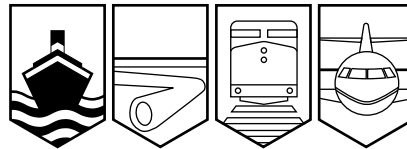


Transportation Safety Board  
of Canada



Bureau de la sécurité des transports  
du Canada

**MARINE INVESTIGATION REPORT**  
**M01W0116**



**NEAR SINKING**

**CATAMARAN PASSENGER VESSEL WASCA II**  
**WASCANA LAKE, REGINA, SASKATCHEWAN**

**13 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

### Near Sinking

Catamaran Passenger Vessel *Wasca II*  
Wascana Lake, Regina, Saskatchewan  
13 June 2001

Report Number M01W0116

### *Summary*

The small catamaran vessel *Wasca II* departed her berth on Lake Wascana, Saskatchewan, to transport 16 school children and their supervisors to a picnic area on an island in the lake. Three of the children were in wheelchairs. Shortly after departure, as the vessel accelerated, it took on a marked trim by the bow, and the forward end of the passenger deck became submerged. The teachers instructed the passengers to move aft to reduce the trim. The vessel remained afloat and was beached some minutes later. All of the passengers were evacuated safely.

*Ce rapport est également disponible en français.*

## Other Factual Information

<i>Wasca II</i>	
Licence Number	4G-4774
Flag	Canada
Type	Small Passenger Vessel
Gross Tonnage <sup>1</sup>	less than 5 tons
Length	8.80 m (28 feet 10 inches)
Draught (unloaded)	159 mm (6.25 inches)
Built	1965
Propulsion	Yamaha, 50 HP outboard
Crew Members	1
Passenger seating	12
Owner	Wascana Centre Authority, Regina, Saskatchewan

### Description of the Vessel

The basic layout of the *Wasca II* vessel is shown in Figure 1.

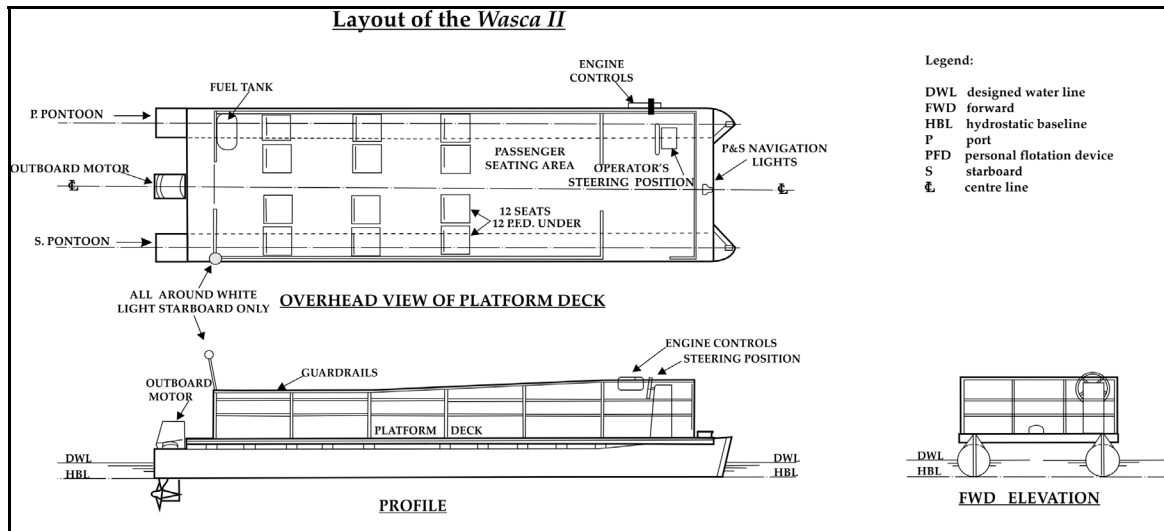


Figure 1. Layout of the *Wasca II*

<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) units.

The *Wasca II*, a “Starlighter” catamaran-type small passenger vessel, consists of two cylindrical aluminum pontoons 450 mm in diameter, 8.8 m long, spanned by a wooden deck over welded frames and cross beams. Aluminum railings surround the perimeter of the passenger deck. Three rows of twin plastic seats, attached to aluminum footings on either side of the centre line, provide seating for 12 passengers. The steering position and the control console are located at the port side forward, and the outboard motor is mounted at the stern.



Figure 2. Photograph taken on *Wasca II* June 1999.

The vessel was bought from its original owners and licensed, on 05 May 1967, by the Wascana Centre Authority.

#### *Jean Vanier School*

Jean Vanier School provides educational services for children who are challenged physically and/or cognitively. School programs are designed to help students achieve their optimum level of emotional, social, intellectual, spiritual, and physical development.



Figure 3. The *Wasca II*.

#### *The Wascana Centre Act*

The Wascana Centre Authority (WCA) was established in 1962 by an act of the Saskatchewan Legislature, *The Wascana Centre Act*.

