Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada

MARINE INVESTIGATION REPORT

M00L0043

FALL OVERBOARD

FROM THE PASSENGER VESSEL *MISS GATINEAU*

OTTAWA RIVER

12 MAY 2000

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

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Report Number M00L0043

Summary

On the night of 12 May 2000, the passenger vessel *Miss Gatineau* was conducting a cruise on the Ottawa River off Ottawa, Ontario, with 132 passengers on board. When the vessel was midway between the Macdonald-Cartier and Alexandra bridges in mid-stream, a passenger was seen to fall overboard from a window. The vessel was held in position. Despite a search conducted in the vessel's lifeboat, and by water rescue units from two local fire departments, the victim could not be found. His body was recovered two weeks later.

Ce rapport est également disponible en français.

Other Factual Information

Particulars of the Vessel

	Miss Gatineau
Registry/Licence Number	197915
Port of Registry	Ottawa, Ontario
Flag	Canada
Type	Passenger Vessel
Gross Tonnage[1]	52.21
Length	17.98 m
Draught	1.15 m
Built	1954
Propulsion	6-cylinder General Motors marine diesel, 63.4 kW
Crew	9
Passengers	132
Registered Owner	Croisières de L'Outaouais Inc., Rockland, Ontario

Description of the Vessel

The *Miss Gatineau* is a converted vehicle ferry with a flat-bottom steel barge hull (see Figure 1). The navigation bridge is located at the bow above the passenger area, and the engine room is on the centre line, aft. An aluminium superstructure covers the former vehicle deck, which has been converted into a passenger area. The passenger area is arranged with a disk jockey booth aft, a bar to port, and washrooms to starboard. Forward of the disk jockey booth is an open area which was arranged as a dance floor surrounded by passenger tables. A second bar is located forward on the centre line. A square tubular handrail surrounds the passenger area to a height of 109 cm. The passenger area is surrounded by sliding glass windows, which extend from the handrail to the deckhead. The vessel is equipped with fixed quartz-halogen spotlights, which illuminate the area immediately surrounding the vessel. An unpowered, 4.5-m aluminium lifeboat is located aft on the port side of the boat deck.

Figure 1 - *Miss Gatineau*

[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.

Due to the vessel's characteristics, the *Miss Gatineau*, cannot be easily steered while manoeuvring astern.

History of the Voyage

On 12 May 2000, the *Miss Gatineau* was chartered by a group of senior students from a local high school in Ottawa for a three-hour cruise to celebrate their upcoming graduation. A total of 135 students arrived at the municipal wharf, Pointe-Gatineau, Quebec, to board the vessel at 2145 eastern daylight time; however, three were refused boarding because they were visibly impaired. A brief safety message was broadcast by the disk jockey following which the vessel departed the dock at 2220 and proceeded down the Gatineau River, and then west, up the Ottawa River. The vessel proceeded at a speed of two knots, in the centre of the river towards Parliament Hill in Ottawa. At approximately 2320, as the vessel reached a position equidistant between the Alexandra and Macdonald-Cartier bridges, a 19-year-old male passenger approached the port forward window along the bow, grasped the handrail, pulled himself up into a "tuck" position with his head through the window and raised himself to a vertical position with his feet touching the deckhead. He then appeared to overbalance and fell backwards out the open window.

A member of the crew standing close by saw the victim fall overboard and immediately banged on the deckhead (floor of the bridge) to alert the master to stop the engine. The master stopped the propeller, called 911, turned on the vessel's outside spotlights, and held the vessel in position in the area of the occurrence. Meanwhile, the owner and another crew member proceeded to the boat deck to launch the lifeboat. From the boat deck they could see the victim in the water approximately 30 m astern, waving and shouting. The vessel's lifeboat was launched within two to three minutes, at which time the crew estimated that the victim was 75 to 100 m astern of the *Miss Gatineau*. No crew members were assigned to keep watch on the victim in the water, and the *Miss Gatineau* was not equipped with movable searchlights for illuminating an object in the water. By the time the owner and crew member had launched and boarded the lifeboat, the victim could no longer be seen.

