

Transportation Safety Board
of Canada



Bureau de la sécurité des transports
du Canada

**MARINE INVESTIGATION REPORT
M09M0073**



TAKING ON WATER AND SINKING

**SMALL FISHING VESSEL *PUBNICO EXPLORER*
11 NM SOUTHWEST OF CAPE ST. MARYS, NOVA SCOTIA
16 DECEMBER 2009**

Canada

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 Investigation Report

Taking on Water and Sinking

Small Fishing Vessel *Pubnico Explorer*

11 nm Southwest of Cape St. Marys, Nova Scotia

16 December 2009

Report Number M09M0073

Summary

Shortly after 1113 on the morning of 16 December 2009, the small fishing vessel *Pubnico Explorer*, with a crew of 4 on board, capsized and sank approximately 11 nautical miles southwest of Cape St. Marys, Nova Scotia. Three crew members were rescued by the Canadian Coast Guard shortly afterward. The master is still missing.

Ce rapport est également disponible en français.

Factual Information

Particulars of the Vessel

Name of Vessel	<i>Pubnico Explorer</i>
Official Number	383819
Port of Registry	Digby, N.S.
Flag	Canada
Type	Small fishing vessel
Gross Tonnage	59.94
Length ¹	17.47
Built	1979, Meteghan River, N.S.
Propulsion	One Caterpillar diesel engine developing 403 kW, single, fixed-pitch propeller
Cargo	19 tonnes of groundfish
Crew	4
Owner	Comeauville Sea Products, Ltd.
Operator	J.L. Comeau Specialties, Ltd.

Description of the Vessel

The *Pubnico Explorer* was a wooden Cape Island design small fishing vessel of closed construction. The wheelhouse and accommodation were forward, with the engine compartment beneath the wheelhouse. The hull below the main deck was subdivided by 3 transverse watertight bulkheads that enclosed, from forward, the crew accommodation space, the engine room, a fish hold and a lazarette in which the hydraulic steering gear was located (Appendix A).

The vessel was powered by a marine diesel engine with a reversible reduction gearbox driving a single fixed-pitch propeller and fitted with a single plate centreline rudder. Two diesel tanks were arranged on the port and starboard sides of the engine room, respectively, with a third auxiliary tank on the forward deck. A single fresh-water tank was located in the forepeak.

The working deck was aft, surrounded by a solid bulwark that formed a well; a cut-out in the transom assisted with the deployment and recovery of fishing gear. Entry to the wheelhouse was through a hinged door on the starboard side or through another door aft, which led to an alleyway. Access to the engine compartment was through a hatch within the superstructure.

¹ Units of measurement in this report conform to International Maritime Organization Standards or, where there is no such standard, are expressed in the International System of Units.

The working deck had a single raised hatch located on the centreline, providing access to the fish hold, as well as a single flush watertight hatch providing access to the lazarette. Four flush hatches on each side provided means to stow fish in the hold. The hold was subdivided into 5 pens fore and aft and 3 wide for a total of 15. A series of freeing ports in the bulwarks at deck level provided a means of clearing water off deck.

The vessel was fitted with navigation and electronic equipment including 2 radars, a chart plotter, a sounder, 2 digital selective calling (DSC) Very High Frequency (VHF) radios, a single side band radio and a satellite phone.



Photo 1. *Pubnico Explorer*

History of the Voyage

On the evening of 13 December 2009, the *Pubnico Explorer* departed Meteghan, N.S., for the fishing grounds about 50 nautical miles to the west. The vessel had a crew of 4 on board, including the regular master and a relief mate. The vessel arrived at the fishing grounds on the morning of 14 December 2009 and, by 16 December 2009, approximately 18 000 kg of redfish had been caught. At 0500,² following a company request, the vessel headed south to find haddock (see Appendix B). Over the next several hours, the vessel made 2 tows for haddock in worsening weather before proceeding toward Meteghan with the autopilot engaged. Winds at that time were 40 knots from the northwest, with 4 m seas.

