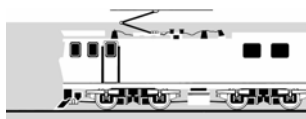
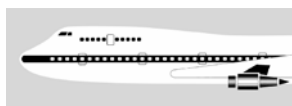


M A R I N E O C C U R R E N C E R E P O R T

06-205

fishing vessel, *Lady Luck*, collision and subsequent foundering,
Motiti Island, Bay of Plenty

23 June 2006



**TRANSPORT ACCIDENT INVESTIGATION COMMISSION
NEW ZEALAND**

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Report 06-205

**fishing vessel
*Lady Luck***

collision and subsequent foundering

Motiti Island, Bay of Plenty

23 June 2006

Abstract

On Friday 23 June 2006 at about 0627, the *Lady Luck*, was returning from a fishing trip in bad weather when it collided with Black (Matatapu) Rock near the southern extremity of Motiti Island. The Skipper of the vessel was able to transmit a distress call on very high frequency channel 16 before he and the other 3 persons on board boarded the liferaft and the vessel sank. Maritime Radio, the Coastguard, the operations centre of the Port of Tauranga and another fishing vessel all received the distress message.

Maritime Radio, the Coastguard, Port of Tauranga and the fishing vessel all responded to the distress call with the Port of Tauranga pilot vessel, *Tauranga II*, arriving on the scene at about 0720. The crew of the *Lady Luck* were taken on board the *Tauranga II* at about 0745 and ferried ashore for medical checks in hospital while the Coastguard vessel *Rescue 1* recovered the liferaft.

The 4 crewmembers of the *Lady Luck* were released from hospital after being treated for slight hypothermia.

Safety issues identified included:

- the miscalculation of leeway in heavy weather conditions
- the loss of electronic navigational equipment, possibly due to the ingress of small amounts of water
- the danger of over reliance on one method of position fixing and plotting.



The Lady Luck

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Abbreviations

2DTE	second class diesel trawler engineer
BHP	brake horse power
CLM	commercial launch master
Coastguard	Royal New Zealand Coastguard Federation
GPS	global positioning system
ILM	inshore launch master
kW	kilowatt(s)
m	metre(s)
MetService	New Zealand Meteorological Service
MSA	Maritime Safety Authority of New Zealand [Maritime New Zealand]
N	north
NE	northeast
nm	nautical mile(s)
NW	northwest
NZCM	New Zealand coastal master
NZOM	New Zealand offshore master
S	south
SE	southeast
SSM	safe ship management
SW	southwest
UTC	co-ordinated universal time
VHF	very high frequency
W	west

Glossary

autopilot	a device that automatically controls the steering of a vessel on a selected course
boot up	to start a computer
clearing latitude	straight line on a chart running 090°/270° that marks a boundary between a safe and a dangerous area; or that passes clear of a navigational danger
con (conduct) course	direct the course and speed of a vessel direction steered by a vessel
distress call	a customary and statutory call that a vessel or her personnel are in danger and in need of assistance
driving up the line	a difficult and time consuming method of conning the vessel from the wheelhouse, under guidance from the working deck, to retrieve the long line.
echo sounder	electrically operated instrument that uses sound waves to determine the depth of water under a vessel.
gross tonnage	a measure of the internal capacity of a vessel; enclosed spaces are measured in cubic metres and the tonnage derived by formula
helm	the amount of angle that the rudder is turned to port or starboard to steer a vessel
knot(s)	nautical mile(s) per hour
lazarette	storeroom at the stern of a vessel, normally where the rudderpost and quadrant are located
lee shore	shore that is to leeward of a vessel
leeway	distance a vessel is forced to leeward of her course by the action of the wind
leeward	area on the lee side of an observer or named object
lightstick	a transparent plastic tube which contains chemical fluids held apart in two compartments. The outer plastic tube contains one part of the chemical mixture, and the inner compartment is a glass or brittle plastic tube containing the second mixture. If the lightstick is bent, the inner tube breaks and the chemicals mix, resulting in a reaction that emits light
paint	the way a radar echo is depicted on a radar screen by painting on a fluorescent screen
recovery platform	a small platform located at the stern of a vessel for recovery of swimmers etc. from the water
set	direction in which a current flows
squall	high wind that arrives suddenly and ceases suddenly. May or may not blow in the direction of the prevalent wind
starboard	right-hand side when facing forward
steer	to govern the course of a vessel by directly or indirectly the helm or rudder
transceiver	a combined radio transmitter and receiver
veer	to alter direction anticlockwise in the Southern Hemisphere
weather window	a break in the weather of certain duration suitable for vessels to leave port

Data Summary

Vessel Particulars:

Name:	<i>Lady Luck</i>
Type:	wooden passenger and fishing
Limits:	Fishing: restricted offshore limits, within 100 nautical miles of the coast of New Zealand.
	Passenger: restricted coastal limits, recreational fishing grounds outlined in MSA circular No. 86
Length:	13.92 m
Breadth:	4.26 m
Gross tonnage:	25
Built:	1959
Propulsion:	one Gardner 6LX diesel engine driving a single fixed-pitch propeller through a Gardner 2UC reversing gearbox
Service speed:	8 knots
Owner/operator:	Lady Luck Fishing Company Limited
Port of registry:	Tauranga
Minimum crew:	2
Passenger capacity;	enclosed waters: 8 inshore waters: 8 restricted coastal waters: 4
Date and time:	23 June 2006 at about 0627 ¹
Location:	Motiti Island, Bay of Plenty
Persons on board:	crew: 4 passengers: nil
Injuries:	crew: nil passengers: nil
Damage:	total loss
Investigator-in-charge:	Captain Iain Hill

¹ Times in this report are New Zealand Standard Time (UTC + 12 hours) and are expressed in the 24-hour mode.

