Marine Safety Investigation Unit

Transport Malta

MARINE SAFETY INVESTIGATION REPORT

Grounding and stranding

of the Maltese-registered general cargo,

ATLANTA

on the island of Agios Theodoros, Greece,

on 29 April 2023

202304/023

MARINE SAFETY INVESTIGATION REPORT NO. 05/2024

FINAL

Investigations into marine casualties are conducted under the provisions of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011 and therefore in accordance with Regulation XI-I/6 of the International Convention for the Safety of Life at Sea (SOLAS), and Directive 2009/18/EC of the European Parliament and of the Council of 23 April 2009, establishing the fundamental principles governing the investigation of accidents in the maritime transport sector and amending Council Directive 1999/35/EC and Directive 2002/59/EC of the European Parliament and of the Council.

This safety investigation report is not written, in terms of content and style, with litigation in mind and pursuant to Regulation 13(7) of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011, shall be inadmissible in any judicial proceedings whose purpose or one of whose purposes is to attribute or apportion liability or blame, unless, under prescribed conditions, a Court determines otherwise.

The objective of this safety investigation report is precautionary and seeks to avoid a repeat occurrence through an understanding of the events of 29 April 2023. Its sole purpose is confined to the promulgation of safety lessons and therefore may be misleading if used for other purposes.

The findings of the safety investigation are not binding on any party and the conclusions reached and recommendations made shall in no case create a presumption of liability (criminal and/or civil) or blame. It should be therefore noted that the content of this safety investigation report does not constitute legal advice in any way and should not be construed as such.

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GLOSSARY OF TERMS AND ABBREVIATIONS

°	Degree
℃	Degree Celsius
AB	Able seafarer – deck
AIS	Automatic identification system
APT	Annual performance test
BIOS	Basic input / output system
BNWAS	Bridge navigational watch alarm system
CPA	Closest point of approach
CPU	Central processing unit
DPA	Designated person ashore
ECDIS	Electronic chart display and information system
ECS	Electronic chart system
GA plan	General arrangement plan
GMDSS	Global Maritime Distress and Safety System
GPS	Global positioning system
gt	Gross tonnage
ISM Code	International Safety Management Code
knot	Nautical miles per hour
kW	Kilowatt
LT	Local time
m	metre
MAIB	Marine Accident Investigation Branch
MLC, 2006	Maritime Labour Convention, 2006
MSIU	Marine Safety Investigation Unit
mt	Metric tonne
nm	Nautical miles
NP fertilizer	Nitrogen, phosphorus fertilizer
OOW	Officer in charge of the navigational watch
OS	Ordinary seafarer
PA system	Public address system
PSC	Port State control
rpm	Revolution per minute
SMM	Safety management manual
SMS	Safety management system
SOLAS	International Convention for the Safety of Life at Sea

S-VDR	Simplified voyage data recorder
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended
STCW Code	Seafarers' Training, Certification and Watchkeeping Code
TCPA	Time to the closest point of approach
UK	United Kingdom
UMS	Unmanned machinery space
USSR	Union of Soviet Socialist Republics
UTC	Coordinated universal time
VDR	Voyage data recorder
VHF	Very high frequency
VTS	Vessel traffic services

SUMMARY

In the early hours of 29 April 2023, *Atlanta* was *en route* from the port of Nea Karvali, Greece, to the port Iskenderun, Türkiye, in laden condition. The second officer was keeping a sole navigational watch. The bridge navigational watch alarm system was off.

As the second officer was due to be relieved at Iskenderun, he commenced the preparation for his handover report during his navigational watch, thus allowing himself time to complete the several administrative tasks that were assigned to him, before his relief. As the vessel approached the waypoint at which an alteration of course to port side had been planned, the second officer decided to delay the course alteration due to the presence of another vessel on the port bow, on a reciprocal course. He then resumed with the preparation of his handover report.

Atlanta continued off the planned course and eventually ran aground and remained stranded on the Northwest coast of Agios Theodoros, Greece. The vessel sustained several hull breaches in way of three forward compartments, with water ingress. *Atlanta* was refloated on 09 May 2023 and following temporary repairs, it continued under its own power to unload its cargo at Iskenderun. It then proceeded to a shipyard in Greece, for permanent repairs, which were completed on 30 September 2023.

The safety investigation believes that the OOW's decision to carry out the administrative task during his watch, was based on his mental assessment of the navigational situation and was influenced by his own drive and motivation to complete the administrative tasks. The execution of the administrative task initially involved frequent task switching and eventually resulted in task deviation.

The safety investigation has issued two recommendations to the Company. One of the recommendations aims to address the gap between work as prescribed and work as carried out, whereas the second recommendation concerns the servicing of the VDR.

1 FACTUAL INFORMATION

1.1 Vessel, Voyage and Marine Casualty Particulars

Name	*Atlanta*
Flag	Malta
Classification Society	Registro Italiano Navale
IMO Number	9513373
Type	General cargo vessel
Registered Owner	Atlanta Navigation Ltd.
Managers	Novelty Shipmanagement S.A., Greece
Construction	Steel (Double hull)
Length overall	140.30 m
Registered Length	131.70 m
Gross Tonnage	7,988
Minimum Safe Manning	14
Authorised Cargo	General cargo
Port of Departure	Nea Karvali, Greece
Port of Arrival	Iskenderun, Republic of Türkiye
Type of Voyage	International
Cargo Information	Nitrogen phosphorus (NP) fertilizer (10,000 mt)
Manning	17
Date and Time	29 April 2023, at 03:02 (LT)
Type of Marine Casualty	Serious Marine Casualty
Location of Occurrence	Agios Theodoros, Greece
Place on Board	Bulbous bow, keel, port and starboard bows – below the waterline
Injuries/Fatalities	None reported
Damage/Environmental Impact	Breaches in the keel and bows, resulting in water ingress in the forepeak tank, forward ballast water tank and the bow thruster room
Ship Operation	In passage
Voyage Segment	Transit
External & Internal Environment	Nighttime, overcast sky, good visibility, North Northeasterly fresh breeze, with moderate sea and swell; air and sea temperatures: 14 °C.
Persons on Board	17

1.2 Description of the Vessel

Atlanta (**Figure 1**) was a 7,988 gt general cargo vessel, owned by Atlanta Navigation Ltd., and managed by Novelty Shipmanagement S.A., Greece (the Company). The vessel was built by Zhejiang Aoli Sailer Co., Ltd. China, in 2009. Registro Italiano Navale (RINA) acted as the classification society as well as the recognised organisation, in terms of the International Safety Management Code, for the vessel.

Atlanta had a length overall of 140.30 m, a moulded breadth of 20.00 m and a moulded depth of 10.50 m. The vessel had a summer draft of 7.79 m, which corresponded to a summer deadweight of 12,222 metric tonnes (mt).

Propulsive power was provided by an 8-cylinder, four-stroke, single-acting, medium speed, Yanmar 8N330-EN marine diesel engine, which produced 3,310 kW of power at 620 rpm. This drove a fixed-pitch propeller, enabling *Atlanta* to reach a service speed of 12 knots.

At the time of the occurrence, *Atlanta* was loaded with 10,000 mt of NP (nitrogen, phosphorus) fertilizer, in bulk, drawing forward and aft draughts of 7.30 m and 6.94 m, respectively.