The lifeboat, which was not equipped with an engine, was rowed out to the approximate position at which the victim had last been seen; however, the boat's crew did not proceed further downstream. A search was conducted in this area for 15 minutes, until the Ottawa and Hull, Quebec, fire departments' water rescue squads arrived, at which point the lifeboat proceeded to shore. The *Miss Gatineau* held position at the location of the occurrence for 15 minutes and did not take part in the search. Out of concern for the emotional state of the remaining passengers, the vessel returned to Pointe Gatineau, arriving at 2400.

After receiving a call via 911 at 2327, the water rescue unit from Ottawa Fire Department (OFD) station No. 2 dispatched a semi-rigid inflatable boat with a crew of three to the Hull Marina. After launching the boat, the OFD crew proceeded to the Ottawa side of the river to pick up night vision equipment, and then to the last reported position of the victim, arriving at approximately 2336. They were unfamiliar with the speed and direction of the river current in the area. An initial search was conducted in the last reported position of the victim, and then around the support piers of the Macdonald-Cartier Bridge. Following this, a grid search was conducted down river of the bridge encompassing the main river and bays, east to Kettle Island, before the search was called off and the unit returned to station No. 2 on May 13 at 0132.

The Hull Fire Department (HFD) water rescue unit arrived on scene at 2335 and proceeded to conduct an independent search between the piers of the Macdonald-Cartier Bridge, following which they proceeded to search downstream on the Quebec side of the river. Attempts were made to contact the master of the *Miss Gatineau* by cellular telephone; however, they were not successful. After searching down river towards Kettle Island, the HFD terminated the search and returned to the Hull Marina at 0106 on May 13.

The victim's body was recovered two weeks later at Governor Bay, Ontario, one nautical mile downstream from the location at which he fell overboard.

Victim

It was reported to the TSB that the victim was in good spirits prior to boarding and had ordered one alcoholic drink once on board. Toxicological tests indicated the presence of a small amount of tetrahydrocannabinol (THC, the psychoactive compound in cannabis). He was lightly clothed in pants, t-shirt, and sleeveless sweater. He was a good swimmer and physically fit. Although the victim passed at least partially under the vessel after falling overboard, he was not physically injured and autopsy results show that he drowned.

Vessel Charter Activities

As a passenger vessel, the *Miss Gatineau* conducts a number of different types of excursions. It was reported that the vessel typically made about 185 voyages a year, carrying an average of 100 passengers on each voyage. The vessel does not conduct scheduled tours, but instead operates in the charter trade, in which an individual or group will hire the vessel as a floating venue for a special occasion. Charters typically include private parties such as wedding receptions and anniversaries, corporate events, and student-sponsored end-of-school-year parties. The vessel is licensed by the Province of Quebec to sell alcohol, and is equipped with two bars. Notwithstanding that alcohol is available for sale on board, it is common for student passengers to imbibe prior to arriving at the vessel. It is reported that the vessel's crew scrutinize passengers on the dock, and any deemed to be visibly impaired are denied boarding. On the night of the occurrence, the *Miss Gatineau* had been chartered by a group of senior students from Nepean High School, in Ottawa. Three students were refused entry to the vessel after crew members determined that they were impaired.

Prior to this occurrence, on at least one occasion, the vessel had returned to the dock and cancelled a charter due to unruly behaviour, fuelled by end-of-school-year exuberance and alcohol. As well, at least one previous excursion had resulted in passengers jumping overboard. In June 1997 a passenger drowned.[2] As a result of these previous occurrences, to ensure passenger safety the owner had increased the number of security staff (bouncers) on board during student end-of-school-year charters.

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[2] *Miss Gatineau*, 24 June 1997 (TSB Report No. M97L0061).

Incidents of persons falling or jumping overboard from passenger vessels are not restricted to the Ottawa area. Since 1990 there have been at least 10 occurrences, involving Canadian passenger vessels similar to the *Miss Gatineau*, in which a person has fallen overboard; these have resulted in three fatalities,[3] two of which involved the *Miss Gatineau*.

Environmental Conditions

At the time of the occurrence, the wind was calm, with clear visibility. Current in the Ottawa River was two to three knots, and the water temperature was between 5 and 8°C. The air temperature was 14°C.

Vessel History and Certification

The *Miss Gatineau* was built in 1954 and entered service as a Ro-Ro passenger ferry crossing the Ottawa River at Thurso, Quebec. The vessel continued in this service until 1985, at which time it became an excursion boat operating out of Gatineau, Quebec. The vessel has undergone numerous changes over the years, including moving the navigation bridge to the bow and installing a new roof structure over the passenger deck.