Once the catch was stowed in the hold, the crew rested for approximately 2 hours. When the crew returned to the deck to stow the fishing gear, the vessel's stern was slightly lower than earlier and there was about 30 cm of water in the hold. The master was unaware of the water in the hold, as all the high-level bilge alarms had been disconnected at some point in the past. When this information was reported to the master, he went below to the engine room to turn on 1 of 2 high-capacity bilge pumps. Upon his return, he appeared agitated and unwell; he was sweating and short of breath, with trembling legs and limited/impaired speech.

Shortly afterward, although the pump was running, little water was being discharged overboard.

The master, who remained in the wheelhouse, issued various instructions to address this, but the relief mate, who was now in the engine room, was unable to increase the discharge. These functions were normally the responsibility of the regular mate who was unavailable for this trip. Neither of the 2 other crew members were able to help, as they too were unfamiliar with the engine room.

Water had also entered the engine room via the stuffing box in the after watertight bulkhead. This ingress was controlled by the electric bilge pump in that compartment. A small quantity of water was also in the lazarette. The master, whose condition had partially improved, ordered a

² All times are Atlantic Standard Time (Coordinated Universal Time minus 4 hours).

portable electric sump pump from the wheelhouse lowered into the hold via the main hatch; after some initial difficulty,³ it began pumping water.

At 1015, the master called Marine Communications and Traffic Services (MCTS) in Saint John, New Brunswick, reporting that the vessel was taking on water and required assistance. A few minutes later, the master called MCTS again and reported that the vessel required additional pumps. Shortly afterward, he called a third time, noting that the engine room was dry and suggesting that the vessel would be fine until help arrived.

At this time, a crew member was tasked with retrieving the immersion suits from the accommodations. All 4 crew members donned their immersion suits (despite some difficulty with the zippers) before lowering another portable electric sump pump into the hold. At this point, the vessel's stern was so low that sea water was observed running into the main hatch.

Shortly before 1113, the master gave the order to abandon ship, but as the 3 crew members left the wheelhouse, the vessel began to roll to starboard. The speed with which this took place precluded attempts to manually deploy either the liferaft or the emergency position-indicating radio beacon (EPIRB). The 3 crew members climbed up the port bulwark and jumped into the water; however, the master did not follow them out.

Within minutes of the abandonment, the vessel capsized and sank in position 43°58'42"N, 66°24'18"W (Appendix C).

Shortly afterward, the liferaft floated past, still encased in its canister. A crew member was able to grab the painter and successfully inflate the liferaft, and all 3 climbed aboard. At 1133, the Canadian Coast Guard Cutter (CCGC) *Westport*, en route with spare pumps, arrived on scene and recovered the 3 crew members from the liferaft.

Search and Rescue

Following the master's initial request for assistance, MCTS Saint John contacted Joint Rescue Coordination Centre (JRCC) Halifax, which immediately tasked search and rescue (SAR) and civilian surface units for a search-and-rescue effort. At 1113, an EPIRB signal was detected. MCTS broadcast a MAYDAY relay, and JRCC tasked both fixed and rotary wing SAR aircraft from 413 Squadron, Greenwood, N.S. About 20 minutes after the 3 crew members abandoned the vessel, they were rescued by the CCGC *Westport*, which remained on scene to assist in the search for the master. An extensive air and sea search for the master, which included a U.S. Coast Guard Falcon jet equipped with forward-looking infrared, continued until the evening of 17 December 2009, when SAR operations were terminated and the case turned over to the RCMP.

Damage to Vessel

The vessel sank and was lost.

Environmental Impact

Pollution from the capsizing was minimal and quickly dissipated through evaporation and wind/wave action.

Injuries to Persons

The master is missing.

³ The power cord initially fell into the water, tripping the breaker, which was then reset.

Previous Occurrences

On 2 previous occurrences, the vessel experienced water ingress and transmitted distress calls. The first of these calls took place on 24 November 2007.⁴ A CCG cutter brought out additional pumps and assisted the vessel back to port. Hull repairs were subsequently carried out, but, on 09 December 2007,⁵ the vessel again transmitted a MAYDAY due to a large ingress of water. Pumps were again supplied en route by the same CCG cutter.