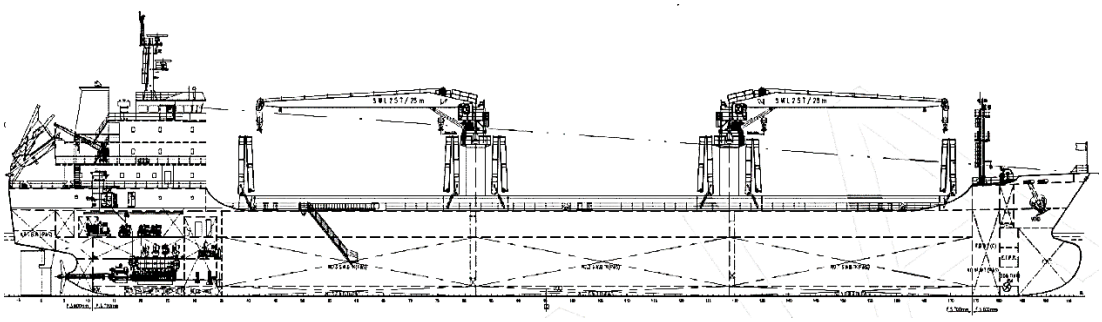

Figure 1: Extract of MV *Atlanta*'s General Arrangement (GA) plan

1.2.1 Bridge equipment

The steering controls on *Atlanta*'s bridge console were fitted at the centre, with the main engine controls to its starboard. The X-band and S-band radars were fitted on the starboard and port sides of the bridge console, respectively (**Figure 2**). The vessel was not fitted with an electronic chart display and information system (ECDIS).

Figure 2: MV *Atlanta*'s bridge console

The chart room was located on the aft, starboard side of the bridge, whilst the radio room was located on the aft, port side (**Figure 3**).

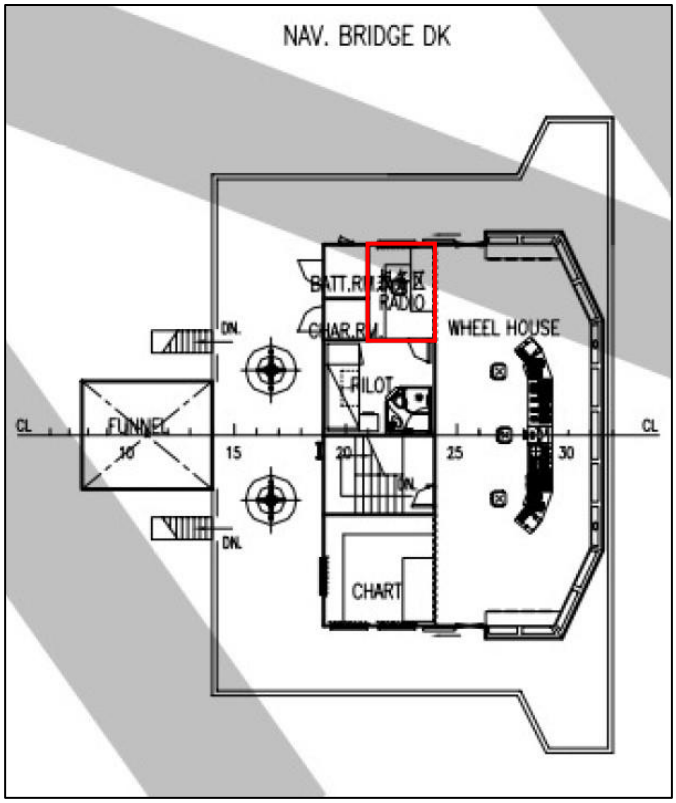

Figure 3: Extract of the GA plan, showing the bridge layout (radio room outlined in red)

The echo sounder display was fitted on the ledge of the chart table, facing forward (**Figure 4**). The echo sounder was switched on at the time of the grounding.

Figure 4: The chart room, as seen from forward (red arrow: echo sounder display)

The bridge computer (used for administrative work) was fitted in the radio room (Figure 5).

Figure 5: The radio room, as seen from forward (red arrow: the computer)

The master recalled that when he came up to the bridge after the vessel had run aground, the curtains around the radio room and the chart room (**Figures 4** and **5**) were closed.

The radars had a built-in automatic radar plotting aid (ARPA). Both radars were switched on at the time of the grounding, with the closest point of approach (CPA) and time to the closest point of approach (TCPA) alarm limits set to activate at two nautical miles and six minutes, respectively. The S-band radar range was set to 12.0 nm. The crew members could not recollect whether the range of the other radar had been set to either 6.0 nm or 12.0 nm, but guard zones had not been set up.

The vessel was also fitted with a bridge navigational watch alarm system (BNWAS) and a voyage data recorder (VDR).

1.3 Crew

The Minimum Safe Manning Certificate of *Atlanta* prescribed a crew of 14[1]. At the time of the occurrence, there were 17 crew members on board, all of whom were Ukrainian nationals, except for the bosun, who was a Georgian national.

The master was 68 years old. He had 50 years of seafaring experience, 35 of which were served in the rank of a master. He held STCW II/2 qualifications, and his certificate of competency was issued by the USSR Maritime Administration in 1988, and last renewed by the Ukrainian Maritime Administration in 2019. He had served as a master on general cargo vessels for about 25 years. This was his first employment term with the Company. He had joined *Atlanta* on 05 November 2022, at Chalkis Shipyard[2] and took over command on 07 November.

The second officer, who was the officer in charge of the navigational watch (OOW) at the time of the grounding, was 24 years old. He had about eight years of seafaring experience: the first two years were served on harbour tugboats and the rest on merchant vessels trading in international waters. This was his first employment term

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[1] Provided that the unmanned machinery space (UMS) and the bridge control systems were operational, and at least two deck officers held Global Maritime Distress and Safety System (GMDSS) General Operator's Certificates.

[2] The vessel was in the shipyard for a scheduled dry dock.

as an OOW, as well as his first employment term with the Company. Prior to this employment term, he had served as an ordinary seafarer with various other companies. He held STCW II/1 qualifications, and his certificate of competency was issued by the Ukrainian Maritime Administration, in November 2019. He was also in possession of a certificate of proficiency in bridge resource management (operational level), which was issued on 19 October 2022. He had joined *Atlanta* on 28 October 2022, at Chalkis Shipyard. He took over the duties of the third officer on 01 November and six days later, he was promoted to relieve the off-signing second officer, after another third officer joined the vessel. At sea, the second officer was assigned the 0000-0400 and the 1200-1600 watches.

1.4 Environment

The vessel's records indicated that at the time of this occurrence, it was dark, the sky was overcast, and the visibility was about eight nautical miles (nm). A fresh breeze was blowing from the North Northeast and the sea state was recorded as 'moderate', with moderate swell. Both the air and sea temperatures were recorded as 14 °C.

1.5 Events Preceding the Midnight Watch[3]

Atlanta departed in laden condition from the port of Nea Karvali, Greece, on 27 April 2023, bound for Iskenderun, Türkiye. The passage plan was prepared, with courses plotted on the paper nautical charts and the two radars. The vessel was expected to arrive at Iskenderun on 02 May.

At noon time of 28 April, the second officer took over the navigational watch from the third officer. The second officer recalled that at the time, there was no visible traffic, and the weather was good. Along with the navigational watch, the second officer also carried out some other tasks during his time on the bridge. At about 1500, the master went up to the bridge and instructed the second officer to amend the vessel's voyage plan to pass South of the island of Nisos Tilos, Greece, as the weather was deteriorating. The second officer amended the plotted courses on the nautical chart and the radars. The amendments were verbally approved by the master. As the

[3] Unless otherwise specified, all times in this safety investigation report are local (LT = UTC + 3).

second officer's watch was nearing its end, and since he had other planned tasks to complete, he decided to amend the voyage plan sheet at a later stage.

The second officer handed over the watch to the chief officer at 1600, following which, he was informed by the master that he would be signing off at the next port of call. The second officer remained on the bridge until about 1730. Then, at about 1830, he had his dinner and returned to his cabin to rest.

Meanwhile, from around 1600, the vessel started experiencing inclement weather, with strong Northwesterly winds, veering to the North Northeast by 2000. At 2000, the chief officer handed over the watch to the third officer and left the bridge shortly after. The master was also on the bridge at this time and at 2018, he altered the vessel's course to starboard (from 123° to 150°), to reduce the rolling motions of the vessel. Since an island and shallow patches lay to the vessel's port side, after the alteration of the vessel's course, the master remained on the bridge with the third officer. At 2215, the vessel's course was altered to 127° and the third officer amended the courses on the nautical chart and the radar[4].

