



**SMAIC**

STATE MARINE ACCIDENT  
INVESTIGATION COMMISSION

# FINAL REPORT

# 89/19

**Serious marine incident**

**Pushed train: Atlant 1  
pusher tug and Ułan 72  
barge**

The fall of the captain to the bottom of the barge cargo hold after hitting the dolphin of the bridge on the Elbląg River in Nowakowo with the bow of the pushed train on July 31, 2019

July 2020



Investigation of the serious accident of the Atlant 1 pusher tug captain who fell to the bottom of the barge cargo hold as a result of hitting the dolphin by a barge of the pushed train at the bridge in Nowakowo on the Elbląg Canal, was conducted on the basis of the Act of August 31, 2012, on the State Commission on Maritime Accident Investigation (i.e. Journal of Laws of 2012 item 1374.) and the norms, standards, and recommended methods of conduct agreed within the International Maritime Organization (IMO) binding for the Republic of Poland.

Pursuant to the provisions of the above-mentioned Act the purpose of marine accident or incident investigation is to determine the circumstances and causes of its occurrence in order to prevent future marine accidents and incidents and to improve the state of maritime safety.

The State Marine Accident Investigation Commission does not determine in the conducted investigation the guilt or liability of persons involved in a marine accident or incident.

This report cannot constitute evidence in criminal proceedings or in any other proceedings aimed at establishing guilt or liability for causing the accident which the report relates to (Article 40 (2) of the Act on PKBWM).

**State Marine Accident Investigation Commission**

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## 1. The facts

On July 31, 2019, during the voyage of the pushed train, i.e. Atlant 1 pusher tug and Ułan 72 barge from Elbląg to Kaliningrad captain observer dropped fell to the bottom of the opened part of the barge cargo hold. At that time the pushed train was passing the pontoon bridge in Nowakowo on the Elbląg River, and the captain standing on the bow deck of the barge was giving directions to the other captain who was steering the train from the wheelhouse of the pusher. As a result of the hitting the dolphin protecting open bridge with left side of the barge a sudden sideways movement of the barge occurred. Captain observer lost his balance and fell into the barge cargo hold. As a result of the fall the captain sustained injury and was taken to hospital.

## 2. General information

### 2.1. Pushed train data

#### 2.1.1. "Atlant 1" pusher tug

Name of the vessel:	ATLANT 1
Flag:	Polish
Owner:	Privately owned
Shipowner:	LSeaLine Sp. z o.o.
Classification Authority:	Inspection Body - Director of the Inland Shipping Office in Bydgoszcz
Community Seaworthiness Certificate:	SZ-EU/023
Vessel type:	Pusher tug, Bizon III type
Registration No:	BG-01-172
Uniform European vessel identification number:	08355137
Displacement (at max. immersion):	115.681 m <sup>3</sup> <sup>1</sup>
Year of construction:	1978
Machine power (total of two engines):	296 kW
Total length:	21.17 m
Width:	8.25 m
Hull material:	steel

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<sup>1</sup> For inland navigation, ships displacement is given in [m<sup>3</sup>] as oppose to sea-going vessels where this value is given in [t].



Minimum crew: 3

### 2.1.2. "Ulan 72" barge

Name of the barge:	UŁAN 72
Flag:	Polish
Owner:	LSeaLine Sp. z o.o.
Shipowner	Private person
Classification Authority:	Československý Lloyd (CsLloyd)
Vessel type:	Pushed barge
Registration No:	SZ-03-318
Uniform European vessel identification number:	32201216
Displacement:	1241 t
Year of construction:	1990
Total length:	70.97 m
Width:	10.47 m
Hull material:	steel

### 2.2. Information about the journey of the Atlant 1/Ulan 72 pushed train

Ports of call during journey:	Elbląg
Port of destiny:	Kaliningrad
Type of shipping:	International
Information about the cargo (quantity, type):	No cargo
Information on the crew (number, nationality):	2 Polish/ 1 Russian
Information on passengers (number, nationality):	No passengers

