



The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

## Marine Occurrence Report

### Crew Injury

Fishing Vessel "MONIKA"  
Fitz Hugh Sound, British Columbia  
22 October 1993

Report Number M93W0010

TRANSPORTATION SAFETY BOARD  
BUREAU DE LA SÉCURITÉ DES  
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### *Synopsis*

While investigating the cause of a partial loss of electrical power, the owner/operator of the "MONIKA" sustained serious leg injuries when his clothing caught in the propeller shaft coupling. Search and rescue efforts and evacuation of the victim were delayed due to poor weather conditions and unforeseen circumstances.

The Board determined that the owner/operator's leg injuries were sustained because of the absence of a guard over an exposed section of the propeller shaft in way of the access to the engine compartment.

Ce rapport est également disponible en français.

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## 1.0 Factual Information

### 1.1 Particulars of the Vessel

"MONIKA"	
Licence Number	14K34691
Licensing Port	Victoria, B.C. <sup>1</sup>
Flag	Canadian
Type	Fishing vessel
Gross Tons <sup>2</sup>	10
Length	11.27 m
Breadth	3.65 m
Draught	1.37 m
Crew	3
Built	1989
Propulsion	Inboard diesel, capable of 220 kW
Owner	M.W. Ulanowski Victoria, B.C.

#### 1.1.1 Description of the Vessel

The "MONIKA" is an aluminium fishing vessel with wheel-house and accommodation forward, the engine compartment amidships and a fish hold aft.

The below-deck arrangement follows the "V" shape of the hull. The engine is mounted fore-and-aft, amidships. There is no deck plating in the spaces. Entry into the compartment is through a hatch located abaft the wheel-house. There is no artificial lighting installed in the compartment. The vessel's electrical supply batteries are stowed in the engine compartment, beneath the after part of the hatch coaming. At the time of the occurrence, a section of the

<sup>1</sup> See Glossary for all abbreviations and acronyms.

<sup>2</sup> Units of measurement in this report conform to International Maritime Organization (IMO) standards or, where there is no such standard, are expressed in the International System (SI) of units.

propeller shaft between the reduction gearbox and the stern tube was exposed. The coupling at the gearbox end is secured with projecting hexagonal nuts (see Appendix A).

## 1.2 *History of the Voyage*

On the evening of 22 October 1993, the "MONIKA" was southbound in Fitz Hugh Sound en route to Port Hardy, B.C. (see sketch at Appendix B). At 2050<sup>3</sup>, the vessel's electrical power was observed to diminish. The owner/operator handed over the conduct of the vessel to the mate and went to the engine compartment to check the electrical system. He opened the deck hatch to the engine compartment and lowered himself onto the plating on the starboard side of the engine. He was wearing running shoes. After checking the batteries, he turned to raise himself out through the hatch. His foot slipped on the smooth, oily surface. The right leg of his trousers became entangled in the turning coupling of the unguarded propeller shaft, causing serious leg injuries and extensive bleeding.

Through the open wheel-house door, the mate heard the owner/operator shouting. Realizing that there was something wrong, the mate declutched the propeller shaft and shut down the engine. After assisting the injured owner/operator out through the hatch and onto the deck, he applied a tourniquet to his leg. He then notified Alert Bay Coast Guard Radio Station (CGRS) of the accident. A request for medical assistance was forwarded to the Rescue Co-ordination Centre (RCC) at Victoria, B.C. The position of the "MONIKA" was latitude 51°30'18" N, longitude 127°52'12" W, approximately 4.6 miles north of Clark Point, Calvert Island, B.C.

## 1.3 *Search and Rescue Mission*

The CCGS "PORT HARDY" monitored the original message to CGRS Alert Bay at 2053 and, at 2110, advised the RCC that the vessel was ready to depart with the Fast Rescue Craft (FRC) in tow. The RCC, however, advised the "PORT HARDY" that two ambulance attendants from the British Columbia Emergency Health Services (EHS) at Port Hardy would be accompanying them on the mission and that they should await their arrival before departing for the "MONIKA". The "PORT HARDY" was under way at 2150.

The Canadian tug "SEASPAN CHALLENGER", with a loaded log barge of 7,761 gross registered tons (GRT) in tow, was in the immediate vicinity of the "MONIKA". A rendezvous at Clark Point was arranged and, at 2249, the injured man was transferred from the "MONIKA" to the "SEASPAN CHALLENGER". The tug proceeded on a southerly course across the Queen Charlotte Strait, B.C.

