

## **Mv MANISA STAR**

IMO 9210270



**VERY SERIOUS MARITIME CASUALTY**

**21/01/2020**

**Loss of contention, with loss of one life**

**RELATÓRIO DE INVESTIGAÇÃO DE SEGURANÇA MARÍTIMA**

Maritime safety investigation report

Mv MANISA STAR

21/01/2020 – GAMA register n.º 2020-016

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Relatório elaborado pelo Gabinete de Investigação de Acidentes Marítimos e da Autoridade para a Meteorologia Aeronáutica (GAMA), serviço da Administração Central do Estado que tem por missão investigar os acidentes e incidentes marítimos, com a maior eficácia e rapidez possível, visando identificar as respetivas causas, fatores contributivos, elaborar e divulgar os correspondentes relatórios e emitir recomendações em matéria de segurança marítima que visem reduzir a sinistralidade marítima.

O presente relatório foi elaborado respeitando as normas da Organização Marítima Internacional (OMI) e seguindo a Metodologia Comum estabelecida pela União Europeia.

Conforme disposto na Lei n.º 18/2012 de 07 de maio, que transpõe a Diretiva 2009/18/CE do Parlamento Europeu e do Conselho, as investigações do GAMA são independentes de organismos de regulação, operadores ou outros.

Não é o objetivo de uma investigação determinar culpa ou responsabilidade.

Este relatório não deverá ser usado para ações judiciais e nem ser usado em tribunal como evidência.

As recomendações de segurança que resultam deste relatório não podem, em caso algum, criar uma presunção de responsabilidade ou de culpa. Todas as horas são locais (UTC+1) e todas as posições têm como datum geodésico de referência WGS84.

Informação e relatório disponível em:

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Report by the Maritime Accident Investigation and Aeronautical Meteorology Authority Office (GAMA) service of the State Central Administration whose mission is to investigate marine casualties and incidents with the highest efficiency and possible speed, to identify their respective causes, contributing factors, prepare and issue the corresponding reports and make recommendations on maritime safety that reduce maritime accidents.

This report has been prepared in compliance with the standards of the International Maritime Organization (IMO) and following the common methodology established by the European Union.

As provisions of Law No. 18/2012 of 07 May, which transposed Directive 2009/18 / EC of the European Parliament and of the Council, the GAMA investigations are independent of regulatory bodies, operators or others.

It is not the purpose of an investigation to determine guilt or liability.

This report should not be used for legal proceedings and not be used in court as evidence.

The safety recommendations resulting from this report may in no case create a presumption of liability or guilt. All times are local (UTC+1) and all positions have the geodetic datum WGS84 reference.

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## SUMMARY

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On 19/01/2020, at 06:45 hours, Mv Manisa Star was all fast and starboard side alongside at the Spanish Port of Palamos. At 08:40 hours commence loading operations and at 23:59 hours cargo operations were complete. On 20/01/2020 at 11:30 hours, the vessel shifted 150 meters ahead for better weather and sea protection. On 21/01/2020, at 23:15 hours, one deck crew, AB (able seamen) was sent to the pier to act as mooring men to replace the parted ships' mooring lines. At 23:20 hours the AB was washed away from the pier into the sea. The vessel's AB is still missing.



Figure 1 – Mv MANISA STAR

**Narrative**

The narrative of the course of events is based on the testimony of crew members who were in various place onboard the vessel when the accident occurred. Photo footages were obtained from the vessel's Company.

