



**PKBWM**

PAŃSTWOWA KOMISJA BADANIA  
WYPADKÓW MORSKICH

# SIMPLIFIED REPORT

## 044/22

**serious marine casualty**

**fishing vessel ALINA**

**Fire on board a fishing vessel in the exclusive  
economic zone of Mauritania on 29 May 2022.**

**March 2023**



The investigation of the serious marine casualty, a fire on board the fishing vessel ALINA was conducted under the State Marine Accident Investigation Commission Act of 31 August 2012 (Journal of Laws of 2019, item 1374) as well as norms, standards and recommended procedures agreed within the International Maritime Organisation (IMO) and binding the Republic of Poland.

The objective of the investigation of a marine accident or incident under the above-mentioned Act is to ascertain its causes and circumstances to prevent future accidents and incidents and improve the state of marine safety.

The State Marine Accident Investigation Commission does not determine liability nor apportion blame to persons involved in the marine accident or incident.

The following report shall be inadmissible in any judicial or other proceedings whose purpose is to attribute blame or liability for the accident referred to in the report (Art. 40.2 of the State Marine Accident Investigation Commission Act).

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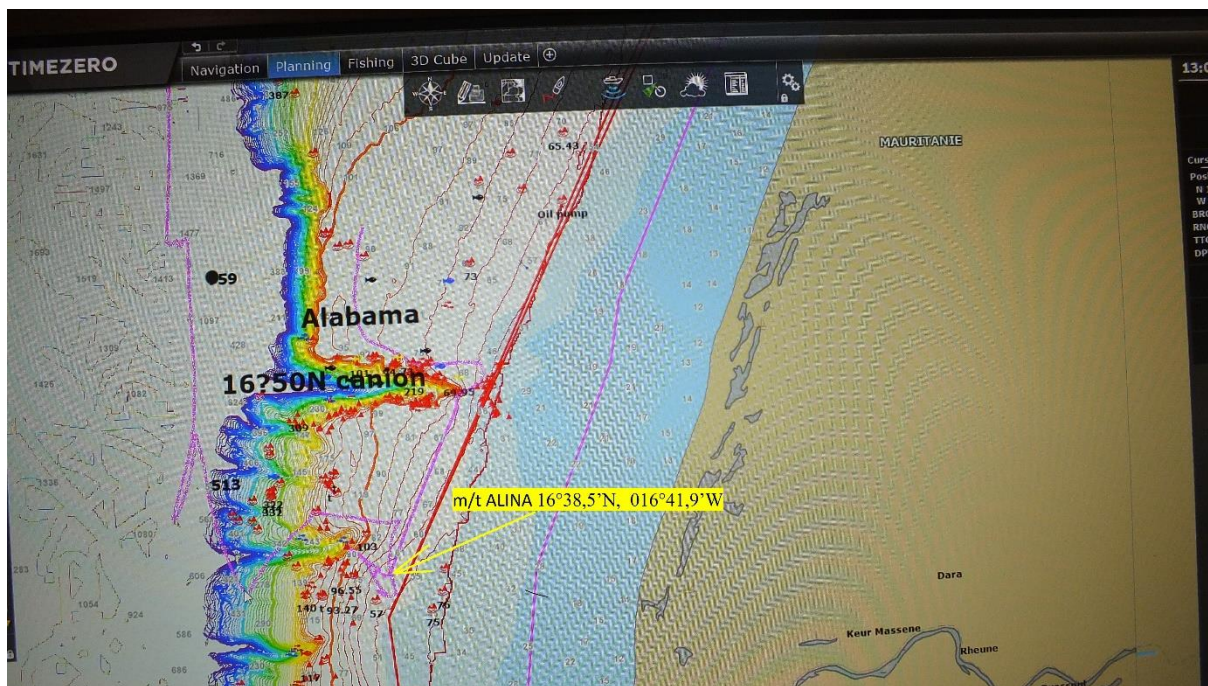


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## 1. Facts

On 29 May 2022, at approximately 2250 LT<sup>1</sup> a fire started on the Polish-flagged fishing vessel 'Alina' operating on the coastal waters of Mauritania.



*Photo 1. Image of the ship's movement (pink line) and position where the fire broke out (TIMEZERO Map)*

The master, who was on the bridge, located the fire area based on indications of the fire alarm control panel sensors. The fire started in crew quarters on the main deck, in one of the empty crew cabins because the fishermen were working on the catch. The master sounded the fire alarm, instructed the crew to leave accommodation and proceed to the muster station on deck. At the same time, he put the ship adrift and called nearby vessels on channel 16 VHF to be on standby in case assistance was needed. The fire spread to a number of cabins on the main deck.

