Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada

MARINE INVESTIGATION REPORT
M06N0074

SINKING WITH LOSS OF LIFE

SMALL FISHING VESSEL *LANNIE & SISTERS II*
NOTRE DAME BAY, NEWFOUNDLAND AND LABRADOR
17 SEPTEMBER 2006

Canada

Marine Investigation Report

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Summary

On 17 September 2006 at about 0910 Newfoundland daylight time, the fishing vessel *Lannie & Sisters II*, with two crew members on board, departed Lushes Bight, Newfoundland and Labrador, destined for Ming's Bight, Newfoundland and Labrador, in good weather conditions. While crossing Notre Dame Bay, the vessel took on water and was located partially submerged the next day. The body of one crew member was recovered, and the other crew member remains missing and is presumed drowned.

Ce rapport est également disponible en français.

Other Factual Information

Particulars of the Vessel

Name of Vessel	*Lannie & Sisters II*
Official Number	802430
Port of Registry	St. John's, Newfoundland and Labrador
Flag	Canada
Type	Small fishing vessel
Gross Tonnage	14.66
Length[1]	9.63 m
Built	1983, South Side, Nova Scotia
Propulsion	One diesel, 90 kW, driving a single propeller
Crew	2
Registered Owner	Private owner

Description of the Vessel

The *Lannie & Sisters II* was a small fishing vessel of the Cape Island design, constructed of moulded, glass-reinforced plastic, with the wheelhouse and accommodation forward, the engine room beneath the wheelhouse, and the work deck aft (see Photo 1). Access to the wheelhouse was through a hinged door on the port side. Access to the engine room was through a hatch located in the wheelhouse. A portable gasoline-powered generator was stowed on top of the wheelhouse.

There were two very high frequency (VHF) radios and a cellular telephone on board, all of which were powered by the ship's battery.

Photo 1. The *Lannie & Sisters II*, post salvage

[1] Units of measurement in this report conform to International Maritime Organization standards or, where there is no such standard, are expressed in the International System of units.

The owner of the *Lannie & Sisters II* purchased the vessel in the spring of 2004 and made modifications, which included the following:

- extending the wheelhouse aft;
- raising the main deck 16 inches at the stern with a gradual slope toward the wheelhouse, where it was only raised a few inches; and
- adding stiffeners measuring 4 inches by 4 inches in the bow section of the hull.

There was one freeing port at the forward end of the main deck on the starboard side. There were two freeing ports on the port side—one at the forward end of the main deck, and one on the forecastle. In all cases, the freeing ports were roughly cut by hand with the cut extending into the hull (see Photos 2 and 3).

Photo 2. A hand-cut freeing port

Photo 3. A hand-cut freeing port

The vessel was used for sealing and purse seining for mackerel.

History of the Voyage

The *Lannie & Sisters II,* with a crew of five, departed Fleur de Lys, Newfoundland and Labrador, on 15 September 2006 at about 1600[2] for an overnight mackerel fishing trip. At about 0030 the next day, the captain was told by the owner, who was fishing on another vessel, to take the vessel back to port as the entire crew's employment had been terminated. The crew sailed the *Lannie & Sisters II* to Fleur de Lys, where two crew members disembarked. At the same time, they dropped off a 3.3 m boat. The vessel with the remainder of the crew

[2] All times are Newfoundland daylight time (Coordinated Universal Time minus 2.5 hours).

members departed for the 60 nautical mile (nm) trip across Notre Dame Bay to Lushes Bight (see Appendix A). Upon their arrival at Lushes Bight at 2130 on 16 September 2006, the following equipment was removed:

- all personal flotation devices (PFDs)
- one immersion suit
- gas for the portable generator
- 12 distress flares

The *Lannie & Sisters II* had an external stuffing box for the propeller shaft that had been leaking for some time and getting progressively worse (see Photo 4). The crew members connected the vessel to shore power in Lushes Bight, so that the bilge pump would not drain the battery after they went home.

