

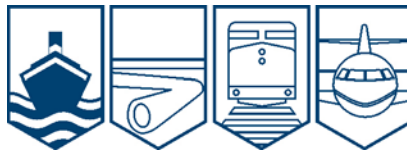
Transportation Safety Board
of Canada



Bureau de la sécurité des transports
du Canada

MARINE INVESTIGATION REPORT

M01C0029



SWAMPING AND CAPSIZING

FISHING VESSELS *SHANNON DAWN* AND *RACHEL M*

LAKE WINNIPEG, MANITOBA

15 JUNE 2001

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

Swamping and Capsizing

Fishing Vessels *Shannon Dawn* and *Rachel M*
Lake Winnipeg, Manitoba
15 June 2001

Report Number M01C0029

Summary

On 15 June 2001, three small vessels were involved in commercial fishing near Berens Island, Lake Winnipeg. At approximately 1535, the *Shannon Dawn*, a "Lake Winnipeg yawl" fishing vessel, was swamped and capsized in heavy seas a short time after taking on board two fishers and their cargo of fish from the *Rachel M*, which had encountered engine problems. Three persons drowned.

Ce rapport est également disponible en français.

Other Factual Information

Particulars of the Vessels

Name	<i>Shannon Dawn</i>	<i>Rachel M</i>
Official Number	unregistered/unlicensed	unregistered/unlicensed
Port of Registry	None	None
Flag	Canada	Canada
Type	Lake Winnipeg yawl	Lake Winnipeg yawl
Gross Tonnage ¹	approximately 1.5	approximately 2.0
Length ²	6.7 m	6.7 m
Draught	F: 8 cm A: 16 cm	F: 8 cm A: 16 cm
Built	approximately 1982	approximately 1999
Propulsion	90 HP Johnson outboard	175 HP Johnson outboard
Cargo	fish (approximately 6-7 tubs)	fish (approximately 6-7 tubs)
Crew	1	2
Owners	Private Owner Koostatak, Manitoba	Private Owner Koostatak, Manitoba

Description of the Vessel

The *Shannon Dawn* was constructed from plans used by several area manufacturers. The plans were shown to Transport Canada inspectors, but due to the vessel size, were not subject to the Transport Canada plan approval process. The manufacturer of the vessel estimated that 300 to 400 vessels of similar design have been built by the facility. The vessel incorporated a hard chine and side plating, with a pronounced flare toward the bow. There was a breast plate



¹ 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 of units.

² See Glossary at Appendix B for all abbreviations and acronyms.

at the bow with a 0.2 m vertical pipe, termed the “horn,” projecting from it. When fishing, the gillnet is hauled in around the horn, the fish and debris are removed, then the cleared net is set back into the water.

A split steering control console was located about 2.5 m from the stern. At the deep well aft, near the motor, an extended spindle was connected to a gate valve (at deck level). While the vessel is under way, the gate valve may be opened to drain water from the vessel. When the vessel is not making way through the water, water will flood the hull if the valve is left open.

The *Shannon Dawn* was of an earlier Lake Winnipeg yawl hull design. The vessel was fitted with a sealed buoyant compartment below deck level. Some newer models, as well as some older models, have been fitted or retrofitted with more flotation tanks for additional buoyancy, and with an increased forward freeboard for improved sea-keeping ability. The development of this hull design now provides for two additional modifications to reduce the shipping of water on deck. The inboard coaming around the motor well at the transom has been raised, and the forward sheer of the hull from midships has been increased.

The *Rachel M* had these modifications incorporated in its hull. Since both small fishing vessels were less than 15 gross tons, neither vessel was required to be inspected by Transport Canada.

There is no requirement for navigational equipment to be carried on board vessels of this size and type. However, the vessels were each equipped with a VHF radiotelephone for communication. The VHF was mounted on the centre console.



