

**MARINE OCCURRENCE REPORT**

**STRIKING AND GROUNDING**

**BY THE "CATHERINE DESGAGNÉS"  
IN LORAIN HARBOR, OHIO, UNITED STATES  
06 AUGUST 1994**

**REPORT NUMBER M94C0014**

## **MANDATE OF THE TSB**

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

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

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

## **INDEPENDENCE**

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



The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

## Marine Occurrence Report

### Striking and Grounding

by the "CATHERINE DESGAGNÉS"  
in Lorain Harbor, Ohio, United States  
06 August 1994

Report Number M94C0014

#### *Synopsis*

On the afternoon of 06 August 1994, the Canadian general cargo vessel "CATHERINE DESGAGNÉS" was in Lorain Harbor, Ohio, United States, proceeding outbound in ballast. In attempting to stop for a highway bridge which was not yet fully opened, the "CATHERINE DESGAGNÉS" went out of the channel and through a marina complex, sinking and damaging pleasure craft and floating docks before coming to a stop against the embankment on the eastern approach to the bridge. Further damage was caused to pleasure craft when the "CATHERINE DESGAGNÉS" went astern, preparatory to passing through the opened bridge.

The Board determined that the "CATHERINE DESGAGNÉS" was unable to stop on her approach to a highway bridge in Lorain Harbor because her speed was excessive and greater than the permitted speed limit. The fact that resources available to facilitate the navigation of the vessel were not utilized contributed to the occurrence.

Ce rapport est également disponible en français.

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## 1.0 *Factual Information*

### 1.1 *Particulars of the Vessel*

"CATHERINE DESGAGNÉS"	
Official Number	186922
Port of Registry	Québec, Quebec
Flag	Canadian
Type	General cargo
Gross Tons <sup>1</sup>	5,675
Length	119.5 m
Breadth	16.94 m
Draught	F <sup>2</sup> : 3.05 m (10 feet) A: 4.88 m (16 feet) approx.
Air Draught	24.38 m (80 feet) approx.
Built	1961, Aberdeen, Scotland
Propulsion	Marine diesel engine, rated at 2,880 kW (3,840 BHP), driving a single, right-handed fixed-pitch propeller
Owner	Transports Desgagnés Inc. Québec, Quebec

### 1.2 *Description of the Vessel*

#### 1.2.1 *General Arrangement*

The "CATHERINE DESGAGNÉS" is a four-hold general cargo vessel with the machinery space, accommodation, and navigation bridge located aft.

#### 1.2.2 *Manoeuvring Characteristics*

Orders with respect to manoeuvring the main engine are relayed from the wheel-house to the engine-room by means of a telegraph. The engineer on duty acknowledges and executes the orders as required.

<sup>1</sup> Units of measurement in this report conform to International Maritime Organization (IMO) standards or, where there is no such standard, are expressed in the International System (SI) of units.

<sup>2</sup> See Glossary for all abbreviations, acronyms and definitions.

The transverse thrust created by a right-handed propeller tends to swing a vessel's head to starboard when the propeller is turning astern and to port when the propeller is turning ahead. The effect of the transverse thrust is at its maximum when the vessel has little way on and decreases as the vessel's speed increases.

### *1.3 History of the Voyage*

On 06 August 1994, the "CATHERINE DESGAGNÉS" was alongside the Jonnick dock in Lorain. At about 1210<sup>3</sup>, she completed discharging a cargo of steel ingots. At about 1228, the vessel left the berth and, because of the limited width of the river off the dock, proceeded upstream to the lower turning basin to swing to head out to Lake Erie. While attempting to swing, the "CATHERINE DESGAGNÉS" became temporarily embedded in the soft river bed; because of this and the reported moderate northerly breeze, the vessel could not be swung to head down river until about 1430, after much manoeuvring.

At about 1435, in the vicinity of the Jonnick dock, the "CATHERINE DESGAGNÉS" sounded one long and one short blast to request the opening of the Norfolk and Western railway bridge. The vessel passed through the bridge at about 1437 while the span was still being raised and the marine traffic signal was still set at red. At about 1439, when she was about to negotiate the last bend on the approach to the Charles Berry highway bridge, the vessel sounded one long and one short blast to request the opening of that bridge. The bridge operator acknowledged the signal but, about half a minute later, sounded five short blasts to indicate that the bridge could not be opened in time.

The "CATHERINE DESGAGNÉS" attempted to stop by going full astern and dropping the port anchor but she sheered to starboard out of the channel and through a marina complex before she came to a stop with the forepart of the vessel against the embankment which comprises the eastern approach to the bridge. The time was approximately 1442. Floating docks and pleasure craft were damaged and sunk as the "CATHERINE DESGAGNÉS" ran into the marina. Further damage was inflicted when the bridge was open and the vessel backed up and turned, preparatory to making her passage through the bridge. The vessel did not follow directions from the U.S. Coast Guard (USCG) to remain in position in the marina but, after clearing the bridge, the "CATHERINE DESGAGNÉS" was secured at a berth at the river mouth on the instructions of the USCG.

