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Directorate „Unit for Investigation of Accidents in the Aviation, Maritimeand RailRoad Transport"

Maritime Accident Investigation Unit

FINAL REPORT

Investigation of serious marine casualty – a collision of motor vessel „Lady Gul" with motor vessel „St. Catrien", occurred on 07.03.2013 in Black Sea, in the territorial waters of Republic of Bulgaria
(reclassified as a very serious casualty due to the deletion of the m/v "St. Catrien" in the Union of Comoros Ship Register as "a total loss")


LADY GUL
8 9:09


ST. CATRIEN
8 8:53

1. Introduction

The investigation was carried out by a commission appointed by Order RD-08-167 of 22.03.2013 by the Minister of Transport, Information Technology and Communications.
The aim of the investigation was to improve the safety of navigation by identifying the circumstances and causes at which the serious marine casualty had occurred and progressed in order to prevent a reoccurrence in the future.
Conclusions and solutions are sought to improve the safety by analysing the causes led to the collision of *m/v "Lady Gul"* and *m/v "St. Catrien"* on 07.03.2013 and by taking into account the repetition of the event "ships collision" in an identical way within the territorial sea of the Republic of Bulgaria.
This report and the safety recommendations mentioned therein are intended neither to put blame nor to create a presumption of blame or liability to any participant or involved person in the serious casualty.
The report was not written with intentions to establish blame or liability to anyone or to be used in a trial.
The report should not be used for legal resolution between the parties affected by the considered marine casualty.
This report is public and was published on the official website of the Ministry of Transport, Information Technology and Communications.

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All times stated are local time(UTC +2 hours).

3. List of Used Abbreviations and Terms

IMO - International Maritime Organization.

MSC - Maritime Safety Committee at IMO.

MEPC - Marine Environment Protection Committee at IMO.

COLREGs - Convention on the International Regulations for Preventing Collisions at Sea, 1972

MAIU = BMAIB (Bulgarian Maritime Accident Investigation Body)
Maritime Accident Investigation Unit at the Directorate "Unit for Aircraft, Maritime and Railway Accidents Investigation" of the Ministry of Transport, Information Technology and Communications.

VDR - Voyage Data Recorder - an electronic device on ships that records navigational, engine, electronic status for later accident investigation (a type of black box)

S-VDR - Simplified Voyage Data Recorder

AIS - Automated Identification System. It is mandatory for all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and all passenger ships irrespective of size.

VTMIS - "Vessel Traffic Management and Information System"

BMA	Bulgarian Maritime Administration
DMA - Varna	Directorate „Maritime Administration" - Varna
MI	Ministry of Interior
MTITC	Ministry of Transport, Information Technology and Communications
MRCC - Varna	Maritime Rescue Coordination Centre – Varna. The service responsible for search and rescue operations within the area of the responsibility of the Republic of Bulgaria according to the Plan for search and rescue operations in the Black Sea.
NSBP at MI	National Service Border Police at MI
m/v	motor vessel
GMDSS	Global Maritime Distress and Safety System
MMSI	Maritime Mobile Service Identity - identification number of ship's GMDSS radio equipment
φ = latitude [xx°xx,xx' N]	geographic latitude North
λ = longitude [xxx°xx,xx' E]	geographic longitude East
UTC	Coordinated Universal Time determined by an atomic clock - an analogue of GMT.
GMT	Greenwich Mean Time.
PARIS MoU	Europe and North Atlantic region Memorandum of Understanding on Port State Control. Its mission is to eliminate the operation of sub-standard ships through a harmonized system of Port State Control.
ISM	International Safety Management Code
GT	**Gross Tonnage:** Gross tonnage is calculated based on "the moulded volume of all enclosed spaces of the ship".
Register ton	equals a volume of 100 cubic feet or 2,83 m^3.

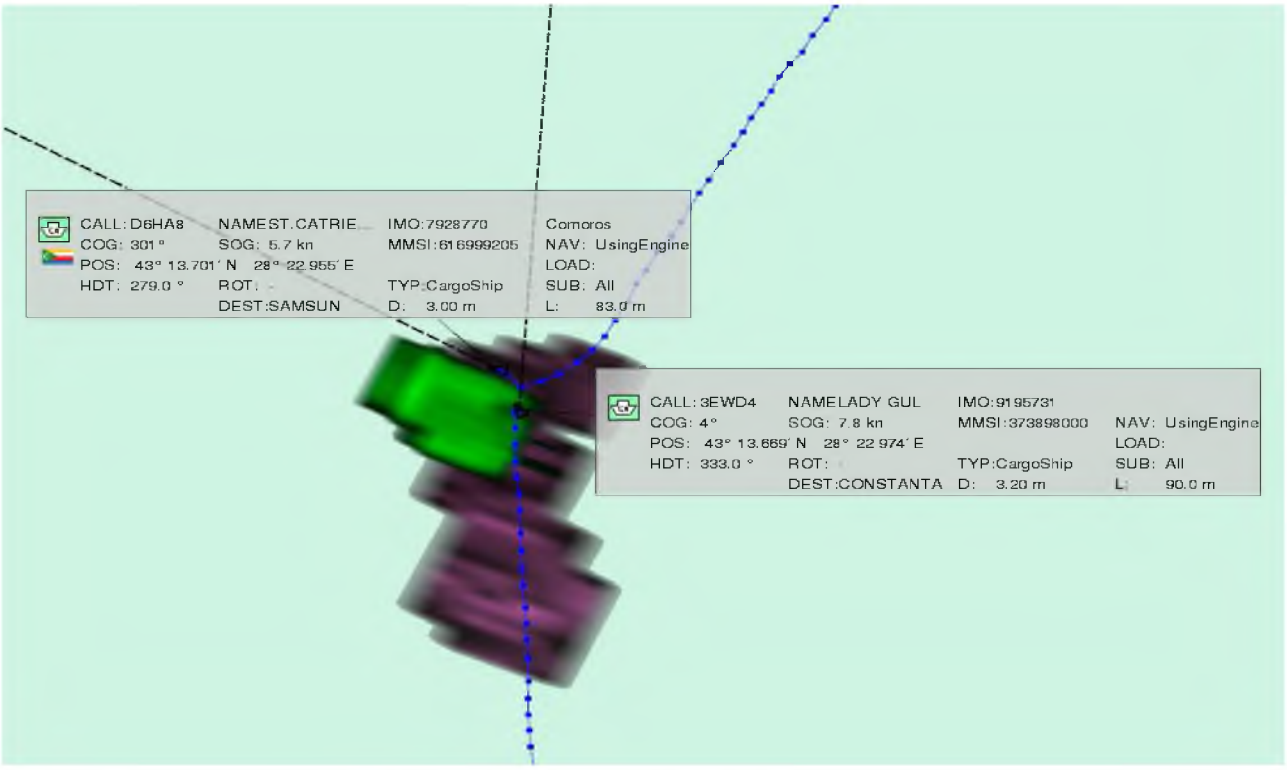
Deadweight (max)	The ship's weight at the summer load mark draft in sea water (1,025% salinity) reduced by the weight of empty (light) ship and the remaining unknown (dead) cargo and stores.
Metric ton [m.t.]	1 000 kg.
GH	Gyro heading.
TC [xxx,x°]	**True course** - the compass heading corrected with the general correction of the compass (or with the general error, depending on the calculating system).
COG [xxx,x°]	**Course on going** – the true course corrected with the corrections for wind and current. The ongoing course calculated on the sea ground.
V/ SOG	**Speed on going** – the speed calculated on the sea ground.
Knot [kt]	A speed unit at sea. 1 kt = 1 standard nautical mile per 1 hour.
Nautical mile [NM]	1 nautical mile (standard) = 1 852 m.
Cable	1 cable = 0,1 NM
D	**Distance.**
GPS	**Global Positioning System** providing location information (φ;λ) using geostationary satellites and VHF transceivers.
POS	**Position** – the location (φ;λ coordinates) of a vessel.
B [xxx,x°]	**Bearing** - a direction (an angle) measured according to the north, from the observer to the observed object (target). The measurement is in degrees of arcs and tenths, from 0° to 360°.
CA [xxx,x°]	**Course angle** - a direction (an angle) measured according to the centre-line plane of a vessel, from the observer to the observed object (target). It is measured in degrees of arcs and tenths in semi-circular system from 0° to 180°.
CLP	**Centre-line plane of a vessel** – the longitudinal vertical plane, which passes through the middle of the bow and the middle of the vessel stern.
ECDIS	**Electronic Chart Display and Information System**
BRS	**Bulgarian Register of Shipping**
Yaw	Oscillations in the course maintained by a vessel due to external influence and autopilot system settings.