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<sup>3</sup> All times are PDT (Coordinated Universal Time (UTC) minus seven hours) unless otherwise stated.

At 2345, the FRC from the "PORT HARDY" departed for a rendezvous with the "SEASPAN CHALLENGER" to transfer the EHS attendants to the tug. Inclement weather conditions prevented the transfer and the FRC returned to the "PORT HARDY".

At 0404, 23 October, when the "PORT HARDY" and the "SEASPAN CHALLENGER" were in sheltered waters, an EHS attendant and a Canadian Coast Guard (CCG) crew member trained in first aid were transferred to the "SEASPAN CHALLENGER". While both vessels were en route to sheltered waters, the "SEASPAN CHALLENGER" had had to reduce speed to allow the "PORT HARDY" to maintain station.

After boarding the tug, the medical team made the victim as comfortable as possible and prepared him for transfer to the "PORT HARDY". The CCG member of the medical team gave analgesic gas to the victim to lessen his pain. The victim was transferred to the "PORT HARDY" at 0536. Upon arrival at the Port Hardy Base at 0618, the victim was taken to the hospital by ambulance.

#### *1.3.1 Search and Rescue Vessel*

Normally, the 50 m-long CCGS "GORDON REID" would have been in the Queen Charlotte Strait area but the vessel was undergoing refit in Victoria. Consequently, the Search and Rescue (SAR) task was left to the shallow-draught, 13 m-long lifeboat "PORT HARDY". This vessel's maximum speed is 10 knots in fine weather conditions.

#### *1.3.2 Search and Rescue Aircraft*

Although a helicopter at Canadian Forces Base (CFB) Comox was on stand-by, inclement weather conditions precluded its involvement in the SAR mission.

#### *1.3.3 Emergency Response Agencies*

The EHS provides emergency health care for the province of British Columbia, including the inland lakes and the sheltered waters of the coastal area. Depending on the level of training they have received, some EHS employees may initiate and administer intravenous fluids and/or Entonox gas. The EHS attendants who transferred to the "SEASPAN CHALLENGER" were not trained to administer Entonox, the analgesic gas which was indicated in this case. CCG SAR personnel have received such training.

### *1.4 Injuries to Persons*

The owner/operator of the "MONIKA" suffered compound fractures to the tibia and fibula of his right leg.

## *1.5 Certification*

### *1.5.1 Vessel*

The "MONIKA", being less than 15 gross tons, was not subject to inspection by the Ship Safety Branch of the CCG. She carried the necessary life-saving equipment required by regulation.

### *1.5.2 Personnel*

The owner/operator holds a Polish Fourth Class Certificate of Competency in marine engineering.

## *1.6 Personnel History*

The owner/operator served for two years as an engineer in the Polish Navy. He then served for eight years in that country's fishing fleet. He has been fishing in Canadian waters since 1985 and has owned his own vessel since 1987.

## *1.7 Weather Information*

Because of changes in the topographical features between Calvert Island and Port Hardy, weather conditions may differ substantially from one reporting station to another.

At the time and place of the accident, the conditions were westerly winds of 15 knots with a low westerly swell and a sea height of 0.45 m.

At 2345, the "PORT HARDY" reported conditions at Pine Island, B.C., as winds south-easterly, 10 to 15 knots, with a low westerly swell.

At 0046, the "SEASPAN CHALLENGER" was three miles south of Egg Island, B.C., and reported weather conditions as south-easterly winds, 25 to 35 knots, 3 to 3.5 m westerly swell and an opposing 1.5 m sea from the south-east.

Reports received by the RCC from various weather reporting stations in the same area indicated similar conditions.

## 2.0 *Analysis*

### 2.1 *First Aid*

Given the extensive bleeding from the owner/operator's injured leg and the delay in obtaining professional medical attention, the action of the mate of the "MONIKA" in applying a tourniquet immediately after the accident prevented the owner/operator's injuries from becoming life-threatening.

### 2.2 *Emergency Health Services*

The decision to involve EHS personnel in the SAR mission delayed the departure of the "PORT HARDY" by 40 minutes. If personnel from this resource are to be involved in marine SAR missions, their training should involve mock missions to allow them to become familiar with and acclimatized to marine procedures and conditions. It was fortunate for the victim that CCG SAR personnel made up part of the combined medical contingent on the SAR mission as they were trained in the administration of the analgesic gas which was indicated in this case. EHS personnel, for whom the SAR mission was delayed, were not so trained.

