Investigation report

B 1/2004 M

M/V FINNCLIPPER, grounding off Kapellskär 20.01.2004

Translation of the original Finnish report

SUMMARY

M/V FINNCLIPPER GROUNDING OFF KAPELLSKÄR 20.01.2004

Ro-Ro- / passenger vessel FINNCLIPPER left the Kapellskär harbors pier No.4 on 20.01.2004 at 02.03 Finnish time towards Naantali. Master did take care of the departure arrangements by himself. He estimated the northeast wind speed to be 12–17 m/s. North eastern wind presses the vessel against the pier from the port side. Master took first the bow out from the pier by bow thrusters while the stern was lying on the last fender towards shoreline. There after the stern was let go by increasing the main engine power forward, the rudders being to the starboard.

The Chief officer entered the bridge at 02.06 when the ship was already moving. Chief officer informed master that the stern was coming closer to the pier and master made correction alignment to the right by the rudder. This is how it was continued until the stern had passed the piers edge. After this the master changed his steering position in the middle of the bridge, the rudder being in the middle, the main propellers output 23 % forward and he didn't activate the bow thrusters in the middle cockpit steering position.

As per VDR recording the "Predictor" did point the vessel to drift towards the buoy north of the Kapellskärs skäret. Neither the Master nor the Chief officer did monitor the "Predictor"s display. The passage was resumed with similar propeller blade-and rudder adjustments, bow thrusters being in zero position. About 02.09 Master turned the rudder about 20° to the left leaving the other means of steering as they were. The vessel was continuing the drift due to lack of steering efforts towards to the before mentioned buoy. When the stern was coming closer to the buoy 02.09.50 master increased the propellers output to 32 % and turned rudder 15° to the starboard in order to avoid the stern to collide on the buoy. The vessels sterns sb-side collision bar did collide on the buoy at 02.10.30 and there after the vessel run on the ground located on the north eastern side of the island. The vessel run over the ground and the vessels bottom was damaged in the entire length.

The vessel's damages did neither cause any danger to sink nor stability problems. The vessel returned to Kapellskär at 03.36 where the passengers and cargo was discharged.

The reasons which lead to the accident were inadequate familiarization to the ships handling and its equipment, lack of use of the steering- and navigational equipment and lack of bridge resource management.

USED ABBREVIATIONS

AIS	Automatic Information System.
ARPA	Automatic Radar Plotting Aid.
COG	Course Over Ground.
DGPS	Differential Global Positioning System.
DPA	Designated person ashore
GPS	Global Positioning System.
ECDIS	Electronic Chart Display and Information System.
IEC	International Electro technical Commission.
IMO	International Maritime Organization.
IMDG	International Maritime Dangerous Goods (Code).
ISM	International Safety Management (Code).
MF/ HF	Medium Frequency / High Frequency
OOW	Officer on watch
SENC	System Electronic Navigation Chart.
SOLAS	Safety of Life at Sea.
VDR	Voyage Data Recorder.
VDC	Voyage Data Capsule.
VHF	Very High Frequency
VTS	Vessel Traffic Service.
UTC	Universal Coordinated Time

CONTENTS

FOREWORD

The Accident Investigation Board got information about the grounding of FINNCLIPPER 20.1.2004 at 0800 hours. Accident Investigation Board were in contact with the Swedish maritime authorities and to the shipping company and received immediate information about the accident.

The Accident Investigation Board appointed on 27.1.2004 investigation commission to investigate the accident. Captain Juha **Sjölund** acted as chairman of the commission and Captain Micael **Vuorio** as member of the commission.

Finnish investigation authorities acted in accordance to the IMO resolution A.849(20) concerning accident investigation as the leading party of the investigation. Captain Jörgen **Zachau** from Swedish Maritime Authority investigation unit was called as an observer in the investigation.

VDR (Voyage Data Recorder) is fitted on board in accordance to SOLAS new V paragraph rule 20. The investigators visited the company to familiarize to the recordings by lead of company safety manager and received the recordings for investigation purposes. The Accident Investigation Board purchased the manufacturers data program dedicated to the vessel by permission of the company. By this program the investigators were able to investigate the recordings in the Accident Investigation Board premises. It is the first time when VDR was used in the investigation, therefore the subject is handled a little extensively.

The investigators heard the master in the Accident Investigation Board premises on 18.2.2004 about the events prior the accident. When the vessel had returned back to traffic, the chief officer was heard on board FINNCLIPPER on 23.3.2004 and the investigators familiarized themselves to the vessel.

The investigators were present in Masters maritime declaration, which was held in Turku on 24.2.2004. The sea court delivered later the minutes of the clearance with attachments to the Accident Investigation Board.

Captain Micael **Vuorio** prepared the Kapellskärs harbour outlines in the Sydväst Sjöfart simulator and so the investigators had opportunity to get acquainted in different possibilities to handle vessels in the harbour. (Model of FINNCLIPPER was not available). Captain Kari **Larjo** was present in the simulator as an expert.

Statements concerning the investigation report. In accordance to the act (79/1996) 24 § concerning accident investigation the final draft of the report was sent for statement to Finnlines Ltd and Swedish Maritime Administration. The statement from Sjöfarstverket and comments from the master and chief officer has been noticed in the text. Received statements are attached.

1 EVENTS AND INVESTIGATIONS

1.1 Ship

Image 1. M/S FINNCLIPPER

1.1.1 General data

Name	M/S FINNCLIPPER
Homeport	Helsinki
Identification	OJKA
IMO number	9137997
Type	Ro-Ro passenger-ship
Nationality	Finnish
Year and place of construction	1999 / Puerto Real
Length overall	188.30 m
Breadth (without wings)	28.70 m
Extreme draught (ρ=1,000)	6.32 m
Deadweight	8680 Dwt
Engine power	4 x 5760 kW
Service speed	22 knots

1.1.2 Manning

Ships manning certificate dated on 19.11.2002 (valid until 01.01.2008) required 15 persons crew. There was on board 28 crewmembers+2 apprentices at the time of the accident

Master had received captains license 1976. The present license is valid until 20.03.2006. Swedish pilot certificate from sea via Tjärven–Kapellskär had been issued on 10.04.2003 which covers ship FINNSAILOR and FINNCLIPPER. Line pilot certificate for passenger ship for Naantali–Nyhamn have been issued on 24.06.2003 and concerns ships FINNCLIPPER, FINNEAGLE and FINNSAILOR. The master had familiarized himself to FINNCLIPPER during four days in December 2003. Pilot examination trials he had executed on summer 2003 during four trips. These pilot examination trials did concern fairway parts in Finland and Sweden on FINNCLIPPER. Ships berthing and unberthing were not included in these pilotage trials. Master embarked vessel 19.01.2004 and had 13 hours time to be on board before the departure from Kapellskär.

Captains license was issued 1987 to the chief officer. The present license is valid until 03.11.2005. He has sailed as a mate from year 1981 and from 1987 as chief officer / 1st officer. From the year 2000 he has also acted as master deputy. He has Ro-Ro vessel experience since year 1997.

1.1.3 Wheelhouse and the navigation equipments

1.	Integrated navigation system	Sperry Marine VMS-VT
2.	Autopilot	Sperry Marine ADG 3000 VT Steering control.
3.	S-Band 10 cm Radar	Sperry Marine VMS-VT
4.	X-Band, 3 cm Radar	Sperry Marine VMS-VT
5.	DGPS position device	Leica DGPS MK 10
6.	DGPS position device	Leica DGPS MX420 / AIS
7.	Gyro Compass	C.Plath Navigat 2100 Fiber-optic Gyro compass
8.	Gyro Compass	Sperry Marine MK 37 VT Digital Gyrocompass
9.	Magnetic Compass	Magnetic Compass SR3 John Lilly and Gilly Ltd.
10.	Speed log	Sperry Marine Two Axis Doppler log
11.	Electronic chart system	Adveto Ecdis
12.	Electronic chart material	C-MAP
13.	Echo sounder	Sperry Marine ES 5000
14.	AIS	Leica & STN Atlas Marine electronic X531 UAIS

15.	Anemometer	Walker Thomas
16.	Program for loading and damage stability	Onboard-NAPA
17.	MF/HF Radio	Furuno AA-50
18.	VHF Radio	3 x Furuno FM8500
19.	GMDSS VHF Radio	3 x Navico Axis 250 GMDSS
20.	Inmarsat C	Furuno Felcom 11

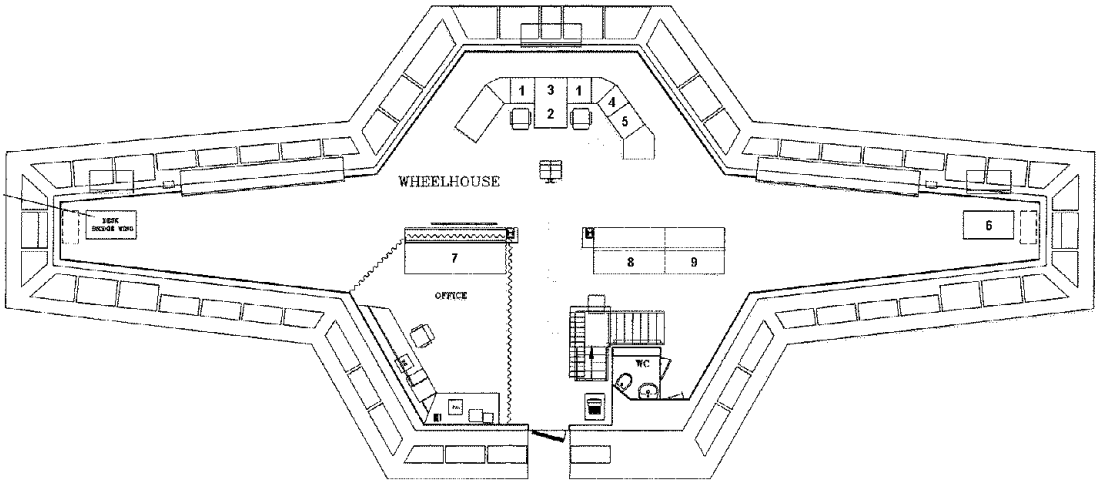


Figure 2. Wheelhouse Arrangements

1. Radar
2. Rudder
   Override tiller
   KaMeWa joystick
   Bow thrusters panel
   Engine order Telegraph
3. Conning Display
   Autopilot Display
4. ECDIS
5. IACMS Ballast program
6. Display for radar and ECDIS
   Rudder
   KaMeWa joystick
   Bow thrusters panel
7. Chart table
8. Safety Panel
9. GMDSS panel

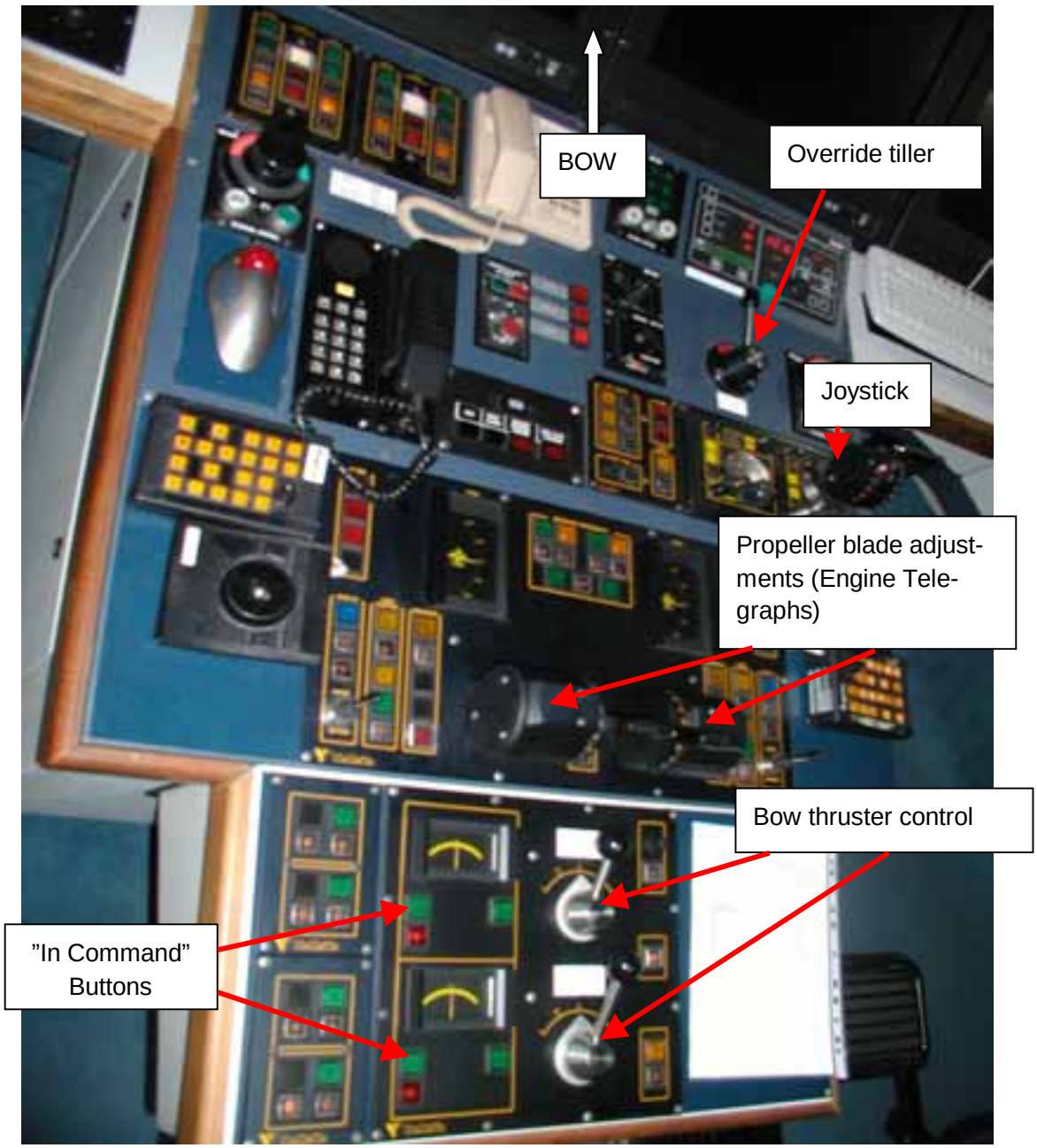


Image 3. Center console.