### *1.4 Injuries to Persons*

Many people hastily evacuated pleasure craft to seek safety on the river bank when the "CATHERINE DESGAGNÉS" was seen to be coming into the marina, but no injury was reported.

### *1.5 Damage*

#### *1.5.1 Damage to the Vessel*

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<sup>3</sup> All times are EDT (Coordinated Universal Time (UTC) minus four hours) unless otherwise stated.

There was no apparent structural damage to the "CATHERINE DESGAGNÉS".

#### *1.5.2 Other Damage*

Marina dock facilities were damaged, 12 pleasure craft were sunk, and 33 other pleasure craft were damaged to varying degrees when struck by the vessel and/or her propeller during the occurrence.

### *1.6 Environmental Damage*

Several hundred litres of gasoline were released by a number of the pleasure craft sunk or damaged in the occurrence. The resulting gasoline fumes caused the bridge to be closed to road traffic for four and a half hours. Booms were deployed to facilitate the containment and recovery of the leaked gasoline.

### *1.7 Vessel Certification*

The "CATHERINE DESGAGNÉS" was manned, certificated, and equipped in accordance with the appropriate regulations.

### *1.8 Personnel Qualifications and Experience*

The master's career in the marine industry began in 1939. He was the holder of a Master Mariner's Certificate of Competency issued in Canada in 1954. He was qualified as a Great Lakes pilot and had been employed as an unrestricted pilot in International District No. 2 from 1964 to 1987, during which time he had made several calls at Lorain Harbor. After his retirement in 1987, he had been engaged by the owners of the "CATHERINE DESGAGNÉS" as master on a casual basis since 1988, and vessels he commanded and which were under his conduct had been granted pilotage exemptions for all districts under the Great Lakes Pilotage Authority. He had called at Lorain three times while employed with the owners of the "CATHERINE DESGAGNÉS".

The chief officer had been going to sea since 1967 and held a Master Mariner's Certificate of Competency issued in Canada in 1987. She had been in the owners' employ since 1987, during which time she had served on occasion as master, but mainly as chief officer. This was her first trip to Lorain.

The quartermaster's seafaring career began in 1973. He had served mainly on the Great Lakes, with over 16 years' experience as quartermaster.

### *1.9 Bridge Watch*

For the vessel's outward passage down the Black River, the master and the chief officer were on the bridge, with the quartermaster at the helm, and the second officer and the bosun were posted forward, on the forecastle. The master had the conduct of the vessel, and the chief officer's duties were not specific. However, the chief officer was occupied with monitoring the quartermaster and estimating the vessel's distance from shore as the passage proceeded. The chief officer also recorded the vessel's



progress by noting the time of passing certain points along the river. The chief officer did not use the recorded times to monitor the vessel's speed.

The master did not discuss the vessel's departure from Lorain with any of the officers, and there was no passage planning, which would have included identifying potential hazards, speed limits, and signalling requirements before the "CATHERINE DESGAGNÉS" sailed. No (vessel) bridge resource management was carried out to ensure effective use of crew, equipment, and procedures during the down-river passage. The master had received no training in bridge resource management and was not familiar with the concept.

### *1.10 Communications*

The "CATHERINE DESGAGNÉS" made "Security" calls on very high frequency (VHF) radiotelephone channel 16 one hour and half an hour before departing from Jonnick dock. Communication with the bridge operators was by means of sound signals. There was no VHF radio communication between the vessel and the bridge operators.

At about 1000, the railway bridge operator was advised by the vessel's agent that the "CATHERINE DESGAGNÉS" would be leaving Jonnick dock at about 1400. On receiving this information, the operator checked with the dispatcher and established that no trains were scheduled for the bridge. He advised the dispatcher that he would be opening the bridge for an outbound vessel and prepared the bridge for opening, leaving the centre span closed but ready to be raised at the vessel's signal.

The United States Coast Pilot for the Great Lakes, Volume 6, states, in part:

When a vessel must pass two or more drawbridges close together, the opening signal is given for the first bridge. After acknowledgement from the first bridge ... the opening signal is given for the second bridge, and so on until all bridges ... have acknowledged that they will open promptly.<sup>4</sup>

About two minutes after passing the railway bridge and about three cables from it, the "CATHERINE DESGAGNÉS" gave the signal requesting the opening of the highway bridge. At this time, she was only about two cables from the highway bridge.

The signal to request that a bridge be opened is one long blast and one short blast. If the bridge can be opened, the operator acknowledges with the same signal. Five short blasts are used to signal a vessel that the bridge cannot be opened or, if open, must be closed promptly.

### *1.11 Lorain Harbor Bridges*

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<sup>4</sup> Part 117, Drawbridge Operation Regulations, heading "Signalling for Contiguous Drawbridges."

