



MINISTRY OF JUSTICE OF THE REPUBLIC OF LITHUANIA
TRANSPORT ACCIDENT AND INCIDENT INVESTIGATION DIVISION

Serious accident
with Ro-Ro passenger ship Patria Seaways,
IMO 8917390, registered in Lithuania and
bulk carrier Yasa Pioneer, IMO 9286578,
registered in Marshall Islands,
that occurred on 16 September 2023
in Marmara Sea

SAFETY INVESTIGATION REPORT

No. (L-23/14) 1A-102
17 June 2024

FOREWORD

The is conducted in accordance with Casualty Investigation Code, adopted by International Maritime Organisation, Commission Regulation (EU) No. 1286/2011 of 9 December 2011 adopting a common methodology for investigating marine casualties and incidents developed pursuant to Article 5(4) of Directive 2009/18/EC of the European Parliament and of the Council, Article 46 of Maritime Safety Law of the Republic of Lithuania and 'Description of the procedure for drawing up and submission of reports and safety recommendations for safety investigations into maritime accidents and incidents', approved by the Order No. 1R-386 of the Minister of Justice of the Republic of Lithuania on 30 December 2015, 'Concerning approval of the Description of the procedure for drawing up and submission of reports and safety recommendations for safety investigations into maritime accidents and incidents'.

The purpose of the safety investigation is to prevent the occurrence of accidents and incidents in the future, rather than establish blame or liability. The safety investigation is conducted independently of any judicial or administrative proceedings, to apportion blame or liability, are not related to them, and have no impact thereupon.

Each safety investigation shall be concluded with a report in a form appropriate to the type and seriousness of the accident or incident. The report shall contain, where appropriate, safety recommendations, which shall in no case create a presumption of blame or liability for accident or incident.

The safety investigation report shall not be used as evidence in a judicial or administrative process seeking to apportion blame or liability, because this was not established in the course of the safety investigation and it is not compatible with the objective of the safety investigation.

The safety investigation report is based only on the data established during the safety investigation. The information is published to inform the maritime industry and the public of the general circumstances of the accident or incident. Extracts may be published without specific permission providing that the source is duly acknowledged, the material is reproduced accurately and it is not used in a derogatory manner or in a misleading context.

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SUMMARY

Basic data

Occurrence	Serious accident	
Date and time of occurrence ¹	16 September 2023, 23:20	
Place of the accident	Marmara Sea	
Name of the ship	Patria Seaways	Yasa Pioneer
Flag of the ship	Lithuanian	Marshall Islands
IMO No	8917390	9286578
Type of the ship	Ro-Ro passenger	Bulk carrier
Owner of the ship	DFDS Seaways, JSC	Tristar Shipping CO SA
Operator of the ship	DFDS Seaways, JSC	YASA Ship Management & Trading SA
Voyage type	International	
Persons on board	Crew – 19	Crew – 24
	Passengers – 5	Passengers – none
	Others – none	
Injuries	None	

Synopsis

At 23:20 on 16 September 2023, ro-ro passenger ship Patria Seaways, IMO No. 8917390, registered in the Register of Seagoing Ships of the Republic of Lithuania and bulk carrier Yasa Pioneer, IMO No. 9286578, registered in the Republic of Marshall Islands, collided while proceeding in the Sea of Marmara.

The accident occurred because the two ships did not notice the danger of collision in time. Although actions were taken when the danger of collision was finally observed, it did not prevent the collision. The bridge team of the Yasa Pioneer, proceeding at a speed² of 9 knots on a heading of 352°, turned hard to port 90 seconds before the collision. The officer on watch, who was alone on the bridge of Patria Seaways, proceeding at a speed of 15 knots on a heading 270°, turned hard to starboard, 37 seconds before the collision. The Yasa Pioneer

¹ Local time (UTC+3) is used in the report.

² Here and hereafter the speed of the vessels is referred in relation of the ground.

bridge team, having spotted the Patria Seaways, tried to seek the attention of the Patria Seaways by pointing a signalling lamp and a laser pointer in the direction of the navigation bridge of the Patria Seaways. The crews of the colliding ships did not maintain radio communication with each other before the accident. At the time of the accident, Yasa Pioneer's automatic vessel identification system did not transmit signals, so the Yasa Pioneer was not displayed on the Patria Seaways' Electronic Chart Display and Information System.

The accident did not result in any environmental pollution or injuries. After the accident, both ships were unable to continue their voyages as planned, due to various damages.

Safety Investigation

At 1:42 on 17 September 2023, the operator of Patria Seaways notified Investigator-In-Charge of Maritime Accidents and Incidents, appointed by the Minister of Justice of the Republic of Lithuania (hereinafter – Investigator-In-Charge) about the accident.

Pursuant to paragraphs 6, 12 and 36 of article 2 of the Maritime Safety Law of the Republic of Lithuania, this accident is classified as serious maritime accident. On 3 November 2023 Investigator-In-Charge decided to conduct a safety investigation into this accident.

The safety investigation was carried out in close cooperation with the Maritime Administrator of the Republic of the Marshall Islands and the Transport Safety Investigation Center of Türkiye.

1

FACTUAL INFORMATION

1.1. Narrative

The circumstances in which the accident occurred, are based upon the testimonies of the crews of the Patria Seaways and Yasa Pioneer, data from the voyage data recorders (VDR) of both ships, the internal investigation report provided by the operator of Yasa Pioneer, data and information provided by the operator of Patria Seaways.

1.1.1. Course of the accident

On September 16, 2023, at 7:30 Yasa Pioneer arrived at Sea of Marmara and commenced drifting while awaiting instructions from Turkish Straits Vessel Traffic Services (hereinafter - TSVTS) Sector Marmara for entry time to the Istanbul Strait. The tracks of Patria Seaways and Yasa Pioneer are shown in Figures 1 and 2 in different scales.

18:00 while Yasa Pioneer was still drifting in the Sea of Marmara, TSVTS Sector Marmara contacted the vessel and informed that the scheduled time of entry into the Istanbul Strait was 1:00, September 17, 2023.

