



MCIB

Marine Casualty Investigation Board
Bord Imscrúdú Taismí Muirí



**REPORT OF AN
INVESTIGATION INTO
A MARINE CASUALTY
INVOLVING
THE FISHING VESSEL
BEN THOMAS
IN OR AROUND
DUNDALK BAY, CO. LOUTH
ON OR ABOUT THE
12 DECEMBER 2023**

**REPORT NO. MCIB/333
(No.7 OF 2025)**

The Marine Casualty Investigation Board (MCIB) examines and investigates all types of marine casualties to, or on board, Irish registered vessels worldwide and other vessels in Irish territorial waters and inland waterways.

The MCIB objective in investigating a marine casualty is to determine its circumstances and its causes with a view to making recommendations for the avoidance of similar marine casualties in the future, thereby improving the safety of life at sea and inland waterways.

The MCIB is a non-prosecutorial body. We do not enforce laws or carry out prosecutions. It is not the purpose of an investigation carried out by the MCIB to apportion blame or fault.

The legislative framework for the operation of the MCIB, the reporting and investigating of marine casualties and the powers of MCIB investigators is set out in the Merchant Shipping (Investigation of Marine Casualties) Act, 2000.

In carrying out its functions the MCIB complies with the provisions of the International Maritime Organisation's Casualty Investigation Code and EU Directive 2009/18/EC governing the investigation of accidents in the maritime transport sector incorporated into Irish law by the European Communities (Merchant Shipping) (Investigations of Accidents) Regulations S.I. No 276 of 2011.

This report is published under and in accordance with the Merchant Shipping (Investigation of Marine Casualties) Act 2000 as amended by the Merchant Shipping (Investigation of Marine Casualties) (Amendment) Act 2022 and/or under and in accordance with the European Communities (Merchant Shipping) (Investigation of Accidents) Regulations 2011. It is not published under the Merchant Shipping (Investigation of Marine Accidents) Act 2025, Parts 1 and 5 of which were commenced by the Merchant Shipping (Investigation of Marine Accidents) Act 2025 (Commencement) Order 2025 S.I.188 of 2025 from 1 June 2025.

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Glossary of Abbreviations and Acronyms

BIM	Bord Iascaigh Mhara	MCA	Maritime and Coastguard Agency
°C	Celsius	MCIB	Marine Casualty Investigation Board
CGR	Coast Guard Radio	MMO	Mercantile Marine Office
CGU	Coast Guard Unit	MN	Marine Notice
CoC	Certificate of Competency	MRCC	Marine Rescue Co-ordination Centre
CoP	Code of Practice for Fishing Vessels of less than 15m in length overall (Revision 2)	MSO	Marine Survey Office
DoC	Declaration of Compliance	NEOC	National Emergency Operations Centre
DPC	Dublin Port Company	PFD	Personal Flotation Device
EPIRB	Emergency Position Indicating Radio Beacon	PLB	Personal Locator Beacon
EU	European Union	RNLI	Royal National Lifeboat Institution
FV	Fishing Vessel	SAR	Search and Rescue
GWU	Garda Water Unit	S.I.	Statutory Instrument
HRU	Hydrostatic Release Unit	SITREP	Situation Report
HSA	Health and Safety Authority	SMS	Safety Management System
ILO	International Labour Organization	UTC	Universal Co-ordinated Time
IRCG	Irish Coast Guard	VHF	Very High Frequency
IMO	International Maritime Organization		
LSA	Life Saving Appliance	Hour	hr
MAIB	Marine Accident Investigation Branch	Kilogram	kg
MARPOL	The International Maritime Organization's International Convention for the Prevention of Pollution from Ships, 1973 as amended.	Knot	kt
		Metre	m
		Nautical mile	NM

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1. SUMMARY

- 1.1 On the 12 December 2023, at approximately 05.00 hours (hrs) the fishing vessel (FV) Ben Thomas departed Port Oriel, Clogherhead, Co. Louth with two crewmembers onboard. This was only the second day this vessel had been operated by this crew.



Figure 1: FV Ben Thomas (image supplied by the vessel's owner).

- 1.2 Fishing operations commenced close to Dunany Point, Co. Louth, which is approximately 4.5 nautical miles (NM) north of Port Oriel. The vessel operated a hydraulic dredge to catch razor clams¹, which is a species of mollusc. The Skipper helmed the vessel and operated the winch during cage deployment and recovery, while the other crewmember worked on deck at the stern gantry, opening the cage to release and process the catch.
- 1.3 Having completed a number of fishing operations that morning, the FV Ben Thomas capsized and sank prior to 08.00 hrs while recovering the dredge cage onboard. Both crewmembers were working on deck, and they entered the water at the same time. Neither was wearing a Personal Flotation Device (PFD)². The Skipper donned a PFD he found floating close by and held onto other floating debris to remain afloat.

1. Razor clams also known as razor shells are very recognisable with their long (up to 20cm), narrow clam shells. They are a burrowing species and live buried in the sand around the low tide mark and on the seabed out to around 60 metres deep. They dig themselves into the sand using a muscular 'foot'. Razor clams filter feed on plankton and detritus.

2. A lifejacket is a type of Personal Flotation Device (PFD). Lifejackets are designed to turn an unconscious person face up in the water, whereas other types of PFD may not have this self-righting feature.

- 1.4 At approximately 08.30 hrs, a crewmember on the deck of another fishing vessel working close by heard someone calling for help. After a brief search the Skipper of the FV Ben Thomas was found and recovered onboard. The Skipper, who is likely to have been experiencing hypothermia, was brought ashore to Port Oriel and a waiting ambulance at 11.00 hrs. The search for the second Crewmember continued over the following two days. On the morning of the 14 December 2023, Naval Service divers recovered the Casualty's body from the seabed. The vessel has not been recovered.
- 1.5 The cause of this vessel's capsize and sinking is likely to have been the overturning effects of a heavily laden dredge cage as it was being recovered onboard. A contributory factor is likely to have been the vessel's low level of residual stability at this stage of the fishing operations.
- 1.6 The loss of life of one crewmember, and the threat to the life of another crewmember, occurred because of a combination of the following factors:
- Inadequate safety systems for the operation of this vessel.
 - The failure to wear PFDs.
 - The failure of the liferaft to inflate.
 - The failure of the Emergency Position Indicating Radio Beacon (EPIRB) to operate promptly.
 - The omission of Personal Locator Beacons (PLBs).
 - Cold water immersion.

2. FACTUAL INFORMATION

2.1 Voyage Details

- 2.1.1 The FV Ben Thomas departed Port Oriel Harbour in Clogherhead, Co. Louth at approximately 05.00 hrs on the 12 December 2023. The vessel's destination was fishing grounds north of Dunany Point, Co. Louth, approximately 1 NM from the shore and in relatively shallow water. The vessel commenced fishing operations at approximately 07.00 hrs. Having completed her third towing operation, the vessel capsized and sank while recovering the dredge cage onboard.



Figure 2: Location of this marine casualty.

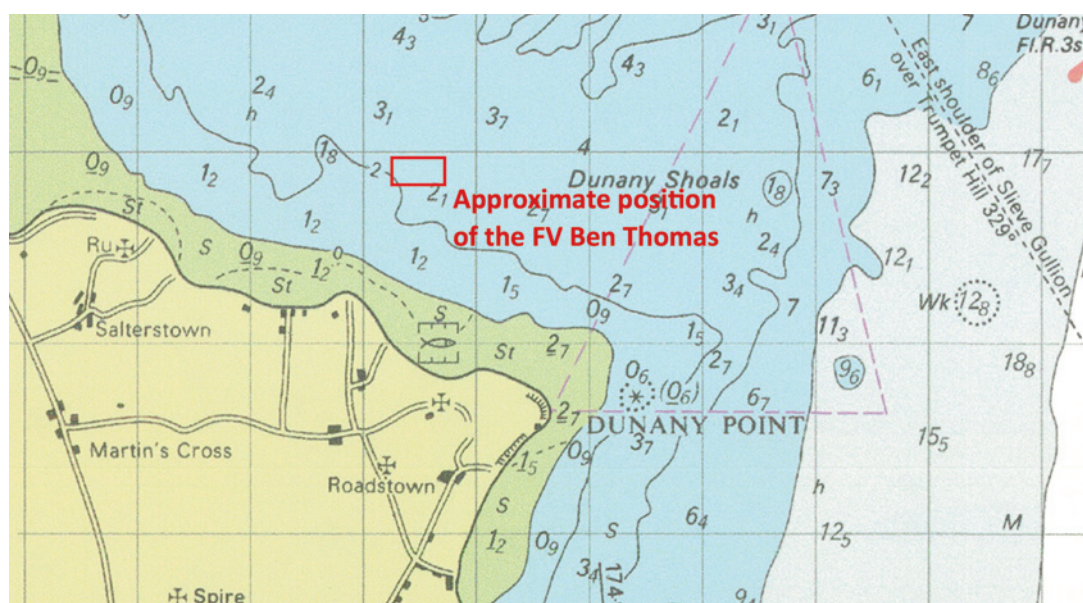


Figure 3: Location of this marine casualty. Chart: SC5621.3, UK Hydrographic Office.

2.2 Vessel Particulars

The FV Ben Thomas was a 9.68 metre (m) fishing vessel of steel construction, built in the United Kingdom in 1986 and previously registered in Newry, Co. Down (Registration No. N 310). The vessel had a forward wheelhouse containing crew accommodation and a galley. The vessel's main machinery included a propulsion engine installed forward below the wheelhouse and a large diameter pump driven by an engine in the hold. The hydraulically driven deck winch was fitted aft of the wheelhouse and operated the fishing equipment by wire from a large stern gantry.

Vessel Name:	Ben Thomas.
Vessel Type:	Fishing Vessel.
Licence Type:	Polyvalent General.
Licence Number:	359806718. Granted to KNA Fishing Ltd on 26 May 2023.
Port Letter and Number:	DA 131.
Port of Registration:	Drogheda.
Date of Registration:	06 August 2021.
Registered Owner:	KNA Fishing Ltd, Enniscorthy, Co. Wexford.
Common Fleet	Register Number: GBR000A20667.
Unique Vessel	Identifier Number: 9456642.
Maritime Mobile Service Identity:	250004367.
Call Sign:	EIS19.
Gross Tonnage:	7.35.
Length Overall:	9.68 m.
Registered Length:	9.68 m.
Beam:	4.0 m.
Depth:	1.25 m.
Year Built:	1986.
Main Engines:	Gardiner 6LXB.
Power:	95 kilowatts.
Type of Gear:	DRB Dredges.

2.3 Vessel Ownership and Operation

2.3.1 The vessel was purchased by the registered owner between late 2020 and early 2021. The machinery was inspected by a marine service engineer, but a survey of the vessel was not undertaken.

2.3.2 A Vessel Code of Practice (CoP) survey was carried out on the 25 June 2021 while the vessel was in Skerries, Co. Dublin. The vessel was registered with the Marine Survey Office (MSO) of the Department of Transport in 2021. The Vessel Survey Declaration of Compliance (DoC) was signed on 25 June 2021 on behalf of the registered owner and declared by the owner to be valid until 24 June 2025. A Sea-Fishing Boat Licence was granted to the registered owner on 26 May 2023 for the period 1 July 2023 to 30 June 2024.

See Appendix 7.1 - Vessel Code of Practice Survey - Declaration of Compliance.

See Appendix 7.2 - Vessel Code of Practice Survey - Addendum.

See Appendix 7.3 - Sea-Fishing Boat Licence.

2.3.3 The vessel initially operated in Skerries until June 2022, before being operated from Wexford and Rosslare until November 2023. In November 2023 the owner entered into an arrangement with a third party to operate the vessel, and apparently by extension the vessel's Sea-Fishing Boat Licence. That third party engaged the Skipper of the FV Ben Thomas and the other Crewmember. The Skipper was in charge of the vessel for a number of days before the marine casualty occurred.

2.4 Marine Incident Information

2.4.1 This incident resulted in the loss of a life, the putting at risk of a second person's life, and the total loss of a small fishing vessel. This incident resulted in a marine casualty as defined in Section 2 of the Merchant Shipping (Investigation of Marine Casualties) Act, 2000. This defines a marine casualty and a vessel in the following terms:

““marine casualty” means an event or process which causes or poses the threat of—

(a) death or serious injury to a person;

(b) the loss of a person overboard;

(c) significant loss or stranding of, or damage to, or collision with, a vessel or property; or

(d) significant damage to the environment,

in connection with the operation of—

(i) a vessel in Irish waters;

(ii) an Irish registered vessel, in waters anywhere; or

(iii) a vessel normally located or moored in Irish waters and

under the control of a resident of the State, in international waters contiguous to Irish waters, and includes an accident or damage referred to in section 26(1)(b);

“vessel”, in relation to a marine casualty, means a vessel or craft (or part of a vessel or craft) which at the time of the casualty—

(a) is registered in the State, or

(b) is located in the State (including in Irish waters), or

(c) being a vessel normally located or moored in Irish waters, is under the control of a resident of the State in international waters contiguous to Irish waters,...”

2.5 Crew Details and Training

2.5.1 The details of the two crewmembers onboard during this incident and their training are:

- Skipper: Basic Safety Training by An Bord Iascaigh Mhara (BIM)³ in accordance with the Fishing Vessel (Basic Safety Training) Regulations, 2001 S.I. No. 587 of 2001⁴. This was completed on the 21 January 2023, 11 months prior to this incident. The Skipper had been involved in the fishing industry in Ireland for 18 months, and before this in Egypt. The Skipper was not a holder of a Certificate of Competency⁵.
- Crewmember (Deceased): Basic Safety Training by the Hellenic Marine Training Centre Ltd, Greece. This was completed on the 26 May 2020. The vessel’s registered owner provided a copy of this Crewmember’s training certificate, showing it to be a four-day course that included: Fire Prevention and Fire Fighting, Personal Survival Techniques, Personal Safety and Social Responsibility, and Elementary First Aid. The Crewmember had been involved in the fishing industry for two years.

2.5.2 Crew training, vessel induction and awareness is a standard part of the onboarding process for a new crewmember. In relation to basic safety training, Section 4 of the Fishing Vessel (Basic Safety Training) Regulations 2001, states:

“(1) Every crew member of a fishing vessel shall undertake basic safety training as set out in this Regulation.

(2) Basic safety training shall consist of the following 3 training units-

3. Ireland’s Seafood Development Agency.

4. [S.I. No. 587/2001 - Fishing Vessel \(Basic Safety Training\) Regulations, 2001](#)

5. As the vessel was less than 15 metres in length, the Certificate of Competency requirements in S.I. No. 313/2023 - Fishing Vessels (Certification of Deck officers and Engineer officers) Regulations 2023 did not apply.

(a) personal survival techniques, including man overboard techniques,

(b) elementary first aid, and

(c) fire prevention, health and safety training,

and shall be held in such establishments, to such standards, under such conditions and for such duration as BIM may approve and determine.

(3) The dates by which basic safety training must have been completed by each crew member are specified in the Table to this Regulation.

(4) A crew member who has not successfully completed basic safety training shall not work onboard a fishing vessel.”

- 2.5.3 It is not the purpose of basic safety training provided by BIM to teach the stability awareness needed to safely operate a vessel as a skipper or crew.

2.6 Crew Induction and Emergency Procedure Drills

- 2.6.1 No evidence was provided to the Marine Casualty Investigation Board (MCIB) in relation to vessel induction, familiarisation or drills undertaken on the FV Ben Thomas.⁷

- 2.6.2 On the subject of musters and drills for emergency procedures, Section 8.8.2 of the Code of Practice, Design, Construction, Equipment and Operation of Small Fishing Vessels of less than 15 metres in length overall⁶ states:

“The master of a fishing vessel of 12 metres or more in length shall ensure that the crew are instructed, trained and drilled in the use of the life-saving and fire-fighting equipment on the vessel, and that each member of the crew is aware of the location on the vessel of such equipment.” [Emphasis Added]

However, for vessels under 12 m in length such as the FV Ben Thomas, Section 8.8.6 of the CoP states that these emergency procedures are a recommendation only⁷, not a requirement.

2.7 Crew Working Hours

- 2.7.1 The Skipper and the Crewmember had begun fishing operations on this vessel on the 11 December 2023, one day prior to this incident. No records of crew working hours were provided to the MCIB.
- 2.7.2 The European Union (International Labour Organisation Work in Fishing Convention) (Working Hours) Regulations 2019 S.I. No. 672 of 2019 applies to sea fishing vessels registered in the State and where the fisher is employed, or, where

6. Code of Practice, Design, Construction, Equipment and Operation of Small Fishing Vessels of less than 15 metres in length overall, Revision 3, Department of Transport, May 2022.

7. “8.8.6 Vessels of less than 12 metres in length are recommended to follow the above requirements.”

at least some of the crew are employed. These Regulations give effect to the provisions of Article 11 of the Annex to Council Directive 2017/159/EU. Regulation 10 sets out maximum working hours and mandatory rest periods for every fisherman⁸, which must be complied with by the owner⁹ and the master¹⁰. It also requires the keeping of records by the master.

“(1) The master, or a person authorised by the master, shall maintain on board the fishing vessel a record of the daily hours of work or rest for every fisherman on board the vessel.

(2) Each record under paragraph (1) shall -

(a) be completed monthly in arrears, and

(b) be in the form set out in the Schedule, or in a form to the like effect which provides evidence of compliance with these Regulations.

(3) Every record maintained under paragraph (1) shall be endorsed by the master, or a person authorised by the master, and by the relevant fisherman no later than 7 days after the last day of the calendar month to which the record relates and the fisherman shall be given a copy of the record as endorsed.

(4) The record referred to in paragraph (1) shall be retained for at least one year from the date of its making.”

2.8 The Code of Practice

2.8.1 The Code of Practice: Design Construction Equipment and Operation of Small Fishing Vessels of less than 15 metres in length¹¹ (the “CoP”) was prepared to serve as the relevant Code of Practice for Section 4(9)(c) of the Fisheries (Amendment) Act 2003 S.I. No. 21 of 2003¹². This was inserted by Section 97 of the Sea-Fisheries and Maritime Jurisdiction Act 2006 S.I. No. 8 of 2006¹³.

2.8.2 The CoP sets the standards of safety and protection for all persons onboard small fishing vessels, of less than 15 m length overall, which are required to have a Sea-Fishing Boat Licence. The CoP covers vessel design, construction, machinery,

8 ““fisherman” means a person who works in any capacity under a contract of employment or in an employment relationship on board a fishing vessel, including any other person engaged in activities related to fishing who is present on the same vessel in order to protect the overall health and safety of the persons on board, but does not include:

(a) a person who is a pilot within the meaning of the Harbours Act 1996 (No. 11 of 1996), or
(b) a shore person carrying out work on board a fishing vessel at the quay side;”

9. ““owner” means the owner of a fishing vessel or any other organisation or person, such as the manager, agent or charterer, who has assumed responsibility for the operation of the fishing vessel from the owner.”

