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Swiss Transportation Safety Investigation Board STSB

Final Report by the Swiss Transportation Safety Investigation Board STSB

on the marine casualty concerning the
Swiss-flagged general cargo ship SABINA

in a shipyard in Constanța, Romania,

on 26 June 2015

General information on this report

In accordance with

Part I, Chapter 1 of the Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code): Resolution MSC.255(84), adopted by the International Maritime Organization's Maritime Safety Committee on 16 May 2008; as well as

Article 2, paragraph 1 of the Ordinance on the Safety Investigation of Transportation Incidents (OSITI, SR 742.161) of 17 December 2014 and as amended on 1 January 2025,

The sole purpose of an investigation into a marine incident is to prevent further casualties or incidents from occurring. It is expressly not the purpose of the safety investigation or this report to establish blame or determine liability.

Should this report be used for purposes other than those of casualty prevention, this statement should be given due consideration.

In accordance with Part III, Chapter 16 of the Casualty Investigation Code, proper identification of causal factors which led to the marine casualty or marine incident includes a methodical investigation, going far beyond the immediate evidence and looking for underlying conditions which may cause other future marine casualties or marine incidents. According to the Casualty Investigation Code, safety investigations should, therefore, be seen as a means of identifying not only immediate causal factors but also failures that may be present in the whole chain of responsibility.

In accordance with Article 2, paragraph 2 of the Ordinance on the Safety Investigation of Transportation Incidents, the technical, operational, organisational and systemic causes and circumstances that led to the incident are to be the subject of a safety investigation.

The German version of this report constitutes the original and is therefore definitive.

Text passages set in italics in quotation marks (*'example'* or *"example"*) are literal quotations from the investigation files on which this final report is based or translations thereof. However, if the quotation marks are used in a modalising function, the text passage is set vertically (i.e. not in italics) (*'example'* or *"example"*).

All information, unless otherwise indicated, relates to the time of the incident.

All of the times mentioned in this report, unless otherwise indicated, are given in local time (LT). This corresponded to ship's time, which is the time normally used on board this vessel.

For confidentiality reasons, this report uses the masculine form for all parties concerned, irrespective of their actual gender.

Course of the investigation

The incident occurred on 26 June 2015 at approximately 17:55. It was not reported to the Swiss Transportation Safety Investigation Board (STSB) at that time. The STSB became aware of the incident in November 2017 while investigating another marine casualty. Following initial clarifications of the circumstances surrounding the incident, the STSB opened the investigation on 5 February 2018.

This final report is published by the STSB.

1 Factual information

1.1 Background and incident

1.1.1 Background

At the time of the incident, SABINA was a 128-metre-long general cargo ship (see Figure 1), which was operated by Enzian Ship Management AG from when it was commissioned in 2000 until it was sold on 1 June 2017. During this time, it sailed under the Swiss flag.



Figure 1: SABINA, a 128-metre-long general cargo ship, pictured during sea trials in 2000. The paintwork shown is different to the livery on the day of the casualty. Source and copyright: Damen Shipyards Cargo Vessels.

At the time of the incident, the vessel had been docked at Şantierul Naval Constanța S.A. shipyard in Constanța (Romania) since mid-June 2015. While in dry dock, the ship underwent work to the propulsion and steering system, as well as a class renewal.¹ The regular crew lived on board during the vessel's time in the shipyard. Depending on the nature of the maintenance and repair work, the crew either carried it out themselves or assisted workers from the shipyard or third-party companies.

1.1.2 Incident

On 26 June 2015, while in dry dock, shipyard workers carried out work on board the vessel which required them to open the 'skylight' – the name given by the crew to the maintenance hatch that leads from the main deck to the engine room below (see section 1.12.2 and Figure 2). At approximately 17:00, the shipyard workers finished for the day and provisionally covered the maintenance hatch with a metal sheet measuring about 1.5 metres squared. According to the statement of an able-bodied seaman (AB), the shipyard workers had informed SABINA's crew that it would not be a problem to stand on the metal sheet. The shipyard workers then left SABINA.

¹ Class renewal: Assessment (survey) of the vessel and its systems repeated at defined intervals for compliance with the classification society's requirements. Passing this survey results in the renewal of the class, or the certificate of class.

It began to rain heavily at around 17:20. At 17:40, the second engineer informed the master that rainwater was coming through the maintenance hatch into the engine room. In order to protect the main engine from the rainwater, at 17:55 the boatswain – along with the second engineer and an AB – began sealing the hatch with expanding foam. To do this, the boatswain stood on the metal sheet, which buckled under his weight. As a result, he slipped, lost his balance and fell – along with the sheet – around three metres through the hatch into the engine room below (see Figure 2). He sustained serious injuries and was taken to hospital (see section 1.2).