The crew proceeded to extinguish the fire using the fire water system.

Approximately two hours after the fire broke out, 31 crew members were evacuated to the Mauritanian warship 'Timbedra' using rescue boats sent from the Russian trawler 'Marshal Krylov'. 14 crew members remained on board. The crew extinguished the fire with their own efforts, and then closed and sealed all doors to the affected rooms. To prevent fire from

<sup>1</sup> Local time (LT = UTC) is given throughout the report.



restarting, the crew, using fire hoses, injected exhaust gases into an isolated space on the main deck. At the same time, the deck above the burnt cabins and the side outside were cooled with water. After the fire had been extinguished, the vessel 'Alina' sailed northward to the port of Las Palmas on the Canary Islands, where she moored on 03.06.2022 at 0822. No crew were injured during the fire.

## 2. General Information



*Photo 2. Fishing vessel 'Alina' (GDY-346)*

### 2.1. Ship's Particulars

Vessel's name:	ALINA
Flag:	Polish
Owner:	Arctic Navigations Spółka z o.o
Manager:	Arctic Navigations Spółka z o.o
Classification society:	Bureau Veritas (BV)
Type	fishing vessel (stern trawler)
Fishing number:	GDY-346
Call sign:	SNSB
IMO number:	8918318
Gross tonnage (GT)	5099
Year and place of build:	1990 Harlingen NL



Engine power:	6600 kW
Length overall:	110.80 m
Breadth:	15.30 m
Hull material:	steel
Minimum safe manning:	10

## 2.2. Voyage Particulars

Ports of call during the voyage:	Nouadhibou, Mauritania
Destination port:	Las Palmas, Spain (Gran Canaria)
Type of voyage:	international, off-shore fishing
Cargo information (quantity, type):	
Manning details (number, nationality):	45 crew o/b (19-Ukrainians, 8-Mauritanians, 7-Russians, 4-Poles, 3-Dutch, 1-Islander, 1-Irish, 1-British, 1-Belarusian)

## 2.3. Marine Accident Information

Type of accident:	serious marine casualty
Date and time:	29/05/2022 at 2250 LT
Position:	$\varphi=16^{\circ}38.5'N$ ; $\lambda=016^{\circ}41.9'W$
Geographical area:	coastal waters of Mauritania
Nature of the water region:	exclusive economic zone
Weather:	wind N 4B, sea 2, swell 3 m, visibility good
Ship's operational condition:	vessel partially loaded with catch
Consequences of the accident:	3 cabins burnt, 4 cabins partially burned

## 2.4. Shore Services and Rescue Action Information

Entities involved:	Mauritanian Navy, Mauritanian warship 'Timberdra', Russian trawler 'Marshal Krylow',
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assisting: Lithuanian trawler ‘Simonas Daukantas’ and Norwegian OSV<sup>2</sup> ‘North Purpose’

Response time, search and rescue service actions: search & rescue units were not involved

Action taken: Extinguishing the fire by the crew and the evacuation of part of the crew (31 people) to another vessel.

Results achieved: Extinguishing the fire and securing the rooms in the superstructure against the resumption of the fire.