Vessel Operations

The vessel was operated by J.L. Comeau Specialties, Ltd., located in southwest Nova Scotia. The company, which operates 2 other stern trawlers, oversaw logistics including stores, gear, fish sales, pay and quantity/species of fish caught.⁶

The master, who was hired by the company, oversaw all other vessel-related matters. This included operations, maintenance, hiring crew, safety and equipment.

The company hires masters based largely on personal references and reputation. In this case, there was no formal employment contract, nor was there any verification of the master's certification or medical fitness.

Vessel History and Maintenance

J.L. Comeau Specialties, Ltd., had operated the *Pubnico Explorer* for approximately 4 years prior to the occurrence. In 2007-08, repairs included resheathing a major portion of the hull, recaulking the entire vessel and installing a new pump manifold.

The propeller shaft enters the vessel in the fish hold and traverses the hold into the engine room. The propeller shaft stuffing box had been leaking profusely during several trips prior to this one. On the morning the vessel departed Meteghan, the stuffing box was tightened by the regular mate until it stopped dripping.

The small submersible electric pumps and float switches on board had been repaired and/or replaced frequently due to numerous failures.

All other vessel maintenance was done on an ad hoc basis; there was no schedule for regular maintenance, nor was guidance for this provided by the company.

Bilge Pumping and High-Level Bilge Alarms

The engine room, fish hold and lazarette were fitted with submersible electric bilge pumps, each activated by its own float switch. It was also possible to pump out the fish hold, engine room and crew accommodation space using 1 of the 2 engine-driven⁷ pumps connected to a bilge main system. The vessel also carried 2 portable electric submersible pumps.

The vessel was fitted with 3 high-level bilge alarms – in the engine room, fish hold and lazarette. Due to the frequency of their activation, however, these had been intentionally disabled at some point prior to this voyage.

Given the difficulty in checking for water ingress in the lazarette, in addition to the previously noted pump problems, a trio of holes, each 2.5 cm in diameter, had been drilled into the after

⁴ TSB occurrence M07M0091.

⁵ TSB occurrence M07M0096.

⁶ This was driven by marketing and quota considerations.

⁷ Main or auxiliary.

fish hold bulkhead. This allowed any water in the lazarette to drain into the fish hold; it would also indicate that the pump in the lazarette had failed.

During the vessel's inspection on 26 September 2008, Transport Canada (TC) requested that the bulkhead between the engine room and the fish hold be made watertight. Information in the vessel's file indicated that this deficiency was rectified on 01 October 2008. There was no information in the file about the bulkhead between the lazarette and the fish hold or of the holes drilled into it.

Vessel Certification

The vessel was last inspected by TC on 01 October 2008, whereupon an inspection certificate was issued for a commercial fishing vessel not exceeding 24.4 m in length and not exceeding 150 tons gross tonnage. The certificate, which was due to expire on 31 August 2010, allowed the vessel to operate on voyages up to Home Trade II – East Coast of Nova Scotia, but not more than 120 nautical miles from land. Due to the vessel's age and wood construction, in the fall of 2006, the TC regional office in Yarmouth, N.S., increased the inspection frequency from 4 years to every 2 years.

Personnel Certification and Experience

The master held a Fishing Master (FM) IV certificate. He had over 40 years of experience fishing and had been 1 of 2 masters for the *Pubnico Explorer* during the previous 4 years. He had been the vessel's sole master for approximately the previous 15 months.

The relief mate also held a FM IV certificate. This was his first trip with the vessel, but he had approximately 20 years of experience fishing. However, he had not been fishing for over a decade.

The third crew member held an FM III certificate. He had 30 years of experience fishing and had been on this vessel for approximately 2 months.

The fourth crew member held no certification. He had 2 years of experience fishing, including 1 year aboard this vessel. Unlike the other crew members, he did not have the marine emergency duties (MED) training, nor was he required by regulation.⁸

Medical Condition of the Master

To be employed as a seafarer, holders of certain certificates of competency must undergo a marine medical examination⁹ and be issued a medical certificate that attests to their ability to perform the duties for which they are to be employed. In September 2008, the master underwent this examination. The resulting certificate indicated that he was fit for sea service, with the exception that he not perform watchkeeping duties because he was colour blind.

