



REPUBLIC OF CYPRUS
MARINE ACCIDENT AND INCIDENT
INVESTIGATION COMMITTEE

[Investigation Report No: 115/2014]

Very Serious Marine Casualty

Collision between the Bulk Carrier “Panamax Blessing” and the General Cargo Ship “Harmony Rise”, off the Korean Coast - Japan sea, on the 10th of July, 2013.

Foreward

The sole objective of the safety investigation under the Marine Accidents and Incidents Investigation Law N. 94 (I)/2012, in investigating an accident, is to determine its causes and circumstances, with the aim of improving the safety of life at sea and the avoidance of accidents in the future.

It is not the purpose to apportion blame or liability.

Under Section 17-(2) of the Law N. 94 (I)/2012 a person is required to provide witness to investigators truthfully. If the contents of this statement were subsequently submitted as evidence in court proceedings, then this would contradict the principle that a person cannot be required to give evidence against themselves.

Therefore, the Marine Accidents and Incidents Investigation Committee, makes this report available to interested parties, on the strict understanding that, it will not be used in any court proceedings anywhere in the world.

This investigation was not carried out as a joint investigation.

This report is written primarily concerned with the actions of the Cyprus registered vessel “Panamax Blessing”.

1. Summary

On July 10, 2013 at about 05:00 LT the Cyprus flagged M/V “Panamax Blessing” IMO 9085869, built 1996, Manager: Cyprus Sea Lines Co Ltd- Athens-Greece, collided with the M/V “Harmony Rise” IMO 9038074, built 1991, Panama flag, Manager: Harmony Growing Ship Management Co. Ltd-China, in position Latitude: 35° 12’N - Longitude: 129° 22’E - 6, 5 nautical miles off Korean coast, Japan sea.

Bulk carrier “Panamax Blessing” was en route from Argentina to Ulsan, Korea carrying 57,750 metric tons of Corn.

General cargo vessel “Harmony Rise” was en route from Tanchon, North Korea, to China carrying cargo of Calcined Magnesia.

“Panamax Blessing” was proceeding north, “Harmony Rise” south.

Vessels collided due to navigation officers on the bridges of the two ships mistakes, while trying to avoid collision, attributed to poor communication and lack of situational awareness.

“Panamax Blessing” collided head on with the starboard side of “Harmony Rise”.

“Harmony Rise” sank shortly after the collision in a depth of about 100 metres.

“Harmony Rise” 12 Chinese crew went into the Life-Raft of their own ship which opened automatically and subsequently rescued by a Korean Coast Guard boat.

“Panamax Blessing” sustained a hole on the upper side of its bulbous bow.

There were no injuries. There were no damages to third parties.

Pollution: There was a small amount of oil leak.

On July 14 & 15 2013, an Investigator from the Cyprus Department of Merchant Shipping attended “Panamax Blessing” while the ship was berthed at the Port of Ulsan, South Korea.

The Master, the Chief Mate, the Helmsman and the Look-Out man on watch at the time of the collision, were interviewed and they provided their account of the incident.

The Investigator took photographs of the ship, data from the ship’s simplified voyage data recorder (S-VDR), data from the vessel traffic system (VTS), copies of relevant records and documents, including the navigational charts in use at the time, the deck log book, bell book, passage plans, work and rest hour records, procedures and various other documents. Subsequently modeling reconstruction of combined S-VDR, RADAR/ARPA and VTS was provided by an expert instructed by the Owners London based Britania P&I Club.

Glossary of Abbreviations

AIS - Automatic Identification System
AB – Able –Bodied seaman
ARPA - Automatic Radar Plotting Aid
B/C - Bulk Carrier
COLREGS - The Int’nal Regulations for Preventing Collisions at Sea 1972, as amended
DO - Diesel Oil
DOT - Diesel Oil Tank
ECDIS - Electronic Chart Display and Information System
ETA - Estimated Time of Arrival
ETD - Estimated Time of Departure
FO - Fuel Oil
FOT - Fuel Oil Tank
FPT - Fore Peak Tank
DBT - Double Bottom Tank
GPS - Global Positioning System
IFO - Intermediate Fuel Oil
IMO - International Maritime Organization
LT - Local Time
LOT - Lubricant Oil Tank
m - metre
MT - Metric Ton
NM – Nautical Mile
OOW - Officer of the Watch
O.S – Ordinary Seaman
PSN - Position
QM - Quartermaster / Helmsman
RPM - Revolutions per Minute
SAR - Search And Rescue
S.B.E. - Stand By Engine
SOLAS - Safety of Life At Sea Convention
STCW95 - International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended
VDR - Voyage Data Recorder
S-VDR - Simplified Voyage Data Recorder
VHF - Very High Frequency
VTS - Vessel Traffic Services
UTC - Universal Time Co-ordinated
ZT - Zone Time

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2. Factual Information

2.1. Ship particulars (PANAMAX BLESSING)

IMO number : 9085869
Name of ship: PANAMAX BLESSING
Call sign : 5BWY2
MMSI number : 212 046000
Flag State : CYPRUS
Type of ship : Panamax Gearless Bulk Carrier
Gross tonnage : 38606,0
Length overall : 225,00 m
Classification society : LR(LR, ESN HOLD-1 LI LMC BULKCARRIER ESP)
Registered shipowner
Ship's company : CYPRUS SEA LINES CO LTD, Athens, Greece
Year of build : 1996
Deadweight : 69,997
Hull material : Steel
Hull construction : Single Hull
Propulsion type: Motor ME: B&W 6S60MC, 9782 KW @ 92 RPM.
Type of bunkers: IFO & MDO
Number of crew on ship's certificate 17

2.2. Voyage particulars

Port of departure: Bahia Blanca, Argentina
Port of Destination: Ulsan, South Korea
Type of voyage: International
Cargo information: 57,750 MT Corn
Manning : 24
Draft: Fwd= 12,31M Aft=12,31M



Figure 1: M/V "PANAMAX BLESSING"

2.1 Ship particulars (HARMONY RISE)

IMO number : 9038074
Name of ship: HARMONY RISE
Call sign : 3FKG7
MMSI number : 354 875000
Flag State : Panama
Type of ship : General Cargo
Gross tonnage : 1998
Length overall : 53,50
Classification society : Panama Maritime Documentation Services (PM)
Registered shipowner : HARMONY RISE HK SHIPPING COMPANY
Ship's company :Harmony Rise HK Shipping Company
Year of build : 1991
Deadweight :
Hull material : Steel
Hull construction : Single Hull
Propulsion type : Diesel Engine 736KW , Fixed pitch (Nigata JPN)
Type of bunkers:
Number of crew on ship's certificate

2.2. Voyage particulars

Ports of call, Tanchon, North Korea
Port of Destination: China
Type of voyage: International
Cargo information: Calsined Magnesia, 2939MT
Manning: 12

2.3. Marine casualty or incident information

Type of marine casualty/incident: Very Serious Marine Casualty
Collision between vessels

Date and time: 10/07/2013 04:54 LT

Position: Lat.: 35°12'0" N Long.: 129°22'0" E

Location: 6,5 NM off Korean coast, Japan sea

External and internal environment: Slight sea, Gentle breeze, Night, Fog patches,
Very Poor Visibility

Ship operation and voyage segment: Normal service- In passage-Displacement mode

Place on board: Ship- Bulbous

Human factors: Yes/ Human Error /Decision

Consequences

No Injuries

Pollution: Small amount of oil leak

“PANAMAX BLESSING”: Sustained a hole on the upper side of the Fore Peak Tank
Bending of stbd side forward stanchions / rails

“HARMONY RISE”: Total Loss

2.4. Shore authority involvement and emergency response

M/V “HARMONY RISE” all 12 crew members, who fell into the sea after the collision, and subsequently boarded on theirs’ ship Life-Raft which opened automatically, were safely rescued by Ulsan Coast Guard’s boats.

Oil pollution prevention boats were at the site as the Ulsan Coast Guard observed a small amount of oil leak.



