



REPUBLIC OF TURKEY
MINISTRY OF TRANSPORT, MARITIME AFFAIRS
AND
COMMUNICATION
Accident Investigation Board



**Marine Safety Investigation Report on the Maritime Accident
Caused by the Collision of Vessels**

LILIAN Z
and
MURADIYE

Izmit Bay/Off the Coast of Eskihisar
14TH JANUARY 2015

Committee Decision No: 1/1.Dnz/2016



LILIAN Z



MURADIYE

PREAMBLE

This marine accident has been examined by the provisions of the “DIRECTIVE OF INVESTIGATION of MARINE ACCIDENTS and INCIDENTS” published and enacted in the Official Gazette dated 10.07.2014 and numbered 29056.

Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (MSC 255(84) (Casualty Investigation Code) and Resolution A.1075 (28) of International Maritime Organization and Directive 2009/18/EC of the European Union have also been taken into account for the procedures and principles of the investigation.

The Marine Accident Investigation aims to provide the improvement of the legislation and applications directed to the safety of life, goods and environment by identifying the root causes, which cause the occurrence of marine accidents and to make recommendations to contribute to the prevention of similar accidents and incidents to occur in the future.

The Marine Accident Investigation neither has the value of judiciary and administrative investigation nor bears the purpose to identify the crime, the criminal and apportion blame or liability.

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ABBREVIATIONS

IMO	- International Maritime Organization
DWT	- Deadweight Tonnage
GMT	- Greenwich Mean Time
M/T	- Metric/Ton
VHF	- Very High Frequency
GT	- Gross Ton
SMS	- Safety Management System
DOC	- Document of Compliance
PSC	- Port State Control
TSS	- Traffic Separation Schemes
VDR	- Voyage Data Recorder
COLREGS	-International Regulations for Preventing Collisions at Sea
VTS	-Vessel Traffic Services
AIS	- Automatic Identification System

SUMMARY



Image 1: Accident Location

Note: All times used in the report are local time (GMT +2)

On 14.01.2015 at 19.37, the Marshall Island flagged bulk carrier LILIAN Z, and the Turkish flagged ferry MURADIYE collided off the coast of Eskişehir, Izmit Bay. As a result of the collision, both vessels were damaged slightly and no loss of life, serious injury or environmental pollution occurred. The bulk carrier, LILIAN Z, was carrying 70,675 M/T of coal that was loaded at the Richards Bay/South Africa to Diliskelesi. LILIAN Z took a pilot at 19.15 at the entrance of the Izmit Bay to anchor at the Eskişehir anchorage and sailed smoothly all the course up to off the coast of Eskişehir. The ferry MURADIYE, on the other hand, departed from the Eskişehir Pier at 19.26 for the Eskişehir-Tavşanlı trip. On 19.37, the port bow of the ferry MURADIYE hit the bulk carrier LILIAN Z at her port side on the west traffic lane of the Izmit traffic separation scheme and they collided off the coast of Eskişehir. After the collision, LILIAN Z and MURADIYE vessels suffered minor damage and luckily, there was no death or significant injuries. After the accident, the ferry MURADIYE continued its trip and transported her passengers and vehicles safely to the Tavşanlı Pier and the LILIAN Z anchored at the Eskişehir anchorage.

SECTION 1 – FACTUAL INFORMATION

1.1 Information on the Vessel and the Accident

Information on the Bulk Carrier LILIAN Z

Vessel Name	: LILIAN Z
Flag	: Marshall Islands
Port of Registry	: Majuro
Type of Vessel	: Bulk Carrier
Owner	: Lilian Shipping S.A.
Building Year and Place	: 1999/Japan
Gross and Net Tonnage	: 38835/24527
DWT	: 74461
IMO No	: 9207326
Call Sign	: V7LB4
Classification Society	: NIPPON KAIJI KYOKAI
Length Overall and Breadth	: 225/32.2 m.
Depth	: 19.2 m.
Main Engine Power	: 8826 Kw (Manufacturer: B&W)
Nautical Speed	: 13.5 nautical miles (Loaded)
Number of Crew	: 22
Port of Departure	: Richards Bay/South Africa
Port of Arrival	: Diliskelesi/Turkey

Information of the vessel MURADIYE

Vessel Name	: MURADIYE
Flag	: Turkish
Port of Registry	: Istanbul
Vessel Type	: Ferry
Owner	: Narlı Feribot işletmeciliği A.Ş.
Building Year and Place	: 2001/Greece
Gross and Net Tonnage	: 671/406
IMO No	: 8989549
Call Sign	: TCVQ7
Length Overall and Breadth	: 91.3/17.4 m.
Depth	: 2.34 m.
Main Engine Power	: 4X470Bhp (Manufacturer: CUMMINS)
Nautical Speed	: 11 knots
Number of Crew	: 5
Port of Departure	: Eskihisar/Kocaeli
Port of Arrival	: Tavşanlı/Yalova

Accident Details

Date and Time	: 14 January 2015/19.37
Accident Scene	: Off the Coast of Eskihisar/Izmit Bay
Accident Location	: 40° 44'.6 N/ 029° 25'.7 E
Injury/Death/Missing	: None

Damage	: Rupture on the upper part of side shell plating of the bulk carrier LILIAN Z, which aligns with the port side topside tank number 3, and damage to guard rails.
	Minor damage on the ramp of the ferry MURADIYE
Pollution	: None

1.2 Environmental Conditions

It was found that on the day of the accident, the wind blew 2 to 4 beaufort from the south-southwest, the weather was slightly misty but the visibility was not affected negatively.

1.3 Sequence of Events Leading to Accident

The bulk carrier, LILIAN Z, departed to transport 70,675 M/T of coal that was loaded at the Richards Bay/South Africa to Diliskelesi on 19th December 2014. The pilotage station informed the bulk carrier arriving in front of Izmit Bay during the evening hours on 14th January 2015 that she would approach Çolakoğlu Pier in the morning on 15th January 2015, due to strong currents and therefore instructed to anchor at the Eskihisar anchorage together with the pilot, where she would stay until next morning. At 19.15 on 14th January 2015, a pilot from Darıca Pilotage Station boarded the bulk carrier. The pilot who boarded asked the helmsman to set the course at 060° to proceed to the Eskihisar anchorage.

The ferry MURADIYE, on the other hand, departed from the Eskihisar Pier at 19.26 for the Eskihisar-Tavşanlı trip. After departure, the Master of the ferry MURADIYE saw that the bulk carrier LILIAN Z approached from her starboard bow, on a possible collision course. Thereupon, he wanted to contact LILIAN Z to accomplish the appropriate manoeuvre to avoid the collision and on the assumption that there was likely a pilot on board, he first called the Darıca Pilotage Station at 19.34 to ask whether there was a pilot on board the bulk carrier LILIAN Z. In the meantime, the pilot on board bulk carrier LILIAN Z who was listening to the VHF calls, involved in the conversation and stated that he was on board and proceeding to anchorage. Thereupon, the Master of MURADIYE also stated that he was proceeding towards Tavşanlı and wanted to confirm that LILIAN Z was also proceeding towards the anchorage and the pilot on the bulk carrier LILIAN Z confirmed that they were proceeding towards Eskihisar anchorage.