4. Summary

On 07.03.2013, about nine miles south-southwest of Cape Kaliakra the general cargo ship *m/v "Lady Gul"*, flying the flag of Panama, collided with the general cargo ship *m/v "St. Catrien"*, flying the flag of Union of Comoros. This area falls within the territorial sea of the Republic of Bulgaria. After examining the facts reported by MRCC-Varna, the Maritime Accident Investigation Unit classified the accident as a "serious casualty" in accordance with the circular letter MSC-MEPC.3/Circ.3 of 18.12.2008, a collision led to serious structural damage - hull bending of the *m/v "St. Catrien"*, and took a decision to investigate.

On 06.01.2014 the vessel owners of *m/v "St. Catrien"*, Sudoservice Shipping Consultancy and Trading Ltd. - Istanbul, Turkey, which was at the same time the vessel's ISM Manager and operator responded to the request of the MAIU explaining that as a result of the damages sustained on 19.04.2013 the *m/v "St. Catrien"* had been declared a constructive total loss and on 10.14.2013 she was deleted from the Union of Comoros ship registry. According to current regulations (IMO resolution MSC.255 (84), Directive 2009/18/EC of the European Parliament and the Council, Ordinance № 23 on reporting and investigation of marine causalities of MTITC from 24.10.2011) the accident was to be considered as very serious casualty - a total loss.

The investigation began on 08.03.2013 with evidence, data and testimony collection at berth No. 1 - Varna where the two vessels were berthed by order of the Captain of Port of Varna. During the investigation as a result of the examination of electronic evidence obtained from the Directorate Vessel Traffic Management - Black Sea of the Bulgarian Ports Infrastructure Company at MTITC and of electronic evidence obtained from the General Directorate Border Police at the Ministry of Interior the exact time of the collision of the *m/v "Lady Gul"* and the *m/v "St. Catrien*" was found to be 17:22 (15:22 GMT) on 07.03.2013 at a point with coordinates φ = 43°13,70' N and λ = 028° 22,96'E.



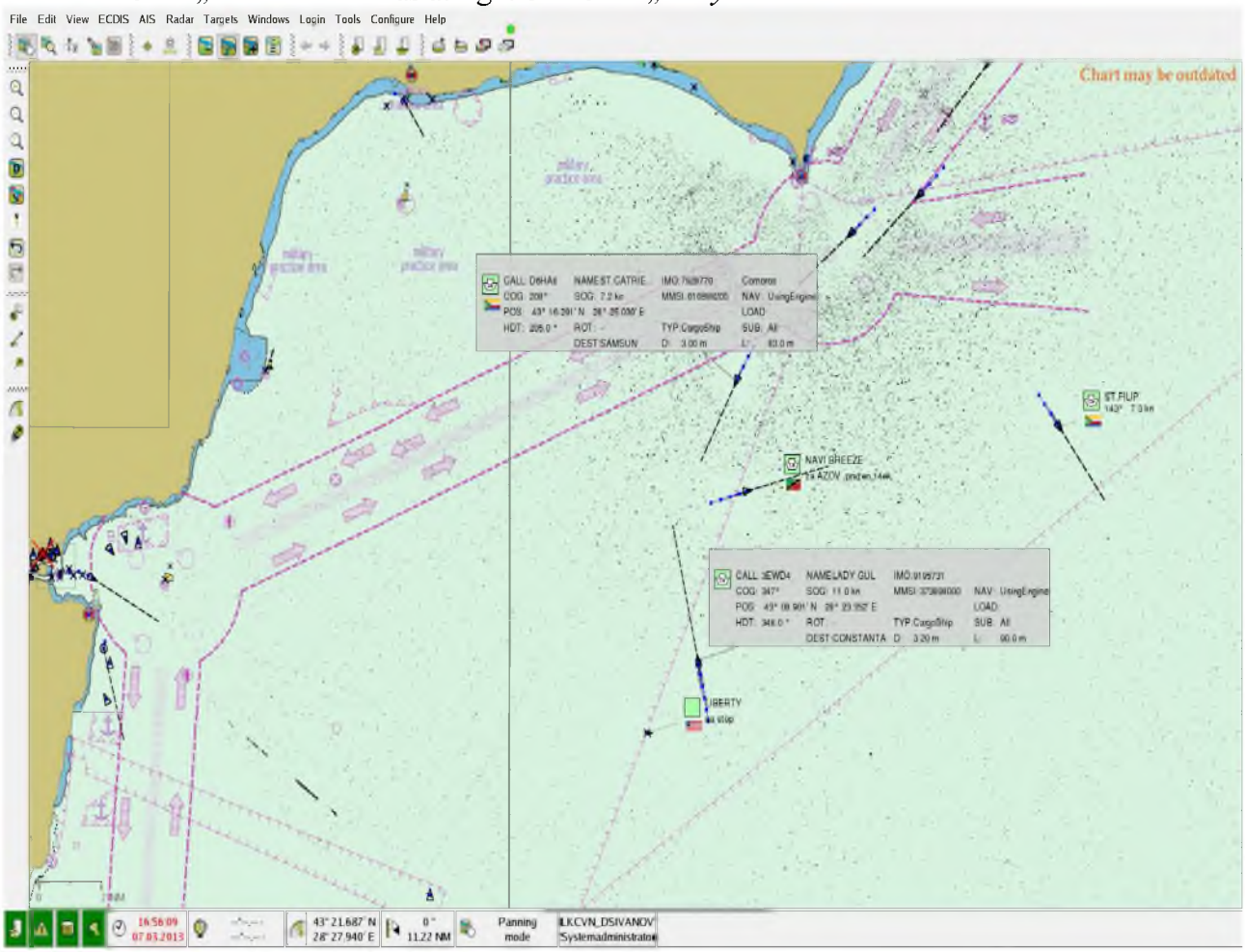
17:21:41 A moment of the collision. Radar image provided by CD Border Police at MI.

