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**REPORT OF
INVESTIGATION INTO
THE LOSS OF
F.V. "KINDRED STAR II"
OFF THE COAST OF
EAST CORK
ON
9th APRIL 2010**

**REPORT No. MCIB/181
(No.3 of 2011)**

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1. SYNOPSIS

- 1.1 Mr. Tadhg O’Riordan departed Ballycotton, Co. Cork, Ireland at 04.30 hrs. on the 9th April 2010.
- 1.2 After departure he proceeded to fishing grounds 9 miles south of Ballycotton Island and began single rig trawling. The weather was fine with good visibility, southeast wind force 2 with a slight swell.
- 1.3 Shortly after 21.00 hrs. the vessel succumbed to uncontrollable flooding in the engine room and sank at about 23.00 hrs.
- 1.4 The primary cause of the accident was the failure of the connection of a section of flexible pipe fitted on the outlet side of the jacket water cooler on the seawater side of the cooler, permitting the main engine seawater cooling water pump to pump directly into the engine room.

2. FACTUAL INFORMATION

2.1 Vessel Particulars

Name of Vessel:	"Kindred Star II"
Type:	Trawler
Registration No:	C337
Port of Registry:	Cork
LOA:	13.41 metres
Gross Tonnage:	33.03 tonnes
Engine Capacity:	187-kW
International Call Sign:	E17678



- 2.2 Owner/Skipper on board: Mr. Tadhg O’Riordan, Ballycotton, Co. Cork.
- 2.3 Weather conditions: See Appendix 8.1
- 2.4 Mr. O’Riordan has been fishing since he was 15, is a professional trawler-man and trained as a Shipwright at Skibereen. He attained all modules of the Second Hand Special Certificate of Competency for fishing vessels with the exception of the Morse Code module. He completed the statutory Sea Survival Course (05/2003) and holds an Irish Radio Operators’ Long Range Certificate of Competency.
- 2.5 Mr. O’Riordan bought the "Kindred Star II" in November 2006 and made major modifications to it, moving the wheelhouse forward and fitting new fishing gear. The vessel complied with the Department of Transport Code of Compliance Survey on the 12th June 2007. The next survey was due in June 2011.
- 2.6 Mr. O’Riordan commenced fishing in August 2007 and had been operating continuously up to the time of the accident. He operated the vessel both with a crew and single handed depending on the type of fishing that he was engaged in and the availability of reliable experienced crewmembers.
- 2.7 An incident had occurred some time previously whereby the deck wash pump discharge pipe failed in the engine room causing partial flooding of the engine room. Following this incident he made changes to the deck wash arrangement, simplifying the system and making it more straightforward. He then fitted an additional bilge alarm forward of the engine. This alarm sounded in the engine room and could be heard whilst away from the wheelhouse and working on the deck. He also fitted a CCTV camera in the engine room so that with the engine room lighting switched on the bilge area could be monitored from the wheelhouse.
- 2.8 There was a concrete ballast arrangement in the engine room located under the engine thereby reducing the volume of the bilge area. His recollection is that there was a distance of some 300 mm between the top of the concrete ballast and the bedplate of the engine.

3. EVENTS PRIOR TO THE INCIDENT

- 3.1 Mr. O’Riordan departed Ballycotton, Co. Cork at 04.30 hrs. on the 9th April 2010, with only himself onboard. Due to the extreme difficulties in obtaining suitable crew he had been operating the vessel single handed for several months.
- 3.2 After departure he proceeded to fishing grounds 9 miles south of Ballycotton Island and began fishing operations consisting of single rig trawling. The weather was fine with good visibility, southeast wind force 2 with a slight swell.
- 3.3 The fishing operation consisted of towing gear for approximately 3¹/₂ hrs. at a time, hauling gear, emptying the net, shooting gear and then towing again. He engaged in fishing operations until approximately 21.00 hrs. on the 9th April and was bringing in the last cod end of the day when Mrs. O’Riordan called him on her mobile phone (time of call recorded at 21.34 hrs.). He informed her that he was busy and would call her back later at about 23.30 hrs.