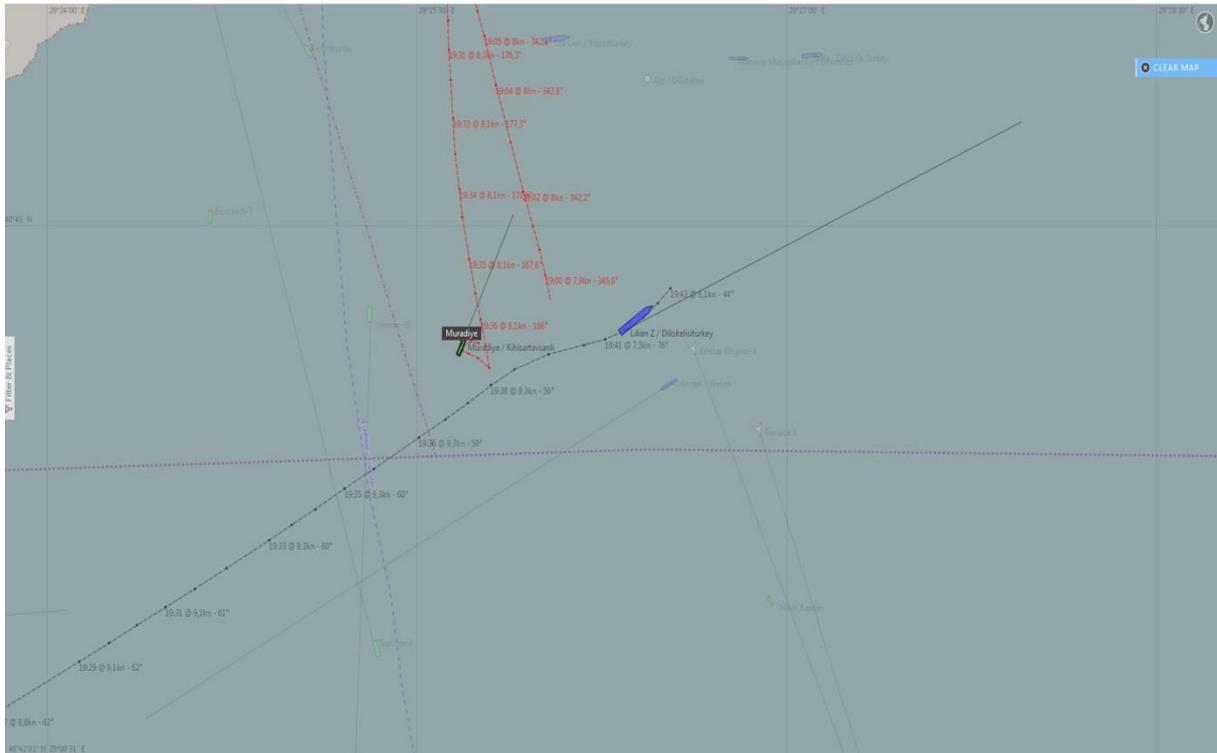


Image 2: AIS Image of Both Vessels After the Collision

Thereupon, following his own assessment, he ended the conversation by stating, “I guess, we are passing starboard-to-starboard”. However, at that time, the pilot on the bulk carrier LILIAN Z confirmed the passing by starboard-to-starboard by saying “OK” without checking the exact location and course of the ferry MURADIYE from radar or AIS and without questioning the real intentions of MURADIYE. Below are the call logs from the VHF about three minutes before the collision.

- **MURADIYE:** Darıca Pilotage Ferry Muradiye
- **DARICA PILOT:** Muradiye Darıca
- **MURADIYE:** Is there a pilot on board Lilian, sir?

After waiting for a while, the Pilot (A) on the bulk carrier Lilian Z

- **PILOT A:** Muradiye A. Master, the vessel that proceeds to the anchorage is a large bulk carrier

After a while, again

- **PILOT A:** Master A, if you’re asking about the bulk carrier proceeding to the anchorage
- **MURADIYE:** A. Master Muradiye.
- **PILOT A:** I’m listening.
- **MURADIYE:** I am heading towards Tavşanlı, I guess you are coming to anchorage?
- **PILOT A:** That’s right.

- **MURADIYE:** Ok, I guess, we are passing by starboard-to-starboard, God save you.
- **PILOT A:** OK.

Immediately after this conversation, Darıca Pilotage station called Pilot A and informed that there was a vessel named ASMAR that was exiting the Bay, and there was a pilot B on board. Thereupon, the pilot on board the bulk carrier LILIAN Z called the pilot on board the vessel ASMAR and asked him to keep clear from LILIAN Z and indicated that he was heading to the anchorage and LILIAN Z was 225 meters long. The pilot on board ASMAR, on the other hand, stated that he had thought his ship would cross ahead of the LILIAN Z and head for the bay exit. The pilot on board the bulk carrier LILIAN Z asked whether ASMAR was on the starboard bow of LILIAN Z and the pilot on the vessel ASMAR stated that the lights where the LILIAN Z was positioned was very tangled and he could not see the sidelights of the bulk carrier LILIAN Z, and they discussed what manoeuvres would be done by both vessels. Below are the audio records of the meeting between the Darıca pilotage station and the pilot of the carrier LILIAN Z first, then between the two pilots.

- **DARICA PILOTAGE:** Pilot A, Pilot B is on board the vessel making exit, vessel Asmar.
- **PILOT A:** Where is she?
- **DARICA PILOTAGE:** Your vectors are now overlapping, sir. She crossed the Dilburnu and the gas line.
- **PILOT A:** OK

After a while

- **PILOT A:** B-A (calling out the other pilot by name)
- **PILOT B:** A. brother B (responding to pilot A by name)
- **PILOT A:** B. I am heading towards Eskihisar, the vessels' length is 225 meters. I guess you'd watch out our vessel.
- **PILOT B:** Brother, I see. I think you are passing by my aft.
- **PILOT A:** Well, are you on my starboard bow?
- **PILOT B:** Brother, it seems like port side. I can't exactly understand from your lights. There, so complicated.
- **PILOT A:** I see you as you are on my starboard bow, let me look. Brother, I see. Brother, it's like we're overlapping. I feel like it would be appropriate if you alter your course to port side like, five degrees.

After a while

- **PILOT A:** You altered on to port now, okay, I'll alter on to port, and we'll agree when that ferry passes.

- **PILOT B:** A. Brother, I can't see your sidelights. That's why I can't detect. I mean, we will act as you say.
- **PILOT A:** Come on.
- **PILOT B:** There are a lot of mixed lights like this. I can't quite sense what's happening actually. You are on my port bow, it seems like we are passing by port-to-port but I mean, as I said I can't sense it.
- **PILOT A:** Brother, I'm telling you, let's pass by starboard-to starboard. Do you want to pass by port-to-port? OK then, come. You set to starboard, let's pass by port-to-port if you want so. I would pass in front of you. There's a ferry beside me, that's why.
- **PILOT B:** Okay, go ahead. Passing by starboard-to starboard doesn't matter to me either. I can't detect you. Because I can't see your sidelights. I mean, I can't see your sidelights right now. I set on to port heading south, you proceed to the anchorage comfortably.
- **PILOT A:** OK, thanks. Just alter 10 degrees, it would be enough. Muradiye, what are you doing, Muradiye?

The pilot of the LILIAN Z, who discovered that the ferry MURADIYE was dangerously approaching LILIAN Z during the conversations between both pilots, called the ferry MURADIYE and asked his intention. The Master of MURADIYE mentioned that he and the pilot of the LILIAN Z had agreed to pass by starboard-to-starboard. So, the pilot on board the LILIAN Z, , may have realized his mistake and tried to make it clear that the passing by starboard-to-starboard that he'd already approved was inappropriate. The Master of MURADIYE, who assumed that he would cross ahead of LILIAN Z by then, realized that LILIAN Z would not give the way to him and immediately began to manoeuvre to avoid the collision. Meanwhile, he didn't respond to the persistent calls of the pilot on board LILIAN Z. Below are the call logs from the VHF between the pilot on board LILIAN Z and the Master of MURADIYE right before the collision.