Lorain Harbor includes the lower 2.6 miles of the Black River. Three bridges cross this stretch of the river. The fixed-span 21<sup>st</sup> Street highway bridge is furthest upstream and is above the lower turning basin.

The next bridge downstream is the Norfolk and Western railway lift bridge. The time required for the operator to prepare to open this bridge is one minute, and one and a half minutes are required to raise the span. A total of two and a half minutes is required before the vessel traffic signal changes from red to green to indicate that a vessel may proceed.

The outer bridge is the Erie Avenue or Charles Berry highway bridge, a bascule bridge. When the operator acknowledges the request to open the bridge, he first has to stop the road traffic. A signal is sounded for 25 seconds before gates are lowered. The operator then has to check that there are no pedestrians. This takes about a minute and between 2 1/2 and 3 minutes are then required to raise the drawspans. A total of between 3 1/2 and 4 minutes is required before the green light for a vessel to proceed is given.

### *1.12 Speed Limit in the River*

The speed limit in Lorain Harbor is 5.2 knots (6 statute miles per hour).

The distance from the lower turning basin to the Charles Berry highway bridge is approximately 11 cables. It was estimated that the "CATHERINE DESGAGNÉS" travelled the 11 cables in about 12 minutes, giving an overall average speed of about 5.5 knots. The times which were recorded during the transit allow an estimate to be made of the speed at which the vessel covered various sectors of the total distance, as follows:

Sector	Distance	Time	Speed
Turning basin to Jonnick dock	3.7 cables	5 minutes	4.44 knots
Jonnick dock to railway bridge	2.0 cables	2 minutes	6.0 knots
Railway bridge to sounding highway bridge signal	3.3 cables	2 minutes	10.0 knots
Highway bridge signal to bridge embankment	2.0 cables	3 minutes	4.0 knots

When clearing the turning basin, the "CATHERINE DESGAGNÉS" briefly dropped the starboard anchor while manoeuvring to clear a barge and, when approaching the highway bridge, the main engine was turning full astern and an anchor was again dropped in an attempt to stop the vessel. These actions would result in a reduction in the apparent average speed in the relevant sectors. The river current at the time of the occurrence was negligible.

### *1.13 Evidence Regarding Vessel's Outbound Passage*

The master stated that he was concerned by the time it took to swing the vessel, but maintained that he did not consider the vessel to have been aground, as she was moving ahead and astern as he attempted to swing her. The master stated that the vessel's average speed during the passage was 5.3 knots. The chief officer stated that she was occupied with other tasks, but that at no time did she notice the vessel's speed being too high. The engineer who was on watch stated that full ahead was requested when the vessel left the turning basin and that this was maintained for four or five minutes until the orders were given for dead slow ahead, stop, and the double-ring full astern just before the impact. Two witnesses in a small boat stated that the "CATHERINE DESGAGNÉS" appeared to be gaining on their boat which would have been travelling at about 12 to 14 mph. They also stated that the vessel went wide on turns in the river. Witnesses from different locations ashore all agreed that the "CATHERINE DESGAGNÉS" was proceeding at a high speed. These witnesses included the operator of the railway bridge, who also stated that the span was still being raised and the signal light still red when the vessel passed through the bridge. In this respect, the chief officer stated that she thought that the bridge was fully raised when the vessel passed, but she did not observe the light, and the master was unsure as to whether the bridge was fully raised or the light was green at the time. The master stated that he was preoccupied with the navigation of the "CATHERINE DESGAGNÉS" and, because he was focused ahead, on where the vessel was going, other matters did not get his full attention. He considered the USCG call to the vessel to hold her position in the marina to be a matter for discussion and stated that it was mainly the wash from the propeller which damaged boats in the marina when the "CATHERINE DESGAGNÉS" went astern in preparation for passing through the highway bridge. The physical evidence was that a number of pleasure craft had been damaged by the vessel's propeller.

### 1.14 *Railway Bridge Clearance*

The vertical clearance under the Norfolk and Western railway bridge is 10.67 m (35 feet) above chart datum when the span is down. On 06 August 1994, the water level was 0.71 m (2 feet 4 inches) above chart datum, reducing the clearance to 9.96 m in the closed position. When the stern of the "CATHERINE DESGAGNÉS" passed under the bridge, the centre-span height indicator showed that the span was 16.76 m (55 feet) above the closed level, giving a vertical clearance of 26.72 m (87.7 feet). The vessel's air draught was estimated to be about 24.38 m (80 feet) and the aftermast of the "CATHERINE DESGAGNÉS" would have cleared the bridge by about 2.34 m (7.7 feet).

### 1.15 *Weather*

The weather was sunny and clear, with an air temperature of 22°C. The vessel logged the wind as northerly at between 10 and 15 knots, but other witnesses stated that the wind was light and variable.

### 1.16 *Tests for Substance Abuse*

The results of tests requested by the USCG and carried out on the master three days later in Montreal, Quebec, to detect drugs or alcohol were negative.