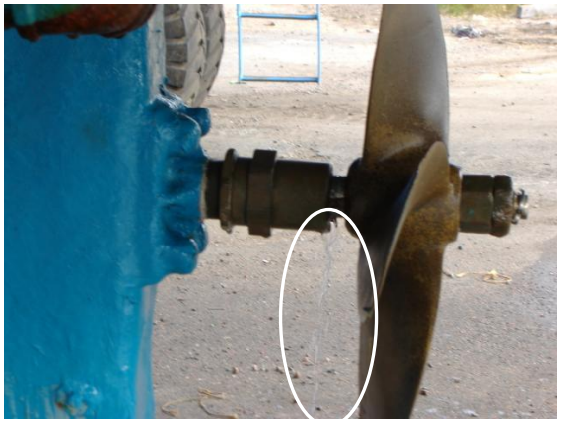

Photo 4. Leaking stuffing box after vessel recovery

On the evening of 16 September 2006, the owner made arrangements for a new crew of two persons (hereafter referred to as the delivery crew, with the original crew referred to as the fishing crew) to sail the *Lannie & Sisters II* to its home port of Ming's Bight, 57 nm away.

Two of the fishing crew met the delivery crew on the morning of 17 September 2006. At this time, the delivery crew was informed of the steady ingress of water coming from the stuffing box and the problems with the vessel's transmission. They were shown where the activation switch for the bilge pump was located. It is unclear whether they were made aware that the lifejackets and PFDs had been removed. After a short conversation, the delivery crew sailed at about 0910, heading for Ming's Bight. At the time of departure, the vessel had a starboard list of about five degrees, at least partly due to a mackerel seine on the starboard side of the main deck. The winds were northerly at 5 to 10 knots with slight seas, and the skies were clear.

The delivery crew captain of the *Lannie & Sisters II* entered into communication, via VHF radiotelephone, with another fishing vessel at about 1100, and reported that all was well and they were making good time. Their estimated time of arrival at Ming's Bight was between 1630 and 1700.

At 0004 on 18 September 2006, the owner of the *Lannie & Sisters II*, who was on another vessel at the time, contacted Marine Communications and Traffic Services (MCTS) at St. Anthony , Newfoundland and Labrador, and reported the *Lannie & Sisters II* overdue. Two Canadian Coast Guard (CCG) search and rescue (SAR) vessels, SAR aircraft, and various small fishing vessels in the area were tasked with the SAR operation. Four fishing vessels arrived on scene between 0130 and 0215 to partake in the search, and the first SAR aircraft arrived at 0250.

The vessel was discovered partially submerged at 0931 on 18 September 2006, in position 49°50'42" N, 055°16'00" W, by SAR resources (see Photos 5 and 6). A SAR fixed-wing aircraft spotted the body of the delivery captain at 1642 on September 18, and it was subsequently recovered by a SAR vessel. The other crew member is still missing and presumed drowned.

The CCG towed the swamped vessel to Triton, Newfoundland and Labrador, where it was subsequently pumped out and lifted ashore.

Although the vessel was equipped with two VHF radiotelephones and a cellular telephone, no distress messages were received.

Photo 5. Search and rescue activities

Photo 6. *Lannie & Sisters II*

Weather Conditions

The visibility in the area, as reported by another vessel and observations made at a coastal station at Badger, Newfoundland and Labrador, was good with winds southwest/west-southwest at 5 to 15 knots. Air temperature during the day on 17 September 2006 was between 11°C and 18°C.

Certification and Experience

Certification

The *Lannie & Sisters II*, with a gross tonnage of less than 15, was not required to have a crew with marine certificates or any type of navigational training. Neither the owner nor the delivery crew had any formal navigation training, certificates, or marine emergency duties (MED) training. The captain of the fishing crew held a Fishing Master, Fourth Class certificate and was the only member of the fishing crew to hold a MED certificate. Revisions to the *Canada Shipping Act* in 1997 made MED training compulsory for fishers. Due to the scope of implementation, the requirement to be registered for a MED course was postponed until 01 April 2008.

Experience

The captain of the delivery crew had been a fisherman for about 20 years. The deckhand had fished for about 10 years, but had not done so in the last 12 years. On several occasions, the captain had transferred the *Lannie & Sisters II* between docks in the same harbour. However, neither he nor the deckhand had ever been on board during an extended voyage and neither was fully familiar with the vessel's operating systems.

Similarly, the captain of the fishing crew and the vessel owner each had over 20 years of fishing experience. In addition to the *Lannie & Sisters II*, the owner owned a Transport Canada (TC)–inspected fishing vessel that he operated himself with a different crew.

Lifesaving Equipment

The *Lannie & Sisters II* was not required to be fitted with a liferaft. The *Lannie & Sisters II* towed a speedboat behind it while under the command of the fishing crew; however, because it belonged to the fishing captain, it was not available to the delivery crew. This light boat was put ashore in Fleur de Lys and it too was unavailable to the delivery crew.