Although not indicated on the medical certificate, the master had, within the previous 6 months, taken prescription medication for the treatment of hypertension, chronic bronchitis and emphysema.

Under the *Marine Personnel Regulations*,¹⁰ no person shall employ a seafarer unless he or she produces the required marine medical certificate, nor shall the person accept such employment without one.

⁸ SSB 11/2007, *Marine Emergency Duties Training for Personnel on Small Commercial Vessels*.

⁹ In accordance with the *Marine Personnel Regulations*, Division 8.

¹⁰ *Marine Personnel Regulations*, Division 8, Sections 200(7) and 269.

Weather

Weather at the time of the occurrence was as follows: northwest winds at 35 knots, air temperature of 0°C, sea temperature of 0°C, 3-4 m seas and visibility of 6 nautical miles.

Lifesaving Equipment

Lifesaving equipment aboard the vessel included 4 lifejackets, 4 immersion suits, a 6 person liferaft with a hydrostatic release, 2 lifebuoys, 1 float-free emergency position-indicating radio beacon (EPIRB) and a second Category II unit, which was stored in the wheelhouse. Unlike the first EPIRB, this second unit was not registered with the Canadian Beacon Registry, although this was required under the *Ship Station (Radio) Technical Regulations, 1999*.

The master and 3 crew members assisted each other when donning their immersion suits. The zippers on 3 suits, however, were very stiff and actuated with difficulty. Additionally, the water-activated lights failed to work on the suits of the 3 crew members who entered the water. It is unknown when the suits had last been serviced.

The liferaft carried on the vessel was fitted with a hydrostatic release. When the vessel sank, the liferaft capsule floated freely, but did not inflate because the painter was not secured to the weak-link, as per the manufacturer's instructions. Inflation was done manually when a crew member in the water pulled on the painter.

Emergency Drills and Crew Familiarization

The *Canada Shipping Act, 2001*, requires authorized representatives of Canadian vessels to develop procedures for the safe operation of the vessel and for dealing with emergencies.¹¹ Furthermore, the *Marine Personnel Regulations* require that a vessel's master be provided with written instructions ensuring that crew members become familiar with safety equipment, operations, duties, and that they be provided vessel-specific familiarization training.¹²

In this occurrence, there were no such procedures in place, nor had the crew participated in emergency drills or been familiarized with the vessel and its equipment.

TC's long term goal is for all vessels in the Canadian fleet to have some form of safety management system (SMS). In the interim, TC is encouraging the use of safety management principles, such as written policies and procedures for the company staff, master and crew.

TC is developing new *Fishing Vessel Safety Regulations* to update the current requirements under the *Canada Shipping Act, 2001* for owner responsibility and compliance with regards to maintenance of the vessel, safe operating procedures and modifications to the vessel.

Fishing Vessel Safety

The Board issued recommendations in 2003 in response to accidents involving 2 small fishing vessels:

- Following its investigation into the major water ingress on a scallop dragger in 2001,¹³ the Board, recognizing the need for a safety culture in the Canadian fishing industry, issued its recommendation calling for TC, Fisheries and Oceans Canada, fisher associations and training institutions to develop a national strategy for establishing, maintaining and promoting a safety culture within the fishing industry. While measures to respond to the

¹¹ Section 106.

¹² Section 206.

¹³ TSB Marine Investigation Report M01L0112 (*Alex B.1*) and recommendation M03-02.

recommendation have been taken, the assessment of the response remains at 'Satisfactory Intent.'

- Following its investigation into the capsizing and loss of life on a salmon seiner,¹⁴ the Board recommended that TC, in collaboration with the fishing community, reduce unsafe practices by means of a code of best practices for small fishing vessels and that its adoption be encouraged through education and awareness programs. A number of measures have been taken, including an agreement between TC and Fisheries and Oceans Canada directed to promoting safety; however, there is no indication of a specific initiative to develop such a 'code' for small fishing vessels. The assessment of the response to the recommendation remains at 'Satisfactory Intent.'

