REPORT ON SERIOUS MARINE CASUALTY

NAME & IMO No	**:** BENITAMOU / 9439046 BC VANESSA / 9426855
FLAG	**:** Panama Barbados
LOCATION OF ACCIDENT	**:** The Northern Entrance of Çanakkale Strait / Turkiye
DATE OF ACCIDENT	**:** 24.10.2021 / 06:07 LT
FATALITY&INJURY	**:** - / -
DAMAGE&POLLUTION	**:** Extensive damages on both vessels / NIL

Board Decision No: 13 /D-6 /2023 *Date: 19 / 06 / 2023*

The sole objective of this investigation is to make recommendations for the prevention of similar accidents and incidents within the framework of the Transport Safety Investigation Center regulation. This report neither has the value of judiciary and administrative investigation nor bears the purpose to apportion blame or liability.

LEGAL BASIS

This marine casualty has been examined by the provisions of the “By-law on the Investigation of Marine Accidents and Incidents” published and enacted in the Official Gazette dated 11/27/2019 and numbered 30961.

International Standards for Safety Investigations into Marine Accidents or Incidents (MSC 255(84) and Resolution A.1075 (28) and International Maritime Organization Decisions on Recommended Practices (Accident Investigation Code) have also been considered for the procedures and principles of the investigation.

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ABBREVATIONS

A/B ***:*** *Able Seaman*
AIS *: Automatic Identification System*
ARPA *: Automatic Radar Plotting Aid*
BRM *: Bridge Resource Management*
DBT *: Double Bottom Tank*
C/O *: Chief Officer*
COLREG *: International Regulations for Preventing Collisions at Sea*
CPA *: Closest Point of Approach*
dGPS *: Differential Global Positioning System*
ECDIS *: Elektronik Chart Display and Information Ssytem*
FPT *: Fore Peak Tank*
GMDSS *: Global Maritime Distress Safety System*
GOC *: General Operator Certicifate*
GT *: Gross Tonnage*
VTS *: Vessel Traffic Services*
VTSO *: Vessel Traffic Service Operator*
IALA *: International Association of Marine Aids to Navigation And Lighthouse Authorities*
IMO *: International Maritime Organization*
ISM *: International Safety Management*
LOA *: Length Over All*
MT *: Metric Tonnage*
NM *: Nautical Miles*
OOW *: Officer On Watch*
RDF *: Radio Direction Finder*
SAR *: Search and Rescue*
SG *: Sector Gelibolu*
SMCP *: Standart Marine Communication Phrases*
STCW *: Standarts Of Certification Training Watchkeeping*
TSS *: Trafik Seperation Scheme*
TSVTS *: Turkish Straits Vessel Traffic Services*
TST *: Top Side Tank*
TÜBRAP *: Turkish Straits Reporting System*
UTC *: Coordinated Universal Time*
WBT *: Water Ballast Tank*
VDR *: Vessel Data Recorder*
VHF *: Very High Frequency*

LIST OF FIGURES

SUMMARY

Figure 1: Accident Scene

Note: All times used in this report are Local Time (UTC +3)

On 24 October 2021, the Panama registered bulk carrier BENITAMOU collided with the Barbados registered general cargo BC VANESSA in southbound lane of the Turkish Straits TSS in Marmara Sea, Turkiye ***(Figure 1).*** BENITAMOU was proceeding at a speed of around 8 knots of while started to cross TSS southerly due to the suspension of her transit. BC VANESSA was a southbound vessel, as well and proceeding at a speed 12 knots in the TSS. Both vessels suffered major structural damages but there were no injuries or pollution.

The collision resulted from several factors. Restricted visibility was prevailing and vessel traffic was congested at the time of accident. In particular, a passing arrangement was not agreed or promulgated between the vessels and the actions of both bridge teams were not in a timely manner. Both bridge teams were unable to effectively use suitable navigational devices. BENITAMOU's bridge team did not aware of BC VANESSA's overtaking due to the in effective look-out work. In addition, BC VANESSA's bridge team was not established for navigating in restricted visibility and had a poor look-out work, as well.

Both of the vessels were unable to implement principles of safe speed within the scope of the respective provisions of COLREGs.

The accident occurred within the Turkish Straits TSS operated and managed by TSVTS. The VTSO and BENITAMOU's bridge team were not aware of BC VANESSA's overtaking due to the lack of her AIS information and volatility of her radar echo.

The managers/operators of BENITAMOU and BC VANESSA have been recommended to improve the standard of bridge watchkeeping on board their vessels. A recommendation to TSVTS under the command of General Directorate of Coastal Safety is intended to improve the effectiveness of the vessel traffic it provides.

SECTION 1 – FACTUAL INFORMATIONS

1.1 Ship's Particulars

1.1.1 Basic Ship Particulars

	BENITAMOU	BC VANESSA
Flag	Panama	Barbados
Classification Society	NKK	NKK
IMO No	9439046	9426855
Type	Bulk Carrier	Bulk Carrier/General Cargo
Construction Place and Date	Saijo Shipyard, Japonya / 2008	Saiki Shipyard, Japonya / 2010
Gross Tonnage	104729	19805
Length Over All	299,94	171,59
Main Engine	Mitsui-Man B&W – 18630 kW	Akasaka-Mitsubishi – 7080 kW

1.1.2 Voyage Particulars

	BENITAMOU	BC VANESSA
Port of Departure	Yuzhne (Ukraine)	Varna (Bulgaria)
Port of Arrival	Zhangjiang (China)	Sfax (Tunis)
Passenger	-	-
Crewmember	22	25
Minimum Manning	15	13
Ype of Voyage	Unlimited	Unlimited
Cargo	Iron Ore Concentrate (201.305 MT)	Wheat in Bulk (27.500 MT)

1.1.3 Lay Out of the Vessels

1.1.3.1 MV BENITAMOU

Figure 2: BENITAMOU

MV BENITAMOU is a bulk carrier built at Saijo Shipyard/Japan. She was delivered to her registered owner in 2008. The vessel consists of nine cargo holds and has a summer deadweight cargo capacity of 206.291 MT. The length over all is 299,940 mt and the summer draught is 18,105 mt.

The engine room was equipped with a Mitsui-MAN B&W 18,630 kW main engine. M/V BENITAMOU was designed with ballast tanks as fore peak, aft peak and No.1, No.2, No.3 and No.4 WBTs on either side. In addition, No.5 port and starboard side tanks used for waste water. As well as, Hold No.6 is used for ballast in-ballast navigation. Total ballast capacity is 98618 m^3. The Capacity Plan is as seen on the ***Figure 4***.

BENITAMOU is fitted with the required electronic navigation aids as listed in the Record of Equipment for Cargo Ship Safety Equipment Certificate – Form E. These included standard and spare magnetic compasses, gyro compass and repeaters, pelorus or compass bearing device, one ARPA, one S-band 3 GHz and one X-Band 9 GHz, ECDIS along with back-up arrangements and an AIS

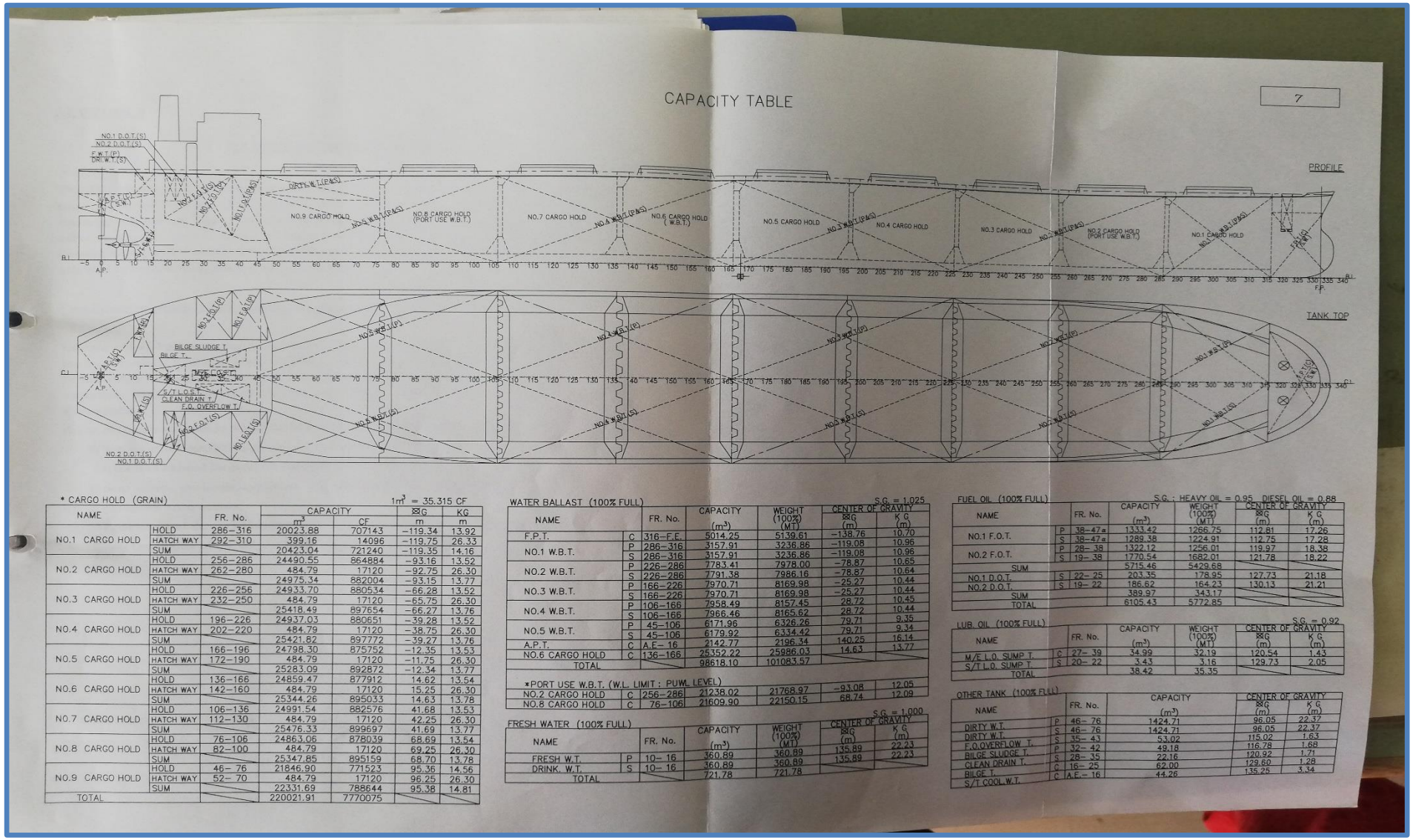
1.1.3.2 MV BC VANESSA

Figure 3: BC VANESSA

MV BC VANESSA is a bulk/dry cargo carrier built at Saiki Shipyard/Japan. She was delivered to her registered owner in 2010. The vessel was designed with five holds and has a summer deadweight cargo capacity of 31,755 MT. She was also equipped with four cranes per lifting capacity of 30 tons. The length over all is 171.59 meters and the summer draught is 10.41 meters.

The engine room is equipped with an Akasaka-Mitsubishi 7080 kW main engine. MV BC VANESSA was designed with ballast tanks as fore peak, aft peak and No.1, No.2, No.3, No.4 and No.5 DBTs and WBTs on either side. Total ballast capacity is 11,900 m^3. The Profile of B VANESSA is as seen in ***Figure 5***.

BC VANESSA is fitted with the required electronic navigation aids as listed in the Record of Equipment for Cargo Ship Safety Equipment Certificate – Form E. These included standard and spare magnetic compasses, gyro compass and repeaters, pelorus or compass bearing device, one ARPA, one S-band 3 GHz and one X-Band 9 GHz, ECDIS along with back-up arrangements and an AIS.