Arrangements of ship handling controls in centre console

The bow thrusters control panel is behind the pilot's chair in the centre console. Bow thrusters are controlled either with different levers or if the *Common Lever* is activated then both bow thrusters are controlled with one lever. Bow thrusters controls are activated by push button *In Command* and the control moves from the earlier position to the centre console.

Engine controls are in front of the bow thrusters control panel. There are two engine controls, one for each engine. Engine controls are activated by push button *In Command* and the control moves from the earlier position to the next one.

There are two rudder controls in the centre console and they are situated on both sides of the console beside the left and right control location. Rudder's controls are activated by pushing *accept* button beside the rudder control and the rudder control is shifted from the earlier position to the centre console. The two rudders cannot be separately handled from the centre console.

Override tiller is for the rudder, which is located beside the rudder control in the front of centre console. Turning the control handle activates *override tiller* and the rudder control from other control places is shifted to the *override tiller*. There is also *the KaMeWa-joystick*, which is located between rudder and engine controls. *KaMeWa-Joystick* was not used.

Image 4. Control console on the sb-wing.

The respective controls, which are in the centre console, are also on the bridge wing consoles. The only difference is that the rudder can be separately moved with the controls on the bridge wing. There are two methods in the rudder control panel, which can be chosen either *separate* or *syncron*. Rudder and propellers independent use is built to give more transversal power to the stern when used in certain ways. Without increasing or decreasing the ahead/aster speed.

1.1.4 Other arrangements

VDR (Voyage Data Recorder)

There is a VDR installed on M/V FINNCLIPPER, that records information about the ship and its navigation equipments as in airplanes. The requirements about installation and schedule for VDR are stated in SOLAS, working description is stated in IMO resolution A.861(20) and technical description is stated in IEC 61996 Standard.

REVISED SOLAS CHAPTER V

The International Maritime Organization (IMO) adopted a revised chapter V to the SOLAS Convention in December 2000 (Resolution MSC.99(73)). The revised chapter V entered into force internationally on 1 July 2002. In Finland it was implemented on 1 February 2003 by Act 1358/2002 and Presidential Decree 46/2003. The revised chapter V applies to all ships on all Voyages unless specifically otherwise provided in the Convention. Regulation 19 of the revised chapter V sets out requirements for ship borne navigational systems and equipment. The regulation applies fully to new ships engaged on international voyages. Requirements for existing ships engaged on international voyages are contained in regulation 12 of the existing chapter V, and in regulations 19.2.1.6 and 19.2.4.2 and regulation 20 of the revised chapter V.
The revised chapter V has been set out in Act 1358/2002. The Finnish Maritime Administration issued more detailed provisions on the carriage requirements for these ships.

Under regulation 20 of the revised SOLAS chapter V, ships engaged on international voyages shall be fitted with a voyage data recorder (VDR), as follows:

1. New passenger ships before they are put into service.

2. Existing Ro-Ro passenger ships not later than the first survey for safety equipment on or after 1 July 2002.

3. Existing passenger ships other than Ro-Ro passenger ships not later than 1 January 2004.

4. Cargo ships of 3,000 gross tonnage and upwards constructed on or after 1 July 2002, before they are put into service.

The purpose of a voyage data recorder (VDR) is to maintain a store, in a secure and retrievable form, of information concerning the position, movement, physical status, command and control of a vessel over the period leading up to and following an incident having an impact thereon. Information contained in a VDR should be made available to both the Administration and the ship owner. This information is for use during any subsequent investigation to identify the cause(s) of the incident.

To ensure that the VDR continues to record events during an incident, it should be capable to of operating from the ship's emergency source of electrical power. If the Ship's emergency source of electrical power fails, the VDR should continue to record Bridge

audio from a dedicated reserve source of power for a period of 2 h. At the end of this 2 h period all recording should cease automatically.

The time for which all stored data items are retained should be at last 12 h. Data items that are older than this may be overwritten with new data.

Data items to be recorded:

Date and time

Date and time, referenced to UTC, should be obtained from a source external to the ship or from an internal clock. The recording should indicate which source is in use.

Ships position

Latitude and longitude, and the datum used, should be derived from an electronic position -fixing system. The recording should ensure that the identity and status of the position -fixing system could always be determined on playback.

Speed

Speed through the water or speed over ground, including an indication of which it is. Derived from the ship's speed and distance-measuring equipment.

Heading

As indicated by the ship's compass.

Bridge audio

One or more microphones positioned on the bridge, should be placed so that conversations at or near the conning stations, radar displays, chart tables, etc., are adequately recorded. As far as practicable, the positioning of microphones should also capture intercom, public address systems and audible alarms on the bridge.

Communication audio

VHF communications relating to ships operations should be recorded.

Radar data

This should include electronic signal information from within one of the ship's radar installations that records all the information that was actually being presented on the master display of that radar at the time of recording. This should include range rings or markers, bearing markers, electronic plotting symbols, radar maps, whatever parts of the SENC or other electronic chart or map that were selected, The voyage plan, navigational data, navigational alarms and the radar status data that were visible on the display. The recording method should be such that, on playback, it is possible to present a faithful replica of the entire radar display.

Echo sounder

This should include the depth under keel, the depth scale currently being displayed and other status information where available.

Main alarms

This should include the status of all mandatory alarms on the bridge.

Rudder, order and response

This should include the status and setting of autopilot fitted.

Engine order and response

This should include the position of any engine telegraphs or direct engine/propeller controls and feedback indications, if fitted, including ahead/astern indicators. This should also include of bow thrusters if fitted.

Hull openings status (Bow door, stern ramp and pilot doors)

This should include all mandatory status information required to be displayed on the bridge.

Watertight and fire door status

This should include all mandatory status information required to be displayed on the bridge.

Accelerations and hull stresses

Where a ship is fitted with hull stress and response monitoring equipment, all data items that have been pre- selected within that equipment should be recorded.

Wind speed and direction

This should be applicable where ship is fitted with suitable sensor. Either relative or true wind speed and direction may be recorded, but an indication of which it is should be recorded.

Protected storage unit, Voyage Data Capsule

The final recording medium should be installed in a protective capsule, which should meet all of the following requirements:

- Be capable of being accessed following an incident but secure against tampering.
- Maximize the probability of survival and recovery of the final recorded data after any incident
- Be of highly visible colour and marked with retro-reflective materials
- Be fitted with an appropriate device to aid location.

The design and construction of the Voyage Data Capsule is strict regulated what comes to penetration, fire protection, impact and immersion.

VDR Player

VDR player is the device to investigate the data restored in the VDR. VDR player is not included in the IMO resolution A.861(20).

VDR on M/V FINNCLIPPER

VDR of brand Consilium Navigation AB VDR-M2 was installed on M/V FINNCLIPPER during construction. VDR-M2 system consists of a main unit and a capsule called Voyage Data Capsule (VDC). The recording period in M/V FINNCLIPPER's main unit is 24 hrs. VDR-M2 records data according to IMO Resolution A.861(20), but also Speed over ground and Course over ground from the GPS. Date and time is also recorded from the GPS. VDR-M2 has its own UPS as reserve source of power to ensure the VDR to record data for 2 hrs if the Ship's emergency source of electrical power fails. The recording period for the voyage data capsule is 12 hrs and the VDC is compliant to IEC 61996 standard.

Image 5. VDR Capsule

VDR installation on M/V FINNCLIPPER

There is 7 microphones connected to the VDR on M/V FINNCLIPPER and they are situated in the wheelhouse as following:

- 1 pc port bridge wing ceiling
- 1 pc starboard bridge wing ceiling
- 1 pc port cockpit ceiling
- 1 pc starboard cockpit ceiling
- 1 pc chart table ceiling
- 2 pc Safety console ceiling

DGPS position device	Leica DGPS MK 10
DGPS position device	Leica DGPS MX420 / AIS
Gyro Compass	Sperry Marine MK 37 VT Digital Gyrocompass
Speed log	Sperry Marine Two Axis Doppler Log
Echo sounder	Sperry Marine ES 500
Anemometer	Walker Thomas
Autopilot control	Sperry Marine ADG 3000 VT Steering
S-Band 10 cm Radar	Sperry Marine VMS-VT
X-Band 3 cm Radar	Sperry Marine VMS-VT
Conning Display	Sperry Marine VMS-VT
KaMeWa master control	
Watertight doors Mimic panel	
SEMCO Door status	
Valmarine IACMS	
Shaft RPM, Order / Response	
Propellers pitch	
Thrusters, Order / Response	
Rudders, Order / Response	

1.1.5 Cargo

The vessel had as cargo 51 lorries, 5 trailers and 2 cars on decks 3 and 5. For loading it was used 1200 lane meters of the ship's total lane meters 2459. The total weight of the cargo was 2377 tons of which 60,9 tons IMDG classified cargo.

Heavy and light fuel was totally 464 tons on board.

1.2 Incident voyage

1.2.1 Voyage and it's planning

The Master boarded the vessel in Naantali 19.1.2004 and he was onboard for 13 hours before the departure in Kapellskär. All this time he was awake and made him familiar with the ship and her documents. According to the Master he did not feel tired. He made the departure checklist before the departure and he was alone on the bridge. The chief officer arrived on the bridge after the departure. The Master was on the starboard bridge wing where he had following devices to assist him to manoeuvre: two main engines, two bow thrusters and two rudders, also Adveto Aecdis and Sperry's electronic charts.

Chief officer heard on the walkie-talkie the Master's order to let go when he was beside the purser's office on his way up from the car deck to the bridge. He rushed because the Master was new on the ship. When he arrived on the bridge he undressed his jacket and went to the starboard bridge wing. The first reaction for him was that the stern was coming close the pier and he warned the Master about it. The Master did not notice that the stern was coming close to the pier but he trusted in the chief officer's experience and put the rudders to starboard and it stopped getting closer. There was no communication to the poop deck, the officer and two able bodied seamen that were on the poop deck during departure had probably left after the Master notified about well head and stern.

When the stern was cleared from the pier the Master shifted to the centre console and the chief officer was also moving over there but he noticed that the bow was coming close to the buoy. The chief officer went back to the bridge wing and reported to the Master about the buoy that was closing up. He did also mention that the ship is heavily drifting to the right. The chief officer reported distances to the buoy and requested him to take to starboard because he knew that inside the buoy there is only one ship's breadth of clear water. The Master turned the rudder to starboard in order to lift the stern to the left.

Following times are from the VDR player audio and data files.

