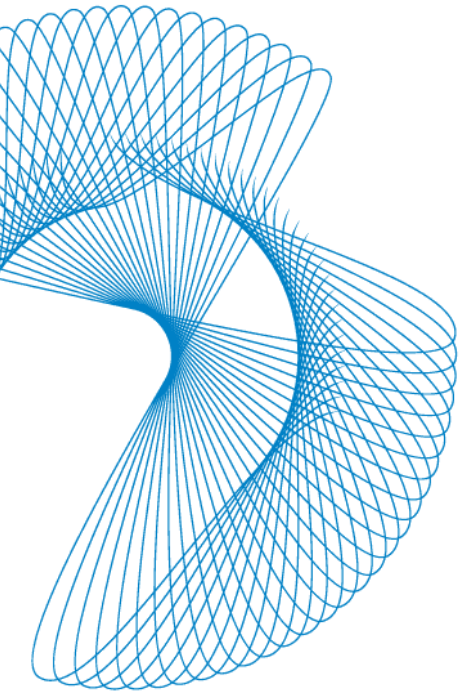
MARITIME NEW ZEALAND



Accident Report

Joanne & *Hellas Constellation*

Collision in the Fairway Approach
to the Port of Tauranga
on 19 May 2004

REPORT NO.: 04 3472

VESSEL NAMES: *JOANNE* & *HELLAS* *CONSTELLATION*

Casualty Details:

Date of Casualty:	19 May 2004
Time of Casualty:	0100 hours New Zealand Daylight Time (NZDT)
Casualty Type:	Collision
Casualty Location:	Fairway Approach to Port of Tauranga
Weather Forecast Area:	Plenty
Investigator:	Ian Clarke

REPORT NO.: 04 3466

VESSEL NAMES: *JOANNE* & *HELLAS CONSTELLATION*

Vessel Details:

Ship Name:	*Hellas Constellation*
Date of Build:	1999
Ship Category:	Tanker
Certified Operating Limit:	International
Overall Length (m):	183.23
Maximum Breadth (m):	32.20
Gross Tonnage:	27 645
Net Tonnage:	12 616
Flag:	Panama
Registered Owner:	Westport Marine SA Panama
Ship Operator:	Consolidated Marine Management Inc of Piraeus, Hellas
Classification Society:	ABS

REPORT NO.: 04 3466

VESSEL NAMES: *JOANNE* & *HELLAS* *CONSTELLATION*

Vessel Details:

Ship Name:	*Joanne*
Date of Build:	1972
Ship Category:	Fishing
Certified Operating Limit:	Offshore – within 100 miles of New Zealand, including Stewart Island and the Chatham Islands.
Overall Length (m):	15.41
Maximum Breadth (m):	5
Gross Tonnage:	48.67
Net Tonnage:	27.62
Flag:	New Zealand
Registered Owner:	RMD Marine
SSM Company:	SGS-M&I

SUMMARY

At 0120 hours on 19 May 2004, the fishing vessel ***Joanne*** collided with the laden tanker ***Hellas Constellation*** in the fairway approach to the Port of Tauranga. Both vessels sustained slight damage. There was no pollution and no injuries.

1. Key Events

1.1 On Saturday 15 May 2004, at about 1100 hours New Zealand Standard Time (NZST), the fishing trawler ***Joanne*** left Tauranga with the Skipper and a Deckhand on board.

1.2 The vessel headed east into the Bay of Plenty to fish off Matata and between Whale Island and White Island.

1.3 Fishing continued until about an hour after sunset, after which the catch was stowed in the hold and the vessel was anchored for the night.

1.4 On Sunday 16, Monday 17 and Tuesday 18 May, fishing operations resumed about one hour before sunrise and continued until an hour after sunset. Each day, the gear was shot and the vessel trawled for about three and a half hours, during which the Skipper kept the navigational watch. After hauling the net, it took about half an hour to sort and stow the catch. The gear was then shot again and the process repeated.

1.5 At about 0500 hours on Tuesday 18 May, ***Joanne*** resumed fishing. She was working about four to six miles from Volkner Rocks, near White Island in the Bay of Plenty. The vessel fished throughout the day. The Skipper, who had planned to stay out longer, decided to return earlier to port to unload as they had taken a good catch. Arrangements were made by cellular-phone to unload fish at Moana Fisheries wharf, Tauranga. At about 1900 hours, the vessel, which was being steered by autopilot, began the return passage to Tauranga.

1.6 At about 2000 hours, after stowing the catch of fish, the Deckhand took the watch and the Skipper went below to sleep.

1.7 At about 2130 hours on 18 May, the oil tanker ***Hellas Constellation*** arrived at the pilot station off Tauranga harbour, after a voyage from Taiwan. The Master was advised that the Pilot would board at about 0100 hours on Wednesday, 19 May. The vessel remained underway at the pilot station, without anchoring, awaiting the arrival of the Pilot.

