



**Report 96-213**

**Collision between**

**Fast Passenger Launch *Mack Attack***

**and a three metre dinghy**

**at Paihia, Bay of Islands**

**15 December 1996**

### **Abstract**

On Sunday 15 December 1996, at about 0955, the fast passenger launch *Mack Attack* collided with a dinghy under way in the western approaches to Paihia Wharf. One of the dinghy's four occupants was drowned. Causal factors included failure by the skipper of *Mack Attack* to keep an adequate lookout and the vessel's excessive speed in the proximity of other craft and structures. Recommendations include the need for more speed regulation notices, lifejacket awareness notices, and for operational standing orders.

# Transport Accident Investigation Commission

## Marine Accident Report 96-213

### Particulars of the craft :

#### *Mack Attack*

Owners: Kings Tours Ltd  
MSA No: 105994  
Length (overall): 11.40 metres  
Tonnage (gross): 9 tons  
Engine power: 1104 kW  
Survey type: NZ Restricted Limit passenger ship Class IV & V  
Passenger capacity: 30 (in Extended River Limits and River Limits)

Persons on board: Crew: 1  
Passengers: 8  
Injuries: Nil  
Damage: Minor

#### **The dinghy (no name)**

Owner: Bishop Selwyn Time Share Resort  
Type: Three metre open aluminium dinghy  
Propulsion: One 6.5 h.p. Johnson outboard motor  
Persons on board: Crew: 1  
Passengers: 3  
Injuries: Crew: 1 fatal  
Passengers: 3 minor  
Damage: Severe

**Location:** Near Paihia Wharf, Bay of Islands  
**Date and time:** Sunday 15 December 1996, about 0955 hours<sup>1</sup>  
**Inspector in Charge:** C B Thompson (with J J Goddard)

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<sup>1</sup> All times are in NZDT (UTC + 13 hours)

# 1. Factual Information

## 1.1 History of the voyage

- 1.1.1 On Sunday 15 December 1996 *Mack Attack* was scheduled to depart from Paihia Wharf at 1030 hours and 1430 hours, but due to a cancelled sailing on the previous day an extra earlier sailing was offered. Eight passengers were booked and *Mack Attack* departed at 0830 hours for a trip to the 'Hole in the Rock' at Motukokako Island (Piercy Island), about 18 nautical miles from Paihia. The planned return at 1000 allowed the necessary 30 minutes turn-round before the scheduled 1030 departure.
- 1.1.2 Between 0950 and 0955 hours that day *Mack Attack*, running some five to 10 minutes behind schedule, passed to the westward of Mickey Rocks and Motumaire Island to enter the Paihia wharf area via the western channel.
- 1.1.3 At about 0930 hours the dinghy skipper, who was a regular user of small boats in the area and an experienced 'boatie', borrowed the Bishop Selwyn time share resort's aluminium dinghy and fitted his own outboard motor to its transom. The dinghy was launched from its trailer by the skipper and his family at the beach in front of the Autolodge Motel to the west of the wharf.
- 1.1.4 Lifejackets were available at the time share resort, but only one lifejacket was taken. It was worn by the passenger said to be to be the weakest swimmer on board.
- 1.1.5 The four occupants of the dinghy were the skipper, his wife, his brother and the brother's wife. One of them rowed to a position about 10 - 15 metres straight out from the beach in the direction of Motumaire Island. The motor was started, and the dinghy proceeded straight out from the beach in the same direction until about in line with the 2 northern (one port hand the other starboard hand) markers shown on Figure 3 as 'A' & 'C'. 'A' is at the north western end of the Paihia approach channel and 'C', in a south eastern direction from it, is close to the wharf.
- 1.1.6 The dinghy then altered course to port to run approximately down the line of the markers with the intention of leaving the area between the port and starboard markers ('A' & 'B' respectively on Figure 3) at the western end of the channel.
- 1.1.7 The fishing launch *Good Times* was moored to the north of this line and about 180 metres east of marker 'A'.
- 1.1.8 Meanwhile *Mack Attack*, proceeding back to Paihia, approached the channel marks of the western channel to the Paihia Wharf at high speed swinging to port on a wide arc. With speed reducing from the 35 knot sea speed *Mack Attack* passed between the port and starboard hand channel markers.
- 1.1.9 The dinghy, according to the skipper's wife, was outward bound through the same channel and motoring at between 2 - 3 knots on a north westerly course from a position just to the north of the expected track of *Mack Attack* towards the wharf. The skipper steered for a position close to the port hand channel marker 'A' to leave the channel and make for the Waitangi River entrance further to the west.
- 1.1.10 The dinghy occupants sighted the *Mack Attack* approaching the channel markers at high speed and expected that it would enter the channel between the 'A' & 'B' markers. The occupants expected *Mack Attack* to slow down and to do so progressively as it approached the channel entrance, so as not to swamp the dinghy. They estimated that its track would pass to the south of the dinghy (closer to the Paihia Beach) since they were keeping to the starboard side of the channel.



