



Investigation Report

C1/2011M

M/V STADIONGRACHT (NLD), Grounding off Rauma in the Gulf of Bothnia on 29th December 2010

Translation of the original Finnish report

This investigation report has been written to improve safety and prevent new accidents. The report does not address any possible responsibility or liability caused by the accident. The investigation report should not be used for purposes other than the improvement of safety.

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SUMMARY

The Dutch-flagged M/V STADIONGRACHT ran aground in the 10.0 metre-deep southern channel to Rauma at 00.15 on 29th December 2010. The grounding occurred in a position which is approximately 2.7 miles (5 kilometres) from the pilot boarding position in the direction to the port. A nine-metre shoal indicated by a lateral spar buoy is located in the area.

The STADIONGRACHT was just about to finish her voyage from Kotka to Rauma. She was carrying kaolin. After passing the pilot boarding position south of the Rauma lighthouse, the vessel proceeded towards the beginning of the 10.0 metre navigation line so that the Pilot could embark her. The Pilot was onboard VECHTDIEP and was coming to meet the STADIONGRACHT. A pilot cutter was waiting in the fairway in order to transfer the pilot from one vessel to the other.

The operator of the West Coast VTS had informed the STADIONGRACHT that the Pilot was coming to meet her and further that the pilot cutter was on her way. The STADIONGRACHT passed the pilot cutter and the outpiloted vessel and proceeded without stopping towards the tapering part of the channel. The Pilot saw the situation from the VECHTDIEP and contacted the VTS-operator by his mobile phone. The VTS-operator immediately called the STADIONGRACHT on a radio telephone and recommended that the vessel turn and wait for the pilot. The message was acknowledged by the STADIONGRACHT and she started a turn via port. During the turn the vessel ran aground and stopped.

The bottom of the STADIONGRACHT was seriously damaged, especially where the ballast tanks were located. There were no damages to persons or the environment.

It was found out in the investigation that the turn was made via port because the Master had various reasons to consider this direction better. The VTS-operator did not interfere with the turning direction of the vessel.

The STADIONGRACHT was manoeuvred past the pilot boarding position because the communication and the observation of the pilot cutter had led to the misconception that the Pilot was waiting onboard the pilot cutter and was going to board the STADIONGRACHT later, after the pilot boarding position.

It was found out in the investigation that the practice with reference to the pilot boarding positions is wide-ranging: passing the pilot boarding position and boarding the vessel later is not that unusual. The communication preceding the course of events between the VTS, the vessel and the Pilot was scarce and made misinterpretations possible.

The VTS has a high threshold to interfere with the navigating of vessels even in unusual circumstances.

The Safety Investigation Authority made three recommendations. It was recommended that the Maritime Department at the Finnish Transport Agency increased the efficiency of VTS operators' training thus aiming at encouraging operators to use their full authority. The Finnish Transport



Safety Agency was recommended to increase the status of pilot boarding positions: according to the law, the pilot can board/disembark a vessel elsewhere than at a pilot boarding position only in exceptional circumstances. Finnпилot Pilotage Ltd was recommended to draw clear instructions to pilots on the commencement and ending of pilotage by always using standard messages.

Finnпилot Pilotage Ltd and the Maritime Department at the Finnish Transport Agency have launched a joint project in order to create common working practices and make the communication of the actors more effective, which is to be regarded as a very necessary project.



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GLOSSARY OF ABBREVIATIONS AND ACRONYMS

Abbreviation/acronym	
AIS	Automatic Identification System
DSC	Digital Selective Call
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
DGPS	Differential GPS
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISM	International Safety Management Code
MRCC	Maritime Rescue Co-ordination Centre
OOW	Officer of the Watch
AIBF	Accident Investigation Board of Finland
STCW	Standards of Training, Certification and Watchkeeping
TEU	Twenty-Foot Equivalent Unit
VDR	Voyage Data Recorder
SIA	Safety Investigation Authority of Finland (OTKES in Finnish)
S-VDR	Simplified VDR
VTS	Vessel Traffic Service



FOREWORD

The M/V STADIONGRACHT, sailing under the Dutch flag, was on her way from Kotka to Rauma when she ran aground at 00.15 on 29th December 2010 after she had sailed past the pilot boarding position and proceeded without the Pilot to the narrowing part of the channel. At the time of the incident, the Master, the 2nd and 3rd Officers and the Helmsman were on the bridge.

When running aground, the vessel got tears in several ballast tanks and dents elsewhere in the bottom. The vessel was aground in her bottom.

The STADIONGRACHT did not have any immediate danger of sinking or capsizing, there was no need for evacuation and the vessel was not in distress. There were no environmental damages or leakages.

The preliminary investigation of the grounding was commenced on the day of the accident while the vessel was still aground. After receiving information of the accident, the Safety Investigation Authority of Finland (SIA) sent a notification to the vessel's flag state, the Netherlands, which informed that it will not make its own investigation and is prepared to assist in the Finnish investigation.

On 5th January 2011 the SIA made a decision to investigate the incident (C1/2011M), which initiated the commencement of the actual investigation. Investigator Matti **Sorsa** consented to be appointed as the team leader of the investigation group, and investigators Heikki **Koivisto** and Hannu **Martikainen** were appointed as members.

Refloating the STADIONGRACHT was started on 31st December 2010, and after the cargo had been lightened, she was towed to the Port of Rauma on 6th January 2011. The investigators visited the vessel after she had arrived at the Port of Rauma.

The Finnish and English drafts of the Investigation Report have been sent for statements to the authorities engaged in maritime safety, traffic control and pilotage, to the Pilot and to the shipping company and the Master on 16 August 2012. The Investigation Report has been finalised on the basis of these statements and it has been reviewed when this has been considered necessary. A summary was compiled on the basis of the statements, see Appendix 2. This Investigation Report has been translated from Finnish to English by Minna Bäckman.

The sources used in the investigation are filed at the SIA.

The time used in the Investigation Report is local time.

1 EVENTS AND INVESTIGATIONS

1.1 The vessel

The accident vessel STADIONGRACH is a dry cargo vessel completed on the Szczecin shipyard in Poland in the year 2000. The vessel is owned by the C.V. Scheepvaartonderneming STADIONGRACHT, and its ship management company is Spliethoff's Bevrachtingskantoor B.V. Both companies are located in Amsterdam, the Netherlands. The vessel is registered under Dutch flag.

1.1.1 General information

The name of the vessel	M/V STADIONGRACHT
Home port/registration port	Amsterdam/ Amsterdam
Construction place and time	Szczecin, Poland, Year 2000
IMO number	9202508
Call sign	PDBY
Owner	C.V.Scheepvaartonderneming Stadiongracht Amsterdam
Type	Dry cargo vessel
Classification society	Lloyd's Register
Class / ice class	LR + 100 A1, Finnish-Swedish A1
Length, max.	173.18 m
Breadth	25.30 m
Draught	10.73 m, 10.51 m winter
Gross tonnage	16,639
Net weight	6,730
Loading capacity	21,449 t, 20,775 t winter
Engine power	12,060 kW
Speed	18.5 knots
Propulsion	Controllable pitch propeller, 4 blades, Bow thruster 800 kW
Rudder	+/- 35°, 12 seconds from side to side

The general information of the vessel is based on the documents obtained in connection with the preliminary investigation, the vessel's registration and survey certificates, the Pilot Card and Marine Accident Report.



Figure 1. Photo of the accident vessel while she was aground. (Photo: LSMV)

1.1.2 Manning

When the STADIONGRACHT departed Kotka, she was carrying a multinational crew consisting of 17 persons. The Master, the Chief Engineer and the Third Engineer Officer were Dutch. The Officers (3), the Officer Trainee and other Engine Officers were Russian except for the Second Engineer Officer who was Estonian. The rest of the crew were Filipinos. The official working language of the vessel was English, but in practice other languages were used when necessary. The manning of the vessel was in accordance with the Minimum Safe Manning Certificate.

At the time of the grounding, the navigating bridge was manned by the Master, Second and Third Officers and one Deck hand. In addition, the Chief Engineer acted as the engine room watch. The Master, the Officers and the Chief Engineer had valid certificates of competency as required by the flag state administration.

1.1.3 Bridge and bridge equipment

In the front part of the bridge there is a straight console with workstations. One is for the person who manoeuvres the vessel and the other one is for monitoring purposes.