In hindsight, the AB suspected that he and his colleagues had not noticed that the metal sheet was too thin because the deck around the maintenance hatch was obstructed by building materials and tools (see Figure 5). The AB estimated that the sheet was no more than three millimetres thick. He stated that he and his colleagues were wearing the usual safety equipment for shipyard work, notably a hard hat and sturdy footwear. He also stated that he and his colleagues were not wearing safety harnesses because they assumed that the metal sheet was sturdy and therefore there was no risk of falling.

1.1.3 Date, time and location

The following information relates to the boatswain's fall through the hatch.

| | |
|------------------|---|
| Date | 26 June 2015 |
| Time | Approx. 17:55 |
| Light conditions | Day |
| Location | In a shipyard (Şantierul Naval Constanța S.A.) in Constanța, Romania |

1.2 Injuries to persons

The boatswain suffered fractures to his collarbone and ribs. He ended his period of service on board SABINA prematurely.

1.3 Damage to the vessel

The vessel was not damaged.

1.4 Damage to the cargo

The cargo was not damaged.

1.5 Third-party damage

There was no third-party damage.

1.6 Environmental impact

The marine incident did not have any environmental impact.

1.7 Classification of the incident

As per the Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code), this incident was classified as a marine casualty.

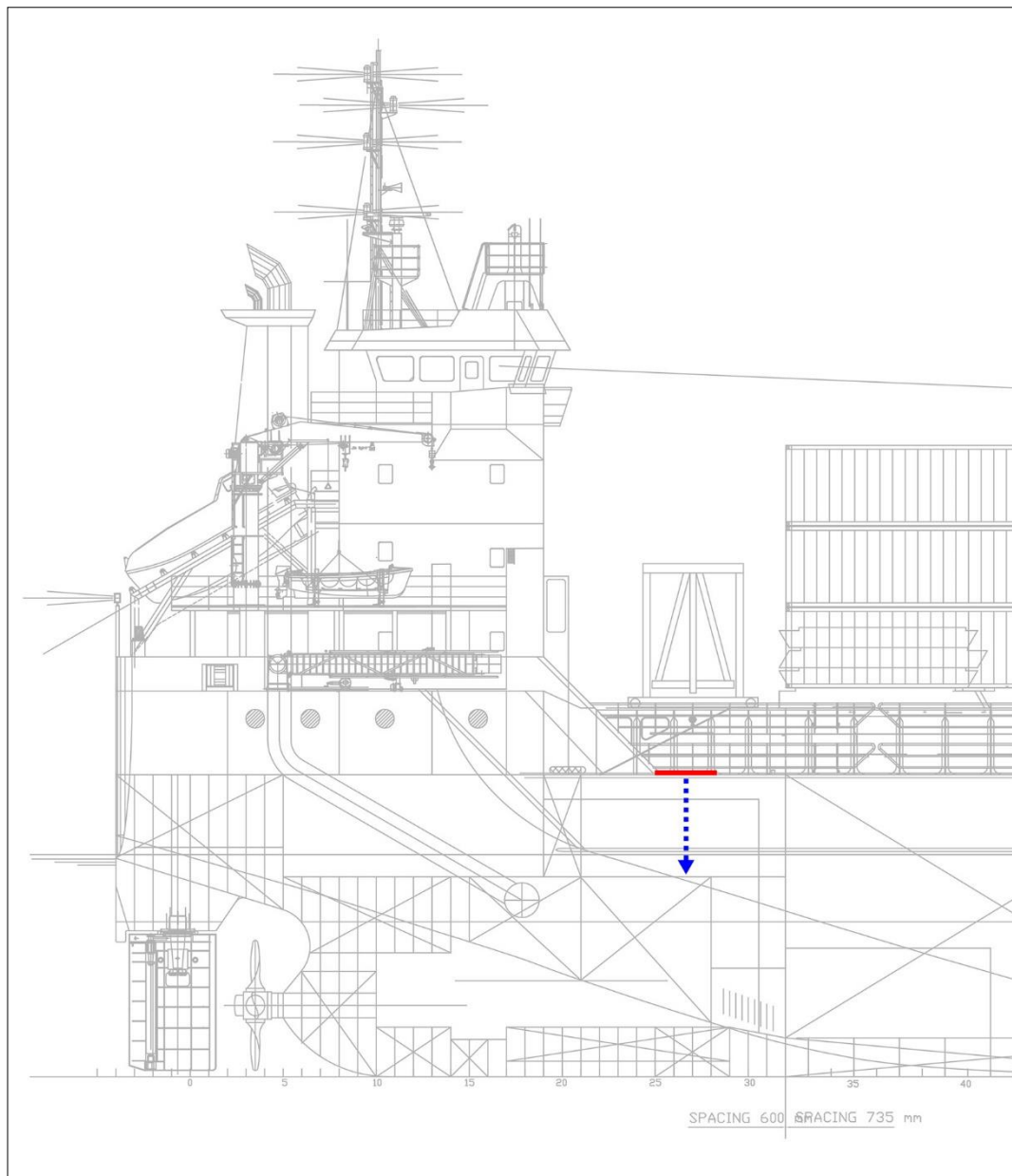


Figure 2: A sketch of the accident scenario based on the general arrangement plan of a sister vessel of SABINA. Red line: the approximate location of the maintenance hatch (sky-light) on the main deck. Blue arrow: the boatswain's fall into the engine room. The length of the arrow corresponds to the approximate fall height of three metres. Source of general arrangement plan: Damen Shipyards Cargo Vessels.