### 2.3. Information about a marine accident or incident

Type of accident:	Serious marine accident
Date and time of the incident:	July 31, 2019, at 7:12 PM
The geographical area of the incident:	Nowakowo, a pontoon bridge on the Elbląg River (between the port of Elbląg and the mouth of the river Elbląg into the Vistula Lagoon)
The nature of the reservoir:	Internal sea waters



Weather during the incident:	No waves, wind N 3-4°B
The operational condition of the vessel during the incident:	River navigation
The scene of the accident on the vessel:	The bow deck of the barge at the cargo hold coaming
Consequences of the accident:	Captain's fall to the bottom of the barge cargo hold, head trauma, broken collarbone, broken 9 ribs.

#### **2.4. Information on the involved shore entities and rescue operations**

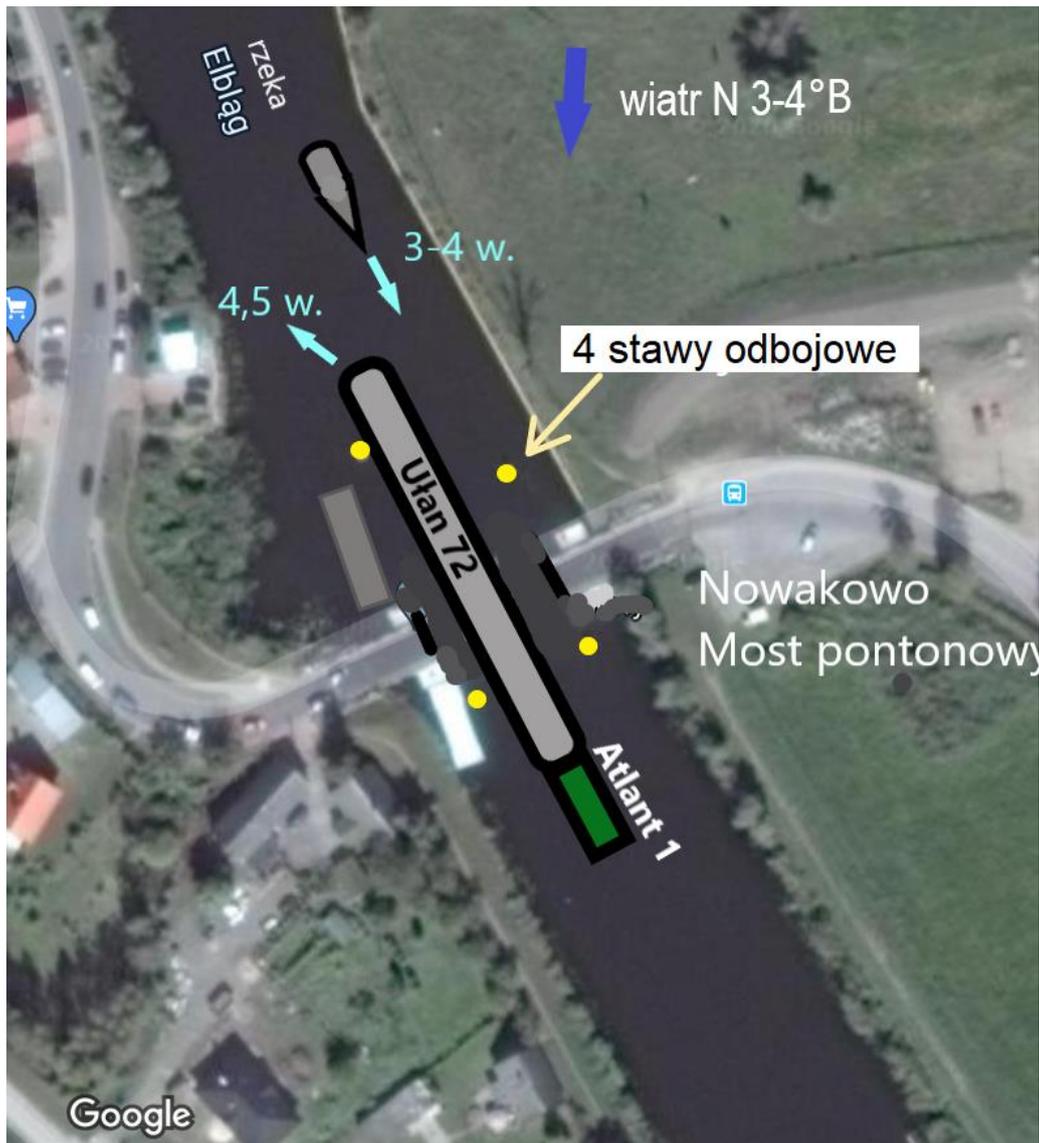
Involved entities:	Elbląg Harbor Master's Office, SAR, Ambulance Service
Means used:	SAR R-30 and R-31 rescue boats, ambulance from ambulance service
The time of response, rescue actions:	Immediately after receiving information about the accident.