4. THE INCIDENT

- 4.1 Shortly after talking to his wife at approx. 21.35 hrs., he heard the engine room high water level bilge alarm sound and immediately proceeded to the engine room and found that the section of flexible hose on the outlet side of the jacket water cooler on the seawater side of the cooler had come off one of the pipes, permitting the main engine seawater cooling water pump to pump directly into the engine room. At this time the water level in the engine room was up to the level of the engine room floor plates.
- 4.2 The water level in the engine room was such that it came in contact with the driving belts on the engine. This coupled with the flow of water emanating from the break created a maelstrom of water in the compartment. Mr. O’Riordan’s recollection was that it was the connection adjacent to the right-angle bend that gave way.
- 4.3 On foot of the experience some time previously when the deck wash pump outlet piping failed, his first fears were for the alternator and possible damage to it. He was also conscious that the jet of water from the damaged connection was directed towards the battery box.
- 4.4 Mr. O’Riordan pushed the flexible hose back onto the pipe, from which it had come adrift and looked over the side to confirm that the boat’s two automatic electric bilge pumps were discharging over the side, which they were. He then returned to the engine room and changed over the bilge/deck wash pump from sea suction for washing fish to bilge suction. He came on deck and checked that there was a good flow from the bilge/wash deck pump discharge. After a few minutes the bilge/wash deck pump stopped pumping and the boat appeared to be getting deeper in the water.
- 4.5 He returned to the engine room and found that the flexible hose had come off the cooler pipes again. He refitted the hose and found that the bilge pump had stopped pumping due to a rag becoming entangled in the clutch mechanism causing the pump to declutch. He removed the rag and re-clutched the pump again. At this time he noted that the water level in the engine room was rising and that the engine room lights were intermittently flickering.
- 4.6 Mr. O’Riordan returned to deck and noted that the deck lights were flickering. He was now getting concerned for his safety and that of the boat, so he went into the wheelhouse, put on a lifejacket, brought a life-ring from forward to amidships, launched the life-raft and secured the painter amidships.
- 4.7 Mr. O’Riordan again looked into the engine room and noted the water level was still rising and that the boat was getting deeper in the water. He could not see if the flexible pipe had come off again. The engine started to splutter and stopped shortly thereafter.

- 4.8 He attempted to send a MAYDAY on Channel 16 VHF but no response was received. He noted that battery voltage was low. He did not think to change batteries over to the emergency set situated on top of the wheelhouse.
- 4.9 Fearing for his safety he decided that it would be prudent to abandon ship. He got into the liferaft and paddled approximately 50 yards away from the boat. Mr. O’Riordan was not sure of the time that he abandoned ship but believes it was between 22.30 and 23.30 hrs.
- 4.10 When he abandoned ship he did not think to take the vessel's SART positioned just inside the wheelhouse door or its EPIRB situated on the wheelhouse roof with him. When he had paddled away from the boat, he checked his mobile phone and found it was dead and was unable to call for assistance. The "Kindred Star II" was still afloat at this time, no lights showing. The vessel rolled over and sank approximately 10 minutes later.