- **PILOT A:** OK, thanks. Just alter 10 degrees, it would be enough. Muradiye, what are you doing, Muradiye?
- **MURADIYE:** Which ship called, sir?
- **PILOT A:** This ferry. Aren't you passing ahead of me? Which one is heading towards Topçular from Eskihisar?
- **MURADIYE:** Muradiye sir, Muradiye. We have talked with pilot A about passing starboard-to-starboard.
- **PILOT A:** What do you mean with starboard-to-starboard? There's a ferry on my port side, that's what I'm saying. There's one ferry on my port bow.

After a while

- **PILOT A:** Who was that ferry? On the collision course. There is a ferry, contacting the vessel. Who is this?
- **DARICA PILOT:** Muradiye. Muradiye, I think it is.
- **PILOT A:** Muradiye, don't you see me? You're hitting me. Hello. Muradiye. Muradiye. You're hitting me.
- **PILOT C.:** Alert by a whistle.
- **PILOT A.:** Also doing so. Hitting me from my port bow. Muradiye. He hit me. B. move away from me.
- **PILOT B.:** Doing so, brother. Heading full south.

The Master of MURADIYE, who stated that he had realized the danger after his conversation with the pilot of LILIAN Z, said that he immediately operated the engine full astern and set the rudder hard to starboard to avoid the collision. Nevertheless, his manoeuvre couldn't avoid the collision. After the accident, the Master of MURADIYE discovered no serious condition on board and passengers and continued to his trip and safely transported the passengers and the vehicles to Tavşanlı Pier while LILIAN Z anchored at the Eskihisar Anchorage.

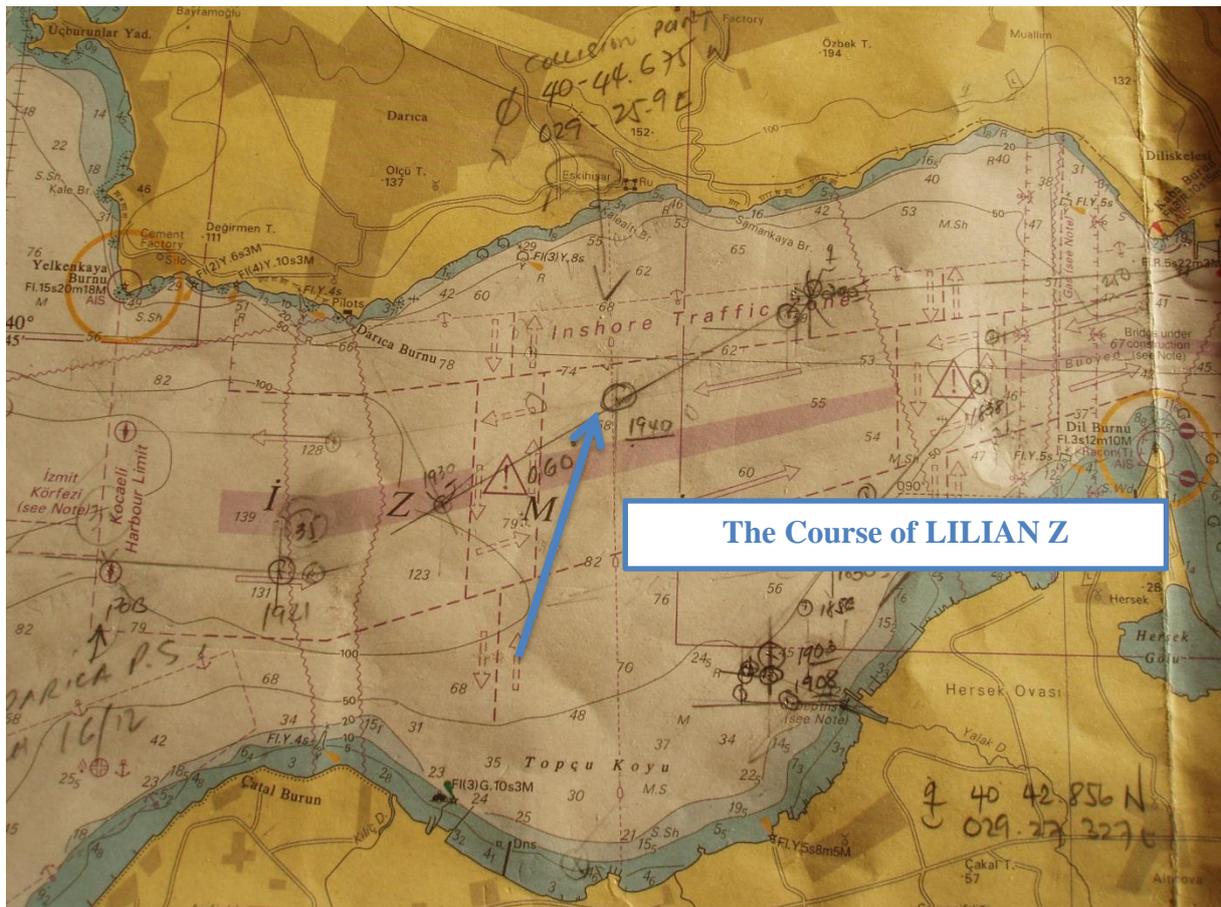


Image 3: The Course of the Bulk Carrier LILIAN Z

1.4 The Ferry MURADIYE

1.4.1 Other Information on the Vessel

The ferry MURADIYE was built in Greece in 2001. The ferry is capable of carrying 450 passengers in the summer, 300 passengers in the winter, and also 116 cars. There are four 470 BHP Cummins engines on board. The Certificate of Sea Worthiness allows it to navigate at Kocaeli harbour navigational zone and the ferry is manned with a total of 5 crews; one Master (II/2), one chief engineer (III/3), two deck ratings and one engine rating, as required by the Minimum Safe Manning Document.

1.4.2 Istanbul Lines

In 2006, it entered in the shipping industry by Ro-Ro transportation throughout the Sea of Marmara. It began to operate ferry transportation between Eskihisar-Tavşanlı in 2013. It has two Ro-Ro vessels that are currently operating between Ambarlı-Bandırma and four ferries on the Eskihisar-Tavşanlı line.

1.4.3 Key Crew

The ferry Master is 53 years old, and has certificate of competency as Master (500-3000 GT), and has about 35 years of sea experience. He has been working on board similar vessels as Master since 1998. He's been working for 1.5 years at the Istanbul Lines and has been on that line as well as that ferry for the same amount of time. It is considered that the Master was not fatigued during the accident.

The deck crew who was assigned for look-out have 12 years of sea experience and is qualified to serve as an able seaman. He has been working for 1.5 years on the ferry MURADIYE at Istanbul Lines.

1.4.4 Bridge Navigational Watch, and Work Routine

As required by the Minimum Safe Manning Document, the ferry must be manned with a total of 5 crews; one Master, two deck ratings, one radio officer (In the event that at least two deck seamen are qualified with a short-range radio operator within VHF range, then there is no need for another one radio officer) one chief engineer and one engine rating, and there was eight crew (two captains, three ordinary seamen, one chief engineer and two oilers) on board during the accident.

The Masters on the ferry are working on a work routine, as two days' shift, two days' rest. There are two captains on each watch, and they're keeping watch for six hours each.

