Investigation report

D2/2011M

M/S BIRKA CARRIER (FIN) and M/Y LED ZEPPELIN (RUS), Collision in the Gulf of Finland on May 17, 2011

Translation of the original Finnish report

NUMBER OF INVESTIGATION: D2/2011M **INVESTIGATORS:** Risto Repo, Juha Sjölund
PUBLISHED: 11 June 2012

Date and time:	17.5.2011 at 15.48 LT (UTC+3)
Scene of an accident:	6 miles SSW from Helsinki Light House
Nature of accident:	Collision
Parties:	RoRo vessel BIRKA CARRIER and motor-yacht LED ZEP-PELIN
Consequences or damages:	Motor-yacht LED ZEPPELIN suffered remarkable damages on her port side structure. No personal injuries.
Weather conditions:	Clear skies, visibility over 10 km, wind SSW 1 bf
Lightning conditions:	Daylight
Other conditions:	Height of the wave about 0,5 m, water temperature about 9°C

Foreword

Safety Investigation Authority appointed marine accident investigator, Master mariner Risto **Repo** and investigator, Master mariner Juha **Sjölund** to investigate this accident. Risto Repo visited both vessels in 18.5.2011 for making acquaintance with situation. BIRKA CARRIER was equipped with S-VDR (Rutter) which had filed the data concerning the accident. This file was made available to the investigators. Investigation is based on BIRKA CARRIER´s VDR file, statement of sea damage, hearing of LED ZEPPELIN´s Master and numerous photos.

Used abbreviations:

HDG	Heading
SPD	Speed
ARPA	Automatic radar plotting aid
EBL	Electronic bearing line
CPA	Closest point of approach
RNG	Range
SPD	Speed
CSE	Course
COLREGS	International Regulations for Preventing Collision at Sea

1 THE COURSE OF EVENTS AND INVESTIGATIONS

1.1 Vessels

M/S BIRKA CARRIER

Photo 1. M/S BIRKA CARRIER. (© Safety Investigation Authority)

Name:	M/S BIRKA CARRIER
Owner:	Birka Cargo Ltd, Finland
Build:	1998, Rissa Norway
Type:	RoRo vessel
Nationality:	Finland
Call sign:	OJHT
Length over all:	154,5 m
Beam:	22,7 m
Draught:	6,95 m
Dead weight:	8853 t
Gross register ton:	12251
Speed:	20,0 knots in full draft (6,95 m)

M/Y LED ZEPPELIN

Photo 2. M/Y LED ZEPPELIN. *(© Safety Investigation Authority)*

Name:	M/Y LED ZEPPELIN
Pleasure craft:	Fairlane Phantom 48
Home port:	Jersey
Call sign	2VD03
Owner:	Soryam Finance Corporation
Length:	15,18 m
Beam:	4,46 m
Draught when empty:	1,12 m
Engine power:	2 x 575 hv
Speed:	32 knots

1.1.1 Crew of the ship

M/S BIRKA CARRIER

The ship had 12 pers, crew of which 4 were deck officers, the Master, and three Officers. Watch keeping on the bridge was carried out in 3 watches. At the time of the accident on the bridge there were two watch officers changing over the watch. The Master was in the vessels office. The lookout was doing maintenance duties onboard.

M/Y LED ZEPPELIN

The boat had one man crew (Skipper) and one passenger. The Skipper was responsible for navigating. According to him the boat was steered by autopilot to the direction 011°.