Figure 2: M/V “HARMONY RISE” 12 crew members, in L/R



Figure 3: Panamax Blessing damage, repaired(from within Fore Peak Tank)



Figure 4: Panamax Blessing damage, repaired(on bulbous bow)



Figure 5: Panamax Blessing damage on starboard side



Figure 6: Panamax Blessing damage on bulbous bow

3. Narrative

3.1 Sequence of Events:

1. On 08/06/2013 at 22:00 LT, the Cyprus flag Bulk Carrier (B/C) “Panamax Blessing” sailed from Bahia Blanca Argentina, loaded with a cargo of 57,750 MT Corn. Destination Ulsan, Korea via Singapore.
2. On 20/06/2013 at 15:24 LT, she arrived at Singapore “Special Purposes Anchorage A” where received stores & provisions. She also received bunkers (IFO = 600 MT, D.O. = 30 MT).
3. On 01/07/2013 at 15:45 LT sailed from Singapore. Destination Ulsan, Korea.
4. Followed various courses.
5. On 10/07/2013 at 01:30 ZT, set course 022° True.
6. On 10/07/2013 at 03:45 ZT the CO went on the Wheelhouse. The Master was already there. The Helmsman went at 03:50 ZT and the Look – Out man at 03:50 ZT. All stated that visibility was deteriorated.
7. On 10/07/2013 at about 04:00 ZT, two hours before arrival at Ulsan Pilot Station, (ETA at Ulsan Pilot Station: 06:00 ZT), whilst on course 022° True, at Position (PSN) Latitude: 35° 02’00 North - Longitude: 129° 24’ 80 East, the Engine was put on Stand By (S.B.E.). Main Engine Revolutions per Minute (RPM) were reduced from 80 RPM to 68 RPM. (80 RPM = 13 Knots / 68 RPM = 11,5 Knots).
8. On 10/07/2013 at about 04:00 ZT, contacted on VHF Ulsan Pilots. Given ETA at Ulsan Pilot Station at 06:00 LT. At this time in the Wheelhouse was the Master, the Chief Officer (CO), the Helmsman (Quartermaster-QM) and a Look-Out man. Both RADARS which are combined with ARPA and connected to AIS, were in operation.
9. Proceeding to Ulsan Pilot Station with the same course 022° True.
10. On 10/07/2013 at about 04:32 ZT, whilst proceeding to Ulsan Pilot Station the Master and the CO noticed in the RADAR screen the “Harmony Rise” in a distance of about six (6) Nautical Miles (NM). Her heading was between 210° to 218° and her speed was about 6 Knots. They could not see by naked eye or binoculars her navigation lights, due to the fact that there were dense fog patches and the visibility was deteriorated.
11. At 04:44.20 ZT, the Master ordered the Helmsman to turn from 022° to 050°. The distance from the “Harmony Rise” was 3,00 NM and the CPA 490m.

From modeling reconstruction of combined S-VDR, RADAR/ARPA and VTS

04:44:20	Master PB:	Steer zero-five-zero
	Q M/PB	Zero-five-zero sir
04:44:40	QM/PB:	Passing zero-three-zero sir
04:45:40	QM/PB:	Passing zero-four-zero sir
04:46:40	QM/PB:	Heading now sir zero-five-zero
	Master	Steady
04:46:45	PB:QM/PB	Steady zero-five-zero

12. At 04:46.40 ZT, the Heading was 050° and the Master ordered the Helmsman “Steady”. The distance from “Harmony Rise” was 2, 27 NM and the CPA 1066m.
13. At 04:50.00 ZT, the CO called the “Harmony Rise” on the VHF Channel 16 (HR, HR, PB) (1st time). The distance from “Harmony Rise” was 1,30NM and the CPA 917m.

At 04:50.15 ZT, the Master ordered the Helmsman 060°.

From modeling reconstruction of combined S-VDR, RADAR/ARPA and VTS

04:50.25 CO/ PB: HR, HR, PB (2nd time)

04:50.35 CO/ PB: HR, HR, PB (3rd time)

04:50:40 HR: Yes Harmony Rise, please

04:50:45 CO/ PB: Yes sir we go port-to-port. Please alter your course to stbd.Stbd

04:50:52 HR: Stbd, stbd ok (?)

04:50:55 CO /PB: No. We go port-to-port. You alter your course to stbd.

04:51:00 HR: No Eh... Your vessel is on my stbd side now

04:51:25 CO /PB: HR, HR, PB

04:51:35 HR: Yes, this is Harmony Rise

04:51:40 CO /PB: Yes, We go port-to-port. Port-to-port

04:51:50 HR: Port eh... eh.... Your vessel ah.... is distance distance from from me

04:51:58 CO /PB : Yes this is PB

04:52:00 HR : Distance. Distance please tell me.

04:52:00 CO /PB: Yes this is ... the vessel on your stbd on your port bow. We go Port-to-Port. You alter your course to stbd..... bow

04:52:15 HR: Port-to-port

04:52:17 CO /PB: Ok. port-to-port

14. At 04:52.30 Harmony Rise started turning to port (instead of turning to stbd in order to pass Port to Port as agreed). Heading changed from about 211° to 200° to 190°.
15. At 04:52.30 the Master ordered the Helmsman 070°. (Distance=1071m - CPA=235M)
16. At 04:53.00 the Master ordered the Helmsman 080°. (Distance=780m - CPA=275M)
17. At 04:53.37 a probable ALTIS sound was heard from the wheelhouse of PB
18. At 04:53.50 the Master asked the QM: “Heading?” (Distance=365m – CPA=237M)

19. At 04:53.58 the QM answered "Heading now sir is zero-eight –zero.(Distance=310m CPA=270M)
20. At 04:54.02 ZT the Master the CO the Helmsman and the Look-Out man saw suddenly in front of own ships' bow, a green light i.e. the starboard side of the "HARMONY RISE" and felt the vibration from the collision. The Master said: "O-shit" (from S-VDR) The Look-Out man stated (in his statement) that he took his head turned his body down and prayed "Help us Lord" The Helmsman stated that he saw also the two masthead lights. The CO stated that he first felt the vibration and then looked out and saw the green light. The PSN of collision was 35° 12'30 N – 129° 22'90 E. Distance=264m – CPA=Disappeared
21. On 10/07/2013 at 04:56 25 ZT, DSC ALARM was sent.
22. Master stopped Engine (according to his statement).
23. The Helmsman stated that the Master called the ECR on the telephone.
24. "HARMONY RISE" turned on "Panamax Blessing" bow, [being in contact] / (touching – according to the CO) to the starboard side, moved towards the middle (according to the CO), then disengaged / cleared away (according to the CO), and sunk.
25. Master sounded the General Alarm.
26. Master made public address on the Public Address System that they collided.
27. Master ordered the CO to inspect own ship's damages.
28. Master ordered the CE to sound al F.O.Ts., D.O.Ts., and L.O.Ts.
29. CO sounded the FPT and DBTs 1-7 port & stbd.
30. CO reported to Master that own vessel sustained a hole on the upper side of the bulbous bow which was submerged into the water / below sea level and that the FPT sounding was increasing.
31. Master ordered the CO to pump-out the FPT.
32. At about 05:50 ZT the Master called the Korean Coast Guard and reported the casualty and asked if he could offer assistance, to the other vessel.
33. The Korean Coast Guard instructed the Master to remain at its position and that they are handling the incident and that Rescue -Boats were in the vicinity.
34. At 06: 54 ZT the Master switched off the S-VDR.
35. Ulsan VTS instructed the Master to proceed to "E2" anchorage.
36. On 10/07/2013 at 10:46 ZT, the "Panamax Blessing" anchored in "E2" anchorage.