There are three ordinary seaman on board; they are working on a watch order for six hours each; requiring two seamen simultaneously to keep watch, and one seaman to rest. One of the ordinary seaman on the watch is assigned as a lookout. It was reported that there were Master and one of the able seaman as look-out on the bridge during the collision.

The chief engineer works from 08:00 to 17:00 hours in the day, while the engine crew works at four hours watches.

1.4.5 Safety Management System (SMS) and Practices

The Harbour Master of Istanbul issued SMC (safety management certificate) for the vessel on 25.10.2013. The Turkish Lloyd issued DOC (document of compliance) for the vessel on 27.08.2012. The last annual survey of DOC was held on 25.08.2014.

1.5 LILIAN Z

1.5.1 Key Crew

The Master of LILIAN Z is a 63-year-old citizen of Georgia. He has a certificate of competency as Master (STCW II/2) and has 40 years of sea experience. He has been a Master since 1999 and has been working on the vessels owned by that company for a total of three years. On 17th October 2014, he joined the vessel and occasionally served on board LILIAN Z for a total of 16 months.

The seaman who was assigned as the helmsman at the time of the accident is qualified as an able seaman. He's a 43-year-old citizen of the Philippines. He has 17 years of sea experience and has been on the same company for seven years, nine months of which is on this vessel.

1.5.2 Safety Management System (SMS) and Practices

The Nippon Kaiji Kyokai Class Society issued SMC for the vessel on 13.06.2012. The Nippon Kaiji Kyokai Class Society issued DOC for the vessel on 13.06.2012. The last annual survey of DOC was held on 06.08.2014.

1.5.3 Bridge Navigational Watch Routine

It has been found that the vessel was manned with a sufficient number of crew, as required by the Minimum Safe Manning Certificate. It was reported that there were four crews on board

including the Master on the bridge, two officers on watch as well as one seaman, serving as a helmsman, during the collision.

1.5.4 Navigational Lights

As expressed by the pilot on the vessel ASMAR during his conversation with the pilot on board LILIAN Z, it couldn't be found whether the sidelights of LILIAN Z were on before and during the collision. However, in the interview with the pilot on the vessel ASMAR after the accident, he stated that he saw the sidelights that he thought he could not see due to the heavy traffic on the navigational area of LILIAN Z before the collision as he approached the carrier LILIAN Z after the accident.



FORM B

REPORT OF INSPECTION IN ACCORDANCE WITH THE MEDITERRANEAN MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL

REPUBLIC OF TÜRKİYE
 MINISTRY OF TRANSPORT, MARITIME AFFAIRS
 AND COMMUNICATIONS
 Address : Hakkı Turaylıç Cad. No:5 06338 Emek / Ankara
 Telephone: +90-312-203 10 00
 Telefax : +90-312-231 33 06

copy to: - master
 - head office
 - PSCO

if ship is detained, copy to:
 - flag State
 - recognised organization, if applicable

1. Name of ship LILIAN Z 2. IMO number 9207326 3. Date of final report 4. Place of inspection ÇANKAYA/İZMİR

DEFICIENCIES FOUND AND FOLLOW UP ACTIONS ()**

Code	Defective item	Nature of defect ¹⁾	Convention ref. ²⁾	Ground for detention	Action taken (AT)	Follow-up AT, if applicable	Additional comments	RO resp. ³⁾
1) 10109	INOPERATIVE	LIGHTS, SHARL P. SAND SIGNALS		<input type="checkbox"/>	17/10	f	FRONT NAVIGATIONAL LIGHT IS INOPERATIVE	<input type="checkbox"/>
2) 04103	INOPERATIVE	EMERGENCY LIGHTING BATT. SWITCH		<input type="checkbox"/>	17/10	f	SEVERAL EMERGENCY LIGHTS ON BRIDGE DECK BEAT BACK AND A CORRUPTION	<input type="checkbox"/>
3) 04102	INOPERATIVE	EMERGENCY FIRE PUMP AND FIRE PUMP		<input checked="" type="checkbox"/>	30/10	f	EMERGENCY FIRE PUMP IS NOT WORKING	<input type="checkbox"/>
4) 10116	MISSING	NAUTICAL PUBLICATIONS		<input type="checkbox"/>	17/10	f	ANASAR VOL III NEW EDITION MISSING	<input type="checkbox"/>
5) 02113	HOLD DAMAGED	HULL CRACKING		<input type="checkbox"/>	09/10	f	ABOUT 11 METERS DAMAGED AT PORT SIDE NO.3 T.S.T. SHEEL PLATE 7.5 METERS BENTEN DURE 20 COLLISION ON 14/01/2015	<input type="checkbox"/>

99. MASTER AND CLASS INFORMED

Name: _____ (duly authorized PSCO of reporting authority)
 Signature: _____

Order official (PSCO) _____ Captain BÖNÜŞ (PSCO) _____

(**) Masters, Shipowners and/or Operators are advised that detailed information on the inspection may be subject to publication (www.medmtu.org)

1) This inspection was not a full survey and deficiencies listed may not be exhaustive. In the event of a detention, it is recommended that a full survey be carried out and all deficiencies are rectified before an application for re-inspection is made.
 2) To be completed in the event of a detention (for non-convention ships <600 GT as reference only)
 3) Follow up AT per deficiency to be introduced by other(s) MED MoU PSCOs

Revision 2 2nd inspection carried out on 20/01/2015 at Çankaya/İzmir port. Deficiencies No.1,2,3,4 rectified Def. No.5 rectified according to RKK Class report dated 20/01/2015 file No 151700049 Ship is allowed to proceed Besides Shipyard (Yalova) for repair purposes. Order official

Image 4: PSC Report of the Bulk Carrier LILIAN Z

After the accident, the Port State Control Officers from the Harbour Master of Kocaeli inspected LILIAN Z under the Mediterranean Memorandum of Understanding on 19.01.2015 and the vessel was detained after the inspection. During the second inspection held on 20.01.2015, it was noted that the four deficiencies that were found were rectified and the vessel was permitted to proceed to the Yalova/Beşiktaş Shipyard for repair. The inspection report is available in Image-3 and one of the deficiencies was the failure of the fore mast light. Therefore, if the sidelights were failed before the collision, it would have been noticed by the officers during that inspection, as the fore mast light failure was detected. Since the pilot on the vessel ASMAR did not report that the fore mast light of LILIAN Z was off before the collision, such failure is assumed to have likely occurred during the collision.

1.5.5 Navigation with a Pilot

Section 2.5.1, Principles for Safe Management of Piloting in the instruction manual by the operator of LILIAN Z issued for the vessels in its fleet states that “The presence of a pilot on board shall not relieve the Master or the deck officer in charge of the navigational watch from their duties and obligations for the safety of the ship.” In section 2.5.3, Information Exchange between the Master and the Pilot; it is stated that the Master and the pilot shall exchange information regarding the pilot’s intentions and section 2.5.4, Duties and Responsibilities states the importance of sharing responsibility for good communication between pilot, Master and bridge crew as well as understanding the respective roles to ensure the safe navigation of the ship in the pilotage waters. In section 2.5.7, Management of Navigation in the Pilotage Waters; it is stated that the pilot, Master and the bridge crew must work together as members of bridge team management.

It was found that the pilot on board LILIAN Z did not inform the Master why he was not following the traffic lanes at the TSS before the collision, and the Master did not inquire as to why. In addition, it was discovered that the pilot did not provide specifics of the conversation he had with the Master of MURADIYE in Turkish before the collision with the Master of the vessel and that the Master of LILIAN Z did not inform the pilot on the movement of the vessels, despite claiming to be monitoring sea traffic on the radar.