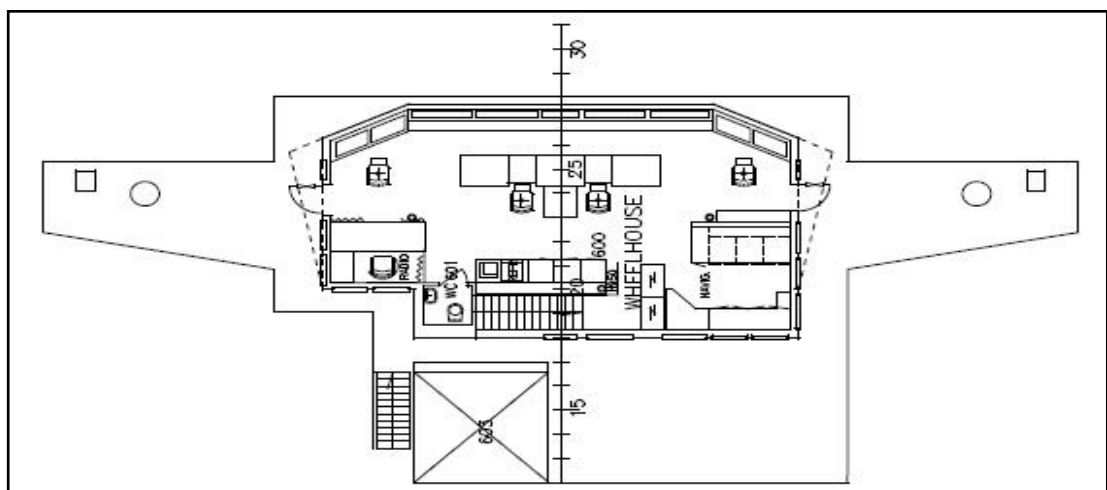


Figure 2. The general arrangement of the bridge.

Control devices for engines, propulsion and manoeuvring as well as a separate steering stand are located in the console in the middle, and this console is used by both workstations. On the fore side of the console there is an open walking space.



Figure 3. General arrangement of the bridge, control devices and steering stand in the middle console.

The control panels and sensor displays for communication appliances, lights, the audible warning device, the monitoring and alarming system and other important equipment are located in consoles in front of the middle console or in consoles placed in the ceiling.



Figure 4. The general arrangement of the bridge; portside workstation, radar display, control devices and control panels in the console.

There is a separate chart table and navigation space on the starboard side of the aft part of the bridge. Respectively, the radio station for distress and safety traffic (GMDSS) is located on the port side of the aft part of the bridge. The safety centre of the vessel is located at the aft of the bridge, at the top of the stairs.

1.1.4 Navigational and communication equipment

The following maritime and communication devices were in use and operational on the vessel:

Radar X-band (3 cm)	Kelvin Hughes	
ARPA display	Nucleus 6000 A	(* 2 devices)
Radar S-band (10 cm)	Kelvin Hughes	
GPS receivers	Furuno GP 90	(* 2 devices)
AIS transponder	Furuno FA-100	(*
Plotting echo sounder	Furuno FE-881	(*
Gyrocompass	Sperry	(*
Speed log	Ben Marine Calypso	(*
Automatic steering	Plath LMP STA	
VHF + DSC equipment	Sailor	(*
GMDSS equipment	Inmarsat-C T&T-3020C	duplex
Portable radio telephones	Sailor SP 3900	3 devices
Magnetic compass		

(* = connected to the S-VDR recorder)

1.1.5 Engines and the engine room

The vessel has one main engine, Wärtsilä 6L64. Three diesel generators and the main switchboard located in the upper engine room on the second deck.

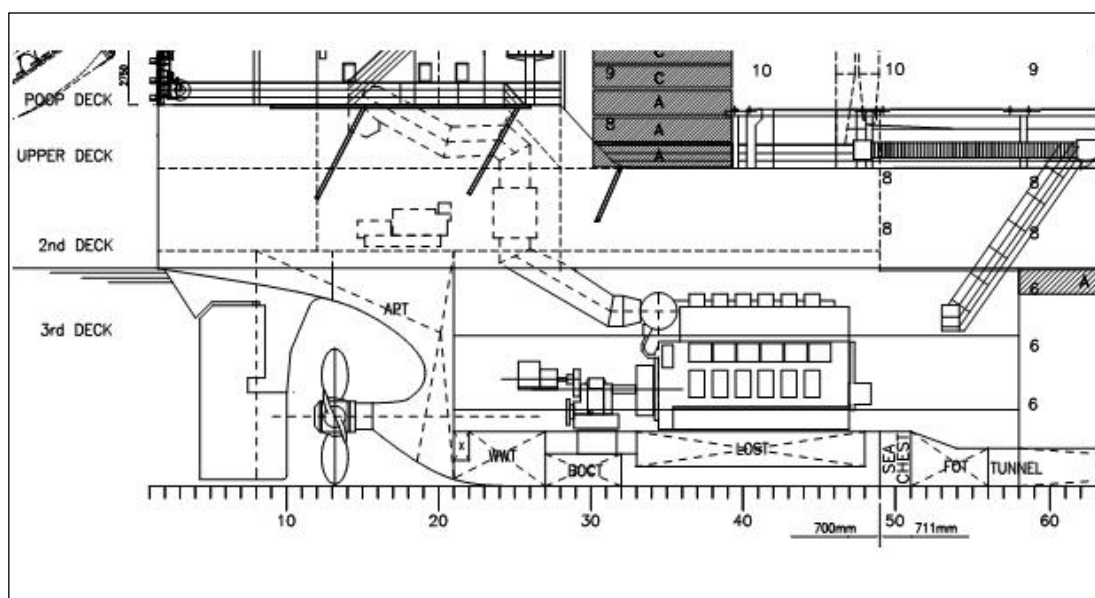


Figure 5. STADIONGRACHT's engine room arrangement.

1.1.6 Other systems

The other systems of the vessel were not of significance in the accident investigation.

1.1.7 Passengers and cargo

There were not any passengers on the vessel. The vessel was carrying 14,000 tons of kaolin, which is used in paper industry. Kaolin is not classified as a hazardous substance in the IMDG Code.

1.2 The accident event

1.2.1 Weather and ice conditions

The weather was fine at the time of the accident, the sea was calm and the visibility was good. Radar visibility was also good.

According to the ice report issued on 28 December, there was 10–30 cm thick fast ice in the Gulf of Bothnia archipelago. Further out there was new ice which stretched to the width of approximately 5–24 nautical miles.

Table 1. Meteorological observations in the accident area.

Position	Time	Temperature	Wind	Air pressure
Isokari	18.00	- 9.3°	090 / 4.6 m/s	1027.5 mbar
	21.00	- 9.6°	086 / 4.8 m/s	1028.3 mbar
	24.00	- 9.7°	095 / 4.4 m/s	1028.4 mbar
	03.00	- 9.5°	095 / 4.6 m/s	1028.5 mbar
Kylmäpihlaja	18.00	- 9.7°	078 / 4.8 m/s	1028.3 mbar
	21.00	-10.0°	080 / 5.0 m/s	1029.1 mbar
	24.00	-10.1°	086 / 4.9 m/s	1029.1 mbar
	03.00	- 9.7°	085 / 5.3 m/s	1029.2 mbar
Tahkoluoto	18.00	-10.0°	088 / 3.0 m/s	1028.5 mbar
	21.00	-10.5°	089 / 2.9 m/s	1029.1 mbar
	24.00	-10.7°	092 / 3.1 m/s	1029.3 mbar
	03.00	-10,2°	095 / 3.7 m/s	1029.1 mbar
Sea levels according to the Rauma tide gauge:				
	Time	cm		
	1800	-13		
	2100	-13		
	2400	-13		

1.2.2 Accident voyage and preparations for it

The vessel had arrived in Kotka on 24 December 2010. After discharging 4,500 tons of its kaolin cargo the vessel departed from Mussalo Harbour at 03.45 on 28 December 2010 towards Rauma, where she was supposed to be next morning in order to unload rest of her cargo.

The voyage from Kotka to the area off Rauma proceeded as usual; nothing different from normal routines occurred. According to the Master, the vessel and its crew had called at Rauma several times.

The voyage plan was drawn from Kotka to the Port of Rauma via the Sea of Åland. While the vessel was approaching Rauma, the British Admiralty Chart # 3415 was used in navigation¹. The voyage plan did not include alternative procedures to be applied e.g. in case the pilot did not embark the vessel at the pilot boarding position.