02:02:42	Engine controls up to the Bridge
02:03:00	Order to single up moorings.
02:04:15	Stern ramp is closing and the Brest line is singled up.
02:04:40	Let go head and stern
02:05:00	Bow thrusters 50% to port
02:05:24	Rudders 33° to starboard
02:05:33	Engine controls to level 3 ahead
02:05:49	Rudders 21° to starboard °
02:06:00	Headlines cleared
02:06:10	Rudders amidships

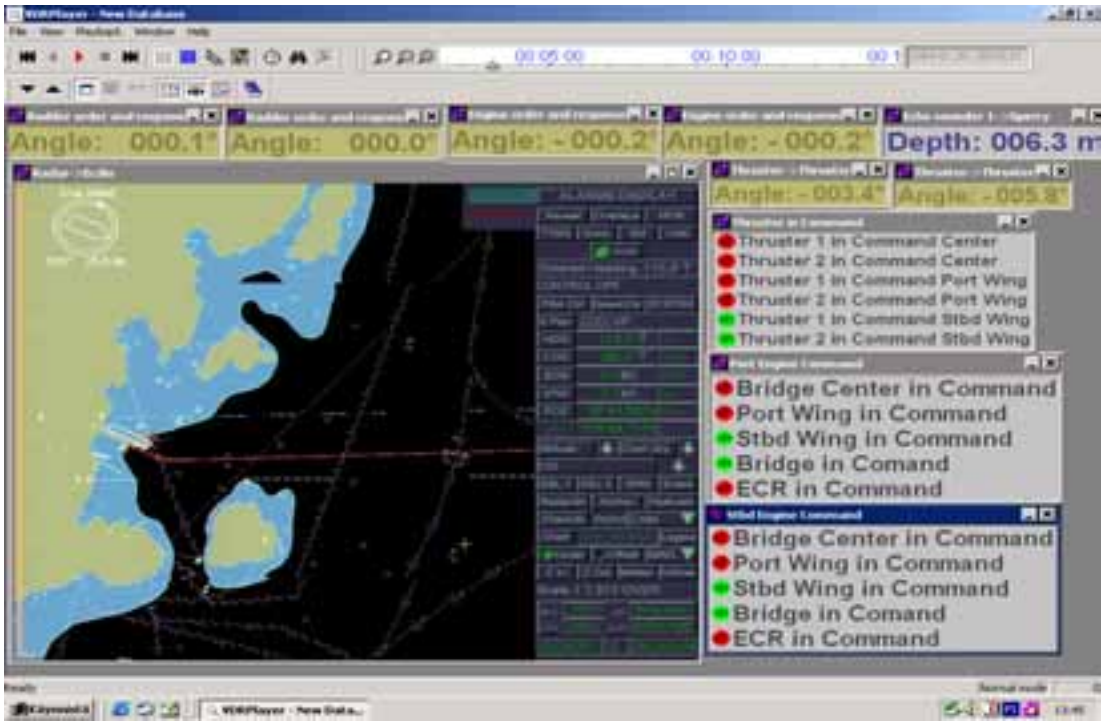
02:06:18	Rudders 14° to port
02:06:25	Well head and stern.
02:06:34	Rudders amidships
02:06:42	Bow thrusters to neutral
02:06:45	Chief officer arrives on the bridge
02:06:51	Chief officers warning for the closing of the stern to the pier
02:06:53	Rudders 30° to starboard
02:07:06	Rudders amidships
02:07:10	Rudders 24° to port
02:07:29	Rudders amidships
02:08:00	Rudders 10° to port
02:08:27	Rudders amidships
02:08:52	Master moving to the centre console, No communication on the bridge.
02:08:55	Rudders 21° to port. Manoeuvring from the centre console.
02:09:03	Engine controls received from starboard bridge wing to the centre console.
02:09:16	Rudders amidships
02:09:19	Rudders 24° to starboard °
02:09:22	Rudders eased to starboard 19° and engine order 4 forward
02:09:27	Rudders eased to starboard 6°
02:09:27	Chief officer warning about the drift towards the buoy and tells the Master to take up the stern in wind
02:09:30	Rudders 26° harder to starboard
02:09:35	Rudders eased to starboard 18°
02:09:45	Rudders amidships
02:09:50	Chief officer informs ‘’ coming ok like this ‘’
02:09:51	Rudders 19° to port
02:10:02	Rudders 34° to starboard
02:10:02	Chief officer informs ’’ don’t let the stern drift anymore”
02:10:04	Rudders 39° harder to starboard
02:10:05	Rudders 42° harder to starboard
02:10:06	Rudders 51° harder to starboard
02:10:06	Chief officer order the Master to take starboard rudder
02:10:07	Rudders 57° harder to starboard
02:10:08	Rudders 62° harder to starboard
02:10:15	Rudders eased to starboard 55°

02:10:15	Master notifies the ship drifting to starboard and the chief officer agrees
02:10:16	Rudders eased to starboard 48°
02:10:17	Rudders eased to starboard 37°
02:10:18	Rudders eased to starboard 33°
02:10:24	Rudders 49° harder to starboard
02:10:25	Rudders 62° harder to starboard
02:10:26	Rudders 67° harder to starboard
02:10:26	Chief officer informs that the buoy is alongside the ship
02:10:36	Chief officer informs that the buoy went astern
02:10:36	Rudders eased to starboard 58°
02:10:37	Rudders eased to starboard 52°
02:10:38	Grounding, Echo sounder shows the lowest reading and vibrations from the ship can be heard in the VDR
02:10:39	Rudders eased to starboard 25°
02:10:40	Rudders amidships
02:10:45	Rudders 22° to port °
02:10:51	Engine controls to level 5 ahead
02:10:56	Rudders amidships. According to the Masters emotional reaction we can assume that the ship run aground
02:11:04	Engine controls to level 3 ahead
02:11:07	Engine controls to level 2 ahead
02:11:10	Engine controls to level 1 ahead
02:11:15	According to the conversation between the Master and the chief officer the second ground on the northwest side of Kapellskärs grund came as a surprise for them.
02:11:19	Engine controls to neutral
02:11:28	Master informs M/V Silja Europa about the grounding.
02:11:39	Port engine control to level 3 ahead
02:11:48	Engine controls to neutral
02:12:26	Starboard engine control to level 4 astern
02:12:38	Port engine control to level 2 ahead
02:12:44	Starboard engine control to level 2 astern
02:12:47	Rudders 39° to starboard
02:12:53	Starboard engine control to level 3 astern
02:12:55	Port engine control to level 3 ahead
02:13:04	Rudders eased to starboard 18°

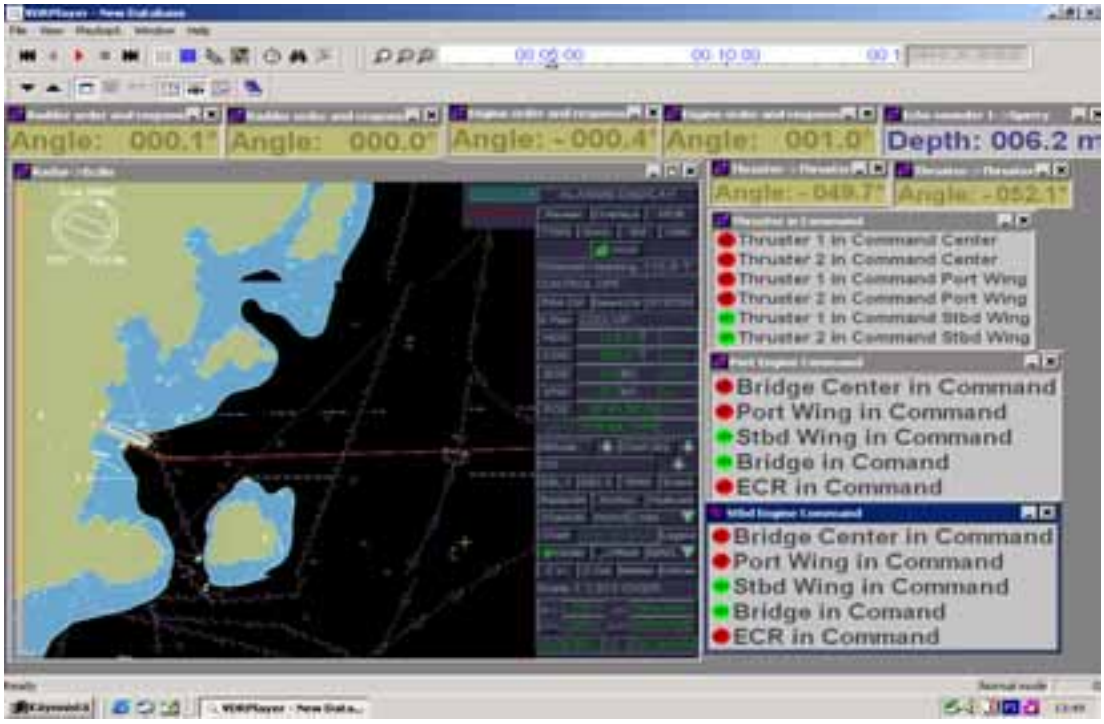
02:13:08	Rudders amidships
02:13:15	Starboard engine control to level 4 astern
02:13:26	Port engine control to neutral
02:13:53	Port engine control to level 3 ahead
02:13:59	Bow thrusters activate in the centre console and 45% to starboard
02:14:15	Verified that the propellers and rudders are working normally, Chief officer suggest to take the ship to shallower waters.
02:15:35	Chief officer asks the Master if they should inform the VTS about the grounding and he also warned the Master about a other ground more south, towards which the ship is drifting.

VDR displays propellers and bow thruster's output as percentage from zero to hundred. On the screen units are erroneously shown as degrees although units should be as percentage.

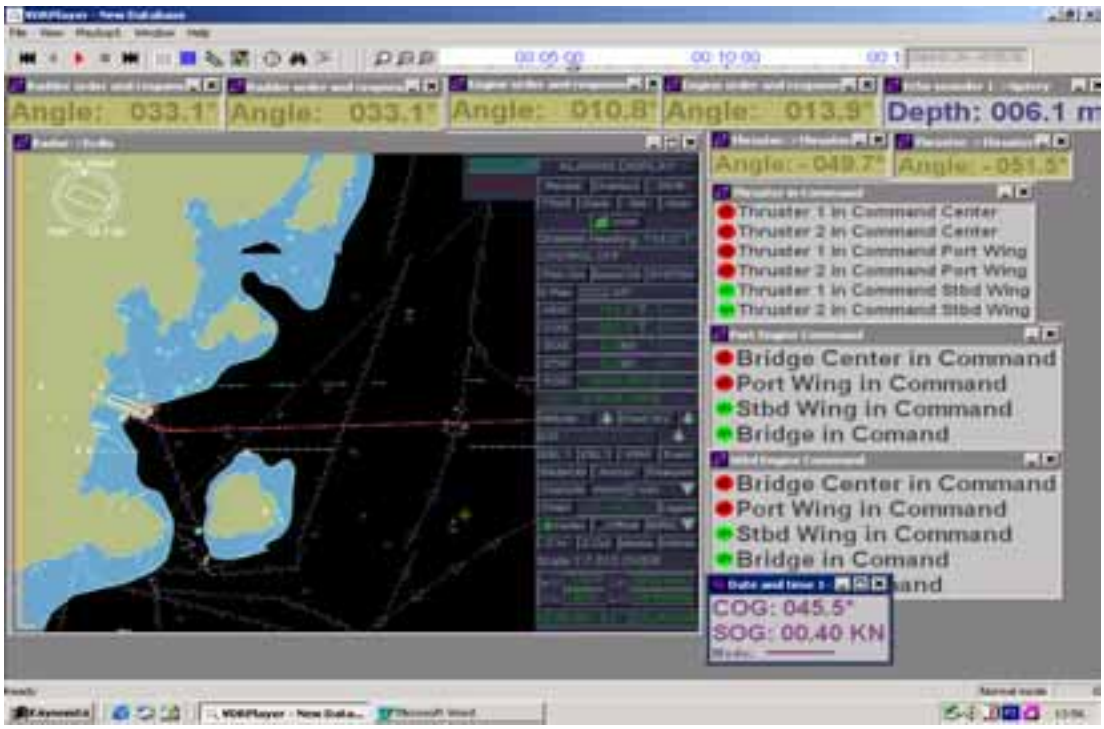
VDR Images from the accident voyage



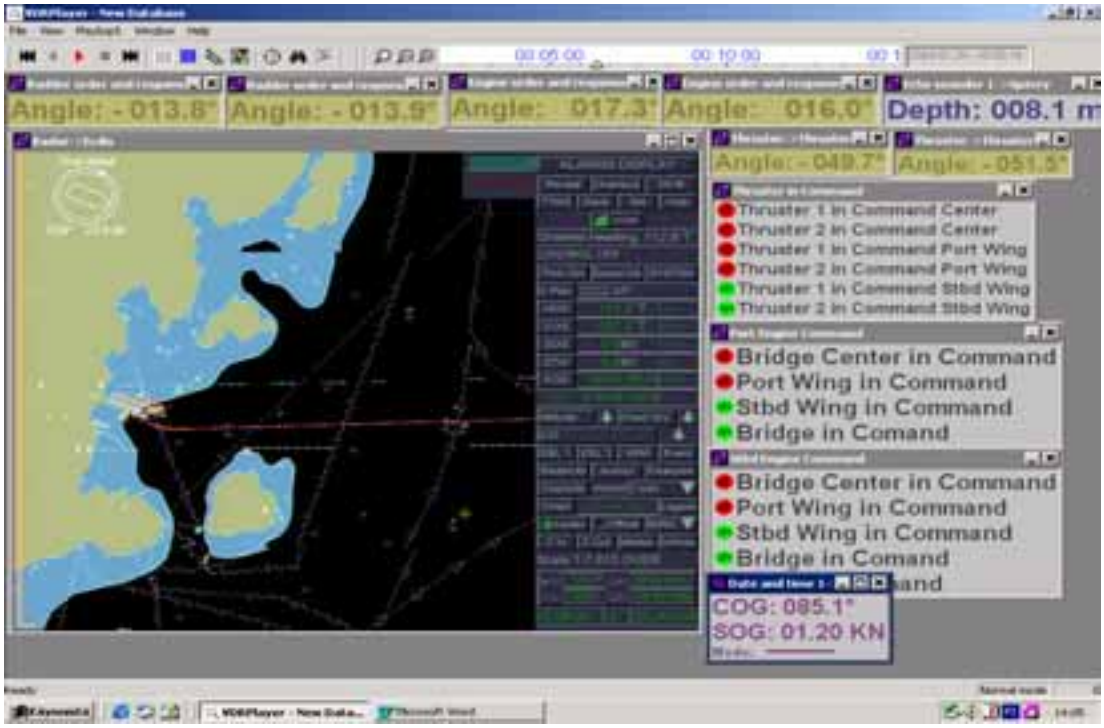
VDR Image 1. *Time 02:03:30 before the departure manoeuvring is on the starboard bridge wing. Wind information is shown in the left upper corner as true wind and speed. 30 degrees and 12.9 m/s (25 knots).*



