STATE COMMISSION ON MARITIME ACCIDENT INVESTIGATION

SIMPLIFIED REPORT 14/15

Marine casualty

M/V FAST JEF

M/T ALORA

Collision of Fast Jef and Alora while passing by
in the fairway in Świnoujście on 14 May 2015

March 2016

The examination of a marine casualty of Fast Jef and Alora was conducted under the State Commission on Maritime Accident Investigation Act of 31 August 2012 (The Journal of Law item 1068) 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 Commission on Maritime Accident Investigation 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 Commission on Maritime Accident Investigation Act).

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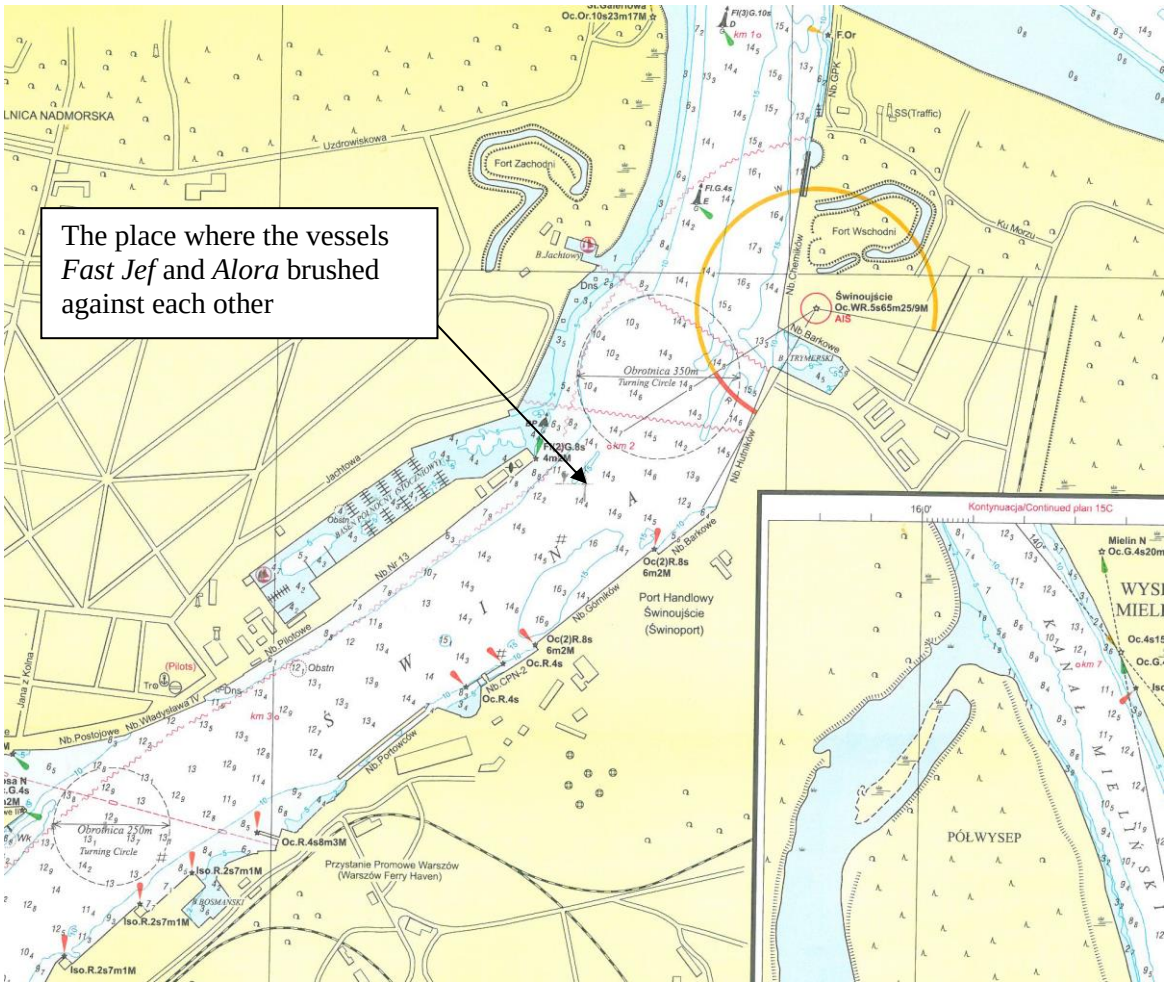
Table of Contents page

1. Facts

On 14 May 2015 at 00:46 a vessel under Cypriot flag “Alora”, with a pilot on board, while navigating from the open sea to the port of Szczecin, in the fairway was passing by a Belgian flag vessel, “Fast Jef” which was navigating to the port exit with a pilot on board as well. During the passing manoeuvre at the level of the northern end of the Wharf No 13 (SAR) the vessels brushed against each other with their port sides.



