

MARINE OCCURRENCE REPORT

CAPSIZING, WITH LOSS OF LIFE

SMALL FISHING VESSEL "MISS CAT HARBOUR"

OFF ANCHOR BROOK, NEWFOUNDLAND

14 JULY 1997

REPORT NUMBER M97N0093

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.

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Summary

Whilst on passage between Lumsden and Musgrave Harbour, Newfoundland, the small fishing vessel "MISS CAT HARBOUR" capsized, but remained afloat upside down. The afternoon passage was being made for the purpose of effecting repairs to the vessel. One crew-member drowned as a result of the capsizing. The operator and two children, who were also on board, were subsequently rescued after having spent approximately 4½ hours on top of the overturned boat. The weather at the time of the occurrence was fine with light airs and a smooth sea.

Other Factual Information

Particulars of the vessel

Name	“MISS CAT HARBOUR”
Port of Registry	St. John’s, Newfoundland
Flag	Canada
Official Number	094182
Type	Fishing vessel
Gross Tonnage	Under 15
Length	11.9 m (39’)
Crew (at time of capsizing)	2
Built	1982 Rocky Harbour, Newfoundland
Construction	Wood with glass reinforced plastic (GRP) sheathing
Propulsion	210 bhp Cummins marine diesel engine
Owner	Mr. D. Whalen, Lumsden, Newfoundland

Being under 15 gross tons “MISS CAT HARBOUR” was not required by regulation to be inspected by Transport Canada, and was not. Neither had she been voluntarily inspected, although such a service is available to these vessels for a fee. The operator was not required to, and did not, hold any marine certification.

In 1985, a 1.2 m (4 feet) extension was fitted to her original transom and the entire wooden hull of the vessel was fibre-glassed. The extension was fitted to accommodate two additional fuel tanks to extend the range of the vessel. To compensate for the additional weight aft, approximately 100 kg (220 lb) of semi-permanent ballast was removed, out of a total amount of approximately 635 kg (1400 lbs), from the bilges near the keelson. The additional compartment made no appreciable difference to the handling characteristics of the vessel.

The “MISS CAT HARBOUR” departed Lumsden at approximately 1400, on the afternoon of 14 July, 1997, to proceed to Musgrave Harbour, a distance of approximately 19 miles. The purpose of the voyage was to attempt to correct excessive vibration of the propeller shaft, possibly by fitting a new bearing. Those on board were the operator, a crew-member and two children, a boy and a girl.

The vessel was fitted with roll-reduction paravane gear (commonly referred to as stabilizing gear or stabilizers) consisting of a heavy steel frame and 20 foot long aluminum poles, mounted on top of the wheel-house, and this gear was usually deployed as soon as the vessel departed a dock, regardless of weather conditions. Because of the fine weather conditions both the owner and the operator had agreed that it was not necessary to use the roll-reduction gear and it remained secured in the upright position.

At approximately 1500, the operator, who had been manually steering the vessel since departing the wharf at Lumsden, engaged the automatic steering device. The helm went hard over to port immediately after the automatic steering was engaged and the vessel heeled to starboard and capsized.

The operator, a non swimmer, exited the wheel-house as the vessel was capsizing and climbed onto the bottom of the overturned boat. The two children had also been in the wheel-house and the girl got out as the boat overturned but the boy (another non swimmer) escaped when the boat was upside down. The girl, who had learned to swim approximately a week before this incident, seeing the other crew-member lying face downwards in the water a short distance from the boat, attempted to assist him, but to no avail. She returned to the boat and was assisted onto the bottom of the boat by the operator. The other crew-member had been on deck immediately before the capsize. It is not known whether he jumped into the water or whether he was thrown in by the rapid capsize. His death was later confirmed as having been caused by drowning.

A sufficient number of life jackets were on board the boat and the children had their own. However, life jackets were not being worn and the rapidity of the capsize precluded their use. Neither was there sufficient time to send a distress call on the Very High Frequency (VHF) radio.

Meanwhile, the owner, after conducting business in Musgrave Harbour, realised that his boat was overdue and drove back towards Lumsden. The road roughly follows the configuration of the shoreline and "MISS CAT HARBOUR" should have been visible from many places along that road. The owner sighted what he first thought was an inflated life-raft but it was in fact the red coloured bottom of his vessel. Concerned, that what was thought to be a life-raft from his vessel, he returned quickly to Musgrave Harbour where he requested the owner of a pleasure craft, described as a " speedboat ", to proceed to the area of the upturned boat to perform a rescue mission. The survivors were rescued by the pleasure craft at approximately 1900 and subsequently landed at Musgrave Harbour.

At 1846 the owner of the vessel contacted the Rescue Coordination Centre, St. John's resulting in vessels in the area being tasked in addition to a Hercules aircraft and a Labrador helicopter. The body of the deceased was picked up by the crew of the helicopter and brought ashore.

