

MARINE OCCURRENCE REPORT

CAPSIZING

**OF THE FISHING VESSEL "COURAGEOUS"
OFF EDITH POINT, JOHNSTONE STRAIT
BRITISH COLUMBIA
20 JUNE 1995**

REPORT NUMBER M95W0025

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

The United States fishing vessel "COURAGEOUS", which was proceeding from Gig Harbour, Washington, to Ketchikan, Alaska, at the start of the fishing season, capsized in the early hours of 20 June 1995 while transiting Johnstone Strait. The vessel is believed to have been caught in a tide rip off Edith Point. As the capsizing was sudden and unexpected, only a partial distress message could be broadcast. One of the six crew members, who was sleeping in a bunk within the forecastle, was trapped in the capsized hull and lost his life. The vessel was salvaged and taken to Campbell River, B.C. It was docked and readied for towing to the United States, where it was subsequently taken.

Other Factual Information

Particulars of the Vessel

Name	"COURAGEOUS"
Port of Registry	Gig Harbour, Washington
Flag	United States of America
Official Number	641334
Type	Table seiner
Gross Tonnage	44
Crew	6
Length	17 m
Built	1981, Moss Landing, California, U.S.A.
Propulsion	Single-screw diesel engine, 300 BHP
Owner	John P. Ancich Gig Harbour, Washington, U.S.A.

The "COURAGEOUS" is a single-screw, steel, purse seiner. There is a raked stem, good sheer and a transom stern. The house is well forward and, inside it, there is a narrow spiral ladder on the starboard side leading to the engine-room and the forecastle space which has four bunks, two on each side. This ladder is the only escape from the forecastle area. A step ladder, also inside the house, leads up to the lower stateroom, which houses the master's bunk. The main wheel-house, which is above this level, was added to the vessel by a previous owner some time after she was built, thus increasing the height of the accommodation. A fish hold, with a raised aluminium hatchway which is non-watertight, is situated abaft the house. Further aft, there is a lazarette accessed by a flush aluminium deck plate which can be locked watertight onto the deck. The deck equipment consists of an A-frame support with cross-tree saddle for stabilizer poles. Abaft the house, there is a steel mast with a boom and power travelling block. The boom and deck winch were replaced in 1993 and several other modifications were subsequently carried out to the forecastle and engine-room. The power travelling block on the boom was modified in 1994, and this was the first season it was to be used. No stability tests were carried out following the structure modifications.

The skipper of the vessel had considerable fishing experience, having served as a deck-hand on various vessels from an early age, and on the "COURAGEOUS" for the last three fishing seasons. He had been through the inside passage of British Columbia many times in the past years. The remaining five crew members aboard the vessel all had varied amounts of fishing experience except for one, who was on his first trip.

The vessel was documented as a Fishery Coastwise Vessel and hence exempted from inspection by the United States Coast Guard (USCG). However, the vessel was required to conform to USCG requirements regarding safety equipment. The vessel had a valid recent certificate

of insurance dated 03 May 1995, although the most recent survey for these purposes was done in 1992 before some of the changes to the vessel had been made. Two crew members had completed a safety course sponsored by the USCG. None possessed any certificate of competency nor were any required in accordance with USCG requirements whereby the master need only be certificated in vessels over 200 gross registered tons (GRT).

The "COURAGEOUS" was bound for Ketchikan to fish for salmon in the first opening which was on 25 June 1995. She had a seine skiff and two jet skis on deck. She sailed out of Gig Harbour at 2230 on 18 June, and on 19 June, she was proceeding north through the inside passage. At the time of sailing, the fuel tanks were full with about 7,600 litres of fuel and the draught was 2 m forward and 2.4 m aft. The vessel was at her service speed of about 8.5 knots and the stabilizer poles were extended although the paravanes were not down.

It was reported that the fish hold, which had been filled before sailing, was deballasted on the evening of the 19 June in accordance with the skipper's orders. A logbook entry states that the fish hold was drained, but the crew confirmed that the fish hold was not deballasted completely as it was nightfall and no one had checked the hold, which was full of nets, to verify the amount of sea water remaining. The hatch cover had been attached loosely to the hatch opening so that the nets could protrude from the fish hold onto the deck. The lazarette remained dry and was found empty when the vessel was inspected after salvage.

