



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

Grounding

of the Small Lobster Vessel "STUMP JUMPER"
Long Island, Nova Scotia
30 November 1993

Report Number M93M0008

**TRANSPORTATION SAFETY BOARD
OF CANADA
BUREAU DE LA SÉCURITÉ DES
TRANSPORTS DU CANADA
LIBRARY
BIBLIOTHÈQUE**

Synopsis

While returning to Westport, Nova Scotia, in good weather and sea conditions on the second day of the 1993 lobster fishing season, the "STUMP JUMPER" ran aground on a rock ledge in the approach channel, resulting in the total loss of the vessel. Three of the four crew members were rescued by two other fishing vessels but the operator lost his life.

The Board determined that the "STUMP JUMPER" grounded due to a navigational error while making an approach to the harbour, in part because the operator's performance was impaired by his poor health and work-induced fatigue. The fact that the operator, who could not swim, was not wearing any form of flotation device contributed to his loss.

Ce rapport est également disponible en français.

Table of Contents

	Page
1.0 Factual Information	1
1.1 Particulars of the Vessel	1
1.1.1 Description of the Vessel	1
1.2 History of the Voyage	2
1.3 Injuries to Persons	3
1.4 Damage	3
1.4.1 Damage to the Vessel	3
1.4.2 Environmental Damage	3
1.4.3 Other Damage	3
1.5 Certification	3
1.5.1 Vessel	3
1.5.2 Personnel Certification and History	4
1.5.2.1 Owner/Operator	4
1.5.2.2 Deck-hands	4
1.5.3 Crew Health and Medical Examination	4
1.6 Factors Affecting Crew Performance	5
1.6.1 The Lobster Season and Fishing Operations	5
1.6.2 Work Patterns	5
1.6.3 Eating and Resting Patterns	5
1.6.4 Work Environment and Fatigue	5
1.7 Meteorological Information	6
1.7.1 Tidal Information	6
1.8 Navigational Aids	6
1.8.1 Navigation by the "STUMP JUMPER"	7
1.9 Radio Communications	7
1.9.1 Very High Frequency Radiotelephone Frequencies	7
1.9.2 Coast Guard Radio Station Distress Communication Procedure	7
1.9.3 Distress Communication	8
1.10 Search and Rescue Operations	9
1.10.1 Fishing Vessel Rescue Efforts	9

1.10.2	"WESTPORT" Rescue Efforts	9
1.10.3	Helicopter Rescue Efforts	10
1.10.4	Deployment and Response of Search and Rescue Resources	10
1.10.5	Perceived Inadequacy of Search and Rescue Services	10
1.11	Life-saving Equipment	11
1.11.1	Use of Life-saving Equipment During Fishing Operations	11
2.0	Analysis	13
2.1	Sequence of Events Leading to the Grounding	13
2.2	Factors Affecting Grounding	13
2.2.1	Set, Drift and Load Condition	13
2.2.2	Navigational Approach and Buoy Position	13
2.2.3	Deployment of Personnel	13
2.3	Health of the Operator	14
2.4	Factors Affecting Search and Rescue	14
2.4.1	Communication and Tasking of Search and Rescue Resources	15
2.4.2	Premature Abandonment - Assessment by Search and Rescue Technician	15
2.4.3	Effective Deployment of Shipboard Search and Rescue Personnel	16
2.5	Perception of Search and Rescue Services and Response	16
2.6	Obligations of Fishing Vessel Operators and Search and Rescue	17
2.7	Inaccessibility of Life-saving Equipment in an Emergency	17
3.0	Conclusions	19
3.1	Findings	19
3.2	Causes	20
4.0	Safety Action	21
4.1	Action Taken	21
4.1.1	Coast Guard Review	21
4.1.2	Skills, Training and Certification	21
4.1.3	Hours of Rest	21

5.0 Appendices

Appendix A - Sketch of a Cape Islander 23

Appendix B - Sketch of the Area of the Grounding 25

Appendix C - Photographs 27

Appendix D - Glossary 29

1.0 Factual Information

1.1 Particulars of the Vessel

"STUMP JUMPER"	
Official Number	347702
Port of Registry	Digby, N.S. ¹
Flag	Canadian
Type	Small fishing vessel (lobster vessel)
Gross Tons ²	12.2
Length (Registered)	11.88 m
Cargo (Catch)	approximately 1,360 kg of lobsters
Built	1973
Propulsion	Marine diesel engine, rated at 92 kW and capable of 10 knots
Owner/Operator	Clifton L. Prime, Central Grove, N.S.

1.1.1 Description of the Vessel

The "STUMP JUMPER" was of wooden, open construction, built to the Cape Island design and rigged for lobster fishing (see Appendix A). The hull had been sheathed with glass-reinforced plastic (GRP) and was subdivided by three transverse bulkheads below the main deck. The wheel-house/navigation position was in the forward part of the vessel, and the after open deck work area was fitted with a bulwark some 80 cm high.

¹ See Glossary for all abbreviations, acronyms, and definitions.

² 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.

1.2 *History of the Voyage*

The vessel departed from Westport, Nova Scotia, at 0530³, 30 November 1993, on a routine day trip. The crew of four, comprising the owner/operator and three deck-hands, fished at various lobster fishing grounds; all within a five-mile radius from the harbour (see Appendix B).

Fishing was completed at 1730 and the catch of some 1,360 kg of live lobsters was stowed in containers on deck. The vessel then headed toward the entrance to Grand Passage to return to harbour; her estimated time of arrival was 1900.

When entering harbour, the operator had the "hands-on" control of the vessel. While navigating from the wheel-house, he was also engaged in steering, keeping a look-out and controlling the speed. The other three crew members did not participate in the navigation and were relaxing. One was in the accommodation, another in the wheel-house and the other on the afterdeck.

After passing between buoy HA2 and Dartmouth Point and while proceeding at an estimated speed of 10 knots in darkness but in good visibility, the vessel unexpectedly grounded on Dartmouth Point Ledge at 1815 (see Appendix B). The vessel rode up on to the edge of the ledge, exposing her port side to a south-westerly swell which caused her to work heavily against the rocky ledge.