### 2.3 *Search and Rescue Resources*

The "GORDON REID" was removed from her station for refit but the smaller replacement vessel "PORT HARDY" did not have the same characteristics or capabilities. Had the much larger "GORDON REID" been on station, the mission may well have been completed in a much shorter time frame and the double transfer of the patient could have been averted.

### 2.4 *Engine Compartment*

There is not enough space in the engine compartment to fit deck plates to provide a level surface on which to stand. The interior of the sloping hull plating, which also serves as a bilge area, is smooth. Oil vapours from the engine and residual oil in the bilge make the hull plating slippery. Because the propeller shaft coupling was not guarded and the plating was slick, the engine compartment was a hazardous area in which to stand or move, particularly in rubber-soled running shoes. The vessel was certainly moving in the seas, adding to the operator's difficulties in maintaining his footing.





## 3.0 *Conclusions*

### 3.1 *Findings*

1. The owner/operator of the "MONIKA" lost his footing in the engine compartment, catching his trouser leg in the exposed rotating propeller shaft coupling of the reduction gearbox.
2. The owner/operator sustained compound fractures to the tibia and fibula of his right leg.
3. The prompt application of a tourniquet to the owner/operator's leg by the mate of the "MONIKA" immediately after the accident prevented the owner/operator's injuries from becoming life-threatening.
4. The decision to send a combined medical team delayed the departure of the CCGS "PORT HARDY" on the Search and Rescue mission by 40 minutes.
5. The delay was caused by waiting for the arrival on board of two Emergency Health Services ambulance attendants.
6. The inclement weather conditions prevented the use of a helicopter in the Search and Rescue mission.
7. The Search and Rescue mission was further hampered by difficulties experienced by the "PORT HARDY" and her Fast Rescue Craft in the existing weather conditions.
8. The "MONIKA" has a "V"-shaped hull; such a configuration precludes the installation of deck plates in the engine compartment.
9. The internal section of the hull which is smooth aluminium invariably has a film of oily moisture in the engine compartment.
10. The regular Search and Rescue vessel for the area, CCGS "GORDON REID", was off-station undergoing refit at the time of the accident.