### 1.17 *Situational Awareness and Information Processing*

Situational awareness has been defined as "an accurate perception of the factors and conditions that affect a vessel and its crew during a specific period of time"<sup>5</sup>. Persons in charge of the conduct of a vessel have to maintain situational awareness to navigate safely.

To maintain situational awareness, a person scans for signals or cues which can be interpreted to reveal important information such as location, speed, and the presence of hazards. When performing routine tasks, a person expects certain cues and will use these cues to quickly confirm the assessment of the situation and take what is apparently appropriate action without referring to other information which may conflict with the evaluation. A person tends to acquire information that confirms a hypothesis and ignore conflicting data. This tendency is called "hypothesis locking or confirmation bias"<sup>6</sup>. Frequently, it takes the intervention of another person with contradictory information to overcome such a bias. Once a hypothesis is adopted, it is very resistant to change; the phenomenon has also been described as "reality construction"<sup>7</sup>.

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<sup>5</sup> Geiss-Alvarado Associates, *Human Error Accident Training*, U.S. Coast Guard training manual (July 1991).

<sup>6</sup> R.G. Green et al., *Human Factors for Pilots* (Aldershot, 1991), p. 60.

<sup>7</sup> C. Perrow, *Normal Accidents: Living with High Risk Technologies*. Chapter 6, "Marine Accidents" (1984).

When persons are stressed, there is a tendency for their attention to become even more narrowed so that even the cues which are present are missed, ignored, or discounted. Stress can also affect the perception of time. Under stressful conditions, people overestimate the amount of time that has passed.

### *1.18 Skill Degradation*

Different types of skills, once learned, are subject to degradation at different rates if not practised for periods of time. Continuous movement or psychomotor skills, such as steering, guiding, or tracking, are relatively impervious to decay. The skills needed to satisfactorily complete complex cognitive tasks requiring information processing, problem solving, recalling bodies of information, and communication between personnel, however, are subject to relatively rapid decay, within weeks if not practised.<sup>8</sup> Success at psychomotor tasks can lead persons to the conclusion that their skills have not decayed when, in fact, the more difficult and important cognitive skills are degraded.

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<sup>8</sup> Joanne C. Rullo and L. Bruce McDonald, *Factors Related to Skill Degradation and their Implications for Refresher Training*. Presented to the Human Factors Society 34th Annual Meeting (1990).

## 2.0 *Analysis*

### 2.1 *Passage Planning and Resource Management*

There was no prior discussion or planning of the passage down the Black River. The turns in the river and the narrow channel make it a challenging undertaking with little room for error. When outbound from the lower turning basin, a vessel reaches quickly the two bridges which must be raised, and the passage must be planned to allow the vessel to be able to stop if there is a delay with a bridge opening. The routine adopted on the "CATHERINE DESGAGNÉS" was for the conduct of the vessel to be entirely in the master's hands, while other officers attended to other duties. Because of this, there was no provision for the officers to back up the master's observations or report navigational errors or concerns to him. In preparing a passage plan, the (vessel's) bridge team would have been aware of the time required to open the highway bridge after acknowledgement of the vessel's signal. Putting this information together with the distances involved would have made it clear that the vessel should not delay making the signal to request that the bridge be opened, and that the vessel was required to proceed at a reduced speed.

### 2.2 *Speed of the "CATHERINE DESGAGNÉS"*

The average speed of the "CATHERINE DESGAGNÉS" at 5.5 knots was only marginally greater than the permissible speed limit of 5.2 knots. However, as the vessel did not come to an abrupt stop and, on two occasions, was running the main engine astern and/or dragging an anchor, it is apparent that she significantly exceeded the speed limit for part of the passage. The time at which the vessel passed various points in the river was only recorded to the nearest minute, but this information provides an indication of the vessel's speed over the different sectors and agrees with the other evidence. The engineer on watch stated that he maintained full speed ahead until the movements before the vessel stopped. This would explain the progressive increase in speed that was demonstrated over the sectors. Also, a top speed of at least 10 knots entering the last sector is consistent with the testimony of other witnesses.

### 2.3 *The Outbound Passage*

Difficulty was experienced at the beginning of the passage when attempting to swing the vessel in the lower turning basin. A manoeuvre which should have required only about half an hour was not completed until about two hours after the "CATHERINE DESGAGNÉS" had left the dock. The master stated that he was concerned by the time the manoeuvre was completed. In such a situation, a typical reaction would be to endeavour to speed up the departure procedure, especially if some embarrassment was felt because of the difficulty experienced in turning the vessel. The evidence was that, after leaving the turning basin, the "CATHERINE DESGAGNÉS" picked up speed until she was considerably in excess of the speed limit. The evidence was also that the outward passage of the "CATHERINE DESGAGNÉS" was not a fully controlled manoeuvre in that the vessel was wide on the turns in the river and could not be brought safely to a stop when approaching the highway bridge. From the information available, it also appears probable that the railway bridge was raised sufficiently to clear the vessel only because the bridge operator had prepared the bridge for lifting ahead of time.