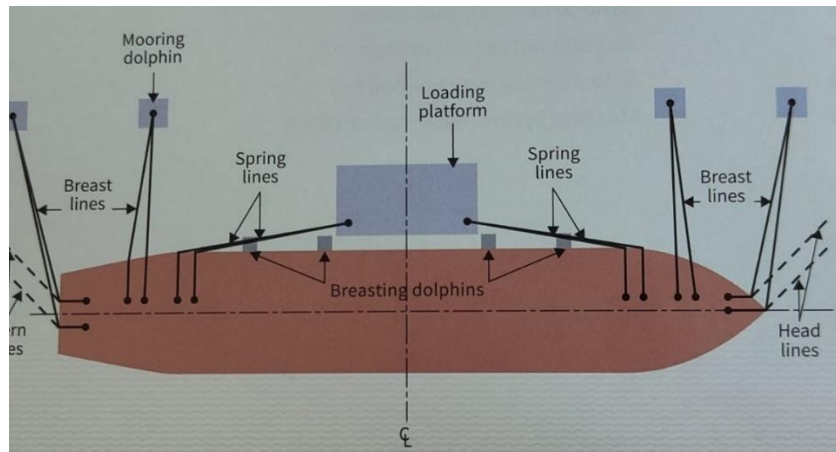


Figure 2 – Example of mooring pattern and mooring lines in use.

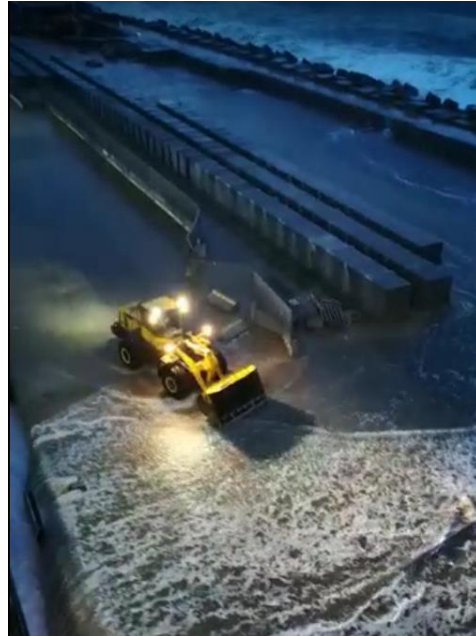
## Course of events

- 19/01/2020, at 06:45 hours  
Mv MANISA STAR was all fast, starboard side alongside, at port of Palamos;
- 19/01/2020, at 08:40 hours  
Commenced loading operation, woodchips;
- 19/01/2020, at 23:59 hours  
Cargo operation completed;
- 20/01/2020, from 11:30 until 12:30 hours  
Vessel shifted 150 meters forward for better protection, due to wind force and sea state increase;
- 20/01/2020, at 12:00 hours  
Two anchors lowered. Mooring lines in use:
  - Forward – 4 headlines, 2 brest lines, 3 spring lines;
  - Aft – 4 stern lines, 3 spring lines;
- 20/01/2020, at 17:00 hours  
Replacement of parted mooring lines (ropes);
- 21/01/2020, at 06:30 hours



Vessel's main engine started and running on dead slow ahead and slow ahead, to prevent vessel's movement astern caused by the north-easterly (NE) wind (65 to 70 km/h);

- 21/01/2020, at 16:45 hours  
Vessel requested bulldozer, via agent, to clean up the pier around the vessel.
- 21/01/2020, at 22:10 hours  
Request to the vessel's agent to provide information about tugs and linesmen availability;
- 21/01/2020, at 23:15 hours  
Deck rating ordered to act as linesman to replace parted mooring lines once vessel's mooring lines were reduced to 2-1-1- forward and 2-1 aft. The AB on the pier replaced the vessel's forward mooring lines and then proceed to replace the aft mooring lines. During this operation a wave washed the AB from the pier into the sea.
- 21/01/2020, at 23:20 hours  
Man, overboard alarm announced on VHF radio, by Vessel's chief-officer (officer of the watch – OOW). Deck rating, AB, was washed away from the pier into the port sea water. Four life buoys thrown to the water;
- 21/01/2020, at 23:21 hours  
Vessel's search light activated to keep visual contact of the crew member in the water. Vessel's agent informed and requested to initiate Search and Rescue (SAR) operation;
- 21/01/2020, at 23:25 hours  
Vessel reported the occurrence to the company's Designated Person Ashore (DPA) and owner via hotline telephone and crewing managers via email;
- 21/01/2020, at 23:40 hours  
Arrival of motor tug NERVIO, involved in SAR operation. The helicopter from MRCC was unable to reach Pálamos due to the storm and lightning;
- 22/01/2020, at 01:18 hours  
SAR operation interrupted due to adverse weather conditions. Vessel's lifebuoys were found on the near beach;
- 22/01/2020, at 08:40 hours  
Resume SAR operations by MRCC helicopter;
- 23/01/2020, at 18:27 hours  
Mv MANISA Star departed from Pálamos port (right figure).