1.8 Voyage particulars

SABINA was not on a voyage at the time of the incident, but in dry dock.

1.9 Characteristics and infrastructure of the shipping route

Not applicable.

1.10 Meteorological information

The following excerpts of weather forecasts and reports apply to Constanța's airport, which is situated approximately 25 kilometres north-west of the city of Constanța and its shipyards.

1.10.1 Weather forecasts

On 26 June 2015, the following weather was forecast for that afternoon and evening:

At 13:00: Light showers, storm clouds (cumulonimbi), 8 to 14 knots of wind out of westerly to northerly directions

At 15:00: Storms with rain, storm clouds, gusty wind of variable direction

1.10.2 Weather reports

On 26 June 2015, the following weather was observed:

At 15:00: Storms, storm clouds, 17 knots of wind out of north-westerly to northerly directions

At 16:00: Storms with light rain, storm clouds, 8 knots of wind out of the north-west

At 17:00: Light rain, storm clouds, 6 knots of wind out of the north-west

At 18:00: Storm clouds, 6 knots of wind out of the west

1.11 Information on people concerned

1.11.1 Vessel's crew

The following section includes information relating only to the crew members involved or concerned.

1.11.1.1 Master

Nationality Russian

Year of birth 1972

The contract of SABINA's master ended on 8 September 2015. On 9 September 2015, the then chief officer was appointed as the ship's new master.

1.11.1.2 Second engineer

Nationality Ukrainian

Year of birth 1958

1.11.1.3 Boatswain

Nationality Ukrainian

Year of birth 1961

1.11.1.4 Able-bodied seaman (AB)

| | |
|---------------|-----------|
| Nationality | Ukrainian |
| Year of birth | 1982 |

1.11.2 Passengers

There is no information on passengers.

1.12 The vessel and its operation

1.12.1 Ship particulars

| | |
|------------------------------|---|
| Name of vessel | SABINA |
| Type | General cargo ship |
| Manufactured by | Damen Shipyards Cargo Vessels, Netherlands |
| Design | Damen Combi Freighter 9200G |
| Flag | Switzerland |
| Owner | MV Sabina AG, Switzerland |
| Shipping company | Enzian Ship Management AG, Switzerland |
| Classification society | Lloyd's Register (Romania) S.R.L. |
| Certificate of class | Hull: ✕ 100A1 (unrestricted seagoing), strengthened for heavy cargoes, container cargoes in holds and on upper deck hatch covers, LI (loading instrument) Machinery: ✕ LMC (Lloyd's machinery certificate), UMS (unmanned machinery space) |
| Call sign | HBEB |
| IMO ² number | 9205718 |
| Year of manufacture | 1998 (keel laying), 2000 (delivery) |
| Yard number | 804 |
| Length | 127.87 m |
| Beam | 15.93 m |
| Deadweight | 9,230 t |
| Construction | Steel |
| Main engine | MaK 9M32 |
| Minimum safe manning | 11 ³ |
| Maximum manning ⁴ | 12 |
| Accommodation | For 12 people |

² IMO: International Maritime Organization. IMO is a specialised agency of the United Nations.

³ According to the minimum safe manning document issued by the Swiss Maritime Navigation Office (SMNO), the following crew were required: master (II/2 according to STCW), chief officer (II/2), another officer of the watch (II/1), three ABs (II/4), cook, four engineering and machinery crew (two III/2, one III/4, one VI/1).

⁴ Rescue equipment was available for this number of people.

1.12.2 Maintenance hatch (skylight)

Skylight is the term used by SABINA's crew to refer to a maintenance hatch, measuring approximately 1.5 metres squared, that leads from the main deck into the engine room below (see Figure 2 and Figure 3). The hatch was usually closed, particularly during voyages. Prior to major work in the engine room, the hatch could be opened to allow components or heavy tools to be raised and lowered. To open the hatch, chains would be attached to the hatch cover (see Figure 4). The hatch cover could then be lifted from – and placed back onto – the coaming.⁵ A crane was usually used, as the cover weighed more than 100 kilos.

The coaming on the maintenance hatch on the main deck was just a few centimetres high.