The *m/v "Lady Gul"* with crew of eight including the captain maintained true course 352° and speed of 11.2 knots to sheltered anchorage west of Cape Kaliakra where she has to wait for an order to load in Constanta. The vessel with ballast was on her first trip after repair of the engine in Tuzla (a suburb of Istanbul). Gross tonnage = 2545; length overall = 88,78 m; width = 12,50 m, board height = 7.02 m.

The *m/v "St. Catrien"* with crew of eight including the captain maintained true course 210° and speed of 7.2 knots loaded with baled straw full load including on the deck. The cargo was loaded in Constanta and was destined for Samsun (in north-eastern part of Turkey). The sailing was entirely in the Black Sea. Captain received a forecast of bad weather. As a result he did not choose the straight route from Constanta to Samsun. The captain decided to stick close to the Romanian and Bulgarian coast until entry in the Traffic Separation Scheme southeast of Cape Emine and then to leave it in its south-eastern circulation area on route to Samsun. The vessel has one overall cargo hold, like a self-propelled barge. Gross tonnage = 1740; length overall = 82,18 m; width = 11,30 m, board height of 6.00 m.

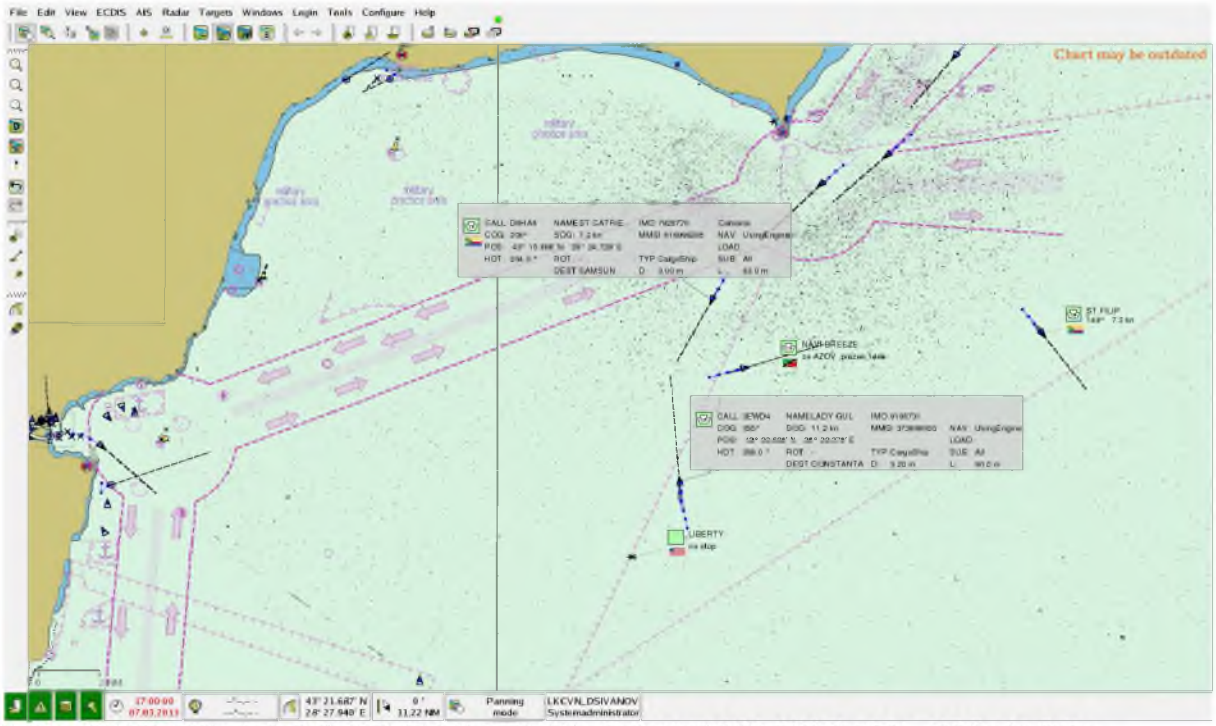
The vessels were sailing on intersecting courses. The visibility was good. Wind waves were weak. The chief mate was on watch at the time of the collision. Both chief mates said they had been rested and had timely noticed that the bearing to the other vessel involved in the collision was permanent. Both said they had realized that the vessels were going to collide. They also stated that each of them had tried to contact the other vessel on VHF radio channel 16. Both chief mates said that none of them had received a call on radio from the other. Both vessels were not equipped with VDR/ S-VDR and there was no requirement for such equipment.

The *m/v„St. Catrien"* was at right of the *m/v„Lady Gul"*.