1.5.6 VDR-Voyage Data Recorder

The ship is equipped with the NW4000 series S-VDR manufactured by the Dutch-based Netwave company. When an authorized electronic company (Işık Elektronik) wanted to retrieve VDR records after the collision, they discovered that the records for the day of the

collision were unavailable due to the S-VDR memory being full (Image-12 shows the service report provided by the company). Therefore, audio recordings, particularly on the bridge, at the time and before the collision could not be retrieved. The company stated that it is not possible to determine whether the S-VDR recorded anything or not, and this can only be verified by the authorized services during annual inspections.

İşık elektroteknik

MÜHENDİSLİK, SANAYİ ve TİCARET LİMİTED ŞİRKETİ
Merkez Mah. Yıldırım Beyazıt Cad. No: 5 GÜLCÜK / KOCAELİ
Tel: 0.262.412 05 66 – 67 Fax: 0.262 414 89 04
Service Report

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Service partner's name and address		Service Job No. / date		Order no.	
ISIK ELEKTROTEKNİK MUH. SAN. VE TIC. LTD. STI Merkez Mh. Yıldırım Beyazıt Cd. No: 1 Kat: 3 41650, GOLCUK, KOCAELI TURKEY Tel: +90.262.412 0566 Fax: +90.262.414 0904 E-mail: info@isik.com.tr		15.01.2015			
Service engineer in action		Vessel		IMU No.	
Umit, GULER, Abdullah BAKIR		M/V LILIAN Z		9207326	
Owner & ship's agent		Customer Reference		Service type	
SRH MARINE GREECE		INT-009995		NON WARRANTY	
Equipment type and model		Port			
NW4000 SERIES S-VDR		COLAKOGLU PORT, DILISKELESİ, TURKEY			
Date of installation		System Serial No.			
20.09.2007		PSU NW4200 S/N:1047877			
Customer request					
Download of compactflash data dated 14.01.2015					
1. Describe in full detail Condition found *					
S-VDR IS IN NORMAL WORKING CONDITION					
2. Describe in full detail Action taken *					
Connected to S-VDR with WinSCP and compactflash data was downloaded. Compactflash data played with netwave player. Old - corrupted datas (for year 2012) were found inside of compactflash data. No data was found for 14.01.2015. Pressed DATA button for record current data to compactflash but no result. S-VDR not recording current data to compactflash because of compactflash is full (1.3 GB - 71.000 Files). Compactflash data was recorded to DVD and handed over to authorized person but it doesn't consist collision data (14.01.2015) data. Compactflash was erased (1.3 GB, 71.000 files) than data recorded for test purpose to compactflash and new records were seen in compactflash directory. Compactflash directory kept empty.					
Condition found at end of service *				Follow up needed *	
S-VDR was handed over to authorized person in working condition.				NO	
Next port					
Spares parts					
Qty.	Part Description / Part No.	Serial/Software Version Old	Serial/Software Version New	Warranty	
Place of Service *					
Colakoglu Port, TR					
Date of Service (dd/mm/yyyy) *		Signature of Service Engineer:		Signature & stamp of authorized person:	
16.01.2015		İŞIK ELEKTROTEKNİK MÜHENDİSLİK SAN.ve TİC. LTD. ŞTİ Merkez Mah. Yıldırım Beyazıt Cd. No: 5 GÜLCÜK / KOCAELİ Gölcük V.D. 467 005 881			
End Time of Service (H:mm) *					
23:59					
Attention: The service partners are independent companies. They carry out service activities in their own account. Therefore all discrepancies have to be settled with the performing service partner directly.					

Image 5: VDR Service Report

1.6 Pilot

The pilot on board LILIAN Z is 60 years old and has been a maritime pilot since 1993. He worked at the Strait of Istanbul between 1993 and 2004. He has been piloting at Izmit Bay since 2004. He has been qualified as Senior Pilot. After an eight-day rest, he began his watch on 13th January 2015 at 10.00. He piloted a single ship between 11.05 and 11.25 that day. On the day of the collision, he piloted four vessels; one from 00.00 to 02.00 at midnight, another from 7.00 to 10.15, one from 10.50 to 11.50 and another vessel from 12.10 to 13.10. Thereafter, he boarded the bulk carrier LILIAN Z at 19.15. An examination of the pilot's total working time for two days and on the day the collision indicated no signs of fatigue resulting from his working tempo.

1.7 Damage Status

1.7.1 Damage to the Bulk Carrier LILIAN Z

After the collision, there was a rupture on the side shell plating of the bulk carrier LILIAN Z, which is in line with the port side topside tank number 3, and deformation sustained by guard rails. Additionally, there are a few minor deformations on the deck shell plating.



Image 6: Damage on the Side of the Bulk Carrier LILIAN Z



Image 7: Damage on the Deck of the Bulk Carrier LILIAN Z

1.7.2 Damage to the Ferry MURADIYE

After the collision, the very end of the ramp of the ferry MURADIYE had a minor deformation on the port side.



Image 8: Damage on the Ramp of the Ferry MURADIYE

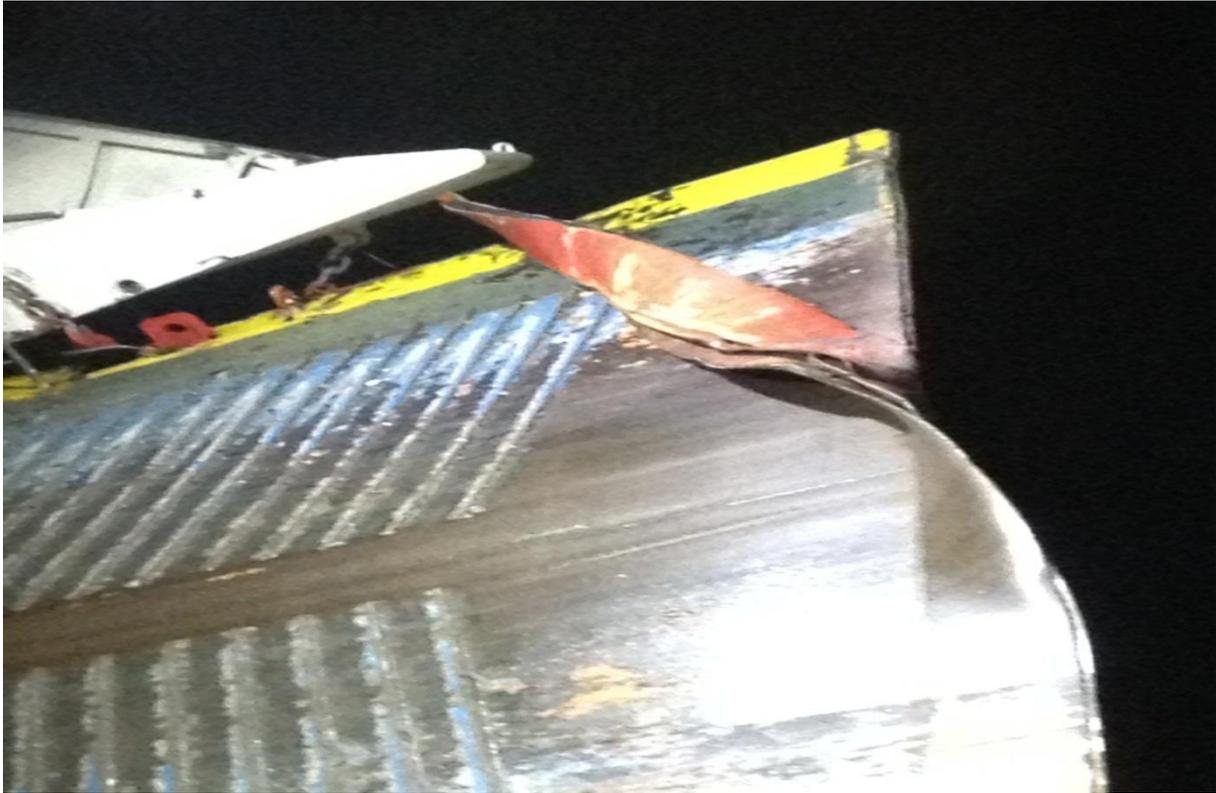


Image 9: Damage on the Ramp of the Ferry MURADIYE

1.8 Regulations for Preventing Collisions at Sea

Rule 7 of the Regulation- “Risk of Collision” states that every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if the risk of collision exists. If there is any doubt such risk shall be deemed to exist.

