



Accident Report
Freedom III
Grounding at Lake Manapouri
on 24 February 2004



REPORT NO.: 04 3396

VESSEL NAME: *FREEDOM III*

Casualty Details:

| | |
|-------------------------------|---|
| Date of Casualty: | 24 February 2004 |
| Time of Casualty: | 0615 hours New Zealand Daylight Time (NZDT) |
| Casualty Type: | Grounding |
| Casualty Location: | Lake Manapouri |
| Weather Forecast Area: | Inland |
| Investigator: | Zoe Brangwin |



REPORT NO.: 04 3396

VESSEL NAME: *FREEDOM III*

Vessel Details:

| | |
|------------------------|--------------------|
| Vessel Name: | <i>Freedom III</i> |
| Vessel Category: | Passenger |
| Registered Length (m): | 10.1 |
| Official Number: | 126618 |
| Flag: | New Zealand |
| Owner's Name: | Fish Fiordland Ltd |



SUMMARY

Freedom III grounded on the steep shore of the western part of the South Arm in Lake Manapouri.

There were no injuries to the crew or passengers on board. The vessel suffered moderate damage.



KEY EVENTS

- 1.1 At about 0440 hours, New Zealand Daylight Time (NZDT) on Tuesday 24 February 2004, the relief Skipper of the Charter vessel/water taxi *Freedom III* arrived at the vessel, berthed at Lake Manapouri. He carried out his pre start checks and prepared the vessel for an early morning trip to the West Arm of Lake Manapouri.
- 1.2 At approximately 0450 hours, the four passengers boarded the vessel. The four men were working for Real Journeys, Fiordland, and were on their way to Deep Cove, Doubtful Sounds, to carry out maintenance work.
- 1.3 At approximately 0505 hours, *Freedom III* departed the wharf and travelled up the mouth of the river.

Evidence of the Skipper

- 1.4 As the vessel made its way towards Stony Point the Skipper noticed a slight breeze.
- 1.5 As the vessel passed Holmwood Island he noticed that the wind had picked up and that the lake was becoming choppy. The wind appeared to be coming from the northwest.
- 1.6 As the vessel passed Pomana Island the waves were bigger and the wind was funnelling down from the North, West and South Arms. The Skipper found it hard to keep on course due to the force of the wind and waves throwing the vessel around.
- 1.7 The wind then turned the vessel right around. The Skipper lost sight of the beacon lights and became disorientated as the compass and radar were both spinning around and around. He slowed the vessel down. Passenger One helped him to get reorientated and then they were under way again.
- 1.8 The Skipper pointed the vessel in a westerly direction and used the radar to ensure he had enough clearance to either side. The radar was on the two-mile range scale. The vessel was just under the North arm when another squall hit and turned the vessel around again. He regained his bearings and continued westward.
- 1.9 The Skipper could see the light at the top of the West Arm but could not see the light at the end of the West Arm. He altered course to port as he thought he knew where the light was. He then picked up the light and continued.
- 1.10 What happened next the Skipper couldn't say, but *Freedom III* hit the rock bank and rode up it. He put the engine in reverse and it slid off the bank. Two of the passengers climbed out the forward hatch and helped secure the vessel. At about this time the Skipper noticed that the wind had dropped off.
- 1.11 The Skipper and passengers checked the vessel, including the engine room and bilges for damage and found the hull had not been breached. They waited for about 30 minutes before heading back. The return trip was uneventful. They had no engine problems.
- 1.12 The owner of *Freedom III* was there to meet the vessel. He saw that there was damage to the bow and that there were branches still attached to the bow. After finding out what had happened he arranged for the Skipper and Passengers to see the Doctor that afternoon.