## Wascana Lake

Wascana Lake is an artificial body of water, centrally located in Regina (see Figure 4). The lake has a uniform depth of less than two metres and is used as a recreational resource for the public.

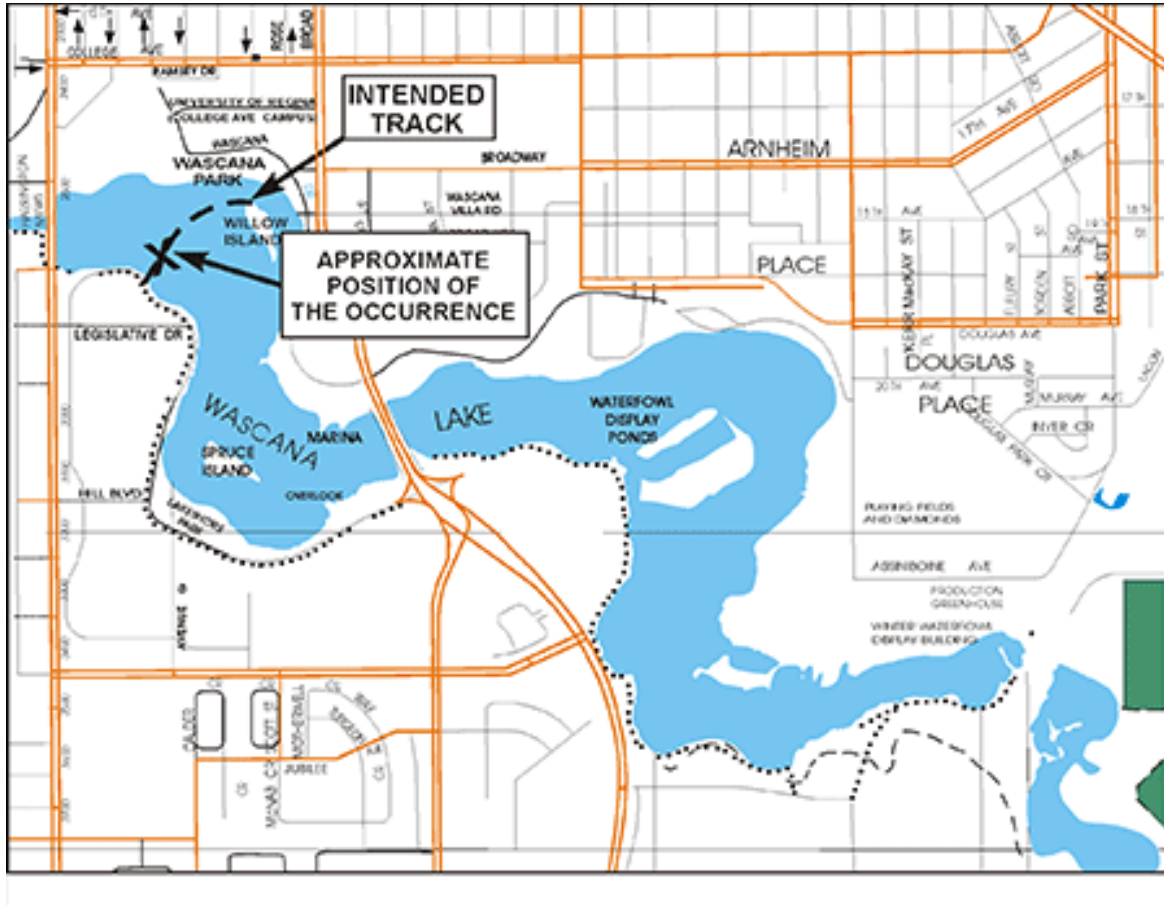


Figure 4. Sketch of the occurrence area, Wascana Lake

## Willow Island

Willow Island is situated approximately 150 m west of Wascana Park, approximately 550 m from the Legislative Building, and has picnic and barbecue facilities. Access to the island is by catamaran from Willow Island Overlook.

## History of the Voyage

The voyage was an end-of-school-year picnic to Willow Island on Wascana Lake on board the catamaran *Wasca II*. The trip was organized jointly by the Jean Vanier School and the WCA on 14 May 2001. The group consisted of 26 children with special needs, 17 staff members, 2 volunteers, and 4 interns from the Saskatchewan Institute of Applied Sciences and Technology.

Passengers were picked up at the Jean Vanier School by para-transit buses at around 1135 on 13 June 2001, and transported to the passenger landing at the Legislative Building.

The boat operator started the day by placing safety equipment and other necessary gear on board. These items were normally removed from the boat at the end of the day and stored in a wooden locker ashore as there was no permanent storage space on the boat. Gasoline and lubricating oil were replenished in the outboard motor, and the vessel was taken to Willow Island, some 550 m away, where the area was prepared for the picnic. The vessel was then taken to the Legislative Building landing to pick up the first load of passengers.