Regulations[3] required the vessel to carry:

- a lifejacket for each person aboard;
- a watertight can with six approved self-igniting flares; and
- a lifebuoy with 27 m of line.

The fishing crew members provided their own PFDs while the crew was on board, but removed these from the vessel upon arrival in Lushes Bight. It was reported that there were no PFDs or lifejackets on board at the time of the occurrence, and it is unknown whether the delivery crew was aware of this. Although immersion suits were not required by regulation, the captain of the fishing crew provided his own, and there were none aboard at the time of the occurrence.

The captain of the fishing crew also provided his own flares while at sea, but removed them from the vessel in Lushes Bight. There were six parachute flares and six hand-held flares on board at the time of the occurrence; however, they had expired six years earlier, in July 2000. Moreover, the flares were wrapped in black electrical tape and not kept in a watertight container. They were stowed in a cabinet under the steering console.

The *Lannie & Sisters II* was not equipped with an emergency position-indicating radio beacon (EPIRB), nor was it required to carry one.

There was one lifebuoy on board at the time of the occurrence.

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3 *Small Fishing Vessel Inspection Regulations*, Part II

Vessel Maintenance/Upkeep

In May 2006, the stuffing box, which was located on the exterior of the hull, developed a severe leak and the vessel went into drydock for repairs. The stuffing box began leaking again at some point after the drydock. The propeller had been in a damaged condition before the fishing crew took over the vessel in July 2006. The blades were distorted, which caused a vibration that made the leak progressively worse. The owner, the fishing crew, and the delivery crew were all aware that the *Lannie & Sisters II* was taking on water through the stuffing box.

Upon recovery, the vessel had no name, licence number, or port of registry displayed on its hull; water was observed pouring from the stuffing box (see Photo 4); the freeing ports were holes cut into the bulwark, with no flaps to prevent water ingress; and there was no freeing port on the starboard side aft.

There were numerous pumps on board the vessel, but many were unusable at the time of the occurrence. These included:

- a 3700-gallon-per-hour Rule pump located beneath the fish hold;
- a 2000-gallon-per-hour Mayfair pump. On 14 September 2006, the discharge hose on the Mayfair pump became tangled with the main shaft and parted, rendering the pump unserviceable. The hose was not repaired;
- a bilge pump located in the engine compartment. This pump's discharge hose was not connected to an overboard discharge and was thus unusable;
- an electric sump pump that ran off a portable generator. There was no gasoline on board, also rendering this pump unusable; and
- a washdown pump, used mostly for pumping seawater on board. The pump could be changed to pump water overboard by means of a T-switch in the engine compartment.

The Rule pump was the only operating bilge pump that was connected to an automatic float switch. The wiring on the float switch was connected to the pump by a twist of the wires and electrical tape. The wiring from the pump to the battery was connected by plastic wire nuts. There were two batteries in the engine compartment, both on the bottom of the bilge. The power switch to the pump was a household light switch and was located behind a door on the steering console in the wheelhouse. It could be accessed by opening the door and reaching inside the console, but it was not visible. There was another household light switch near the pump switch that was not connected to anything. There was no high level bilge alarm on board, nor was one required by regulation.

Other maintenance and upkeep items included:

- hand-cut freeing ports with irregular-shaped cuts that extended into the hull;
- scorched plywood surrounding the cooking stove, including an area that was burned through to the outside;
- instances of using household wiring and switches, rather than marine grade;
- flexible hoses for the bilge pump joined by a hose clamp without a proper connector between them;
- damaged propeller blades; and
- a transmission that was reported to be exhibiting signs of wear.

Inspection of Small Fishing Vessels

As a small fishing vessel with a gross tonnage not exceeding 15, the *Lannie & Sisters II* was subject to the requirements of Part II of the *Small Fishing Vessel Inspection Regulations* (SFVIR). Therefore, there was no requirement for a periodic inspection by TC.

Under the proposed regulatory reform of the *Canada Shipping Act* (*Canada Shipping Act, 2001*), the proposed *Fishing Vessel Safety Regulations* will require all fishing vessels over 9 m in length to have an annual self-inspection to determine compliance with the regulations and report the results to the Minister of Transport. Vessels 9 to 15 m in length will require an initial TC inspection.