22:05 Patria Seaways with a pilot on board, departed from the port of Pendik in Türkiye to the destination port of Trieste in Italy.

22:15 the pilot disembarked from Patria Seaways. The master, the officer on watch and an able seaman remained present on the navigational bridge.

22:30 Patria Seaways crew secured anchors and ship commenced sea passage at a speed of 15 knots. The ship "Yasa Pioneer" finished drifting and proceeded towards the Istanbul Strait.

22:34 Yasa Pioneer reported to TSVTS Sector Marmara that she was on her way to Haydarpaşa breakwater, Istanbul Strait, with an expected time of arrival at 1:00, September 17, 2023.

22:45 (position 1, Fig. 1) Patria Seaways was proceeding with a speed of 15.3 knots, course³ 240° and encountered several fishing boats on her way. The able seaman left the bridge to perform routine works on board, with permission of the master.

22:49 Yasa Pioneer was set on a course of 325°.

22:53 vessel Yasa Pioneer repeated the message to TSVTS Sector Marmara about the expected time of arrival to the Haydarpaşa breakwater.

³ Here and hereafter the course of the vessel is referred to course over ground.

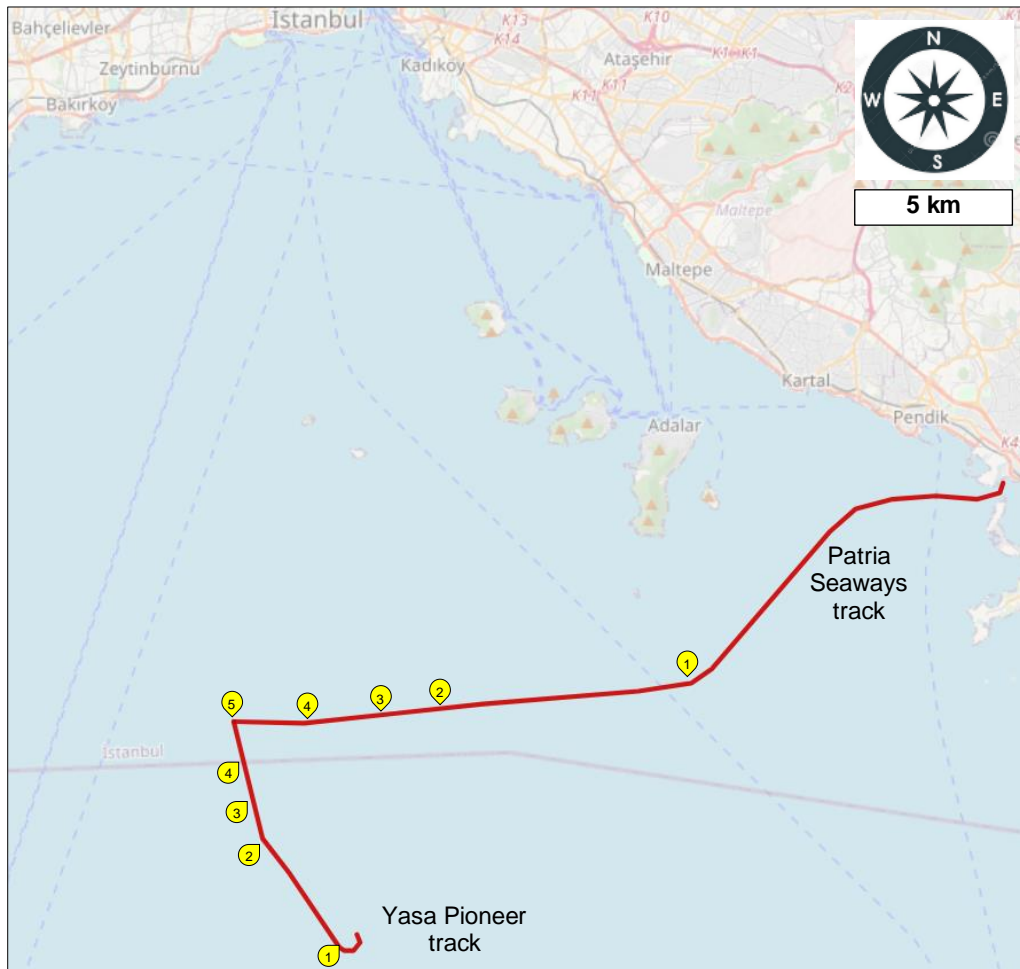


Fig. 1. Tracks of Patria Seaways and Yasa Pioneer from 22:46 p.m. until collision (reconstructed using ships' GPS data using *gpsvisualizer.com*)

22:57 while looking at the radar and Electronic Chart Display and Information System (hereinafter - ECDIS), Patria Seaways' officer on watch indicated to the master the route of the ship and planned changes to the ship's course.

22:58 after Patria Seaways' master left to rest, the officer on watch was left alone on the bridge. The ship's course was 265°, speed 16 knots. For the next 17 minutes, Patria Seaways' speed was 15-16 knots. While passing other ships, Patria Seaways' course varied slightly, within the range of 263°-265°. The autopilot was engaged at all times. Patria Seaways' officer on watch walked from one wing of the bridge to the other, watching for passes with other ships. Some passes were carried out at relatively short 0.3–0.4 nautical miles distances. Some of the ships with which Patria Seaways passed were drifting, changing their speed and sailing direction, so the officer on watch was constantly assessing the navigational situation.

23:04 (position 2, Fig. 1) the master of the Yasa Pioneer instructed the helmsman to change heading from 325° to 350°.

23:09 (position 3, Fig. 1) the master of the Yasa Pioneer instructed the helmsman to proceed with a heading of 352°, not noticing that the vessel was on a collision course with Patria Seaways.

Around 23:10 the Patria Seaways officer on watch assessed the navigational situation using radar and did not detect any danger of collision with the Yasa Pioneer.

23:15 (position 4, Fig. 1) Patria Seaways turned to proceed on a course of 271°.

