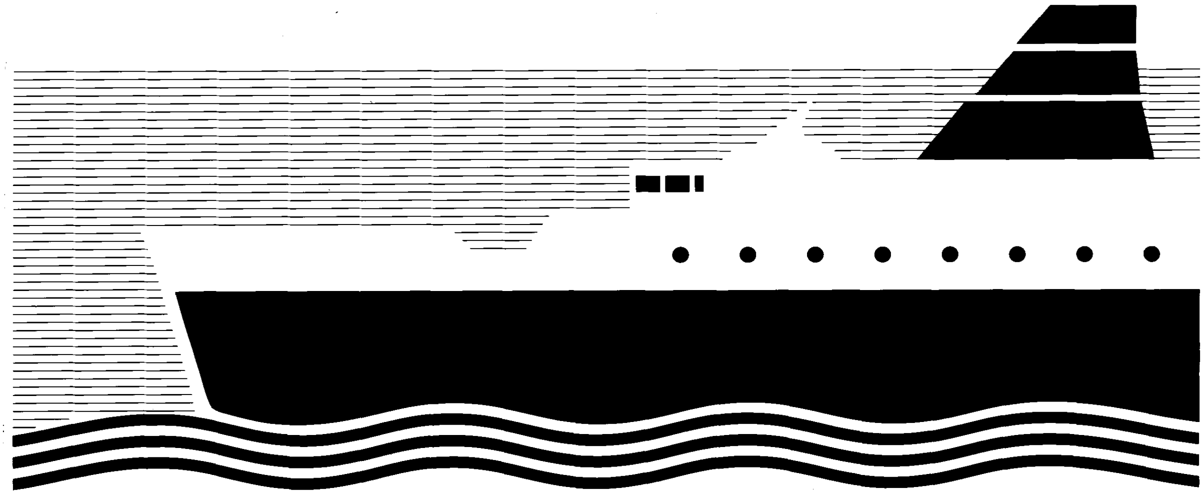
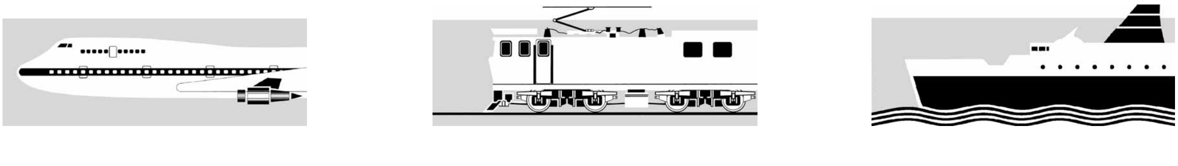


# MARINE OCCURRENCE REPORT

**04-211** **coastal cargo vessel *Southern Tiare,* loss of rudder, off Mahia Peninsula** **4 July 2004**



**TRANSPORT ACCIDENT INVESTIGATION COMMISSION**
**NEW ZEALAND**

**Report 04-211**

**coastal cargo vessel**
***Southern Tiare***

**loss of rudder**

**off Mahia Peninsula**

**4 July 2004**

## Abstract


On Sunday 4 July 2004 at about 1517, while on passage from Chatham Islands to Napier in heavy weather, the coastal cargo vessel *Southern Tiare* lost its rudder below the rudder head. The master was able to manoeuvre the ship, using the bow thruster to maintain the ship's head into the sea, until a tug arrived to take the ship under tow to Napier, where it berthed without further incident. The crew sustained no injuries during the incident.

Safety issues identified included:

- the need for shipyards to ensure a consistently high standard in welding practices, especially to critical items such as rudders and rudderstocks
- the potential for small indications of latent problems being missed during in-water surveys undertaken in less-than-ideal conditions.

Safety recommendations were made to the Permanent Secretary of the International Association of Classification Societies Limited.


The *Southern Tiare* at Napier after the incident

# Contents



# Figures

## Abbreviations

| | |
|---|---|
| ISM | International Management Code for the Safe Operation of Ships and for Pollution Prevention |
| kt | knot(s) |
| kW | kilowatt |
| m | metre(s) |
| mm | millimetre(s) |
| MSA | Maritime Safety Authority |
| nm | nautical mile(s) |
| STCW95 | International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended in 1995 |
| t | tonne(s) |
| UTC | co-ordinated universal time |

## Glossary

| | |
|---|---|
| athwartships | transversely across a ship, from one side to the other |
| bow thruster | a small athwartships propeller mounted in a tunnel at the forward part of a ship, used to manoeuvre a ship at low speeds |
| ductile | materials that exhibit significant plastic deformation before the onset of fracture |
| ductile tearing | if a material is brittle, a crack will propagate rapidly when the fracture stress is reached. Most metals have some ductility and there is a region of plastic deformation in front of the crack which makes the crack tip less sharp and increases the work required to form the crack. The joining of voids formed in front of the crack in the ductile case is known as "ductile tearing" |
| foredeck | the deck of a ship forward of the accommodation |
| gross tonnage | a measure of the internal capacity of a ship; enclosed spaces are measured in cubic metres and the tonnage derived by formula |
| neck bushing | a bushing at the lower extremity of the rudder trunk where the neck of the rudderstock enters the ship's hull |
| paying off | said of the ship's head when it moves away from the direction of the wind |
| pitch (of propeller) | the angle that a propeller blade makes with the propeller shaft. It is this pitch which produces the propulsion to drive the ship ahead or astern |
| plastic deformation | the permanent change in shape or size of a body without fracture, produced by a sustained stress beyond the elastic limit of the material |
| poop deck | short deck raised above the upper deck right aft |
| rudder head | the upper end of the main piece to which the rudderstock is attached. The head consists of a flange or thick palm to which a flange or palm on the lower end of the rudderstock is bolted |
| rudder palm | a flange or thick palm at the lower end of the rudderstock, which may be formed from the rudderstock metal itself or attached to the rudderstock, to which the rudder head is attached |
| rudderstock | vertical member of the rudder, to which the rudder blade is attached |
| starboard | right-hand side when facing forward |
| steering flat | a compartment housing the steering motors and gear. |
| steering gear | all connections and mechanisms between the steering wheel and the rudder, by the working of which the vessel is steered. More particularly the equipment mounted aft above the rudderstock and rudder |
| steering motor | the engine that is controlled by a steering wheel, and moves the tiller and ridder in response to movements of the wheel |
| ultrasonic inspection | the use of short-wavelength and high-frequency sound waves to detect flaws or measure material thickness |