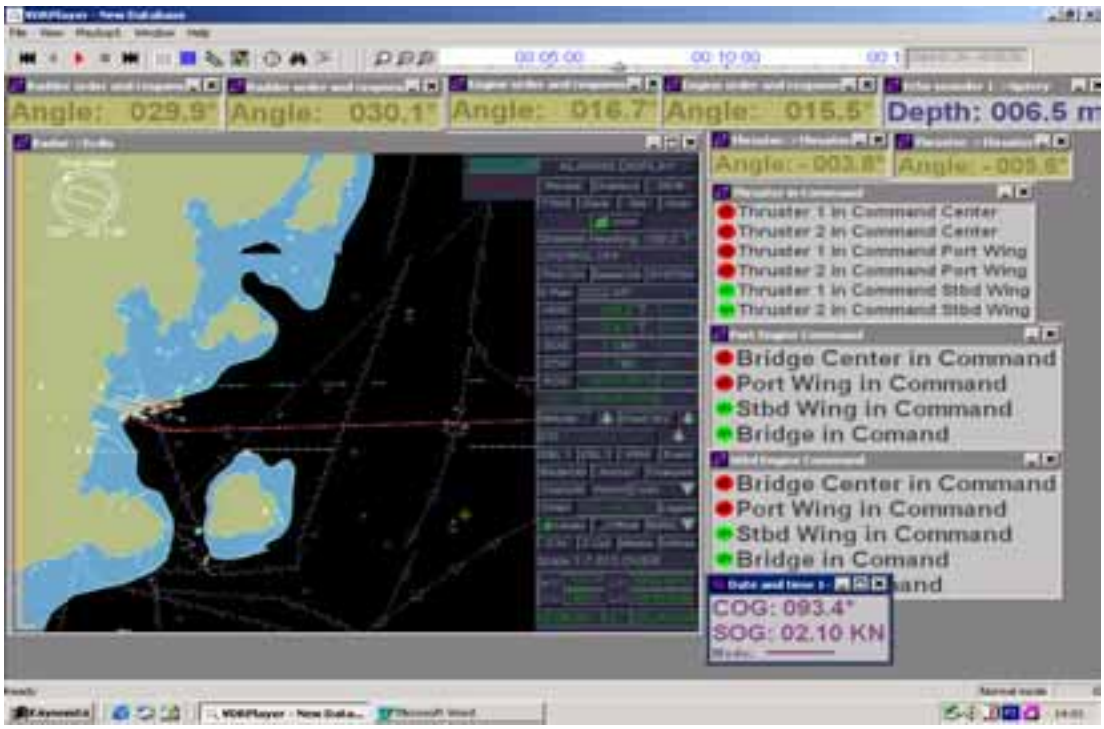
VDR Image 2. *Time 02:04:50 bow thrusters output 50 % to port at the departure. All the other manoeuvring controls are neutral.*



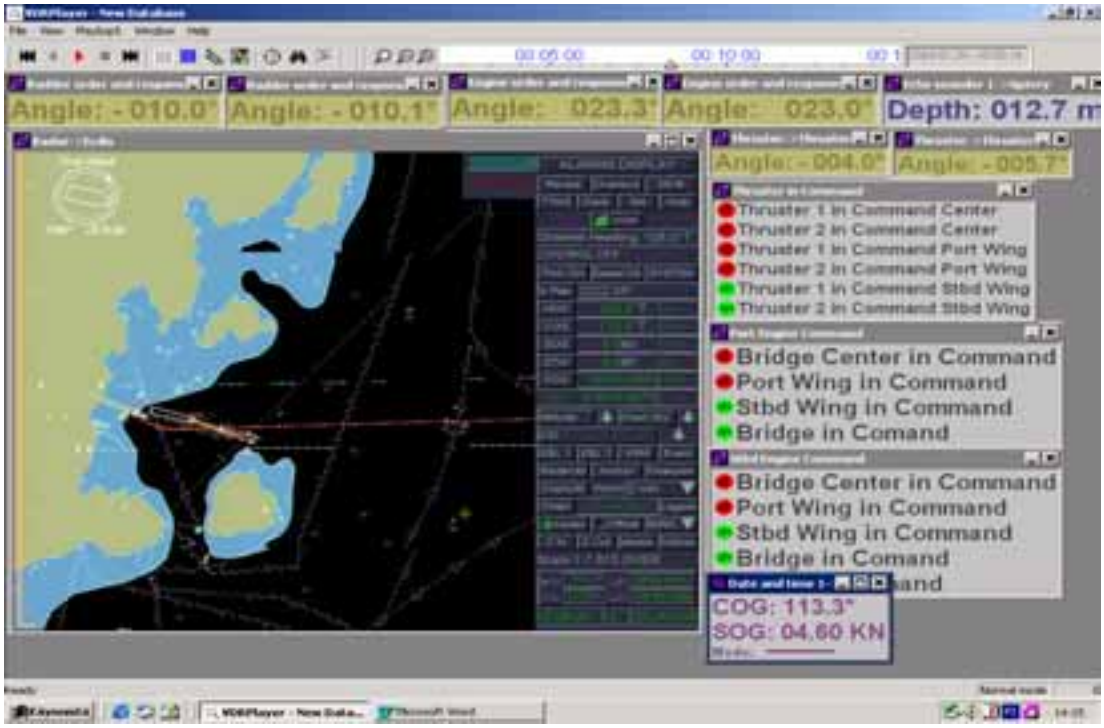
VDR Image 3. *Time 02:05:35 head and stern lines are released. Rudders are 21° to starboard and the propeller output is 12 % ahead.*



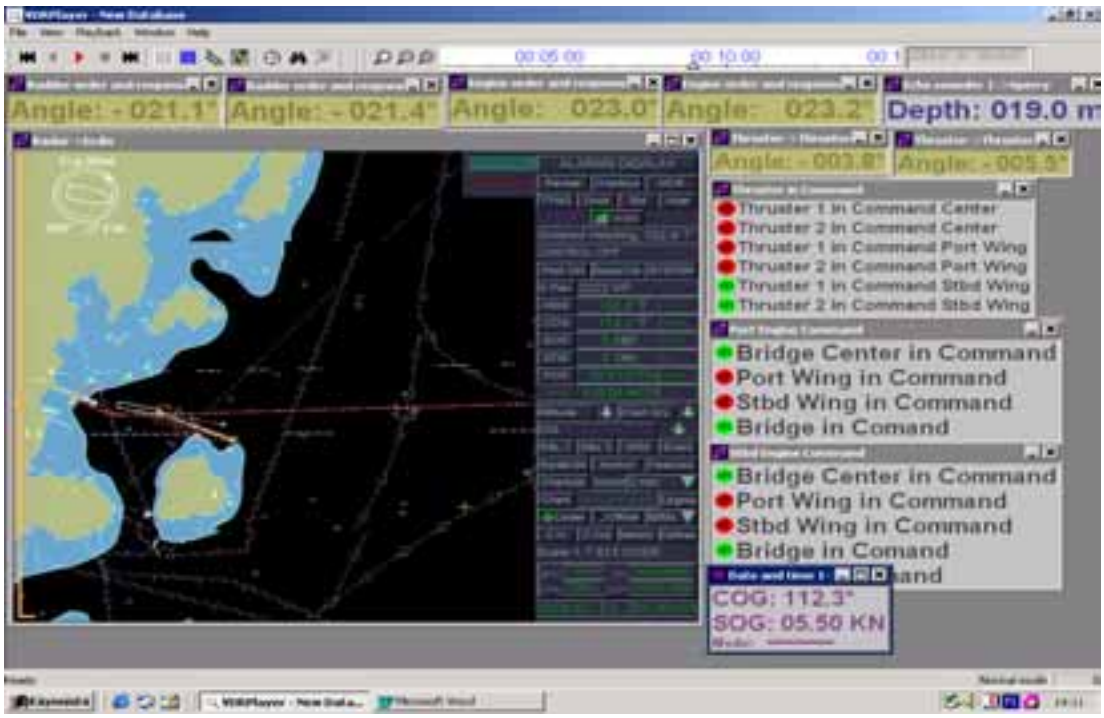
VDR Image 4. *Time 02:06:05 rudders are 14° to port and the bow thrusters output 50 % to port. Ships stern is coming closer to the pier.*



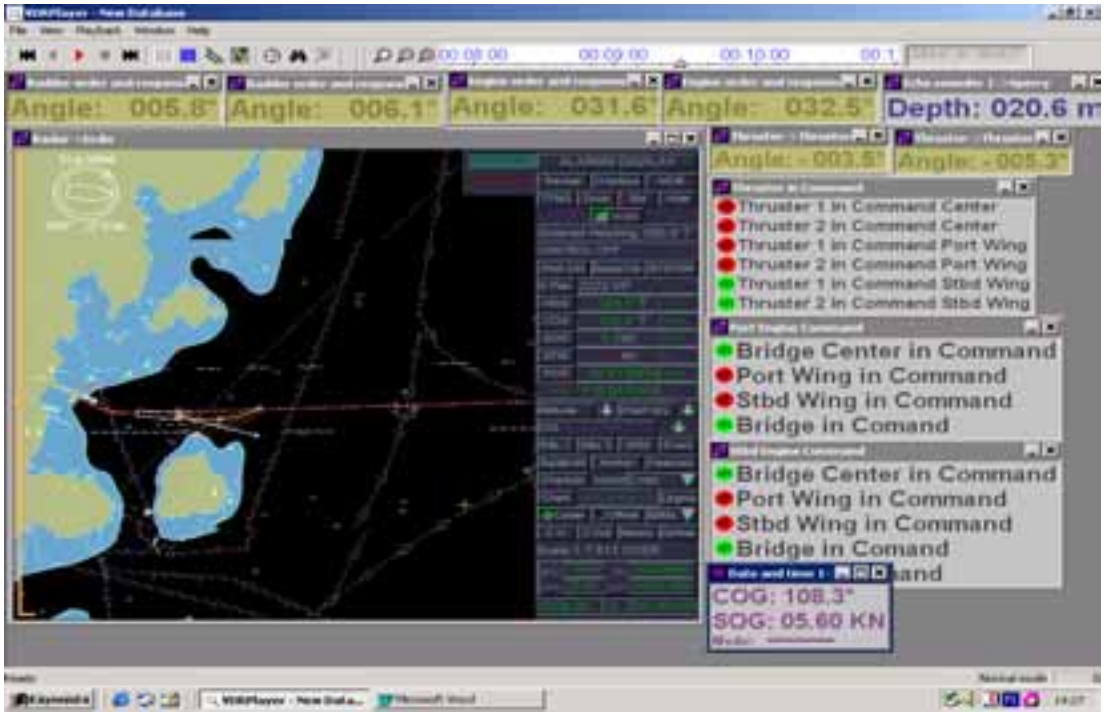
VDR Image 5. *Time 02:06:35 rudders are 30° to starboard and the bow thrusters output is neutral. Ships speed over ground is 2.1 knots.*



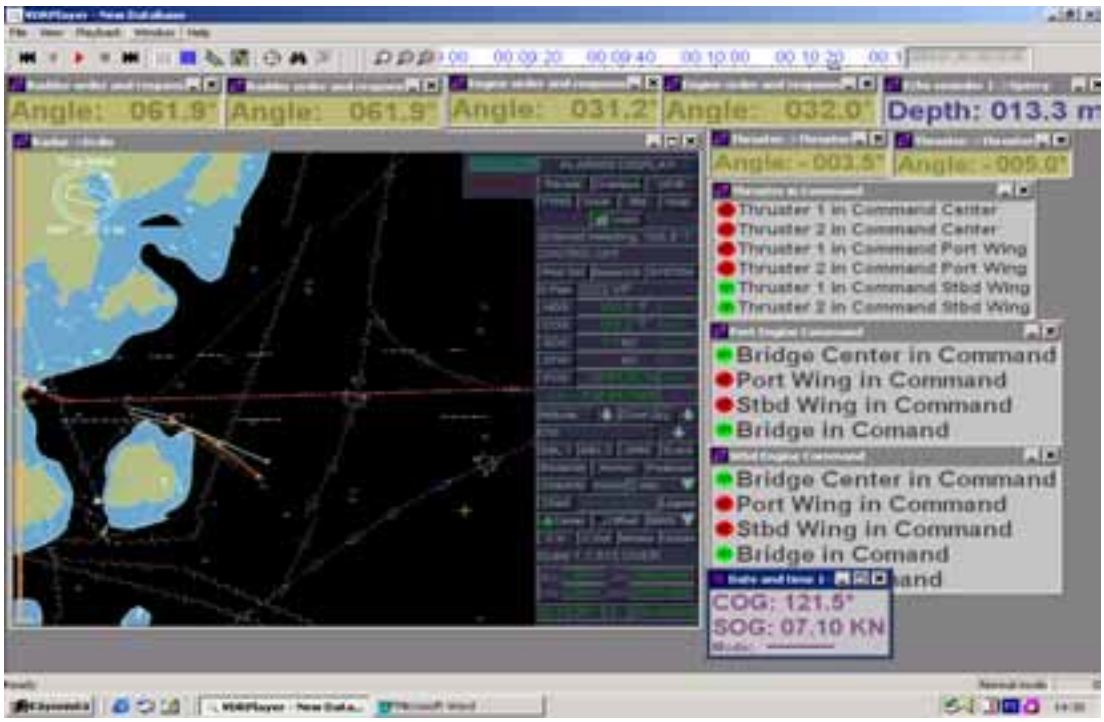
VDR Image 6. *Time 02:08:20 rudders are 10° to port and the propeller output is 23 % ahead. Ships speed over ground is 4.6 knots.*