Rule 8 of the Regulation- “Action to avoid collision” states that any action 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. 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. 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. If necessary, to avoid a 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.

Rule 10 of the Regulation- “Traffic separation schemes” states that a vessel shall, so far as practicable, avoid crossing traffic lanes but if obliged to do so shall cross on a heading as nearly as practicable at right angles to the general direction of traffic flow.

Rule 16 of the Regulation- “Action by give-way vessel” states that every vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to keep well clear. Rule 17 of the Regulation- “Action by stand-on vessel” states that

(a). (i). Where one of two vessels is to keep out of the way the other shall keep her course and speed. (ii). The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules.

(b). (ii). When, from any cause, the vessel required to keep her course and speed finds herself so close that collision cannot be avoided by the action of the give-way vessel alone, she shall take such action as will best aid to avoid a collision.

1.9 Izmit Vessel Traffic Services (VTS) and Traffic Separation Scheme (TSS)

The establishment of the Izmit Vessel Traffic Services Center was completed in April 2013. The transfer of Izmit VTS to the General Directorate of Coastal Safety was accomplished and although the Izmit VTS has been staffed by the General Directorate of Coastal Safety and has begun to operate passively, it does not actively manage the ship traffic. On 01.09.2015, the Implementation Instructions of Izmit VTS was published and entered into force as of the publication date.

Article 19, “Leaving Traffic Separation Scheme” of such Instruction states, “when a ship is required to leave TSS for mooring to quays or piers, buoys, anchoring, turning, breakdown, extraordinary condition, and similar causes while navigating within TSS, she shall inform VTSC immediately before leaving; since the ships which will enter the Bay and come alongside the shore facilities of Dilovası in the north must manoeuvre to come alongside within TSS, the traffic shall be arranged to ensure that no ship from the opposite direction is met during the manoeuvre to come alongside; the ships that will come alongside the shore facility shall leave TSS at an angle as close to a right angle as possible in the direction of overall traffic flow.

Article 21, “Navigation within Traffic Separation Scheme” of the Instruction sub-paragraph (a) states that ships that will join or subsequently leave TSS must navigate in a traffic lane at traffic flow direction, while sub-paragraph (b) states that ships that cross TSS shall do so in accordance with the COLREGS.

The Ports Regulation, which sets the limits of the traffic separation scheme (TSS), the separation lines of the traffic lanes, near coastal traffic area, areas to be considered carefully in TSS and pilot boarding/disembarking locations in Izmit Bay, entered into force upon its publication in the Official Gazette No. 28453 of 31.10.2012.

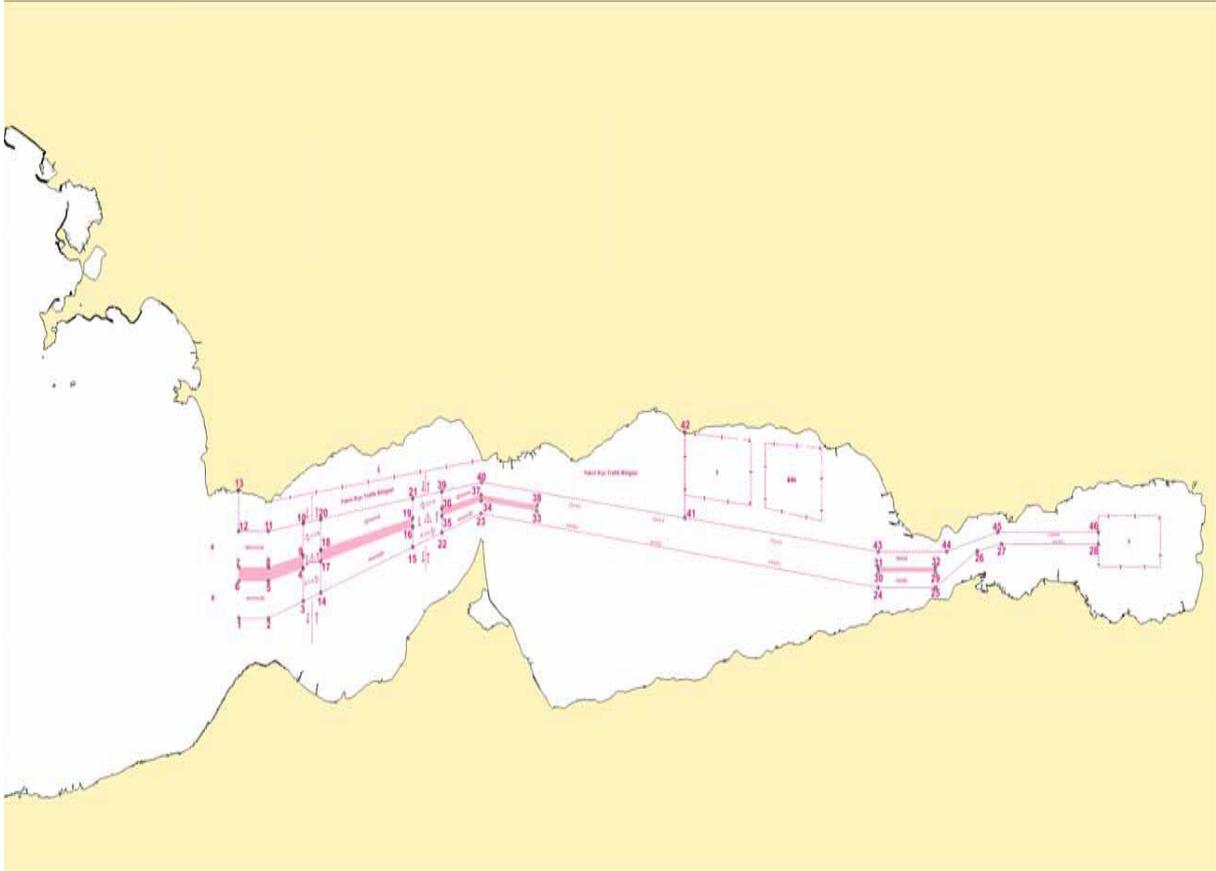


Image 10: Traffic Separation Scheme of Izmit Bay

1.10 Local Maritime Traffic

Two companies undertake regular trips between Eskihisar-Topçular and Eskihisar-Tavşanlı where the collision took place in Izmit Bay. The largest of these is Istanbul Deniz Otobüsleri (Istanbul Sea Buses) A.Ş. (IDO) and carries passengers and vehicles by organizing trips with 18 ferries in the summer and 14 ferries in the winter on the Eskihisar-Topçular line. Istanbul Lines, the owner of the ferry MURADIYE, operates trips with four ferries on the Eskihisar-Tavşanlı line.