In 1992 Transport Canada Marine Safety (TCMS) advised the original owner that the lifeboat on board was required to be equipped with a motor (see Figure 2). In response, the vessel's owner requested and was granted an exemption from the Transport Canada Board of Steamship Inspection (BSI) from the requirement to carry a motorized rescue boat capable of towing liferafts, citing the oar-equipped skiff on board as an alternative. At the time of the occurrence, the new owner (son of the original owner) was under the impression that TCMS would not allow him to equip the lifeboat with an outboard motor.

Figure 2 - Lifeboat of the *Miss Gatineau*

The vessel had undergone an annual inspection on 28 April 2000, two weeks before the occurrence, and was subsequently certified by TCMS for Minor Waters II voyages between Hull and Montebello, Quebec. The certificate allowed a maximum complement of 142 passengers and crew to be on board.

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[3] *Miss Gatineau*, 12 May 2000 (TSB Report No. M00L0043);
Aurora Borealis, 28 September 1998 (TSB Report No. M98F0026);
Great Blue Heron, 9 May 1998 (TSB Report No. M98C0008);
MacDonalds III, 17 August 1997 (TSB Report No. M97M0094);
Miss Gatineau, 24 June 1997 (TSB Report No. M97L0061);
Empress of Canada, 20 August 1995 (TSB Report No. M95C0043);
Empress of Canada, 5 August 1994 (TSB CASID No. 23443);
Empress of Canada, 22 July1994 (TSB CASID No. 23294);
Rocher Percé II, 9 August 1990 (TSB CASID No. 18042).

Crew Certification

At the time of the occurrence, the master, mate, disk jockey/engineer, and owner all held limited master certificates. In addition to the required Small Vessel Safety (A2) Marine Emergency Duties (MED) certification, the master held MED C and D (Senior Officers) certification, which includes training in "person overboard" recovery, and search and rescue. The two bartenders and three security staff (bouncers) held no formal marine qualifications or training.

Emergency Drills

Emergency fire drills and abandon ship drills were conducted for TCMS at the beginning of each season. It was reported that person overboard drills were conducted by staff as well; however, the vessel did not keep a proper record of the movements and activities relating to the navigation of the vessel, and as a result no records of drills were available.

Search and Rescue

The Canadian Coast Guard (CCG) does not consider the tributaries of the St. Lawrence to be within its responsibility for the provision of search and rescue (SAR)[4] services. Nevertheless, the CCG provided marine SAR services on the Ottawa River up to the Portage Bridge in Ottawa. Subsequent to the occurrence, CCG SAR was not informed of the emergency for over 20 hours. No primary SAR craft are stationed in the Ottawa area; however, the CCG Auxiliary has two craft in Hull and one in Gatineau; these are not staffed on a continuous basis. Therefore, CCG SAR also relies on local municipal fire and police departments to provide a rapid response capability for marine emergencies in the Ottawa area. In May 1999, a meeting was held between CCG SAR and local municipal emergency response agencies during which all of the agencies were made aware of each other's capabilities.

Both the OFD and HFD have water rescue units equipped with two rigid-bottom inflatable fast rescue craft. Both departments provide water- and ice-rescue response services to their respective jurisdictions; however, they provide these services without a formal memorandum of understanding with the CCG. Notwithstanding that the Ottawa River is "common ground" between the municipalities on the Ontario and Quebec sides of the river, the OFD and HFD water rescue units do not conduct joint training exercises. Other SAR resources, such as CCG Auxiliary craft, were available in the area; however, the fire department water rescue units were unaware of their existence.

Communications

The HFD is equipped with a marine very high frequency (VHF) radio; however, the OFD water rescue unit was not so equipped, nor did that unit have a common fire department radio frequency with which to communicate with the HFD. Although not required by regulation, a marine VHF radio was on board the *Miss Gatineau* at the time of the occurrence. However, it had not been installed. Several crew members, including the master, owner, and bouncers, had cellular telephones. The two fire departments communicated with each other and with the *Miss Gatineau* through their respective dispatchers, each using a proprietary radio system and, with varying degrees of success, cellular telephones.

