

MCIB

Marine Casualty Investigation Board
Bord Imscrúdú Taisní Muirí



**REPORT OF AN INVESTIGATION
INTO AN INCIDENT INVOLVING THE
FISHING VESSEL BIKAIN
AT DINGLE, CO. KERRY,
IRELAND
25 NOVEMBER 2022**

**REPORT NO. MCIB/323
(No.6 OF 2023)**

The Marine Casualty Investigation Board (MCIB) examines and investigates all types of marine casualties to, or onboard, 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 to the Minister of Transport - 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.



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The Marine Casualty Investigation Board was established on the 25th March 2003 under the Merchant Shipping (Investigation of Marine Casualties) Act, 2000.

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Glossary of Abbreviations and Acronyms

BEAmer	Bureau d'enquêtes sur les événements de mer
CCTV	Closed Circuit TV
CGU	Coast Guard Unit
CPP	Controllable Pitch Propellers
FV	Fishing Vessel
GMDSS	Global Maritime Distress and Safety System
GRT	Gross Registered Tonnage
IMO	International Maritime Organisation
IRCG	Irish Coast Guard
MCIB	Marine Casualty Investigation Board
MRSC	Marine Rescue Sub-Centre
P&I	Protection and Indemnity
SITREP	Situation Report
UTC	Co-ordinated Universal Time

Hours	hrs
Kilometres per hour	km/h
Kilowatt	kW
Knott	kt
Metre	m
Nautical mile	NM
Tonne	t
Volt	V

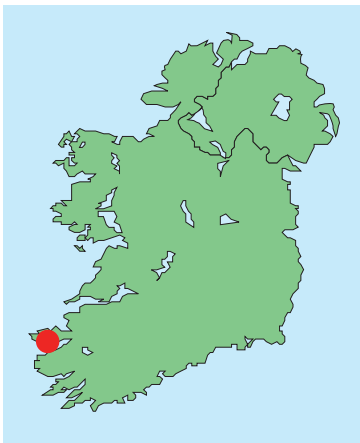
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17th August 2023.

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1. SUMMARY

- 1.1 The French registered fishing vessel (FV) Bikain was alongside at the end of the main pier in Dingle Harbour, County Kerry, Ireland and was preparing to go to sea to resume fishing on 25 November 2022. The main engine was started and checks for sailing were being carried out when the controllable pitch propellers (CPP) went to the full astern position. The Skipper tried to stop the main engine with the emergency stop button on the wheelhouse console, but this failed. The mooring ropes holding the vessel parted and the vessel went quickly astern and made heavy contact with the southern boat marina pontoon causing extensive damage to the pontoon and to several boats that were secured there at the time.
- 1.2 The main engine was eventually stopped by shutting off the fuel and the vessel drifted across the harbour basin. Another trawler, moored on the main jetty, saw the incident, and quickly went to assist and towed the FV Bikain back alongside the jetty.
- 1.3 There were no injuries and no pollution, but extensive damage was caused to the southern pontoon and moored boats.
- 1.4 As this was a French flagged vessel, the Director of the Bureau d'enquêtes sur les événements de mer (BEAmer) (French Marine Casualties Investigation Office of the Ministry of the Sea) also decided to investigate jointly with the Marine Casualty Investigation Board (MCIB).

Note: Times are local time = UTC + 1 (Co-ordinated Universal Time + 1 hour).



Location



FV Bikain Alongside in Dingle

2. FACTUAL INFORMATION

2.1 Vessel Details

- 2.1.1 Name: Bikain.
- 2.1.2 Flag: France BA930106.
- 2.1.3 Port of Registry: Bayonne, France.
- 2.1.4 Type: Steel hulled stern trawler.
- 2.1.5 International Maritime Organisation (IMO) Number: 9095333.
- 2.1.6 Call sign: FICM.
- 2.1.7 Built: 2006 in Spain.
- 2.1.8 Gross Registered Tonnage (GRT): 285 tonnes (t).
- 2.1.9 Length: 31.4 metres (m).
- 2.1.10 Breadth: 8.0 m.
- 2.1.11 Depth: 3.5 m.
- 2.1.12 Engine: Yanmar 6N21A single diesel engine.
- 2.1.13 Engine power: 723 kilowatt (kW).
- 2.1.14 Classification: Not in Class but under plan review with Bureau Veritas.

