

MARINE OCCURRENCE REPORT

GROUNDING AND SINKING

TUG "GULF COASTER" TOWING A BARGE  
WITH 12 PERSONS ABOARD,  
MACKENZIE SOUND, BRITISH COLUMBIA  
31 MARCH 1997

REPORT NUMBER M97W0049

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

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### *Summary*

The helicopter accommodation barge "TRAILER PRINCESS" was being moved by the tug "GULF COASTER" to a new logging camp location in Mackenzie Sound, B.C. After nightfall, as the tug endeavoured to tow the barge through the narrow winding channel of Kenneth Passage, the tug struck and grounded on rocks and was holed below the waterline. Another tug in the vicinity towed the undamaged barge to its destination. The "GULF COASTER" sank during attempts to refloat her but was later refloated and brought to Campbell River for repairs. No one was injured but diesel fuel escaped from the sunken tug.

## *Other Factual Information*

### Particulars of Vessels

Name	GULF COASTER	TRAILER PRINCESS
Port of Registry	Vancouver B.C.	Victoria B.C.
Flag	Canadian	Canadian
Official Number	331112	327072
Type	Steel tug	Steel accommodation barge
Gross Tonnage	14.49	2,689
Crew	2	Accommodation for 41
Length	12.8m	98m
Built	1969, Delta, B.C.	1944, Baltimore, USA
Propulsion	Mitsubishi Diesel of 800 BHP, powering a single propeller in a Kort Nozzle.	None
Owners	Jarl Towing, Campbell River, B.C.	Helifor Industries, Vancouver, B.C.

The tug "GULF COASTER" is of carvel construction. It has a small cabin forward which houses the wheelhouse and a galley. In 1996 a new engine of 800 BHP was fitted. The tug can be manoeuvred from three control positions. These positions are within the wheelhouse, atop of it and at the stern. Each of these three positions has an emergency abort system for the towline.

The brakes for the towing winch are held by constant hydraulic pressure in the system. Activation of the emergency abort is achieved by release of this hydraulic pressure. There is about 400 metres of tow wire and its end is not connected to the winch.

The "TRAILER PRINCESS" is a non propelled, single hulled, self contained barge which can accommodate 41 forestry workers and serves as the base for the camp's helicopter logging operations. It houses two helicopters. The barge was built as a twin screw landing craft and was later converted for use in various commercial enterprises.

The barge deck incorporates the following features: a helipad for the logging operations helicopter; a helipad for the crew helicopter; living accommodation, office, galley, mess and recreation facilities for 41 persons; repair and maintenance shops; a generator room; six fuel tanks of varying sizes rising to a maximum height of 7.65m, of which two cylindrical tanks house 220,000 litres of jet A fuel; 2 tanks hold 21,000 litres of diesel; and, 2 tanks hold 6,500 litres of gasoline. There is also a water tank of 110,000 litres capacity. The barge has two crew boats and a crane to handle them.

The "TRAILER PRINCESS" is moved approximately six times a year when the logging camp moves location. These moves can be of distances up to 150 miles. On all short moves up to 20 miles and some longer moves, crew have remained on board to attend to the tow lines, generators and pumps. According to the camp foreman there were 12 people on board; other reports put this number at 19.

When unmanned, the barge is not subject to inspection by Transport Canada Marine Safety (TCMS) nor is it required to be inspected by regulations. However, when under tow, the "TRAILER PRINCESS" is a Class XI vessel under the Canada Shipping Act (CSA) and is required to be inspected by TCMS. The onus is on the owner to have the vessel inspected<sup>1</sup>. In this instance, the barge was not inspected by TCMS.

Transport Canada conducts annual base inspections of helicopter operations on the barge for such items as pilots' maintenance books, rest areas, pilot operations etc. The aspects of the seaworthiness of barge, the fire fighting equipment, the structural strength of barge and the life-saving equipment available are not included in these inspections.

The operator of the "GULF COASTER" was uncertificated although a tug of its size requires a certificated master. The operator had towing experience with the current owner during the last ten years in which time he had towed camp barges. The deckhand on board the tug was also uncertificated.

The owners of the "TRAILER PRINCESS" hired the tug "GULF COASTER" to move the barge from its position in Port Elizabeth, B.C. to Mackenzie Sound, B.C. on the 31st March 1997. The tug's tow wire was connected to the chain bridle on the "TRAILER PRINCESS". The voyage commenced in clear and calm weather, at about 1030 on 31 March. In open waters, the length of the tow wire used was about 90 metres and the towing speed was 5 knots.

Just after nightfall the tow entered Kenneth Passage which is a narrow winding waterway leading to Mackenzie Sound, the vessel's destination. The operator of the "GULF COASTER" shortened the tow wire to 23 metres for better control and to bring the shackle connecting the tow wire to the "TRAILER PRINCESS" within reach of the tug's crew for easy emergency release.

The tug operator had the radar working and was also using the tug's spotlights frequently. At 2040 the tug and tow passed Jessie Point in Kenneth Passage. High water had occurred at 1935; the tide was ebbing slowly in a westerly direction. According to the GPS satellite navigating system, the speed, which had been reduced by the operator on entering Kenneth Passage, was 1.8 knots; the tug was barely keeping ahead of the barge.

After passing Jessie Point, the tug operator had difficulty in manoeuvring the barge and was attempting to prevent the stern of the barge from striking the island and the rocks to the north of the island (See chartlet). The

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<sup>1</sup> Section 316 (5) of the *Canada Shipping Act*.

channel off Jessie Point is less than 200 metres wide. Reportedly, it was not possible to maintain complete control of the barge because of its large displacement and of the tug's slow speed.