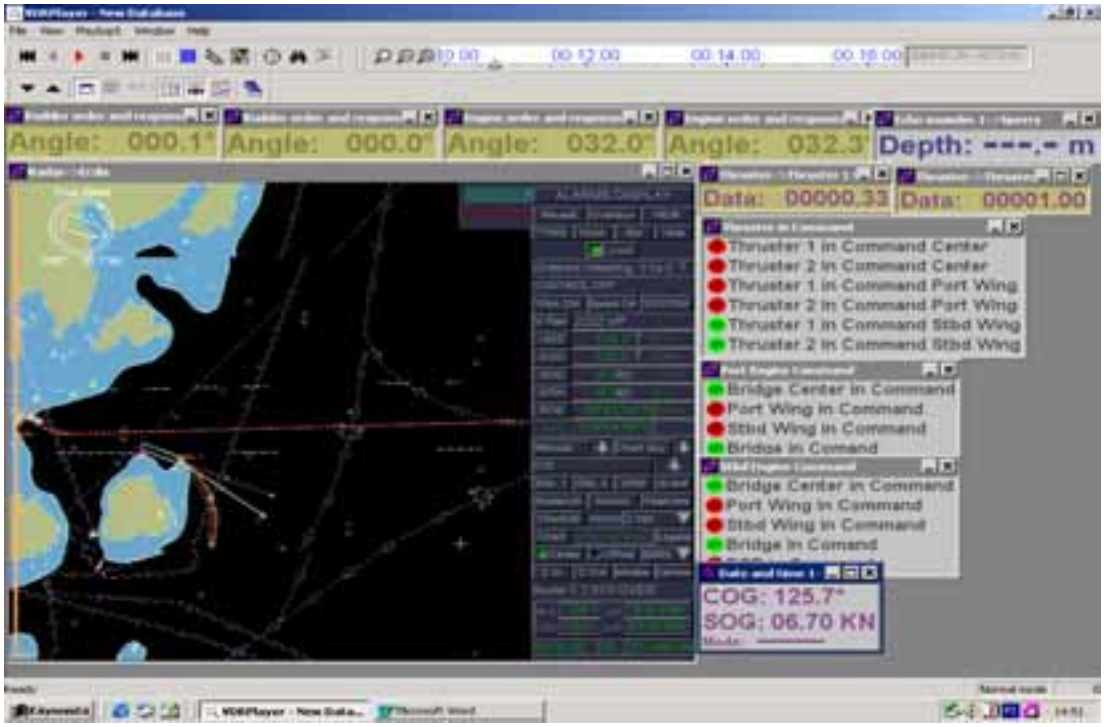
VDR Image 7. *Time 02:08:50 rudders are 21° to port. The manoeuvring is done from the centre console. But the bow thrusters control is still activated on starboard bridge wing. Predictor on the ECDIS display shows that the vessel is running aground.*



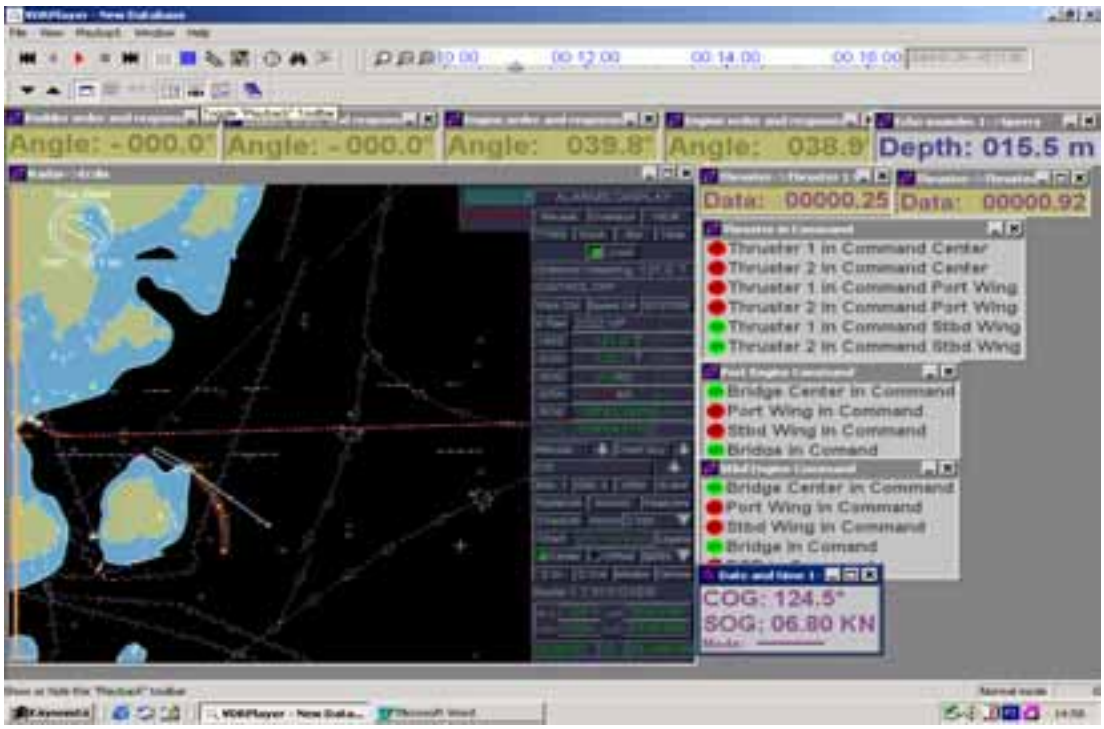
VDR Image 8. *Time 02:09:20 rudders are 6° to starboard and the propeller output is 32 % ahead. Ships speed over ground is 5.6 knots. Heading line and the predictor shows for a while that the ship is clear from the ground.*



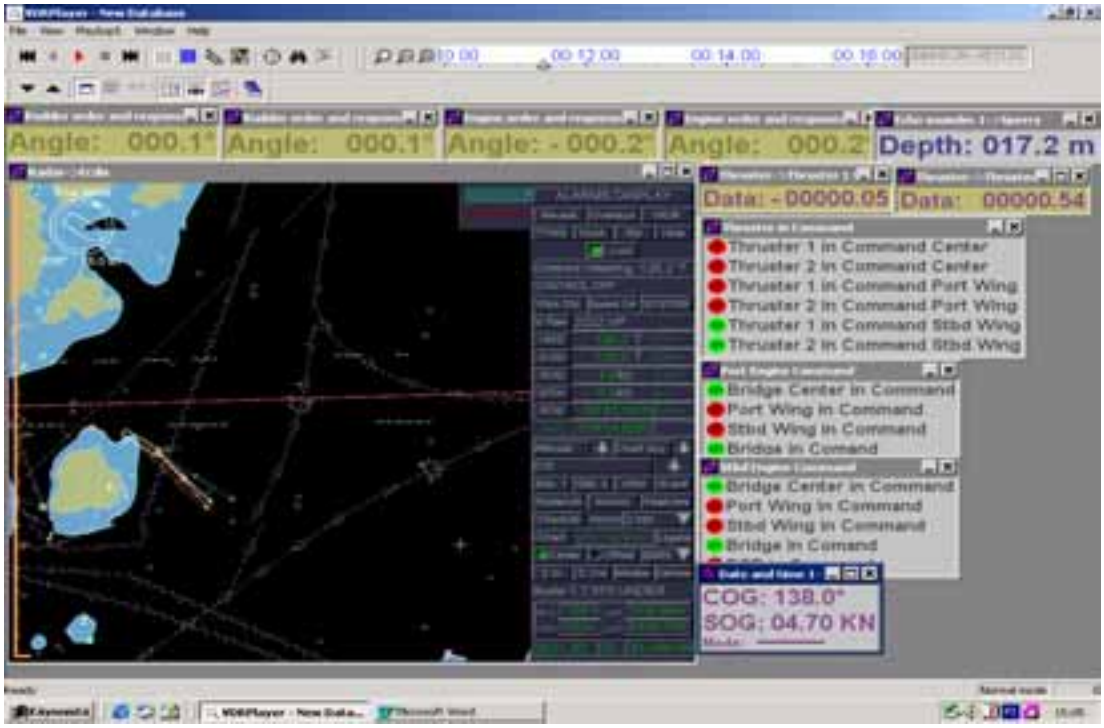
VDR Image 9. *Time 02:10:20 rudders are 62° to starboard and the propellers output is 32 % ahead. Ships speed over ground is 7.1 knots.*



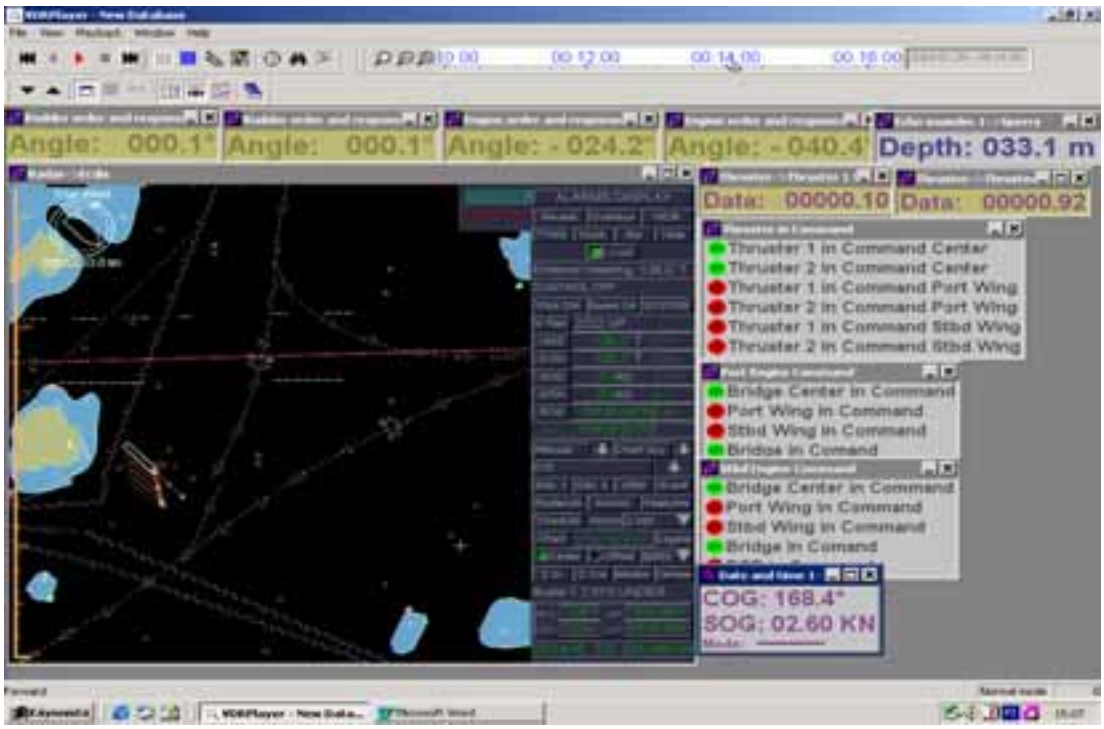
VDR Image 10. *Time 02:10:42 grounding. Echo sounder without reading.*



VDR Image 11. Time 02:11:00 echo sounder reading is 15.5 meter. Head of the ship is over the ground.



VDR Image 12. Time 02:11:23 all manoeuvring devices are neutral.