23:16 as the Patria Seaways passed several fishing vessels, the officer on watch went to the starboard wing of the bridge to make sure there were no other vessels on the starboard side. Looking at the ECDIS video repeater on the starboard wing of the navigation bridge, he did not detect any vessels that could pose a risk of collision. Patria Seaways was proceeding with a course of 271° and a speed of 15 knots, Yasa Pioneer with a course of 347° and a speed of 9 knots.

23:17:58 master of Yasa Pioneer identified a threat of collision with the Patria Seaways and invited the nearby 2-nd mate for advice (Fig. 2).

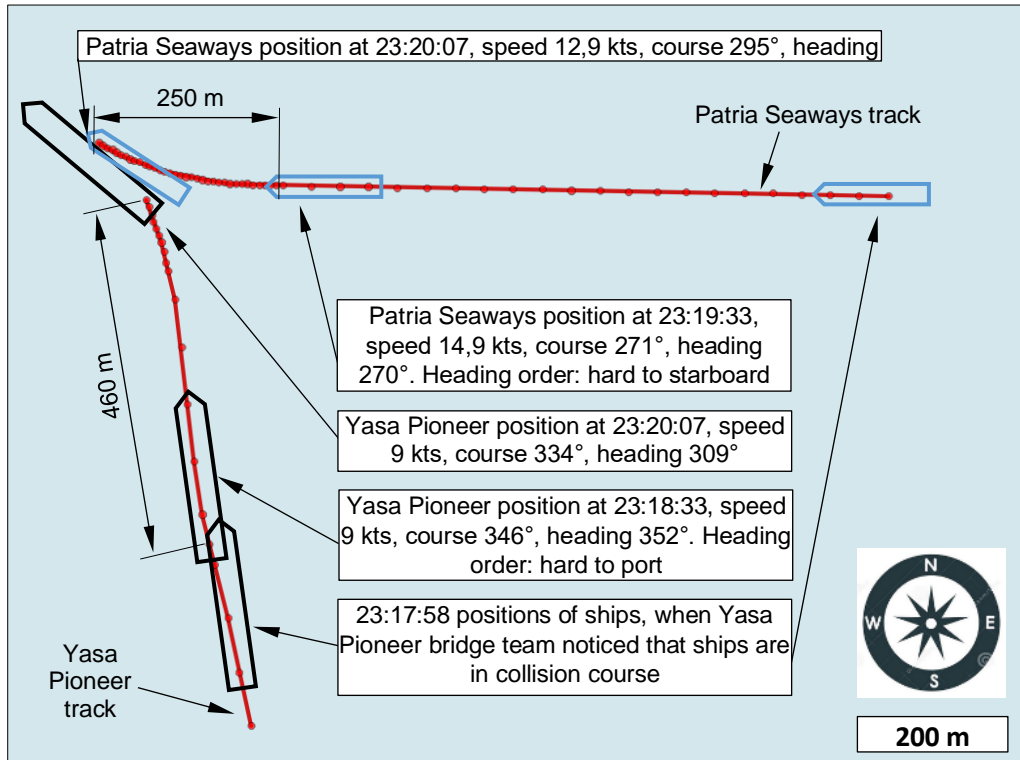


Fig. 2. Tracks of Patria Seaways and Yasa Pioneer from 23:18 until collision (reconstructed using ships' GPS data using *gpsvisualizer.com*)

23:18:33 master of Yasa Pioneer instructed the helmsman to alter "hard to port" (Fig. 2). To warn the Patria Seaways crew of the threat of collision, the master of Yasa Pioneer gave the order to signal with the signalling lamp and laser pointer, directing their light streams to the navigation bridge of the Patria Seaways.

23:19 Patria Seaways' officer on watch, walking from the starboard wing of the bridge towards the center console of the bridge, spotted a large vessel, which he was unable to identify at that time, approaching from the port side perpendicular to Patria Seaways. He also detected this ship when looking at the radar monitor at the center console: this vessel was on a distance of approximately 400 m from Patria Seaways and approaching towards her port side.

23:19:33 Patria Seaways' officer on watch, after assessing the risk of collision and aiming to avoid the collision, altered the ship's course "hard to starboard" (Fig. 2).

23:20:08 "Patria Seaways" and "Yasa Pioneer" collided side by side (position 5, Fig. 1 and Fig. 2). Before the accident, there was no radio communication maintained between the crews of the colliding ships.

23:22:30 master of the Patria Seaways, after he felt the impact, came from his cabin to the bridge.

23:23 master of Patria Seaways notified TSVTS Sector Marmara about the collision but was unable to identify the other vessel involved in the collision.

23:25 Yasa Pioneer bridge team notified TSLET Sector Marmara about the collision. TSLET Sector Marmara operator informed the crew of the Yasa Pioneer that they could not see the automatic vessel identification system (hereinafter – AIS) data of this vessel. Thus, the crew of the Yasa Pioneer became aware of the non-transmitting AIS signal.

23:26 the master of Patria Seaways instructed the crew to check the watertightness of the ship's tanks.

23:27 the bridge team of Patria Seaways, using engines and thrusters, moved the vessel away from the Yasa Pioneer without warning her crew.

23.30 Yasa Pioneer crew started to inspect the watertightness of the ship's tanks.

The general emergency alarm⁴ was not switched on neither by Patria Seaways nor Yasa Pioneer crew after the accident.

On September 17, at 0:09 TSVTS Sector Marmara informed the crew of Yasa Pioneer that this ship will not be allowed to proceed to anchorage until the AIS signal transmission issue is resolved. Soon, the Yasa Pioneer crew, after consulting with the technical service on shore, solved the AIS signal transmission malfunction issue.

1.1.2. Shore authority involvement and emergency response

During the accident, no people were injured, no environmental pollution was observed and no shore assistance was needed.

1.2. Ships' particulars

1.2.1. Patria Seaways particulars

Particulars of ro-ro passenger ship Patria Seaways (Fig. 3) are provided in table 1.