1.1.2 Navigational equipment

M/S BIRKA CARRIER

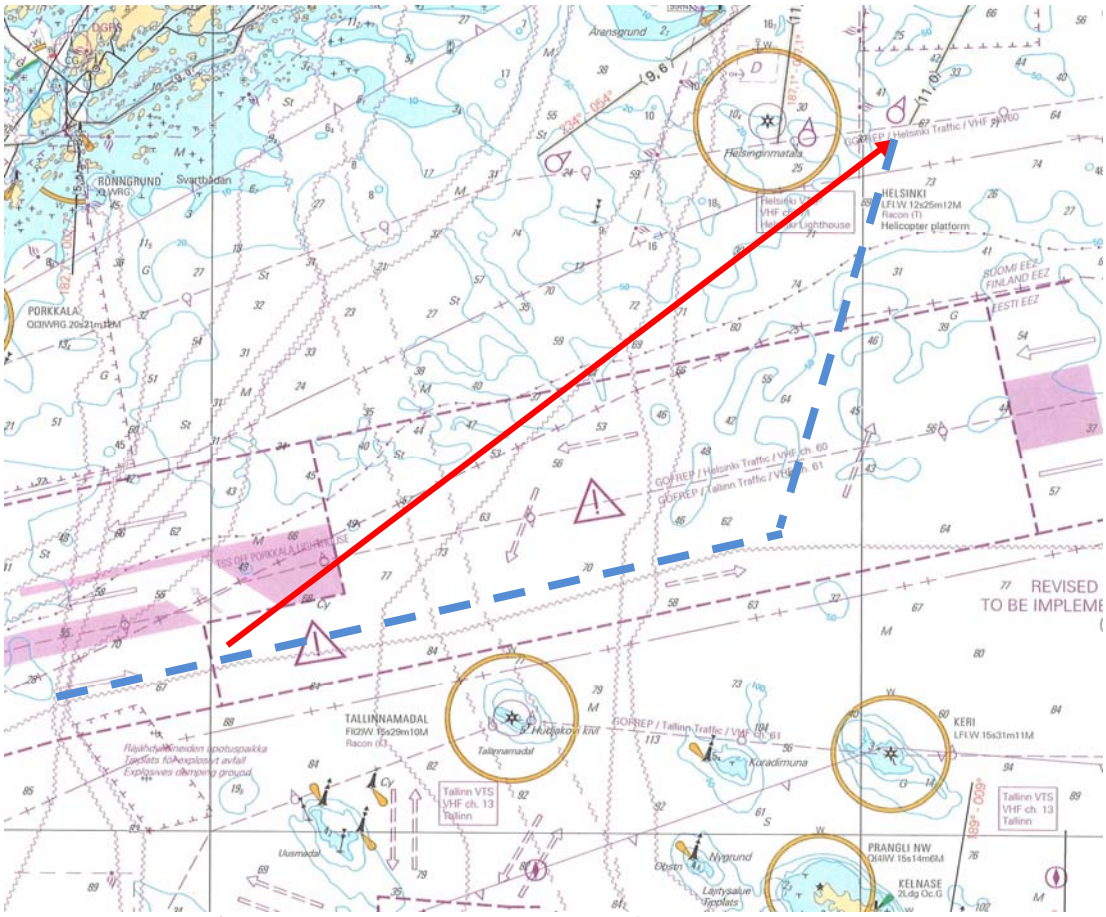
There were two Sam 1100 Multipilot ARPA radars on board. Both were in use by the watch officer. Scales of the radars were adjusted in 6 and 12 miles ranges with North up Off-center display. Ship´s Sam 1100 Track autopilot was in use.

M/Y LED ZEPPELIN

The boat has combined Raymarine radar and chart-plotter device. Portable PC includes only a chart-program. During the voyage the combined device was switched only on chart-display, in order to follow the approach to Helsinki.

1.2 The accident voyage

BIRKA CARRIER was carrying cargo from Hull, UK, to Helsinki. The vessel was navigating in the Gulf of Finland on17.5.2011 towards Helsinki in the area of traffic separation scheme towards west-bound traffic flow (see picture 3).



Picture 3. → *BIRKA CARRIER´s route.*

Route according Traffic separation scheme.

Pleasure-craft LED ZEPPELIN sailed from Tallinn on17.5.2011 at 15.30 bound for Helsinki.

According to BIRKA CARRIER´s marine casualty report, the first optical sight of LED ZEPPELIN was obtained in bearing 135° at the distance of approximately 3 miles. BIRKA CARRIER´s course was 048°. LED ZEPPELIN is not fitted with AIS transponder.

According to LED ZEPPELIN´s skipper, BIRKA CARRIER was seen on port side about half an hour before the collision at the distance of about 7-8 miles. According to skipper he did not look out to the direction of BIRKA CARRIER, because he concentrated to watch navigational devices located in steering place and looked straight ahead. BIRKA CARRIER could not have been seen to the steering place because of the structure of the cabin. The combined radar/chart display device was switched only on chart display. Therefore no radar observation from BIRKA CARRIER was received.