10. ““master” means the fisherman having command of the fishing vessel;”

11. <https://assets.gov.ie/static/documents/code-of-practice-for-fishing-vessels-of-less-than-15-metres-length-overall-revision-3.pdf>

12. <https://www.irishstatutebook.ie/eli/2003/act/21>

13. <https://www.irishstatutebook.ie/eli/2006/act/8>

safety equipment, stability, and operational issues.

- 2.8.3 The current, revision 3 of the CoP came into effect on 1 May 2022. This updated and replaced revision 2 that had been in effect since 20 January 2014. Revision 2 applied during the FV Ben Thomas's CoP survey on the 25 June 2021. At the time of this marine casualty, revision 3 of the CoP applied to matters other than the survey.
- 2.8.4 The Vessel CoP Survey DoC (see Appendix 7.1) was signed on 25 June 2021 on behalf of the registered owner. A Sea-Fishing Boat Licence was granted to the registered owner on 26 May 2023 for the period July 2023 to 30 June 2024 encompassing the date of this marine casualty.
- 2.8.5 The CoP distinguishes between vessels constructed before and after 1 May 2004. The FV Ben Thomas was constructed in 1986. Below are some of the relevant sections from revision 2 of the CoP that were applicable during this vessel's survey on 25 June 2021:

"Chapter 3 Stability

This chapter applies to pre-2004 fishing vessels only. Requirements for post 2004 fishing vessels are contained in Annex 7.

3.1 General

3.1.1 Adequate margins of freeboard and stability must be provided for the safe operation of the vessel.

3.1.2 It is the masters responsibility to ensure that the vessel is operated in accordance with 3.1.1.

3.2 Stability Standard

3.2.1 It is strongly recommended that the stability standards described in Annex 7, paragraph 4.2 be applied.

3.2.2 Notwithstanding the foregoing recommendation, all pre-2004 fishing vessels shall be subjected to a roll test as described in Annex 1. The roll test shall be carried out with the vessel in the "normal departure port condition" and a typical "arrive port condition".

- 2.8.6 Below are some of the relevant sections from revision 3 of the CoP that were applicable during this vessel's operations at the time of this marine casualty:

"1.1 Foreword

[...]

.16 Masters, owners and crew must comply with any Marine Notices published by the Department of Transport, as they pertain to fishing vessels and crew.

[...]

.20 Finally, it is important to emphasise that, while the Code of Practice sets out requirements and recommendations relating to safety on board small fishing vessels, the master has ultimate responsibility for the safety of the vessel and its crew.”

“7 LIFE SAVING APPLIANCES

This chapter applies to all fishing vessels (pre-2004 and post-2004).

7.1 General

.1 Life-saving appliances must be provided in accordance with this Code...

7.2 Servicing

.1 Where carried, inflatable liferafts, hydrostatic release units (HRUs) and inflatable life jackets must be serviced in accordance with the manufacturer’s recommendations. Additional information on servicing can be found in Marine Notice No. 53 of 2012 - “Servicing of a Vessel’s Inflatable Liferafts, Inflatable Lifejackets, Marine Evacuation Systems, Hydrostatic Release Units, Inflated Boats, Rigid and Inflated Rescue Boats.

[...]

7.5 Lifebuoys

.1 All vessels must carry at least two lifebuoys.

.2 One of the lifebuoys must be fitted with 18 metres of buoyant heaving line...

7.6 Personal Flotation Devices

.1 In accordance with the Fishing Vessel (Personal Flotation Devices) Regulations, 2001 (S.I. No. 586 of 2001), as amended by S.I. No. 401 of 2018, a suitable Personal Flotation Device (PFD) shall be provided for each person on board, and worn on deck at all times...

7.8 Distress Signals

.1 In addition to those provided with any liferaft carried, the following distress signals must be carried:

- Loa less than 12m: 6 Red Star Signals or 4 Parachute Distress Rocket Signals, 4 Red Hand Flares and 2 Buoyant Orange Smoke Flares may be carried in lieu of 6 Red Star Signals...”*

“8 MANNING, TRAINING, CERTIFICATION, EMERGENCY PROCEDURES AND ORGANISATION OF WORKING TIME

This chapter applies to all fishing vessels (pre-2004 and post-2004).

[...]

8.3 Standards of Competence

.1 The owner/operator of a fishing vessel should ensure that all fishers are sufficiently competent to keep a vessel safe at all times...

8.6 Responsibility of the Owner for Safe Manning of Vessel

.1 It is the owner's responsibility to ensure that the master has, in addition to the certification and competence requirements already detailed in sections 8.2 to 8.5, recent and relevant experience of the type and size of vessel, the machinery on-board, and the type of operation undertaken. The owner must also ensure that there are sufficient qualified crew on-board, having regard to the type and duration of the voyage undertaken.

[...]

8.8 Musters and Drills for Emergency Procedures

.1 The master and crew shall comply with the Merchant Shipping (Musters) (Fishing Vessels) Regulations, 1993 (S.I. No. 48 of 1993).

.2 The master of a fishing vessel of 12 metres or more in length shall ensure that the crew are instructed, trained and drilled in the use of the life-saving and fire-fighting equipment on the vessel, and that each member of the crew is aware of the location on the vessel of such equipment.

.3 This aforesaid instruction and training shall be given before the vessel commences a voyage with a new crew, or new member of the crew, and thereafter at monthly intervals.

.5 Where necessary, the master of a fishing vessel shall arrange for maintenance or repairs to the life-saving and fire-fighting equipment that is on-board, to be carried out as soon as may be required after an inspection.

.6 Vessels of less than 12 metres in length are recommended to follow the above requirements..."

"9 RADIO COMMUNICATIONS

This chapter applies to all fishing vessels (pre-2004 and post-2004).

[...]

9.2.4 Radio Equipment to be Provided for all Sea Areas (including EPIRBs and PLBs)

.1 Every fishing vessel of less than 12 m Loa shall be provided with:

a. a VHF radio installation capable of transmitting and receiving radiotelephony on the frequencies 156.300 MHz (channel 6), 156.650 MHz (channel 13), and 156.800 MHz (channel 16); and

b. a satellite emergency position-indicating radio beacon (satellite EPIRB), which shall be:

[...]

iv. capable of floating free if the vessel sinks and of being automatically activated when afloat;...

[...]

.4 An approved Personal Locator Beacon (PLB), capable of transmitting a distress alert on the 406 MHz band, shall be provided for each person on-board and shall be carried by each person on deck at all times. Each PLB should be ready to be manually activated..."

"ANNEX 2 - STABILITY GUIDANCE NOTES FOR VESSEL OPERATORS

Applies to all fishing vessels (Pre-2004 and Post-2004)

[...]

13.1.4.4 Vessel Operation

.1 When working with gear such as trawls or dredges, arrange the towing blocks or other attachment to the vessel, as low as possible and near to the centreline.

.2 If towed gear comes fast on a seabed or other obstruction - reduce engine power immediately.

.3 If possible, handle heavy lifts, such as those generated by fastened fishing gear, near the vessel's centreline at bow or stern.

.4 Remember that the lives of the crew and the vessel are always more valuable than fishing gear or lost time. If in any doubt, run off or cut-away fastened gear, buoy off, and return later with assistance for retrieval..."

2.9 Safety, Health and Welfare at Work Act 2005

2.9.1 The Safety, Health and Welfare at Work Act 2005 S.I. No. 10 of 2005¹⁴ ("the 2005 Act") makes provision for the safety, health and welfare of persons at work and for the enforcement of the relevant statutory provisions. The 2005 Act includes specific provisions for the operation of fishing vessels.

2.9.2 Chapter 3 of the publication *Managing Health and Safety in Fishing*¹⁵ by the Health and Safety Authority (HSA) summarises an employer's duties under the 2005 Act in the context of fishing operations:

"When a fisherman/skipper employs people, the 2005 Act imposes general duties of care to ensure, so far as is reasonably practicable, the safety, health and welfare of all employees. Employers in the fishing industry have specific

14. <https://www.irishstatutebook.ie/eli/2005/act/10>

15. https://hsa.ie/eng/publications_and_forms/publications/fishing/managing_health_and_safety_in_fishing.pdf

duties to include providing:

- *a safe place of work.*
- *safe working procedures.*
- *safe plant, equipment and machinery for use on the fishing boat.*
- *information, instruction and training for all who work on the fishing boat.*
- *personal protective equipment/flotation devices.*
- *plans to deal with emergencies.*
- *a safe system for storing, handling and using articles and substances; and*
- *adequate toilet and washing facilities.”*

- 2.9.3 The registered owner of the FV Ben Thomas provided a copy of the front cover of the vessel’s Safety Statement, which matched that of the HSA’s safety statement template. The owner stated that he had compiled this with the vessel’s previous skipper on the 12 April 2022.

See Appendix 7.4 - Vessel Safety Statement (Cover Page).

- 2.9.4 As a live document, the Safety Statement should be maintained and updated regularly, or when any changes are made to either the vessel or its operations. The vessel-specific operational induction and risk assessment review should be briefed to all new crew prior to departing port. The owner stated that the complete Safety Statement was kept onboard the vessel, and was therefore lost when the vessel sank. A record of this important document was not maintained in a manner that ensured it would be available irrespective of the vessel’s location or state.

- 2.9.5 No evidence was provided to the MCIB showing that (a) the Skipper, who was responsible for the safety of the vessel and crew, had any knowledge of the contents of the vessel’s Safety Statement, or (b) the crew understood and accepted the contents of the Safety Statement.

2.10 Relevant Safety Equipment

- 2.10.1 The vessel’s CoP survey in June 2021 recorded that two PFDs and two lifejackets were onboard then. Records indicate that two lifejackets were purchased for this vessel six months later in January 2022, and that replacement parts for one lifejacket were purchased for this vessel one year later in January 2023¹⁶. No evidence was provided to the MCIB that any periodic checking or testing of this safety equipment took place, either before or after November 2023’s crew transfer.

See Appendix 7.5 - Receipts for Lifejackets and Spares.

16. The records include an invoice dated 13 January 2022 addressed to the FV Ben Thomas for two Stream 150 Auto Red ISO lifejackets, and another invoice dated 1 year later (31 January 2023) addressed to the FV Ben Thomas for the following replacement parts for one lifejacket, which are normally used when rearming a deployed lifejacket: 1 x Salt tablet HR Auto Super Bobbin Alpha and 1 x cylinder CO2 33g.

- 2.10.2 The June 2021 CoP survey recorded that two lifebuoys were fitted onboard. One lifebuoy was fitted with a line and was recovered at the scene of this marine casualty.
- 2.10.3 The vessel was fitted with an EPIRB, which had an indicated battery expiry date of January 2023. The battery expiry was not identified or addressed when the registered owner transferred the operation of the vessel to the third party in November 2023. Although expired by the date of this marine casualty 11 months later, the EPIRB did not transmit on the day of the casualty but was active and transmitting a signal when recovered from the sea one day later, at 10.25 hrs on the 13 December 2023.
- 2.10.4 The vessel was fitted with a liferaft that had been serviced on the 11 June 2023, six months prior to this marine casualty. The next annual service was due six months after this marine casualty, in May 2024. The liferaft's Hydrostatic Release Unit (HRU) had been installed in June 2021 during the CoP survey and had an expiry date of June 2023, six months prior to this marine casualty.
- See Appendix 7.6 - Liferaft Invoice.
- 2.10.5 Although the liferaft's HRU had expired, it released the liferaft canister when the vessel started sinking. However, when the liferaft canister floated clear of the vessel, the liferaft did not inflate. The liferaft's intact canister was recovered from the sea at 13.38 hrs on the 12 December 2023 during the search and rescue (SAR) operation.
- 2.10.6 When recovered ashore, the HSA and a liferaft service agent carried out an operational test on the liferaft's intact canister. The liferaft operated as intended and deployed in the required manner during the test.

2.11 Weather Conditions

Wind Speed: Light (1 - 3 knots (kts))

Wind Direction: North Westerly

Air Temperature: 9.2° Celsius (C)

Water Temperature: 9°C

Sea State: Slight (0.5 - 1.25 m)

Visibility: Good (5+ NM)

On Scene Weather Report: 09.30 hrs Calm - wind 5 kts variable / slight swell from the east.

Met Éireann's 24-hour sea area forecast, issued at 06.00 hrs on 12 December 2023, valid until 06.00 hrs on 13 December 2023:

"Wind south to southeast force 5 or 6, decreasing southerly force 4 to 5 imminent, soon decreasing variable force 3 or less, later becoming north to northwest and gradually increasing force 5 or 6."

See Appendix 7.7 - Met Éireann Weather Report.

2.12 Tidal Conditions

Moon Phase: Full Moon

Dublin (North Wall) 12 December 2023

TIDE	TIME	HEIGHT	TIME	HEIGHT
Low Water	04:10	0.94m	16.28	0.98m
High Water	10:47	3.96m	23:10	3.98m

Secondary port predictions for Dunany Point (relative to Dublin (North Wall))¹⁷

Tide	High Water	High Water	Low Water	Low Water
Time	-0028	-0018	-0008	-0006

Height Difference (metres):

MHWS	MHWN	MLWS	MLWN
+0.7	+0.9	0.0	0.0

See Appendix 7.8 - Tidal Data.

2.13 Emergency Response Involvement

- 2.13.1 On the 12 December 2023 at 08.43 hrs after the initial MAYDAY message was transmitted¹⁸, the Coast Guard (IRCG) Marine Rescue Co-ordination Centre in Dublin tasked a number of SAR units to the casualty position. The IRCG's Dublin-based rescue helicopter R116 arrived on scene at 09.14 hrs. The Royal National Lifeboat Institution's (RNLI) Clogherhead All Weather Lifeboat arrived on scene at 09.16 hrs and the IRCG's Greenore boat arrived on scene at 10.17 hrs. The IRCG's shore-based units from Clogherhead and Greenore were deployed to conduct shore searches and operate aerial drone searches when the helicopter was not on-scene. Additional SAR assets, and numerous other vessels including the Commissioners of Irish Lights' vessel *ILV Granuaile*, joined the search operation

17. Tidal Stream Information 5621, updated to October 2023, United Kingdom Hydrographic Office.

18. The Skipper had already been located by another fishing vessel before the initial MAYDAY message was transmitted. The Skipper was brought ashore in Port Oriel and then taken to hospital in an ambulance.

during the day. The search was stood down for the night at approximately 19.40 hrs.

See Appendix 7.9 - Irish Coast Guard Situation Report.

2.13.2 The search operation recommenced at 08.14 hrs on 13 December 2023, with SAR units and assisting vessels on scene. Garda Water Unit (GWU) divers from An Garda Síochána arrived on scene at 11.11 hrs and commenced dive operations at the wreck site, completing two dives that day. Members of the Naval Service Diving Section arrived on scene at 16.31 hrs and conducted a search of the wreck wheelhouse and deck area. The search was stood down for the night at approximately 17.00 hrs.

2.13.3 On 14 December 2023 at 09.56 hrs the GWU and Naval Service divers commenced another search of the wreck area. A survey vessel's sonar identified a location of interest, which was relayed to the dive team. The body of the missing Crewmember was recovered at 10.57 hrs on 14 December 2023.

2.14 Post Mortem Report

2.14.1 The Coroner's post mortem report on the deceased Crewmember stated the cause of death as drowning. Cause of death is a matter for determination by the Coroner.

2.15 Wreck Dive Report

2.15.1 The location of the wreck in Dundalk Bay is within the operational area of Dundalk Port, which is operated by Dublin Port Company (DPC). In February 2024, a contractor operating on behalf of DPC carried out an inspection of the wreck. The divers reported the seabed as hard and rocky. The divers did not review the contents of the cage, and the operator of the dive vessel's sonar was unable to state the contents of the cage.

2.15.2 The following report was provided:

"Vessel was located in approx. 6 metres of water, 2 hours before high tide.

Seabed surrounding vessel is hard and rocky. Vessel is lying on the seabed over on her port side with the port side handrail approx. 500mm from seabed.

Diver conducted a full Hull survey of vessel. All Hull plating on visible sides are intact and in good condition with no signs of damage found. Port side of vessel was not visible as it is lying along the seabed.

A frame that holds dredging equipment is still intact and appears in good condition. Dredge cage was found approx. 6-8 metres astern of vessel and still connected via towing wire.

Mast of vessel is still intact where the navigation lights remain undamaged.

Reason for vessel sinking is not obvious from this survey, but damage may be

present on port side.”

See Appendix 7.10 - Wreck Dive Report’s Images.

2.16 Similar Incidents

- 2.16.1 The circumstances that arose in this marine casualty have arisen in previous MCIB investigations in 2015 and 2020. In the United Kingdom in 2022, the Marine Accident Investigation Branch (MAIB) reported on a similar marine casualty.

FV Quo Vadis

- 2.16.2 Report No. MCIB/244¹⁹ is in respect of the sinking of FV Quo Vadis in Rosslare Harbour, Co. Wexford on 11 February 2015. The vessel departed Rosslare Harbour with three crew onboard. Just after 07.00 hrs the vessel began dredging for razor clams close to Rosslare Harbour. At approximately 12.00 hrs, at the end of a dredge run, it was noticed that the dredge was heavier than normal. When the dredge was hoisted to the surface it contained a large boulder. The vessel was significantly trimmed by the stern and the Skipper came aft from the wheelhouse to assess the situation. The vessel rolled on a swell and instantly capsized, throwing the three crew into the water under the vessel. They swam free from under the vessel which then sank rapidly. None of the crew were wearing a PFD.

- 2.16.3 The Safety Recommendations in that report addressed vessel stability standards, stability awareness, dredge features and the wearing of PFDs, as follows:

“6.1 The MCIB recommends that consideration be given to the stability standards for small fishing vessels and supports Actions 9 to 13 in the Maritime Safety Strategy published by the Irish Maritime Administration of the Department of Transport, Tourism and Sport in April 2015 in this regard.

6.2 Bord Iascaigh Mhara (BIM) should provide stability awareness training for operators and crew of vessels less than 24m, with a focus on vessels less than 15m.

6.3 The Minister for Transport, Tourism and Sport should consider amending the Code of Practice for the Design, Construction and Operation of Small Fishing Vessels of less than 15 m Length Overall to include requirements to restrict the mouth of dredges by the installation of bars or limiters to prevent ingress of large objects.

6.4 All crews are reminded of the legal obligation to wear personal flotation devices when on deck of a fishing vessel in accordance with the legal requirements.”