Photograph 1: A fragment of the BHMW chart No 15C (the plan of the port of Świnoujście) with a marked place of collision of Fast Jef and Alora

The casualty was reported to the VTS Świnoujście. VTS directed “Fast Jef” to the anchorage at the roadstead of Świnoujście and let “Alora” – following the inspection made by the vessel’s crew – continue the voyage to Szczecin. In result of the casualty the vessels suffered slight damage. “Fast Jef”, following the inspection of the class (Bureau Veritas), continued its voyage to England on the very same day.

2. General Information

2.1. Ship Particulars

2.1.1. „Fast Jef”

Flag:	Belgian
Shipowner:	Fast Lines Belgium N.V. Antwerp (Belgium)
Operator:	Fast Baltic Sp. z o.o. Szczecin (Poland)
Classification society:	Bureau Veritas
Vessel’s type:	General cargo vessel
Call signal:	ONEE
IMO number:	9136101
Gross tonnage (GT):	2066
Year of built:	1996
Power:	1000 kW (Mak 8M20)
Width:	12.50 m
Length overall:	87.95 m
Hull material:	Steel
Minimum crew:	5 men

Photograph 2: m/v Fast Jef

2.1.2. „Alora”

Flag:	Cypriot
Shipowner:	Oceanlook Shipping Limited, Limassol (Cyprus)
Operator:	Simonsen Chartering APS, Svendborg (Denmark)
Classification society:	Bureau Veritas
Vessel’s type:	Chemical tanker
Call signal:	5BQP2
IMO number:	9534066
Gross tonnage (GT):	2918
Year of built:	2011
Power:	2 x 960 kW (MAN/B&W 6L23-30)
Width:	15.20 m
Length overall:	90 m
Hull material:	Steel
Minimum crew:	7 men

Photograph 3: m/t Alora

2.2. Voyage Particulars

2.2.1. „Fast Jef”

Ports en route:	Szczecin
Port of destination:	Flixborough (England)
Trading area:	Limited to 200 Nm from the port
Cargo:	2237.95 tons of general cargo
Manning:	5 Poles
Passengers:	No passengers

2.2.2. „Alora”

Ports en route:	Vyborg (the Russian Federation)
Port of destination:	Szczecin
Trading area:	International
Cargo:	3151.377 t of sulfite lye
Informacja o załodze:	2 Indonesians, 1 Pole, 3 Russians, 5 Ukrainians

2.3. Accident Information

Kind:	Marine casualty
Date and time of event (UTC):	14.05.2015 00:46:05 LT (22:46:05 UTC 13.05.2015)
Geographical position of the accident:	φ = 53°54.75’N λ = 014°16.60’E
Geographical area of the accident:	The Bay of Pomerania – the Świna Straight
Nature of the water region:	Internal waters, the fairway
Weather during the event:	Wind SW 2 – 3º B, sea state 2, very good visibility: 12 Mm, water temp.: 12.5° C, air temp.: 10° C
Operating state of the vessels during the event:	Loaded vessels
Human factor involved in the accident:	Pilots and bridge crew on both vessels
Effects of the accident on “Fast Jef”:	Damage to the hull at port side near the stern

	including the elements of the internal construction between frames 7-13
Effects of the accident on “Alora”:	Small indents of the hull’s plating at port side near the bow at a distance of 2.5 m and deformation of 4 adjacent frames

2.4. Shore Services and Rescue Action Information

The collision of “Fast Jef” and “Alora” did not require any rescue action to be conducted. Technical state (damage) of “Fast Jef” required the inspection to be carried out by the BV class.

3. Circumstances of the Accident

On May 13, 2015 after 21:00 “Fast Jef”, a general cargo vessel under Belgian flag, after pilot boarding, unmoored from the Holenderskie Wharf in Szczecin and set off in the direction of Świnoujście in order to proceed to sea on a voyage to Flixborough in the United Kingdom. The pilot and the master were on the bridge. Up to the entry into the Świna channel the vessel was advancing unhampered. The vessel was being steered by the autopilot. At midnight, the watch was taken over by the chief officer and the master left the bridge after 20 minutes.

On May 14, 2015 at 0:10 at the roadstead of Świnoujście a chemical tanker “Alora” took the pilot on board and started heading towards Szczecin. On the bridge, apart from the master, there was also the chief officer. The master was steering the vessel manually. After passing the head of the western breakwater, at 0:38 the speed of the vessel was reduced to about 8 kn.

At 0:44 the pilot of “Fast Jef” noticed “Alora” coming from the opposite direction at a distance of approximately 5 cables. The chief officer of “Fast Jef” switched the rudder over from automatic to manual control. The pilot was trying to agree over the VHF how they would passed by one another but there was no communication with “Alora”.