## Data Summary

**Vessel Particulars:**

| | |
|---|---|
| Name: | *Southern Tiare* |
| Type: | coastal cargo vessel |
| Class: | general cargo, 100A1, LMC, ice strengthened |
| Limits: | New Zealand Coastal |
| Classification: | Lloyds Register |
| Length: | 67.35 m |
| Breadth: | 11.41 m |
| Gross tonnage: | 1185 |
| Built: | 1988 at Svendborg Værft A/S, Denmark |
| Propulsion: | a single Deutz MWM diesel engine developing 599 kW driving through a clutch and reduction gearbox a single 4-bladed controllable pitch propeller |
| Service speed: | 11 kt |
| Owner: | Southern Tiare Limited |
| Operator: | Reef Shipping Limited (Reef Shipping) |
| Port of registry: | Auckland |
| Minimum crewing requirement: | 6 |

| | |
|---|---|
| **Date and time:** | Sunday 4 July 2004 at about 1517[1] |
| **Location:** | off Mahia Peninsula |
| **Persons on board:** | crew: 6 |
| **Injuries:** | crew: nil |
| **Damage:** | complete loss of rudder below the upper plate |
| **Investigator-in-charge:** | Captain I M Hill |

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

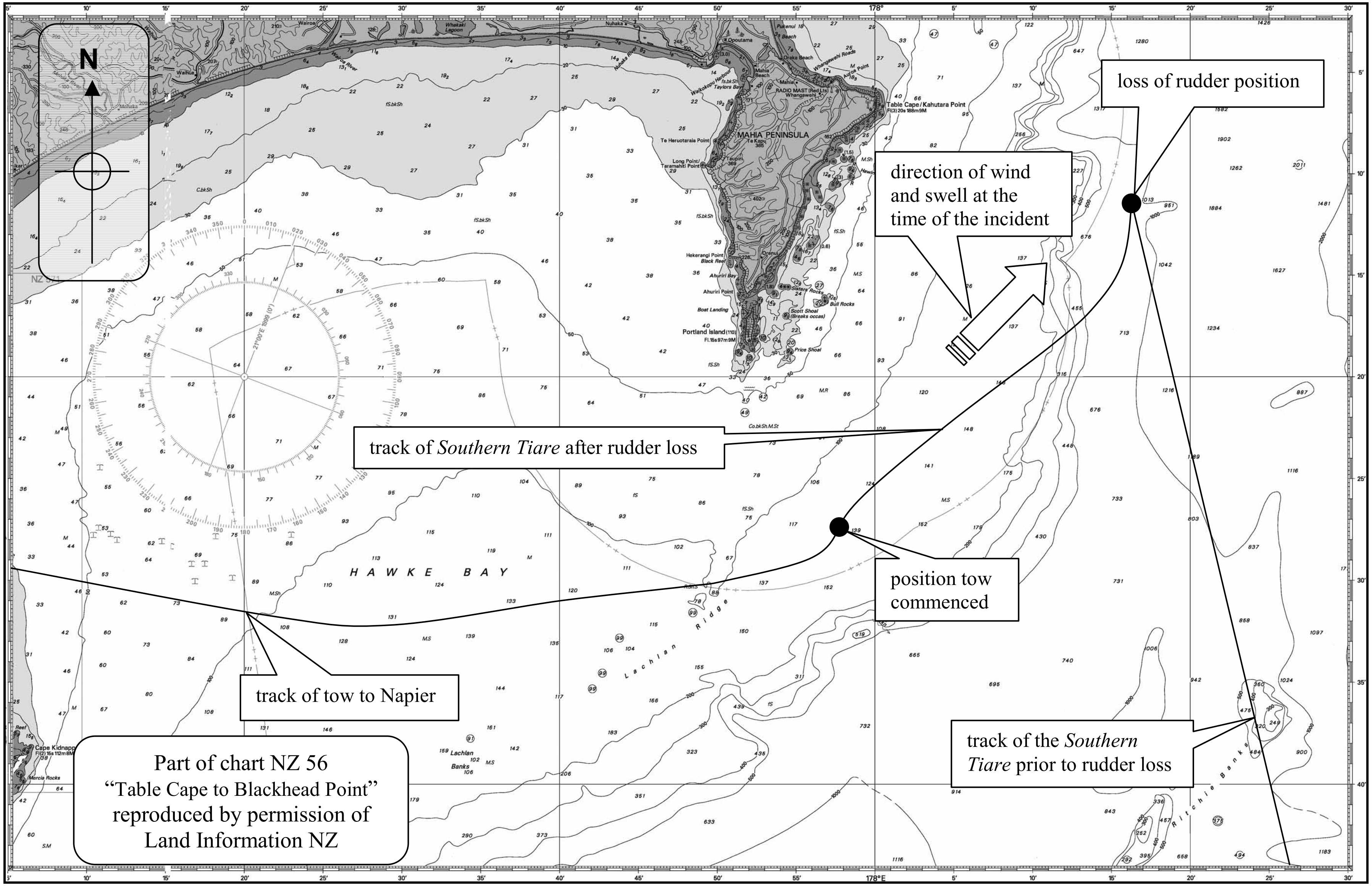



**Figure 1**
**General area of the incident**

# 1 Factual Information

## 1.1 History of the voyage

1.1.1 Reef Shipping purchased the *Southern Tiare* in February 2004 and arranged for the ship to trade on its delivery voyage from Europe to New Zealand via several intermediate ports. The weather on the outward voyage was recorded in the logbook to be adverse at times.

1.1.2 The *Southern Tiare* arrived in Auckland on 17 June 2004 at about 0700. The delivery voyage crew handed over to the new crew, before leaving the ship and being repatriated to their home countries.

