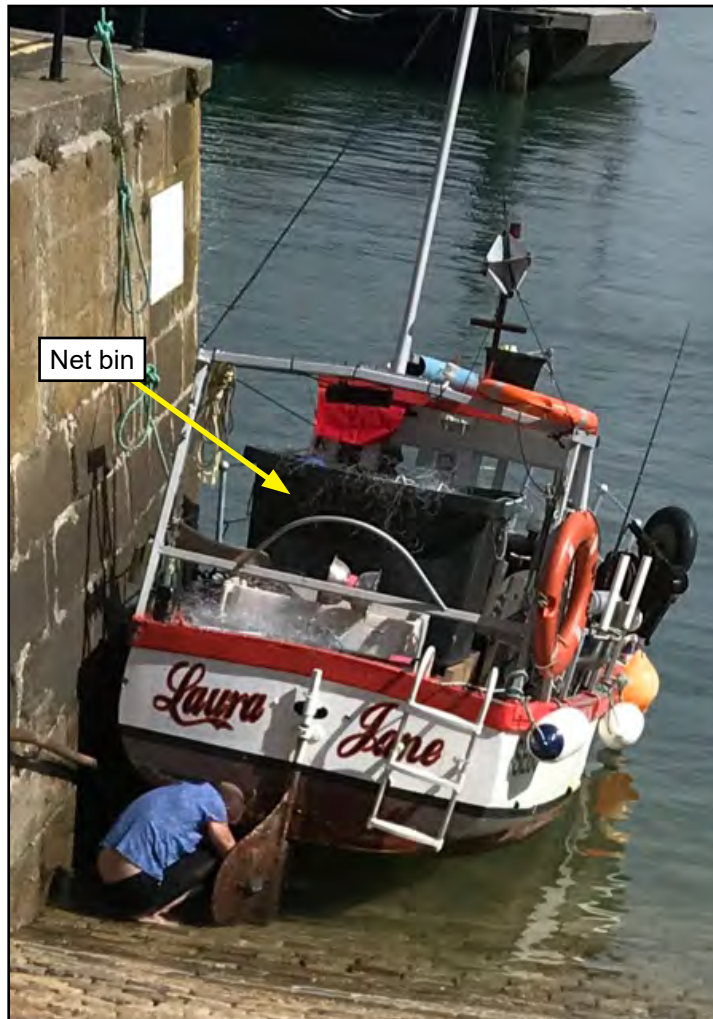
*Laura Jane*'s normal mode of fishing was gill netting. Gill or static nets are hung vertically in the water between a top rope fitted with small floats and a leaded bottom rope fitted with weights. The nets are kept in place by anchor weights at each end, which are marked by surface floats (**Figure 10**). Each net with associated weights weighed approximately 60kg. Once laid, the nets are left in place for 24 hours before they are retrieved.



**Figure 10:** Gill or static netting method with net and chain weight (**inset**)

It was reported that *Laura Jane*'s three previous owners had been commercially unsuccessful with the vessel, and that one of the owners had limited the total weight of the gear and catch carried on board to 100kg. This limitation was not brought to the attention of the MCA.

Additionally, it was reported that the current owner had instructed the skipper to carry no more than two nets at a time. It was further reported that the DP for the passenger vessels belonging to *Laura Jane*'s owner had asked the skipper to reduce the size of the two net bins he routinely used (**Figure 11**).



**Figure 11:** Large net bin carried on board  
(photograph taken on 8 April 2018)

### 1.4.3 Ownership and inspection history

In December 2011, in response to a request from its then owner to the MCA to register *Laura Jane*<sup>3</sup> as a commercial fishing vessel, a Seafish surveyor carried out an inspection to check if the vessel was compliant with the Seafish Construction Standards for new fishing vessels less than 15m length overall (SFCS). The Seafish inspection report stated that the vessel did not comply because it was not fitted with a watertight bulkhead as required for vessels <7m LOA. In addition, the report stated that most of its internal plywood structure, including frames, had rotted and required renewal.

<sup>3</sup> Until 2017, *Laura Jane* was named *Kevi-Tor-Ru*, but *Laura Jane* is used throughout the report to avoid confusion.

On 19 December 2011, an MCA surveyor wrote to the owner referring to earlier discussions with him and suggesting that fitting a sealed deck in lieu of a watertight bulkhead would be acceptable. The MCA surveyor's suggestion was based on the SFCS's proviso that watertight bulkheads need not be fitted if intact buoyancy spaces were constructed below deck or floor areas. There were several telephone calls between the owner and the MCA on this matter, during which it is understood that freeboard and freeing port requirements were also discussed. The outcome of these telephone calls was undocumented and cannot be verified.