**Figure 1**  
*Mack Attack*



**Figure 2**  
*The dinghy*

- 1.1.11 A passenger on *Mack Attack* first saw the dinghy 200 - 300 metres away, well before *Mack Attack* had completed the swing to port to enter the channel. He estimated that the dinghy was then about 20°-30° on *Mack Attack's* port bow.
- 1.1.12 *Mack Attack*, passing midway between the markers and slowing slightly, then continued to alter course to port, rather than proceed straight along the channel, so that the dinghy was then almost dead ahead of *Mack Attack's* port bow.
- 1.1.13 Realising a collision was imminent the skipper's wife half stood up and attempted to draw the attention of *Mack Attack's* skipper by waving her arms. Almost immediately afterwards, and just before impact, the dinghy drastically altered course to port, and its starboard quarter, where the skipper was sitting, was struck by the stem of *Mack Attack's* port hull.
- 1.1.14 The skipper of *Mack Attack* stated that he did not see the dinghy until immediately before the collision although he checked to ensure that the channel was clear before he entered it.
- 1.1.15 The dinghy was severely damaged and swamped almost instantaneously, capsizing to starboard and being driven under with the skipper trapped in it. The other three occupants were thrown clear of the dinghy and suffered only minor injuries.
- 1.1.16 The dinghy, with the trapped skipper, did not surface immediately, having been towed for a while by the *Mack Attack* whose port propeller had been fouled by the dinghy's painter. The skipper's wife dived in an effort to locate him but did not find him or the dinghy.
- 1.1.17 The dinghy surfaced shortly afterwards with the skipper immobile but still inboard.
- 1.1.18 Another fast catamaran, the *Excitor*, and charter boats at the wharf came to the rescue shortly afterwards and the skipper of *Mack Attack* dived into the water to assist.
- 1.1.19 The dinghy skipper was brought on board one of the boats and then taken ashore after CPR had been unsuccessfully applied. The dinghy and debris were recovered and the Police informed.

## 1.2 **Location of the accident**

- 1.2.1 The collision occurred at Latitude 35° 16.66' S, Longitude 174° 05.50' E, in a position 338°(T) x 2.0 cables from the Paihia Wharf light marker. This was about 350 metres north west of the closest part of the wharf and 230 metres north east of Nihinui Point, a small headland just north of the main street of Paihia.

## 1.3 **Vessel information**

### *Mack Attack*

- 1.3.1 *Mack Attack* is a fast catamaran launch of GRP construction powered by two 552 kW Mack Daytona diesel engines, one located under the deck in the after part of each hull. It is authorised to operate on passenger services up to a maximum of 35 knots but is capable of approximately 50 knots.
- 1.3.2 The *Mack Attack's* MSA survey limits are Auckland River Limits, Bay of Islands River & Extended River Limits, subject to conditions specified in a letter dated 8 January 1996, but not relevant to this accident.
- 1.3.3 *Mack Attack* is crewed by one person whose operating position is well aft, located between and above the engines in a streamlined cockpit. (See photograph, Figure 1).

