

MARINE OCCURRENCE REPORT

SWAMPING AND FOUNDERING

**FISHING VESSEL "WHISKEY JACK"
OFF FAN ISLAND, BRITISH COLUMBIA**

11 MAY 1993

REPORT NUMBER M93W0004

Canada

MANDATE OF THE TSB

The Canadian Transportation Accident Investigation and Safety Board Act provides the legal framework governing the TSB's activities. Basically, the TSB has a mandate to advance safety in the marine, pipeline, rail, and aviation modes of transportation by:

- conducting independent investigations and, if necessary, public inquiries into transportation occurrences in order to make findings as to their causes and contributing factors;
- reporting publicly on its investigations and public inquiries and on the related findings;
- identifying safety deficiencies as evidenced by transportation occurrences;
- making recommendations designed to eliminate or reduce any such safety deficiencies; and
- conducting special studies and special investigations on transportation safety matters.

It is not the function of the Board to assign fault or determine civil or criminal liability. However, the Board must not refrain from fully reporting on the causes and contributing factors merely because fault or liability might be inferred from the Board's findings.

INDEPENDENCE

To enable the public to have confidence in the transportation accident investigation process, it is essential that the investigating agency be, and be seen to be, independent and free from any conflicts of interest when it investigates accidents, identifies safety deficiencies, and makes safety recommendations. Independence is a key feature of the TSB. The Board reports to Parliament through the President of the Queen's Privy Council for Canada and is separate from other government agencies and departments. Its independence enables it to be fully objective in arriving at its conclusions and recommendations.



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.

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Synopsis

On 11 May 1993, the fishing vessel "WHISKEY JACK" was engaged in seafood harvesting and anchored in the shallow waters off Fan Island, Porcher Peninsula, British Columbia. While the heavily laden "WHISKEY JACK" was in the process of weighing anchor, a succession of large waves struck on her port quarter. The vessel shipped large quantities of water causing her to rapidly settle by the stern and founder. One of the three crew members succumbed to hypothermia and drowned, and the two others were rescued suffering from hypothermia.

The Board determined that the heavily laden "WHISKEY JACK" was swamped by successive large waves and foundered. Valuable time was lost because the Search and Rescue (SAR) initiative was prematurely terminated at the communication stage as a result of confusion regarding the identity of the vessel in distress. This confusion arose from the fact that two vessels had transmitted similar MAYDAY messages almost simultaneously.

Ce rapport est également disponible en français.

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1.0 Factual Information

1.1 Particulars of the Vessel

	"WHISKEY JACK"
CFV Number	20109
Home Port	Prince Rupert, B.C.1.
Flag	Canadian
Type	Dive tender
Gross Ton ^{2s}	5
Length	9.45 m
Breadth	2.89 m
Draught max.	0.91 m
Built	1979, rebuilt in 1986, Campbell River, B.C.
Propulsion	210 BHP marine diesel engine
Owner/Operator	Mr. Joseph Fairbairn Burnaby, B.C.

1.1.1 Description of the Vessel

The "WHISKEY JACK" was originally designed and built as a herring skiff in 1979. The vessel was converted for use as a dive tender in 1986, at which time the bow was redesigned, and a small cabin and an aluminium rubbing strake were added. The gunwales were raised 305 mm and a false bottom was added. A longitudinal fuel tank extending from the engine compartment to the cabin was also added. Several design

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.

modifications were made and the vessel's ownership changed several times. No accurate record of repairs and/or modifications made to this vessel is available.

The welded aluminium vessel was of open construction with a small cabin situated forward of amidships. A single sliding weathertight door located aft of the cabin provided access to the afterdeck. The door, which slid open to starboard, could be secured in an open or closed position. The vessel was powered by an inboard/outboard marine diesel engine located in the engine compartment aft, with a small outboard motor as a backup.

1.2 History of the Voyage

The "WHISKEY JACK" departed Prince Rupert, British Columbia (B.C.), at about 13330, 10 May 1993, with a crew of three comprising the owner/operator, a diver and a diver's tender. The vessel arrived at Freeman Passage at about 2130 and anchored for the night. The following morning, 11 May, the vessel departed the anchorage at 0845 for Fan Island, arriving there at 1030 (see Appendix A). After locating a suitable site, the vessel anchored.

Surface-supplied air was used for diving and the diver reportedly harvested sea urchins for periods of about two hours. Between periods of diving, he would board the vessel to rest, warm up and eat. The harvesting continued until the compressor malfunctioned, at which time the operator, who had relieved the diver at 1830, resurfaced and boarded the vessel at about 1930.

An examination of the engine compartment revealed that there was about 180 mm of water in the bilge; the source of the water ingress was unknown. The pumps in the engine compartment were unserviceable. The water covered the bottom of the pulley causing the compressor and hydraulic drive belts to slip, thereby disabling the compressor and the lifting gear.

The operator decided to return to a packer, positioned about one hour's steaming time away, to discharge cargo. Meanwhile, other vessels had already left the area because of worsening weather conditions. The crew continued manually hoisting the remaining product bags of sea urchins aboard. In all, about three and a half tons were loaded, most of which was stowed in the after section of the vessel, causing her to trim by the stern; the freeboard aft was about 75 mm.