### 3. Circumstances of the Accident

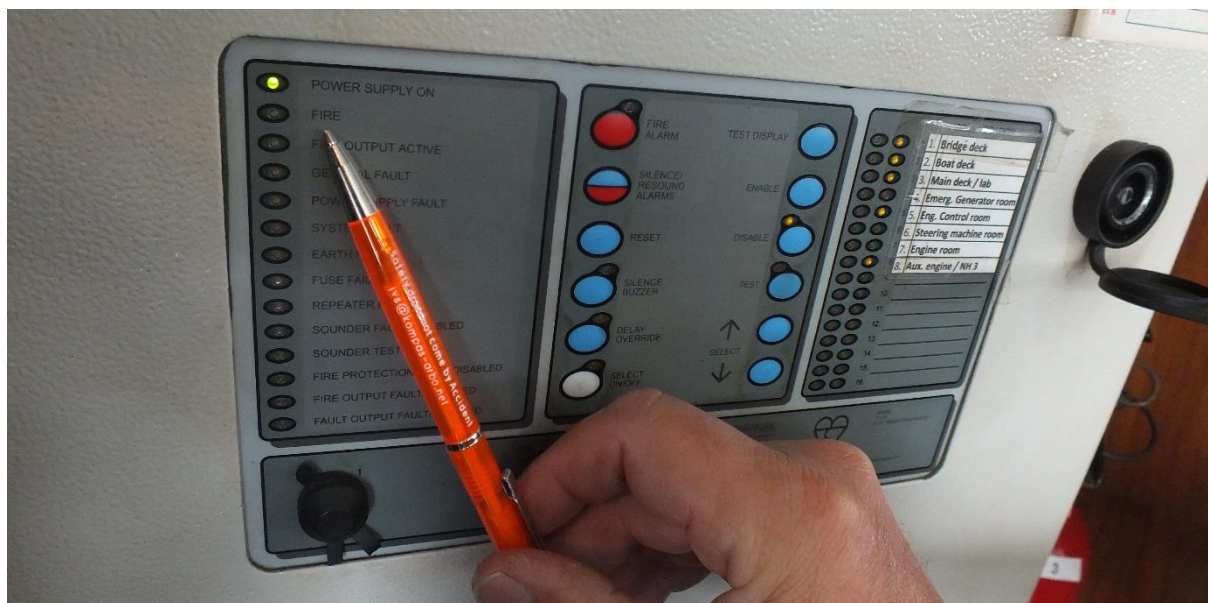
A fire started on the Polish flag fishing vessel ‘Alina’ (GDY-346), catching fish near the Mauritanian coast, on 29 May 2022 approximately at 2250 LT. Ship’s data at the time of accident: position  $\varphi=16^{\circ}38.5'N$  ;  $\lambda=016^{\circ}41.9'W$ , course  $203^{\circ}$ , speed of 11.5 kn. The fire was signalled on the fire alarm control panel on the bridge. On the basis of information about arrangement of the fire sensors, the master located the fire area in the crew quarters on main deck.

The fire detection and alarm system on this ship did not allow individual cabins or compartments affected by the fire to be identified<sup>3</sup>.

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<sup>2</sup> OSV - Offshore Supply Vessel – a ship for serving and supplying offshore oil rigs.

<sup>3</sup> The fire alarm system allowed the fire to be quickly detected and the affected deck to be indicated. It should be emphasised that the activated alarm applies to one monitoring loop, i.e. whichever of the detectors connected to one monitoring loop enters the alarm state, information about a fire on a specific deck (monitoring loop) will be displayed.



*Photo 3. Display of the fire alarm control panel*

Witnesses to the fire, an engineer present near the fire area and the 2nd mate reported the exact location and extent of the fire to the master. Cabin 34 on the port side of the main deck was on fire. Nobody was in the cabin because at this time its two occupants were engaged in fishing on deck. The master immediately sounded the fire alarm, instructed the crew to leave all accommodation in the superstructure and proceed to the muster station on the forward deck. At 2055, the master put the vessel adrift while maintaining the main engine and helm on standby.

On channel 16 VHF, he called vessels in the vicinity, informing about the fire and the need to remain ready for assistance. Four vessels answered and headed into the vicinity of the vessel 'Alina': the Russian trawler 'Marshal Krylov', the Mauritanian warship 'Timbedra', the Lithuanian trawler 'Simonas Daukantas' and the Norwegian OSV 'North Purpose'.

The fire quickly spread to other rooms and at approximately 0030 on 30/05/2022 it was found that 2 further cabins, nos. 44 and 45 located in the middle section between the two port and starboard corridors had already been on fire.





Figure 1. Fragment of the fire plan showing cabins 34, 44, and 45 on the main deck

Immediately after locating the fire and sounding the fire alarm, the crew attempted to extinguish it. Two fire hoses with nozzles supplied with water from hydrants located inside the superstructure were used at first. Additionally, the deck above the cabins on fire was cooled using water from a deck hydrant. An attempt was also made to extinguish cabin 34 using a fire hose through a port side porthole from the pilot gangway, lowered for this purpose. At around 0200, the majority of the crew, 31 people, were evacuated to the warship 'Timbedra' using two rescue boats from the trawler 'Marshal Krylov', while 14 crew members remained on board extinguishing the fire. At around 0300 the fire was brought under control and confined to cabins 34, 44, 45, further extinguished with water and cooled from outside. The adjacent cabins and corridors were partially burned to various extents with evidence of overheating of the steel walls. At about 0500 the fire was put out and the places at risk were under constant control of the crew and poured with water. None of the 45-member crew was injured during the fire.