1.1.3 After the hand-over the new crew readied the ship for trading around the New Zealand coast and completed the statutory requirements for the ship to trade on the New Zealand coast. On 26 June 2004, the *Southern Tiare* departed from Auckland bound for Napier.

1.1.4 On 28 June 2004, the *Southern Tiare* arrived in Napier and loaded its first cargo for Chatham Islands. The ship departed from Napier on 28 June and arrived in Chatham Islands on 30 June. Cargo was discharged and a return cargo, which included 1300 live sheep and 150 live cattle, was loaded. The *Southern Tiare* departed from Chatham Islands on 2 July 2004 for Napier.

1.1.5 On passage, the weather deteriorated to an extent where the master became concerned about the effect that the movement of the ship was having on the livestock. The master made the decision to alter course to reduce the movement of the ship and proceed to shelter, from the increasing sea and swell, in the lee of Mahia Peninsula.

1.1.6 On 4 July, at about 1515, the master was on the foredeck of the ship when he noticed that the ship's head was coming around into the sea and swell. He made his way rapidly to the wheelhouse to investigate. The second officer informed him that the ship had been paying off to port, so he had changed the steering from automatic to manual and had been applying hard to starboard helm for the previous few minutes without any effect.

1.1.7 The master ordered that the steering motors be changed over and helm reapplied; this was done but had no effect. The master then ordered both steering motors to be used in combination, but this also had no effect. During these helm movements, the rudder indicator in the wheelhouse was showing rudder movement consistent with the helm orders.

1.1.8 The master ordered the second officer to take a walkie-talkie, find the chief engineer and both of them to go to the steering flat to see if the steering gear was working as shown by the rudder indicator.

1.1.9 Earlier the chief engineer had been in the accommodation. When he heard a banging sound in the engine room, which he likened to a large gas bottle falling over, he went to investigate. Unable to find anything that may have caused the noise, he returned to the accommodation where the second officer found him.

1.1.10 When the second officer and chief engineer reached the steering flat they observed the movement of the top of the rudderstock and confirmed to the master that the steering gear was working correctly and was synchronised with the wheel in the wheelhouse. This also confirmed that the rudderstock was turning.

1.1.11 The master then ordered the bow thruster to be switched on. To allow the bow thruster to have effect he reduced the pitch on the propeller to give a ship's speed of about 3.5 kt using the bow thruster. He then brought the ship's head around into the sea and swell and maintained this general heading which was the safest and most comfortable for both the crew and the livestock.

1.1.12 After the master had steadied the ship's course he increased the pitch on the propeller to give more propeller wash and sent the second officer to the poop deck to see if he could see any variation in the direction of the wash when the rudder was swung. The second officer could see no variation nor could he see the tip of the rudder by looking over the stern of the ship.

1.1.13 From the information available to him, the master concluded that he had lost the blade of the rudder. He then used the ship's satellite telephone to contact the shore-based management and advised them of the situation. Management advised the master to continue his actions of keeping the ship away from the coast and heading into the sea and swell while they arranged for a tug to rendezvous with the ship and take it in tow.

1.1.14 The master and watchkeepers continued to keep the ship head to the sea and swell, slowly moving in a south-west direction until the *Titirangi,* a tug from Gisborne, rendezvoused with them at about 0200 on 5 July 2004. By this time the sea and swell had moderated and a towline was passed without incident. Once the tow was established the *Titirangi* towed the ship to Napier. On arrival at Napier pilot station, the tow was handed to the Napier harbour tugs, which assisted in berthing the *Southern Tiare* at about 1400 on 5 July 2004.

## 1.2 Vessel information

1.2.1 The *Southern Tiare* was built at Svendborg, Denmark in 1988, under survey to Bureau Veritas classification society rules. The ship had remained in class with that classification society until it arrived in New Zealand. Reef Shipping bought the ship in February 2004, and changed its class to Lloyds Register classification society on its arrival in New Zealand. The ship was registered in New Zealand and had valid certificates issued by or on behalf of that Government and Lloyds classification society, and was certified to operate in New Zealand Coastal waters. The ship was under International Safety Management (ISM) with Lloyds Register.

1.2.2 The *Southern Tiare* had an overall length of 67.35 m, a breadth of 11.41 m and a gross tonnage of 1185. The ship was powered by a single Deutz MWM diesel engine developing 599 kW, driving, through a clutch and a reduction gearbox, a single 4-bladed controllable pitch propeller. A single rudder located in line behind the propeller effected steering. The ship was fitted with a single 250 kW bow thruster that gave about 3.4 t thrust.

1.2.3 The minimum safe crewing document issued by the Maritime Safety Authority (MSA) of New Zealand required a minimum complement of 6 crew. The ship was in compliance with this document.

### Rudder information

1.2.4 The rudder was of welded construction, consisting of 3 vertical frames running between the top and bottom plates of the rudder, a hollow tube nose-piece and 4 horizontal transverse webs at equidistant intervals between the top and bottom plates. The skin on the port side of the rudder was welded directly to the top and bottom plates, the nose-piece, the vertical frames and horizontal webs. On the starboard side of the rudder, backing plates were fitted to the horizontal and vertical members before the starboard side skin was welded into place using slot welds on the horizontal and vertical members (see Figure 2). The rudderstock was of forged steel construction with the rudder palm welded onto the stock (see Figure 6).

1.2.5 Bureau Veritas classification society's rules for the construction of the *Southern Tiare* required random radiographic or ultrasonic inspection of butt welds of shell plating, deck plating and members which contribute to the longitudinal strength. The rules also required this examination to be carried out on members subjected to heavy stresses, thick parts and those comprising restrained joints identified during design plan reviews. Rudder welds did not come under these categories. The absence of unacceptable defects in welds was also ensured by the quality assurance system of the ship builder and by using qualified and approved processes.

1.2.6 The *Southern Tiare* was last dry-docked in May 2002 when a bottom survey was carried out. This survey included an examination of the rudder and stock, in which the clearance between the neck bushing and the rudderstock was measured. Standard shipyard practice would be to remove the rudder drain plug at this time to see if there had been water ingress into the rudder since the last dry-docking. The surveyor made no adverse remarks on the survey report on the condition of the rudder. Bureau Veritas confirmed that it had no records of any previous incidents involving the rudder or stock.