1.6 Narrative

The second officer woke up at 2340, on 28 April, to prepare for his navigational watch, and at 0000, on 29 April, he went up to the bridge. While taking over the watch from the third officer, he was informed about the earlier amendments that had been made to the voyage plan. The third officer had plotted the 0000 position on the nautical chart, and he showed the second officer the course that had been planned. The master was also on the bridge at this time.

Shortly after the second officer took over the watch from the third officer, the master commenced altering the vessel's course, in steps, to port. At around 0100, the vessel was on a course of 095°. As the Greek islands provided shelter to the vessel from the strong North Northeasterly winds, the vessel's rolling motions had reduced.

The master instructed the second officer to maintain this course until the vessel passed the next waypoint (waypoint no. 10) marked on the nautical chart, and then alter the

[4] The VDR playback indicated that the amended course was not plotted on the S-band radar.

vessel's course to 072°. The second officer plotted the vessel's position on the nautical chart and observed that the distance to the next waypoint was about 7.0 nm. After writing his night orders, which were read and signed by the second officer, the master went down to his cabin to rest, leaving the second officer by himself on the bridge.

The master recalled that when he was leaving the bridge, there was no traffic around the vessel. He also recalled verifying his observations on the X-band radar, located on the starboard side of the bridge, which was the one that he generally monitored. In the meantime, the second officer proceeded to carry out some tasks on the computer, which was located in the radio room at the aft, port side of the bridge (**Figures 3** and **5**).

The second officer stated that between 0100 and 0200, he frequently went up to the radar to monitor the vessel's position and the surroundings[5]. At 0200, he plotted the vessel's position and observed that it was approaching the next waypoint[6]. The next course which had to be followed was 072°, requiring an alteration to port side. However, noticing a merchant vessel[7] on the port bow, on a reciprocal course, the second officer decided to delay the alteration of the vessel's course. He further recalled that he had acquired the passing merchant vessel on the S-band radar and interrogated the ARPA, which indicated that the TCPA to this vessel was about 25 minutes[8]. The second officer stated that he then stopped tracking the vessel but left its vector on. He had intended to alter the course after this vessel had passed clear.

The second officer returned to the radio room and continued working on the computer. At the time, he was working on his handover report, given that he was due to sign off at the next port of call. The second officer recalled losing track of time and did not go to the wheelhouse to check the vessel's position and the surroundings, as he had done during the previous hour. At 0302, he rushed out of the radio room, to

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5 The VDR playback did not reveal any operation on the S-band radar.

6 At around 0130 (time on the VDR), the safety investigation could hear a faint alarm on the VDR playback, and attributed this to the waypoint approach alarm, as the vessel was about 1.5 nm away from waypoint no. 10.

7 This vessel was not observed on the VDR playback.

8 The movement of the cursor for this acquisition and interrogation was not captured on the VDR playback.

the feeling of strong vibrations and loud sounds. The vessel had just run aground at a speed of about 8.6 knots and remained stranded on the Northwest coast of the island of Agios Theodoros, Greece (**Figures 6** and **7**).

Figure 6: MV *Atlanta* stranded

Source: The Company

Figure 7: MV *Atlanta* aground and stranded

Figure 8 is a reproduction of the nautical chart with the plotted courses and positions preserved as they were at the time of the grounding.

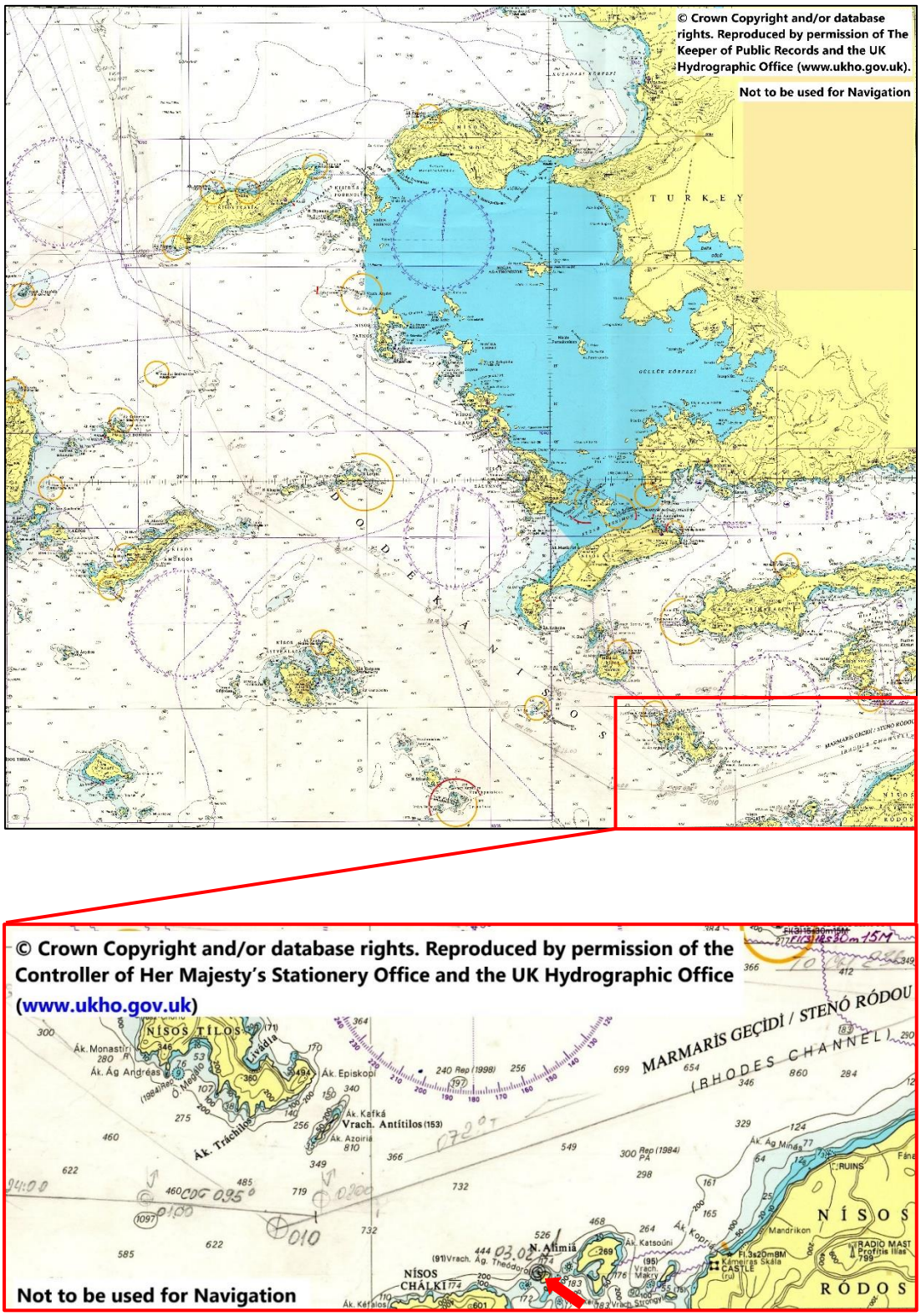

Figure 8: The nautical chart used on *Atlanta*, (red arrow: the stranding position)

1.7 Post-Grounding Actions

As soon as the second officer realized that the vessel had run aground, he stopped the main engine. Meanwhile, the master was woken up by the strong vibrations and he rushed up to the bridge, noticing the second officer walking around the front of the bridge, in a state of shock. Seeing the shoreline, it soon became evident to him that the vessel had run aground. The master did not notice any other vessels in the vicinity and did not see any lights ashore.

He then ordered the main engine to 'half astern', followed by 'full astern'. Immediately after, he activated the vessel's general alarm and followed it with an announcement to all crew members, on the public address (PA) system.

