

MARINE OCCURRENCE REPORT

**TAKING ON WATER, CAPSIZING AND STRANDING
OF THE FISHING VESSEL "DALEWOOD PROVIDER"
OFF CAPE BEALE, BRITISH COLUMBIA
10 DECEMBER 1995**

REPORT NUMBER M95W0222

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

While under way from Sooke, B.C., to Bamfield, B.C., in rough weather, on 10 December 1995, the fishing vessel "DALEWOOD PROVIDER" took on water, and at about 0930, capsized. All three crew members donned survival suits, abandoned the vessel and boarded a self-inflated raft. The overturned vessel and the raft drifted apart. The raft was then swamped and overturned by a high wave, throwing all occupants in the water. Only one of them reached shore safely, while the other two drowned. Their bodies were recovered some time later. The wreck of the overturned vessel was found the next day, stranded and wedged between large rocks.

Ce rapport est également disponible en français.

OTHER FACTUAL INFORMATION**Particulars of the Vessel**

Name	"DALEWOOD PROVIDER"
Port of Registry	Vancouver, B.C.
Flag	Canadian
Official Number	384005
Type	Seiner
Gross Tonnage	39
Crew	Three
Length	15.22 m
Built	1978, Richmond, B.C.
Propulsion	Diesel engine, 160 BHP
Owners	Dalewood Fishing Ltd., Vancouver, B.C.

The "DALEWOOD PROVIDER" was a small fishing vessel of aluminium alloy construction, with a single-chine hull form, incorporating a raked soft-nosed stem and a transom stern. The vessel was fitted with a marine diesel engine driving a single fixed-pitch propeller, giving a maximum speed of approximately 11 knots.

As a small fishing vessel over 15 gross tons, the "DALEWOOD PROVIDER" was subject to quadrennial inspections by the Ship Safety Branch of the Canadian Coast Guard (CCG). The last periodic survey was performed on 13 July 1994 in New Westminster, B.C., and a SIC 29 certificate, valid until 22 June 1998, was issued. The vessel was certificated as a Home Trade Class II commercial fishing vessel.

The hull of the vessel was subdivided by transverse bulkheads into the following spaces: crew accommodation, engine-room, fish holds, fresh water tank, steering gear compartment and a void space abaft the steering compartment.

The main fish-loading hatches with 370 mm-high coamings and aluminium hatch covers were centrally located on the weather deck abaft the deckhouse and served the forward and after fish holds.

Five access manholes with flush-fitting single-action watertight covers were fitted in the weather deck, giving access to the after fish hold and all other underdeck compartments abaft the holds.

A drop-stern seine fishing ramp was arranged across the transom at weather deck level.

The deckhouse was fitted with two weathertight exterior entrance doors in the after bulkhead; one door gave access from the main deck to the galley/mess room and thence to the crew accommodation and wheel-house, and the other to the engine-room. The wheel-house also had a direct exterior door on the starboard side.

The engine-room compartment was fitted with a shelf on which electrical batteries were stowed. The shelf was approximately 1 m above the floor and 30 cm below the main engine air intake.

None of the three persons on board held a marine certificate or had received sea-orientation training. The skipper had worked for approximately 15 years on various boats on the West Coast. One of the deck-hands had spent several fishing seasons on fishing boats. The other deck-hand had been hired by the skipper several days before the accident, and the "DALEWOOD PROVIDER" was his first sea-going experience.

All the information referring to the on-board activities during the last trip of the vessel was provided by the sole survivor, one of the deck-hands. No written log or other evidence allowing for verification of the facts was found.

On 09 December 1995, at approximately 0530, the "DALEWOOD PROVIDER" arrived at Sooke with a deck cargo of split wood. The skipper and the two other crew members were offloading the cargo until 1530. They then spent the rest of the day visiting friends at Sooke, and returned individually to the vessel at various times within two hours before midnight.

Before departure, a malfunction in the autopilot steering system was discovered. The skipper decided to repair it himself. While he was doing so, the crew opened a flush-fitting manhole leading from the weather deck to the steering compartment. Although the skipper entered the steering flat, it is not known whether he corrected the problem. Five minutes later, the manhole cover was replaced, and after some oil was added to the steering mechanism through a pipe from the deck, the vessel departed for Bamfield at approximately 0130 on 10 December.

No deck cargo was carried on this trip; however, it was not possible to establish if any compensating/trimming water ballast was taken on or retained in the fish holds or in the after ballast tank.