As the *Wasca II* was not large enough to carry all of the passengers at one time, several trips were planned. The first trip departed for the island at 1200 with two students in wheelchairs, two able-bodied students, four staff members, some equipment, and food. The weight of the food and equipment was estimated to be equivalent to that of two passengers. This trip was uneventful.

For the second trip, three children in wheelchairs were embarked and positioned against the forward railing of the passenger area. Twelve more passengers occupied seats and one passenger stood at the after end of the boat. In all, there were 17 people on board, including the operator, when the boat departed the dock at 1215. Winds were from the north-northeast at approximately 14 knots with a slight chop on the lake. No pre-departure briefing was given to the passengers.

A few feet away from the landing, as the vessel began to make headway, it started to trim rapidly by the bow. As it gained forward momentum, the forward part sank deeper into the water until the water reportedly reached waist level of passengers at the forward end of the passenger deck. The operator jumped overboard with the reported intention of reducing the weight at the forward end. No instruction was given to passengers to don personal flotation devices (PFD).

Two of the teachers re-distributed the passengers on deck, allowing the vessel to return to a more level trim. One of the teachers then assumed control of the engine and steered and beached the *Wasca II* at a location close to their original starting point.

All children with special needs were then assisted ashore with the help of the teachers, bystanders, other school staff ashore, and the boat operator, who had swum back to shore. A bystander notified the local emergency services on the 9-1-1 telephone system, and the regional fire department's water and ice rescue team arrived on the scene within five minutes.

The students were taken into the emergency vehicles, examined, kept warm, and later transported back to their school. No injury was reported. The *Wasca II* was manoeuvred to the tie-up area and withdrawn from service by the owner.

#### *Condition of Vessel on Recovery*

The superstructure of the catamaran was not damaged and the two pontoons remained intact. There was no pollution as a result of this occurrence.

### *Vessel Inspection, Licensing, and Certification*

Shortly after being purchased by the owner, the *Wasca II* was issued a Vessel Licence by the Customs Office in Regina on 05 May 1967. Pursuant to the *Canada Shipping Act (CSA)*, the *Wasca II*, as a vessel of less than 15 gross tons that does not carry more than 12 passengers, was exempt from inspection by Transport Canada Marine Safety (TCMS).

However, the CSA requires that the owners ensure that such vessels comply with the provisions of related construction standards and safety and navigation equipment requirements.<sup>2</sup>

### *Small Vessel Safety Requirements*

*Small Vessel Regulations (SVR)* require vessels to be equipped with the following safety equipment: one standard lifejacket for each person on board; one approved lifebuoy with at least 9 m of rope; one bailer and one manual pump; six pyrotechnic distress signals; one class B II fire extinguisher; and one anchor with at least 15 m of cable, rope, or chain.

The *Wasca II* carried the required lifebuoy and 13 PFD, manufactured to Canadian Government Standards Board (CGSB) standard CGSB 65-GC-11. The lifebuoy did not meet the requirements for colour, retro-reflective tape, condition of cordage, or approval stamp. The vessel did not carry the required pyrotechnics, manual pump, or bailer.

Standard lifejackets, unlike PFD, must meet rigid buoyancy standards and have the ability to turn an unconscious person to a face-up position in the water. However, PFD are more comfortable to wear.

### *Construction Standards for Small Vessels*

SVR refer to the *Construction Standards for Small Vessels (TP 1332)*. These standards apply to small vessels, including commercial vessels and pleasure craft. They include hull construction and design requirements and are intended to convey to designers, builders, owners, and operators that it is their responsibility to carefully consider the intended operation of the vessel when determining construction, vessel freeboard, and stability.

### *Passenger Loading and Vessel Stability*

Following the occurrence, the trim and stability of the vessel were examined by simulating the effects of passenger distribution on the platform deck. WCA employees participated in the simulation, which was limited to 12 passengers, in accordance with the passenger seating installed.

An initial draught survey of the unloaded vessel showed level trim, a mean midship draught of 159 mm, a related lightship weight of 0.89 tonnes, and a mean pontoon freeboard of 298 mm. The total reserve buoyancy of the vessel when in this unloaded (lightship) condition was some 1.99 tonnes.

---

<sup>2</sup> *Small Vessel Regulations; Construction Standards for Small Vessels; Interim Small Passenger Vessel Compliance Program.*

At the start of the simulation, the vessel was upright with six test passengers seated on either side of the deck and one in the port side operator seat. Passengers were moved singly from starboard to port to positions as far outboard as possible while standing between the seats. After four passengers were transferred, the port-side pontoon became submerged, and the test was curtailed. The elimination of any reserve righting ability, when the port-side pontoon became completely immersed, represented the limit of transverse stability and practical operation. Any increase in heeling moment caused by a further transfer of passengers would have led to the sudden capsize of the vessel.

A loaded draught survey carried out with the operator and the 12 test passengers seated symmetrically about the centre line showed a slight after trim of 40 mm, a mean midship draught of 325 mm, and a mean pontoon freeboard of 132 mm. The total reserve buoyancy of the pontoons in this fully loaded condition was some 0.69 tonnes, approximately 31.5 per cent of the loaded displacement. This reserve buoyancy is significantly lower than accepted design practice, which calls for a minimum safety margin of at least 100 per cent of the vessel's fully loaded displacement.