The diver and the diver's tender then proceeded forward and commenced weighing anchor while the operator, positioned in the cabin, steered the vessel in the direction indicated by a crew member. The cabin door leading to the afterdeck well was in the open position.

At about 1943, the vessel was struck on the port quarter by a large swell and developed a starboard list. The operator looked aft and, sensing that something was amiss, selected channel 16 on the very high frequency radiotelephone (VHF R/T). In the limited time at hand,

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

he was able to transmit only a brief (three-second duration) MAYDAY message. Successive larger swells swamped the vessel, filling the cabin with water and forcing the operator to leave before he could complete the distress message.

The vessel settled rapidly by the stern, forcing the bow clear of the water. The operator, fighting against the ingress of sea water, escaped from the cabin; the other crew members stood on the front of the cabin.

The movement of the vessel in the swell forced the front windows of the cabin out.

Two lifejackets and two dry-suits floated free and were retrieved by the crew. However, a lifejacket and a dry-suit were lost subsequently. The swell precluded the operator from climbing on to the front of the cabin. As the operator was being carried away by the current, he headed for a nearby rock. A crew member threw him his dry-suit and, a short time later, he climbed on to a rock where he donned the suit.

Meanwhile, the vessel's stern began to pound on the bottom, forcing the other crew members to abandon ship a short time later. The diver's tender, wearing a lifejacket, and the diver, with a large polyfloat (scotsman) tied around his waist, both made it to the reef where they joined the operator and discussed their options. They knew the tide was ebbing and did not want to be stranded on the reef in darkness. The diver decided to swim alone to shore which was about two cables away.

The other two crew members waited a short time before attempting to swim. They observed that the diver was being carried along almost parallel to the shore by the tidal current and adjusted their heading to compensate for the drift.

When they reached the shore, the operator went to search for the diver. He spotted the diver about 80 m offshore and swam to him. The diver's face was in the water and he was not breathing. When his efforts to give the diver artificial respiration were hampered by the swell, the operator swam toward the shore with the diver in tow, and continued to try to revive him but was unsuccessful.

The operator then left the diver on the beach and returned to the diver's tender. Seeing that the latter was very cold, the operator gave him the dry-suit. The two survivors swapped the dry-suit several times throughout the night.

They tried to attract the attention of passing vessels but were unsuccessful. At about 1145, 12 May, some 16 hours after the foundering, a Canadian Coast Guard (CCG) helicopter spotted the two survivors and rescued them, and recovered the body of the diver.

1.3 *Injuries to Persons*

	Crew	Passengers	Others	Total
Fatal	1	-	-	1
Missing	-	-	-	-
Serious	-	-	-	-
Minor	2	-	-	2
Total	3	-	-	3

When rescued, the survivors of the "WHISKEY JACK" were suffering from hypothermia. They were transported to a hospital in Prince Rupert, treated and released the following day. The diver had succumbed to hypothermia and drowned.

1.4 *Damage to the Vessel*

The vessel was a total loss.

1.5 *Certification*

There are no regulations or standards governing the construction of vessels under 15 gross tons such as the "WHISKEY JACK", and the vessel was not required to be inspected by the CCG. The vessel, however, was last inspected for insurance purposes at Vancouver, B.C., in 1991, at which time the survey revealed that she was in good condition overall. The vessel was reportedly equipped in accordance with existing regulations made pursuant to the *Canada Shipping Act*.

1.5.1 *Personnel Certification and History*

There is no statutory requirement under the *Canada Shipping Act* for the crew of a vessel of the size of the "WHISKEY JACK" to be certificated. None of the crew held any marine certificates.

The operator of the "WHISKEY JACK", who is a certificated commercial diver, had been involved in various seafood harvesting ventures since 1975. This was his first time harvesting sea urchins in this area. Under the regulations made pursuant to the *Radio Act*, he was required to have, but did not have, a Radiotelephone Operator's Restricted Certificate (Marine). He was not very familiar with the area. The diver, who was also a certificated commercial diver, had been employed in that capacity since 1985. This was his second trip on this vessel in 1993.

This was the first trip for the diver's tender on board the "WHISKEY JACK".

Two radio operators were on duty at the Coast Guard Radio Station (CGRS) Prince Rupert. Both were in possession of Coast Guard Radio Operator's Certificates and had seven and five years' experience respectively. The station conducts an in-house training program wherein procedures and equipment are reviewed and discussed on a quarterly basis each year.

1.6 Weather

The weather experienced by the vessel was consistent with other observations and was described as clear, north-west winds at about 20 knots, moderate sea and good visibility. The sea water temperature was 9 °C.

1.6.1 Tidal Information

At the time of the occurrence, the tide was ebbing. The ebb runs in a southerly direction at about one knot.

1.7 Occurrence Site

The area selected by the crew to harvest red urchins is situated off Fan Island, Porcher Peninsula. Fan Island, joined to Fan Point by a drying reef, is prominent from the north-west to the south-east. The west coast of Porcher Peninsula is rocky and fringed with boulders and foul ground usually marked with kelp. A heavy, continuous swell sets on this coast.

1.8 Bilge Pumps

Before the trip, the two automatic electric bilge pumps in the engine compartment had been disconnected while the main engine was being rebuilt. The bilge pumps had not been reconnected. Reportedly, two other float-activated, automatic bilge pumps were on board in the well area; however, it is not known if they were operating when the vessel was swamped.