1.2.7 Prior to its purchase by Reef Shipping, the *Southern Tiare* underwent a pre-purchase survey as part of the sale agreement. The European firm contracted to carry out the survey sub-contracted the in-water part to another firm that specialised in this work. The in-water survey was a normal pre-purchase survey similar to that carried out in lieu of a dry-docking but not as accurate as an in-water survey in lieu of dry-docking. The survey was conducted using a diver with a camera linked to a video recorder and screen on the surface. Neither the diver nor the section chief recalled any obvious damage on the rudder.

1.2.8 During the sea passages between Auckland, Napier and Chatham Islands the crew found the steering and handling of the *Southern Tiare* normal.

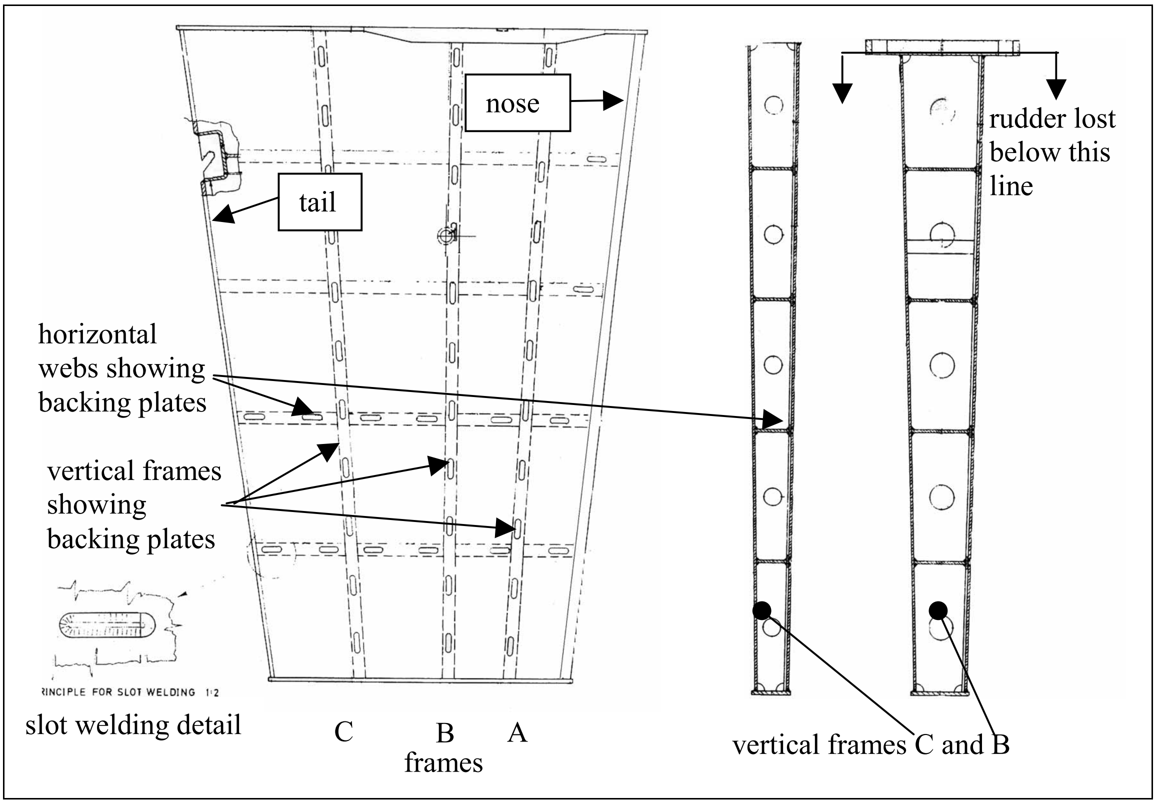



**Figure 2**
**Diagram of rudder construction**

## 1.3 Personnel information

1.3.1 The master of the *Southern Tiare* first went to sea in 1990. He had served on numerous ships throughout his career and had joined the *Southern Tiare* on 17 June 2004, when it had arrived in New Zealand. He held a valid New Zealand certificate as a master of a foreign-going ship.

1.3.2 The second officer of the *Southern Tiare* graduated from a Latvian maritime school in 1992 after 5 years of study and had pursued a seagoing career since then. He held a valid Latvian STCW95 certificate of competency as chief mate foreign going. He had joined the ship on 17 June 2004 when it had arrived in New Zealand.

1.3.3 The chief engineer first went to sea in 1995 after 5 years in a Bangladeshi maritime school. He had served on numerous ships since then. He had joined the *Southern Tiare* on 17 June 2004 when it arrived in New Zealand. He held a Singaporean STCW95 certificate of competency as a class 2 engineer.

### 1.4 Climatic conditions

1.4.1 The area where the incident happened was situated in the Portland area of the New Zealand coastal waters forecast areas. The New Zealand Meteorological Service (Metservice) issued Coastal waters forecasts at well documented regular intervals.

1.4.2 The coastal waters amended forecast issued at approximately 0845 4 July 2004 and valid until midnight 4 July 2004 for sea area Portland was as follows:

> PORTLAND
> *GALE WARNING IN FORCE*
> Southwest 35 knots, easing to 25 knots this afternoon and to 15 knots south of Mahia tonight. Very rough sea easing. Southerly swell 2 metres. Poor visibility in showers clearing this evening.
> OUTLOOK FOLLOWING 12 HOURS: Becoming northerly 15 knots.

1.4.3 Metservice states that coastal area forecasts are a general indication of average conditions expected in a particular coastal area. The forecasts are for open waters within 60 nm of the coast and do not apply to enclosed areas such as small bays and harbours.