VDR Image 13. Time 02:14:06 bow thrusters control is activated in the centre console

1.2.2 Scene

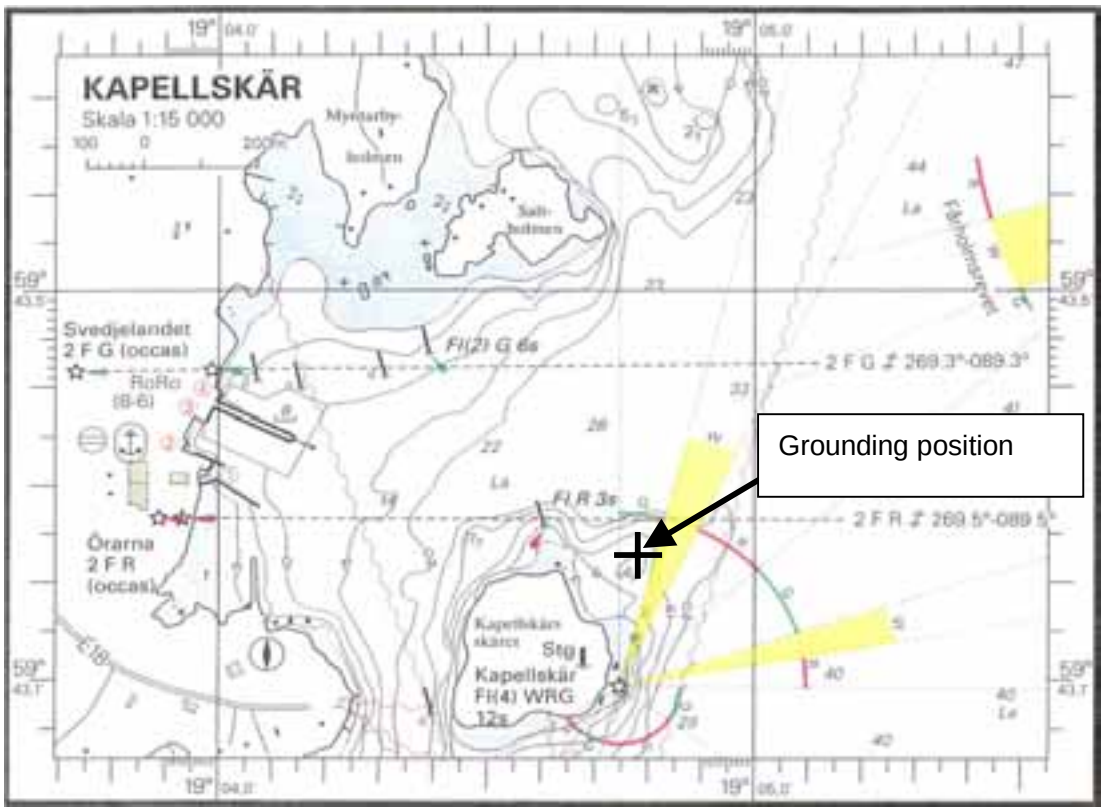


Figure 6. Extract from Kapellskär special seachart 1:15000 (© Sjöfartsverket)

Kapellskär's Ro-Ro harbour is located outside Stockholm in position 59° 43,4 N 019° 04 E. The harbour is busy and it is used by both passenger- and Ro-Ro vessels. Berths 3 and 4 of the piers are most often used by FINNCLIPPER. When leaving to the accident voyage the vessel was in berth 4. The pier is in direction about 296°–116°. The fairway in which the vessel approaches and departs is in direction 269,5–089,5 degrees. The fairways northern edge is indicated by Svedjelandet line marks and the southern edge by Örarna line marks. Both line marks are in line 269,5–089,5 degrees. The breadth of water area indicated by these line marks is 300 meters wide. If ship's handling in the harbour so requires can master, who is familiar to the area, get advantage also from the southern water area over the southern edge of the fairway just after the pier (see chart). The centre line of fairway is neither marked on the chart and nor in the nature. The northern reef of the Kapellskärs skäret is marked with buoy which is 20 meters south from the line of Örarna. The 4.1 meters reef which is located northeast from Kapellskärs skäret is not marked with navigational safety device.

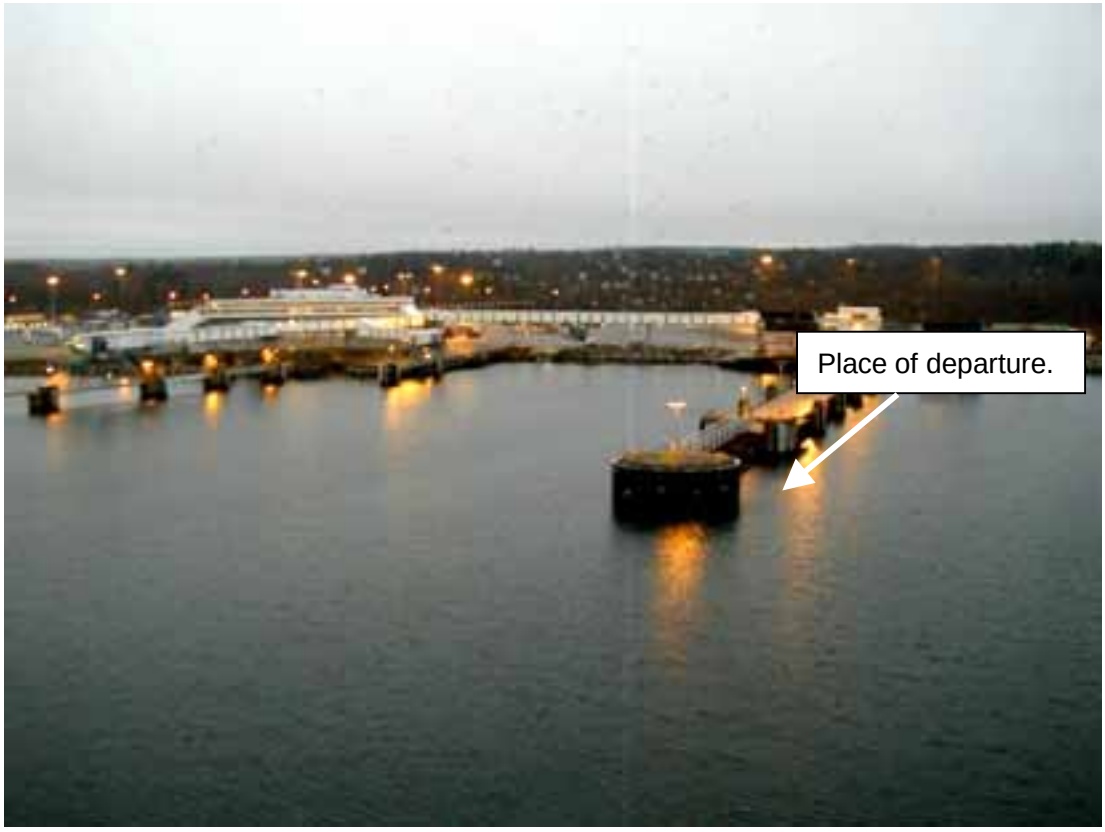


Image 7. Kapellskär harbour piers berth 3 and 4 on the right

1.2.4 Weather conditions

In the following are described the weather circumstances before the grounding according to the weather information and weather forecasts received from the SMHI (Sveriges meteorologiska och hydrologiska institute).

A deep low pressure moving from South Baltic over Poland affected the weather on Sea of Åland on January 20th 2004 and at the same time there was a high pressure reaching over North Scandinavia.

January 19th at 21.50 Rundradion program 1 weather forecast for the Kapellskär area:

Gale warning for the following areas: The Skaggerack, The Kattegatt, Lake Vänern, South and Southwest, Mid and Northern Baltic. Sea of Åland, Sea of archipelago, the southern part of the Gulf of Botnia.

Other Warnings: Risk for icing on ships in following areas: Gulf of Botnia, Sea of Åland, and Sea of archipelago And Northern Baltic.

Forecast until Tuesday night 20th of January

Northern Baltic, Sea of Åland and Sea of archipelago: Easterly Wind 14–18 m/s. From morning the wind is turning slowly to north. Snowfalls in some areas which will affect to the visibility.

Wind registrations on Lighthouse Söderarm.

19th January at 21.00 the meteorological station on Lighthouse Söderarm registered a wind of E 18 m/s. At 22.00 the wind was E 17m/s. 20th January at 01.00 the wind was ENE 15 m/s and 04.00 NE 13 m/s. Wind registrations are an average of readings from a 10 minutes period. Lighthouse Söderarm is located at the fairway to Kapellskär at the border between Archipelago of Stockholm and Sea of Åland 10 miles from Kapellskär.

Captain made a note in the departure checklist that the wind was 12 m/s from a direction of 020 degrees. There was no wind registration made in the ships log for the time of accident.

Image 8 displays wind velocity in knots recorded by VDR.

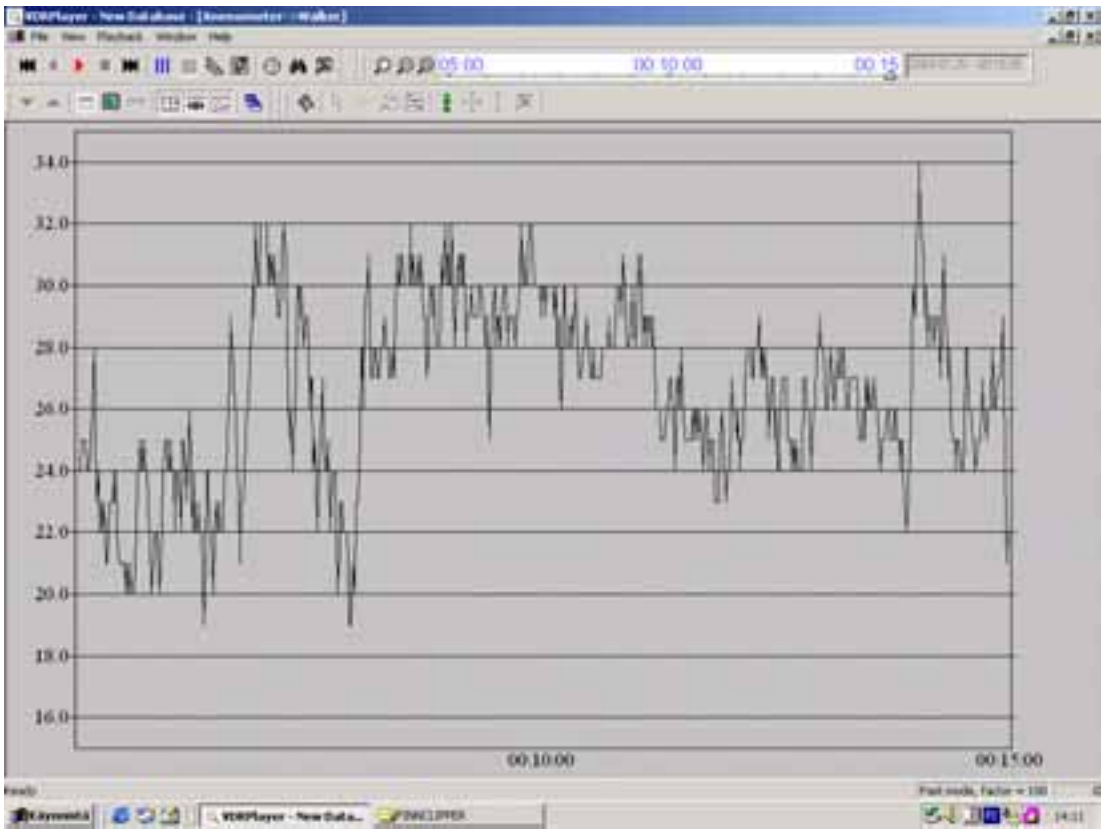


Figure 8. Graphically shown wind registration in knots from the VDR

1.2.5 Ship's damages

In the area between frames 10–60 in the stern was 1,2 m wide and 4–10 cm deep dent. In the ballast tank 20, lubrication waste oil tank 41, diesel oil drain tank 40 and heavy fuel oil drain tank 40 were leaks.

Between frames 59–170 in the mid ship was 3–5 m wide and 0–40 cm deep dent. In the heavy fuel oil overflow tank 60D, bilge tank 60SB, heavy fuel oil tank 60C, 70C, diesel oil 80C, heavy fuel oil tanks 90 and 100 C there were leaks.

In the ballast tanks BW 60SB, BW 80SB and BW 90B there were leaks.

Void spaces 4–10 were filled by water and got dirty by heavy fuel oil and diesel oil due to broken jumper frames and pipe tunnel inner frames. Ballast pipes and connections to the tanks were broken off. The remote sounding systems in the tanks were in electric short cut and the sensors were filled by water. Engine alarm- and remote sounding system was broken. All electric cables were totally damaged in the void spaces which were filled by water. The remote controlled valve control devices of the ballast- and fuel oil pipes were damaged by water. The guide rails of the forward sb-elevator were bent. All the piping insulations were totally damaged in the spaces which were filled by water. Part of the fuel oil and air pipes were damaged.

About 137 tons of steel were used to repairs and repairing expenses were about 2,5 M €. In addition the vessel was out of traffic 6 weeks.

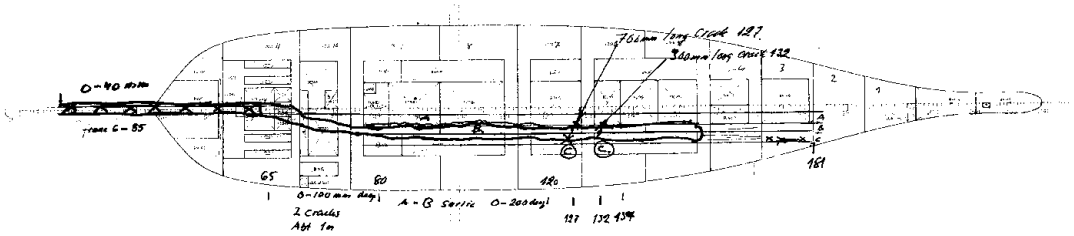


Figure 9. A rough description of ship's damages.

1.2.6 Predictor shown in the navigation equipments.

Predictor is a tool to estimate the ship future positions and behaviour of the vessel. Predictor is shown on the electronic chart display and on the radar screen. The time from current position to the last predicted position is user selectable between 30 and 180 second. The shape of predictor depends on the manufacturer. Predictor in M/S FINNCLIPPER ECDIS consists of 5 ships symbols connected to a vector that turns according to ships movements (see departure images 6–13). Predictor in M/S FINNCLIPPER ECDIS consists of a turning vector with dashed line. Predictor is using the transversal head speed, transversal stern speed, ships rate of turn and the longitudinal speed for the estimation of future positions and behaviour. The calculation assumes that the data is stabile.

1.2.7 Action by VTS- system

The VTS receives AIS information but they do not have radar surveillance in the area.