1.9 Radio Communications

1.9.1 Transmission of Distress Messages

A distress communication by R/T should follow a specific procedure and has absolute priority over all other transmissions. A distress call is to be followed by a distress message. For example:

distress call:	Mayday, Mayday, Mayday
the words:	this is
name of ship:	Nonsuch, Nonsuch, Nonsuch
distress message:	Mayday, Nonsuch
position of ship:	off Îles Sainte-Marie
nature of distress:	struck rock and sinking
assistance needed:	require help to abandon
other useful information:	will fire rockets
invitation to acknowledge and reply:	"over"

Knowledge of such a procedure, among others, is a requirement for a person seeking to obtain a Radiotelephone Operator's Restricted Certificate (Marine).

On 11 May 1993, two vessels that were in the same general area transmitted MAYDAY messages at about the same time. The "WHISKEY JACK" broadcast a MAYDAY message on VHF R/4T channel 16, which was received at 1943 by the CGRS Prince Rupert and the Vessel Traffic Centre (VTC) Prince Rupert. The message, as received, read:

"MAYDAY MAYDAY ... going down."

The "PACIFIC PORCUPINE", the other vessel in distress, broadcast a MAYDAY on VHF R/T channel 68. The message, as received by the "NANI WAHINI", was relayed to the CGRS on channel 16. The message read: "MAYDAY MAYDAY we're going down."

Channel 68 is an inter-ship frequency for non-commercial use and for use by marinas. As fishing vessels in the area use channel 68 as a working frequency and consequently monitor it, the operator of the "PACIFIC PORCUPINE" broadcast a MAYDAY on that channel. He received immediate response from other vessels in the area and his distress was resolved.

1.9.2 Coast Guard Radio Station (CGRS) Prince Rupert VHF Communications Equipment

The station has several receivers from satellite antennae providing mariners with radio coverage over a large geographical area. There is also the Search and Rescue communications line (SARCOM). These receivers, including the SARCOM, are monitored by the radio operators through one console loudspeaker.

The radio operator has to discriminate between the different calls, which becomes more difficult as the number of calls increases. Simultaneous calls could also be overridden, and the CGRS had periodically experienced audio degradation of received signals such that the message was indiscernible.

⁴ All communications between the CGRS and other mobile radio stations were carried out on VHF R/T.

The VHF R/T channels monitored by the CGRS include the international distress, safety and calling channel 16. Channel 68 is not monitored.

During this occurrence, the distress-related communications took place over a period of about 20 minutes. Reportedly, there was some interference in communication and some degradation in audio quality. Several attempts were made by both the CGRS and the VTC to retrieve the name of the distressed vessel, but to no avail. The CGRS was able to discern the name of the distressed "WHISKEY JACK" only after an extensive post-occurrence review of the recorded audiotapes.

1.9.3 Radio Equipment - "NANI WAHINI"

Another fishing vessel, the "NANI WAHINI", which was operating in the general area, participated in the distress-related communications. In addition to the VHF R/T carried on board, the "NANI WAHINI" was equipped with a separate radio frequency scanner (non-marine equipment) connected to a receiver.

The scanner was capable of scanning multiple channels; the vessel was therefore able to monitor more than one channel simultaneously. The scanner displays the frequency, not the channel number of the transmitting station. Thus, personnel using the scanner should be knowledgeable of the frequencies and corresponding channels. Reportedly, the operator of the "NANI WAHINI" was not fully conversant with this information. In case of simultaneous transmissions on the same channel, the station with the strongest signal prevails. However, in case of simultaneous transmissions on different channels, as in this instance, the channel is locked on to the first transmitting channel encountered in the scanning sequence. The MAYDAY message from the "PACIFIC PORCUPINE" was picked up on channel 68, but no MAYDAY was picked up on channel 16. However, the "NANI WAHINI" was required to monitor and should have maintained a continuous listening watch on channel 16 while at sea.

1.9.4 Distress-related Communications

Upon receipt of a MAYDAY message (at 1943, 11 May) on channel 16 from a vessel (later identified to have been the "WHISKEY JACKS"), the CGRS tried to raise the vessel on that frequency but no response was heard. At 1944, the CGRS broadcast a MAYDAY RELAY on channel 16 requesting information from any station that may have received the MAYDAY broadcast. Two responses were received, one from the CCG helicopter "CG358", which was airborne and in the general area, and the other from the fishing vessel "CUERVO". The "CUERVO" wanted to know if the MAYDAY message had originated from the "WHISKEY JACK". The CGRS indicated to the "CUERVO" that the information as received did not indicate the vessel's name.

⁵ The name of the vessel was not determined on the day of the occurrence.

The "CG358" informed the CGRS that the MAYDAY message, as heard, was loud and clear, that the name of the vessel was "something JACK" and that the beginning of the name was not heard. The CGRS advised the "CG358" that the VHF direction-finder indicated that the MAYDAY originated near Porcher Island, possibly in the Kitkatla area. The pilot of the "CG358" responded that he was overhead and would check the area. The "CG358" continued trying to raise the "... JACK" on channel 16 until 1950, but to no avail.

At 1946, the operator of the "CUERVO" informed the CGRS that he had seen the "WHISKEY JACK" at noon near Fan Island. The CGRS acknowledged receipt and requested the vessel to check that area if possible; however, no response was heard. At 1947, the CGRS re-issued a MAYDAY RELAY wherein it indicated that the name of the vessel began or ended with "JACK".