The vessel had ordered a pilot from Finnpiilot's Pilot Order Centre and reported to the VTS Centre according to instructions in force.

¹ Approaches to Mantyluoto and Tahkoluoto 1:50000

1.2.3 Scene of the incident

The vessel ran aground in the 10.0 metre-deep southern channel leading to Rauma in position 61° 06.57' N 021° 14.69' E, approximately 2.7 nautical miles after the pilot boarding position. The 9-metre shoal on which she grounded was marked by a lateral spar buoy².

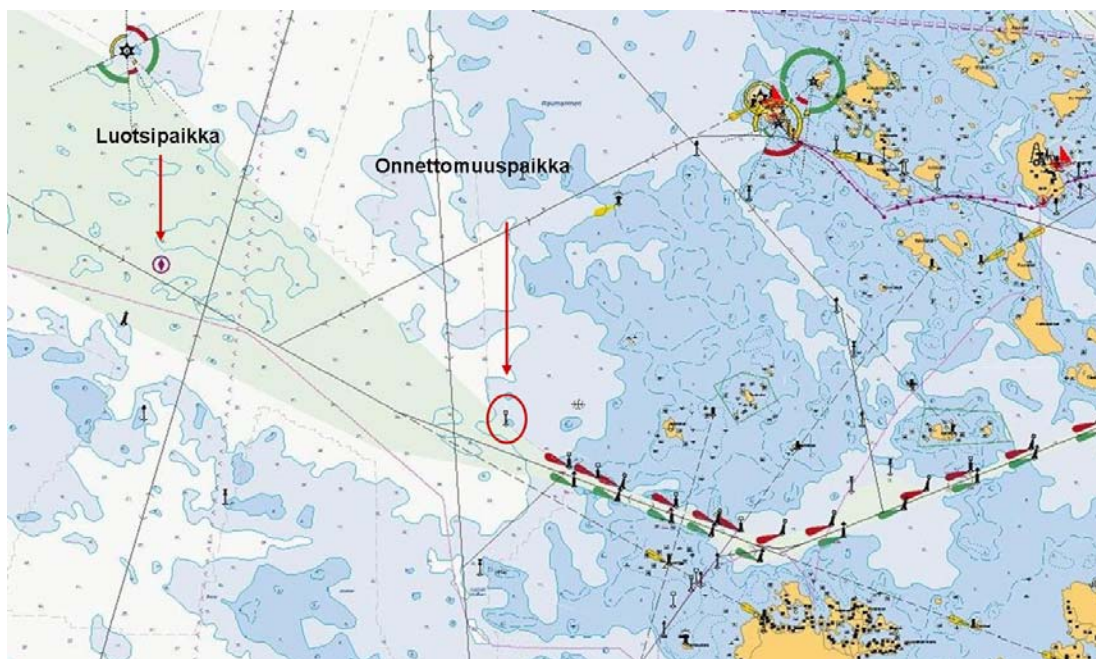


Figure 6. Accident area and position. (© The Finnish Transport Safety Agency)

Pilot boarding position

The southern pilot boarding position of Rauma (Rihtniemi) is located in the channel, approximately 2.4 nautical miles south of Rauma lighthouse.

1.2.4 The incident

At 22.00, when STADIONGRACHT was two hours from the pilot boarding position, the OOW notified on VHF to the West Coast VTS about arriving to the pilot boarding position. The VTS acknowledged the notification.

At 22.59 the vessel notified to the VTS that she had arrived at the VTS sector and requested for directions for the pilot ladder and enquired about the arrival of the Pilot. The VTS operator informed that the Pilot was on the way by saying: *“Pilot on the arrival and pilot ladder on starboard side 1½ metres above the waterline.”*

At 23.01 the Pilot, who piloted VECHTDIEP out from the Port of Rauma, reported that the vessel had departed. The Pilot intended to do a so-called double pilotage³ and transfer to STADIONGRACHT to act as her pilot, too. Before the VECHTDIEP had

² Santakari 1

³ The same pilot first pilots an outbound vessel to the pilot boarding position and transfers to an inbound vessel.

departed from the Port of Rauma, the pilot cutter had headed towards the pilot boarding position where the transfer of the Pilot from one vessel to the other was going to take place.

According to the Finnish Transport Agency, the VTS and the pilot duty service had agreed that the pilot duty service would notify about pilotages performed to both directions. This notification was, however, not made⁴. The VTS did not know at that point that the pilot was still onboard the outbound vessel. The pilot called the VTS by using his mobile phone and inquired about the situation. Only at that point did the VTS receive information about the pilot's whereabouts.

At 23.35 the STADIONGRACHT reported to the VTS that she was three nautical miles from the pilot boarding position. In connection with the acknowledgement, the VTS operator informed that the pilot cutter was on her way by saying: "*Stadiongracht 3 miles.*" "*Stand-by the boat is on the way.*" "*You should, You can see her in your radar screen.*" The STADIONGRACHT was then proceeding at the speed of 12 knots on a heading of 076 degrees. According to the Master, the vessel was arriving at the pilot boarding position approximately ten minutes earlier than what had been informed earlier. The pilot cutter L 134 was arriving at the level of Rihtniemi.

At 23.51, at the pilot boarding position marked on the chart, the STADIONGRACHT was proceeding at the speed of approximately 10 knots on a heading of 103 degrees. After passing the pilot boarding position, the vessel slowed her speed to approximately nine knots and continued on a heading of 121 degrees. This heading would take the vessel to the next navigation line, Urmluoto, 110.5 degrees.

The Pilot was on the deck of the VECHTDIEP when he used his mobile phone and called West Coast VTS at 00.08. He asked the operator whether the STADIONGRACHT was aware about the situation because she had already passed by the outbound VECHTDIEP onboard which the Pilot still was. The VTS operator immediately called the STADIONGRACHT on the VHF and informed that the Pilot was still on the outbound vessel and that the STADIONGRACHT should not proceed. In addition to this, the operator recommended that the vessel should be turned by saying: "*STADIONGRACHT the pilot is not left from the VECHTDIEP and you should not, you should not enter to the channel so I recommend that you to turn over*". The VTS operator did not issue any more detailed directions for navigation, e.g. which side should be used for making the turn.

The STADIONGRACHT acknowledged the recommendation, which the Master perceived as an instruction, and started a turn towards port. The turn started and the heading slowly changed towards port, but the true direction of movement of the vessel was towards east. After the heading had turned to port past north, approximately at 00.12, the vessel's direction of movement was to north-northeast.

The Pilot had monitored the turning of the vessel from the pilot cutter, and he suggested to the VTS operator on the phone, at 00.13, that the operator could recommendation the

⁴ According to the 17.9.2012 statement by the Finnish Transport Agency all phone calls of a VTS centre are recorded. This call cannot be found in the recordings and the VTS did not know that the pilot was still onboard the outbound vessel.

vessel to make a sharper turn to port. The VTS operator called the vessel immediately and said: “*Stadiongracht West Coast VTS - had you hard-over?*”, but the operator did not get any answer to this call. After this the vessel continued to turn, drifted onto the shoal, ran aground at 00.15 and stayed aground.

West Coast VTS inquired about the situation at 00.19 by asking: “*Stadiongracht – West Coast VTS - what is your situation?*” The vessel answered to this inquiry and informed that she was caught in ice. Based on the monitoring information and the nautical chart, the VTS operator informed the STADIONGRACHT that she had grounded on a shoal. At the same time he told that the Pilot was about to board the vessel.

A photo collage (Appendix 1) has been compiled on the basis of the VTS recording. It shows the position information of the accident vessel, pilot cutter and the outbound vessel, their reciprocal positions in the channel area.

1.2.5 Measures after the accident event

After finding out that the bottom of the STADIONGRACHT was aground, and that she was not caught in ice as was first presumed on the vessel, the Master initiated inspection and checking procedures in accordance with the Safety Manual of the vessel and at the same time activated the registration of the voyage history on the VDR.

On basis of the initial inspections it was be concluded that there were no injuries to persons, no fire, no list or leakages which could have led to environmental damages. After inspections had been carried out by the Chief Officer, it was discovered that the vessel had leakages at least in two ballast tanks. Also the pipe systems and the remote-control cables of valves had also been damaged.

1.2.6 Injuries to persons

There were no injuries to persons in connection with the grounding.