19. <https://www.mcib.ie/investigations/1717429410218309079/>

FV Alize

2.16.4 Six years after the sinking of the FV Quo Vadis, Report No. MCIB/297 was published into the sinking of the FV Alize off Hook Head, Co. Wexford on 4 January 2020²⁰. The wreck of the FV Alize was found lying on the vessel's port side on the seabed. Sonar images showed the vessel's starboard derrick in its housed position. The report concluded that the FV Alize capsized and rapidly sank without warning while hauling its trawl dredges.

2.16.5 The Safety Recommendations addressed vessel stability standards, stability awareness, dredge operations and the wearing of PFDs, as follows:

"6.1 The Minister for Agriculture, Food and the Marine should amend the Bord lascaigh Mhara (BIM) safety training syllabi for its Basic Safety Training Course (vessels less than 15 m) to include a module on stability awareness, factors affecting stability, dynamic stability and the instability warning signs and precautions available to avoid such situations.

6.2 The Minister for Transport should issue a Marine Notice warning owners and operators of small fishing vessels of less than 15 m Length overall of the hazards associated with trawling, including beam trawling and scallop dredging.²¹

6.3 The Minister Transport should adopt Actions 9 stated in the Maritime Safety Strategy published by the Irish Maritime Administration and MCIB recommendations in respect of stability standards, stability criteria, crew training for small fishing vessels of less than 15 m length overall.

6.4 The Minister for Transport should issue a Marine Notice warning owners and operators of small fishing vessels of less than 15 m length overall to practice the requirements contained in S.I. 586/2001 - Fishing Vessel (Personal Flotation Devices) Regulations 2001, when working on deck of fishing vessels and highlighting the correct wearing of PFDs including crotch straps, spray hoods and PLBs.²²

6.5 The Minister for Transport amend S.I. 586/2001 - Fishing Vessel (Personal Flotation Devices) Regulations 2001 specifying that crotch straps should be permanently attached to the PFD harness.

6.6 The Minister for the Department of Transport should amend the requirements of the Code of Practice: Design, Construction, Equipment, and Operation of Small Fishing vessels of less than 15 m Length overall, Chapter 4, Fishing and Handling Equipment, Section 4.5.2 to reflect the importance of periodic examination and testing of lifting equipment by a competent person on a regular basis of not less than 6 months, in accordance with an inspection regime and aligned with industry best practice. Inspections should be certified as completed in the vessel's official logbook."

20. https://www.mcib.ie/assets/files/pdf/2021-08-04-09-26-mcib_alize_report.pdf

21. This resulted in publication of Marine Notice 53 of 2021 (Hazards associated with trawling on small fishing vessels)

22. This resulted in publication of Marine Notice 48 of 2021 (Correct use of PFDs on Fishing Vessels).

Nicola Faith

- 2.16.6 Three crew members were lost when the whelk potter Nicola Faith foundered on 27 January 2021. MAIB report 8/2022²³ included a list of previous marine casualties investigated by the MAIB with similar stability / capsize circumstances, and set out the various recommendations made over the years as a result. The MAIB stated:

“Shortly after 1003 on 27 January 2021, the whelk potter Nicola Faith left its home port of Conwy, North Wales and headed out to its fishing grounds with three crew members on board. Their intention was to relocate eight strings of pots to fresh fishing grounds and to haul, empty and reshoot strings of pots that had already been laid in that area. The crew fished and relocated pots throughout the day. Nicola Faith was reported overdue the following morning and an extensive search began, but no sign of the missing vessel was found. A wide-ranging underwater search then started. The bodies of the three crew members were washed ashore in different locations on the north-west coast of the UK over a 3-day period, the first of which was discovered 44 days after the accident.

Once the wreck of Nicola Faith had been found, it was salvaged ashore for further examination and investigation into the causes and circumstances of the accident. The MAIB investigation found that the vessel had been significantly modified since 2017, and that these modifications had eroded its margin of stability. It concluded the vessel probably capsized and sank due to it being loaded with catch and fishing gear to the point of instability.

Recommendations have been made to the Maritime and Coastguard Agency to amend the Code of Practice for the Safety of Small Fishing Vessels of less than 15m Length Overall, to revise the wording and refer to a load limit rather than a catch limit, and to review and enhance the guidance to surveyors to clarify what level of modification should trigger further investigation into a vessel’s stability. A recommendation has also been made to Nicola Faith’s registered owner, The Big Ship Limited, to ensure that a written agreement is in place to clearly identify the organisation or person responsible for the operation of any vessels it may own.”

- 2.16.7 The MAIB identified eight safety issues that directly contributed to the incident:

“1. Nicola Faith foundered when the vessel was heavily loaded with catch and fishing gear. The indications are that the vessel suddenly capsized to port and the crew were trapped on board and taken down with the vessel when it sank. [2.2]

2. It is likely that the crew were trapped on board underneath the plywood deck canopy by the catch, pots and rope, during and after the vessel foundered, resulting in all three crew members drowning. [2.3]

23. https://assets.publishing.service.gov.uk/media/62b08c828fa8f53574bf8ba5/2022-8-NicolaFaith-Report_1_.pdf

3. *It is almost certain that Nicola Faith capsized because it was loaded with catch and pots to the point of instability, and that it capsized suddenly with little warning. [2.4]*
4. *The skipper's decision to relocate four strings of pots at the same time (2521kg) combined with the volume of catch (estimated as 2090kg) meant that Nicola Faith was probably carrying over 4.6t of catch and fishing gear on deck, and its already poor margin of positive stability had almost completely disappeared. If the skipper had restricted his loading to about 1000kg and preferably stowed at least part of this in the fish hold, Nicola Faith could have been operated within the Wolfson amber zone, in calm seas, albeit with a low level of safety. [2.5]*
5. *Nicola Faith was habitually operated in an unsafe manner, with heavy loads of catch stowed on both the deck and the cat catcher. This resulted in the vessel having very limited freeboard and a reduced margin of positive stability. [2.7]*
6. *Numerous modifications were made to Nicola Faith that collectively eroded its margin of stability. MCA surveyors were aware that several modifications had been made to the vessel but did not consider them significant enough to trigger a stability assessment. [2.5] [2.9]*
7. *Although the skipper had experienced at least two near capsize events when Nicola Faith was heavily loaded, and he had attended stability awareness training, he prioritised the benefits of heavily loading Nicola Faith over the risk of capsize. [2.8]*
8. *The crew's chance of survival was reduced by the vessel not being fitted with an EPIRB, not having PLBs on board, and PFDs not being worn by the crew. [2.6]"*

3. NARRATIVE

3.1 Vessel's Fishing Operations

- 3.1.1 The FV Ben Thomas operated a hydraulic dredge known as a cage to catch razor clams. The cage is a steel frame overlaid with steel mesh, which is deployed from the vessel's stern gantry and towed over the seabed. See Figures 4 - 6.



Figure 4: Example of a cage in use locally.



Figure 5: Example of a cage recovered onboard.

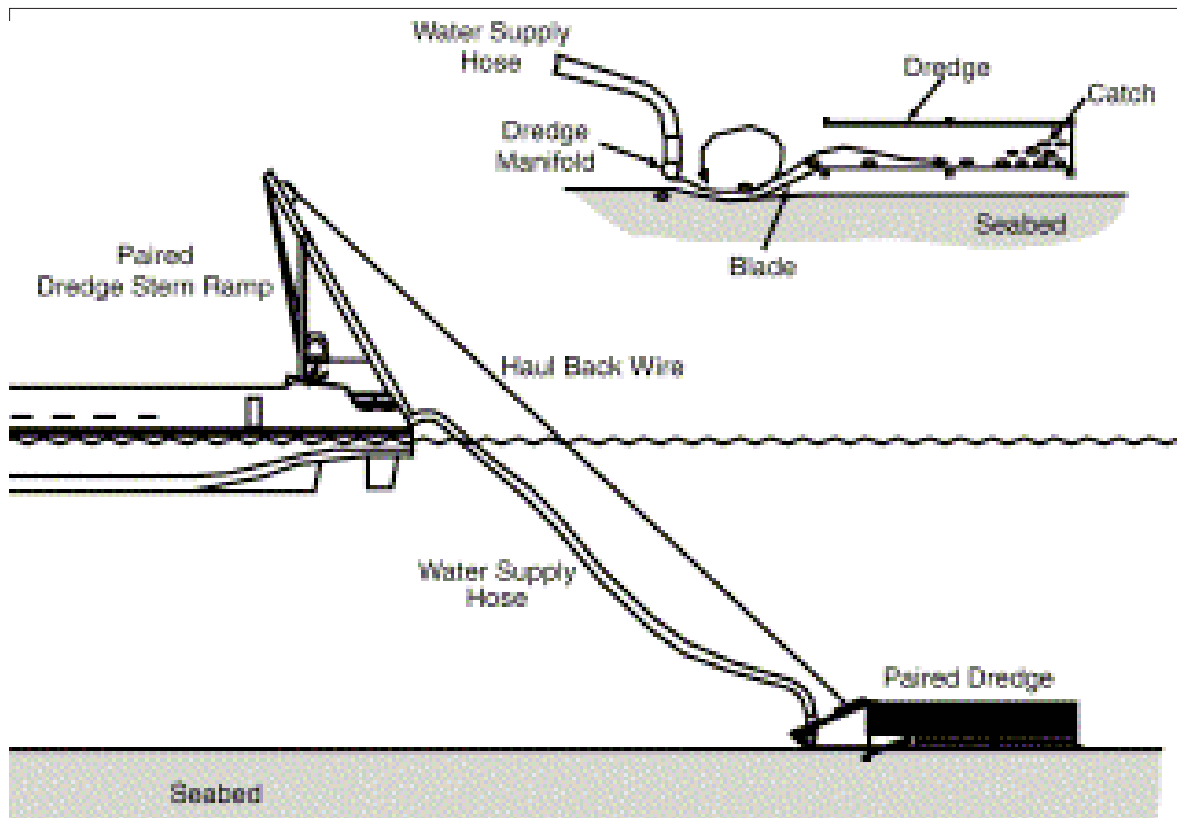


Figure 6: Example of fishing operations with a dredge cage deployed.

- 3.1.2 With this type of fishing, high-pressure water (at 3.5 - 4.0 Bar) is pumped from the vessel down a hose and delivered as a series of pressure jets directed into the sediment in advance of the cage. A cutting edge at the front of the cage digs into the sediment as it is towed over the seabed. The pressure jet liquifies the sediment, which enhances the performance of the cutting edge and excavation of the clams.
- 3.1.3 The cage is periodically retrieved onboard the vessel, and the contents are removed for processing. Recovery of the cage involves lifting it from a towing point installed at height on the vessel's stern gantry. The sudden transfer of load, or unanticipated additional loading during cage recovery, can affect a vessel's stability.

3.2 Vessel's Pre-Incident Operations

- 3.2.1 In November 2023, the registered owner of the FV Ben Thomas entered into an arrangement with a third party to operate the vessel. This operator attended the vessel in Wexford Harbour on or around the 25 November 2023. The vessel's owner and previous skipper provided an informal handover to the new operator. The previous skipper agreed to passage the vessel from Wexford to Rosslare, where he disembarked later that same day. The vessel travelled up the east coast

from Rosslare with two crew onboard including the third party, sheltering that evening in Howth, Co. Dublin. The next day, the vessel completed the passage to Port Oriel/Clogherhead, Co.Louth, arriving on the 26 November 2023.

- 3.2.2 The vessel commenced fishing operations from Port Oriel on the week commencing 27 November 2023. The vessel was skippered by its new operator for the first week.
- 3.2.3 A new Skipper (the first Casualty) and a Crewmember (the deceased second Casualty) then joined the vessel on the week commencing 4 December 2023. The vessel remained in the harbour that week due to poor weather. The Skipper and the Crewmember attended the vessel during this week, conducting maintenance and cleaning tasks onboard.
- 3.2.4 The vessel's first sailing with its new crew was on 11 December 2023 when they departed Port Oriel at 05.00 hrs to commence fishing operations close by. The Skipper and the Crewmember conducted numerous fishing operations that day without incident. The cage recovery/hauling operations were conducted by the Skipper from the winch at the rear of the wheelhouse. The Crewmember working at the stern gantry released and processed the catch. The vessel returned to Port Oriel at approximately 17.00 hrs on 11 December 2023. This was one day of fishing experience together prior to the incident.

3.3 Incident Details

- 3.3.1 On the 12 December 2023 the vessel departed Port Oriel at approximately 05.00 hrs and headed to fishing grounds north of Dunany Point. The vessel commenced fishing operations at approximately 07.00 hrs and completed the first two tows without incident. After the third tow (at around 07.30 hrs) they commenced the hauling operation to recover the cage. The cage was hauled from the seabed and recovered onboard at the stern gantry.
- 3.3.2 The Skipper stated that the vessel began to capsize to port when the cage was in the fully retrieved position. The cage's winch wire was released in an attempt to correct the heel and return the vessel to a stable condition. The Skipper and the Crewmember were standing on the starboard rail/hull when the vessel capsized. Both the Skipper and Crewmember entered the water at the same time as the vessel sank below them.
- 3.3.3 Due to the sudden and rapid nature of the capsize the crew were unable to transmit a MAYDAY distress broadcast or don PFDs. The liferaft canister floated free of the vessel, but the liferaft did not inflate during the incident.
- 3.3.4 The Skipper stated that, while in the water, the Crewmember communicated to him that he should remove his boots and protective clothing. Finding a lifejacket floating close by, the Skipper secured it to himself while in the water. As other items floated clear of the vessel the Skipper held onto a non-descript item that floated close by. At this point the Skipper lost contact with the Crewmember.

- 3.3.5 The Skipper maintained his grip on the flotsam and began calling out for assistance. After a period in the water the Skipper noted a vessel approaching and he shouted for help. A crewmember on the FV Sian Elizabeth heard the calls and commenced a search. The Skipper was located in the water by the crew of the FV Sian Elizabeth and was recovered onboard. The Skipper estimates that he had spent about one hour in the water. He was unable to speak to provide details of the incident when recovered onboard.
- 3.3.6 The Skipper of the FV Sian Elizabeth, due to limited understanding of the English language, opted to phone the skipper of another vessel operating nearby, the FV Inschalla, to request assistance. The Skipper of the FV Inschalla was a relative of the missing Crewmember. This was at approximately 08.30 hrs. The FV Inschalla proceeded to the FV Sian Elizabeth's position, broadcasting the message "*sinking position 53° 52.907N, 006° 15.650W*" on Very High Frequency (VHF) radio to the Coast Guard while on route. When alongside the FV Sian Elizabeth the Skipper of the FV Inschalla broadcast a MAYDAY message to the Coast Guard "*MAYDAY two persons onboard position 53° 52.963N, 006° 15.671W*".
- 3.3.7 The Coast Guard tasked a number of SAR units to the casualty position at 08.43 hrs. Searches for the missing Crewmember continued throughout the day, and again on the 13 December 2023 and 14 December 2023. The body of the missing Crewmember was recovered two days after the capsizing, at 10.57 hrs on 14 December 2023.

4. ANALYSIS

4.1 Vessel Stability

- 4.1.1 While it is not possible to be definitive given that the vessel was not recovered, the cause of the vessel's capsize and sinking is likely to have been the overturning effects of a heavily laden cage as it was being recovered onboard. A contributory factor is likely to have been the vessel's low level of residual stability at this stage of the fishing operations.
- 4.1.2 The FV Ben Thomas had completed her first two fishing tows without incident. The weather was fair, with light winds and slight seas of 0.5 - 1.25 m in height. When the third tow was complete, the crew used the stern gantry cage to haul onboard the cage and its contents. When the cage reached the fully retrieved position the vessel immediately began to capsize to port.
- 4.1.3 The type of dredge operations being undertaken by the FV Ben Thomas involved a heavy load suspended from a high point on the gantry above the vessel's stern, similar to the situation in Figure 7.

Any winch, block, wheel or lifting point used on an A-frame at the stern of the vessel will transfer some or all of the weight of the catch to that point. Any lifting or dragging of the gear or catch will have this effect.

The weight of the catch at the height of the deck has a big enough impact, but when it is lifted by blocks the centre of gravity of the catch shifts, partly or fully up to that height.

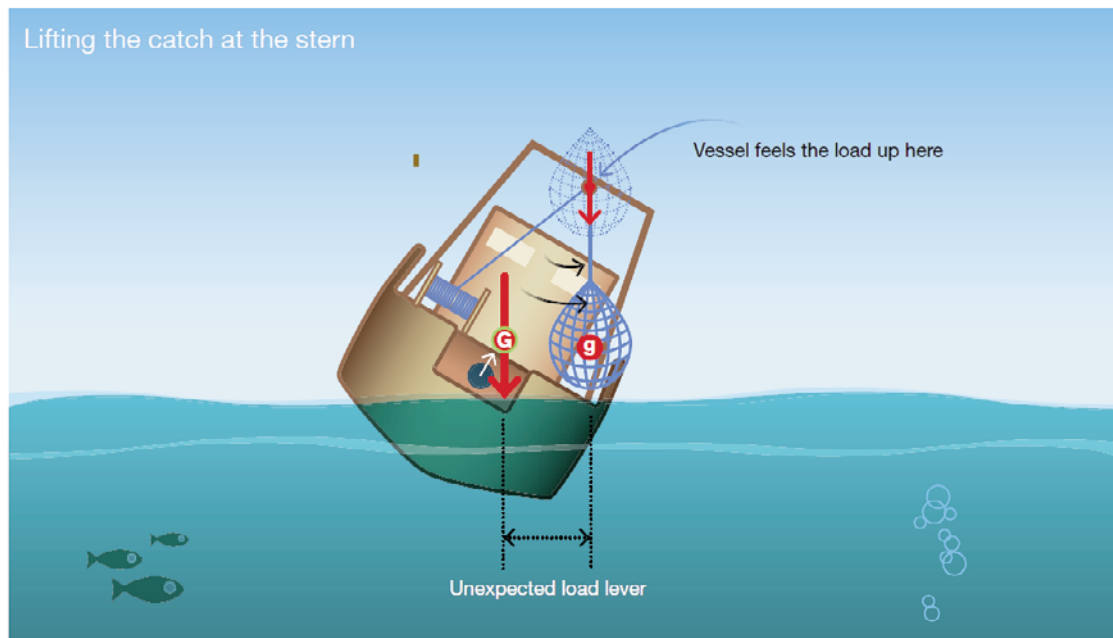


Figure 7: The effects on a vessel's stability of a load lifted at a height.²⁴

24. Source: A Guide to Fishing Vessel Stability, Maritime New Zealand, 2021.
<https://www.maritimenz.govt.nz/media/lpbfqnnn/fishing-vessel-stability-guidelines.pdf>

- 4.1.4 When a load is being lifted, its centre of gravity is at the point of suspension, not at the load itself. This creates a hazard for a vessel, as the height and magnitude of the suspended load will affect the vessel's centre of gravity. A load that can swing is an additional hazard. When a vessel heels, the suspended load can swing outwards in the direction of the heel and then pull the vessel further over to that side. Other external forces can add to the risk of capsize, such as unsecured onboard load or liquids onboard as they transfer towards the lower side of the vessel. As a result, the stability of a small fishing vessel is constantly changing during a voyage, because of the dynamic nature of the vessel's movement, changes in weather, changes in the vessel's loading, and changes in the operations onboard.
- 4.1.5 The primary means of determining a vessel's stability is based on technical parameters of cross-curves of stability, KM curve and subsequent GZ curves. For fishing vessels built before 2004, the CoP's stability requirements include a formula to be used in circumstances where these values are not, and cannot be, made available.
- 4.1.6 The approach taken in the CoP to determining a vessel's stability does not recognise that landing the catch will negatively affect a vessel's stability. In addition, subsequent modifications to a vessel's hull, superstructure, deck equipment, or alternative fishing gear, can also affect stability.
- 4.1.7 The CoP's approach to determining a vessel's stability includes a rolling test, carried out in accordance with the procedures in the CoP's Annex 1. The vessel is assessed in two loading conditions: in the *"normal departure port condition"* and a typical *"arrive port condition"*. The rolling test has limitations, as the test is done in conditions that are estimated to represent a voyage cycle, and there is an assumption that the vessel will be operated thereafter with reasonable consistency of loading draughts, trim etc. The CoP acknowledges that *"the determination of the stability by means of the rolling test in a seaway should only be regarded as a very approximate estimation"*²⁵.