Fig. 3. Ro-ro passenger ship Patria Seaways (*flickr.com*)

⁴ An alarm given in the case of an emergency to all persons on board summoning passengers and crew to muster stations (IMO Code on Alarms and Indicators, adopted by resolution A.686 (17) at November 6, 1991)

Table 1. Patria Seaways particulars

Flag, registration	Flag of Lithuania. Registered in the Register of Seagoing Ships of the Republic of Lithuania.
Classification society	Lloyds Register (LR)
Identification	International Maritime Organisation (IMO) number: 8917390 Call sign: LYRC Maritime Mobile Service Identity (MMSI) number: 277291000
Main characteristics	Gross tonnage: 18332 Length: 154 m Breadth: 24 m
Building yard of ship	Fosen Mek. Verksteder A/S
Year of build	1992
Minimum safe manning	Number of crew, indicated in the minimum safe manning document – 18
Cargo allowed	Ro-Ro cargo (trailers, lorries, cars and similar).

1.2.2. Yasa Pioneer particulars

Particulars of bulk carrier Yasa Pioneer (Fig. 4) are provided in table 2.



Fig. 4. Bulk carrier Yasa Pioneer (*vesselfinder.com*)

Table 2. Yasa Pioneer particulars

Flag, registration	Flag of the Republic of Marshall Islands
Classification society	Nippon Kaiji Kyokai (NKK)
Identification	International Maritime Organisation (IMO) number: 9286578 Call sign: V7JJ3 Maritime Mobile Service Identity (MMSI) number: 538002531
Main characteristics	Gross tonnage: 42895 Length: 228 m Breadth: 32 m
Building yard of ship	Tsuneishi Shipbuilding
Year of build	2006
Minimum safe manning	Number of crew, indicated in the minimum safe manning document –16
Cargo allowed	Bulk Cargo

1.3. Hydrometeorological information and navigational environment

The accident occurred during darkness, with a northeasterly wind of 5-6 m/s. The height of the waves at the time of the accident was 0.7-1 m.

There were many ships in the accident area. Some of them were drifting, other were under propulsion. The visibility of the look-out, especially on board Yasa Pioneer, was affected by light pollution from various sources ashore and by the lights on board other ships.

1.4. Data about crews

1.4.1. Data about Patria Seaways crew

The crew started working on board Patria Seaways on September 6, 2023, after the ship was put into operation on the line Trieste - Pendik, where the ship had not been operated before. After the crew started working, one voyage Trieste - Pendik had been completed. The qualifications, age and experience of seafarers in the navigational watch during which the accident occurred are presented in Table 3.

Table 3. Patria Seaways seafarers' qualifications and service at sea

Position on board	Master	3 mate	Able seaman
Marine rank (qualification) according to STCW convention ⁵	II/2	II/1	II/1
Age (years)	38	31	24
Service at sea (years)	16	8,8	1
Experience in current position (years)	0,3	6	0,5
Experience in the Company (years)	16	8,8	0,5
Service on board Patria Seaways (years)	1,3	6	0,5

1.4.2. Data about Yasa Pioneer crew

At the time of the accident, the Yasa Pioneer bridge team was composed of the master, 2nd and 3rd mates and the helmsman. The navigation watch was led by the master. The qualifications, age and experience of seafarers in the navigational watch during which the accident occurred are presented in Table 4.

Table 4. Yasa Pioneer seafarers' qualifications and service at sea

Position on board	Master	3 mate	2 mate	Able seaman
Marine rank (qualification) according to STCW convention	II/2	II/1	II/1	II/5
Age (years)	42	23	29	34
Service at sea (years)	18,5	3	7	7,2
Experience in current position (years)	10	0,5	2,5	5,3
Experience in the Company (years)	3	0,2	7	5
Service on board Yasa Pioneer (years)	4,4	2	3,7	6

⁵ International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, as amended (STCW 1978).

1.5. Navigational equipment, its operation and use

No malfunctioning of the radars or ECDIS, installed on board of the collided vessels were identified during the safety investigation. The audible alarms to warn for a risk of collision of the navigational aids installed on both vessels were switched off and thus did not emit any warning sounds before the collision occurred. When sailing in areas with dense marine traffic, ships' crews usually do not use warning sound signals of the navigational aids installed on board to warn of the approach of the ship to another object, because in dense traffic areas other ships often pass by relatively small distances and the warning sound signals are activated when there is no danger of collision, thus disturbing the bridge team.

1.5.1. AIS operation on board Yasa Pioneer

Yasa Pioneer was not transmitting AIS signal since 17:36, September 16, until 1:28 September 17. This circumstance was not detected by the Yasa Pioneer crew until the accident occurred. As Yasa Pioneer was not transmitting an AIS signal, this vessel was not displayed neither by ECDIS monitor of other vessels, including Patria Seaways, nor by the ECDIS of the TSVTS. When Yasa Pioneer reported to the TSVTS at 22:34 and 22:53, it was not reported by the TSVTS that the AIS signal was not received.

1.5.2. Use of ECDIS on board Yasa Pioneer

Although Yasa Pioneer was not transmitting an AIS signal at the time of the accident, the Yasa Pioneer's ECDIS equipment was operational and in use. At 23:06 of September 16, Yasa Pioneer's ECDIS monitor was displaying the Patria Seaways triangle symbol and the dashed line, indicating the ship's heading, began to flash, thus visually signalling the danger of collision. At 23:13 the master changed the scale of the ECDIS monitor and the ECDIS monitor was displaying the image as provided in Figure 5. Patria Seaways' triangular symbol and dashed line indicating the ship's heading continued to flash, signalling the danger of a collision. These warnings went unnoticed by the Yasa Pioneer bridge team.