CAPACITY TABLE

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PROFILE

TANK TOP

* CARGO HOLD (GRAIN) $1m^3 = 35.315$ CF

NAME		FR. No.	CAPACITY m^3	CAPACITY CF	⊠G m	KG m
NO.1 CARGO HOLD	HOLD	286–316	20023.88	707143	−119.34	13.92
	HATCH WAY	292–310	399.16	14096	−119.75	26.33
	SUM		20423.04	721240	−119.35	14.16
NO.2 CARGO HOLD	HOLD	256–286	24490.55	864884	−93.16	13.52
	HATCH WAY	262–280	484.79	17120	−92.75	26.30
	SUM		24975.34	882004	−93.15	13.77
NO.3 CARGO HOLD	HOLD	226–256	24933.70	880534	−66.28	13.52
	HATCH WAY	232–250	484.79	17120	−65.75	26.30
	SUM		25418.49	897654	−66.27	13.76
NO.4 CARGO HOLD	HOLD	196–226	24937.03	880651	−39.28	13.52
	HATCH WAY	202–220	484.79	17120	−38.75	26.30
	SUM		25421.82	897772	−39.27	13.76
NO.5 CARGO HOLD	HOLD	166–196	24798.30	875752	−12.35	13.53
	HATCH WAY	172–190	484.79	17120	−11.75	26.30
	SUM		25283.09	892872	−12.34	13.77
NO.6 CARGO HOLD	HOLD	136–166	24859.47	877912	14.62	13.54
	HATCH WAY	142–160	484.79	17120	15.25	26.30
	SUM		25344.26	895033	14.63	13.78
NO.7 CARGO HOLD	HOLD	106–136	24991.54	882576	41.68	13.53
	HATCH WAY	112–130	484.79	17120	42.25	26.30
	SUM		25476.33	899697	41.69	13.77
NO.8 CARGO HOLD	HOLD	76–106	24863.06	878039	68.69	13.54
	HATCH WAY	82–100	484.79	17120	69.25	26.30
	SUM		25347.85	895159	68.70	13.78
NO.9 CARGO HOLD	HOLD	46– 76	21846.90	771523	95.36	14.56
	HATCH WAY	52– 70	484.79	17120	96.25	26.30
	SUM		22331.69	788644	95.38	14.81
TOTAL			220021.91	7770075		

WATER BALLAST (100% FULL) S.G. = 1.025

NAME		FR. No.	CAPACITY (m^3)	WEIGHT (100%) (MT)	CENTER OF GRAVITY ⊠G (m)	CENTER OF GRAVITY K G (m)
F.P.T.	C	316–F.E.	5014.25	5139.61	−138.76	10.70
NO.1 W.B.T.	P	286–316	3157.91	3236.86	−119.08	10.96
	S	286–316	3157.91	3236.86	−119.08	10.96
NO.2 W.B.T.	P	226–286	7783.41	7978.00	−78.87	10.65
	S	226–286	7791.38	7986.16	−78.87	10.64
NO.3 W.B.T.	P	166–226	7970.71	8169.98	−25.27	10.44
	S	166–226	7970.71	8169.98	−25.27	10.44
NO.4 W.B.T.	P	106–166	7958.49	8157.45	28.72	10.45
	S	106–166	7966.46	8165.62	28.72	10.44
NO.5 W.B.T.	P	45–106	6171.96	6326.26	79.71	9.35
	S	45–106	6179.92	6334.42	79.71	9.34
A.P.T.	C	A.E– 16	2142.77	2196.34	140.25	16.14
NO.6 CARGO HOLD	C	136–166	25352.22	25986.03	14.63	13.77
TOTAL			98618.10	101083.57		
*PORT USE W.B.T. (W.L. LIMIT : PUWL LEVEL)						
NO.2 CARGO HOLD	C	256–286	21238.02	21768.97	−93.08	12.05
NO.8 CARGO HOLD	C	76–106	21609.90	22150.15	68.74	12.09

FRESH WATER (100% FULL) S.G. = 1.000

NAME		FR. No.	CAPACITY (m^3)	WEIGHT (100%) (MT)	CENTER OF GRAVITY ⊠G (m)	CENTER OF GRAVITY K G (m)
FRESH W.T.	P	10– 16	360.89	360.89	135.89	22.23
DRINK. W.T.	S	10– 16	360.89	360.89	135.89	22.23
TOTAL			721.78	721.78		

FUEL OIL (100% FULL) S.G.: HEAVY OIL = 0.95 DIESEL OIL = 0.88

NAME		FR. No.	CAPACITY (m^3)	WEIGHT (100%) (MT)	CENTER OF GRAVITY ⊠G (m)	CENTER OF GRAVITY K G (m)
NO.1 F.O.T.	P	38–47a	1333.42	1266.75	112.81	17.26
	S	38–47a	1289.38	1224.91	112.75	17.28
NO.2 F.O.T.	P	28– 38	1322.12	1256.01	119.97	18.38
	S	19– 38	1770.54	1682.01	121.78	18.22
SUM			5715.46	5429.68		
NO.1 D.O.T.	S	22– 25	203.35	178.95	127.73	21.18
NO.2 D.O.T.	S	19– 22	186.62	164.23	130.13	21.21
SUM			389.97	343.17		
TOTAL			6105.43	5772.85		

LUB. OIL (100% FULL) S.G. = 0.92

NAME		FR. No.	CAPACITY (m^3)	WEIGHT (100%) (MT)	CENTER OF GRAVITY ⊠G (m)	CENTER OF GRAVITY K G (m)
M/E L.O. SUMP T.	C	27– 39	34.99	32.19	120.54	1.43
S/T L.O. SUMP T.	S	20– 22	3.43	3.16	129.73	2.05
TOTAL			38.42	35.35		

OTHER TANK (100% FULL)

NAME		FR. No.	CAPACITY (m^3)	CENTER OF GRAVITY ⊠G (m)	CENTER OF GRAVITY K G (m)
DIRTY W.T.	P	46– 76	1424.71	96.05	22.37
DIRTY W.T.	S	46– 76	1424.71	96.05	22.37
F.O.OVERFLOW T.	S	35– 43	53.02	115.02	1.63
BILGE SLUDGE T.	P	32– 42	49.18	116.78	1.68
CLEAN DRAIN T.	S	28– 35	22.16	120.92	1.71
BILGE T.	C	16– 25	62.00	129.60	1.28
S/T COOL.W.T.	C	A.E.– 16	44.26	135.25	3.34

Figure 4: The Capacity Table of BENITAMOU

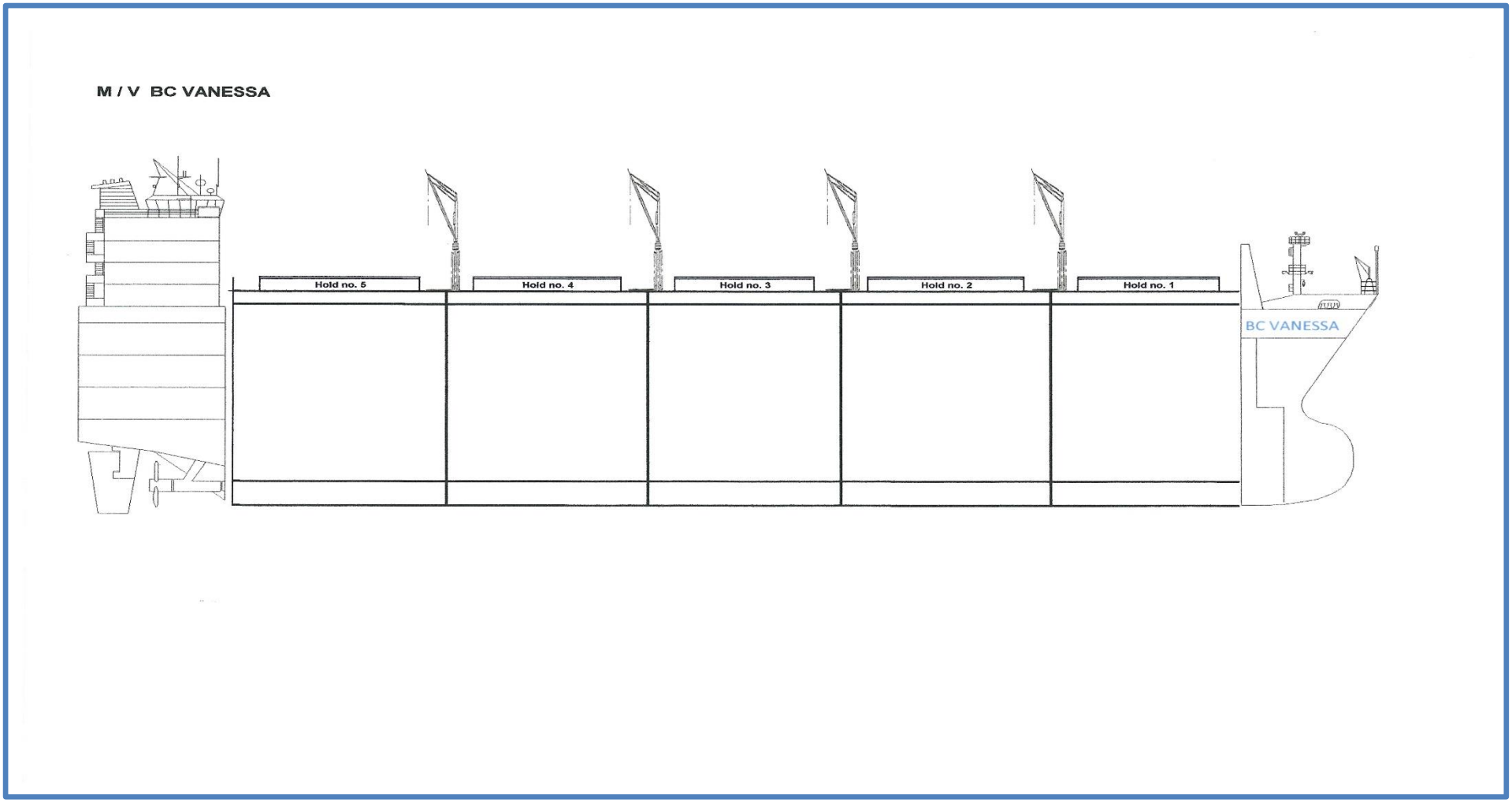


Figure 5: The Profile of BC VANESSA

1.2 Manning and Key Crew

1.2.1 MV BENITAMOU

Panama Maritime Authority issued a Minimum Safe Manning Certificate dated 22 October 2021 to BENITAMOU, as of "International Unlimited". Totally 22 crew on board, including the Master and all were the Philippines national.

Working languages are English and Filipino on board.

In the course of the accident, The Master, C/O, 3rd Mate and Helmsman (A/B) were on the bridge, 2nd Engineer and the Oiler were in the engine room, as well.

1.2.1.1 The Master

The Master of BENITAMOU was 63 years of age and a The Philippine's national. He held a STCW II/2 CoC with a Panama CEC. The Master had served on board vessels since 1982 and had served as a master since 1992. He served for 5 years as a master at BENITAMOU's shipping company and he had his contract as a Master on BENITAMOU which he joined 5 months before. He navigated as a Master in Turkish Straits and Marmara Sea previously, but for the first time as a Master of BENITAMOU. He had the GMDSS General Radio Operator (GOC) certificate, as well as the STCW Convention's. He was conning at the wheelhouse in-collision.

1.2.1.2 The Chief Officer

The C/O of BENITAMOU was 55 years of age and a The Philippine's national. He held a STCW II/2 CoC with a Panama CEC. The C/O had served on board vessels since 1990 and he served for 4 years at BENITAMOU's shipping company. He had his contract as a C/O on BENITAMOU which he joined 1 month before. He navigated on board in Turkish Straits and Marmara Sea for the second time as of the accident date. He had the certificates required by STCW Convention. He was at the wheelhouse nearby the Master in-collision.

1.2.1.3 The 3rd Officer

The 3rd Mate of BENITAMOU was 37 years of age and a The Philippine's national. He held a STCW II/1 CoC with a Panama CEC. He had his contract as a 3rd Mate on BENITAMOU which he joined 5 month before. The 3rd Mate served as an Officer with his second contract on board vessels, whereas he had served as an A/B previously. He navigated on board as an A/B in Turkish Straits and Marmara Sea before but as a Mate for the first time. He had the GMDSS General Radio

Operator (GOC) certificate, as well as the STCW Convention's. He was at the wheelhouse in front of the ARPA in-collision

1.2.2 MV BC VANESSA

Barbados Maritime Authority issued a Minimum Safe Manning Certificate dated 19 October 2020 to BC VANESSA, as of "International Unlimited". Totally 25 crewmembers on board including the Master and 22 of Syrian, 2 of Indian and one of Egyptian national.

Working languages are English and Arabic on board.

In the course of the accident, C/O and and the Lookout (A/B) were on the bridge, 2nd Engineer and the Oiler were in the engine room, as well.

1.2.2.1 The Master

The Master of BC VANESSA was 32 years of age and a Syrian national. He held a STCW II/2 CoC with a Barbados CEC. The Master had served on board vessels since 2010 and had served as a master since 2020. He served as a Master on BC VANESSA since 01.07.2021. He had the certificates required by STCW Convention. He was in his cabin in-collision

1.2.2.2 The Chief Officer

The C/O of BC VANESSA was 29 years of age and a Syrian national. He held a STCW II/2 CoC with a Barbados CEC. The C/O had served on board vessels since 2011 and had served as a C/O since 2017. He served as a C/O on BC VANESSA since 01.07.2021. He had the certificates required by STCW Convention. He was at the wheelhouse as an OOW in-collision.

1.2.2.3 The Lookout (A/B)

The Lookout was 22 years of age and a Syrian national. He held a STCW II/2 CoC with a Barbados CEC. The Lookout had served on board vessels since 2018 and had served as an A/B since 01.07.2021. He served as an A/B on BC VANESSA since 01.07.2021. He had the certificates required by STCW Convention. He was at the wheelhouse as a Lookout in-collision.

1.3 Marine Casualty Information

Date/Time Of Accident	24.10.2021/06:07 LT
Accident Category (IMO)	Serious Marine Casualty
Type of Accident	Collision
Location of Accident	Off Doğanaslan shelf / Marmara Sea
Injury/Fatality/Loss	-/-/-
Damage	BENITAMOU – Tears and deformations at the No.4 hold shell platings&stanchions, minor damages at the No.4 hatchcover and rails BC VANESSA – Tears and deformations at the forecastle deck and the stem shell platings, deformations on the bulbous
Pollution	NIL

1.4 Enviromental Conditions

The enviromental conditions data extracted from BENITAMOU's and BC VANESSA's Deck Logs on the day of the accident are as follows;

MV BENITAMOU:

Wind: Southeasterly, forced 5 in Beafourt Scale; Sky: Misty; Visibility: Weak

MV BC VANESSA:

Wind: Southwesterly, forced 3 in Beafourt Scale; Sky: Misty; Visibility: Weak

1.5 Turkish Straits Vessel Traffic Service System

1.5.1 Establishment and Operation

Türk Boğazları Gemi Trafik Hizmetleri, Türk Boğazları Bölgesinde seyir yapan deniz araçlarına ve diğer kullanıcılara bilgi, seyir yardımı ve trafik organizasyon hizmeti vermek üzere 1 Temmuz 2003 tarihinde açılmış, 30 Aralık 2003 tarihinde de operasyonel duruma geçmiştir.