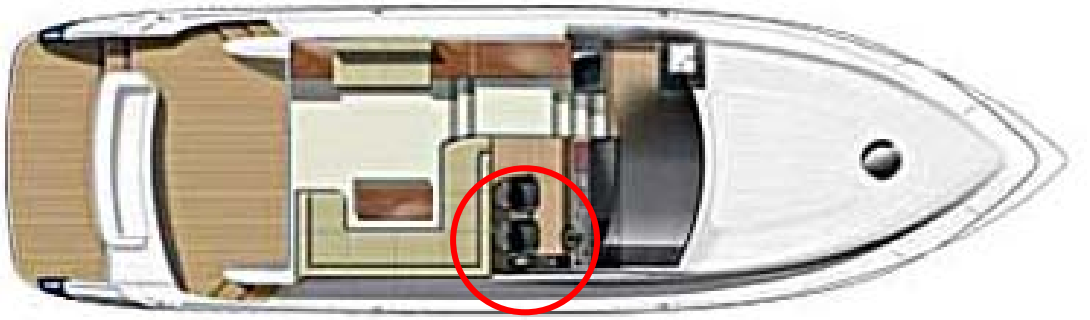


Figure 4. The location of steering place. (Source: manufacture´s brochure)

Before the collision, there was no VHF communication between the vessels.

1.3 Scene of the accident

Scene of the accident is located North of the Traffic Separation Zone, 6 miles to south-west from the Helsinki Light House.