1.3.4 Up to 30 passengers are seated in bucket type fixed seats extending from just abaft the bow to about amidships. They are strapped in, facing forward, with quick release seat belts and each person is provided with waterproof clothing and an inflatable lifejacket.

1.3.5 In addition to the customary engine performance indicator instruments and controls the craft is also fitted with the following navigational and safety equipment:

- Magnetic steering compass
- Depth sounder
- VHF Radio
- Radar
- GPS
- EPIRB
- Life buoy and light

1.3.6 It was noted during inspection at Opuā Wharf that:

- The craft trims significantly by the stern when at rest.
- The field of view from the skipper's chair in the enclosed cockpit without passengers on board, and at rest, is generally satisfactory except that the height of the deck forward prevents a view of the sea closer than about 40 metres forward over an arc of about 30° (It is slightly better in the fore and aft line over about a 10° arc due to a cut away in the deck line forward amidships).
- The mullions of the cockpit windscreen on both sides are approx. 50 mm wide and cause some loss of view to port and starboard unless the skipper makes a point of moving his head sufficiently to see around them.
- Passengers' heads partly obstruct a clear view between about 5° - 45° on the bow when all seats are occupied. In the accident condition, when the 8 passengers were arranged so as not to occupy the seats adjacent to the centre aisle forward, the view was not as restricted as in the full load condition.

1.3.7 No sea trials were carried out to confirm the view from the skipper's chair when at speed and "on the plane", but the following is considered to be a reasonable approximation:

- When trimmed with a full passenger load the forward field of view improves significantly and the obscured area would reduce to about 15 metres ahead.
- With only 8 passengers the stern trim would be less satisfactory than with a full load, but when 'on the plane' the view would not have been seriously affected.

### **The Dinghy**

1.3.8 The three metre aluminium dinghy was fitted with one thwart (seat) and with buoyancy tanks forward and along both sides, providing additional seats. It was suitable for up to four people in calm waters and, at the time of the accident, was fitted with a Johnson 6.5 h.p. outboard motor. The dinghy had an orange stripe painted above the waterline along the full length of its topside.

#### 1.4 **Company Information**

- 1.4.1 The craft's owners, Kings Tours & Cruises, operates two conventional catamaran passenger craft and *Mack Attack*, all based at Paihia in the Bay of Islands. The three craft are all employed for sightseeing and fishing in the area and operate largely from Paihia wharf where the company's booking office is situated. The company has been in operation for several years but was bought by its present owners about three years ago.
- 1.4.2 The Company's Managing Director, who held deck and engineering certificates of competency for fishing vessels is active in the Company's day to day operation. He is assisted principally by his son who holds a Deep Sea Fishing Skipper's certificate of competency. The son, the first skipper of *Mack Attack*, was responsible for training the skipper who was in command of *Mack Attack* at the time of the accident.
- 1.4.3 There were no written standing orders or Management Instructions for the operation of *Mack Attack*, other than those mentioned in the skipper's employment contract, and these were not accorded a high profile.
- 1.4.4 *Mack Attack* is a specialised craft designed for high speed passenger sightseeing and is intended to provide thrills rather than comfort. *Mack Attack* operates between two and four scheduled trips per day depending upon season and demand, with occasional additional trips being fitted in as required and as the schedule permits.
- 1.4.5 *Mack Attack's* usual trips are to the 'Hole in the Rock' and last for about 90 minutes. During these trips, made at high speed for most of the distance, it is intended that passengers should enjoy the maximum opportunities for observing wild life 'en route' to and from the Island. When these opportunities occur speed is substantially reduced or stops are made as appropriate.