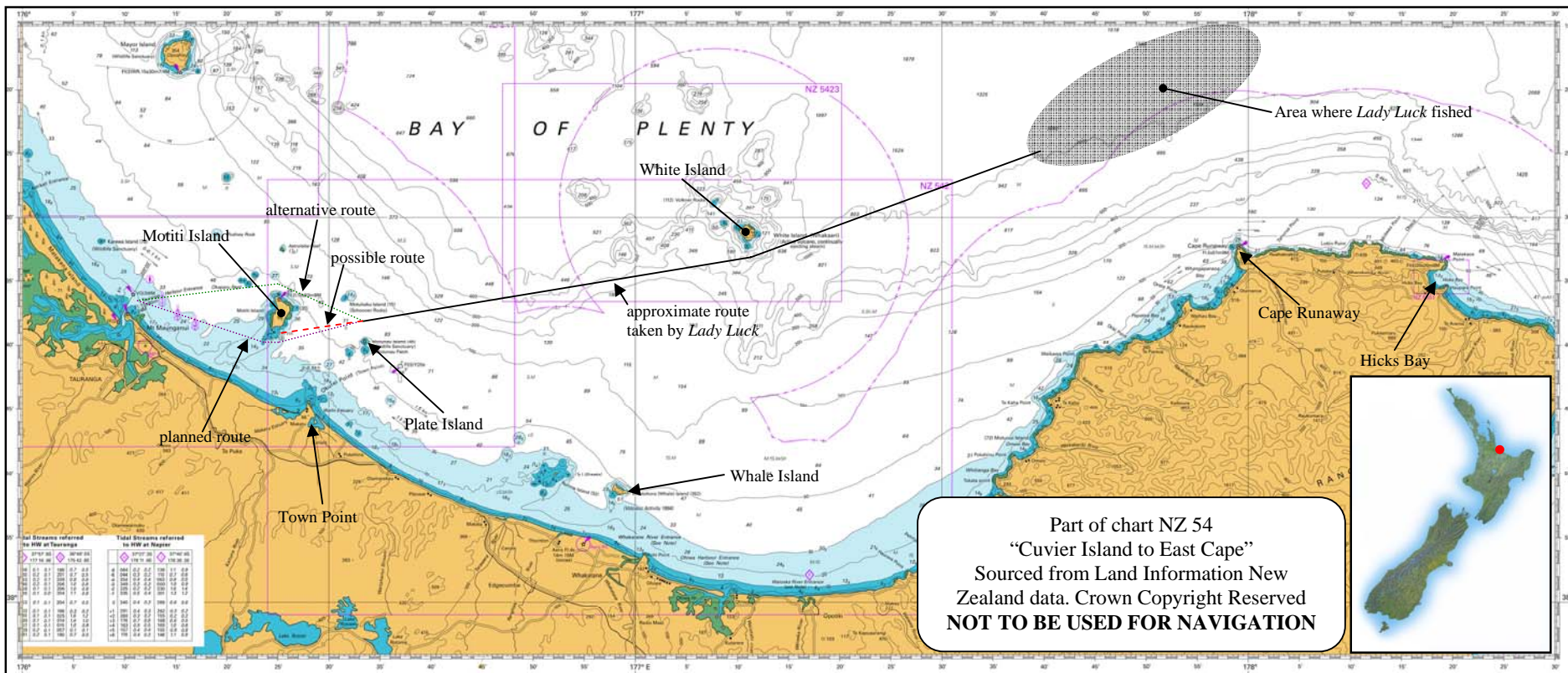


Figure 1
General area of the accident

Factual Information

1.1 Narrative

- 1.1.1 The *Lady Luck* had been due to sail from Tauranga at about 17 or 18 June 2006, however, due to concerns over the weather and some minor mechanical and electrical repairs, the vessel was not ready to depart Tauranga until Tuesday 20 June. The Skipper, after considering the forecast weather for the next few days, decided that a suitable “weather window” was available to complete the intended fishing voyage.
- 1.1.2 On 20 June 2006 at about 1800, the *Lady Luck* departed Tauranga with the Skipper, 2 crew and one of the crew’s sons. As the vessel proceeded down the harbour, the Skipper and senior crewmember instructed the remainder on safety systems, safety and life-saving equipment positioning and use.
- 1.1.3 The Skipper conned the vessel out past Motiti Island then set a course for his chosen fishing ground off Cape Runaway. The *Lady Luck* arrived at the chosen position on 21 June at about 0500.
- 1.1.4 On arrival at the fishing grounds the crew started to set the line, a process that took about 3 hours. The crew then rested, while the vessel drifted, through the day with a roster for keeping a lookout. At about 1600, the Skipper conned the vessel up to one end of the line and the process of hauling the line in commenced. As the Skipper and crew commenced heaving in the line they discovered that the remote control station for the helm controls was not working correctly; the crew were unable to apply starboard helm from the remote. So, after unsuccessfully attempting to mend the equipment, the Skipper and crew agreed to use the slower process of manually “driving up the line”.
- 1.1.5 The Skipper and crew worked at retrieving the line until about 0230 on 22 June 2006. At this time they decided to rest until daylight, so they attached the vessel to the line. The Skipper and senior crewmember took it in turns to stand watches so that the remainder could rest.
- 1.1.6 On 22 June at about 0930, the Skipper and crew resumed retrieving the line. While they were retrieving the line the Skipper heard a weather warning for the Portland area and a forecast for the Plenty area that was marginally better. The Skipper suggested to the crew that once the line had been retrieved, and due to the weather forecast and the remote steering problem, they return to Tauranga.
- 1.1.7 At about 1500 the crew had retrieved all the line and all the equipment was on board and lashed, so they commenced their homeward journey. The Skipper stated later that throughout the day they had only experienced 10 to 15 knot winds from the northwest with the wind dropped away as they started for home.
- 1.1.8 At about 2000, the Skipper took over the con of the vessel from the senior crewmember, who went to rest on the couch in the wheelhouse. The 2 younger members of the crew were resting in the forecastle.
- 1.1.9 At about midnight the senior crewmember relieved the Skipper and took the con of the vessel. The *Lady Luck* was about 5 to 6 nautical miles (nm) from White (Whakaari) Island and by this time the weather had deteriorated to a southerly wind estimated by the Skipper to be between 20 and 30 knots coupled with heavy rain and squalls. The Skipper stated later that the vessel was being affected by leeway to such an extent that he had to steer a course somewhere between Plate (Motunau) Island and Whale (Moutohora) Island.
- 1.1.10 As the senior crewmember conned the vessel on a course from south of White Island towards Motiti Island, he experienced a fault on the radar where the screen would only “paint” on one third of the screen from the 12 o’clock position to the 4 o’clock position. The senior

crewmember stated later that fortunately this area of the screen showed that he was initially clear of Club Rocks south of White Island and he could then see how far he was away from Schooner Rocks (Motuhaku Island) so he was able to work out where Plate Island was.