Evidence of the Passengers

- 1.13 As the vessel left the marina the Skipper appeared to have difficulty finding the light switches and accidentally sounded the vessel's horn.
- 1.14 When the vessel passed Stony Point the Skipper slowed the vessel down as it was a bit rough and there was light rain.
- 1.15 As the vessel passed Pomana Island they heard the Skipper comment that he "thought he was lost." He then stopped the vessel. The Skipper and passengers One and Two headed to the stern of the vessel to see where they were and to pick up the navigation beacon lights.
- 1.16 Shortly after, the Skipper indicated that "he was right" and they continued on. After a while the passengers became aware that the vessel was going round in left-handed circles, as they could see the three beacon lights, were not where they should have been. The vessel went around about a dozen times. Passenger One tried to help the Skipper get back on track but the Skipper did not listen to him and seemed confused.
- 1.17 The Skipper once again said that he was right and increased the vessel's speed. They appeared to be heading into the waves, which indicated a westerly direction and then it appeared that the vessel was suddenly going in the opposite direction. They told the Skipper that they were heading the wrong way and he turned around again.
- 1.18 At about 0610 hours, they could see the light at the top of the South Arm and could make out the silhouette of the rock wall on their left. The light appeared to be getting closer and closer and then all of a sudden they saw the cliff wall ahead. All the passengers yelled "whoa" and then they hit the rock wall. The vessel collided bow first and rode up on a ledge at the bottom of the rock wall.
- 1.19 The Skipper put the engine astern and was told very quickly to keep the vessel on the rock wall ledge. Passenger Four went up to the bow and through the forward hatch, he grabbed hold of a tree and tried to keep the vessel secure. Passenger One took control and directed the remaining passengers to find torches and line. They secured the vessel to the shore by the bow and stern and then checked for damage. The bow had taken the full force of the collision and was dented, however the hull had not been breached.
- 1.20 Passenger Four stayed on the bow and kept a watch on the securing arrangements while the others discussed their options. They decided to stay put until daylight.
- 1.21 At about 0640 hours, they untied the vessel and proceeded back to Manapouri with the Skipper at the helm.
- 1.22 At about 0710 hours, the vessel berthed at the marina.



Evidence of the Owner

- 1.23 At about 2130 hours on Monday 23 February, the Owner of *Freedom III* spoke to the Skipper, (on his return from West Arm) to discuss the trips booked for the next morning. The group from Real Journeys required a 0500 hours start. He already had another booking for 0630 hours, to take the Real Journeys Drivers to West Arm. The Owner asked the Skipper which trip he wanted to do. The Skipper volunteered to do the early trip.
- 1.24 The Owner awoke at 0503 hours, when he heard *Freedom III's* engine start up.
- 1.25 At 0530 hours, the Owner got up.
- 1.26 The Owner was at the berth by 0615 hours, shortly after the two passengers turned up.

- 1.27 At 0635 hours, *Freedom III* was late returning to the berth.
- 1.28 At 0640 hours, the Owner became concerned, as the vessel was “very late”. The Owner used the VHF radio of another vessel close by to call *Freedom III*. He called *Freedom III* on channel 16 and asked for the vessel’s estimated time of arrival (ETA) at South Arm. He received no response.
- 1.29 At about 0710 hours, *Freedom III* arrived at the berth.



KEY CONDITIONS

2.1.1 Vessel Details

- 2.1.1 *Freedom III* is a restricted passenger/non-passenger vessel of aluminium construction, built in Napier in January 2000. The planing hull vessel was purpose built for the lake and the type of operation. She has a length overall of 10.1 metres, a breadth of 2.73 metres, a draft of 1.2 metres and a gross tonnage of 3.5. The vessel is powered by a single Mercruiser D7.3 litre Tronic 224 kW stern leg diesel engine. The vessel has a top speed of 30 knots.
- 2.1.2 Fish Fiordland Limited owns *Freedom III*. The owners started the company about 20 years ago. They run a water taxi service to the West Arm and also charter the vessel for fishing and diving. The owner holds a Local Launch Master Certificate (LLL), obtained in January 1997. He has over 50 years of experience with owning and skippering vessels and has been in the water taxi business for about 23 years.
- 2.1.3 The vessel had a valid Safe Ship Management (SSM) Certificate with SGS M&I. The vessel was fit to carry 15 passengers and ply enclosed limits on Lake Manapouri. A SGS M&I approved surveyor inspected *Freedom III* on 30 January 2004. The vessel was found to have nil deficiencies.
- 2.1.4 The Owner stated that *Freedom III* was very stable in a beam wind, and didn't get knocked around too much.