The master had retired almost seven years before, after a full working career, and had only been casually employed in the intervening period. In such circumstances, complex cognitive skills are subject to decay because they are not practised regularly. The master stated that, when he was preoccupied with the navigation of the vessel, his concentration was focused ahead, on where the vessel was going. He did not observe several important factors, such as the railway bridge not being fully raised, the railway bridge signal light still being red when the vessel passed through, and the extent of the damage the stern and propeller were causing when backing up in the marina. The instructions from the USCG were also not perceived as such. The failure to recognize critical elements significant to the navigation of the vessel and the less than controlled manner in which the vessel was navigated are considered to be consistent with the behaviour of a person exposed to stress or agitation and experiencing some degree of skill decay. The consequences became critical because the master did not have adequate backup in the form of (vessel) bridge resource management to provide a line of defence against inappropriate actions and reactions.

### 3.0 *Conclusions*

#### 3.1 *Findings*

1. Difficulty was experienced in swinging the "CATHERINE DESGAGNÉS" in the designated turning basin, and this delayed the down-river passage.
2. The vessel's speed on the down-river passage increased until it was greater than the local speed limit.
3. The vessel passed under the railway bridge before the bridge had been fully raised, and with the marine traffic signal still set at red.
4. The signals requesting the opening of the two bridges were not made consecutively, and the highway bridge signal was delayed until the final approach.
5. The highway bridge operator could not open the bridge in the limited time available and advised the vessel.
6. The vessel could not be brought to a controlled stop in front of the highway bridge because of her excessive speed.
7. In attempting to stop, the "CATHERINE DESGAGNÉS" went out of the channel and into a marina complex, sinking and damaging pleasure craft and dock facilities.
8. Further damage to pleasure craft was inflicted as the "CATHERINE DESGAGNÉS" manoeuvred to back up and pass through the opened bridge.
9. There had been no prior discussion or planning of the down-river passage between the master and the vessel's officers.
10. The master did not recognize several critical factors significant to the navigation of the vessel.
11. While the master had the conduct of the vessel, his behaviour was consistent with that of a person experiencing some degree of stress and skill decay.
12. The down-river navigation of the "CATHERINE DESGAGNÉS" was carried out in a manner lacking vigilance and precision.

#### 3.2 *Causes*

The "CATHERINE DESGAGNÉS" was unable to stop on her approach to a highway bridge in Lorain Harbor because her speed was excessive and greater than the permitted speed limit. The fact



## CONCLUSIONS

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that resources available to facilitate the navigation of the vessel were not utilized contributed to the occurrence.

## 4.0 *Safety Action*

### 4.1 *Action Taken*

#### 4.1.1 *Company Procedures*

As a result of this occurrence, the vessel owners issued the following instructions and procedures to all their masters for piloting the Black River:

- masters must follow prescribed communication procedures with the bridge operator, and record the conversations;
- before departure, the master shall communicate with bridge operators regarding the ship's estimated time of arrival at the bridge;
- both masters and ship officers must conduct passage planning and briefings before departure;
- a senior navigation officer shall be present to assist the captain in conducting the river passage; and
- an officer shall be posted to stand by the windlass on the foredeck.

#### 4.1.2 *Bridge Resource Management Practice*

The Board has previously noted that poor communications on the bridge, interrupted procedures, lack of situational awareness, and lack of teamwork continue to be factors in occurrences. Consequently, the Board, in recent reports, has emphasized the need for improved teamwork to advance safe navigation. Furthermore, the Board has just completed a *Safety Study of the Operational Relationship Between Ship Masters/Watchkeeping Officers and Marine Pilots* in which safety deficiencies were identified associated with teamwork on the bridge, including communications between marine pilots, masters, and watchkeeping officers. In the study, the Board recommended that:

The Department of Transport require that the initial training syllabus for all ship officers be modified to include demonstration of skills in Bridge Resource Management;

(M95-09, issued October 1995)

and that:

The Department of Transport require that all ship officers demonstrate skills in Bridge Resource Management before being issued Continued Proficiency Certificates.

(M95-10, issued October 1995)

#### *4.1.3 Continued Proficiency and Skill Maintenance*

The master had retired as a pilot in 1987; however, since 1988, he had been engaged by the vessel owners as master on a casual basis. At the time of the accident, the master's behaviour was found to be consistent with that of a person experiencing some degree of stress and skill decay.

The Canadian Coast Guard is currently amending the Certification Regulations and the Safe Manning Regulations to require most Canadian-certificated masters, mates, or engineers to obtain Continued Proficiency Certificates (CPC). Applicants will be required to successfully complete training in Marine Emergency Duties and Simulated Electronic Navigation to be issued a CPC which must be renewed every five years. Further, applicants will need to fulfil certain service requirements, including sea time, within the five years before the application. The regulation pertaining to CPC requirements has been published in the Canada Gazette Part 1 and is expected to come into force in 1996.