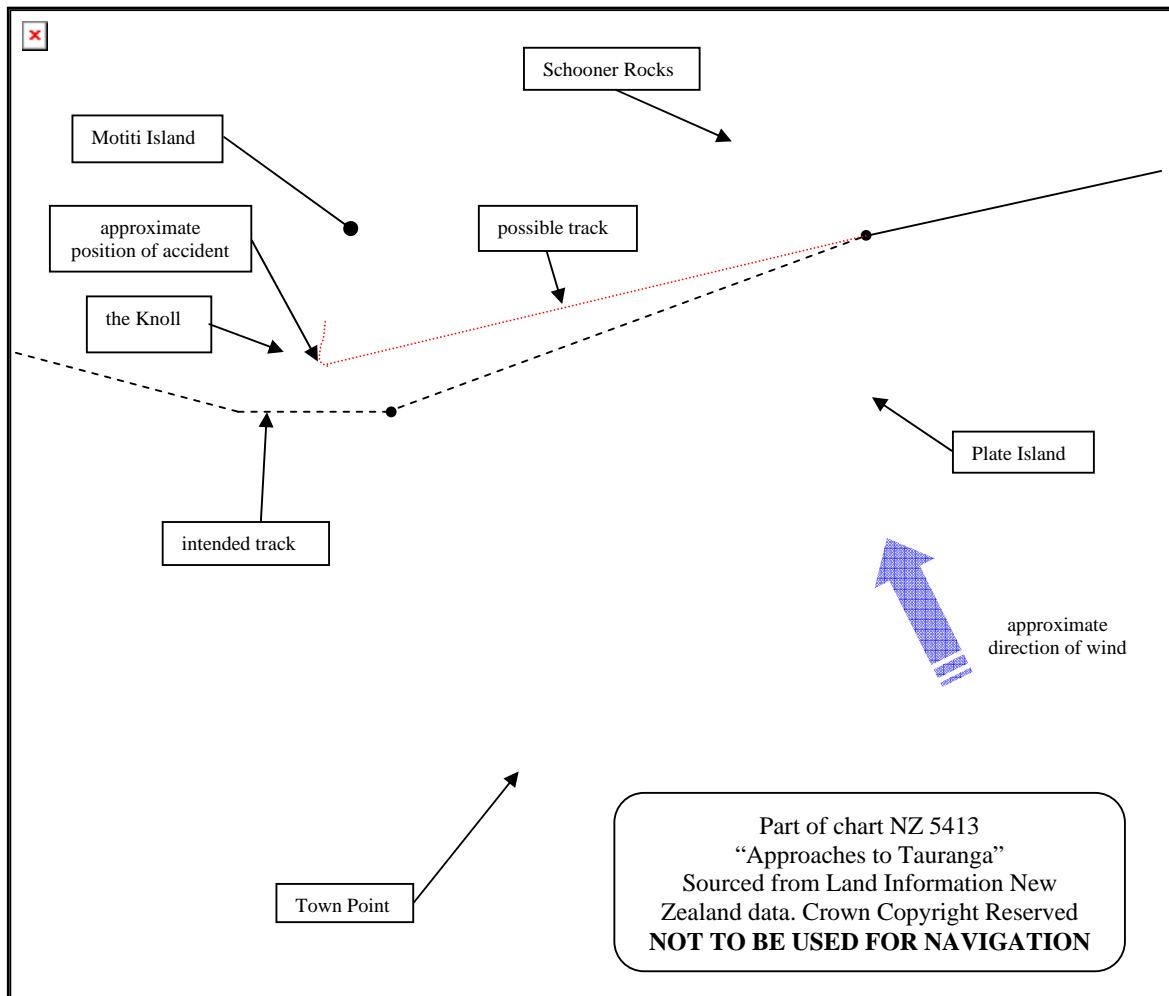


Figure 2
Area of the accident

- 1.1.11 The senior crewmember also experienced problems with the computer-based charting system. The system started “freezing”, requiring the system to be switched off at the electrical socket then back on again; the system would then go through a lengthy boot-up sequence including virus checking before working for a short time before “freezing” again.
- 1.1.12 As the senior crewmember conned the vessel across the Bay of Plenty, the weather deteriorated further, with the wind increasing and the rain getting heavier. On 23 June at about 0400, when the vessel was about 5 to 6 nm off Plate Island, the senior crewmember roused the Skipper and handed the con of the vessel over to him.
- 1.1.13 As the *Lady Luck* passed to the north of Plate Island the Skipper contacted the *Fifty South*, a fishing vessel passing to the north of Motiti Island, and asked what the sea conditions were like. Someone on the other vessel advised him that the sea conditions were bad to the north and suggested the *Lady Luck* go to the south of Motiti Island.
- 1.1.14 The Skipper on the *Lady Luck* decided to go south of Motiti Island so set a course to pass 0.6 to 1.0 nm south of Motiti Island. By this time the wind had veered from the south to the southeast

and the Skipper stated later that the amount of correction he had to apply to the vessel's head to counteract the leeway had the vessel's head nearly pointing towards the lights on Town (Okurei) Point.

- 1.1.15 As the vessel passed Plate Island, the electronic chart system ceased to function and the skipper had to rely on manually plotting the vessel's position, using his fingers as a pair of rudimentary dividers to measure the distance on the paper chart from the global positioning system (GPS) readout. To aid his visual lookout he was periodically opening the starboard, leeward wheelhouse door to look ahead.
- 1.1.16 The Skipper said later that he became concerned that the electronic equipment had ceased to function, possibly due to the ingress of water into the equipment or into one of the 2 main switchboards. He initially checked the switchboard at the back of the wheelhouse then left the wheelhouse and the con to check quickly the other switchboard in the engine room. He said that he could see no obvious signs of serious water ingress.
- 1.1.17 The Skipper returned to the wheelhouse after a few minutes and resumed conning the vessel. As a particularly violent squall passed, he opened the starboard door to look forward and at this moment the Skipper felt the *Lady Luck* strike something on the starboard side, and heard the junior crewmember who was asleep in the forecabin get forcibly thrown out of his bunk.
- 1.1.18 The junior crewmember had been forcibly ejected from his bunk by a rock piercing the hull and the associated inrush of water into the forecabin compartment.
- 1.1.19 The junior crewmember immediately came up the companionway, followed by the senior crewmember's son, to advise the Skipper of the situation. The Skipper immediately roused the resting senior crewmember and at about 0627 issued a distress message on very high frequency (VHF) channel 16 followed by a similar message on channel 6.
- 1.1.20 Plenty Maritime Radio and Tauranga Coastguard heard the distress message on channel 16, but before they could answer the call was answered by Tauranga Harbour Control. Tauranga Harbour Control was able to dispatch the pilot launch *Tauranga II* to the *Lady Luck*'s aid. The fishing vessel *Fifty South* answered the call on VHF channel 6 saying that it was turning around and coming to the *Lady Luck*'s position.
- 1.1.21 At about 0635 the pilot launch *Tauranga II* left its berth in Tauranga for the accident site with 3 persons on board.

