

MARINE OCCURRENCE REPORT

GROUNDING AND SINKING

OF THE
BARGE D.H.T. No. 3
IN THE TOW OF THE TUG "FRASER KING"
IN KILDIDT SOUND, BRITISH COLUMBIA

22 OCTOBER 1997

REPORT NUMBER M97W0224

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 skipper of the tug "FRASER KING", which was towing the barge "D.H.T. No. 3", became disoriented at night after the tug's radar broke down. The skipper called a shore station, reported his position and requested guidance. Several vessels and aircraft proceeded to assist, however, the search was prolonged because the tug and barge were some 23 miles from the reported position. Although a helicopter attempted to direct the tug, in an area for which the tug had no nautical charts, the barge went aground. Next morning the barge refloated and the tow was resumed. The barge's shell plating was damaged by the grounding and it took on water and sank.

Factual Information

	"FRASER KING"	"D.H.T. No. 3"
Port of Registry	New Westminster, B.C.	Vancouver, B.C.
Flag	Canada	Canada
Registry/Licence Number	190595	179054
Type	Tug	Barge
Gross Tonnage	9	207
Length	9 m	32 m
Draught	1.80 m	0.60 m
Built	1948 Vancouver, B.C.	1943 Bethlehem, USA
Propulsion	1 Diesel, 400 BHP	None
Number of Crew	2	Nil
Number of Passengers	Nil	Nil
Registered Owner	Russ Jackson, P.Alberni, B.C.	Russ Jackson, P.Alberni, B.C.

On 20 October, 1997 at approximately 1500¹ the tug "FRASER KING" with the barge "D.H.T. No. 3" in tow departed Port Hardy, B.C. en route to Shearwater, B.C. The barge was loaded with several pieces of machinery on deck (trailer, gravel truck, backhoe, forklift) giving it a freeboard of approximately 1.8 m. On departure, the weather was reported as moderate wind and a choppy sea. The visibility was reduced by rain.

The "FRASER KING" was equipped with the following navigational equipment: one radar, one magnetic compass, a portable GPS receiver and a VHF radio.

The tug and tow proceeded through Gordon Channel and South Passage towards Fitz Hugh Sound. The skipper navigated using radar and local knowledge. At approximately 2400 he identified Dugout Rock Light (51°22'01.5"N, 127°48'23.5"W) and estimated that the tug was approximately three miles west of the light. Until this time he had navigated along the coast without using the compass or the GPS receiver. After passing the Dugout Rock light the weather and visibility deteriorated further.

The skipper observed that the radar screen was showing 'fuzzy' patches resembling rain clutter which concealed the coastline. To navigate the tug, he began using the magnetic compass for the first time since the tug had left Port Hardy. He also decided to unpack and make use of a recently bought hand-held GPS receiver.

Steering by magnetic compass the skipper continued towards Fitz Hugh Sound while at the same time trying to

¹ All times are PDT (Coordinated Universal Time minus seven hours) unless otherwise noted.

adjust the radar and make use of the GPS. He became unsure of his location after a strong magnet was found attached to the compass. Reportedly, the compass had been serviced at Port Hardy before departure.

At approximately 1424 (21 October) the skipper called Comox MCTS and reported that the "FRASER KING" and tow was lost in fog and that the vessel's radar was disabled. He gave the coordinates 51°28'N, 127°48'W as he read them off the GPS display and asked for assistance into Fitz Hugh Sound. Three fishing vessels transiting the area began searching but were unable to locate the tug and barge in the vicinity of the radioed position.

Having received the message that the searching vessels could not find him, the skipper suspected that the batteries in the GPS receiver were low and causing the displayed coordinates to be erroneous. Meanwhile, water was discovered in the radar scanner wiring. The water was identified as the cause of the radar malfunction and it made the radar unusable.

At approximately 1627, in an attempt to improve the GPS performance, the skipper took it on top of the wheelhouse and obtained another readout. It showed the coordinates 51°46.5'N, 128°11.3'W which he immediately transmitted to Comox MCTS. This position lies in Kildidt Sound, west of Calvert Island and some 23 miles from the position he reported at 1424.

At 1725 a Search and Rescue helicopter, tasked by RCC Victoria, located the tug and tow in Kildidt Sound, about 2.5 miles west of the position given by its skipper at 1627. As the skipper did not have a chart covering Kildidt Sound and adjacent waters, the SAR helicopter dropped some aeronautical charts to the tug. Subsequently, the helicopter attempted to direct the tug towards some sheltered waters, however, as the helicopter was low on fuel it left the scene shortly thereafter.

It was getting dark, the weather and the visibility were deteriorating. The skipper of the "FRASER KING" decided to remain with the barge, steaming slowly in Kildidt Sound until daybreak. At approximately 2115 the barge hung up on a submerged rock and the abruptly increased tension on the towline caused the winch brake to give way. The whole towline ran off the drum. The barge ran aground while the tide was ebbing. Low water was predicted to be at approximately 2310.