In February 2012, *Laura Jane* was presented for MCA inspection at a farm in Kingsbridge, Devon. The vessel was fitted with a sealed deck, with the space on either side of the engine enclosed by plywood partitions, and the intervening spaces between frames filled with polystyrene. Six freeing ports had been cut into the hull, with a stainless steel half-pipe fitted outside each freeing port (**Figure 8**). The MCA surveyor who issued the inspection report noted the relevant Code of Practice as *Merchant Shipping Notice (MSN) 1813(F)*<sup>4</sup> *Decked <10m*.

On 3 March 2016, *Laura Jane* was sold and the MCA carried out a change of ownership inspection. The surveyor who had carried out the inspection in 2012 also conducted this inspection. Four deficiencies with an action code of 17<sup>5</sup> were noted on the inspection report. These included:

- *Buoyancy – side compartments to be sealed + non permeable + fwd engine space bulkhead to reinstate.*
- *Deck / hatches – convert as discussed to be open boat. [sic]*

All four items were subsequently marked with deficiency code 10<sup>6</sup>.

The surveyor noted on the inspection report '*vessel does not meet requirements for decked boat*' and '*converting to open*'. On the report it was noted that the risk of swamping was discussed. *Laura Jane* was categorised as *Open<7m* as per MSN 1813(F). The vessel remained in this category for all subsequent inspections with the continued existence of freeing ports going unchallenged.

*Laura Jane* was next sold in April 2016 and was inspected for the third time by the MCA surveyor who had carried out the inspection in 2012. He was accompanied by a trainee surveyor, who subsequently carried out two further inspections: when the vessel was resold in May 2017; and, finally, on 6 April 2018, after Ocean Drifter had taken ownership in March 2018. During the last inspection, the vessel was inspected against MSN 1871(F)<sup>7</sup>, which replaced MSN 1813(F) in October 2017. On the 6 April inspection report the surveyor noted that the deck was soft and flexing, and allowed the owner 6 months to rectify the deficiency. The deficiency had not been rectified prior to the accident.

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<sup>4</sup> The Code of Practice for the Safety of Small Fishing Vessels 2007

<sup>5</sup> Code 17: Rectify before departure

<sup>6</sup> Code 10: Completed

<sup>7</sup> The Code of Practice for the Safety of Small Fishing Vessels of less than 15 metres Length Overall 2017

#### 1.4.4 Vessel inspection and tests following the accident

Following the accident, the MAIB and the MCA jointly carried out roll and heel tests in accordance with guidance provided in Marine Guidance Note (MGN) 503(F) - Procedure for Carrying out a Roll or Heel Test to Assess Stability for Fishing Vessel Owners and Skippers.

The following are extracts from MGN 503(F):

*'Before attempting to roll the boat you must first ensure the following conditions:*

*...Load your vessel with all the gear and supplies that would be aboard when you head for the fishing grounds. Place gear, equipment, and supplies at the locations on board where you would usually stow them...'*

*'Vessel Tender = If the time for one roll in seconds is more than the beam in metres.*

*Vessel Stiff = If the time for one roll in seconds is less than the beam in metres.*

*Essentially, a very slow roll is likely to indicate a problem with stability, and a fast roll is likely to suggest that the vessel has a good reserve of stability.'*

*'For open boats the recommended Minimum Operational Freeboard is 400mm and they should be restricted to operations no more than 20 miles from a safe haven in favourable weather conditions.*

*For decked vessels (with watertight deck) the recommended Minimum Operational Freeboard is 300mm. Decked vessels that do not meet 300mm minimum should limit operations to 20 miles from a safe haven in favourable weather conditions.'*

The roll and heel tests were carried out with the vessel's fishing nets, chain weights and buoys removed. The average of four roll tests conducted by the MAIB and the MCA indicated a rolling period of 2.2s, which was almost equal to the vessel's beam of 2.26m.

The vessel's two forward freeing ports were found to be completely blocked off and painted over, while the midships and aft freeing ports had been plugged at the forward end of the half-pipes. Freeboard measurements were taken on both sides in line with the freeing ports. The minimum freeboards were at the midships area, with 85mm from the waterline to the lowest freeing port opening. At that point, the measurement from the waterline to the top of the gunwale was 565mm.

When three persons with a combined weight of approximately 260kg stepped on to *Laura Jane's* deck, the vessel heeled by 3 degrees and the freeing ports on the side to which it heeled became submerged, allowing water on to the deck.

During these tests, the deck was noted to be spongy, and water around the engine coaming was found to drain into the bilges. The buoyancy chambers on either side of the engine casing were found to be dry, and there was no evidence of water leakage from the vessel's sea water piping system or stern gland. The total internal freeing port area on each side of the vessel was measured as being approximately 2.5% of the bulwark area on that side.