The crew members, who were jolted and startled, gathered in the wheel-house to assess the situation. The operator was heard to say words to the effect "What happened? How did we get here?" There were no injuries. No one could determine the reason for the grounding. They confirmed that the vessel had run aground on Dartmouth Point Ledge and realized that the vessel was in danger of either capsizing or breaking up by the actions of the waves. Messages requesting assistance were transmitted on the very high frequency radiotelephone (VHF R/T) by the "STUMP JUMPER" and were responded to by other fishing vessels and primary Search and Rescue (SAR) units. Three of the four crew members were rescued.

³ All times are AST (Coordinated Universal Time (UTC) minus four hours) unless otherwise stated.

1.3 *Injuries to Persons*

	Crew	Passengers	Others	Total
Fatal	1	-	-	1
Missing	-	-	-	-
Serious	-	-	-	-
Minor/None	3	-	-	3
Total	4	-	-	4

The cause of death of the operator, as established by the attending physician, was drowning in seawater. No significant injuries were noted.

1.4 *Damage*

1.4.1 *Damage to the Vessel*

The "STUMP JUMPER" sustained extensive hull damage and some equipment was salvaged before she eventually broke up.

1.4.2 *Environmental Damage*

The remaining diesel fuel oil escaped from the vessel but was quickly dissipated by wind and wave action. Pollution was considered to be negligible.

1.4.3 *Other Damage*

Another fishing vessel sustained minor hull damage during rescue operations.

1.5 *Certification*

1.5.1 *Vessel*

Being under 15 gross registered tons (GRT), the "STUMP JUMPER" was not required to be inspected by the Ship Safety Branch (SSB) of the Canadian Coast Guard (CCG), and she had not been so inspected. Insurance records indicated that the "STUMP JUMPER" was well maintained and the overall condition was satisfactory.

1.5.2 Personnel Certification and History

None of the crew members were required to be certificated to operate a vessel of this size and type. However, the crew members who used the radio were required to be appropriately certificated.

1.5.2.1 Owner/Operator

The owner/operator had some 40 years' fishing experience in the same area on similar small open fishing vessels and had operated the "STUMP JUMPER" since 1973. He did not hold formal marine qualifications to operate the vessel or the VHF R/T. Reportedly, he could not swim.

1.5.2.2 Deck-hands

Two of the three deck-hands had considerable lobster fishing experience and had spent some 16 and 10 years respectively fishing with the operator on the "STUMP JUMPER". The third deck-hand was on his first fishing trip. Two of the three deck-hands could not swim.

One deck-hand held a Fishing Master, Class IV, Certificate of Competency obtained in 1982, a requisite part of which is a Marine Emergency Duties Certificate. He also held a radio operator's licence.

1.5.3 Crew Health and Medical Examination

After the grounding, the operator was lying on the open deck, unable to help himself. Reportedly, he was alive but was unable to verbally respond to questions before he was swept overboard.

There is no regulatory requirement for fishermen to undergo medical examination to be eligible for employment aboard vessels. In this instance, the operator was obese and the medical records indicated that he was under treatment for diabetes (non-insulin dependent). His blood sugar content was at times elevated because he did not always take his medication. It is not known whether the operator had taken his medication on the day of the occurrence nor the last time he had taken it. (See Sections 1.6.4 and 2.3 for further discussion of the operator's condition.)

1.6 *Factors Affecting Crew Performance*

1.6.1 *The Lobster Season and Fishing Operations*

In south-west Nova Scotia, the season starts at the end of November each year and runs through May of the following year.

In the Maritimes, lobsters are caught using traps (pots) set on the sea-bed either individually or in groups of up to eight on a line. The size and design of the traps differ somewhat but they often weigh in excess of 40 kg. The traps are set on the opening (first) day of a season. Commencing the following day, the traps are hauled by powered winches, emptied, re-baited and lowered again to the sea-bed. The catch is transported live to harbour where, in this case, it was to be retained in seawater-permeated wooden crates, referred to as "cars", for later sale.

1.6.2 *Work Patterns*

The operator had the hands-on control of the vessel while entering and leaving port. He also navigated to the positions where the traps were set and manoeuvred between them. The other three crew members attended to the catch and, occasionally, one relieved the operator while he worked with the catch.

1.6.3 *Eating and Resting Patterns*

There were no set eating and resting patterns. On board, there was cold-packed food and hot coffee, taken during the short periods between attending to the traps and when travelling to and from the harbour.

1.6.4 *Work Environment and Fatigue*

Fatigue is generally related to the number of hours worked, the inability to obtain regular and uninterrupted sleep, and exposure to stressful and high workload situations (Pollard, Sussman, and Stearns, 1990). Further, the marine work environment and conditions (e.g., noise, vibration, and temperature extremes) are known to be potentially stressful (Pollard et al., 1990). Further, researchers at the Defence and Civil Institute of Environmental Medicine (DCIEM) found that a 30 per cent decrement in performance of cognitive tasks could be expected after 18 hours of wakefulness (Angus, Pigeau, and Heslegrave, 1988).

Performance is further affected by medical fitness, more so in persons suffering from some specific symptom such as a diabetic condition. Some of the effects of diabetes are dizziness, such as mental confusion, and partial blackout.

In this instance, the crew had arisen at about 0430, 30 November, commenced fishing at about 0630 and the vessel grounded at 1815. Some of the 375 traps which had been set the previous day were hauled, re-baited and re-set in some 11 hours by the operator. The operator was under treatment for a diabetic condition.

1.7 Meteorological Information

Weather forecasts issued by Environment Canada at 0530 on 30 November 1993 indicated north-west winds of 10 to 15 knots, increasing to 15 to 20 knots that evening, with continuing good visibility.

The weather conditions at the time of the grounding were: winds north-west at 20 to 30 knots, light-to-moderate seas in the lee of the land, good visibility and a heavy south-westerly swell due to recent storms.

1.7.1 Tidal Information

Low water at nearby Westport was predicted to occur at approximately 1800 on 30 November and low water slack some 20 minutes earlier. The tidal direction and rate in the area are subject to variations depending upon the wind direction, duration and speed. The grounding occurred approximately one mile to the south-west of Westport, and local knowledge indicates that the flood tide was just beginning to build.