The planned trip to Bamfield, approximately 65 miles north-west from Sooke along the west coast of Vancouver Island, would normally take about eight hours. Shortly after departure, the skipper left both deck-hands in the wheel-house and retired to his bunk. Only one of the two deck-hands had any experience, and he did the steering, while the other was assisting.

The skipper was in his bunk all night except for two brief periods when he returned to the wheel-house. At approximately 0400 on 10 December, the weather deteriorated and the south-easterly wind

increased steadily, building up the seas.

During his watch in the wheel-house, the assisting deck-hand did not inspect the vessel, and it is not known if any deck or engine-room inspections were carried out by the skipper or the other deck-hand.

Shortly before 0800, the assisting deck-hand (the only survivor) left the wheel-house and fell asleep in his bunk, and at about this time the skipper came to the wheel-house. At approximately 0800, upon request from the skipper's wife, the SAR station at Bamfield established radio contact with the vessel. During the ensuing conversation, the skipper informed the caller, and his wife who was listening by telephone, that the vessel was off Nitinat, B.C.

About an hour later, the deck-hand was awakened by the skipper who informed him that the vessel was sinking. When he looked out from the galley through the back door, he observed that the after end of the weather deck was already submerged. The skipper ordered the crew to don survival suits. While the crew were doing so, the survivor observed that the vessel was listing to port. He also saw the skipper trying to use one of the radios. However, there was no electrical power and his attempts to send a distress call failed. It was approximately 0930 when the three persons, having donned their suits, abandoned the "DALEWOOD PROVIDER" as she rolled over on her port side. A liferaft, stowed near the bow, self-inflated and all three crew members boarded it and untied it from the capsized vessel.

About 10 minutes later, the raft was swamped and overturned by a wave. The three crew members climbed onto the overturned raft which drifted for approximately two hours. The weather deteriorated further. It was later determined by a shore station that the wind had reached a maximum velocity of approximately 38 knots. The raft was again swamped by the waves. This time all occupants, thrown in the water, tried to cling to the raft and its painter. They lost their grasp and the raft floated away. For a while, they huddled together, but they were soon separated by the waves.

Carried by the current and trying to swim, the survivor found himself in a partly sheltered cove where he managed to land on the beach. He noticed the raft and the body of the other deck-hand, entangled with logs and other debris near the beach in the same cove. He pulled the body ashore and recovered the flares from the raft. He then walked inland, away from the beach. The time of his landing could not be established.

The cove, named Deadman Cove, is located approximately five cables south-eastward from the Cape Beale lighthouse (48°47.2'N, 125°12.9'W).

At 1306, the lightkeeper from Cape Beale reported seeing an overturned fishing vessel drifting in a north-westerly direction near the lighthouse. Starting at 1307, one minute after the initial report,

several SAR units were tasked to search the area for any possible survivors.

At 1438, the crew of a USCG helicopter which was searching the area spotted two red flares and then the survivor who had fired them. They recovered him in the vicinity of Mud Cove, some 500 m northward from Deadman Cove. The survivor was distressed but otherwise unharmed. After flying over the area and searching for the other crew members for some time, the helicopter took the survivor to Bamfield at approximately 1600. Two bodies, that of the deck-hand lying on the shore in Deadman Cove and that of the skipper found floating near Deadman Cove at 1654 on 11 December, were subsequently recovered.

The bodies were transported to the Port Alberni Hospital where it was determined that the cause of death of both victims was by drowning.

The wreck of the vessel was found on 11 December at 1105. It was overturned and jammed between the rocks approximately six cables north-north-eastward of the Cape Beale lighthouse and was inaccessible from the land. Aerial photographs were taken, but they do not give any visible clues as to the source of the ingress of water.

An attempt to inspect the wreck was partially successful when, on 17 January 1996, personnel from the CCG SAR station at Bamfield approached the stranded wreck by boat and managed to climb onto the adjacent rocks. The port quarter of the stern of the "DALEWOOD PROVIDER" appeared to have been damaged by contact with a rock while the vessel was already in the overturned position. The underwater hull appeared to be scraped in a few places but no holes or wide cracks were seen in the shell plating.

Subsequent observations showed that the forward (inshore) end of the stranded vessel had been torn open by the waves, while the after shell plating remained intact.