Events

On 15 June 2001, at approximately 1200 central daylight time,³ several fishing vessels of the Lake Winnipeg yawl type departed McBeth Fisheries, located at McBeth Point, Lake Winnipeg, Manitoba, to fishing grounds located some 14 miles away, on the south side of Berens Island. They were all equipped with VHF radios, typically operating on VHF channel 11 to maintain contact with each other and McBeth Fisheries. They arrived at the fishing grounds about 20 minutes later to gillnet fish.

On a typical fishing day, each fishing vessel intermittently offloads its harvested fish at McBeth Fisheries and returns to the assigned gang of nets. A strong northeast wind the previous day had created a large swell, and it had been considered unsafe to fish in the area until now. The operators of the *Rachel M*, the *Shannon Dawn* and the *Constance II* had received the weather forecast for their area. After fishing for approximately one hour at this location, the *Shannon Dawn*, the *Rachel M* and the *Constance II* proceeded to the northwest side of the island,

³

All times are central daylight time (Coordinated Universal Time minus five hours).

approximately 200 m from shore. Two persons were working aboard the yawl *Rachel M* and one person alone operated the *Shannon Dawn*. One-quarter mile away to the west was the third fishing vessel, the *Constance II*, operated by the manager of McBeth Fisheries Association.

At approximately 1400, the manager on the *Constance II* received a radio telephone call from McBeth Fisheries asking about the local weather and sea state, as they were informed that some inclement weather was imminent. The manager indicated that the weather was calm, clear and slightly overcast. A short time later, however, the sky became heavily overcast and the wind strength increased from the northwest. At approximately 1420, dark clouds appeared in the northwest, indicating that a storm was approaching. A short time later, the rapidly increasing wind generated white froth and turbulence on the water. The wave and swell height increased to between 2.5 and 3 m.

Despite the deteriorating weather and sea conditions, it was reported that the crews of the *Shannon Dawn* and the *Rachel M* felt a sense of security in seeing each other's vessel working between the waves. As the fishing was going well, they continued for another half hour, then it began to rain.

Some fishing vessels to the west could be seen heading for shelter located in a bay some seven nautical miles around the southwest end shoals, toward the south side of Berens Island. Some were seen heading back to McBeth Fisheries. At approximately 1500, the manager on the *Constance II* contacted the *Shannon Dawn* and the *Rachel M* on the VHF radiotelephone and advised them to seek shelter. He invited the crews from the two vessels to wait out the weather on his other larger 17 m supply/accommodation vessel *Constance I*, which was anchored on the south side of Berens Island. The *Constance II*, now located between the *Rachel M* and *Shannon Dawn*, then headed for the *Constance I*, proceeding to the south (lee side) of Berens Island.

The manager assumed that the *Rachel M* and the *Shannon Dawn* would follow as soon as the *Shannon Dawn* finished cleaning out a gillnet. Meanwhile, the sea and swell worsened while the operator of the *Rachel M* was attempting to start his motor. The two vessels were approximately 200 to 300 m apart, and each had approximately six tubs of fish aboard.

At about 1510, the operator of the *Shannon Dawn* made the first of three radio messages to the *Constance II*, on VHF channel 11, to advise that his son could not start the motor on the *Rachel M*. The manager informed the *Shannon Dawn* to buoy off the *Rachel M* (fish gangs are marked with anchor buoys) and transfer the two crew members from the *Rachel M* to the *Shannon Dawn*. About five minutes later, the operator of the *Shannon Dawn* radioed the *Constance II* that he had manoeuvred his vessel alongside the *Rachel M* and had transferred the two persons and their fish tubs to the *Shannon Dawn*. He also asked if the manager could bring the *Constance II* back to their location to assist them.

At approximately 1530, the operator of the *Shannon Dawn* made his third and final VHF radio call to the *Constance II*, indicating again that he needed the manager's help. The sea and swell were now estimated at 4 m. The radio signal was broken up and difficult to hear, but the manager asked for the *Shannon Dawn's* location, and the operator suggested that their vessels

meet at a designated gang of nets. Halfway through a sentence, the voice communication suddenly stopped. The Canadian Coast Guard (CCG) Thunder Bay Marine Communications and Traffic Services (MCTS) Centre/VBA overheard this communication.