## 1.5 REGULATIONS AND GUIDANCE

### 1.5.1 Construction

The Fishing Vessels (Code of Practice for the Safety of Small Fishing Vessels) Regulations 2001 gave statutory force to The Code of Practice for the Safety of Small Fishing Vessels 2007, which required only new fishing vessels (defined as those built from 2001) presented for inspection on first registration to comply with the SFCS.

The Fishing Vessels (Code of Practice) Regulations 2017 give statutory force to The Code of Practice for the Safety of Small Fishing Vessels of less than 15 metres Length Overall 2017. These give discretion to the MCA to require an owner of a fishing vessel built before 2007 to address areas of vessel non-conformity with the recognised construction standards of a certifying authority.

As *Laura Jane* was built in 1980, there was no statutory requirement for the vessel to comply with the SFCS on first registration or at any time before the accident.

### 1.5.2 Freeboard and freeing ports

The SFCS specifically requires that new vessels meet the minimum operational freeboard requirement of 300mm for decked vessels or 400mm for open vessels.

The SFCS state that open vessels should not be fitted with freeing ports. Decked vessels <15m LOA are required to have freeing ports with closing arrangements, permanent openings such as slots in the bulwark, or scuppers with discharge above the waterline. The minimum area of freeing ports on each side is required to be not less than 3% of the bulwark area enclosing the deck on that side.

Although not applicable to *Laura Jane*, the MCA's The Code of Practice for Open Rescue Boats of Less than 15 Metres in Length (Rescue Boat Code) discusses dynamic drainage systems such as drain socks, and requires that such drains be closed when measuring freeboard.

### 1.5.3 Stability

The Code of Practice for the Safety of Small Fishing Vessels of less than 15 metres Length Overall 2017, MSN 1871(F), provides guidance for the owners and skippers on how to assess the stability of their vessels.

The Code does not require a fishing vessel of less than 12 metres registered length to be provided with approved stability information. However, it strongly recommends that a record book is maintained, containing:

- The results of roll or heel tests conducted in accordance with MGN 503(F) (to identify changes in stability); and
- The size and positioning of Wolfson Guidance Marks<sup>8</sup> (to provide direct guidance on safe loading and lifting).

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<sup>8</sup> Wolfson Guidance is one of a number of available stability methods recommended in MGN 526(F) – Stability Guidance for Fishing Vessels – Using the Wolfson Method.

The Wolfson Guidance Marks generated for *Laura Jane*, considered both as a decked vessel and an open vessel, are at **Annex A**.

Section 5.4 of the Code states:

*'In the absence of specific statutory requirements for stability and subsequent approval of stability by MCA, owners may use other methods to assess stability and support skippers and fishermen to meet their health and safety general duties and responsibilities. It is not acceptable to do nothing and assume the vessel's stability is satisfactory...'*

Annex 5 of the Code provides additional stability guidance for all vessels (**Annex B**). The following topics are addressed in detail:

- Reduction of freeboard due to overloading.
- Raising a vessel's centre of gravity due to the storage of catch on deck and swamping of the deck due to blocked scuppers.
- Free surface effect due to movement of water and loose fish on deck.
- Sources of further information on stability.

The annex states:

*'EVERY VESSEL WILL CAPSIZE IF IT IS OVERLOADED!'*

It also warns that when the freeboard is zero, the slightest disturbance will capsize the vessel.

The MCA's Fishermen's Safety Guide repeats this information in its section on stability (**Annex C**).

## **1.6 INSPECTION OF SMALL FISHING VESSELS**

Inspections of fishing vessels <15m LOA were carried out by MCA surveyors at no cost to the vessel owners except where revisits were required because of identified deficiencies. It was not unusual for a surveyor to carry out several inspections in a day across a number of locations. A surveyor's expectation was that an inspection would normally be completed within 1½ hours. Guidance for MCA surveyors for the purpose of ensuring compliance with fishing vessel legislation was contained in Annex 1 of Marine Survey Instructions to Surveyors (MSIS) 27.

To ensure all items were addressed during an inspection of a fishing vessel of less than 15m LOA, Annex 1 of MSIS 27 required the surveyor to complete Marine Survey Form (MSF) 5549 – <15 metre FV Survey/Inspection Aide-Mémoire. MSF 5549 contained a number of columns of items to be checked. One column, entitled 'Other relevant items – non-mandatory or recommended', was interpreted by some surveyors to mean that they had discretion as to whether or not to check the listed items.

In respect of the three MCA inspections carried out on *Laura Jane* from 2016 to 2018, the non-mandatory or recommended items column on MSF 5549 was completed in full only during the May 2017 inspection (**Annex D**). The check box to ascertain if the freeing port areas were clear of obstructions and blockages, and to confirm that the freeing port area was at least 3% of bulwark area, was initially marked 'No' and then crossed out and marked 'Yes'.

