Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada

MARINE INVESTIGATION REPORT

M05W0087

COLLISION

BETWEEN THE FISHING VESSEL *SANDRA CAROL* AND THE TUG *OCEAN WARRIOR* TOWING THE BARGES *WARRIOR* AND *BARGE 216*

SWANSON CHANNEL, BRITISH COLUMBIA

03 JUNE 2005

Canada

Marine Investigation Report

Collision

Between the Fishing Vessel *Sandra Carol* and the Tug *Ocean Warrior* Towing the Barges *Warrior* and *Barge 216*
Swanson Channel, British Columbia
03 June 2005

Report Number M05W0087

Summary

On the night of 03 June 2005, the wood-hulled fishing vessel *Sandra Carol*, with one person on board, was southbound in Swanson Channel en route to Victoria, British Columbia, when it became fouled on the steel wire towline connecting the barges *Warrior* and *Barge 216*. These barges were being towed northward by the tug *Ocean Warrior*. Unable to get clear of the towline, the fishing vessel was struck and holed by *Barge 216*. The *Sandra Carol* rapidly filled with water as its operator stepped from the deck of his vessel to that of the second barge without injury. The *Sandra Carol* sank approximately one hour after the collision.

Ce rapport est également disponible en français.

Other Factual Information

Particulars of the Vessels

Name	*Sandra Carol*	*Ocean Warrior*	*Warrior*	*Barge 216*
Official Number	174047	313909	800199	820969
Port of Registry	Port Alberni[1]	Vancouver	Vancouver	Vancouver
Flag	Canada	Canada	Canada	Canada
Type	Commercial fishing	Coastal tug	Non–self-propelled barge	Non–self-propelled barge
Gross Tonnage	23.0	76.31	2683.5	1024.0
Length	12.7 m	18.8 m	59.7 m	58.5 m
Draught	1.9 m	2.8 m	4.9 m	3.7 m
Year Built	1945	1961	1981	1970
Hull Material	Wood	Welded steel	Welded steel	Welded steel
Propulsion	One 160-horsepower diesel engine driving a single fixed-pitched propeller	One 600-horsepower diesel engine driving a single fixed-pitched propeller in a fixed Kort nozzle	N/A	N/A
Cargo	N/A	N/A	Empty	2500 tons of contaminated soil
Crew	1	4	0	0
Owner	Private individual	Delta Dredging	Lafarge Canada	Delta Dredging

Description of the Vessels

Sandra Carol

The *Sandra Carol* was a small fishing vessel of closed construction, having a carvel-planked hull and canoe stern. The hull below the main deck was subdivided by transverse watertight bulkheads, enclosing (from forward) the crew accommodation space, engine room, an insulated fish hold with freezer equipment, and a lazarette.

The deckhouse contained the wheelhouse, the galley area, sleeping quarters, the engine-room entrance, and stairs leading up to the wheelhouse.

The wheelhouse was equipped with a centreline steering station fitted with an autopilot. The navigation and communication equipment included a magnetic compass, very high frequency (VHF) radiotelephone, radar, depth sounder, and navigational light controls. Adjacent to the

[1] All locations mentioned are in British Columbia.

steering station were port and starboard weathertight hinged doors, which provided access to the foredeck, while a port side door fitted into the after-transverse bulkhead provided access to the main working deck.

Ocean Warrior

The *Ocean Warrior* is a single-screw, steel-hulled tug used mainly for towing barges on Canada's west coast. A single deckhouse encloses the wheelhouse forward with a helm station on the centreline. Navigation and communication equipment includes a magnetic compass, two radars, an autopilot, a global positioning system (GPS) unit, and a VHF radiotelephone. Secondary steering and engine control stations are located on the boat deck atop the wheelhouse and at the exterior after bulkhead of the deckhouse on the starboard side. The after station is also equipped with an emergency towing winch release mechanism. A towing winch containing 700 m of 29 mm steel wire tow rope is located on the centreline aft.

Warrior

The *Warrior* is a flush-decked steel barge used for hauling aggregate between ports on the west coast of Canada and the United States. The hull is painted black, and the 5.5 m steel box walls are painted grey. The barge was empty of cargo and had about 4.6 m of freeboard.