2008 yılında ilave edilen bileşenler ile Marmara Denizi'ndeki "Trafik Ayırım Düzenini" içerecek şekilde genişletilmiş ve Türk Boğazlarının tamamında gemi trafiğini izleme imkânı sağlanmıştır.

Turkish Straits Ship Traffic Services (TSVTS) was established on 1 July 2003 to provide information, navigational assistance and traffic organization services to marine vessels and other users navigating in the Turkish Straits Region, and became operational on 30 December 2003.

With the components added in 2008, it was expanded to include the "Traffic Separation Scheme" in the Sea of Marmara, and it was possible to monitor the ship traffic in all of the Turkish Straits. The TSVTS system has been operating continuously on a 24/7 basis since it was in-service. TSVTS performs its function through 2 VTS centers in Istanbul and Çanakkale, 16 unmanned Traffic Surveillance Stations (TGI) connected to these centers and located in different places in the Turkish Straits, and various dGPS, RDF and other sensor stations. All of the TGIs have a number of AIS, VHF Radio, Electro-Optic, meteorological sensor equipment that differs according to the location, specifically radar.

TSVTS is operated by taking into account the Regulation on the Establishment and Operation of Vessel Traffic Services Systems and IMO's resolutions A857(20) and A827(19), with regard to the Turkish Straits Maritime Traffic Regulations published in the Official Gazette and the Turkish Straits Maritime Traffic Regulation Implementation Instructions.

Having said that, TSVTS was established in accordance with the Regulation on the Establishment and Operation of Ship Traffic Services Systems, taking into account the decisions and recommendations of IALA regarding VTS. TSVTS provides Information Service, Navigational Assistance Service and Traffic Organization Service in compliance with IMO's decisions A.857(20) and A.827(19).

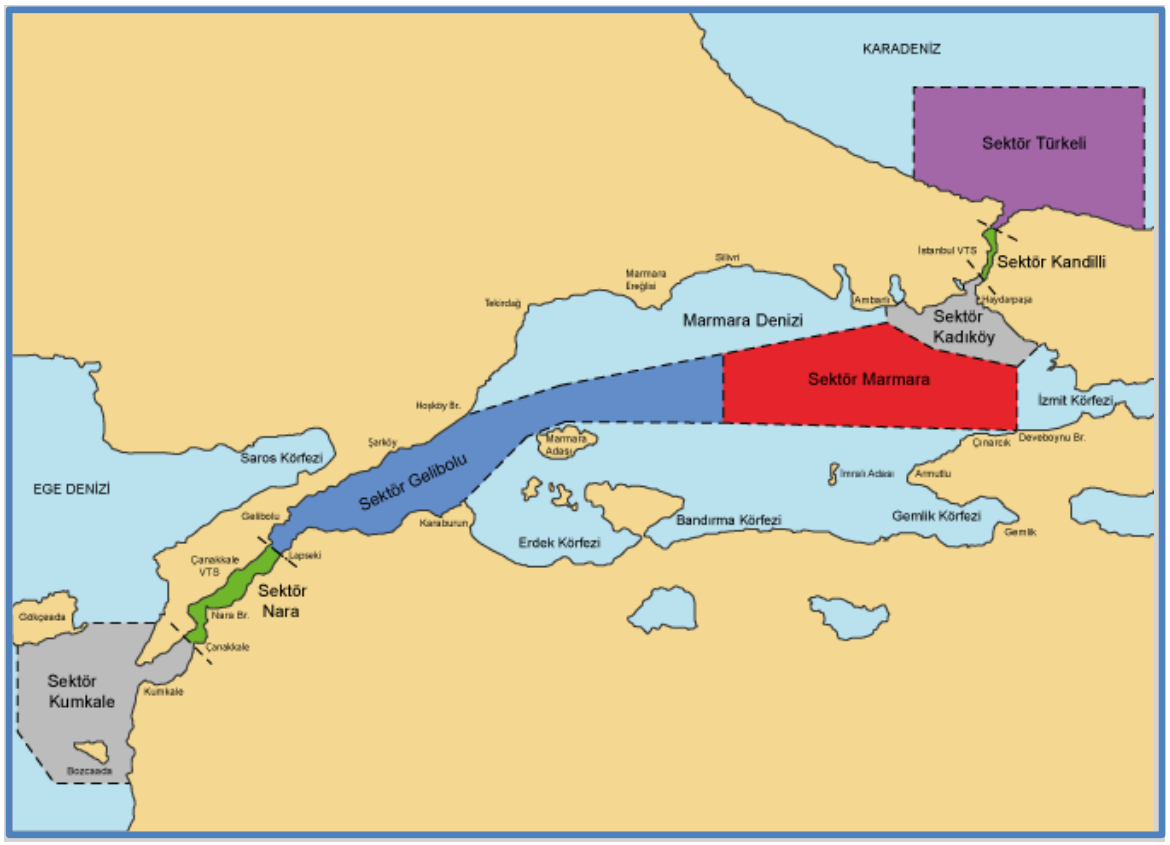


Figure 6: The Scene of TSVTS

1.5.2 Turkish Straits Reporting System (TÜBRAP)

The user guide of Turkish Straits Reporting System transiting vessels through the Turkish Straits are as follows:

"All vessels carrying dangerous cargo in the TSVTS area, for whatever purpose, and vessels of 20 meters or more in overall length shall be designated as "Active Participant" vessels, excluding local traffic vessels. These vessels are required to comply with the TUBRAP reporting system, which is prepared in accordance with IMO Resolution A.851 (20) and detailed below.

Masters, owners or agents of the vessels carrying dangerous cargo or the vessels of 500 GT and more should submit a written SP-1 Report (Annex 1) and Checklist completed by Master (Annex 8) to the relevant TSVTS Centers at least 24 hours prior to entry into the Turkish Straits. Masters, owners or agents of the vessels with LOA between 200-300 meters and/or vessels with a draft over 15 meters should submit a written SP-1 Report (Annex 1) and Checklist completed by Master (Annex 8) to the relevant TSVTS Centers at least 48 hours prior to entry into Turkish Straits.

The ship masters, who gave the SP-1 Report and declared that their vessel is technically in conformity with Article 6 of Regulation, and the masters of warships and other non-commercial

state-owned ships, shall submit SP-2 report (Annex-2) to the TSVTS via designated VHF channel, 2 hours before or 20 miles before entering the Turkish Straits, whichever occurs first.

After having submitted the SP 2 Report, vessels shall act by taking into account information provided by the relevant TSVTS and shall record in the ship's log that they have submitted SP-2 Report and all information received regarding strait traffic.

The SP-2 report shall be submitted to the concerned sector of the relevant TSVTS area where the ship will enter into.

Vessels of 20 meters and more in length which will enter the Turkish Straits shall submit the "Position Report" (Annex-3) to the TSVTS sector on the entrance side via VHF, containing information identifying themselves to the relevant VTS sector, at a distance of 5 nautical miles before entrances of the Strait.

Vessels of 20 meters or more in a length passing through the Turkish Straits shall submit the "Call Point Report" (Annex-4) to the relevant TSVTS sector via VHF at designated locations. These positions are entry and exit points to the TSVTS system. In addition, the vessels shall submit this report to the sector they enter in through the VHF channel whenever they change the sector.

The communication language of the TSVTS is English and SMCP shall be used in order to ensure an accurate communication. Turkish can be used to the Turkish vessels and vessels engaged pilot on board."

1.6 Automatic Identification System

1.6.1 Carriage

The International Convention for the Safety of Life at Sea 1974, as amended (SOLAS), requires all cargo ships of 300 GT and over that are engaged on international voyages to be fitted with AIS. Ships fitted with AIS are required to maintain AIS in operation at all times except where international agreements, rules or standards provide for the protection of navigational information.

1.6.2 Guidance

The IMO Resolution A.917 (22), which provides guidance on the use of AIS, includes:

Inherent Limitations Of AIS

31. The officer of the watch should always be aware that other ships, in particular leisure craft, fishing boats and warships, and some coastal shore stations including Vessel Traffic Service centres, might not be fitted with AIS.

32. The OOW should always be aware that other ships fitted with AIS as a mandatory carriage requirement might switch off AIS under certain circumstances by professional judgement of the master.

Use of AIS in Collision Avoidance Situations

39. The potential of AIS as an anti collision device is recognised and AIS may be recommended as such a device in due time.

40. Nevertheless, AIS information may be used to assist collision avoidance decision making. When using the AIS in the ship to ship mode for anti collision purposes, the following precautionary points should be borne in mind: a. AIS is an additional source of navigational information. It does not replace, but supports, navigational systems such as radar target tracking and VTS; and b. The use of AIS does not negate the responsibility of the OOW to comply at all times with the Collision Regulations

41. The user should not rely on AIS as the sole information system, but should make use of all safety relevant information available

43. Once a ship has been detected, AIS can assist tracking it as a target. By monitoring the information broadcast by that target, its actions can also be monitored. Changes in heading and course are, for example, immediately apparent, and many of the problems common to tracking targets by radar, namely clutter, target swap as ships pass close by and target loss following a fast manoeuvre, do not affect AIS. AIS can also assist in the identification of targets, by name or call sign and by ship type and navigational status.

1.7 Sustained Damages

1.7.1 MV BENITAMOU

According to the survey report of Classification Society, the sustained damages of BENITAMOU were recorded as follows;

"The punctures were fixed at No.3 WBT's (Water Ballast Tank) exterior shell plate and the extensive tears and deformations were fixed No.4 Hold's longitidiual shell plate. No.4 Hatch Cover was damaged after collision, as well as, a deformation was compromised beneath the starboard side accomodation ladder during the contact of both vessels."

Moreover, obtained factuals following underwater survey were as follows:

"12 meter longitudinal and 17 meter vertical a V-formed split was compromised amid from the No.4 Hold's port side shell plate"

Referring to the both reports and the views, a flooding was observed inside to the No.4 Hold and No. 3 WBT due to the variable sounding values and damaged shell plates. However, The Maritime Authority tendered an exemption to BENITAMOU for navigating to the nearest repair facility by her own engine.

Figure 7: BENITAMOU Damage Snapshot – 1

Figure 8: BENITAMOU Damage Snapshot – 2

Figure 9: BENITAMOU Damage Snapshot – 3

1.7.2 MV BC VANESSA

According to the survey report of Classification Society, the sustained damages of BC VANESSA were recorded as follows;

"The punctures were fixed at FPT's (Fore Peak Tank) exterior shell plate, tears and deformations were seen at the bosun's store, forecastle deck and bulwarks up to the collision."

Moreover, obtained factuals following underwater survey were as follows:

"A 60x3 cm-sized crack was compromised on the bulbous and the bulbous was deformed to inside on either side"

Referring to the both reports, The Maritime Authority tendered an exemption to BC VANESSA for navigating from anchorage to Tuzla Shipyard.

Figure 10: BC VANESSA Damage Snapshot – 1

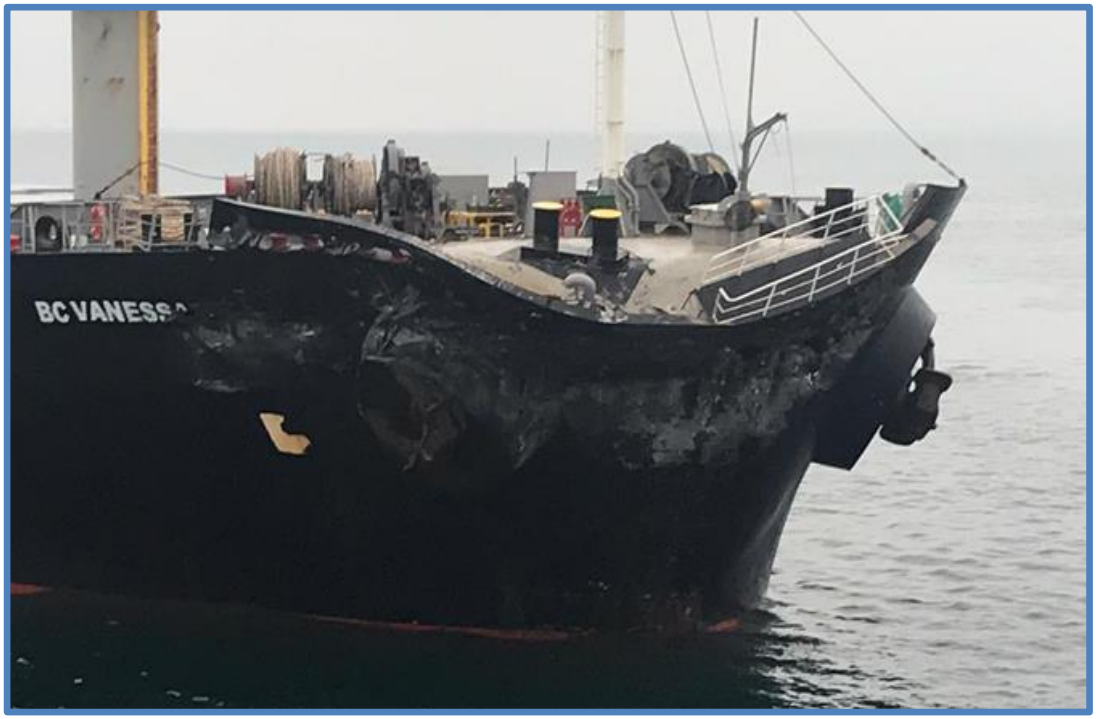


Figure 11: BC VANESSA Damage Snapshot – 2

SECTION 2 – NARRATIVE

Note: The sequence and time of the incident that leads to the marine accident under investigation and the location of people mostly depend on the eyewitness statements and interviews.