#### 1.5 **Personnel**

- 1.5.1 *Mack Attack's* skipper obtained a Commercial Launchmaster Certificate (CLM) in November 1994. He had worked for two summer seasons in Auckland and in the Bay of Islands as skipper of various craft, including a high speed hydrofoil.
- 1.5.2 He had been employed by the Company as skipper of *Mack Attack* for seven weeks, and had generally done two trips on each working day.
- 1.5.3 His training on the vessel had occupied 3 days and 7 trips, under the supervision of the Managing Director's son.
- 1.5.4 The skipper of the dinghy did not hold a formal marine qualification, nor was he required to do so. He was generally regarded as a competent and knowledgeable "boatie"

#### 1.6 **Environmental factors**

- 1.6.1
- |                                     |   |
|-------------------------------------|---|
| Time of High Water at Paihia:       | 1133                                    |
| Tidal stream at place of collision: | Approximately 125° at about 1/2- 1 knot |
| Weather conditions:                 | Fine and clear with some cloud          |
| Wind:                               | Light airs                              |
| Sea:                                | Smooth                                  |
| Swell:                              | Nil                                     |
| Visibility:                         | Very good                               |
| Sun's altitude:                     | About 42°                               |
| Sun's azimuth:                      | Approximately east                      |





## 1.7 **Port information.** (See Figure 3)

- 1.7.1 Upon returning to Paihia at the end of a trip there are two different directions of approach to the wharf. One is from the north-east and entails taking the channel used by the Paihia / Russell ferries which passes between Taylor's Rock and Motumaire Island leaving the marker with the green triangular topmark to port, a distance of about 550 metres (3 cables) from the wharf. The other involves approaching from the north leaving Motumaire Island to port and passing through the two channel markers (wooden piles), one to port (red with box shaped topmark) and the other to starboard (green with triangular shaped topmark) situated about 360 metres (2 cables) to the north-west of the wharf.
- 1.7.2 Both approaches have been used by *Mack Attack*. The approach through the western channel passes closer to the Paihia / Waitangi road. Being more visible to passers-by and to visitors staying at the motels nearby there has been a tendency to prefer this entrance for its publicity value. *Mack Attack*'s skipper also considered that it can provide quicker access to the wharf, depending upon the state of the tide.
- 1.7.3 During the summer months the waters within a radius of about 550 metres (3 cables) of Paihia wharf, much of it designated as a yacht anchorage, frequently carry a number of commercial craft for several different operators, and also many private pleasure craft which use the wharf as a place for dropping and picking up passengers. During these times the wharf itself teems with people.

## 1.8 **Damage to the craft**

### 1.8.1 *Mack Attack*

- The only apparent damage was scratching and chipping of the gelcoat on the outside and inside of the stem of the port hull vertically over a length of 900 mm above the stationary waterline.

### 1.8.2 The dinghy

- The damage was extensive and constituted virtual destruction of the dinghy. There was evidence of an impact on the starboard quarter which tore that side apart from the keel to the gunwale, removed the centre thwart, demolished the starboard buoyancy tank and substantially bent the dagger plate housing.

## 1.9 **Other Information**

- 1.9.1 An amateur video was recorded by a tourist on Paihia Wharf. This shows the return of *Mack Attack* to Paihia, her approach to and passage through the western channel markers, the movements of the dinghy just prior to the collision, the collision itself and the slowing almost to a stop by *Mack Attack* afterwards.
- 1.9.2 The video shows the catamaran's 'rooster tail' disappearing, from the shutting down of drive to the propellers, at about the time *Mack Attack* passes through the markers, 1-2 seconds before the collision, and the dinghy's movement apparently on the north westerly course. The collision occurs as the dinghy passes in line with the port hand marker, during the dinghy's turn to port. The *Mack Attack* is shown nearly stopped some 8 - 10 seconds after the collision.

## 1.10 Regulations

1.10.1 The following regulations are relevant and applied to the two craft in the circumstances before the collision:

- International Regulations for the Preventing of Collision at Sea, commonly known as the 'Rule of the Road'. Relevant provisions are referred to below as 'Rules'
- Northland Regional Council Harbour By-Laws. Its relevant provisions are referred to below as 'By-Laws'.