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[4] *National SAR Manual*, CCG, 1998.

One of the stated services of the CCG Marine Communications and Traffic Services (MCTS) is to provide communications links in marine emergencies. This is accomplished from 22 stations nationwide, providing a mandated radio coverage to 95 per cent of the waters under its jurisdiction. However, CCG MCTS consider the Ottawa River between Montebello and Ottawa to be outside of the mandated coverage area. Currently there is no plan to offer radio coverage to the Ottawa region. In 1999 the 911 service in Hull proposed to the CCG that a marine VHF station be incorporated in their system. However, there has been no further action taken by the Hull 911 service in this regard. Meanwhile, the CCG in the Laurentian Region has permitted the marina at Papineauville, Quebec, to operate a marine VHF station on channel 16 (i.e. distress and calling channel) to facilitate communications with its members. However, this station is not mandated to provide radio coverage and is unable to provide services to the Ottawa area.

Analysis

Victim Behaviour

It is not uncommon for student passengers, having consumed alcohol or drugs before and during end-of-year excursion cruises, to be exuberant and occasionally unruly. On at least one previous occasion, passengers jumped overboard from the *Miss Gatineau*, resulting in one fatality.[5] Subsequent to this previous occurrence, the owner recognized the need for increased security and instituted informal procedures for checking for visibly impaired students on the dock prior to boarding, and increased the number of security staff carried on such voyages. Although toxicology results indicated cannabis and a small amount of alcohol, it could not be accurately determined what effect, if any, these substances had on the victim's judgement and behaviour.

On the night of the occurrence, three security staff were stationed throughout the passenger area. However, as the victim was not displaying outward signs of intoxication or excessively exuberant behaviour, his approach to the forward window and subsequent gymnastic manoeuvre were not noticed by security staff until it was too late to prevent his inadvertent fall backwards out the open window.

Hypothermia

In May the spring run-off increases the flow rate of the Ottawa River to its maximum. The current varies depending on the location within the river basin and was estimated to have been between two and three knots in the middle of the river at the time of the occurrence. As the source of the run-off was melting snow and ice, the water was cold, between 5 and 8°C. Without the aid of a lifejacket, hypothermia rapidly reduces an individual's ability to stay afloat or swim. Muscles in the arms and legs become rapidly numb, leading to paralysis. Sudden immersion in cold water may also cause hyperventilation and associated panic, further reducing a person's ability to remain afloat.[6] At the location of the occurrence, the minimum distance to shore was 250 m. Immersed in water of 8°C, a person without a flotation device has between 30 and 60 minutes, and less than a 50 per cent chance of swimming 50 m, before becoming

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[5] *Miss Gatineau*, 24 June 1997 (TSB Report No. M97L0061).

[6] K.E. Cooper, S. Martin, and P. Simper. *Factors Causing Hyperventilation in Man During Cold Water Immersion*, Faculty of Medicine, University of Calgary, 1982.

incapacitated to the point of being incapable of staying afloat. As a result of the low water temperature, the victim's ability to stay afloat unaided, or swim to shore, was greatly compromised.

Search and Rescue

Due to the victim's lightly dressed condition and sudden immersion, it was imperative that he be rapidly recovered before the symptoms of hypothermia set in. The speedy recovery of a person falling overboard requires that the victim be kept in sight at all times, and recovered either by using the passenger vessel or a boat launched from it. In the confusion of rapid manoeuvring, it is easy to lose track of the victim's bearing from the vessel. As well, a person in the water is difficult to spot at night, even in the most moderate of sea conditions. Consequently, it is critical that one crew member be assigned to keep watch on the person in the water regardless of what manoeuvres are being made. If the vessel is travelling slowly enough, it should be put full astern as soon as the victim has cleared the propeller, or, alternatively (if sea room permits), a "Williamson" turn may be performed which will bring the vessel back to the original location.[7] Due to the adverse steering characteristics of the vessel while going astern, upon hearing that a passenger had fallen overboard, the master of the *Miss Gatineau* immediately stopped the propeller and held position once the vessel had stopped. As a result, the *Miss Gatineau* did not actively participate in the search.