Barge 216

Barge 216 is a flush-decked steel barge used for hauling aggregate between ports on Canada's west coast. The hull is painted black, and the 1.2 m steel box walls are composed of unpainted steel plate (see Photo 1).

Photo 1. *Barge 216* fully loaded with soil as it was at the time of the accident. The bow is at left.

History of the Voyage

At about 1030 Pacific daylight time[2] on 03 June 2005, the *Sandra Carol,* with the lone owner/operator on board, departed Courtenay in a light condition for a shipyard in Port Alberni by way of Victoria. The distance to Victoria is approximately 120 miles.

The tug *Ocean Warrior* departed Victoria Harbour with a crew of four at about 1515 the same day, towing the empty aggregate barge *Warrior* approximately 61 m astern and the barge *Barge 216* fully loaded with approximately 2300 tons of contaminated soil approximately 45 m astern of the *Warrior*. (For towing arrangement see Figure 1.)

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2 All times are Pacific daylight time (Coordinated Universal Time minus seven hours).

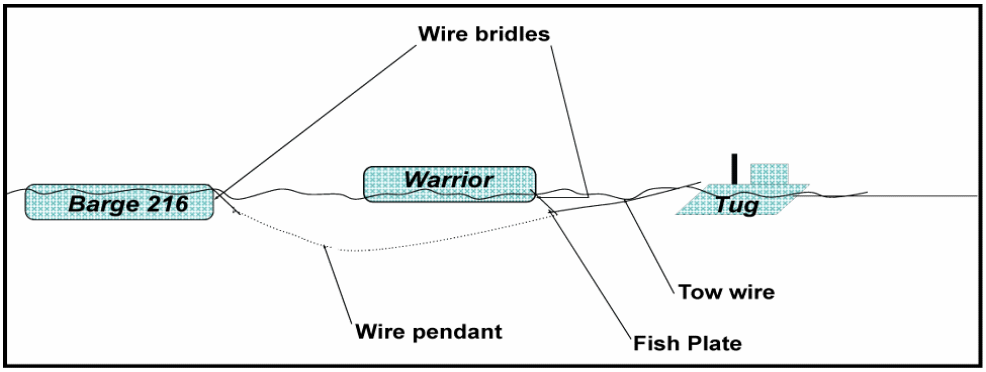

Figure 1. Towing arrangement for the tug *Ocean Warrior* and barges *Warrior* and *Barge 216*

The tug and tow were bound for the Lafarge Canada cement plant on the Fraser River.

The *Sandra Carol* transited Dodd Narrows south of Nanaimo, entered Tricomali Channel, and continued southbound into Swanson Channel. The *Ocean Warrior* transited Haro Strait and was northbound in Swanson Channel, heading toward the north arm of the Fraser River.

The progress of both vessels was being monitored on radar by Marine Communications and Traffic Services (MCTS) Victoria. The *Ocean Warrior* had been participating fully with the Vessel Traffic Services (VTS) reporting system throughout the voyage, keeping MCTS Victoria advised of its progress on VHF channel 11. The *Sandra Carol* was not a participating vessel nor was it required to be by regulations.[3]

At about 2230, the two vessels were approximately 3.1 miles apart on opposing headings in Swanson Channel. Neither was aware of the other's presence despite the fact that the tug, both barges, and the fishing vessel were displaying the appropriate navigation lights. The owner/operator of the *Sandra Carol* had set the autopilot on a southerly heading, and with the vessel travelling at about 7.5 knots, had placed the radar and VHF radiotelephone on standby mode. He exited the wheelhouse on to the main working deck. The skipper of the *Ocean Warrior* was alone in the wheelhouse with the vessel moving ahead at about 4 knots while on autopilot. No other traffic was reported in the area, and the radar and VHF radiotelephone were functioning. The sea was calm and visibility was good. Neither vessel maintained a proper lookout.