At 0:45 “Alora” changed the course a few degrees to starboard. Seeing this, the pilot of “Fast Jef” also turned to starboard. This caused the courses of the vessels to intersect. “Fast Jef” went in front of “Alora’s” bow and after a while the vessels began to move past their port sides. A few seconds past 0:46, there was a bump sensed on both vessels caused by

a transitory contact of hulls. “Fast Jef” brushed her run at port side against the port side of “Alora” at the level of the upper fender beam, right behind the entrance of the hull near the place designed for pushing the vessel by tug boats.

Photograph 4: Damage of Fast Jef

Photograph 5: Dents and scratches of the Alora’s port side

After getting apart, the pilots of both vessels notified VTS Świnoujście of the collision.

VTS directed “Fast Jef” to the 1B anchorage, and permitted “Alora”, once the crew checked for damage, to continue the trip to Szczecin.

“Alora” moored to the dolphins of the Fosfatowe Wharf in Szczecin, at 4:20. At 11:50 “Fast Jef” heaved up anchor and went to the Chemików Wharf in Świnoujście, where she was inspected by PSC and surveyed by the class (BV).

4. The Analysis and Comments about Factors Causing the Accident with Regard to Examination Results and Expert Opinions

To examine the track which was followed by both vessels during the manoeuvres in the fairway in the channel of Świna, the Commission has read the data from the VTS Świnoujście in form of radar images and AIS signals registered on 14 May 2015.

The screenshot from the VTS monitor shows in Figure 1 that about 7 minutes before the accident, both vessels had been moving properly on their respective sides of the fairway.

Figure 1: Radar image of Fast Jef and Alora at ca. 00:39

The analysis of subsequent imagery of the movement of both vessels shows that after passing the city ferries' harbour "Fast Jef" has gradually started to move to the left and after passing the Pilotowe Wharf it was already on the wrong, western side of the fairway (Fig. 2).