1.8 At about 2300 hours, the Deckhand on board ***Joanne*** woke the Skipper to take the watch.

1.9 Shortly afterwards, the Skipper took over the navigational watch and the Deckhand went below to sleep.

1.10 When ***Joanne*** rounded the north end of Motiti Island, the Skipper altered course towards the entrance to Tauranga Harbour. The vessel was making about 7 knots.

1.11 On Wednesday 19 May 2004, at about 0030 hours, the Skipper of ***Joanne*** saw the navigational light on Mount Maunganui and some lights on the shore. He thought he may also have seen the echo of a ship further out to sea, on his radar.

1.12 At 0055 hours on 19 May, a local Pilot boarded ***Hellas Constellation***, which was positioned approximately 2.5 miles north-east of "A" Beacon, at the seaward extremity of No. 1 Reach in the fairway. The Master and the Pilot exchanged information and discussed the passage plan. ***Hellas Constellation*** proceeded towards the fairway with the engine on dead slow ahead, until an outbound ship, ***Athenian Sea***, had cleared No. 1 Reach. To the east of the fairway, the dredger ***Pelican*** and a small, unidentified craft, which subsequently proved to be ***Joanne***, were seen to be inbound.

1.13 When ***Athenian Sea*** was clear of No. 1 Reach, ***Hellas Constellation*** increased engine speed to full ahead (manoeuvring speed) and proceeded inwards.

1.14 After the Port of Tauranga Pilot Launch had collected the Pilot from ***Athenian Sea***, she followed ***Hellas Constellation*** into the fairway.

1.15 At 0112 hours, ***Hellas Constellation*** passed "A" Beacon abeam to starboard at a distance of 0.1 miles.

1.16 Shortly after passing "A" Beacon, the Pilot called the dredger ***Pelican*** on VHF radio channel 12. ***Pelican*** agreed to wait until ***Hellas Constellation*** had passed by before it resumed dredging in the channel. ***Joanne*** was seen passing astern of the dredger and on a converging course with the port side of ***Hellas Constellation***. At that stage the Pilot expected, as was usually the case with smaller vessels, for ***Joanne*** to alter course to port to join No. 1 Reach, for entering Tauranga Harbour. At about 0115 hours, the speed of ***Hellas Constellation*** was reduced to manoeuvring half ahead.

1.17 When ***Joanne*** crossed the imaginary boundary line, marking the eastern extremity of No. 1 Reach, she did not alter course to port and parallel the axis of the channel as the Pilot expected, but instead maintained her course and speed. On observing this, the Pilot on ***Hellas Constellation*** ordered a warning signal of one prolonged blast to be sounded on the ship's whistle.

1.18 At about 0119 hours, when there was no response from ***Joanne***, which was still maintaining its course and speed, with no appreciable change in her bearing relative to ***Hellas Constellation***, the Pilot ordered 5 short and rapid blasts to be sounded on the ship's whistle. At about the same time, the crew on the Pilot Launch shone their searchlight onto ***Joanne***, then onto the hull of ***Hellas Constellation***, to highlight her presence.

1.19 At 0120 hours, ***Joanne*** collided with ***Hellas Constellation*** at a broad angle leading forward on her port side. At this juncture, the Pilot ordered the ship's helm to be put "hard to port" to swing the stern of the tanker away from ***Joanne***. In the meantime, the Skipper of ***Joanne*** who had been woken by the force of the impact, had taken the engine out of gear.

1.20 At 0121 hours, when ***Joanne*** was observed to be clear of the stern, the Pilot gave an order of starboard helm to the helmsman, to prevent the tanker from leaving the channel and to bring ***Hellas Constellation*** back on her course.

1.21 The Pilot Launch went to assist ***Joanne***. The crew of the Pilot Launch were told that no one on ***Joanne*** had been injured. Further, that after conducting a check of the vessel for any signs of water ingress, the hull of the vessel appeared to be sound. The Pilot Launch followed ***Joanne*** into the harbour.

1.22 At 0135 hours, ***Hellas Constellation*** made fast tugs forward and aft.

1.23 ***Joanne*** headed into Tauranga harbour. After passing Stoney Point, her Skipper lost positional awareness and incorrectly turned to the north of No. 1 Beacon (west cardinal mark). ***Joanne*** then ran aground on the sandbank north of Cutter Channel. The Pilot Launch crew assisted the fishing boat by towing it off, then after it had grounded temporarily for a second time, they accompanied it to the Moana Pacific wharf on Sulphur Point. Once ***Joanne*** was berthed, the Skipper and a Maritime Safety Inspector checked the vessel for damage. The upper-starboard part of the bow was stove in but no other damage was seen.