### **3. Description of the circumstances of the accident**

On July 31, 2019, at 6:10 PM the pushed train consisting of the Atlant 1 pusher tug with the Ułan 72 barge left without cargo from the port of Elbląg to the port of destination, i.e. Kaliningrad. The crew consisted of two captains working in 6-hour watch rotation at the steering wheel and one sailor/mechanic. After 55 minutes of sailing the pushed train reached the pontoon bridge in Nowakowo on the Elbląg River. Earlier, 15 minutes before the bridge, the captain notified the Elbląg harbour master's office of the intention to cross the bridge line thus signalling the bridge's staff that it was necessary to open it. When the pushed train was in front of the opened bridge one of the captains (the observer) went to the barge's bow to support with hand gestures and VHF the other captain in the wheelhouse in safe navigation between the dolphins and the open pontoons of the bridge. Almost 71 meters long, the empty barge was obscuring the visibility from the wheelhouse of the pusher tug. Therefore one of the captains (an observer) stood on the bow deck of the barge to inform the other captain at the steering wheel of the situation ahead of the bow. The captain observer at the bow was standing with his back to the lifted coaming of the cargo hold in a place clearly visible from the wheelhouse of



the pusher tug. At that time the pushed train's speed was 4.5 knots. When the barge's bow was in the line of the open pontoons of the bridge the captain observer on the bow noticed at a distance of about 50 m in front of the barge, a slightly from the starboard side, the sailboat traveling in opposite powered by its engine at a speed of approx. 3-4 knots with the clear intention to pass the crossing between the pontoons of the bridge. This posed a risk of a collision with the yacht and the captain observer at the bow commanded the captain in the wheelhouse of the pusher to stop the pusher engine. The captain at the steering wheel immediately stopped the engine and at the same time initiated sound warning to alarm the crew of the yacht. Then the pushed train decelerating with the engine stopped sails slowly between the two dolphins in front of the pontoons of the open bridge with bow of the barge approaching the lines of the next two dolphins on the other side of the bridge. At this time the light, unladen and emerged barge is affected by the N 3-4°B wind from the starboard side causing it to drift to the left and dangerously approaching the dolphin behind the bridge from the port side of the barge.



## Legend:

Rzeka Elbląg – Elbląg River

Wiatr –wind

4 stawy odbojowe – 4 dolphins

Nowakowo most pontonowy – Nowakowo ponton bridge

*Fig. 1 - Site plan of the pushed train crossing the open pontoon bridge in Nowakowo and the barge hitting the dolphin. (source: the figure was drawn on the photo derived from the Google Maps application)*

