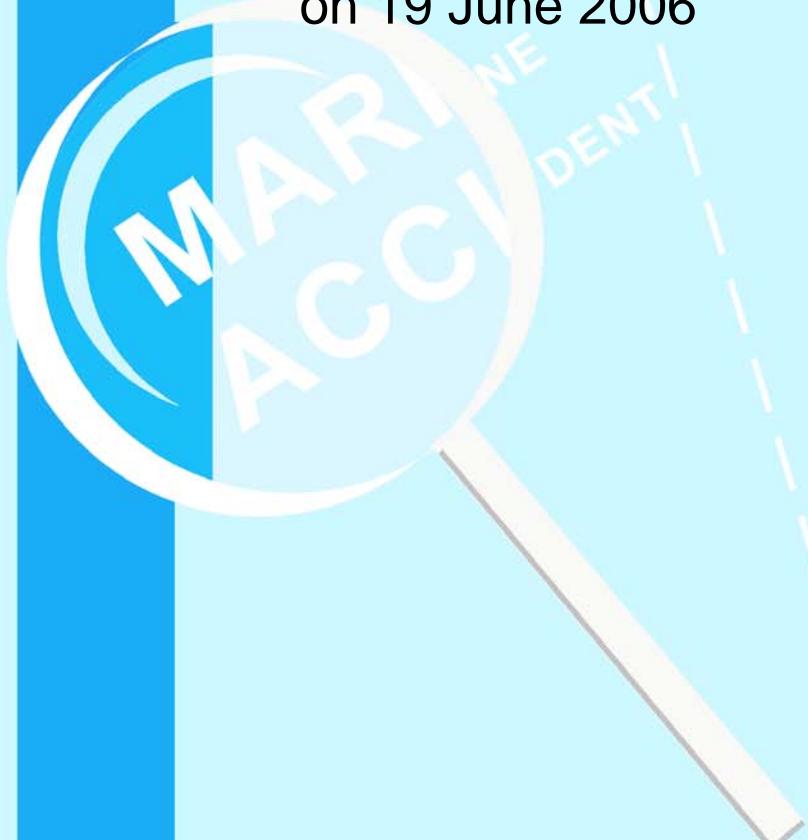




Report of Investigation  
into the Collision between  
High-speed Passenger Crafts  
*New Ferry LXXXV* (新輪捌拾伍)  
And  
*Dong Qu Yi Hao* (東區一號)  
in Position about  
22° 10.3'N, 113° 38.6'E  
on 19 June 2006



# Preliminary Inquiry No. 1 of 2006

**In accordance with Section 51 (1) of the Merchant Shipping Ordinance (Chapter 281), on 20 June 2006, the Director of Marine appointed Mr. LI San-tai, Surveyor of Ships (Nautical) to carry out a Preliminary Inquiry into the circumstances attending the casualty.**

## **Purpose of Investigation**

This incident is investigated, and published in accordance with the IMO Code for the Investigation of Marine Casualties and Incidents promulgated under IMO Assembly Resolution A.849(20). The purpose of this investigation conducted by the Marine Accident Investigation and Shipping Security Policy Branch (MAISSLB) of Marine Department is to determine the circumstances and the causes of the incident with the aim of improving the safety of life at sea and avoiding similar incident in future.

The conclusions drawn in this report aim to identify the different factors contributing to the incident. They are not intended to apportion blame or liability towards any particular organization or individual except so far as necessary to achieve the said purpose.

The MAISSLB has no involvement in any prosecution or disciplinary action that may be taken by the Marine Department resulting from this incident.

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## 1. Summary

- 1.1 At about 1012 on 19 June 2006, the Hong Kong registered high speed passenger craft *New Ferry LXXXV* collided with the Chinese registered high speed passenger craft *Dong Qu Yi Hao* in the position 22° 10.3'N 113° 38.6'E. The weather was cloudy with heavy showers and there was a southwesterly gentle breeze. *New Ferry LXXXV* sustained structural damage to its starboard bow while *Dong Qu Yi Hao* sank shortly after the collision. There was no casualty and no pollution resulting from the collision.
- 1.2 The investigation has established that the main causes of the accident were:
  - ( i ) The failure of the Master of *New Ferry LXXXV* to observe Rule 5 of COLREGS to maintain a proper lookout and Rule 6 to proceed at a safe speed in the prevailing circumstances and conditions; and
  - ( ii ) The failure of the Master of *Dong Qu Yi Hao* to observe Rule 8 of COLREGS by not reducing the speed or stopping or reversing the engine of the vessel to allow more time to assess the situation or to avoid collision. He also failed to take early and substantial action to avoid collision.
- 1.3 The following observation was also noted:
  - ( i ) The Chief Officer of *New Ferry LXXXV* had not conveyed the radar information to the Master for collision avoidance.