The skipper of the "FRASER KING" left the barge aground and sought shelter for the night. He did not ascertain the barge's position. A fishing vessel which had been alerted by MCTS, approached the scene and escorted the "FRASER KING" to Pruth Bay. At approximately 0252, on 22 October, both vessels arrived off Experiment Point where the "FRASER KING" anchored.

On the morning of 22 October, at approximately 1000 the "FRASER KING" left the anchorage and returned to Kildidt Sound. At 1230 the skipper located the barge just south of Kidney Island. It was afloat and listed slightly to starboard. Two persons who arrived by speed boat, i.e. the owner of the equipment being transported by the barge and another individual, were already on the barge trying to secure the vehicles.

The "FRASER KING" re-attached the towline and began towing the barge towards Nalau Passage. While underway, the skipper observed that the barge had started to sink by the stern. He kept towing, trying to reach some shallow water, however, at approximately 1700 the barge sank at the entrance to Nalau Passage where the depth of water is approximately 140 feet (42.6 m). After scanning the area, the tug proceeded to Shearwater.

The skipper, who was also the owner of the tug and the barge, has been sailing on various tugs on the B.C. coast for approximately 22 years. He did not have a marine certificate of competency and, as he was operating a tug under 10 GRT, was not required to. He navigated the "FRASER KING" using his local knowledge of the area which he had transited many times before.

Analysis

Both local knowledge and hands-on experience are valuable in coastal navigation, however, they do not substitute for professional education. The skipper of the "FRASER KING" navigated the tug along the coast using his local knowledge. He did not use the aids to navigation which were available to him. For more than eight hours after departing from Port Hardy he did not look at the compass nor did he plot the tug's position on the chart.

Only when the radar began to malfunction and the skipper was not sure of the tug's location, did he begin to use the magnetic compass and unpack and use the GPS receiver.

After unpacking and switching on the GPS in the wheelhouse the skipper took the first readout that appeared on its screen as the tug's position. Without plotting it on the chart, he transmitted the coordinates to MCTS. These coordinates were subsequently re-transmitted by MCTS to alert and direct other vessels.

It is most probable that the metal wheelhouse bulkheads shielded the GPS antennae from the satellite radio signal. When he moved the instrument out of the wheelhouse it began to work properly. By this time, however, the tug and tow was more than 20 miles from the tug's last verified position and had entered the waters of Kildidt Sound.

Apparently, from the last known position off Dugout Rocks the tug and tow had proceeded west of Calvert Island although the skipper had intended to enter Fitz Hugh Sound, east of the island. Once the skipper obtained more accurate readings from the GPS, he was able to find the tug's position on the aeronautical chart which had been supplied by the helicopter. Because aeronautical charts do not show depths of water, they are of little use for marine navigation. The tug was manoeuvring in close proximity to many rocks, shallow spots and underwater pinnacles, which were not marked on the chart, and the barge grounded.

The barge refloated on the rising tide. The sea bottom in Kildidt Sound, like the nearby land, is rocky therefore it is almost certain that the barge sustained damage to its shell plating while it was aground. Its watertight integrity was affected, consequently, although it refloated it was also taking on water. The ingress of water caused a list and gradually decreased the barge's freeboard until it sank some fifteen hours later.

Findings

1. The tug was navigated by local knowledge and by radar.

2. The tug's positions and intended courses were not marked on the chart.
3. The tug was not equipped with charts covering the waters other than those the skipper intended to transit.
4. Only when the radar began to malfunction and the skipper became disoriented did he attempt to use the compass and to unpack and use the hand-held GPS receiver.
5. The signals to the hand-held GPS receiver in the wheel-house were most probably affected by the vessel's steel structure and the skipper gave an incorrect position to SAR when he requested help.
6. SAR units located the tug and barge some 23 miles from the location the skipper first reported.
7. The aeronautical charts provided to the tug by the SAR helicopter were of limited utility.
8. The barge grounded on a rocky bottom during a falling tide and sustained damage to its shell plating.
9. The barge was left aground when the skipper of the tug decided to seek shelter for his vessel for the night.
10. The barge floated free on a rising tide but was taking water through the damaged hull.
11. When again under tow, the barge sank in a depth of water of approximately 45 m.

Causes and Contributing Factors

The barge "D.H.T. No 3" ran aground and subsequently sank with its cargo in Kildidit Sound because the skipper/owner of the "FRASER KING" did not make effective use of the aids to navigation on board but relied almost entirely on the radar for navigation. After the radar broke down, the skipper became disoriented, the tug deviated from its planned route and entered waters for which the tug did not have charts. The aeronautical charts provided to the tug by the SAR helicopter did not show depths or dangers and were of limited utility. The barge sank because its shell plating was damaged when it ran aground.

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 04 March 1999.