EVENTS FOLLOWING THE INCIDENT

5. EVENTS FOLLOWING THE INCIDENT

- 5.1 Mrs. O’Riordan, as was her normal procedure, came down to the pier at approximately 22.50 hrs. expecting her husband to arrive shortly. When she could not see him she attempted to call him on her mobile phone without success. She made another two attempts between 23.00 hrs. and 24.00 hrs. without success.
- 5.2 At 24.00 hrs. she returned home and called Mr. O’Riordan’s brother, skipper of the "Western Venture" which was at sea and asked him to see if he could contact him on the VHF.
- 5.3 Mr. O’Riordan’s brother tried several times to contact the "Kindred Star II" and when he was getting no response the emergency services were alerted that a boat was missing.
- 5.4 The Ballycotton lifeboat was tasked at 01.12 hrs. on the 10th April and launched at 01.24 hrs. At approximately 02.15 hrs. Mr. O’Riordan saw white flares in the sky and responded using flares out of the raft. The lifeboat came to his assistance and took him on board.
- 5.5 Mr. O’Riordan later explained that his primary preoccupation was to keep the engine running at all costs in order to keep the large, engine driven "Gilkes" pump operating as a bilge pump rather than trying to isolate the seawater supply. The rapidity with which events unfolded overwhelmed his attempts to bring the situation under control and he directed his attentions to saving himself rather than the vessel.
- 5.6 The Lifeboat Operations Manager at Ballycotton RNLI Station on the night of the accident recounted his efforts to locate the vessel by firstly trying to gain radio contact and then ascending to the cliff top and searching using binoculars. When these attempts were unsuccessful he decided to launch the lifeboat. The muster was rapid and the lifeboat "*Austin Lidbury*" was on its way at 01.24 hrs.
- 5.7 Mr. O’Riordan's brother was able to give directions to the lifeboat crew as to the general area in which the "Kindred Star II" was liable to have been fishing. The lifeboat crew saw the illumination from the final flare that Mr. O’Riordan had aboard the liferaft and using a combination of flares and night vision equipment the lifeboat located Mr. O’Riordan and recovered him from the liferaft at 02.10 hrs. The lifeboat landed him ashore at Ballycotton at 02.50 hrs. It is estimated that he had been in the liferaft for about four hours.
- 5.8 Mr. O’Riordan was picked up at position 51.43N: 07.45W. The depth of water was approximately 45 fathoms.
- 5.9 At the time of sinking there was 2,500 litres of gas oil and 250 litres of lubricating oil and hydraulic oil onboard.

6. CONCLUSIONS

- 6.1 The primary cause of the accident was the failure of the connection of a section of flexible pipe fitted on the outlet side of the jacket water cooler on the seawater side of the cooler; this had come off one of the pipes, permitting the main engine seawater cooling water to pump directly into the engine room.
- 6.2 The purpose in fitting this section of flexible rubber piping in the piping system was to prevent the vibration of the engine being transferred into the seawater piping and causing vibration damage to the seawater piping. It was also to cater for expansion and contraction of the piping system.
- 6.3 The Investigation was unable to fully establish the exact configuration of the system that was fitted on "Kindred Star II". However, from a description provided by Mr. O'Riordan, the most likely configuration of the system is reproduced at Fig.1.
- 6.4 The seawater piping was made of 2" diameter stainless steel pipe with electrical bonding strip in way of the flexible connections and is depicted in green.
- 6.5 Seawater was drawn into the system via a sea suction connection 'A' on the hull of the vessel, by the seawater pump 'B'. The pressurised seawater was then pumped through the cooler 'C', thus cooling the jacket water of the engine 'D'. The seawater outlet pipe from the cooler exited horizontally, turned 90°, then rose vertically, crossed over the top of the engine and was discharged overboard at 'E'. There was also a branch 'F' for cooling the gearbox.
- 6.6 There was a flexible rubber pipe connection between cooler outlet and the piping. The location is indicated in Fig. 1.

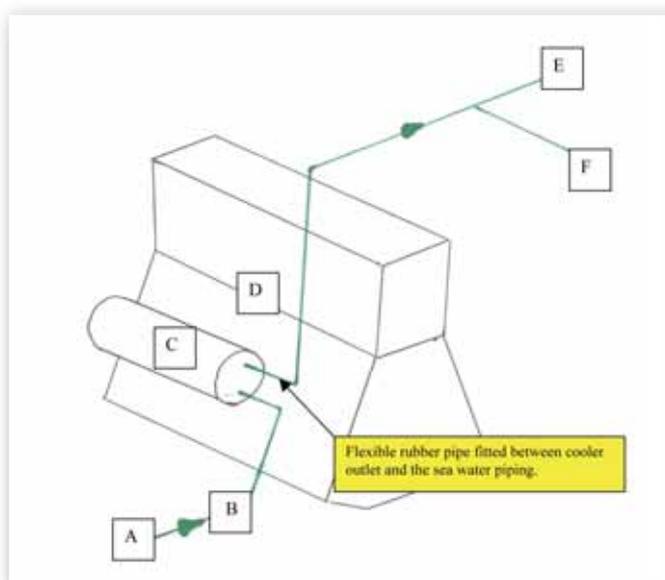


Fig 1. Likely configuration of the seawater cooling pipe system.