1.2.7 Damages to the vessel

In the inspections carried out immediately after the grounding, it was found out that the vessel had leakages in the ballast tanks on both sides of the keel. Water flowed out from the spill pipes of the ballast tanks onto the deck and into the sea. The leakages in the ballast tanks of the vessel did not affect the stability of the vessel and there was not any risk of her sinking. Only seawater leaked to the sea from the ballast tanks of the vessel.

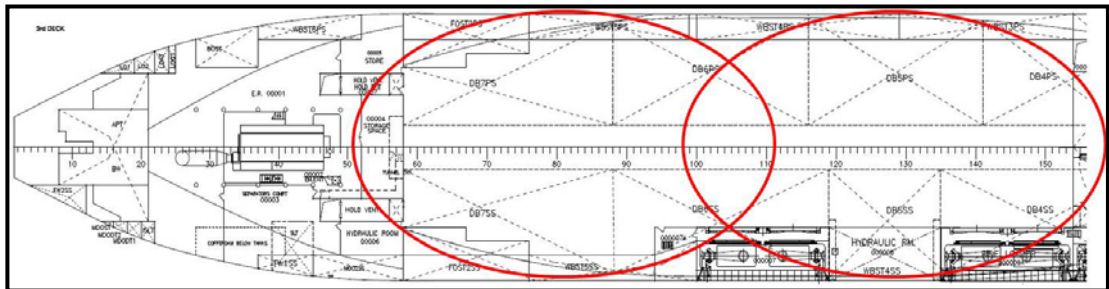


Figure 7. Damages to the vessel.

Divers later made inspections and took photographs underwater. It could be concluded that the vessel had, when grounding, got tears in her bottom and dents in the ballast tank area from frame 51 to frame 161. The vessel's propeller and rudder were not damaged.

When the vessel was in dock, considerable damages to the bottom, pipe systems, valve regulators and cables were discovered.



Figure 8. Damages to the vessel; tear in the starboard-side ballast tank.

Water flow in the terminal boxes damaged almost all valve regulators thus making it impossible to remote-control them. In addition, all the cables in the pipe tunnel either got damaged or became so wet that they were unfit for use.

While the vessel was in dock, altogether 153 tons of steel were replaced in her bottom, and 150 metres of pipe systems and over 5000 metres of cables were renewed.



Figure 9. Damages to the vessel; a fixed tear in the port-side ballast tank.

1.2.8 Other damages

No other damages.

1.2.9 Fire

No fire.

1.2.10 Navigational and communication equipment

Navigational and communication equipment has been described in 1.1.3.

1.2.11 Registration equipment

The vessel had a voyage data recorder S-VDR installed, and it was operational⁵. After concluding that the vessel was aground, the Master copied the recording on an external memory. However, due to the malfunctioning of the device, the recording did not succeed so the investigators did not have the voyage data from this source at their use.

West Coast VTS made a separate recording on the traffic situation, movements of the vessel and monitoring. This recording was obtained to be used in the investigation.

1.2.12 VTS and pilotage operations

The channels off Rauma are located in the West Coast VTS area of operation. The monitoring of the marine traffic and situation awareness with reference to the Rauma

⁵ S-VDR Danelec DM 200

channel area are obtained from the information transmitted by the radar sensors in the area and from the vessels' AIS information⁶.

The pilotage to Rauma channels is provided by the Bothnian Sea pilotage area. Many pilots operating in the area hold Pilot Licences also to other fairways in the area.

1.2.13 The port and port equipment and fairway equipment

The Port of Rauma is located on the coast between Uusikaupunki and Pori, in the Sea of Bothnia area. The port area is owned by the Port Authority of the Rauma Town. Private companies act as port operators. The port had altogether 1,296 port calls in 2010. The total traffic was 5.6 million tons, whereof 97 % was international transport. The share of export was 3.77 million tons. The most important products were paper and cardboard products, pulp, grain, sawn timber and miscellaneous general cargo. Raw wood, kaolin, general cargo and chemicals were the most important products to be imported; their volume was altogether 1.79 million tons. 165,000 container units⁷ carrying over 1.48 million tons of goods were transported through the Port of Rauma in 2010.

Channels to the Port of Rauma

Two channels used by merchant shipping lead to the Port of Rauma: the northern 7.5 metre Valkeakari channel and the southern 10.0 metre Rihntiemi channel. The Finnish Transport Agency is responsible for the maintenance of the channels outside the port area, where the Port of Rauma holds this responsibility. The ten-metre channel begins from the west side of the Rauma lighthouse and continues to the port. There are four navigation lines in the channel section, and their total length is approximately 14 nautical miles. The channel is illuminated and indicated by lateral marks⁸. The channel and its safety devices were operational when the accident occurred.

1.3 Rescue activities

1.3.1 Alerting activities

MRCC Turku received a notification of what had happened from West Coast VTS via telephone at 00.33 on 29th December. According to the notification⁹, a Dutch vessel had run aground off Rauma and suffered from leaks in her ballast tanks. There were not any oil spills on the vessel.

The MRCC contacted the vessel and inquired about the situation, the possible need for evacuation and the number of persons onboard. An answer was received from the

⁶ An AIS device is compulsory on all passenger vessels, on all 300 GT vessels in international traffic and on all 500 GT vessels in domestic traffic. The AIS system makes it possible to monitor the position and mobility factors of vessels from a fixed monitoring network and from other vessels.

⁷ TEU

⁸ Information from the fairway card.

⁹ Distress alert in the list of actions of MRCC Turku; the emergency was classified as an uncertain situation.

vessel which informed that she was not in immediate danger and that there was no need to evacuate the crew.

The MRCC alerted the patrol vessel TURSAS, which was then in the Northern sea area of the Kihti. In addition, the MRCC informed about the situation to a marine inspector¹⁰, to the duty officers of the Finnish Environment Institute and the AIBF and to the Satakunta Rescue Department.

1.3.2 Initialising rescue activities and salvaging the vessel

When it was found out that the STADIONGRACHT could not refloat unaided, the broker of the shipping company contacted a tugboat company in order to get assistance. This initialised the activities to refloat the vessel.

The VTS informed the MRCC at 21.04 on 29th December that the vessel had turned with the wind, which could mean that she was no longer fast aground.

In the afternoon on 30th December it became clear that the first tugboat, the PRIITTA, was ready to depart from Rauma to the scene of the accident with two divers onboard. In addition, two other tugboats, the MARS and the JUPITER, were about to depart from Tallinn to the scene of the accident. Their estimated time of arrival was 31st December.

The first tugboat to head for the scene, the PRIITTA, was trapped in ice in the port area, and she could thus not proceed to the scene of the accident as had been planned until the patrol vessel TURSAS cleared her from ice and towed her further out.

In the morning of 31st December the accident vessel had turned in the wind in such a way that her bow pointed towards the channel and her bottom was still aground. The vessel did not prevent the channel from being used. The Marine Inspector and the Pilot arrived at the scene of the accident on the same day.

When the two tugboats which had departed from Tallinn had arrived at the scene of the accident, the refloating operation was commenced at 15.20. These attempts were interrupted when the tow lines of both tugboats were broken.

The tugboats did not manage to refloat the STADIONGRACHT until at 11.10 on 2nd January after the vessel had been lightened. She was then anchored north of the 10-metre channel¹¹ so that more detailed inspections to her bottom could be made.

After the damages had been surveyed and the pump downs ascertained, the Marine Inspector granted permission to move the STADIONGRACHT. She was then towed to the Port of Rauma on 6th January 2011.

¹⁰ The VTS also informed a marine inspector of the situation.

¹¹ in position 61° 07.189' N 021° 13.641' E

1.4 Special investigations

1.4.1 Investigations onboard the accident vessel

After receiving information about the accident, the SIA started a preliminary investigation. The investigator who was working on the preliminary investigation was in contact with the Marine Inspectors, the Master of the vessel, the broker of the shipping company, the VTS and marine rescue operators, and with the Pilot on the day following the accident.

After the divers had performed the first underwater inspections and taken photos, a drawing was made on the bottom and hull structures in order to find out the extent of the damages.

Accident investigation onboard the vessel was not commenced while she was still aground. After the vessel arrived at the Port of Rauma, the investigators interviewed the Master of the vessel and thus heard about the course of events as told by him. The bridge equipment of the vessel was photographed, and the working order of the navigational instruments and radio appliances was ascertained and their certificates were checked.