At 2244, the vessels were within seven cables of each other when MCTS Victoria informed the *Ocean Warrior* of the danger of an impending collision. MCTS also made an unsuccessful attempt to contact the *Sandra Carol* using the VHF radio. Having been informed, the tug's skipper identified the target by radar and initially judged it to be stationary and in no danger of colliding with either the tug or barges. About a minute later, the skipper of the tug observed a green sidelight of a vessel (later identified as the *Sandra Carol*) fine on the starboard bow and altered five degrees to port. Shortly thereafter, he watched the green sidelight pass along his starboard side at a distance of less than one cable. The tug's skipper did not use sound signals but did shine a searchlight on the barge *Warrior* to alert the fishing vessel.

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3 *Vessel Traffic Services Zone Regulations*

At 2246, the *Sandra Carol,* in a position with James Point on North Pender Island bearing 065º True (T) at nine cables, continued on its preset course and passed between the stern of the *Warrior* and the bow of the loaded *Barge 216*. The forefoot of the wood fishing vessel struck the wire pennant near the bridle of *Barge 216*. The vessel's hull planks broke, seawater quickly flooded the hull, and the vessel became swamped. The freeboard of the fully loaded *Barge 216* was about the same height as the main deck of the *Sandra Carol,* and the owner/operator was able to step without injury onto the foredeck of *Barge 216*.

At 2247, the skipper of the *Ocean Warrior* informed MCTS Victoria of the collision. In turn, MCTS Victoria contacted Joint Rescue Coordination Centre (JRCC) Victoria. JRCC tasked the BC Ferries vessel *Bowen Queen* to render assistance. The ferry, which was close by, arrived on scene within 11 minutes. Meanwhile, two of the tug's crew launched a small boat to rescue the fishing vessel operator from the barge.

Approximately 30 minutes after the collision, the Canadian Coast Guard (CCG) vessel *Skua* arrived alongside the tug and transported the fishing vessel owner/operator to Ganges on Saltspring Island, where he was met by an ambulance, which transported him to the hospital on Gulf Islands. He was examined by hospital personnel and released within two hours.

The *Sandra Carol* remained fouled in the bridle of the barge for approximately one hour, after which it floated free, downflooded, and sank in approximately 70 m of water.

Geographical Information

Swanson Channel lies in a general north–south direction, passing between North Pender Island to the east and Prevost Island to the west (see Figure 2).