1.8 Navigational Aids

The navigation equipment aboard the vessel included a magnetic compass, depth sounder, Loran C, radar and VHF R/T. All this equipment was in use and reportedly operating satisfactorily.

The fixed navigational aids in the area were in the positions as depicted on a local chart. The light on Peters Island and those at the extremities of the three wharves at Westport and Freeport were clearly visible.

Following the grounding, the position of light and bell-buoy HA2 was checked; the buoy was found to be 5.5 cables south of its charted position. The buoy, which exhibited a red flashing light, was required to be left on the starboard side of the vessel. Reportedly, as in this instance, some of the local lobster vessel operators do not use this buoy as intended but prefer to pass between the buoy and Dartmouth Point when navigating the entrance to the channel. The distance between the 10 m contour off Dartmouth Point Ledge and the charted position of buoy HA2 is approximately two cables.

1.8.1 *Navigation by the "STUMP JUMPER"*

It is not common practice for fishing vessels of this type and size to prepare a detailed navigation plan when entering and leaving harbour or to use a chart. Instead, navigation is carried out using skill and local knowledge. The "STUMP JUMPER" was being navigated in this manner with the intention of proceeding first to Westport to refuel, then to cross Grand Passage to Freeport to discharge the catch at the "cars".

It was the first time the operator had sold his catch to a buyer (who owned the "cars"). Shortly before the grounding, VHF R/T calls advised the operator that the buyer was waiting to receive the catch at the "cars". Consequently, course was altered toward Freeport. The "cars" were located on the east side of the channel; Westport is on the west side.

1.9 *Radio Communications*

1.9.1 *Very High Frequency Radiotelephone Frequencies*

The "STUMP JUMPER", the CCGS "WESTPORT", the Rescue Co-ordination Centre (RCC) Halifax and the Department of National Defence (DND) SAR helicopter were all equipped with VHF R/Ts capable of operating on various frequencies including channel 16 and channel 6. Coast Guard Radio Station (CGRS) Yarmouth has voice-recording capability for broadcasts made on channel 16 but not for channel 6. All stations, with the exception of RCC Halifax, were within VHF operating range. Communications between the RCC and the CGRS were maintained by mobile and land-line telephones.

Lobster vessels in the area use channel 6 as a working frequency to communicate with each other.

1.9.2 *Coast Guard Radio Station Distress Communication Procedure*

The CGRS monitors channel 16, the international calling and distress frequency. In the event of a "MAYDAY" call, the distressed traffic is advised to stay and communicate on channel 16. No other traffic is allowed to interfere with the distress communication or to broadcast on the distress frequency. After the distress traffic has been well established and following CGRS broadcast, normal transmission/working is allowed to be resumed.

1.9.3 *Distress Communication*

Shortly after the grounding, the first call for assistance was made by the operator of the "STUMP JUMPER" on VHF R/T channel 11 and was not received by any station. At 1817, a subsequent call was made to the "WESTPORT" by one of the deck-hands on channel 16. It read: "Coast Guard "WESTPORT", are you on this one?" This message was not prefixed by the spoken word "Mayday". Nevertheless, CGRS Yarmouth, knowing that the "WESTPORT" crew members were off duty, intercepted the message seeking distress-related information and enquired if assistance was required.

Before full information could be obtained, the VHF R/T on the "STUMP JUMPER" was switched from channel 16 to channel 6 to inform other vessels in the area and solicit assistance. Several fishing vessels responded. Meanwhile, RCC Halifax was alerted by CGRS Yarmouth and the "WESTPORT" was tasked.

Under instructions from CGRS Yarmouth, the "WESTPORT" advised the lobster vessels to switch to and monitor channel 16. Instead, the lobster vessels preferred to stay on channel 6. Only one other vessel briefly contacted CGRS Yarmouth on channel 16 but was unable to provide details on the occurrence.

Communication between CGRS Yarmouth and the "STUMP JUMPER" was as follows:

"STUMP JUMPER" Here off Westport, and we got to get something over here quick we're going to roll over.

CGRS What's the name of your vessel and could I get your position please, over.

"STUMP JUMPER" This is the "STUMP JUMPER" and we're right here ... in the mouth of the passage off Peters Island. We're aground on the Ledge, she's going to roll ... over if they don't get here quick. Just the mouth of Westport Passage.

CGRS Roger sir roger on that, how many people on board, over.

"STUMP JUMPER" There's four people on board, we ain't got time to talk, we got to do something.

The series of calls ended at 1818 (approximately 60 seconds after initiation).

1.10 Search and Rescue Operations

1.10.1 Fishing Vessel Rescue Efforts

Before the arrival of other vessels on scene, one of the deck-hands tied a lobster trap buoy to his arm and allowed himself to be carried over the side by one of the waves. The first two fishing vessels arrived on scene some five minutes after the grounding and were quickly followed by several others. All were equipped with searchlights and they illuminated the scene while evaluating rescue attempts. The "STUMP JUMPER" was observed moving on the rocks and it was determined that a close approach would be dangerous. Three persons were seen on deck; two were alert, standing up, and holding on to parts of the vessel, and the other (the operator) was lying on the deck, unable to help himself. Shortly afterward, the operator was swept over the side but was hauled back on board by the two deck-hands, only to be swept overboard again and lost to view. Meanwhile, the crew of one of the rescue vessels sighted the deck-hand in the water and rescued him. After another 20 minutes or so, the "STUMP JUMPER" swivelled on the ledge and her stern swung into deeper water. One of the fishing vessels took the opportunity to move alongside the "STUMP JUMPER" and rescue the remaining two crew members. The operator was pulled from the sea approximately one hour later by a fishing vessel. Attempts at resuscitation were unsuccessful and the operator was transported ashore where he was pronounced dead.

1.10.2 "WESTPORT" Rescue Efforts

The "WESTPORT" is an all-steel, twin-screw vessel designed for inshore rescue work. The 13.4 m vessel has a draught of 1.09 m and a crew of three comprising a coxswain and two deck-hands. The "WESTPORT" is equipped with a rigid-hull inflatable raft primarily intended to serve as a lifeboat. During SAR operations, a minimum of two persons are necessary to man the raft; it was not used in this instance.