At 1951, the operator of the "NANI WAHINI" called on channel 16 to inform the CGRS that the fishing vessel was scanning all VHF stations and that the only MAYDAY message heard, some 10 minutes earlier, was from the "PACIFIC PORCUPINE" which was off "Willis Bay or something." He also stated that he was not sure that the distressed vessel was the "WHISKEY JACK".

At 1953, the pilot of the "CG358" contacted the CGRS and reiterated that he had heard the vessel's last name "JACK" and asked if the vessel's name was on the station's audio recorder.

After confirming that the distress of the "PACIFIC PORCUPINE" had been resolved, the CGRS cancelled the MAYDAY RELAY at 2003 indicating that the vessel in distress had been found.

At 2005, the station apprised the Rescue Co-ordination Centre (RCC) Victoria of the distress situation involving the "PACIFIC PORCUPINE" and informed it that everything was under control. No reference was made to the conflicting information (possible mix-up) with respect to the "WHISKEY JACK". No action, therefore, was initiated by the RCC. While the CGRS Prince Rupert was involved in the distress communication, the RCC Victoria was preoccupied with another distress in the Vancouver CGRS area. This was known to the CGRS Prince Rupert.

1.9.5 CGRS Operating Procedures

The procedures for distress-related communications contained in the CCG publication

Radio Station Operations Standards require that the CGRS pass the "original distress message verbatim" to the RCC or Marine Rescue Sub-Centre (MRSC) using the SARCOM network, and that the RCC or MRSC "initiate a distress termination message to all stations." These procedures were not followed.

1.10 *Search and Rescue (SAR) Operations*

The following morning, 12 May, the fishing vessel "SWIFT INVADER" contacted the CGRS at 1111 to report that the "WHISKEY JACK" was missing, thus setting in motion SAR operations. At that time, three other fishing vessels indicated that they had heard a MAYDAY broadcast by the "WHISKEY JACK", but none of them had responded to the MAYDAY RELAY the previous evening.

The RCC was apprised of the developments, and the survivors were eventually rescued at 1145, 12 May, some 16 hours after the "WHISKEY JACK" had declared a distress.

1.11 *Sailing Plan*

In case of an emergency or when a ship is overdue, vital information on the vessel is essential for the authorities to initiate an effective SAR response. Thus, the CCG encourages fishing vessels and pleasure craft to prepare a sailing plan and participate in the Sail Plan Program; one such program is under the operational jurisdiction of the CGRS Prince Rupert. Information required in the sailing plan includes the date and time of departure, intended fishing areas, proposed route, estimated date and time of return to port and, if fishing with other vessels, the names of the vessels. In this instance, the "WHISKEY JACK" had not filed a sailing plan. The filing of such a plan would have provided valuable information to the CGRS and could have assisted in establishing the identity and the distress status of the "WHISKEY JACK".

1.12 *Life-saving Equipment*

The rapidity of the swamping of the vessel precluded the crew from gaining access to the life-saving equipment, including the pyrotechnics. However, following the swamping, two lifejackets floated free and were recovered, but one was later lost.

There is no requirement for a vessel of this size and type to carry any thermal protection for the crew nor is there a requirement to carry an Emergency Position Indicating Radio Beacon (EPIRB). In this instance, it was fortuitous that two personal diving dry-suits were carried on board because of the nature of the vessel's trade; one was unfortunately lost after the swamping. The alternate sharing of the remaining dry-suit by the two survivors was instrumental in saving their lives.

1.13 *Sea Water Temperature and Survival Time*

The Canadian Red Cross pamphlet entitled *Cold Water Survival* graphically illustrates that the predicted survival time for an average adult holding still in ocean water of 9°C while wearing a standard lifejacket and light clothing is approximately two hours (see Appendix B).

2.0 *Analysis*

2.1 *Effect of Water in the Bilge*

Because the vessel was lost, the hull could not be examined and because no construction plans were available, the dimensions of the engine compartment could not be verified. Consequently, the quantity, and the trimming and free-surface effects of the water in the bilges could not be determined.

Free-surface effect of any liquid would have a detrimental effect on the intact stability characteristics of the vessel. However, photographs show that the engine compartment was much smaller than the full width of the well deck and, consequently, free-surface effect would be a relatively minor factor in the event of the engine compartment and/or well deck becoming partially flooded.

The predominant effect of the accumulation of water in the engine compartment was to increase the loaded vessel's already marked trim by the stern. The resultant reduced freeboard aft rendered the vessel highly vulnerable to the shipping of water on deck which culminated in her foundering.

2.1.1 *Factors Contributing to the Swamping of the Vessel*

In shallow waters, as a wave approaches, the wavelength becomes shorter. When the depth of the water becomes less than half the wavelength, the crests break and tumble over, forming surf. The "WHISKEY JACK" was anchored close offshore on the weather side of Fan Island in shallow water and the sea-bed was shelving in the area. These conditions were conducive to the vessel encountering increasingly high waves as the vessel was driven toward the shore. This is consistent with the wave height observed by the crew of the "WHISKEY JACK".