2.1 Course of Events (Pre-Collision)

2.1.1 MV BENITAMOU

M/V BENITAMOU under Panama Flag was a bulk carrier engaged in international trading. BENITAMOU had loaded at Yuzhne Ukraine 201.305 MT of iron ore concentrate and sailed on 17 October 2021 heading for the port of Zhangjiang, China. Her deck crew complement was consisted of three navigational Officers, excluding the Master, three ABs and one Bosun. The navigational watches were scheduled on a "4 on – 8 off" basis performed by the OsOW and one AB. More specifically, 3rd Officer was performing the 0800-1200 / 2000-2400 navigational watches, the C/O was assigned the 0400-0800 / 1600-2000 watches and the 0000-0400 / 1200-1600 navigational watches were performed by the 2nd Officer.

The day of the casualty at approximately 00:45 BENITAMOU stopped drifting north of Marmara Island and proceeded towards Çanakkale Strait for passage. By 04:20 the visibility at Marmara Sea was started decreasing and the Master implemented a double navigational watch (C/O&2/O) plus the Master as normal safety procedure. Moreover, the steering was at manual mode and helmed by AB on watch.

At 05:56 Sector Gelibolu informed BENITAMOU that the transit was suspended due to dense fog at approx. 13.5 NM from Gelibolu Lighthouse and recommended BENITAMOU to go to drifting or anchorage. Meanwhile, BENITAMOU proceeded to 242°T course with 7,6 knt speed at South bound lane of TSS. The steering was at manual mode and the engine command was at "Half Ahead".

At 05:57 Sector Gelibolu advised BENITAMOU to cross TSS after passing northbound vessels RIVER THAMES and FOCHA ahead of MV NORTH MADEIRA. Thereafter, S/G called MV EF EMIRA that was following BENITAMOU for cancellation of the strait passage, as well.

At 06:00 The 2nd Officer was relieved by the 3rd Officer and the watch handover was accomplished.

Moreover, chronology of the events at the bridge of BENITAMOU that was extracted from the VDR of BENITAMOU till the collision as follows;

TIME	EVENT
05:58:47	The Master ordered the engine “Half Ahead” to “Slow Ahead”
05:58:57	The Master ordered the steering “Port 10”
06:00:19	The Master ordered the steering “Port 20”
06:00:39	The Master ordered the steering “Midships”
06:01:11	The Master ordered the steering “Steady”
06:01:50	The Master ordered the steering “Hard to Port”
06:03:14	BENITAMOU informed S/G that she started to cross TSS ahead of MV NORTH MADEIRA, S/G replied “You may cross TSS”
06:04:06	S/G informed MV NORTH MADEIRA about crossing of BENITAMOU and NORTH MADEIRA acknowledged.
06:04:29	The Master ordered the engine “Slow Ahead” to “Half Ahead”
06:05:55	BC VANESSA called BENITAMOU from VHF two times before 2 cables to CPA
06:06:06	BENITAMOU replied BC VANESSA (***the conversation was not resumed)***
06:06:17	The Master ordered the steering “Midships”
06:06:33	The Master ordered the steering “Hard to Starboard”
06:07:10	The Master ordered the engine “Half Ahead” to “Dead Slow Ahead”
06:07:16	BENITAMOU and BC VANESSA collided

(See ***Figure-12,13,14,15*** VTS’s Vessel Traffic Monitor)