### 3.2 *Causes*

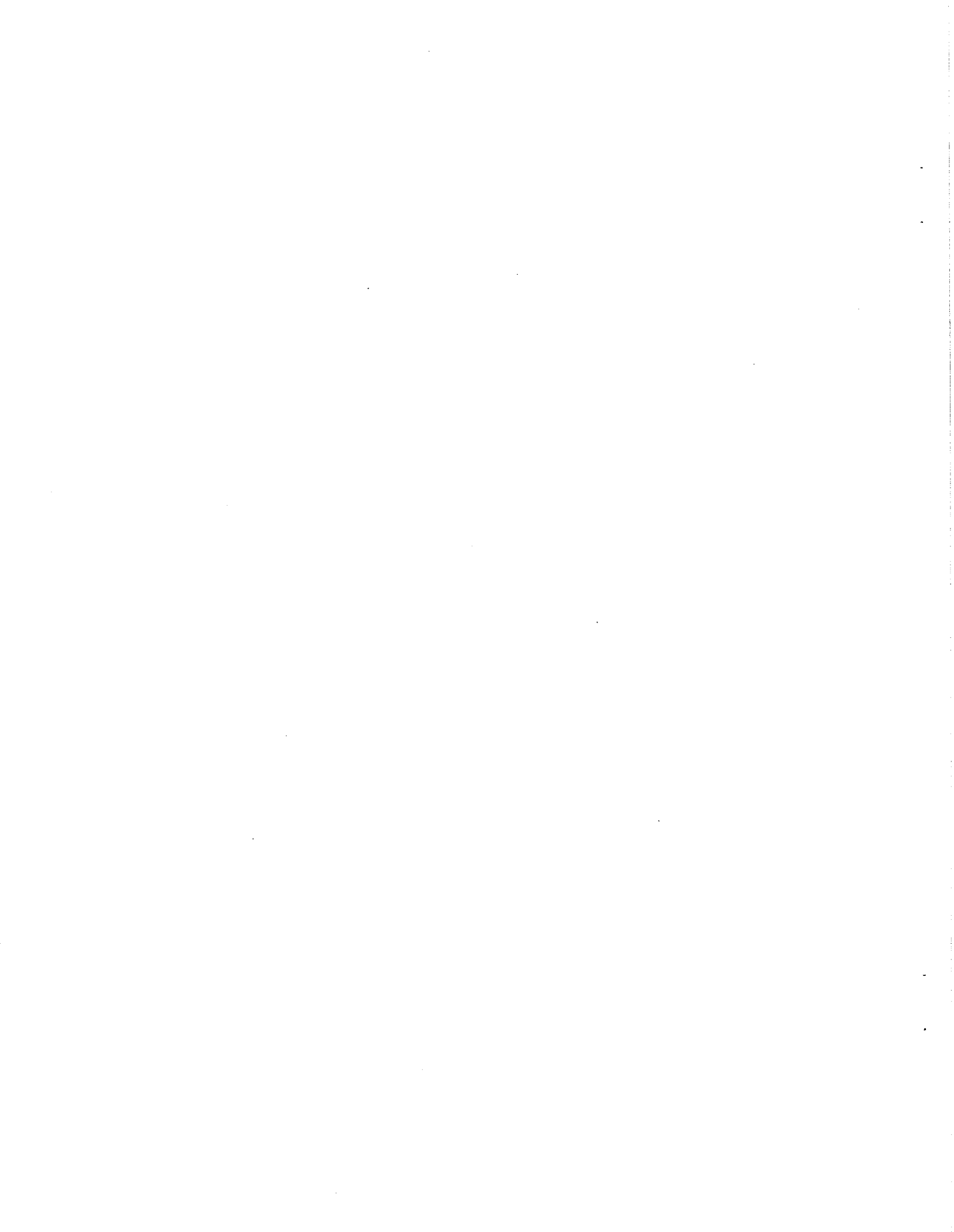
The owner/operator's leg injuries were sustained because of the absence of a guard over an exposed section of the propeller shaft in way of the access to the engine compartment.



## 4.0 *Safety Action*

The Board has no marine safety recommendations to issue at this time.

*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, John W. Stants, and members Zita Brunet and Maurice Harquail authorized the release of this report on 08 November 1995.*