Following the flooding and foundering of two fishing vessels, *Audacious* and *Chloe T*<sup>9</sup>, within a month of each other in 2012, the MAIB recommended that the MCA reviewed the conduct of its surveys and inspections of fishing vessels to ensure:

- that the scope was credible and could be achieved in practice;
- the whole scope was applied routinely;
- records were accurate and complete<sup>10</sup>.

As a consequence, in June 2018 the MCA updated MSIS 27, and introduced a new aide-mémoire, MSF 5576, for open fishing vessels <7m registered length. Subsequently, MSF 5576 was withdrawn and a revised version of MSF 5549 for fishing vessels of <15m LOA was introduced (Annex E).

## 1.7 SEAFISH <16.5M SKIPPER'S CERTIFICATE

The voluntary Seafish <16.5m skipper's certificate scheme was launched in 2007. To obtain the certificate, fishermen need to complete short courses in watchkeeping, engineering, stability and radio operation. All courses are free of charge. Around 3,000 fishermen have been issued with restricted (within 20nm of a safe haven) and unrestricted certificates, and over 5,600 fishermen have completed the 1-day Intermediate Stability Awareness course, now known as Stability Awareness for Experienced Fishermen. Since 1 January 2018, the <16.5m skipper's qualification has required the completion of a 2-day stability course, which includes the Stability Awareness for Experienced Fishermen and Advanced Stability Awareness courses (**Annex F**).

The stability awareness courses use a series of visual animations and a model boat and water tank specifically designed to demonstrate key aspects of stability to skippers and crew. The model boat features an interchangeable structure to simulate a range of different fishing vessel types. Weights can be added to the model to simulate a range of operating conditions, and the dangers of additional top weight, free surface effect, catch on deck, etc.

The course syllabus includes:

- The principles of flotation as they apply to fishing vessels.
- The influence of weight movement on a vessel's stability.
- The different states of vessel equilibrium.

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<sup>9</sup> MAIB Report 27/2013 - Report on the investigations of the flooding and foundering of the fishing vessel *Audacious*, 45 miles east of Aberdeen on 10 August 2012, and the flooding and foundering of the fishing vessel *Chloe T*, 17 miles south-west of Bolt Head, Devon on 1 September 2012.

<sup>10</sup> MAIB Recommendation 2013/249.



- The influence of hauling of gear and landing of catch on a vessel's stability.
- Free surface effect.
- Roll periods.
- Weight 'creep' or growth.

Specific MAIB accident investigations are highlighted to reinforce the importance of these topics. An end of course multiple-choice assessment requires a pass mark of 70%. At the time of publishing this report the Fishing Industry Safety Group (FISG), which the MCA leads, was considering the introduction of a requirement for skippers of all fishing vessels down to 7m registered length to hold the <16.5m skipper's certificate.

## 1.8 PREVIOUS ACCIDENTS

Between 1998 and 2017, there were 141 reported losses of UK registered fishing vessels <15m LOA due to capsizing or flooding as the primary event. These losses resulted in 39 fatalities.

In December 2011, the fishing vessel *Heather Anne* capsized and foundered with the loss of one crewman. The vessel's reserve of stability was very low and, with the catch on board, had only a few centimetres of freeboard. The MAIB recommended<sup>11</sup> that the MCA provide more comprehensive guidance to surveyors and fishermen on the methods available to assess small fishing vessel stability, including the need for skippers to be aware of the maximum loading of their vessels and the benefits of a freeboard mark.

In July 2014, the 9.9m trawler *Stella Maris* capsized and sank while attempting to lift a heavy cod-end over the stern from the top of its aft gantry. The two crew successfully abandoned the vessel and were later rescued, uninjured, from their liferaft. The investigation report concluded that the vessel capsized because of insufficient stability. The MAIB recommended that the MCA introduce intact stability criteria for all new and significantly modified decked fishing vessels of <15m in length.

In July 2015, the 10m registered length scallop dredger *JMT* capsized and foundered with the loss of two lives. The investigation resulted in the MAIB recommending<sup>12</sup> that the MCA make it mandatory for skippers of <16.5m fishing vessels to complete stability awareness training.

In September 2017, the 9.9m scallop dredger/stern trawler *Solstice* capsized in benign sea conditions with the loss of one life. The vessel had been converted from scallop dredging to stern trawling a few days earlier and its owner, skipper and crewman were in the process of hauling their second catch of the day on board over the stern when the capsizing occurred. The investigation report concluded that the cause of the accident was the lack of transverse stability of the vessel. In view of four MAIB previous recommendations in respect of stability assessment of small fishing vessels, which had been accepted by the MCA with an implementation target of 2020, no further stability related recommendation was made in the investigation report.