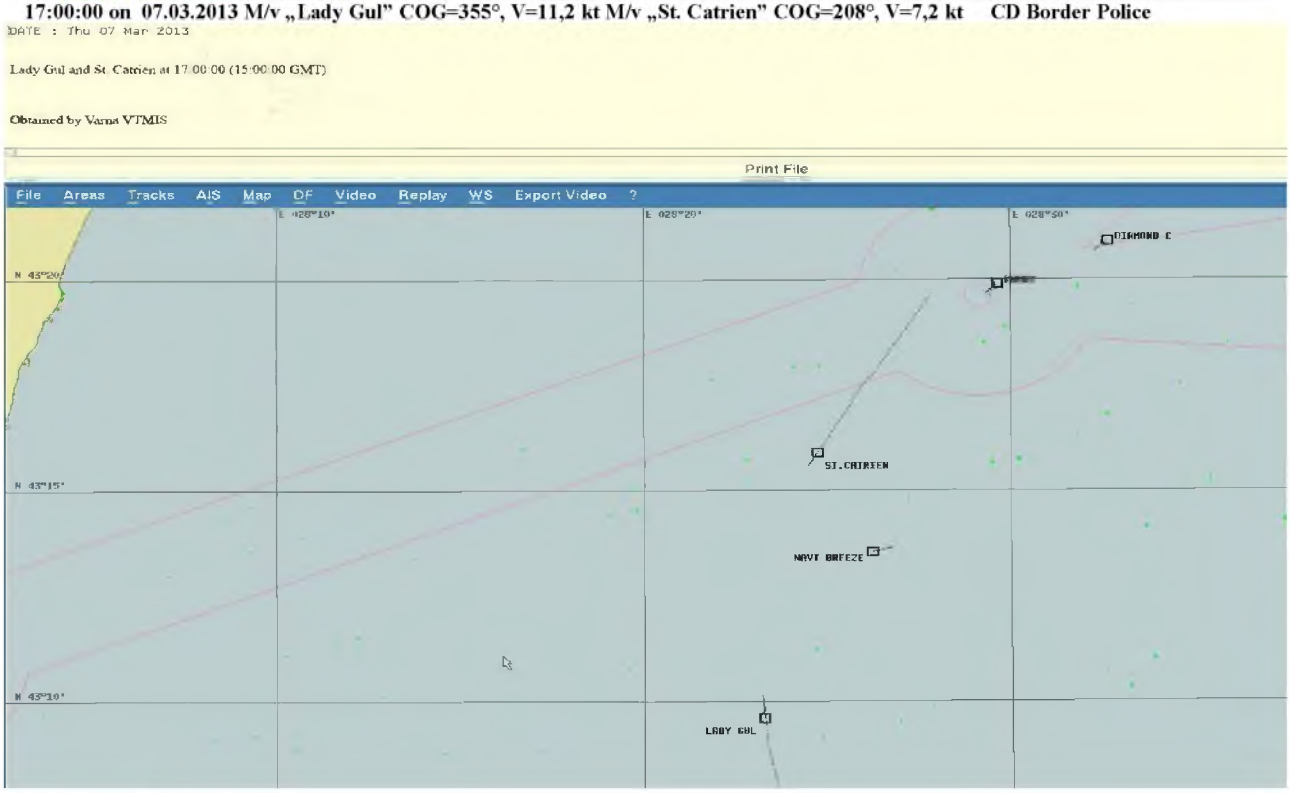


16:56:09 on 07.03.2013 M/v„Lady Gul" COG=347°, V=11,0 kt M/v„St. Catrien" COG=208°, V=7,2 kt
CD Border Police at MI

IRPCS, Part B – Steering and Sailing Rules, Section I – Conduct of vessels in any condition of visibility, Rule 8 (b) states: „Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided." Without fully quoting the Rule 8 of IRPCS we will note that it has been completely ignored. The Rule 15 and Rule 16 of Section II, Part B, IRPCS have been also completely ignored. The Rule 17, paragraph (a) item 2; (b) and (d) have been ignored too.

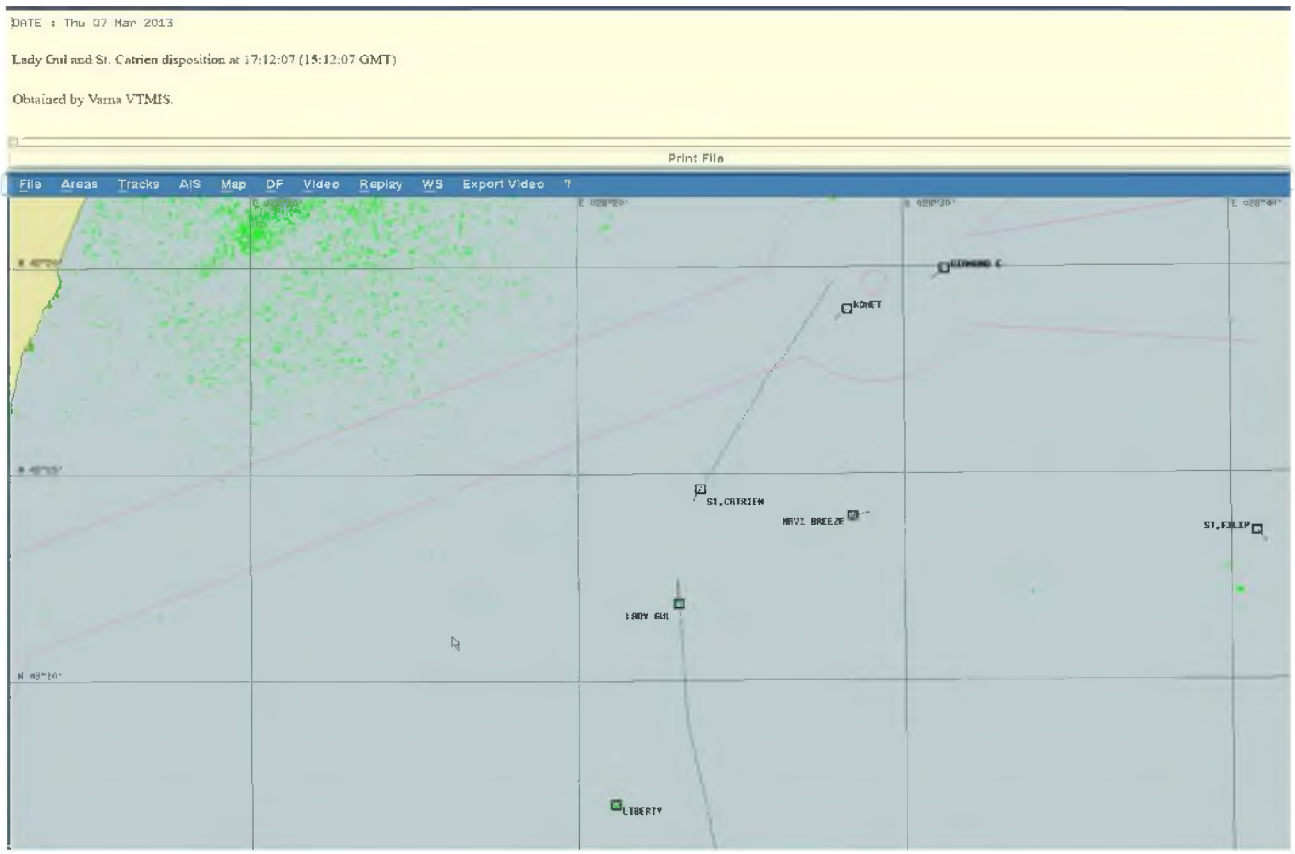


17:00:00 on 07.03.2013 M/v „Lady Gul" COG=355°, V=11,2 kt M/v „St. Catrien" COG=208°, V=7,2 kt CD Border Police



17:00:00 on 07.03.2013 M/v „Lady Gul" - Bearing to m/v „St. Catrien" = 010°; D = 64 cables.
M/v „St. Catrien" - Bearing to m/v „Lady Gul" = 190°; D = 64 cables. VTMIS – Varna

Between 16:56 and 17:00 the *m/v "Lady Gul"* slightly alternated her course to starboard.
The practice of good seamanship requires that the *m/v "Lady Gul"* (obliged to keep out the way according to the Rule 15 of IRPCS) to change the course angle to the *m/v "St. Catrien"* from CA starboard to CA portside.
Such a manoeuvre was not performed. On the other hand, the *m/v "St. Catrien"* (having the right to keep her course according to the Rule 17 (a) (1) of IRPCS) did not respond in a timely manner according to the Rule 17 (a) (2) by a manoeuvre to avoid the risk of collision, regardless of the finding that the bearing to the *m/v "Lady Gul"* was remaining constant and the distance was decreasing.



17:12:07 on 07.03.2013 M/v „Lady Gul" - Bearing to m/v „St. Catrien" = 010°; D = 28 cables.
M/v „St. Catrien" - Bearing to m/v „Lady Gul" = 190°; D = 28 cables. VTMIS – Varna

M/v "Lady Gul" and *m/v "St. Catrien"* went on collision; however no early and substantial actions had been taken according to the Rule 16 and Rule 17 (b) of IRPCS.

At 17:20:56 the *m/v "St. Catrien"* began turning starboard to avoid the collision, but the manoeuvre was taken too late and did not lead to vessels passing.