On 31/05/2022, the vessel was still drifting using the engine for minor changes in position only, and the crew sealed the entire main deck living space at risk of renewed fire, and



continue cooling the boat deck above it. At 0500 they started to inject exhaust gases<sup>4</sup> from the generators into the sealed rooms using fire hoses. At the same time, the ship resumed the voyage on position  $\varphi=17^{\circ}05'N$ ;  $\lambda=016^{\circ}54'W$ , heading N at a speed of 7.3 kn to Las Palmas on the Gran Canaria island, initially assisted by the warship "Timbedra" then on her own, at variable speeds.

At 0810, two crew members in protective clothing and using CABA, supported from outside, inspected the burnt cabins finding only light smoke and a higher temperature, but no signs of fire. Being inside they closed all doors to cabins and compartments. While sailing to Las Palmas, the crew systematically checked the condition of the rooms after the fire.

On 03/06/2022 at 0822 the vessel berthed at the port of Las Palmas for classification inspections and repairs.

#### **4. Analysis and Comments about Factors Causing the Marine Accident with Regard to Results and Expert Opinions**

When examining the accident, the Commission did not manage to unambiguously establish the cause of the fire. Nevertheless, it was necessary to determine where the fire originated. The entire main deck was subjected to a thorough visual inspection. During this inspection it was clear that the most intense thermal damage was in cabins 44, 45 and 34. The location of these cabins on the fire plan is shown below.

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<sup>4</sup> Exhaust gases like carbon dioxide and nitrogen act as water vapour, reducing the concentration of oxygen in the air, depriving the fire source of the ability to continue the combustion process.