After confirmation that all persons were accounted for, the crew members commenced sounding the tanks and the seabed around the vessel. The chief officer began to assess the sustained damages. The forward area of the vessel, about 30 m from the stem, was observed to be on the rocks. Seawater ingress was confirmed in the forepeak tank, bow thruster room and the forward ballast water tank (centre) (**Figures 9** and **10**).

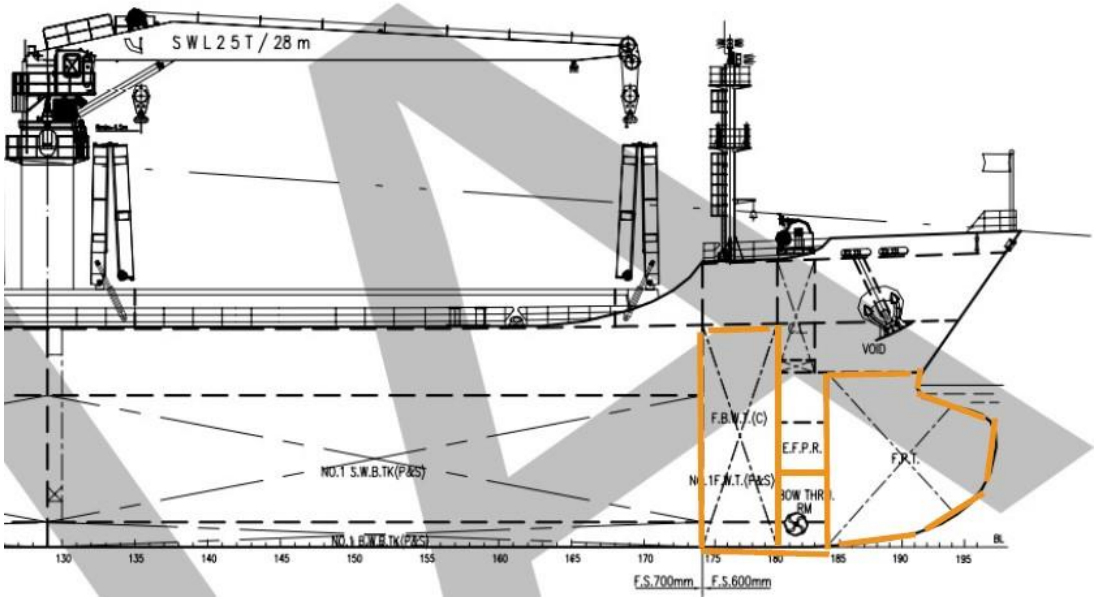

Figure 9: Extract of the GA plan, highlighting the flooded compartments

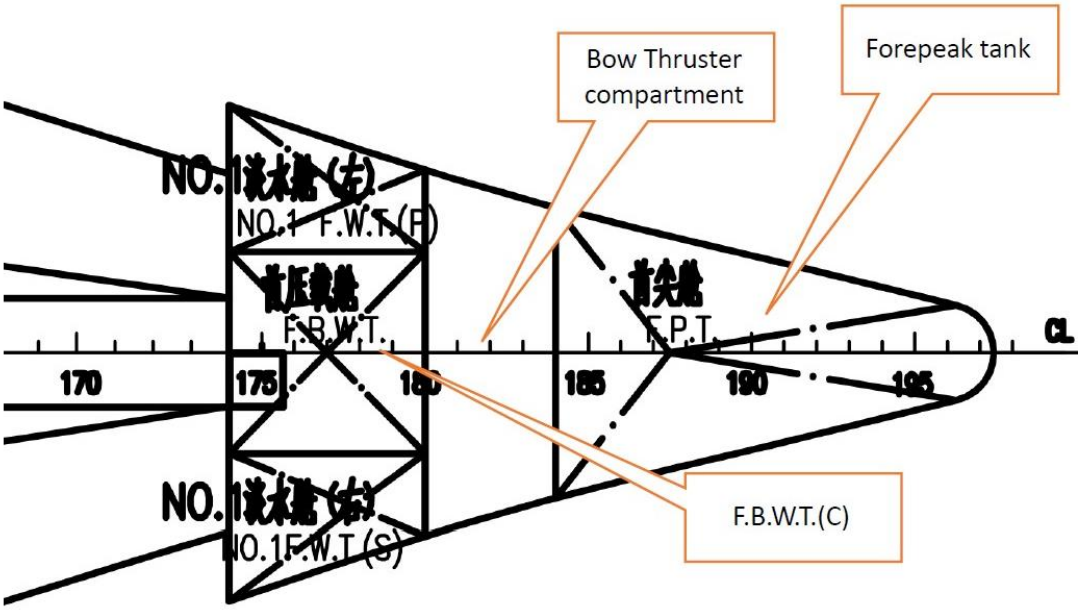

Figure 10: Cross sectional plan view of the flooded compartments (annotated by the Company)

The crew members confirmed that all fuel tanks were intact, and that there was no oil pollution. The soundings of the seabed revealed a depth of about 6.5 m in the vicinity of cargo hold no. 1, 16.0 m at the midships area, and 23.0 m near the stern.

The master then notified the Company about the grounding and stranding and awaited further instructions. Meanwhile, the crew members regularly checked the soundings of all the tanks, to monitor whether the structural damage was progressing.

Following several unsuccessful attempts to refloat the vessel, the main engine was stopped at around 0630, following the advice received from the Company. At about 0815, the master notified Olympia Radio and requested assistance to refloat the vessel. Olympia Radio relayed the master's message to the Joint Rescue Coordination Centre of Piraeus (Piraeus JRCC) and the Hellenic Coast Guard of Rhodes. After coordinating with the local authorities, the Company engaged salvors to salvage and refloat the vessel. Later that morning, the salvage team arrived at the accident site to assess the damages.

1.8 Salvage and Refloating Operations

The salvage team found five hull breaches that resulted in water ingress into the forepeak tank, the bow thruster room, and the forward ballast water tank (centre). There were no damages aft of the forward ballast water tank.

Following the damage assessment, salvage, and anti-pollution equipment, together with additional personnel, were deployed on site on 30 April. The hull breaches were temporarily patched up, and water was pumped out from the flooded compartments by 02 May 2023. Internal welding works were completed in the breached compartments on 03 May 2023, as part of the plans were made to refloat the vessel.

On 04 May, the refloating operation commenced, using two tugboats and the vessel's main engine. During this time, the salvage team observed water ingress[9] into the forepeak tank from another (sixth) hull breach in the keel. However, as the divers were unable to access this breach for temporary repairs, it was decided to resume the refloating operation. This refloating attempt, however, was unsuccessful and consequently, the salvors decided to suspend the operation and deploy a third tugboat.

On 05 May, the salvors resumed the refloating operation as soon as the third tugboat arrived at the site. This attempt was also unsuccessful due to a number of factors, including the rocky seabed, surrounding coastline, and the deterioration of the weather conditions (Force 6, gusting to Force 7 on the Beaufort Scale). At 1330, the attempts to refloat the vessel were suspended and it was decided to lighten the vessel prior to the next refloating attempt.

In the morning of 07 May, the salvors noticed additional cracks in the forepeak tank. They then decided to remove the tank's vent covers and blank the vents with blind flanges fitted with manometers, to keep the tanks under a positive pressure during the subsequent refloating attempt. At 0933, shifting of the cargo from cargo hold no. 1 to cargo hold no. 2 commenced, followed by the shifting of cargo from cargo hold no. 2 to cargo hold no. 3. The cargo shifting operations were carried out using a floating crane.

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[9] The rate of water ingress was found to be about 10 $mthr^{-1}$.

The cargo shifting and final trimming operations were completed on 09 May, at 0747. At 0940, *Atlanta* was successfully refloated with two tugboats made fast aft and one tugboat made fast on the starboard side, at the midships region. The vessel was then towed and anchored to the Southwest of the port of Chalkis. At 1400, during an inspection, another crack was found in water ballast tank no. 1 starboard. Further temporary repairs were carried out at the anchorage, which were completed on 17 May.