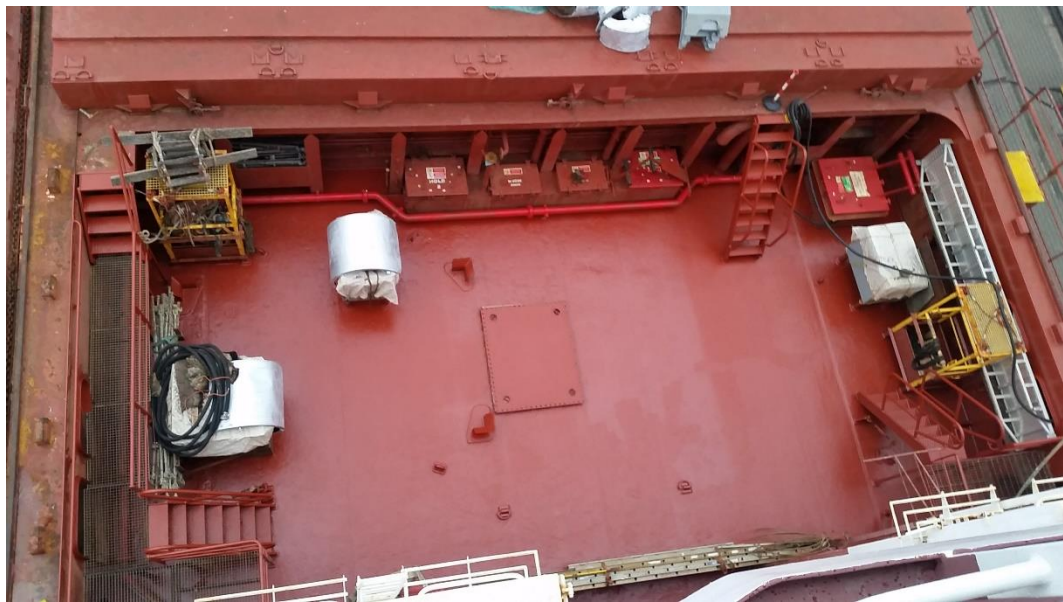


Figure 3: The vertical view from the accommodation down to the main deck. The closed maintenance hatch is in the centre.

⁵ Coaming: The raised border around an opening (hatch) on the deck of a vessel. It reinforces the hull and prevents water from entering.



Figure 4: The closed maintenance hatch on the main deck. The hatch coaming, which is just a few centimetres high, and the chains attached to the cover for lifting and lowering are clearly visible.

1.13 Organisations, their management and procedures

1.13.1 Enzian Ship Management AG (shipping company)

The Swiss shipping company Enzian Ship Management AG operated SABINA until 2017. SABINA was owned by MV Sabina AG. The company's operations included freight contracting and chartering, as well as the maintenance and inspection⁶ of its fleet.

1.13.1.1 Operator's guidelines regarding responsibilities while docked

Enzian Ship Management AG's shipboard management system (SMS) included the following in the chapter 'Drydocking and repair yard' (revision no. 9 of 4 November 2014):

"The company procedures remain in force during drydocking or repairs and the master remains responsible for his ship. [...] The master will organise a firewatch and supervision of the yard's activities by competent crew members. Unsafe practices carried out by the shipyard must be stopped and reported to the master who will liaise with the shipyard manager."

1.13.1.2 How the crew dealt with the incident

The master filled in an S-001 form, 'Accident and hazardous (near-miss) situation reporting', and forwarded it to the shipping company. By doing so, the master ful-

⁶ A shipping company's work referred to as 'inspection' includes, in particular, the provision of technical and operational support.

filled one of his obligations defined in the company's shipboard management system (SMS) – investigating and dealing with incidents on board. Among other things, the master stated the following in the completed S-001 form:

- The incident occurred due to negligence of the shipyard workers. (*"Please state why you think the incident happened – Safety negligence of shipyard workers."*)
- As a corrective measure, the skylight to the engine room was covered with timber and a metal sheet. The hatch was also guarded using railings, which were clearly visible. (*"Corrective action taken: Skylight to ER from main deck protected by timber and steel sheet. Guarded by high visibility railings by ship crew immediately."*)

The form did not mention any other factors or causes that contributed to the accident, nor any further corrective measures.

Four pictures of the accident site were enclosed with the S-001 form. One of these is shown below (see Figure 5).

According to the Directorate of International Law of the Federal Department of Foreign Affairs, the accident had not been reported to the Swiss Maritime Navigation Office.



Figure 5: The state of the main deck after the incident: timber and metal sheets cover the maintenance hatch, and four red and white posts have been put up as a precaution. The area around the maintenance hatch is obstructed by building materials.

1.13.2 Swiss Maritime Navigation Office (supervisory authority)

Article 8, titled 'Supervision', of the Swiss Federal Law on Navigation under the Swiss Flag (Navigation Act, SR 747.30 (*Bundesgesetz über die Seeschifffahrt unter der Schweizer Flagge*)) states that maritime navigation under the Swiss flag is subject to the superintendence of the Federal Council. Direct supervision is the responsibility of the Federal Department of Foreign Affairs (FDFA). The FDFA has delegated this direct supervision to the Swiss Maritime Navigation Office (SMNO). Within the FDFA, the SMNO reports to the Directorate of International Law (DIL). In terms of administrative law, the SMNO is a department within DIL.