The manager then attempted to take the *Constance II* around the western end of Berens Island, with the intention of meeting the *Shannon Dawn*. He proceeded approximately one mile north in the vicinity of the western island shoals, where he encountered large, steep waves, estimated to be 4 to 5 m in height. The tops of the waves were washing into his boat and, to prevent being swamped, he turned the *Constance II* about and proceeded to shelter in the lee of Berens Island. He continued to call the *Shannon Dawn* on the VHF radio but to no avail.

At 1635, the Thunder Bay MCTS Centre/VBA was informed by the manager on the *Constance II* that there was an emergency in Lake Winnipeg. The manager mentioned that he had lost contact with the *Shannon Dawn*, which was encountering rough seas and poor visibility in spray conditions.

CCG search and rescue (SAR) resources were immediately alerted, and a Hercules aircraft was dispatched to the area. Deteriorating weather and sea conditions prevented the water-borne craft from proceeding to the SAR scene until the following day.

On June 16, a search party of four fishing vessels, together with the CCGS *Waubuno*, departed McBeth Fisheries. The *Rachel M* was discovered in an upright position, having been washed up on the north shore of Berens Island, approximately 60 m inland from the shoreline. Also found were two personal flotation devices (PFDs).

Victims

The body of the operator of the *Rachel M* was found four days after the accident near McBeth Fisheries, off Cat Head, some 14 miles south-southwest from the estimated occurrence site.

The body of his assistant was discovered two weeks after the accident, approximately 300 m from where the operator was found.

The body of the operator of the *Shannon Dawn* was found 27 days after the accident, between the location of the sunken vessel and the northwestern shore of Berens Island.

None of the victims had been wearing a lifejacket or PFD. All had extensive experience in fishing, ranging from 15 to 30 years.

Damage to the Vessels

The *Rachel M* sustained mostly superficial damage. Only the motor bracket was significantly damaged.

The *Shannon Dawn* was discovered almost submerged, approximately four miles south-southwest of the location of the *Rachel M* and one nautical mile beyond the shoals in deeper water. The bow of the vessel was projecting above the surface of the water. The outboard motor had been ripped off the transom. The motor was

not recovered. The remainder of the vessel had extensive damage to the windshield, split steering console and motor bracket. The bilge pump, which was reported to have been non-operational before the occurrence, was missing.

Weather Information and Broadcasts

The weather forecast for the north basin of Lake Winnipeg, for 15 June 2001, was broadcast on VHF channel 26 via a relay transmission tower, operated by the Thunder Bay MCTS Centre/VBA, and located at Jackhead, Manitoba. Weather information could also be obtained by the public, using a 1-900 number provided by the Weather Office of Environment Canada, Winnipeg, for a small fee.

Initial notification of severe weather warnings is given on VHF channel 16. The listener is then asked to switch to VHF channel 26 to obtain the message. Notification of severe weather warnings are re-broadcast at intervals of 20 minutes for the duration of the deteriorated weather period. The fishers were reported using VHF channel 11 as the working frequency on the day of the occurrence. Unless they were monitoring VHF channel 16, or 16/11 simultaneously, they would not be reminded of the deteriorating weather approaching them.

The occurrence area, referred to as “the Lake Winnipeg Narrows” (the southern portion of the northern basin), was within this coverage area. At 0530, small craft warnings were upgraded to “gale warnings; winds NE 25 kt increasing to N’ly 35-45 kt in the morning, then gales diminishing to 25 kt toward evening.” At 0846 and 1130, updated gale warnings were re-broadcast by the Thunder Bay MCTS Centre/VBA.