The "DALEWOOD PROVIDER" had capsized on 17 August 1989 while returning to port with a large catch of fish in the holds, the seine net on the seining drum, and the seine skiff stowed on the weather deck. The subsequent Transport Canada investigation showed that several modifications made to the vessel after she was built had not been reported by the owners to the Ship Safety Branch of the CCG. The vessel's intact stability characteristics were then markedly below the minimum criteria of the appropriate Small Fishing Vessel Standard (STAB 4), and consequently, her Trim and Stability Booklet, which had been approved shortly after the vessel was built, became redundant. It should be noted that the "DALEWOOD PROVIDER" was a vessel of a series of three similar hulls, the other two being the "HARBOUR PROVIDER" (384004) and the "PACIFIC HORIZON" (812790), with common stability approval based on data originally generated for the "HARBOUR PROVIDER".

In March 1990, proposed remedial modifications and related revised trim and stability data were forwarded to the Ship Safety Branch of the CCG by a naval architect acting on behalf of the owners of the "DALEWOOD PROVIDER", requesting approval for exemption from part of the requirements of the STAB 4. The revised data were considered insufficient, and in June 1990, the naval architect was informed that a further, more detailed submission should be made after completion of the proposed modifications. The naval architect advised the owners of the CCG response, but he received no further instructions to proceed. The proposed modifications, which included the addition of sponsons to increase the vessel's breadth by four feet (1.22 m), were not implemented, and consequently, the revised stability data were not applicable to the unmodified hull.

The records of the Ship Safety Branch of the CCG in Ottawa and Vancouver do not contain any subsequent stability data submissions for the vessel; however, a SIC 29 certificate was issued by the CCG on 05 July 1990, after the vessel had returned to the salmon fishery in late 1989.

After participating in the summer salmon fishery in 1995, the vessel ceased fishing operations. Since September 1995, the vessel had been employed at retrieving and towing beached logs, and transporting deck cargoes of split cedar wood along the B.C. coast. While so engaged, the vessel carried no fishing gear, and the seine net, seine drum, seine skiff and the after roller of the stern ramp were removed.

Prior to commanding the "DALEWOOD PROVIDER", the skipper was in command of another boat owned by the same owners, the fishing vessel "CEE VEE", which sank in 1994 after developing a severe list.

The liferaft of the "DALEWOOD PROVIDER", a six-person self-inflatable of the standard Beaufort-type, was recovered from the beach on 17 January 1996. All identification marks were unreadable. As required by the regulations, the raft had been seen by the Ship Safety Inspector and an appropriate entry had been made in the SIC 29 issued in July 1994.

The survival suits were all of the Imperial-Seawolf type and were made in the United States. They were not required by the regulations for this vessel, and consequently, there is no reference to them in the SIC 29.

ANALYSIS

The only surviving witness to the accident was also the least experienced mariner on board the "DALEWOOD PROVIDER", and he was asleep for some time before the accident. Consequently, he either did not notice, or did not remember, the circumstances leading to the capsizing. Based on the scanty information he provided regarding

the immersion of the after end of the weather deck, it may be deduced that there was an ingress of sea water into some of the after underdeck spaces and the engine-room. The ingress could have happened gradually while the skipper was asleep, without either of the two deck-hands noticing it, or alternatively, suddenly, shortly before the surviving deck-hand was awakened. It is unknown if the skipper or the deck-hand who conned the vessel inspected the after compartments or the engine-room at any time during the trip in the rough weather conditions, but it is considered doubtful that they did.

Reportedly, the skipper and his crew were awake for more than 20 hours prior to departure. The preparations for departure, the problems with the autopilot and the departure itself added to their fatigue, causing the skipper to go to bed immediately after the vessel left Sooke. It is conceivable that he did not ensure that all weather deck doors, hatches and manhole openings were completely secured. Neither deck-hand had enough sea-going experience and safety awareness in this respect to do so on his own.

The inexperienced and tired wheelsman, while conning the vessel for several hours, would probably not have noticed any difference in the vessel's behaviour if water had gradually entered the hull. Alternatively, as the sole person at the con lacked navigational experience, the vessel could have deviated from her intended course, approached the unmarked and rugged coast, and struck the rocky bottom, causing damage to the hull and a sudden ingress of water.

When the skipper first entered the wheel-house at about 0800, he was busy making a phone call, which indicates that the electrical power was available at that time. Because he did not survive, it could not be determined if he had noticed a gradual accumulation of water in the engine-room and after spaces, or if a sudden ingress occurred while he was in the wheel-house.