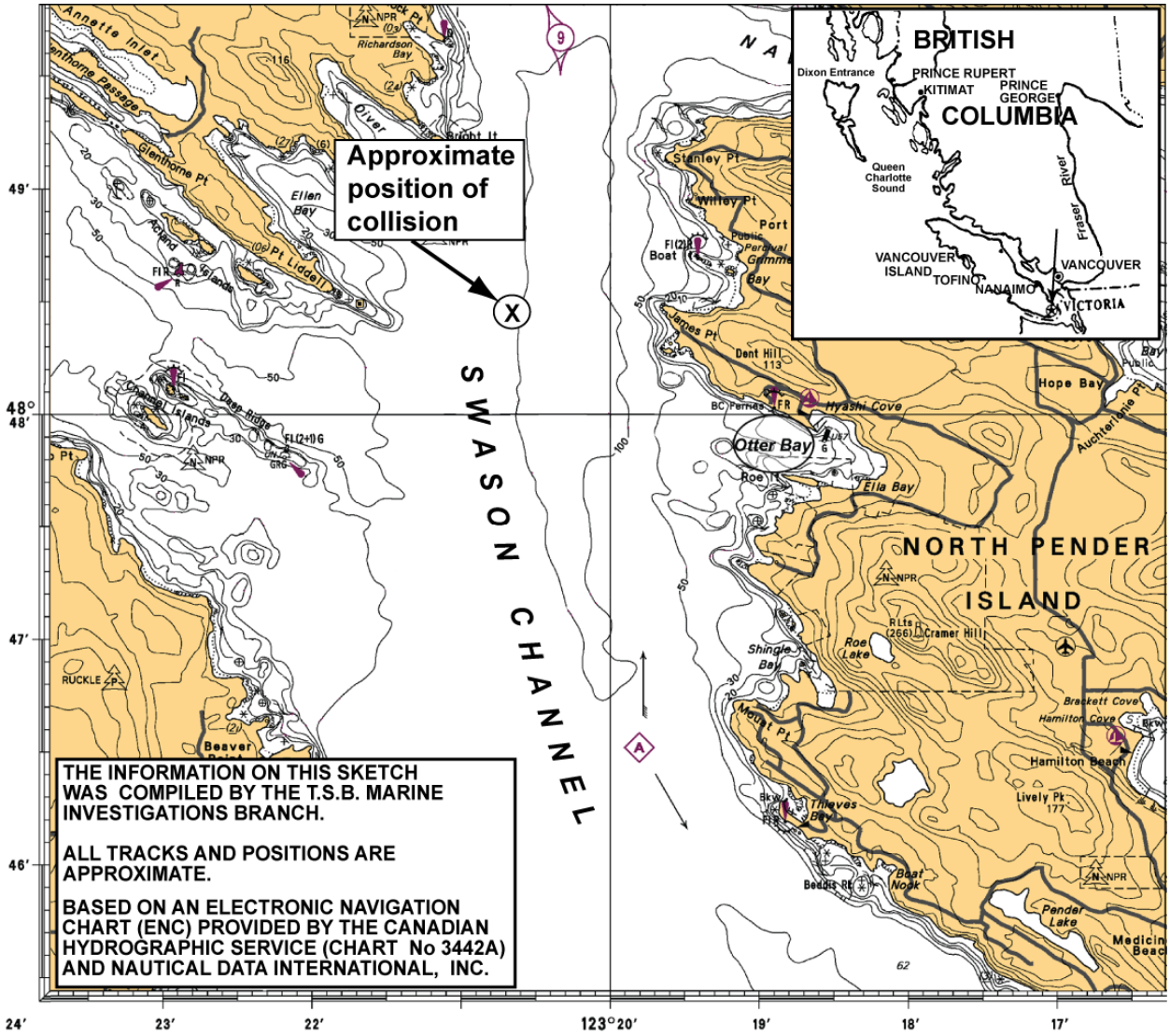

Figure 2. Location of the accident near Otter Bay, British Columbia.

Weather and Current Information

The weather at the time of the collision was calm seas, clear skies, with visibility at least five miles. The wind was from the south at five knots.

Tidal streams in Swanson Channel are found in the *Canadian Tide and Current Tables*, Volume 5, and are referenced on Race Passage. They flood in a northwesterly direction and ebb to the southwest. The collision occurred approximately one hour before slack water ebb, at which time the current would have been negligible.

Damage to the Vessel and Environment

The *Sandra Carol* sustained extensive damage to the forward planking and sank. There was no damage to the *Ocean Warrior* or the barges. There was no appreciable amount of pollution as a result of this incident.

Vessel Certification

Sandra Carol

Transport Canada (TC) inspected the *Sandra Carol* on 24 June 2003 and issued a full-term Safety Inspection Certificate (SIC 29) to operate on foreign-going voyages along the west coast of North America between the Panama Canal and Alaska until 30 January 2007.

Ocean Warrior

TC inspected the *Ocean Warrior* on 29 March 2003 and issued SIC 22 to operate on home-trade Class III voyages until 28 March 2007.

Personnel Certification

The owner/operator of the fishing vessel did not hold any TC certification, nor was he required to do so by regulation. He had not undergone Marine Emergency Duties training. He had been a fisher for over 30 years.

The skipper of the *Ocean Warrior* holds a 350-ton certificate of competency and a First Mate, Intermediate Voyage certificate of competency issued by TC. He had also undergone Marine Emergency Duties training.

Crewing and Safety

While the SIC 29 stipulated a crew of two, the *Sandra Carol* was operated by the lone owner/operator. He had been on continuous duty for over 12 hours. During this period, he was engaged in navigation-related activities as well as working on deck, and required the use of the washroom, leaving the wheelhouse unattended for periods of time. The vessel was transiting channels in coastal waters. He was unaware of the developing dangerous collision situation and was on deck at the time of the collision.

Findings as to Causes and Contributing Factors

1. The lone owner/operator of the *Sandra Carol* did not maintain a proper lookout and left the wheelhouse unattended with the radar and very high frequency radiotelephone on standby.

2. The skipper of the *Ocean Warrior* did not maintain a proper lookout, nor did he use sound signals to alert the fishing vessel.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 07 June 2007.

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