1.24 At 0155 hours, the first mooring line from ***Hellas Constellation*** was put ashore at Berth No. 16. When the tanker had been secured, the Master, Pilot, Chief Officer and Maritime Safety Inspector inspected the side of the ship for damage. A dent was found on the port side, above the waterline, but the hull was not breached and there was no leakage. Marks on paintwork along the port side indicated subsequent contact with the fishing vessel.

2. Key Conditions

2.1 Particulars of *Joanne*

2.1.1 *Joanne* was a steel fishing trawler. The vessel's particulars were as follows:

- MSA Number – 101056
- Year of build – 1972
- Owner and operator - RMD Marine Ltd
- Gross tonnage – 49
- Overall length – 15.41 m
- Registered length – 14.91 m
- Breadth – 5.00 m
- Moulded depth – 2.10 m
- Engine – Kelvin T6 diesel engine developing MCR 134 kilowatts
- Stem bar – mild steel 25 mm by 100 mm
- Shell and deck plating – mild steel 6 mm

The vessel had a Safe Ship Management Certificate issued by SGS/M&I on 8 April 2004, due to expire on 31 January 2008. The vessel was fit to ply within 100 miles of the coast of New Zealand, including Stewart Island and the Chatham Islands.

2.1.2 Her navigational aids consisted of a magnetic compass, autopilot, 2 GPS receivers, an SSB transceiver and 2 VHF sets.

2.2 Particulars of *Hellas Constellation*

2.2.1 *Hellas Constellation* was a double-hulled oil tanker. The vessel's particulars were as follows:

- Port of Registry – Panama
- IMO Number – 9183635
- Built – 1999
- Owner – Westport Marine SA Panama
- Operator – Consolidated Marine Management Inc of Piraeus, Hellas
- Classification – ABS
- Gross tonnage – 27645
- Overall Length – 183.237 m
- Breadth – 32.20 m
- Moulded depth – 18.20 m
- Summer draft – 12.217 m
- Summer displacement – 55768 tonnes

The cargo for discharge in Tauranga was gas oil and on arrival the ship was on an even keel draft of 10.10 m. She held valid Class Certificates issued by Panama and the American Bureau of Shipping.

2.2.2 Her navigational aids consisted of 2 ARPA (Automatic Radar Plotting Aid) radars, 3 GPS units, gyro and magnetic compass, echo sounder and 2 VHF sets.

2.3 Particulars of Personnel

2.3.1 The Master of *Hellas Constellation* held a Certificate of Competency as Captain Class A, issued by the Hellenic Republic on 26 June 2001, due to expire on 23 June 2006, and Panama Endorsement No 11GO403304, issued on 26 November 2003, due to expire on 23 June 2006.

2.3.2 The Pilot on board ***Hellas Constellation*** went to sea in 1979 with the Union Steamship Company of New Zealand. After obtaining his Second Mate's Certificate, he continued working at sea with the Union Steamship Company, after which he worked as a Deck Officer for Lion Shipping, Britships of Isle of Man and as Chief Officer with Pacific Forum Line. He obtained his First Mate's and Master's certificates during this period. In 1991 he became a Pilot Trainee and then Pilot for the Port of Lyttelton, and between then and 1997 carried out approximately 2500 pilotage movements. Since 1997 he had been employed as a Pilot by the Port of Tauranga Ltd and had completed another 3000 or so pilotage movements. He held a Certificate of Competency No. 2882 as Master of a Foreign Going Ship, issued in 4 September 1989. He also held a Port of Tauranga Pilotage Licence Grade A (Discretionary Unlimited), issued on 15 June 1998, and Pilot's Licence NZ0070/04 in accordance with Maritime Rule Part 90 to act as Pilot within the Pilotage area of Tauranga, issued on 1 March 2000, due to expire 1 March 2009 and endorsed: "The size and type of vessel to which this licence applies is unlimited".

2.3.3 The Skipper of ***Joanne*** had worked in fishing boats since about 1991. After attending the New Zealand School of Fisheries in Nelson as a Fishing Cadet, he worked in deep-sea fishing boats for Sealord Fisheries until 1996. Moving to Tauranga, he was a crewmember of the Danish seiner, ***Wakanui I*** for three years. For the following three and a half years or so he was overseas, during which he worked for about two years on a deep-sea trawler out of Ireland. Returning to Tauranga, he worked in fishing boats owned and operated by the Rawlingson family. In January 2003, after a few trips as crew, he became Skipper of ***Joanne***. He held Certificate of Competency No. 627 as New Zealand Coastal Master, issued on 12 July 1996, and Qualified Fishing Deckhand Certificate No. 2651, issued on 16 June 1993.

2.4 Operation of *Joanne*

2.4.1 ***Joanne*** was operated by the Skipper and one Deckhand. The company's usual arrangement was to operate two-handed during the winter months and with three persons on board during the busier summer season. After each day's fishing at sea, it was the practice of the Skipper to either anchor or let the vessel drift, and for him and the Deckhand to rest.