# Investigation



The vessel's company notified GAMA of the washed away crew member on the 22<sup>nd</sup> of January 2020. After an initial assessment GAMA, the occurrence was classified as a very serious maritime casualty and a maritime safety investigation was deployed on the 24<sup>th</sup> of January 2020. The information was collected with the cooperation of vessel's company and the Spanish accident investigation body, Marine Accidents and Incidents Investigations Standing Commission (CIAIM).

After the reconstruction of the course of events, it became clear that the vessel's able seamen (AB) went missing because of being washed away by the sea during a normal operation.

GAMA's maritime safety investigation had two objectives:

- Identify the circumstances of the AB's being washed away;
- Identify the barriers that the crew adopted to avoid the AB's being washed away;

## The accident location - port of Palamos

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Palamos port entrance was closed to all navigation due to the weather conditions and sea state, the harbour was also closed and there was no linesman nor tugs available. The vessel shifted 150 meters forward to position 2, indicated below, using the main engine and crew.



Figure 3 – Mv MANISA STAR shifted from position 1 to position 2 to better protection of adverse forecasted weather conditions

## MANISA STAR safety management system (SMS)

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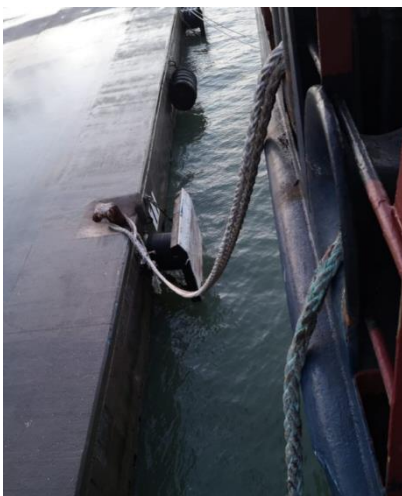
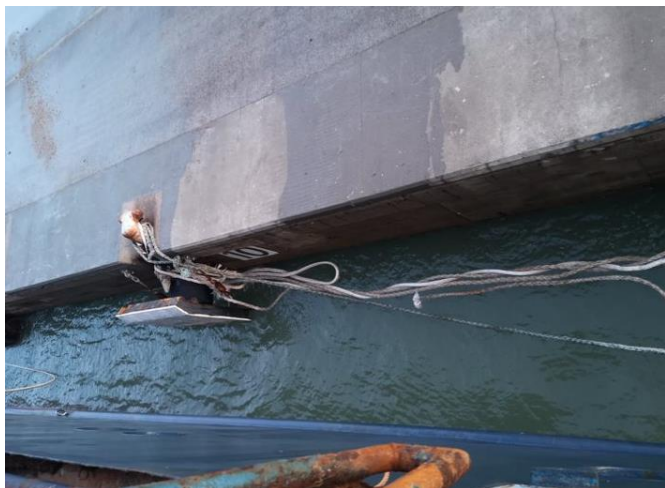
According to the Vessel's SMS procedures there is a risk assessment for the port of Palamos. On 23/01/2020, after the accident, the MANISA STAR ISM Company (Company) initiated an investigation reviewing the risk assessment (on deck) and proposed to initiate several safety corrective and preventive actions to implement when mooring operations are carried out, especially during bad weather conditions. The master, officers and crew would be instructed and trained during a Safety Committee Meeting, regarding: 1) the dangers of mooring operations, especially during bad weather conditions; 2) for use and handling (Where, when, how, why) of the PPE. A circular letter with instructions regarding mooring operations, especially during bad weather, would be prepared and sent to all ships. The Company also concluded that