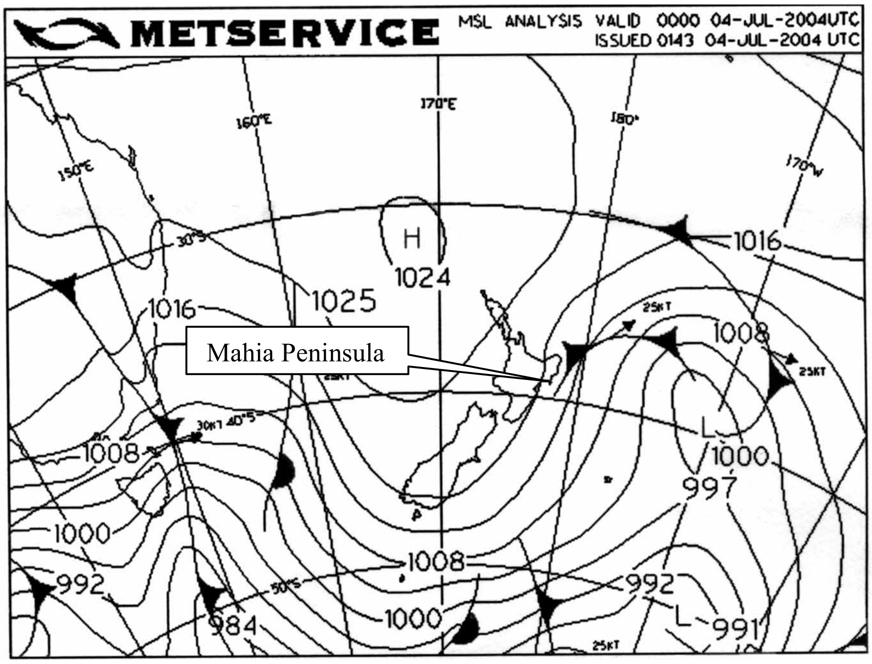



**Figure 3**
**Mean sea level analysis synoptic chart for 1200 4 July 2004**

1.4.4 Metservice provided an aftercast of the weather that would have been experienced in the area at the time of the incident as shown below:

> **Situation**: Between midday and 6pm on 4 July 2004, a trough of low pressure east of Chatham Islands was moving further away to the east, and a ridge of high pressure extended from the northeast Tasman Sea to southern South Island. Between these two systems a cold southwest air stream covered the area between New Zealand and Chatham Islands.
> **Weather conditions**: Near 39° 11' south 178° 16' east (about 15 nm east of Mahia Peninsula) 1400 to 1600 hours 4 July 2004.
> **Wind**: From the southwest, about 20 knots and gusts about 30 knots.

**Sea state**: Beaufort state 5, Moderate, significant wave height1 about 2 metres and probable maximum waves 2.5 metres.
**Swell**: From the south, significant wave height between 1.5 to 2 metres and probable maximum 2.5 metres.
**Combined waves**: significant wave height 2.5 to 3 metres and probable maximum waves 3.5 metres.
**Visibility**: 30 kilometres.
**Weather**: None, partly cloudy.

1.4.5 Metservice also provided a wave height analysis for the sea, the swell and the combined sea and swell (see Figure 4).

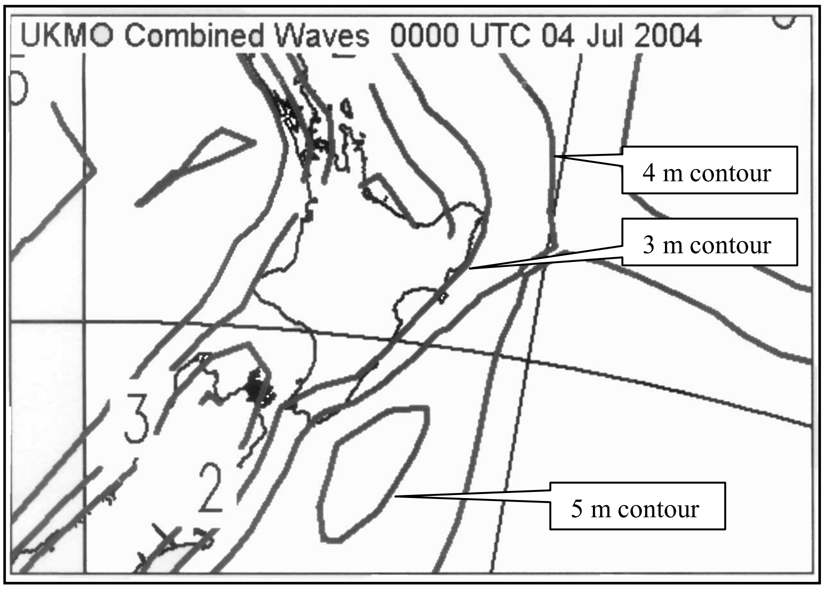



**Figure 4**
**Combined wave height analysis valid for 1200 4 July 2004**

## 1.5 Damage

1.5.1 The *Southern Tiare* lost the whole of the rudder below the rudder head, leaving the ship without any steering (see Figure 5).