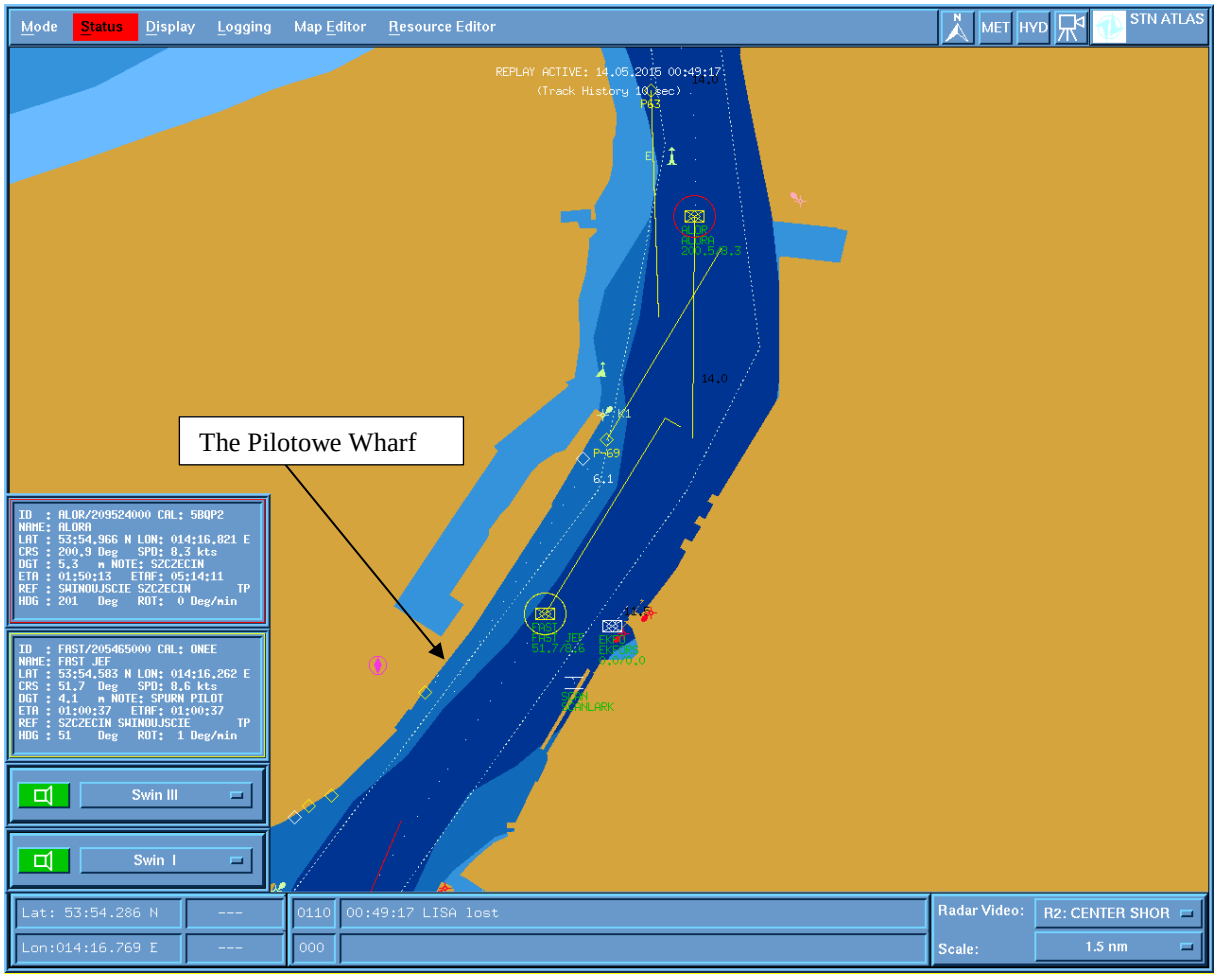


Figure 2: Radar image of Fast Jef and Alora at a distance of ca. 5 cables from each other

The pilot of "Fast Jef" noticed "Alora" coming from the opposite direction at 0:44, when the vessels were at a distance of about 5 cables from each other (Figure 2). He assessed the situation and decided to pass by "Alora" starboard-to-starboard. The chief officer switched the rudder over to manual steering and turned on the second pump of the rudder. The pilot called out "Alora" on VHF channel 12 and suggested the passing manoeuvre starboard to starboard.

There was no response to his suggestion.

When "Fast Jef" was at the level of the Górników Wharf, and the distance between the vessels decreased to about 2 cables (Figure 3), the "Fast Jef's" pilot seeing that "Alora" was changing its course to starboard, he himself began turning the vessel to starboard.

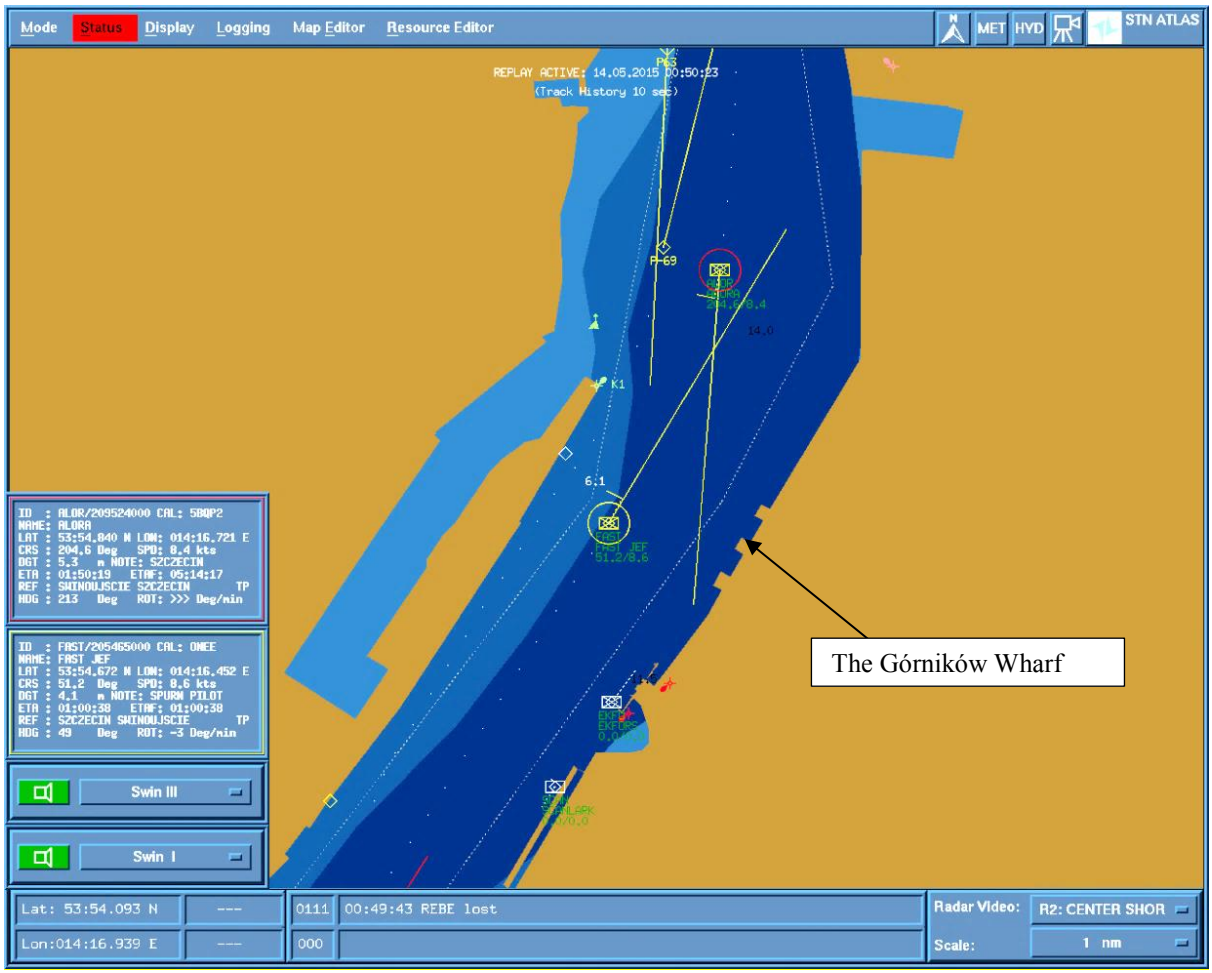


Figure 3: Radar image of Fast Jef and Alora 45 seconds prior to collision; distance between the vessels ca. 2 cables