Following the initial 1817 transmission from the "STUMP JUMPER", RCC tasked the "WESTPORT" at 1818 by alerting the off-duty crew members through their pagers. The "WESTPORT" departed from the berth at 1823, five minutes later, arriving on scene at about 1829. After assessing the situation, the "WESTPORT" advised RCC at 1836 that helicopter services were immediately required.

Many fishing vessels were in the immediate area attempting rescue operations. Consequently, there was limited space for manoeuvring and this precluded immediate safe/direct participation of the "WESTPORT". Before the "WESTPORT" could actively participate in the rescue effort, her two deck-hands, who were outside the wheel-house, kept a look-out for survivors, and the coxswain illuminated the area with a searchlight while relaying information to the RCC. After the three survivors had been rescued, the "WESTPORT" was able to join in the search for the operator, maintaining communication with all participants.

1.10.3 Helicopter Rescue Efforts

The helicopter crew members were off duty when they were tasked at 1842. The helicopter was airborne at 1924, arriving on scene at 1949. There was still some uncertainty as to the whereabouts of the missing person and, after assessment of the situation, a SAR technician was lowered to the "STUMP JUMPER" by wire hoist. During a search of the vessel and the immediate area, two or three lifejackets were seen floating in the flooded cuddy but there was no sign of the operator. The SAR technician was later informed that the operator had been pulled from the water and landed ashore, as were the survivors. The SAR technicians were then transported and landed ashore to render medical assistance. While they were attempting to resuscitate the operator, the local physician arrived and pronounced him dead.

1.10.4 Deployment and Response of Search and Rescue Resources

The primary marine SAR unit "WESTPORT" is stationed at the port of Westport. The vessel is on continuous stand-by from 0800 to 1600 and on 30-minute stand-by thereafter. After 1600, the crew is alerted through a paging system.

During the period of high fishing activity, when the need for SAR resources is greatest, air SAR resources are strategically positioned to minimize transit time. In accordance with established procedures, the helicopter was required to be on 30-minute stand-by from 0700 to 1600 when not engaged in SAR patrol and on 2-hour stand-by after 1600.

1.10.5 Perceived Inadequacy of Search and Rescue Services

During the investigation, local residents raised the following concerns regarding the efficiency of CCGS "WESTPORT", CGRS Yarmouth and the DND helicopter:

- a) The CGRS sought too many irrelevant details, such as the colour of the vessel, which wasted precious time given the urgency of the situation.
- b) The "WESTPORT" played a passive role in the rescue effort, letting the fishing vessels play a more active role.
- c) The "WESTPORT" did not light the area with flares.
- d) The "WESTPORT" did not launch her rigid-hull inflatable rescue craft.
- e) The helicopter arrived on scene too late and should have been available immediately.

1.11 *Life-saving Equipment*

The life-saving equipment aboard the "STUMP JUMPER" comprised one inflatable liferaft, stowed on the wheel-house top; four approved lifejackets, stowed in the cuddy; and one approved lifebuoy with line, stowed on the side of the wheel-house.

Following the grounding, the flooding of the vessel and the failed lighting in the cuddy precluded access to the lifejackets, and the violent movement of the vessel on the rocks precluded the deployment of the liferaft and the lifebuoy. None of the crew members was wearing a personal flotation device (PFD).

There is no regulatory requirement for vessels of this size and type to carry anti-exposure worksuits or for their crews to wear them. The worksuits are designed to provide the wearer with acceptable flotation and thermal protection without hindering his ability to perform normal work duties. Some fishermen consider the suits too warm to be worn during fishing operations and are consequently reluctant to accept them.

1.11.1 *Use of Life-saving Equipment During Fishing Operations*

Lifejackets and immersion suits are primarily designed to be used in emergency situations that may culminate in abandonment of the vessel. While both are designed to keep a person in the water afloat in a face-up position, the immersion suit is also intended to provide thermal protection. Both are cumbersome to use and interfere with normal performance in everyday work situations. To address this shortfall, the CCG has developed standards for anti-exposure worksuits for fishermen. Several different brands are now available on the market. A survey conducted by the CCG in 1993 found that 62 per cent of the respondents believed that the worksuit was too warm to wear during the summer. However, 90 per cent of the respondents indicated that they would wear the worksuit during cold or poor weather conditions.

2.0 *Analysis*

2.1 *Sequence of Events Leading to the Grounding*

Due to a lack of eyewitness testimonies, it was not possible to either determine the precise sequence of events leading to the grounding or establish if the operator's medical condition contributed to the grounding. However, there are compelling factors that could account for the operator's performance.

2.2 *Factors Affecting Grounding*

2.2.1 *Set, Drift and Load Condition*

Neither the load condition nor the prevailing weather conditions are considered to have adversely affected the safe navigation of the vessel. The southern entrance to Grand Passage is subjected to funnelling effect⁴ and the flood tide was just beginning to build; therefore, the effect of the wind would have been to retard the progress of the vessel.

2.2.2 *Navigational Approach and Buoy Position*

Because local fishing vessels, including the "STUMP JUMPER", often work close inshore, close to Dartmouth Point Ledge, they do not usually refer to buoy HA2. Soundings cannot provide advance warning of the steep-to ledge. Therefore, extreme caution must be exercised while navigating close offshore in its vicinity. The buoy was not in position, but it had not been used for reference.

2.2.3 *Deployment of Personnel*

Because the vessel was navigated close to shore in the vicinity of the Dartmouth Point Ledge, the operator had to be alert and maintain situational awareness. However, the operator was not aware of the vessel's position at the time of the grounding. This might indicate that he had not been monitoring the radar closely.

One of the deck-hands was knowledgeable of navigational practices and procedures but the operator did not ask him for assistance during harbour entry, despite the operator's poor health and demanding work schedule.

⁴ Scotia/Fundy Marine Weather Guide

2.3 *Health of the Operator*

In this instance, ship motions, workload on deck, number of hours worked, environmental conditions such as temperature, noise, vibration, and food intake, among others, affected the performance of the vessel's personnel.

During the first two days of the lobster fishing season, the crew is subjected to a heavy workload and work days of more than 12 hours. On the day of the occurrence, the crew of four handled 375 traps, each weighing in excess of 40 kg, in some 11 hours, which represents an average of one trap every two minutes. This does not take into account the time elapsed between hauling each string of traps and travelling between the strings.