According to the wording of the law, the SMNO has a duty to monitor that the provisions on maritime navigation under the Swiss flag are applied.⁷ Consequently, the SMNO is the supervisory authority for maritime navigation under the Swiss flag. In this role, the Office is also referred to as the 'flag state authority'.

For the enforcement of the legislation, article 9 of the Navigation Act authorises the SMNO to carry out inspections on board Swiss seagoing vessels. The SMNO's flag state inspections (see section 1.14) are based on this. The SMNO set a target to carry out an annual flag state inspection by one of its superintendents of all ocean-going cargo vessels under its supervision. According to the FDFA's Directorate of International Law, the aim of a flag state inspection is to ensure that the ship concerned will easily pass a subsequent port state control.⁸

At the time of the accident and in the years leading up to it, one SMNO officer was responsible for the technical supervision of all Swiss seagoing vessels. This employee was also entrusted with other tasks, such as liaising with the classification societies.

The SMNO expected to be notified of any accidents by the crews and shipping companies, as outlined in its Circular No. 43-7.

1.13.3 Şantierul Naval Constanța S.A. (shipyard)

The Şantierul Naval Constanța S.A. shipyard in Constanța, Romania, described itself as one of the largest in Europe (in 2018). With roots dating back to 1892, the shipyard mainly manufactures product and chemical tankers. It can carry out repairs and modifications to vessels with a deadweight tonnage (dwt) of up to 200,000 tonnes. In 2018, the shipyard had a workforce of over 1,000 employees.

1.14 Flag state inspection on board SABINA on 5 and 6 October 2015

On 5 and 6 October 2015 – i.e. after the accident under investigation and four weeks after the master on board SABINA at the time of the accident had ended his contract on this vessel – SABINA was subjected to a flag state inspection in Aalborg, Denmark. This inspection was carried out by the SMNO employee responsible for technical supervision, and its scheduling was unrelated to the accident under investigation.⁹ This was SABINA's first flag state inspection since she was commissioned and started sailing under the Swiss flag in 2000. According to the FDFA's Directorate of International Law, the aim of the flag state inspection was to ensure

⁷ The text of the German language version of the Navigation Act reads: "*hat die Bestimmungen [...] durchzuführen und ihre Anwendung zu überwachen.*"

The text of the French language version of the Navigation Act reads: "*d'assurer et de contrôler [...] l'application des dispositions.*"

⁸ A port state control is the inspection of a foreign vessel in port, carried out by the country's port authority.

⁹ Until SABINA's flag state inspection on 5 and 6 October 2015, the SMNO was unaware of the accident under investigation, which took place on 26 June 2015.

that the ship would easily pass a subsequent port state control. The flag state inspection therefore focused on checking the current state of affairs on the ship as well as the new master's work and capabilities (see section 1.11.1.1).¹⁰ The flag state inspection report includes the following point:

“Procedures for reporting non-conformities, accidents, incidents and near misses, analysis and follow-up are implemented – Yes.”

At this point, the inspection report also refers to annex 5 of the same report. This includes the form S-001 (see section 1.13.1.2), which the master completed for the accident that occurred on 26 June 2015.

According to the Directorate of International Law, the SMNO superintendent concluded during his flag state inspection that the safety regulations had been fully complied with under the master who was in charge at the time of the inspection.

Following the inspection on 5 and 6 October 2015, SABINA was not subjected to any further flag state inspections until she was removed from the Swiss register on 1 June 2017.

¹⁰ In agreement with this, the SMNO officer responsible for conducting flag state inspections mentioned to the STSB that checking the ship's recent compliance with international regulations based on records was not the supervisory authority's primary responsibility during a regular flag state inspection. The point of a flag state inspection, he said, was to check that everything is correct at the current time: *“If everything is in order today, then all is well.”*

2 Analysis

2.1 Explanation of the method

The events and circumstances that caused or contributed to the incident under investigation are reviewed in section 2.2.

Section 2.3 addresses the events and circumstances that came to light during the investigation of this incident and its direct aftermath and which need to be reviewed because they present safety issues, even though they did not cause the incident.

For maximum safety, as many of the causal and non-causal aspects as possible should be eliminated through preventive measures.

2.2 Review of causal or contributing aspects

The conditions for the accident were created when the local shipyard workers did not properly cover the maintenance hatch (skylight) that leads from the main deck into the engine room at the end of their working day. Firstly, the cover turned out to be not watertight against the rain. In addition, the metal sheet that had been provisionally placed over the hatch was thin and inadequately secured, meaning that it later buckled and shifted under the weight of the boatswain (see section 1.1.2). This provisional covering of the open hatch constituted unsatisfactory workmanship and demonstrated limited risk awareness. As the Șantierul Naval Constanța S.A. shipyard chose not to be involved in the investigation, it was not possible to determine what led to this unsafe and unsatisfactory workmanship. Another question that remains unanswered is why the superiors of the shipyard workers involved did not notice the improperly covered hatch.