1.10.2 Both craft were required to keep a good lookout (Rule 5) and to proceed at a safe speed in the conditions (Rule 6). Each had a duty to keep to the starboard side of the channel (Rule 9) and to determine whether risk of collision existed (Rule 7).

1.10.3 These By-Laws state that all vessels navigating in the waters to which the By-Laws apply must comply with the Collision Regulations Order 1976, the General Harbour (Nautical & Miscellaneous) Regulations 1968 and the Water Recreation Regulations 1979. (By-Law 243 (b).)

1.10.4 Both craft had a duty not to exceed five knots when within 200 m of a structure or when within 30 m of each other (By-Law 243 (e)(ii)).

## 2. Analysis

2.1 The environmental factors had no significant adverse effect upon the operation of either craft at any stage.

### 2.2 Visual limitations

2.2.1 There were some limitations on the field of view from the skipper's seat in the cockpit of *Mack Attack* imposed by the design of the craft. They may have contributed to his failure to observe the dinghy. These limitations were caused by:

- The width of the mullions in the cockpit windscreen
- The lack of height of eye above the deck forward, over a horizontal arc of about 5° on either side of the fore and aft line
- The lack of height of eye above the passengers on the port and starboard bows over a further horizontal arc of approx. 10° each side of the foredeck limiting arc.

2.2.2 The total limited field of view at the time of the accident was approximately 30°, being 15° on each side of the fore and aft line, with the 5° - 15° on either side of the fore and aft line being the more severely restricted.

2.2.3 None of these factors is considered to be very significant in this case because:

- *Mack Attack* was on a constantly altering course as it swung to port approaching the channel markers 'A' & 'B' so that the relative bearing of the dinghy would have been constantly changing.

- The limitation imposed by the foredeck over the 5° arc either side of right ahead affected only the area close ahead of the craft to create a blind spot within about 15 metres of the stems, when at the full speed trim of the craft, even when only 8 passengers were on board to affect the trim.
- 2.2.4 Visibility from the cockpit when ‘on the plane’ is considered to be satisfactory although it could be improved by raising the skipper’s seat (which would also involve an increase in the height of the cockpit structure); and by modifications to the windscreen, removing or substantially reducing the size of the mullions.
- 2.2.5 Any benefit from the use of *Mack Attack*’s radar in this situation would have been negligible. At about 35 knots, and with a dinghy’s small target, there would probably have been too little time available between radar detection and taking collision avoidance measures. Any distraction with the radar screen would have diminished the effectiveness of the visual lookout.
- 2.2.6 The presence of the fishing vessel *Good Times* is not considered to have obstructed the skipper’s view of the dinghy except possibly for a brief moment at the very earliest stages of the approach towards the channel markers.
- 2.2.7 The position of the sun relative to the approach course of *Mack Attack* towards the dinghy was unlikely to have caused any distracting reflection off the sea impeding the keeping of a good lookout. The sun’s azimuth and elevation, and lack of any mention of glare in the evidence of witnesses support this.
- 2.2.8 No visibility restrictions of any sort are considered to have significantly affected the ability of the skipper to maintain a satisfactory lookout, particularly during the minute or so preceding the accident when the craft was on a constantly altering course to port as *Mack Attack* approached the channel markers.
- 2.2.9 No clear explanation for the skipper’s failure to sight the dinghy was found.
- 2.3 **Speed**
- 2.3.1 The speeds of the two craft were vastly different. *Mack Attack*’s speed immediately before the collision is uncertain but was probably less than the 35 knots operating speed. *Mack Attack*’s crash stopping distance was probably not less than about 40 metres at that speed. One witness on the *Mack Attack* was of the opinion that the catamaran slowed substantially before reaching the channel markers. The video tape evidence also suggests some reduction in speed before passing through the channel markers. However the skipper stated in his evidence that *Mack Attack* did not slow down until reaching them. The visual evidence suggests that he may be slightly in error.
- 2.3.2 From the channel markers to the position where the collision occurred *Mack Attack* appears to have proceeded about 20 - 30 metres. Just before the impact *Mack Attack*’s skipper cut the throttles, disengaging drive, but did not apply astern propulsion. The vessel stopped about 10 seconds later.
- 2.3.3 The dinghy’s speed was about 2 - 3 knots.