2.4.2 Although ***Joanne's*** Safe Ship Management Certificate allows it to operate in the Offshore Area, within 100 miles of the coast of New Zealand, it remained within the Inshore Area during the course of this particular trip. The minimum crew for fishing vessels operating in an Inshore Area is prescribed in **Table 5 of Maritime Rule Part 31C**. A fishing vessel of 6 m or more but less than 20m, as was the case with ***Joanne***, requires a minimum crew of 1 person, which includes a Master holding an ILM Certificate and an engineer qualified in accordance with a flow-chart accompanying the Rule. The Skipper of ***Joanne*** held a New Zealand Coastal Master's Certificate. **Maritime Rule Part 31C.5** states that where **Part 31C** requires a person who holds a specific Certificate of Competency to be carried on board a vessel – the Director (of Maritime Safety) will accept another Certificate of Competency issued in New Zealand that is specified in **Table 1 (Part 31C.5)** as being equivalent to that Certificate, subject to any applicable conditions specified in **Table 1**. **Table 1** states that the equivalent Certificates that are acceptable for an ILM are:

(a) an Inshore Fishing Skipper Certificate with the condition that it is limited to specific vessels and areas endorsed on the Certificate and
(b) A NZOW (New Zealand Offshore Watchkeeper) Certificate or equivalent, with the condition that the holder must have a maritime engineering qualification issued by the Director (of Maritime Safety), if no other engineer is carried.

2.4.3 Whilst the Skipper's Certificate of New Zealand Coastal Master was superior to an ILM, to satisfy the equivalency requirement, the Skipper had not had to pass an engineering qualification module for the Certificate he held. Accordingly, without any engineer on ***Joanne***,

the Skipper did not meet the minimum required qualifications for the vessel and should not have been in command of the vessel.

2.4.4 The Skipper of *Joanne* took a week off work to visit his family, returning to Tauranga a few days before the commencement of the voyage. *Joanne* set out on Saturday 15 May and, until Tuesday 18 May, the Skipper worked during daylight hours and slept at night. On Tuesday, he rose at about 0500 hours and, in between shooting and hauling gear, took breakfast, lunch and dinner. He stated that he felt well and had consumed no alcohol, medication or drugs.

2.4.5 On the evening of Tuesday 18 May, after making arrangements for the catch to be unloaded, the Skipper set *Joanne* on a course for Tauranga, then went below, leaving the Deckhand on watch. Although he slept for about two hours, the boat was rolling and he said he did not sleep particularly well. At 2300 hours, he took over the watch and sat in the chair behind the helm to keep the lookout and monitor the vessel's progress. Both of the wheelhouse doors were closed. *Joanne* was on autopilot, making a speed of about 7 knots. The Skipper used the radar, GPS and an electronic chart plotter to navigate. He saw the coastal navigation light on Mount Maunganui, some lights on the shore and thought he may have seen a ship further out, on the radar. He did not recall seeing any other boats. Two VHF radios were on, one on Channel 16, the other set to scan selected channels. Channel 12 had not been selected. There was little radio traffic at that time of night. The Skipper said he must have fallen asleep, for the next thing he remembered was the impact of the collision.

2.4.6 *Joanne*'s wheelhouse was above its engine-room, with an engine-room access hatch in the forward corner or the wheelhouse. Although the hatch-cover fitted tightly, there was a possibility that, with windows and doors closed, engine exhaust may have accumulated inside the wheelhouse and could have contributed to the Skipper's falling asleep.

2.4.7 About two years ago, *Joanne*'s owners installed a watch-alarm, which was fitted to a bulkhead in the wheelhouse, to starboard of the Skipper's seat. Although the key to the alarm had been broken, it was still possible to switch it on and off. While in use, a light would come on after 15 minutes. If, within the next 3 minutes, the warning light was not acknowledged by pressing a button, an audible alarm would sound. On the night of the collision, neither the Skipper nor the Deckhand activated the watch-alarm.

2.4.8 The Fishing Industry Safety and Health Advisory Group (FISHgroup), that was convened by the Maritime Safety Authority (MSA), completed an analysis of fatalities and serious injuries in the commercial fishing industry in 2000. The subsequent report of FISHgroup in 2003, identified several risk areas that led to fatalities and injuries, with fatigue being one of the significant causal factors. FISHgroup made several recommendations about the management of fatigue, including the need to require watchkeeping alarms on board fishing vessels. FishSAFE which has replaced FISHgroup, has been tasked with the primary aim of developing and managing an implementation plan to give effect to the recommendations in the FISHgroup report. Under the auspices of the FishSAFE umbrella, MSA is undertaking two projects that relate to fatigue management in the commercial fishing sector. The first of these is a development of a Safe Code of Practice for Commercial Fishers (focusing primarily on the owner/operator side of the commercial sector). The fitting and use of alarms for watch keepers will be covered in this Code.