In the afternoon of 31 May, *Atlanta* proceeded under its own power to the port of Iskenderun. The vessel arrived at Iskenderun on 02 June, unloaded its cargo, and departed on 06 June[10]. The vessel then proceeded to a shipyard in Piraeus, Greece, for permanent repairs, which were completed on 28 September 2023.

1.9 The BNWAS and the VDR

The crew members stated that the BNWAS was usually kept switched on whilst the vessel was at sea, and that the key to switch it on (and off) was kept with the master. The third officer stated that the BNWAS was off during his watch, prior to the grounding, and its key was in place in the system, while the second officer stated that the BNWAS was off during his watch and that the key was not on the bridge. The master, however, could neither recollect whether the BNWAS was switched on before he left the bridge (and also after he returned, following the grounding), nor whether the key was in his possession.

The VDR data was saved by the crew members after the grounding. The VDR was interfaced with a global positioning system (GPS) receiver, the speed log, the gyro compass, microphones inside the bridge and its external deck, a fixed, two-way, very high frequency (VHF) radio, the S-band radar, the echo sounder, the main bridge alarms and fire alarm system, the steering gear and autopilot, the anemometer, and the automatic identification system (AIS) transponder. The VDR's last annual performance test (APT) was carried out on 02 March 2023. During this test, the fan for the VDR's central processing unit (CPU) and the battery for the basic input / output system (BIOS) were replaced. No other problems were found during the APT.

[10] The master and the second officer were signed off from the vessel, on 05 June.

The safety investigation, however, noted that the VDR audio was weak and barely audible.

1.10 Bridge Lookout

The bridge watchkeeping schedule for the month of April 2023 indicated that an ordinary seafarer (OS) was assigned lookout duties for the 0000 to 0400 and 1200 to 1600 watches at sea, whilst one able seafarer – deck (AB) each were assigned to the other two watches. However, the crew members informed the safety investigation that lookouts were never posted whilst the vessel was at sea.

The master advised the safety investigation that the decision to post lookouts lay with him. A helmsman would be present on the bridge during the vessel's arrival and departure from ports and whilst the vessel was at sea, lookouts would be posted at times of restricted visibility, inclement weather, and heavy traffic.

1.11 Tasks to be Completed by the Second Officer, Prior to Disembarkation

The second officer recalled that he had to complete several tasks, prior to signing off at the next port. These included amendments to the voyage plan, the completion of nautical chart and publication corrections, updating of the medicine chest inventory and the alcohol test records, data backups from the vessel's computers[11], collating information for the running history[12] of the vessel that had recently been requested by the Company, and preparing his own handover report.

1.12 Master's Instructions and Night Orders

The master informed the safety investigation that he had prohibited all officers from carrying out any tasks during the navigational watch whilst the vessel was at sea, except when the vessel was at anchor. He recalled specifically instructing the second and third officers at the time of the watch changeover on 29 April, that other tasks,

[11] The second officer was in charge of the vessel's cyber security.

[12] The second officer stated that information on the main engine's running hours, distances made good, vessel's positions, *etc.*, from 01 January 2023 to 29 April 2023, were required for this.

including the nautical chart and publication corrections, were to be carried either before or after the navigational watch, but never during the watch.

The master's night orders for 29 April, which were logged down at 0100 on that day, had instructed the officers to keep a sharp look-out at all times, procced to waypoint no. 10, proceed in accordance with the voyage plan, and to call him if in any doubt.

1.13 Company's Procedures – Safety Management Manual (SMM)

The Company's navigation procedures were contained within vessel's SMM, *i.e.*, the 'File of Shipboard Procedures and Information' and the 'Master Standing Orders' [*sic*.].

The 'File of Shipboard Procedures and Information' contained one sub-section on the navigation of the vessel. It addressed the procedures to be followed for voyage planning, including the planning, appraisal, execution and monitoring stages of the voyage plan, parallel index plotting, and recording of the voyage plan. The procedures for monitoring of the voyage plan required, amongst other points, the close and continuous monitoring of the vessel's progress along the planned route and indicated that such monitoring was the primary duty of the OOW. The procedures also required the plotted courses to be amended if the vessel had to deviate significantly from the planned route.

The master's Standing Orders consisted of eight sections, of which, Section 8: *Operational Guidance for Officers in charge of Navigational Watch* [*sic*.], was of particular relevance to the safety investigation. Amongst other requirements, Section 8 indicated that the OOW's primary duty was the safe navigation of the vessel and that the OOW had to ensure that an efficient lookout was maintained at all times, the autopilot was steering the correct course, the magnetic and gyro compasses were compared frequently, and that the repeaters were synchronized with the master compass. This section also required the echo sounder to be used whenever appropriate. While the vessel was navigating in coastal waters, instructions laid down in this section required fixes to be taken at frequent intervals. On board vessels with a separate chartroom, the OOW could visit the chartroom for a short period, when necessary, and for navigational duties, after satisfying themselves that it was safe to

do so and that an efficient lookout was being maintained. Furthermore, the sub-section on the 'Autopilot' stated:

> *The OOW should take into account the need to station the helmsman and to put the steering into manual control in good time to allow the potentially hazardous situation to be dealt with in safe manner. With a ship under automatic steering, it is highly dangerous to allow a situation to develop to the point where the OOW is without assistance and has to break the continuity of the look-out in order to take emergency action…* [*sic*.]

The SMM did not specify any procedures to be followed by the OOW, when there was no other crew member posted on the bridge as a look-out.

1.14 Records of Hours of Work / Rest

The deck crew members' records of hours of work / rest, indicated that they met the relevant requirements of the Seafarers' Training, Certification and Watchkeeping (STCW) Code and the Maritime Labour Convention (MLC), 2006, as amended. However, the safety investigation noted that the records may have not been entirely accurate. For instance, although all crew members had immediately responded to the PA announcement after the grounding, and were carrying out various tasks since then, this was not reflected in their work / rest hour records.

1.15 Drug and Alcohol Tests

Between 0600 to 0800 of 29 April, all crew members were tested for alcohol. All tests returned negative results. No drug tests were carried out.

1.16 Similar Past Occurrences

The MSIU and various other marine accident investigation bodies have investigated a number of groundings, whereby vessels ran aground due to their courses not being followed in accordance with the voyage plan. While several of these occurrences were the result of the OOW falling asleep, there were others that were the result of the OOW being distracted / occupied for long periods of time with tasks either related to the navigational watch or not. The below listed groundings occurred during hours of

darkness and / or when there was no look-out posted on the bridge. It was also noted that the BNWAS had not been switched on in several of these occurrences.

Flash: a Maltese-registered, 91,373 gt bulk carrier ran aground and stranded on the rocky shoals of Galitons de l'est (Ile de la Galite), Tunisia, at a speed of 12.5 knots. The vessel sustained several hull breaches, in way of the forepeak tank, several double-bottom water ballast tanks, and the duct keel (which resulted in water ingress in the engine-room). The safety investigation concluded that the vessel slowly drifted to starboard of its planned course, while the OOW had fallen asleep on the bridge chair. The OOW was keeping a sole lookout on the bridge. The X-band radar and the echo sounder had been switched off by the OOW, before he sat on the chair and, eventually, fell asleep. Although the ECDIS cross-track alarm sounded for more than an hour, it did not wake up the OOW. He was eventually woken up by the ECDIS waypoint alarm, about two minutes before the vessel ran aground. The vessel was not fitted with a BNWAS.