<sup>11</sup> MAIB Recommendation 2013/106.

<sup>12</sup> MAIB Recommendation 2016/131.

## **SECTION 2 - ANALYSIS**

### **2.1 AIM**

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

### **2.2 THE ACCIDENT**

*Laura Jane* lost stability and capsized due to a build-up of water aft as the heavily laden vessel was returning to harbour. The water entered *Laura Jane* via low level freeing ports, which became submerged due to the weight of fishing gear being carried. With no automatic bilge pump in the aft section, the water accumulated until the vessel lost stability.

The skipper did not escape from the wheelhouse as *Laura Jane* capsized, probably due to the unsecured sliding wheelhouse door closing as the vessel increasingly heeled to starboard. The door had no handle in the inside, which would have made it almost impossible for the skipper to raise the door sufficiently for him to escape. It is also possible that he succumbed to cold water shock as sea water rushed into the wheelhouse. Rescuers were unable to extract the skipper in sufficient time to save him due to fears that breaching the wheelhouse windows would cause the vessel to sink.

The analysis will explore the flooding mechanism, the loading condition of the vessel, and why the hazard posed by the low level freeing ports went undetected.

### **2.3 CAPSIZE AND POST-ACCIDENT OUTCOME**

#### **2.3.1 Loss of stability**

The roll tests conducted jointly by the MAIB and the MCA following the accident indicated that, in its 'departure from port' condition, *Laura Jane* had adequate stability (see Section 1.4.4). However, the vessel had a very low freeboard, measured at just 85mm between the waterline and the freeing ports.

Before returning to harbour, *Laura Jane's* skipper had retrieved five gill nets and associated gear weighing 300kg, and it is likely that the vessel was also carrying some catch. During the post-accident inspection, the additional weight of three people, at 260kg, was sufficient to submerge the freeing ports. Consequently, when stationary in the water with the five gill nets on board it can be certain that water would have been flooding onto *Laura Jane's* deck.

The poor state of the deck around the engine coaming would have allowed flood water to seep into the bilges and collect aft due to the stern trim. As there was no automatic bilge suction at the aft part of the vessel, water would have continued to accumulate at the stern, which would have increased the stern trim and thus the rate of flooding. The defective deck had been identified during the 6 April 2018 inspection, but not rectified before the accident.

While returning to port after picking up the nets, at an approximate speed of 5kts, the dynamic effect of *Laura Jane*'s movement could have helped eject some water from the deck despite the freeing ports being submerged. However, when the vessel slowed down off Mount Batten Breakwater, the dynamic effect would have been lost, allowing further ingress of water on deck through the freeing ports and, as the stern sank lower, through the tiller opening at the vessel's stern. At that point, there was little the skipper could do to rectify the situation, and *Laura Jane* capsized as the vessel lost stability due to the combined effect of water ingress and free surface effect on and below deck.

### 2.3.2 Loading

The investigation found some evidence to suggest that previous owners and the current owner and his DP were aware of *Laura Jane*'s limited cargo-carrying capacity. One previous owner had restricted the total weight of gear carried to 100kg, the current owner had instructed the skipper not to carry more than two nets at a time (approximately 120kg), and the DP had asked the skipper to reduce the size of the net bins carried (**Figure 11**). It is uncertain whether the skipper recognised the importance of reducing the size of the net bins as he had not undertaken any stability awareness training. However, he had replaced the bins with a rectangular frame to form a temporary net-pen at the vessel's stern, and it is probably this frame that he carried on board before departing the Barbican landing stage on the morning of the accident.

It has not been established why the skipper decided to bring five gill nets back ashore on the day of the accident, but their combined weight was around 2.5 times the maximum weight that the owner and others felt *Laura Jane* could reasonably carry. It is unfortunate that neither the owner nor the skipper had any awareness of *Laura Jane*'s actual carrying capacity, as it is possible that armed with this information the skipper might have elected to retrieve the nets in stages to spread the load across a number of trips, instead of bringing them all in at once. As it was, no freeboard or stability assessments had been made of *Laura Jane* by the owner before the vessel commenced fishing operations, and there was no guidance in place to help the skipper assess the vessel's safe carrying capacity.

## 2.4 THE RESCUE

### 2.4.1 Entrapment of the skipper

There could be a number of reasons why *Laura Jane*'s engine appeared to stop and then restart just before the capsizing, and why the vessel turned abruptly to port. The skipper might have been manoeuvring to cross the wakes of other passing vessels at a better angle, or alter course to avoid oncoming traffic. It is also possible that he was aware the stern was sinking lower in the water and thought that by slowing down the vessel it would adopt a more level trim. Whatever the reason, *Laura Jane* slowed only briefly and was observed to increase speed again just before the capsizing occurred.