The alteration of the course made by the pilot allowed "Fast Jef" to pass in front of the bow of "Alora" and to start going the ships past each other port to port in accordance with the COLREGS[1] rules, however it has not prevented the stern of "Fast Jef" passing by "Alora" at a distance of a couple of metres from adhering by suction to the hull of "Alora" and from brushing the vessels against each other. The collision occurred at the level of the northern end of the Wharf 13 (SAR) (Figure 4).

[1] The Convention on the International Regulations for Preventing Collisions at Sea, 1972, signed in London on 20 October 1972. (Journal of Laws of 1977 No. 15, item 61 and 62 and 1984. No. 23, item 106). COLREGS Rule 14 requires that each of the vessels going at reciprocal or nearly reciprocal courses involving the risk of collision, should alter the course to starboard so that each shall pass on the port side of the other. It is assumed that such a situation exists when a vessel sees another vessel in front or nearly in front of the bow and by night the vessel would see the mast head lights of the other in a line or nearly in a line and both sidelights. Such a situation occurred in the case of *Fast Jef* and *Alora* in the channel of Świna on 14 May 2015.

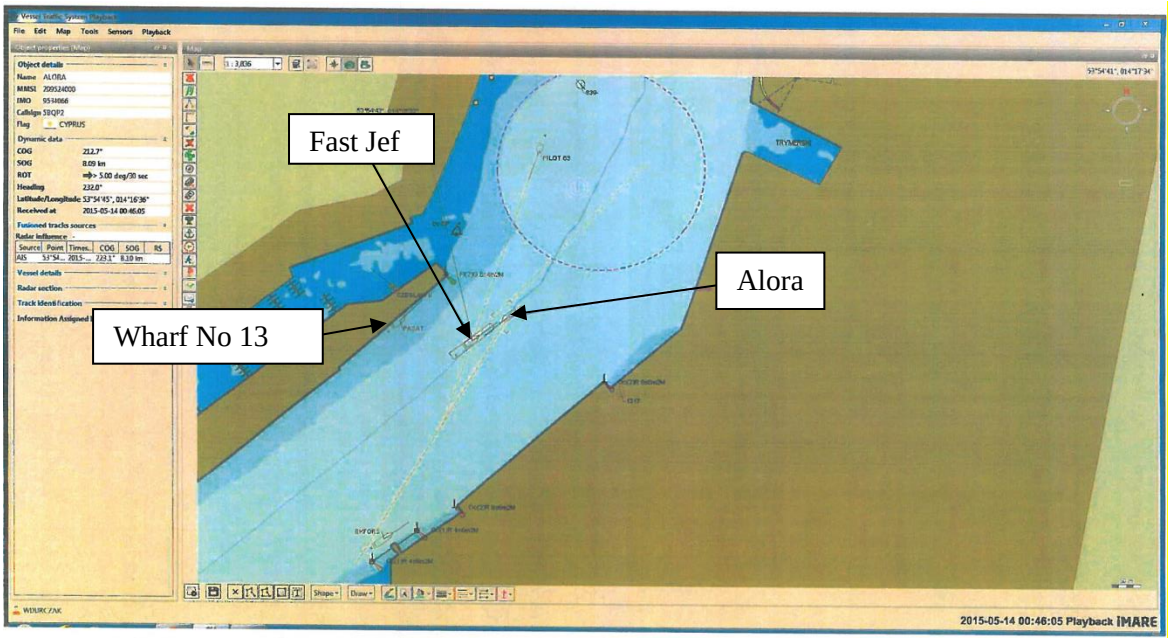


Figure 4: Image of AIS signals registered by VTS indicating the position of AIS antennas of Fast Jef and Alora a few seconds before the collision

As a result of the collision, apart from visible scratches of the paint in a place of contact "Alora" suffered a slight indentation in the hull in form of a strip ca. 2.5 meters long (Photograph 5). Four side frames in the belt were deformed – luckily, without cracks.

"Fast Jef" damages were more serious (Photograph 4). A detailed inspection conducted by the ship's class (BV) showed damage to the hull between the frames No 7 - 13 at the port side stern, as well as frames (Photograph 6), brackets and a transverse bulkhead on the frame No 10, above the waterline. Also, among other things, a porthole was damaged in one of the dwelling cabins (Photograph 7).