The shipping company's defined procedures should have and could have detected such a hazardous situation. According to the shipboard management system (SMS), the master must organise the supervision of work carried out by the shipyard, and the supervising crew members must stop unsafe practices and report them to the master (see section 1.13.1.1). However, crew members' supervision of the shipyard workers proved to be ineffective – or did not happen at all. As a result, the improperly covered hatch was not identified as a hazard.

Weather forecasts predicted storms with rainfall for later in the afternoon and in the evening (see section 1.10). However, no precautions – or inadequate precautions – were taken, in particular for the inspection and effective sealing of deck openings. This contributed to SABINA's crew being caught off guard by the heavy rainfall and the water entering through the hatch. As a result, the work to seal the hatch was carried out quickly (under time pressure), which meant the crew members did not identify the risks posed by the provisional cover.

The fact that the main deck around the hatch was obstructed by building materials and tools (see section 1.1.2 and Figure 5) may have made it more difficult to notice hazards.

In summary, the following can be said about the events that occurred on board SABINA on the day of the accident:

- The provisional metal sheet placed over the hatch by the shipyard workers was inadequate as it did not seal properly and was not sturdy.
- If the vessel's crew had properly complied with the procedures laid out in the SMS, the incident under investigation would not have happened.

2.3 Review of non-causal aspects

The master filled in the shipping company's internal S-001 form for the accident that occurred on 26 June 2015 (see section 1.13.1.2). As such, he did carry out an internal investigation of sorts, as stipulated in SABINA's shipboard management system (SMS). One stark point to note, however, is that the "*high visibility railings*" described as a corrective measure cannot even be seen in the photographs enclosed with the form. All that can be seen are four red and white posts, which inadequately mark out the hazard (see Figure 5). It is also notable that, in his analysis, the master only notes negligence on the part of the shipyard workers, offering no criticism of himself or his crew regarding inadequate supervision of the shipyard workers. There was also no mention of the failure to inspect the deck opening in good time following forecasts of storms with rainfall. As a result, the corrective measures listed were also limited, specifying that the hatch had allegedly been given temporary railings, or at least four red and white posts. At best, this measure would prevent subsequent accidents at the hatch. General measures, ones that could have prevented this accident from happening in the first place and would help to avoid similar accidents in the future – such as the strict supervision of shipyard workers – were not taken. Such a superficial analysis – and one that is not self-critical – is of limited use for accident prevention and indicates a weak safety culture on board SABINA. The fact that an accident of this magnitude was not reported to the Swiss Maritime Navigation Office (SMNO) as required also points to a weak safety culture both on the ship concerned and within the company.

As part of the flag state inspection on 5 and 6 October 2015, the SMNO recorded its assessments in a report. Here, the implementation of procedures for the reporting, investigation and follow-up of incidents was confirmed, which seems strange for several reasons:

- Firstly, considering the master's one-sided internal analysis of the accident, the SMNO's positive assessment of the incident follow-up is hard to comprehend (see section 1.14).
- Secondly, considering that the accident was not reported to the SMNO despite it being obligatory to do so according to its Circular No. 43-7, the SMNO's positive assessment of incident reporting seems questionable.

The procedures for the reporting, internal investigation and follow-up of incidents on board SABINA may have been formally laid out in the shipboard management system (SMS). However, the implementation of those procedures – with regards to the crew's failure to notify the SMNO of the incident – was not assessed. Nor did the SMNO review the suitability of the incident follow-up or find fault with it, despite the master's rather meaningless completion of the S-001 form. Supervision that only focuses on checking formal aspects has little effect on the constant process of improving safety.

The SMNO reports to the Directorate of International Law. The Directorate justified the SMNO's positive assessment by asserting that the flag state inspection on 5 and 6 October 2015 focused solely on reviewing the current state of affairs on the ship and the crew present at the time of the inspection. Assessing only the current state of affairs was – just like the remarkably long period between flag state inspections (see section 2.2) – insufficient for attaining a high degree of safety on board the vessel.

3 Conclusions

3.1 Findings

3.1.1 Course of events

- SABINA was dry-docked in a shipyard in Constanța.
- In order to carry out repairs, local shipyard workers had opened a maintenance hatch that leads from the main deck into the engine room below.
- At around 17:00, the shipyard workers ended their shift. They provisionally covered the hatch using a metal sheet and then left SABINA.
- It rained heavily from around 17:20.
- At 17:40, the crew noticed that rainwater was running through the hatch and into the engine room.
- At 17:55, three crew members began sealing the hatch.
- While attempting to seal the hatch, the boatswain stood on the metal sheet which had been used to provisionally cover the hatch.
- The sheet buckled under his weight and, as a result, he slipped and lost his balance.
- He fell approximately three metres into the engine room below.