2.2 Skipper Details

- 2.2.1 The Skipper was aged 67 years. He held a Local Launch Master Certificate (LLL) obtained in 1999. The LLL was not endorsed for the vessel *Freedom III* at the time of the accident.
- 2.2.2 The Skipper had over 40 years of experience boating on Lake Manapouri. He has worked as commercial Skipper onboard passenger vessels on the lake for about seven years. During the 80's he owned his own vessel and ran a "live deer capture operation" on the lake.
- 2.2.3 At the time of the accident the Skipper had worked as a casual Skipper onboard *Freedom III* for about eight months. Over busy periods he worked from one to seven trips a week, with a maximum of two trips a day. The duration of a trip was 1½ hours to 2 hours. During this time he took trips in the mornings and evening, both in stormy conditions and when calm.
- 2.2.4 The Owner stated that the Skipper had skippered trips for contract clients, who he checked with on a regular basis to find out how they found him as a Skipper. All clients remarked that he was "fine"; the owner had never received any remarks or suggestions regarding his competence.
- 2.2.5 The Owner stated that the Skipper had "*always been reliable, conscientious and trustworthy. He always followed instructions and carried out procedures required for maintaining and operating the boat.*"

2.3 Passenger Details

- 2.3.1 The four passengers were employed and/or contracted by Real Journeys (a Fiordland based tourism company) to carry out maintenance work. On the day of the accident they were on their way to carry out maintenance on the wharves at Deep Cove. The group required an early start as the work was restricted by the height of tide.



- 2.3.2 The four had travelled with the Skipper before and had journeyed back with him from the West Arm the previous evening.
- 2.3.3 Passenger One was the Survey and Refit Supervisor for Real Journeys. He had about 23 years experience travelling on Lake Manapouri in all conditions.
- 2.3.4 Passenger Two was a contractor to Real Journeys. He was a pleasure boat owner and had crossed Lake Manapouri 30-40 times.
- 2.3.5 Passenger Three was a Maintenance Engineer for Real Journeys. He was a recreational boater and had crossed Lake Manapouri a “few hundred” times.
- 2.3.6 Passenger Four was a site contractor to Real Journeys. He had crossed Lake Manapouri about “40-50” times. He described himself as “not a keen boater”.

2.4 Navigation and Safety Equipment

2.4.1 The vessel was equipped with the following navigation and safety equipment:

- Laminated map of Lake Manapouri
- Laminated compass course sheet
- Magnetic Compass
- Furuno 16 mile radar
- Hummingbird echo sounder
- Uniden VHF radio
- 121.5 EPIRB
- 20 Hutchwilco coastal lifejackets
- 2 Lifebuoys
- 2 Flares
- Cell phone

2.4.2 All of the above electronic equipment was switched on and operational at the time of the accident. All navigation lights were on.

2.4.3 The Skipper was navigating by eye and radar.

2.4.4 The Skipper had not set any guard zones on the radar or on the echo sounder.

2.4.5 The passengers commented that the radar screen appeared to be too bright and was impairing the Skipper’s visibility.

2.4.6 There was a laminated compass course sheet and map.

2.5 Weather

2.5.1 The passengers described the weather as raining/drizzling with poor visibility due to the dark and rain. There was a ½ metre chop with the wind coming from the northwest.

2.5.2 The Skipper described the lake conditions as follows:

- Flat on leaving the berth
- As the vessel continued up the river there was a breeze
- As the vessel passed Holmwood Island the wind picked up and the lake was getting choppy.
- As the vessel past Pomana Island the wind was steady over 20 knots from the northwest and also funnelling down the hills from the arms.



- One and a half metre waves with spray blowing off the tops.
- The high winds were pushing the vessel around and the gusts were spinning the vessel around.
- Visibility was nil; it was pitch black.

2.5.3 The Skipper stated that he had listened to the forecast on the television the night before. He did not obtain a forecast on the morning of the accident.

2.5.4 The weather for Te Anau was forecast in the local newspaper, on the day of the accident, as “South west 30-59 kms per hour (16-32 knots), cloud and showers”.