On 16 March 2010, the Board released its Watchlist identifying 9 critical safety issues investigated by the TSB that pose the greatest risks to Canadians. Among these was the loss of life on fishing vessels. With an average of 12 fatalities per year between 2005 and 2009, the Board remains concerned about vessel modifications and their impact on stability; the use and availability of lifesaving equipment; regulatory oversight; the impact of fishing resource management plans and practices and the lack of both a safety culture and a code of best practices. The Watchlist also highlighted the need for the industry to adopt and promote safe operating procedures and practices to increase the safety knowledge of fishing vessel operators.

Analysis

Water Ingress and Events Leading to the Sinking

The *Pubnico Explorer* was a 30 year-old wooden fishing vessel. As such, it was prone to some degree of water ingress, especially in heavier seas where racking occurs. In this occurrence, the vessel took on significant water below the waterline, eventually losing all reserve buoyancy, before it capsized and sank.

Given that the engine room and accommodation spaces showed no accumulation of water, it is likely that this ingress was via the fish hold and/or lazarette. Had it entered the lazarette, the water would have quickly found its way into the hold, via the trio of holes drilled through the watertight bulkhead—the holes effectively negated the benefit of having a watertight subdivision and made it possible for more water to accumulate within the hull. The investigation, however, was unable to determine the location of this ingress, although the 3 most likely sources are the hull planks, the rudder stock packing gland or the propeller shaft stuffing box.

There were 2 previous occurrences, in November and December 2007, when the vessel took on significant water between the hull planks. Subsequently, less than 2 years prior to the occurrence, the vessel underwent major repairs, with a significant portion of the hull replanked and recaulked. Any ingress through the hull, therefore, would likely be limited.

The second source is the rudder stock packing gland. To function as designed, it requires a controlled leakage for lubrication and cooling. Without this, damage will gradually occur to the gland, eventually allowing a much larger volume of water to enter the vessel. If water had entered the hull from this point, it would have accumulated in both the fish hold and lazarette, contributing to the flooding and sinking of the vessel.

The propeller shaft stuffing box was the most likely point of ingress. It had been leaking substantially prior to departure from Meteghan, but was then tightened until no leakage was

¹⁴ TSB Marine Investigation Report M02W0147 (*Cap Rouge II*) and recommendation M03-07.

observed. The stuffing box also requires lubrication, without which it would have eventually failed.

Regardless of how it entered the vessel, the water remained undetected until the crew returned to the deck to stow the fishing gear, at which point the vessel's stern was slightly lower than earlier and there was about 30 cm of water in the hold. The crew, however, was deprived of advance knowledge of this, as the high-level bilge alarms had been intentionally disabled at some point prior to this voyage. Had these been functioning, they would have given the crew more time to deal with the situation before matters became critical.

Emergency Preparedness

To properly respond to an emergency, it is essential crew members are familiar with a vessel, that lifesaving equipment be in good working order and that crew members have been trained or have practiced for such an eventuality.

This is particularly important because, in an emergency, there is often little or no time to don immersion suits, launch liferafts and notify SAR authorities. On small vessels, where events such as capsizing can occur more rapidly, these concerns become magnified.

In this occurrence, although the master had been in communication with SAR authorities, the speed with which the capsizing took place meant he could not alert them of the abandonment. Although the crew had enough warning to don immersion suits, they had difficulty actuating the zippers. In addition, when the liferaft launched, it did not automatically deploy because the painter had not been secured to the vessel.

The investigation determined that none of the crew members had taken part in emergency drills, nor had they been familiarized with the lifesaving equipment, as required by regulation. Regularly carrying out emergency drills not only provides an opportunity to ensure that lifesaving equipment is in working order and fitted correctly, but it affords the crew an opportunity to become more familiar with its use. The more often this happens, the more these actions become second nature, potentially saving critical seconds during an emergency.

Lifesaving equipment that is not properly maintained, fitted and stowed may not function as intended, increasing the risks to crew members. Moreover, in the absence of familiarization and training, crews may remain unaware of any problems with this equipment, thus depriving them of its use during an emergency.

Fitness for Duty

It is vital that employees whose actions have a major impact on safety (such as a master of a vessel) be physically fit and able to perform their assigned duties.