2.2 Crew Details

- 2.2.1 The vessel was crewed by a Spanish Skipper and Spanish crew.
- 2.2.2 The Skipper had a Spanish Certificate of Competency as Master of fishing vessel less than 50 m with recognition of professional qualifications issued by France.
- 2.2.3 The Skipper had extensive experience and had been sailing on fishing vessels since he went to sea around 41 years ago.
- 2.2.4 Senior crew also had Spanish certificates endorsed for sailing on French flagged vessels and were all suitably experienced for this type of vessel.

2.3 Vessel Certification

- 2.3.1 The vessel Certification was issued by the Republic of France and was seen to be valid.
- 2.3.2 Registration for sea-going fishing vessel issued in France 29 July 2021.
- 2.3.3 Permit for Navigation issued in France 12 January 2023.
- 2.3.4 Certificate of Compliance was issued by French authorities, in accordance with Article 6 and Annex V of 97/70 EC (Torremolinos Protocol), on 27 September 2019 and was valid to 28 October 2023.
- 2.3.5 The vessel did not hold a valid Classification Certificate and was in the process of the procedure for being Classed by Bureau Veritas.

2.4 Safety Equipment

- 2.4.1 Safety equipment was in place and had valid certification at the time of the incident.

2.5 Voyage Particulars

- 2.5.1 The vessel had been fishing off the west coast of Ireland and had come into Dingle Fishery Harbour Centre on 23 November 2022 due to forecasted bad weather. The vessel was preparing to return to the fishing grounds on 25 November 2022 when the incident occurred.
- 2.5.2 The weather conditions were not considered to be a factor in this casualty.

2.6 Marine Incident Information

Type of Incident: Serious Marine Casualty.

Date: 25 November 2022.

Time: 16.32 hours (hrs).

Position: Latitude 52°08.27' N, Longitude 010°16.50' W.

Location: Dingle Harbour, County Kerry, Ireland.

Vessel Operation: Preparing to leave port.

Consequences: Heavy impact with the southern boat pontoons causing serious damages to the pontoons and the support piles and serious damages to boats moored on the pontoons at the time.

2.6.1 This incident resulted in a marine casualty as defined in Section 2 of the Merchant Shipping (Investigation of Marine Casualties) Act, 2000 and the IMO's Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident.

2.6.2 The Act 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);”

3. NARRATIVE

- 3.1 The FV Bikain was a 31.4 m steel hulled, French flagged vessel, regularly fishing off the west coast of Ireland and was a regular caller to Dingle Fishery Harbour Centre (County Kerry, Ireland) to discharge her catch and take on fuel and stores.
- 3.2 The vessel was registered in France and was fully certified under the French flag.
- 3.3 The crew carried the required certification to operate this vessel in Irish waters and were experienced fishing vessel operators. It was noted by the flag state inspector that the Chief Mates French flag endorsement had expired.
- 3.4 The vessel was fishing off the west coast of Ireland when bad weather was forecast, so the Skipper decided to go into Dingle and discharge his catch and return to the fishing grounds once the weather had improved. The vessel arrived into Dingle Fishery Harbour Centre at 15.20 hrs on 23 November 2022 and tied up at the end of the main pier. The vessel was port side alongside, facing east.

See Appendix 7.1 - Location and Vessel Position.

- 3.5 The vessel discharged her cargo of fish, re-fuelled and was preparing to return to the fishing grounds. The Chief Engineer started the main engine at around 16.20 hrs in order to have the engine warmed up for the voyage.
- 3.6 The Skipper was in the wheelhouse along with the second officer and one crewmember, when he noticed he did not have any power to the following:
- Steering controls
 - CPP
 - Auto pilot control
 - Global Maritime Distress and Safety System Radio power (GMDSS).
- 3.7 The Skipper called the Chief Engineer to the wheelhouse to investigate, and he identified that the battery voltage was low, so he proceeded to the electrical locker on the lower deck to check the battery charger system. The main engine was still running at this time.
- 3.8 At around 16.30 hrs the Skipper noticed the vessel was moving astern and the mooring ropes were being stretched tight. He tried to take control of the engine in the wheelhouse, but the main engine pitch controls were not responding. He tried to activate the engine emergency stop buttons on the wheelhouse console but again nothing happened, and the main engine continued running.
- 3.9 The strain on the mooring ropes was increasing rapidly and then they began to part, with the stern lines breaking first and the bow line being the last to part, causing the vessel to move quickly astern. The Skipper instructed the Chief

Engineer to rush to the engine room and stop the engine. The Chief Engineer attempted to stop the engine with the emergency stop button in the engine room, but to no avail. He then shut the fuel off the engine, but this takes some time before the fuel in the pipelines is consumed and the engine is stopped.