To ensure that a satisfactory margin of safety of at least 100 per cent reserve buoyancy is maintained in the fully loaded condition, the pontoons are not to be immersed more than half of their depth. The dimensions of the intact pontoons and the vessel lightship weight are such that a maximum passenger capacity of eight persons, with a total weight of not more than 0.55 tonnes, is not to be exceeded in order to maintain this safety margin.

#### *Interim Small Vessel Monitoring and Inspection Program*

Changes to the CSA led to the introduction of the Interim Small Vessel Monitoring and Inspection Program (ISVMIP), which initially came into effect in June 1999, with the issue of Ship Safety Bulletin (SSB) No. 11/99, which initially expired on 31 December 2000. Since then, it has been replaced with SSB No. 04/2001<sup>3</sup>, dated 26 April 2001, some five weeks prior to the occurrence; the program was extended to 31 December 2002.

The ISVMIP is intended to assess the level of compliance of small vessels with existing regulations and to allow vessel owners and operators the opportunity to achieve phased-in compliance with regulations.

The ISVMIP outlines safety requirements and the inspection regime, the Small Vessel Monitoring and Inspection Program (SVMIP), which requires a mandatory First Inspection and subsequent random inspections to achieve its safety objective. The program focuses on identifying vessels that may pose high safety risks and provides TCMS greater flexibility in delivering small vessel inspection services to the marine community.

---

<sup>3</sup> SSB No. 04/2001 Interim Small Passenger Vessel Compliance Program.



Vessels subject to the SVMIP are required to:

- have a First Inspection whereby they will receive a “Notice of Survey”;
- have an Annual Seaworthiness Information Report completed by the owner;
- be subject to Random Inspection and Compliance Monitoring by a Marine Safety Inspector, whereby a “Letter of Compliance” will be issued; and
- be approved by Marine Safety, if they are new, and are thus subject to inspection during construction.

The owners of the *Wasca II* did not receive SSB No. 04/2001 and were not aware of the related SVMIP inspection requirements.

### *Hull Maintenance*

The *Wasca II* was maintained locally by WCA employees. Repairs that could not be effected by employees were contracted out to certified technicians. The closed pontoons were air-pressure tested annually for leaks, and leaks were fixed as and when necessary. A maintenance repair log was kept. At the time of the accident, the aluminum pontoons were intact.

### *Personnel Certification and History*

The operator of the *Wasca II* was not certificated, nor was she required to be so, as the vessel was 15 gross tons and under and did not carry more than 12 passengers.

The operator at the time of the occurrence was a summer student hired as a guide by the WCA on 15 May 2001. One of the duties of a guide entails operating the catamaran. She had not previously operated a pleasure craft or any other marine craft and this was her first summer on the job.

### *Standard Operating Procedures or Policies*

The WCA did not have formal documented standard operating procedures (SOP) in place for the operation of its vessels nor any written policy addressing the training of vessel operators.

### *Training*

No formal training plan was in place for the operation of vessels by newly hired personnel, nor were written safety guidelines or instructions provided to cover issues such as: care of life-saving equipment and appliances; and emergency procedures and ship/shore communications with senior staff/management.

Training or familiarization involved a three-hour on-the-job training session with newly-engaged personnel and formerly employed operators. The operator at the time of the occurrence was trained on the *Wasca II*, the smaller of two vessels operated by the WCA. As a result, she chose this vessel for the school outing.

Training or familiarization was hands-on and included the following:

- connecting the gas line to the outboard motor;
- checking the operation of the outboard motor;
- the storage of gasoline and safety equipment, both on board and ashore;
- procedures for donning a PFD; and
- procedures for securing the vessel at the end of the day.

Some two hours were spent manoeuvring the vessel and making landings at different docks within the lake.

### *Radio Communications*

During operational hours, the operator routinely kept in contact with the WCA front desk personnel via a two-way radio, which was fitted with a dial pad and could be used as a telephone to get in touch with personnel after working hours.

However, unknown to senior management, the dial pad had not been operational for some time. Moreover, on the day of the occurrence, the boat operator had left the radio on Willow Island during her first trip, when she went to prepare the island for the picnic.

### *Similar Occurrence in 1999*

On 28 August 1999, the *Wasca II* was being used to transport Regina Symphony Orchestra musicians to a moored barge in the middle of Wascana Lake when a similar incident occurred with 13 persons, including an operator on board, during the "Festival of Lights". The orchestra was to perform on the barge.

Shortly after departure and while accelerating, the vessel began to trim by the forward end. At this time, speed was reduced, and the people on board adjusted their positions until the forward end of the vessel remained immersed approximately 600 mm. The vessel then continued slowly to the barge, where the orchestra disembarked.

The occurrence was not reported to any regulatory authority, and no investigation took place. Further, there is no record of remedial action having been taken by the WCA to enhance the safe operation of the vessel.