3.1.2 Technical aspects

- The investigation did not find any indication of pre-existing technical defects which could have caused or influenced the incident.

3.1.3 Human aspects

- The provisional metal sheet placed over the hatch by the shipyard workers was inadequate as it did not seal properly and was not sturdy.
- The rule that crew members must supervise shipyard workers, as was stipulated in the shipping company's procedures, proved ineffective.
- No precautions – or inadequate precautions – were taken on board SABINA in anticipation of the forecasted storms with rainfall, for example, the sealing of deck openings.
- The improperly covered hatch was not identified as a hazard.
- The main deck around the maintenance hatch was obstructed by building materials and tools.

3.1.4 Follow-up

- The master's internal investigation and incident follow-up were incomplete, one-sided and not self-critical. It was therefore of limited use for accident prevention.

3.1.5 Supervision

- The implementation of procedures for the reporting, internal investigation and follow-up of incidents was confirmed by the Swiss Maritime Navigation Office (SMNO) during a flag state inspection carried out on board SABINA after the accident.
- During the flag state inspection, the SMNO did not, however, review the suitability of the actual procedures carried out, nor did it find fault with them, despite

the master's rather meaningless analysis of the incident and despite the fact that the SMNO had not been notified of the incident.

- The flag state inspection was the SMNO's first on board SABINA since she was commissioned and started sailing under the Swiss flag 15 years prior.
- The flag state inspection focused solely on checking the current state of affairs and did not include the period beforehand.
- The flag state inspection had little effect on the constant process of improving safety.

3.2 Causes, contributing factors and risk-increasing factors

In order to achieve its objective of prevention, a safety investigation authority shall express its opinion on risks and hazards that have been identified during the investigated incident and which should be avoided in the future. In this sense, the terms and formulations used below are to be understood exclusively from the perspective of prevention. The identification of causes and contributing factors does not, therefore, in any way imply assignment of blame or the determination of administrative, civil or criminal liability. The *Code of the International Standards and Recommended Practices for a Safety Investigation into a Marine Casualty or Marine Incident (Casualty Investigation Code)*, adopted by the *Maritime Safety Committee of the International Maritime Organization* (Resolution MSC.255(84) of 16 May 2008), in its Part I, Chapter 1, as well as in its Part III, Chapter 16, states that a safety investigation should not refrain from fully reporting on the factors that led to the marine incident because fault or liability may be inferred from the findings.

3.2.1 Direct causes

The boatswain's fall from the main deck through the hatch and down into the engine room could be attributed to the following direct causes:

- The provisional cover placed over the hatch by the shipyard workers was inadequate as it did not seal properly and was not sturdy.
- Neither the boatswain nor his accompanying crewmates recognised that the provisional hatch cover would not be able to take a load sufficiently.

3.2.2 Contributing factors

The following aspects have been identified as contributing to the accident:

- The crew members did not effectively supervise the shipyard workers as stipulated in the shipping company's guidelines.
- No precautions – or inadequate precautions – were taken in anticipation of the forecasted storms with rainfall.

3.2.3 Risk-increasing factors

The investigation established the following factors as risk-increasing. These factors, although they may not have influenced the development and course of the accident, they should still be remedied for an improvement of overall safety.

- The master's internal investigation and incident follow-up were incomplete, one-sided and not self-critical. It was therefore of limited use for accident prevention.
- The flag state inspection regime of the Swiss Maritime Navigation Office (SMNO), with its long intervals between inspections, did not allow for effective

supervision. The flag state inspection carried out on board SABINA after the accident was limited to the current state of affairs on the ship and to formal aspects, and it was therefore of little effect with regards to the constant process of improving safety.

4 Safety recommendations, safety advice and measures taken since the incident

Safety recommendations

Swiss legislation stipulates the following regarding safety recommendations in the Ordinance on the Safety Investigation of Transport Incidents (OSITI, SR 742.161):

“Art. 48 Safety recommendations

¹ The STSB shall submit the safety recommendations to the competent supervisory body. If the supervisory body is a federal authority, the STSB shall also notify the competent department. In the case of urgent safety issues, it shall notify the competent department immediately.

^{1bis} It shall submit safety recommendations to foreign authorities if this is required by international agreements.

² The recipients of the safety recommendations shall report to the STSB periodically on the implementation of the recommendations or on the reasons why they have decided not to take measures.

^{2bis} If the recipient is a federal authority, it shall also report to the competent department.

^{2ter} The STSB shall respond to the federal offices' implementation reports. It may respond to the federal authorities' implementation reports for the attention of the competent department.

³ The competent department may instruct the competent federal office to implement recommendations.”

The STSB publishes the answers of the relevant federal office or foreign supervisory authorities at <https://www.sust.admin.ch> to provide an overview of the current implementation status of the relevant safety recommendation.