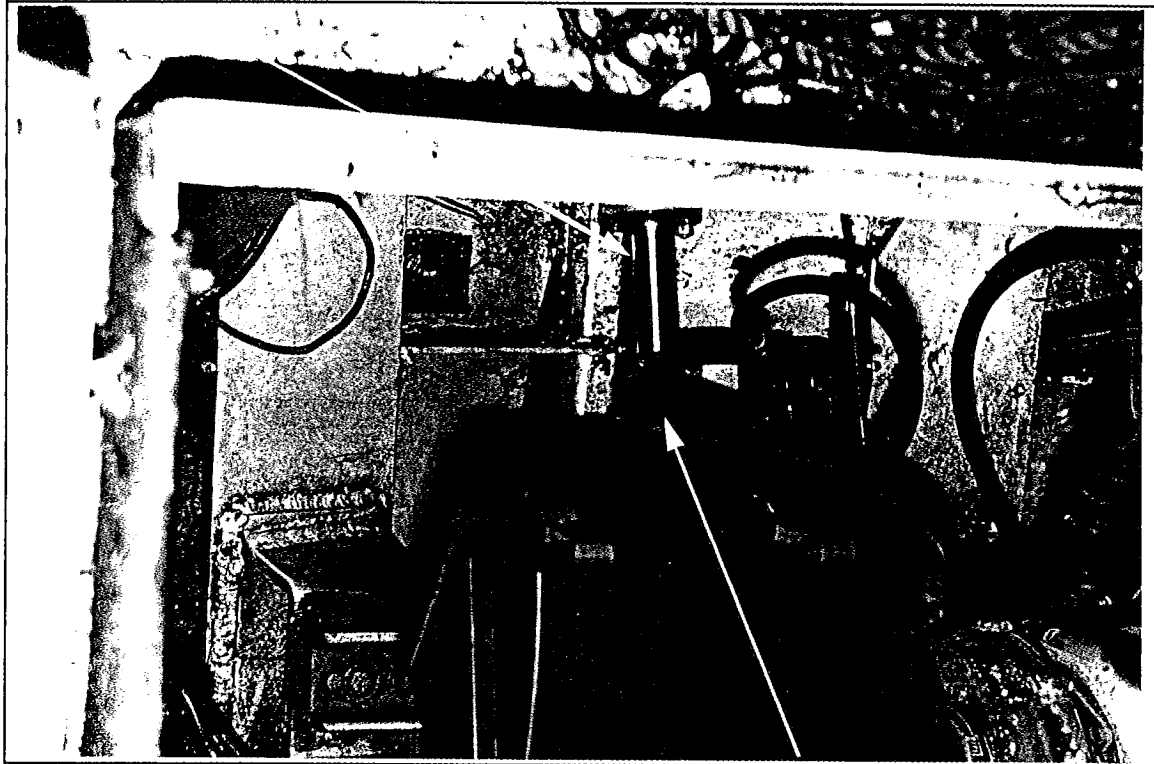


*Appendix A - Photographs of Engine Compartment*

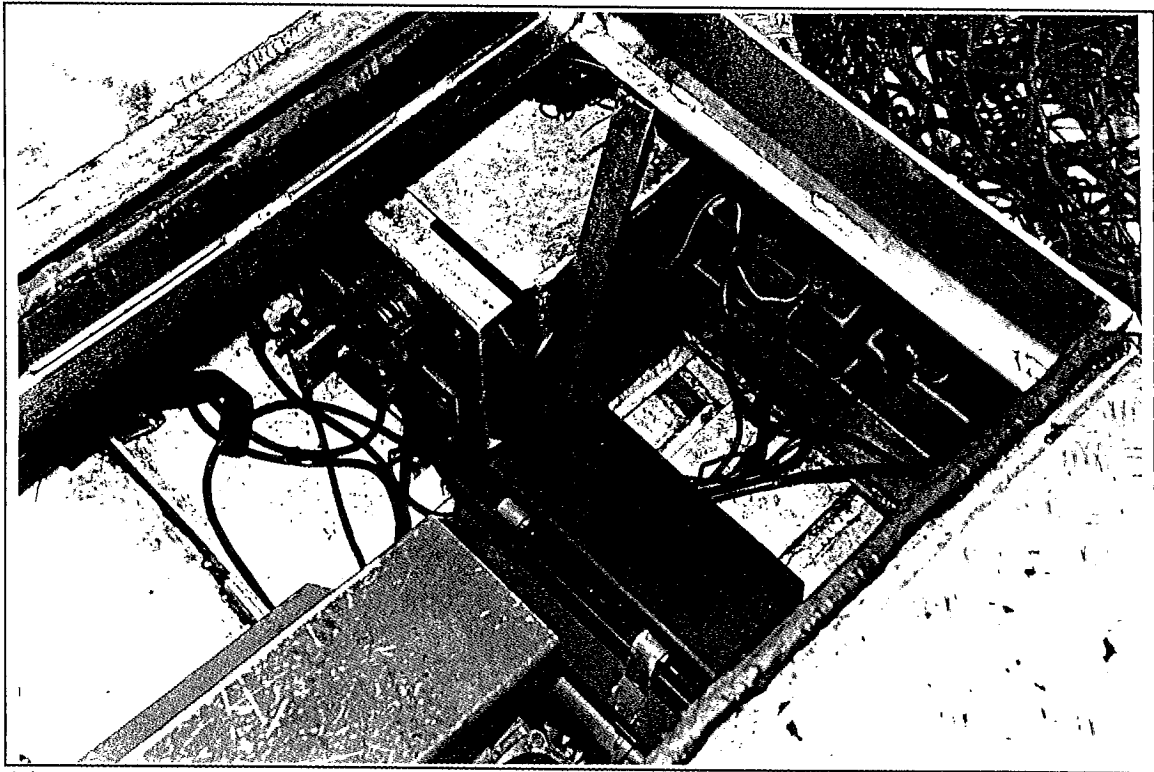


Engine compartment abaft wheel-house, hatch open.