See Appendix 7.11 - Annex 1 of the Code of Practice (Revision 2) - Rolling Period Tests.

- 4.1.8 The stability of the FV Ben Thomas was last evaluated by means of a rolling period test, carried out on the 25 June 2021 during the CoP survey. The CoP surveyor included the calculations as an addendum to the CoP survey report (see Appendix 7.2 Vessel Code of Practice Survey - Addendum). The CoP surveyor has confirmed that the vessel was presented as per the photographs contained within the survey report (which are included in Appendix 7.2 Vessel Code of Practice Survey - Addendum). The details of any vessel modifications undertaken following the 2021 CoP survey could not be confirmed.

25. The same wording is used in both Revision 2 (in effect from 20 January 2014 to 01 May 2022), and Revision 3 (in effect from 01 May 2022 to-date). Source: CoP, Annex 1 - *Determination of vessel's stability by means of rolling period tests*.

4.1.9 The CoP survey's DoC indicates that the vessel complied with the stability requirements. However, the data recorded for this rolling test does not include details to show positive evidence of compliance with the CoP as:

- There is insufficient detail with regards to the vessel's loading recorded in the CoP DoC for the FV Ben Thomas in respect of the vessel's tested condition (status of fuel, water, fishing gear onboard) and the recorded roll time results.
- The vessel's CoP DoC contains inconsistencies in relation to the rolling test calculations and the results in the report's calculation table.
- In particular, the CoP's stability formula is primarily intended for vessels with a B/D dimension ratio of 1.75 - 2.15, whereas the 3.04 ratio of the FV Ben Thomas exceeded this. Despite this, the formula was used to determine this vessel's stability parameters apparently without question, without evidence recorded in the test report of the "*special care*" that should be applied in these circumstances, as recommended in the CoP for such circumstances.

4.1.10 The CoP's stability standard formula replicates the formula in *Safety Recommendations for Decked Fishing Vessels of Less than 12 metres in Length and Undecked Fishing Vessels*²⁶ published in 2012 ("the 2012 Safety Recommendations"). This was developed by the Food and Agriculture Organisation of the United Nations, the International Labour Organisation, and the International Maritime Organisation to further the safety of fishing vessels.

4.1.11 The 2012 Safety Recommendations allows for four loading conditions²⁷ and highlights that²⁸:

- The vessel's minimum stability criteria should be "*met under all other operating conditions including those which produce the lowest values of the stability parameters*"; and

26. Recommendations for Decked Fishing Vessels of Less than 12 metres in Length and Undecked Fishing Vessels, 2012.

https://www.ilo.org/sites/default/files/wcmsp5/groups/public/%40ed_dialogue/%40sector/documents/publication/wcms_216664.pdf

27. "3.8.1 The number and type of operating conditions to be considered should be to the satisfaction of the competent authority and should include the following as appropriate:

.1 departure for the fishing grounds with full fuel, stores, ice, fishing gear, etc.;

.2 departure from the fishing grounds with full catch, 30 percent stores, fuel, etc.;

.3 arrival at home port with full catch and 10 percent stores, fuel, etc.; and

.4 arrival at home port with 10 percent stores, fuel, etc., and minimum catch, which should normally be 20 percent of full catch, but may be up to 40 percent of full catch provided the competent authority is satisfied that operating patterns justify such a value."

28. "3.8.2 In addition to the specific operating conditions given in 3.8.1, the competent authority should also be satisfied that the minimum stability criteria given in 3.2 and 3.4, as appropriate, are met under all other actual operating conditions including those which produce the lowest values of the stability parameters contained in these criteria. The competent authority should also be satisfied that those special conditions associated with a change in the vessel's mode or areas of operation which affect the stability considerations of this chapter are taken into account."

- Account should be taken of “*special conditions associated with a change in the vessel’s mode or areas of operation which affect the stability considerations*”.

4.1.12 The approach taken in the CoP to determining a vessel’s stability does not recognise that taking the catch onboard using a high suspension point is a condition that will produce the lowest values for a vessel’s stability parameters.

4.1.13 While it is not possible to be definitive given that the vessel was not recovered, the cause of the vessel’s capsize and sinking is likely to have been the overturning effects of a heavily laden cage as it was being recovered onboard. A contributory factor is likely to have been the vessel’s low level of residual stability at this stage of the fishing operations.

4.2 Personal Flotation Device - Provision and Usage

4.2.1 Both crewmembers were on the deck of the FV Ben Thomas and engaged in fishing operations when this capsize and sinking occurred, but neither were wearing any form of PFD. The first Casualty managed to retrieve a PFD that floated close by after the vessel sank and secure it to his body, whereas the second Casualty who did not have access to a PFD died.

4.2.2 There are statutory obligations on the wearing of a PFD by the crew of a fishing vessel as described in the Fishing Vessel (Personal Flotation Devices) Regulations, 2001 (as amended)²⁹:

- Regulation 4 requires that:

“Every fishing vessel shall carry a suitable personal flotation device for every person on board. The personal flotation device shall be worn at all times by the crew of the fishing vessel, when on the exposed deck of the vessel, or, in the case of open undecked vessels, on board the vessel, whether at sea, in harbour or coming to and from moorings.”

- Regulation 5 requires that:

“The skipper of a fishing vessel shall take all reasonable steps to ensure that all crew members wear a personal flotation device when on deck of the vessel, or, in the case of open undecked vessels, on board the vessel, whether at sea, in harbour or coming to and from moorings.”

4.2.3 The Skipper of the FV Ben Thomas was responsible for ensuring that everyone wore a PFD while on deck. This did not happen, which is inexplicable given the plain terms of the statutory instrument and the repeated Marine Notices (MN) that had been issued by the MSO in the years prior to this casualty event:

29. S.I. No. 586/2001 - Fishing Vessel (Personal Flotation Devices) Regulations, 2001 (<https://www.irishstatutebook.ie/eli/2001/si/586>), as amended by S.I. No. 401/2018 - Fishing Vessel (Personal Flotation Devices) (Amendment) Regulations 2018 (<https://www.irishstatutebook.ie/eli/2018/si/401>)

- MN No. 07 of 2022³⁰ highlighted that:

“Personal Flotation Devices (PFDs): Marine Notice 48 of 2021 sets out the requirements for the correct use of Personal Flotation Devices (PFDs) for persons working on fishing vessels and highlights the obligation for every person working onboard such a vessel to always wear a PFD while working on open decks.”

- MN No. 48 of 2021³¹ highlighted that:

“Every person onboard a fishing vessel must wear a suitable PFD when on deck of the vessel, or, in the case of an open undecked vessel, on board the vessel, whether at sea, in harbour or coming to and from moorings. (See Fishing Vessel (Personal Flotation Devices) Regulations 2001 (S.I. No.586 of 2001, as amended).”

- MN No. 39 of 2013³² highlighted that:

“Legal requirements

All Fishing Vessels:

To remind owners, skippers and crew of the legal requirements that:

- *every fishing vessel shall carry a suitable personal flotation device (PFD) for every person onboard,*
- *every person onboard a fishing vessel must wear a suitable PFD when on deck of the vessel, or, in the case of an open undecked vessel, on board the vessel, whether at sea, in harbour or coming to and from moorings, and*
- *the skipper of a fishing vessel must take all reasonable steps to ensure that every crew member on board wears a suitable PFD.”*

4.2.4 The handover in November 2023 from the registered owner to the third party operator was not recorded in writing, so there is no record of what if anything was checked as being present on this vessel. The presence onboard, and the type and operational status of the required PFDs including the one donned by the Skipper in the water, could not be confirmed. The one used by the Skipper was not available for inspection, and any others that may have been present were not reported as having been recovered during the SAR operation. The compliance or not with the Fishing Vessel (Personal Flotation Devices) Regulations, 2001 (as amended) is a matter for the enforcing authority.

30. Reminder Fishing Vessel Safety - fatal incident involving a small Fishing vessel (<15m)

<https://assets.beta.gov.ie/static/documents/reminder-fishing-vessel-safety-fatal-incident-involving-a-small-fishing-vessel-15m.pdf>

31. Correct Use of Personal Flotation Devices (PFDs) on Fishing Vessels

<https://assets.gov.ie/static/documents/correct-use-of-personal-flotation-devices-pfds-on-fishing-vessels-v1.pdf>

32. Wear a Personal Flotation Device (PFD) and increase your chance of survival in the event of entering water

<https://assets.gov.ie/static/documents/wear-a-personal-flotation-device-pfd-and-increase-your-chance-of-survival-in-the-event.pdf>

- 4.2.5 The failure of the Skipper to ensure that all crew wore a PFD as required was a causal factor in this marine casualty. It is possible that a second PFD was not available as required; if so, this would also be a causal factor in this marine casualty.

4.3 Liferaft Operation

- 4.3.1 The CoP's liferaft requirements that applied to the FV Ben Thomas depended on the vessel's plying limits, as described in Section 7.4 of CoP, revision 3:

- 5 miles or more from safe haven:
One SOLAS/MED approved liferaft; or
- One or more non-SOLAS/non-MED approved liferaft with sufficient capacity to accommodate all on board the vessel.
- Less than 5 miles from safe haven:

A liferaft is not required but "The Department strongly recommends that a liferaft is voluntarily carried onboard such vessels. It is also recommended that such voluntarily carried liferafts are of either the SOLAS/MED type or one of the non-SOLAS/non-MED types... and that these are serviced at an approved liferaft servicing station at intervals not exceeding 12 months."

- 4.3.2 This vessel's capsize and sinking occurred approximately 5 NM from safe haven at Port Oriel (and 1 NM from the nearest shore). A plying limit is not specified in this vessel's DoC with the CoP or its Sea-Fishing Boat Licence, but the vessel was fitted with a liferaft.

- 4.3.3 The liferaft canister was installed on top of this vessel's wheelhouse and was fitted with a HRU³³. A liferaft fitted with a HRU is designed to operate in three phases:

- In the initial phase, the HRU will release the liferaft canister, thereby allowing it to float up towards the surface. During this phase, the liferaft canister remains connected to the vessel via the liferaft's painter, which is being pulled out from the canister incrementally as it floats away from the vessel.
- The second phase commences when the liferaft's painter applies a force (a 'sharp tug') that inflates the liferaft within the canister. During this phase, the inflated liferaft continues to float away from the vessel, but it remains connected to the vessel via the liferaft's painter.
- The third phase commences when the inflated liferaft applies a force to the painter that exceeds the breaking strength of the weak link securing the painter to the vessel. With this link now broken, the liferaft's painter will

33. The Hammar H20 Small Rafts Model (Dark Green). Product Specification: 4-12 persons non-SOLAS liferaft. Release Depth: 1.5 - 4 m. Breaking Strength: White rope sling: minimum 15 kN, weak link 1.2 kN +/- 0.4 kN.

disconnect from the vessel, thereby disconnecting the liferaft from the vessel.

- 4.3.4 During the initial phase, the HRU is designed to operate in response to water pressure; until the required water depth/pressure is reached, the unit will remain intact. This liferaft canister's HRU was designed to operate within a water depth of 1.5 to 4.0 m. This means that, for a batch of these HRUs, some units will activate at 1.5 m whereas others may not activate until a depth of 4.0 m occurs.
- 4.3.5 It is not possible to determine the time at which the liferaft's HRU operated on the FV Ben Thomas, therefore its release of the liferaft canister may have been sometime after the vessel sank. Taking account of the tidal conditions in the area at the time of this vessel's sinking³⁴, the liferaft canister's HRU is likely to have been at a depth of at least 1.5 m when the vessel sank, but not at a depth of 4.0 m. A depth of approximately 4.0 m may not have occurred until later in the day when tidal high water occurred.
- 4.3.6 The nature of this fishing vessel's operations in relatively shallow water within 1 NM of the shore, increased the likelihood of its liferaft not deploying promptly in the event of the vessel sinking.
- 4.3.7 The liferaft was recovered intact after the vessel's sinking, meaning that it was uninflated within its canister. Although the HRU operated and released the liferaft, the liferaft did not inflate during the incident. During a subsequent onshore operational test, the liferaft deployed in the required manner. Inspection showed that the end of the liferaft's painter had not been attached to the HRU's weak link on the vessel.
- 4.3.8 No records were provided to the MCIB in respect of this vessel's liferaft servicing every 12 months. No records exist in respect of the owner's handover of the vessel to the operator in November 2023, or any checking when the Skipper was appointed in December 2023. The liferaft's HRU had an expiry date of June 2023 and was therefore expired, indicating inadequate servicing.
- 4.3.9 The failure to correctly attach the end of the liferaft's painter to the weak link component of the HRU indicates inadequate training in, and maintenance of, essential life-saving equipment on the part of the owner, operator and Skipper, although this was not a causal factor in this case.
- 4.3.10 The circumstances indicate a poor safety culture in the ownership and operation of this vessel's liferaft.
- 4.3.11 When the Crewmember was in the water, he was able to speak to the Skipper, and therefore potentially could have aided his own survival if an inflated liferaft had been immediately available.
- 4.3.12 The failure of the liferaft to inflate was a causal factor in this marine casualty.

34. At 08.00 hrs on 12 December 2023, the water depth in the area of this vessel's sinking was likely to have been approximately 6.2m, increasing to a maximum of depth of approximately 7.1m at high water at 10.19 hrs.

4.4 Emergency Position Indicating Radio Beacon Operation

- 4.4.1 The FV Ben Thomas was fitted with an EPIRB. A distress signal from this EPIRB was not received by the emergency services promptly after the vessel's sinking. The EPIRB was recovered on the day after this vessel's sinking, and it was transmitting then.
- 4.4.2 The EPIRB was attached to the vessel with a HRU. The type and operational limits of this HRU could not be confirmed as it remained attached to the vessel. A typical HRU intended for use with an EPIRB³⁵ is designed to operate within a water depth of 1.5 to 4.0 m³⁶, similar to the HRU attached to this vessel's liferaft. The EPIRB's HRU is likely to have been at a depth of at least 1.5 m when the vessel sank, but not at a depth of 4.0 m. A depth of approximately 4.0 m may not have occurred until later in the day when tidal high water occurred.
- 4.4.3 The nature of this fishing vessel's operations in relatively shallow water within 1 NM of the shore, increased the likelihood of its EPIRB not deploying promptly in the event of the vessel sinking.
- 4.4.4 The crew of the capsized vessel spent approximately one hour in the water before another fishing boat operating nearby heard one crewmember calling out for help. Neither crewmember had any means of contacting the emergency services.
- 4.4.5 The Coast Guard's R116 helicopter arrived approximately 31 minutes after the emergency services were notified of this incident, followed closely by Clogherhead RNLI two minutes later. However, this was approximately 1.5 hours after this vessel's capsize. Prompt activation of this vessel's EPIRB when the capsize occurred would have significantly reduced the length of time the two casualties spent in the water.
- 4.4.6 The EPIRB's battery had expired in January 2023, approximately 11 months prior to this marine casualty. However, when the EPIRB was recovered on the day after this vessel's sinking, it was transmitting then, and a subsequent test confirmed that the unit was operational and could transmit a signal under normal operational conditions.
- 4.4.7 The failure of the EPIRB to activate promptly was a causal factor in this marine casualty.

4.5 Personal Locator Beacon Provision

- 4.5.1 A PLB is a personal life-saving appliance that can be attached to or form part of a PFD. It operates by sending a message to the emergency services via satellite, similar to a vessel's EPIRB.

35. Hammar HE-0100 H20E for EPIRBs <https://www.cmhammar.com/catalogue/he-0100/>

36. This means that, for a batch of these HRUs, some units will activate at 1.5 m whereas others may not activate until a depth of 4.0 m occurs.

- 4.5.2 Neither crewmember was carrying a PLB when this capsized occurred.
- 4.5.3 There is no record that a PLB had been issued to any crewmember either during the owner's handover of the vessel to a new operator in November 2023, or when crew joined the vessel in December 2023.
- 4.5.4 Section 9.2.4 of the CoP deals with "*radio equipment to be provided for all sea areas (including EPIRBs and PLBs)*" and sub-section 1 states:
- "An approved Personal Locator Beacon (PLB), capable of transmitting a distress alert on the 406 MHz band, shall be provided for each person on-board and shall be carried by each person on deck at all times. Each PLB should be ready to be manually activated."*
- 4.5.5 The crew of the capsized vessel spent approximately one hour in the water before another fishing boat operating nearby heard one crewmember calling out for help. Neither crewmember had any means of contacting the emergency services.
- 4.5.6 The Coast Guard's R116 helicopter arrived approximately 31 minutes after the emergency services were notified of this incident, followed closely by Clogherhead RNLi two minutes later. However, this was approximately 1.5 hours after this vessel's capsized. Access to a PLB when the capsized occurred would have significantly reduced the length of time the two casualties spent in the water.
- 4.5.7 The omission of a PLB as required was a causal factor in this marine casualty.

4.6 Cold Water Immersion

- 4.6.1 Cold water is defined as water of 15° C or less³⁷. The Met Éireann weather report for the date of this incident describes the water temperature as 9° C. The water was therefore very cold as would be expected in mid-December. Outlined below are important aspects from Chapters 4 and 6 of Essentials of Sea Survival dealing with the critical effects on the human body of the short-term responses that occur following immersion in cold water, followed then by the long-term hypothermia effects.
- 4.6.2 The initial response is known as cold shock. The cold water causes a sudden lowering of skin temperature, which has a significant effect on a person's circulation and breathing. The body's responses commence almost immediately upon immersion, peaks during the first 30 seconds, and lasts for two to three minutes. This effect is believed to be responsible for the majority of immersion deaths in cold water, not the later onset of hypothermia.
- 4.6.3 The initial changes to the circulation system occur because of constriction of the skin's blood vessels. This increases the resistance to blood flow in the skin. Blood pressure rises dramatically. The heart works harder as it tries to pump blood through constricted blood vessels.