At about 7:12 PM the port side of the barge (15 m from the bow) hits the dolphin behind the bridge causing a sudden sideways movement of the barge, and the captain observer standing on the bow close to the coaming of the partially open cargo hold loses his balance, staggers and falls into the empty cargo hold falling from a height of 3.10 m to the steel bottom of the cargo



hold. As a result of the fall, the captain sustained injuries, i.e. bruise of the skull, broken left collarbone, and broken 9 ribs without losing consciousness. The captain in the wheelhouse after hitting the dolphin continues to control the steering in order to safely cross the bridge line without noticing the captain observer falling to the cargo hold. After a short time, he realizes that he can't see the captain in his previous position at the bow. He sends a sailor there immediately to check what happened. While at the bow the sailor hears the call from the cargo hold, sees through the open hatch of the cargo hold wounded captain observer at the bottom of the cargo hold and then he goes down to him. After assessing the condition of the injured captain and talking to him the sailor quickly returns to the bridge to get the first aid kit to dress the wounded captain's head and informs the captain who was steering the train about the accident. The captain, while continuing to steer the train, notifies the Elbląg Harbor Master's Office about the accident by phone with a request to call for medical assistance and evacuation of the wounded captain from the barge.



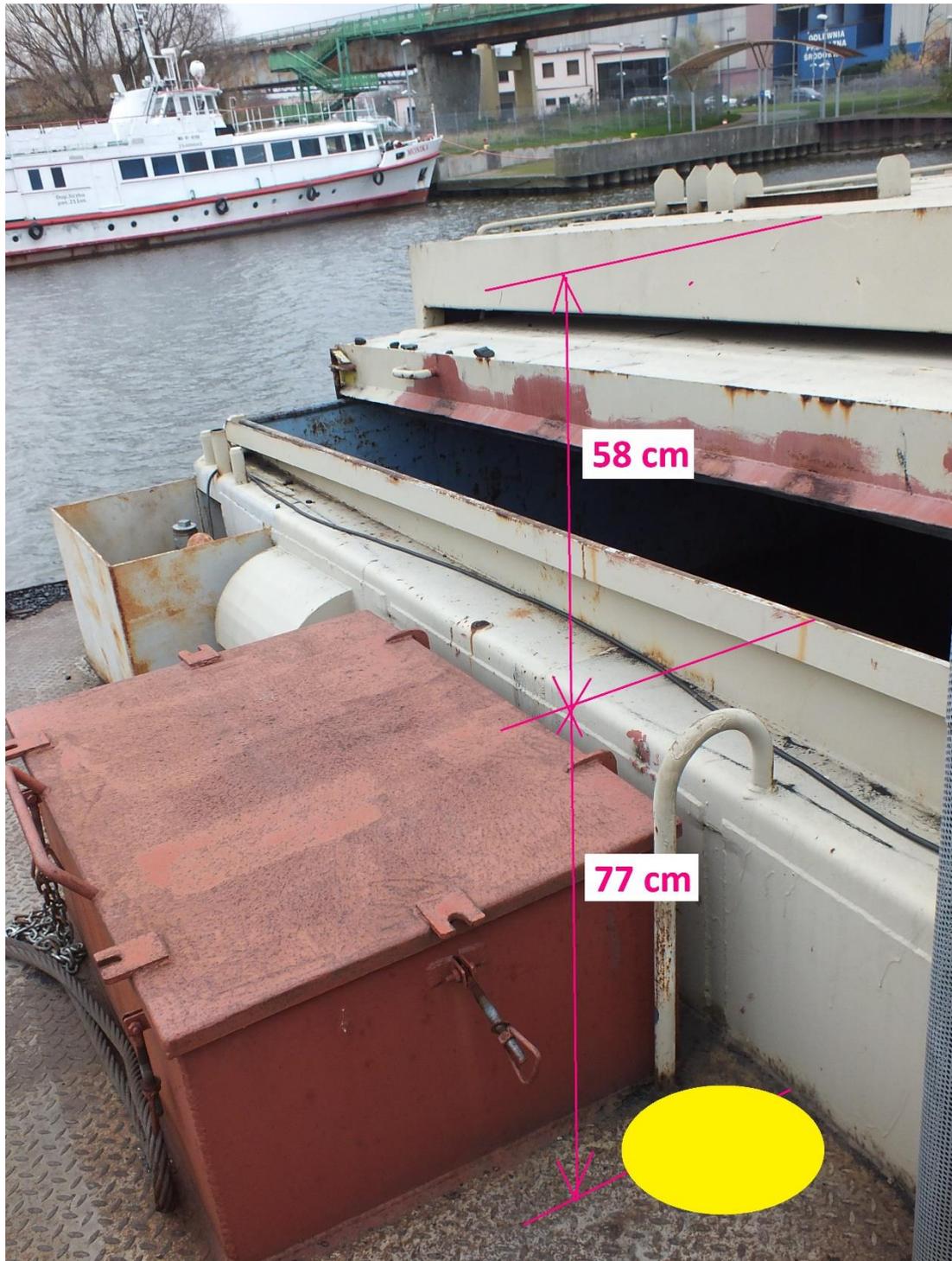
*Pic. 1 - The bridge in Nowakowo during the opening. Four dolphins the train sailed between can be seen in yellow colour (source: <https://kanal-elblaski.pl>)*