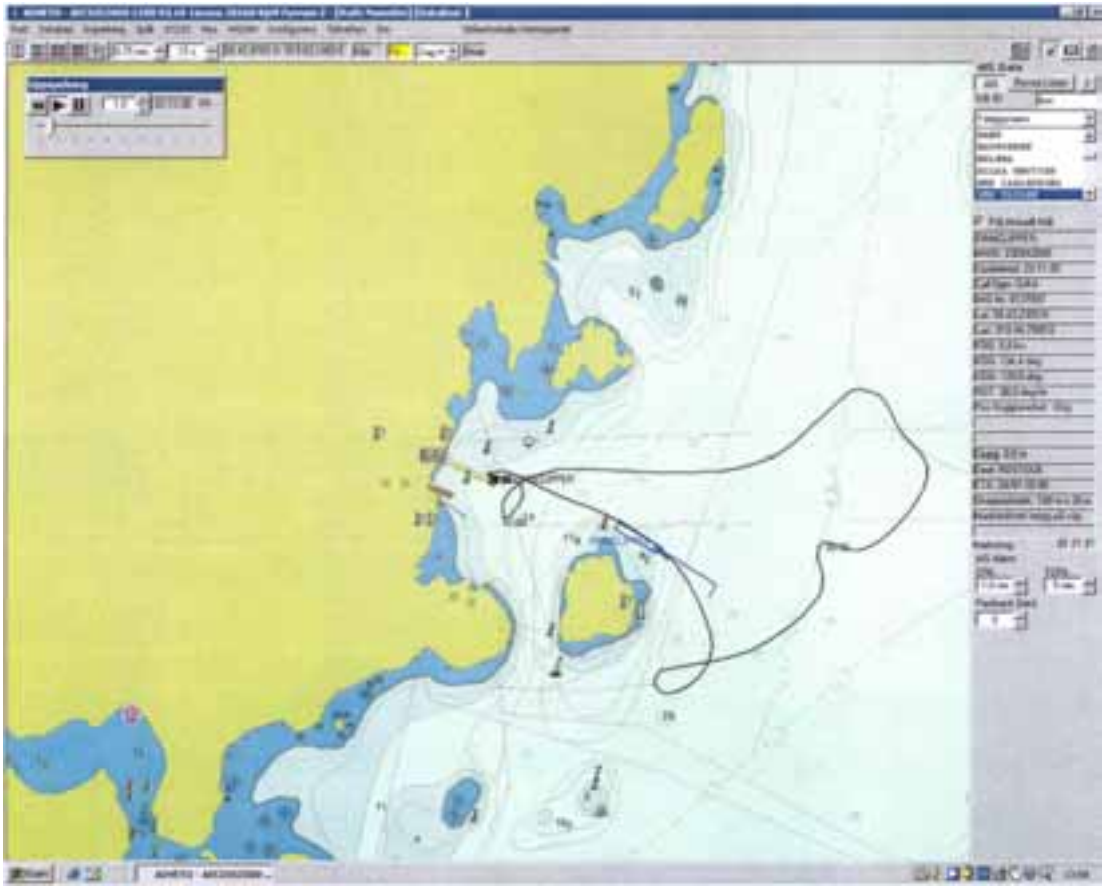


Image 10. Extract from ADVETO-chartdevice, which describes the vessels track from berth to berth.

1.2.8 Actions after the accident

After the grounding the chief officer noticed that the bow thrusters were not activated in the centre console. According to the masters Maritime Declaration the stern was turned towards the wind in west side of the fairway leading to Stockholm. The vessel was reversed back to Kapellskär fairway after the Silja Europa had passed the vessel. There was no danger of collision in any time. Passengers and crew were provisionally informed about the accident. According to the containment team and engine room information the stability of the vessel was not endangered calculated by using worst-case scenario in the damage stability computer.

1.3 Rescue operation

1.3.1 Alerting actions

VTS-Stockholm got announcement about the grounding at 02.30 and Swedish Rescue at 02.36. After conversation between master and company safety manager (DPA) it was decided to return to Kapellskär at 02.50. The situation was explained also to the passengers and crew and it was announced to them that the cargo will be discharged upon arrival to the berth.

1.3.2 Commencement of rescue operation

There were no observed leaks above the double bottom. Possible oil pollution was tried to observe by the searchlight. According to the master there was not immediate oil pollution danger because the tanks were filling and the oil was on top of the water. When the draft and situation were stable the ship returned to Kapellskär berth no.4 at 03.36. According to company instructions the alcohol content of the blood was tested from the persons who were on the bridge. The test result was 0 ‰ for all tested. The alcohol content of the blood was tested also from the master by the Swedish police and the result was also 0 ‰.

The representatives of rescue organisation, Coast guard and Maritime Administration discovered that obviously no oil pollution would occur due to cold water. At 05.00 all the cargo was discharged and all the passengers had disembarked the vessel. There after the crew resumed sounding the tanks and clear up the situation according to the instructions received from the authorities and ship owner.

1.3.3 Actions by the crew

With the assistance of the technical sounding and stability calculation the crew could quickly detect places of the ships leaks and stability. There was no immediate danger of sinking or capsizing in any stage. There was no need to evacuate the passengers at sea therefore vessel returned to Kapellskär at 03.36 where both the passengers and cargo were discharged.

1.4 Relevant directions and rules guiding the operation.

1.4.1 Rules and guidelines issued by the authorities.

Finnish act concerning ship owner safety management system and arrangement of safe operation of the ship 1996/66 means that ISM-Code (International Safety Management Code) has been taken as a part of Finnish legal system. The act obligates Oy Finnlines Ltd as a ship owner to arrange safety management system on their ships in accordance to the code.

IMO Resolution A.741(18) ISM-Code. The objective of the code is to be an international standard of safe managing, operation and environment protection. The code is based on general principles and -objectives. The goals of the code are to ensure safety at sea, prevent personnel injuries, losses of life and prevent damages to the environment and property. The safety management system of Finnlines follows the principles, objectives and goals set by the code.

1.4.2 Some of the company procedures.

The Finnlines Shipmanual on board FINNCLIPPER describes procedures on board and ships operation. There is for example, bridge procedures, pilotage, unmooring practise and sea practise . Finnlines Saqu-Emergency Situation manual describes the guidelines for emergency situations.

Shipmanual part 3. Bridge procedures.

"3.2 Manning of the bridge

When arriving and departing from Naantali there are Master, Chief mate and line pilot on the bridge, arriving and departing from Kapellskär Master and chief mate"

A dedicated look-out is to be used always in the darkness, when the visibility is restricted for some reason or otherwise in accordance to master or chief watch officers consideration."

When the ship was departing from Kapellskär on January 20th 2004 at 02.03 hours the ships Master was alone on the bridge. The chief mate came on the bridge immediately after the departure and was not able to familiarize himself enough to the departure practises. The look-out did not reach the bridge prior the grounding.

Shipmanual part 4. Describes pilotage.

"4. Pilotage

The ship has been released from obligation to use pilot in Finland and Sweden taking into account that the Master has a pilotage certificate dedicated to vessel and to the fairway in Finland and respective pilotage certificate "farledstillstånd" in Sweden. However master can use pilot services according to his consideration."

Master has pilotage certificate "farledstillstånd" for Kapellskär fairway.

"4.1.6 Familiarizing

All ships new employees will be familiarized to their new working environment, forthcoming duties and to the rules and guidelines concerning safety at work. Before the master, mate, chief engineer or engineer begins on a new type of ship, he/she sails with the ship if possible as an additional member in order to familiarize himself (herself) to the ship, its operations, traffic and safety devices and – arrangements".

The Master is very experienced and he had familiarized himself to FINNCLIPPER during four days in the end of December 2003 and 9.–12.6.2003 when he familiarized himself to expand the line pilot certificate to cover also FINNCLIPPER. During this familiarization period vessel called twice a day both in Naantali and Kapellskär. It was offered to him the possibility to take care of ships manoeuvring on arrival and on departure. He utilized this opportunity by manoeuvring once out from both harbours and once into Kapellskär. during good weather conditions in daylight. He did not utilize this training possibility as much as it was possible. The day before the grounding the master had manoeuvred the ship when departing from Naantali and on arrival to Kapellskär.

"4.1 Bridge co-operation without third-party pilot.

The Master is responsible for the fluency of the teamwork and co-operation. The Master has also overall responsibility for safety of navigation and pilotage, but according to his consideration he can hand over the steering responsibility to the mate.

There has to be two navigators in narrow fairways. The one has the steering (pilotage) responsibility and the other acting as watch commander is responsible to monitor, who ensures the actions of the steering responsible, other traffic and takes care of communication.

The person having steering responsibility must verbally and understandably declare the steering manoeuvres and in case possible inform the forthcoming steering manoeuvres in advance, forthcoming turning points and new courses and turning radiuses to be used when turning.

The one who has the monitoring responsibility must constantly ensure the steering manoeuvres made by the person in steering responsibility, monitor the use and function of the equipment and overall alertness of the steering responsible person"

The procedure issued by the company is clear but actions on the bridge did not follow these procedures. Both the master and the chief mate have been in bridge resource management (BRM) training, but in this case advantages of these lessons were not taken in full.

Upon the chief officer had entered the bridge, he went to right wing to check than the stern will be clear off the jetty. Meanwhile Master changed to steer the vessel from the centre cockpit but did not activate the thrusters there and the chief mate did not notice that the thrusters were still activated in the right wing. Vessel drifted south towards the shallow.

Image 11. The pen is pointing the activating "In Command" button.

Shipmanual section 6.2.7 unmooring and departure, fourth part.

"Fwd- and stern groups may leave their positions only after permission issued by the bridge"

Upon the chief officer had entered the bridge he went to the right wing to follow ships stern movements without ability to communicate with the stern group leader because the Master had informed "fwd and stern well" 02:06:25 prior the chief officers entrance to the bridge.

1.4.3 Bridge Resource Management

Bridge Resource Management is developed from Cockpit Resource Management in aviation. There is same kind of teamwork on a ship today as the working environment is similar as in aviation; all the navigations equipments are placed in a cockpit. Cockpit environment is good for the navigator because all the navigation equipment are there at a convenient distance and also all the navigating officers are working close together which is good for the teamwork and to supervise each other. BRM is a tool for teamwork and supervising.

Bridge Resource Management is stated in STCW code section B-VIII/2 for the ship owners to maintain and support good bridge procedures. Maritime schools arrange BRM courses for merchant officers. BRM course used in Finland is called SAS BRM and it was created together by Scandinavia Airlines Systems and seven shipping organisations for example Finnish and Swedish Maritime Administrations.

The Syllabus on BRM course is planned for ship officers with a focus on teamwork, team building, and communication on bridge, leadership, decision-making, and resource management on the bridge. BRM addresses the management of operational tasks, as well as stress, attitudes and risks.

1.5 Special studies by the investigation commission

Simulation for the investigation was made in Sydväst Maritimes ship handling simulator to find out influence of the weather conditions on the movements of M/V FINNCLIPPER. Read more of the simulation in chapter 2.4.

2 ANALYSIS

2.1 Bridge

The bridge on FINNCLIPPER (see image 2.) is a modern integrated bridge system with latest navigation aids. Because the bridge is modern with numerous navigational aids it is important for the user to be familiar with the bridge equipment. Navigational aids are arranged in a cockpit format on the bridge, which helps the monitoring because the equipments are at a convenient distance from the officer on watch.

Control panel for the Bow thrusters is situated behind the OOW's chair and this makes its difficult to use the bow thrusters when you are handling the ship from the centre console. When one is changing the manoeuvring place from the bridge wing to the centre console, one has to go behind the chair to activate bow thrusters control and then move in front on the chair at the sb- side of centre console to continue driving the ship (see image 3).

When ships bridges are planned it should be taken in consideration that when moving from one manoeuvring place to another the controls of all devices could be taken over with only one pushbutton. When using the KaMeWa joystick this one button function is in use but the Master of FINNCLIPPER did not use the joystick According to Finnlines masters do not fully trust on the joystick because there might be some miss calibrations of the steering equipment.

2.2 About the company procedures

Familiarization

The company has clear familiarization instructions and the company did establish adequate possibility to the master to familiarize himself to the vessel. The revealing Master informs the company by phone whether the new captain is fit for duty or not. This procedure is not recorded. The Master was partly retired and felt himself as an experienced Kapellskär visitor. These two factors may have influenced to the Master's attitude concerning familiarization. Even a long experience does not replace proper familiarization to the ship. Rather strange working environment in dark circumstances demands that the location and purpose of the steering equipments control devices and indicator lights are well known.

The Master had called Kapellskär about 700 times but on a different type of vessel. He was employed earlier on FINNSAILOR, vessel which was in same traffic. The route and the harbours were familiar to the Master but vessels vary between types so that the bridge was located on stern of the mid ship on the FINNSAILOR whereas the bridge on board FINNSAILOR is in front of mid ship. The wind area on FINNCLIPPER is considerably larger than on FINNSAILOR and the draft is smaller. These factors expose FINNCLIPPER more liable to drift and this might have been surprising to the master.

In addition the bridges vary between ergonomics, equipments and their location. According to the Master the navigation was based on visual observations when departing from Kapellskär. The movements of ships bow are observed differently from the bridges of these two vessels. The Master referred that this had partly effected to miscalculations.

The Master has also sailed earlier as a Master on a passenger vessel, on which the bridge was in front, but on another trading area. The company considers the Master as a very good ships handler.

A dedicated ship simulator could be used in familiarization of Master and mates but FINNCLIPPER model was not available in simulator by the date of accident.

Familiarization cannot be made gapless. For example the Masters who are signing on new buildings, do not have instructor and the follow up of familiarization is difficult to perform. Same problem may exist when purchasing a second hand vessel.