Post accident

- 1.1.22 The senior crewmember organised his son and the junior crewmember in donning their lifejackets and ensuring that they were suitably dressed. He then gave them flares and lightsticks from the vessel's supply and a recap of instructions and a physical demonstration on their use before cutting the lashings on the liferaft and inflating it.
- 1.1.23 When the liferaft inflated, the skipper and senior crewmember got the other members of the crew into the liferaft then the skipper got into the liferaft, taking the vessel's emergency position indicating radio beacon with him. Because he was more suitably dressed, the senior crewmember elected to stay on the partially submerged vessel to fend the liferaft off.
- 1.1.24 At about 0720, the crew of the *Lady Luck* saw a vessel appear around the Knoll (Taumaihi Island) and one of the crew let off a distress flare that was seen on board the *Tauranga II*. The *Tauranga II* approached the *Lady Luck* and a life buoy with line attached was thrown from the pilot vessel to the crewmember still standing on the *Lady Luck*. The crewmember made fast the liferaft painter to the life buoy then got into the liferaft; the *Tauranga II* then towed the liferaft into deeper water.

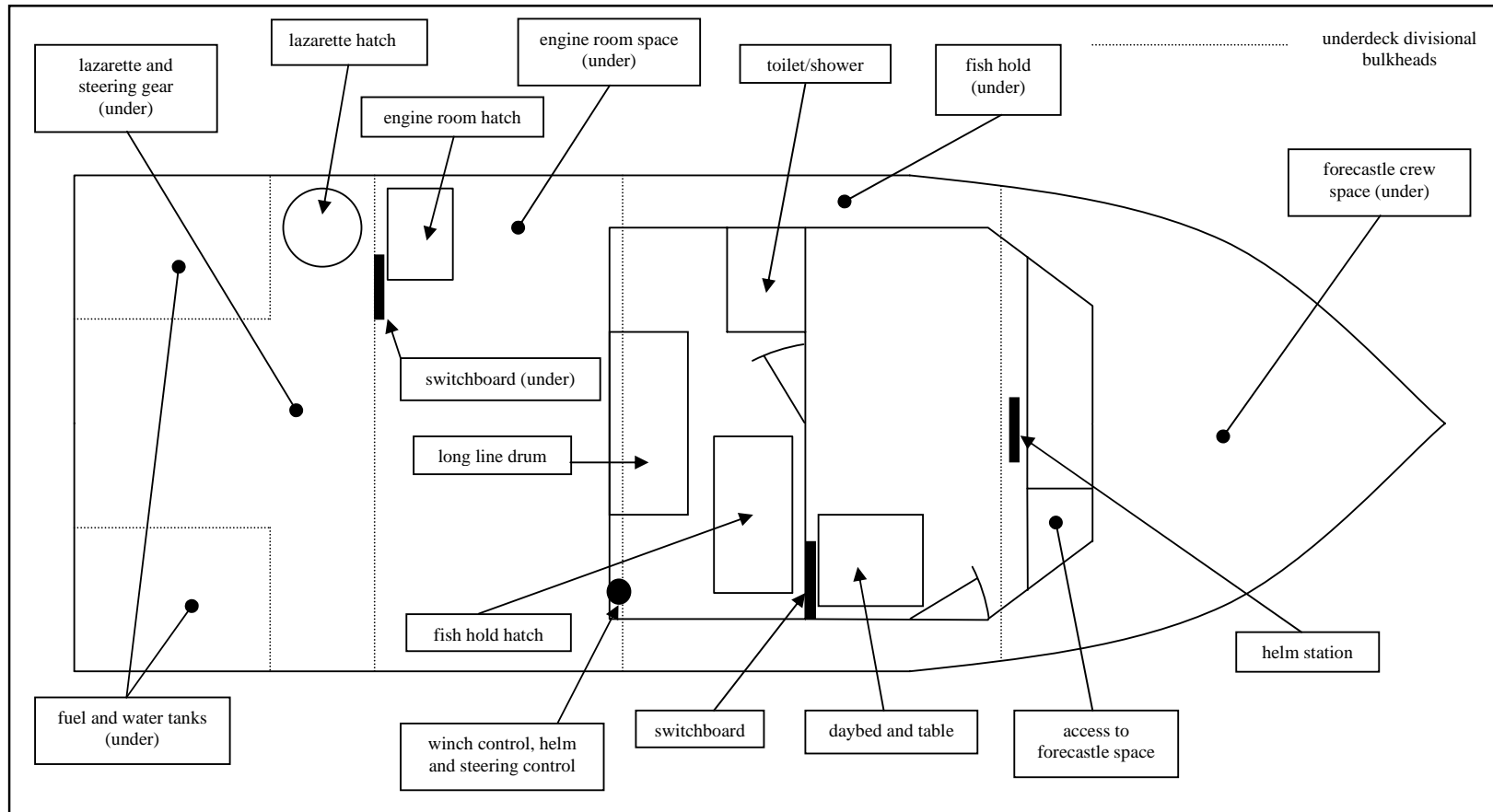


Figure 3
Plan view of the *Lady Luck* (not to scale)

- 1.1.25 At about 0745, the occupants of the liferaft were recovered via the stern recovery platform on the *Tauranga II*. By this time the Coastguard vessel *Rescue 1* had reached the scene and provided thermal blankets and survival suits to the *Tauranga II* for use by the *Lady Luck*'s crew before taking charge of the liferaft.
- 1.1.26 At about 0755, the *Tauranga II* left the scene after advising Plenty Maritime Radio of the cancellation of the distress and arrived back in the Port of Tauranga at about 0845. The crew of the *Lady Luck* were taken by ambulance to hospital for check-ups but were discharged shortly afterwards.