The "MISS CAT HARBOUR" subsequently washed ashore on a rocky promontory near Shalloway Brook in a heavily damaged condition and was deemed to be a constructive total loss. It was not possible to determine whether the automatic steering device had been incorrectly set or if it had malfunctioned.

Under-deck Compartments

The through-hull rudder bearing in the lazarette had been recently re-packed with new packing and tightened to the extent that the bearing was "weeping." The cover to the lazarette had been left off so that any excessive ingress of water in that compartment could be pumped out. The vessel was fitted with three electrically-driven bilge pumps, one in the lazarette, one in the fish-hold and one in the engine-room. Only the pump in the engine-room was automatic, the other two were controlled from the wheel-house. Just prior to the capsize it was reported that the lazarette was dry.

When “MISS CAT HARBOUR” was engaged in fishing for herring or capelin, the fish-hold was rigged with timber pens. The timber used to construct these pens had been removed from the fish-hold and was stowed, unsecured, on the well deck. The hatch to the fish-hold was closed but not secured.

Stability Considerations

After the occurrence the vessel was in a heavily damaged condition and there was no existing hydrostatic information with respect to the vessel, either pre-, or post-, transom extension. A detailed analysis of the vessel’s transverse stability at the time of the occurrence was not possible. With respect to consumables carried at the time of the capsizing, there was reportedly only approximately 227 L (50 gallons) in the fuel tanks in the hull, while the hydraulic oil tank and the fresh water tank, both mounted on top of the wheel-house, each contained approximately 180 L (40 gallons).

Ship Safety Bulletins, specifically directed to Owners/Operators of Canadian fishing vessels are published and distributed. Bulletin 16/96, dated November 1996 dealt with the dangers associated with making structural alterations, without taking into account the possible adverse effects on the vessels’ stability. The importance of including additional weight items, when reassessing the vessels’ stability was emphasized.

Small fishing vessels under 15 gross tons, such as the “MISS CAT HARBOUR” are not inspected. Vessel owners often modify their fishing gear and equipment without seeking professional advice (or notifying TCMS in case of inspected vessels) of these changes. Such modifications can adversely affect the vessel’s stability and compromise crew safety. For example, in late 1989, the 39-ton small fishing vessel “DALEWOOD PROVIDER” capsized in relatively calm weather in the Juan de Fuca Strait. Modifications carried out to the vessel over the years had raised the vertical centre of gravity; the reduction in the transverse stability was found to be a factor contributing to the capsizing. The transverse stability had not been re-assessed after these modifications.

Apparently, many fishermen and fishing vessel operators are not aware that modifications/ alterations/additions can adversely affect the stability of the vessel and thus the safety of the crew. In view of the foregoing the Board recommended that:

*The Department of Transport emphasize, through a safety awareness programme for owners, operators and officers of fishing vessels, the adverse effects of structural modifications and additional items on vessel stability; and,
(M94-31, issued August 1994)*

The Department of Transport explore means to ensure that structural modifications and the addition of weight items are recorded and accounted for in reassessing the stability of small fishing vessels.

(M94-32, issued August 1994).

Weather and Survival

The closest weather reporting station to the area of the capsizing is at Gander where, on the afternoon of 14 July, winds southerly 5 to 10 knots were recorded, visibility 20 miles with an air temperature of 18° to 20°C. At the site, sea water surface temperature was approximately 8° to 10°C. The air temperature was probably lower than that recorded inland, but, nevertheless, was sufficiently warm to allow the survivors to sit in wet clothes for approximately 4½ hours without suffering from other than mild hypothermia.

Emergency Position Indicator Radio Beacons (EPIRBs)

The Board believes in the safety benefits of carrying an EPIRB. In January 1993, the transmission from a float-free EPIRB was received moments after a vessel sank off Nova Scotia. The Halifax RCC was able to launch a SAR operation within ten minutes. Several lives were saved - mainly attributable to the Class 1 EPIRB carried aboard.

Also, following the sinking of the Canadian tug "Patricia B. McAllister", in the Gulf of St. Lawrence on 22 April 1991, the Board expressed concern regarding the lack of EPIRBs on sea-going vessels. In view of the inherent weakness of relying on manual activation of a distress signal during an emergency and the possible loss of life associated with a delayed rescue operation following an abandonment at sea, the Board recommended that:

The Department of Transport publicize the advantages of stowing Class II EPIRBs and EPIBs [Emergency Position Indicating Buoys] in a manner to provide immediate access and/or float-free deployment; and, (M93-09, issued August 1993).

The Department of Transport encourage the use of Class 1 EPIRBs by all vessels that transit or operate beyond the limits of coastal harbours.

(M93-10, issued August 1993).