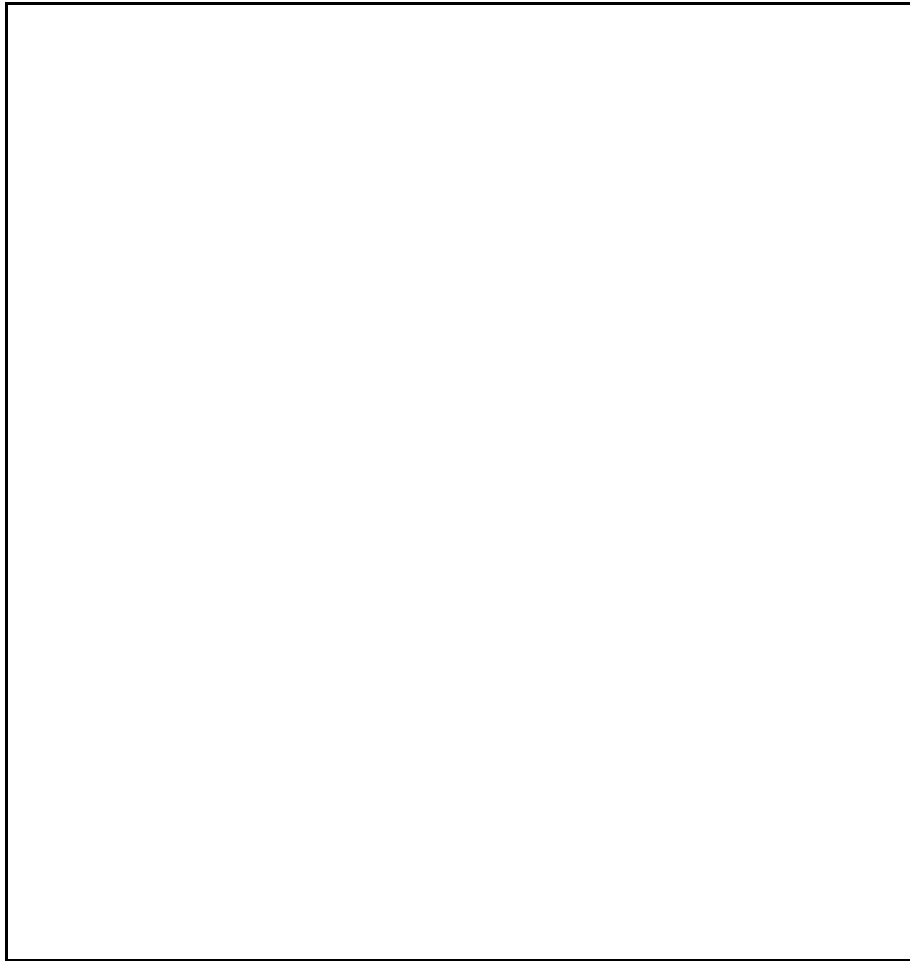
*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson John W. Stants, and members Zita Brunet and Maurice Harquail, authorized the release of this report on 19 December 1995.*