the safety working vest to use in mooring operations, especially during bad weather conditions, needed to be new, different and of a modern type. All ships in the fleet would be checked for the existence of safety harness with shock absorber. The DPA and all superintendents will remind and instruct the captains, officers and crew of the ships, from now on, about dangers of mooring operations in general and especially during bad weather and the correct use of the PPE. The ISM manual will be reviewed and, if necessary, modified and updated to reflect mooring operations and the use of the PPE during this operation.

The SMS in place on the 21/01/2020 was reviewed on 23/01/2020. From the review of SMS there is no procedures referring the activity of mooring operations in extreme weather, at the pier/ jetty. i.e., replacement of parted mooring lines. Considering the collected information, the assessment done refers to mooring operation, in extreme weather on deck.

## Mooring lines and equipment

MANISA STAR crew replaced eight parted mooring lines during the passage of storm Gloria, both aft and forward. In November 2019 the new owners purchased two coils of 220 meters each, i.e., 4 mooring lines were purchased for the vessel. On the day of the occurrence MANISA STAR had four new mooring lines and four mooring lines from previous owner. After the occurrence ten new mooring lines, in five coils, were provided to MANISA STAR.



On the day of the occurrence MANISA STAR was moored as follows:

- Forward – 4 headlines, 2 brest lines, 3 spring lines;
- Aft – 4 stern lines, 3 spring lines;

And in addition two anchors and the main engine engaged in dead slow ahead and slow ahead.

## Weather conditions and storm Gloria

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The storm Gloria that hit the port of Palamos in January 2020 was Spain's worst since the winter of 1983. Wind gust up to 43 knots (kts) were registered and 10-meter waves were also registered. The swell inside the port of Palamos was 1 meter high.



## Wave statistics

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The significant wave height at the time of the accident was 6 metres. The approximate frequency of maximum wave height as a multiple of the significant wave height can be derived from Probabilistic Theory of Vessel Dynamics (Price W G and Bishop R E D. Probabilistic Theory of Vessel Dynamics. Chapman & Hall Ltd 1974) and is shown in the table below.

Maximum wave height Significant wave height	Occurrence
1.21	1 in 10
1.61	1 in 100
1.94	1 in 1 000
2.21	1 in 10 000
2.46	1 in 100 000

## MANISA STAR Voyage

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On 17/01/2020 (Friday), at 16:59 hours, the Palamos agent of MANISA STAR asked about final ETA (estimated time of arrival) and informed about the intention to hurry up the loading cargo operation, to be completed on before the bad weather forecast foreseen for Monday and Tuesday (20 and 21 of January 2020).

Intention: to start loading Sunday, 19/01/2020 at 08:00 hours until 20:00 hours and complete Monday first time afternoon.

On 19/01/2020, Sunday, at 06:45 hours Mv MANISA STAR was all fast, starboard side alongside, at port of Palamos, as described in the narrative and at 23:59 hours, cargo operation was completed.

On 20/01/2020, at 11:33 hours the agent email to the Company informing that the weather conditions were getting worse.

MANISA STAR estimated time of departure (ETD) was schedule to 20/01/2021, Monday, at 15:00 hours.

On 21/01/2020, Tuesday, at 14:03 hours MANISA STAR was still all fast, starboard side alongside, at port of Palamos, as described in narrative.

On 21/01/2020, Tuesday, between 14:03 hours and 15:39 hours, the Company (cargo operation) email the agent, the master of MANISA STAR was in Cc field, referring to:

- the weather forecast.
- the expected date of the re-opening of the port.
- inform shippers that as soon as port reopens, vessel should be ready to sail.