At the time of the occurrence, the "WHISKEY JACK" had a low freeboard aft of about 75 mm. When a large wave struck the port quarter of the vessel, sea water was shipped and retained on the afterdeck well, further reducing the already low freeboard aft. Successive large waves swamped the vessel. This additional weight aft caused the vessel to settle rapidly by the stern, downflooding through the open after door. The air in the bow of the vessel provided buoyancy, allowing the bow to remain above the waterline for a short period.

Furthermore, as the vessel was at anchor, her ability to respond effectively to any immediate corrective measure would have been restricted, which could have influenced the outcome of this occurrence.

2.2 *Confusion Regarding the Distress Situation*

The CGRS should have known that there were two vessels in distress since it was aware that the names of the distressed vessels ("something JACK" and "PACIFIC PORCUPINE") were distinctly different. Furthermore, the VTC Prince Rupert, the CGRS Prince Rupert and the CCG helicopter had all heard a MAYDAY message on channel 16 and the helicopter had partly identified the name of the vessel as "something JACK", whereas only one fishing vessel reported to the CGRS hearing a MAYDAY from the "PACIFIC PORCUPINE" on channel 68. Also, the "WHISKEY JACK" had been positively sighted off Fan Island around noon.

The fact that the CGRS was unable to determine that two vessels were in distress at about the same time may be attributed to the following coincidences and factors:

- The two vessels, "WHISKEY JACK" and "PACIFIC PORCUPINE", transmitted MAYDAY messages similar in content almost simultaneously and both vessels were in the same general area.
- None of the shipboard or shore-based radio stations heard both MAYDAY messages.
- On the day of the occurrence, no fishing vessel responded to the MAYDAY RELAY from the CGRS requesting information on a distressed vessel whose name began or ended with "JACK".
- All information respecting the distress of the "PACIFIC PORCUPINE" had been confirmed whereas no information respecting the distress of the "WHISKEY JACK" could be verified.
- Neither the CGRS nor the VTC had heard the name of the distressed vessel ("WHISKEY JACK") nor was either station able to recover the vessel's identity from the audio recording.
- Over-reliance was placed on the information presented by the "NANI WAHINI" in that the loud-and-clear message received by the helicopter "CG358" partially identifying the vessel as "something JACK" and the reported sighting of the "WHISKEY JACK" off Fan Island around noon did not receive due consideration.

The cumulative effect of the above resulted in the CGRS erroneously concluding that only one vessel, the "PACIFIC PORCUPINE", was in distress. Consequently, no further action was taken until the "WHISKEY JACK" was reported missing the following morning.

Since the interference in communication and the reported degradation in audio quality could materially detract from the optimal performance by the CGRS operators, the overall evidence suggests that appropriate weight was not assigned to important cues.

2.3 Safety Equipment Issues

As the vessel was not required to carry an EPIRB, the only method of alerting the authorities available to the crew was the VHF R/T. The rapidity of the swamping and foundering prevented the operator of the "WHISKEY JACK" from transmitting a complete and detailed MAYDAY message. Thus, vital position information was not available for SAR operations.

Further, as the pyrotechnics were no longer accessible when the vessel was swamped, the occupants had to rely on passing traffic for assistance. Their rescue therefore depended upon their success in visually drawing attention. Two of the three crew members of the "WHISKEY JACK" managed to swim to shore but were unable to summon assistance. The survivors were fortunate in that their absence was noticed by other fishing vessels, resulting in the resumption of the prematurely terminated SAR activity and their eventual rescue.

2.4 Use of Non-approved Marine Equipment - Frequency Scanner

As continuous monitoring of channel 16 at sea is mandatory for all vessels required to be fitted with VHF R/T sets, some marine VHF R/T sets available on the market incorporate a scanning feature with channel 16 override. The equipment aboard the "NANI WAHINI" was not provided with such an override feature. As the distress broadcast on channel 16 had not been received aboard the "NANI WAHINI", it would suggest that channel 16 was not effectively monitored.

In this instance, the use of a non-marine scanner resulted in the "NANI WAHINI" reporting to the CGRS that the "PACIFIC PORCUPINE" was in distress, not the "WHISKEY JACK". Thus, the attention of the CGRS was diverted from the primary distress situation involving the "WHISKEY JACK" broadcast on channel 16 to the already resolved distress situation involving the "PACIFIC PORCUPINE" broadcast on channel 68.

3.0 Conclusions

3.1 Findings

1. There are no design and construction standards for a vessel of the size and type of the "WHISKEY JACK", nor was the vessel required to be inspected.
2. The vessel had undergone several modifications and was utilized in an industry for which she was not originally designed.