From modeling reconstruction of combined S-VDR, RADAR/ARPA and VTS

TIME	PANAMAX B.		HARMONY RISE						JIN YANG					
	HDG	SOG	HDG	SOG	BRG	DIST (M)	CPA (M)	TCPA (MIN)	HDG	SOG	BRG	DIST	CPA	TCPA
04:42	023°,7	11,3	215°	4,0	039°,5	6674	477	14,3	223,4	11,0	030°,2	8636	1996	12,7
04:43	022°,6	12,3	210°	5,7	040°,3	6220	1100	11,1	222,3	9,7	030°,2	7960	1650	11,8
04:44	024,0	12,0	215°	6,9	41°,5	5615	623	13,5	221°,4	9,1	29°,9	7361	1444	11,5
04:44:20	025°,4	12,1	216,7°	4,3	042°,0	5443	490	12,3	221,8	11,5	030°,0	7130	1441	9,3
04:44:40	032°,3	11,6	218,4°	4,1	042°,6	5275	364	12,1	222,5	12,5	030°,0	6863	1457	8,7
04:45	036°,5	11,5	213,8°	5,7	043°,0	5133	346	10,1	222,9	12,1	030°,2	6643	1466	8,1
04:45:40	047°,4	11,4	214,5°	0,0	044°,2	4783	785	6,9	222,6	12,3	029°,6	6155	1363	8,4
04:46	049°,1	11,1	212,0°	7,7	044°,7	4600	992	7,3	222,2	10,1	029°,3	5928	1302	8,9
04:46:40	049°,1	11,5	210,1°	8,1	045°,0	4200	1066	6,9	221,3	6,4	028°,5	5554	1211	10,1
04:47	050°,6	11,4	210,3°	6,5	045°,1	4012	1004	8,4	221,0	8,9	028°,0	5372	1192	8,5
04:49	050°,2	11,3	206,0°	6,7	045°,8	2939	980	4,0	219,7	11,4	022°,0	4012	1204	5,4
04:50	050°,2	11,7	203,8°	6,5	046°,6	2414	917	4,2	220,0	10,1	016°,5	3367	1329	4,6
04:50:25	052,9	11,7	205,8°	8,6	047°,0	2200	780	4,5	223,4	9,7	014°,2	3161	1367	3,9
04:51	055°,3	11,6	209,7°	7,4	047°,7	1814	542	3,1	223,4	9,5	009°,5	2830	1434	3,8
04:52	057°,8	11,8	210,7°	4,9	048°,3	1322	381	3,2	223,5	11,7	000°,5	2350	1586	2,0
04:53	072°,2	11,2	208,9°	8,8	049°,7	812	271	1,3	222,3	10,9	015°,1	1979	1652	1,8
04:54	077°,8	9,1	189,7°	12,7	064°,8	277	210	0,3	222,4	18,6	034°,3	1851	1786	0,6
04:54:02	MOMENT OF COLLISION													

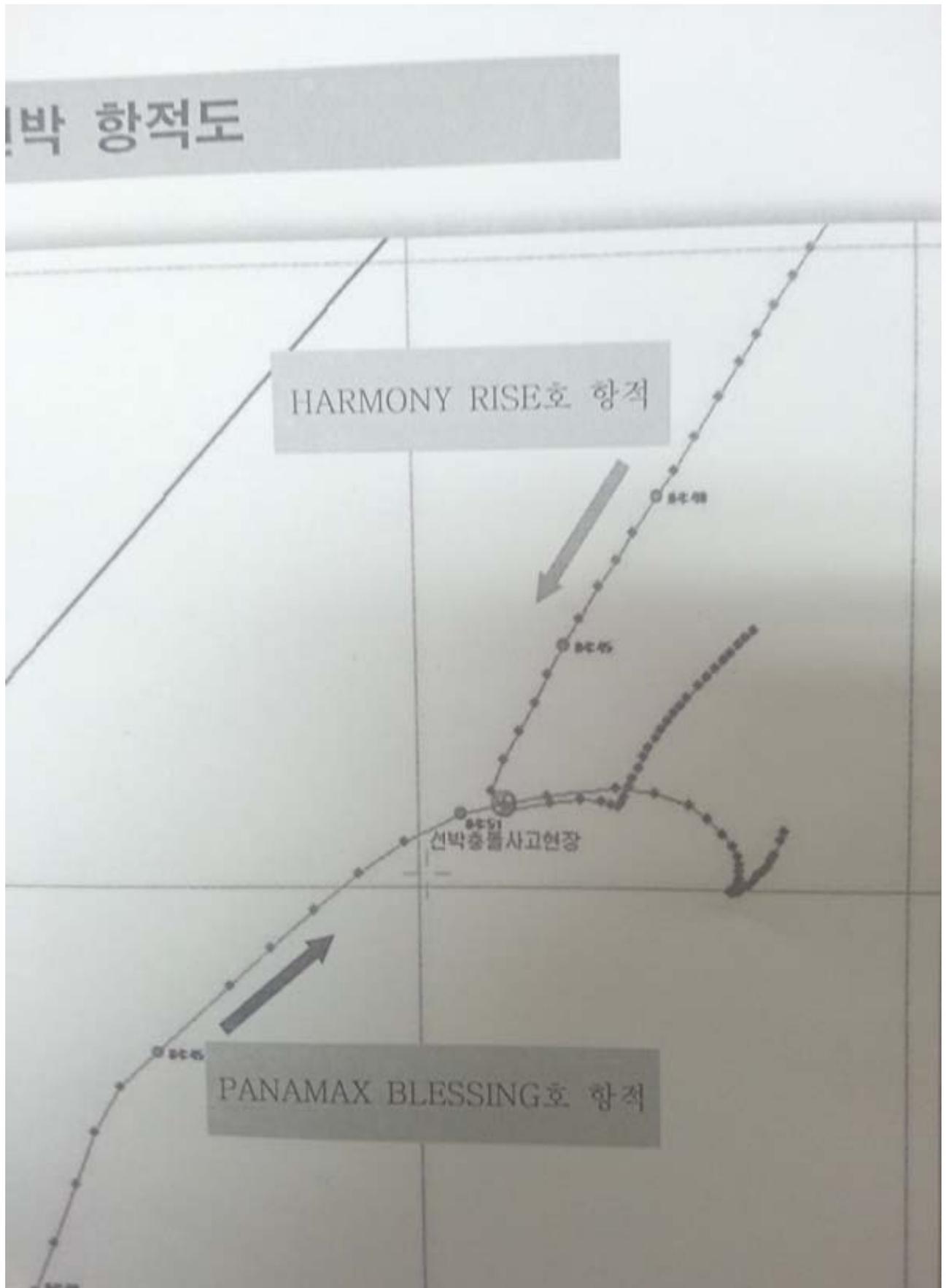


Figure 7: Data from Ulsan VTS

4. Analysis

(The purpose of the analysis is to determine the contributory causes and circumstances of the accident as a basis for making recommendations to prevent similar accidents occurring in the future).

The following analysis draws on statements from the crew who was on the bridge of the “Panamax Blessing” at the time of the casualty, documents and photographs and S-VDR recordings taken from the “Panamax Blessing”.

Data from the Ulsan VTS (**Figure 7**) was very helpful to reconstruct the course of events.

S-VDR audio recordings were helpful though audio not of good quality.

Subsequently modeling reconstruction of combined S-VDR RADAR/ARPA and VTS, provided by an expert instructed by the Owners London based BRITANIA P&I Club, was very helpful.

No statements were taken from the crew of the submerged “Harmony Rise” who were repatriated before the arrival of the DMS Investigator nor was her VDR (if she had one) found. Therefore, it could not be determined whether any shipboard conditions, failure or system malfunction contributed to the casualty.

4.1 THE SHIP

M/V “Panamax Blessing” is a PNMX Gearless B/C. She was built in Jan. 1996, by Hudong Shipyard, China. It has LOA / LBP x B x D: 225.00 / 215.00 x 32.20 x 18.70 M and 69,997 DWT on 13.63m draft. Grain Capacity: 83110 M³. It has 7 Holds / 7 Hatches with Hatch Covers - Mcgregor Navire Side Opening Type. It is Heavy Cargoes Strengthened.

Propulsive power is provided by a Main Engine (ME): B&W 6S60MC, 9782 KW @ 92 RPM. The ME drives a fixed pitch propeller which gives the ship a service speed of about 13 Knots. (80 RPM = 13 Knots / 68 RPM = 11, 5 Knots).