Stella: a Maltese-registered, 1,857 gt general cargo vessel ran aground and stranded on the Southwest coast of Andros Island, Greece, at a speed of about 7.5 knots. The vessel sustained several hull breaches, with water ingress into two forepeak tanks. The safety investigation concluded that the OOW, who was keeping a sole lookout, had been asleep for almost two hours when the vessel ran aground. The vessel had passed two consecutive waypoints during this time, without its course being altered for either of them. No guard zones / alarms had been set on the radar and the echo sounder, while the GPS' audible waypoint alarm was weak. The safety investigation did not exclude cognitive underload as a potential contributing factor to this occurrence.

Wilson Newport: a Maltese-registered, 6,118 gt multi-purpose dry cargo vessel ran aground and stranded on the Southeast coast of Agios Georgios Islet, Greece. The vessel sustained several damages in way of the forepeak tank, the bow thruster room and double-bottom water ballast tank nos. 1 port and starboard; without any hull breaches. The safety investigation concluded that the OOW had sent the look-out down from the bridge, for routine cleaning of the accommodation areas, immediately after taking over the watch. A few minutes later, the OOW sat on one of the bridge chairs and eventually fell asleep. He remained asleep for about three hours, until the

vessel ran aground. The vessel had passed two consecutive waypoints during this time, without its course being altered for either of them. The ECDIS[13] had sounded audible alarms when the vessel approached these waypoints, and also when the vessel exceeded the set cross-track limits. The latter continued to sound for about two hours without being acknowledged, until the vessel ran aground. The BNWAS had not been switched on.

Coastal Isle: a 3,125 gt container vessel, registered in Antigua and Barbuda, ran aground on the Island of Bute (Scotland), United Kingdom (UK), at a speed of about 12 knots. The vessel sustained multiple hull breaches in way of several water ballast tanks. The safety investigation by the UK's Marine Accident Investigation Branch (MAIB) concluded that the bridge had been unmanned for almost one hour and 45 minutes, prior to the grounding. The OOW had dismissed the look-out from his duties about two hours prior to the grounding, shortly after which, he too went down to his cabin. Although the vessel was fitted with two independent watch alarm systems for the bridge, including one BNWAS, neither of them had been switched on. The safety investigation also found that the VDR had been switched off for two weeks prior to the occurrence.

Romy Believer: a Maltese-registered, 5,006 gt container vessel made contact with submerged rocks of Paximada, off the Greek island of Nisos Skopelos, at a speed of about 15 knots. The vessel sustained multiple hull breaches in way of several water ballast tanks, with water ingress into cargo hold nos. 1 and 2. The safety investigation concluded that a course alteration had been missed, as a result of which, the vessel proceeded off the planned route and ran aground. In this case, the lookout had been sent for a safety patrol around the vessel, about 36 minutes prior to the grounding, and the master[14] was alone on the bridge. Although the global positioning system (GPS) receiver alarm sounded as the vessel approached the waypoint for course alteration, it was not heard by the master, while the waypoint alarm set on the radar did not activate. The safety investigation also found that the echo sounder and the BNWAS had been switched off. Furthermore, while a passing vessel had tried contacting *Romy Believer* over the fixed two-way very high frequency (VHF) radio, several times prior

[13] This vessel was fitted with two ECDIS and was not provided with paper navigational charts.

[14] The master was the OOW around the time of the occurrence.

to the grounding, the master stated that he was busy preparing the documents required for the vessel's arrival at its destination and that he did not hear the VHF calls.

Marbella: a Maltese-registered, 37831 gt bulk carrier ran aground on a reef in position, 17° 06.8' N 111° 30.62' E, at a speed of 11.7 knots. The vessel sustained a bottom hull breach in way of a forward water ballast tank, and indentations in the bottom hull plating in way of several other tanks. The safety investigation concluded that no look-out had been posted. The OOW was monitoring the radars because of the presence of fishing vessels, and he did not notice the reef on the ECDIS[15]. No guard zone alarms had been set on the ECDIS and the echo sounder had not been switched on.

Priscilla: a Dutch-registered, 2,281 gt general cargo vessel ran aground and stranded on Pentland Skerries (Scotland), UK, at a speed of 7 knots. The vessel sustained several hull breaches in the forward section of its hull. The safety investigation by the UK's MAIB concluded that the vessel had drifted to the South of its planned course for about two hours, with the OOW not intervening to correct this, and eventually ran aground. The OOW was seated on one of the bridge chairs and was watching videos on his mobile phone. No lookout had been posted. The OOW had also responded to the VHF warning calls, from the nearby coastguard and vessel traffic services (VTS), that the vessel was heading towards the rocks. The OOW had intended to pass between two islands, without realizing the presence of a shallow reef between them (until it was too late). The ECDIS[16] depth alarm had sounded seconds prior to the grounding, and while the echo sounder was switched on, the safety investigation could not determine its alarm settings at the time of the grounding. The BNWAS had not been switched on.

BBC Marmara: a Portuguese-registered, 5,344 gt general cargo vessel ran aground on the island of Eilean Trodday, off the West coast of Scotland, at a speed of 11.2 knots. The vessel sustained breaches in its forepeak tank and bow thruster space. The safety investigation by the UK's MAIB concluded that the vessel had diverged from its planned course. The OOW was maintaining a sole navigational watch and had fallen

[15] This vessel, too, was fitted with two ECDIS and was not provided with paper navigational charts.

[16] This vessel was fitted with one ECDIS, which was certified for use as the vessel's primary means of navigation.

asleep. The BNWAS appeared to be inactive, as it did not trigger an alarm. Moreover, it was a usual practice amongst the crew members to switch off the system and leave its key on the bridge. The crew members believed that the vessel's manning was insufficient to achieve an acceptable level of maintenance and provide a mandatory lookout when required. It was found that the OOW had consumed alcohol immediately before and at the start of his watch. However, the amount of alcohol consumed could not be determined. The safety investigation also noted that the safety management system (SMS) was ineffective in controlling the shipboard practices involved in the grounding.

St. Gregory: a Bahamas-registered, 20,809 gt bulk carrier, ran aground on the rocky coastline at the South coast of Peloponnese (Kokkala, Greece). As a result of the grounding, the hull was damaged, with several dents and cracks near the bulkhead. The safety investigation carried out by the Hellenic Bureau for Marine Casualties Investigation (HBMCI) concluded that the OOW, who was the sole watch keeper, had become inattentive most probably because of alcohol consumption and stopped monitoring the vessel's positions in relation to the voyage plan. As a result, the vessel maintained a steady course and crossed the planned WP without altering course, before running aground on the South Coast of Peloponnese. The bridge navigation watch alarm system (BNWAS), which could have alerted the master, was not operating properly.

Ince Inebolu: a Turkish-registered, 46,955 gt bulk carrier, ran aground in the sea area Southeast of Astypalaia Island (Greece). As a result of the grounding, the vessel reported extensive cracks and indentations its fore section, mostly lengthwise, about 21 m in length, and specifically at the forepeak tank, collision bulkhead, and cargo hold no. 1. Port and starboard side ballast tanks and the cargo hold tank top were also affected and damaged due to the heavy contact with the rocky seabed. The safety investigation carried out by the HBMCI concluded that, *inter alia*, the BWNAS system was intentionally switched off by the crew members.

2 ANALYSIS

2.1 Purpose

The purpose of a marine safety investigation is to determine the circumstances and safety factors of the accident as a basis for making recommendations, to prevent further marine casualties or incidents from occurring in the future.

2.2 Cause of the Grounding

Atlanta ran aground after the course was not altered at the designated waypoint and consequently, the vessel proceeded towards the shoreline because the second officer was alone on the bridge, occupied with administrative tasks in the radio room.

2.3 The Execution of Administrative Tasks

The OOW explained that whenever the circumstances required, he would focus on maintaining a navigational watch, without carrying out any other tasks during his watch. When the circumstances allowed, he would carry out other tasks while checking the radar, other bridge equipment and the surroundings, every five to six minutes.