Photograph 6: Damage of frames and side in the stern locker of Fast Jef

Photograph 7: Damage to a porthole in one of the dwelling cabins at Fast Jef

4.1. The Analysis of the Evasive Manoeuvring of Both Vessels

The Commission found that, at the time when both vessels were within a short distance from each other on nearly reciprocal courses, “Alora” made a maneuver that aimed at increasing the distance between the passing vessels. At a distance of about 2 cables to “Fast Jef” the master of “Alora” turned the rudder 5° to starboard and the vessel slowly began changing her course to port. During that time, the pilot of “Fast Jef” estimated that the operation of “Alora” was insufficient for the vessels to pass each other safely. He decided that there was a risk of collision and changed the course to starboard to pass “Alora” port to port.

From the bridge of “Alora” one could see both side lights of “Fast Jef” and the change of position of her mast head lights indicated that “Fast Jef” was turning to port side.

In the opinion of the Commission, “Alora” could not make a more decisive change of the course to starboard to "facilitate" “Fast Jef”’s passage in front of the bow to the eastern side of the fairway, because such a change of the course could cause a collision with the Wharf No 13, being approached by the vessel. The master of “Alora” was maintaining the course and speed of the vessel in such a way as to keep a safe distance from the wharf and to go past “Fast Jef” safely. Despite that fact, the vessels dangerously approached each other.

When the bow of “Alora” was abeam of the bridge of “Fast Jef”, the pilot of “Fast Jef” turned the rudder to port but this manoeuvre did not prevent the uncontrolled movement of the “Fast Jef”’s stern towards the side of “Alora”.

“Fast Jef” did not have any limitations on its starboard when it comes to a safe navigating area, but as a result of the initial decision of the pilot to pass “Alora” with the starboard – which was incomprehensible from the point of view of the rules of traffic of vessels in the fairway[2], and in particular the COLREGS regulations applicable also in the internal waters[3] - she could not safely return to the eastern part of the fairway and caused - due to belated decision of the pilot to change the course to starboard - that the distance between passing vessels was only a few meters, which ultimately caused her stern to suck to the side of “Alora”.

[2] The guiding principle applicable in narrow channels is the principle of right-hand traffic. It arises from the provisions of COLREGS Rule 9a, which is the following: “A vessel proceeding along the course of a narrow channel or fairway shall keep as near to the outer limit of the channel or fairway which lies on her starboard side as is safe and practicable.” The application of this principle ensures transition allowing to avoid hazardous encounters with vessels on opposite courses.

[3] The obligation to comply with the COLREG provisions in the basin of the port of Świnoujście results from §3.1 of the order No. 3 of the Director of the Maritime Office in Szczecin of 26 July 2013. Port Regulations (Journal of Laws of the Province of Pomerania of 6 August 2013, item 2932).

4.2. The Influence of the Canal Effect on the Collision of the Vessels

The Commission considered that in the last stage of the manoeuvres, there appeared a phenomenon of interaction between the hulls of "Fast Jef" and "Alora" which resulted from the disturbance of the free flow of water along the passing vessels.

While maneuvering the vessel in limited waters, in channels, rivers and in deep fairways, one of the key factors that must be taken into account is the effect of asymmetry of flow around the hull of the ship. Increased hydrostatic pressure around the bow and the stern, and lowered one along the sides creates hydrostatic forces acting on the vessel's hull. These are repulsive forces at the bow and in front of the bow (bow cushion) and attracting ones along the sides (suction forces), increased at the stern by the suction force of the propeller. During navigation of the vessels in the axis of channel the distribution of forces is symmetric while moving away from the axis causes the asymmetry of flow around the hull and the increase of the hydrodynamic forces on that side, which is nearer to the side of the channel. As a result, the bow of the vessel is being repelled and its stern is being pulled closer to the nearer shore.

This effect must also be taken into account during the maneuvers of passing ships in the channels and fairways. During the encounter of two vessels there comes to the interaction of two distorted systems of waves. The size of forces generated is proportional to the speed of the vessels and inversely proportional to the distance between them[4]. Due to a limited width of the channel usually it is not possible to increase the distance between the vessels, hence a prominent limit of speed and a very careful observation of the vessels' reactions and proper control is always a basis of successful manoeuvres at the encounter of two vessels.

The reaction of one of the vessels on the movement of the other depends also on the ratio of the size of vessels. In the case of "Fast Jef" and "Alora" their reactions should be similar.

Passing maneuvers performed in the wide channels can be compared to the same maneuvers undertaken on shallow waters. When the vessels pass by each other at a distance not shorter than one length of a bigger vessel it is possible to overcome the forces of the asymmetry of the flow by turning the rudder to 15º. In the narrower channels, but those whose width is 14 times greater than the width of a vessel[5], passing requires a special manoeuvre[6].