Speed/Consumption: 11.5Knots-on-23MT/IFO+0.4MT/MDO

Last/Next-Dry-dock: May, 2011/May, 2014

Last / Next Special Survey: Jan 2011 / Jan 2016

“Panamax Blessing” was equipped with navigational equipment consistent with SOLAS (The International Convention on the Safety of Life at Sea, 1974, as amended) requirements. This included two 9GHz Radars / ARPA Furuno Far – 2827. She was fitted with BA Nautical Charts for the voyage. She was not fitted with an ECDIS which was not applicable at the time. The Bridge was also fitted with an Echo Sounder JRC UFE 5705, two Global Positioning Systems GPS Furuno GP80 and JRC NWZ 4740, an Automatic Identification System AIS Furuno F-100 and a Global Maritime Distress and safety system (GMDSS).

“Panamax Blessing” had valid certificates and the maintenance records indicated that was maintained in accordance with existing regulations and approved procedures.

There was no evidence of any defect or malfunction that could have contributed to the accident.



Figure 8: The Wheelhouse of “Panamax Blessing”



Figure 9: The Chartroom of “Panamax Blessing”



Figure 10: The Radioroom of “Panamax Blessing”

4.2 The Crew

“Panamax Blessing” was manned with crew licensed, qualified and medically fit in accordance with the requirements of the International Convention on Standards of Training Certification and Watchkeeping (STCW) Convention as amended.

At the time of the incident, had a crew of 24 members. 23 Filipinos and one Ukrainian Electrician. On board was also a Greek Superintendent.

While at sea the Officers and Able Seamen (A.B.s) maintained a watchkeeping routine of four hours on, eight hours off, i.e. three watch system, which is in conformance with IMO Resolution A. 890 (21) (**Annex 2: Table of Shipboard Working Arrangements**). During the hours of darkness an additional A.B. was posted on watch as look-out. At the time of the incident, due to restricted visibility, the additional A.B. was assigned helmsman’s duties and an extra Ordinary Seaman (O.S.) was posted as look-out.

BRIDGE CREW SERVICE INFORMATION (<i>M: Months, Y: Years</i>)					
Rank	Age (Years)	On Board Panamax Blessing (Months)	In Rank (Months)	Total Sea Service (Years)	
Master (STCW II/2)	29Y	13,5 M	13,5 M	6,5 Y	
Chief Off. (STCW II/3)	40Y	9,6 M	15 M	11,7 Y	
A.B. (STCW II/4)	23Y	13,5 M	3,9 M	1,5 Y	
O.S. (STCW II/4)	25Y	6 M	6 M	1/2 Y	

Before and during the incident the Master had the Conn assisted by the CO and supported by an A.B and an O.S..

The A.B and the O.S. were holders of (STCW II/4 – Deck Rating, Support Level). There was no language barrier between them and their officers.

The A.B. was assigned Helmsman’s duties and the O.S. was posted as Look-Out. Their duties corresponded to their qualifications and experience.

It was the second assignment of the CO at the rank. His total sea service (11, 7 Y) was greater than the Master’s. There were neither language barriers nor the barrier of the young officer who fears to speak to the Master. Even if the Master had the Conn, the CO was in position to advise him in decision making.

It was the first assignment of the Master at the rank. He was appointed for his first command on a Panamax vessel with a length over all of 225m.

He was also long time on board (13, 5 Months) with increased responsibilities at his first assignment as Master. The ILO’s Maritime Labour Convention (MLC, 2006) Standard A2.5-Repatriation &2(b) provides that the maximum time on board following which a seafarer is entitled to repatriation, to be less than 12 months.

It is difficult to determine the extent to which these conditions might have influenced the Master’s decision-making.

4.3 Alcohol Impairment There was no evidence to suggest that alcohol or drugs were taken by any of the crew members involved in the collision. (**Annex 3: Alcohol Test**)

4.4 Fatigue

Fatigue was not considered a contributory factor, due to those on watch being rested prior to the accident more than 6 hours. The CO stated that he went on the Wheelhouse at 03:45 and the Master was there. It is not in agreement with the Records of Hours of Work/Rest where it is shown that the Master commenced working at 04:30. His working schedule according to the Table of Shipboard Working Arrangements was 09.00 – 13.00 & 15.00 – 22.00. From 22.00 to 04.30 is 6.30 hours, but it is not in agreement with the statement of the CO. (**Annex 4: Records of Hours of Work or Hours of Rest of Master**). Nevertheless, he wrote in the Master's Night Orders Book of 9/7/2013 to be informed if visibility is restricted to 3NM (**Annex 7: Master's Night Orders Book**).

But even if his quantity of sleep was insufficient, it is difficult to determine the extent to which the effects of fatigue might have influenced his decision-making.

4.5 THE ENVIRONMENT

According to the ship's Log-Book the wind was WSW Gentle Breeze /3, the Sea was Slight /3, Overcast Sky, Vis. Zero, Air Temperature = 28°C and Sea Temperature = 25°C.

All crew members who were on the Wheelhouse at the time of the casualty, stated that visibility was deteriorated.

The Master said that it was dense fog-extended patches.

The CO said that Visibility was about 100-150M.

The Helmsman stated that the Visibility was zero and sometimes opening to the length of own vessel.

The Look – Out man stated that he could see only No7 Hold-not further, nor any ship.

4.6 Navigation & Colregs

Navigating a ship in restricted visibility requires a full understanding of the COLREGS, in particular Part B (Steering and Sailing Rules) both Section III (Rule 19) – Conduct of vessels in restricted visibility and Section I (Rules 4 to 10 inclusive) – Conduct of vessels in any condition of visibility.

Colregs Section III - Conduct of vessels in restricted visibility

Rule 19 - Conduct of vessels in restricted visibility

(a) This Rule applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.

(b) Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate maneuver.

(c) Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules of Section I of this Part.

(d) A vessel which detects by radar alone the presence of another vessel shall determine if a close quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time, provided that when such action consists of an alteration of course, so far as possible the following shall be avoided:

(i) an alteration of course to port for a vessel forward of the beam, other than for a vessel being overtaken;

Section III Rule 19 (a) This Rule applies to vessels not in sight of one another when navigating in or near an area of restricted visibility.

This means that the rules of Section II - Conduct of vessels in sight of one another (Rules 11 - 18) do not apply when navigating in or near an area of restricted visibility.

Vessels in sight of one another means that they can be seen by naked eye or by binoculars. If they can be detected by RADAR or recognized by AIS are not considered to be in sight.

Therefore: Rule 14: Head-on situation, Rule 15: Crossing situation, Rule 16: Action by give-way vessel, Rule 17: Action by stand-on vessel, do not apply. There is no give-way or stand-on vessel or crossing or head on situations, but as provided by, **Section III Rule 19(b)**: *Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility. A power-driven vessel shall have her engines ready for immediate manoeuvre.*

“Panamax Blessing” ME was put on Stand - By (engines ready for immediate maneuver) as from 04:00 i.e. one hour before the incident, according to the Master’s statement and Bridge Log Book entries (**Annex 4: Bridge Log Book entries**). The “Harmony Rise” was initially detected by RADAR at a distance of 6 NM and further speed reduction (to less than maneuvering speed at 11, 5 Knots) was not required at that time.

Section III Rule 19 (d) *A vessel which detects by radar alone the presence of another vessel shall determine if a close quarters situation is developing and/or risk of collision exists. If so, she shall take avoiding action in ample time.*

At 04:44.20 ZT, the Master ordered the Helmsman to turn from 022° to 050° because a close quarters situation was developing. The distance from the “Harmony Rise” was 3,00 NM and the CPA 490m.

At 04:47.00 the CPA increased to 1000m and the Distance was 4000m. At the same time period, the heading of HR changed from 216,7° to 210,3° i.e. the HR was closing the PB. If the HR had not closing the PB, the CPA would have been greater and the situation would have getting clear.

PB kept on this course for about six minutes until the distance was 2316m, the CPA=861m and TCPA about 4 min.