2.4.9 *Joanne* was owned and operated by the Owner since 28 May 2000. In April 2004, ownership was transferred to RMD Marine Ltd, under the same management. The Owner was responsible for the operation, maintenance and crewing of the company's three commercial fishing boats. He had worked at sea since 1985 and, after 4 years in commercial fishing boats for other owners, had been Skipper and Manager of his family's fishing boats. He held a New Zealand Coastal Master's Certificate No. 397, issued on 6 April 1994.

2.4.10 The Owner said that before taking on a new Skipper or Deckhand, he or his brother, would take them on two or three fishing voyages to assess their performance and make sure they were familiar with the boats and with company procedures. The Skipper did at least three

voyages with the Owner's brother before being appointed Skipper of ***Joanne***. His performance was assessed as very good. The Owner said the Skipper was conscientious about the boat and its gear and had demonstrated an excellent standard of workmanship. The Skipper had done between 30 and 40 voyages as Skipper of ***Joanne*** and there had been no issues concerning his performance or the way in which he operated the boat.

2.5 Operation of *Hellas Constellation*

2.5.1 On the bridge of ***Hellas Constellation***, at the time of the collision, were the Master, Pilot, 2nd Officer and an Able Seaman. The Master and Pilot were in the forepart of the wheelhouse and, as ***Joanne*** approached, the Master went onto the port wing of the bridge. The 2nd Officer was stationed at the engine control panel and the Able Seaman at the helm.

2.6 Evidence of *Pelican*

2.6.1 The collision was witnessed by the Mate of dredger, ***Pelican***, which was returning to No. 1 Reach after dumping spoils. The Mate had spoken by VHF radio to the Pilot of ***Hellas Constellation*** and had agreed to stay clear of the channel until the tanker was past. Shortly after 0100 hours, ***Pelican*** was stopped, with its head in the direction of "C" buoy, when the Mate saw a ship leave the harbour and the tanker enter the fairway from seaward. He remembered that the tanker was showing its steaming lights and thought it may have had on a deck light, over its fo'c's'le. He also saw the white light and port sidelight of a boat approaching from the north-east which subsequently proved to be ***Joanne***. There had been many small vessels entering and leaving port and, since it should pass clear of ***Pelican***, he paid little attention to it at first. When the tanker was between two and three cables from the dredger, the Mate heard the Pilot speaking to the Pilot Launch on VHF radio, about a boat that was making a close approach. He said he then heard the tanker sound three short blasts. Soon afterwards, he saw ***Joanne*** collide with the tanker. ***Joanne*** appeared to bounce off the ship and scrape down its side. After the collision, he saw some deck lights go on board ***Joanne*** and someone going to the fo'c's'le. The Pilot Launch established that the fishing boat was not badly damaged and then accompanied it into the harbour.

2.7 Damage

2.7.1 The impact made a 65 mm deep indentation (560 mm longitudinally by 520 mm vertically) on the port side of ***Hellas Constellation***, by frame 66, near the bottom of the second strake of shell plating. The plating, which was outboard of No 2 water ballast tank, was not pierced.

2.7.2 The collision stove in the starboard bow of ***Joanne***. Damage was confined to the upper part of the plating near the fo'c's'le deck. A split in a weld was found in the hull plating located below the vessel's foredeck *(See Appendix 4 – Figure 9 – Damage to* ***Joanne's*** *bow).*

2.8 Weather and Tidal Data

2.8.1 The weather recorded by the Port of Tauranga Ltd at midnight on 18 May 2004 was: Wind south-east 10 knots, part cloudy, fine and clear.

2.8.2 The tides at Tauranga harbour on 19 May 2004 were:

LW	0101 hours	0.5 m
HW	0709 hours	1.7 m

2.8.3 The collision occurred just under 6 hours before HW at 0709 hours on 19 May. Reference to the tidal data on *NZ chart 5411 – Tauranga Harbour*, shows that the direction and rate of the tidal stream in the fairway approach channel at this time would have been 257°(T) at 0.2 knots, based on a tidal range of 1.2m, equating to a neap tide. This would have had a negligible effect upon the navigation of either vessel.

2.9 Part 22 of the Maritime Rules - Collision Prevention

2.9.1 *Hellas Constellation* was proceeding into Tauranga harbour along No. 1 Reach. At a draft of 10.10 m, and with restricted depths of water outside the channel, the tanker could navigate safely only within the confines of the channel or fairway. In consequence, she was constrained by her draft, thereby severely restricting her ability to deviate from the course she was following. However, she was not exhibiting the requisite lights required for such a vessel namely, three all round lights in a vertical line, the highest and lowest of which lights must be red and the middle light must be white.

2.9.2 *Joanne* was in breach of the following New Zealand Maritime Rules for Collision Prevention:

- Maritime Rule Part 22.5 (Rule 5 of the International Regulations for Preventing Collisions at Sea [the Colregs]) – this required *Joanne* to maintain a proper lookout by sight and by hearing as well as by all means available in the prevailing circumstances and conditions, so as to make a full appraisal of the situation and the risk of collision.