## *Analysis*

### *Passenger Loading and Vessel Freeboard*

The vessel was outfitted with seating and life-saving equipment for 12 passengers; however, the operator had no formal instruction or other guidance regarding its maximum safe carrying capacity. At the time of the occurrence, 16 passengers and their effects were embarked, and their combined weight/distribution caused both pontoons to become deeply immersed.

Although the total weight of passengers and the freeboard of the pontoons were neither monitored nor recorded on departure, based on the number of persons carried, the deadweight exceeded that employed in the simulated loading condition with 12 passengers. The simulation showed that, even when so loaded, the vessel retained markedly less reserve buoyancy than

that called for by accepted design practice. Consequently, the greater number and weight of passengers on board at the time of the occurrence would have exacerbated the situation.

At the time of the occurrence, the total weight of the passengers and their effects caused both pontoons to become deeply immersed, leaving insufficient freeboard and reserve buoyancy for safe navigation. The low freeboard was such that the forward ends of the pontoons became completely submerged by the bow waves generated by the vessel's forward motion. This caused the sudden increase in forward trim and the downward plunge of the bow. The marked forward trim was subsequently reduced by a reduction of speed and the repositioning of passengers toward the after end of the vessel.

#### *Vessel Inspection by Transport Canada*

As the Wascana Centre Authority (WCA) senior management lacked marine expertise, a request was made to Transport Canada Marine Safety (TCMS) for guidance on regulatory requirements pertaining to the operation, construction, inspection, and certification of both vessels and crews. In response to the requests, TCMS forwarded excerpts from the relevant *Canada Shipping Act* regulations. No one from TCMS visited the vessels. The regulations are complex and the excerpts lacked specific guidance to the WCA. The absence of such guidance was compounded by the fact that SSB nos. 11/99 and 04/2001 had not been sent to the WCA and were unknown to them. Consequently, the non-conformity with the regulatory requirements which affected the safe operation of the vessel, went unnoticed until the occurrence.

#### *Dissemination of Safety Information*

In the past, safety information (i.e., SSBs) was disseminated to stakeholders by way of an established mailing list. However, in recent years, SSBs are also posted on the internet.<sup>4</sup> Whereas anyone may request being placed on the mailing list, not everyone who operates a small vessel is aware of its existence. A review of the SSB mailing list, maintained by TCMS, showed that a substantially large number of small vessel operators, including the WCA, are not on the list.

In response to TSB Marine Safety Advisory No. 07/01, TCMS has recognized that the current method of disseminating safety information is not always effective. Consequently, an evaluation of the system is under way to determine the most effective method of communicating relevant safety information to specific audiences.<sup>5</sup> In this instance, although the WCA had sought previous guidance from TCMS on regulatory matters, the WCA was not on the TCMS SSB distribution mailing list for small passenger vessels.

#### *Complexity of Regulatory Safety Requirements*

Regulatory compliance for small passenger vessels of 15 gross tons and under is based on *self-enforcement* by owners. The application of the self-enforcement principle presupposes that the owner has in-depth knowledge of marine legislation and the operational environment, and has sufficient resources and appropriate skills to educate the operator or crew. This principle may work well in large corporations; however, few operations within the small vessel sector

---

<sup>4</sup> [www.tc.gc.ca/marinesafety/bulletins](http://www.tc.gc.ca/marinesafety/bulletins).

<sup>5</sup> 22 November 2001 response by TCMS to TSB Marine Safety Advisory No. 07/01.

engaged in carrying passengers, fishing activity, or other commercial activity have a scale of operation sufficiently large to allocate resources to meet these objectives. The majority of the over 30 000 small vessels operating in Canada are operated by small companies or individuals who may own and operate a vessel with a few employees.

There is no requirement for the owner to possess in-depth knowledge of marine regulations or for the operator to possess academic qualifications, nor is a competency test required before a person can engage in marine activities. The complexity of regulations is such that they are not readily understood by those persons who must apply them.

Simplifying regulations in the small vessel industry is crucial to support self-enforcement. This need has been recognized by TCMS, which, in other marine sectors, has published guides and manuals to assist owners or operators operate their vessels safely.<sup>6</sup> There is no such publication for the small passenger vessel sector. The difficulty in interpreting current complex marine legislation calls into question the practicality of self-enforcement as a compliance tool for small vessels.

The issue of self-enforcement of complex legislation and regulations has been discussed in the 1996 TSB report on an occurrence involving the *S.S. Brothers* (TSB Report No. M96M0144). The Board recommended that legislation be presented in a manner readily understood by those to whom it applies.<sup>7</sup> While the recommendation addressed provincial labour legislation as it applies to fishing vessel safety, the principle equally applies to any legislation that uses self-enforcement as a means of enforcement.

#### *Standard Operating Procedures, Training, and Safety*

The lack of formal SOPs governing WCA marine activities provided personnel with little or no practical knowledge on operating the vessel and fostered an environment in which unsafe practices can go undetected.