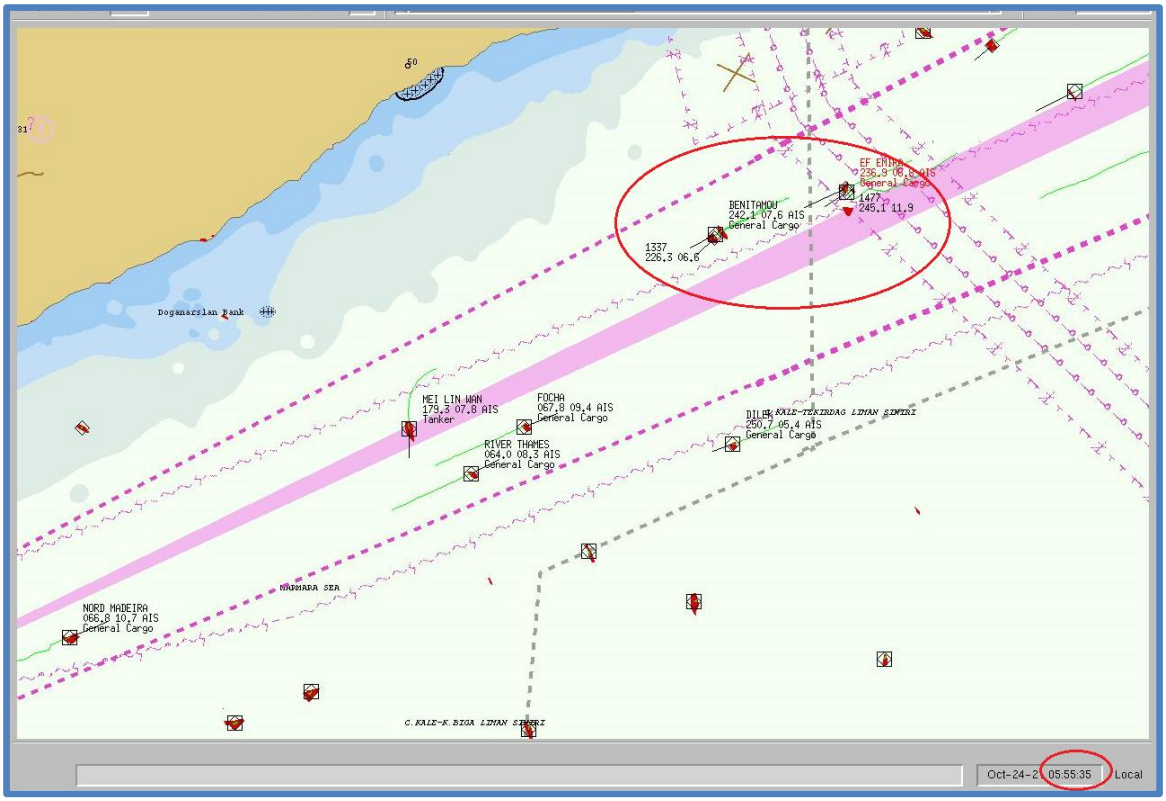


Figure 12: VTS Monitor Snapshot Pre-Accident – 1

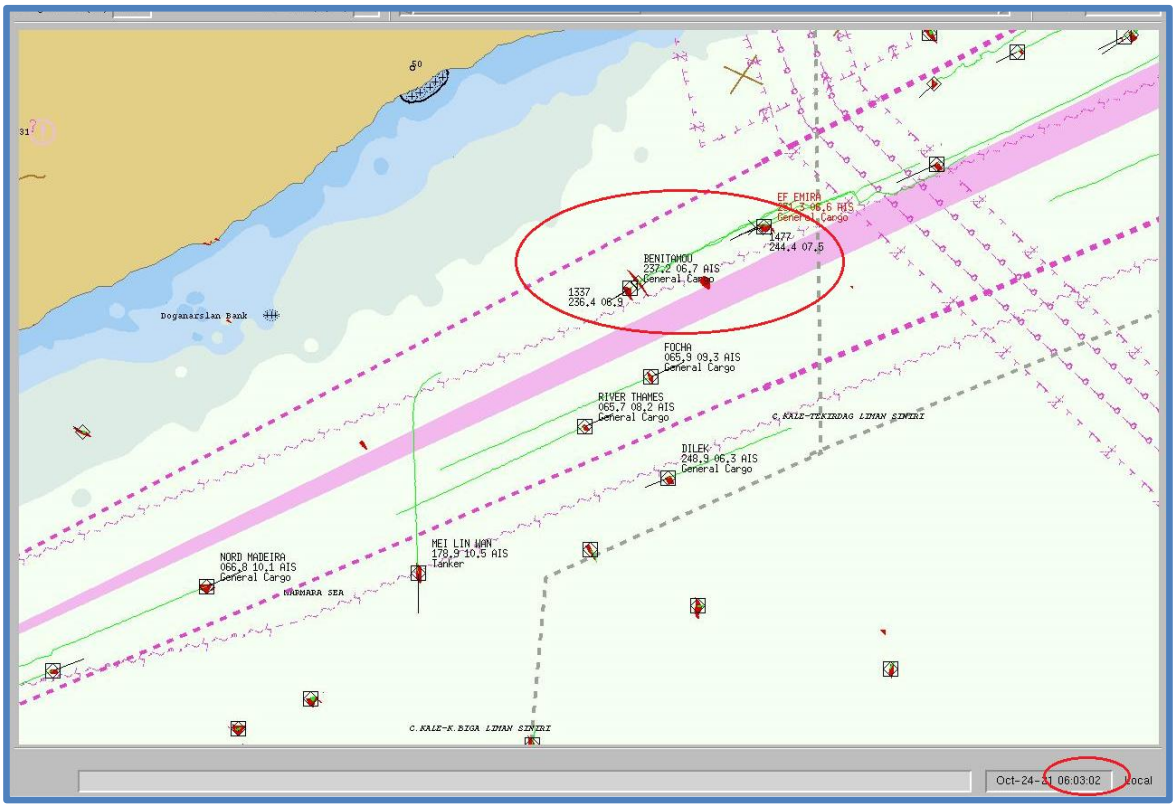


Figure 13: VTS Monitor Snapshot Pre-Accident – 2

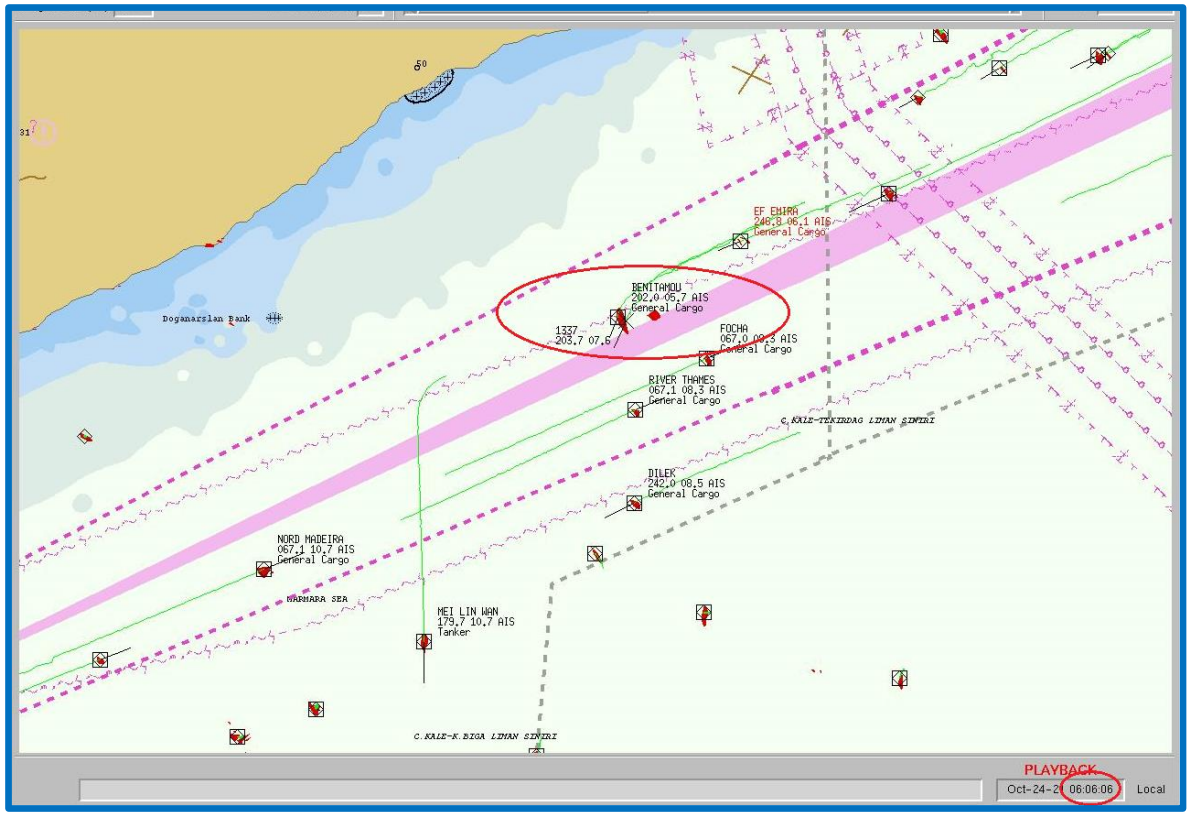


Figure 14: VTS Monitor Snapshot Pre-Accident – 3

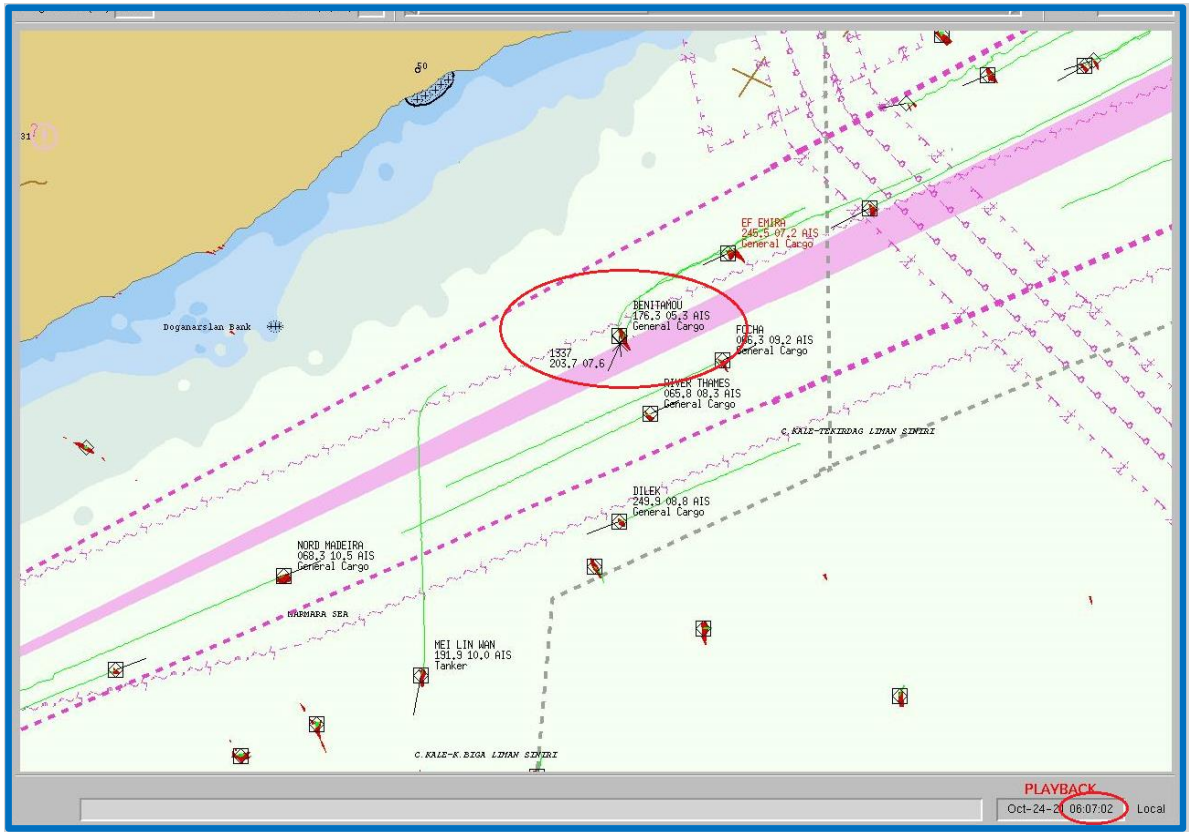


Figure 15: VTS Monitor Snapshot (Accident Time)

2.1.2 MV BC VANESSA

MV BC VANESSA under Barbados Flag was a cargo vessel engaged in international trading. BC VANESSA had loaded at Varna Bulgaria 27.500 MT of wheat in bulk and sailed on 21 October 2021 heading for the port of Sfax, Tunis. Her deck crew complement was consisted of three navigational Officers, excluding the Master and three ABs. The navigational watches were scheduled on a "4 on – 8 off" basis performed by the OsOW and one AB. More specifically, the 3rd Officer was performing the 0800-1200 / 2000-2400 navigational watches, the C/O was assigned the 0400-0800 / 1600-2000 watches and the 0000-0400 / 1200-1600 navigational watches were performed by the 2nd Officer.

At the instant of accident, the C/O was assigned as OOW and one of the ABs was assigned as lookout.

After Istanbul Strait passage, BC VANESSA was dropped her anchor at Ahırkapı anchorage area in order for complete her supplies. At around 00:15 on 23 October 2021 BC VANESSA was heaved up her anchor and resumed her voyage to Sfax.

At 01:43 Sector Gelibolu called BC VANESSA for SP2 notice and BC VANESSA replied and gave SP2 notice for the Çanakkale Strait passage. *(VDR of BENITAMOU)*

At 05:40 Sector Gelibolu started to call southbound vessels, except BC VANESSA, for cancelling strait passage due to the dense fog, respectively. *(VDR of BENITAMOU and VHF Recordings of the VTS)*

At 05:59 The C/O reported the Master MV BENITAMOU altered her course to port side causing a risk of collision *(Testimony of the Master of BC VANESSA)*

Meanwhile, BC VANESSA proceeded to 241°T course with 11,8 knt speed at southbound lane of TSS. The steering was at auto mode and the engine command was at "Full Ahead". *(Recordings of the VTS's Monitor, testimony of C/O and records of BC VANESSA's Log Book)*

At 06:05 BC VANESSA called BENITAMOU from VHF two times before 2 cables to CPA *(VDR of BENITAMOU)*

At 06:06 BENITAMOU replied BC VANESSA (***the conversation was not resumed)*** *(VDR of BENITAMOU)*

At 06:06 The C/O called the Master to the bridge. *(Testimony of C/O & Master)*

At 06:06 The C/O ordered the helm to "Hard to Port" *(Testimony of C/O)*

At 06:07 BENITAMOU and BC VANESSA were collided once the Master arrived to the bridge. *(Testimony of C/O & Master)*

2.2 Course of Events (Post-Collision)

2.2.1 MV BENITAMOU

After the collision, Master stopped the engine and called Sector Gelibolu (VTS) to report the accident. Then, Master ordered OOW to sound the General Alarm and through the Public Address system informed the crew as to the collision. Just after the collision Master called BC VANESSA several times through the VHF 16 but not received any response.

After a while, Master instructed C/O to inspect the collision area and to take sounding of all cargo holds bilges and balast tanks. As well as, he ordered the engine room to take sounding of F/O tanks and the engine bilges.

The inspection revealed that the vessel suffered damages around the collision area and that No 4 cargo hold and No 3 port side water ballast tank had flooded. The vessel listed to port side due to the flooding. Master ordered C/O to pump out the flooded water. C/O went to pump room immediately and resumed to pump out process till 08:00.

Meanwhile, Sector Gelibolu called BENITAMOU and asked whether she was proceeding to anchorage or not. BENITAMOU replied negative due to the flooding and listing. Thereafter, Sector Gelibolu informed that the deployed tugboats had proceeded towards the collision area in order to intervene possible assistance.

Around an hour later from the collision, BENITAMOU proceeded to outside the Traffic Seperation Scheme ***(See Figure 16 and 17)***. At 08:45 BENITAMOU temporarily anchored outside the TSS as seen the position on ***Figure 18.***

Later on, Master informed the company regarding the collision and waited instructions of the company and the other stakeholders.

2.2.2 MV BC VANESSA

Just after the collision, the OOW (C/O) activated the general alarm and after a while Master arrived to the bridge. Master ordered C/O and the Bosun to check the collision area and to sound the bilges and the ballast tanks. As well as, he ordered the engine room to take soundings of the bilges and the bunker tanks.

During the first minutes after the casualty, Master called VTS to report the collision, yet the VTS was communicating with BENITAMOU. At the same time, C/O and the engine room informed the Master in regard to the condition of vessel and he ordered the crew to return their duties.

Based on the VHF communications between the VTS and BENITAMOU as to the immediate assistance, Master decided to proceed and anchor in order to got clear off the traffic. Therefore, BC VANESSA got off from the BENITAMOU and proceeded to the safe area. Just then, BC VANESSA contacted again to BENITAMOU's port side gangway shell plate. However, she resumed to proceed outside the TSS.

BC VANESSA proceeded with full speed and anchored in the No 7 anchorage area safely around one hour later and waited for instructions of the company and the authority. ***(See Figure 16, 17 and 18)***

2.3 SAR Operations

After the collision, Sector Gelibolu (VTS) called both vessels respectively to ask the damage and condition of the vessels. They replied that inspections of the collision area was just carried out.

Despite no urgent request for assistance, Sector Gelibolu called and ordered the three tugboat based at Lapseki Rescue Station to proceed to the collision area. Sector Gelibolu called and urged the vessels navigated around the collision area, as well.

A few minutes later, Sector Gelibolu called both casualty vessels and asked if they proceeded and anchored at the safe anchorage areas. As well as, Sector Gelibolu informed both vessels as to the proceedings of the deployed tugboats.

As seen on the ***Figure 18,*** around half an hour later, the tugboats arrived on scene and waited for the immediate assistance if needed.