Real-time monitoring stations in the Lake Winnipeg Narrows area gave much lower wind speed readings, as follows:

0700	- SE winds	10-18 kt
		10-15 kt
1100	- SE winds	5 kt in light rain showers
1300	- E winds	10-17 kt
1400	- NE winds	9 kt
1423	- NNW winds	13-21 kt (backed sharply as a cold front moved in)
1453	- NW wind	speed increased in strength to 44 kt by 1800

This information was not broadcast, but is consistent with the weather observed by the manager aboard the *Constance II*.

Life-Saving Equipment

Reportedly, the *Shannon Dawn* had a lifejacket tied around the forward seat before the occurrence. However, it was not found when the vessel was recovered. Two PFDs had been washed ashore on Berens Island at the time the *Rachel M* was found. There is no requirement for the carriage of an emergency position-indicating radio beacon on a vessel of this size and type, nor was one carried on board.

Transport Canada is currently working within the Canadian General Standards Board process to develop a new lifejacket standard that will allow manufacturers flexibility to design and produce a more ergonomic lifejacket. This new standard will provide thermal protection similar to the existing “anti-exposure work suit.”

The requirements for carrying life-saving equipment for small fishing vessels forms part of the discussions taking place within the Canadian Marine Advisory Council (CMAC) Fishing Vessel Safety Standing Committee and the *Canada Shipping Act, 2001* Regulatory Reform of Fishing Vessel Safety Regulations. The legislative process includes public consultation and impact analysis of the proposed regulation. The new Fishing Vessel Safety Regulations are scheduled to be introduced in 2006.

Motor Failure on the Rachel M

The motor on the *Rachel M* was a 1995, 175 HP Johnson outboard. After sand and water was removed from the carburetor (which did not appear to be the cause of the original motor problems), a mechanic identified a loose ground wire on the ignition computer (CDI) as a probable reason why the motor failed to start.

Subsequent Occurrences

The TSB was informed that, on 15 September 2002, an overturned 6.09 m Lake Winnipeg yawl had been discovered near Twin Islands, 2.5 nautical miles south of Berens Island (TSB occurrence M02C0056). The vessel operator and his helper had departed McBeth Fisheries the previous day to fish and were now missing. The propeller on the motor of the overturned yawl was found to be fouled with two fish nets. Both bodies were retrieved later and neither person had been wearing a lifejacket or PFD.

An occurrence on 03 November 2002 reported that a Lake Winnipeg yawl was swamped near Rabbit Point in the southern portion of the North Basin, Lake Winnipeg Narrows, and two fishers were in the water. One person was found hanging onto a gas can and the other to the portion of the vessel above the surface of the water. Neither person was wearing a lifejacket or PFD.

Another occurrence was reported on 03 June 2003, of a capsized vessel, 4.5 nautical miles east of Berens Island. One person was missing, and another person without a lifejacket or PFD was found clinging to the overturned vessel.

Analysis

Safety Awareness Level

In general, fishing is a high-risk occupation, and the traditional attitude of fishers is to accept the risks involved.

Even after receiving a warning, individuals tend to search for alternative interpretations that will neutralize the threat conveyed by the message.⁴ In the instance of the *Shannon Dawn* and the *Rachel M*, although gale

⁴ K. Ikeda, “Warning of Disaster and Evacuation Behaviour in a Japanese Chemical Fire,” *Journal of Hazardous Materials*, 7, 1982, pp. 51-62.

warnings had been broadcast, greater emphasis was placed on the milder weather encountered. The threat posed by the forecast was downplayed, even when the weather deteriorated.

This may, in part, be attributable to the fishers' perception of risk. Repeated exposure to a perceived risk without any resulting adverse consequences can result in a gradual shift from a heightened state of alertness and readiness to respond to a risk, to a relaxed or normal state. Each successive harmless exposure reduces an individual's attention to the source of risk. In essence, the individual becomes desensitized to the risk, and the given level of risk becomes the norm. Changes in the perception of risk can result in individuals engaging in riskier behaviour.

In this occurrence, this is reflected in the fishers continuing to fish in deteriorating weather conditions, without wearing any form of personal life-saving equipment and during the high-risk process of transferring personnel and fish from one vessel to another.