3. While the vessel was engaged in harvesting sea urchins, sea water accumulated in the engine compartment, disabling the vessel's hydraulics.
4. The loss of mechanical hoisting prolonged the loading of the catch in worsening weather conditions.
5. Two bilge pumps to the engine compartment were not reconnected following repairs to the main engine.
6. The moderate to large swell in the area was attributable to location, prevalent weather conditions and the shallow water effect.
7. The open construction of the vessel, the low freeboard aft and the presence of swell on the vessel's quarter permitted a large quantity of water to be shipped and retained in the afterdeck well.
8. Quick succession of moderate to large swells caused the vessel to settle rapidly by the stern and founder.
9. The rapidity of the swamping and foundering of the vessel precluded the operator of the "WHISKEY JACK" from transmitting a full MAYDAY message and severed the only communication link.
10. The Coast Guard Radio Station (CGRS) and the Vessel Traffic Centre (VTC) Prince Rupert did not hear the name of the distressed vessel ("WHISKEY JACK") in the MAYDAY broadcast nor were they able to retrieve this information from the audio recording.
11. The two vessels in distress in the same general area broadcast MAYDAY messages similar in content almost simultaneously: the "PACIFIC PORCUPINE" on the very high frequency radiotelephone (VHF R/T) channel 68 and the "WHISKEY JACK" on channel 16.
12. The MAYDAY transmission from the "PACIFIC PORCUPINE" was picked up by the frequency scanner aboard the "NANI WAHINI", but the MAYDAY transmission from the "WHISKEY JACK" was not.
13. The attention of the CGRS was diverted from the primary distress situation involving the "WHISKEY JACK".
14. The similar content of the two MAYDAY messages, certain coincidences, the account by various participants in the distress-related communications and the lack of appreciation of important cues resulted in the CGRS erroneously concluding that only one vessel, the "PACIFIC PORCUPINE", was in distress.
15. This erroneous conclusion resulted in the premature termination of Search and Rescue (SAR) activity, therefore delaying the rescue of the crew of the "WHISKEY JACK".

16. The radio equipment of the CGRS Prince Rupert periodically experiences overriding of simultaneous calls and audio degradation of the received signals such that the message is indiscernible.
17. Valuable information which would have confirmed the "WHISKEY JACK" distress was not volunteered on the first day of the occurrence by fishing vessels that had heard the MAYDAY transmission from the distressed vessel, nor did they respond to the MAYDAY RELAY.
18. The Rescue Co-ordination Centre (RCC) Victoria was advised by the CGRS of the distress situation involving the "PACIFIC PORCUPINE"; no reference was made to the MAYDAY message transmitted by the "something JACK".
19. The rapidity of the swamping and foundering of the vessel precluded access to life-saving equipment and pyrotechnics.
20. The crew swam to shore for fear of being stranded on the reef in darkness.
21. The current carried the diver parallel to the coast and he was unable to reach the shore.
22. The diver succumbed to hypothermia and drowned. The two survivors, when rescued some 16 hours after the foundering, were suffering from hypothermia.
23. Alternate sharing of the dry-suit by the two survivors was instrumental in saving their lives.
24. There is no regulatory requirement to provide thermal protection equipment for fishing vessels of this size.

3.2 Causes

The heavily laden "WHISKEY JACK" was swamped by successive large waves and foundered. Valuable time was lost because the Search and Rescue (SAR) initiative was prematurely terminated at the communication stage as a result of confusion regarding the identity of the vessel in distress. This confusion arose from the fact that two vessels had transmitted similar MAYDAY messages almost simultaneously.

4.0 *Safety Action*

4.1 *Action Taken*

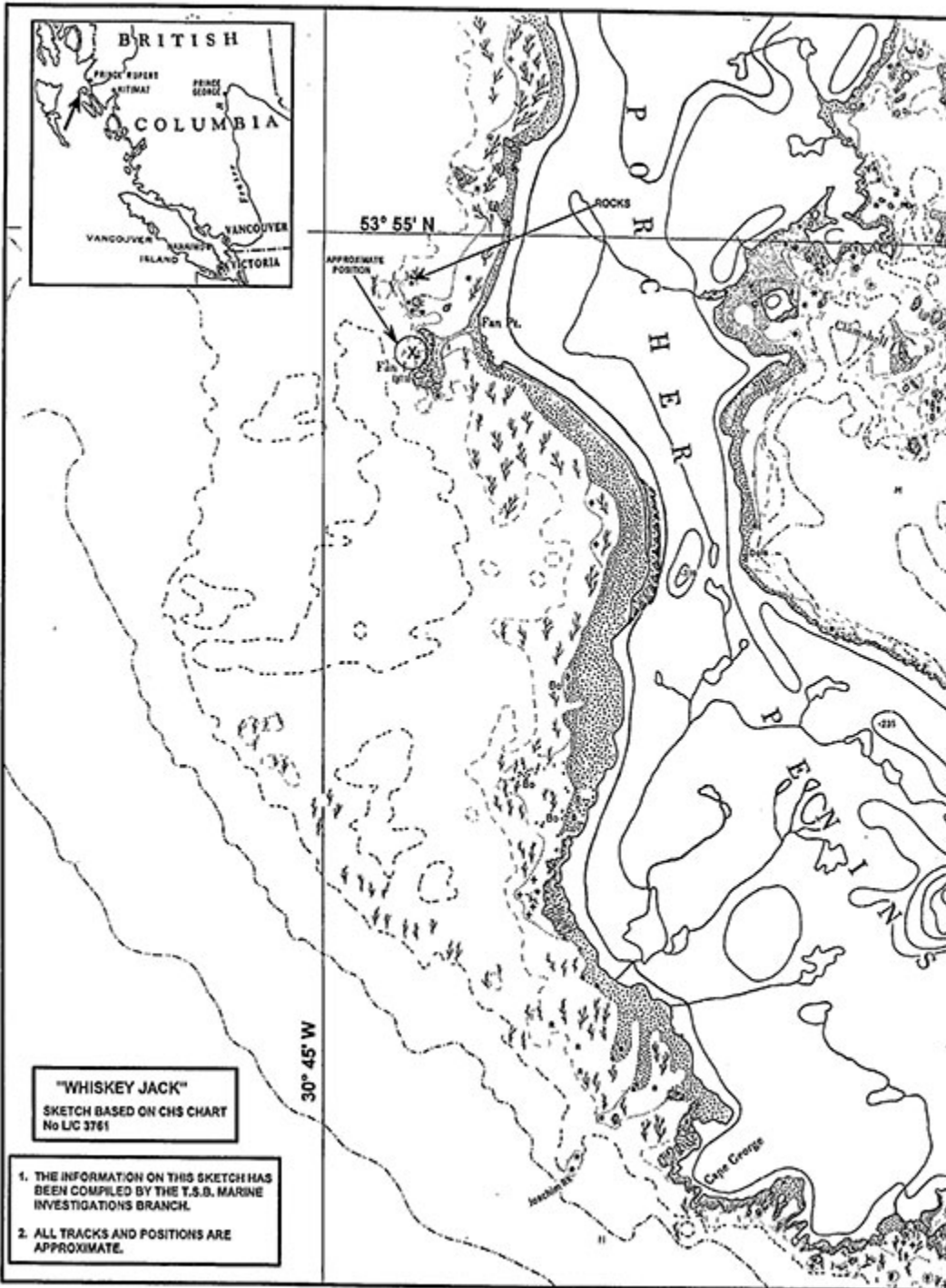
4.1.1 *Sail Plans for Effective Search and Rescue*