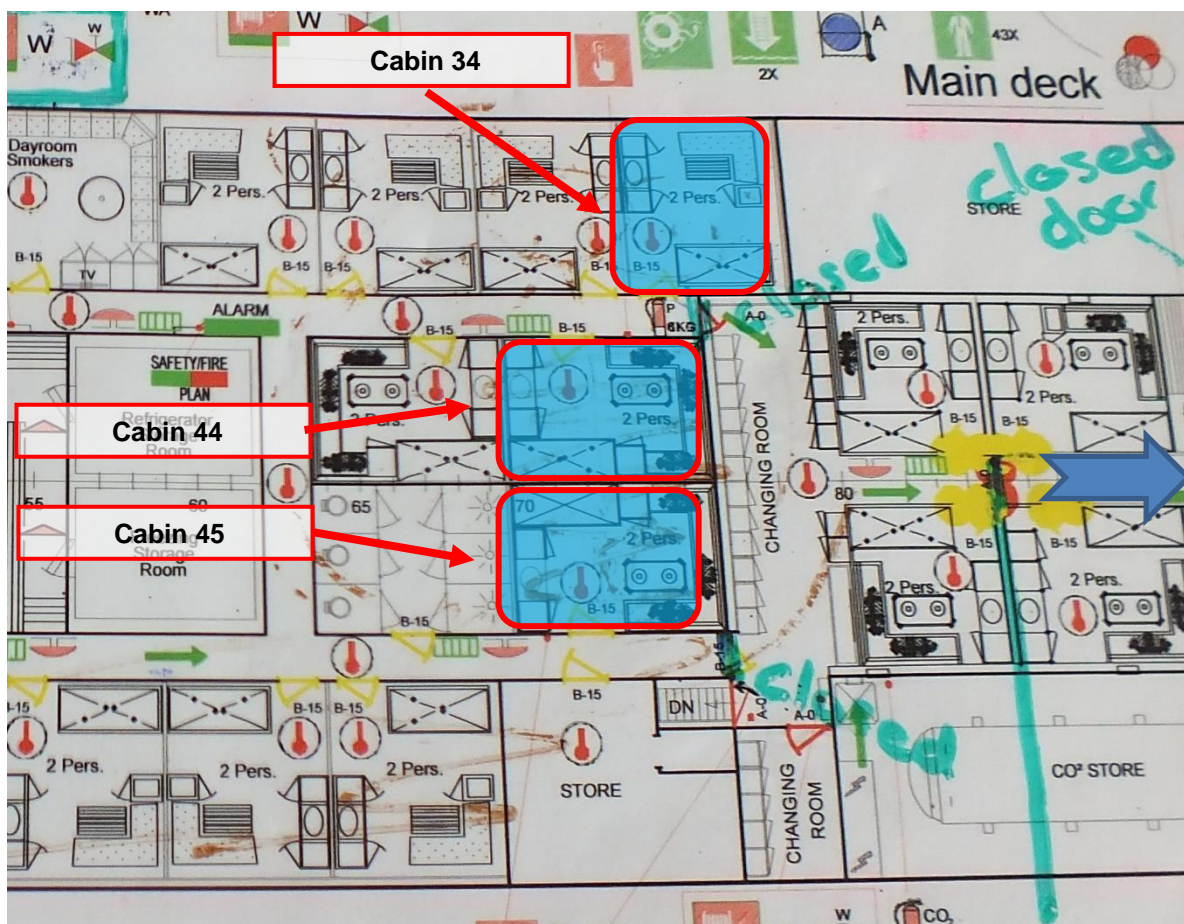


Figure 2. Location of cabins 34; 44 and 45

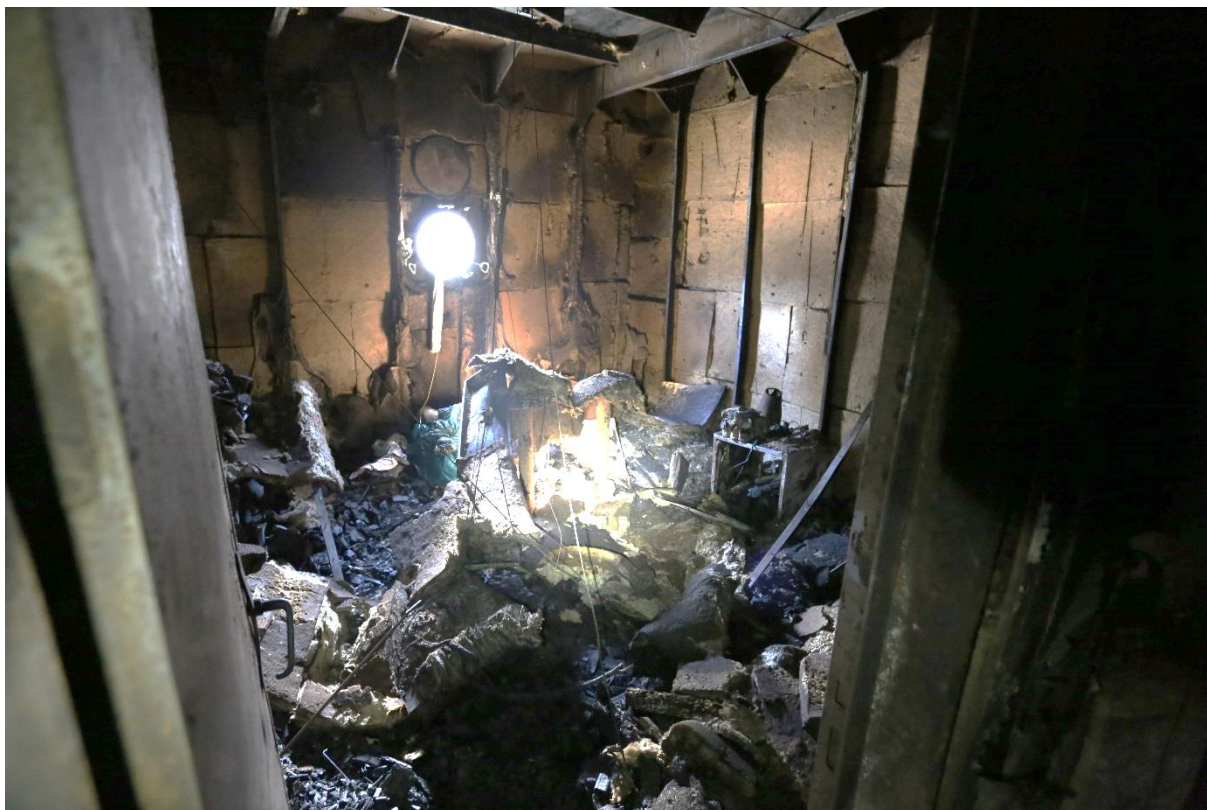
As a result of the fire, several rooms and corridors adjacent to these three main deck cabins were also partially burnt, and the boat deck cabins were heavily sooted.