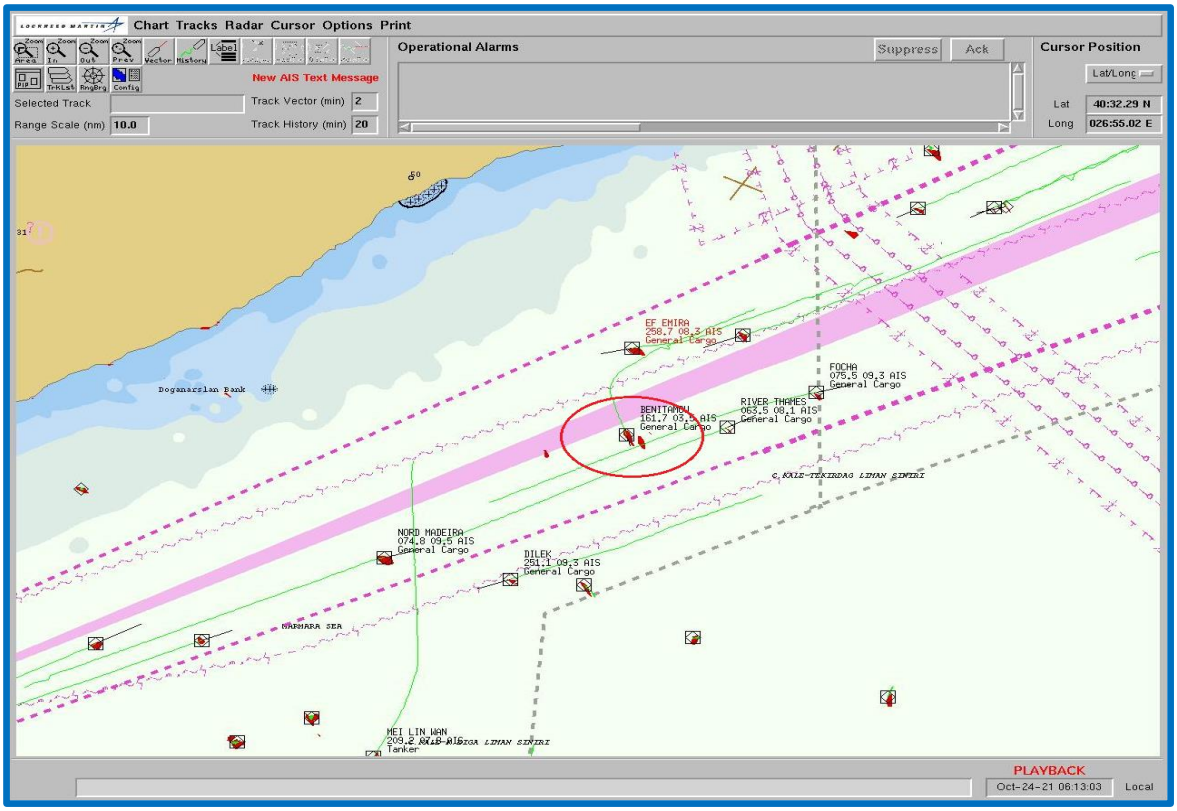


Figure 16: VTS Monitor Snapshot (Ship's Movements Post-Accident) - 1

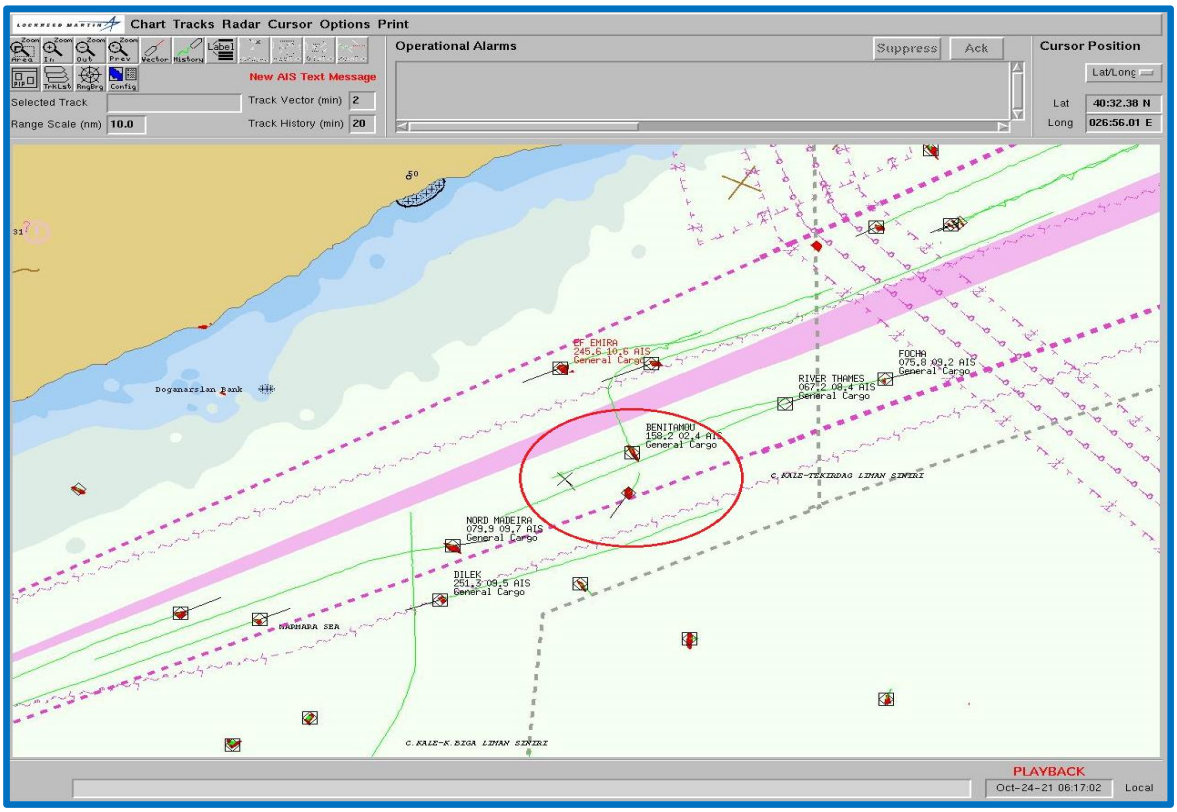


Figure 17: VTS Monitor Snapshot (Ship's Movements Post-Accident) – 2

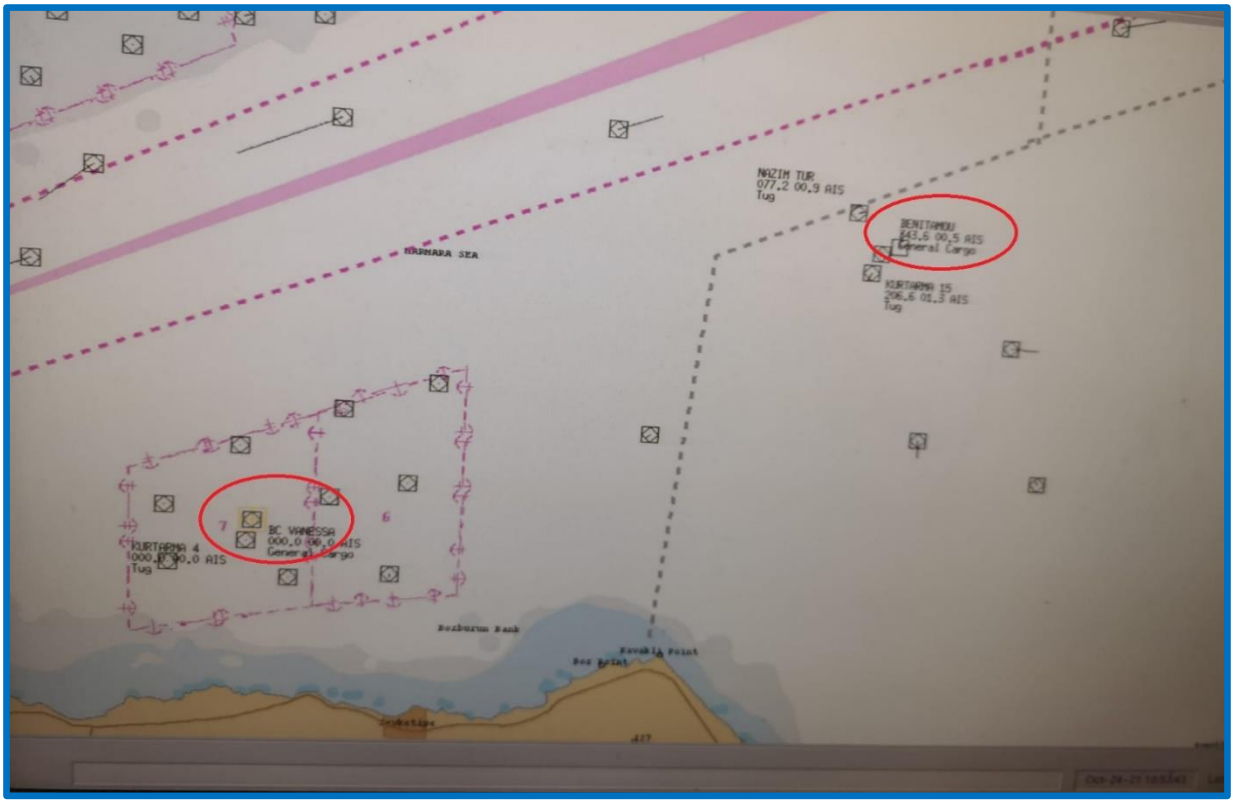


Figure 18: VTS Monitor Snapshot (Ship's Anchorage Positions Post-Accident)

SECTION 3 – ANALYZES

While analysing the marine casualty under investigation, it is aimed to identify and determine the factors that caused the accident by considering the sequence of events and data obtained during the investigation as well as to draw useful conclusions that lead to the safety recommendations on root causes.

3.1 Events Leading to the Collision

3.1.1 BENITAMOU

Considering both the VDR data and the image recordings obtained from the VTS, at the time of the accident, BENITAMOU was navigating towards the northern entrance of the Çanakkale Strait at a safe speed, giving half ahead to the engine, with the rudder in hand. The Master was the conn, the Chief Mate and the OOW were on the bridge to assist the Master.

With the reducing of visibility in the aforementioned region, Sector Gelibolu started to suspend transits of approaching vessels to the northern entrance of Çanakkale Strait by VHF, respectively, as per the procedure. At 05:56, S/G called BENITAMOU to inform that her transit was suspended due to poor visibility and she could use either the option of anchoring or drifting.

BENITAMOU replied and asked how she could proceed to the drifting area and the S/G replied that she could proceed to the dedicated anchorage or drifting area by crossing the TSS to pay attention to the northbound vessels.

Soon after, the Master stayed for passing of the north-bound vessels to leave her lane and ordered the helmsman to come port. Meanwhile, BC VANESSA was proceeding to the southbound with the full engine speed close to the traffic seperation line. BC VANESSA was the overtaking vessel which was not plotted on the ARPA and had no AIS signal at the moment.

BENITAMOU’s bridge team, unaware of the overtaking vessel BC VANESSA, dealed with the crossing maneuver. At 06:06, BENITAMOU received a call from BC VANESSA while the estimated CPA was two cables, and subsequently BENITAMOU replied the call, however the dialogue was not resumed.

Afterwards, probably the Master or anyone anticipated the danger of collision, and the Master rushingly ordered the helmsman to come hard to starboard so as to the avoid the collision, however, unfortunately, the collision occurred.

3.1.2 BC VANESSA[1]

In the light of the VTS data and interviews with the key crewmembers, at the time of the accident, BC VANESSA was proceeding to the northern entrance of Çanakkale Strait, close to the traffic separation line, with the full engine speed and the steering on autopilot. The Chief Officer was assigned as the OOW and one of the A/B was assigned as the look-out on the bridge.

Meanwhile, S/G called and suspended the south-bound vessels transits respectively, due to the restricted visibility, however, BC VANESSA was maintaining her current speed and course for not being called and suspended her transit.

While the estimated CPA was in two cables, probably the C/O noticed the maneuver of BENITAMOU and called her immediately. BENITAMOU replied her call, however, the conversation was not resumed since the C/O took the helm in hand. Despite the avoiding maneouvre to veered hard to port, unfortunately the collision occurred.

3.2 COLREGs _ Actions of the Two Vessels

3.2.1 Lookout and Monitoring

To recall the provision in Article 5 of Section (B) of the COLREG under the title of "Lookout";

"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."

The brief provision in this rule imposes substantial responsibility to the bridge team. Applications to be made pursuant to this provision require that all information be fully collected and evaluated effectively. In other words, it is necessary to perceive look-out not as the task of a single person, but as a set of actions that necessitate teamwork.

Within the scope of the lookout function;

[1] The VDR recordings of BC VANESSA were not analyzed due to the malfunction

- The radio communication among the vessels in the vicinity should be carefully monitored and comments should be made on the movements of these vessels.
- While navigating in restricted visibility, every sound heard in the environment, whether mechanical or natural, and most importantly, the sound signals given by the whistle / drum should be evaluated.
- It should be ensured that electronic navigation devices (ARPA, ECDIS, AIS, etc.) are in operation and are used effectively in restricted visibility.
- In cases where a change of route is necessary, it should be ensured that the navigational safety in the direction where the route will be altered.
- In waters close to shore or unsafe for navigation, the echosounder should be monitored and interpreted at frequent intervals.

Within the scope of the aforementioned provisions and explanations, it is understood from the obtained data, BENITAMOU's bridge team did not monitor the position and movements of BC VANESSA before the accident. ***(Figure 19)*** Indeed, while the estimated CPA was in two cables, had an anxious chat between the Master and the team in their own language in conjuction with a call from BC VANESSA and soon after the Master's hard to starboard order to the Helmsman strengthened this claim.

It is comprehended from the obtained data that the BENITAMOU's Master was performing the maneuver by following the northbound traffic in the TSS. In line with this aspect, it is obvious that the Master could not pay attention to the vessels navigating in soutbound lane and could not get effective support from his team.

It is clear that the main reason for the circumstance is the lack of AIS data as to BC VANESSA and therefore, not being plotted as a target on the ARPA. In addition, the necessity of monitoring the vessels in vicinity only from the radar due to the restricted visibility and the fact that eye contact with the vessels in vicinity can be established in case of close range is the overriding reason affecting the situational awareness with respect to the lookout.

At BC VANESSA, the similar consequences were considered. The maneuvers as VTS callings to suspend transits and BENITAMOU's cross passing TSS were not monitored accurately. Therefore, effective look out was not maintained at BC VANESSA's bridge in terms of VHF Radio listening and radar targets monitoring.

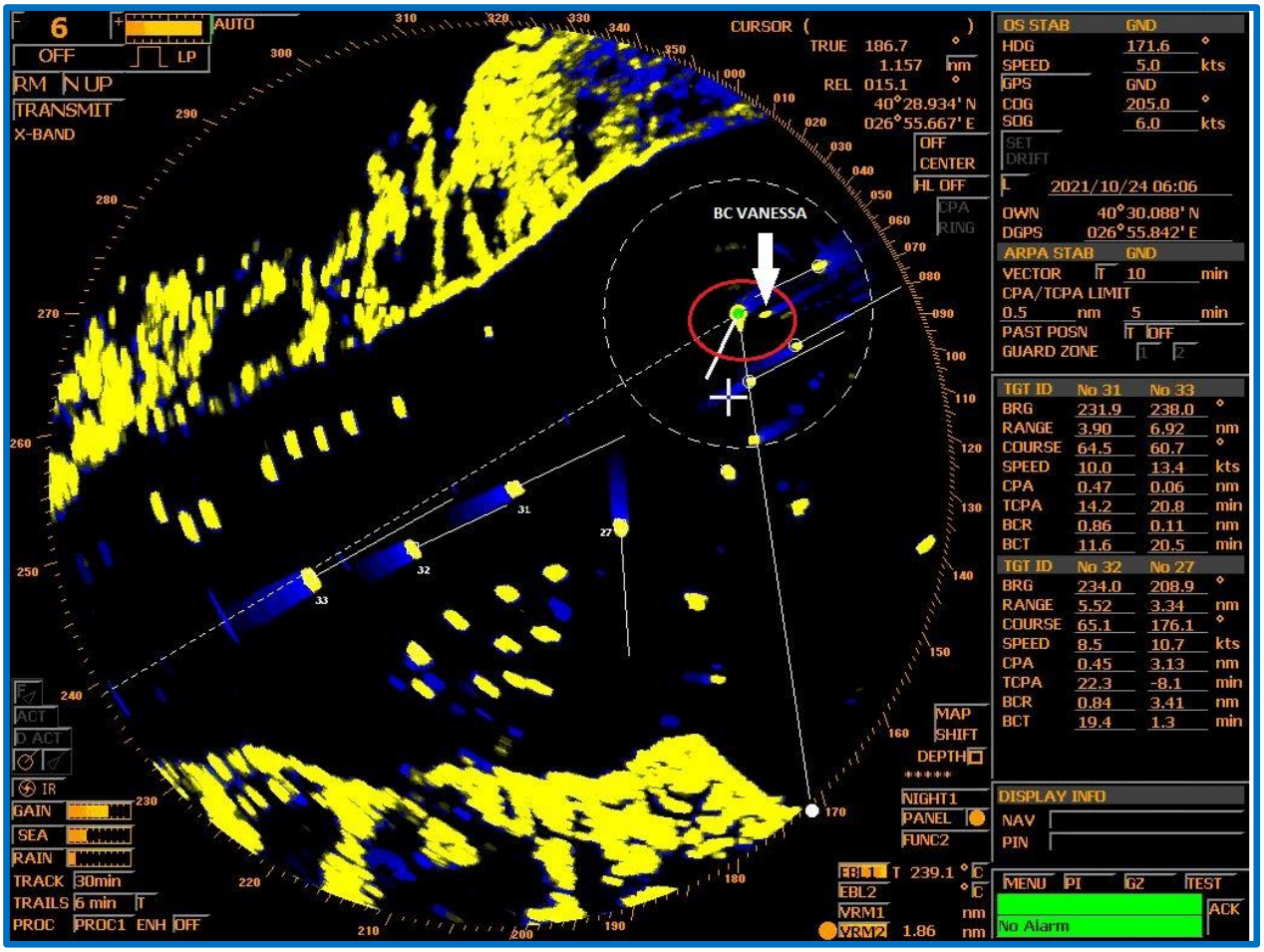


Figure 19: BENITAMOU VDR – ARPA Snapshot - Instant of The Vessel's Noticed Each Other

3.2.2 Action to Avoid the Collision

To recall the provision in Article 8 of Section (B) of the COLREG under the title of "Action to Avoid Collision";

"(a) Any action to avoid collision 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 clean

(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.