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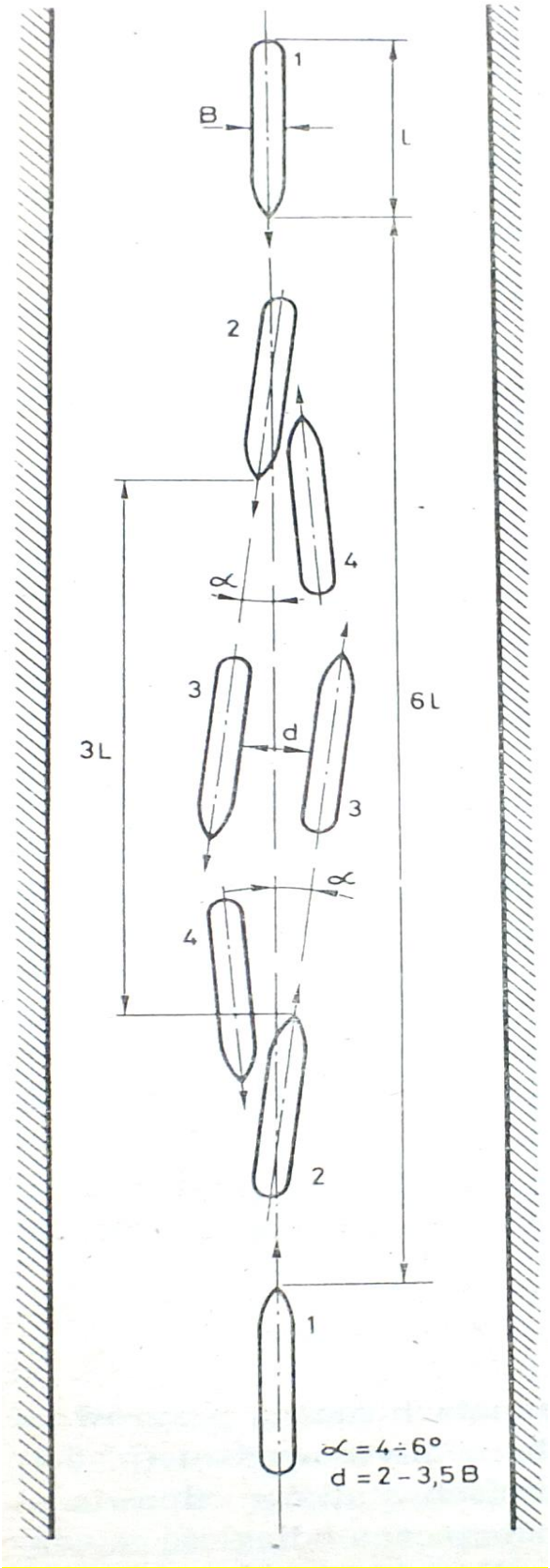
[4] A. Nowicki, *Wiedza o manewrowaniu statkami morskimi (eng. How to Manoeuvre Sea-going Vessels)*, Wydawnictwo Morskie, Gdańsk 1978, p. 391.

[5] For vessels such as *Fast Jef* or *Alora* such conditions are fulfilled by the channel of Świna in Świnoujście, which in its northern part (from the entrance between the heads to the Island of Mielino) is at least 1.2 cables (about 220 m) wide.

[6] Ibidem, p. 394.



In the channels which are wider than 14B the passing time of vessels moving at manoeuvring speed equaling 8-9 knots on the average can be assessed for 15 to 20 seconds, and the manoeuvring instructions (depicted by the silhouettes of vessels in Figure 5) are as follows:

- before passing each other, both vessels should be moving down the central part of the channel;
- when their bows are at the distance of six lengths of a vessel, each one turns the course to starboard by 4 to 6º;
- after this change the distance between the bows of the vessels equals just about three lengths of a vessel;
- new courses kept on both vessels cause that they pass by each other at a transverse distance between the sides of 2-3.5 B;
- at the point where the bow of one vessel passes the stern of the other, the course must be changed to port leading to the centre of the channel.

If the manoeuvre is performed in the above mentioned way, the passing distance resulting from the course changes does not lead to excessive departing from the axis of the channel. Also, the distance from each of the banks is not less than four widths of a vessel*.

* 14B - 1B - 3,5B - 1B = 8,5B / 2> 4B

Figure 5: The passing manoeuvre in a wide channel

In the case of passing of “Fast Jef” and “Alora” in the channel of Świna at night of 14 May 2015, the above mentioned passing manoeuvre could have been be carried out, because at the time when the vessels took notice of one another, the distance between them was about 920 m (5 cables) and the distance necessary for correct application of the manoeuvre is 540 m (6 lengths of a vessel). Yet, it was not used due to an incorrect position of “Fast Jef” which was located on the left side and not in the middle of the fairway. Besides, both vessels were taking a turn in the fairway in the vicinity of the turning basin at the Hutników Wharf.