At 17:22 the collision was a fact. The *m/v "Lady Gul"* with the right side of her bow hit the left side of the *m/v "St. Catrien"* which was in process of circulation to the right. The impact was in the area between the load line mark and the housing of the *m/v "St. Catrien"* at an angle of 60°-70° to CL in the direction of travel.

As a result of the collision the *m/v "St. Catrien"* suffered hull damage, bending and hatch cover failure. The *m/v "Lady Gul"* got a small hole on the right side of the nose, above the waterline. By order of the Captain of Port of Varna both ships were detained. The *m/v "Lady Gul"* recovered her seaworthiness after repair for restoring the integrity of the hull and sailed off on 12.03.2013 from Varna. The *m/v "St. Catrien"* unloaded the baled straw cargo and on 21.03.2013 was tugged to Bourgas for repair in Bourgas Shipyards PLC. There were not injured crew members. There was no pollution of the environment.

The commission issues recommendations addressed to:

- both vessels owners on IRPCS training for the watch-keeping mates and on discipline on board;
- Bulgarian Ports Infrastructure Company concerning the introduction of traffic control.
- the maritime administrations in the EU trough EMSA for inspections in accordance to ILO Convention 180.

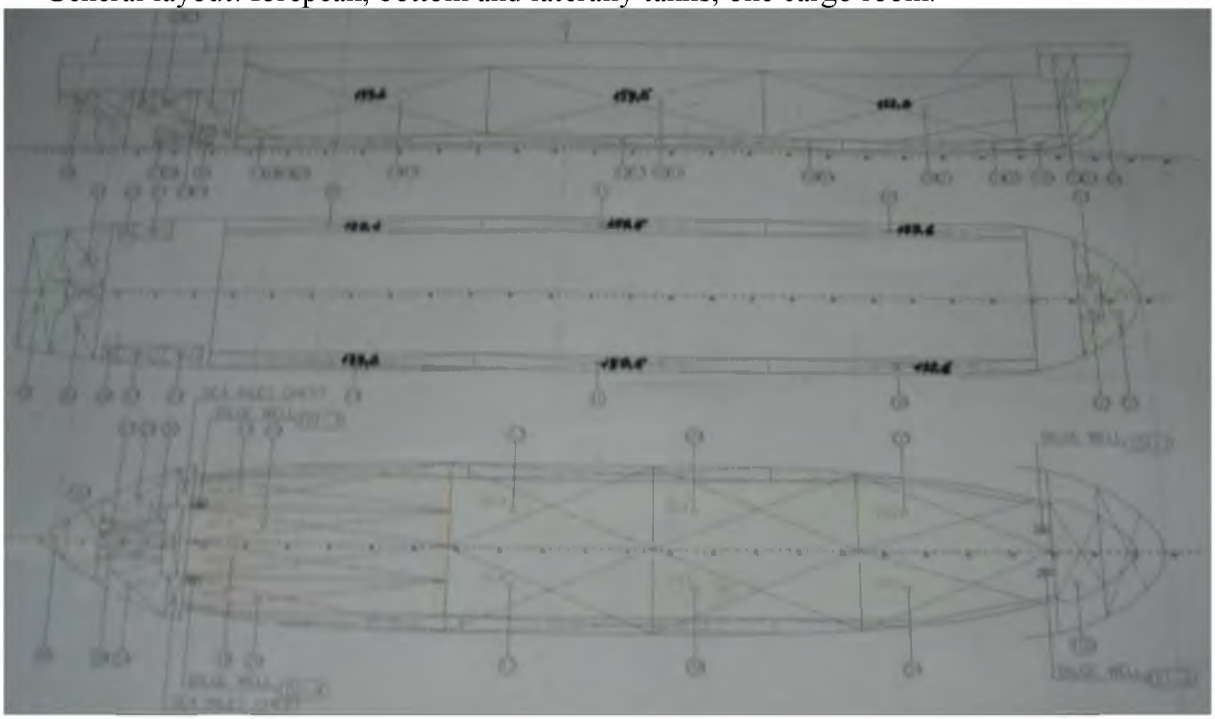
5. Factual Information

5.1. Technical data for *m/v „Lady Gul"* and *m/v „St. Catrien"*

5.1.1. *M/V „Lady Gul"* - Technical data

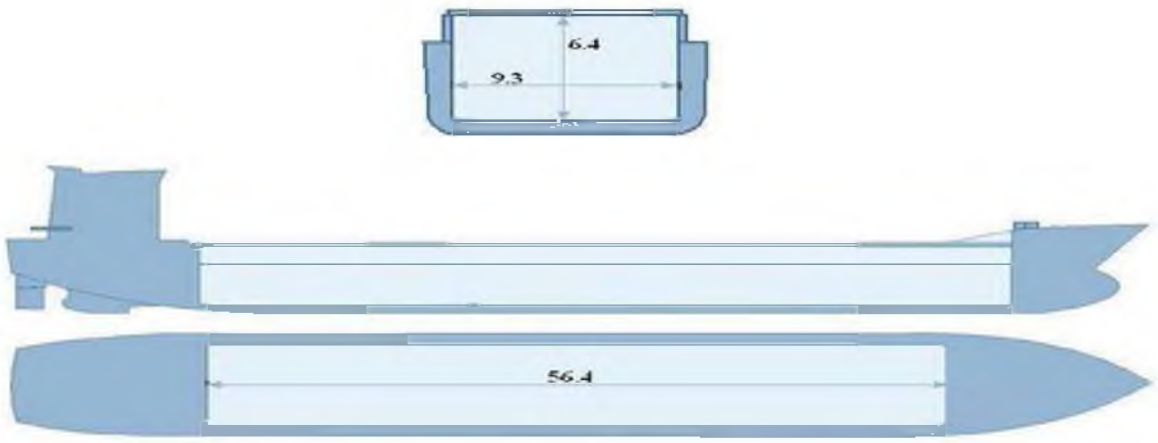
- Name: ***Lady Gul*** (previous names - Hohegrund, Sandra);
- Flag/Nationality of the vessel: Panama;
- Vessel's identification IMO No.: 9195731;
- Call sign: 3EWD4;
- Vessel's identification number of the vessel's station – MMSI: 373898000;
- Vessel owner registered: Messenger Holding S.A., Panama;
- Port of registry: Panama City;
- Registration date: 14.08.2012;
- Vessel owner: GN Group Corporation, Istanbul, Turkey;
- Manager and operator on 07.03.2013: Munamar Denizcilik ve Tikaret Ltd.;
- Classification certification organization: Bureau Veritas France (B.V.);
- Status: in operation;
- Type: General cargo vessel;
- Built: December 2000;
- Shipyard: Damen Shipyard – Netherland;
- Gross tonnage: 2 545 register tons;
- Net tonnage: 1 460 register tons;
- Length (max): 88,78 m;
- Width (max): 12,50 m;
- Overall board height: 7,022 m;
- Board height over the summer load mark: 1,610 m;

- Maximal summer draught: 5,412 m;
- Loading capacity: 5 250 cubic m;
- Displacement (max): 4 979,86 m.t.;
- Deadweight (max): 3 812,72 m.t.;
- Deadweight during the collision (with ballast): 2 716,59 m.t. (from the vessel owner);
- Maximum seawater ballast: 1 418.6 m.t.;
- Main engine: MAK 8M20 – 1 000 rpm – 1 520 kw;
- Screw bolt: fixed, with right-hand pitch;
- Bow thruster: Veth Jet – 220 kw;
- Steering gear: 2 x Fishtail;
- Full speed: 10 kt with load; 11 kt with ballast;
- Officer watch crew on the bridge: 3 persons including the captain;
- Engine attendance: unattended;
- Crew on 07.03.2013: 9 persons
- Crew according to the Minimum safe manning certificate: 6 persons;
- General layout: forepeak, bottom and laterally tanks; one cargo room.