- Maritime Rule Part 22.5 (Rule 5 of the International Regulations for Preventing Collisions at Sea [the Colregs]) – this required *Joanne* to maintain a proper lookout by sight and by hearing as well as by all means available in the prevailing circumstances and conditions, so as to make a full appraisal of the situation and the risk of collision

- Maritime Rule Part 22.7 [Rule 7 of the Colregs]– this required *Joanne* to use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision existed and if there was any doubt, that such risk must be considered to exist. Proper use had to be made of the radar equipment, including long range scanning, to obtain early warning of the risk of collision and that assumptions must not be made on the basis of scanty information, especially scanty radar information

- Maritime Rule Part 22.8 (6) (a) [Rule 8 (f) (i) of the Colregs] - this required *Joanne* to take early action to allow sufficient sea-room for the safe passage of *Hellas Constellation*.

- Maritime Rule Part 22.9 (2) [Rule 9 (b) of the Colregs] – this required *Joanne*, as a vessel of less than 20 metres in length, not to impede the passage of *Hellas Constellation*

- Maritime Rule Part 22.9 (4) [Rule 9 (d) of the Colregs] – this required *Joanne* not to cross the channel or fairway, since this would impede the passage of *Hellas Constellation* which could safely navigate only within such channel or fairway

- Maritime Rule Part 22.15 [Rule 15 of the Colregs] – this required *Joanne*, as a power driven vessel in a crossing situation, with *Hellas Constellation* on her starboard side, to keep out of the way and avoid crossing ahead of *Hellas Constellation*

- Maritime Rule Part 22.16 [Rule 16 of the Colregs] - this required *Joanne*, so far as possible, to take early and substantial action to keep well clear

2.10 Bay of Plenty Regional Navigational and Safety Bylaws 2001

2.10.1 *Section 6.1 – Duties of Persons in charge of motor boats, yachts, launches etc. in Tauranga Harbour*, states that the master of every pleasure craft *(MSA emphasis),* shall not navigate so as to impede the navigation of any vessel of 500 gross tonnage or more, any hovercraft or any seaplane in the process of taking off and landing. Further, that vessels of over 100 gross tonnage and pilot exempt vessels are required to call Tauranga Port Radio on VHF 12 and report the intention of the vessel to enter the harbour. Such vessels shall also maintain a listening watch on VHF 12 whilst inside the harbour. Neither of the above applied to ***Joanne,*** which was a commercial vessel of 49 gross tonnage.

2.10.2 Maritime Rule Part 91 – Navigation Safety Rules, which replaced the Water Recreational Regulations 1974, first applied to navigable waters subject to navigation bylaws on 31 March 2004, shortly before this accident occurred. Maritime Rule Part 91.3 (2) (b), states that Part 91 applies to regions where navigation bylaws are in force, if the bylaws are inconsistent with Part 91, in which case the bylaws shall be construed subject to Part 91. Part 91.16 states that the master of a vessel under 500 gross tonnage (as in the case of ***Joanne***) must not allow the vessel to impede the navigation of any vessel of 500 gross tonnage or more if the vessels are in a harbour area. ***Joanne,*** by her actions, was accordingly in breach of this Rule.

2.11 Fatigue

2.11.1 A report issued by the Maritime Safety Committee of the International Maritime Organisation (IMO) on the "Role of the Human Element in Maritime Casualties" states that whilst the majority of people need between 7½ hours and 8½ hours sleep per day, it is less well known that if they obtain less than their requirement, they develop a 'sleep debt', which is cumulative. For example, a person who misses an hour of sleep per day for four days results in the same degree of impairment as missing four hours of sleep in one night. In this case, the Skipper who fell asleep, had fished all day on 18 May, having started work at about 0500 hours and who had had only about 2/3 hours interrupted rest before coming on watch for the return passage to Tauranga. Although he had had several hours rest in the previous 48 hours, this occurred at broken intervals with inadequate periods of rest in between. It should be noted that rest without sleep or interrupted or poor quality sleep does not restore alertness. An added factor in this case, was the disruption in the circadian rhythm of the watchkeeper's sleep cycle caused by a combination of irregular work schedules and the inability to get adequate sleep throughout the night. The combined effects of sleep debt and circadian rhythm can lead to chronic fatigue, as unfortunately occurred here, resulting in the watchkeeper falling asleep.