Immediately following the occurrence, two crew members proceeded to the boat deck and prepared the unpowered lifeboat for launching. From the boat deck, they could see the victim in the water waving and could hear him shouting; however, contrary to accepted "person-overboard" practice, a crew member was not assigned to keep the victim in sight while the boat was being launched. Additionally, the outside spotlights on the *Miss Gatineau* had been turned on, creating a pool of light in the area immediately around the vessel, which affected the night vision of the crew and their ability to keep track of the victim as he drifted farther away. As a result, by the time the lifeboat was in the water and occupied, the boat's crew had lost visual contact with the victim and were unsure of his location.

From the time the victim fell overboard until the lifeboat from the *Miss Gatineau* was in the water, the distance between the victim and the *Miss Gatineau* increased rapidly. During the three minutes taken to stop the vessel and launch the lifeboat, the victim would have drifted a minimum of 200 m downstream from the *Miss Gatineau*. It was therefore imperative that the lifeboat proceed as rapidly as possible downstream to locate the victim. The lifeboat, however, was not equipped with a motor and could only make good two to three knots through the water.

In 1993 the then owner of the *Miss Gatineau* had applied to the BSI for an exemption from the requirement to carry a motorized boat on board. The requirement for a motorized boat was primarily intended to facilitate the marshalling of liferafts, and the rescuing of persons in distress.[8] Since the *Miss Gatineau* was operating in sheltered waters a short distance from shore, the BSI granted the exemption. The BSI considered an aluminium skiff, propelled with oars, (as carried on board as a lifeboat at the time of the occurrence) to be a suitable alternative.

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[7] Refers to a 180-degree turning manoeuvre that places the vessel on a reciprocal track to that which it was following at the time of the occurrence.

[8] *Life Saving Equipment Regulations,* C.R.C., c. 1436, s. 2(1).

Consequently, the *Miss Gatineau* was not equipped with a motorized boat which would have allowed the crew to rapidly proceed downstream in the strong current to conduct a systematic search for the victim.

The *Miss Gatineau* was not equipped with a searchlight with which to find and illuminate a person in the water, or with equipment such as a "Jason's cradle", scramble nets, or a boarding platform to help recover a passenger back on board, nor do the *Canada Shipping Act* regulations require such equipment to be on board.

Understanding existing environmental conditions is essential in planning and executing a successful SAR operation. When the HFD and OFD water rescue units arrived on scene 15 minutes after the occurrence, they began searching the area around the piers under the Macdonald-Cartier Bridge. This was followed by a grid-pattern search down river and a search of the bays on their respective sides of the river. Being unfamiliar with the strength of the river's current, the HFD and OFD water rescue units did not appreciate or take into account the probable distance that the victim would have drifted prior to their arrival. With a minimum current of two knots, the victim would have drifted at least 925 m downstream from the location at which he fell overboard and, if still afloat, would already have been adjacent to the Rideau Falls when the HFD and OFD water rescue units arrived on scene. A more rapid deployment to a location down river, determined by analysing the probable drift in the prevailing current, might have placed the HFD and OFD water rescue units in a more effective position to locate the victim before he was overcome by hypothermia or fatigue.

Although CCG SAR does not station primary SAR resources in the Ottawa area, other municipal resources are available (consisting mainly of local fire departments and police forces). One of the CCG SAR program objectives is to "foster co-operative SAR agreements".[9] CCG SAR in the Laurentian Region has a resources contact list for the area, although no formal memorandum of understanding exists.

Open and clear communications are essential for efficient SAR operations. However, the HFD and OFD water rescue units operate independently of each other, and have no means of communicating directly with each other or with vessels operating in the area. Notwithstanding that CCG SAR has overall responsibility for administering the national marine SAR program, it is aware of resources available in the Ottawa/Hull area and had participated in an information meeting involving local municipal SAR resources; no joint training exercises are conducted between various local municipal SAR resources and CCG SAR. As a result, the responding municipal fire departments did not conduct a co-ordinated SAR operation on the night of the occurrence.

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[9] CCG SAR website www.ccg-gcc.gc.ca/SAR/mission_e.htm.

Communications

Part of the CCG MCTS mission is to provide communications and traffic services for the marine community to ensure the safety of life at sea in response to international agreements.[10] To achieve this mission, MCTS provide services, including the following:

- constantly monitoring for vessels in distress, then advising authorities such as SAR,
- providing communications links in marine emergencies, and
- broadcasting vital information, such as Notices to Shipping (advising of obstructions, missing buoys, etc.), and weather conditions.