- 6.7 Mr. O’Riordan’s recollection is that the failure was at the connection between the flexible rubber pipe ‘G’ and the 2” stainless steel pipe ‘C’, indicated by the yellow star in Fig. 2 below, and that the pipe was ejected from the connection and free to move. The clips ‘H’ were intended to hold the arrangement in place.

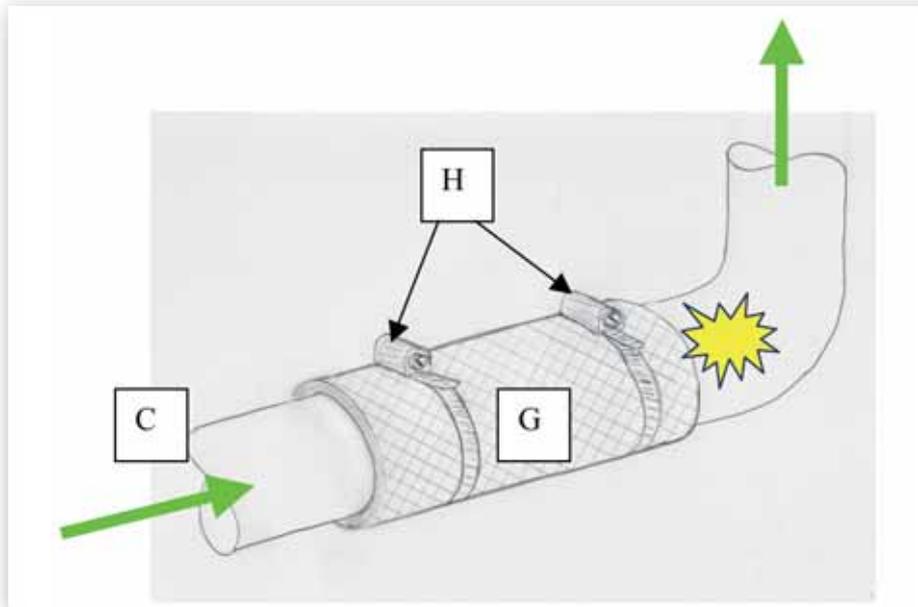


Fig. 2. Arrangement of pipe clips and flexible rubber pipe.

Mr. O’Riordan recounted that the vertical section of 2” stainless steel piping that had parted from the flexible rubber pipe was “flopping-around” and was free to move once it had become free of the connection. This would indicate that it was not held in place by pipe brackets or that the brackets were ineffective. The arrangement relied on the connection to the flexible rubber pipe to hold it in place.

The hazards associated with the failure of seawater piping systems in an engine room are well recognised and the efficacy of using pipe clips and a section of flexible rubber pipe to join the cooler outlet to the piping system is questionable.

Proprietary flexible expansion joints approved by the major classification societies are available and suitable for this purpose.

- 6.8 Mr. O’Riordan could not hear the bilge alarm whilst on the deck as the alarm only sounded in the wheelhouse.
- 6.9 Mr. O’Riordan is a professional trawler-man and has a wealth of experience of fishing boats and the fishing industry. He is confident that the EPIRB unit was properly installed and mounted on the wheelhouse.
- 6.10 The investigation has been unable to conclusively determine why the EPRIB failed to operate.

7. RECOMMENDATIONS

- 7.1 The Board recommends that the Minister for Transport carries out a review of the Code of Practice for Fishing Vessels less than 15m in length taking into account this casualty investigation report.

LIST OF APPENDICES

8. LIST OF APPENDICES

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Appendix 8.1 Met Éireann Weather Report.



MET ÉIREANN
The Irish Meteorological Service

Glasnevin Hill, Cnoc Ghlas Naíon Tel: +353-1-806 4200
Dublin 9, Ireland. Baile Átha Cliath 9, Éire. Fax: +353-1-806 4247
www.met.ie E-mail: met.eireann@met.ie

9/4/2010

Our Ref: WS 3018/2C_13755

Estimate of weather conditions in the east Cork Coast area on the 9th April 2010, between 4.30 and 24 hours.