While changes in risk perception play a role in the normalization and acceptance of risk, lifejackets – the mandated personal life-saving equipment – are cumbersome to wear.

Lifejackets

The swamped/capsized vessel *Shannon Dawn* was located approximately four nautical miles in a south-southwesterly direction from the transfer point. The PFDs recovered were found downwind, ashore on Berens Island near where the *Rachel M* was found. This suggests that, when the two fishers aboard the *Rachel M* transferred with the fish tubs over to the *Shannon Dawn*, they did not transfer the lifejackets/PFDs from one vessel to the other.

Safety Equipment Requirement and Safety

Statistics indicate that most fishers do not wear personal life-saving equipment when engaged in fishing activity, despite inclement weather. Because lifejackets are cumbersome to wear, fishers do not wear them even in adverse weather conditions. Furthermore, as space on small fishing vessels is often restricted, personal life-saving devices may not be readily available during an emergency. The situation is further compounded by the fact that small vessels are susceptible to sudden movement or sudden capsizing in adverse weather.

The shortcomings of the "standard lifejacket" in Canada's harsh climatic conditions have been highlighted in several investigation reports. To maximize the survival time for a person in the water, all personal life-saving equipment for use in Canadian waters ought to incorporate two key requirements – thermal protection and inherent buoyancy. Concerned about the high risk to survival faced by personnel in the cold waters of Canada, the TSB recommended to

Transport Canada that small boats be required to carry anti-exposure work suits or immersion suits.⁵ To date, the life-saving equipment carriage requirements of the *Small Fishing Vessel Inspection Regulations* have not been changed.

Although Transport Canada Marine Safety recognizes the limitations of lifejackets and the importance of the “requirement to wear” component in determining the most appropriate personal life-saving equipment, this principle is not uniformly applied to the regulatory regime, which continues to call for the carriage of “standard lifejackets.” The inappropriateness of the personal life-saving equipment and carriage requirement in the current regulatory regime places fishers at undue risk and reduces their chance of survival.

In another occurrence involving the *Wasca II*, the TSB concluded that the “current regulations do not permit or consider the carriage of personal life-saving equipment, which is best suited (based on risk exposure) to provide maximum survival capability for persons in the water.”⁶ The report goes on to highlight the following:

- The prescriptive nature of the regulations does not provide the necessary flexibility to permit the carriage of personal life-saving equipment that is best suited (based on risk exposure) to provide for a maximum period of survival to persons in the water.
- A risk-based methodology is used by Transport Canada to address safety deficiencies; however, the regulations in their current form do not yet reflect this reality.
- A risk-based approach to life-saving equipment standards would give the manufacturer the flexibility to tailor the product to meet the varying needs of the marine sector and provide an acceptable minimum level of safety.

The occurrence involving the *Wasca II* follows a fishing fatality in 1999, near Gimli, Manitoba, which was investigated by the TSB (TSB Report M99C0048). Following the occurrence, Transport Canada, in conjunction with other governmental agencies at the federal, provincial, territorial and local levels, worked together with stakeholders (fishers, Aboriginal groups and funding organizations) to improve safety. However, safety concerns with respect to not donning personal life-saving devices, especially during deteriorating weather conditions and emergencies, still persist.

Safety Initiatives

As part of an ongoing initiative to improve the safety of fishing vessels, the following initiatives are under way:

1. Transport Canada has enhanced the competency requirements for fishing vessel masters by introducing meteorology and stability in the syllabus.
2. Using Fisheries and Oceans Canada’s database, Transport Canada distributed to all commercial fishing licence holders copies of the following documents:

⁵ TSB Recommendation M92-07 (TSB Report M90N5017).

⁶ TSB Report M01W0116 – Findings as to Risk No. 4.

- (a) *Small Fishing Vessel Safety Manual*, which addresses stability, navigation safety and safety on the job, including the dangers of overloading; and
- (b) *Alerting, Detection and Response*, a booklet that describes procedures to be followed in alerting the SAR system.