The investigators received copies of useful documents in order to continue with the preliminary investigation. It was agreed that when it became certain that the vessel was going to the dock, the investigation work would be resumed, if necessary, together with shipping company representatives.

1.4.2 Technical investigation

The Investigation team has not made or ordered any separate technical investigations.

1.4.3 Organizations and management

Vessel traffic service

Vessel traffic services are provided on the coast in the fairways used by merchant shipping and in the deep-water route of Saimaa. The Traffic Management at the Finnish Transport Agency is the VTS authority operating the services. The Vessel Traffic Service Unit belonging to the Traffic Control Department is in charge of the VTS Centres. Their round-the-clock activities are led by VTS Centre supervisors, who have shift foremen and VTS operators under them.

West Coast VTS¹² is part of the Western Finland VTS Centre. Its area of operations covers the coast of the Sea of Bothnia in the Rauma and Pori VTS sectors.

¹² The Centre is located in Kallo, in Pori

Pilotage services

Finnpilot Pilotage Ltd (hereafter referred to as Finnpiilot) provides pilotage services in the Finnish territorial waters on fairways with compulsory pilotage. Finnpiilot's operative pilotage services are managed by the Pilotage Director, and six District Chief Pilots on six Pilotage Zones with altogether 25 pilot stations work under him/her. According to the law, each pilot is responsible for the actual pilotage taking place on the vessel.

Shipping company

The accident vessel is owned by C.V. Scheepvaartonderneming Stadiongracht and Spliethoff's Bevrachtingskantoor B.V. acts as its ship management company. Both are located in the Netherlands.

Spliethoff Group, founded in 1921, is the largest shipping company in the Netherlands. It owns and operates over 100 vessels, which all sail under the Dutch flag.

1.4.4 Other investigations

Hearings

The Master of the STADIONGRACHT has been interviewed three times; first by phone, immediately after the accident in connection with the preliminary investigation, and then later when the vessel was in the Port of Rauma on 10th January 2011. Third time was later when the Master was visiting Rauma with another vessel of the same owner on 1st November 2011.

The written statement given by the Master and the interview with him and his answers to written questions have provided a description of the accident voyage, communication with the VTS and the actions taken by the crew in connection with the accident and after it.

One remark in the inspection protocol of the Finnish Transport Agency, written on the scene of the accident, was that the Master must give a maritime declaration to a maritime court within a suitable period of time. No maritime declaration has been given during the investigation.

The investigation group has interviewed and questioned various parties in charge of seafaring and engaged in its operations:

1.2.2011	Finnpilot	District Chief Pilot	Rauma
15.2.2011	Finnish Transport Safety Agency	Maritime Safety Department	Helsinki
1.3.2011	Finnish Transport Agency	VTS Centre supervisor	Turku
5.4.2011	Finnpilot	Pilotage Director	Helsinki
10.5.2011	Finnpilot	Pilot	Naantali
11.5.2011	West Coast VTS	VTS operator	Mäntyluoto
1.6.2011	Finnish Transport Agency	Vessel Traffic Services Unit	Helsinki

1.5 Rules and regulations guiding the operations

With reference to rules and regulations, the STADIONGRACHT accident is related to pilotage and vessel traffic services. There are international and national regulations on them.

1.5.1 International agreements and recommendations

IMO guidelines regarding pilotage and vessel traffic service

The piloting guidelines issued by the IMO are neither homogenous nor comprehensive. There are instructions only on preparing a voyage plan, bridge co-operation and going through vessel information prior to commencing pilotage. In addition to this, the STCW 95 Resolution defines inter alia the basic information concerning pilotage which is to be included in the training of Master Mariners¹³.

The principles guiding VTS services have been described in several IMO documents¹⁴ which are based on the IALA (International Association of Marine Aids and Lighthouse Authorities) recommendations.

¹³ Resolution A.960(23), 5 December 2003. Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots.

¹⁴ SOLAS Regulation V-12 "Vessel Traffic Services", IMO Resolution A.857(20) Guidelines for Vessel Traffic Services, IMO Resolution A.851(20) General Principles for Ship Reporting Systems and Ship Reporting Requirements, Resolution MSC.43(64) Guidelines and Criteria for Ship Reporting Systems, IMO Resolution A918(22) IMO Standard Marine Communication Phrases, IALA Vessel Traffic Services Manual (2008)

1.5.2 National legislation

In Finland the authority responsible for pilotage is the Pilotage Authority at the Finnish Transport Safety Agency. More detailed rules and regulations are based on the Pilotage Act (1050/2011).

The Traffic Management at the Maritime Department of the Finnish Transport Agency is the authority responsible for VTS services in Finland. More detailed rules and regulations are based on the Vessel Traffic Service Act (623/2005).

1.5.3 Regulatory decisions and instructions

In Finland there is nowadays no authority who would issue instructions applicable on the actions of a single pilot when he/she is piloting a vessel on the navigating bridge.

The Finnish Transport Safety Agency observes the compliance with the Pilotage Act and with the provisions and regulations issued under the Pilotage Act. It has also published regulations on channels with compulsory pilotage and on pilot boarding positions.

The Vessel Traffic Services Unit at the Finnish Transport Agency issues rules and regulations governing vessel traffic services and supervises the compliance with the Vessel Traffic Service Act and the orders and regulations issued under it.

1.5.4 The operator's orders

The Internal Operations Manual¹⁵ of the VTS Centre defines the duties related to operational activities and to the maintenance of technical systems. It also deals with internal and external lines of action and measures to be taken to maintain vessel traffic services in exceptional situations.

The guidelines the West Coast VTS gives to its clients are compiled in a publication called the Master's Guide. It can be downloaded on the homepages of the Finnish Transport Agency.

The operator responsible for pilotage services in Finland, i.e. Finnpiilot, had neither issued detailed procedural instructions or pilotage regulations nor had it published any operations manual at the time of the incident.¹⁶

¹⁵ IALA Recommendation V-127 "On Operational Procedures for VTS", 2004

¹⁶ Finnpiilot issued a pilotage instruction on 1.10.2011, and the instruction in question was last updated on 3.5.2012.

1.5.5 Quality systems

Spliethoff

The quality and management system of the shipping company is based on the international ISM Code, which defines the documentation and measures required by the vessels and which has to be checked at regular intervals. The personnel are trained and their knowhow is maintained in accordance with valid regulations.

Finnpilot

The state pilotage enterprise did not have any quality system when the accident occurred. Neither the authority responsible for pilotage nor the clients have so far required such system.

Finnpilot has, however, in its use a deviation report related to the reporting of pilotage operations. It can be used to register possible deviations from the normal practices after each pilotage operation. The classification of deviations may include e.g. a technical failure onboard the vessel, a close call, collision with a quay, collision with a navigation mark etc. The deviations are discussed at station meetings and when necessary, they are made known to a larger number of persons through intranet.

Finnish Transport Agency / VTS

The unit providing Vessel Traffic Services did not have any quality system when the accident occurred.

2 ANALYSIS

2.1 The starting point of the analysis

The objective of accident investigation is not only to find out the immediate cause of the accident but especially to shed light on contributing factors and background factors, which can be found e.g. in organisations, instructions and working methods.

The basic idea of the analysis of this incident has been to study the factors due to which the Finnish maritime safety system did not succeed in preventing the grounding of the STADIONGRACHT. Both pilotage operation and monitoring of the vessel traffic from the VTS centre were included in the incident. Even if the accident was not directly caused by any of the parties involved, it should have been possible to prevent the accident considering the resources and assets invested by the society into accident prevention. The particular emphasis of the analysis is on the communication between the various parties and on the background factors of this communication.

2.2 The inconsistency between regulations and practices on the piloted channels and the VTS area

It has become clear in the investigation and the discussions carried out with both the authorities and operators that the prevailing approach when defining practical measures considered to be normal in relation to the legislation in force is remarkably lax and varies from person to person.

Section 21 (3) in the Pilotage Act states that the Finnish Transport Safety Agency issues regulations on piloted fairways and on pilot boarding positions. The Finnish Transport Safety Agency lists in its bulletin all piloted channels by their starting points. These channels have compulsory pilotage, and neglecting this is a pilotage offence for which a fine can be imposed¹⁷. However, in practice vessels proceed into these channels without a pilot even though they are not exempted from pilotage (one of the crew members holding a Pilotage Exemption Certificate) nor have they being granted exemption. The VTS or pilots cannot grant permission to such a vessel to proceed in the channel with compulsory pilotage e.g. on radio. Only when the weather or ice conditions require, the pilot can, by agreement with the master of the vessel, board the ship or disembark the ship outside the pilot boarding position of the piloted channel.