Shortly after 2100, the tow had manoeuvred itself to the extent that its course was almost reversed and it was headed into a channel which did not lead to the vessels' destination. Reportedly the tug operator was aware of the vessels' position. Other observers thought that the operator was lost. The operator reported that the tug and tow had entered the obstructed channel in order to keep the stern of the barge from going aground.

The unnavigable channel into which the tow had ventured was obstructed by rocks. The tug grounded on the rocks shortly after 2100 hours. Reportedly the tug operator allowed the tug to ground because he believed any other manoeuvre would have jeopardized the barge.

The barge overtook the tug and came to rest gently against the island. The tug was girded to an angle of about 45 degrees. To prevent the situation from worsening, the operator activated the abort system to release the strain on the towline. He had not used the abort earlier in order to prevent the barge bearing down heavily on to the island and spilling its flammable pollutants.

The operator and deckhand communicated with the (forestry worker) foreman on the "TRAILER PRINCESS" and were rescued by a boat from the barge. Before abandoning the tug the operator and deckhand had time to shut down the engines and to close the tug's watertight doors. The foreman on the "TRAILER PRINCESS" transmitted a Mayday call on the Very High Frequency (VHF) radio carried on the barge. The call was intercepted by the Canadian Coast Guard and the tug "PACIFIC CHIEF", which was in the vicinity, was dispatched to assist.

The "PACIFIC CHIEF" towed the "TRAILER PRINCESS" to the centre of the channel. Another tug later towed the barge to its designated site. In the early morning, the "PACIFIC CHIEF" pulled the "GULF COASTER" free of the rocks, however the latter sank in about 23 metres of water. The "GULF COASTER" was later salvaged by a floating crane and brought to Campbell River for repairs.

## *Analysis*

Although the operator maintained that he had not lost situational awareness, it appeared to other observers that he was unsure of the route through Kenneth Passage to Mackenzie Sound. Given the terrain, the radar return would appear to be good and the information derived from the radar reliable. The slow speed of the tug and the use of the spotlight to pick out the shore would, however, appear to confirm that the operator was unsure of the tow's position in the area. By the time the tug ran aground on the rocks, it was heading on a reciprocal course to its intended track.

While the ebb tide was not strong, it was setting through Kenneth Passage in a westerly direction and the tow was heading into the tide. Because of this, the ebb should not have adversely affected the manoeuvrability of the tow. Once the tug had commenced its turn to starboard to reportedly keep the barge clear of the shore, the manoeuvrability of the tow may have been diminished by the effect of the tide. The more course was altered to starboard, the greater this effect would have become.

The operator's confidence in the functioning of the towline quick release mechanism allowed him to control the momentum of the barge. Had the operator not successfully used his abort system, the barge could have quickly capsized the tug. Alternatively, if the tow wire had been suddenly let go, serious damage to the barge could have been caused by its momentum when it ran aground. Considering that the barge carried large quantities of inflammable liquids, the consequences of its uncontrolled grounding at speed could have been disastrous to the persons on board both the barge and the tug.

In the past many fatalities have been caused when tugs became girded because they were not equipped with a quick release mechanism for the tow wire, or if equipped it was not used. This occurrence demonstrates that the judicious use of an abort system can avoid or lessen the consequences of girding.

Although the tug operator and deckhand were uncertificated, the operator's towing experience succeeded in avoiding serious damage to the barge. If this experience had been supplemented by marine training in emergency situations it could have resulted in a resolution of the difficulties encountered without the tug having to be sacrificed. Both the tug and barge were equipped with anchors which could have been used to give the operator time to assess the situation. Radar/Navigational training would have helped the operator to be more aware of his surroundings as darkness set in.

Under the Life Saving Equipment Regulations, in Canadian waters, when non propelled vessels over 15 gross tonnes which carry a crew but not passengers, are towed or pushed, they are considered Class Eleven vessels and must be so equipped. However, because these barges are usually stationary, they are not normally inspected. While presently there is no documented information to show that the practice of not requesting TCMS inspection for a voyage with crew aboard is common in the barge industry on the west coast, this aspect of the

"TRAILER PRINCESS" occurrence would appear not to be an isolated incident. Although the total number of these barges is unknown, many are in use for different purposes; including fish farming, logging operations, recreational fishing or floating homes.

## *Findings*

1. The tug "GULF COASTER" was required to have a certificated master but did not have one.
2. When moving location, the barge was required to be inspected under the Canada Shipping Act but it was not so inspected.
3. **The owners did not request Transport Canada Marine Safety to inspect the barge for the voyage.**
4. **The tug was towing the helicopter logging barge to its new location with at least twelve people on board.**

5. The tug's operator probably became disoriented while endeavouring to control the barge through a narrow winding channel in darkness.
6. The tug ran aground in darkness in a non-navigable narrow winding channel which did not lead to its destination.
7. After the tug ran aground, the tug master effectively used the abort procedure to save damage to the barge.
8. The tug master and deckhand safely abandoned the tug and boarded the barge.

### *Causes and Contributing Factors*

The "GULF COASTER" towing the "TRAILER PRINCESS" ran aground when the tug operator probably became disoriented while endeavouring to control the barge through a narrow winding channel in darkness. The lack of certification of the tug's crew and lack of radar/navigational knowledge contributed to the occurrence.

### *Action Taken*

Transport Canada Marine Safety has charged the owners of the barge under Section 126 of the Criminal Code for wilful non-compliance with section 109 of the Canada Shipping Act.

*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 30 July 1998.*