This is particularly important in emergencies, where time is often short and decisions can have even greater impact. Such persons have a responsibility to be forthright about, for example, any medical conditions which may affect their ability to do the job. However, there is also an onus on the employer to ensure that those who occupy such positions are indeed able to perform. This shared responsibility is explicitly stated in the *Marine Personnel Regulations*.¹⁵

In this occurrence, the master's marine medical examination report specified that he was not fit to perform watchkeeping duties. Moreover, he did not disclose several medical conditions and their accompanying prescriptions, nor did the operating company enquire about his medical condition. In addition, they did not verify his marine competency certificate.

¹⁵ *Marine Personnel Regulations*, Part 2, Division 8, Section 269.

Employers and employees who do not fulfill their shared responsibilities with respect to disclosure and fitness for duty may be placing vessels and crew at unnecessary risk.

Company Oversight and Crew Responsibility

In order to better ensure safe operations, it is important that companies – whether single- or multi-vessel operations – provide employees with policies and procedures that set out best practices for a variety of conditions. This is not to imply that safety is the sole responsibility of the company, only that such guidance can be helpful, particularly in an emergency. When guidance is available, however, it is important that masters and crews put it into practice. As demonstrated by this occurrence, some small fishing vessels do not have formal procedures for onboard operations, including emergencies, nor do operating companies require them.

It was not the practice on board the *Pubnico Explorer* to conduct emergency drills or formally familiarize crew with the vessel and its equipment. There were no written procedures, standing orders or instructions explaining what to do, for example, with respect to the following:

- Abandonment procedures
- Operation of the main bilge pumps
- Routine maintenance of equipment
- Recurring shipboard problems (such as frequently failing pumps)

Without company oversight, there was no way to ensure that there were formal policies in place for the crew to operate the vessel safely. In an emergency, this may leave key safety decisions to individuals who may lack the training and knowledge to make the best decision.

Knowledge of Pumping Arrangement

Vessels are designed to prevent water ingress, but when it does occur, it must be remedied or at least stemmed. To do this, vessels are outfitted with a pumping arrangement. This system, however, must be operated by crew, a task which can sometimes require specific knowledge.

The master and regular mate knew how to operate the vessel's 2 high-capacity bilge pumps. Given their significantly greater capacity over the smaller electric pumps fitted on board, this was the first choice for dealing with the ingress. However, the master was the sole crew member on board who knew how to operate the larger pumps and, once a problem was observed with their effectiveness, the situation could not be remedied because he had become incapacitated. Even after having somewhat recovered, the master was unable to leave the wheelhouse to diagnose the situation in person and his attempts to relay instructions did not improve matters. Lacking knowledge of how the pumps functioned, the relief mate was unsuccessful in getting the system to run properly, despite numerous attempts. He could not either properly interpret the master's instructions or was unable to determine if these were accurate.¹⁶ There was also no attempt to engage the second engine-driven pump and the eventual decision to use the smaller-capacity portable pump did not have enough of an effect.

Given that the pumps were such a critical piece of safety equipment, the fact that the master was the only one with the ability to operate them left the vessel with little or no backup. Consequently, once the master became incapacitated, the pumps were effectively rendered unavailable. This allowed water ingress to continue unabated. Although it would be unreasonable to expect small fishing vessels to have redundancies in place for every operator

¹⁶ As noted earlier, the pump was running. This was proven when the crew member managed to successfully increase the volume of pumped water, although the colour indicated that it was merely being recirculated from the sea, as opposed to being pumped from the hold.

and system, redundancies for those deemed critical would be beneficial, particularly in this case, given the vessel's history, its wooden construction and the relative ease with which the pumping arrangement could be learned.

Findings as to Causes and Contributing Factors

1. The vessel took on significant water below the waterline, eventually losing all reserve buoyancy, before it capsized and sank.
2. The most likely source of water ingress was via the propeller shaft stuffing box.
3. The lack of a functioning, high-level bilge alarm deprived the master and crew of an early warning of water ingress.
4. The crew's lack of knowledge effectively rendered the pumps unavailable once the master became incapacitated, thus allowing water ingress to continue.