Currently at least 21 commercial passenger vessels and numerous pleasure craft operate on the Ottawa River between Carillon, Quebec, and Ottawa. Notwithstanding this, CCG MCTS have not made provisions for marine VHF coverage in the area, nor are there formal requirements by TCMS for vessels to carry alternative communications devices such as cellular telephones. As a result, vessels operating on the Ottawa River between Carillon and the Ottawa area are not provided with access to coordinated SAR resources (including local municipal fire/police departments) through the established MCTS communications system.

Findings as to Causes and Contributing Factors

1. The victim fell overboard into the water while attempting to perform a gymnastic manoeuvre on the forward railing. His ability to stay afloat unaided, or swim to shore, would have been affected by hypothermia due to the low water temperature.

2. The *Miss Gatineau* was not suitably equipped to conduct an effective SAR operation in the dark and was not equipped with a suitable motorized lifeboat.

3. No specific lookout was assigned to keep track of the victim in the water, which resulted in the crew losing sight of him.

4. A lack of understanding of the impact of river currents on a person in the water resulted in neither the crew nor the water rescue units proceeding immediately downstream to search for the victim.

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[10] CCG MCTS website www.ccg-gcc.gc.ca/mcts-sctm/mission_e.htm (23 October 2001).

Findings as to Risk

1. There is no marine VHF radio coverage for vessels operating on the Ottawa River between Carillon and Ottawa that provides access to the SAR system; this reduces the probability of an effective coordinated SAR response in the event of a distress situation.

2. A lack of joint training exercises among various municipally and federally supported SAR resources increases the likelihood that a distress or other emergency situation on the waterways of the Ottawa and Gatineau rivers will not receive a coordinated response.

Safety Action

Action Taken

TCMS

A TSB Marine Safety Advisory (MSA 10/00) was sent to TCMS describing the importance of having means available to quickly locate and recover passengers or crew members who fall overboard. The MSA suggested TCMS consider measures to ensure that excursion boats (such as the *Miss Gatineau* and other similar passenger vessels) have adequate equipment on board, and have the capability to locate and recover expediently persons who fall overboard, under all of the environmental conditions the vessel might encounter in normal service.

In its response, TCMS indicated that amendments to the *Ship Station (Radio) Regulations, 1999*, will require all passenger vessels to have reliable means of communicating with the shore. Additionally, TCMS will be carrying out an overall review of standards and requirements for lifesaving equipment, including lifeboat requirements; there is a possibility of requiring searchlights on passenger vessels similar to the *Miss Gatineau*.

Vessel Owner

Subsequent to the occurrence, the owner installed screens on all opening windows to prevent passengers or crew from falling or jumping overboard.

Ottawa Fire Department

The OFD water rescue unit subsequently equipped its rescue vessels with marine VHF radios.

Safety Concern

While CCG SAR has overall responsibility for administering the national marine SAR program, the *National SAR Manual* does not include the Ottawa River as an area within the responsibility of CCG SAR. Notwithstanding this, the Board is aware that the CCG does maintain a presence in the area in the form of three CCG Auxiliary craft, and has participated in a joint coordination meeting of local municipal marine SAR resources.

At the time of the occurrence, local municipal marine rescue services responded quickly; however, subsequent SAR activities were not well coordinated. Marine rescue units from local municipal fire departments did not have a common means of communication (either with each other or with the *Miss Gatineau*) nor were they aware of one another's capabilities or of the availability of CCG Auxiliary craft in the area.

With a growing number of commercial passenger vessels in the Ottawa/Hull area, it is essential that effective marine SAR resources be available to respond to emergencies. One of the CCG SAR program objectives is to "foster co-operative SAR agreements". At the May 1999 meeting of local emergency response agencies, some progress was made towards enhancing marine radio communications and SAR awareness in the Ottawa/Hull area; however, the Board is concerned that channel 16 VHF radio communications in the Ottawa area still cannot be monitored by MCTS stations, and that local communications and SAR resources are not effectively organized or coordinated by CCG SAR.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 26 September 2001.

Appendix A - Sketch of the Occurrence Area