safe manoeuvre to avoid the collision. Since he was aware that pilotage was usually mandatory for ships entering or leaving Izmit Bay, he first called Darica Pilotage Station at 19.34 and asked whether LILIAN Z had a pilot on board. In the meanwhile, the pilot on board LILIAN Z, who was listening to VHF dialogues, was involved in the conversation and informed that Pilot A was on board and heading to the anchorage with the large bulk carrier. The Master of MURADIYE thought that it was Darica Pilotage who spoke to him, called the Pilot A on LILIAN Z this time and stated that he was heading towards Tavşanlı, and wanted to confirm that LILIAN Z was also proceeding to the anchorage; and the pilot on the bulk carrier LILIAN Z confirmed that he was proceeding to the Eskihisar anchorage. Thereupon, following only his visual assessment, he said that “I guess, we are passing by starboard-to-starboard”, without any consultation with the pilot on LILIAN Z and also agreeing on a common manoeuvre. Whereas he is expected to make necessary checks on the radar or AIS to determine whether he would cross ahead of the LILIAN Z, and then make a similar talk. This assessment without based on any detection and agreement is considered to be one of the factors that contributed to the accident.



Image 12: AIS Monitor of the Bulk Carrier LILIAN Z

The pilot on board LILIAN Z also confirmed the passing by starboard-to-starboard by only responding “OK” without checking the exact location and course of the ferry MURADIYE in addition to such a wrong assessment by the Master of MURADIYE. When the pilot on board LILIAN Z was asked why, the pilot said that he had believed that MURADIYE was the vessel that was approaching from on her own starboard, in other words from Topçular-Tavşanlı direction, and confirmed the passage solely based on his instincts (without observing any radar or AIS). The primary reason for the collision is considered to be that the pilot on board LILIAN Z confirmed the request of the ferry MURADIYE without personally checking the position, course and speed of the vessel, which spoke to him, by the navigational aids on the vessel (ARPA radar, AIS) or by the vessel crew.

In the interview held with the Master of MURADIYE after the accident, he was asked what he meant by the saying “passing by starboard-to-starboard”. The Master of MURADIYE replied that LILIAN Z was the give-way vessel based on the assumption that LILIAN Z had left her own traffic lane on TSS, and therefore he used that phrase, “passing by starboard-to-starboard” because he thought LILIAN Z would give the way to him by setting her course on the port or slowing down.

On the other hand, pilot on board LILIAN Z, assuming that a starboard-to-starboard passage with a vessel approaching directly from his port side would only be possible only when altering his course to 30-40 degrees to port side and not thinking that such a request could come from a vessel approaching from its port side, (assuming that the request is coming from a vessel approaching him from starboard side) stated that he said OK automatically.

Moreover, it is considered that the communication between the pilot on board LILIAN Z and the Master of the MURADIYE in Turkish language make it impossible for the Master or the deck officers on the bridge of LILIAN Z to understand the dialogue and thus become unaware of the false confirmation by the pilot. In this regard, it was noted during the post-collision interview with the Master of LILIAN Z that the pilot gave him no information regarding the conversation he had with MURADIYE before the accident.

Also, it is considered that the request by the Master of the MURADIYE as “we are passing by starboard-to-starboard,” prevented the pilot on board LILIAN Z from understanding his request clearly and it is possible that the pilot would not have provided the reflexive “ok” answer if he had asked, as “I intend to cross ahead of your ship”.

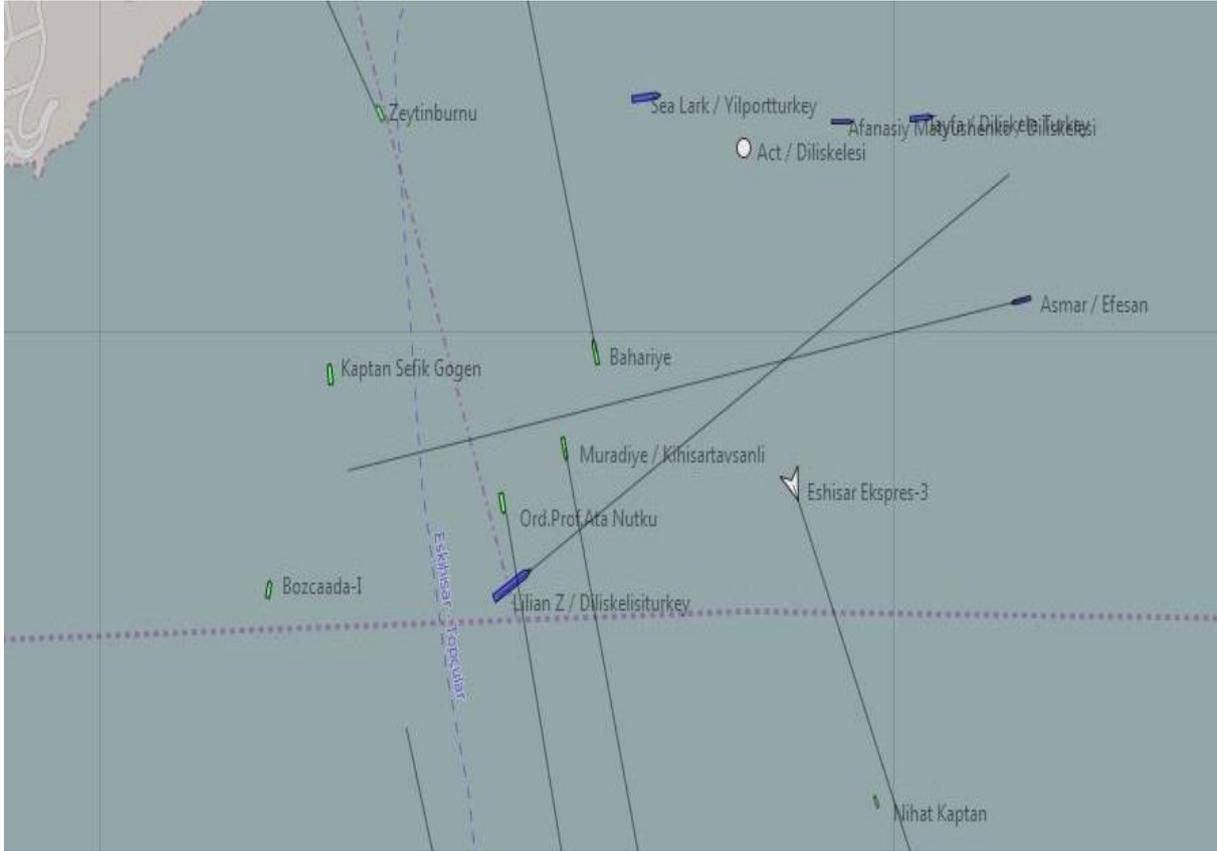


Image 13: AIS Image Just Before the Collision

After the first dialogue with the Master of the MURADIYE, the pilot on board LILIAN Z had a long conversation with the pilot on vessel ASMAR, which was leaving the Izmit Bay, on seeing each other and giving way. During this time, it is considered that the pilot on board LILIAN Z was focused on this conversation, and thus failed to notice the dangerous approach of the ferry MURADIYE for a long time.