During the second officer's watch on the day of the grounding, there were multiple tasks vying for his attention, leaving him exposed to a situation in which he had to strike a balance between completing his administrative tasks and maintaining a navigational watch. Since the weather and traffic conditions were not a cause for concern, between 0200 and 0300, he got caught up with completing tasks (specifically, his handover report) that were due before his disembarkation at the next port. He informed the safety investigation that he was aware that these tasks were not urgent and did not have to be completed by the next morning. However, he felt that the volume of the tasks to be completed was significant and he got carried away with the tasks, during his navigational watch.

The carrying out of tasks not related to navigation, during the navigational watch, is increasingly common on board. Such tasks include administrative tasks (paperwork) arising from the increasing bureaucracy imposed upon seafarers as a result of various

legal requirements, as well as companies' procedures (which also stem from legal requirements). Several jobs on board require the completion of administrative work prior to their commencement (*e.g.*, preparation of work permits and risk assessments, prior to the commencement of certain jobs). Then, there are also tasks such as the completion of passage plans, updating nautical charts and publications, updating various inventories and records, preparation of documents required for the upcoming port(s) of call, *etc*. The pressure on the crew members to6 complete such administrative tasks, would be higher when the vessel is trading on short routes, when either an audit or an inspection[17] is expected at the next port of call, and / or when the master or the officer is being relieved at the next port of call.

While shipping companies may state that their procedures specifically prohibit administrative tasks from being carried out during the navigational watch, the amount of time available to the masters and OOWs, for administrative tasks does not often allow them to ensure that such procedures are always followed. If the vessel is expected to have its passage plan completed prior to departure and its updated / amended passage plan completed prior to arrival at the next port[18], its nautical charts and publications, inventories and records, permits, checklists, risk assessments, port documents, *etc*., updated and available for an inspection / audit by the next port of call, crew members may not always have adequate time to complete these tasks.

Chapter VIII of the STCW Code requires watchkeepers to have at least 10 hours to 11 hours of rest in any 24-hour period. Investigative experience indicates that there may be circumstances which would make it difficult for an OOW to complete the assigned administrative tasks, while complying with the hours of rest requirements, especially when the vessel is on a short voyage, and considering that there are also other tasks that need to be executed, such as tests and maintenance of equipment. That is to say, circumstances may dictate that the work (navigational watch) as done

[17] The inspection may be one by the port State control, vessel's charterers, the Company, or a vetting inspection.

[18] It must be borne in mind that, at times, a vessel may receive information on its next port of call, just a day prior to departure. Often, the vessels' destination is also amended whilst the vessel is *en route*, which may possibly either result in the new destination being closer or multiple ports / terminals being added.

by an OOW, may simply differ from the way that same work was imagined / prescribed by the legislators, by the Company, and / or even by the OOWs themself[19].

If an OOW is unable to either complete any of these tasks or comply with the rest hours' requirements, it may have repercussions, potentially even commercial. The concern on such repercussions (or even the motivation to complete an inspection / audit without any remarks) may in itself add to the existing pressure on an OOW, who may then dedicate more attention to the task than to the navigational watch.

Furthermore, Chapter VIII of the STCW Code also states that the OOW *shall not be assigned or undertake any duties which would interfere with the safe navigation of the ship*. This would imply that the OOW would have to first assess whether the duties assigned or being undertaken would interfere with the safe navigation of the vessel. Keeping this in mind, and as was the case with the second officer on *Atlanta*, an OOW would generally carry out a mental assessment prior to executing such a decision. The traffic conditions, upcoming course alterations, proximity of land, *etc*. would be taken into consideration before commencing the administrative tasks. The OOW would probably also have a mental plan regarding how often the navigational situation would be monitored during the execution of the tasks. However, once the OOW gets involved in the administrative tasks, it may so happen that either intentionally or inadvertently, they deviate from their own plan and extend the period of time for which they are focusing on the administrative tasks.

If this deviation was intentional, it would imply a trade-off based on the OOW's mental assessment of situation. If unintentional, it could imply that although a mental assessment would have been carried out by the OOW prior to commencing an administrative task, at one point in time, the OOW would have got immersed in the administrative task to an extent that his / her focus shifted from the navigational watch onto the administrative task. Based on the OOW's narrative, the latter appeared to be what had happened on board *Atlanta*. The OOW got deeply immersed in the administrative tasks and lost track of time. During this time, however, the vessel continued with its course not being altered, as planned by the OOW, and ran aground.

[19] Literature describes 'work-as-imagined' as the various assumptions, explicit or implicit, that people have about how their or others' work should be done; and 'work-as-done' as how something is actually done, either in a specific case or routinely.

While it may be argued that in either case, the OOW's mental assessment lacked situational awareness, the safety investigation believed that such an argument may tend to be based on hindsight. A third party's view of a situation would, especially with the benefit of hindsight, almost always differ from the perception of the situation by the person experiencing that situation.

The safety investigation, therefore, leaned more towards the data presented by the OOW, which indicated that he had monitored the navigational situation frequently between 0100 and 0200, and plotting *Atlanta*'s 0200 position. While the safety investigation did not observe the passing merchant vessel on the VDR playback, it was not in a position to confirm that there was no such vessel. The safety investigation could not exclude the possibility that the OOW may have not recollected that he either may have actually been tracking this vessel on the X-band radar, and not the S-band radar, as he had stated, or he may have only visually observed the vessel's navigation lights. Since neither was the X-band radar connected to the VDR, nor were there any cameras fitted on the bridge, the safety investigation was unable to confirm the OOW's recollection of events *i.e.*, that he had delayed the alteration of the vessel's course due to the presence of another vessel on the port bow, understood that this vessel would be clear in about 25 minutes, and then proceeded to resume the administrative tasks.

The safety investigation was of the view that while his assessment of the situation led him to frequently monitor the navigation between 0100 and 0200, that changed after 0200. The OOW's assessment of the situation on the bridge after 0200, was that the navigation was under control and that he could resume the administrative tasks which, in his mind, needed to be completed - sooner or later. He had mentally assessed the situation and no cues were detected, which would have indicated that there were risks with resuming the administrative tasks during the navigational watch. He also felt that he had approximately 25 minutes to the alteration of course, and until which, there were no foreseen risks to the vessel. It must have been during these 25 minutes that his focus shifted, and he got absorbed in the preparation of his handover report.

Information obtained by the safety investigation indicated that the OOW was a highly motivated and exemplary person. Motivation is defined as the energy directed at a goal. Literature also proposes that motivation affects not only the response, but also

the vigour of these responses. The safety investigation understood that the OOW not only did not receive cues of imminent risks, but the fact that he engaged in administrative work during his navigational watch suggested that he perceived an opportunity to reach his desired goal. It was also very likely that the specific time of the day, during a navigational watch where everything appeared to be under control (on board and around the ship), was seen as the best opportunity, which the OOW had to do his administrative work and potentially finish it off as well.

To conclude, it was evident that the benefits to engage in pursuing one's goal, outweighed the benefits of any alternatives which the OOW may have had. The safety investigation believed that the OOW took on simultaneous tasks - a common practice with seafarers on board - based on his mental assessment of the navigational situation. His decision was influenced by his own drive and motivation to complete the administrative tasks. The execution of the administrative task initially involved frequent task switching (between executing the navigational watch and completing as much of the administrative task, as possible) and eventually resulted in task deviation. The OOW became immersed in the administrative task to the extent that he lost track of time. Consequently, the vessel's course was not altered, and the vessel ran aground.

2.4 Sole Look-out

Chapter VIII of the STCW Code specifies that an OOW may be the sole look-out in daylight, only when certain conditions are met. Thus, it implies that an OOW cannot be the sole look-out during hours of darkness. All of the past occurrences listed earlier in this safety investigation report have highlighted the importance of a look-out being posted on the bridge and the drawbacks of the OOW keeping a sole navigational watch, especially in hours of darkness. In addition, several guidance publications have also highlighted the importance of a posting a look-out on the bridge, which include:

- allowing an OOW to monitor the bridge equipment, tend to alarms, telephone and VHF radio calls, *etc*., while a visual lookout is being maintained;
- the presence of an extra set of eyes and ears for the OOW;

- keeping the OOW engaged, thereby minimizing the probability of an OOW falling asleep due to the monotony of the watch;
- availability to man the helm, if required; and
- the possibility to cross-check actions taken by the OOW[20].