Each year, several vessels are reported overdue and lost at sea. The failure to complete and file a sail plan or to maintain a proper radio contact has accounted for several losses of life. A recurring problem encountered by Search and Rescue (SAR) units is the difficulty in determining where to initiate searches. As a result, valuable time is lost. Sail plans can reduce the SAR response time when vessels cannot be contacted or are overdue at destination.

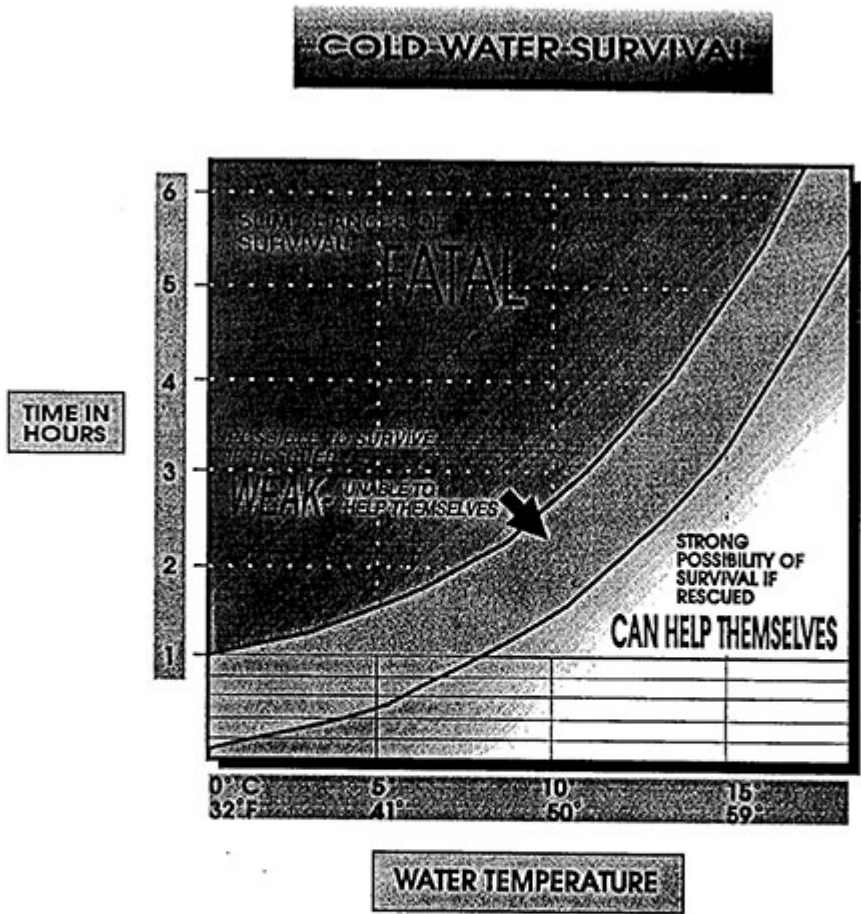
In 1994, as a result of a series of marine occurrences involving charter vessels, the Board made a recommendation (M94-04, issued in February 1994) on the importance of establishing sail plans for effective SAR operation. Subsequently, the Canadian Coast Guard (CCG) issued Ship Safety Bulletin (SSB) No. 4/95, *Recommended Safety Communication Measures for Small Craft*. The SSB is directed at operators of small craft, including fishing vessels, and outlines sail plan procedures, sail plan processing, and alerting services provided by the CCG.

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 Hugh MacNeil, authorized the release of this report on 16 August 1995.