Analysis

Sinking of the Vessel

Although the precise cause of the sinking could not be determined, it is likely that the wiring of the one serviceable pump became disconnected, or else that the pump was unable to keep up with the ever-increasing rate of water ingress through the stuffing box. In addition, because the batteries were mounted on the bottom of the bilge, they likely would have become immersed in water and possibly short-circuited the power early on in the flooding process. With no power, the vessel's VHF radiotelephone, cellular telephone, and only operating bilge pump would have been unusable.

High Level Bilge Alarms

Being a small fishing vessel, the *Lannie & Sisters II* was not required to have a high level bilge alarm installed, nor was there one installed. As a result, the crew received no warning of water ingress. Previous TSB reports have recognized the dangers associated with not having such an alarm.[4] The Workers' Compensation Board of British Columbia requires all commercial fishers to install a high water level detector in the engine compartment and lazarette of their vessel, and to have these connected to an alarm system.[5] A high level bilge alarm, if fitted, would have given the delivery crew early warning that the bilge pump was not performing adequately. Under the proposed regulations pursuant to *Canada Shipping Act, 2001* reforms, the *Lannie & Sisters II* would have been required to have such a device.

Safety Equipment

There was no liferaft or recovery boat on board the *Lannie & Sisters II* at the time of the occurrence, nor was this required by regulations. Although the captain possessed an immersion suit, there were none on board when the delivery crew took over. Because the vessel routinely went beyond 25 nm from shore, under the proposed *Fishing Vessel Safety Regulations*, it would have been required to carry a liferaft or recovery boat.

The 12 expired flares on board were stowed in a cabinet under the steering console in a non-watertight container. The delivery crew was not made aware of their whereabouts before departure and their whereabouts were such that locating them would have been difficult. The flares were found undisturbed after recovery of the vessel. The firing of flares could have contributed to an earlier notification of distress.

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4 M90L3034 (*Nadine*), M90M4020 (*Northern Osprey*), M92M4007 (*Miss Holly No .2*), M93W1097 (*Menzies Bay*), M97M0005 (*Scotia Gold*), M98L0149 (*Brier Mist*), M01L0112 (*Alex B. 1*)

5 Regulation 24.93(2)

Although the *Lannie & Sisters II* was not required to carry an EPIRB, the carriage of one would have provided an opportunity to automatically initiate a transmission and to alert SAR authorities at the onset of the distress, increasing the chances of survival. Under proposed reforms to the *Canada Shipping Act*, a vessel on a voyage outside 25 nm will require an EPIRB.

Safety Culture and Shared Responsibility for Safety

It is the duty of every owner and captain to ensure that each vessel is safe to go to sea. Despite the owner's and fishing crews' experience in the fishing industry, the characteristics of the vessel indicated a lack of awareness of or compliance with marine standards of safe construction and maintenance.

Although the owner of the *Lannie & Sisters II* realized that there was still an ingress of water from the stuffing box, no arrangements were made to have it repaired. The bilge pumping system was not maintained to a level where it was reliable or, on the day of the occurrence, even serviceable. A bilge pumping system is designed to handle small leaks and incidental water ingress, but is not considered a damage-control system. The fishing crew was aware of the leak and had brought the subject up to the owner on several occasions. Tentative plans were made to haul the vessel out of the water for the necessary repairs, but these had not yet been realized.

Before departure on the morning of the occurrence, neither the owner nor the delivery crew ensured that the basic lifesaving equipment was on board. The delivery crew had limited familiarity with the vessel. The owner of a vessel has a responsibility to familiarize any new captain and crew members with the layout and safety equipment of that vessel.

Whether the delivery crew was aware of the vessel's condition and lack of safety equipment is unknown, but the fact that the vessel left the dock without ensuring that the minimal safety equipment required was on board indicates a lack of preparedness and risk assessment.

Following the major water ingress on the *Alex B. 1*,[6] off Havre-Saint-Pierre, Quebec, on 29 September 2001, the TSB, recognizing the need for a safety culture in the Canadian fishing industry, issued the following recommendation:

> *Transport Canada, in coordination with Fisheries and Oceans Canada, fisher associations and training institutions, develop a national strategy for establishing, maintaining and promoting a safety culture within the fishing industry.*
> (M03-02, issued September 2003)

As of November 2006, TC advised that, following consultations with a variety of associated organizations, a Memorandum of Understanding (MOU) has been signed by TC and the Department of Fisheries and Oceans (DFO), providing a mechanism for coordinating the development of a number of strategies to promote safety within the fishing industry. However, as of February 2007, the action was deemed not yet sufficiently advanced to reduce associated

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6 TSB report M01L0112

risks, and the Board rated the response as "satisfactory intent." With the coming into force of the *Canada Shipping Act, 2001* on 01 July 2007, a TC "backgrounder"[7] included the following under the title "Developing a Safety Culture Within the Marine Industry":

> A vessel must be maintained and operated within its designated limits by knowledgeable, well-trained crew to be better able to withstand the rigour of the sea. Owners and operators of fishing vessels are encouraged to participate in education and awareness initiatives and contribute to a safety culture within the marine industry.