*Appendix A - Sketch of the Area of the Occurrence*



*Appendix B - Photographs*

Aerial View of Black River and Lorain Harbor

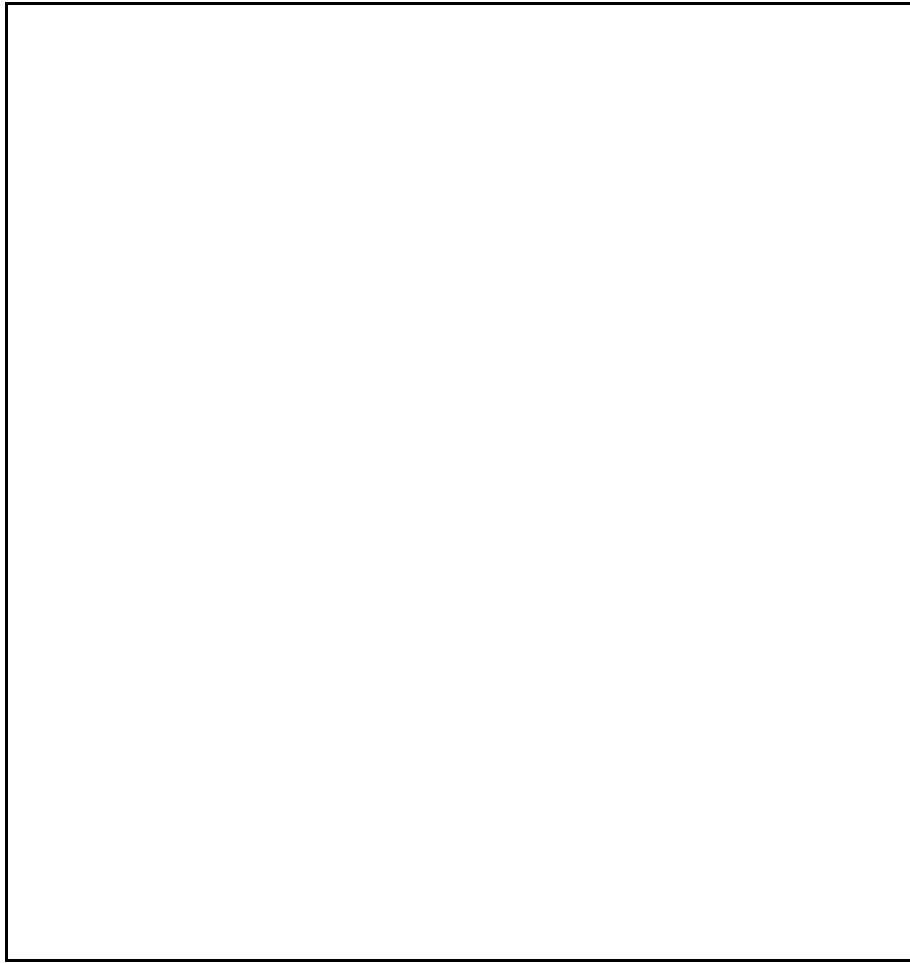


"CATHERINE DESGAGNÉS" enters marina striking pleasure craft.

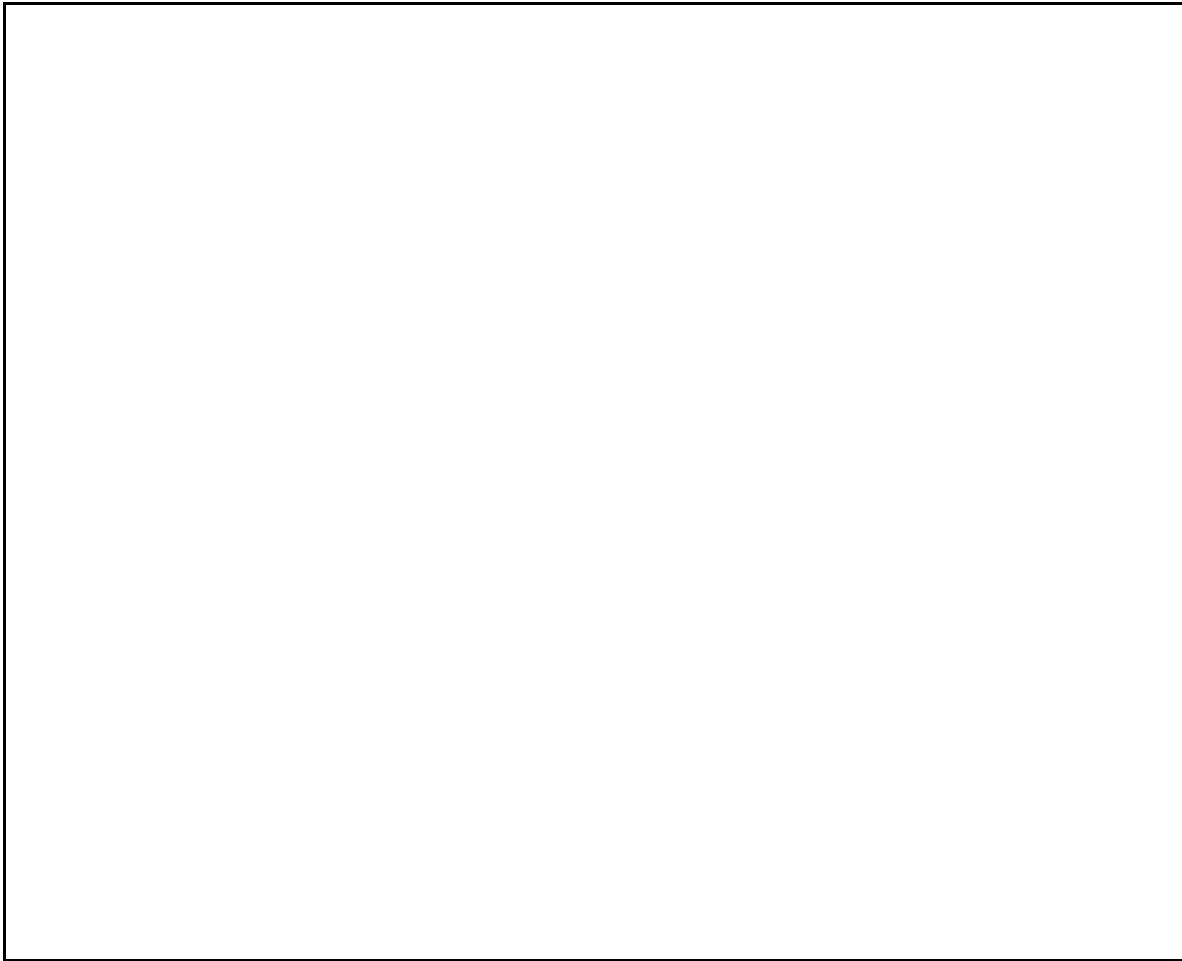


"CATHERINE DESGAGNÉS" stopped in marina.