Section III Rule 19 (d) (i) provides that an alteration of course to port for a vessel forward of the beam, shall be avoided. “Panamax Blessing” turned to the right direction, i.e. to stbd. An alteration of course to port, would have involved the PB with a close quarters situation with the M/V “JIN YANG” (see above table) whose relative bearing was 30° to port of PB.

Section III Rule 19 (c) *Every vessel shall have due regard to the prevailing circumstances and conditions of restricted visibility when complying with the Rules of Section I of this Part.*

Therefore, Section I applies when navigating in restricted visibility. The application of the Section I Rules will be examined.

Section I - Conduct of vessels in any condition of visibility

Section I Rule 5 - Look-out

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

Proper look-out by sight and hearing was fulfilled by “Panamax Blessing” by posting an additional Look-Out man on the Wheelhouse. All available means to make a full appraisal of the situation and of the risk of collision was fulfilled by “Panamax Blessing”, by having all navigational equipment (RADAR, ARPA, AIS, VHF) in operation and in use by the Master and the CO.

Section I Rule 6 - Safe speed

Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions.

In determining a safe speed the following factors shall be among those taken into account:

(a) *By all vessels:*

(i) *the state of visibility;*

(ii) *the traffic density including concentrations of fishing vessels or any other vessels;*

(iii) *the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions;*

- (iv) at night the presence of background light such as from shore lights or from back scatter of her own lights;
- (v) the state of wind, sea and current, and the proximity of navigational hazards;
- (vi) the draught in relation to the available depth of water.

Under the circumstances, maneuvering speed at 11,5 Knots with the ME on Stand – By, taken into consideration the maneuverability of the vessel and the traffic density at the time, can be considered safe. The regulation does not specify distance for reducing speed when close quarters situation is developing.

Section I Rule 7 - Risk of collision

- (a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.
- (b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.
- (c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.
- (d) In determining if risk of collision exists the following considerations shall be among those taken into account:
 - (i) such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change;
 - (ii) such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

The **heading** of the Harmony Rise as shown on the S-VDR recordings was not steady but was continuously changing from 215° at 04:42 to 210° at 04:43 to 215° at 04:44. The change of heading of a vessel in nearly opposite direction in restricted visibility creates doubt as to its actual direction. Therefore, risk of collision should be deemed to exist.

In addition, for the same reason, i.e for not heading on a steady course, the **bearing** of HR was not appreciably changing before and after the turn of PB to stbd from 020° to 050° at 04:44.20. As from 04:44.20 the bearing of HR was 042° and at 04:52.30 was 049°. Normally, when the distance between the two ships in nearly opposite directions is decreasing, the bearing is changing rapidly. Therefore, risk of collision should be deemed to exist.

Section I Rule 8 - Action to avoid collision

- (a) Any action taken to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.
- (b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.
- (c) If there is sufficient sea-room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.
- (d) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.
- (e) If necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by stopping or reversing her means of propulsion.

Action taken to avoid collision can be either alteration of course, or speed or both. Must be positive, made in ample time and large enough. If there is sufficient sea-room, alteration of course alone may be the most effective action to avoid a close-quarters situation. The alteration of course to stbd by PB at 04:44.20 was made in good time, it was substantial and there was sufficient sea room of 3NM from the HR. It would not have resulted in another close-quarters situation, if the HR was keeping on a steady course.

No further reduction of speed was made when the distance was less than 3NM after 04:44.20. The Master of the PB, as already the engine was running close to the upper limit of critical range of RPM (48-62) relied on course alterations to stbd and on VHF communication .

When the distance between the two vessels reduced to less than 1 NM, at about 04:51 00 ZT, a reduction of speed, taking into consideration that the advance of a PNMX vessel is 3-4 ship lengths, would not have contributed to the avoidance of the collision.

Subsequent changes of course to stbd by PB were done at 04:50.15 from 050° to 060°, at 04:52.30 to 070°, at 04:53.00 to 080°. Whilst PB was turning to stbd, (though these changes of course were “not large enough” and “a succession of small alterations of course and/or speed should be avoided”), the HR as shown in the above table, was not keeping on steady course, but her course changed from 216,7 at 04:44.20 to 208,9 at 04:53.00, closing the course of the PB.

Communication was established late at 04:50 when the distance between the two vessels was 2,400m the CPA 900m and was continued until 04:52.17 when the distance between the two vessels was less than 1,0 NM.

The HR replied to the CO/PB after she was called three times. The CO /PB was trying to persuade HR to turn to stbd, in order to pass port-to-port. At 04:51.00 when another vessel the “JIN YANG” was on the stbd side of HR, the HR said “No,,,eh ...your vessel is on my stbd side now”. It could be assumed that the HR did not recognized to whom was talking on the VHF.

“Harmony Rise” at 04:52.15 agreed with the “Panamax Blessing” to pass port-to-port. In order to pass port to port she should have turned to stbd. Instead she turned to port resulting in collision. “Harmony Rise” turned to port contravening Rule 19 (d) (i) which provides that an alteration of course to port for a vessel forward of the beam, shall be avoided.

At 04:53.30 the HR turned suddenly to port. Her course changed from 209° to 190°

At 04:53.50 the Master of PB asked the Helmsman:”Heading”? CPA= 240m Dist.= 374m.

At 04:53.58 the Helmsman answered “Heading now sir is 080.

Four (4) seconds later at 04:54.02 occurred the collision.

5. CONCLUSIONS

Safe speed

“Panamax Blessing” (PB) Main Engine (ME) was put on Stand - By (engines ready for immediate maneuver-slightly above ME critical revolutions i.e. 48-62 RPMs) as from 04:00 i.e. one hour before the incident. The “Harmony Rise” was initially detected by RADAR at a distance of 6 NM and further speed reduction (to less than maneuvering speed at 11, 5 Knots) was not required at that time. Under the circumstances, maneuvering speed at 11,5 Knots with the ME on Stand-By, taken into consideration the maneuverability of the vessel and the traffic density at the time, can be considered safe. The regulation does not specify distance for reducing speed when close quarters situation is developing. The turning circle characteristics of own vessel i.e. advance and transfer and the distance, as well as the speed and course of the other vessel must be considered in order to calculate the appropriate distance for reducing speed. No further reduction of speed was made when the distance was less than 3NM. The Master of PB relied only on course alteration to stbd and on VHF communication. PB having her ME on Stand-By, was able to perform immediate alteration/reduction of speed had the need arose. Reduction of speed/revolutions below critical (48-62 RPMs) though a choice provided in the Colregs was not considered. Nevertheless, would have resulted in slow response of the rudder i.e reduced manoeuvrability and slow course changes. When the distance between the two vessels reduced to less than 1 NM, at about 04:51 00 ZT, a reduction of speed, taking into consideration that the advance of a PNMX vessel is 3-4 ship lengths, would not have contributed to the avoidance of the collision.

Doubt that a risk of collision exists

If there is doubt that a risk of collision exists, then, such risk shall be deemed to exist, even if the compass bearing of an approaching vessel changes. Therefore, the Master being in doubt that a risk of collision existed, he deemed that it existed. In line with this rule, at about 04:44:20 ZT, the Master ordered the Helmsman to turn from 022° to 050°. The distance from the “Harmony Rise” was 3, 00 NM. If it is assumed that the Master of the “Panamax Blessing” was in doubt whether a risk of collision existed due to poor visibility, the changes of heading of the other vessel and small CPA of the other vessel. (A small CPA may result in close quarters situation and proactive action may be appropriate).

Action taken to avoid collision

Action taken to avoid collision can be either alteration of course, or speed or both. It must be positive, made in ample time and large enough. Also the engine can be stopped, if it is necessary to avoid collision.

At 04:44.20 ZT, the Master ordered the Helmsman to turn from 022° to 050° because a close quarters situation was developing. The distance from the “Harmony Rise” was 3, 00 NM and the CPA 490m.

A CPA 490m is considered dangerous. (From a given CPA should be subtracted the distances of the antennas of the ships from their stem).

The alteration of course to stbd by PB at 04:44.20 was positive, was made in good time, and was substantial.