- 3.10 While the Chief Engineer was attempting to stop the engine, all the mooring ropes had parted. The vessel moved quickly astern and made heavy contact with the southern pontoon and the boats that were moored there. This pontoon was approximately 110 m from the original moored position of the FV Bikain.
- 3.11 The engine was still running when the vessel hit the pontoons and the vessel was being pushed hard into the pontoons and associated boats. When the engine finally stopped the vessel drifted out from the pontoons and into the harbour basin. The vessel was without propulsion power at this time.
- 3.12 The FV Bikain was now drifting and being pushed by the wind towards the northern side of the harbour. The FV Danny Finn cast off, from the western side of the pier, and rushed to assist by going alongside the FV Bikain and connecting ropes to assist the vessel and tow her back to the main quay wall where she was then tied up safely.
- 3.13 All the above movements were captured on the port closed circuit TV (CCTV) cameras and have been made available to the MCIB by the Harbour Master for viewing. The CCTV footage did corroborate the Skipper's details of the events.
- 3.14 The Harbour Master activated the port emergency response plan to secure the drifting and damaged boats and pontoon sections. Divers were mobilised as well as boats to tow the damaged boats and secure them to safer moorings. A clean-up operation was also carried out to collect debris from damaged boats and some were lifted out to the slipway.

See Appendix 7.2 - Photographs of Damages caused to Boats and Pontoons.

- 3.15 Surveyors were appointed by the vessel hull and machinery underwriters, vessel Protection and Indemnity (P&I) insurance, Classification Society Bureau Veritas and Irish flag state surveyor.
- 3.16 External inspection of the FV Bikain revealed no structural damages were caused to the vessel.
- 3.17 It was found that the battery charger had failed, and the batteries had depleted causing the loss of 24 volt (V) power to the controls and to the emergency stop system.
- 3.18 It was also reported that the battery charger had failed previously and at the

time of this incident there was a temporary charger fitted in place of the failed unit. This temporary charger had now failed.

- 3.19 A new battery charger was supplied and fitted, and after appropriate testing, the vessel resumed normal operations.
- 3.20 The FV Bikain completed two further fishing trips after the incident without experiencing any difficulties and then proceeded to Spain on 2 December 2022 for repairs and to complete Classification surveys for Bureau Veritas to take the vessel into Class. The vessel was in Spain from 19 December 2022 to 12 January 2023 when she returned to the same fishing grounds off the west coast of Ireland.
- 3.21 The MCIB Inspector carried out an inspection on the vessel in Dingle on 16 February 2023 and noted the following:
 - 3.21.1 The Skipper and Second Engineer had been onboard during the casualty event in Dingle and were interviewed.
 - 3.21.2 Two new battery charges had been fitted in the electrical locker and had been working well without incident since installation.
 - 3.21.3 A new solenoid had been fitted on the gearbox for the propeller pitch control unit that would hold the pitch in neutral position in case of power failure and this solenoid could also be manually actuated to control the pitch of the propeller.

See Appendix 7.3 - Photographs of the new Equipment.

4. ANALYSIS

4.1 Vessel and Certification

- 4.1.1 The vessel condition was seen to be generally good, and all certification was found to be in order and valid.
- 4.1.2 The vessel did not hold valid Classification at the time of the incident but was undergoing the process to take the vessel into Class with Bureau Veritas. French flag rules require vessels over 24 m to hold valid Classification.

4.2 Crew

- 4.2.1 The crew were suitably qualified and experienced to operate the vessel.
- 4.2.2 It is considered the crew actions during the casualty were correct and they took all the correct steps and efforts to stop the engine.
- 4.2.3 There was no evidence that fatigue played a part in this casualty.

4.3 Battery Systems

- 4.3.1 Battery systems are fitted on this vessel for supply of 24 V to engine and steering control systems, emergency lighting and emergency operation of the navigation lights. There are separate emergency batteries for supplying the GMDSS equipment.
- 4.3.2 The correct arrangement for emergency battery systems is for the batteries to be put in use only in emergencies and to be charged and ready for such eventualities. The charger system is designed to maintain the correct voltage in the batteries automatically by using trickle charge as required.
- 4.3.3 For normal operations of the vessel, the 24 V supply required for the controls, should come from the vessel's main power supply, suitably transformed, and stabilised to give the required voltage for the operation of the systems.
- 4.3.4 Class Rules state *"A main source of electrical power is to be provided, of sufficient capability to supply all electrical auxiliary services necessary for maintaining the ship in normal operational and habitable conditions and for preservation of the cargo, without recourse to the emergency source of electrical power"*.
- 4.3.5 If this main supply fails, then a contactor should change over the power supply to the batteries automatically and allow the vessel to continue normal operations using the emergency batteries until the battery charge is depleted.