The master was unable to explain why a bridge look-out was being posted only at times of restricted visibility, inclement weather, and heavy traffic, and not at other times, including nighttime, whilst the vessel was at sea. The safety investigation had no evidence which indicated that the OOWs had voiced their concerns over the absence of the look-out on the bridge. This may have been the case because it was clear to them that such arrangements were at the discretion of the master.

The Company's procedures did not specifically address this matter; the safety investigation noted that the sub-section on the 'autopilot', from the master's standing orders cited earlier in this safety investigation report, did seem to address the importance of posting a helmsman and the importance of the OOW not breaking the continuity of the lookout. However, this section did not clearly specify that a look-out had to be posted on the bridge.

2.5 BNWAS

While the second officer stated that the BNWAS was off and the key to switch it on was not on the bridge, the master stated that he could neither recall whether the BNWAS was on, when he left the bridge, nor whether the key was in his possession.

Irrespective of whether the key was on the bridge, it was clear that the BNWAS was off, given that the alarm did not activate when the OOW became occupied with the administrative task from 0200 up until the grounding. It therefore appeared that the deactivation of the BNWAS, and its unavailability as a preventive barrier system, was not a concern which the bridge team had.

The grounding of *Atlanta* featured a similar factor identified by several accident investigation bodies, *i.e.*, the BNWAS was not used by the crew members. The

[20] Such benefits were also highlighted in the MAIB's report on the grounding of *BBC Marmara*.

benefits of using the BNWAS have been addressed in detail in several safety investigation reports, including those mentioned earlier. In the absence of a clear explanation by the crew members, the safety investigation did not rule out that the OOWs may have been finding the equipment disturbing especially when they intended to carry out other tasks during their navigational watch.

2.6 Experience of the OOW

As noted earlier in this safety investigation report, this was his first employment term as an OOW, and he was promoted to the rank of a second officer within six days of taking over the duties of a third officer. Nonetheless, this fact did not appear to have had any bearing on the grounding of the vessel. The safety investigation observed that there were no reports of navigational occurrences involving *Atlanta*, between the time it left the dry dock and the grounding. Moreover, the master reported no deficiencies relating to the bridge / navigational matters, during any of the port State control (PSC) inspections carried during this period. In this regard, the safety investigation had no reason to analyse the second officer's performance in more detail than already analysed in **sub-section 2.3**.

The MSIU has investigated occurrences where experienced, sole OOWs (including masters) had either been distracted from their watchkeeping duties or had engaged in tasks not related to the navigation of the ship. Past safety investigations have not revealed any correlations between psychological processes (such as task switching, task deviation, mental focus, *etc*., which may or may not result in an accident), and qualifications / work experience of the watchkeeper.

2.7 Amendments to the Voyage Plan

The voyage plan and its amendments were approved by the master, and the second officer was aware of them. The safety investigation had no data which would have suggested that the amendments to the voyage plan were contributory to the grounding.

2.8 Environmental Conditions

2.8.1 Weather

The OOW stated that during his watch, the vessel was rolling moderately; although it did not appear that the weather conditions had caused him any discomfort. As such, there were no indications, suggesting that the weather was a contributory factor to this occurrence.

2.8.2 Bridge environment

Since the VDR audio data was barely audible, the safety investigation was unable to determine the extent of the activity[21] on the bridge, from 0100 until the grounding. However, there did not appear to be much, except for the occasional shutting of a door and the movements of a steel chair. The visual data seemed to confirm this. Between 0100 and the time of the grounding, there was no observed activity on the S-band radar, which was the one closest to the radio room and also the one which the OOW stated that he was checking earlier. The S-band radar only displayed a cross-track error alarm, which would have been activated from the time the vessel's course was altered on the previous day, due to the weather conditions. No alarms were heard; neither from the S-band radar, nor from any other equipment (except for the alarm at 0130, mentioned earlier in this safety investigation report[22]). In general, the bridge seemed very quiet.

While the conditions on the bridge were of no concern to the OOW, the quiet bridge, the absence of other crew members, and the lack of alarms, allowed him to focus on his administrative tasks and eventually get absorbed in the work. The safety investigation was of the view that the bridge conditions, as innocuous as they may have seemed, were a contributory factor to this occurrence.

2.9 Fatigue and the Consumption of Drugs / Alcohol

The second officer's hours of work / rest, preceding the grounding, met the relevant requirements, however, the safety investigation was unable to verify the quality of his rest. Furthermore, while the alcohol test returned a negative result, drug tests were

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[21] Such as, footsteps, alarms, keyboard clicks, *etc*.

[22] *Vide* footnote 7.

not conducted[23]. Therefore, the safety investigation was unable analyse in more detail.

Nonetheless, in the absence of evidence which would suggest that the OOW's behaviour and /or actions were symptomatic of fatigue or intoxication, the safety investigation did not consider fatigue and drug / alcohol consumption as contributory factors to this occurrence.

[23] During the safety investigation, the MSIU was informed by the Company that the drug tests were not carried out because the master had decided that they were not necessary.

THE FOLLOWING CONCLUSIONS, SAFETY ACTIONS AND RECOMMENDATIONS SHALL, IN NO CASE, CREATE A PRESUMPTION OF BLAME OR LIABILITY. NEITHER ARE THEY LISTED IN ANY ORDER OF PRIORITY.

3 CONCLUSIONS

Findings and safety factors are not listed in any order of priority.

3.1 Immediate Causes of the Accident

.1 *Atlanta*'s course was not altered at the waypoint, remaining unaltered when the vessel ran aground, and stranded on the Northwest coast of Agios Theodoros.

3.2 Conditions and other Safety Factors

.1 The OOW was carrying out administrative tasks on the bridge computer in the radio room, as he intended to have all his paperwork in order, prior to his relief at the vessel's next port of call.

.2 Although the OOW was aware that the administrative tasks were not urgent; he was concerned that the volume of the tasks to be completed was large.

.3 The OOW's administrative tasks and the navigational watchkeeping duties resulted in frequent task switching, initially, and eventually led to task deviation.

.4 The safety investigation believes that the OOW's decision to carry out the administrative tasks was based on his mental assessment of the navigational situation, and his decision was influenced by his own drive and motivation to complete the administrative tasks.

.5 The OOW was keeping a sole navigational watch.

.6 The BNWAS was not on, around the time of the occurrence.

.7 The quiet bridge, with the absence of other crew members, and the lack of any alarms, also allowed the second officer to focus on his administrative tasks and eventually get carried away with executing them.

3.3 Other Findings

.1 The VDR audio data was barely audible.

.2 The Company's procedures lacked specific instructions / guidelines for keeping a sole navigational watch.

4 ACTIONS TAKEN

4.1 Safety Actions Taken During the Course of the Safety Investigation

Following the occurrence, the Company:

- issued a circular to its fleet, with information on the grounding and reminded the vessel's masters of the navigational watch procedures to be followed;
- revised its master's Standing Orders to address the matter of sole navigational watches, and revised its bridge checklists to include checks of the BNWAS; and
- introduced procedures that required all four navigational officers to undertake additional, specialized training and familiarization with navigational watch requirements, prior to joining the Company's vessels.

5 RECOMMENDATIONS

The Company is recommended to:

05/2024_R1 carry out a fleet-wide exercise to observe, understand and address the factors that lead crew members to deviate from Company procedures related to navigational watchkeeping, including ancillary tasks, manning on the bridge during hours of light and darkness, and the use of navigational aids on the bridge.

05/2024_R2 carry out service on the VDR to ensure that its recorded audio data is audible.