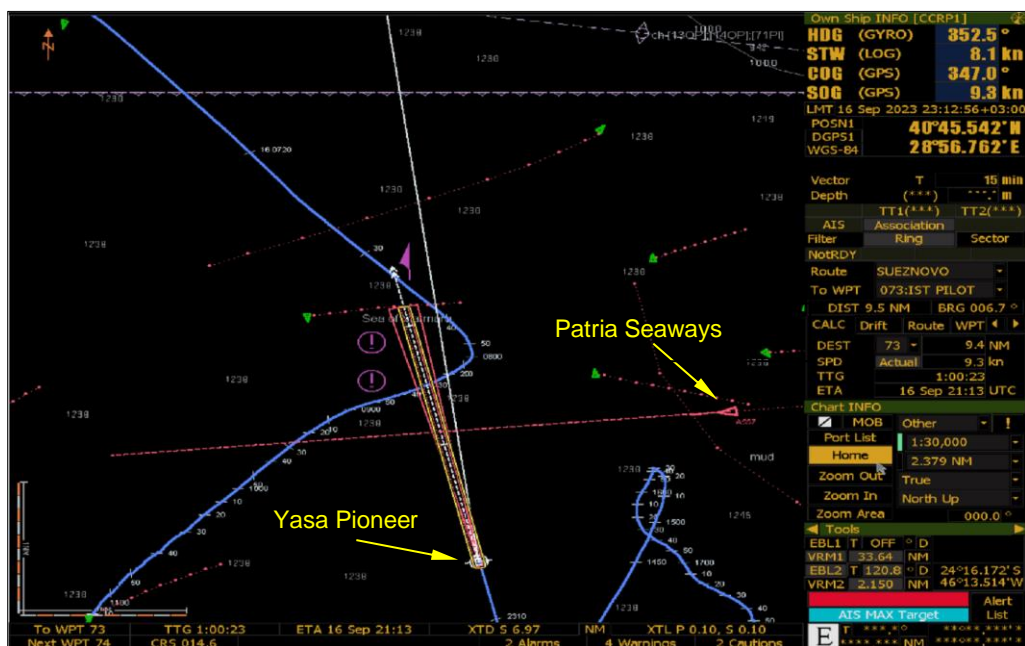


Fig. 5. Image displayed on Yasa Pioneer's ECDIS monitor at 23:13

1.5.3. ECDIS and radars on board Patria Seaways

Two radars and ECDIS were installed on the navigation bridge of Patria Seaways. For the convenience of look-out, monitors (repeaters) duplicating the image generated by these navigation devices were installed in the wings of the navigation bridge – one radar and two ECDIS image repeaters each in the left and right wings of the navigation bridge (Fig. 6). The radar image repeaters were switched off by decision of the master, so that the light emitted by them would not interfere with the visibility of the look-out.

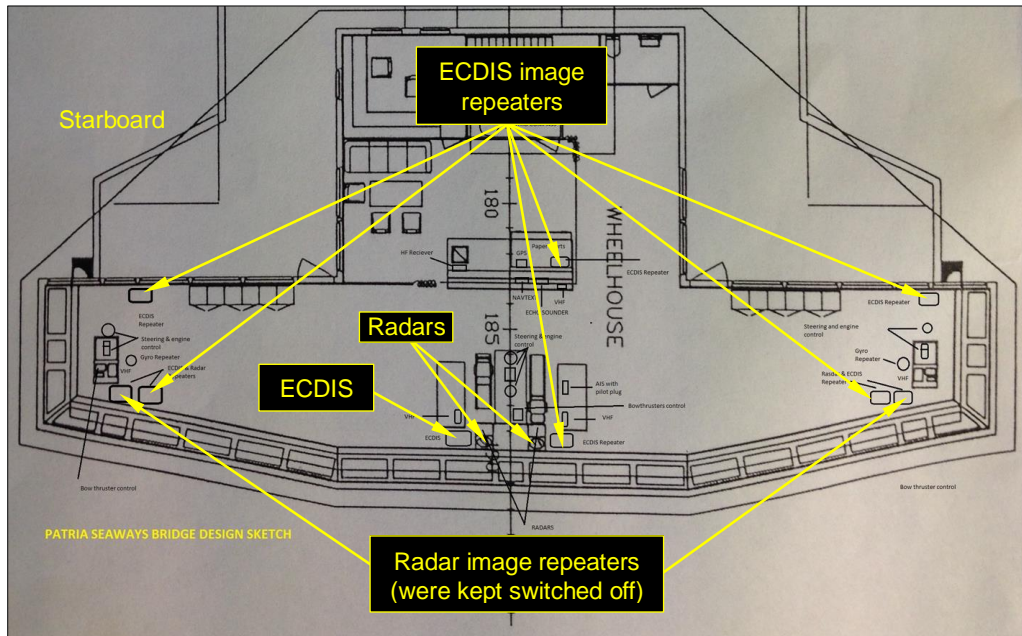


Fig. 6. ECDIS and radar equipment components and their arrangement on the navigation bridge of Patria Seaways

1.6. Organization of navigational watch and look-out

1.6.1. Principles of bridge resource management and navigational watch

Bridge resource management is the effective management and use of all available resources, both human and electronic, by the bridge team to ensure the safe navigation of a ship. The essence of bridge resource management is a safety culture and management approach that facilitates communication, co-operation, and co-ordination among the individuals involved in a ship's navigation. Bridge resource management incorporates concepts such as workload management, problem-solving, decision-making, communication and teamwork.

Chapter A-VIII/2 of Part A of the STCW Code⁶ sets out watchkeeping arrangements and principles to be observed. It also requires to have a look-out in addition to the officer in charge of the navigational watch during hours of darkness:

'Part 3 – Watchkeeping principles in general

<...>

8. Watches shall be carried out based on the following bridge and engine-room resource management principles:

<...>

⁶ Seafarers' Training, Certification and Watchkeeping Code. Part A. Mandatory standards regarding provisions of the annex to the 1978 International Convention on Standards of Training, Certification and Watchkeeping.

3) understanding of watchkeeping personnel regarding their individual roles, responsibility and team roles shall be established;

4) the master, chief engineer officer and officer in charge of watch duties shall maintain a proper watch, making the most effective use of the resources available, such as information, installations/equipment and other personnel;

<...>

8) watchkeeping personnel shall maintain an exchange of appropriate communication in any situation.