General Situation: A large Anti-cyclone centred to the south-east and east of Ireland remained throughout the day

Details:

9/4/2010, 4 to 12 hours

Winds: Light to Moderate Force 3 to 4, from a south-easterly direction.
Weather: fog and mist close to the coast at first, clearing slowly to sunny spells. Some light precipitation early.
Visibility: poor increased moderate to good at times.
Temperatures: 9 to 10 °C
Waves: Slight (0.5 metres, significant wave height)

9/4/2010, 12 to 18 hours

Winds: Moderate, Force 4, from a south-east to south-south-east direction
Weather: dry, some sunshine
Visibility: good near shore, poor at times off-shore
Temperature: 10°C
Waves: Slight to Moderate (1 metre, significant wave height)

9/4/2010, 18 to 24 hours

Winds: Light to Moderate, Force 3 to 4, from a south-east to south-south-east direction.
Weather: dry
Visibility: good decreased moderate near land, poor at times off-shore
Temperature: 9°C
Waves: Moderate (1.5 metres significant wave height)

Evelyn Murphy B.Sc. M.Sc. Meteorologist
Research & Applications Division
Met Éireann



Appendix 8.1 Met Éireann Weather Report.

Appendix

Beaufort Scale of Wind					
Force	Description	Speed*		Specification -sea	Wave height** (metres)
		knots	km/hr		
0	Calm	<1	<1	Sea like mirror	
1	Light air	1-3	1-5	Ripples	0.1 (0.1)
2	Light breeze	4-6	6-11	Small wavelets	0.2 (0.3)
3	Gentle breeze	7-10	12-19	Large wavelets, crests begin to break	0.6 (1)
4	Moderate breeze	11-16	20-28	Small waves becoming longer, frequent white horses	1 (1.5)
5	Fresh breeze	17-21	29-38	Moderate waves, many white horses, chance of spray	2 (2.5)
6	Strong breeze	22-27	39-49	Large waves, white foam crests, probably some spray	3 (4)
7	Near gale	28-33	50-61	Sea heaps up, streaks of white foam	4 (5.5)
8	Gale	34-40	62-74	Moderately high waves of greater length	5.5 (7.5)
9	Strong gale	41-47	75-88	High waves, dense streaks of foam, spray may reduce visibility	7 (10)
10	Storm	48-55	89-102	Very high waves, long overhanging crests, visibility affected	9 (12.5)
11	Violent storm	56-63	103-117	Exceptionally high waves, long white foam patches cover sea	11.5 (16)
12	Hurricane	64+	117 & over	Air filled with foam and spray, sea completely white	14 (-)

* Speed = mean speed at a standard height of 10 metres.
 ** Wave height is only intended as a guide to what may be expected in the open sea.
 Bracketed figures indicate the probable maximum wave height.

Wave Heights / State of Sea

The wave height is the vertical distance between the crest and the preceding or following trough. The table below gives a description of the wave system associated with a range of significant wave heights.

Sea State (Descriptive)	Significant Wave height in meters
Calm	0 – 0.1
Smooth (Wavelets)	0.1 – 0.5
Slight	0.5 – 1.25
Moderate	1.25 – 2.5
Rough	2.5 – 4
Very rough	4 – 6
High	6 – 9
Very high	9 – 14
Phenomenal	Over 14

Individual waves in the wave train will have heights in excess of the significant height. The highest wave of all will have a height about twice the significant height.