Communications

When the operator of the *Shannon Dawn* made the first of three calls for assistance, he directed authorities only to the *Constance II* on VHF channel 11. He did not give a general broadcast on VHF channel 16, prefaced by a prescribed urgency designation, that is PAN PAN. General emergency broadcasts permit all vessels in the area to be alerted to the emergency and provide an opportunity for a wide range of vessels (and the most appropriate vessel) in the area to respond to the emergency. Furthermore, they provide SAR authorities lead time to prepare to respond to an incident. In this instance, an emergency broadcast could have alerted the larger (17 m), more appropriate vessel (the *Constance I*) at an early stage, allowing it to respond to the emergency.

When the second VHF radio communication was made by the operator of the *Shannon Dawn*, asking for assistance, the *Constance II* was already some distance from the fishing area and was now limited in its ability to quickly help. The communication again did not attach any sense of urgency.

Also, the third and final VHF radio communication from the operator of the *Shannon Dawn* did not indicate urgency. The signal was broken up and difficult to hear, most likely due to the line-of-sight FM VHF signal being blocked between wave crests. These vessels are not fitted with large whip antennas and, consequently, VHF communication signals are broken up or lost in wave heights of 4 m.

The final communication by the *Shannon Dawn* was overheard by the Thunder Bay MCTS Centre/VBA. Because the communication from the *Shannon Dawn* was not prefixed with PAN PAN or Mayday, it was not deemed critical by the Thunder Bay MCTS Centre/VBA. Their communication transmission logging equipment, therefore, was not turned on, but they were monitoring the call on VHF channel 11. The Thunder Bay MCTS Centre/VBA was formally made aware by the *Constance II* at 1635 – one hour after the communication between the *Shannon Dawn* and *Constance II* was cut off – that there was a safety urgency in Lake Winnipeg.

Given the severe weather and the difficulties encountered when the *Rachel M*'s motor did not start, prudence dictates that the Thunder Bay MCTS Centre/VBA ought to have been advised when power was lost aboard the *Rachel M* and, also, immediately when VHF radio contact was lost. However, this was not done.

Instances are on record where appropriate authorities have not been notified of an emergency in a timely manner. The escalation of an emergency and the delay in notifying authorities have the potential to compromise the safety of personnel, as well as the vessel itself. Because the success of a SAR mission depends on the prompt and efficient dispatch of SAR resources, it is essential that the authorities be notified as soon as an emergency situation arises. This permits SAR authorities to identify, prepare and dispatch appropriate units and/or emergency equipment in a timely manner should the emergency escalate and/or should SAR assistance be requested or required. Furthermore, early notification permits authorities to better plan the deployment of limited SAR resources during multiple SAR occurrences.

Weather

The weather can change very rapidly in the Lake Winnipeg region during the summer months. Significant local variances in weather information have been known to take place. There are a limited number of ground monitoring stations through the northern regions of Lake Winnipeg, and Environment Canada is therefore unable to capture some localized weather anomalies. Most fishers rely on the weather forecast prepared and broadcast by Environment Canada and re-broadcast by the Thunder Bay MCTS Centre/VBA on channel 26.

Weather information on 15 June 2001 available to the fishers from several sources, either by land telephone or VHF radio channel 26, indicated some variance from the actual weather experienced by the fishers for a time period of five to six hours before the occurrence. The prevailing weather within this time frame did not match the broader weather disturbance forecast. Although the fishers had access to information indicating that gale warnings were still in effect, the much calmer prevailing weather in conjunction with the risk profile of the fishers influenced their decision to resume fishing around 1200 and to continue fishing in spite of deteriorating weather conditions.

Consequently, when the weather had drastically changed for the worse, there was little or no time left to seek shelter while exposed to the high wind speeds and heavy seas.