37. Essentials of Sea Survival, Golden & Tipton, 2002.

- 4.6.4 In cold water an initial breathing gasp of up to 2 - 3 litres, close to the total lung capacity for an adult, is followed by uncontrollable rapid over-breathing (hyperventilation). The rapid over-breathing can result in a tenfold increase in the volume of gas entering and leaving the lungs each minute, which can cause dizziness and confusion, and can create a sensation of breathing difficulty or suffocation. These are physiological effects that can contribute to the feelings of panic experienced by a person.
- 4.6.5 The reduction in breath-hold time that occurs after initial immersion in water is a major danger for a person who is otherwise fit and healthy. While a person may normally be able to hold their breath on average for over one minute, this reduces to less than ten seconds upon immersion in cold water. Consequently, in choppy or turbulent water where small waves may intermittently submerge the head or airway, a person is at risk of inhaling water during the first few minutes until they can regain control over their breathing. Breath-holding to facilitate escape from a capsized or submerged vessel may be difficult and can result in entrapment and drowning. Near drowning can occur after someone has inhaled only a small volume of water, of 0.25 - 0.5 litres for an average individual, which is a particularly small volume when compared with breathing volumes of over 150 litres recorded in the first minute after immersion in cold water.
- 4.6.6 Many of the activities that are critical to survival require effective use of the hands. However, in some cases as short as just minutes, the ability to use the hands is impaired in cold water as they, and the muscles in the forearms that help control them, experience cooling. This can lead to a significant decrease in manual dexterity, handgrip strength, and speed of movement. This loss of ability can have serious consequences for activities such as manipulating the inflation valve of a lifejacket or activating a manually-inflating lifejacket, tightening straps, locating a whistle and other survival aids, holding onto a flotation aid or activating a signalling device such as a flare.
- 4.6.7 If a casualty survives the initial and short-term effects of immersion in cold water, they remain at risk from the effects of impaired sensation and muscle function, leading to loss of consciousness, drowning or cardiac arrest through the response known as hypothermia. The signs of hypothermia can include a visible shivering; slurred speech; quieter/less communicative; uncharacteristic behaviours or personality; uncoordinated limb movements; a general slowing in physical and mental activity; increased errors or forgetfulness, poor judgment, bad decisions; reduced perception; or the dropping or damaging of vital equipment. As the cooling progresses, the person will become progressively more withdrawn until there is eventually a loss of consciousness leading to death.
- 4.6.8 The description provided by the first Casualty (the Skipper) of spending approximately one hour in the cold water temperature of 9°C in normal clothing and being unable to communicate when recovered from the water, is consistent with the onset of hypothermia. While it is not known how long the second Casualty (the deceased crewmember) survived in the water, it is likely that this Casualty experienced at least the short-term effects of cold water immersion,

which will have been compounded by the non-wearing of a PFD. Cause of death (including time of death) is a matter for the Coroner.

- 4.6.9 Immersion in cold water was a causal factor in the threat to the life of one crewmember, and the other Crewmember's loss of life.

4.7 Safety Management Procedures and Practices

- 4.7.1 Less than three weeks prior to this marine casualty, the registered owner entered into an arrangement with a third party to operate this vessel. This third party was operating this vessel when this marine casualty occurred, not the registered owner. However, it was the owner of this vessel who executed the DoC, not the third party, and, the Sea-Fishing Boat Licence was issued to the owner, not the third party. The third party did not hold a Sea-Fishing Boat Licence. At the very least, this situation meant that the registration and licensing authorities had no record of the entity acting as de facto owner of the vessel. A question therefore arises as to the legal status of the registered owner's actions and whether the vessel was operating lawfully³⁸. This is a matter for the licensing authority.
- 4.7.2 No records were provided to demonstrate the required ongoing maintenance of the required life-saving equipment on the FV Ben Thomas, such as the PFDs, the EPIRB, or the arrangements for the liferaft (which was not properly installed). Training, Muster and Working Time Records were not provided. PFDs were not being worn during the fishing operation when this incident occurred. This reflects a poor attitude to safety onboard.
- 4.7.3 No evidence was provided of any audit of the state of the vessel and its equipment at the handover from the owner to the third party operator. Given the examples of inadequate provision for life-saving appliances that were subsequently identified soon after, it is unlikely that an audit was carried out during this handover.
- 4.7.4 Similarly, no evidence was provided of any information being exchanged in respect of the vessel's stability, or that the stability characteristics of the vessel were assessed by either the third party operator or the newly-appointed Skipper. The Skipper of the FV Ben Thomas had attended BIM Basic Safety Training but stability awareness is not the purpose of this training.
- 4.7.5 Stability awareness among fishing vessel crews has been a concern for many years, especially in respect of operators of fishing vessels less than 15 m length overall. Generic stability awareness alone is insufficient for a skipper to keep the vessel in a safe operating envelope of stability. Skippers also need to be able to

38. The Fisheries (Amendment) Act 2003 S.I. No. 21 of 2003 and the Sea-Fisheries and Maritime Jurisdiction Act 2006 S.I. No. 8 of 2006 provide the regulatory regime for sea-fishing boat licences. Section 4(9) of the 2003 Act provides that, where there is a Code of Practice relating to the safety and sea-worthiness of a sea-fishing boat (that is not subject to the statutory regime of the Merchant Shipping Acts 1894-2005) a sea-fishing boat licence shall not be granted or renewed unless a declaration of compliance has been provided to the licensing authority. This provision was inserted by section 97 of the 2006 Act. The CoP is the relevant Code of Practice for section 4(9)(c) of the 2003 Act.

refer to vessel-specific operating criteria to allow them to understand the stability characteristics of their vessel.

- 4.7.6 All of the above opportunities were lost, resulting in this vessel not being operated safely, which led to the loss of the vessel, one fatality and one near fatality.
- 4.7.7 Inadequate safety management was a causal factor in this marine casualty.

4.8 Emergency Communications

- 4.8.1 The FV Sian Elizabeth was another fishing vessel working in the area when the capsize and sinking of the FV Ben Thomas occurred. Approximately one hour after the sinking, crew on FV Sian Elizabeth heard someone calling for help. They commenced a search, located a casualty in the water and successfully recovered him onboard at approximately 08.30 hrs.
- 4.8.2 The Skipper of the FV Sian Elizabeth did not transmit a MAYDAY relay message as he had a limited understanding of the English language. Instead, the Skipper of the FV Sian Elizabeth phoned the skipper of a third vessel working in the area, the FV Inschalla, and also phoned the operator of the FV Ben Thomas on shore. At 08.43 hrs the Skipper of the FV Inschalla contacted the Coast Guard by VHF radio channel 16 and reported the sinking.
- 4.8.3 Vessels transmitting a MAYDAY are required to use VHF radio for communications, not mobile phones, and the operators of VHF radio should be appropriately trained. The use of standard emergency reporting procedures (VHF/DSC) is required onboard fishing vessels in order to alert the emergency services to achieve the best possible outcome. Section 8.5 of the CoP dealing with radio equipment states:

“Every vessel must carry at least one person suitably qualified, in accordance with section 9.2.10 (Radio Personnel) below, to operate the radio equipment carried on-board.”

- 4.8.4 MN No. 77 of 2023³⁹ was issued on the 23 November 2023, three weeks prior to this marine casualty. This highlighted that:

“The Maritime Safety Committee of the International Maritime Organisation (IMO) has issued several circulars in relation to compliance with Chapter IV of the Convention for the Safety of Life at Sea (SOLAS) as follows:

MSC.1/Circ.1656 - GMDSS Operating Guidance for Ships in Distress Situations This Circular provides guidance concerning the use of appropriate radiocommunication equipment in distress situations, in accordance with Chapter IV of SOLAS The guidance is set out in poster form in Appendix 2 to this Notice and it is recommended it be displayed on ships' bridges as an A4 size poster.”

39. Radio Communications and Distress Alerts <https://assets.gov.ie/static/documents/radio-communications-and-distress-alerts.pdf>

- 4.8.5 The vessel that was first to arrive at the scene should have been able to transmit a MAYDAY distress broadcast on the correct VHF channel. The failure to do that resulted in a delay of approximately 13 minutes before a MAYDAY was eventually transmitted by another vessel. However, taking account of all of the circumstances of this incident, it is likely that this delay did not affect the ultimate outcome.

5. CONCLUSIONS

- 5.1 The cause of the capsize and sinking of the FV Ben Thomas is likely to have been the overturning effects of a heavily laden dredge cage as it was being recovered onboard. A contributory factor is likely to have been the vessel's low level of residual stability at this stage of the fishing operations.
- 5.2 The stability of the FV Ben Thomas was last evaluated by means of a rolling period test, carried out on the 25 June 2021 during the CoP survey. The CoP survey's DoC indicates that the vessel complied with the CoP's stability requirements. However,
- The details of any vessel modifications undertaken following the 2021 CoP survey could not be confirmed.
 - The data recorded for the rolling test does not include details to show positive evidence of compliance with the CoP. The vessel was outside the dimensional parameters intended for the CoP's stability formula, thereby requiring that "special care" should be applied in the circumstances. Despite this, the formula was used to determine this vessel's stability parameters apparently without question, without evidence recorded in the test report of what special care was applied.
 - The approach taken in the CoP to determining a vessel's stability does not recognise that landing the catch is a condition that will produce the lowest values for a vessel's stability parameters.
- 5.3 The loss of a crewmember's life and the threat to the life of another crewmember due to the vessel's capsize, occurred because of a combination of the following factors:
- Inadequate safety systems for the operation of this vessel.
 - The failure to wear PFDs.
 - The failure of the liferaft to inflate.
 - The failure of the EPIRB to operate promptly.
 - The omission of PLBs.
 - Cold water immersion.
- 5.4 Both crewmembers were on the vessel's deck and engaged in fishing operations when this capsize occurred, but neither was wearing any form of PFD. The Skipper was responsible for ensuring that everyone wore a PFD while on deck. This did not happen, which is inexplicable given the plain terms of the statutory instrument and the repeated MNs that have been issued by the MSO. The failure of the crew to wear PFDs as required was a causal factor in this marine casualty.

- 5.5 The vessel was fitted with a liferaft, attached with a HRU. It is not possible to determine the time at which the liferaft's HRU operated, therefore its release of the liferaft canister may have been sometime after the vessel sank. When the capsized vessel came to rest on the seabed, the liferaft canister's HRU is likely to have been at a depth of at least 1.5 m. This may have been sufficient for activation of the HRU at its lower intended range, but not at a depth of 4.0 m, that may have been needed for activation at its upper intended range. Therefore, operation of the liferaft's HRU as intended may not have occurred until high water, later in the day when a depth of approximately 4.0 m occurred.
- 5.6 Although the HRU operated and released the liferaft, the liferaft did not inflate as it floated free from the vessel. The vertical depth of water in which the vessel sank was insufficient to fully extend the liferaft painter, which was required in order to inflate the liferaft. The end of the liferaft's painter had not been attached to the HRU's weak link which would have remained attached to the vessel as required. Therefore, the required force could not be applied to the painter to pull it from the casing to inflate the liferaft. Had the vessel sunk in deeper water, the liferaft cannister would have been released, and the tests ashore prove that it would have inflated had it been secured to the HRU as required. The incorrect securing of the painter to a strong point other than the weak link element of the HRU, would have resulted in the inflated liferaft being dragged underwater rendering it unusable had the HRU not operated.
- 5.7 The vessel was fitted with an EPIRB attached with another HRU. The type and operational limits of this HRU could not be confirmed as it remains attached to the vessel, but a typical HRU intended for use with an EPIRB is designed to operate within a water depth of 1.5 to 4.0 m, similar to the liferaft's HRU. A distress signal from this EPIRB was not received by the emergency services promptly after the vessel's sinking; the EPIRB was recovered on the day after this vessel's sinking, and it was transmitting then.
- 5.8 The nature of this fishing vessel's operations in relatively shallow water within 1 NM of the shore, increased the likelihood of either its liferaft or EPIRB, or both, not deploying promptly in the event of the vessel sinking.
- 5.9 Neither crewmember was carrying a PLB when this capsized occurred. There is no record that a PLB had been issued to any crewmember.
- 5.10 The crew of the capsized vessel spent approximately one hour in the water before another fishing boat operating nearby heard one crewmember calling out for help. Prompt activation of this vessel's liferaft and EPIRB when the capsized occurred, and/or access to a PLB, would have significantly reduced the length of time the two casualties spent in the water.
- 5.11 The failure of the liferaft to inflate promptly, the failure of the EPIRB to release so as to activate promptly, and the omission of PLBs for the crew, were causal factors in this marine casualty.

- 5.12 The description provided by the first Casualty of spending approximately one hour in the cold water, temperature of 9°C, and being unable to communicate when recovered from the water, is consistent with the onset of hypothermia. While it is not known how long the deceased second Casualty survived in the water, this Casualty is likely to have experienced at least the short-term effects of cold water immersion, which will have been compounded by the non-wearing of a PFD. Immersion in cold water was a causal factor in this marine casualty.
- 5.13 Less than three weeks prior to this marine casualty, the registered owner entered into an arrangement with a third party to operate this vessel. The Skipper of this vessel had only one day of fishing experience on this vessel prior to this marine casualty. The owner, the owner's appointed operator, and the Skipper of this vessel missed many opportunities to apply standard safety management procedures to this vessel and crew. The result was a vessel that was not being operated safely, which led to the loss of the vessel, one fatality and one near fatality. Inadequate safety management was a causal factor in this marine casualty.

6. SAFETY RECOMMENDATIONS

6.1 Recommendations to the Owner of the FV Ben Thomas:

The owner of the FV Ben Thomas should review its operation of any and all vessels that it, or any related entities, own, irrespective of whether any arrangements have been made with a third party for their operation.

6.2 Recommendations to the Marine Survey Office of the Department of Transport:

- a. The Marine Survey Office should consider the contents of this report with regard to the ownership, management, operation and licensing of fishing vessels in the circumstances of the FV Ben Thomas.
- b. The Marine Survey Office should issue a Marine Notice setting out what third party arrangements are permitted, or not permitted as the case may be, with regard to fishing vessels of less than 15 metres length overall and Sea-Fishing Boat Licences.
- c. The Marine Survey Office should consider liferaft and Emergency Position Indicating Radio Beacon arrangements on vessels operating in shallow waters, where a sinking vessel could touch bottom before activation of a Hydrostatic Release Unit or before enough painter has been pulled to activate the liferaft's inflation system.

6.3 Recommendations to the Minister for Transport:

The Minister for Transport should undertake a review of the stability criteria in the Code of Practice for the Design, Construction, Equipment and Operation of Small Fishing Vessels of less than 15 metres length overall and provide guidance in relation to:

- a. The form and content of the roll test report data; The roll test report should include details of the vessel arrangement, voyage consumables and fishing equipment onboard, in both conditions as stated in the Code of Practice.
- b. What would constitute other operating conditions during the voyage where there would be a divergence from the departure and arrival load conditions stability margins.
- c. Acceptable stability limits, to replace the current "adequate margins of freeboard and stability" so there is consistency to what is considered an adequate margin.
- d. Procedures for vessels outside of the specified parameters for GMmin, as to the special care that should be applied to the stability standards.

6.4 Recommendations to the Minister for Agriculture, Food, Fisheries and the Marine, and Bord Iascaigh Mhara:

- a. The recommendation in Report No. MCIB/244 into the sinking of FV Quo Vadis in Rosslare Harbour, Co. Wexford on 11 February 2015 is repeated:

“Bord Iascaigh Mhara (BIM) should provide stability awareness training for operators and crew of vessels less than 24m, with a focus on vessels less than 15m.”

- b. The recommendation in Report No. MCIB/297 into the sinking of the FV Alize off Hook Head, Co. Wexford on 4 January 2020 is repeated:

“The Minister for Agriculture, Food and the Marine should amend the Bord Iascaigh Mhara (BIM) safety training syllabi for its Basic Safety Training Course (vessels less than 15 m) to include a module on stability awareness, factors affecting stability, dynamic stability and the instability warning signs and precautions available to avoid such situations.”