On 21/01/2020 at 15:39 hours the agent email to the Company, MANISA STAR master in Cc, answering that, according to the port Pilot and the weather forecast seems that the conditions will improve in the afternoon of the next day (afternoon of 22/01/2020, Wednesday) and informing that the port Pilot had suggested to access the situation in the morning of the next day (morning of 22/01/202).

## Selection of PPE in the port of Palamos

According to the collected information i) when the vessel was all fast alongside at the port and the crew was working on the pier / jetty it was not compulsory to wear a lifejacket, harness nor safety-line, ii) the company's own assessment concluded that the vessel's crew will use a modern type of safety working vest and safety harness with shock absorber when in mooring operations under adverse weather conditions , iii) these conclusions were not clearly transposed to the ship's SMS.

# **Analysis**

## The accident

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Based on the information collected, including a review of the safety management system performed by the Company, GAMA deduced the insight on the factors that contributed to assessing that going to the pier to replace the parted mooring lines, was a safe task to undertake. The crew act based on their:

- Expectations – keep the vessel safely all fast alongside;
- Knowledge – mooring lines must be replaced to keep vessel in place, assisted by main engine. The task had been successfully performed on the same day and day before;
- Focus of attention – weather conditions and sea state.

The crew on board did not focus on the personal safety of the AB because the intended action – going on the pier to replace parted mooring lines – had been already performed several times before by the crew and the outcome was always as expected.

## Safety barriers to prevent being washaway

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For any work carried out from an overside position or in an exposed position where there is a reasonably foreseeable risk of falling or being washed overboard, a lifebuoy and lifejacket should be provided. For work aloft or in any other area where there is a reasonably foreseeable risk of falling more than 2 metres, a safety belt or harness and associated lanyard are also to be provided

The Code of Safe Working Practices for Merchant Seamen (COSWP) states that ‘no seafarer should be on deck during heavy weather unless it is absolutely necessary for the safety of the vessel or crew’. It further states that a risk assessment should be undertaken, and a permit to work and a company checklist for work on deck in heavy weather completed. The risk assessment should consider several factors, including the following:

- Necessity of work;
- Permit to work and company checklist completed.;
- Rigging lifelines;
- Lifejacket with safety harness;
- Be aware that even in a regular wave pattern, “rogue” waves can exist which can vary in direction and size from the regular wave pattern being experienced;
- Always plan for, and expect, the unexpected.

# Conclusion

## Conclusion of the maritime safety investigation

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All crew members working on mooring operations and on exceptional mooring operations (i.e., on the pier/Jetty) under adverse weather conditions must be aware of the dangers that can arise unexpectedly (i.e., the wash of passing waves) and wear lifejackets. No harm comes from wearing life jackets in any occurrence and they may save lives if an unexpected event occurs.

MANIS STAR's master did not instigate a formal assessment of the risks involved in sending a deck rating on the pier, under adverse weather and sea state conditions, to secure and replace the parted mooring lines.

MANISA STAR safety management system did not contain a heavy weather checklist or instructions about the precautions to be taken before sending crew on pier in heavy weather.

Around the time of the accident the significant wave height was 6 meters. The Probabilistic Theory of Wave Dynamics indicates that a wave height of 9.66 meters could be expected once in every 100 waves, and 11.64 meters wave every 1000 waves. It is possible that MANISA STAR's master/Agent/Company did not spend enough time reviewing the prevailing sea conditions. A more studied assessment of the wave heights being encountered, might have made a more realistic estimation of the potential maximum wave heights likely to be encountered, and the risks of a wave washing whilst replacing parted mooring lines alone, without a life jacket and safety line on the pier.