2.11.2 Maritime Rule Part 31C.14 – Fitness for Duty – which came into force on 1 February 2001, requires the owner and Master of a fishing vessel to establish and implement procedures in respect of the vessel's crew, taking into account the requirement in 31C.15(1), to ensure that all crew are fit for duty when keeping a watch. Moreover, the crew of a fishing vessel must themselves ensure, taking into account the requirement in Part 31C.15(2), that they themselves are fit for duty at all times when keeping a watch. Maritime Rule Part 31C. 15(1) – Fatigue - states that when the owner and master of a fishing vessel establish and implement procedures for ensuring a seafarer's fitness for duty, they must take into account that a) the level of alertness of a person keeping a navigational or engine-room watch may be affected by fatigue and b) whenever alertness is effected by fatigue, performance can be impaired. Part 31C.15(2) states that a seafarer on a fishing vessel, when considering his or her fitness for duty, must take into account, a) the signs, symptoms and effects of fatigue (guidance on this is supplied in the Advisory Circular to Part 31C), and b) that fatigue will effect his or her level of alertness; and c) that the performance of any person whose alertness is effected by fatigue can be impaired.

2.11.3 The development of a Safe Code of Working Practice for Commercial Fishers and the development and dissemination of practical fatigue management guidelines are an important

first step in managing fatigue issues within the fishing industry. The objectives are to raise awareness of the importance of fatigue management amongst workers in the maritime industry; to develop practical methods of managing fatigue and to provide training in fatigue management techniques to both employers and employees within the maritime industry. Work currently underway by the MSA includes the development of guidance material for the industry as an aid in developing appropriate fatigue management arrangements; and the revision of maritime qualifications syllabuses to cover the human factor.

2.11.4 Maritime Rule Part 31C.16 – Watchkeeping Standards – requires that the owner and master of a fishing vessel must establish and implement watchkeeping procedures for the safe operation of the vessel, addressing for navigational watchkeeping, such matters as the composition of the watch and the fitness for duty of the watchkeepers. Neither the owners of *Joanne* nor the Skipper deemed it necessary to ensure that structured routines/procedures for watchkeeping were in place, so that measures could be incorporated to maximise rest periods before each watchkeeper came on duty. The system of watchkeeping employed by the owners/Skipper of *Joanne* was ad hoc, in that there was no pre-voyage planning to determine which of the crew should take a watch and when, having regard to their previous watch patterns so that they could be properly rested before coming on duty.

3. Contributing Factors

N.B. These are not listed in order of importance.

3.1 ***Joanne*** was returning to port at night after a three and a half day fishing trip.

3.2 Although the Skipper had slept for two hours before taking over the watch, it was not a sound sleep and was insufficient to compensate for the sleep debt that he had accumulated since leaving port.

3.3 The Skipper had changed his daily routine of work and sleep, which had a negative effect on his ability to remain alert when keeping a watch.

3.4 The weather was fine and ***Joanne*** was rolling easily.

3.5 The Skipper, who did not expect to fall asleep, had failed to activate the watch keeping alarm.

3.6 The Skipper sat in a chair to keep his watch, which made him more susceptible to being overcome be the effects of fatigue.

3.7 With ***Joanne*** on autopilot and the vessel's position displayed on an electronic chart, there was little for the Skipper to do besides keep a lookout and monitor the situation.

3.8 The wheelhouse doors and windows were closed.

3.9 ***Joanne's*** Safe Ship Management Manual did not include procedures to ensure all crew were fit for duty when keeping a watch, in breach of **Maritime Rule Part 31C. 14, 15 and 16**.

3.10 The Skipper failed to keep a proper lookout and was in breach of the Maritime Rules for Collision Prevention and **Rule Part 91- the Navigation Safety Rules** for impeding the passage of ***Hellas Constellation***.

3.11 The Pilot and Master of ***Hellas Constellation*** saw ***Joanne*** crossing from port but expected it to alter course to port and join the channel into Tauranga Harbour, as was usually the case with smaller vessels. By the time the Pilot realised that ***Joanne*** was not giving way, there was insufficient time left in which to take effective avoiding action in accordance with the requirements of **Maritime Rule Part 22.17** [Rule 17 of the Colregs] – Action by Stand-On Vessel.

3.12 ***Hellas Constellation*** was navigating in a narrow fairway and any substantial alteration of course to avoid ***Joanne*** would probably have resulted in the tanker running aground.

4. Cause

Human Factor

✗ Failure to comply with regulations	❑ Drugs & Alcohol	❑ Overloading
❑ Failure to obtain ships position or course	✗ Fatigue	❑ Physiological
✗ Improper watch-keeping or lookout	❑ Lack of knowledge	❑ Ship Handling
✗ Misconduct/Negligence	❑ Error of judgement	❑ Other . . .

Environmental Factor

❑ Adverse weather	❑ Debris	❑ Ice	❑ Navigation hazard
❑ Adverse current	❑ Submerged object	❑ Lightning	❑ Other . . .

Technical Factor

❑ Structural failure	❑ Wear & tear	❑ Steering failure
❑ Mechanical failure	❑ Improper welding	❑ Inadequate firefighting/lifesaving
❑ Electrical failure	❑ Inadequate maintenance	❑ Insufficient fuel
❑ Corrosion	❑ Inadequate stability	❑ Other . . .