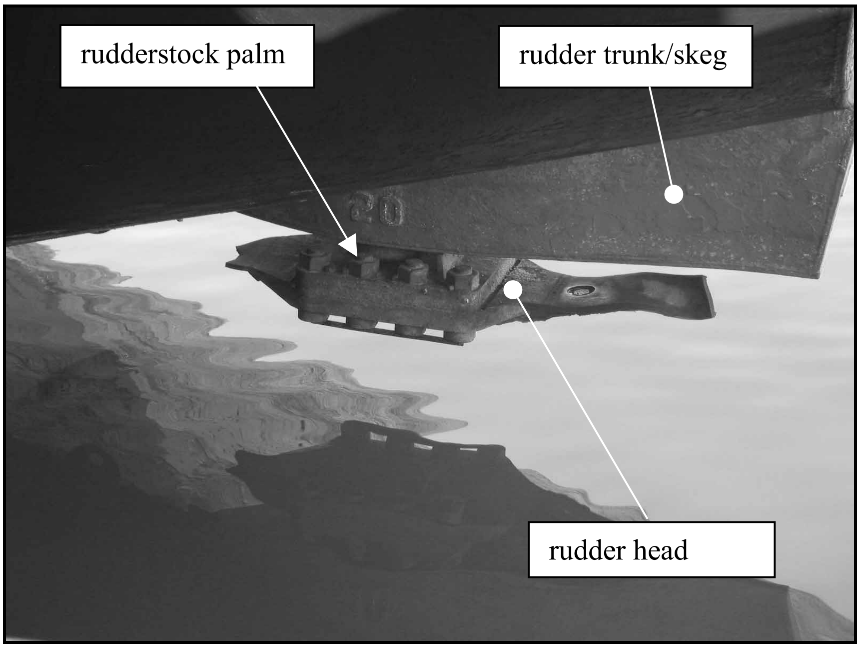


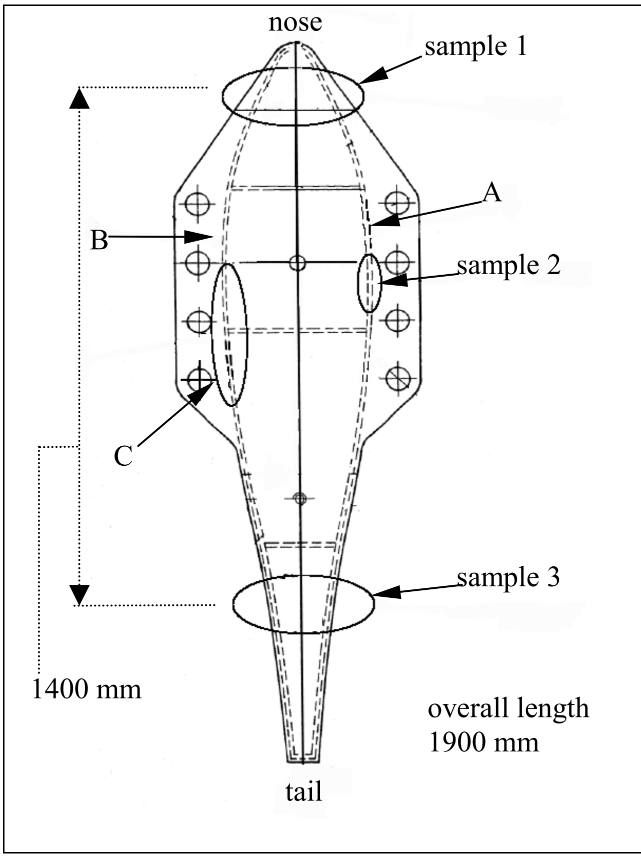

**Figure 5**
**Remains of the rudder assembly in situ**

1.5.2 Before the rudderstock and rudder head were removed, an underwater examination of the remaining rudder parts, propeller and adjacent ship's bottom was carried out. No damage to the propeller or surrounding ship's bottom was found.

1.5.3 After the rudderstock had been removed and taken ashore to be fitted to a new rudder blade, cracks were found in the stock and the weld at the join between the rudderstock and the rudder palm.

## 1.6 Post-incident investigation

1.6.1 The rudder head and the rudderstock were examined immediately after removal on 7 July 2004. The rudder head was twisted on the rear section, and the nose section had failed across the head of the rudder. A noticeable crack was also evident at the weld joining the rudderstock to the palm.



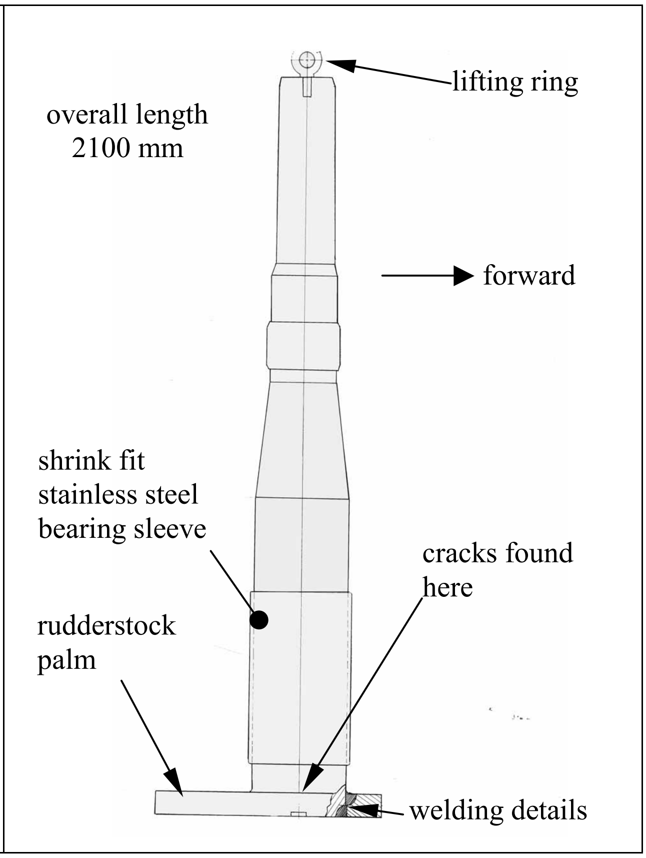




**Figure 6**
**Plan of the rudder head and the rudderstock and palm**

1.6.2 The rudderstock and rudder head were transported to a steel fabrication company in Auckland for further investigation and analysis prior to the fabrication of a new rudder blade. The rudder head and rudderstock were examined and an ultrasonic inspection of the crack at the junction of the rudderstock and rudderstock palm conducted. A metallurgist took samples from the rudder head for examination (see Figure 6).

1.6.3 The nose of the rudder head was bent downwards and showed signs of ductile tearing, indicating that it had detached at the time of the rudder blade failure. The tail of the rudder head also showed indications of deformation, including bending and twisting, with the fracture of the tail end showing indications of ductile rupture. Fractures in the welds over the remaining 1400 mm of the rudder head also showed indications of ductile tearing associated with plastic deformation at some locations along the fracture length, mostly near the tail. Growth of sea organisms was visible on what had been the inside of the rudder head.

1.6.4 The fracture along weld "A" (see Figure 6) appeared to be predominantly through the blade plate material near the toe of the weld. The fracture along weld "B" was observed to have occurred through the weld metal and at the weld to head connection. The fracture surface along weld "B" also contained a section of about 400 mm in length (Figure 6 "C") that showed little remaining weld metal and little damage to the head.