7. APPENDICES

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Appendix 7.1 Vessel Code of Practice Survey - Declaration of Compliance






Design, Construction, Operation and Equipment of
Small Fishing Vessels of less than 15 m Length overall

Code of Practice

Declaration of Compliance

To be completed by an Authorised Person

Declarations on page v₁ to be signed by the Authorised Person and Owner

Name of Vessel	Fishing Letters & Number	Official Number	Port of Registry
Ben Thomas	DA131	GBR 000 A20667	Drogheda
Overall Length (less than 15 metres)	Breadth	Depth	Date keel laid
9.68	4.00	1.25	1986
Engine Make & Model			Engine Power (kW)
Gardiner Inboard diesel			95
Call Sign	Radio Operators Cert no.	No of Crew	BIM Card no.
EI SI 9	SRC 11919	1	1181
Name, Address & Contact Number of Owner	<p>K N A Fishing Ltd</p> <p></p> <p>Enniscorthy</p> <p>Co. Wexford</p> <p>Tel:  Email: </p>		

Appendix 7.1 Vessel Code of Practice Survey - Declaration of Compliance

Description of vessel including type of fishing vessel is engaged in
<p>Steel decked boat with forward wheelhouse</p> <p>And inboard diesel engine</p> <p>Polyvalent General</p>

Description of operational area
<p>Skerries and surrounds and area A1</p>

Chapter 2

Construction, Structural Strength and Weathertight Integrity

*2.1	Is hull suitable for the intended fishing method and sea areas?				Yes x / No <input type="checkbox"/>
*2.2	Construction Materials	Hull	Steel	Superstructure	Steel
*2.3	Is structure sound, watertight & free from significant damage & corrosion?				Yes x / No <input type="checkbox"/>
*2.4	Do decks comply?				Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
2.5	Number of bulkheads	Non-watertight	-	Watertight	1
*2.6	Do bulkhead doors comply with Annex 7 (2.3.4)?				Yes <input type="checkbox"/> / No <input type="checkbox"/> / NA x
*2.7	Doors	Coaming height			300
		Are doors of sound construction and weathertight?			Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
2.8	Hatchway coaming height				300
*2.9	Can hatches be secured weathertight?				Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*2.10	Do flush hatches comply?				Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>

Appendix 7.1 Vessel Code of Practice Survey - Declaration of Compliance

*2.11	Do skylights comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/> / NA x
*2.12	Do side scuttles & portlights comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/> / NA x
*2.13	Do windows comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*2.14	Do ventilators comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
2.15	Is exhaust system acceptable	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*2.16	Do air pipes comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*2.17.2	Do sea inlets and discharges comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*2.18.3	Do valves, piping & hoses comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*2.19	Do freeing ports comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>

Chapter 3

Stability

*3.1 *Annex 7 (para.4)	Is stability information supplied?		Yes <input type="checkbox"/> / No x
	Are requirements of Annex 7 applied?		Yes <input type="checkbox"/> / No <input type="checkbox"/> / NA x
	Stability standard applied	C.O.P.	
	Does vessel comply with roll test?		Yes x / No <input type="checkbox"/>
	Freeboard	0.38	Roll coefficient 0.8
Annex 2	Are guidance notes on board?		Yes x / No <input type="checkbox"/>

Chapter 4

Machinery and Electrical Installations

4.1	Machinery		
*4.1.1.1	General Requirements - comply?		Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*4.1.2	Propulsion Machinery and Stern Gear - comply?		Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*4.1.4	Controls and Instruments - comply?		Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*4.1.5	Steering System - comply?		Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
4.2	Electrical Installations		
*4.2.1	General - comply?		Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>

Appendix 7.1 Vessel Code of Practice Survey - Declaration of Compliance

*4.2.2	D.C. Systems Up To 24 volts - comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*4.2.3	A.C Systems - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/> / NA x
4.3	Pumping & Piping	
*4.3.1	Fuel Oil Installations - comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*4.3.2	Cooling Water Systems - comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*4.3.3	Bilge Pumping Systems - comply?	Yes x / No <input type="checkbox"/>
*4.3.4	Bilge Pumps - comply?	Yes x / No <input type="checkbox"/>
4.4	Anchors & Cables	
*4.4.1	General - comply?	Yes x / No <input type="checkbox"/>
*4.4.4	Towline - comply?	Yes x / No <input type="checkbox"/>
4.5	Fishing & Handling Equipment	
*4.5.1	Winches, tackles and lifting gear - comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>
*4.5.2	Running gear - comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>

Chapter 5

Fire Protection, Detection & Extinction

5.1	Fire Safety						
#5.1.1	Machinery space capable of being closed down?						Yes <input type="checkbox"/> / No <input type="checkbox"/> / NA x
*5.1.2	Fire Prevention - comply?						Yes x / No <input type="checkbox"/>
*5.1.3	Cleanliness and Pollution Prevention - comply?						Yes x / No <input type="checkbox"/>
*5.1.4	Open-Flame Gas Appliances - comply?						Yes <input type="checkbox"/> / No <input type="checkbox"/> / NA x
*5.1.5	Gas Detection - comply?						Yes <input type="checkbox"/> / No <input type="checkbox"/> / NA x
5.2	Fire Fighting Appliances						
#5.2.1	Are extinguishers of an approved type						Yes x / No <input type="checkbox"/>
#5.2.2	Portable Extinguishers	Serviced Date					06/21
		Engine room	Type	foam	Rating	13a113b	Nº 2
#5.2.5			Type	DP	Rating	abc	Nº 1

Appendix 7.1 Vessel Code of Practice Survey - Declaration of Compliance

		Other spaces	Fire buckets	Nº	1
#5.2.6	Remote controls for fuel tank valves	Yes x/ No <input type="checkbox"/>	Number	2	
			Location	Wheelhouse	
#5.2.6	Are means of closing skylights, doorways etc to machinery and cargo spaces adequate?			Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>	

Chapter 6

Protection of Crew

6.1	Protection of Personnel	
*6.1.2	Bulwarks, Guard Rails and Handrails - comply?	Yes x / No <input type="checkbox"/>
*6.1.4	Surface of Working Decks - comply?	Yes x / No <input type="checkbox"/>
#6.1.5	Personal Protective Equipment - comply?	Yes x / No <input type="checkbox"/>
#6.2	Medical Stores - comply?	Yes x / No <input type="checkbox"/>
	Expiry date of medical stores	06/23
*6.3	Securing of Heavy Items or Equipment and Fishing Gear etc - comply?	Yes x / No <input type="checkbox"/> / NA <input type="checkbox"/>

Chapter 7

Life-Saving Appliances

#7.1	Are all items of LSA of an approved type	Yes x / No <input type="checkbox"/>			
#7.2	Have relevant items of LSA been serviced	Yes x / No <input type="checkbox"/>			
#7.3	1 Lifejacket for every person on board	Yes x / No <input type="checkbox"/>	Nº:		
#7.4	Liferafts sufficient for 100% persons	Yes x/ No <input type="checkbox"/>	Nº	1	Last Serviced New 06/21
	Hydrostatic Release Unit (HRU)	Yes <input type="checkbox"/> / No <input type="checkbox"/>	Nº	1	Exp. Date 06/23
#7.5	Lifebuoys	Total Nº of Lifebuoys		2	
		Nº with 18m line		1	

Appendix 7.1 Vessel Code of Practice Survey - Declaration of Compliance

		N° with combined light & smoke signal		-	
#7.6	1 Personal Floatation Devices (PFD) for every person on board			Yes x / No <input type="checkbox"/>	Nº : <input type="text"/>
#7.8	Distress signals	6 red star or allowed alternative	Yes x / No <input type="checkbox"/>	12 parachute rockets	Yes <input type="checkbox"/> / No <input type="checkbox"/>
#7.8	Flares Expiry date	01/25			
*7.9	Means for Recovering Persons from the Water			Yes x / No <input type="checkbox"/>	

Chapter 8

Manning, Training & Certification

#8.2 *8.8	Manning - comply?	Yes x / No <input type="checkbox"/>
*8.3	Standards of Competence - comply?	Yes x / No <input type="checkbox"/>
*8.5	Operation and Maintenance of Propulsion Machinery - comply?	Yes x / No <input type="checkbox"/>
#8.6	Operation of Radio Equipment - comply?	Yes x / No <input type="checkbox"/>
#8.7	Safety Training - comply?	Yes x / No <input type="checkbox"/>
	Is there a copy of the Code of Practice on board?	Yes x / No <input type="checkbox"/>
#8.9	Musters and Drills – comply?	Yes x/ No <input type="checkbox"/> / NA <input type="checkbox"/>
#8.10	Organisation of Working Time – comply?	Yes x / No <input type="checkbox"/>

Appendix 7.1 Vessel Code of Practice Survey - Declaration of Compliance

Chapter 9 **Radio Equipment**

	Sea Area (A1 or A1 & A2)	A1
#9.3	Functional requirements - comply?	Yes x / No <input type="checkbox"/>
#9.4	Installation, location and control of radio equipment - comply?	Yes x / No <input type="checkbox"/>
#9.5	EPIRB/PLB correctly registered?	Yes x / No <input type="checkbox"/>
#9.5	Radio equipment to be provided for all sea areas - comply?	Yes x / No <input type="checkbox"/>
#9.6	Additional radio equipment to be provided for sea areas A1 and A2 - comply?	Yes <input type="checkbox"/> /No <input type="checkbox"/> /NA x
#9.7	Radio Watches - comply?	Yes x / No <input type="checkbox"/>
#9.8	Sources of energy - comply?	Yes x / No <input type="checkbox"/>
#9.9	Performance standards - comply?	Yes x / No <input type="checkbox"/>
#9.10	Serviceability and maintenance requirements - comply?	Yes x / No <input type="checkbox"/>
#9.11	Radio personnel - comply?	Yes x / No <input type="checkbox"/>
#9.12	Radio records - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/> / NA x

Chapter 10 **Navigation Equipment Lights, Shapes & Sound Signals**

*10.1	Navigation Equipment - comply?	Yes x/No <input type="checkbox"/>
*10.2	Are navigation lights fitted?	Yes x/No <input type="checkbox"/> /NA <input type="checkbox"/>
#10.3	Steaming Lights - comply?	Yes x/No <input type="checkbox"/> /NA <input type="checkbox"/>
#10.4	Fishing Lights - comply?	Yes x/No <input type="checkbox"/> /NA <input type="checkbox"/>
#10.5	Additional Fishing Light - comply?	Yes <input type="checkbox"/> /No <input type="checkbox"/> /NA x
#10.6	Anchor Light - comply?	Yes x/No <input type="checkbox"/> /NA <input type="checkbox"/>
#10.7	Positions or Lights - comply?	Yes x/No <input type="checkbox"/> /NA <input type="checkbox"/>
	Are any all-round lights obscured by mast, etc. by more than 6°?	Yes <input type="checkbox"/> /No x/NA <input type="checkbox"/>
	2 Black cones with apexes together or a basket	Yes x /No <input type="checkbox"/>

Appendix 7.1 Vessel Code of Practice Survey - Declaration of Compliance

#10.8	Day Signals	1 Black Ball	Yes x /No <input type="checkbox"/>
#10.9	Sound Signals - comply?		Yes x / No <input type="checkbox"/>
*10.10	Charts and Nautical Publications - comply?		Yes x / No <input type="checkbox"/>

Chapter 11 Accommodation & Working Spaces

*11.6	Toilet Facilities - comply?	Yes <input type="checkbox"/> /No <input type="checkbox"/> / NA x
*11.7	Access and Escape Arrangements - comply?	Yes x/No <input type="checkbox"/> / NA <input type="checkbox"/>
*11.8	Ventilation - comply?	Yes x/No <input type="checkbox"/> /NA <input type="checkbox"/>
*11.10	Lighting - comply?	Yes x/No <input type="checkbox"/> /NA <input type="checkbox"/>

Annex 7 New Vessel Constructions

1.1	Construction Rules used	NA
*1.6	Are relevant chapters of Code complied with?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*2	Construction and Structural Strength - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*3	Weathertight Integrity - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*4	Stability - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*5	Machinery - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*6	Piping Systems - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*7	Shafting and Stern Gear - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*8	Bilge Pumping Systems - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*9	Steering Gear - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*10	Electrical Systems - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*11	Fire Safety - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>
*12	Accommodation and Working Spaces - comply?	Yes <input type="checkbox"/> / No <input type="checkbox"/>

Appendix 7.1 Vessel Code of Practice Survey - Declaration of Compliance

Notes:

1. # indicates Statutory requirements
2. * indicates mandatory requirement for Code compliance
3. ‡ indicates statutory requirement for vessels $\geq 12\text{m L}_{\text{OA}}$ and mandatory requirement for Code compliance for vessels $< 12\text{m L}_{\text{OA}}$
4. Only Statutory and mandatory Code requirements are to be addressed when completing the Declaration.
5. If 'No' is answered to any question, please supply, in a separate statement, the reasons why the particular item is not complied with.
6. If a particular item is not applicable, please state the reason why.

Declaration by Authorised Person

Name of Vessel	Fishing Letters & Number	Official Number	Port of Registry
Ben Thomas	DA 131	GBROO A 20667	DROGHEDA

I hereby declare that on 25/6/21 at Skerries I completed the survey of the

Fishing Vessel Ben Thomas DA 131 and that:

1. the particulars given on this form are true and correct;
2. in my judgment the vessel complies with the Code of Practice and is fit for its intended fishing method and for the sea areas in which it is intended to operate.

Dated at Galway this 27 day of June 20 21

Signed

This Declaration is valid until

24 Day of June 20 25

Company Stamp

Declaration by Owner

I/We owners of the above described vessel declare that the particulars given on this form are correct and that we have no reason to believe that the vessel is not fit for its intended fishing method or for the sea areas in which it is intended to operate.

Signature(s)

If company state position held

Date 25/6/21

APPENDIX 7.2

Appendix 7.2 Vessel Code of Practice Survey - Addendum

Note: The CoP surveyor included these calculations as an addendum to CoP survey report. See also the following photographs taken at time of the CoP survey.

Rolling Test Calculations

Ben Thomas DA131		
L	9.4	
ls		
B	3.8	
D	1.25	
f	0.38	
<i>f/B</i>	0.1	y f/B between 0.02 and 0.20
<i>ls/L</i>	0	y ls/L smaller than 0.60
<i>B/D</i>	3.04	n B/D between 1.75 and 2.15
<i>GM min</i>	0.557664	
GM min (rounded to 2 decimal places)	0.56	

Factor	0.8
B	4
Tr	3.4
<i>GMo</i>	0.885813149
Gmo (rounded to 2 decimal places)	0.89

Appendix 7.2 Vessel Code of Practice Survey - Addendum

Note: The vessel is not afloat. The stern, where the dredge cage would be, cannot be seen.



Appendix 7.3 Sea-Fishing Boat Licence



**FISHERIES ACTS 1959 TO 2006
SEA – FISHING BOAT LICENCE**

LICENCE NO. 359806718

The boat being a sea-fishing boat particulars of which are set out in the Schedule hereto is hereby licensed for the purposes of section 4 of the Fisheries (Amendment) Act 2003 (as inserted by section 97 of the Sea-Fisheries and Maritime Jurisdiction Act 2006) for the period commencing on 1 July 2023 and ending on 30 June 2024 in the name of:

Kna Fishing Ltd

***Enniscorthy,
Co. Wexford,***

SCHEDULE

Name of Boat to which the Licence relates: **BEN THOMAS**

Country of Registration: **IRELAND**

Registration Number: **DA131**

Port of Registration: **Drogheda**

Length Overall: **9.68 metres**

Gross Tonnage: **7.35 Tonnes**

Engine Capacity: **95 kilowatts**

International Radio code or Call Sign: **EIS19**

CFR Number: **GBR000A20667**

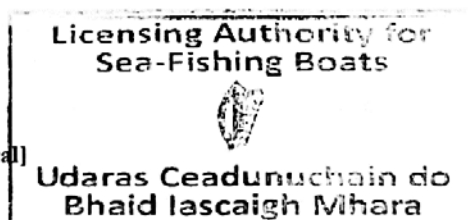
Type of Vessel: **Lift Netter**

Type of Gear: **DRB - Dredges**

Fleet Segment: **Specific [General]**

Other Information:

Date: **26 May 2023**



Licensing Authority pursuant to Section 3 of Fisheries (Amendment) Act 2003 (No. 21)

Appendix 7.4 Vessel Safety Statement (Cover Page)

FISHING VESSEL SAFETY STATEMENT



This non-exhaustive safety checklist identifies groups of frequently encountered hazards on fishing vessels. It also helps you to assess the safety status of your vessel and asks you to tackle those hazards that are present with appropriate action. Please note that this list might not cover some activities undertaken by you. In those cases a separate assessment should be carried out. Inspectors from the Health and Safety Authority may inspect your vessel and will ask to see your vessel's Safety Statement. **Your Safety Statement must be brought to the attention of all crew members.**

VESSEL DETAILS

NAME OF VESSEL	BEN THOMAS	CALL SIGN	EI SI 9
LENGTH OVERALL (L.O.A.)	9.68M	REGISTRATION NUMBER	DA 131
HOME PORT	WEXFORD		
NAME OF SKIPPER			
ADDRESS			
NAME OF OWNER (if not the skipper)		(KNA FISHING LTD)	
ADDRESS		ENNISCORTY	
	CO. WEXFORD		

This Safety Statement sets out how we intend complying with the Safety, Health and Welfare at Work Act 2005 and other safety and health regulations and in the process minimise the risk of accidents and ill health on board this vessel. We will update it as necessary and it will be reviewed at least once a year. Personal protective equipment, information, training and the operating procedures necessary for the safety of the vessel and crew will be provided as required by the Act.

DATE

12/4/2022

GENERAL GUIDELINES

- Never wear rings or watches on deck
- Never stand in the line of ropes under tension
- Never wrap ropes around your hand
- Never stand below derricks/cranes carrying loads
- Use light reflectors on external clothing
- Practice deck routines with crew members
- Practice new routines for all gear changeovers
- Avoid running turns on winch drums
- Practice safety drills
- Wear personal protective clothing

All crew have a duty to report to the skipper, without unreasonable delay, any defect in plant, equipment, place of work or system of work, which might endanger safety, health or welfare that they become aware of.

Published in April 2003 and revised in April 2016 by the Health and Safety Authority, The Metropole Building, James Joyce Street, Dublin 1. © All rights reserved.