As the vessel is engaged in carrying passengers, among other requirements, operators ought to be knowledgeable in the safe navigation of the vessel; passenger safety including departure and arrival briefings; basic information such as the effect of weight distribution on vessel stability; and safety and emergency procedures. In this instance, no such training had been given to the operator. This could account for the operator's action during the emergency, which resulted in no safety action or instructions being provided to the passengers. Given the various applications for which small passenger vessels are used, it is essential that the training given to the crew take into consideration any special needs of the clientele serviced by the vessel.

---

<sup>6</sup> *Guide to Inspection Regulations for Small Fishing Vessels* (TP 782);  
*Small Fishing Vessel Safety Manual* (TP 10038).

<sup>7</sup> TSB Report No. M96M0144 – *S.S. Brothers*, Recommendation M99-02.

### *Emerging Trends and Safety*

It is estimated that 3.8 million Canadians 15 years of age and over have a disability, some 440 000 of whom travelled by ferry in 1995.<sup>8</sup> As the population ages, and as the incidence of disability increases with age, the number of persons with disabilities using marine transportation will increase. Given that:

- governments and the transportation and travel industries are placing more emphasis on catering to the needs of persons with disabilities,
- continuous efforts are made to integrate persons with disabilities into society, and
- educational and recreational activities enjoyed by the general public may also affect the health and well-being of persons with disabilities,

it is essential that safety requirements, by way of equipment or training, be considered to enhance the safety of persons with disabilities using marine means of transportation, whether for recreation or essential travel. Current regulations applicable to commercial operations do not provide the flexibility that would help address the issue of the safety of persons with disabilities.

### *Operator Certification and Safety*

A minimum level of skill and knowledge is required of those who operate an automobile or aircraft, be it for commercial or recreational purposes. However, in the marine environment, there is no such proficiency/competency requirement for operators of small commercial vessels, whether used for carrying passengers, fishing activities, or other commercial operations.<sup>9</sup> A proficiency requirement is extended to some pleasure craft operators, which will eventually apply to all operators by September 2009.<sup>10</sup>

The need for formal training of operators of vessels has been recognized by TC as well as by the Canadian Coast Guard. *Crewing Regulations* for commercial vessels and the *Competency of Operators of Pleasure Craft Regulations* are intended to address this need. Nevertheless, operators of small vessels, such as passenger vessels of 15 gross tons or less that do not carry more than 12 passengers and fishing vessels 60 gross tons and under, are not required to demonstrate a minimum level of knowledge to operate their vessels. As a result, many small commercial vessel operators continue to operate in Canadian waters without demonstrating a minimum knowledge. Generally, these operators have a limited knowledge of vessel operation, including passenger safety. Further, no criteria or guidelines have been established by TCMS for training in these matters.

---

<sup>8</sup> Canadian Transportation Agency (CTA), *Code of Practice - Ferry Accessibility for Persons with Disabilities*. The CTA, a quasi-judicial federal administrative tribunal, is responsible for ensuring that persons with disabilities obtain access to Canada's federal transportation system by eliminating unnecessary or unjustified barriers.

<sup>9</sup> *Crewing Regulations*, s.29.

<sup>10</sup> *Competency of Operators of Pleasure Craft Regulations*.

The Board is concerned that the absence of a proficiency requirement increases the chances for marine accidents and unnecessarily exposes crews and passengers to risk. Consequently, the Board recommended that TC develop training standards and certification requirements for the operators of small vessels.<sup>11</sup> In a recent TSB report, involving the *True North II*, the Board reiterated its concern that shortcomings in the evaluation and certification processes may result in operators with inadequate competency to operate vessels, thereby placing crews and passengers at undue risk.

In response, TC has undertaken several initiatives to address this concern:

- since June 2000, the oral examination for limited certificates includes an evaluation based on the vessel and its area of operation;
- the written and oral examinations cover core competencies in navigational safety (i.e., rules of the road), stability, meteorology, navigation, ship construction, and other operational requirements; substantial work has been done on this issue;
- a standard method of recording oral examination questions and results in the Automated Certification Examination System has been developed;
- continuing competency to be demonstrated every five years by personnel holding limited certificates ; and
- updating *The Examination and Certification of Seafarers*, TP 2293, to reflect changes to the national syllabus (Revision 02 was completed on 24 September 2002).

TC has initiated action to address competency issues for operators of vessels. However, these provisions have not been extended to all commercial vessels (such as small passenger vessels 5 gross tons and under carrying not more than 12 passengers, small commercial vessels 10 gross tons or less and small fishing vessels 60 gross tons or less). Therefore, crews and/or passengers on these vessels will continue to be subject to undue risk. The risk had been identified in TSB Report No. M93L0003 (*Tan 1*) and Recommendation M96-01, however this issue is still not addressed. In this regard, it should be noted that operators of pleasure craft *are* required to meet proficiency standards.

### *Regulatory Regime and Safety*

In an aging population, the number of passengers with disabilities, some of whom cannot wear any form of restraint, is increasing. This precludes them from using the standard lifejackets that vessels are required to carry.