1.6.5 A macro-section was prepared through the fracture section of sample 2 (see Figure 6). Examination of the macro-section indicated the presence of welds on both sides of the rudder skin. Examination of the fracture area indicated the presence of necking at the fracture surface, indicative of a ductile overload failure mechanism. Microscopic examination of the fracture surface showed grain elongation, further indicating a ductile overload mechanism. No indications of fatigue were observed.

1.6.6 A crack indication was visible over 80% of the circumference of the weld connection between the rudderstock and rudder palm. The fracture appeared to be through the weld connection at the change of profile. Ultrasonic testing through the shaft located the crack to a depth of 15 mm, while testing through the edge of the flange plate located the crack extending to a depth of 55 mm. The ultrasonic testing also detected significant lack of fusion, porosity and slag inclusion in the weld between the rudderstock and flange plate.

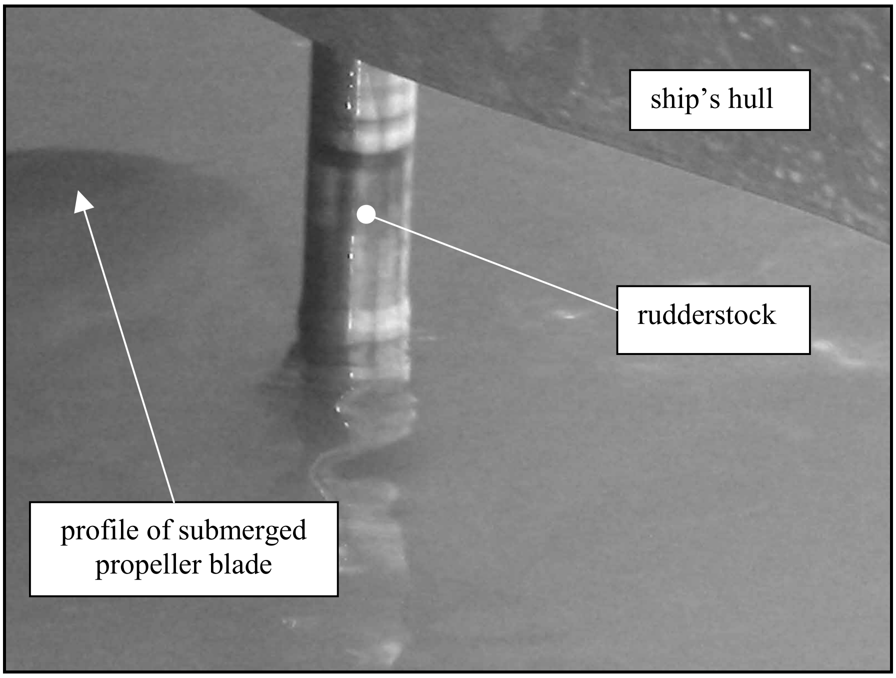



**Figure 7**
**Rudderstock being lowered out of the *Southern Tiare* prior to repair. Note closeness of propeller blade to rudder**

1.6.7 Svendborg Værft, the shipyard in which the *Southern Tiare* was built, closed in 1999 and documentation concerning the building of the ship was not available.

# 2 Analysis

2.1 The *Southern Tiare*'s master took appropriate action when faced with an unusual situation. His actions quickly identified the problem and allowed shore-side management to formulate a plan to aid the ship. The master's actions in keeping the ship's head to sea and steaming parallel to the coast until the rendezvous with the tug were appropriate, keeping the ship a safe distance off the coast and at the most comfortable heading in adverse weather.

2.2 The classification society, Bureau Veritas, that undertook the survey of the ship at its last dry-docking in 2002 noted no defects on the rudder or rudderstock. The clearance between the neck bushing and the bearing was measured. The bushing was in close proximity to the join between the rudderstock and rudder head and it is probable that the person carrying out the measurements would have seen any cracking, had any been present, in this area around the head of the rudder.

2.3 The new owner followed what could be considered a standard procedure of purchasing a ship remote from its location. The company that it contracted to carry out the survey was a professional survey company which in turn employed a professional diving company to undertake the in-water part of the survey. The diving company carried out the survey in line with the recommendations for an in-water survey in lieu of dry-docking. Although such a survey was less accurate than dry-docking it was appropriate according to the brief that it was given. The information gained from an in-water survey carried out with the aid of a video camera and above-water monitoring is dependent upon the clarity of the water, the amount of sea organism growth on the underwater areas of the ship, the speed and accuracy of the survey according to the requirements of the contracting company, and the skill of the diver conducting the survey. By engaging a professional diving company, certified by several classification societies to carry out in-water surveys, and working under an accredited quality management scheme, the survey company took appropriate reasonable steps to ensure the best possible survey and results.

2.4 The crack in the rudderstock possibly propagated in the intervening time since the last dry-docking. The poor weld between the rudder head and the rudder skin had possibly not failed before the last dry-dock, as removal of the drain plug at the bottom of the rudder would have alerted the surveyor to a problem had any water drained out. However, whether or not the drain plug was removed at dry-dock could not be confirmed.

2.5 The growth of sea organisms on what was the inside of the rudder indicated that sea water had been present between the rudder skins for some time before the failure. The space inside the rudder, normally being air filled, provides a certain amount of buoyancy to the rudder, reducing the weight of the structure on the weld between the rudderstock and the rudder palm. With the space inside the rudder being full of water, this buoyancy was lost, and the internal surfaces and welds would be liable to corrosion if the internal coating on the metal broke down, thus weakening the skins and the welds.

2.6 The rudder blade as constructed formed an enclosed box shape with this shape's inherent strength and rigidity. A crack forming from a weak weld or any other reason along one of the edges would make this an open box shape, resulting in a substantial reduction of both bending strength and torsional rigidity. The greatest bending moment from operational forces would occur at the rudder head where the blade broke away.