Subsequent changes of course to stbd by PB were done at 04:50.15 (CPA= 855m – Distance 2300 m) from 050° to 060° at 04:52.30 to 070° (CPA= 236m – Distance 1074m) at 04:53.00 to 080° (CPA=271m – Distance 812m).

During the alteration of course by PB to stbd, the HR was not keeping on steady course and did not turn to stbd either. Her course at 04:44.20 was 217° (when the PB made her first turn to stbd) and one minute before the collision at 04:53.00 was 209°. The HR was closing the course of the PB.

The PB turned from 020° to 050° and then to 060° to 070° to 080°. The changes of course from 050° to 060° to 070° to 080°, were “not large enough” and “a succession of small alterations of course should have been avoided”. Nevertheless, these “succession of small alterations of course”, were being performed in addition to the first large course alteration from 020 to 050 because the HR was not keeping on steady course, instead she was closing the course of the PB.

It is assumed that, had the PB turned hard-to-stbd instead of making small alterations of course from 050° to 060° to 070° to 080°, the collision could have been avoided.

It is also assumed that, had the HR kept on a steady course, or had she had made a stbd turn, the collision wouldn't have happened.

Rule 19 (d) (i) provides that an alteration of course to port for a vessel forward of the beam, shall be avoided. “Panamax Blessing” turned to the right direction, i.e. to stbd,

“Harmony Rise” turned to port **factually contravening Rule 19 (d) (i)** which provides that an alteration of course to port for a vessel forward of the beam, shall be avoided.

Colregs Rule 35(a): Sound signals in restricted visibility

According to Colregs Rule 35(a) a vessel in restricted visibility shall sound at intervals of not more than two minutes one prolonged blast. **No mention was made regarding sounds in restricted visibility from both vessels.**

Communication

The HR replied to the CO/PB after she was called three times. The CO/PB requested HR to turn to stbd, in order to pass port-to-port. At 04:51.00 when another vessel the “JIN YANG” was on the stbd side of HR, the HR said “No,,eh ...your vessel is on my stbd side now”. It cannot be verified whether on the Bridge of the HR whoever was, recognized to whom was talking on the VHF.

From the S-VDR voice recording it was realized that those on the Bridge of the HR were not using the IMO's “Standard Marine Communication Phrases” and their English language level was poor.

“Harmony Rise” agreed to pass port to port. In order to pass port to port she should have turned to stbd. Instead she turned to port resulting in collision.

Factually lack of situational awareness and inadequate communication skills.

Conclusively:

1. Inadequate communication skills of the HR crew contributed to this casualty.
2. Lack of situational awareness i.e. knowing what is happening in and around the ship by the HR crew contributed to this casualty.
3. Contravention of Colregs Rule 19(d) (i) by HR which provides that an alteration of course to port for a vessel forward of the beam, shall be avoided, contributed to this casualty.
4. Contravention of to Colregs Rule 35(a) by both vessels, contributed to this casualty (sound at intervals of not more than two minutes one prolonged blast)
5. Inadequate performance at the last stages of the incident by PB (a succession of small alterations of course instead of a hard-to-stbd turn) caused by confusion regarding the actions and intentions of the other vessel and poor communication skills of the crew of the other vessel, in poor visibility conditions, contributed to this casualty.

6. Recommendations

TO: CYPRUS SEA LINES CO LTD, Athens, Greece

1. Review the casualty within the scope of the Safety Management System (SMS), and bridge crew conduct during restricted visibility to be addressed.
2. Maritime Resources Management (MRM) Training will improve situational awareness and communication skills. To be considered.
3. Bridge Simulator Training to be considered.

List of Annexes

- Annex 1: Table of Shipboard Working Arrangements
- Annex 2: Alcohol Test
- Annex 3: Records of Hours of Work or Hours of Rest of Master
- Annex4: Bridge Log Book entries
- Annex5: GMDSS Radio Log
- Annex6: Master's Night Orders Book
- Annex7: Nautical chart in use

Name of Ship: M/V PANAMAX BLESSING		Flag of Ship: CYPRUS	IMO No.: 9085609	Latest Date of Table: 28 JUN 2013			
Minimum Hours of Rest: 10 HOURS IN 24 HOURS PERIOD AS PER STCW 95 AS AMENDED							
Position / Rank	Scheduled Daily Work Hours SEA		Scheduled Daily Work Hours PORT		Comments	Total Daily Rest Hours	
	Working Dates (From - To)	Sea Working Dates (From - To)	Working Dates (From - To)	Port Working Dates (From - To)		At Sea	In Port
CAPT. MARK R. ERADDO	0800-1200 & 1500-2000	NI	AS NEEDED	0800-1800			
CHIEF STEWARD FARGO	0600-0900 & 1800-2000	0800-1200	AS NEEDED	0600-1800		15	12
2 ND DECK STERN SURVEILLANT	0600-0900 & 1200-1800	0800-1200	0800-0900 & 1200-1800	NI		12	12
3 RD DECK STERN SURVEILLANT	0800-1200 & 2000-2400	1300-1700	0800-1200 & 2000-2400	NI		12	12
BOSUN SAMUEL P. PAVLIDIS	NI	0700-1800	NI	0800-1800		12	12
ABLE BODIES 1 STWD	0800-1200 & 1500-2000	0800-1200	0800-0900 & 1800-2000	0800-1500		14	14
ABLE BODIES 2 STWD	0800-1200 & 2000-2400	1300-1700	0800-1200 & 2000-2400	1300-1700		14	14
ABLE BODIES 3 STWD	0800-1200 & 1200-1800	0800-1200	0800-0900 & 1200-1800	2000-2400		14	14
OS. COLAS ALEXANDER	AS NEEDED	0700-1800	0800-0900 & 1200-1800	1300-1700		14	14
OS. KALOGRIANOS	AS NEEDED	0700-1800	0800-0900 & 2000-2400	1300-1700		14	14
OS. KALOGRIANOS	AS NEEDED	0700-1800	0800-0900 & 2000-2400	0800-1800		14	14
4 TH DECK STERN SURVEILLANT	0800-1200 & 1500-2000	NI	AS NEEDED	0800-1800		12	12
2 ND DECK STERN SURVEILLANT	0800-1200 & 1500-2000	0800-1200	AS NEEDED	0800-1800		12	12
3 RD DECK STERN SURVEILLANT	0800-1200 & 1200-1800	0800-1200	0800-0900 & 1200-1800	NI		12	12
4 TH DECK STERN SURVEILLANT	0800-1200 & 2000-2400	1300-1700	0800-1200 & 2000-2400	NI		12	12
ELIOT, T. & SON STEWARD	NI	0800-1700	NI	0800-1700		15	15
OS. ST. ANASTASIOS	0800-1200 & 2000-2400	1300-1700	0800-1200 & 2000-2400	1300-1700		14	14
OS. ST. ANASTASIOS	0800-1200 & 1200-1800	1300-1700	0800-0900 & 1200-1800	1300-1700		14	14
OS. ST. ANASTASIOS	0800-1200 & 1800-2000	0800-1200	0800-0900 & 1800-2000	0800-1200		14	14
WATER TENDER / CLEANER	AS NEEDED	0800-1700	AS NEEDED	0800-1700		15	15
ELIOT, T. & SON STEWARD	NI	0700-1800	NI	0700-1800		15	15
ELIOT, T. & SON STEWARD	NI	0700-1800	NI	0700-1800		15	15
OS. ST. ANASTASIOS	NI	0800-1200 & 1200-1800	NI	0800-1200 & 1200-1800		15	15
OS. ST. ANASTASIOS	NI	0800-1200 & 1200-1800	NI	0800-1200 & 1200-1800		15	15