It is the TSB's experience that unsafe practices as outlined in this occurrence are not uncommon on small fishing vessels and can be due to a combination of reasons, including the absence of a safety culture, misperception of risk, and a lack of awareness.

Common remarks among fishers following an accident they have survived are that they have previously experienced far worse conditions on numerous occasions, and have not feared for their safety. This type of rationalization can be dangerous because the expectation of success is increased with the completion of each voyage. As a person becomes more complacent, the threshold of risk grows and can lead to additional unsafe practices.[8]

In this occurrence, the delivery captain was an experienced fisherman and may likely have seen little risk in the short voyage in good weather. While attitudes toward personal safety among many fishers are improving, there remains a segment that is willing to accept the risks associated with fishing and the manner in which it has been carried out over the years.

Neither crew member had MED training, currently available, but which was not mandatory until 01 April 2008. Although MED courses can be considered a bare minimum for surviving a distress situation, safety training tends to change fishers' perceptions of risk by increasing the awareness of certain kinds of those risks.[9]

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7 www.tc.gc.ca/mediaroom/backgrounders/b07-M007.htm, confirmed functional as of 21 August 2008.

8 G.J.S. Wilde, *Target Risk*, Toronto, Ontario, PDE Publications, 1994. J. Adams, *Risk*, London, UCI Press, 1995.

9 Dr. N. Power et al. S*afeCatch Final Report*, presented to the National Search and Rescue Secretariat's New Initiatives Fund, March 2006.

Regulatory Oversight

The *Lannie & Sisters II*, as a vessel with a gross tonnage under 15, was not required to be inspected by TC.

Under the proposed reforms to the *Canada Shipping Act* (*Canada Shipping Act, 2001*), the proposed *Fishing Vessel Safety Regulations* would see vessels of this class undergo an initial inspection. These vessels would also require an annual self-inspection. An initial inspection by TC or a cursory self-inspection would have identified safety hazards on board the *Lannie & Sisters II* such as the bilge pumping arrangements and wiring. A TC inspection would also likely have identified any missing or outdated lifesaving equipment.

Similar provisions are currently being applied to other small commercial vessels that do not require an annual TC inspection. For example, under TC's Small Vessel Monitoring & Inspection Program (SVMIP), passenger vessels less than 15 tons are required to have an initial inspection before entering service, and are encouraged to carry out regular self-inspections. The SVMIP does not apply to small fishing vessels.

Findings as to Causes and Contributing Factors

1. Due to inadequate maintenance and upkeep of the stuffing box, the vessel likely experienced a steady ingress of water, and eventually foundered.

2. The lack of a high level bilge alarm deprived the delivery crew of an early warning that the bilge pump was not performing adequately.

3. The installation and maintenance of bilge pumps was such that they were either unreliable or unserviceable.

4. The batteries were located where rising water levels would have quickly covered them, thereby disabling both the means of communication and the only working bilge pump.

5. There were no immersion suits, lifejackets, personal flotation devices, liferafts, or boat on board to provide the crew with flotation or protection from the elements in the event of an abandonment.

6. A probable lack of awareness of the flares' condition and location likely deprived the delivery crew of a possible distress signal, thereby reducing the chance of rescue.

Findings as to Risk

1. Lack of a mandated vessel inspection regime likely prevented maintenance issues from being noticed and acted upon by inspectors.

2. The delivery crew members' limited familiarity with the vessel's operation, combined with their lack of marine safety training, may have negatively affected their appreciation of the risks involved.

3. Despite efforts to correct the situation, the lack of a safety culture in the fishing industry continues to put fishing vessels and their crews at risk.

Safety Action Taken

Marine Personnel Regulations

In the *Marine Personnel Regulations* of the *Canada Shipping Act, 2001*, Transport Canada introduced a requirement for masters of fishing vessels of less than 15 gross tons, operating more than two miles from shore, to have successfully completed at least Small Vessel Operator Proficiency training no later than 07 November 2015.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 21 August 2008.

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Appendix A – Area of the Occurrence