The capsizing occurred very rapidly, and water would have rushed into the wheelhouse before the door slid shut as the vessel heeled towards the horizontal. Sudden contact with water at 11.5°C could have resulted in the skipper suffering cold water shock, possibly contributing to a cardiac arrest. In any event, with the vessel on its side, the skipper would have found it difficult, if not impossible, to open the

wheelhouse door due to its missing handle. There was no evidence that the skipper made a distress call or attempted to escape from the wheelhouse, such as by breaking a window, and it is therefore likely that he was incapacitated immediately after the capsizing.

## **2.4.2 Rescue**

*Laura Jane* capsized in view of a number of witnesses on nearby craft, who responded immediately. Rescuers converged at the scene of capsizing within 2 to 3 minutes and expected to find survivors in the water. However, calling out for anyone in the water elicited no response.

A recreational diver was quickly on scene, but was dissuaded from entering the water due to the likelihood that he would become ensnared in the nets that were drifting around the boat.

The ALB coxswain did not know that the skipper was trapped inside the wheelhouse. Even if he had known, without knowledge of the vessel's inherent buoyancy, he assessed that he would have insufficient time in which to rescue the skipper before the vessel sank. However, the delay incurred while the vessel was towed in to shallow water meant that the skipper was not extracted from the wheelhouse until about 50 minutes after the capsizing. By which time, despite the resuscitation efforts of the attending RNLI crew members and paramedics, he could not be revived.

Although a number of rescuers, with a range of capabilities, were quickly on scene, the nature of the capsizing and that the skipper was unable to escape from the wheelhouse, severely constrained their ability to assist. That the wheelhouse door was not hooked back, and did not have a handle on the inside would not have helped in these circumstances, which points to the importance of crews carefully considering their options for escape in the event of emergencies.

## **2.5 INSPECTION OF SMALL FISHING VESSELS**

### **2.5.1 Vessel categorisation**

When *Laura Jane* was presented for a registration inspection in December 2011, the vessel required significant repairs and could not pass the inspection. Subsequent discussion between an MCA surveyor and the owner resulted in *Laura Jane* being modified, and in February 2012 the vessel was presented to the MCA for inspection, with a sealed deck and three freeing ports on each side. The report of inspection stated that the vessel was inspected against MSN 1813(F) under the category of an <10m registered length decked vessel.

There was no statutory requirement for *Laura Jane* to comply with the SFCS, which required decked vessels <15m LOA to have freeing ports with a minimum area of freeing ports on each side of not less than 3% of the bulwark area on that side. Although *Laura Jane*'s minimum internal freeing port area on each side was only approximately 2.5% of the bulwark area on that side, it is concluded that the MCA surveyor considered them to be fit for purpose, irrespective of the constriction imposed by the stainless steel half pipes fitted to the hull.

Inspecting the vessel at a farm meant that the surveyor was unable to determine precisely where the waterline would be. Nonetheless, he did not appreciate that the freeing ports, which were subsequently measured at 85mm above the waterline, were substantially lower than the 300mm recommended minimum for decked vessels.

Subsequently, in March 2016, during a change of ownership survey, the vessel was re-categorised as an <7m open vessel, and continued to be inspected under this category until the accident. The presence of freeing ports on an open vessel was not challenged at the March 2016 survey, or any of the subsequent surveys until the vessel's loss.

Irrespective of whether *Laura Jane* was categorised as an open or a decked fishing vessel, its hull openings reduced its freeboard to a fraction of the recommended freeboard for either category.

### 2.5.2 Aide-mémoire

Aide-mémoire MSF 5549 included a number of check boxes arranged in columns with the titles 'mandatory' and 'non-mandatory or recommended'. The MCA surveyors who carried out the three inspections of *Laura Jane* between 2016 and 2018 understood this to mean that they needed to check the 'mandatory items', but could choose whether or not to check the 'non-mandatory or recommended' items.

As the section marked 'Hull', which contained the check boxes for stability and freeing ports, was in the 'non-mandatory or recommended' column, the surveyors interpreted that the checks were optional. Consequently, the opportunity to specifically check whether *Laura Jane's* freeboard met the recommended minimum height was missed on three out of the four inspections before the accident. On the one occasion that the freeboard section was marked as having been inspected, the surveyor did not recognise the anomaly of an open vessel having freeing ports.

It is evident from *Laura Jane's* inspection history that the vessel's status as either a decked or open boat was of concern to the surveyors, and they were proactive in facilitating its registration. It is also possible that the surveyors involved in *Laura Jane's* inspections felt under time pressure, and so confined their checks to those that they understood to be mandatory.