2.3.4 The following table shows distances travelled at speeds which have been mentioned in connection with this accident:

|  | in 1 second | in 1 minute |
|--|-------------|-------------|
| At 35 knots the catamaran would travel | 18 m        | 1083 m      |
| at 30 knots the catamaran would travel | 15.5 m      | 928 m       |
| at 15 knots the catamaran would travel | 7.75 m      | 464 m       |
| at 12 knots the catamaran would travel | 6 m         | 371 m       |
| at 5 knots the catamaran would travel  | 2.5 m       | 155 m       |

## 2.4 Courses

- 2.4.1 Opinions as to the dinghy's course vary but it is most likely to have been about 315° (T), that is approximately the course between the western channel entrance port marker and the northern green marker with a triangular topmark 'C' closer to the wharf.
- 2.4.2 *Mack Attack's* course entering the channel between marker markers 'A' & 'B' was probably about 145° (T).
- 2.4.3 The two craft would then have been on passing tracks, port to port. If the catamaran had kept a straight course for a position immediately to the north of the wharf upon passing between the channel markers their courses would have been slightly opening but if the dinghy had been heading to the south of the port hand channel marker 'A' they could then have been slightly more converging courses. They would have been closing at up to 1100 metres per minute (18 metres per second).
- 2.4.4 The evidence of other eye witnesses was substantially consistent with that of the dinghy passenger interviewed except that there was some diversity of opinion regarding the course of the dinghy in the period shortly before the accident occurred. One witness believed that the dinghy was on a more south-westerly course as though returning from Motumaire Island while another believed that it was still en route for the Island.
- 2.4.5 The dinghy passenger interviewed is likely to have had a knowledge of the skipper's intentions and being a relatively experienced 'boatie' actually at the scene, was in the best position to observe the course of the dinghy prior to the accident. For this reason and because it is frequently difficult to be certain of the aspect of a vessel at sea when viewed from a distance and without the benefit of taking frequent bearings, the evidence of the dinghy passenger is preferred to that of other eye witnesses.

## 2.5 Responsibilities

- 2.5.1 In terms of the Rules, from the International Regulations for the preventing of Collision at Sea, the dinghy skipper is believed to have initially determined that no risk of collision existed as the craft were passing clear port to port. The dinghy therefore maintained course and speed.
- 2.5.2 When *Mack Attack* continued to alter course to port, albeit probably only slightly but still at high speed, and thus bringing the dinghy ahead (unknown to *Mack Attack's* skipper) a risk of collision was created. The dinghy skipper then had no option but to take the best action to avert collision which, in this situation, called for an emergency turn to starboard.
- 2.5.3 The dinghy skipper was actually left with little opportunity to do anything practical at the last moment but according to the video evidence he is seen to have turned to port, thereby exacerbating the problem rather than relieving it. The direction of this turn, to port rather than to starboard, received some support from the evidence of the impact on the dinghy's starboard quarter.