2.5.5 The forecast for Southland was “Occasional showers with isolated hail and thunder, gradually easing towards evening. Cold south westerly winds, 50 km/hr gusting to 90 in exposed areas.”

2.5.6 Passenger Four described the lake as “a bit rough but nothing we hadn’t seen before”.

2.5.7 There was no moon on the morning of the accident. Visibility was low due to the time of day and weather conditions.

2.5.8 Sunrise in Southland on the 24 February was at 0713 hours.

2.6 The Trip

2.6.1 The night before the accident the Owner spoke to the Skipper at about 2130 hours, (on his return from West Arm) to discuss the trip for the next morning. The group from Real Journeys needed an 0500 hours start and he already had another booking for 0630 hours, to take Real Journeys Drivers to West Arm. The Owner asked the Skipper which trip he wanted to do. The Skipper volunteered to do the early trip.

2.6.2 The passengers stated that the Skipper did not seem entirely right from the start of the trip.

2.6.3 The Skipper appeared to have difficulty finding the light switches at the start of the trip and accidentally sounded the siren.

2.6.4 The passengers commented that the Skipper appeared to be spending a lot of time adjusting the settings on the radar and trying to de-mist the windscreen.

2.6.5 The evidence of the Skipper and passengers differed over the events prior to the accident.

2.6.6 The passengers described the Skipper as appearing “confused”, “disorientated” and “quiet”.

2.6.7 Passenger One attempted to help the Skipper and offered to assist him with the navigation and compass courses. The Skipper did not accept this offer.

2.6.8 The vessel’s operational speed was 26 knots. The Skipper stated he was travelling at 10 knots prior to the accident. The passengers’ evidence suggests the vessel was travelling at over 15 knots at the time of impact.

2.6.9 The vessel was described as “quite a noisy boat so not a lot of talking goes on”.

2.6.10 The Skipper mistook the South Arm West light for the light at the West Arm Point. When he picked up the West Arm Point light he thought it was the light at the Log point near the end of the West Arm. Therefore he thought he was heading down the West Arm when in fact he had turned towards the rock wall just after the South Arm light.



- 2.6.11 By losing situational awareness, the Skipper failed to keep a proper look out and navigate the vessel at a safe speed, in accordance with **Maritime Rules Part 22.5 - Lookout** and **Part 22.6 - Safe Speed**.

Maritime Rule 22.5 Look-Out states:

“Every vessel must at all times maintain a proper look - out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions, so as to make a full appraisal of the situation and the risk of collision.”

Maritime Rule 22.6 Safe Speed states:

“Every vessel must at all times proceed at a safe speed so that proper and effective action to avoid a collision can be taken and the vessel can be stopped within a distance appropriate to the prevailing circumstances and conditions.”

In determining a safe speed, the following factors must be among those taken into account:

- (1) For all vessels—
- (a) The state of visibility: (Our emphasis)
 - (b) The traffic density, including concentrations of fishing vessels or any other vessels:
 - (c) The manoeuvrability of the vessel, with special reference to stopping distance and turning ability in the prevailing conditions:
 - (d) At night, the presence of background light such as from shore lights or from the back scatter of the vessel's own lights:
 - (e) The state of wind, sea, and current, and the proximity of navigational hazards: (Our emphasis)
 - (f) The draught in relation to the available depth of water.
- (2) Additionally, for vessels with operational radar —
- (a) The characteristics, efficiency, and limitations of the radar equipment:
 - (b) Any constraints imposed by the radar range scale in use:
 - (c) The effect on radar detection of the sea state, weather, and other sources of interference: (Our emphasis)
 - (d) The possibility that small vessels, ice, and other floating objects may not be detected by radar at an adequate range:
 - (e) The number, location, and movement of vessels detected by radar:
 - (f) The more exact assessment of the visibility that may be possible when radar is used to determine the range of vessels or other objects in the vicinity. (Our emphasis)



2.7 Vessel Inspection

- 2.7.1 On inspection of the vessel, the port trim tab was found to be fully lowered and the starboard trim tab up. The trim tabs are designed to compensate for pitch and roll. If one of the tabs is lowered, besides lifting that side of the vessel it will also cause a certain amount of drag. This has the effect of slowing that side of the boat causing the bow to rotate about the yaw axis and turning the boat to that side. The rudder or out-drive are usually adjusted slightly to compensate.
- 2.7.2 Although the trim tabs in this position would have caused a certain amount of drag it would not have affected the vessel's steerageway.
- 2.7.3 When the vessel hit the rock face the house power switch casing broke, however, this did not affect the power to the VHF, lights or trim tabs. It is not known at what stage the trim tabs were set in the way they were found.