Vessel swinging to commence bridge passage.



Damaged pleasure craft.



*Appendix C - Glossary*

A	aft
air draught	Height of highest point of ship's structure above waterline.
bascule bridge	Drawbridge raised and lowered with counterpoise.
bosun (boatswain)	Petty officer having immediate charge of deck crew.
BHP	brake horsepower
C	Celsius
chart datum	Plane below which the tide seldom falls and to which depth information on the chart is reduced.
CPC	Continued Proficiency Certificate
EDT	eastern daylight time
F	forward
gross tons	A measure of the underdeck volume of a vessel expressed in tons of 100 cubic feet.
IMO	International Maritime Organization
knot(s)	nautical mile(s) per hour
kW	kilowatt(s)
m	metre(s)
Security call	Messages concerning the safety of navigation or important meteorological warnings prefixed by three repetitions of the word SÉCURITÉ.
SI	International System (of units)
TSB	Transportation Safety Board of Canada
U.S.	United States of America
USCG	United States Coast Guard
UTC	Coordinated Universal Time
VHF	very high frequency
°	degree(s)

## TSB OFFICES

### HEAD OFFICE

#### HULL, QUEBEC\*

Place du Centre  
4<sup>th</sup> Floor  
200 Promenade du Portage  
Hull, Quebec  
K1A 1K8  
Phone (819) 994-3741  
Facsimile (819) 997-2239

#### ENGINEERING

Engineering Laboratory  
1901 Research Road  
Gloucester, Ontario  
K1A 1K8  
Phone (613) 998-8230  
24 Hours (613) 998-3425  
Facsimile (613) 998-5572

### REGIONAL OFFICES

#### GREATER HALIFAX, NOVA SCOTIA\*

Marine  
Metropolitan Place  
11<sup>th</sup> Floor  
99 Wyse Road  
Dartmouth, Nova Scotia  
B3A 4S5  
Phone (902) 426-2348  
24 Hours (902) 426-8043  
Facsimile (902) 426-5143

#### MONCTON, NEW BRUNSWICK

Pipeline, Rail and Air  
310 Baig Boulevard  
Moncton, New Brunswick  
E1E 1C8  
Phone (506) 851-7141  
24 Hours (506) 851-7381  
Facsimile (506) 851-7467

#### GREATER MONTREAL, QUEBEC\*

Pipeline, Rail and Air  
185 Dorval Avenue  
Suite 403  
Dorval, Quebec  
H9S 5J9  
Phone (514) 633-3246  
24 Hours (514) 633-3246  
Facsimile (514) 633-2944

#### GREATER QUÉBEC, QUEBEC\*

Marine, Pipeline and Rail  
1091 Chemin St. Louis  
Room 100  
Sillery, Quebec  
G1S 1E2  
Phone (418) 648-3576  
24 Hours (418) 648-3576  
Facsimile (418) 648-3656

#### GREATER TORONTO, ONTARIO

Marine, Pipeline, Rail and Air  
23 East Wilmot Street  
Richmond Hill, Ontario  
L4B 1A3  
Phone (905) 771-7676  
24 Hours (905) 771-7676  
Facsimile (905) 771-7709

#### PETROLIA, ONTARIO

Pipeline and Rail  
4495 Petrolia Street  
P.O. Box 1599  
Petrolia, Ontario  
N0N 1R0  
Phone (519) 882-3703  
Facsimile (519) 882-3705

#### WINNIPEG, MANITOBA

Pipeline, Rail and Air  
335 - 550 Century Street  
Winnipeg, Manitoba  
R3H 0Y1  
Phone (204) 983-5991  
24 Hours (204) 983-5548  
Facsimile (204) 983-8026

#### EDMONTON, ALBERTA

Pipeline, Rail and Air  
17803 - 106 A Avenue  
Edmonton, Alberta  
T5S 1V8  
Phone (403) 495-3865  
24 Hours (403) 495-3999  
Facsimile (403) 495-2079

#### CALGARY, ALBERTA

Pipeline and Rail  
Sam Livingstone Building  
510 - 12<sup>th</sup> Avenue SW  
Room 210, P.O. Box 222  
Calgary, Alberta  
T2R 0X5  
Phone (403) 299-3911  
24 Hours (403) 299-3912  
Facsimile (403) 299-3913

#### GREATER VANCOUVER, BRITISH COLUMBIA

Marine, Pipeline, Rail and Air  
4 - 3071 Number Five Road  
Richmond, British Columbia  
V6X 2T4  
Phone (604) 666-5826  
24 Hours (604) 666-5826  
Facsimile (604) 666-7230

\*Services available in both official languages