There is a need for flexibility in the regulations, so that different operations can provide life-saving equipment appropriate to the risks associated with those operations. This has been recognized by TC and is reflected in the Board of Steamship Inspection Decision No. 6587,

---

<sup>11</sup> TSB Report No. M93L0003 (*Tan 1*), Recommendation M96-01.

which allows persons on board vessels engaged in whale-watching to wear full-length PFD in lieu of the carriage requirement of approved standard lifejackets, provided that the suits are worn by passengers and crew for the duration of the trip.

However, the current requirement for small vessels to carry personal life-saving equipment, whether the vessel is carrying passengers or engaged in fishing or other commercial operations, does not reflect the flexibility accorded to the whale-watching industry. Regulations do not 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. While risk-based methodology is used by TC to address safety deficiencies, the regulations in their current form do not yet reflect this reality.

Current standards for life-saving equipment, based on specific design and manufacturing criteria, is prescriptive and consequently restricts the manufacturing process. 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. Such an approach would also allow for continuous improvements in life-saving equipment design due to technological progress and can potentially raise the threshold of safety.

### *Findings as to Causes and Contributing Factors*

1. The combined weight of the operator, three wheelchairs, 16 passengers and their effects resulted in both pontoons being nearly submerged, leaving insufficient freeboard and reserve buoyancy for safe navigation.
2. The forward ends of the pontoons became completely submerged by the bow waves generated by the vessel's forward motion, causing the loss of reserve buoyancy, and the sudden trim and downward plunge of the bow.
3. No formal instruction or training was provided to the operator on the safe loading and operation of the vessel. She was not certificated nor was there a requirement for an operator of a small commercial vessel such as the *Wasca II* to formally demonstrate proficiency or competency by passing a Transport Canada (TC) examination and obtaining a certificate of competency.

### *Findings as to Risk*

1. Procedures adopted by TC for disseminating safety-related information are not always effective; vital safety advice and directives are not always conveyed to owners or operators.
2. The self-enforcement of safety measures to ensure regulatory compliance is ineffective in some sectors of the industry because of the lack of awareness, the complexity of regulations and the lack of experience of some owners in interpreting them.

3. Personal life-saving equipment on board the vessel included non-approved lifejackets, and there were not enough personal flotation devices (PFD) for the number of persons on board.
4. 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.

### *Other Findings*

1. At the time of the occurrence, there was no means of ship/shore communication on board the vessel.
2. A previous similar occurrence was not reported to authorities, no investigation was carried out to determine cause, and no remedial action was taken to prevent a re-occurrence.

### *Safety Action*

#### *Action Taken*

##### *Vessel Taken out of Service*

The *Wasca II* was taken out of service by the owners immediately after the incident pending investigation.

On 19 June 2001, Transport Canada Marine Safety (TCMS) issued a detention order the *Wasca I* and the *Wasca II* until the identified deficiencies were rectified.

##### *Certification of Operators*

Four operators were tested for a Master Limited certificate of competency by TC, and all were successful in obtaining the certification. The operators are medically fit and have been trained in first aid and fire safety.

At the May 2002 meeting of the Canadian Marine Advisory Council (CMAC), TCMS introduced a discussion paper titled "*Amendments to the Crewing Regulations and Marine Certification Regulations*" outlining proposals for new training and certification programs for the operators of small commercial and fishing vessels, including passenger vessels under 5 gross tons. The paper proposes that the *Crewing Regulations* be amended to reflect that any commercial vessel, regardless of tonnage, be required to have a certificated master. It is reported that the proposal met with support from industry stakeholders attending the conference.



### *Action Taken by the Wascana Centre Authority*

Following the occurrence, and under instructions from TCMS, the Wascana Centre Authority (WCA) has initiated the following action to enhance safety:

- The WCA has brought the vessels *Wasca I* and *Wasca II* into compliance with regulatory requirements.
- The void spaces were filled with marine styrofoam for positive buoyancy to the satisfaction of a TCMS inspector. TCMS inspected both vessels (*Wasca I* and *Wasca II*) in May 2002 and cleared them for service.
- TCMS issued the WCA a commercial licence on 29 June 2001, and the *Wasca II* was given a commercial licence number (co2585 sk).
- The number of passengers on the *Wasca II* will be limited to eight plus an operator for a total complement not to exceed nine persons. When freight (i.e., barbecues, picnic coolers, etc.) is carried, this weight will be taken into consideration, and the passenger limit will be reduced accordingly.
- The WCA has implemented the following policy with respect to passengers in wheelchairs:
  - the number of wheelchairs has been limited to three per trip;
  - the wheelchair must be secured on the vessel;
  - passengers in wheelchairs must don a lifejacket prior to embarking; and
  - the weight of the wheelchair will be taken into account for load limits.
- The WCA will have vessel plans approved by TCMS prior to purchasing a vessel.