Safety advice

The STSB may publish safety advice in response to any safety deficit identified during the investigation. Safety advice shall be formulated if a safety recommendation does not appear to be appropriate, if it is not formally possible, or if the less prescriptive form of safety advice is likely to have a greater effect. The legal basis for STSB safety advice can be found in article 56 of the OSITI:

“Art. 56 Information on incident prevention

The STSB may compile and publish general information on incident prevention.”

All national, supranational or international bodies; all operators of ships or shipping infrastructure; and all organisations and individuals are invited to act in line with the safety recommendations and safety advice issued and to take such measures as will increase maritime safety.

4.1 Safety recommendations

4.1.1 Improving the flag state inspections conducted by the Swiss Maritime Navigation Office

4.1.1.1 Safety deficit

On 26 June 2015, while the vessel was docked in a shipyard, a crew member fell approximately three metres through a maintenance hatch from the main deck into the engine room below and was seriously injured. Local shipyard workers had not covered the hatch properly. The ship's crew, however, had not noticed the issue because the crew had not – or had inadequately – supervised the shipyard workers (as required per the shipping company's procedures). What's more, no precautions – or inadequate precautions – were taken on the vessel in anticipation of the forecasted storms with rainfall.

The master's subsequent internal investigation and incident follow-up were incomplete, one-sided and not self-critical. It was therefore of limited use for accident prevention.

The implementation of procedures for the reporting, internal investigation and follow-up of incidents was confirmed by the Swiss Maritime Navigation Office (SMNO) during a flag state inspection carried out after the accident. The implementation of these procedures concerning the crew's failure to notify the SMNO of the incident was not assessed, nor did the SMNO review the suitability of the incident follow-up or find fault with it, despite the master's rather meaningless analysis of the incident. Supervision of this kind by the SMNO, which only focuses on checking formal aspects, has little effect on the constant process of improving safety.

The flag state inspection conducted by the SMNO focused solely on checking the current state of affairs on the ship and the crew present at the time of the inspection. Given that this inspection was the ship's first since it was commissioned and started to sail under the Swiss flag 15 years prior, it does not seem particularly effective in terms of a safety review to assess only the current state of affairs and the crew present.

Consequently, the SMNO's flag state inspection regime was insufficient in several respects for attaining a high degree of maritime safety.

4.1.1.2 Safety recommendation no. 188

So that a high degree of maritime safety can be attained, the Swiss Maritime Navigation Office (SMNO) should adapt its flag state inspection regime in such a manner that

- Inspections not only check that procedures which are relevant to safety have been implemented formally, but also assess the suitability of the actual implementation in practice and, if required, demand and enforce timely corrective action by the shipping company or crew;
- Inspections not only assess the current state of affairs, but – depending on the interval between (i.e. the frequency of) inspections – also assess performance over a longer period;
- The frequency with which a ship undergoes inspection meets the safety objective.

4.2 Safety advice

4.2.1 Improving risk awareness while docked in shipyards

4.2.1.1 Safety deficit

On 26 June 2015, while the vessel was docked in a shipyard, a crew member fell approximately three metres through a maintenance hatch from the main deck into the engine room below and was seriously injured. Local shipyard workers had not covered the hatch properly. The ship's crew, however, had not noticed this because the supervision of the shipyard workers (as stipulated in the shipping company's procedures) was not – or was inadequately – carried out. What's more, no precautions – or inadequate precautions – were taken on the vessel in anticipation of the forecasted storms with rainfall.

4.2.1.2 Safety advice no. 44

Swiss operators of seagoing vessels should ensure that their procedures and guidelines sufficiently regulate responsibilities and the handling of risks while docked in shipyards. They should also focus on effectively instructing and managing crew members so that risks are dealt with in a forward-thinking and safety-conscious manner and in collaboration with the shore-based service providers.

4.3 Measures taken since the incident

In December 2022, at the request of the Swiss Transportation Safety Investigation Board, the Directorate of International Law of the Federal Department of Foreign Affairs and the Swiss Maritime Navigation Office (SMNO) named the following measures that had been taken since the accident on 26 June 2015:

- Additional inspections are being carried out on Swiss ocean-going cargo vessels. These inspections are carried out on behalf of the SMNO by an external service provider and concern ships calling at a port in the Paris Memorandum of Understanding (Paris MoU) area.
- At the beginning of 2022, an inspection regime was established, according to which all ships should be inspected by the SMNO or by third parties at least once a year. In 2022, a total of 15 ships sailed flying the Swiss flag and 18 inspections were carried out.
- In its communication with shipping companies, the SMNO focuses on safety.

This final report has been approved by the Swiss Transportation Safety Investigation Board (article 10(h) of the Ordinance on the Safety Investigation of Transport Incidents of 17 December 2014).

Bern, 21 January 2025

Swiss Transportation Safety Investigation Board