5.1.2. *M/V „St. Catrien"* – Technical data

- General view: one cargo hold; double hull – bottom and laterally tanks ;



- Name: ***St. Catrien*** (previous names – Fast Catrien, Rubin);
- Flag/Nationality of the vessel: Comoros Union (Comoros Islands);
- Vessel's identification IMO № : 7928770;
- Call sign: D6HA8;
- Vessel's identification number of the vessel's station – MMSI: 616999205;
- Vessel owner: Aurora Shipping & Trading S.A. – British Virgin Islands;
- Port of registry: Morony – Comoros Islands;
- Registration date: 13.02.2012;
- Vessel owner: Sudoservice Shipping Consultancy and Trading Ltd. –Istanbul, Turkey;
- Manager and operator on 07.03.2013: Sudoservice Shipping Consultancy and Trading Ltd. – Istanbul, Turkey;
- Classification certification organization: Bulgarian Register of Shipping (B.R.S.);
- Insurer „Haul and engine": Guta Insurance – Moscow;
- Status: Total structural loss stated on 19.04.2013 of the insurer.
  14.10.2013 The vessel was deleted in the Union of Comoros Register.;
- Type: general cargo vessel;
- Fit for transportation of timber, grain, containers;
- Built: 19.12.1980 (setting the keel/ similar construction stage);
- Shipyard: Sietas – Hamburg;
- Gross tonnage: 1 740 register tons;
- Net tonnage: 734 register tons;
- Length (max): 82,18 m;
- Width (max): 11,30 m;
- Overall board height: 6,0 m;
- Board height over the summer load mark: 2,06 m;
- Maximal summer draught: 3,94 m;
- Loading capacity: 3 256 cubic m;
- Displacement(max): 3 324 m.t.;

- Deadweight(max): 2 418 m.t.;
- Deadweight during the collision: 1 486.65 m.t.
- Main engine: SBA 8M528 – 720 rpm - 441 kw;
- Screw bolt: fixed;
- Bow thruster: Plueger – 70 kw;
- Steering gear: 2;
- Officer watch crew on the bridge: 2 persons including captain;
- Engine attendance: unattended;
- Crew on 07.03.2013: 8 persons;
- Crew according to the Minimum safe manning certificate: 7 persons.

5.2. Information about the voyage of *m/v „Lady Gul"* and m/v *„St. Catrien"*

5.2.1. Information about the voyage of *m/v „Lady Gul"*

According to the captain, at first ***the vessel was repaired in Tuzla***.

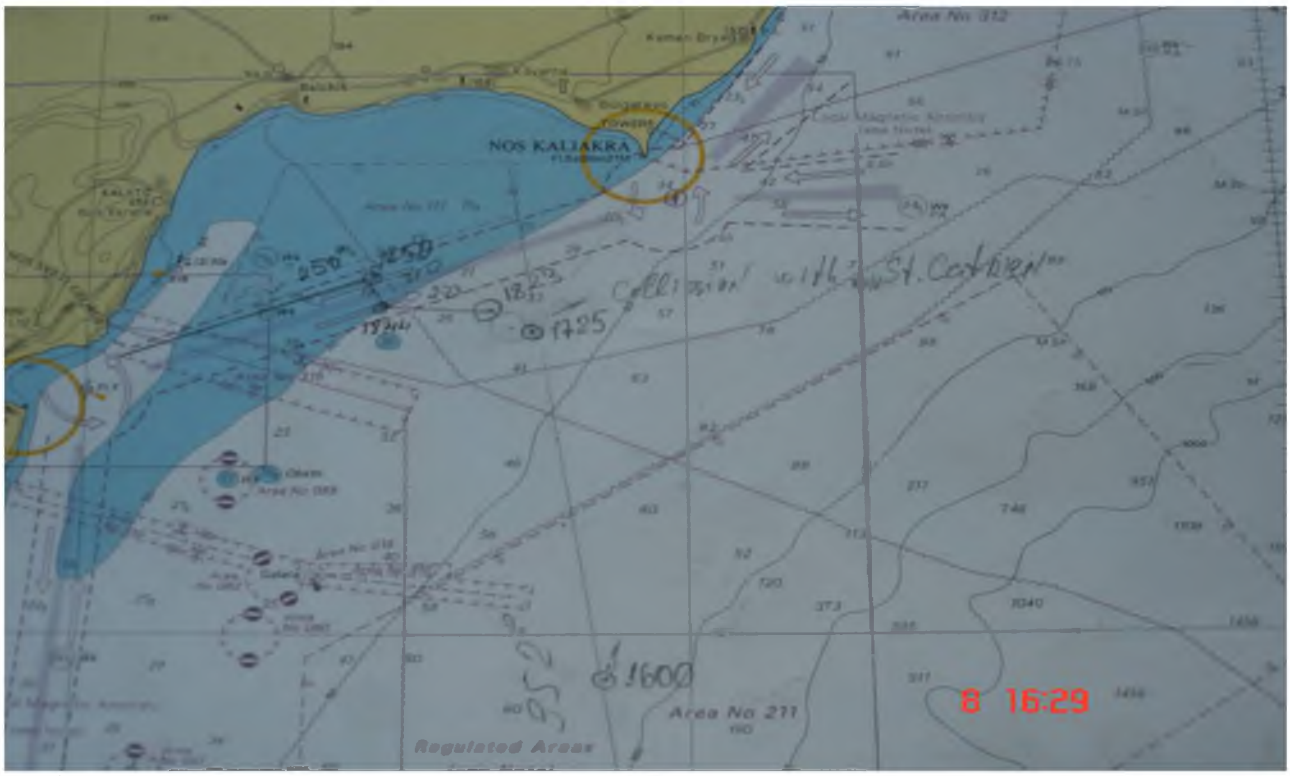
The last ten ports visited by the *m/v „Lady Gul":*

Arrival date	Departure date	Port	State
20.02.2013	**05.03.2013**	**Tuzla**	**Turkey**
18.02.2013	18.02.2013	Gemlik	Turkey
31.01.2013	01.02.2013	Fos	France
27.01.2013	29.01.2013	Cartagena	Spain
24.01.2013	25.01.2013	Set	France
16.01.2013	16.01.2013	Taragona	Spain
03.01.2013	04.01.2013	Constanta	Romania
28.12.2012	30.12.2012	Constanta	Romania
25.12.2012	26.12.2012	Gemlik	Turkey
24.12.2012	25.12.2012	Bandirma	Turkey

International crew of nine: a captain - Azeri, a chief mate and a second mate - Turkish, a chief engineer - Turkish; an engineer - Azeri, two helmsmen - Georgians; an oiler for engine maintenance - Azeri, a cook - Turkish. Working languages: Turkish and English.