1.2 Vessel information

- 1.2.1 The *Lady Luck* was a wooden-hulled fishing vessel built in New Zealand in about 1959 and was owned by Lady Luck Fishing Company Limited. The vessel had an overall length of 13.92 m, a beam of 4.26 m and a gross tonnage of 25.
- 1.2.2 The *Lady Luck* was powered by a single 110 BHP [82.1 kW] Gardner 6LX diesel engine driving a single fixed pitch propeller through a Gardner 2UC reversing gearbox.
- 1.2.3 The wheelhouse was equipped with the standard equipment necessary for navigation and fishing which included:
- a Sestrel magnetic compass
 - a Cetrek 737 autopilot
 - a Furuno FR71 00D radar
 - a Kodon CVS88/Fish 12 SEI echo sounder/fish finder
 - a Furuno FRS 1550 single side band radio transceiver
 - a Uniden UBC 9000 VHF radio transceiver
 - a JRC JLR 4110 GPS.
- 1.2.4 The *Lady Luck* was certified to operate as:
- a fishing vessel in Restricted Offshore Limits within 100 nm of the coast of New Zealand
 - a passenger vessel within Restricted Coastal Limits: recreational fishing grounds outlined in Maritime Safety Authority circular No. 86
 - a passenger vessel within inshore limits: all waters within the 12-mile territorial limit of New Zealand
 - a passenger vessel within enclosed waters: all waters within the assigned inshore limit.

1.3 Legislation

- 1.3.1 To operate in the Offshore Area up to 100 nm off the coast, as defined in Maritime Rule Part 20, Maritime Rule Part 31C required the skipper to hold a New Zealand Offshore Master's (NZOM) certificate.
- 1.3.2 To operate in the Coastal Area, as defined in Maritime Rule Part 20, Maritime Rule Part 31C required the skipper to hold a New Zealand Offshore Watchkeeper's (NZOW) certificate endorsed with an Inshore Launch Master's (ILM) certificate.
- 1.3.3 To operate in the Inshore Area, as defined in Maritime Rule Part 20, Maritime Rule Part 31C required the skipper to hold an ILM certificate.
- 1.3.4 To operate in the Offshore or Coastal Area the vessel was required to carry a crew of at least 2 persons and to operate in the Inshore Area the vessel was required to have a crew of one.

- 1.3.5 Under Maritime Rule Part 31C.5 Equivalent Certificates, a Commercial Launch Master (CLM) certificate had equivalency to an ILM certificate and a New Zealand Coastal Master (NZCM) certificate had equivalency to an NZOM certificate limited to within 100 nm of the coast.
- 1.3.6 The skipper of the *Lady Luck* at the time of the accident held a CLM certificate, which allowed him to operate the *Lady Luck* in the Inshore Area. However, during the accident voyage the Skipper had probably been operating the *Lady Luck* in the Coastal Area.
- 1.3.7 In 2001 Maritime New Zealand had also convened the Fishing Industry Safety and Health Advisory Group (FISHgroup) as part of measures to identify the causes of work-related near misses, injuries and fatalities.
- 1.3.8 In 2004, FISHgroup was replaced by FishSAFE with the primary aim of developing and managing an implementation plan to give effect to the recommendations in the FISHgroup report.
- 1.3.9 On 21 May 2004, FishSAFE had its inaugural meeting. The group comprised representatives from Maritime New Zealand, the Seafood Industry Training Organisation, the Accident Compensation Corporation and a wide spectrum of the fishing industry.
- 1.3.10 On 12 May 2006, FishSAFE launched its guidelines for health and safety on board small fishing vessels. The guidelines contained specific references to good watchkeeping practices and responsibilities to help the mariner avoid collisions with either land or floating objects.

1.4 Personnel information

- 1.4.1 The Skipper had been interested in the sea from an early age, originally going to sea with his grandfather, and had been involved in fishing commercially from the age of 18. He held a CLM certificate of competency and had completed the course for a second class diesel trawler engineer's (2DTE) certificate but had not sat the examination or gained the certificate. He had been Skipper on board the *Lady Luck* for about the previous 6 months.
- 1.4.2 The senior crewmember had been in the fishing industry for about 25 years working out of New Zealand, Australia and the Pacific Islands. He held a NZCM certificate of competency, 2DTE and a qualified deck hand's certificate of competency. He had sailed on the vessel for the previous fishing voyage.
- 1.4.3 The owner had chosen the Skipper to be in charge of the vessel as he was an acquaintance of his, and he knew of his reputation as a fisherman. The Skipper had then chosen the crew, one of whom was better qualified to be the skipper but was not known to the owner.
- 1.4.4 The junior crewmember had sailed on various commercial fishing vessels with his father, the Skipper. He held no seagoing certificate of competency. He had sailed on the *Lady Luck* the previous fishing voyage.
- 1.4.5 The fourth person on board was the son of the senior crewmember who had joined the vessel for the experience. He had no maritime qualifications or experience.

1.5 Climatic and environmental conditions

- 1.5.1 The accident happened in the Plenty coastal waters forecast area. The adjacent coastal forecast area to the east was Portland. The New Zealand Meteorological Service (MetService) issued coastal waters forecasts at well documented, regular intervals.
- 1.5.2 MetService stated that coastal area forecasts were a general indication of average conditions expected in a particular coastal area. The forecasts were for open waters within 60 nm of the coast and did not apply to enclosed areas such as small bays and harbours.

- 1.5.3 The coastal waters' amended forecast issued at 1248, 22 June 2006 and valid until midnight 23 June 2006 was as follows:

PLENTY

GALE WARNING IN FORCE

Westerly 15 knots tending southeast this evening, rising to 20 knots in the morning and to 35 knots Friday afternoon. Sea becoming very rough. Southeast swell 1 metre developing. Poor visibility in showers, some heavy with hail.

OUTLOOK FOLLOWING 3 DAYS:

Southeast easing Saturday evening 25 knots and later Sunday 15 knots.

PORTLAND

STORM WARNING IN FORCE

North of Cape Kidnappers: Northwest 15 knots becoming southerly this evening. In the south: Southerly 40 knots. Becoming southeast 50 knots everywhere in the morning. Sea becoming high. Southeast swell rising to 5 metres. Southwest swell 1 metre. Poor visibility in rain, heavy at times.

OUTLOOK FOLLOWING 3 DAYS:

Southerly 50 knots with high sea. Easing early Sunday 35 knots north of Mahia Peninsula and 25 knots elsewhere and overnight Sunday 20 knots in the north and 10 knots elsewhere. Heavy southeast swell easing Sunday. Moderate southwest swell.