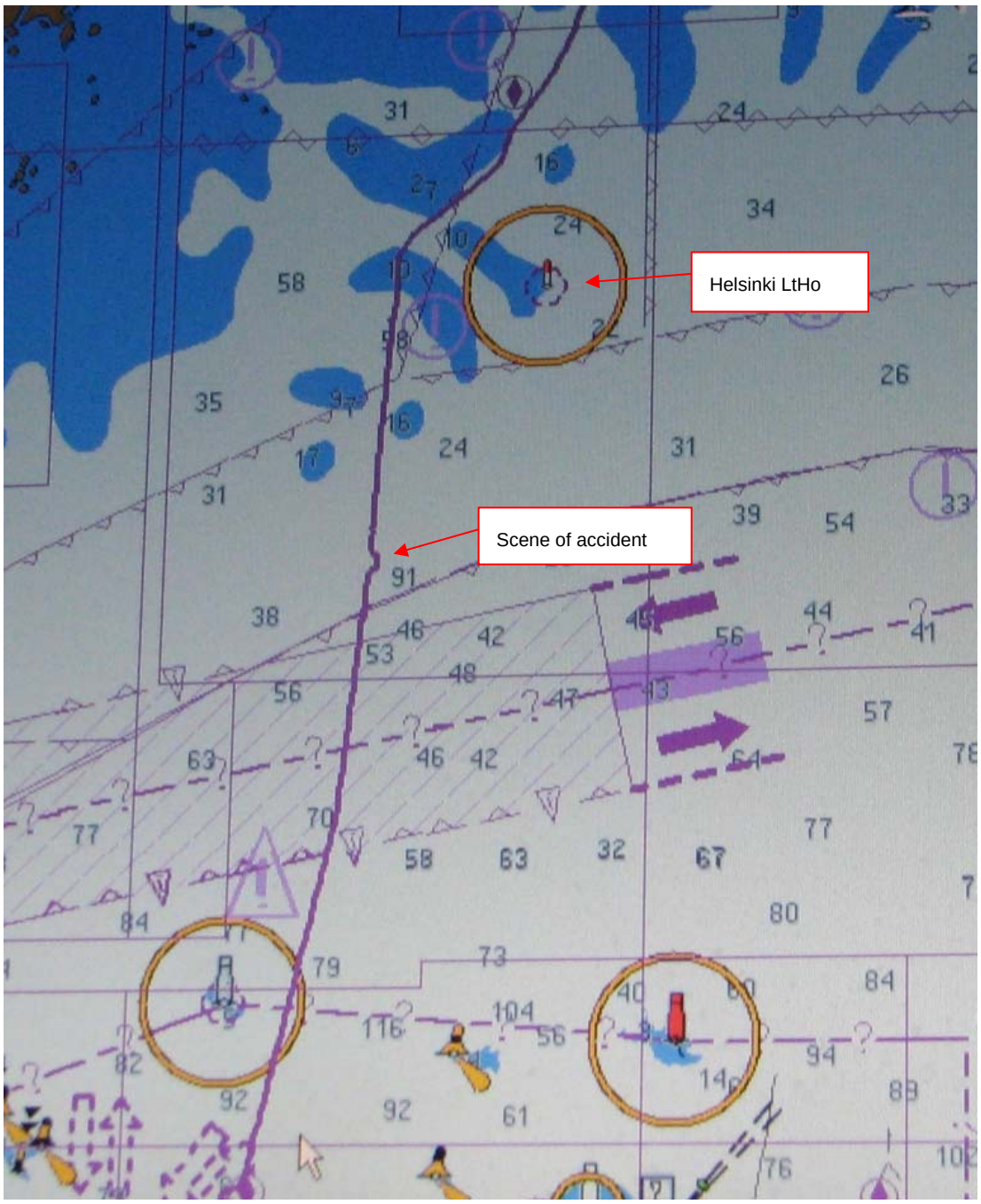


Figure 5. Extract from LED ZEPPELIN´s computer chart display describing her track.

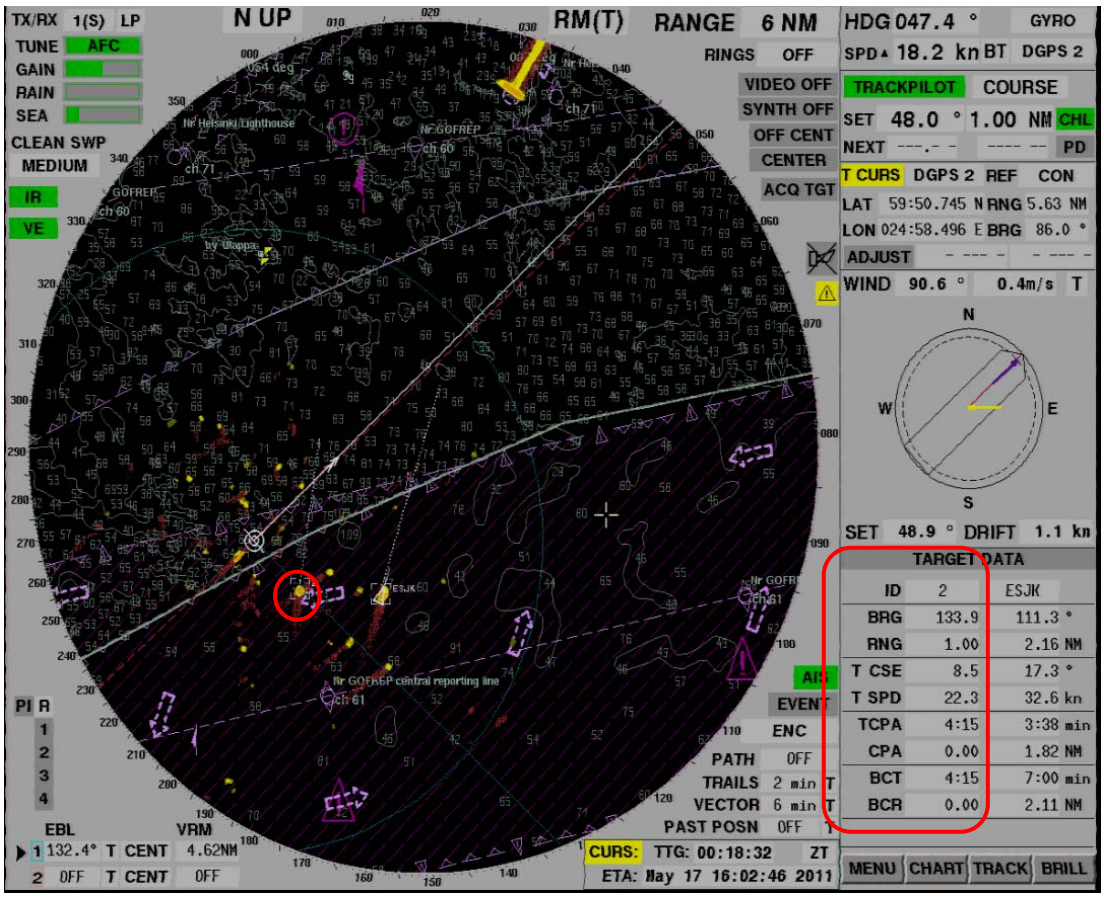


Figure 6. Extract from BIRKA CARRIER´s S-VRD. Figures inside the red highlighted box informs about the observation of LED ZEPPELIN in ARPA-radar 4 min 15 sec before the collision. Bearing 087 degrees on starboard side and CPA 0,00. It is also a noteworthy fact that the radar´s buzzer informing about the risk of collision had been switched off.