- 4.3.6 The battery system for the emergency lights and for the navigation lights on this vessel, were correctly designed in such a manner as to automatically change over to the batteries in the event of a main power failure but the main engine and steering control systems were not designed in such a manner and the emergency batteries were in use all the time while the vessel was in operation. If the batteries were discharged, then it was not possible to operate the controls for the main engine or any of the emergency stop systems. This is considered the main contributing factor in this casualty.
- 4.3.7 With the system design requiring the batteries to be in use all the time, it is required for the battery chargers to be in use all the time to keep the batteries charged and to be able to supply the loads required by the control systems. This means the batteries are continuously cycling with charge and discharge and this will certainly shorten the battery life and the life of the chargers.
- 4.3.8 The battery charger had failed in service, and a temporary charger had been fitted to keep the vessel operational, but the reason for the failure of the charger was not properly evaluated. The charger was actually being used as a power supply and running at high loads most of the time when the vessel was in operation and these chargers have limited lifespan when operated in this manner.

4.4 Management and Reporting

- 4.4.1 As the battery system was in continuous use during normal operations of the vessel and the vessel could not operate without the batteries, this is considered a critical system for the vessel. Critical systems failure must be reported, and sufficient spare parts carried to cover failures in the critical equipment.
- 4.4.2 The batteries were critical to the operation of the vessel but there was no written test and monitoring procedure in place on the vessel for these essential batteries.

4.5 Controllable Pitch Propeller

- 4.5.1 The default failure position of the CPP in event of power failure was full astern and this was the position the propeller assumed during the casualty. This position is attained when the hydraulic oil pressure is lost and a spring in the CPP system pushes the propeller pitch control rod to the full astern position. There was no manual override or method to control the pitch in such a failure condition. This was a contributing factor in this casualty.
- 4.5.2 After this failure the owners had the system modified by fitting a new solenoid in the CPP hydraulic control system and this solenoid will now default to neutral pitch on a power failure. This solenoid also has manual control spindles that will allow the pitch to be controlled ahead or astern without power on the system.

See Appendix 7.3 - Photographs of the new Equipment.

5. CONCLUSIONS

- 5.1 The electrical system was incorrectly designed on this vessel, and this was the root cause of the casualty. The design of this system necessitated that the emergency batteries were required to be in use at all times for the operation of the vessel, but the emergency batteries should only be used for emergency situations when the main power supply fails. The vessel could not operate without recourse to the emergency source of electrical power.
- 5.2 Engine emergency stop systems for the main engine must be able to operate at all times and not rely only on emergency battery systems.
- 5.3 Previous failure of the charging system was not identified as a critical failure and should have instigated a full investigation to identify why these failures were occurring. This investigation should have identified the design faults and prevented this casualty event.
- 5.4 There were no written procedures for the test and maintenance of this critical system onboard the vessel.

6. SAFETY RECOMMENDATIONS

6.1 Recommendations to Flag State

- 6.1.1 During survey, the automatic operation of the emergency electrical systems should be tested and it should also be verified that the vessel can operate as required without recourse to the emergency source of electrical power. All engine control and emergency systems should be capable of being operated without the emergency batteries being in use.
- 6.1.2 The findings of this investigation should be circulated to ensure similar design faults (as detailed in 5.1) are not existing on other vessels that could lead to similar or more severe casualties in the future.

6.2 Recommendations to Owners

- 6.2.1 A list of critical systems should be carried onboard vessels with a maintenance and testing schedule included for each critical system or piece of equipment. Records of test and maintenance should be retained onboard. Sufficient spares should be carried onboard to enable repair of vessels critical systems in event of failure.
- 6.2.2 Any failure of critical systems should be reported immediately, and a thorough investigation carried out to identify the root cause.