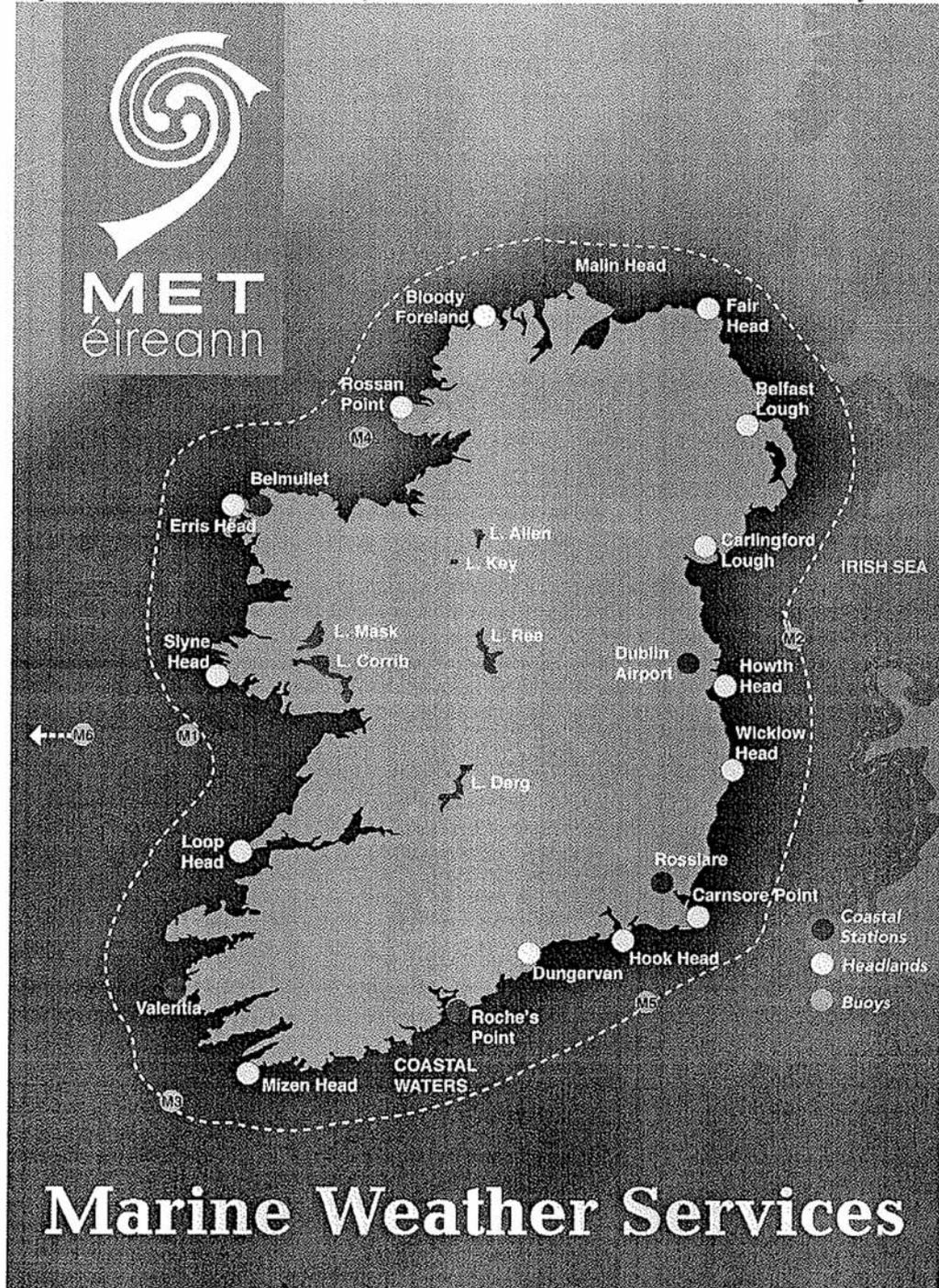
Visibility

Descriptions of visibility mean the following:

Visibility (Descriptive)	Visibility in nautical miles (kilometres)
Good	More than 5 nm (> 9 km)
Moderate	2 – 5 nm (4 – 9 km)
Poor	0.5 – 2 nm (1 – 4 km)
Fog	Less than 0.5 nm (< 1km)

Appendix 8.1 Met Éireann Weather Report.

Map of Ireland with Headlands, coastal stations and offshore weather buoys



9. CORRESPONDENCE RECEIVED

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An Garda Síochána

An Leas-Choimisinéara
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An Garda Síochána
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Please quote the following Ref. No.