Name / Signature of Master & Vessel's Stamp: CAPT. MARK R. ERADDO

TRUE COPY OF ORIGINAL

Annex 1: Table of Shipboard Working Arrangements

MV PANAMAX BLESSING
LIMASSOL

08 JULY 2013
AT SEA

CREW BLOOD ALCOHOL CONTENT LIST

NAME	RANK	%BA CONTENT
01. ERADIO, MARK R.	MASTER	0.00%
02. FARRO, VIRGILIO R.	CH/OFFICER	0.00%
03. SABARITA, ELMER Y.	2 ND OFFICER	0.00%
04. LABONGAN, RACID Z	3 RD OFFICER	0.00%
05. PAQUERA, SAMUEL G.	BOSUN	0.00%
06. INTING, MICHAEL M.	A/B	0.00%
07. LAPSO, LLOYD V.	A/B	0.00%
08. LAUSA, LEMUEL D.	A/B	0.00%
09. DELOS SANTOS, RAMLORD M.	DTR	0.00%
10. AGUANTA, RENATO M.	DTR	0.00%
11. VILLALUZ, ERWIN S.	DTR	0.00%
12. BOLONGON, EDRENE RAY J.	CH/ENGINEER	0.00%
13. SEGISMUNDO, BENJIE S.	2 ND /ENGINEER	0.00%
14. CORPUZ, RONALD F.	3 RD /ENGINEER	0.00%
15. ARTAGAME, JOSE MARIE C.	4 TH /ENGINEER	0.00%
16. PENDYUKHOV, VIKTOR	ELECTRICIAN	0.00%
17. DELVO, RAMIL D.	OLR	0.00%
18. ESCALERA, JOHN ALLEN C.	OLR	0.00%
19. DAGTA, REYNALDO L.	OLR	0.00%
20. LEYSON, REYNALDO JR. C.	ETR	0.00%
21. ALPUERTO, PATRICIO A.	FTR	0.00%
22. SACIL, SERAFIN S.	FTR	0.00%
23. RAMBOY, VICENTE LOUIE B.	COOK	0.00%
24. ALCARIA, JOHN GLENN B.	MTR	0.00%

BAC READING:

- * 0.00% to 0.01% = SAFE RANGE = LITTLE/ NO ALCOHOL INTAKE.
- * 0.02% to 0.04% = MODERATE RANGE = INCREASED ALCOHOL INTAKE.
- * 0.05% and over = WARNING RANGE = HUMAN ABILITY IMPAIRED.

MR
MASTER
TRUE COPY OF

MR
CAPT. MARK R. ERADIO
MASTER



Annex 2: Crew Blood alcohol content List

RECORD OF HOURS OF WORK OR HOURS OF REST OF SEAFARERS (*)

Month and Year
JULY 2013

Name of Ship: PANAMAX BLESSING

Seafarer (Full Name): CAPT. MARK R. ERADIO

IMO Number: 9085869

Position / Rank: MASTER

Flag of Ship: CYPRUS

Watchkeeper: YES NO

Please mark Periods of Work or Rest, as applicable, with an X, or using a continuous line or arrow.

COMPLETE THE TABLE ON THE NEXT PAGE

The following National laws, Regulations and for Collective Agreements governing limitations on working hours or minimum rest periods apply to this ship

- a) International Convention on Standards of Training, Certification and Watchkeeping, 1978, as amended (STCW Convention).
- b) Minimum Hours of Rest shall not be less than: (i) 10 hours in any 24-hour period; and (ii) 77 hours in any 7-day period.

I agree that this record is an accurate reflection of the hours of work or rest of the seafarer concerned. (*)

Name of Master or person authorized by Master to sign this record: CAPT. MARK R. ERADIO

Signature of Master or Authorized Person

Signature of Seafarer



A copy of this record is to be given to the seafarer

Note: (*) Delete as appropriate

REFERENCE: PERSONNEL MANUAL

Annex 3: Master's Hours of Work/Rest

Official Log Book of

Ημέρα και Ημερομηνία:
Day and Date: WEDNESDAY 10 JULY 2013

1 Ωρα Time	2 Βαρο- μετρο Baro- meter	3 Θερμοκρασία Ανέμου °C Temperature Air °C	4 Θερμοκρασία Θάλασσας °C Sea °C	5 Σχετική Υγρασία% Relative Humidity%	6 Άνεμος Κατεύθ. Ένταση Wind Direction Force	7 Κατά- σταση Θάλασσας Sea Scale	8 Αληθής Πορεία True Course	9 Ενδειξη Γυροσκοπικής Πυξίδας Gyro Compass Readings	10 Γυροσκοπικής Πυξίδας Gyro Compass Error	11 Ενδειξη Μαγνητικής Πυξίδας Magnetic Compass Reading	12 Μαγνητικής Πυξίδας Magnetic Compass Error	13 Παράλληλο Μεταβολών Ώρας Log Reading N.M.	14 Ενδειξη Δρομολογίου N.M.
0700	1009	28	25		SW 3	3	021	018		035			
CONTACT BY VHF M/V HARMONY ASKED TO PASS PORT TO PORT, DUTY OFFICERS FROM THIS SHIP CONFIRMED, ALL OF THE SUDDEN WE NOTICED M/V HARMONY KISS SHOWS HER GREEN LIGHT AND WE HIT HER ON HER STARBOARD SIDE.													
0800	1009	21	29		SW 4	3		200		204			
1200	1008	25	22		E 4	3							
1800	1002	24	17		L 4	3						ULCAN BERTH	
2000	1008	23	27		S 4	3						ULCAN BERTH	
2300	1009	27	23		SW 4	3						ULCA BERTH	

*WRC
MASTER*

TIME COPY OF ORIGINAL

ΠΕΡΙΣΤΗΡΙΩΔΗΣ ΑΝΑΦΟΡΑ - NOON REPORT

Μεσημεριό επιγείο Πλάτος φ° Noon Position latitude φ°	Μήκος λ° Longitude λ°	Διάρκεια ταξιδιού Time at Sea	Μ. d	ω. h	Α + ποτόριο/δίοιοιο mi + time river/port passage	Μ. d
Ημερήσιο διάστημα = Day's run =	ω. h A. min v. μ. min	Ημερήσια μέση ταχύτητα Day's average speed	μίλια kn	Ολική απόσταση Total distance	μίλια + ποτόριο/δίοιοιο mi + distance river to b	
Μεσημεριό ωστόρ =	Λ. min	Ταχύτητα βάρους ωστόρ =	ω. h	Υπαλοπιστευμένη απόσταση =	ω. h	Ταχύτητα ταξιδιού =