However, for example the Master of the STADIONGRACHT told that according to his experience it is usual that pilots board the vessel at different points, not always at the pilot boarding position. He says that this happens not only in the Rauma channel but also in other channels in Finland.

¹⁷ Respectively the Vessel Traffic Service Act, section 29, mentions *vessel traffic service violation*.

The SIA is aware of similar practices applied in connection of other accidents¹⁸. If it is to be suspected that this practice occurs frequently, it would be advisable for the Finnish Maritime Safety Agency to look into how widespread the practice is. It is understandable that there is no willingness to intervene with the prevailing practice because it could possibly make the sea traffic less fluent.

When the pilot is possibly late, vessels' masters may have commercial pressures not to wait for his/her arrival. Confusion related to the boarding or disembarkation of pilot has contributed to accidents at least in five previous investigated cases.

The central factor in the boarding/disembarkation of a pilot is how information travels between the pilot organisation, the VTS organisation and the piloted vessel.

After a long and multiphase line of development the Finnish Maritime Administration issued a new Pilotage Instruction in the year 2000. Section 5 in the instruction read as follows:

“Agreeing upon the pilot boarding and/or disembarkation position

If the pilot, due to special circumstances, boards or disembarks the vessel at another point of the fairway than at the pilot boarding/disembarkation position, he/she must agree upon this with the Master of the vessel and with the Pilot Duty Officer or the VTS Centre.”

The Finnish Maritime Administration, however, revoked the instruction from the list of decisions in force in the beginning of 2004. Concerning pilot boarding/disembarkation position the situation has become more complex as the pilot duty service was transferred to the State Pilotage Enterprise and later to Finnpiilot in connection with organizational changes. Many VTS operators have criticized the fact that they do not any longer always know at which point of the channel the pilot boards the vessel. The situation can also be complicated by the practice in which the pilot transfers from an outbound piloted vessel to an inbound vessel.

The question about the starting moment of pilotage is also related to this matter. In the hearings the investigation group has received numerous and conflicting interpretations of section 9 in the Pilotage Act. Subsection 2 in section 9 states first that pilotage starts when the pilot has boarded the vessel. In the view of all parties concerned, this leaves no room for interpretation. Any instruction which is given to the vessel from ashore, from another vessel or e.g. from a pilot cutter is not pilotage. The pilot is only a passenger of the pilot cutter when on his way to the vessel to be piloted.

After this the Pilotage Act states that pilotage commences when the pilot has started the pilotage. According to section 2 in the Pilotage Act, pilotage refers to operations related

¹⁸ Investigations M2012-02 (PHOENIX J), M2012-01 (BARENTSZDIEP), C5/2009M (EMSRUNNER), C3/2008M (ANNE SIBUM) and C1/2008M (OOCL NEVSKIY). The completed investigation reports are available in the address www.turvallisuustutkinta.fi.

to the manoeuvring of vessels in which the pilot acts as an advisor to the master of the vessel and as an expert on the local waters and their navigation.

This almost constitutes circular reasoning. Pilotage starts when pilotage has started. The starting point of the activity in question varies depending on the pilot and the situation, and is in any case documented in a vague manner. In some cases pilots inform about the starting and ending of pilotage to the VTS, but the practice varies and there are no consistent guidelines. In the pilotage instruction issued on 1 October 2011, i.e. after the accident took place, it is concluded that pilotage starts when the pilot informs that it starts. Vessels also employ varying practices concerning e.g. entries into the log-book on the commencement of pilotage. The situation can be difficult when something unwanted occurs and it is unclear whether the vessel was piloted or not.

When a vessel proceeds past the pilot boarding position there is currently no unambiguous definition on when such a situation arises that a vessel is piloted without the authority prescribed in the law or compulsory pilotage is neglected which constitutes a pilotage offence. It is quite understandable that vessels' masters in that case take advantage of this unclear situation and proceed to the channel area, where they are, however, no longer capable to manoeuvre the vessel in a safe manner. This leads to situations like the one now under investigation, in which one single mistake in decision-making concerning the turning of the vessel destroyed the very thin safety margin.

The Vessel Traffic Service Act stipulates that vessel traffic services include issuing notices and providing navigational assistance service (NAS) as well as vessel traffic management. Notices include the information given to the vessels on e.g. other traffic and pilot operations. However, in the investigated case and expert hearings it has become evident that even these practices vary quite a lot.

In the situation now under investigation the VTS did not inform that the Pilot was on the outbound vessel then being piloted, and that his intention was to transfer from one vessel to another. The crew of the STADIONGRACHT thus remained under the impression that the Pilot was on the oncoming pilot cutter, on the movements and position of which the vessel had real-time information.

After the STADIONGRACHT had continued her voyage past the pilot cutter, she did not receive any further information until the Pilot contacted the VTS operator and wondered why the vessel behaved as she did. Only after this did the VTS tell that the Pilot was still onboard the VECHTDIEP and recommended that the STADIONGRACHT stopped proceeding and turned. However, according to the law¹⁹, a potential dangerous situation had already arisen when the vessel proceeded to a narrow part of the channel without pilotage.

Navigational assistance is given to a vessel which has been identified either at the vessel's request or on the initiative of the VTS²⁰. The definition is loose and the decision

¹⁹ Vessel Traffic Service Act, Section 5

²⁰ Vessel Traffic Service Act, Section 6

of the VTS depends to a large extent on the activeness of the respective VTS operator. E.g. warnings or information about the vessel's position in relation to the navigation line or the turning point corresponding with the VTS route plan can be given as navigational assistance.

Even this part of the law text leaves a lot of room for interpretation, and if the VTS operator has a high threshold to intervene with the navigation of the vessel, such a situation may arise in which the vessel does not receive the services it needs and is driven to a dangerous situation.

The operators' activity practices vary far too much depending on the experience and attitude of the operator-in-charge. There are not any uniform and clear instructions for all VTS areas. With reference to certain details, the wordings concerning navigational assistance differ from the law text e.g. in the Master's Guide document intended for clients and on the other hand in the operations manual of the VTS Centre.

In connection with the investigated case it became clear that the limits of the freedom of action of the VTS were unclear to the Master of the accident vessel. He states that the VTS ordered the vessel to turn around. The Master acted according to what he considered to be an order without questioning whether the VTS was authorized to issue one or not.

2.3 Co-operation in the piloted channel

It has emerged during the investigation that the grounding was in all probability connected to questions relating to co-operation and especially communication. There were at least three, maybe four communicative parties. In addition to the vessel's crew, the Pilot, who was preparing to pilot the accident vessel after being released from piloting the outbound vessel, the VTS operator and possibly also the Skipper of the pilot cutter were included in the course of events. All these parties had an adequate number of communicative devices at their disposal. All parties also had situational awareness, which, however, was not uniform.

IALA Guideline 1068 – "Provision of a Navigational Assistance Service by a Vessel Traffic Service" (2009) states in section 3.2 Interaction between a VTS and a vessel/3.2.3 "Delivery of Navigational Assistance" e.g. that:

In providing navigational assistance it is important that the interaction from a VTS centre to assist the onboard decision making is conducted in a timely manner, is unambiguous and clearly understood by both parties and is not open to misinterpretation.

In the investigated accident it would have been possible to use communication to create uniform situational awareness and it should have been used for this purpose.

According to the Finnish Transport Agency, it has been agreed by the VTS and the pilot duty service that the pilot duty service notifies about pilotages in both directions. This notification was not, however, made. All phone calls to and from a VTS centre are

recorded and such call could not be found in the recordings. The VTS did not know that the pilot was still onboard the outbound vessel. The pilot phoned the VTS by using his mobile phone and inquired about the situation. Only then did the VTS receive information about the pilot's whereabouts.

In general, communication failures primarily consist of inadequate communication and of the wording of the contents of the message. In this particular case, both can be found. When the vessel reported, the VTS operator issued the information that the Pilot was meeting the vessel ("Pilot on arrival."). From the operator's point of view this message about the situation was precise enough. He saw no need to specify that the Pilot was not onboard the pilot cutter but onboard the outbound vessel. The STADIONGRACHT's crew made observation of the pilot cutter and connected the received message with this observation, which was logical. The Pilot saw no need to interfere with this communication, because from his point of view the situation was clear or he possibly did not even hear the discussion. When the STADIONGRACHT proceeded past the pilot cutter, the vessel did not ask for more details but expected the pilot cutter to turn towards her.