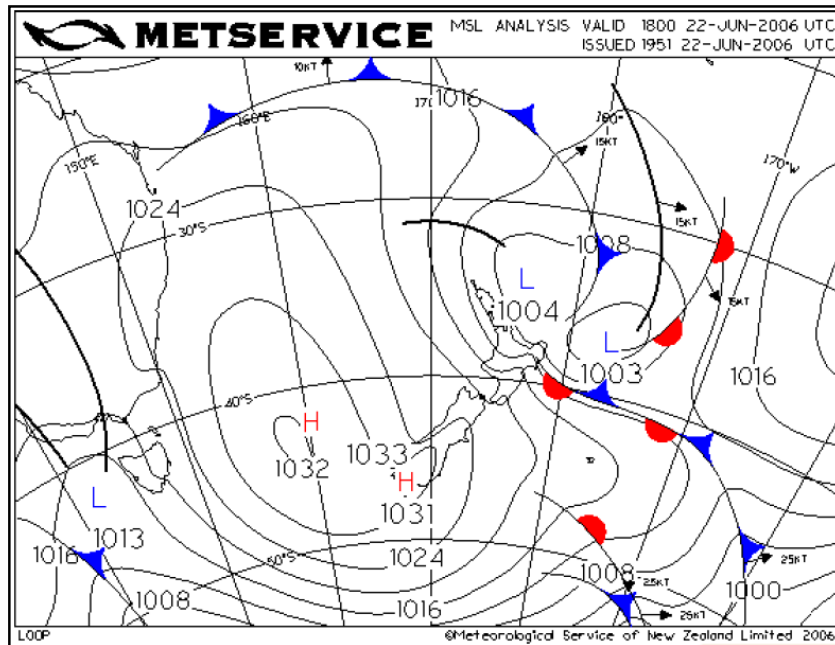


Figure 4
Mean sea level analysis for 0600, 23 June 2006

- 1.5.4 The coastal waters' amended forecast issued at 0415, 23 June 2006 and valid until midnight 23 June 2006 was as follows:

PLENTY

GALE WARNING IN FORCE

Southerly 35 knots, but 25 knots east of Motiti Island rising to 35 knots this afternoon. Sea becoming very rough everywhere. Southeast swell rising to 1 metre. Poor visibility in showers.

OUTLOOK FOLLOWING 3 DAYS:

Southeast easing Saturday evening 25 knots and later Sunday 15 knots.

PORTLAND

STORM WARNING IN FORCE

Southeast 30 knots but 40 knots south of Poverty Bay, rising to 50 knots in south this morning and elsewhere in the evening. Sea becoming high. Southeast swell rising to 5 metres. Southwest swell 1 metre. Poor visibility in rain.

OUTLOOK FOLLOWING 3 DAYS:

Southerly 50 knots with high sea. Easing early Sunday 35 knots north of Mahia Peninsula and 25 knots elsewhere and overnight Sunday 20 knots in the north and 10 knots elsewhere. Heavy southeast swell easing Sunday. Moderate southwest swell.

- 1.5.5 MetService provided an aftercast of the weather that would have been experienced in the area at the time of the accident as shown below:

Situation:

At 0600 23 June 2006 an anticyclone over the Tasman Sea was moving very slowly eastwards towards the South Island. A large depression, which had been developing over and just northeast of the North Island from the previous day, was moving eastwards. A very strong southeast air stream covered the North Island. This air stream would continue to affect eastern North Island through to the following day with the direction gradually turning towards southerly.

Weather conditions between White Island and Tauranga between midnight 22/23 June and 7am 23 June 2006

Wind:

Near White Island: Southeast to south, 35 knots.

Near Motiti Island: Southeast to south, 35 to 40 knots.

Near Tauranga Harbour entrance: Southeast to south, 20 knots.

Sea state:

Near White Island: Very rough, significant wave height 4 metres, occasional waves 5 metres.

Near Motiti Island (where there is limited fetch to about 20 kilometres by the Bay of Plenty coast): Moderate, significant wave height about 2 metres, occasional waves 3 metres.

Near Tauranga Harbour entrance: Slight, significant waves less than 1 metre.

Swell:

None – all wave activity present was being energised by the wind there at the time.

Weather:

Cloudy to overcast. Rain at times, reducing visibility from moderate (10 nautical miles) to poor (3 nm).

- 1.5.6 The predicted tides for Tauranga detailed in the New Zealand Nautical Almanac for 22 and 23 June 2006 were:

Tauranga								
Date	High Water		Low Water		High Water		Low Water	
22/06/06	0342	1.8	0952	0.2	1620	1.8	2223	0.4
23/06/06	0437	1.8	1048	0.3	1716	1.8	2321	0.4

- 1.5.7 The Admiralty Sailing Directions New Zealand Pilot (NP51) stated the following about currents and tidal streams in the general area of Bay of Plenty:

Current sets generally S into Bay of Plenty but is not much felt. In the vicinity of East Cape it is SE where part is deflected offshore and the remainder sets generally S to the vicinity of Cape Turnagain (40°30'S, 176°37'E) where it meets a NE-going current from Cook Strait and is deflected seaward. Tidal streams set generally N and W following the coast with a rising tide, and S with a falling tide.

NP51 stated the following about tidal streams and wind in the particular area from Tauranga to East Cape:

Tidal streams along the coast set W with the flood and are greatly influenced by prevailing weather conditions, see information on the chart.
Local winds; at East Cape, SE winds are frequent. During SW gales, violent squalls from high land can be expected in the anchorages between Cape Runaway and East Cape. Winds on either side of East Cape are often very different even when strong. When wind is W in the Bay of Plenty and also well to seaward of East Cape, winds S of the cape and within about 5 miles of the coast, are probably NW and lighter.

- 1.5.8 On 23 June 2006, moonrise was at about 0444 and sunrise was at about 0730. The moon was about halfway between the last quarter and the new moon so would not have been visible.

1.6 Damage

- 1.6.1 The *Lady Luck* was broken up on rocks by wave action and was a constructive total loss.