1.4 The course of events

At 15:35 the first optical observation from BIRKA CARRIER to LED ZEPPELIN was made in bearing 135°, distance about 3 miles.

Table 1. The progression of collision situation has been tried to describe, by using BIRKA CARRIER´s S-VDR information.

	BIRKA CARRIER			**LED ZEPPELIN**					
Time hh.mm.ss	HDG	SPD Knots	ARPA **Alarm**	EBL	BRG	CPA Mile	RNG Mile	SPD Knots	CSE
15.35.00					135°		3,0		
15.41.18	048°			132,4°					
15.44.06	048°	19,3	**X**	132,4°	134,2°	0,03	1,07	22,4	
15.44.20	048,4°	18,2	**X**	132,4°	133,9°	0,0	1,00	22,3	8,5°
15.44.35	047,5°	18,3	**X**	132,4°	134,2°	0,03	0,94	22,4	7,1°
15.46.22	047,7°	18,1	**X**	132,4°	137,2°	0,06	0,5	22,2	5,5°
15.47.48	048°	17,5	**X**		154,8°	0,03	0,1	23	3,8°

The collision can be determined to have occurred at 15.47.48. Observations by radar in very short distances are scanty and therefore unreliable. The alarm of Arpa -radar had been switched off.

LED ZEPPELIN approached BIRKA CARRIER from starboard in bearing 084° and the EBL- bearing did not change. Just before the collision the bearing changed 3 degrees.

According to BIRKA CARRIER´s marine casualty report; as LED ZEPPELIN was on the starboard beam, BIRKA CARRIER changed the course Hard to Port at the distance of 80 metres and the watch-officer gave one short blast with Foghorn. According to COLREGS one short blast means that I am turning to starboard. This did not happen and the ship was turned to the port just before the collision. This was right action but it was undertaken too late.

According to LED ZEPPELIN´s skipper, he did not undertake any alteration of course as he did not see BIRKA CARRIER. Figures 4 and 5 do show precisely the movements of LED ZEPPELIN at the moment of the collision. According to the figures, LED ZEPPELIN turns over to starboard pushed by the collision.