Coupling



Propeller Shaft

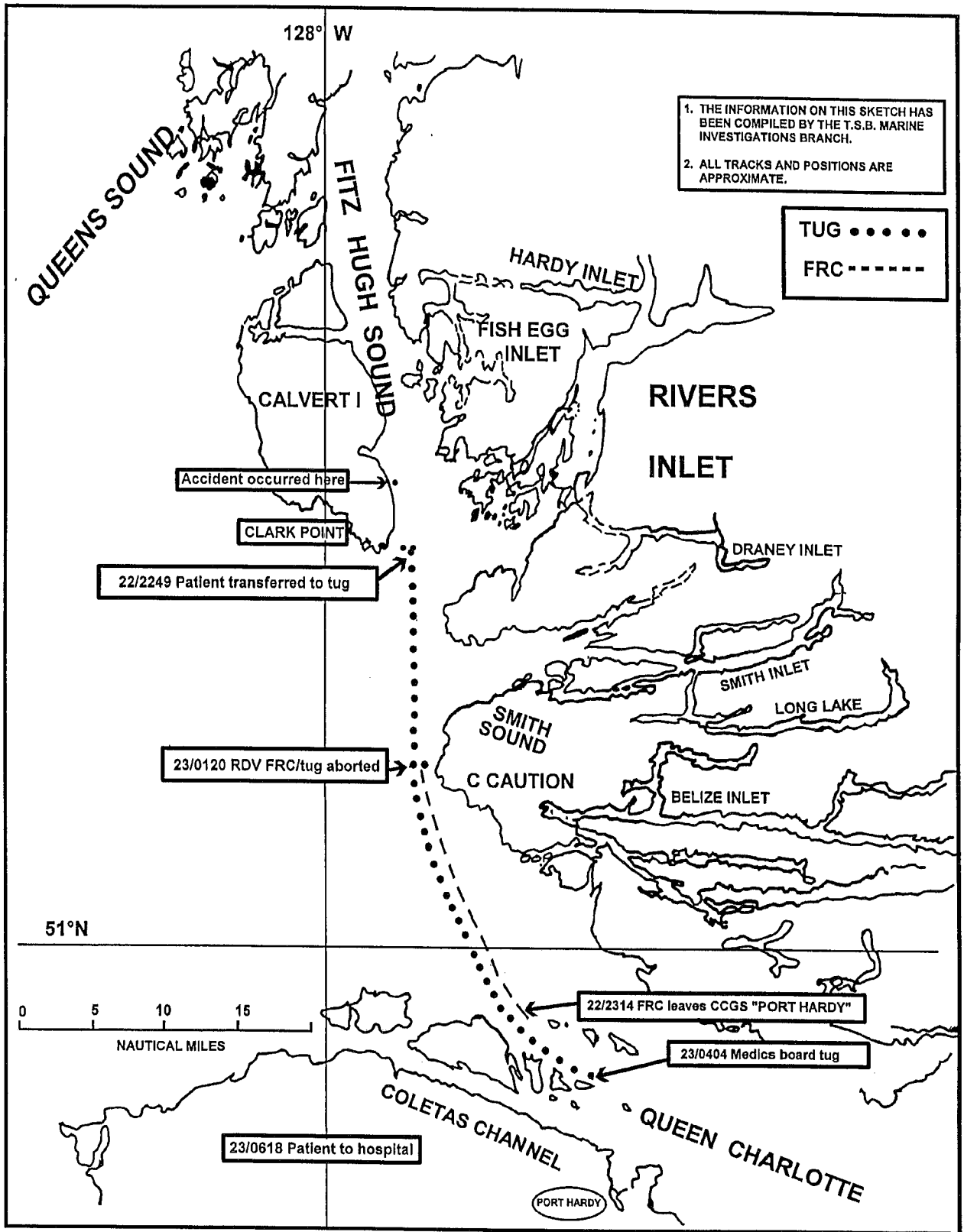


After end of engine compartment





Appendix B - Sketch of the Area of the Occurrence





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## *Appendix C - Glossary*

B.C.	British Columbia
CCG	Canadian Coast Guard
CCGS	Canadian Coast Guard Ship
CFB	Canadian Forces Base
CGRS	Coast Guard Radio Station
EHS	Emergency Health Services
FRC	Fast Rescue Craft
GRT	gross registered ton(s)
IMO	International Maritime Organization
kW	kilowatt(s)
m	metre(s)
N	north
PDT	Pacific daylight time
RCC	Rescue Co-ordination Centre
SAR	Search and Rescue
SI	International System (of units)
TSB	Transportation Safety Board of Canada
UTC	Coordinated Universal Time
W	west
°	degree(s)
'	minute(s)
"	second(s)