6.3 Recommendations to Department of Transport

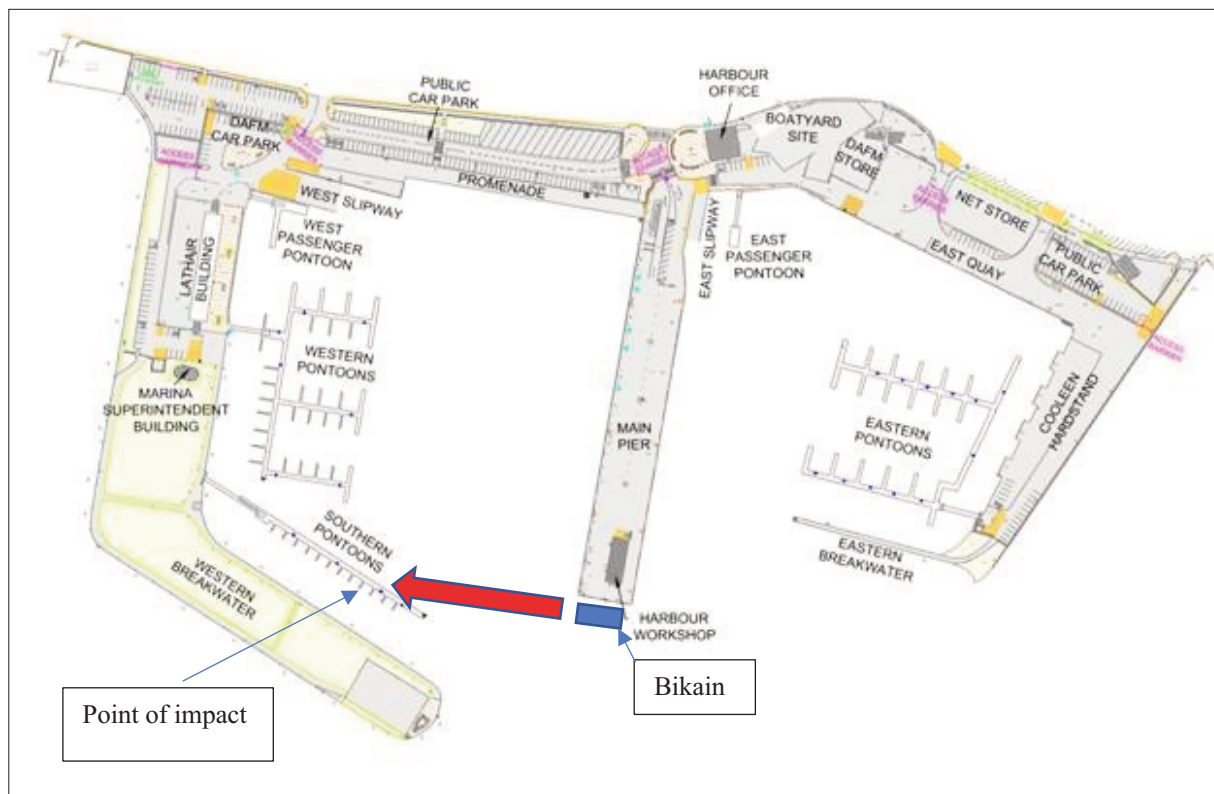
- 6.3.1 The Minister for Transport should issue a Marine Notice with the findings of this report to ensure Irish flagged vessels are aware of this incident and of the requirements for the correct installation and operation of emergency battery systems.

7. APPENDICES

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APPENDIX 7.1

Appendix 7.1 Location and Vessel Position



Dingle Harbour showing Location of FV Bikain at the Main Pier and Impact Point on Southern Pontoons.



Photograph of the Location from Harbour Camera.

Appendix 7.2 Photographs of Damages caused to Boats and Pontoons



APPENDIX 7.3

Appendix 7.3 Photographs of the new Equipment



New Battery Charger.



New Solenoid for CPP (blue unit on top).

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.

SECTION 36 OBSERVATIONS

8. MSA 2000 - SECTION 36 OBSERVATIONS RECEIVED

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Note: The names and contact details of the individual respondents have been obscured for privacy reasons.

8.1 Observation from French Marine Accident Investigation Department and MCIB response

From: [REDACTED]
Sent: Friday 28 July 2023 13:59
To: Marine Casualty Investigation Board
Subject: Tr: Rapport provisoire MCIB-BIKAIN
Attachments: rapport provisoire MCIB BIKAIN.pdf
Follow Up Flag: Follow up
Flag Status: Flagged

CAUTION: This eMail originated from outside your organisation and the BTS Managed Desktop service. Do not click on any links or open any attachments unless you recognise the sender or are expecting the email and know that the content is safe. If you are in any doubt, please contact the OGCIO IT Service Desk.

Dear Madam, Dear Sir,

My name is [REDACTED] and I work for the French marine accident investigation department. I received two weeks ago the draft report of the accident of the French fishing vessel BIKAIN. After reading the document, I have no comment on it. Congratulations for the quality of the work done.

Best regards.



[REDACTED]
Directeur adjoint
Arche sud - 92055 LA DEFENSE Cedex

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www.bea-mer.developpement-durable.gouv.fr

MCIB RESPONSE: The MCIB notes the contents of this observation.



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