Small vessels such as the "STUMP JUMPER" invariably pitch and roll even in the most moderate sea conditions, which increases the physical workload and stress on the crew. The operator's performance could have been further impaired by fatigue resulting from minimal rest periods during 12-hour workdays, especially if his diabetic condition was aggravated by his not taking prescribed medication or adhering to his diet.

As the examination of medical records revealed that the operator's blood sugar content was at times elevated, it would suggest that he did not always adhere to his prescribed diet and/or the medication schedule. However, in the absence of information pertaining to his food and medication intake for the period preceding the occurrence, the extent to which these factors affected his performance could not be determined.

Some minutes after the grounding, the operator was seen lying on deck unable to help himself or to verbally respond to queries. This would suggest that the operator was seriously impaired. No autopsy or post-mortem testing was carried out to establish whether pre-existing medical factors had contributed to the operator's death. Nonetheless, given the obesity of the operator, the possible effects of altered blood sugar levels in conjunction with the long hours worked, the possibility that the operator sustained severe and eventually debilitating metabolic changes, a cardiovascular event, or even a stroke, cannot be ruled out.

The operator was washed overboard within minutes of the grounding, was not wearing a PFD, could not swim and was in poor health; all of which contributed to his death. Thus, the operator's inability to stay afloat in conjunction with his poor health and possible loss of consciousness seriously compromised his survival.

2.4 *Factors Affecting Search and Rescue*

Channel 16 is the designated international calling and distress frequency and channel 6 is a designated ship-to-ship frequency. CGRS Yarmouth is not provided with VHF R/T channel 6; therefore, no recording of SAR communication on that frequency was possible. The "STUMP JUMPER" communicated with fishing vessels involved in SAR operations on

channel 6, but CGRS Yarmouth is not provided with that channel. Thus, it is not possible to precisely evaluate the efficiency of the SAR operations conducted by the fishing vessels and the impact of the role played by the "WESTPORT".

2.4.1 *Communication and Tasking of Search and Rescue Resources*

Examination of recorded CGRS transcripts revealed that the information requested was in accordance with the recognized international directives for transmitting distress messages and was necessary to elicit vital information not provided by the "STUMP JUMPER".

Although the messages transmitted by the "STUMP JUMPER" were not prefixed with "Mayday" or PAN, CGRS Yarmouth promptly apprised RCC Halifax and the "WESTPORT" of the situation. This resulted in the "WESTPORT" expeditiously arriving on scene some 11 minutes later. As the information from the distressed vessel was not complete and as the "STUMP JUMPER" unilaterally ceased communication on channel 16 and switched to channel 6 (to which the CGRS had no access), the CGRS was unable to directly monitor the situation. The CGRS, therefore, had to rely on information received from the "WESTPORT". The need for a helicopter was established only after the "WESTPORT" arrived on scene and appraised the situation, at which time its services were requested. Nevertheless, the request was made quickly, some 19 minutes after the first communication between the distressed vessel and the CGRS.

Because the operator was washed overboard shortly after the grounding and his survival was seriously compromised, even an earlier response from the helicopter consistent with daytime operation could not have altered the outcome of this occurrence. In this instance, although the aircraft was only required to be airborne in two hours, prompt action by the helicopter crew is depicted by the helicopter being airborne 42 minutes after it was tasked and arriving on scene in 1 hour 7 minutes.

2.4.2 *Premature Abandonment - Assessment by Search and Rescue Technician*

The records show that there have been cases where premature abandonment of a stranded vessel in bad weather has resulted in loss of life, while the vessel remained intact and could have provided refuge. The crew member who allowed himself to be carried overboard in effect abandoned the vessel before the arrival of the other fishing vessels and was fortunate to have been sighted and rescued.

An assessment of the situation by the SAR technicians on scene revealed that the personnel aboard the "STUMP JUMPER" could have been safely evacuated. By prematurely abandoning the vessel, the crew member subjected himself to additional risks. The operator did not abandon the vessel, but he was swept overboard by waves.

2.4.3 Effective Deployment of Shipboard Search and Rescue Personnel

The coxswain of the "WESTPORT" is responsible for the effective deployment of the crew and is guided by the circumstances of each search. The crew of only three persons must be deployed to ensure that the coxswain can effectively monitor on-scene SAR activity and keep RCC abreast of the developing SAR situation. Because a sharp look-out is an essential component of a successful SAR operation, the coxswain deployed two look-outs forward despite the fact that he was experiencing difficulties in properly aiming the searchlight.

The "WESTPORT" was subjected to rolling and pitching; therefore, the look-outs, stationed forward, had to hold on to the railings. A hands-free means of internal communication was not provided aboard the "WESTPORT" and difficulties were experienced in communications between the look-outs and the coxswain. Hence, as the searchlight controls were located within the wheel-house, difficulties were also experienced in properly aiming the searchlight.

The positioning of the crew forward left the coxswain alone in the wheel-house to communicate and coordinate search activity and navigate in the midst of other fishing vessels while demands were placed on him to aim the searchlight. The positioning of one of the look-outs in the wheel-house would have relieved the coxswain from the additional burden of properly aiming the searchlight, leaving him to direct his attention to other important matters.

2.5 Perception of Search and Rescue Services and Response

There was a lack of awareness by many fishermen and local Freeport residents with regard to the level of SAR services and response. The need to provide in-depth and accurate information on the vessel, position, nature of distress, life-saving equipment, which is essential to expeditiously effect a successful SAR operation, was not fully appreciated. Further, the majority of SAR occurrences the "WESTPORT" has responded to over the years, which comprised towing disabled fishing vessels into ports, were responded to promptly. As such, there was a general expectation that all SAR situations would be responded to quickly at any given time. The crew of the "WESTPORT" responded to the SAR situation in only five minutes, well within the 30-minute response period, and was on scene 11 minutes after being tasked.