The destruction in these 3 cabins is disproportionately more intense than in the rest of the main deck. A small amount of combustible material survived in cabin 34, while solid combustible materials were completely burnt in cabins 44 and 45. Given the information received from a crew member, who took an active part in extinguishing the fire, it was not possible to reach the source of the fire (the starboard corridor towards the stern). In addition, it was explained that sailors left cabin 44 during the fire alarm. Meanwhile, nobody was in cabin 34 when the fire alarm system was triggered. This means that the fire must have started in cabin 34.

The fact that not all combustibles in cabin 34 burnt most likely results from the obstructed air (oxidant) flow in the initial phase of the fire. There is no doubt that the resulting combustion process in cabin 34 was determined precisely by the amount of air (oxygen) required to



sustain the combustion reaction. Leaving the door open during the evacuation of cabin 44 contributed to a situation more favourable to the combustion process than in closed cabin 34. The appearance of the individual cabins and corridor is shown in the following photographs.



*Photo 4. Intensely burnt interior of cabin 34*



*Photo 5. Intensely burnt interior of cabin 45*



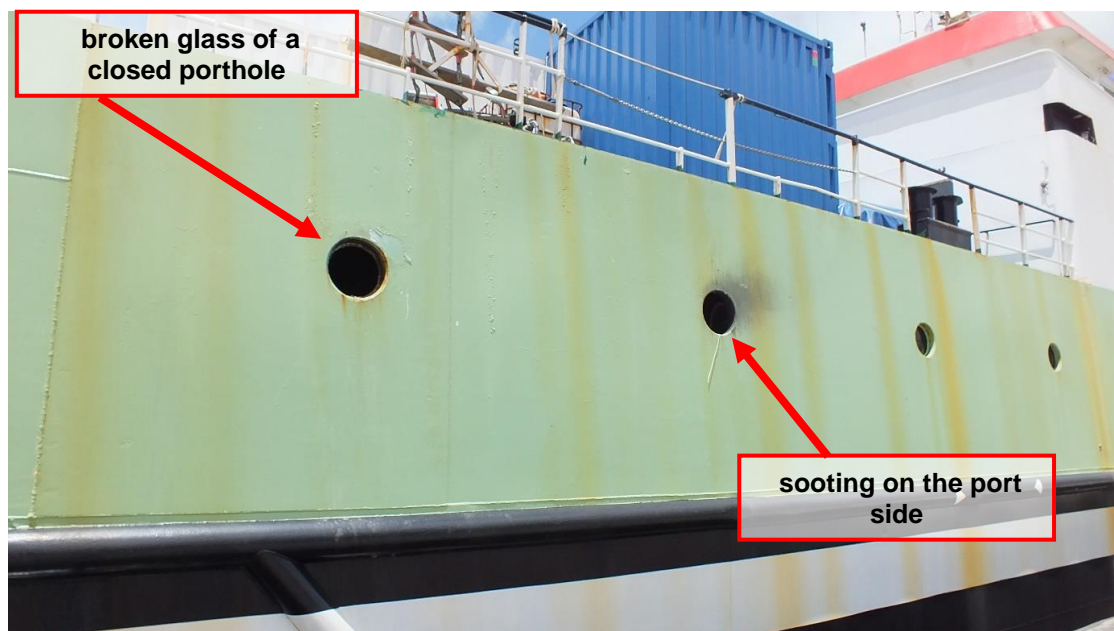
*Photo 6. Port side corridor – view towards the stern*





*Photo 7. Starboard side corridor – view towards the bow*

It should be emphasized that on the outside of the vessel a slight sooting was only visible at one porthole with no other signs of fire effect.



*Photo 8. Port side with visible sooting<sup>5</sup>*

<sup>5</sup> The visual inspection revealed only two areas of visible sooting and fire-related damage on the port side. These are the areas around two portholes of the main deck.



#### 4.1. Influence of the External Factors Including Factors Related to the Marine Environment on the Occurrence of the Accident

The weather was moderate: wind N 4°B, see 2, swell 3 m. External factors did not affect the occurrence of the fire accident on the trawler.