- 2.5.4 Instinct could have been expected to make a boating man of the dinghy skipper's experience turn to starboard, the more logical alteration in this case, as the port bow of the catamaran was the closer. However the fact that he was seated on the starboard quarter might have inhibited him to some extent in making a starboard turn, as it probably was easier to pull the tiller towards him rather than push it far enough away to be really effective.
- 2.5.5 One passenger in the dinghy, uncertain which way the dinghy turned, believed that it turned through about 180°. As the blow was on the starboard quarter the turn must have been through less than 180°.
- 2.5.6 *Mack Attack*, like the dinghy, had a duty when the craft were in the channel on nearly parallel courses passing port to port, to maintain course until they had passed one another, as well as proceeding at a safe speed (Rule 6) in view of the likely passing distance close to the dinghy. However *Mack Attack's* skipper was unaware of this relationship and it appears that he may then have created the collision situation by a slight continued alteration to port.
- 2.5.7 In any event both craft had a duty not to exceed 5 knots as they were within 200 metres of a structure (the channel markers) or, when within 30 metres of each other. (By-Law 243 (e) (ii)).
- 2.5.8 The dinghy observed this regulation, but *Mack Attack* disregarded it.
- 2.5.9 It is uncertain whether the skipper of the dinghy would have survived had he worn a lifejacket. It is not clear by what means he was trapped in the dinghy. It appears that he was knocked unconscious by the impact, and if he had been wearing a lifejacket it might have brought him to the surface more quickly and prevented his drowning.
- 2.5.10 Two persons with significant boating experience, who were passengers on *Mack Attack* praised the skipper's generally responsible conduct throughout the time that they were on board, with the sole exception of the excessive speed at the end. They considered his safety briefings, consideration for passengers' welfare, conduct with regard for other craft and wild life in the vicinity, and his boat handling skills had been of a high order.
- 2.5.11 The owner did not give standing orders prominence in day to day operations and a proper emphasis on appropriate standing orders and operating instructions may have averted the accident.
- 2.5.12 The existence of appropriate and carefully documented 'standing orders and operating instructions', combined with frequent reference to them by management, can significantly assist in creating a safety culture within a company. This ready awareness of the documents by employees can help to focus their attention more fully on safety matters in them. In this case, the mind of the master of *Mack Attack* might have been more firmly focused on the need to observe a statutory speed regulation to which reference would be expected in such a document.

### **3. Findings**

- 3.1 *Mack Attack* was operated in accordance with the Shipping (Manning of Restricted Limit Ships Regulations) 1986, with its skipper holding a CLM Certificate.
- 3.2 *Mack Attack's* skipper was adequately trained and experienced for the operation.
- 3.3 No written standing orders or Management Instructions with regard to the operation, other than those briefly mentioned in the skipper's employment contract, had been provided by the Owner's management.

- 3.4 A proper emphasis on appropriate standing orders had the potential to avert the accident.
- 3.5 *Mack Attack* was in current Maritime Safety Authority survey and issued with a Certificate of Survey.
- 3.6 *Mack Attack* was operating within the parameters outlined in the Certificate of Survey
- 3.7 A Licence to Ply for Hire was issued by the Northland Regional Council for the craft's operation in the Bay of Islands, valid until 30 June 1997.
- 3.8 The dinghy did not require a statutory survey nor was there an obligation to satisfy any statutory crewing requirements.
- 3.9 The craft were operating within the Paihia Harbour Limits under the jurisdiction of the Northland Regional Council and therefore subject to the directions of its Harbour Master and its Harbour By-Laws.
- 3.10 There was no evidence that the ability of either skipper was impaired by alcohol or drugs.
- 3.11 Neither fatigue nor adverse weather contributed to the accident.
- 3.12 No mechanical or equipment failure or malfunction was involved.
- 3.13 Only one dinghy passenger wore a lifejacket.
- 3.14 Pressure on the skipper of *Mack Attack* to maintain the sailing schedule may have prompted him to proceed at excessive speed in a potentially congested area.
- 3.15 Immediately prior to the accident *Mack Attack* was operating at a speed well in excess of the 5 knots permitted in that area by the Northland Regional Council Harbour By-Laws.
- 3.16 The fundamental cause of the accident was the failure of the skipper of *Mack Attack* to maintain a satisfactory lookout. His failure to observe the dinghy was the predominant factor leading to the collision.
- 3.17 A contributory cause was the high speed at which *Mack Attack* was operating immediately before the collision, in a confined and speed regulated area likely to include many other craft and persons.
- 3.18 This high speed significantly reduced time for any appropriate collision avoidance manoeuvre and increased the extent of collision damage.
- 3.19 The emergency collision avoidance manoeuvre made by the dinghy skipper was to port rather than to starboard.
- 3.20 This turn to port by the dinghy may have made the collision more likely.
- 3.21 A turn to starboard by the dinghy might have averted the collision.