The skipper remained on the bridge while the vessel transited Seymour Narrows and thereafter handed the con over to the two crew members who had come up for their watch. One of them was an experienced deck-hand and the other was on his first trip. The new crew member was steering under the supervision of the older experienced deck-hand. The skipper went down to sleep in the stateroom at about 0145 on 20 June while the vessel was in the northern part of Discovery Passage.

At about 0335, when the vessel was entering Johnstone Strait, a progressive starboard list developed as the vessel was reportedly caught in a tide rip. As downflooding of the engine and forecandle area occurred, the vessel further heeled to starboard and capsized in a few minutes. The skipper, awakened by one of the deck-hands on watch, had time to send only a partial distress message on channel 16 of the very high frequency (VHF) radio at 0339 before giving orders to abandon the vessel and barely managing to exit the wheel-house himself as the vessel capsized. The skipper remembered calling to the helmsman to turn the wheel to starboard just before the vessel capsized. The engines were still running at full speed and they

stopped on their own some time after the capsizing.

The two crew members in the wheel-house got out through the port wheel-house door and two other crew members, who were asleep, one in the house and the other in the port forecandle bunk, escaped via the after galley door. However, the crew member who was sleeping on the starboard bottom bunk of the forecandle did not escape the capsizing vessel. All the crew members who managed to escape were in their underclothes and none could don any survival gear due to the suddenness of the capsizing. They clung to the hull of the capsized vessel which drifted and grounded off Edith Point.

The "Mayday" call, which did not have the name or position of the calling vessel, was heard by the Marine Communications and Traffic Services (MCTS) Centre at Comox. A search was launched by the Canadian Coast Guard (CCG) cutter "POINT RACE" and other vessels in the vicinity which had been travelling north with the "COURAGEOUS". Five crew members were rescued from the overturned hull of the "COURAGEOUS" after a passing cruise vessel saw them at dawn and directed searchers to the area.

The body of the sixth crew member was recovered at 1710 by commercial divers who found the body in the starboard lower bunk within the forecandle. Earlier efforts to recover the body had been unsuccessful when one of the Search and Rescue technicians of the CCG Rescue Squadron became trapped by debris while trying to enter the "COURAGEOUS" and lost his breathing apparatus. He was rescued by his partner.

The cause of death of the crew member was attributed to hypothermia and drowning. No signs of impairment by drugs or alcohol were detected on the surviving crew members by the Royal Canadian Mounted Police (RCMP) who arrived on the scene and took statements soon after the rescue.

The weather through Discovery Passage and Johnstone Strait consisted of north-westerly winds of 20 to 30 knots. The tidal current in the early hours of the 20 June 1995 was ebbing which renders flows in a northerly and a westerly direction in Seymour Narrows and Johnstone Strait respectively. Based on the Canadian Tide and Current Tables and the Sailing Directions, the maximum ebb current (2 to 5 knots) off Ripple Point occurred at 0320 on 20 June. This is about the time at which the "COURAGEOUS" ran into difficulty and capsized at that location.

The "COURAGEOUS" was found to have on board the safety equipment and publications required for a fishing vessel of that size. The equipment had been maintained and serviced in accordance with the requirements and was in apparent good order. After the vessel was salvaged, she appeared to comply with the relevant sections of the U.S. Code of Federal Regulations. However, the vessel's liferaft and the 406 MHz Emergency Position Indicating Radio Beacon (EPIRB)

failed to be of any use when required because the hydrostatic mechanism holding them to the vessel did not release fully.

After the capsizing, the "COURAGEOUS" was salvaged and taken to Campbell River, B.C., and was later towed back to Washington State in the United States of America. She now awaits sale. To date (September 1996), the owner has not carried out stability tests.