#### 4.2. Mechanical Factors

In analysing the potential causes of the fire, the Commission took into account the possible condition of the ship's electrical system. The most common fault conditions occurring in an electrical installation, which can be the source of a fire, are: short-circuit current flow, overvoltage, increased contact or link resistance, arcing, improper selection of overcurrent protections. A fault condition in an electrical installation in the form of a short circuit, which is capable of initiating a combustion process, leaves a characteristic mark of copper meltdown in the electrical wire within the area where the short circuit occurred. This means that finding a mark of copper meltdown is a prerequisite for concluding that the fire was caused by a short circuit in the electrical system.

Note that the meltdowns themselves are merely the evidence of an electric arc, the temperature of which is much higher than the melting point of copper (electric arc temperature – above 3000°C, copper melting point around 1089°C). Temperatures during fires do not exceed the melting point of copper. Electric arc can occur as a result of an electrical fault condition or during the destructive action of a fire (thermal effects destroy the insulation of the wires). In the latter case, i.e. during the destructive action of a fire – the possibility of an arcing phenomenon is almost certain. Once the insulation of the conductors has melted, an electric arc will be ignited between conductors of different potentials until the electrical protection is triggered, or in the case of unprotected circuits, until the current source fails or the circuit is physically broken. An electric arc will always result in melting the copper conductors of electrical wires.

To determine whether the short-circuit (electric arc) was the cause or a result of the fire, a metallographic examination of the copper meltdowns is carried out. However, in the case under investigation, no marks of an electric arc on the remains of the electrical installation were found during the thorough visual inspection, which largely rules out this cause of the fire.

### 4.3. Human Factors

Given the fact that electrical appliances, other than phone and computer chargers, not belonging to the permanent equipment were found in most of the cabins, it was assumed that the most likely cause of the fire in cabin 34 was the ignition of a fire from an electrical appliance left running.

Among other things, the remains of an electric kettle were found in the site of the fire in cabin 34, as shown in photograph no. 9.



*Photo 9. Interior of cabin 34*

Fire ignition from a cigarette butt left in cabin 34 cannot be ruled out. Packets of cigarettes were found in other cabins, which means that some of the crew were smokers.

### 4.4. Organizational Factors

Measures had been taken on board to minimise the risk of fire by issuing a ban on the use in the cabins of portable electrical appliances, such as kettles. Smoking was also completely banned in the cabins. There may have been violations of these prohibitions by the crew, as demonstrated by the finding of an electric kettle in one of the burnt cabins. The crew had valid STCW and shipboard health and safety training and were properly qualified for their duties.



The organisation of work on a fishing vessel is often dictated by the needs for an increased effort of the crew, during higher fishing intensity, and thus exceeding working hours and reducing rest periods. In analysing the information collected, the Commission did not find the permitted working hours to be exceeded or rest periods shortened.

## **5. Description of Examination Findings Including the Identification of Safety Issues and Conclusions**

Taking into account the indicated place of origin of the fire (cabin 34), the presented circumstances of the origin of the fire, and marks of fire damage, the Commission also considered factors referred to as ignition of the fire<sup>6</sup>. The most common initiators of this group of fires include cigarette butts, sparks of any origin, candle flames, improperly operated heating and lighting appliances, unattended food left on electric cookers, improperly conducted work with flammable materials.

Following investigations, the Commission concluded that the fire originated in the interior of cabin 34.

In the Commission's opinion, the ignition of the fire resulting from the use of electrical appliances or their failure could have been the direct cause of the accident in the form of initiation of the combustion process in cabin 34. Despite the ban on electrical appliances other than permitted phone and computer chargers, appliances (including kettles, fans) were found plugged into electrical sockets inside cabins. Arson was also considered as another cause of the fire<sup>7</sup>. However, during the conducted visual inspection and the analysis no information that could indicate the deliberate initiation of the fire was found.

At the same time, it is important to point out the professionalism, composure and great dedication of the crew in rescuing a ship in danger of spreading fire.

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<sup>6</sup> The term ignition of a fire should be understood as the unintentional starting of a fire as a result of human inattention.

<sup>7</sup> The term arson should be understood as the intentional starting of a fire as a result of human action.





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## 8. Sources of Information:

Notification of accident

Document of the fishing vessel 'Alina' (GDY-346).

Expert opinion by Dariusz Baranowski, firefighting expert, officer of the State Fire Brigade

Inspection on board, in particular of the rooms affected by the fire

Commission's own photos

Hearings and statements of the master and crew

## 9. Composition of the Accident Investigative Team

Team Leader – Grzegorz Suszczewicz – Vice-President of the Commission

Team Member – Monika Hapanionek – Member of the Commission