At 13:00 on 05.03.2013 the vessel with ballast sailed off from Tuzla and at 22:30 anchored in the harbour of Kartal (to the northwest in the direction of the Bosporus).
On 06.03.2013 from 16:30 to 18:00 the vessel maneuvered as changing the berth and anchored in the harbour of Istanbul. On 07.03.2013 *m/v"Lady Gul"* lifted anchor and approached the Bosporus. At 4:10 pm the vessel entered the Bosporus and took a pilot and at 05: 40 pm the pilot left upon exiting the Bosporus. The vessel headed to a berth west of Cape Kaliakra to wait for an order to load in Constanta. According to data from the logbook from 06:00 to 14:00 a reballasting was made. The max draft - 3,20 m according to the passage plan.
On 08.03.2013 at berth No. 1 in Varna, after the collision, the draft of the *m/v"Lady Gul"* was captured (after pumping out the ballast from the forepeak in order to make an inspection of the hull breach) to be as follows: 1.40 m at the nose; 2.30 m at the middle, 3.20 m at the stern.

M/v „Lady Gul" at berth anchorage No. 1 – Varna on 08.03.2013 Max draft 3,20 m



The r**oute of the m/v „Lady Gul" to anchor west from Cape Kaliakra: True course = 352°. British admiralty chart 2285.**

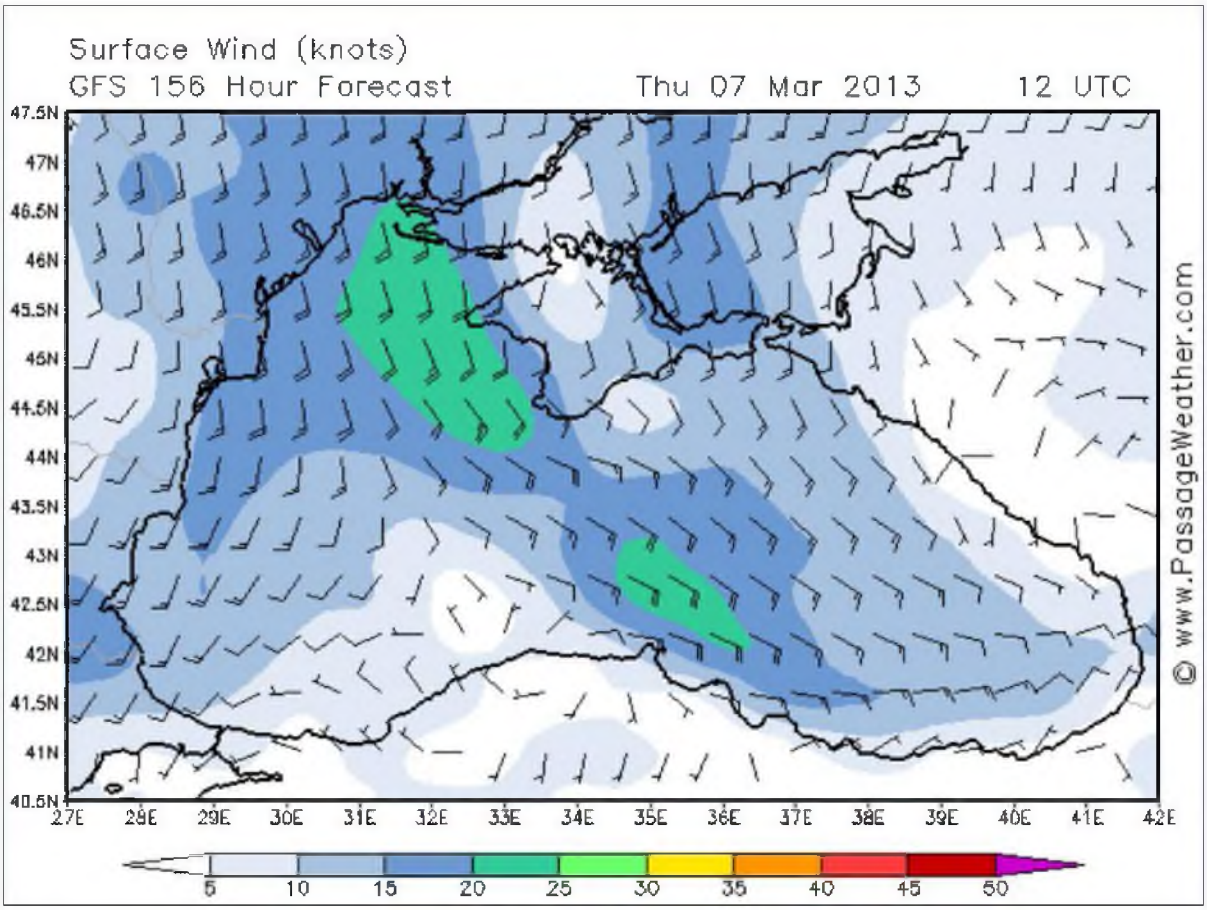
5.2.2. Information about the voyage of m/v „St. Catrien"

The motor vessel "St. Catrien" was out of service from 22.12.2012 to 01.03.2013 in Bourgas Shipyards PLC, Bourgas for annual inspection with purpose to confirm a class after class interim survey of the Bulgarian Register of Shipping (with docking from 26.01.2012 to 02.03.2012).