Analysis

The danger of free surface water, in this case in the fish hold, is that it causes a considerable reduction in the stability of a vessel, particularly when combined with the effects of the heavy loads stowed high up (nets, jet skis and a skiff on deck). The negative effect of free surface water on the vessel's stability was not realized by anyone on board. The effect of this combination of forces was a reduction in the vessel's ability to return to the upright when upsetting moments caused her to heel. Such upsetting moments may have been created by the wind and tide in opposition, particularly in areas of tide rips.

The Sailing Directions for the area make frequent reference to the rough seas which can be experienced when an ebb tide flows against the prevailing westerly winds. They make particular reference to the dangers to small craft in the vicinity of Ripple Point, where tide rips commonly develop and near which the "COURAGEOUS" capsized.

At the time of the occurrence, the ebb current was peaking and was being opposed by the wind.

Steering may be difficult in these conditions; however, the vessel was being steered by a novice seaman when she became caught in a tide rip and lost directional stability. Speed was not reduced before the vessel listed to starboard and capsized.

On smaller fishing vessels, it is common for the sleeping area to be in the forecabin. Because it is below deck level, the forecabin is very difficult to access and exit, especially in darkness. Newly built vessels and those undergoing major conversions in the United States are required to have two means of escape from the forecabin area. There are similar provisions in the Canadian regulations. The "COURAGEOUS" had only one narrow staircase leading up to the galley from the engine-room and the forecabin sleeping area, and consequently, only one means of escape from both of these spaces. As an existing vessel, she was not required to have two exits from the forecabin area. Further, as a Fishery Coastwise Vessel under 200 GRT, she was not subject to inspection by the USCG.

As the vessel listed to starboard and capsized, the crew member who had been asleep on the starboard bunk (and later lost his life), may have become disoriented in the dark and unable to escape from

the accommodation.

The hydrostatic releases fitted to the vessel's liferaft and EPIRB are designed to automatically release the life-saving appliances to which they are connected when the vessel is sinking. According to Safety of Life at Sea Convention (SOLAS) requirements, the hydrostatic release is supposed to operate before a depth of four metres is attained.

After the vessel capsized, the hydrostatic release on the liferaft functioned, but only partially because it fouled the senhouse slip which connects the strap to the release. Had the hydrostatic release been submerged to a greater depth, a larger hydrostatic force would have been encountered and the release would have been freed through the senhouse slip.

Since the occurrence, the manufacturers of the hydrostatic release have modified the hydrostatic release to free it through the senhouse slip at the much lower hydrostatic pressure of 62.05 kPa (9 psi) as opposed to the 137.89 kPa (20 psi) force required prior to the modifications.

Findings

1. The vessel was laden with nets both in the hold and on deck, and had a seine skiff and jet skis on deck.
2. The fish hold had been drained of ballast water, but it was reported that there was some water remaining in the hold thereby creating a free surface effect.
3. The vessel did not have any stability calculations, although some alterations had been made to the vessel's structure in the recent past.
4. At the time of capsizing, the vessel was being steered by a novice seaman under the supervision of an experienced deck-hand.
5. The vessel capsized close to Edith Point in Johnstone Strait when the ebb tide was peaking and the wind was opposing the tide, possibly creating tide rips.
6. The only means of escape from the forecandle sleeping area to the galley was by one narrow staircase.
7. Five crew members, who escaped and clung to the capsized vessel, were rescued. A sixth crew member was trapped in the forecandle sleeping area and did not escape. His body was recovered later.

Causes and Contributing Factors

The "COURAGEOUS" capsized because marginal positive stability was lost while transiting an area affected by tide rips. The strong ebb tide with an opposing wind and an inexperienced seaman at the helm contributed to the accident.

Safety Action Taken

Following the occurrence, TSB Marine Safety Information Letter No. 7/95 was forwarded to the USCG concerning the potentially unsafe stability condition of the "COURAGEOUS" due to structural modifications. In addition, TC Marine Safety was apprised, via TSB Marine Safety Advisory No. 6/95, of the design modification made to improve the hydrostatic release mechanism for liferafts, similar to that of the "COURAGEOUS", which had failed during the accident.

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 13 February 1997.