In 2012, the MAIB made a recommendation to the MCA that it review the scope of inspections so that they were credible, achievable, applied routinely and recorded accurately and completely. However, action was not taken to clarify the scope of the small fishing vessel inspection regime and to issue a revised aide-mémoire until after this accident (see Section 4). *Laura Jane's* owners over the period 2011 to 2018 assumed that their vessel was safe to operate because it was passing MCA inspections. A more comprehensive set of inspections could have identified the hazard posed by the freeing ports, with the result that remedial action would have been needed before the fishing vessel certificate was issued.

## 2.6 RISK AWARENESS

### 2.6.1 The skipper

It is evident that *Laura Jane*'s skipper had previously used large net bins to stow the fishing gear on board *Laura Jane* (**Figure 11**). Following the owner's reported instruction not to carry more than two nets at a time, and the DP's reported instruction to reduce the size of the net bins, it is uncertain whether the skipper recognised the importance of doing so. He had replaced the net bins with a rectangular frame to form a temporary pen at the vessel's stern, and it is concluded that this was the rectangular object he carried on board before departing the Barbican landing stage on the morning of the accident.

While he did not routinely carry a large number of nets on board, it is evident that he decided to do so on this occasion. The reasons for his decision and why he considered it acceptable to load the vessel with all the nets instead of making two or more trips to complete the task, are unknown.

The skipper was reported to be hardworking and enthusiastic, but he had not completed all the mandatory training required by professional fishermen. In particular, he had not completed the Safety Awareness and Risk Assessment training course, which should have heightened his risk awareness. Additionally, as promoted in previous MAIB recommendations to the MCA for enhanced stability guidance and training, the skipper's appreciation of the dangers inherent in overloading a vessel would have been enhanced had he received specific stability awareness training.

The Seafish <16.5m skipper's qualification requires the completion of a 2-day stability course. Therefore, FISG's consideration of introducing a requirement for skippers of all fishing vessels down to 7m to hold the <16.5m skipper's certificate is a welcome initiative.

### 2.6.2 *Laura Jane*'s owner

It is reported that *Laura Jane*'s owner, along with the DP and previous owners, had recognised the hazard of overloading the vessel and had given instructions to reduce the risk of doing so. However, he had not formalised any loading limitations in writing, nor had he commissioned any assessment of the vessel's stability (see Section 1.5.3).

There are a number of methods available, free of cost, to undertake a basic stability assessment for fishing vessels <15m including an approximation of the roll period and the generation of the freeboard guidance mark (Wolfson Guidance Mark). These stability assessment methods require minimal data input and can be easily undertaken by owners and skippers to keep their vessels within safe limits of loading.

Had Wolfson Guidance Marks for *Laura Jane* been generated (**Annex A**) and marked on the vessel's hull, the following would have been immediately obvious, even under lightship conditions:

- As a decked vessel, *Laura Jane* would have been in imminent danger of capsize (red safety zone).
- As an open vessel (provided the freeing ports had been sealed), *Laura Jane* would have had a low level of safety (orange safety zone).

This accident might have been avoided had such a stability assessment been carried out.

The MCA's surveyors did not raise concerns about *Laura Jane*'s reduced freeboard due to its freeing ports, and therefore the owner assumed that the situation was acceptable. Although it is the fishing vessel owner's responsibility to ensure that their vessel remains seaworthy and in compliance with relevant statutory obligations, and the MCA provides ample guidance about industry best practice, there is evidence that many owners are not following this guidance, and some are unaware of its existence. Following its investigation into the loss of a crewman from the fishing vessel *North Star*, the MAIB recommended<sup>13</sup> that the MCA improve the quality of its guidance to owners to better assist them understand and comply with their obligations, and this is now available on the MCA's website.

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<sup>13</sup> MAIB Recommendation 2018/131.