…"

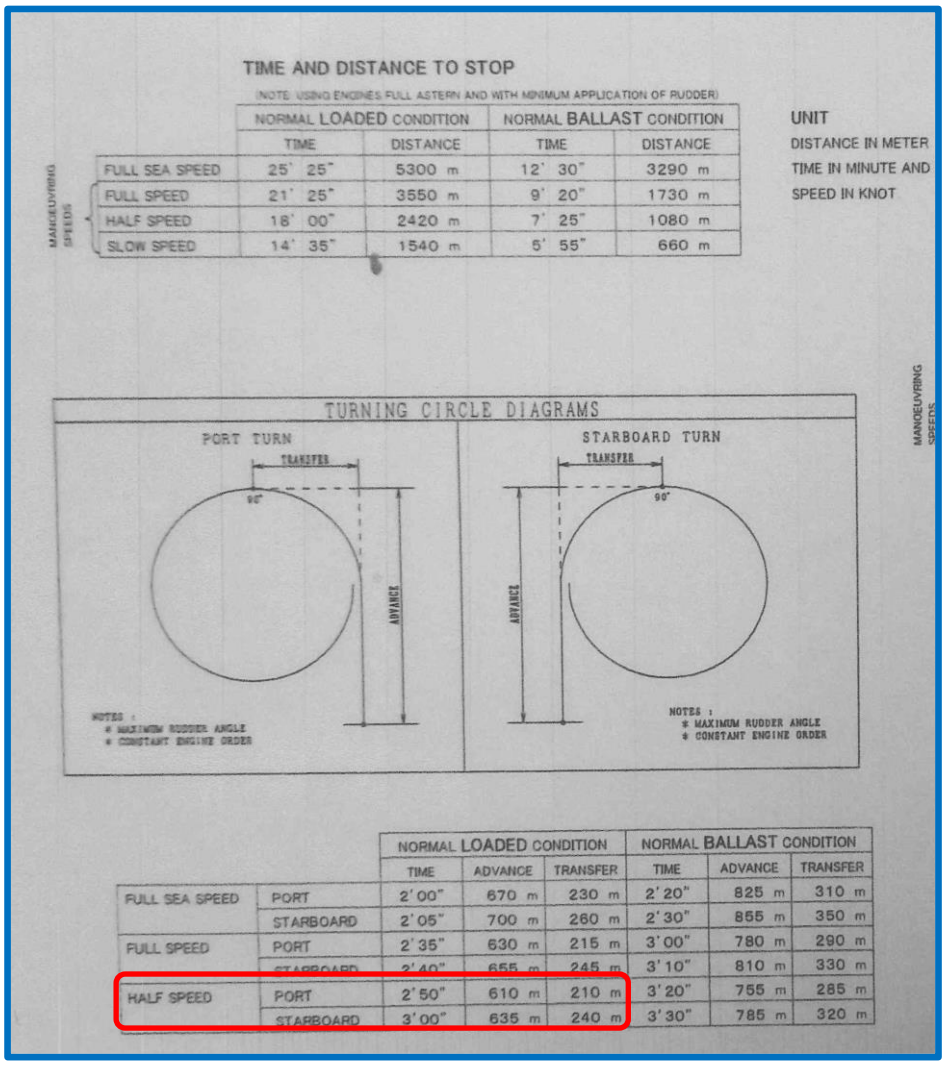
To evaluate the aforementioned set of provisions as a whole, it emerges that in order to prevent a collision, firstly, there should be an ample time or to be created, and secondly, significant course and speed alterations should be made in order to pass through a safe distance.

However, while these acts are being revealed, it should not be overlooked that the applications in various navigational circumstances will be distinctive. In this sense, it is obvious that the avoidance act requires adaptation to the circumstances will be carried out together with the accurate team owing to the accumulation of knowledge and experience.

To appreciate the aforementioned provisions and explanations regarding the accident, the bridge team including the BENITAMOU's Master realized BC VANESSA upon her call at an estimated CPA of two cables, leading them to an untimeous circumstance to avoid the collision. As much as the course and speed were altered, the lack of ample time to accomplish the avoiding manouver as a cape-sized vessel revealed the collision inevitable.

Turning circle diagrams of BENITAMOU can support the abovementioned conviction. ***(Figure 20)*** As indicated in the figure, BENITAMOU was in laden and the engine speed was half ahead. Under the stated conditions, BENITAMOU's bridge team spotted BC VANESSA at a distance of two cables and on hard to port manouver. Indeed, the Master immediately ordered the helm hard to starboard in order to avoid or lessen the effect of collision. However, naturally, a laden cape-sized vessel did not come to the reverse side in a short time as indicated in the figure. Therefore, the collison occurred despite the mentioned steering manouver.

To appreciate the avoiding manouver of BC VANESSA, the C/O as assigned OOW on the bridge spotted and called immediately BENITAMOU at a a distance of two cables, thereafter, he altered her course to the port side in order to avoid collison. The collision was inevitable due to the lack of ample time and ineffective manouver, accordingly.



TIME AND DISTANCE TO STOP

(NOTE: USING ENGINES FULL ASTERN AND WITH MINIMUM APPLICATION OF RUDDER)

MANOEUVRING SPEEDS	NORMAL LOADED CONDITION		NORMAL BALLAST CONDITION	
	TIME	DISTANCE	TIME	DISTANCE
FULL SEA SPEED	25' 25"	5300 m	12' 30"	3290 m
FULL SPEED	21' 25"	3550 m	9' 20"	1730 m
HALF SPEED	18' 00"	2420 m	7' 25"	1080 m
SLOW SPEED	14' 35"	1540 m	5' 55"	660 m

UNIT
DISTANCE IN METER
TIME IN MINUTE AND
SPEED IN KNOT

TURNING CIRCLE DIAGRAMS

PORT TURN

STARBOARD TURN

		NORMAL LOADED CONDITION			NORMAL BALLAST CONDITION		
		TIME	ADVANCE	TRANSFER	TIME	ADVANCE	TRANSFER
FULL SEA SPEED	PORT	2'00"	670 m	230 m	2'20"	825 m	310 m
	STARBOARD	2'05"	700 m	260 m	2'30"	855 m	350 m
FULL SPEED	PORT	2'35"	630 m	215 m	3'00"	780 m	290 m
	STARBOARD	2'40"	655 m	245 m	3'10"	810 m	330 m
HALF SPEED	PORT	2'50"	610 m	210 m	3'20"	755 m	285 m
	STARBOARD	3'00"	635 m	240 m	3'30"	785 m	320 m

Figure 20: BENITAMOU – Turning Circle Diagram

3.2.3 The Use of Sound Signals

Rule 35 of the International Regulations for the Prevention of Collisions at Sea 1972, as amended (COLREGs) under the title of "Sound Signals in restricted Visibility" requires that:

"In or near an area of restricted visibility, whether by day or night, the signals prescribed in this Rule shall be used as follows:

(a) A power-driven vessel making way through the water shall sound at intervals of not more than 2 minutes one prolonged blast.

..."

Having regard to the mentioned provision, BENITAMOU's VDR was examined and none of the vessels sounded a blast to warn the other vessels in the vicinity up to the collision. However, a horn was sounded just after the collision.

As the compulsory provisions in Rule 19 (Conduct of Vessels in Restricted Visibility), this rule must be applied in and near a restricted visibility, regardless of whether the time is day or night.

The classification and grading of the visibility in restricted circumstances is unfeasible. The existence of such a circumstance is directly at the discretion of the OOW or the Master, thereof. In this context, it is also important to ensure or to doubt the presence of other vessels in the vicinity in which the sound signals of the vessel can be heard.

On the other hand, to encourage the use of vessel's whistle in restricted visibility circumstances despite the perception of disturbing the crewmembers, which is frequently made, may have a stimulating effect on the bridge team focused on a certain behavior.

In light of the aforementioned explanations, the lack of implementation of the relevant provision is considered to have contributed to the examined marine casualty.

3.2.4 Implementation of Safe Speed In Restricted Visibility

A vessel's safe speed is at which, taking into account all external conditions, the vessel can take appropriate action to avoid a collision and stay at a safe distance. External conditions to consider include weather conditions, visibility, shallowness, traffic conditions, etc. is found.

Rule 6 of the International Regulations for the Prevention of Collisions at Sea 1972, as amended (COLREGs) under the title of "Safe Speed" requires that:

"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;
…"
Moreover, Rule19 of the International Regulations for the Prevention of Collisions at Sea 1972, as amended (COLREGs) under the title of "Conduct Of Vessels In Restricted Visibility" requires that:

" …

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."

This Rule, in compliance with Rule 6 (Safe Speed), applies in restricted sea areas such as traffic separation schemes, channels or crossings, as well as on the high seas. However, a safe speed should not always be considered a low speed. Today, many merchant ships equipped with modern technology radar, AIS and similar sensing devices can proceed at full speed and safely, even in poor visibility conditions.

In many cases, underspeeding does nothing but stay in this potentially dangerous environment longer and watchkeeping personnel in constant tension. In addition, being able to perform a maneuver efficiently and quickly requires reaching a sufficient speed. However, the speed to be used in areas with heavy maritime traffic should be compatible with safety considerations.

Visibility is one of the most important factors in determining safe speed. Slowing the vessel reduces the likelihood of an accident as it gives the OOWs more time to assess the situation and keeps power at reserve if emergency maneuvers become necessary. In addition, the damage will

be significantly less in the event of a possible accident. All vessels have a responsibility to stay clear of each other when navigating in restricted visibility. It is important for officers to understand the rules and the increased risks when navigating in restricted visibility conditions. It is also important to understand the limitations of navigation equipment.

On the day of the accident, BC VANESSA was proceeding with maneuvering speed towards the entrance of the Çanakkale Strait, within the traffic separation scheme. Its approximate speed was 12 knots. Maintaining full speed in restricted visibility conditions can be considered to be proceeding at an unsafe speed in navigational areas where the risk of collision is high. According to a generally accepted view of the maneuvering speed of BC VANESSA; The speed of a vessel navigating under conditions of restricted visibility, including fog, must be at such a speed that, when a "stop" command is given, it can stop fully (still) at half of the current visibility and gain astern course immediately when necessary. In this sense, it can be argued that BC VANESSA is not proceeding at a safe speed in an area with restricted visibility and relatively dense traffic.

On the other hand, considering the maneuvering conditions in which BENITAMOU altered her course vertically to her current course, it can be said that such a laden ultramax vessel pulled her engine speed, which was already “half ahead” to the “slow ahead” before performing the maneuver, reduced her speed with the turning maneuver and even made critical the rudder listening speed. In this sense, it can be argued that BENITAMOU could not have proceeded at a safe speed due to the rudder and engine maneuvers applied before the collision.

In conclusion, the failure of both vessels to implement the principles of safe speed in the context of the current conditions has been considered as a factor that led the collision.

3.3 The Use of AIS

Although AIS, naturally and solitarily, was not mounted a collision avoidance system, should be used with caution. However, AIS has certain advantages over ARPA by virtue of its identification capability and except for security reasons or specific exemptions, the system should always be operated on board ships on which it is required to be carried. ***(See 1.6 Automatic Identification System)***

Based on the obtained data, BC VANESSA’s AIS was not transmitted data, therefore, the AIS device was not active. There appears to be no reason why BC VANESSA, which was navigating

in an area within the dense traffic such as the Marmara Sea, had her AIS turned off, as there was no exemption as to why it was inactive or no record of a safety concern.

Consequently, as the AIS inherently does not an anti collision device, it is considered that the lack of BC VANESSA's AIS data impaired the situational awareness of BENITAMOU's bridge team and the VTSO and thus to be a contributing factor to the examined marine casualty.

3.4 Bridge Resource Management

BRM is the effective management and integration of all resources, human and technical, available to the bridge team, to navigate the vessel in a safe and efficient manner. Optimized bridge resource management shields safe navigation by fully utilizing all the technical advantages of bridge navigational equipment in order OsOW to maintain an effective awareness at any navigational situation.

More specifically, under STCW Code/Part A/Chapter VIII/Part 3 "Watch keeping Principles In general" the Bridge Resource Management principals have been introduced, while Chapter VIII/Part 4-1 have laid down a set of mandatory "principals to be observed in keeping a navigational watch". Said provisions, amongst other, require that OsOW shall understand the functions and operation of the installed equipment and maintain a proper watch, making the most effective use of the resources available, such as information, installations/equipment and other personnel.