### *Action Taken by TC*

An amendment to the *Ship Station (Radio) Regulations 1999*, which will require all passenger vessels to be equipped with communications equipment, is expected to be completed in 2003.

### *Safety Concern*

#### *Ship Safety Bulletins*

The distribution of Ship Safety Bulletins (SSB) is intended to provide vessel owners and operators with information and guidance on operational, regulatory and safety matters. However, the current system of distributing SSBs does not always reach target audiences.

This problem was identified by the TSB following the sinking of the F/V *Nadine* and F/V *Cape Aspy*<sup>12</sup>, at which time the Board recommended that:

The Department of Transport evaluate the effectiveness of its distribution practices for all marine safety information aimed at fishing masters and fishermen. (M93-02, issued June 1993)

TC accepted the recommendation and subsequently issued special SSBs in 1993, 1995, 1996 and 1999 to advertise all post-1977/SSBs and solicit new subscribers. However, at the May 2001 CMAC Standing Committee on Fishing Vessel Safety, fishing industry representatives stated that communications with fishermen was a huge problem and many indicated that they are not getting bulletins. For a vessel operator to receive SSBs, they must request that they be added to the TCMS distribution list, or have access to the TCMS website. As a result, only those that are aware that SSBs exist may receive and benefit from the information they convey. Evaluation of SSB distribution information provided by TCMS in mid-2001 indicates that, notwithstanding a population of at least 88 000<sup>13</sup> commercial vessels operating in Canada, only 334 SSBs<sup>14</sup> are distributed directly to shipowners and operators. For example, the province of Manitoba, which incorporates Lake Winnipeg, with over 1000 commercial fishing vessels, receives only 11 English copies of SSBs.

In a Marine Safety Advisory (MSA 07/01) sent to TCMS in 2001, further concern was raised that the method of communicating safety information chosen by TC in the past was not appropriate for the groups targeted, as the SSBs have very limited distribution among small boat operators. In response, TCMS indicated that they also were concerned that the method of SSB communication was perhaps not the most effective for the intended target groups, and that a re-evaluation was under way to determine the best methods of getting relevant safety information to target groups that would benefit most from it.

Models for the efficient distribution of safety information do exist within TC. For example, within the Transport Canada Aviation Safety branch, statutory safety information of a technical nature that requires immediate attention is sent directly to each registered aircraft owner affected through Airworthiness Directives. Such direct targeting of stakeholders is only possible when detailed records of registration are available, and the Board notes that TCMS does not currently possess an accurate database of Canadian commercial vessels. Staff continue to note occurrences, including this one, in which vessel operators are either not familiar with SSBs, or are unaware of how to access them. The Board, therefore, remains concerned that the SSB program used by TCMS for disseminating safety-related information continues to be less than effective in conveying vital safety advice and directives to owners and operators of commercial vessels.

---

<sup>12</sup> TSB Report Nos. M90L3034 and M93M4004.

<sup>13</sup> At least 60 000 small commercial vessels, 25 000 fishing vessels, 3000 large commercial vessels.

<sup>14</sup> SSB Distribution list 18/7/2001.

### *Operator Competency*

Regardless of the size of vessel, passengers and crew have an expectation that the operator is competent to conduct the vessel to a safe arrival at its destination. Following two accidents<sup>15</sup> involving the small passenger vessel *Tan 1* in 1993, the Board noted an increasing number of small passenger vessel sightseeing operations carrying fare-paying passengers. Believing that it is important for the safety of those fare-paying passengers that the operators of those vessels have formal marine training, the Board subsequently recommended that:

The Department of Transport develop training standards and certification requirements for the operators of small sightseeing boats that carry fare-paying passengers. (M96-01, issued July 1996)

In response, TC agreed with the recommendation and indicated that, with industry, it would develop a national standard for small passenger vessels and charter boats of less than 150 gross tons. In a subsequent occurrence<sup>16</sup> in 1995, the utility vessel *Showboat*, carrying 33 passengers and 6 crew, sank close to the dock at Ontario Place, Toronto. In a Marine Safety Advisory (MSA 03/96) sent to TCMS in 1996, further concern was raised that, inter alia, the crew of the *Showboat* did not have formal marine training or certification.

Since that time, TCMS has taken initiative in proposing new training and certification programs for the operators of small commercial and fishing vessels, including passenger vessels under 5 gross tons.

At the May 2002 CMAC meeting, TCMS introduced a discussion paper, *Amendments to the Crewing Regulations and Marine Certification Regulations*. The paper proposes that the *Crewing Regulations* be amended to reflect that any commercial vessel, regardless of tonnage, be required to have a certificated master. The Board notes, and is encouraged by, these recent program initiatives undertaken by TCMS and believes that, if effectively implemented, such initiatives could be an important element in affording the travelling public a proper level of safety regardless of vessel size or the number of passengers carried. Consequently, the Board will closely monitor the progress of the regulatory amendments.

*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 17 December 2002.*

---

<sup>15</sup> TSB Report Nos. M93L0003 and M93L0004.

<sup>16</sup> TSB Report No. M95C0045.