The vessel appeared to be sinking at about 0900 when the suddenly awoken survivor saw that the after end of the weather deck was under water. The fact that the main engine was still running while there was no electrical power suggests that the batteries were flooded before the engine air intake was submerged, a sequence which is consistent with their relative locations.

At the time of the capsizing, the vessel was not engaged in any fishery, and significant items of fishing equipment had been removed. Furthermore, unreported hull-form modifications to the bow and stern before and after the vessel's previous capsizing in 1989, together with the non-implementation of proposed remedial actions after that casualty, made the original as-built and CCG-approved Trim and Stability Booklet, and later revised stability data, redundant or inapplicable.

The lack of records or other information regarding the taking-on or location of any compensating or trimming water ballast while the

deck cargo of split cedar wood was unloaded precluded any post-casualty calculation of reliable, intact stability characteristics for the vessel on departure and also just before the capsizing.

Regulatory requirements applicable to small fishing vessels of this class and to cargo ships of this size address only intact stability with no criteria for damaged conditions. Consequently, these vessels are highly vulnerable in the event of undetected flooding.

The survivor's descriptions of the vessel's trim just before the capsizing, and of the actual capsizing, are consistent with the "DALEWOOD PROVIDER" having taken on water in the after underdeck compartments and engine-room. The location, weight and free surface effect of this accumulated water were such that the after freeboard, reserve buoyancy and transverse stability were markedly reduced, and the vessel's remaining righting ability was overcome in the prevailing rough weather conditions.

The exact position of the capsizing could not be established. However, it may be deduced that if the vessel was off Nitinat at 0800 when the skipper talked to his wife, and was proceeding in rough weather in a north-westerly direction, then, between 0900 and 0930, the vessel would have been somewhere off Pachena Point light (48°43.3'N, 125°05.8'W).

FINDINGS

1. Sea water entered the hull from undiscovered source/s and accumulated in the vessel's after compartments and engine-room.
2. The total extent and weight of the accumulated floodwater are unknown; however, the after freeboard, reserve buoyancy and transverse stability were markedly reduced, such that the vessel's remaining righting ability was overcome in the prevailing rough weather conditions.
3. The water accumulated in the engine-room immersed the batteries, making the radios unusable and precluding any emergency broadcasts.
4. The "DALEWOOD PROVIDER" was not operating as a small fishing vessel at the time of the capsizing, but was transporting deck cargoes of timber.
5. The vessel's as-built and approved Trim and Stability Booklet was inaccurate and redundant.
6. Revised stability data prepared and submitted shortly after the vessel's previous capsizing in 1989 were inapplicable because the previously proposed sponson additions to the hull

sides, on which the data were based, had not been installed.

7. The vessel's stability was not re-assessed after the removal of fishing gear and before her entering into operation as a cargo-carrying vessel.
8. At the time of her loss, the vessel held a SIC 29 certificate for a commercial fishing vessel, issued by the Ship Safety Branch of the CCG on 13 July 1994 and valid until 22 June 1998.
9. The skipper did not have any formal marine training.
10. The skipper did not exercise good judgement in that he left two inexperienced persons at the con in heavy weather.
11. Two of the three crew members drowned after the raft overturned and they could not reach shore safely.
12. Autopsies revealed that the cause of death of both victims was by drowning.
13. The overturned and stranded wreck of the vessel was considered non salvageable at the time of completion of this report.

CAUSES AND CONTRIBUTING FACTORS

The "DALEWOOD PROVIDER" capsized because sea water entered the hull from undiscovered source/s and accumulated in after underdeck compartments and the engine-room. The location, weight and free surface effect of the floodwater markedly reduced the after freeboard, reserve buoyancy and transverse stability, such that the vessel's righting ability was overcome in the prevailing rough weather conditions.

Two persons drowned because they were thrown from their overturned liferaft and they could not swim to shore in the very rough seas.

SAFETY ACTION TAKEN

Following the occurrence, TSB Marine Safety Advisory No. 10/96 was forwarded to TC-Marine concerning the potentially unsafe stability condition of two "sister" vessels of the "DALEWOOD PROVIDER" (the "HARBOUR PROVIDER" and "PACIFIC HORIZON").

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, Benoît Bouchard, and members Maurice Harquail and W.A. Tadros, authorized the release of this report on 27 November 1996.