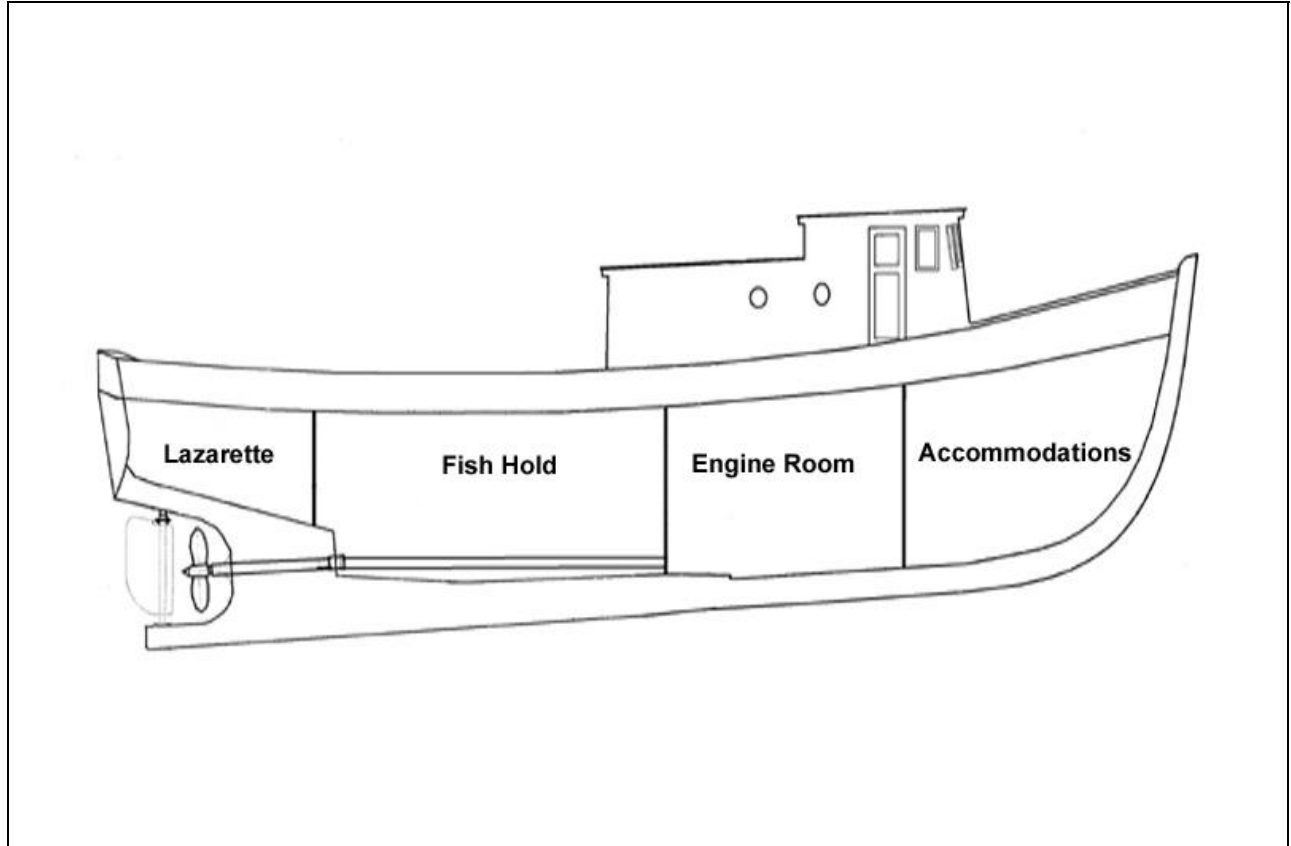
Findings as to Risk

1. Lifesaving equipment that is not properly maintained, stowed and inspected may not function as intended, increasing the risks to crew members.
2. In the absence of familiarization and training, crews may remain unaware of any problems with this equipment, thus depriving them of its use during an emergency.
3. Employers and employees who do not fulfill their shared responsibilities with respect to disclosure and fitness for duty may be placing vessels and crew at unnecessary risk.
4. Without company oversight, crews may lack the necessary guidance to operate the vessel safely.
5. In the absence of redundancies for safety critical operators and systems, vessels may be placed at risk should a defence fail.