Under the aforementioned provisions, the OsOW of the two vessels should have utilized the capabilities of the available navigational equipments and more importantly the data of the ARPA systems within the restricted visibility circumstances. However, from the VDR records of BENITAMOU, the bridge team of BENITAMOU did not plot the BC VANESSA on her radar, relying on AIS datas. Considering that, although the BENITAMOU's bridge team was established for restricted visibility circumstances according to her relevant ISM provision, the bridge resources of BENITAMOU could not be utilised appropriately by her team.

On the other side, BC VANESSA's bridge was not established an appropriate team despite the restricted visibility and dense traffic circumstances. More specifically, the fact that the crewmember deployed as a lookout was a novice seafarer and moreover, the C/O did not advice the Master as to the restricted visibility, indicates a poor reflections to BRM.

Based on the aforementioned explanations, the ineffective implementation of bridge resource management principles by both vessels is considered a contributing factor to the examined marine casualty.

3.5 Fatigue

In the course of the investigation process no evidence emerged that could lead to a conclusion that fatigue affected the performance of the both vessel's bridge teams. Accordingly, fatigue cannot be considered to have been a contributing factor on examined marine casualty.

3.6 The Role of the VTSO

During the investigation process, The effects of VTSO's actions over the occurence, controlled and managed the traffic in Sector Gelibolu of TSVTS, was appreciated.

At 01:43 VTSO had a SP2 reporting meeting with BC VANESSA within the scope of the relevant provisions of the TSVTS, and At 05:40 started to suspend the transit of the south bound vessels due to the restricted visibility. Whilst VTSO was calling BENITAMOU, EF EMIRA and NEPTUNE THELESIS respectively in the flowing traffic, he did not attempt to call BC VANESSA, which was overtaking the EF EMIRA at that time is the noteworthy circumstance.

After the examination of recordings, it is inferred that the volatility of BC VANESSA's echo and the lack of BC VANESSA's AIS information on the VTSO's monitor were account for the mentioned circumstance.

Therefore, it is obvious that the awareness of VTSO, observed to be quite busy, will be poor if he is not stimulated. As a general understanding, the vessels navigating in the vicinity are apathetic to inform a violation, as usual. As a matter of fact, one of the defined duties of the VTS; If requested, to provide information in order to assist vessels decisions in a timely manner as to the navigation and to give necessary warnings, advice and instructions in case of an emergency.

It can be considered that the unawareness of the vessels in the vicinity, including BENITAMOU, to notice the VTS as to the lack of BC VANESSA's AIS information, led to the accident as a contributing factor.

3.7 Similar Accidents

3.7.1 MV NEPTUNE HELLAS – MV NUR

The ro-ro cargo vessel NEPTUNE HELLAS was in transit from Gemlik, Turkey to Piraeus, Greece, when on 21 March 2018 at 01:30 (UTC), she was involved in a collision with the general cargo vessel NUR in the west lane of the Turkish Straits Traffic Separation Scheme, Marmara Sea.

Prior to collision, both NEPTUNE HELLAS and NUR were proceeding on a southwesterly course towards the Çanakkale Strait. At the time of the collision, NEPTUNE HELLAS was making approximately 13.8 knots and NUR was proceeding in the same direction with a speed of about 8.0 knots. The collision happened when NUR turned to port when she was being overtaken by NEPTUNE HELLAS from the former's port side. ***(See Figures 21 – 22)***

As a result of the investigation, it was stated in the report a technical malfunction in the steering gear caused NUR to change its course unintentionally towards overtaking vessel NEPTUNE HELLAS.

Both of the accidents are similar to each other occurred by crossing situation within the region of Marmara Sea TSS. Other similars are the lapse of the overtaking vessels to notify their intention and the loss of situational awareness of the bridge teams or the OOWs of the overtaken vessels.

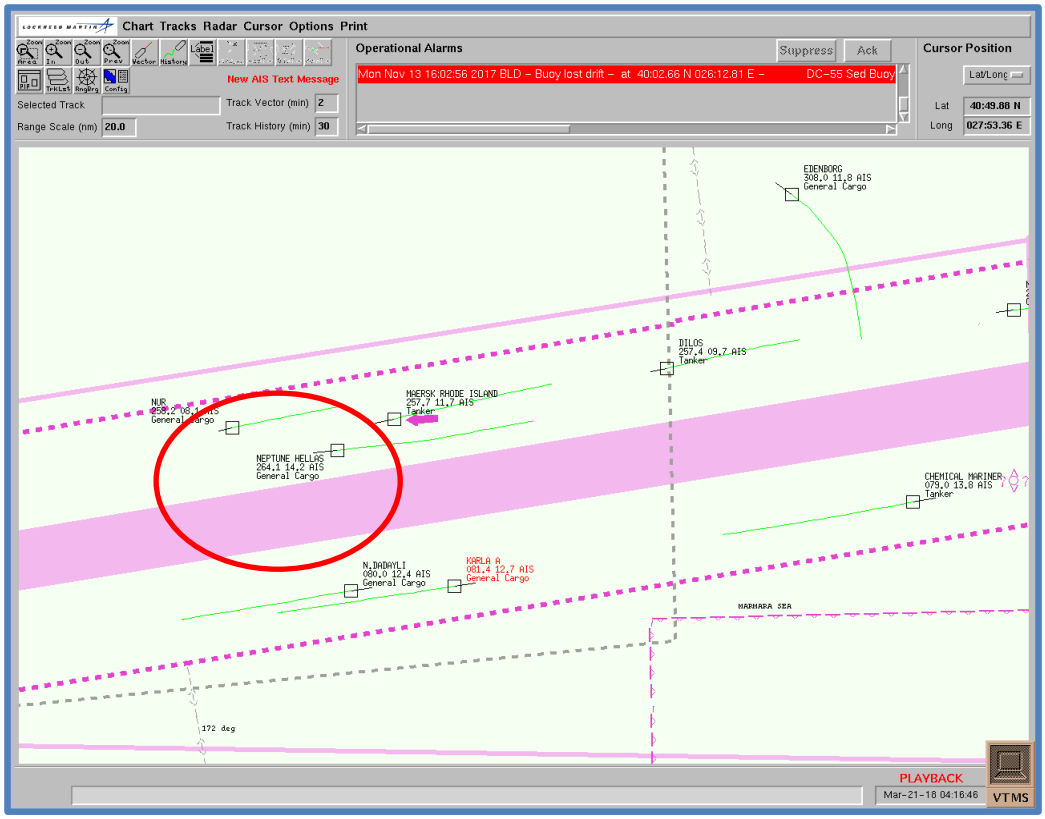


Figure 21: VTS Monitor Snapshot – 1

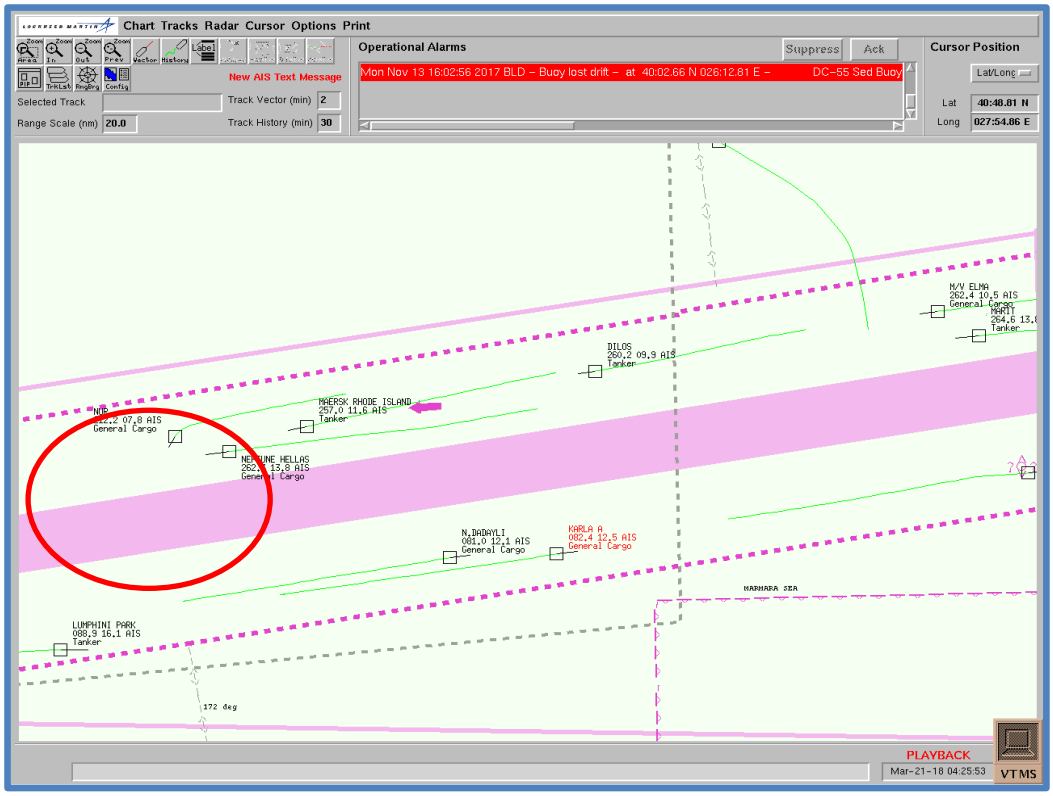


Figure 22: VTS Monitor Snapshot – 2

3.7.2 MT GLARD 2 – FV DURSUN ALİ COŞKUN

While the Russian-flagged tanker GLARD 2 was proceeding to the allocated anchorage prior to entrance of the İstanbul Strait, collided with the Turkish-flagged fishing vessel DURSUN ALİ COŞKUN at 06:06 on January 10, 2020, around 6 nautical miles off the Rumeli Lighthouse.

As a consequence of the accident, the fishing vessel DURSUN ALİ COŞKUN had capsized and sank. Three of the crewmembers survived, however, two of lost their lives and one is still missing.

Having considered the consequences of the investigation, violation of the COLREGs rules and failed to keep an appropriate lookout are fixed. Based on the conclusions, owners/operators of the both vessels were recommended.

Either of the investigations are similar to each other is that the lack of DURSUN ALİ COŞKUN's AIS data, apart from the other fishing vessels in the vicinity. ***(See Figure 23)*** Naturally, it stands out as a deficiency in terms of raising awareness prior to the collision.

Figure 23: VTS Monitor Snapshot

SECTION 4 – CONCLUSIONS

4.1 At the time of the casualty a dense fog had been prevailed over the region.

4.2 By the time both vessels noticed each other, distance between the two vessels was almost two cables.

4.3 VTSO had not yet suspended the passage of BC VANESSA, while suspending the passage of southbound vessels sequentially due to the restricted visibility.

4.4 At the time of the casualty, BENITAMOU was proceeding at a speed of 7,6 knots on half-ahead engine order, while BC VANESSA was at a speed of 11,8 knots on full-ahead.

4.5 Neither VTS nor BENITAMOU received AIS data from BC VANESSA.

4.6 BENITAMOU's bridge team did not plot and follow the BC VANESSA as a target on their ARPA.

4.7 At the time of the casualty the Master, Chief Officer (OOW), 3rd Officer (OOW) and Helmsman were on the BENITAMOU's bridge according to customary safety procedure in restricted visibility.

4.8 At the time of the casualty, the Chief Officer (OOW) and the Look-out (A/B) were on the BC VANESSA's bridge and the steering was at autopilot mode.

4.9 The bridge team of BENITAMOU were unaware of the presence of BC VANESSA as BENITAMOU started to cross TSS after suspending her passing.

4.10 While the distance was two cables between the two vessels, BC VANESSA called BENITAMOU via VHF and was acknowledged, but the conversation did not resume.

4.11 No effective look-out done by both BENITAMOU and BC VANESSA bridge teams.

4.12 Both vessels have not taken into account the implementation of the safe speed principles, within the scope of the safe speed concept laid down in the relevant provisions of the COLREGs.

4.13 By the time, both vessels noticed each other, they did not have time to assess the collision situation and take the appropriate avoidance action. As a matter of fact, the maneuvers made were insufficient.

4.14 Fatigue was not a contributing factor to cause the accident.

4.15 Both bridge teams were unable to effectively implement “Bridge Resource Management” in terms of the use of neither navigational devices nor assistant crewmembers, navigation in restricted visibility and dense traffic.

4.16 Despite the prevailance of dense fog, both vessels did not use sound signals.

SECTION 5 – RECOMMENDATIONS

The following recommendations are directed by considering the analysis and conclusions obtained from the accident investigation.

The Manager/Operator of BENITAMOU is recommended to

21/06-23 Provide clear instructions to the OsOW in order to follow the respective provisions of the "Safety Navigation Management Manual" (DM 08) having considered the COLREGs and ensure the establishment of effective look-out (particularly monitoring ARPA/radar) in restricted visibility and restricted waters in order to avoid close quarter situations.

The Manager/Operator of BC VANESSA is recommended to

22/06-23 Provide clear instructions to the OsOW in order to follow the "Master Standing Orders" and provisions of the "Navigation in Restricted Visibility Check List" (OPE 12/01)

23/06-23 Develop its "Safety Management System" with specific guidelines or take such measures in order to ensure the establishment of appropriate level of bridge team in restricted visibility and congestion waters.

General Directorate of the Coastal Safety is recommended to

24/06-23 Instruct VTSOs or implement a regulation to specifically emphasize the use of AIS by all vessels navigating within the Traffic Separation Scheme, taking into account the circumstances of this accident.