## 2. Description of the vessels

### 2.1 *New Ferry LXXXV* (新輪捌拾伍)

Call Sign	:	VRAB5
Port of Registry	:	Hong Kong
IMO No.	:	9323209
Type	:	High Speed Passenger Craft
Length	:	47.5 m
Breadth	:	11.8 m
Depth	:	3.8 m
Gross Tonnage	:	695
Year of Built	:	2003
License to carry	:	426 passengers & crew
Engine	:	4 x MTU-16V 4000 M70 Diesel Engine
Engine Power	:	4 x 2,320 kW
Service speed	:	42 knots

2.1.1 *New Ferry LXXXV* is an aluminum alloy high speed passenger craft. It was built with 4 sets of water jet propulsion unit cruising at a maximum speed of 42 knots.

2.1.2 The vessel is equipped with navigational equipment consisting of two radars, two sets of VHF DSC radiotelephone, GPS, AIS, gyro and magnetic compass, echo sounder and electronic chart.



Figure. 1- HSC *New Ferry LXXXV* (新輪捌拾伍)

## 2.2 *Dong Qu Yi Hao* (東區一號)

Call Sign	:	Nil
Port of Registry	:	Zhuhai, China
IMO No.	:	Nil
Type	:	High Speed Passenger Craft
Length	:	28.0 m
Breadth	:	6.8 m
Depth	:	2.8 m
Gross Tonnage	:	274
Year of Built	:	1993
License to carry	:	164 passengers & crew
Engine	:	2 x Diesel Engine
Engine Power	:	2 x 940 kW
Service speed	:	23 knots

2.2.1 *Dong Qu Yi Hao* is an aluminum alloy high speed passenger craft. It was built with 2 sets of water jet propulsion unit cruising at a maximum speed of 23 knots.

2.2.2 The vessel is equipped with navigational equipment consisting of two radars, 2 sets of VHF radiotelephone, GPS, gyro and magnetic compass, echo sounder and AIS.



Figure-2 HSC *Dong Qu Yi Hao* (東區一號)

### **3. Sources of Evidence**

- 3.1 Master and Chief Officer of *New Ferry LXXXV*;
- 3.2 Guangdong Maritime Safety Administration, China; and
- 3.3 Macau Maritime Administration.

## 4. Outline of Events

### 4.1 Account of *New Ferry LXXXV*

- 4.1.1 At about 1000 on 19 June 2006, the High Speed Craft (HSC) *New Ferry LXXXV* departed from Macau to Hong Kong with 42 passengers and 11 crew members on board. The journey would take about one hour at a normal cruising speed of 42 knots. The visibility at Macau Channel was about 2 nautical miles (n.m.) and rain patches were observed on the port side. Four crew members consisted of the Master, Chief Officer, Chief Engineer and a deck cadet were on the bridge. The Master who was in command was steering the vessel using the control levers. The Chief Officer was seated on the port side of the Master keeping a visual lookout and radar watch. The Chief Engineer was seated behind the Master and Chief Officer monitoring the machinery console. The deck cadet was seated next to the Chief Engineer performing a lookout duty.
- 4.1.2 At about 1006, the Chief Officer observed a target heading south on the radar abaft port beam at a range of about 2.5 n.m. when *New Ferry LXXXV* was near Macau Channel Light buoy No. 3. However, he did not inform the Master about the detected target.
- 4.1.3 At about 1008, when the Macau Channel Landfall Light Buoy was abeam to port, the Master altered course to port to 085°T to be bound for Hong Kong. Due to heavy rain, the visibility on the port side at this time was only about 0.3 to 0.5 n.m. and the Chief Officer could not observe the previous target on the radar. The visibility was about 1 to 1.5 n.m. ahead. After altering course, the Master commenced broadcasting to the passengers giving them information on the sea and weather conditions as well as safety precautions on board the Vessel.
- 4.1.4 At about 1011 the Chief Officer reported to the Master that a high speed craft had been observed visually crossing from port to starboard. The Master immediately aborted broadcasting and took about 5 seconds to assess the situation. After deciding that there was a risk of collision, the Master took avoiding action by making a slight alteration of course to port, stopping and reversing the engine. Despite the above actions, the starboard bow of *New Ferry LXXXV* struck the starboard quarter of *Dong Qu Yi Hao* at 1012.