Annex 4: Bridge Log Book entries

GMDSS Radio Log

MUT / MV FANNING'S ESCORT

CALLSIGN: *5B4Y2*

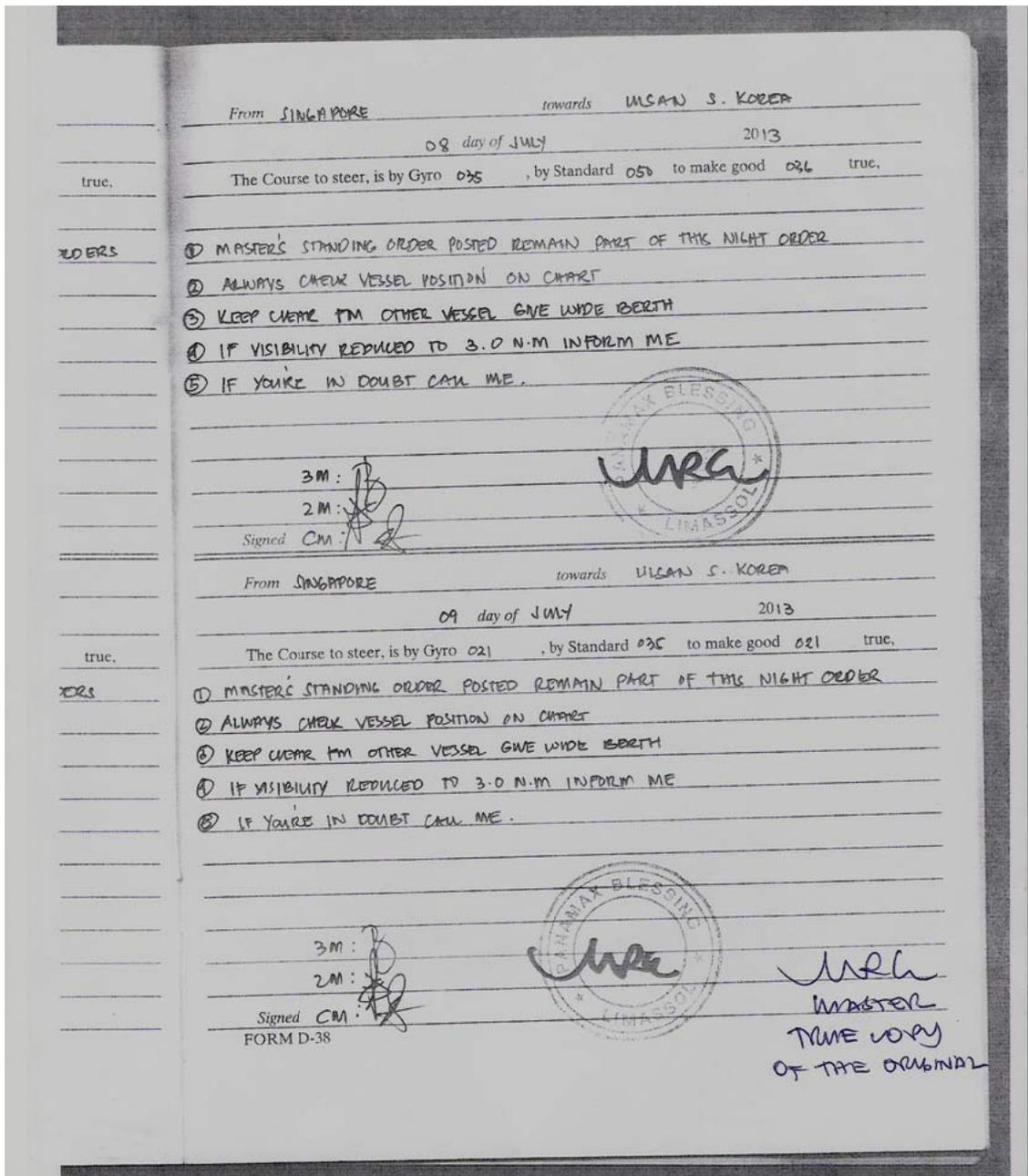
M.M.S.I. *21209000*

DAY AND TIME UTC	STATION TO	STATION FROM	OPERATORS ACTIONS OR REMARKS	FREQUENCY, CHANNEL OR SATELLITE
<i>29 JUL 13 1605</i> <i>UNRC</i>			<i>CALL WILSON VTS & RELS FROM PRODUCE AND INFORMATION OF RECEIVING PALS STATION REQUESTED FROM WILSON VTS AND REPORT RETURN TO THE FORWARDING POINT.</i>	<i>CH. 16.7</i>
<i>29 JUL 13 180</i> <i>UNRC</i>			<i>PRIVY INTERFERENCE BY VTS/OF OFFICE INTERNATIONAL OF DIST. GOODS BATTERY, CABLE NUMBER 21209000 VERIFY OK.</i>	<i>CH. 16.7</i>
<i>30 JUL 13 0324</i> <i>UNRC</i>			<i>EMERGENCY REGULATIONS TEST OF VTS/OF OFFICE INFORMATION OF DIST. GOODS BATTERY CABLE NUMBER CHECK PROVIDE PAPER SUPPLY OK.</i>	<i>CH. 16.7</i>
<i>15704 21209000</i>		<i>21209000</i>	<i>WIND INDICATORIAL SIGNAL TO LAND STATION STATION CALL</i>	<i>RX 21270.0kHz</i>
<i>16023 21209000</i>		<i>21209000</i>	<i>RECEIVED ACKNOWLEDGE FROM LAND STATION STATION CALL</i>	<i>RX 21270.0kHz</i>
<i>28 JUL 13 0218</i> <i>UNRC</i>			<i>CALL RELS OF OFFICE OFFICE INTERNATIONAL & REL GOODS BATTERY, CABLE NUMBER 21209000 PROVIDE PAPER SUPPLY OK.</i>	<i>CH. 16.7</i>

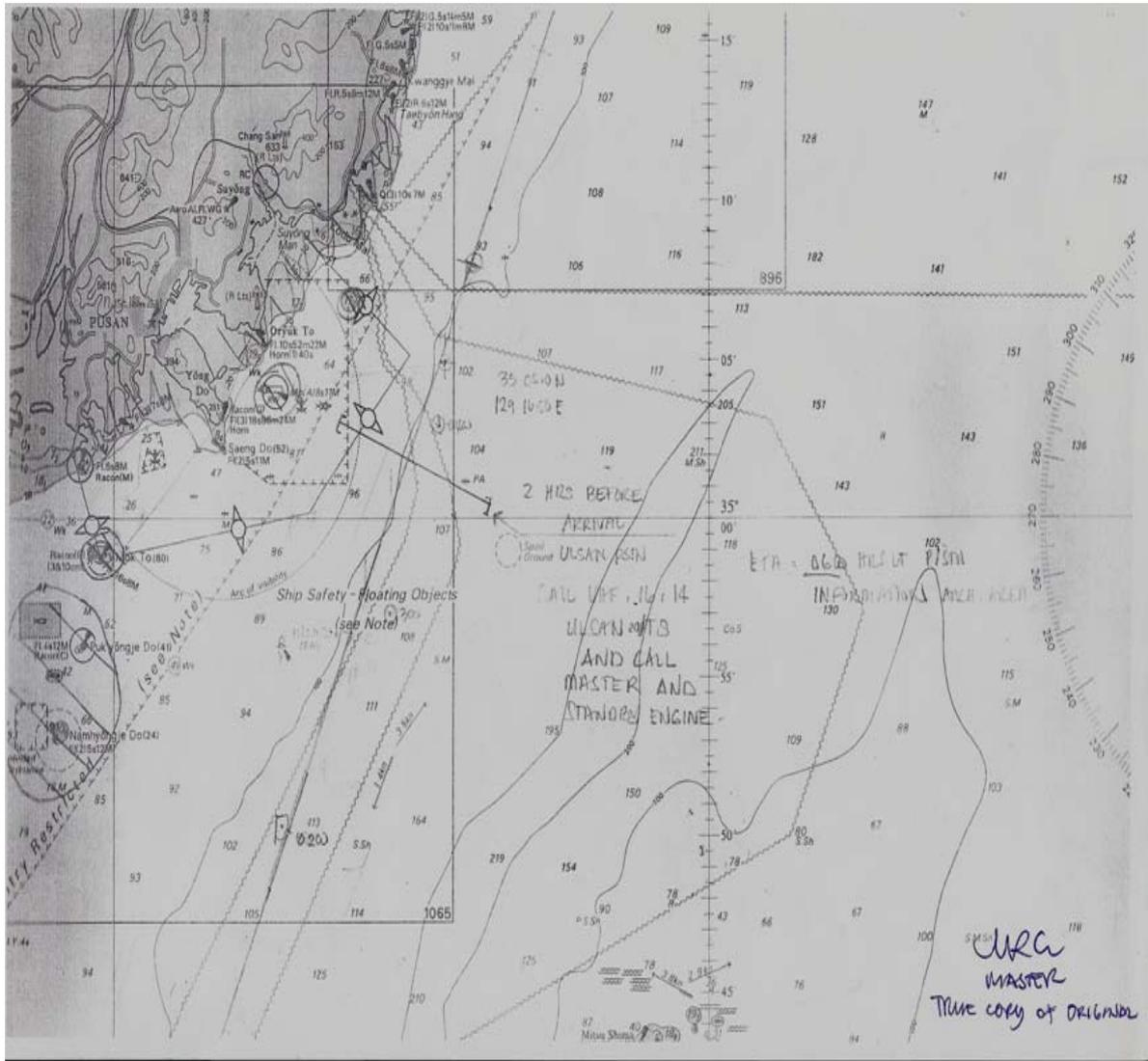
UNRC
MASTER

TRUE COPY OF ORIGINAL

Annex 5: GMDSS Radio Log



Annex 6: Master's Night Orders Book



Annex 7: Nautical chart in use