If the rigid-hull inflatable raft, which had to be manned by two persons, had been launched, the coxswain would have been left alone on the "WESTPORT" to conduct and coordinate SAR activity, safely operate the vessel, ensure the safety of the rigid-hull inflatable raft and its crew, and ensure the overall safety of the SAR operation. This, in conjunction with the prevalent weather conditions, precluded deployment of the rigid-hull inflatable raft. Its launching would have jeopardized the safety of the "WESTPORT" and other vessels participating in the SAR operation.

However, the fishing vessels involved in the rescue effort expected the "WESTPORT" to take over and complete the SAR operation on arrival, enabling them to stand down. This led to the belief that the "WESTPORT" had merely stood by after arrival and let the fishing vessels complete the rescue. As the fishing vessels engaged in actively rescuing the survivors were close to each other, the "WESTPORT" considered it prudent to allow the two fishing vessels to continue with their rescue efforts, more so because the rigid-hull inflatable raft could not be launched. In doing so, the "WESTPORT" permitted successful rescue to be completed uninterrupted, thereby saving valuable time. Although all vessels and the "WESTPORT" were in communication with each other, none of the fishing vessels conveyed discontent to the "WESTPORT".

The crew members of the "WESTPORT" had participated in a number of joint SAR exercises involving designated SAR marine and air resources, and they were conversant with the established procedures and practices. On the other hand, with the exception of some fishing vessels from the Westport area that are designated Canadian Marine Rescue Auxiliary (CMRA), it is not common practice for local fishermen to participate in joint exercises aimed at safeguarding their individual or collective interests.

Further, the local residents had witnessed joint exercises by the "WESTPORT" and a DND fixed-wing aircraft wherein magnesium flares had been dropped by the aircraft to illuminate the search area; therefore, they were under the mistaken impression that the "WESTPORT" was also capable of deploying them.

2.6 Obligations of Fishing Vessel Operators and Search and Rescue

The positioning of a helicopter during the opening of the lobster season is intended to reduce transit time and provide quick response to emergency situations. However, in the interest of safety, the fishermen should ensure that adequate precautions are taken, consistent with the limitations of SAR response and transit times, and that their vessels are operated safely.

2.7 Inaccessibility of Life-saving Equipment in an Emergency

Because of the limited space on small fishing vessels such as the "STUMP JUMPER", lifejackets stowed in the accommodation and wheel-house often become inaccessible during an emergency. As thermal protection is critical for survival in the cold waters off the Canadian coast and as worksuits are designed to provide thermal and flotation capabilities, this occurrence once again highlights the need to carry and use worksuits. It is acknowledged that, under certain conditions, the worksuits may be warm to wear; however, in deciding whether to wear the worksuits or not, one must assess the risk factor.

3.0 *Conclusions*

3.1 *Findings*

1. The operator made a navigational error while making an approach to the harbour.
2. While entering the harbour, the operator received a message respecting change in port of destination.
3. The operator's performance was probably impaired by the cumulative effects of his diabetic condition and work-induced fatigue.
4. The operator had the "hands-on" control of the vessel and other crew members were not effectively deployed during the vessel's entry into the harbour.
5. The use of a very high frequency radiotelephone (VHF R/T) frequency other than that requested by Coast Guard Radio Station (CGRS) Yarmouth precluded effective direct monitoring of the Search and Rescue (SAR) operation.
6. A helicopter could not be dispatched until the CCGS "WESTPORT" arrived on scene because of a lack of information on the "STUMP JUMPER".
7. The response to the distress by the "WESTPORT" and the helicopter was prompt and well within the established response times.
8. By the time the "WESTPORT" arrived on scene, rescue attempts by the fishing vessels were under way, and the "WESTPORT" played a supervisory but passive role in the rescue.
9. The actions by the fishing vessels show their lack of appreciation of the requirements of a combined SAR effort.
10. There is no requirement for fishermen to meet health standards nor is there a requirement concerning hours of work; following the grounding, the operator was incapacitated.
11. The operator lost his life because he did not wear any form of flotation device, was unable to swim, was in poor health and became incapacitated.
12. The flooding of the cuddy and the loss of power precluded the crew from gaining access to the lifejackets.

13. Difficulties were experienced in deploying the vessel's inflatable liferaft and lifebuoy due to the violent motion of the vessel.

3.2 *Causes*

The "STUMP JUMPER" grounded due to a navigational error while making an approach to the harbour, in part because the operator's performance was impaired by his poor health and work-induced fatigue. The fact that the operator, who could not swim, was not wearing any form of flotation device contributed to his loss.

4.0 *Safety Action*

4.1 *Action Taken*

4.1.1 *Coast Guard Review*

Following the occurrence, the Canadian Coast Guard (CCG) reported conducting a review of the circumstances of the occurrence and its Search and Rescue (SAR) operation. The review concluded that the SAR operation was conducted properly; however, as a result of the review, the CCG will acquire searchlights for its rescue lifeboat fleet.

4.1.2 *Skills, Training and Certification*

In its report on a 1993 collision between two fishing vessels (TSB Report No. M92M4031), the Board expressed concern that unqualified crew members with inadequate knowledge and skills in conducting navigational procedures were, at least in part, contributory in about 45 to 50 per cent of all collisions, groundings and strikings involving fishing vessels in Canada. Therefore, the Board recommended that:

The Department of Transport ensure that any person required to have the conduct of a commercial fishing vessel possess the basic skills for safe navigation.

(M94-10, issued July 1994)