Vessel Load Condition at the Time of the Occurrence

The quantity of fish aboard the *Rachel M* at the time when the *Shannon Dawn* came alongside was estimated to be six tubs. The *Shannon Dawn*'s fish load was estimated to have doubled when the fish tubs were transferred from the *Rachel M*, which reduced the receiving vessel's freeboard. Additionally, the freeboard was further reduced by the weight of the two fishers transferred from the *Rachel M* to the *Shannon Dawn*.

Given the proximity to land and the shallow depth of water, the seas in the area would be steep. With the vessel deeply laden and with the near-following seas of more than 4 m, the vessel would be vulnerable to the action of the waves and shipping seas. As there were no survivors, it could not be determined if any fish tubs were jettisoned from *Shannon Dawn* before the vessel swamped and capsized. Furthermore, the precise sequence of events in the critical stages of the occurrence could not be established. The conclusions are, therefore, derived from a visual examination of the vessel damage and known facts.

Swamping/Capsizing Scenario

The *Shannon Dawn* was found with the tip of the bow projecting above the surface of the water, which tends to support a “capsizing settling by the stern” scenario. When the vessel was recovered, it was missing its motor. It is suspected that the motor was ripped off the transom when the *Shannon Dawn* passed over the first set of shoals at the southwestern tip of Berens Island. The vessel then drifted approximately one mile further. Any ingress of large volumes of water would create a dangerous “free-surface effect” and significantly reduce the *Shannon Dawn’s* stability. The bilge pump was missing and had been reported as being non-operational. Consequently, shipped water could not be discharged from the vessel. In the heavy rolling sea with cresting waves, the free-surface effect of the entrapped water on board would have contributed to the capsizing action.



Findings as to Causes and Contributing Factors

1. The five to six hours of relative calm within the affected gale-warning weather forecast area resulted in the fishers placing greater emphasis on the milder weather encountered, while downplaying the threat posed by the forecast.
2. The loss of lives can be attributed to the crew not wearing any form of personal life-saving device during the critical stages of vessel operation in inclement weather conditions.
3. Under the prevailing worsening weather conditions, the transfer of fish tubs from the *Rachel M* to the *Shannon Dawn* decreased the freeboard of the *Shannon Dawn*. Also, the shipped seas that were retained on deck created a free-surface effect and significantly reduced the vessel’s stability.
4. The *Shannon Dawn* swamped and capsized in heavy seas.
5. Because the bilge pump was not operational, the water shipped over the gunwale was retained on deck to the detriment of the vessel’s stability.

Findings as to Risk

1. Fishers’ traditional attitude is to accept the risks involved in fishing activity. This attitude, coupled with their reluctance to head for shelter, especially in deteriorating weather conditions and when fishing is good, places the crew and vessels at undue risk.
2. Delays in notifying authorities of an emergency, or a developing distress situation, reduces the chances of a successful search and rescue mission and the survival of personnel.