In response to recommendation M93-09, a Ship Safety Bulletin (SSB No. 1/94 dated 12 January 1994) was issued publicizing the advantages of stowing the devices (existing EPIRBs & EPIBs) for ease of access and deployment. The Department of Transport also agreed with recommendation M93-10. Further the Department intended to take interim measures to encourage the use of Class 1 EPIRBs.

In 1996, the Department of Transport introduced revised *Ship Station Radio Regulations* which include new requirements regarding EPIRBs. Fishing vessels which would be required by these modified regulations to carry an EPIRB would be over 20 m in length and engaged in voyages other than Home Trade, Class IV or Inland Voyages. Vessels of the size and type as the “MISS CAT HARBOUR” will still not be required to carry an EPIRB.

Analysis

The removal of semi-permanent ballast when the extension at the transom was incorporated into the hull would have had the effect of raising the vessel's centre of gravity. This would have been offset to some extent when the vessel was in the light operating departure condition by the fuel which would normally be carried at such times in all the tanks. However, on this occasion, the vessel was low on fuel. Other factors contributed to raising the vessel's centre of gravity, and thus reducing her initial transverse stability, at the time of the capsize. The roll-reduction gear, which would normally be deployed when the vessel was operating, remained in the stowed, upright position. Also the timber for the pen boards which the vessel required when fishing herring or capelin had been removed from the fish hold and was stowed on deck. The “MISS CAT HARBOUR” was carrying about 180 L of hydraulic oil and about 180 L of water in tanks on top of the wheelhouse. While there was nothing unique to this passage with respect to the contents or distribution in the tanks, they represent weights carried high in the vessel and on the occasion of the capsize compensating weights lower in the hull had been removed.

Reportedly, the capsize took place rapidly. As the vessel heeled under the influence of the centrifugal forces generated when the helm was hard over and as the deck became immersed, the open lazarette cover and the unsecured fish hold hatch would permit unrestricted down-flooding which would have accelerated and caused a loss of transverse stability and caused the vessel to capsize.

That the capsize occurred immediately after the automatic steering device was engaged and the helm went hard to port would suggest that the vessel had marginal initial stability and would likely have capsized if the helm had been put hard over when being steered manually.

In June 1992, following the collision between the FV “CONNIE & SISTERS” and the FV “RYAN ATLANTIC”, (Report No. M92M4031) the Board identified safety deficiencies regarding training and certification requirements. At present there is no regulatory requirement in Canada that personnel operating small fishing vessels of less than 85GRT demonstrate competency in navigation, seamanship, vessel stability and survival skills for certification purposes. This category of vessel constitutes over 90 per cent of the fishing fleet registered in Canada.

Although experienced in the harvesting of fish, many fishers have not received formal training in navigation, radar skills, rules and regulations for collision avoidance, etc., for the most part they acquire these skills through on-the-job experience.

In 1994 (Recommendation M94-10) the Board recommended that:

The Department of Transport ensure that any person required to have the conduct of a commercial fishing vessel possesses the basic skills for safe navigation.

It is understood that as of July 1999, Transport Canada plans to require certification for personnel operating fishing vessels of 60 gross tons and over, and, eventually to extend this requirement to even smaller fishing vessels. In the interim, however, TC will not require that a significant number of fishers on smaller vessels such as the "MISS CAT HARBOUR" demonstrate basic navigational skills and knowledge.

Findings

1. Low fuel, roll-reduction gear stowed in the vertical position, pen boards on deck and removal of ballast contributed to the raising of the vessel's centre of gravity.
2. The vessel's marginal initial transverse stability could not withstand the heeling effect of the centrifugal forces created by the application of full rudder.
3. Open and unsecured hatches to below-deck compartments permitted downflooding.
4. Life-jackets were not being worn though those on board included non-swimmers and children.
5. Despite modifications to the EPIRB carriage requirements in 1996, vessels of the size and type as the "MISS CAT HARBOUR" are still not required to carry an EPIRB.
6. For small fishing vessels of less than 85GRT, The Department of Transport has no regulatory requirement that personnel operating these vessels demonstrate competency in navigation, seamanship, vessel stability and survival skills etc.
7. Smaller fishing vessels, such as the "MISS CAT HARBOUR", constitute over 90 per cent of the registered Canadian fishing fleet.

Causes and Contributing Factors

The distribution of weights on the "MISS CAT HARBOUR" at the time of the occurrence had the effect of raising the centre of gravity of the vessel to the extent that the upsetting forces created when the helm was hard over, overcame her initial transverse stability, consequently the vessel heeled very quickly, to the extent, that she down-flooded and capsized.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson Benoît Bouchard, and members Maurice Harquail, Charles Simpson and W.A. Tadros, authorized the release of this report on 06 October 1998.