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Web Site : www.garda.ie

E-mail : commissioner_ops@garda.ie

OPS 79.13/10
PS 532/10
MCIB Reference : MCIB/181

Ms. Teresa Walsh,
Secretariat,
Marine Casualty Investigation Board,
Leeson Lane,
Dublin 2.



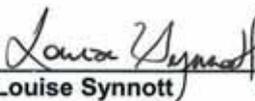
Re: Draft report of the Investigation into the Loss of Kindred Star II, off Ballycotton, Co. Cork, on 10 April 2010.

Dear Ms. Walsh,

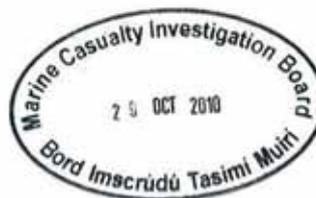
I am directed by Deputy Commissioner, Operations to refer to previous correspondence from the Marine Casualty Investigation Bureau to the Commissioner in above matter, resting with minute dated 28th September, 2010.

I wish to advise that the draft report in relation to this incident has been reviewed and An Garda Síochána has no observations or submissions to make in respect of same.

Yours sincerely,


Louise Synnott **Inspector**
for Deputy Commissioner.

27th October 2010



Ráiteas Misin / Mission Statement :

Ag obair le Pobail chun iad a chosaint agus chun freastal orthu / Working with Communities to Protect and Serve

MCIB RESPONSE

The MCIB notes the content of this correspondence.



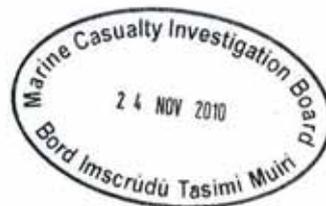
Draft Report of Investigation into the loss of MFV "Kindred Star II" on 9th April 2010.

Dear Mr. O'Donnell,

We have no further comments or observations to make on this Report except to add The Irish Coast Guard believes it essential to EPIRBs and AIS on all fishing vessels regardless of size. We do not object to our observations appearing in the final report.

Yours Sincerely,


pp Chris Reynolds,
Director IRCG



*Irish Coast Guard, Department of Transport, Leeson Lane, Dublin 2, Ireland.
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MCIB RESPONSE

The MCIB notes the content of this correspondence.



Royal National Lifeboat Institution

Admiral the Lord Boyce GCB OBE DL
Trustee: John Coyle MSc OBE
Chief Executive: Paul Bolsiger

RNLI (Trading) Ltd 01673377, RNLI (Sales) Ltd 2202240 and RNLI (Engineering) Ltd 178430
are all companies registered at West Quay Road, Poole, Dorset BH12 1UJ

From:
RNLI Ireland
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Telephone: (01) 8900460
Fax: (01) 8900458
www.lifeboats.ie

Inspector of Lifeboats : Martyn Smith

Mr. John G O'Donnell B.L.
Chairman
Marine Casualty Investigation Board
Leeson Lane
Dublin2

11th October 2010

Sir,

DRAFT REPORT INTO THE LOSS OF MFV "KINDRED STAR II" OFF THE COAST OF EAST CORK 9TH APRIL 2010

Reference: Yr letter MCIB/181 dated 28th September 2010

Thank you for affording the RNLI the opportunity to view the draft report into the loss of the "Kindred Star."

The RNLI has no comment to make in relation to the cause of the loss of the vessel.

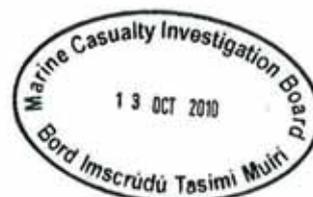
Worthy of note is the positive contribution made to the successful and timely outcome of the search and rescue mission by the family of Mr. O'Riordan, who were aware of the time he was due to return to Ballycotton and his operating area.

Yours faithfully,

Martyn Smith
RNLI Divisional Inspector of Lifeboats
Ireland

The RNLI is the charity that saves lives at sea

Charity number CHY 2678 in the Republic of Ireland and registered in England and Wales (209603) and Scotland (SC137796)



MCIB RESPONSE

The MCIB notes the content of this correspondence.