## 4.2 Account of *Dong Qu Yi Hao*

4.2.1 At about 0945 on 19 June 2006, the High Speed Craft (HSC) *Dong Qu Yi Hao* departed from Xiang Zhou to Dong Ao Island with 86 passengers and 6 crew members on board. Three crew members consisted of the Master, Chief Officer and Chief Engineer were on the bridge. The Master who was in command was steering the vessel using the control levers. The Chief Officer was keeping a visual lookout and radar watch while the Chief Engineer was monitoring the machinery console.

4.2.2 The vessel passed clear of Xiang Zhou breakwater at 0950. At 0951, the vessel's speed was increased to about 21 knots and the visibility deteriorated due to rain.

4.2.3 At 1000, after passing the Jiuzhou Channel No. 1 and No. 2 Light Buoys, *Dong Qu Yi Hao* altered her course to 155°T and increased her speed to 23 knots. It was raining heavily at this moment.

4.2.4 At 1010, the Chief Officer reported to the Master that a target of high speed craft had been observed bearing 80° on her starboard bow and was at a range of 1.3 n.m. The target was heading to Hong Kong. After checking the range of the target from own vessel, the Master instructed the Chief Officer to monitor the target on the radar.

4.2.5 When the target was at a range of 0.7 n.m., it was observed visually by the Master. The target bore more than 80° on her starboard bow and the Master opined that the other vessel would pass clear of his vessel.

4.2.6 When the other vessel was at a range of 0.3 n.m., the Chief Officer reported to the Master again. After observing that the other vessel bore about 75° on her starboard bow, the Master immediately slowed down and stopped his vessel with a view to allowing the other vessel to cross ahead. He also instructed the Chief Officer to go to starboard side to monitor the movement of the other vessel. The Chief Officer went to starboard side and found that the other vessel was at a range of 200 metres and the range was closing. It was observed that the other vessel had not altered her course and speed. When the other vessel was at a range of 100 metres, the Master observed that the other vessel suddenly altered course to port towards the stern of his vessel. The Master immediately increased the engine to full ahead and after a few seconds, the starboard bow of *New Ferry LXXXV* struck the starboard quarter of *Dong Qu Yi Hao*.

### 4.3 Search and Rescue (SAR) Operations

- 4.3.1 After colliding with *New Ferry LXXXV*, the stern of *Dong Qu Yi Hao* took in water quickly. The Master immediately sent out distress signal and instructed the crew members to get ready to abandon ship. Zhuhai Maritime Safety Administration (MSA) upon receipt of the distress signal initiated the maritime search and rescue operations. 2 high speed passenger crafts, 3 MSA patrol launches and some launches from customs and fishery bureaus were directed to proceed to the scene to commence SAR operations. Macau Maritime Administration also dispatched 15 vessels to proceed to the scene to join the SAR operation.
- 4.3.2 After the collision, *Dong Qu Yi Hao* had launched 3 liferafts to accommodate the crew and passengers. 57 passengers inside 2 liferafts were collected by *New Ferry LXXXV*. 30 passengers and 5 crew members inside the remaining liferaft were rescued by the Chinese high speed passenger craft *Dong Qu Er Hao*. Later, 57 passengers were transferred from *New Ferry LXXXV* to the Chinese high speed passenger craft *Hai Liang* which delivered them to Ziuzhou Passenger Ferry Terminal in Zhuhai.
- 4.3.3 All crew members and passengers on board *Dong Qu Yi Hao* were safely delivered by *Dong Qu Er Hao* and *Hai Liang* to Ziuzhou Passenger Ferry Terminal in Zhuhai at 1230.