**Safety  
recommendations  
&  
lessons learned**

## Safety recommendations and actions taken

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After the occurrence the MANISA STAR Company Safety Management System was reviewed and nine corrective and preventive actions were decided, namely:

1. Risk assessments must be carried out;
2. The master, officers and crew are instructed and trained during a Safety Committee meeting regarding the dangers of mooring operations, especially during bad weather situations;
3. The master, officers and crew are instructed and trained during a Safety Committee meeting for use and handling (where, when, how, why) of the PPE;
4. A circular letter with instruction regarding mooring operations, especially during bad weather, is prepared and sent to all ships;
5. The DPA makes personal contact (telephone) with each individual ship in the fleet and instructs the captains again to instruct and train their officers and crew on the dangers of mooring operations during bad weather;
6. A new, different, modern type of safety working vest is purchased and sent to all ships in the fleet;
7. All the ships in the fleet are checked for the existence of safety harness with shock absorber and, where necessary, new safety harness with shock absorber are delivered on board;
8. During their visits to the ships, the DPA and all superintendents remind and instruct the captains, officers and crews of the ships about the dangers of mooring operations in general and especially during bad weather and the correct use of PPE;
9. The ISM Manual will be reviewed and, if necessary, modified and updated to reflect mooring operations and the use of PPE during this operation.

Taking into consideration the assessment performed by the company, that will reflect on all vessels of the fleet, GAMA issues no additional safety recommendations.

## Lessons learned

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The crew's perception of risk during mooring related operations can stay the same, even when circumstances and situation are evolving. The crew's ability to judge risk is constrained by the fact that their decision making is limited to their knowledge and experience. It is up to the officers to prepare the crew for the unexpected.

# Appendix

**Vessel particulars:**

Name	MANISA STAR
IMO number	9210270
Flag	Portuguese
Port of register	Madeira
Call sign	CQAQ9
MMSI	255806251
Length overall	107.72 meters
Length between PP	102.24 meters
Max. Breadth	18,20 meters
Max. Draft	10.1 meters
Gross tonnage	6204
ISM Company	GRS Rohden Shipping GmbH & Co. KG
Classification society	Registo Italiano Naval (RINA)
Registered owner	MDP Shipping UG
Year of build	200
Hull material	Steel
Type of vessel	General cargo
Total Crew (voyage)	14
Crew (minimum safe manning)	10
Engine manufacturer	H Cegielski Poznan S.A.
Type of engine	Diesel engine type 8L32/40
Propelling power	3840 Kw
Number of winches forward	2
Number of winches aft	2

**Marine Casualty information and conditions at the time of the accident:**

Date and time	21 January, 2020, at 23:30 hours
Position Latitude / Longitude	41º 50.5' N / 003º 07.04' E
Location	Palamos port, Spain
Classification / severity	Veri serious maritime casualty
Consequences	One missing crew (presumed dead)
Nationality and age of the deceased	Philipino
Functions on board (deceased)	Deck rating AB (Able Seamen)
Vessel draft alongside	14 meters
Berth length	386 meters
Cargo situation time of occurrence	Finished loading on at

**Voyage data:**

Port of departure	Genova – 17/01/2020
Port of destination	Palamos, Spain – 19/01/2020, 05:17 hours UTC

Weather conditions during stay at port of Palamos

Wind (Beaufort scale) 6 to 7 (gusts 34 to 37 knots)
Sea state Very rough 4 to 6 meters
Natural light Night
Visibility Poor
Weather conditions Storm /rain/ lightning

Shore authority involvement and emergency response

Motor tug NERVIO
MRCC helicopter
Vessel's crew
MRCC Barcelona

Crew on board (14)

Officers and ratings	Qt.
Master	1
Chief Mate	1
2 <sup>nd</sup> Officer	1
Chief Engineer	1
3 <sup>rd</sup> Engineer	1
Electrician	1
Deck rating Bosun	1
Deck rating AB	1
Deck rating OS	3
Oiler	1
Chief Cook	1
Fitter	1