2.7 A significant portion of the fillet weld attaching the "B" side plate of the rudder blade to the head showed evidence of poor weld fusion and penetration, and a fracture surface ran through the remaining weld along the same line. These probably indicate poor weld quality because weld metal is usually stronger than the parent metal and a failure line could reasonably be expected to run through the parent metal rather than the weld.

2.8 Although the weld joining the rudderstock to the palm did not fail, the ultrasonic detection of lack of fusion, porosity and slag inclusion in the weld revealed another example of poor weld quality.

2.9 Given the examples of poor weld quality throughout the rudder assembly, it is possible that some sections of the lower part of the blade could also have failed, leading to, or aggravating, the failure at the plate/blade interface. The poor weld quality would probably have been discovered if the welds had been non-destructively tested after completion. However, this was a costly and time-consuming process that would not be expected to be utilised for the type of ship construction welding in question.

2.10 The bang heard by the chief engineer may have been the failure of the nose or tail of the rudder, which could have caused a sudden release of energy in the form of sound as the rudder head fractured. The bang also could have been the rudder blade striking the ship's hull a glancing blow as it separated from the head. Such a blow would not necessarily have left a discernable mark on the hull.

2.11 The underwater examination of the propeller and ship's bottom revealed no damage. The propeller was located close to the rudder and showed no indications of any damage so it is unlikely that a floating object hitting the rudder caused its failure.

2.12 There was no evidence to suggest that the rudder had contacted a large object or rocks. The failure probably resulted from a combination of larger-than-average loads, such as during heavy seas, and weld cracks that had propagated over time as a result of welding defects at the time of manufacture.

# 3 Findings

Findings and safety recommendations are listed in order of development, not in order of priority.

3.1 The *Southern Tiare* lost the majority of its rudder probably when the rudder blade was hit by a larger-than-normal wave during adverse weather conditions.

3.2 The ship was correctly certified and manned at the time of the incident.

3.3 The master and crew took appropriate action after the loss of the rudder to ensure the vessel's safety until assistance arrived.

3.4 There was no indication prior to the loss of the rudder that a failure of the rudder blade was about to occur.

3.5 Neither classification society had any records of any incident that occurred to the rudder or rudderstock prior to the rudder's ultimate failure.

3.6 The loss of the rudder was probably initiated by poor welding practices during the manufacture of the rudder. The poor welding would not be evident unless specific testing of the welds was undertaken at the time of manufacture. Such testing was not a requirement of any classification society for this type of construction, and was not conducted except at the special request of the owner.

3.7 The *Southern Tiare* last dry-docked in 2002, when a bottom survey including the rudder was carried out but no defects were found on the rudder or stock. A further pre-purchase in-water survey was carried out in February 2004, where no defects were found.

3.8 Any damage that occurred to the rudder and stock that precipitated the failure of the rudder probably occurred after the dry-docking in 2002 and any that might have been present during the pre-purchase survey possibly went unnoticed due to marine growth obscuring any cracks.

3.9 Prior to the purchase of the ship, the owner took reasonable precautions to ensure that there were no defects in the ship.

# 4 Safety recommendations

4.1 On 10 January 2005 the Commission recommended to the Permanent Secretary of the International Association of Classification Societies Limited that he:

> advise all member Classification Societies of this incident, the contents of this report and the need for vigilance on the part of class surveyors and owners' superintendents when inspecting welds and/or their associated parts during the construction and subsequent surveys of vessels. (001/05)

4.2 The Permanent Secretary of the International Association of Classification Societies Limited replied to the preliminary safety recommendation, which was subsequently adopted unchanged as the Commission's final safety recommendation. That reply dated 7 December 2004, was:

> Thank you for the opportunity to comment on the draft report. I confirm that your recommendation 4.1 will be complied with.

Approved on 26 January 2005 for publication

Hon W P Jeffries
**Chief Commissioner**

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|---|---|
| 04-211 | coastal cargo vessel *Southern Tiare,* loss of rudder, off Mahia Peninsula, 4 July 2004 |
| 04-210 | restricted limit passenger vessel *Esprit de Mer,* fire, Milford Sound, 30 June 2004 |
| 04-209 | fishing vessel *Joanne* and motor tanker *Hellas Constellation,* collision, entrance to the Port of Tauranga, 19 May 2004 |
| 04-208 | jet boat *CYS*, propulsion failure and capsize, Waimakariri River, 13 May 2004 |
| 04-207 | fishing vessel *Poseidon,* grounding, north of Manukau Harbour entrance, 15 April 2004 |
| 04-205 | fishing vessel *Bronny G*, grounding, Banks Peninsula, 26 March 2004 |
| 04-204 | restricted limit passenger vessel *Freedom III*, grounding, Lake Manapouri, 24 February 2004 |
| 04-203 | coastal passenger and freight ferry *Arahura*, heavy weather incident, Cook Strait, 15 February 2004 |
| 04-202 | restricted limit passenger vessel *Queenstown Princess*, grounding, Lake Wakatipu, 13 February 2004 |
| 03-211 | oil tanker, *Eastern Honor*, grounding, Whangarei Harbour, 27 July 2003 |
| 03-210 | passenger freight ferry *Aratere*, collision with moored fishing vessel *San Domenico*, Wellington Harbour, 5 July 2003 |
| 03-209 | container vessel *Bunga Teratai 4* and fishing vessel *Mako*, collision, Tasman Bay, 4 July 2003 |
| 03-207 | fishing vessel *Solander Kariqa*, fire, 300 nautical miles west of Suva, Fiji, 5 May 2003 |
| 03-206 | tanker *Capella Voyager*, grounding, Whangarei, 16 April 2003 |
| 03-204 | restricted limit passenger vessel *Tiger III*, passenger injury, Cape Brett, 18 March 2003 |
| 03-203 | jet boats *Wilderness Jet 3* and *un-named private jet boat,* collision, Dart River, Glenorchy, Queenstown, New Zealand, 2 February 2003 |
| 03-202 | launch *Barossa* and trimaran *Triptych*, collision, Hauraki Gulf, 18 February 2003 |
| 03-201 | passenger ferry *Harbour Cat*, engine room fire, Auckland Harbour, 16 January 2002 |

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