1.7 Organisational and management information

- 1.7.1 The *Lady Luck* was under safe ship management (SSM) with SGS M&I. The certificate was issued on 2 February 2006 and, subject to periodic audit/inspection of the vessel and its management system, was valid until 3 June 2009.
- 1.7.2 The *Lady Luck* underwent an initial and safety systems audit by a Maritime New Zealand auditor on 27 January 2006.
- 1.7.3 The owner had bought the vessel at the end of March 2005 and had entered the vessel in the SSM system immediately afterwards. Having neither qualifications nor experience in operating a fishing vessel, the owner initially entered a share fishing arrangement to fish for deep sea crabs, which was not a successful venture for the owner. The owner then used the vessel privately for game fishing before entering an arrangement with the Skipper at the time of the occurrence for him to use the vessel for long lining and occasionally for charter operations.
- 1.7.4 The owner had worked through the SSM system manual with the Skipper and they had agreed on repairs to the vessel and fixed minor deficiencies in the system. The required repairs had been completed prior to the vessel's departure on 20 June 2006.

1.8 Human factors

- 1.8.1 Humans can suffer from hazardous attitudes from which hazardous thoughts develop and affect the standard of their decision-making. These attitudes depend upon an individual's characteristics and the type of environment in which they are operating. Factors that can influence decision-making are commercial pressure, peer pressure and the corporate environment in which the decisions are made.
- 1.8.2 Local conditions are conditions associated with the immediate context or environment in which operational events occur. In terms of individual actions, these conditions include characteristics of individuals, the task and/or the environment. When such conditions are safety issues or increase accident risk, they can be termed local hazards or local threats. Local conditions can influence incident development by increasing the likelihood of a particular individual action or increasing the likelihood of another local condition.
- 1.8.3 One aspect that can have a large impact on human behaviour is the risk of having an accident. However, the accuracy of an individual's risk perception is often poor and when dealing with familiar tasks in familiar environments, it appears that an individual operates with a "zero" level

of risk perception². That is, the individual does not believe there is any chance of an accident occurring by their doing the task that way.

2 Analysis

- 2.1 The *Lady Luck* collided with then foundered on Black Rocks off Motiti Island. Although the island and rocks were in close (10.5 nm) proximity to one of the 2 largest ports in New Zealand, and the area of the accident was within sight of residents on the island, the area was difficult to approach for rescue. The Skipper was able to use his VHF radio to call for help and the rescue and other maritime services were able to respond quickly. The rescuers were able to locate the *Lady Luck* in a timely manner by the crew's use of the vessel's distress flares.
- 2.2 The manning level of the *Lady Luck* was above the minimum legislative requirements for the area in which the vessel was certified to operate. However, the skipper only held a CLM certificate, which allowed him to fish in the inshore area. The required certification was held by the senior crewmember. The lack of the correct certification for the Skipper had no bearing on the outcome of the accident.
- 2.3 The sailing of the vessel from Tauranga was delayed from that intended to allow for the completion of minor repairs of faults that had been discovered when the owner and skipper worked through the SSM system. This showed that the management system was working and that both the owner and skipper had entered the spirit of the system and were attempting to ensure that everything was correct for the forthcoming voyage.
- 2.4 The skipper duly considered the forthcoming weather and thought he had a suitable weather window to get to the area where he intended to fish. There were also numerous anchorages available in the bays of the East Cape area within easy reach should the weather deteriorate to the extent that he was required to seek shelter for the vessel.
- 2.5 On passage through the Tauranga Harbour the skipper and the senior crewmember instructed their sons in the emergency procedures and emergency training. This instruction may have had more effect and been better received and understood than is normally the case as it was the fathers instructing their sons and they were better able to capture the sons attention and make the training more relevant.
- 2.6 The decision by the skipper to return to Tauranga after the failure of the remote control helm station and in the face of the forecast weather was prudent. Remaining at the fishing grounds, with the possibility of having to seek shelter on the coast then return to the fishing grounds with defective equipment that made the process of line retrieval more difficult, would not have been a viable option.
- 2.7 The weather deteriorated as expected, however the leeway that the vessel experienced was greater than that anticipated by either the skipper or the senior crewmember. The skipper stated that he had to adjust the vessel's head to somewhere between Plate Island and Whale Island to maintain his desired track. The leeway the vessel experienced was probably a combination of leeway and westerly set from the tide that was flooding between 2223 on 22 June and 0437 on 23 June.
- 2.8 Due to the age and wooden construction of the vessel, a certain amount of water ingress into the wheelhouse could be expected during the weather experienced. However, such water ingress is undesirable and can be detrimental to installed electrical systems. In this case it possibly caused the failure of both the radar and the chart plotter equipment. The chart plotter was run from a standard PC computer set-up that had probably not been waterproofed to counter the effects of such water ingress.

² Summala, H. 1988. Risk control is not risk adjustment: The zero-risk theory of driver behaviour and its implications. *Ergonomics*, 31, 491-506.

- 2.9 The radar and chart plotter may have also failed for other reasons. It is possible that an electrical fault or reduction in supply voltage from the batteries caused both the radar and chart plotter to cease functioning. Due to the vessel being destroyed and only a small amount of the vessel and equipment being recovered, it was impossible for the exact cause of the malfunction to be determined and another cause may have existed that is not proposed in this report.
- 2.10 Once the chart plotter and radar had ceased to function correctly, neither the skipper nor the senior crewmember made a concerted attempt to establish accurately the amount of leeway that the vessel was making. As by this time the tide was ebbing, the skipper may have expected the offset from the planned track to have been less than that previously experienced; however, the intensity of the wind had increased and backed more onto the beam, probably increasing the amount of offset.
- 2.11 Had the Skipper and the senior crewmember been plotting the vessel's position manually on the relevant nautical chart, even when the chart plotter was working, they would have been better able to determine the vessel's offset and the heading required to maintain the correct track. The Skipper and senior crewmember would also have been able to maintain a plot of the vessel's position and course when the chart plotter failed by using the position supplied by the GPS receiver. This plot would have allowed the Skipper to make more prudent decisions on the best course to steer to run clear of the shoals and rocks to the south of Motiti Island. The Skipper and senior crewmember could have worked together as a team, one conning the vessel while the other plotted the vessel's position, thus reducing the workload; however, this would have decreased the amount of rest available to both.
- 2.12 Although it is a requirement for vessels to carry up-to-date paper charts, the availability of relatively cheap electronic charting and plotting software that can be run on a PC can lead to a reduction in the practice of the basic skills of manual plotting and navigation. This leaves the navigator vulnerable in the event of an electrical failure similar to the one that affected the *Lady Luck*.
- 2.13 The decision by the skipper of the *Lady Luck* to go south of the island was based on his own knowledge of the area and sound advice from the skipper of another fishing vessel ahead of him with whom he had been in contact. The skipper's decision also took into consideration the effect the weather was having on the comfort and health of the younger persons on board. The skipper had taken the route to the south of the island many times before, but possibly not in such adverse weather conditions.
- 2.14 The route on which the skipper planned to take the *Lady Luck* was one that gave him adequate clearance from the shoals and rocks off Motiti Island in good weather. He may have been operating with a zero level of risk perception in that he was in a familiar environment carrying out a familiar task, conning the vessel, and may have believed that there was no risk of having an accident by going so close to a lee shore.
- 2.15 Three hazardous thoughts and their opposite safe thoughts were relevant to the Skipper of the *Lady Luck* when he decided to go south of Motiti Island.