APPENDIX 7.5

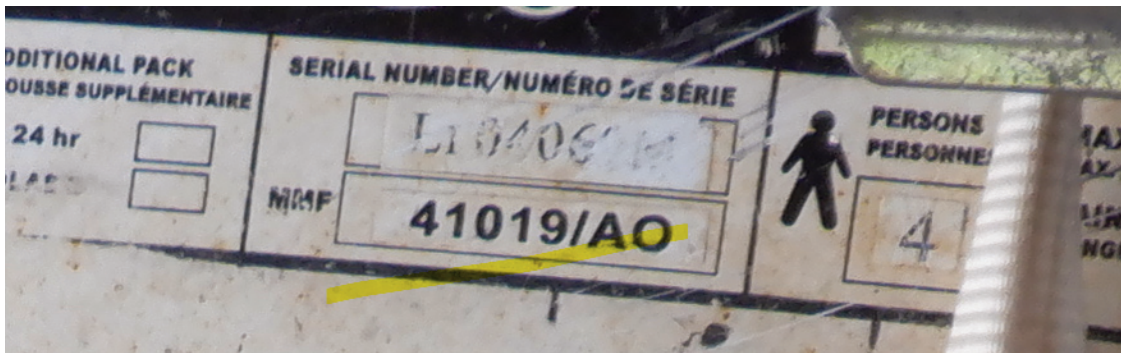
Appendix 7.5 Receipts for Lifejackets and Spares

INVOICE TO :
 [REDACTED]
 KNA Fishing Ltd
 [REDACTED]
 Co. Wexford
 MFV BEN THOMAS

Job / Site : GENERAL

INVOICE NO.	INVOICE DATE	CUSTOMER REF.	CASHIER	ACCOUNT	CURRENCY	PAGE
4024932	31/01/2022	See Below	C999	HOWA01	1	1

CODE	DESCRIPTION	QTY	PRICE	NETT	VAT
Order No: 7091232 Date: 06-01-22					
Your Ref: [REDACTED]					
M33C-0850P	CONTROL CABLE XTREME 33C 8.50MTR/28FT	1	55.69	55.69	S1
Order No: 7091461 Date: 13-01-22					
Your Ref: [REDACTED]					
DNG01M	GLOVES NITRILE HD MEDIUM BOX50 ORANGE	1	15.85	15.85	S1
TRICIRC/265L	PADLOCK TRICIRCLE LONG NO.265L 50MM	1	8.09	8.09	S1
Q4-45/3L	HAND CLEANER 3LTR GECKO GK1 H/DUTY	1	16.22	16.22	S1
MULL/3MXW/RED	L/JACKET STREAM 150 AUTO RED ISO	2	60.98	121.95	S1
SHABLD19	SHACKLE BLUE D 3/4"-7/8" (3T)	4	3.05	12.20	S1
SHOWA660/09	GLOVES SHOWA	10	2.76	27.64	S1



Appendix 7.5 Receipts for Lifejackets and Spares

INVOICE TO :
[REDACTED]
KNA Fishing Ltd
[REDACTED]
Co. Wexford
MFV BEN THOMAS

Job / Site : GENERAL

INVOICE NO.	INVOICE DATE	CUSTOMER REF.	CASHIER	ACCOUNT	CURRENCY	PAGE
4029257	30/11/2022	See Below	C999	HOWA01	1	1

CODE	DESCRIPTION	QTY	PRICE	NETT	VAT
Order No: 7102235 Date: 04-11-22					
Your Ref: [REDACTED]					
LCY033000	CYLINDER CO2 33G FOR PFD	1	9.76	9.76	S1
CAT88	KNIFE TOMATO 11CM (ASSTD.COLOURS)	6	4.07	24.39	S1
SHOWA660/09	GLOVES SHOWA	10	2.89	28.94	S1
ABU65C60	PADLOCK BRASS 65/60 60MM	1	21.10	21.10	S1
ABU65C40	PADLOCK BRASS 65/40 40MM	1	10.16	10.16	S1
TWYNL05.0	TWINE BRAIDED NYLON 5MM 2KG 32-01	1	23.00	23.00	S1
75107/103/92	JACKET GC GAMVIK	1	58.54	58.54	S1
MAY5076	DRIVING LIGHT ILED 7" SPOT/FLOOD 12/24V	2	61.75	123.50	S1
Order No: 7102716 Date: 19-11-22					

INVOICE TO :
[REDACTED]
KNA Fishing Ltd
[REDACTED]
Co. Wexford
MFV BEN THOMAS

Job / Site : GENERAL

INVOICE NO.	INVOICE DATE	CUSTOMER REF.	CASHIER	ACCOUNT	CURRENCY	PAGE
4029945	31/01/2023	See Below	C999	HOWA01	1	1

CODE	DESCRIPTION	QTY	PRICE	NETT	VAT
Order No: 7103841 Date: 03-01-23					
Your Ref: [REDACTED]					
SPANNER24	SPANNER COMBINATION 24MM	1	8.78	8.78	S1
JESOC010	SOCKET SET 3/8"DR 20PC	1	40.61	40.61	S1
LIN045BRA	SALT TABLET - HR AUTO SUPER BOBBIN ALPHA	1	16.22	16.22	S1
LCY033000	CYLINDER CO2 33G FOR PFD	1	9.76	9.76	S1
SHOWA660/09	GLOVES SHOWA	10	2.93	29.27	S1
Order No: 7104438 Date: 23-01-23					

APPENDIX 7.6

Appendix 7.6 Liferaft Invoice

<h1 style="margin: 0;">OFFSHORE</h1> <h2 style="margin: 0;">Lifesaving</h2> <div style="background-color: black; width: 100px; height: 20px; margin-bottom: 5px;"></div> <p>KNA Fishing Ltd</p> <div style="background-color: black; width: 100px; height: 20px; margin-bottom: 5px;"></div> <p>Enniscorthy Co Wexford</p>	<h1 style="margin: 0;">INVOICE</h1>
---	-------------------------------------

Date	Invoice No.	Delivery via	Terms	Order No.
11-06-2023	23-036	-	30 Days	-

Qty	Description	Unit Price €	Total
1	Annual hire of Seago 4 person 9650 liferaft Serial No: LI04069M	ISO- 350.00	350.00

Remarks: New Bank Details Below	Sub Total 350.00 Delivery 0.00 Total 350.00
---------------------------------	--

Checkes payable to Offshore Lifesaving Ltd.

Debit/ credit card accepted

Offshore Lifesaving Ltd | www.offshorelife.ie

Croaghlin, Killybegs, Co. Donegal | Tel: +353(0)74-9732320 | email: info@offshorelife.ie

Appendix 7.7 Met Éireann Weather Report

WEATHER REPORT

Estimated weather and sea state conditions for the sea area approximately 1 nautical mile north of Dunany Point Co Louth (approximate position 53.882, -6.261) for the 12-hour period between 22:00 hours on Monday 11th December and 10:00 hours on Tuesday 12th December 2023					
<u>Meteorological Synopsis:</u>	An area of low pressure (992hPa) was slow-moving over Ireland with a slackening airflow during the night of Monday, 11-December-2023 and morning of Tuesday 12-December-2023; an associated frontal trough (occlusion) tracked eastwards over the area during the period.				
<u>Wind:</u>	Hour UTC	Wind Description / Beaufort	Wind Direction	Mean Wind Speed (knots)	Maximum Gusts (knots)
	22:00 to 04:00	Fresh force 5 decreased Moderate force 4	S	12 – 20	30
	04:00 to 07:00	Moderate force 4 decreased Gentle force 3	ESE to SSW	8 – 13	12
	07:00 to 10:00	Light Force 2 or less	NW or variable	5 or less	-
<u>Weather:</u>	Heavy frontal rain passed through on the evening of the 11 th of December. This gave way to lighter, intermittent outbreaks of rain and drizzle overnight. Overcast with mist patches developed into fog on the morning of the 12 th of December.				
<u>Visibility:</u>	Poor to moderate visibility during heavy rain on the evening of the 11 th December. On the morning of the 12 th December, from approximately 08-11 UTC patches of mist and fog affected the region of interest.				
<u>Temperature:</u>	7 to 10 degrees Celsius.				
<u>Sea State (offshore):</u>	Slight to moderate (significant wave height of 1 to 2m) on a south-easterly swell.				
<u>Sea temperature:</u>	12 degrees Celsius.				

Appendix 7.7 Met Éireann Weather Report

24-hour Sea Area Forecast

Updated at 0000 / 0600 / 1200 / 1800

Sea Area Forecast until 0600 Wednesday, 13 December 2023

Issued at 0600 Tuesday, 12 December 2023

1. Gale warning: Nil

Small craft warning: In operation

2. Meteorological situation at 0300: A depression of 991 hPa along the west coast of Connacht maintains a moderate to fresh cyclonic variable airflow over Ireland. The depression will track eastwards across Ireland today.**3. Forecast for Irish coastal waters from Strangford Lough to Howth Head to Hook Head and for the Irish Sea****Wind:** Southerly force 3 or 4, decreasing variable force 3 or less imminent, soon becoming north to northwest and increasing force 4 or 5, later increasing northerly force 5 to 7 and gusty.**Forecast for Irish coastal waters from Hook Head to Roche's Point to Mizen Head****Wind:** West to northwest force 3 or 4, soon becoming northwesterly, later increasing north to northwest force 5 or 6 and gusty, becoming northerly tonight**Forecast for Irish coastal waters from Mizen Head to Slyne Head to Bloody Foreland****Wind:** Northwesterly or variable force 3 or less, increasing force 3 or 4 imminent, soon becoming northerly and increasing force 6 or 7 and gusty, later decreasing force 5 or 6**Forecast for Irish coastal waters from Bloody Foreland to Fair Head to Strangford Lough****Wind:** East or southeast force 5 or 6, decreasing force 4 or 5 imminent, soon becoming east to northeast, later becoming north to northeast force 4 to 6 and gusty, decreasing force 4 or 5 overnight.**Weather for all Irish coastal waters and the Irish Sea:** Showers on all coasts, some heavy this morning, becoming lighter and more isolated this afternoon and evening.**Visibility for all Irish coastal waters and the Irish Sea:** Moderate or poor in showers, otherwise good**Warning of Heavy Swell:** For a time this morning on southwestern coasts**4. Outlook for a further 24 hours until 0600 Thursday 14 December 2023:** Moderate to fresh north to northwest on Wednesday morning, gradually backing south to southwest in the evening and increasing fresh to strong. Mainly fair. Rain spreading eastwards on Wednesday evening and night.

Appendix 7.7 Met Éireann Weather Report

Text of Gale Warning
Nil

Text of Small Craft Warning
1. Southeast to east winds will reach force 6 this morning (Tuesday) on Irish coasts from Bloody Foreland to Malin Head to Belfast Lough.
2. Northerly winds will increase force 6 or higher this afternoon (Tuesday) on Irish coasts from Valentia to Slyne Head to Bloody Foreland, extending to all Irish coasts on Tuesday evening and early night

Coastal Reports	5 AM Tuesday, 12 December 2023
Malin Head Automatic	East, 23 Knots, Gust 34 Knots, Light rain, 3 Miles, 993, Falling slowly
Dublin Airport	South-Southeast, 5 Knots, Cloudy, 13 Miles, 993, Falling slowly
Buoy M5 51° 41'N 6° 42'W	Southwest, 21 Knots, Wave ht: 3.3 m, The visibility at Tuskar is 4 Miles, 993, Falling
Roches Point Automatic	West-Southwest, 4 Knots, Mist, 4 Miles, 992, Falling slowly
Sherkin Island Automatic	West, 5 Knots, Mist, 1.5 Miles, 992, Falling slowly
Valentia Automatic	South, 5 Knots, Cloudy, 9 Miles, 992, Falling slowly
Mace Head Automatic	West, 13 Knots, Heavy rain, 1.3 Miles, 991, Falling slowly
Belmullet Automatic	South-Southeast, 5 Knots, Heavy drizzle, 2 Miles, 991, Steady
Buoy M1 53° 8'N, 11° 12'W	Report not available
Buoy M2 53° 29'N, 5° 26'W	South-Southwest, 13 Knots, Wave ht: 1.3 m, 993, Falling slowly
Buoy M3 51° 13'N, 10° 33'W	West, 11 Knots, Wave ht: 3.9 m, 992, Steady
Buoy M4 55° 0'N 10° 0'W	East-Northeast, 2 Knots, Wave ht: 2.9 m, 991, Steady
Buoy M6 53° 4'N 15° 56'W	North, 24 Knots, Gust 40 Knots, Wave ht: 4.1 m, 997, Rising

Disclaimer: buoy locations are approximate and are not for navigational purposes

Sea Crossings	State of sea until 0600 Thursday 14 December 2023
Dublin - Holyhead	Mostly moderate, increasing rough at times on Tuesday night
Rosslare - South Wales	Moderate to rough
Cork - South Wales	Mostly rough, decreasing moderate on Wednesday
Rosslare - France	Rough to very rough, gradually decreasing moderate to rough on Wednesday
Cork - France	Rough to very rough, gradually decreasing moderate to rough on Wednesday
Rosslare - Spain	Rough to very rough

Next update before 1300 Tuesday, 12 December 2023

Appendix 7.8 Tidal Data

TIME & HEIGHT DIFFERENCES FOR PREDICTING THE TIDE AT SECONDARY PORTS

PLACE	Lat N	Long W	TIME DIFFERENCES				HEIGHT DIFFERENCES (IN METRES)			
			High Water Zone UT (GMT)	Low Water Zone UT (GMT)	High Water Zone UT (GMT)	Low Water Zone UT (GMT)	MHWS	MHWN	MLWN	MLWS
HOLYHEAD	53 19	4 37	0000 and 1200	0600 and 1800	0500 and 1700	1100 and 2300	5.6	4.4	2.0	0.7
Menai Strait										
Fort Belan	53 07	4 20	-0040	-0015	-0025	-0005	-1.0	-0.9	-0.2	-0.1
Amlwch	53 25	4 20	+0020	+0010	+0035	+0025	+1.6	+1.3	+0.5	+0.2
Cemaes Bay	53 25	4 27	+0020	+0025	+0040	+0035	+1.0	+0.7	+0.3	+0.1
HOLYHEAD	53 19	4 37	STANDARD PORT							
Trearddur Bay	53 16	4 37	-0045	-0025	-0015	-0015	-0.4	-0.4	0.0	+0.1
Porth Trecafell	53 12	4 30	-0045	-0025	-0005	-0015	-0.6	-0.6	0.0	0.0
Llandwyn Island	53 08	4 25	-0115	-0055	-0030	-0020	-0.7	-0.5	-0.1	0.0
Trefor	53 00	4 25	-0115	-0100	-0030	-0020	-0.8	-0.9	-0.2	-0.1
Porth Dinlaen	52 57	4 34	-0120	-0105	-0035	-0025	-1.0	-1.0	-0.2	-0.2
Porth Ysgaden	52 54	4 39	-0125	-0110	-0040	-0035	-1.1	-1.0	-0.1	-0.1
MILFORD HAVEN	51 42	5 03	0100 and 1300	0800 and 2000	0100 and 1300	0700 and 1900	7.0	5.2	2.5	0.7
Cardigan Bay										
Porthgain	51 57	5 11	+0055	+0045	+0045	+0100	-2.5	-1.8	-0.6	0.0
Ramsey Sound	51 53	5 19	+0030	+0030	+0030	+0030	-1.9	-1.3	-0.3	0.0
Solva	51 52	5 12	+0015	+0010	+0035	+0015	-1.5	-1.0	-0.2	0.0
Little Haven	51 46	5 07	+0010	+0010	+0025	+0015	-1.1	-0.8	-0.2	0.0
Martin's Haven	51 44	5 15	+0010	+0010	+0015	+0015	-0.8	-0.5	+0.1	+0.1
Skomer Island	51 44	5 17	-0005	-0005	+0005	+0005	-0.4	-0.1	0.0	0.0
Dale Roads	51 42	5 09	-0005	-0005	-0008	-0008	0.0	0.0	0.0	-0.1
MILFORD HAVEN	51 42	5 03	STANDARD PORT							
DUBLIN (NORTH WALL)	53 21	6 13	0000 and 1200	0700 and 1900	0000 and 1200	0500 and 1700	4.1	3.4	1.5	0.7
Ireland										
Courtown	52 39	6 13	-0328	-0242	-0158	-0138	-2.8	-2.4	-0.5	0.0
Arklow	52 48	6 08	-0315	-0201	-0140	-0134	-2.7	-2.2	-0.6	-0.1
Wicklow	52 59	6 02	-0019	-0019	-0024	-0028	-1.4	-1.1	-0.4	0.0
Greystones	53 09	6 04	-0008	-0008	-0008	-0008	-0.5	-0.4	0	0
Dun Laoghaire	53 18	6 08	+0000	+0000	+0002	+0003	0.0	+0.1	0.0	0.0
Dublin Bar	53 21	6 09	-0006	-0001	-0002	-0003	0.0	0.0	0.0	+0.1
DUBLIN (NORTH WALL)	53 21	6 13	STANDARD PORT							
Howth	53 23	6 04	-0007	-0005	+0001	+0005	0.0	-0.1	-0.2	-0.2
Malahide	53 27	6 09	+0002	+0003	+0009	+0009	+0.1	-0.2	-0.4	-0.2
Balbriggan	53 37	6 11	-0021	-0015	+0010	+0002	+0.3	+0.2	0	0
River Boyne										
Entrance	53 43	6 14	-0015	-0009	-0001	+0005	+0.9	+0.6	+0.2	+0.1
Dunany Point	53 52	6 14	-0028	-0018	-0008	-0006	+0.7	+0.9	0	0
Dundalk										
Soldiers Point	54 00	6 21	-0010	-0010	+0000	+0045	+1.0	+0.8	+0.1	-0.1
Carlingford Lough										
Cranfield Point	54 01	6 04	-0027	-0011	+0005	-0010	+0.7	+0.9	+0.3	+0.2
Warrenpoint	54 06	6 15	-0020	-0010	+0025	+0035	+1.0	+0.7	+0.2	0.0
BELFAST			0100 and 1300	0700 and 1900	0000 and 1200	0600 and 1800	3.5	3.0	1.1	0.4
Northern Ireland										
Kilkeel	54 03	5 59	+0040	+0030	+0010	+0010	+1.2	+1.1	+0.4	+0.4
COBH	51 51	8 18	0500 and 1700	1100 and 2300	0500 and 1700	1100 and 2300	4.1	3.2	1.3	0.4
Waterford Harbour										
Dunmore East	52 09	6 59	+0008	+0003	+0000	+0000	+0.1	0.0	+0.1	+0.2
Cheekpoint	52 16	7 00	+0026	+0021	+0019	+0022	+0.5	+0.4	+0.3	+0.2
Kilmokea Point	52 17	7 00	+0026	+0022	+0020	+0020	+0.2	+0.1	+0.1	+0.1
Waterford	52 16	7 06	+0053	+0032	+0015	+0100	+0.6	+0.6	+0.4	+0.2
New Ross	52 24	6 57	+0100	+0030	+0055	+0130	+0.3	+0.4	+0.3	+0.4
Baginbun Head	52 10	6 50	+0003	+0003	-0008	-0008	-0.2	-0.1	+0.2	+0.2
Great Saltee	52 07	6 37	+0019	+0009	-0004	+0006	-0.3	-0.4	0	0

Appendix 7.9 Irish Coast Guard Situation Report

ROUTINE
12 1021Z DEC 23
FROM NMOC DUBLIN
TO MRCC DUBLIN SITREP GROUP

BT
MAYDAY - F/V BEN THOMAS SINKING
UIIN2705/23
SAR SITREP ONE

A - IDENTITY OF CASUALTY:
FV BEN THOMAS

B - POSITION
53°52.91'N 006°15.65'W

C - SITUATION
VESSEL SINKING

D - NUMBER OF PERSONS
2

E - ASSISTANCE REQUIRED
LOCATE AND RETRIEVE 2 POB FROM WATER

F - COORDINATING RCC
NMOC DUBLIN

G - DESCRIPTION OF CASUALTY
2 X FISHERMEN

H - WEATHER ON SCENE
WIND: 1, NW / SEA: SLIGHT / SWELL: LOW WAVE / AIR TEMP: 9.2°C / WATER TEMP: 9°C / VIS: GOOD /
PRECIP: SLIGHT / SITREP WEATHER-TIME: 12 0843Z DEC 23