## SECTION 3 - CONCLUSIONS

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

1. *Laura Jane* lost stability and capsized due to a build-up of water in the aft part of the vessel. The water entered via low level freeing ports, which became submerged due to the weight of fishing gear being carried. With no automatic bilge pump in the aft section, the water accumulated until the vessel lost stability. [2.2, 2.3.1]
2. *Laura Jane* had a very low freeboard, with just 85mm between the waterline and the freeing ports [2.3.1]
3. No freeboard or stability assessments had been made of *Laura Jane* by the owner before the vessel commenced fishing operations, and there was no guidance in place to help the skipper assess the vessel's safe carrying capacity. [2.3.2]
4. There was no evidence that the skipper made a distress call or attempted to escape from the wheelhouse, such as by breaking a window, and it is therefore likely that he was incapacitated immediately after the capsize. [2.4.1]
5. Although a number of rescuers, with a range of capabilities, were quickly on scene, the nature of capsize and that the skipper was unable to escape from the wheelhouse severely constrained their ability to assist. [2.4.2]
6. Inspecting the vessel at a farm meant that the MCA surveyor was unable to determine precisely where the waterline would be. Nonetheless, he did not appreciate that the freeing ports, which were subsequently measured at 85mm above the waterline, were substantially lower than the 300mm recommended minimum for decked vessels. The presence of freeing ports on an open vessel was not challenged at any of the subsequent surveys until the vessel's loss. [2.5.1]
7. Irrespective of whether *Laura Jane* was categorised as an open or a decked fishing vessel, its hull openings reduced its freeboard to a fraction of the recommended freeboard for either category. [2.5.1]
8. *Laura Jane*'s owners over the period 2011 to 2018 assumed that their vessel was safe to operate because it was passing MCA inspections. A more comprehensive set of inspections could have identified the hazard posed by the freeing ports, with the result that remedial action would have been needed before the fishing vessel certificate was issued. [2.5.2]
9. The skipper had not completed all the mandatory training required by professional fishermen. In particular, he had not completed the Safety Awareness and Risk Assessment training course, which should have heightened his risk awareness. Further, the skipper's appreciation of the dangers inherent in overloading a vessel would have been enhanced had he received the specific stability awareness training required to attain the Seafish <16.5m skipper's qualification. [2.6.1]



10. It is reported that *Laura Jane*'s owner, along with the DP and previous owners, had recognised the hazard of overloading the vessel and had given instructions to reduce the risk of doing so. However, he had not formalised any loading limitations in writing, nor had he commissioned any assessment of the vessel stability. This accident might have been avoided had such an assessment been carried out. [2.6.2]

### **3.2 OTHER SAFETY ISSUES<sup>14</sup>**

1. The poor state of *Laura Jane*'s deck around the engine coaming had been detected during the 6 April 2018 inspection, but had not been rectified prior to the accident. [2.3.1]
2. The MCA's surveyors did not raise concerns about *Laura Jane*'s reduced freeboard due to its freeing ports, and therefore the owner assumed that the situation was acceptable. Although it is the fishing vessel owner's responsibility to ensure that their vessel remains seaworthy and in compliance with relevant statutory obligations, and the MCA provides ample guidance about industry best practice, there is evidence that many owners are not following this guidance, and some are unaware of its existence. [2.6.2]

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<sup>14</sup> 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.

## SECTION 4 - ACTION TAKEN

### 4.1 MAIB ACTIONS

The **MAIB** has:

- Published a safety flyer to disseminate the key lessons of this accident within the fishing industry (**Annex G**).

### 4.2 ACTIONS TAKEN BY OTHER ORGANISATIONS

The **Maritime and Coastguard Agency** has:

- Amended Annex 1 of MSIS 27 to state:
  - *‘Vessels under 15m may be inspected for renewal surveys either in or out of the water. If the vessel is seen in the water, then the freeboard should be recorded. If the vessel is seen out of the water, then there are two options:*
    - *The vessel should be revisited when it is in the water and the freeboard recorded; or*
    - *The owner should be requested to mark up the vessel and forward photographic evidence of the vessels freeboard when it is in the water...’*  
[sic]
- Prohibited hull openings for water drainage on non-decked fishing vessels.
- Issued a revised version of aide-mémoire MSF 5549 to guide surveyors inspecting fishing vessels of <15m LOA.
- Reminded surveyors of other applicable guidance, inter alia, MGNs 427(F)<sup>15</sup> and 503(F); the definitions of ‘open’ and ‘decked’ vessels and the prescribed minimum operational freeboard for each type; and explained how to carry out various tests and checks for determining stability and safe loading.
- Emphasised to surveyors that the Merchant Shipping Act 1995, Section 258, ‘Powers to inspect ships and their equipment, etc.’, states that surveyors are responsible to act if they identify a vessel to be:

*‘dangerously unsafe’ during an inspection and, further, to determine if a vessel is unfit to remain at sea or to go on a voyage without ‘serious danger to human life’.*

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<sup>15</sup> MGN 427(F) has been replaced by MGN 526(F) Stability Guidance for Fishing Vessels - Using the Wolfson Method.

## SECTION 5 - RECOMMENDATIONS

Ocean Drifter Ltd is recommended to:

- 2019/107** Ensure that crew employed on its vessels possess all mandatory safety training course certificates and to require its skippers to complete the voluntary Seafish <16.5m skipper's certificate scheme with a view to enhancing competence, particularly in respect of stability awareness.
- 2019/108** Carry out stability assessment of vessels that it may own which are less than 12m overall length, in accordance with MSN 1871(F), MGN 503(F), and MGN 526(F), and display stability guidance notice (Wolfson Guidance Mark) in a prominent place in the wheelhouse as well as on either side of the hull.

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