Appendix A - Chart of the Area



Appendix B - Cold Water Survival Chart

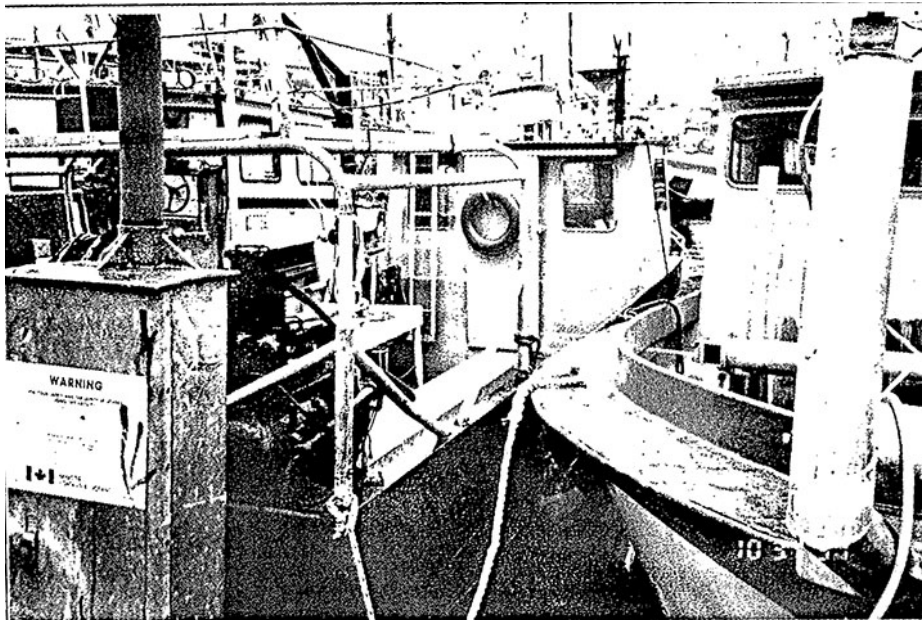
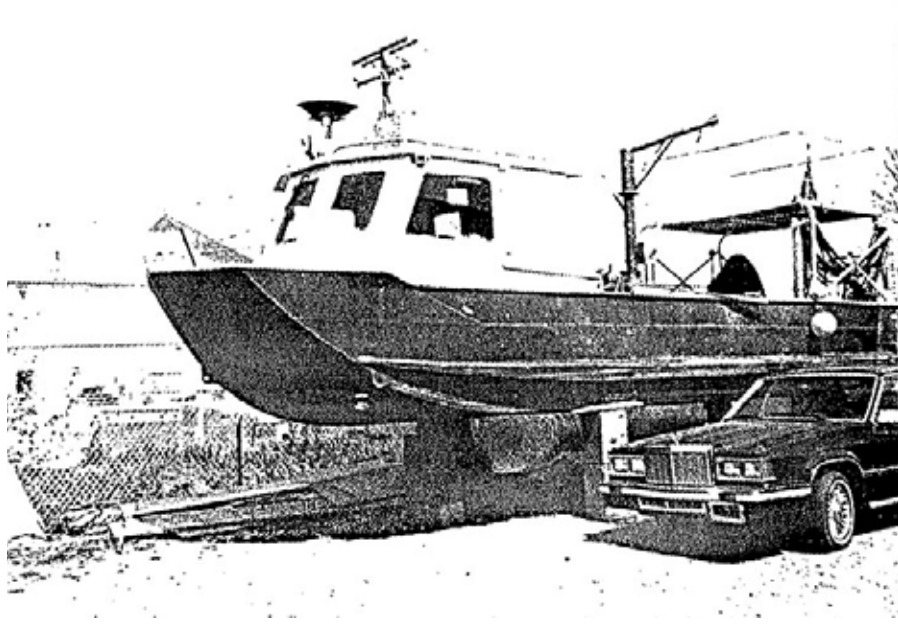


The above graph shows average predicted survival times of average, adult humans in water of different temperatures. The figures are based on experimental cooling of average men and women who were holding still in ocean water and wearing a standard lifejacket and light clothing. The graph shows, for example, that predicted survival time is about 2½-3 hours in water of 10°C(50°F). Predicted survival time is increased by extra body fat and decreased by small body size. Although women generally possess slightly more fat than men they cool slightly faster due to their usually small body size. However, for comparable sizes, the man will cool faster.

"COLD WATER SURVIVAL"
CANADIAN RED CROSS

Appendix C - Photographs

"WHISKEY JACK", January 1992



Appendix D - Glossary

B.C.	British Columbia
BHP	brake horsepower
cable	one tenth of a nautical mile
CCG	Canadian Coast Guard
CG	Coast Guard
CGRS	Coast Guard Radio Station
CHS	Canadian Hydrographic Service
EPIRB	Emergency Position Indicating Radio Beacon
IMO	International Maritime Organization
knot(s)	nautical mile(s) per hour
m	metre(s)
MRSC	Marine Rescue Sub-Centre
packer	Fishing vessel used only for the transportation of fish.
PDT	Pacific daylight time
polyfloat (scotsman)	Piece of equipment to provide buoyancy to the fishing line.
RCC	Rescue Co-ordination Centre
R/T	radiotelephone
SAR	Search and Rescue
SARCOM	Search and Rescue communications line
SI	International System (of units)
SSB	Ship Safety Bulletin
TSB	Transportation Safety Board of Canada
UTC	Coordinated Universal Time
VHF	very high frequency
VTC	Vessel Traffic Centre
°	degrees

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*Services available in both official languages