Manning of the bridge

Because the Master had recently embarked the company's guidelines of the adequate manning of the bridge became most essential. Enough time should be allowed to the chief officer in order to prepare the ships departure planning together with master. The Master carried out the bridge equipment checks prior departure and so he should have been aware of the prevailing weather circumstances and also where different equipment are activated. The presence of dedicated look-out may have resulted in a better opportunity for the Master or the chief officer to pay attention to the ECDIS and the predictor.

Bridge recourse management

The bridge resource management was ruined in first instance when the preliminary departure was not done together. Communication during the events prior the accident was rather limited and the master didn't clearly advise about his steering manoeuvres in advance to the chief officer.

When FINNCLIPPER was unmoored from the jetty in Kapellskär the accident voyage began with Master's flurry precipitation. The Master didn't wait for the chief officer to come from his previous loading duties to the bridge before the departure. When commencing the accident voyage the chief officer hurried to the bridge after having heard on his radiotelephone that master was commanding to let go and upon having entered the bridge he went to the bridge right wing for lookout. Neither the chief officer nor the Master did monitor the ECDIS and the predictor displayed on that. The full situation awareness of both was partly in shadow because the ECDIS monitoring was disregarded. Neither of them did know that thrusters were not activated in the centre cockpit. When the vessel was approaching the buoy the drift was noticed but the situation had developed too far. The bridge is located in front of the vessel and therefore it is difficult to notice the drift without monitoring the equipment displaying the drift. At the moment when master changes to steer in centre cockpit and he does not mention it to the chief officer.

If another navigator does not question the others manoeuvres, remains a manoeuvre error develop unnoticed.

Unmooring and departure

The stern group leaving from the stern upon let go the ropes made working on the bridge more difficult and therefore taking part of the chief officer's attention from the navigation as the chief officer had to concentrate monitoring the stern movement, he had not possibility to monitor the navigation. When monitoring the ships sterns clearance of the jetty's edge from the bridge wing, a certain safety margin had to be taken. This could have been considerable less when monitoring from stern and the stern could have let go with the wind to south and the bow could have turned towards the wind earlier even without thrusters. The Master who came later on board issued a standing order that the stern group should not dismiss before the ship is clear of the jetty's edge.

2.3 Alerting- and rescue operation

After the groudning at 02.10 VTS-Stockholm received announcement of the grounding at 02.30 and Swedish rescue at 02.36. The ships personnel did act calmly after the grounding and they were soon aware of the leakage situation and stability with assistance of the damage stability software.

Based on the VDR-voice recording of the communication on the bridge gave indication that the situation after the grounding was under control. There is no indication of any delay in the rescue operation.

2.4 Weather conditions influence on the movements of the ship

Simulation was made with a passenger vessels model. Size of the passenger vessel was: length 169 meters, breadth 29 meters, draught 6,6 meters and displacement 21028 tons. The simulation shipmodel had two propellers, two rudders and two bow thrusters. Power of the bow thrusters was 2 x 1320 KW and main engine power 28800 KW. Wind area of the ship as 5665 square meters.

(FINNCLIPPER loa. 188,3 m, breath 28,7 m, draft 6,32 m , engine power 4 x 5760 kW and bow thrusters power 2 x 1500 kW . Wind area about 3600 square meters.)

Depth in area between the harbour and Kapellskäret was 20 meter. Wind from northeast 26 knots.

The first simulation was made so that the accident voyage was reconstructed and this was a way to find out if the simulator works in a correct way. Reconstruction was made so that one investigator was manoeuvring on the bridge in the simulator and another investigator gave him order how to steer according to the VDR data. The reconstruction gave the investigator a satisfied result and with the same movements the ship model ended up close to Kapellskärsgrundet.

After the reconstruction the investigators tried different variations of departures from the pier. Wind was kept the same during all the test departures. All test departures from the pier were successful and therefore the wind was not a problem for a safe navigation during the accident voyage.

As a result to the simulation it can be verified that the departure succeeds safely in the accident weather circumstances in case the engine and bow thrusters output are utilized enough.

2.5 Route marking

The northern edge of the Kapellkär skäret's shallow is marked but the north eastern shallow is not marked with seafaring safety devices. After the FINNCLIPPER had passed the northern buoy the personnel on the bridge lived a moment in a false safety feeling when the Master and the chief officer assumed that the situation was clear after passing the buoy. The VDR-communication recording indicates that the north eastern shallow came as a surprise to them. If this north eastern shallow would have been marked for example with buoy, it may have increased efforts to pass it. Marking this shallow with seafaring safety device may assist south west bound and from there entering vessels.

2.6 VDR

VDR assists considerably accident investigation and first of all in collecting the factual information. In addition it assists owners in clearing up the incident and thereafter establish corrective actions to prevent reoccurrence of the same. However the fact information do not clarify the reasons why the actions has been carried out. The information was received from VDR quite easily but it required studying how to use it. The VDR recording was saved in time and it was soon on view to the investigator in the company. The investigators had to purchase the manufacturer Consilium's software in order to analyze more closely as the software is always dedicated to each vessel. The most apparent insufficiency can be considered the rather weak quality of the communication voice. The reasons, which might have effected to the poor voice quality, are background noise, clarity of the communication and location of the microphones.

VDR could be beneficial also in other circumstances. For example it could be used in investigation of near miss incidents. The personnel of FINNCLIPPER did well gather the information from the VDR and therefore the equipment familiarity importance should be highlighted also to the other vessels.

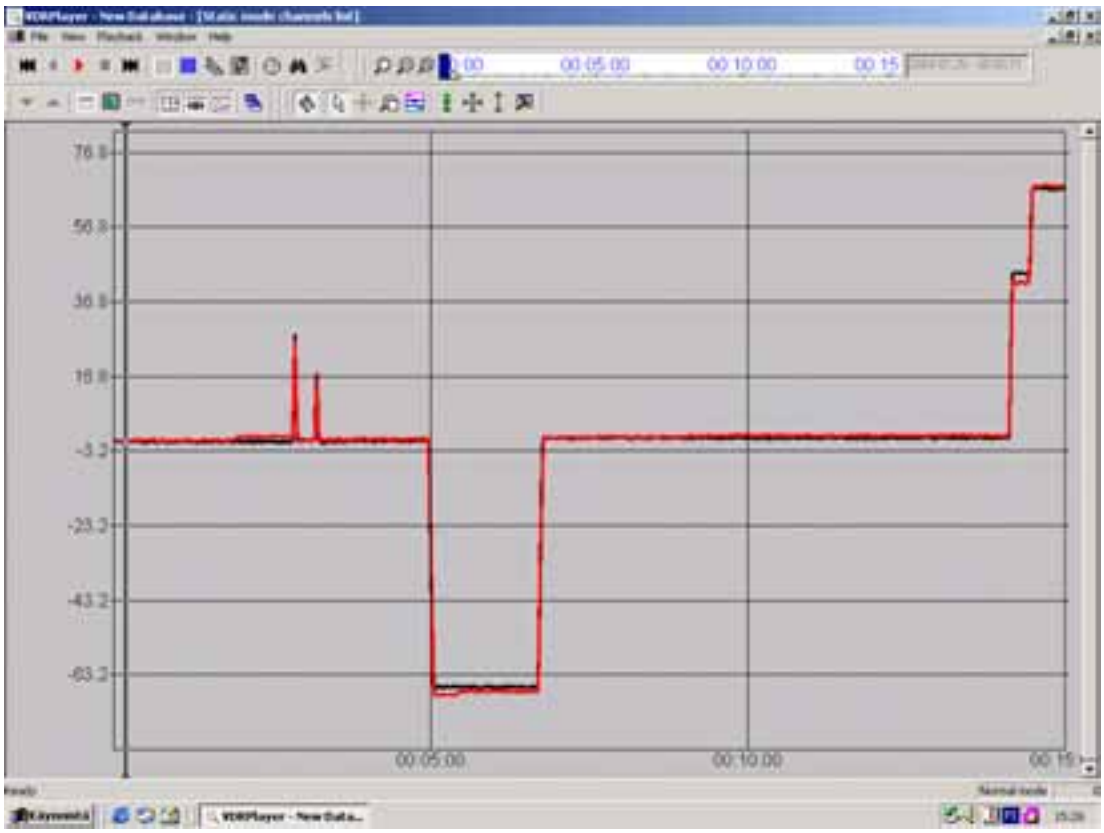


Image 12. VDR recording of the use of bow thrusters.

3 CONCLUSIONS

3.1 Sequence chain

1. The vessel was new to the Master and a possibility to familiarization was presented to him, which he carried out in the way he selected. He didn't use the offered opportunity in quantity, as it was possible.

2. Ship's departure preparations and -plans were not carried out together with the chief officer as instructed by the owner.

3. During the departure the Master was alone on the bridge, which he was not familiar with.

4. After the arrival to the bridge the chief officer went for lookout in the absence of dedicated look-out and he did not have time to make him conversant with the electronic navigation equipment and neither did master use these equipment, therefore the full situation awareness of the both was partly in shadow.

5. Communication on the bridge was poor and thoughts of intended manoeuvres were not changed.

6. Taking into consideration prevailing wind force and direction, both the main engines- and bow thrusters powers were not used enough right after vessel's departure. A conventional steering method was used, in which both rudders and propellers are used simultaneously.

7. Communication to the stern was cut in too early stage, which caused that the chief officer had to focus on the lookout to stern.

8. The Master changed to steer in the centre cockpit and forgot to activate the bow thrusters in the centre cockpit. Neither did the chief officer notice this when being in lookout duty.

Factors, which had influence to the accident development, are lack of compliance of the owner's SMS procedures, lack of familiarization to ship manoeuvre, insufficient use of the available steering- and navigational equipment and lack of bridge resource management.

3.2 Contributing factor

Bridge ergonomic related control of numerous switches and buttons could be considered as a contributing factor. When changing from a steering position to another, activation knobs must be beard in mind rather big amount if you are not using joystick. Companies, which are planning bridges in the shipbuilding industry, should investigate the possibilities to improve the above-mentioned issue.

3.3 Other safety observation

Fairway marking cannot be said directly to have been a influenced factor to the accident, but the investigators have paid attention to the Kapellskär skäret north eastern shallow which became as a surprise to the navigators and which is not marked with a maritime safety device.

4 RECOMMENDATIONS

The insufficient bridge recourse management which turned out, may originate from not to utilize the learned lessons or forgetting the same. Because Finnlines is planning BRM refreshment training to the officers, due to this accident, the investigators do not issue recommendation on this item.

The company familiarization procedure is clear and the company creates possibility to familiarization when it is possible, but there is no documentation left of the familiarization, therefore the investigation group recommends that:

1 *The company improves the familiarization system so that the familiarization achieves best possible benefit and that familiarization results are monitored and documented, when it is possible. The adviser should ensure during the familiarization period that the person who is to be familiarized has adopted the knowledge of the ship.*

Although the investigators cannot directly say if a possible seafaring safety device outside the Kapellskärs skäret northeastern shallow would have prevented this accident the investigation group recommends that:

2. *SMA investigates would a possible seafaring safety device outside of Kapellskär skäret northeastern shallow have a maritime safety increasing effect.*

Helsinki 30.09.2005

Juha Sjölund

Micael Vuorio

REFERENCES

Following reference material is stored in Accident Investigation Board premises.

1. Minutes of the Sea clearance with appendixes 04/1368
2. Masters and Chief Officers interview records
3. Masters marine accident declaration 21.1.2004
4. Extracts of the company/ship procedures
5. Crew list.
6. Cargo documentation
7. Damage description and drawings of the ship
8. Maps
9. Images
10. Stockholm VTS Recordings
11. Weather information
12. VDR printouts
13. Mail exchange

SWEDISH MARITIME SAFETY INSPECTORATE
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Date
09 June 2005

Our reference
080202-04-15143

Your date
16 May 2005

Your reference
155/5M

Accident Investigation Board
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00580 HELSINKI
Finland

Request for comments: M/V Finnclipper grounding off Kapellskär 20 January 2004

Dear Sir,

The following has been noted regarding the investigation concerning the grounding of M/V Finnclipper off Kapellskär 20 January 2004.

- The VTS in the area has access to AIS-information. However, the task is not to perform surveillance. The manning and competence of the personnel does not allow such duty, and is not intended to. Radar surveillance in the area does not exist.
  (Ref. 1.2.7 and 2.3)

- In spite of the requirements of STCW A-VIII/2 3.1 (13-14), a look-out was not dedicated, neither was that a requirement according to company procedures. A dedicated look-out may have assisted with keeping an eye on the pier or, later, the buoy, which may have resulted in a better opportunity for the master or the chief officer to pay attention to the ECDIS and the predictor. Whether or not this had any influence on the situation, this fact may be considered to be a factor and treated like one. The absence of look-out in company procedures may be noted and a reason for a recommendation for improvement to regulation standard.
  (Ref. 1.4.2 and 2.2)

- The fact that there was not enough water for the ship at the position of the grounding should have been known to the master, being holder of the pilot certificate. Both officers should have been aware of the risk of coming closer to shallow water as the ship moved away from the fairway. SMA considers it pointless to place a buoy on the position since it is actually away from the normally used water area.

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Hence, the recommendation could be removed without the quality of the investigation being jeopardised.
(Ref. 2.5, 3.3 and 4.2)

Yours faithfully,