4.1 The Skipper of ***Joanne*** fell asleep and did not alter course to join the fairway and avoid *Hellas Constellation*.

5. Opinions & Recommendations

5.1 While entering Tauranga harbour, the tanker ***Hellas Constellation*** was proceeding along No. 1 Reach at about 10.5 knots when ***Joanne*** crossed from port. Under **Maritime Rule Part 22.9 (2)** – the Narrow Channel Rule and **Rule Part 91**, ***Joanne*** was required not to impede the passage of ***Hellas Constellation*****,** and under **Part 22.17 (1) and (2)**, ***Hellas Constellation*** was obliged to keep its course and speed until it became apparent that the give way vessel, ***Joanne***, was not taking appropriate action as required by **Part 22.9** and **Part 22.15 –** the Crossing Rule. The Pilot of ***Hellas Constellation*** expected ***Joanne*** to alter course to port and proceed along the axis of the channel into Tauranga Harbour, as was usually the case with smaller vessels entering the Port. By the time it was apparent that ***Joanne*** was not going to give way, any action taken by ***Hellas Constellation*** would have been at the risk of her running aground. In such circumstances the Pilot had little option but to maintain course and sound warning blasts on the whistle. The speed of the vessel had been reduced to manoeuvring half ahead, about 4 minutes before the collision occurred. However, when it was realised that ***Joanne*** was not going to alter to port, it was too late to order any effective change in speed to prevent the collision.

5.2 The Pilot stated that the bridge of ***Hellas Constellation*** was efficiently run, and that the ship's personnel did not allow the approach or the other vessel and the subsequent collision to distract them from their duties.

5.3 Although the Skipper of ***Joanne*** was said to be very conscientious about his work, both by his present employer and by a previous employer, he could have done more to ensure that he remained alert by opening a wheelhouse window and walking around. Moreover, if he had operated the watch keeping alarm, he would probably have been woken and been able to take avoiding action in time. In response to the accident, the Owner has increased the crewing of his vessels from two to three persons and has ordered his employees to use the watch-alarm at any time when the Skipper or any of the crew is off duty and sleeping.

5.4 It is recommended that MSA writes a letter to the Skipper of ***Joanne***, severely censuring him for his failure to keep a proper lookout as required by **Maritime Rule Part 22.5** and for other breaches of **Part 22** and **Part 91**, that flowed from this omission. This to be accompanied with a warning, that in the event there is a repetition of this conduct, the letter of censure will be taken into consideration by the Director of Maritime Safety in determining whether or not to bring a prosecution against him or take action against his maritime document.

5.5 The Skipper and the Owner of ***Joanne*** believed, erroneously, that as the Skipper's Certificate was superior to an ILM, he was properly qualified. Since the accident and becoming aware of the requirements of **Rule Part 31C**, the Skipper has sailed as a Deckhand whilst he makes enquires regarding the steps he must take to obtain an engineering qualification.

5.6 This represents the fifth accident since March 2004, *(**Bronny G** - 26 March and **Poseidon** – 16 April 2004, **Kathleen G –** 30 May 2004**, Physalie -** 14 June 2004)*, where investigation has highlighted the lack of a formalised fatigue management system and the failure to implement proper watchkeeping procedures by the owners/skippers of vessels so as to better manage the effects of fatigue. It is also the fifth accident where the use of an effective watch keeping alarm might well have prevented the accident from occurring. It is therefore recommended that a copy of this report be disseminated as widely as possible to the fishing industry, including FishSAFE, which is presently developing practical fatigue management guidelines.

5.7 It is recommended that MSA writes a letter to RMD Marine Ltd advising them to establish and implement a formalised fatigue management system and implement watch keeping procedures, within two months of the publication of the final report, to ensure all crew are fit for duty when keeping a navigational watch, in compliance with **Maritime Rule Part 31 C: 14, 15 and 16**. A copy of the letter to be sent to the vessel's SSM company with a request that they conduct an audit immediately after the expiry of the said two months to check that the company has complied with this recommendation.

5.8 With reference to Paragraph 2.10 of this report, it is recommended that the owners of *Joanne*, in conjunction with the MSA representative in Tauranga, have the atmosphere in wheelhouse tested for possible accumulation of engine fumes or carbon monoxide while the vessel is operating under normal seagoing conditions.

5.9 Since the accident, the Bay of Plenty Harbourmaster has written to the owners of all fishing boats which are known to use Tauranga harbour, advising them that, before entering or leaving the harbour, Skippers should call the Port Radio station on VHF radio channel 12 for information about shipping movements. With regard to section 6.1 of the bylaws, it is recommended that Environment Bay of Plenty should update their bylaws to reflect Rule Part 91.16 or delete the current bylaw.