<...>

Part 4-1 – Principles to be observed in keeping a navigational watch

Lookout

<...>

16. The duties of the lookout and helmsperson are separate and the helmsperson shall not be considered to be the lookout while steering, except in small ships where an unobstructed all-round view is provided at the steering position and there is no impairment of night vision or other impediment to the keeping of a proper lookout. The officer in charge of the navigational watch may be the sole lookout in daylight <...>.’

1.6.2. Look-out requirements

Requirements, set out in the COLREG⁷, stipulates the following:

‘Rule 5. Look-out

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

1.6.3. Bridge resource management on board Yasa Pioneer

Before the accident, the helmsman was standing at the wheel and was following verbal instructions given by the master regarding the heading of the ship. The master did not instruct the 2nd and 3rd mates who were present on the navigational bridge to use radar for collision prevention and did not require them to provide any information about the navigational situation. 2nd and 3rd mates did not provide information about the navigational situation to the master.

1.6.4. Organisation of navigational watch on board Patria Seaways

The Navigational Watch Procedure used on board Patria Seaways laid down the general order and principles for a navigational watch on the bridge, aiming to ensure a continuous safe watch under various circumstances and conditions. In this procedure, the officer on watch was required to not to leave the navigation bridge during the entire watch, if necessary to appoint a person at the helm in time, to immediately inform the master in case of difficult traffic conditions, etc. The procedure did not specify the amount of personnel required on the bridge during a safe navigational watch.

Typically, a navigational watch on board Patria Seaways consisted of an officer on watch and an able seaman. The master on the bridge was present as necessary – when additional human resources for safe navigation were needed.

The master’s standing orders related to the organization of the navigation watch were not issued.

⁷ Convention on the International Regulations for Preventing Collisions at Sea, COLREG, 1972.

At the time of the accident there was one person on the Patria Seaways bridge – the officer on watch. He had a look-out responsibility, constantly evaluated the changes that occurred in navigational environment and made decisions about the heading and speed of the ship at the same time. After the master left to rest, the officer on watch did not ask for assistance in the navigational watch.

1.7. TSVTS

According to [User's guide of TSVTS](#), vessel traffic in TSVTS sectors is monitored using radar, AIS, closed circuit television cameras, electronic nautical charts, very high frequency radiocommunication devices. TSVTS also obtains the information of Aids to Navigation concerning the participant vessels, the dangers affecting the navigation and possible ship movements from different sources.

TSVTS warns a vessel when she is running into danger or when an imminent emergency is observed. TSVTS may give instructions to all vessels upon the development of an imminent and unavoidable danger, the violation of safety rules and regulations, when a participant vessel is not aware of an imminent and obvious danger.

1.8. Safe speed

The accident scene was not located in the vessel traffic separation scheme. The ships collided in TSVTS Sector Marmara. There are no vessel speed restrictions in this TSVTS sector.

COLREG stipulates provisions regarding safe speed. In the context of this safety investigation the following rules are important:

'Rule 6. Safe speed

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

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

(a) By all vessels:

(i) the state of visibility;

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

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

(iv) at night the presence of background light such as from shore lights or from back scatter of her own lights; <...>.'

Upon departure from the port of Pendik, after the pilot disembarked from the ship at 22:30, Patria Seaways reached a speed of 15 knots, which had not changed much before the accident. This speed was maintained to arrive at the port of destination on time.

1.9. Risk of collision

COLREG stipulates provisions on the actions to be taken by each vessel:

'Rule 7. Risk of collision.

(a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.

(b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observations of detected objects.'

1.10. Conduct of vessels in crossing situations

COLREG stipulates provisions on the actions to be taken by vessels in crossing situations:

'Rule 15. Crossing situations.

When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

Rule 16. Action by give-way vessel.

Every vessel which is directed to keep out of the way of another vessel shall, as far as possible, take early and substantial action to keep well clear.

Rule 17 Action by stand-on vessel.

(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) 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 collision.'

1.11. Signals to attract attention

COLREG stipulates provisions regarding light or sound signals to attract attention of another vessel:

'Rule 36. Signals to attract attention.

If necessary to attract the attention of another vessel any vessel may make light or sound signals that cannot be mistaken for any signal authorised elsewhere in these Rules, or may direct the beam of her searchlight in the direction of the danger, in such a way as not to embarrass any vessel. Any light to attract the attention of another vessel shall be such that it cannot be mistaken for any aid to navigation. For the purpose of this Rule the use of high intensity intermittent or revolving lights, such as strobe lights, shall be avoided.'

Patria Seaways' officer on watch stated to the safety investigation, that he did not spot the light signals made by Yasa Pioneer for warning purposes neither by signalling lamp nor by laser pointer.

1.12. Information about human factor

The safety investigation did not identify factors such as fatigue, health problems, inadequate psychological condition, alcohol, or drug abuse, that could have influenced the actions of the vessels' crew members.

1.13. Data about the damages

After the accident, both ships were unable to continue their voyages as planned due to sustained damages. They were instructed to proceed to repair yards for repairs. The integrity of tanks in both ships remained intact after the accident.

1.13.1. Patria Seaways damages

During the accident, various structures of the forward port side of the ship's superstructure, the left wing of the navigation bridge, the restaurant premises on deck no. 6 (Fig. 7) sustained damages. Hull plating and various other ship's structures and equipment sustained damages of different degree too.



Fig. 7. Damaged Patria Seaways restaurant premises on deck no. 6 (photo provided by the Patria Seaways operator)

1.13.2. Yasa Pioneer damages

Various ship's equipment, hull structures and plating on the starboard side sustained damages of different degree.

1.14. Actions taken

1.14.1. Actions taken by Maritime Administrator of the Republic of the Marshall Islands

Maritime Administrator of the Republic of the Marshall Islands:

1. On September 29, 2023, issued [Marine safety advisory No. 15-23](#) for Marshall Islands-registered vessels on laser pointers and COLREG light signals, noting the requirement of COLREG Regulation 36 to avoid the use of high intensity intermittent lights. Laser pointers are advised not to be used for COLREG purposes due to the risk of blinding.

2. On November 1, 2023, issued [Marine safety advisory No. 16-23](#) for Marshall Islands-registered vessels on Navigation Watchkeeping, regarding the lessons learnt from various accidents and to create awareness about keeping a proper navigational watch.