2.7.4 After the accident, Passenger One noticed a noise coming from the engine. The Owner also heard it as the vessel was approaching the berth. On inspection it was found that the noise emanating from the engine room was due to the fact that the motor was out of alignment with the stern leg. The mounting bolts had been bent by the impact of the collision, pushing the motor out of alignment.

2.8 Human Factors

2.8.1 The Skipper stated that he arrived back from the evening trip at about 2130 hours. He went to bed at about 2200 hours.

2.8.2 The Skipper stated that often he did not sleep well when he had an early morning trip as he sleeps without his hearing aid, and was worried that he might not hear the alarm clock.

2.8.3 He stated that he did not sleep well the evening before the accident. He woke up a couple of times during the night and was worried that he would not wake up to the alarm clock.

2.8.4 The Skipper's work/sleep pattern for the 72 hours prior to the accident were as follows:

| Day | Work | Sleep (approx) |
|-------------|---------------|----------------|
| Saturday 21 | 6:30-8:30 am | 6 hours |
| Sunday 22 | 6:30-8:30 am | 6-7 |
| Monday 23 | 7:30-9:30 pm | 5-6 hours |
| Tuesday 24 | 5:00 am start | |

2.8.5 The Skipper stated that he might have momentarily fallen asleep without knowing it.

2.8.6 The Skipper had not consumed any alcohol the evening before the accident and offered to undertake a blood test after the accident.

2.8.7 The Skipper underwent a full maritime medical with a MSA approved doctor. He was found to be in an excellent state of health. Observations included:

- A drug test was performed and returned negative.
- The Skipper wears glasses and has normal vision with them. He has industrial deafness which is corrected with hearing aids which give him normal hearing.
- He does not suffer from any sleep disorder.
- From a detailed medical history it was ascertained that the Skipper was not suffering from any medical condition on the day of the accident.

2.8.8 The Skipper stated that he had good eyesight but wore glasses at night time and for night driving. His LLL stated he must wear his glasses and have a spare pair on board.

2.8.9 Situational Awareness. The Skipper suffered from a loss of situational awareness, which resulted in the grounding of the vessel. Situational awareness can be defined as the accurate perception of all the factors and conditions affecting the vessel and crew during a specific time period.



2.8.10 Causes and or symptoms of loss of situational awareness includes the following:

- a. Fixation or preoccupation
- b. Perception based on faulty information processing*
- c. Ambiguity*
- d. Complacency / familiarity*
- e. Confusion*
- f. Distraction
- g. Fatigue*
- h. Overload/underload
- i. Poor communication*
- j. Failure to meet targets*
- k. Improper procedures or departure from regulations*

The Skipper of **Freedom III** displayed a number of the above characteristics prior to the accident. They have been marked with a *

2.9 Doctor's Assessments

2.9.1 The Skipper was assessed as having suffered a minor neck sprain and was signed off as able to continue normal hours of work.

2.9.2 Passenger One was assessed as having suffered bruising to the back from jarring his back in the accident, and was signed off as able to continue normal hours of work.

2.9.3 Passenger Two was assessed as having suffered bruising to the chest wall from jarring his chest in the accident, and was signed off as able to continue normal hours of work.

2.9.4 Passenger Three was assessed as having suffered bruising to the back from jarring his back in the accident, and was signed off as able to continue normal hours of work.

2.9.5 Passenger Four was assessed as having suffered bruising to the back from jarring his back in the accident, and was signed off as able to continue normal hours of work.