#### 4. Safety Recommendations

4.1 It is recommended that the Harbour Master of the Northland Regional Council:

Places more 5 knots speed notices on existing structures, e.g. channel markers, in the approaches to Paihia Wharf, and takes whatever steps are most practical to enforce this By-Law. (010/97)

4.2 It is recommended that the General Manager of Kings Tours should:

Prepare standing orders, with particular reference to matters of safety, regarding the operation of *Mack Attack* and ensure that they are read regularly by all who operate *Mack Attack*. (011/97)

4.3 It is recommended that the Director of Maritime Safety, in support of the public campaign on the importance of lifejackets:

Advises managers and staff of hotels, motels and time share resorts offering water craft for use by their patrons, to offer lifejackets. Further, that he recommends that they emphasise the importance of wearing them and secures a notice at the place from which the boats are collected, drawing attention to their use. (009/97)

16 April 1997

M F Dunphy  
Chief Commissioner

## Glossary of Marine Abbreviations and Terms

|              |  |
|--------------|--|
| AC           | alternating current  |
| aft          | rear of the vessel   |
| beam         | width of a vessel  |
| bilge        | space for the collection of surplus liquid   |
| bridge       | structure from where a vessel is navigated and directed  |
| bulkhead     | nautical term for wall   |
| bus          | an arrangement of copper conductors (Bus bars) within a switchboard, from which the circuits are supplied              |
| cable        | 0.1 of a nautical mile   |
| chart datum  | zero height referred to on a marine chart  |
| command      | take over-all responsibility for the vessel  |
| conduct      | in control of the vessel   |
| conning      | another term for “has conduct” or “in control”   |
| DC           | direct current   |
| deckhead     | nautical term for roof   |
| dog          | cleat or device for securing water-tight openings  |
| draft        | depth of the vessel in the water   |
| EPIRB        | Emergency Position Indicating Radio Beacon   |
| even keel    | draft forward equals the draft aft   |
| freeboard    | distance from the waterline to the deck edge   |
| free surface | effect where liquids are free to flow within its compartment   |
| freshet      | term used to describe an increase of water level in the river due to rain in the mountains                             |
| focsl        | forecastle (raised structure on the bow of a vessel)   |
| GM           | metacentric height (measure of a vessel’s statical stability)  |
| GoM          | fluid metacentric height (taking account the effect of free surface)   |
| GPS          | Global Positioning System  |
| GS           | general service  |
| heel         | angle of tilt caused by external forces  |
| hove-to      | when a vessel is slowed or stopped and lying at an angle to the sea which affords the safest and most comfortable ride |
| Hz           | Hertz (cycles)   |
| IMO          | International Maritime Organisation  |
| ISO          | International Standards Organisation   |
| kW           | kilowatt   |
| list         | angle of tilt caused by internal distribution of weights   |
| m            | metres   |
| MSA          | Maritime Safety Authority  |
| NRCC         | National Rescue Co-ordination Centre   |



|                    |  |
|--------------------|--|
| point              | measure of direction (one point = 1 1/4 degrees of arc)                  |
| press              | force a tank to overflow by using a pump                                 |
| SAR                | Search and Rescue  |
| SOLAS              | Safety Of Life At Sea convention   |
| sounding           | measure of the depth of a liquid   |
| SSB                | single-side-band radio   |
| statical stability | measure of a vessel's stability in still water                           |
| supernumerary      | non-fare-paying passenger  |
| telegraph          | device used to relay engine commands from bridge to engine room          |
| ullage             | distance from the top of a tank to the surface of the liquid in the tank |
| V                  | volts  |
| VHF                | very high frequency  |
| windlass           | winch used to raise a vessels anchor                                     |