1.14.2. Action taken by the Yasa Pioneer operator

Yasa Pioneer operator conducted an internal investigation of the accident, prepared and submitted the report.

2

ANALYSIS

2.1. Aim

The purpose of the analysis is to identify safety issues and contributory causes that had directly and indirectly contributed to the accident.

The accident occurred because both ships did not identify the risk of collision in time, so the actions they took when they finally identified the risk of a collision no longer helped to avoid the collision, but only mitigated its consequences. In view of this, the safety investigation aimed to answer the question why the crews of both ships identified the risk of collision too late?

2.2. The environmental factors

The weather conditions at the time of the accident were favourable and did not have had an impact. However, the dark time, intense ship traffic, lights of nearby ships, as well as shore lights made it difficult to maintain a look-out and impaired the ability of the navigators of both ships to identify the risk of collision in time.

2.3. Operation of equipment

2.3.1. No transmission of AIS signal

As Yasa Pioneer was not transmitting AIS signal, this vessel was not displayed on ECDIS monitors in other ships, including Patria Seaways. Since the officer on watch of Patria Seaways did not use the radar in the last 10 minutes before the accident, he did not detect Yasa Pioneer on the navigational equipment he was using within that period, and thus did not identify the risk of collision.

2.3.2. Disabled Radar video repeaters

The radar image repeaters (monitors) installed in the wings of the Patria Seaways navigation bridge were switched off. This was known to the officer on watch, and he had the opportunity to activate them. He also had access to two radars near the center console (Figure 6). Therefore, the deactivated radar image repeaters (monitors) on the bridge wings could not have had a direct effect to maintain look-out as required by COLREG regulation 5 and regulation 7(b).

2.4. Look-out, bridge resources and their management

2.4.1. Patria Seaways

COLREG requires constantly maintain a proper look-out by all available means. To properly fulfil this requirement, the navigational bridge must be manned by sufficient number of suitably qualified personnel, taking into account the specific navigational circumstances.

Chapter A-VIII/2 of Part A of the STCW Code requires to have a look-out in addition to the officer in charge of the navigational watch during hours of darkness. The master left officer on watch alone on the navigation bridge while leaving to rest and allowing an able seaman to perform routine work on the ship's deck. At the time it was dark, Patria Seaways was proceeding at a speed of 15 knots, there were many ships around to pass safely and continuous look-out in changing navigational environment have had to be ensured, as required by COLREG Regulation 5. Prior to the collision, Patria Seaways' officer on watch was focused on a segment of the navigational environment on the starboard side, where the vessel had to give way to other ships. Patria Seaways' officer on watch used radar for the last time about 10 minutes before the collision and did not detect the risk of collision. All this indicates that look-out on board Patria Seaways was not maintained by all available means, the workload to the officer on watch was excessive, it was difficult for him alone to properly perform all his duties on the bridge and this resulted in late detection of the risk of the collision with the Yasa Pioneer. Therefore, the presence of an additional look-out on the Patria Seaways bridge, as required by Chapter A-VIII/2 of Part A of the STCW Code, would have significantly improved the possibilities to identify a collision risk in time. Taking this into account:

Safety recommendation No. SR-2024-L-01

It is recommended that DFDS Seaways JSC to review the procedures applied on its ships and taking into account the requirements of Chapter A-VIII/2 of Part A of the STCW Code, establish criteria for when an additional look-out on the navigation bridge is necessary.

2.4.2. Yasa Pioneer

Although 2nd and 3rd mates were present on Yasa Pioneer's navigation bridge, the master, who was leading the navigational watch, carried out tasks related to safe navigation alone. He did not instruct the 2nd and 3rd mates to use radar for collision prevention and did not require them to provide any information about the navigational situation. 2nd and 3rd mates did not provide information about the navigational situation to the master.

11 minutes before the collision, the master instructed the helmsman to proceed with a heading of 352°, not detecting that the ship was on an even closer collision course with Patria Seaways. 7 minutes before the collision, the master changed the scale of the ECDIS display and the image on the ECDIS monitor (Fig. 5) clearly signalled the risk of collision with Patria Seaways, but no one from the bridge team identified this either.

Chapter A-VIII/2 of Part A of the STCW Code states that when organizing a watch, it is necessary to establish an understanding of watchkeeping personnel regarding their individual roles, responsibility and team roles. The officer in charge of watch shall maintain a proper watch, making the most effective use of the resources available, such as information, installations/equipment and other personnel and watchkeeping personnel shall maintain an exchange of appropriate communication in any situation. Although there were 4 persons on the Yasa Pioneer's bridge, only the master and helmsman performed all the tasks. 2nd and 3rd mate were not involved or engaged in look-out and

assessment of navigational environment. These circumstances indicate that at the time of the accident, the work of the Yasa Pioneer bridge team was not organized in accordance with the principles of bridge resource management, according to which all available human and electronic resources of the ship's bridge team must be efficiently distributed, used and managed. This resulted in ineffective look-out, which led to the late detection of the risk of the collision with the Patria Seaways. Taking this into account:

Safety recommendation No. SR-2024-L-02

It is recommended that YASA Ship Management & Trading SA to review the procedures on board its ships regarding the organization of work of the bridge team and to change or supplement them so that the work of the bridge team is ensured to be organized taking into account the principles of bridge resource management as specified in the Chapter A-VIII/2, Part A of the STCW Code.

2.5. Vessels' actions after identification of a risk of collision

If the ships are on crossing situations so as to involve risk of collision, according to COLREG Regulation 15, Yasa Pioneer should have been keeping out of the way of Patria Seaways, proceeding from the starboard. According to COLREG Regulation 16, the Yasa Pioneer, as a give-way vessel, had to take substantial action to allow the Patria Seaways to pass safely. Under COLREG Regulation 17(b), Patria Seaways, as the stand-on vessel, found herself so close that collision cannot be avoided by the action of the give-way vessel alone, she must have had been taken such action as will best aid to avoid collision.