CONTRIBUTING FACTORS

N.B These are not listed in order of importance

- 3.1 The fact that the Skipper was confused as to the controls of the vessel at the start of the trip, may indicate that he was confused or was looking for the controls in the position they are on the other vessel he drives.
- 3.2 The Skipper may have been fatigued.
- 3.3 The Skipper suffered from a loss of situational awareness due to a combination of the factors listed in 2.8.10.
- 3.3 Poor visibility.
- 3.4 Adverse weather conditions.
- 3.5 By not utilising all of the available means of navigation and assistance from the passengers the Skipper failed to keep a proper look out.
- 3.6 The Skipper failed to travel at a safe speed once he thought he had lost his bearings in the poor visibility and weather conditions.
- 3.7 The Skipper did not set any alarms on the radar or echo sounder.
- 3.8 The Skipper mistook the South Arm West light for the light at the West Arm Point. And then, when he picked up the West Arm Point light, he thought it was the light at the Log point near the end of the West Arm. Therefore he thought he was heading down the West Arm when in fact he had turned towards the rock wall just after the South Arm light.
- 3.9 The port trim tab may have been lowered prior to the accident, which would have created a certain amount of drag. Although not ultimately affecting the vessels steerage way it would have made the turn to port, prior to the accident, tighter than normal.



CAUSE

Human Factor

| | | |
|--|---|--|
| <input checked="" type="checkbox"/> Failure to comply with regulations | <input type="checkbox"/> Drugs & Alcohol | <input type="checkbox"/> Overloading |
| <input checked="" type="checkbox"/> Failure to obtain ships position or course | <input checked="" type="checkbox"/> Fatigue | <input type="checkbox"/> Misconduct/Negligence |
| <input checked="" type="checkbox"/> Improper watchkeeping or lookout | <input checked="" type="checkbox"/> Physiological | <input checked="" type="checkbox"/> Error of judgement |
| <input type="checkbox"/> Lack of knowledge | <input type="checkbox"/> Ship Handling | <input type="checkbox"/> Other . . . |

Environmental Factor

| | | | |
|---|---|--|--|
| <input checked="" type="checkbox"/> Adverse weather | <input type="checkbox"/> Debris | <input type="checkbox"/> Ice | <input type="checkbox"/> Navigation hazard |
| <input type="checkbox"/> Adverse current | <input type="checkbox"/> Submerged object | <input checked="" type="checkbox"/> Visibility | <input type="checkbox"/> Other . . . |

Technical Factor

| | | |
|---|---|---|
| <input type="checkbox"/> Structural failure | <input type="checkbox"/> Wear & tear | <input type="checkbox"/> Steering failure |
| <input type="checkbox"/> Mechanical failure | <input type="checkbox"/> Improper welding | <input type="checkbox"/> Inadequate firefighting/lifesaving |
| <input type="checkbox"/> Electrical failure | <input type="checkbox"/> Inadequate maintenance | <input type="checkbox"/> Insufficient fuel |
| <input type="checkbox"/> Corrosion | <input type="checkbox"/> Inadequate stability | <input type="checkbox"/> Other . . . |

- 4.1 The Skipper of *Freedom III* collided with a rock face after a loss of situational awareness while transiting from Manapouri to the West Arm.



OPINONS & RECOMMENDATIONS

- 5.1 It is the opinion of the Maritime Safety Authority that the Skipper of *Freedom III* failed to navigate his vessel safely and in doing so endangered the lives of his crew and caused damage to the vessel.
- 5.2 It is the opinion of the Maritime Safety Authority Investigator, based on the evidence of the Skipper and the Passengers, that the Skipper of *Freedom III* became disorientated due to a loss of situational awareness prior to the accident. He thought he had his bearings and increased speed, however what he thought was the light at the end of the West arm was in fact the light at the top of the South Arm. The Skipper exercised poor judgement with regard to the conduct of his vessel. He could have stopped at any time to assess his position and ask for the assistance of his passengers, two of whom were experienced on the lake.
- 5.3 It is recommended that the Skipper limit his operational hours when on the water to daylight and good visibility.
- 5.4 It is recommended that the Skipper of *Freedom III* be severely censured for his actions that led to this accident. In the event that there is a repetition of this conduct, this letter of censure will be taken into consideration by the Director of Maritime Safety in determining whether or not to bring a prosecution against the Skipper or action in relation to his maritime document.