*Pic. 2 - Exemplary vessel approaching the bridge in Nowakowo (from the Elbląg side).  
(Source: <https://kanal-elblaski.pl>)*



*Pic. 3 - View from the bridge of the Atlant 1 pusher tug towards the bow of the Ulan 72 barge.*



*Pic. 4 - A place at the bow of the Ulan 72 barge by the coaming of an open cargo hold where the captain observer was standing (marked in the photo with a yellow circle).*

Sztutowo and Tolkmicko Rescue Stations onshore receive an accident report from the Elbląg Harbor Master's Office at 7:38 PM and at 7:45 with information about the needed help and medical evacuation. R-31 unit (from Sztutowo) and R-30 (from Tolkmicko) are immediately sent there with paramedics on board. In the meantime, the captain sails from



the Elbląg River to the Vistula Lagoon drops an anchor near the Elbląg beacon, and waits for help. An injured captain laying in the cargo hold was dressed by the sailor and remains under his care. The R-30 unit arrives at the anchored pushed train at 8:07 PM and R-31 at 20:15 PM. On the spot, in the cargo hold the rescuers of both SAR units provide the injured captain with necessary medical assistance, and around 8:30 PM they safely evacuate him to the R-30 unit which then reaches the Tolkmicko marina at around 9:00 PM. From there, an ambulance takes the wounded captain to the hospital in Elbląg. Pushed train anchored on the Vistula Lagoon awaits the arrival of another captain to continue the travel to Kaliningrad.



*Pic. 5 - Atlant 1 pusher tug*



*Pic. 6 - View from the bow of the Ulan 72 barge towards the Atlant 1 Pusher tug*

#### **4. Analysis and comments on the factors that contributed to the marine accident or incident taking into account the results of the investigations**

The analysis of the following factors allows to determine the causes of the fall of the captain observer into the cargo hold.

##### **4.1. Mechanical factors**

At maximum emergence, the Ulan 72 barge had a large starboard wind inflow area causing the pushed train to drift to the left. In addition, stopping the pusher's engines in a narrow passage which was an open pontoon bridge increased the drift effect and consequently led to a situation where barge hits the dolphin behind the bridge.

Partial opening of the Ulan 72 barge cargo load (lifting the cargo load covers at the front and rear of the cargo load leaving a gap of up to 1 m) for the duration of the trip on the Elbląg River on the section from Elbląg to the entrance to the Vistula Lagoon was often practiced on push trains with a pusher tug Atlant 1 for airing after unloading and cleaning of the cargo hold in port. The place where the captain observer stood and showed his hand signs to the captain in



the wheelhouse of the pusher was at the bow, very close to the low coaming of the cargo hold. At this point, the working height of the coaming from the deck is 77 cm. Shortly before the accident, the captain observer stood with his feet on the coaming which, during the violent lateral movement of the barge being the result of hitting the dolphin, was the cause of the captain losing his balance and falling into the cargo hold.