Hazardous Thought

I can do it

It won't happen to me

We've often done it this way

Safe Thought

Why take chances?

It could happen to me

Why take chances?

- 2.16 More prudent action by the Skipper in the weather conditions being experienced, particularly with the lack of accurate navigational plotting equipment and radar, would have been to ensure that a greater clearance was given to the shoals and rocks near Motiti Island. Attempting to con the vessel due south until the GPS indicated that a clearing latitude had been reached before attempting to head west may have prevented the accident.


- 2.17 Although it is unlikely that the Skipper was fatigued from the hours that he reported having worked, it is possible that the Skipper fell asleep or dozed in the wheelhouse. With the senior crewmember asleep on the couch in the wheelhouse, the Skipper may have been wary of disturbing him by moving around the wheelhouse too much, or making use of the equipment to plot the vessel's position manually on the paper chart. Remaining in a sitting position in the helmsman's chair, coupled with the regular noise of the engine, the warm conditions inside the wheelhouse and the lack of required input to the steering with the vessel in autopilot, probably increased the risk of falling asleep.
- 2.18 Had the Skipper unknowingly dozed, the autopilot would have kept the vessel on the same heading, and the vessel would probably have been pushed off course due to the weather and set unnoticed by the dozing skipper. Extrapolation of the approximate course made good between the points off White Island and off Plate Island coincidentally leads to the approximate position of the accident. So, this possibility cannot be discounted.
- 2.19 As soon as the accident occurred, the skipper and senior crewmember undertook the correct actions for such an emergency. While the skipper was issuing a distress message and getting confirmation of receipt, the senior crewmember ensured that the 2 young persons were correctly kitted out and safe. The young persons also showed that their training at the beginning of the voyage had paid off with their being able to assist the senior crewmember in inflating the liferaft, and using the lifesaving aids.
- 2.20 The distress message was answered promptly and the emergency services alerted. Although the Tauranga pilot launch was not part of the emergency services, it was advantageous that the launch was immediately available with a trained, experienced crew who knew the area as this reduced the amount of time that the crew of the *Lady Luck* had to endure in the water.

3 Findings

- 3.1 The *Lady Luck* collided and foundered on Black Rocks in darkness because the Skipper did not allow enough leeway for the conditions the vessel was experiencing.
- 3.2 The *Lady Luck* was holed and the watertight integrity of the vessel was seriously compromised, which resulted in the subsequent sinking and final break-up of the vessel.
- 3.3 Faults in the power supply or ingress of small amounts of water into the wheelhouse may have led to electrical problems causing the malfunctioning of the radar and chart plotter.
- 3.4 The GPS remained functioning throughout the voyage, providing reliable positioning information.
- 3.5 The reason for the failure of the radar and chart plotter could not be accurately established due to the loss of the vessel and its equipment.
- 3.6 The skipper may have fallen asleep or dozed in the wheelhouse at a critical time in the voyage.
- 3.7 The loss of the majority of the electronic navigational aids compromised the skipper's ability to assess accurately the amount of leeway that the vessel was making.
- 3.8 The skipper did not use the available equipment such as, but not limited to, paper charts and manual plotting equipment to its fullest potential.
- 3.9 Over reliance was placed on a single automatic chart plotting system that was adversely affected by the vagaries of a voyage at a critical time.

- 3.10 The skipper could have been affected by the hazardous thoughts of “I can do it” and “it won’t happen to me” combined with a zero level of risk perception which, when combined with the local conditions prevailing at the time, contributed to the collision.
- 3.11 The crew’s actions after the foundering of the vessel were commendable and effective, allowing the rescue services to find them and perform a successful rescue with the minimum of delay.

The Commission has not identified any new meaningful recommendations that could have prevented this accident that have not already been identified and widely taught through industry training organisations and Maritime New Zealand educational material (see Maritime New Zealand Boat Notice – 04-1998 May, copied below). This occurrence report does, however, offer a number of lessons that can be useful to the maritime industry and the general public simply through its dissemination and readership.



MARITIME
NEW ZEALAND

Maritime Operations

BOAT NOTICE – 04/1998 MAY

BASIC NAVIGATIONAL PRECAUTIONS AND THE CORRECT STOWAGE OF SAFETY EQUIPMENT

Overlooking several basic safety precautions recently resulted in a serious accident and the loss of two lives. The Maritime Safety Authority reminds mariners that:

- The largest scale chart available should be used and the vessel’s position should be monitored at frequent, regular intervals.
- A course line should be laid off on the chart before the trip begins which takes into account the need for sufficient sea room for manoeuvring in the event of an emergency.
- An over reliance on GPS plotter information, without the position being periodically transferred to the chart for reference, can be dangerous. A GPS is only an aid to navigation and must be checked regularly for accuracy.
- All liferafts which are kept in a soft valise should not be stowed where they are exposed to the weather nor should they be lashed down. They should be readily accessible.
- Where a velcro flap is fitted to a soft valise, the flap should be overlaid with reflective tape or other material to enable it to be easily identified in the dark.
- The EPIRB should be capable of being tracked by satellite and kept in a readily accessible place, preferably close to the entrance to the wheelhouse.
- The condition, status and operation of all safety equipment should be carefully checked before the trip begins. Lifejackets should be kept in a readily accessible place. Distress rockets and flares should be checked for currency, stowed where they are protected and be quickly accessed in the event of an emergency.

It is only necessary for one of these precautions to be neglected for an incident to occur but if they are all ignored, the possibility of a serious accident becomes almost inevitable.



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