## 5. Analysis of Evidence

### 5.1 Certification and Experience of Personnel

- 5.1.1 The Master of *New Ferry LXXXV* holds the Certificate of Competency as Master for vessels plying within the river trade area and a type rating certificate as a master on Austal 47.5 metres Catamaran. Both certificates are valid and were issued by the Marine Department of the Hong Kong Special Administrative Region. He has been working on board HSC plying Hong Kong and Macau as Master for about 17 years.
- 5.1.2 The Chief Officer of *New Ferry LXXXV* holds the Certificate of Competency as Master for vessels plying within the river trade area and a type rating certificate as a chief officer on Austal 47.5 metres Catamaran. Both certificates are valid and were issued by the Marine Department of the Hong Kong Special Administrative Region. He has been working on board HSC plying Hong Kong and Macau as chief Officer for about 1.5 years.
- 5.1.3 The Master of *Dong Qu Yi Hao* holds the Certificate of Competency as Master for vessels plying within the coastal and near-coastal areas of China. His certificate was issued by the Maritime Safety Administration of China and endorsed with special trainings on passenger ships and high speed craft. He has been working on board HSC plying Xiang Zhou and Dong Ao Island for about 10 years.
- 5.1.4 The Chief Officer of *Dong Qu Yi Hao* holds the Certificate of Competency as Second Mate for vessels plying within the coastal and near-coastal areas of China. His certificate was issued by the Maritime Safety Administration of China and endorsed with special trainings on passenger ships and high speed craft. He joined *Dong Qu Yi Hao* for about 2 months.
- 51.5 It was considered that the operating personnel of *New Ferry LXXXV* and *Dong Qu Yi Hao* were properly certificated with appropriate experiences.

## 5.2 Certification of the vessels in collision

- 5.2.1 The statutory trading certificates of *New Ferry LXXXV* were issued by the Marine Department of the Hong Kong Special Administrative Region while the statutory trading certificates of *Dong Qu Yi Hao* were issued by the Maritime Safety Administration of China.
- 5.2.2 The statutory trading certificates of both vessels were valid and in order.

## 5.3 Weather and Visibility

- 5.3.1 According to the Guangzhou International Professional Meteorological Station Observatory, the weather on 19 June 2006 was cloudy with showers. The visibility was occasionally adversely affected by the showers.
- 5.3.2 Thunderstorm warning was issued by the Macau Observatory at 0820 on 19 June 2006 and the warning was cancelled at 1500 on the same day.

## 5.4 Actions taken by *New Ferry LXXXV*

- 5.4.1 According to the record of the VTS system of Macau Maritime Administration, after departing Macau Ferry Terminal in Macau at 1000 and at about 1007, *New Ferry LXXXV* was steaming along the Macau Channel on a course of 125°T with a speed of about 43 knots (Figure 3).
- 5.4.2 At 1008, *New Ferry LXXXV* altered course to port to 082°T to head towards Hong Kong. After steadyng on the new course at 1009, the vessel was making a speed of about 43 knots. The VTS system recorded that *New Ferry LXXXV* maintained almost the same course and speed until she collided with *Dong Qu Yi Hao* at 1012.

### Lookout and Watchkeeping

- 5.4.3 Both the Master and Chief Officer did not observe *Dong Qu Yi Hao* on the radar and they only observed the vessel visually when it was only 0.3 n.m. away before the collision. They had failed to keep a proper visual and radar lookout as required by Rule 5 of COLREGS.

5.4.4 The Chief Officer observed a target i.e. *Dong Qu Yi Hao* heading south on the radar abaft port beam at a range of about 2.5 n.m. at about 1006, when *New Ferry LXXXV* was near Macau Channel Light buoy No. 3. However, he did not inform the Master about the detected target. In this connection, the Chief Officer had not effectively conveyed the radar information to the Master for collision avoidance.