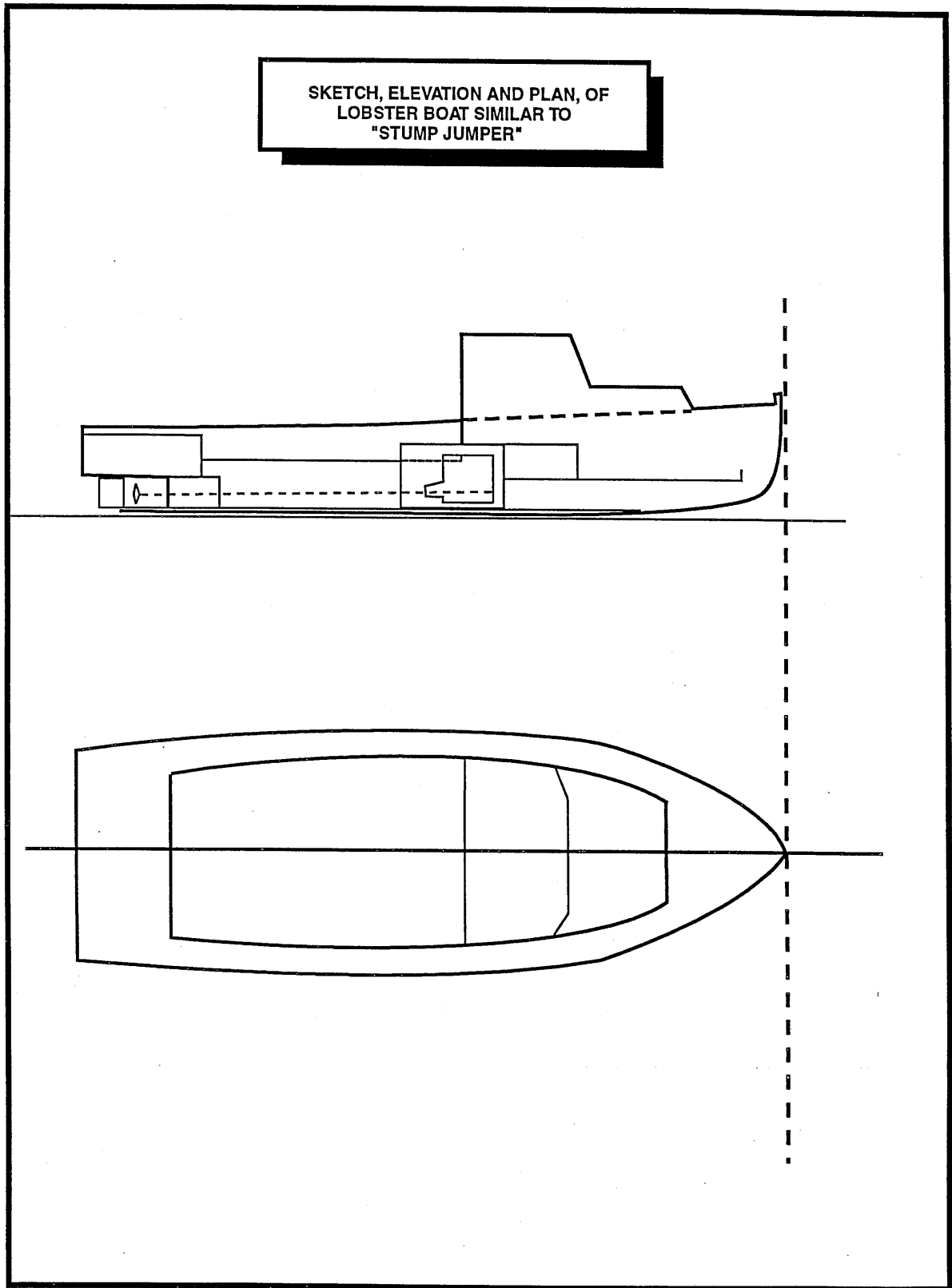
Subsequently, the CCG prepared discussion papers following regional and national Canadian Marine Advisory Council (CMAC) meetings held at the end of 1994 and in early 1995, respectively. The discussion papers propose new certification schemes and describe CCG's intentions regarding regulatory changes to fishing vessel certificates and crew competency. The topic was further discussed at the CMAC national meeting held in Ottawa in October 1995.

4.1.3 *Hours of Rest*

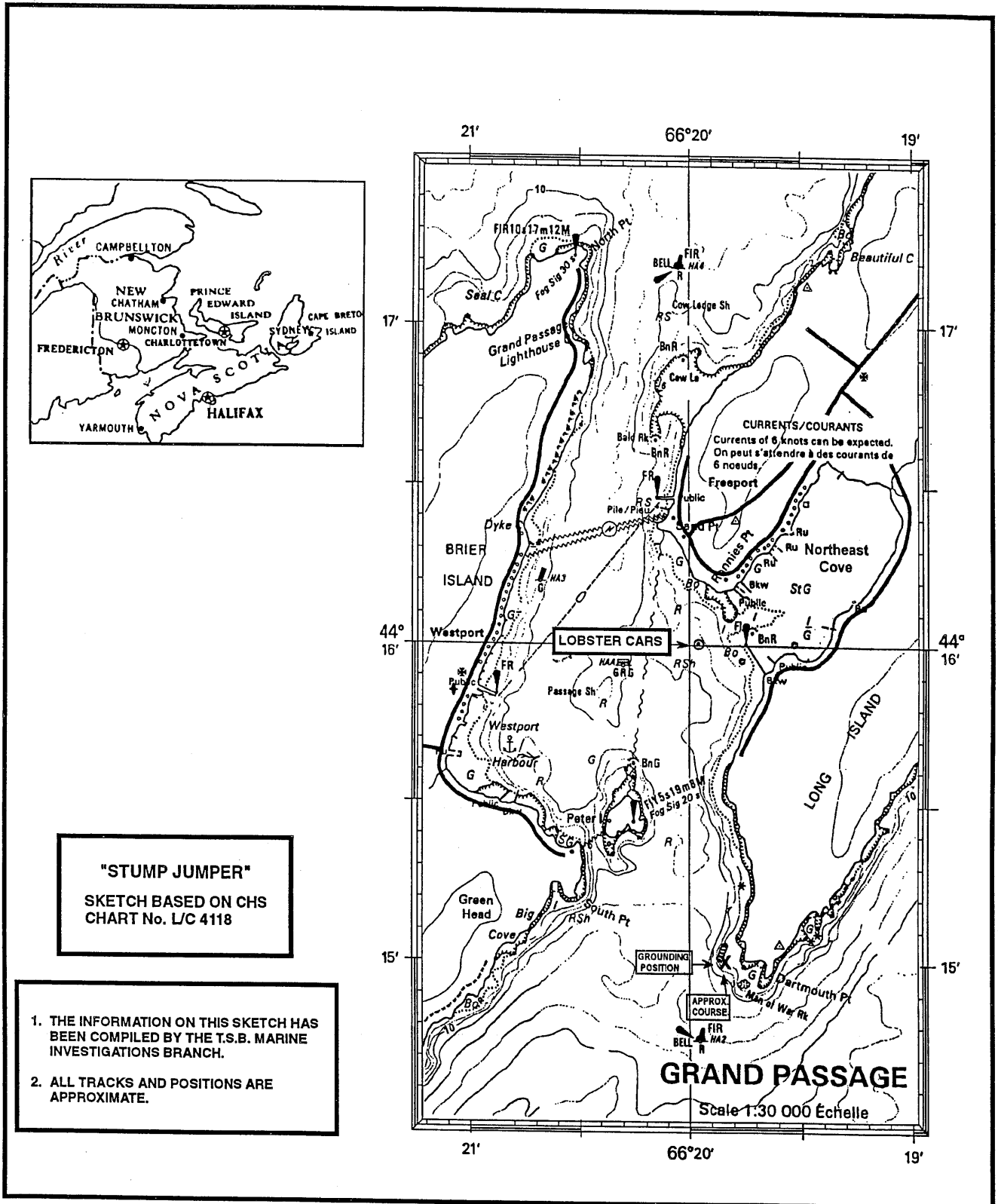
The Board also has expressed concern previously about the number of Canadian fishing vessels involved in marine occurrences in which issues related to crew fatigue were recorded. The current regulations affecting hours of rest (the Safe Manning Regulations) do not apply to personnel employed on Canadian fishing vessels. However, the Board understands that Transport Canada completed a study on the "Review and Revision of the Safe Manning Regulations" in January 1995. The study which focused on fatigue will form the basis for changes to the present Safe Manning Regulations, including provisions for minimum hours of rest for persons employed on fishing vessels.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, Chairperson, John W. Stants and member Zita Brunet, authorized the release of this report on 18 October 1995, pending ratification by the full Board.