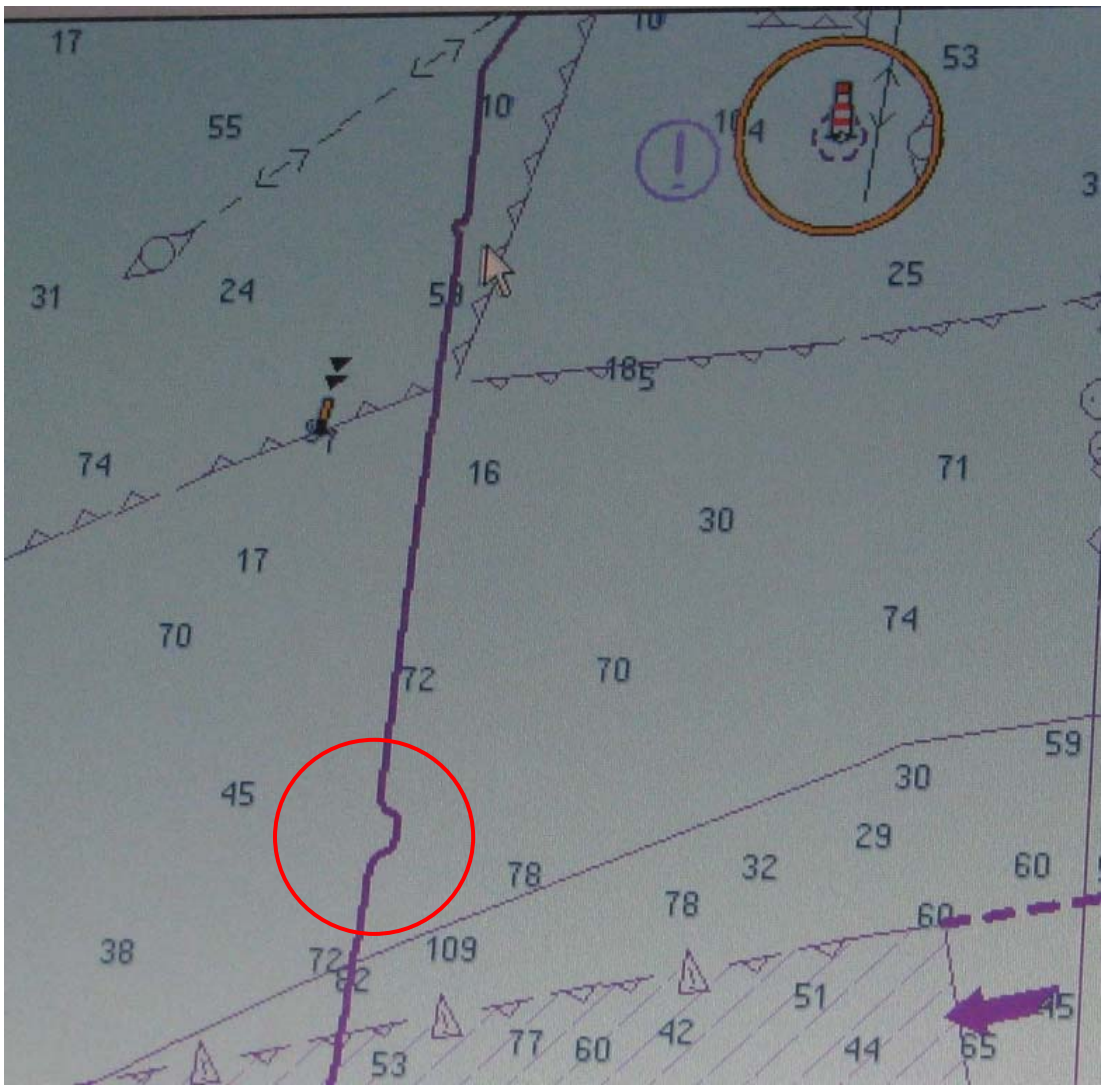


Figure 7. Extract from the electronic chart of LED ZEPPELIN´s computer.

Actions after the accident

BIRKA CARRIER called LED ZEPPELIN on VHF channel 16 and worked out the possible need for help. LED ZEPPELIN did not need help and she could continue the voyage. The Vessel Traffic Service and MRSC were informed by BIRKA CARRIER. Sea rescue helicopter arrived to the scene of accident in 10 minutes to ensure the situation and flew away, after having ensured that parties did not need help.

1.5 Applied rules of international regulations for preventing collision at sea

Rule 5 Look-out

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

RULE 7 a

Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.

RULE 10 Traffic separation schemes

(j) A vessel of less than 20 metres in length or a sailing vessel shall not impede the safe passage of a power-driven vessel following a traffic lane.

RULE 15 Crossing situation

When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

RULE 16 Action by give- way vessel

Every vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to keep well clear.

RULE 17 Action by stand-on vessel

(a) (i) Where one of two vessels is to keep out of the way the other shall keep her course and speed.
(ii) The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules.

(b) When, from any cause, the vessel required to keep her course and speed finds herself so close that collision cannot be avoided by the action of the give-way vessel alone, she shall take such action as will best aid to avoid collision.

(c) A power-driven vessel which takes action in a crossing situation in accordance with subparagraph (a)(ii) of this Rule to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on her own port side.

(d) This Rule does not relieve the give-way vessel of her obligation to keep out of the way.

2 ANALYSIS

2.1 The obligation of give-way vessel

According to BIRKA CARRIER´s VDR the EBL following LED ZEPPELIN did not alter at all and the bearing of ARPA radar did not alter until the distance of 0,5 miles by 3 degrees. In close-quarters situation a few degrees bearing change cannot be considered to avoid the risk of collision because small errors in devices and “roaming” of the course can cause bearing changes. If there is any doubt about the risk of collision it shall be deemed to exist. The display of CPA in ARPA radar indicated 0,03-0,06 miles CPA. This can be considered quite too short distance so the risk of collision was apparent. LED ZEPPELIN was visually observed and EBL was placed on her accordingly, but afterwards a proper look-out was probably forgotten aboard the BIRKA CARRIER during the discussion between the officers in the change over the watch and the situation led to collision. Just a moment before the collision a short blast given by BIRKA CARRIER was obviously meant to the attention of LED ZEPPELIN, but it was not heard.