#### Safe Speed

5.4.5 *New Ferry LXXXV* had also failed to proceed at a safe speed. The Macau VTS system recorded that the vessel was maintaining a speed of about 43 knots after departing her Macau berth and before collision. The Master stated that he reduced the vessel's speed at about 1011 after the Chief Officer informed him that a vessel i.e. *Dong Qu Yi Hao* was at a range of 0.3 n.m. crossing from port to starboard. Despite taking evasive actions by reducing, stopping and reversing the engine, the starboard bow of *New Ferry LXXXV* struck the starboard quarter of *Dong Qu Yi Hao*. In determining a safe speed, the state of visibility and the effect on radar detection of the sea state, weather and other sources are two of the factors which shall be taken into account. With a visibility of only about 0.3 to 0.5 n.m. on the port side due to heavy rain, *New Ferry LXXXV* should have reduced her speed so that she could take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions. The Master and Chief Officer had not taken into account the factor that radar detection of target in heavy rain would be adversely affected. As a result, a speed of about 43 knots was maintained and the vessel could not be stopped in time to avoid collision.

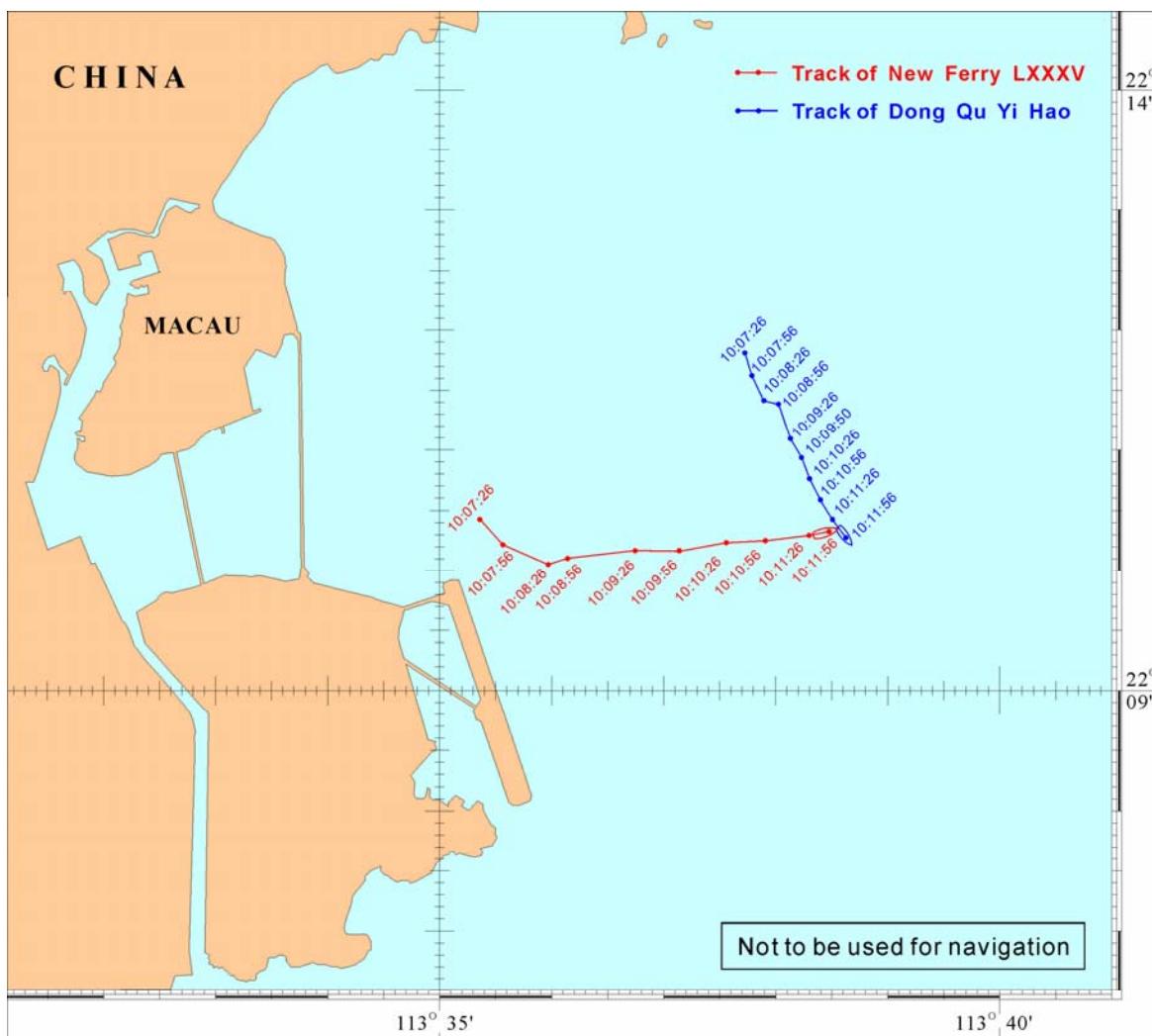
5.4.6 Although *New Ferry LXXXV* had been installed with a AIS (Automatic Identification System), it was not switched on prior to departing from Macau Ferry Terminal.