J - INITIAL ACTIONS TAKEN
TASK R116, CLOGHERHEAD CGU, CLOGHERHEAD RNLI ALB AND ATTEMPT TO CONTACT F/V SIAN
ELIZABETH

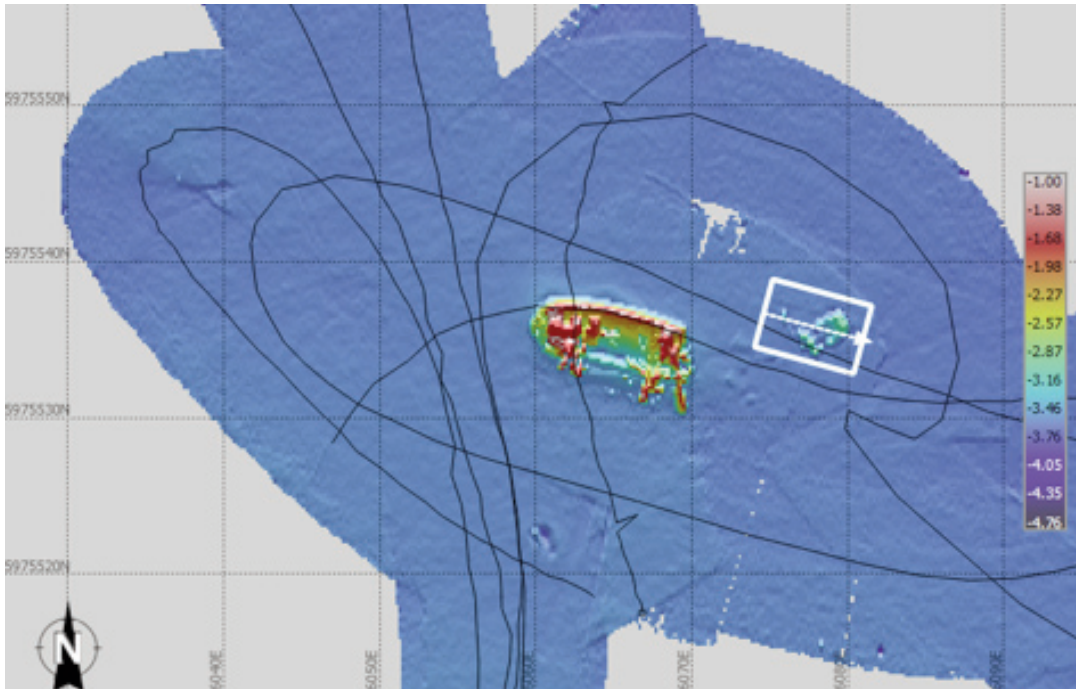
K - SEARCH AREA
1NM NORTH OF DUNANY POINT

L - COORDINATING INSTRUCTIONS
LOCATE

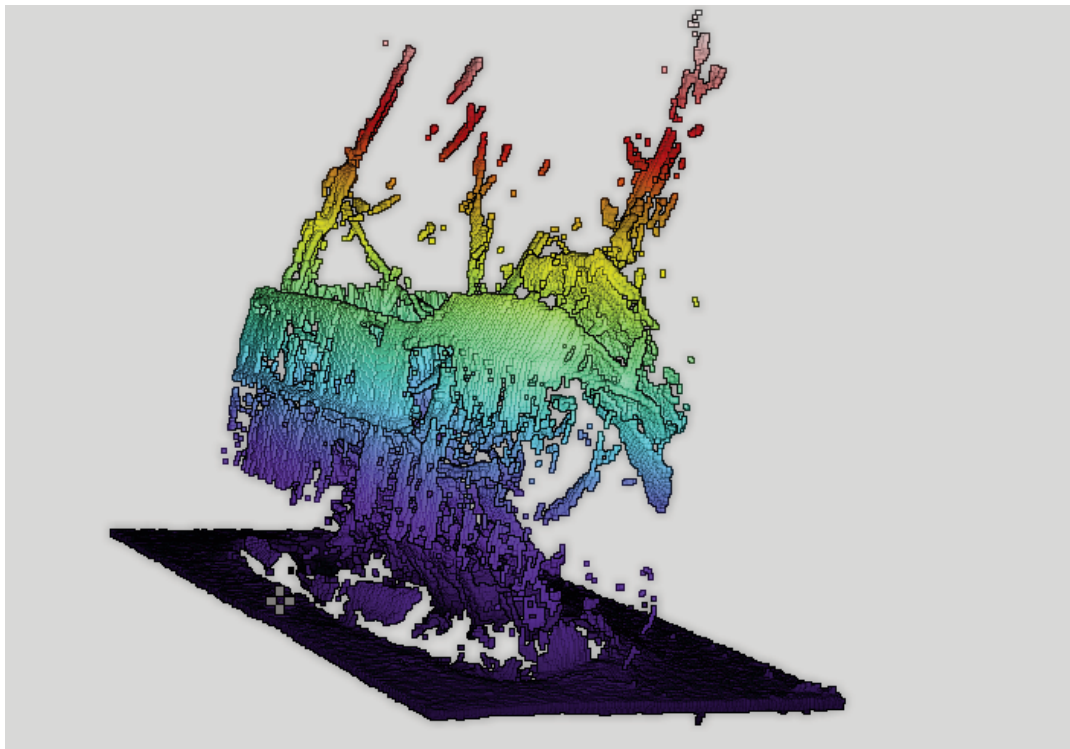
M - FUTURE PLANS
CONTINUE SEARCH

N - ADDITIONAL INFORMATION
0843Z : MAYDAY RX ON VHF
0845Z : R116 TASKED
0847Z : CLOGHERHEAD RNLI ALB TASKED
0848Z : CLOGHERHEAD CGU TASKED
0903Z : 1 PERSON RECOVERED BY LOCAL FV
0914Z : R116 ONSCENE
0916Z : CLOGHERHEAD RNLI ONSCENE
0929Z : CLOGHERHEAD CGU ONSCENE
1017Z : GREENORE CGU ONSCENE. SEARCH CONTINUING. INCIDENT ONGOING

Appendix 7.10 Wreck Dive Report's Images



Location of the vessel and cage on 12 December 2023, showing the cage in close proximity to the vessel. Image supplied by SEP Hydrographic.



Sonar side-scan of part of the FV Ben Thomas, showing the vessel upright on its port side. Image supplied by SEP Hydrographic.

Appendix 7.11 Annex 1 of the Code of Practice (Revision 2) - Rolling Period Tests

ANNEX 1

Determination of vessel's stability by means of rolling period tests

1. The IMO, recognizing the desirability of supplying to masters of small vessels instructions for a simplified determination of initial stability, developed a standard for the performance of rolling period tests. It was concluded that the rolling period test was a useful means of approximately determining the initial stability of small vessels when it is not practicable to give approved loading conditions or other stability information, or as a supplement to such information. Accordingly, the IMO incorporated this guidance in Annex 3 of the *Code on intact stability for all types of ships covered by IMO instruments*. The following duplicates this guidance in a form appropriate to small fishing vessels.
2. Investigations comprising the evaluation of a number of inclining and rolling tests according to various formulae showed that the following formula gave the best results and has the advantage of being the simplest:

$$GM_0 = \left(\frac{f \times B}{T_r} \right)^2$$

where:

- f = factor for the rolling period (rolling coefficient) as given in paragraph 4;
 - B = breadth of the vessel in metres;
 - T_r = time for a full rolling period in seconds (i.e. for one oscillation "to and fro" port - starboard - port, or vice versa).
3. The factor f is of the greatest importance and the data from the above tests were used for assessing the influence of the distribution of the various masses in the whole body of the loaded vessel.
 4. For fishing vessels, the following average values were observed:

	f values (approximate) ¹
Double-boom shrimp fishing boats	0.95
Deep-sea fishing boats	0.80
Boats with a live fish well	0.60

5. The tabulated f values were based upon a series of limited tests and therefore it is recommended that Administrations should re-examine these values in the light of any different circumstances applying to their own vessels. It would be of advantage to Administrations to collect and analyse information on the stability and f values of vessels within their own jurisdictions in order to reflect accurately the application of stability criteria obtained from rolling tests to typical vessel types.
6. It should be noted that the greater the distance of masses from the rolling axis, the greater the rolling coefficient will be. Therefore it can be expected that:
 - (a) the rolling coefficient for an unloaded vessel will be higher than that for a loaded vessel; and
 - (b) the rolling coefficient for a vessel carrying a great amount of bunkers and ballast - both groups are usually located in the double bottom, i.e. far away from the rolling axis - will be higher than that of the same vessel having an empty double bottom.

¹ The stated values are mean values. Generally, f values observed during the tests were within ± 0.05 of those given above.

Appendix 7.11 Annex 1 of the Code of Practice (Revision 2) - Rolling Period Tests

7. The above recommended rolling coefficients were determined by tests with vessels in port and with their consumable liquids at normal working levels; thus, the influences exerted by the vicinity of the quay, the limited depth of water and the free surfaces of liquids in service tanks are included.
8. Experiments have shown that the results of the rolling test method get increasingly less reliable the nearer they approach GM values of 0.20 m and below.
9. For the following reasons, it is not generally recommended that results be obtained from rolling oscillations taken in a seaway:
 - (a) exact coefficients for tests in open waters are not available;
 - (b) the rolling periods observed may not be free oscillations but forced oscillations due to the seaway;
 - (c) frequently, oscillations are either irregular or only regular for too short an interval of time to allow accurate measurements to be observed; and
 - (d) specialised recording equipment is necessary.
10. However, sometimes it may be desirable to use the vessel's period of roll as a means of approximately judging the stability at sea. If this is done, care should be taken to discard readings, which depart appreciably from the majority of other observations. Forced oscillations corresponding to the sea period and differing from the natural period at which the vessel seems to move should be disregarded. In order to obtain satisfactory results, it may be necessary to select intervals when the sea action is least violent and it may be necessary to discard a considerable number of observations.
11. In view of the foregoing circumstances, it needs to be recognized that the determination of the stability by means of the rolling test in a seaway should only be regarded as a very approximate estimation.
12. The formula given in paragraph 2 can be reduced to:

$$GM_0 = \frac{F}{T_r^2}$$

and the Administration should determine the F value(s) for each vessel.

13. The determination of the stability can be simplified by giving the master permissible rolling periods, in relation to the draughts, for the appropriate value(s) of F considered necessary.
14. The initial stability may also be more easily determined graphically by using the sample nomogram (fig.1) as described below:
 - (a) The values for B and f are marked in the relevant scales and connected by a straight line (1). This straight line intersects the vertical line mm at the point M.
 - (b) A second straight line (2) which connects this point M and the point on the T_r scale corresponding with the determined rolling period intersects the GM scale at the requested value.
15. The following section shows an example of a recommended form in which these instructions might be presented by the Administration to the masters. Each Administration should recommend the F value or values to be used on the basis of its own experience.

Appendix 7.11 Annex 1 of the Code of Practice (Revision 2) - Rolling Period Tests

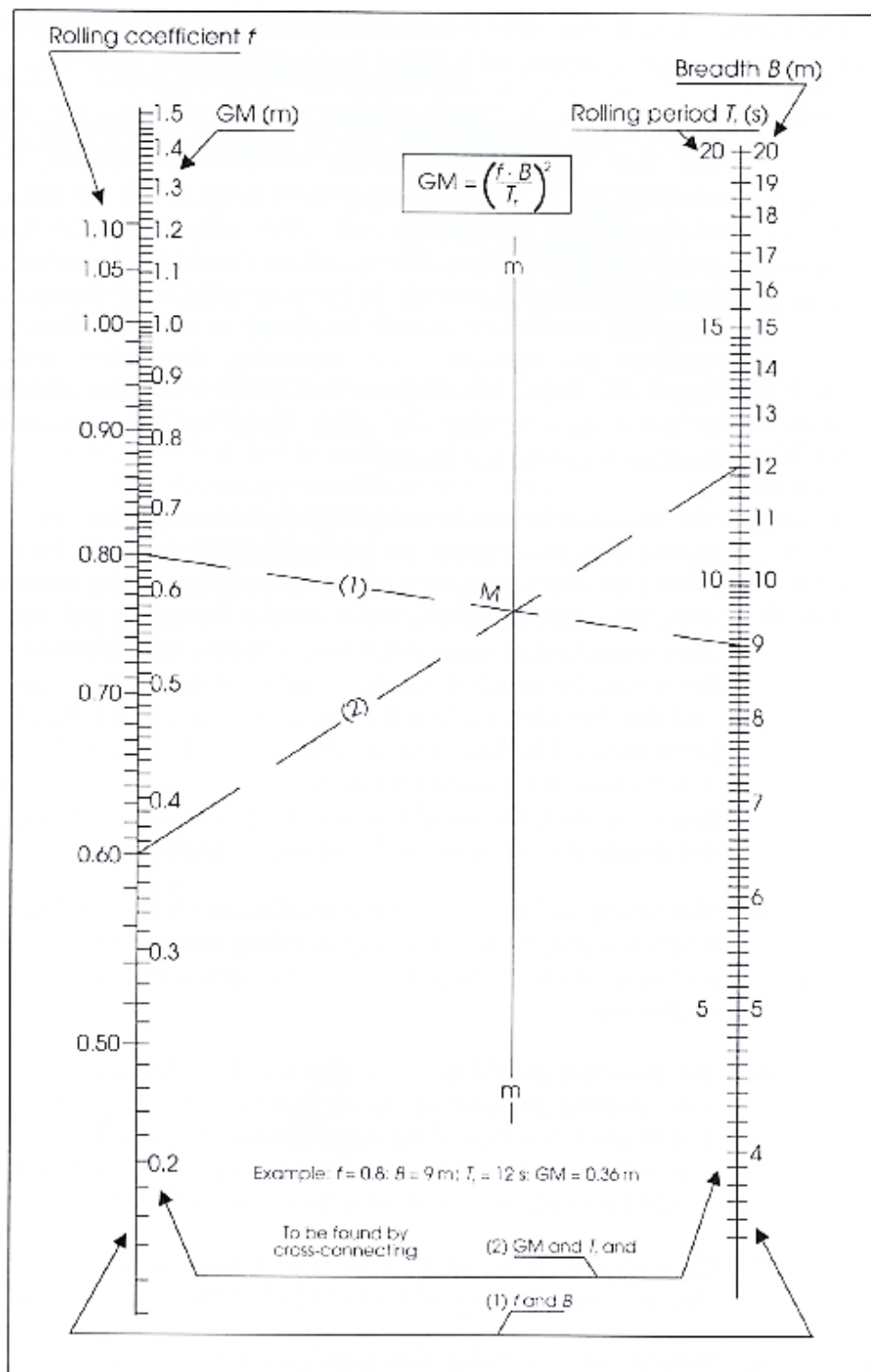


Fig.1

Appendix 7.11 Annex 1 of the Code of Practice (Revision 2) - Rolling Period Tests**Recommendations on procedures for the conduct of rolling tests**

1. The rolling period required is the time for one complete oscillation of the vessel and to ensure the most accurate results in obtaining this value the following precautions should be observed.
 - 1.1 The test should be conducted with the vessel in harbour, in smooth water with the minimum interference from the wind and tide.
 - 1.2 Starting with the vessel at the extreme end of a roll to one side (say port) and the vessel about to move towards the upright, one complete oscillation will have been made when the vessel has moved right across to the other extreme side (i.e. starboard) and returned to the original starting point and is about to commence the next roll.
 - 1.3 By means of a stop-watch, the time should be taken for not less than about five complete oscillations. Counting of the oscillations should begin when the vessel is at the extreme end of a roll. After allowing the roll to completely fade away, this operation should be repeated at least twice more. If possible, in every case the same number of complete oscillations should be timed to establish that the readings are consistent, i.e. repeating themselves within reasonable limits. Knowing the total time for the total number of oscillations made, the mean time for one complete oscillation can be calculated.
 - 1.4 The vessel can be made to roll by rhythmically lifting up and putting down a weight as far off the centreline as possible; by pulling on the mast with a rope; by people running athwartships in unison; or by any other means. However, and this is most important, as soon as this forced rolling has commenced, the means by which it has been induced should be stopped and the vessel allowed to roll freely and naturally. If rolling has been induced by lowering or raising a weight it is preferable that the weight is moved by a dockside crane. If the vessel's own derrick is used, the weight should be placed on the deck, at the centreline, as soon as the rolling is established.
 - 1.5 The timing and counting of the oscillations should only begin when it is judged that the vessel is rolling freely and naturally, and only as much as is necessary to accurately count these oscillations.
 - 1.6 The mooring should be slack and the vessel breasted off to avoid making any contact with the wharf or any other structure during its rolling. To check this, and also to get some idea of the number of oscillations that can be reasonably counted and timed, a preliminary rolling test should be made before starting to record actual times.
 - 1.7 Care should be taken to ensure that there is a reasonable clearance of water under the keel and at the sides of the vessel.
 - 1.8 Weights of reasonable size which are liable to swing (e.g. a lifeboat), or liable to move (e.g. a drum), should be secured against such movement. The free surface effects of slack tanks should be kept as small as is practicable during the test.
2. *Limitations on the use of this method*
 - 2.1 A long period of roll, corresponding to a GM_0 of 0.20 m or below, indicates a condition of low stability. However, under such circumstances, accuracy in determination of the actual value of GM_0 is reduced.
 - 2.2 If, for some reason, these rolling tests are carried out in open, deep but smooth waters, inducing the roll, for example, by putting over the helm, then the GM_0 calculated by using the method and coefficient of paragraph 1 above should be reduced by a figure to be estimated by the Administration to obtain the final answer.
 - 2.3 The determination of stability by means of the rolling test in disturbed waters should only be

Appendix 7.11 Annex 1 of the Code of Practice (Revision 2) - Rolling Period Tests

regarded as a very approximate estimation. If such a test is performed, care should be taken to discard readings, which depart appreciably from the majority of other observations. Forced oscillations corresponding to the sea period and differing from the natural period at which the vessel seems to move should be disregarded. In order to obtain satisfactory results, it may be necessary to select intervals when the sea action is least violent and it may be necessary to discard a considerable number of observations.

SECTION 36 PROCESS

Section 36 of the Merchant Shipping (Investigation of Marine Casualties) Act, 2000

It is a requirement under Section 36 that:

- (1) Before publishing a report, the Board shall send a draft of the report or sections of the draft report to any person who, in its opinion, is likely to be adversely affected by the publishing of the report or sections or, if that person be deceased, then such person as appears to the Board best to represent that person's interest.
- (2) A person to whom the Board sends a draft in accordance with subsection (1) may, within a period of 28 days commencing on the date on which the draft is sent to the person, or such further period not exceeding 28 days, as the Board in its absolute discretion thinks fit, submit to the Board in writing his or her observations on the draft.
- (3) A person to whom a draft has been sent in accordance with subsection (1) may apply to the Board for an extension, in accordance with subsection (2), of the period in which to submit his or her observations on the draft.
- (4) Observations submitted to the Board in accordance with subsection (2) shall be included in an appendix to the published report, unless the person submitting the observations requests in writing that the observations be not published.
- (5) Where observations are submitted to the Board in accordance with subsection (2), the Board may, at its discretion -
 - (a) alter the draft before publication or decide not to do so, or
 - (b) include in the published report such comments on the observations as it thinks fit.

The Board reviews and considers all observations received whether published or not published in the final report. When the Board considers an observation requires amendments to the report, those amendments are made. When the Board is satisfied that the report has adequately addressed the issue in the observation, then no amendment is made to the report. The Board may also make comments on observations in the report.

Response(s) received following circulation of the draft report (excluding those where the Board has agreed to a request not to publish) are included in the following section.

The Board has noted the contents of all observations, and amendments have been made to the report where required.

8. MSA 2000 - SECTION 36 OBSERVATIONS RECEIVED

No correspondence was received on the draft of this report.



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