The ships, having identified the risk of collision, immediately began to change their headings. The Yasa Pioneer turned "hard to port" and about a minute later the Patria Seaways turned "hard to starboard". Taking into account the requirements of the COLREG regulations, such actions of these vessels were justified. At the time of the collision, Yasa Pioneer was heading 309° and Patria Seaways was heading 302° (Figure 2). This shows that the collision avoidance actions taken by both vessels, although taken late, resulted in the vessels colliding broadsides. This significantly mitigated the impact of the collision.

After identifying the risk of collision, the master of the Yasa Pioneer gave the order to signal with the signalling lamp and laser pointer, directing their light streams to the navigation bridge of the Patria Seaways. These warnings were not spotted by Patria Seaways' officer on watch. However, the use of a laser pointer in such situations may cause blinding of persons on the ship's bridge and is inappropriate.

None of the vessels, having identified the risk of collision, attempted to establish radio contact with the other vessel. Yasa Pioneer identified the risk of collision approximately one minute before Patria Seaways, and therefore had the opportunity to establish a radio communication with Patria Seaways before Patria Seaways itself identified the risk of collision. In addition, radio communication is a more effective means than signalling with a daylight signal lamp or a laser pointer, as light signalling cannot provide feedback and assess whether the other vessel understood what was meant.

2.6. Actions after the accident

The general emergency alarm was not switched on neither by Patria Seaways nor Yasa Pioneer crew after the accident. Although the crews of both vessels inspected the tanks and identified no leaks, in other circumstances, the failure to use the general emergency alarm to warn the crews of the dangerous situation on board could have caused serious consequences. Using the general

emergency alarm is an effective means to alert everyone on board and should be instinctive.

7 minutes after the collision, the bridge team of the Patria Seaways, not knowing the extent and nature of the damages caused to vessels, using engines and thrusters moved the ship away from the Yasa Pioneer, without warning the crew of the Yasa Pioneer and without assessing the possible risks of such action.

3

CONCLUSIONS

3.1. Safety issues directly contributing to the accident

1. The accident occurred because both ships did not identify the risk of collision in time, so the actions they took when they finally identified the risk of a collision no longer helped to avoid the collision, but only mitigated its consequences. [2.1].

2. The weather conditions at the time of the accident were favourable and did not have a significant impact on the accident. However, the dark time, intense ship traffic, lights of nearby ships, as well as shore lights made it difficult to maintain a look-out and impaired the ability of the navigators of both ships to identify the risk of collision in time. [2.2].

3. As Yasa Pioneer was not transmitting AIS signal, this vessel was not displayed on ECDIS monitors of Patria Seaways. Since the officer on watch of Patria Seaways did not use radar in the last 10 minutes before the accident, he did not see Yasa Pioneer on the navigational equipment he was using within that period, and thus did not detect the risk of collision. [2.3.1].

4. Prior to the collision, Patria Seaways' officer on watch was focused on a segment of the navigational environment on the starboard side, where the vessel had to give way to other ships. [2.4.1].

5. Patria Seaways' officer on watch was alone on the bridge before and during the accident. At a speed of 15 knots and in heavy traffic, it was difficult for him without the help of a look-out to carry out all tasks properly, including monitoring of the navigational environment by all available means and this resulted in late detection of the risk of the collision with the Yasa Pioneer. [2.4.1].

6. At the time of the accident, the work of the Yasa Pioneer bridge team was not organized in accordance with the principles of bridge resource management. Although 2nd and 3rd mates were present on Yasa Pioneer's navigation bridge, the master, who was leading the navigational watch, carried out tasks related to safe navigation alone. This resulted in ineffective look-out, which led to the late detection of the risk of the collision with the Patria Seaways. [2.4.2].

7. None of the vessels, having identified the risk of collision, attempted to establish radio contact with the other vessel. Yasa Pioneer identified the risk of collision approximately one minute before Patria Seaways, and therefore had the opportunity to establish a radio communication with Patria Seaways before Patria Seaways itself identified the risk of collision. [2.5].

3.2. Safety issues not directly contributing to the accident

1. The radar image repeaters (monitors) installed in the wings of the Patria Seaways navigation bridge were switched off and where not used. [2.3.2].
2. After identifying the risk of collision, the master of the Yasa Pioneer gave the order to signal with the signalling lamp and laser pointer, directing their light streams to the navigation bridge of the Patria Seaways. These warnings were not spotted by Patria Seaways' officer on watch. However, the use of a laser pointer in such situations may cause blinding of persons on the ship's bridge and is inappropriate. [2.5].
3. The general emergency alarm was not switched on neither by Patria Seaways nor Yasa Pioneer crew after the accident. Although both vessels did not sustain critical damages, in other circumstances, the failure to use the general emergency alarm to warn the crews of the dangerous situation on board could have caused serious consequences. [2.6].
4. 7 minutes after the collision, the bridge team of the Patria Seaways, not knowing the extent and nature of the damages sustained to vessels, using engines and thrusters moved the ship away from the Yasa Pioneer, without warning the crew of the Yasa Pioneer and without assessing the possible risks of such actions. [2.6].

4

SAFETY RECOMMENDATIONS

Safety recommendation: with a view to avoiding accidents and incidents in the future, the safety investigation authority drew up a proposal based on the information collected on the basis of the safety investigation, and other sources, for instance, other safety studies. Safety recommendations shall in no case create a presumption of blame or liability for an accident or incident.

The following Safety Recommendations are made in this report:

Safety recommendation No. SR-2024-L-01

It is recommended that DFDS Seaways JSC to review the procedures applied on its ships and taking into account the requirements of Chapter A-VIII/2 of Part A of the STCW Code, establish criteria for when an additional look-out on the navigation bridge is necessary.

Safety recommendation No. SR-2024-L-02

It is recommended that YASA Ship Management & Trading SA to review the procedures on board its ships regarding the organization of work of the bridge team and to change or supplement them so that the work of the bridge team is ensured to be organized taking into account the principles of bridge resource management as specified in the Chapter A-VIII/2, Part A of the STCW Code.