### **5.5 Actions taken by *Dong Qu Yi Hao***

5.5.1 According to the record of the VTS system of Macau Maritime Administration, from 1007 to 1012 i.e. time of collision, *Dong Qu Yi Hao* maintained a course of about 153°T with a speed of about 23 knots (Figure 3).

5.5.2 At 1010, the Chief Officer reported to the Master that a target i.e. *New Ferry LXXXV* had been observed on the radar at a range of 1.3 n.m. with a bearing of 80° on her starboard bow. However, the Master took no action and just instructed the Chief Officer

to continue monitoring the movement of the target on the radar. The Master of *Dong Qu Yi Hao* should have reduced, stopped or reversed the engine of the vessel to allow more time to assess the situation or to avoid collision. There was no action taken when *New Ferry LXXXV* was visually observed at a range of 0.7 n.m.. The Master did not take any avoiding action until *New Ferry LXXXV* was only 0.3 n.m. away. He then took avoiding action by reducing, stopping and reversing the engine. The Master should have taken early and substantial action to avoid collision when he observed *New Ferry LXXXV* visually at a range of 0.7 n.m.. Despite taking the above actions, the starboard quarter of *Dong Qu Yi Hao* was struck by the starboard bow of *New Ferry LXXXV*.



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Figure 3- Radar Plot showing the collision tracks of *New Ferry LXXXV* and *Dong Qu Yi Hao*

## **5.6 Fatigue and alcohol impairment**

- 5.6.1 There was no evidence to suggest that alcohol or drugs were taken by any of the crew members involved in the collision.
- 5.6.2 The collision took place in the morning and the crew members have sufficiently rested at night. Therefore fatigue was not an issue in this accident.

## **6. Conclusions**

- 6.1 At about 1012 on 19 June 2006, the Hong Kong registered high speed passenger craft *New Ferry LXXXV* collided with the Chinese registered high speed passenger craft *Dong Qu Yi Hao* in the position 22° 10.3'N 113° 38.6'E.
- 6.2 At the time of the accident, the weather was cloudy with showers and visibility was occasionally adversely affected by showers.
- 6.3 *New Ferry LXXXV* sustained structural damage to its starboard bow while *Dong Qu Yi Hao* sank shortly after the collision. There was no oil pollution and no casualty reported.
- 6.4 The investigation has established that the main causes of the accident were:
  - ( i ) The Master of *New Ferry LXXXV* failed to observe Rule 5 of COLREGS to maintain a proper lookout and Rule 6 to manoeuvre at a safe speed in the prevailing circumstances and conditions; and
  - ( ii ) The Master of *Dong Qu Yi Hao* failed to observe Rule 8 of COLREGS by not reducing the speed of or stopping or reversing the engine of the vessel to allow more time to assess the situation or to avoid collision. He also failed to take early and substantial action to avoid collision.
- 6.5 The following observation was also noted:
  - ( i ) The Chief Officer of *New Ferry LXXXV* had not effectively conveyed the radar information to the Master for collision avoidance.

## **7. Recommendations**

- 7.1 A copy of the report should be sent to the China MSA for their information.
- 7.2 A copy of the report should be sent to the owners/Masters of *New Ferry LXXXV* and *Dong Qu Yi Hao* drawing their attention of the findings.

## **8. Submissions**

- 8.1 In the event that the conduct of any person or organization is commented in an accident investigation report, it is the policy of the Marine Department to send a copy of the draft report to that person or organization for their comments.
- 8.2 The relevant parts of the final draft of the report were sent to the following:

Master and Chief Officer of *New Ferry LXXXV*

Master and Chief Officer of *Dong Qu Yi Hao*

- 8.3 No submissions were received from the Masters and Chief Officers of *New Ferry LXXXV* and *Dong Qu Yi Hao*.