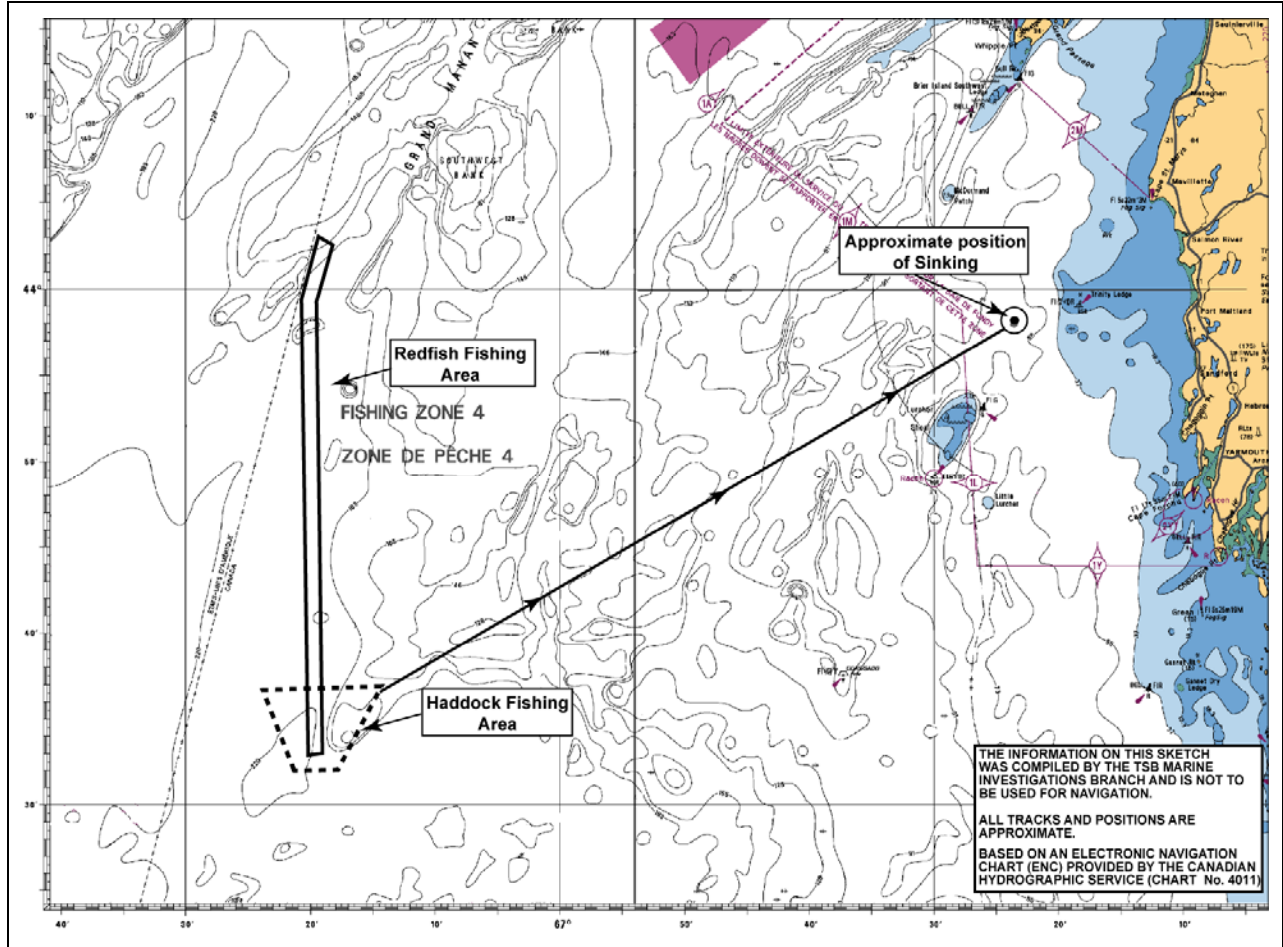
This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 05 January 2011.

Visit the Transportation Safety Board's website (www.bst-tsb.gc.ca) for information about the Transportation Safety Board and its products and services. There you will also find links to other safety organizations and related sites.

Appendix A – General Arrangement



Appendix B – Fishing Areas



Appendix C – Area of the Occurrence