Appendix A - Sketch of a Cape Islander



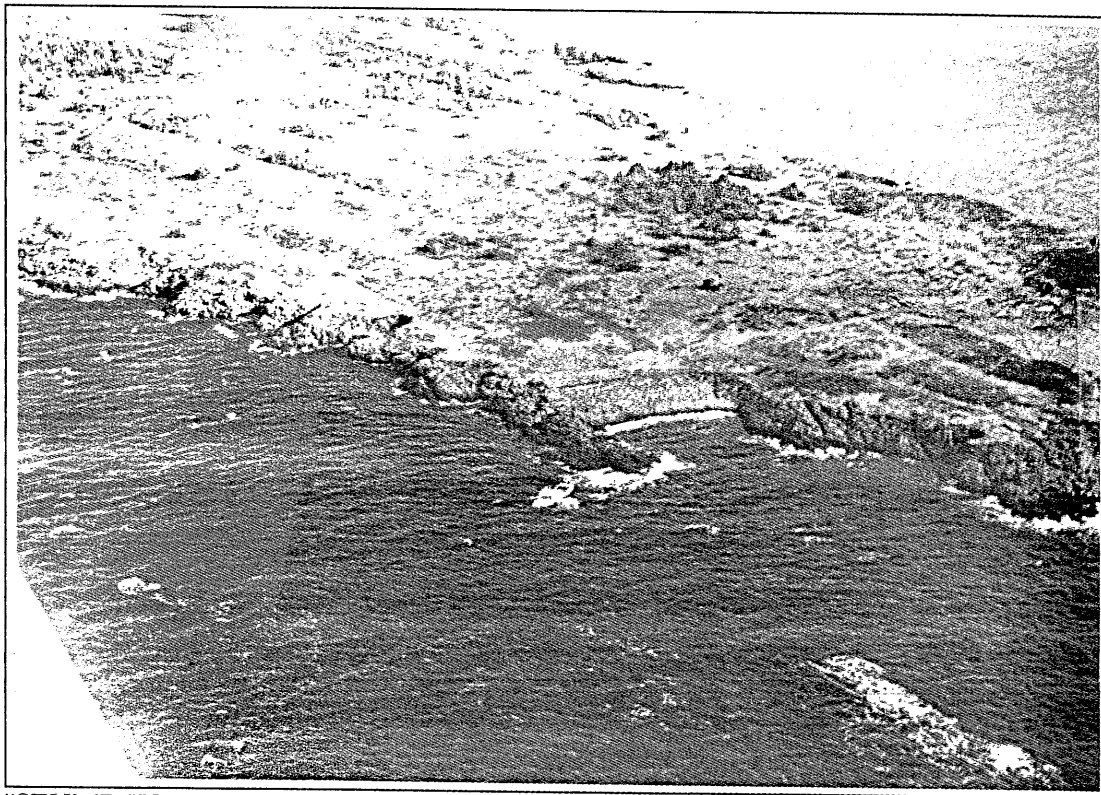
Appendix B - Sketch of the Area of the Grounding



"STUMP JUMPER"
 SKETCH BASED ON CHS
 CHART No. L/C 4118

1. THE INFORMATION ON THIS SKETCH HAS BEEN COMPILED BY THE T.S.B. MARINE INVESTIGATIONS BRANCH.
2. ALL TRACKS AND POSITIONS ARE APPROXIMATE.

Appendix C - Photographs



"STUMP JUMPER" aground on Dartmouth Ledge the following morning.



Lobster "cars" off Freeport: Dartmouth Ledge in the background.

Appendix D - Glossary

AST	Atlantic standard time
cars	seawater-permeated wooden crates in which lobsters are stored live for resell
CCG	Canadian Coast Guard
CGRS	Coast Guard Radio Station
CCGS	Canadian Coast Guard ship
cm	centimetre(s)
CMAC	Canadian Marine Advisory Council
CMRA	Canadian Marine Rescue Auxiliary
DCIEM	Defence and Civil Institute of Environmental Medicine
DND	Department of National Defence
GRP	glass-reinforced plastic
GRT	gross registered ton(s)
IMO	International Maritime Organization
kg	kilogram(s)
kW	kilowatt(s)
m	metre(s)
N.S.	Nova Scotia
PFD	personal flotation device
RCC	Rescue Co-ordination Centre
SAR	Search and Rescue
SI	International System (of units)
SSB	Ship Safety Branch
TSB	Transportation Safety Board of Canada
UTC	Coordinated Universal Time
VHF R/T	very high frequency radiotelephone