Due to these conversations with the pilot on the vessel ASMAR, the pilot on LILIAN Z realized 1 minute 15 seconds before the collision that MURADIYE had approached dangerously close to him. As soon as he realized the situation, he immediately called on the VHF to warn MURADIYE. Based on the response of the Master of the MURADIYE, who had until that time proceeded peacefully without altering her speed or course and thought he would be crossing ahead of LILIAN Z, as “We agreed with the Pilot A on passing by starboard-to-starboard”, The pilot on LILIAN Z stated that that was not the manoeuvre they agreed upon by saying, “What do you mean starboard-to-starboard?” (the Master of the MURADIYE stated that he stopped following LILIAN Z due to the conversation he had with LILIAN Z and focused on the other vessels due to the intense sea traffic). Upon this statement, the Master of MURADIYE immediately ran the engines full astern to avoid the

collision. However, approximately one minute was not enough for the Master of MURADIYE to do the necessary manoeuvre, and the ferry MURADIYE crashed into the port side of LILIAN Z.



Image 14: Roundabout on the TSS Used for Return to the Anchorage

2.2 The Navigation of the Bulk Carrier LILIAN Z within the Traffic Separation Scheme

As soon as the pilot boarded LILIAN Z, he thought to cross that area by taking the middle line, not the traffic lane allocated to him in the traffic separation scheme, to proceed to the anchorage. Whereas the Rule 10/b/i of the Regulations for Preventing Collisions at Sea (COLREGS) - “Traffic separation schemes” states, A vessel using a traffic separation scheme shall proceed in the appropriate traffic lane in the general direction of traffic flow for that lane. As an excuse of navigating outside his traffic lane on TSS, the pilot on board LILIAN Z stated that he could not freely turn the roundabout on the TSS as the length of the vessel was long (225 meters), and as he considered that the anchorage, as being narrow, was not suitable for the anchoring of the vessels of such tonnage, he preferred to anchor by taking the strong western current from the bow , he declared existed that day. However, our inspections after the collision indicated that traffic lanes and the roundabout on the traffic separation scheme

were often ignored, and some of the pilots confirmed that situation during the interviews. In addition, the pilots stated in the interviews that Eskihisar anchorage had not enough room for manoeuvre as being small, it was not suitable for the large tonnage vessels. They stated that they, therefore, positioned the large-tonnage vessels that arrive at the Eskihisar anchorage by usually sailing on the middle line without following the traffic lanes

Nevertheless, it is considered that an accident could still happen if the vessel, LILIAN Z continued to sail on the eastern traffic lane on TSS, although the collision between the two vessels took place on the western traffic lane. However, it is considered that since LILIAN Z was sailing along the eastern traffic lane, the vessel ASMAR would not stand in her way; therefore, they would not have to have a 3-4-minute conversation before the accident. Yet, it is considered that the pilot on board LILIAN Z could not warn the ferry MURADIYE while he could likely have noticed and warned her, as he focused on the conversation with the pilot on the vessel ASMAR that last 3-4 minutes before the accident. Additionally, it is considered that the pilot on LILIAN Z would have noticed his wrong confirmation of the request of the Master of MURADIYE within that 3-4-minute conversation with the pilot on the vessel ASMAR.

Although the Implementation Instructions of Izmit VTS published on 01.09.2015 establishes that the ships that will come alongside the shore facility shall leave TSS at an angle as close to a right angle as possible in the direction of overall traffic flow, it is evaluated that TSS violation would be eliminated by making Izmit VTS operational if the ships that will come alongside the shore facility, and moored will be assessed under that scope.

In addition, ensuring the ships that will join or subsequently leave TSS to navigate in a traffic lane at traffic flow direction included in such Instruction would yet be resolved through making Izmit VTS operational.

2.3 The Use of VHF by the Ferry MURADIYE to Avoid Collision

Many accident investigations around the world have identified the VHF conversations as one of the factors that contribute to marine accidents. Suspicious approaches to identify vessels, disputes caused by the language problem, causing distraction, and the time spent on VHF conversation instead of prompt proper conduct as required by COLREGS have been stated as some of the root causes of the VHF-based accidents.

In this collision, although the ferry MURADIYE was a give-way vessel according to Rule 15 of COLREGS, “When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel. ” even if was not sailing on the lane allocated to her on the TSS, he called LILIAN Z and wanted to cross ahead of her. The pilot on board LILIAN Z confirmed the passing without being fully aware of which ship he was speaking on, and the ferry MURADIYE, which was proceeding peacefully without altering her speed or course, collided with LILIAN Z. However, it is considered that she could have avoided the collision if she took early and substantial action to keep well clear as required by the Rule 16 of COLREGS instead of using VHF to avoid the collision.

2.4 Navigation with a Pilot

Resolution A.960(23) issued by IMO states that even if a pilot is on board, the duties and obligations of the Master or the officer in charge of the navigational watch shall still be valid for the safety of the ship. The instruction manual by the company states that “The presence of a pilot on board shall not relieve the Master or the deck officer in charge of the navigational watch from their duties and obligations for the safety of the ship.” And yet, the Master or the deck officers did not help the pilot to ensure safe navigation, as far as it may be determined, the pilot did not seek such assistance. It is observed that the pilot, Master and the bridge crew did not work together as members of bridge team management and left all duties and responsibilities related to safe navigation to the pilot. When the Master was asked why it was sailed on the middle line on TSS towards the anchorage and he did not involve in this situation, he responded that the pilot represented the local authority and that he was not involved because he believed that the pilot knew the rules in those waters better. However, it is considered that the reason for such navigation must have been evaluated in mutual agreement with the pilot.

SECTION 3 – CONCLUSIONS

3.1 The pilot on the bulk carrier LILIAN Z confirmed the request of passing by starboard-to-starboard through his own assumptions and without personally checking the position, course and speed of the ferry MURADIYE, which spoke to him, by either ARPA radar or AIS on board, or by the vessel crew.

3.2 The bulk carrier LILIAN Z navigated towards the anchorage on the middle line on TSS by violating the Rule 14/b/(i) of COLREGS - Traffic separation schemes, “A vessel using a traffic separation scheme shall proceed in the appropriate traffic lane in the general direction of traffic flow for that lane”.

3.3 The Master of MURADIYE did not manoeuvre by taking early and substantial action so far as possible, as required by the provisions set out in Rule 16 of COLREGS to avoid a collision, and preferred to use VHF to avoid the collision, which is considered a significant factor that could lead to a collision at sea, instead to keep clear of the way of vessel LILIAN Z.

3.4 It is considered that pilot on board LILIAN Z may have been confused about the position of MURADIYE as the Master of MURADIYE asked for confirmation for passing by starboard-to-starboard instead of using a sentence similar to “I intend to cross ahead of your ship” during the conversation with the pilot.

3.5 It is considered that the pilot, Master and the bridge crew did not work together as members of bridge team management and left all duties and responsibilities related to safe navigation to the pilot.

3.6 It is found that S-VDR on LILIAN Z failed to record during the collision.

SECTION 4 – RECOMMENDATIONS

DIRECTORATE GENERAL OF MARITIME AND INLAND WATER REGULATION is recommended to;

4.1 Make Izmit Vessel Traffic Services Center operational as soon as possible,

DENİZ KILAVUZLUK. A.Ş. is recommended to;

4.2 Offer consultancy services to vessels based on the rules stipulated by the Izmit VTS Implementation Instructions by the appointed pilots until it becomes operational and instructing pilots to adhere to TSS,

ISTANBUL LINES is recommended to;

4.3 Instruct all vessels under its operation to ensure that the using VHF is the last resort for avoiding a collision at sea,

DALOMAR SHIPPING S.A. is recommended to;

4.4 Take necessary measures to ensure effective implementation of Bridge Team Management during the navigation with a pilot.