When the STADIONGRACHT and VECHTDIEP had passed each other and the Pilot noticed that the STADIONGRACHT proceeded towards the narrow part of the channel, the Pilot expressed his surprise about the situation to the VTS on his mobile phone. The Pilot also asked the operator to monitor the vessel's movements and to advise the vessel not to proceed further. Because the Pilot was on the deck of the VECHTDIEP when using his mobile phone, this discussion was not heard on the STADIONGRACHT.

The VTS operator reacted without delay and informed the STADIONGRACHT about the situation or gave navigational assistance to her. Which service was used remained unclear, because the appropriate indicator, a so-called Message Marker, was missing from the beginning of the message. In any case, the STADIONGRACHT interpreted the message as a clear instruction, which was carried out without any questions.

The VTS operator chose the contents of his message to be turning back and used the expression "turn over", which as such is not a standard expression but which was understood on the vessel. The VTS did not define the direction of the turn, because from the operator's point of view, due to local knowledge, it was obvious that the turn should be made towards starboard.

The situational awareness was not as good on the vessel, and the Master turned to port, which in his opinion was a logical manoeuvre. He had several reasons to do so. The STADIONGRACHT turns better to port. In addition, the aim of the Master was to get into the line for outgoing traffic after the turn had been completed. Moreover, the Master told that he could see ice on the starboard side of the vessel in the moon light. He had also experienced that pilots never steered vessels to the south side of the channel. Later on the Master told that ice hampered the turn to port; the motion of the turn slowed down and the turning radius increased. Furthermore, despite attempts, the unlit lateral mark was not noticed from the bridge.

The VTS operator noticed that the turn started to port but he did not interfere with the situation because he was of the opinion that the intervention would only increase the risks.

A passive approach to communication can be seen all along the line in the course of events, and this probably reflects the prevailing practice. Monitoring and managing the situation included plenty of presumptions concerning the situational awareness of and measures taken by the different parties.

In addition, the contents of the messages did not follow standards. Loose general language was used instead of wordings which would have been unambiguous and only had one interpretation. The communicative effect was not adequate to manage the situation.

The abovementioned IALA document states as follows: *“IMO Standard Marine Communication Phrases should be used where practicable”*²¹.

2.4 Co-operation of organizations

The cornerstones of Finnish maritime safety include, in addition to safe channels, at least pilotage, vessel traffic services and assisting marine traffic in winter conditions. In the legislation regulating both pilotage and vessel traffic services, the objective of both of them has been defined as the promotion of vessel traffic safety and prevention of environmental damages. Both services thus have an identical objective.

In the present situation these services function, however, separate from each other. In addition to having different operators they have different organizational background. Vessel traffic service is operated by authorities under the lead of the Finnish Transport Agency. Finnpilot Pilotage Ltd is exclusively responsible for arranging pilotage under the Act on transforming the State Pilotage Enterprise into a Limited Liability Company (1008/2010).

As to co-operation, the view emphasized by the pilots themselves affects the situation. According to this point of view the pilot performs the piloting of a vessel independently on his/her own responsibility. This approach means that the employer of the pilot is not responsible for the pilotage.

The Finnish Transport Safety Agency supervises that the Pilotage Act and rules and regulations issued under it are observed. The Finnish Transport Safety Agency takes care of those duties related to pilotage which do not belong to Finnpilot. These duties include issuing pilot licenses and Pilot Exemption Certificates and being in charge of the examinations connected with them, granting pilotage exemptions, exceptions to compulsory pilotage and the obligation to offer pilotage, granting Baltic Deep-Sea Pilot's Licenses and administering the examinations connected with them.

²¹ IMO Resolution A.918(22) IMO Standard Marine Communication Phrases.

The Finnish Transport Safety Agency does not supervise vessel traffic services as this belongs to the Ministry of Transport and Communications.

When it comes to co-operation, the situation is challenging. The operators have different organizational backgrounds and different superiors and instructions. In fact, the pilots perceive themselves as somehow being autonomous actors without any superiors when performing pilotage. Authority supervision is fragmented.

The fact that the Boards of Directors of Finnpiilot and the Finnish Transport Agency held their first operative cooperation meeting in April 2011 to find common practices can be seen as positive development.



3 CONCLUSIONS

3.1 Findings

Neither the condition of the vessel nor weather or ice conditions affected the grounding of the M/V STADIONGRACHT. In addition, all persons involved in the incident were qualified in their duties and fit for work. The crew's actions did not deviate from safety routines or good professional practices. Communication from the vessel complied with instructions and the vessel followed the instructions given by the VTS.

The 10-metre Rauma channel was familiar to the Officers from before and its aids to navigation were in perfect condition. The Master of the vessel did not hold Pilotage Exemption Certificate for the channel in question.

The measures taken after the grounding were performed in due form.

While the vessel was waiting for refloating and towage to port for several days, it was not of any obstruction to the use of the channel nor did it constitute any environmental hazard.

3.2 Causes of the incident

The direct cause of the grounding was the Master's decision to turn the vessel towards port. The decision was influenced by the fact that the Master wished to turn the vessel directly to the side which the outbound traffic usually uses in the channel in question as well as his conception of the ice situation and the manoeuvrability of the ship.

The vessel was manoeuvred to the narrowing part of the channel past the pilot boarding position without the Pilot, and not until the VTS operator interfered was the proceeding into the narrower part of the channel interrupted.

The vessel sailed past the pilot boarding position ten minutes earlier than had been reported in the prior notice. The crew of the vessel was under the impression that the Pilot was onboard the oncoming pilot cutter, which had been observed. According to the prevailing practice, the vessel continued to proceed and expected the pilot cutter to come next to her so that the Pilot could board the vessel.

Wrong situational awareness based on radio discussions and traffic observations dominated on the STADIONGRACHT.

Background factors contributing to the accident event included also inadequate and on the other hand ambiguous communication with the vessel. Neither the IMO Standard Marine Communication Phrases nor the so-called Message Markers were used.

3.3 Other safety observations

It has emerged in the investigation that both authorities and operators have remarkably lax attitudes towards the status of the pilot boarding positions as prescribed by law.

The starting of pilotage when an inbound vessel is piloted is inadequately defined and documented, which can lead to confusion as to whether the vessel is under pilotage or not.

The threshold of the vessel traffic service to interfere with the traffic is unnecessarily high and varies from one operator to another.

The organizational situation lies behind the detected communicational problems. Vessel traffic operators and pilots who strive towards common goals have been placed in separate organizations and under different management systems, and the instructions they have are not coherent.

4 IMPLEMENTED MEASURES

Cooperation between Finnpilot and the VTS. Finnpilot and the Finnish Transport Agency have launched a joint project in order to establish common practices. The Boards of Directors of both parties held their first co-operation meeting in April 2011. It was preceded by an operative meeting held by the operative levels. In the future, the objective is to have two-level meetings with regular intervals. The operative working group²² aims at compiling such measures which have proved to be efficient in improving safety and looks for a considerable improvement in the communication between VTS centres and pilots.

This work was started up in the Helsinki pilotage area and it will be extended to the other pilotage areas in Finland. Good practices have been considered in the cooperation document on the pilot boarding positions in the Sea of Bothnia, e.g. concerning the VTS's wishes to pilots and vice versa. In addition, the document deals with factors which are specific for certain pilot boarding positions and certain viewpoints with reference to pilot order services²³.

Finnpilot does not have a quality system. Finnpilot was audited by the DNV on 2 December 2012 and thus Finnpilot now complies with the ISO:9001 quality standard.

The Finnish Transport Agency concludes in its statement that **an English-language working group has been launched at the Vessel Traffic Services Unit** at the beginning of 2012. The working group has started to structure language training for VTS operators. This training also includes compiling action cards for various situations. This means that the phraseology will be harmonised on different traffic areas.

²² The supervisor of VTS, shift foremen, district chief pilot and pilots

²³ FINNPILLOT and VTS cooperation, pilot boarding positions in the Sea of Bothnia 7.5.2012.