4.3. Human Factors (fault and neglect)

The Commission recognized that an error of the pilot of “Fast Jef” leaving the port which consisted in leading the vessel to the western side of the fairway (which hampered proper passing manoeuvres with “Alora” coming from the sea) was a decisive factor influencing the collision of the vessels in the channel of Świna.

In the opinion of the Commission, both the masters and the pilots on both vessels undertook actions to avoid the collision too late. The pilot of “Fast Jef” noticed the other vessel at a distance of ca 5 cables, and the pilot of “Alora” noticed “Fast Jef” at a distance of almost 7 cables (when “Alora” was between buoys “D” and “E”) but both vessels started their manoeuvres not untill the distance between them was 2 cables.

The master of “Alora” did not call out by VHF the vessel “Fast Jef” moving on the wrong side of the fairway and did not ask about her intentions, nor he responded to the radio communicated suggestion of the pilot of “Fast Jef” concerning the way the vessels were to pass each other. This may indicate that there was no radio monitoring on “Alora” or a wrong channel[7] was being used.

The pilot of “Fast Jef” was too slow in changing the course to starboard. Such a manoeuvre carried out immediately after noticing the other vessel would allow to move safely to the eastern part of the fairway and to pass “Alora” safely.

The master of “Fast Jef” did not call a lookout to the bridge ready to carry out his orders[8], and let the pilot steer the vessel.

[7] In the channel of Świna a marine radio channel 12 VHF is used for monitoring.

[8] In the ship’s instruction No. IS-44 “Navigation in the narrow channels”, included in the Safety Management Book, the shipowner of Fast Jef has ordered to take the following preventive action during the navigation of the vessel in the narrow passages: “The A/B should be conducting visual observation and be ready to fulfill the orders of the master.”

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

The Commission concluded that navigational errors committed by "Fast Jef" leaving the port and the lack of proper reaction of "Alora" entering the port on abnormal behavior of "Fast Jef" in the fairway were the causes of the collision of "Fast Jef" and "Alora" in the fairway in the port of Świnoujście on 14 May 2015 at the level of the northern end of the Wharf No. 13 (SAR) and the Barkowe Wharf.

During navigation in the channel of Świna, "Fast Jef" violated the rules contained both in the COLREGS Rule 9 concerning the behavior of the vessel in a narrow channel (which undoubtedly is a passage from the heads of the port of Świnoujście to the exit from the Piastowski Channel to the Szczecin Lagoon), as well as COLREGS Rule 14 concerning the behavior of vessels which are meeting on reciprocal or nearly reciprocal courses.

Failure to follow by "Fast Jef" the rule of right-hand traffic within a narrow channel or fairway and navigating on the wrong side of the fairway has resulted in a dangerous situation in the fairway and difficulties in taking proper evasive maneuvers.

The pilot of "Fast Jef" took a risky and belated decision to change course to starboard and move in front of "Alora's" bow to pass the vessel at the port side. As a result, the vessel managed to turn to starboard but the vessels were dangerously close to each other and finally the stern of "Fast Jef" sucked to the side of "Alora" and the vessels brushed against one another.

"Alora" acted according to COLREGS Rule 14, she changed her course to starboard, but due to the limitations to safe navigation of the water basin on her starboard the vessel could not effectively prevent excessive vicinity. However, she should change the course, earlier than at the distance of 2 cables from "Fast Jef", as required by provisions of COLREGS Rule 8a[9].

Moreover, the Commission has ascertained that none of the vessels reduced their speed. It would have extended time necessary to assess the situation[10], and such high speed caused that the impact of the channel effect causing "Fast Jef" to adhere by suction to the side of "Alora", was really strong.

[9] The COLREG Rule 8a provides that: "If the circumstances permit, any action to avoid collision shall be positive, made in ample time and with due regard to the principles of good seamanship."

[10] In the COLREG Rule 8e it is provided that if it is necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken the speed, or take all way by stopping or reversing the means of propulsion."

6. List of Photographs

7. List of Figures

8. Glossary and Abbreviations

B – the width of a vessel

BHMW – (*Polish abbreviation*) Hydrographic Office of the Polish Navy

BV (*Bureau Veritas*) – classification society

COLREGS (*collision regulations*) – International Regulations for Preventing Collisions at Sea

LT - local time

SW - South West (*wind direction*)

UTC - Universal Time Coordinated

9. Information Sources

Notification about the accident

Hearing of witnesses

Documents of m/t Alora" and m/v Fast Jef

Recording of ships' movements by VTS Świnoujście

10. Composition of the Accident Investigative Team

The team conducting the examination was composed of:

the Team Leader - Krzysztof Kuropieska, a Member of the State Commission on Maritime Accident Investigation,

the Team Member – Tadeusz Gontarek, a Member of the State Commission on Maritime Accident Investigation.