#### **4.2. Human factors (mistakes and omissions)**

The injured captain observer saw the barge's bow approaching the dolphin of which fact he informed the captain on the bridge and hence should have foreseen the effects of barge hitting the dolphin and yet he did not intuitively adopt a safety position and continued standing in a dangerous place by the cargo hold. Choosing a place near the open cargo hold and leaning on the low coaming was the result of a poor assessment of the risk of falling into the cargo hold.

#### **4.3. Organisational factors**

The unloaded, emerged Ułan 72 barge obscured the visibility from the bridge in front of the bow of the barge, covered the visibility sector to about 60 m, hence it was necessary to show, with hand signs and using UHF radio, the required manoeuvres and information about obstacles when passing in difficult places to navigate by an observer from the bow. Such a place is the crossing between the pontoons of the bridge in Nowakowo. This procedure is described in the Ordinance of the Director of Office of Inland Navigation in Gdańsk – “When sailing in difficult sections of the waterway marked with signs B.8, B.9a, B.9b on ships and pushed trains the length of which exceeds 86 m the observation post at the bow part must be kept. The observer should have a constant connection with the wheelhouse. Vessels approaching difficult stretches of waterways should transmit a radio message at the designated frequency for the ship to ship connection informing about their position.”<sup>2</sup>

#### **4.4. The influence of external factors, including those related to the marine environment, on the occurrence of a marine accident**

The weather conditions during the passage of the pushed train on the Elbląg River near the bridge in Nowakowo did not constitute a serious obstacle to navigation. Wind at that time wasn't very strong N 3-4B (up to 8 m/s) but it caused, however, a lot of lateral pressure on the starboard

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<sup>2</sup> Para. 3, item 8 of the Ordinance of the Director of the Inland Navigation Office in Gdańsk of March 13, 2007, on the detailed conditions for safe traffic and berthing of ships on inland waterways.



side on the emerged, empty barge especially when the pushed train reduced speed to avoid a collision situation with the yacht in the passage between pontoons of the open bridge in Nowakowo. The water surface of the river was smooth, visibility was good, no precipitation.

## 5. Findings regarding the cause of the accident.

As a result of the investigation carried out the Commission established that the cause of the accident was an inadequately secured place from which the captain observer provided information to the captain steering the pushed train.

The factors influencing the occurrence of the accident were as follows:

- Improperly designated observer position near the coaming of the open cargo hold.
- Yacht sailing from around a bend in the opposite direction preventing the pushed train from safely crossing the line of open pontoons on the bridge.
- Reducing the speed of the pushed train at the bridge and thus exposing the emerged, empty barge to drift due to wind and consequently to hit the dolphin.

## 6. Safety recommendations

In connection with the Ordinance of the Director of the Inland Navigation Office in Gdańsk of March 13, 2007, on the detailed conditions for safe traffic and berthing of ships on inland waterways, para 3, item 8 regarding the maintenance of an observation post at the bow and the connection with the wheelhouse on pushed trains with a total length greater than 86 m, while sailing on strenuous sections of the waterway, such an observation post should not pose a threat to the observer.

In connection with the above the State Maritime Accident Investigation Commission issues recommendations to the owner of the Atlant 1 pusher tug operating pusher trains with barges:

### 6.1. LSeaLine Sp. z o.o.

The Commission recommends that each time an observer is dispatched to the bow of the barge on a pushed train the cargo hold should be closed from the bow side to prevent the observer from falling into the cargo hold. If such a position is to be close to the cargo load such cargo load must be closed all not partially open.

## 7. List of pictures

*Pic. 1. The bridge in Nowakowo during the opening. Four dolphins the train sailed between can be seen in yellow colour (source: <https://kanal-elblaski.pl>)..... 7*



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barge hitting the dolphin. (source: the figure was drawn on the photo derived from the Google  
Maps application)..... 6*

## **9. Composition of the team investigating the accident**

Team leader - Grzegorz Suszczewicz - PKBWM Deputy Chairman

Team member - Marek Szymankiewicz – PKBWM Secretary