5 SAFETY RECOMMENDATIONS

In addition to the Vessel Traffic Act, the operational boundaries of vessel traffic service have been defined in the IMO and IALA documents. In practice the VTS operators over-respect the authority and responsibility of the vessels' masters, which can lead to an unnecessary high threshold to interfere with traffic situations.

The Safety Investigation Authority recommends to the Vessel Traffic Services Unit at the Finnish Transport Agency that:

1. *The training and instructions given to VTS operators encourage them to use their full authority when the situation thus requires and engage in active communication to interfere in the course of events early enough.*

In practice, the notion of how important a pilot boarding position is varies between seafarers and authorities. This can lead to a situation in which vessels to be piloted are manoeuvred too far in on certain channels. In case of a navigation error, the consequences can be very serious.

The Safety Investigation Authority recommends to the Finnish Transport Safety Agency that

2. *All involved parties are let known that proceeding past a pilot boarding position and continuing without a pilot to a channel with compulsory pilotage is a pilotage offence.*

It came up in the connection with the accident event that the various actors had conflicting views and interpretations of the commencement and ending of pilotage, and of reporting and documenting the aforementioned.

The Safety Investigation Authority recommends to Finnpilot Pilotage Ltd that

3. *The pilots are issued with clear and unambiguous instructions for informing the parties concerned of the starting and ending of pilotage by using standard-form messages.*

Helsinki, 16 October, 2012

Matti Sorsa

Heikki Koivisto

Hannu Martikainen

LIST OF SOURCES

1. Written account given by the Master of the M/V STADIONGRACHT
2. The Pilot's written account
3. Incident Notification by West Coast VTS
4. Maritime accident report
5. Survey report
6. List of Actions by the West Finland Coast Guard
7. West Coast VTS video recording
8. Crew list
9. Documents requested from the shipping company containing information about the vessel and the crew
10. The Master's written answers and separate report to the questionnaire launched by the investigation group

APPENDIX 1 PHOTO EXCERPT FROM THE VTS RECORDING

Attached hereto is a photo excerpt which is based on the West Coast VTS recordings. The STADIONGRACHTs (SG in captions) positions and factors of motion as well as her position in the channel area in relation to the pilot cutter and to the out piloted vessel, VECHTDIEP (VD in captions) are represented.



Figure 1. At 23:51. SG is at the pilot boarding position, the cutter is approaching. VD shows on the right side of the picture. SG's factors of motion: 105° / 10 knots.



Figure 2. At 00:03:11. The cutter has stopped, VD is coming to the lateral mark RR 15. SG 120° / 8.5 knots.

Appendix 1/2 (4)



Figure 3. At 00:03:21. The pilot cutter is pulling away towards the out piloted vessel. SG 121° / 8.3 knots.

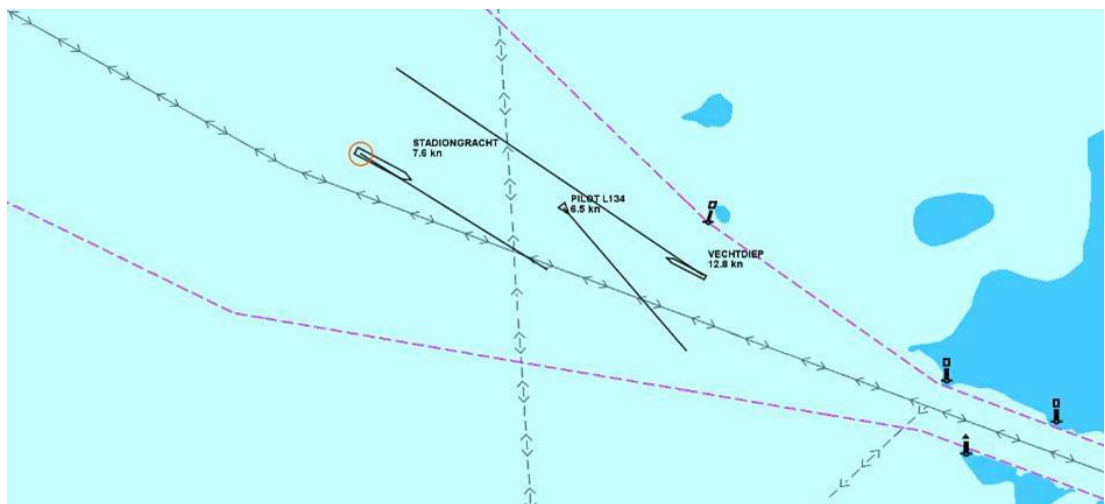


Figure 4. At 00:05:34. The pilot leaves the VD's bridge. SG 121° / 7.6 knots.



Figure 5. At 00:07:21. Vessels pass each other. SG 121° / 6.9 knots.



Figure 6. At 00:08:41. The VTS-operator recommends SG to turn around. SG 117° / 6.4 knots.



Figure 7. At 00:10:41. The pilot cutter pulls away from VD's side. SG 095° / 5.0 knots.



Figure 8. At 00:12:41. The VTS-operator tells to the pilot cutter that the SG has started turning via port. SG 029° / 4.0 knots.

Appendix 1/4 (4)



Figure 9. At 00:13:03. The VTS-operator enquires SG's rudder angle. SG 017° / 3.8 knots.



Figure 10. At 00:14:31. The cutter enquires from the VTS if STADIONGRACHT's turn was successful. SG 017° / 3.2 knots.



Figure 11. At 00:15:19. Motion stops – STADIONGRACHT is aground.

SUMMARY OF THE RECEIVED STATEMENTS

Statement by FINNPILOT PILOTAGE Ltd 27.8.2012

Finnpilot Pilotage Ltd concludes that the pilot had noticed the passing of the STADIONGRACHT when he was onboard the VECHTDIEP/on the pilot ladder, and thus the mobile phone was the only means of communication that the pilot then had at his use.

The Master of the STADIONGRACHT has expressed that according to his understanding it is common for a pilot to board a vessel elsewhere than at a pilot boarding position. Finnpiilot concludes that the pilotage authority has together with the Finnish Transport Agency viewed the compliance with pilot boarding positions with irregular intervals, and in connection with these inspections nothing of the kind has been found out which would justify that the Master's claim be generalised.

Finnpilot is of the opinion that it is important that the defective voyage planning of the STADIONGRACHT be stated.

Because it is stated in the investigation report that Finnpiilot has not issued a pilotage instruction, Finnpiilot wishes to inform that such a pilotage instruction has existed since 1 October 2011.

Finnpiilot is of the opinion that the central factor affecting the boarding/disembarkation of a pilot is the information flow between the pilotage organisation, the VTS organisation and the piloted vessel. The basis must always be that a vessel is not to be let past the pilot boarding position if such an agreement has not been reached by the master and the pilot and only when forced by weather or ice conditions. The information exchange has been dealt with at the Finnish Transport Agency and at Finnpiilot.

The lateral mark was not observed from the bridge of the STADIONGRACHT when the vessel turned. Finnpiilot emphasizes the fact that pilots have often suggested that there should be a lit navigation aid in the place in question.

Statement by the Finnish Transport Agency 17.9.2012

The Finnish Transport Agency emphasizes in its statement the role of VTS as a party assisting the master: VTS does not issue instructions as to the manoeuvring of the vessel. Pertaining to this, the Finnish Transport Agency stresses the fact that at no point can it be interpreted that the VTS would have given the vessel navigational assistance in accordance to the Vessel Traffic Act.

The Finnish Transport Agency stresses that VTS operations must be kept separate from pilotage. The Finnish Transport Agency also points out that in the incident in question, the pilot duty service did not inform that a pilotage in both directions was to be performed.

Furthermore, the Finnish Transport Agency expresses as its interpretation that the VTS operator has in all respects acted within the limits of his jurisdiction and the English language terminology used by the operator has not led to dangerous situations. An English-language working group has been launched at the Vessel Traffic Services Unit at the beginning of 2012. The working group has started to structure language training for VTS operators. This training also includes compiling action cards for various situations.

Appendix 2/2 (2)

Statement by the Finnish Transport Safety Agency 19.9.2012

The Finnish Transport Safety Agency reported that it had no statement to make.

Statement by the pilot 17.9.2012

The pilot expressed his impression of his position in connection of the incident per his legal assistant. In addition, he made general observations and expressed his view of the effect of the legislation in force on the actions of the various parties involved and on the investigation and made remarks on the characterisations used in the investigation report.