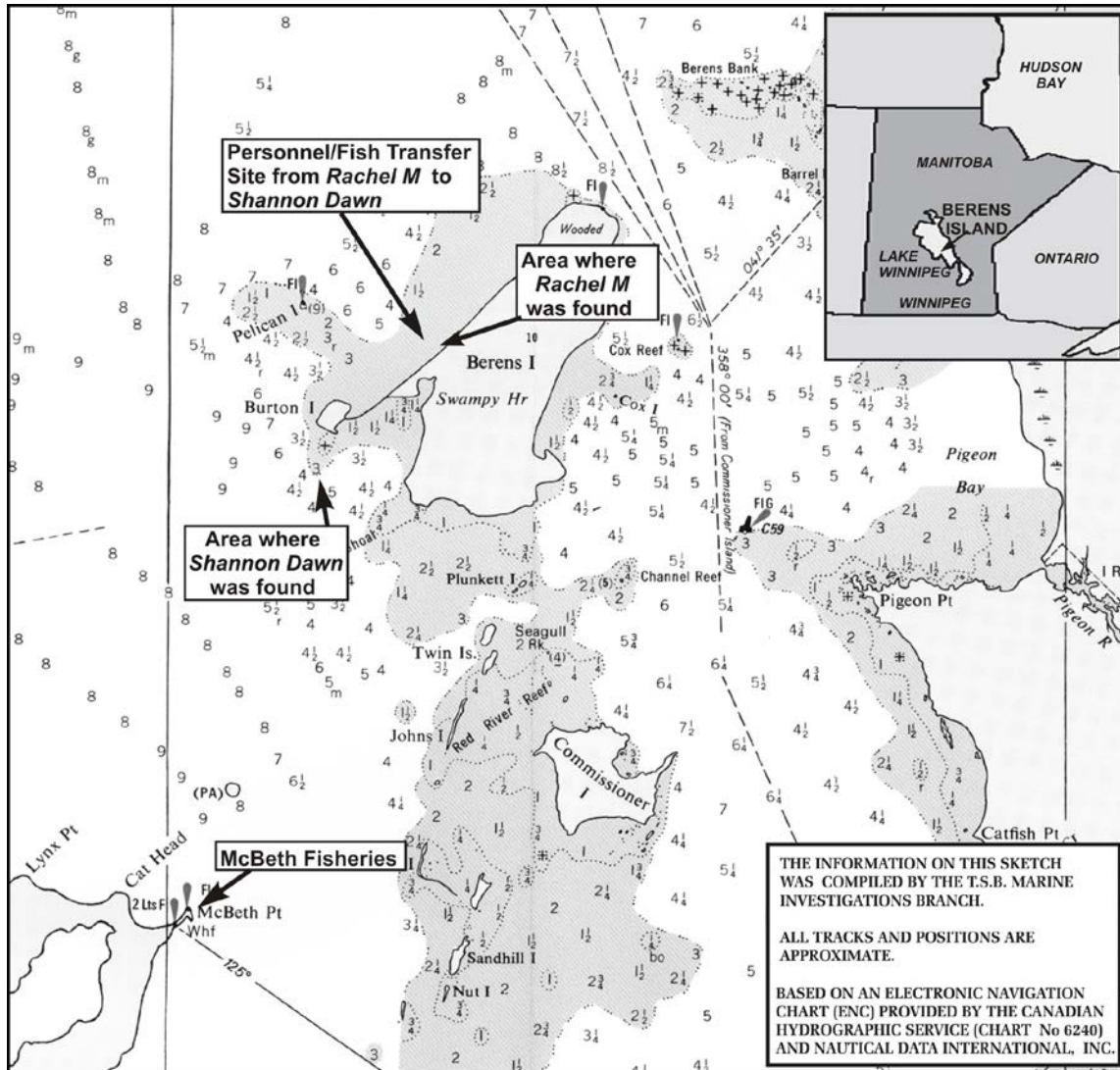
Other Findings

1. Standard VHF operating procedures for distress and urgency communication were not used, resulting in neither the authorities nor the *Constance I* becoming aware of the situation aboard the *Shannon Dawn*.
2. The outboard motor on the *Rachel M* failed to operate due to an ignition problem in the electronic ignition computer (CDI) unit. A loose ground wire on the CDI was identified as the probable cause.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 26 May 2004.

Visit the Transportation Safety Board's Web site (www.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 – Chart of the Area



Appendix B – Glossary

A	aft
CCG	Canadian Coast Guard
CCGS	Canadian Coast Guard Ship
CDI	ignition computer
cm	centimetre
CMAC	Canadian Marine Advisory Council
E	east
ENC	electronic navigation chart
F	forward
FM	frequency modulation
HP	horsepower
kt	knot
IMO	International Maritime Organization
m	metre
MCTS	Marine Communications and Traffic Services
N	north
NE	northeast
NNW	north-northwest
NW	northwest
PFD	personal flotation device
SAR	search and rescue
SE	southeast
TSB	Transportation Safety Board of Canada
VBA	Thunder Bay MCTS Centre
VHF	very high frequency