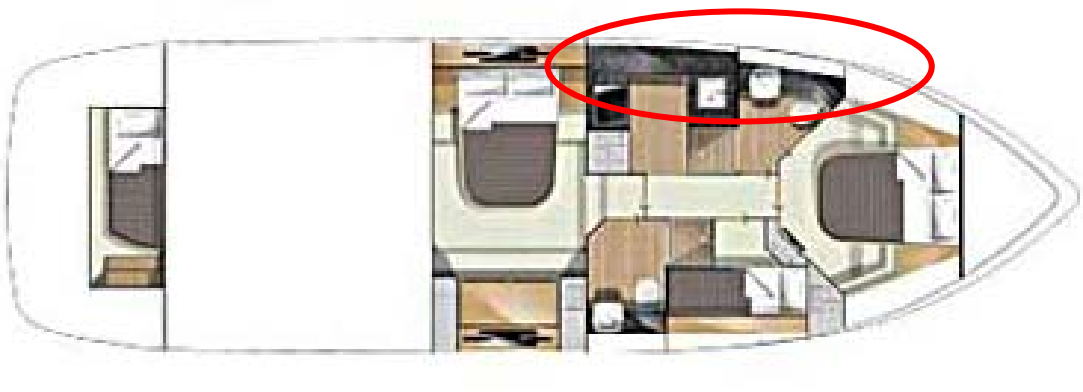
LED ZEPPELIN proceeded about 3 knots faster than BIRKA CARRIER but 43° difference in courses kept the bearing unchanged in EBL. Due to these facts LED ZEPPELIN cannot be considered to be an overtaking vessel.

In the risk of collision like this, when overtaken vessel is almost abeam, recommended actions for the overtaking vessel are; early alteration of course to port and/or reduce speed enough to be readily apparent to another vessel.

LED ZEPPELIN did not undertake actions according rule 17 b due to neglect of proper look-out. The skipper partly lost the control of other traffic when he switched off radar display, concentrating only to study the chart and to look-out ahead. This indicates that the route plan had not been worked up. Visibility from the steering place was restricted to the port side. In order to get better optical observations, one should have been on the move.

Pleasure crafts and other vessels of less than 20 meters in length, shall not impede the safe passage of a power-driven vessel following the traffic lane. The accident occurred outside of the traffic separation scheme but the situation started to progress inside the traffic separation scheme. The investigators are of the opinion that, the regulations concerning this area should have also been taken into consideration by both parties of the accident.

Damages on LED ZEPPELIN´s port side do indicate that the angle of crash was not very sharp. The bow was not damaged.



Picture 8. The red ellipse shows roughly the damaged area.

3 CONCLUSIONS

3.1 Application of the Rules

The accident occurred during the change of watch on BIRKA CARRIER. This may have disturbed the follow-up of the traffic around, in other words a proper look-out. In any case BIRKA CARRIER did not undertake sufficient action to avoid collision in ample time. In some cases merchant ships do not take into account the equal rights of pleasure crafts to sail in the open sea. From the accident in question one can form an opinion that this fact was not taken into account seriously enough, considering that LED ZEPPELIN was in follow-up by ARPA radar for a long period and the risk of collision was obvious.

Manufacturers of pleasure crafts tend to design their boats as streamlined as possible, partly ignoring the practical use for instance the visibility from steering place. If there is only one person in cabin acting both as navigator and look-out, he must be most watchful in both roles, and keep the rules in mind. It is of vital importance that all navigational devices available onboard, are used in a way that ensures safe navigation, efficient follow-up of traffic around and especially determination the risk of collision. Concerning pleasure crafts less than 20 meters in length, this is of vital importance, as according to the COLREGs, merchant ships have priority inside a traffic separation scheme.

4 SAFETY OBSERVATIONS

Investigators paid attention to BIRKA CARRIER´s way to navigate against the Rules of Traffic separation schemes. The Traffic separation schemes in the Gulf of Finland have been created to enhance safety and fluency of shipping. Therefore it is vitally important to comply with the rules. Pleasure crafts have to take into account Colreg´s rule 10 (j).

4.1 Safety Recommendations

Regulations for Preventing Collisions at Sea do include all essential information to avoid collision at sea.