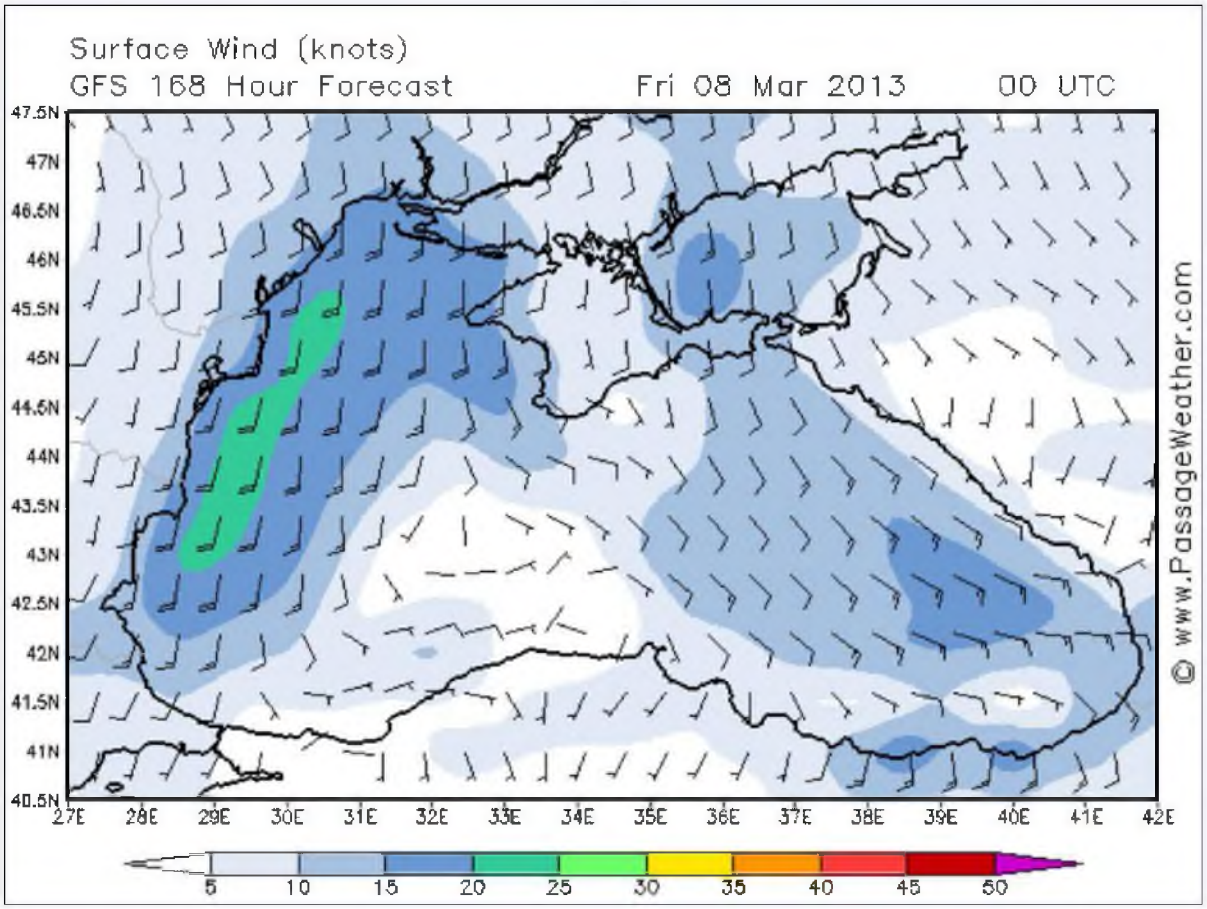
From 01.02.2013 to 21.02.2013 the vessel was made available to BRS for annual survey. The class of the vessel was confirmed by BRS on 22.02.2013.

From 01.02.2013 to 21.02.2013 the vessel was given to the BRS for annual survey. The class of the vessel was confirmed by BRS on 22.02.2013.Ukrainian crew of eight: a captain, a chief mate, a chief engineer, two helmsmen, two motormen; a cook. Working languages: Russian/ Ukrainian.

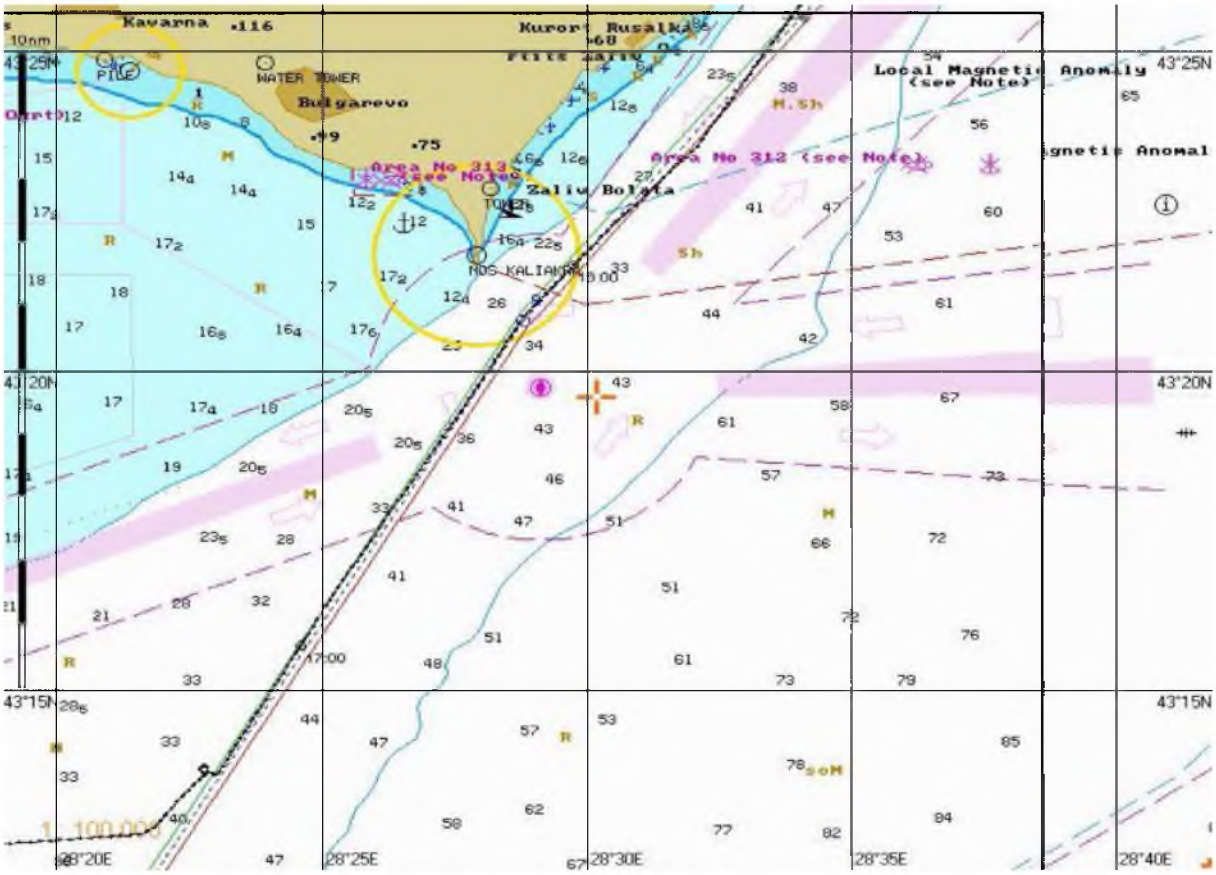
On 01.03.2013 the *m/v "St. Catrien"* left Bourgas Shipyards to make her first sailing for the year: Constanta - Samsun (north-eastern Turkey). On 04.03.2013 at 22: 45 the vessel took up the berth in Constanta to load baled straw. The loading begun on 05.03.2013 at 07:50 and ended on 06.03.2013 at 15:00. The freight documents were drawn about 19:00. Total of 500,212 m.t. baled straw were loaded in the cargo room and on the deck. The vessel set sail on the next day 07.03.2013. Border control, customs inspection and port control from 06:30 to 06:40. A pilot on board at 7:40. At 07:55 the vessel left the berth and sailed to Samsun. The sailing was entirely in the Black Sea. On departure: draught 2.81 m at bow, 2.91 at the middle; 3.03 m at the stern; cargo in the cargo room: 396.762 t; deck cargo: 103.450 t, ballast: 909.2 t, 24.7 t fresh water, oil: 44,6 t; deadweight 1486.652 t; displacement 2392,652 t, GM corr. = 2.37 m. The captain received a forecast of bad weather. He decided to stick close to the Romanian and Bulgarian coast as from Cape Emine he redrew course 210° to the Traffic Separation Scheme southeast of Cape Emine in order to enter it and then to leave it in its south-eastern circulation area on appropriate with regard to the weather forecast courses to Samsun.



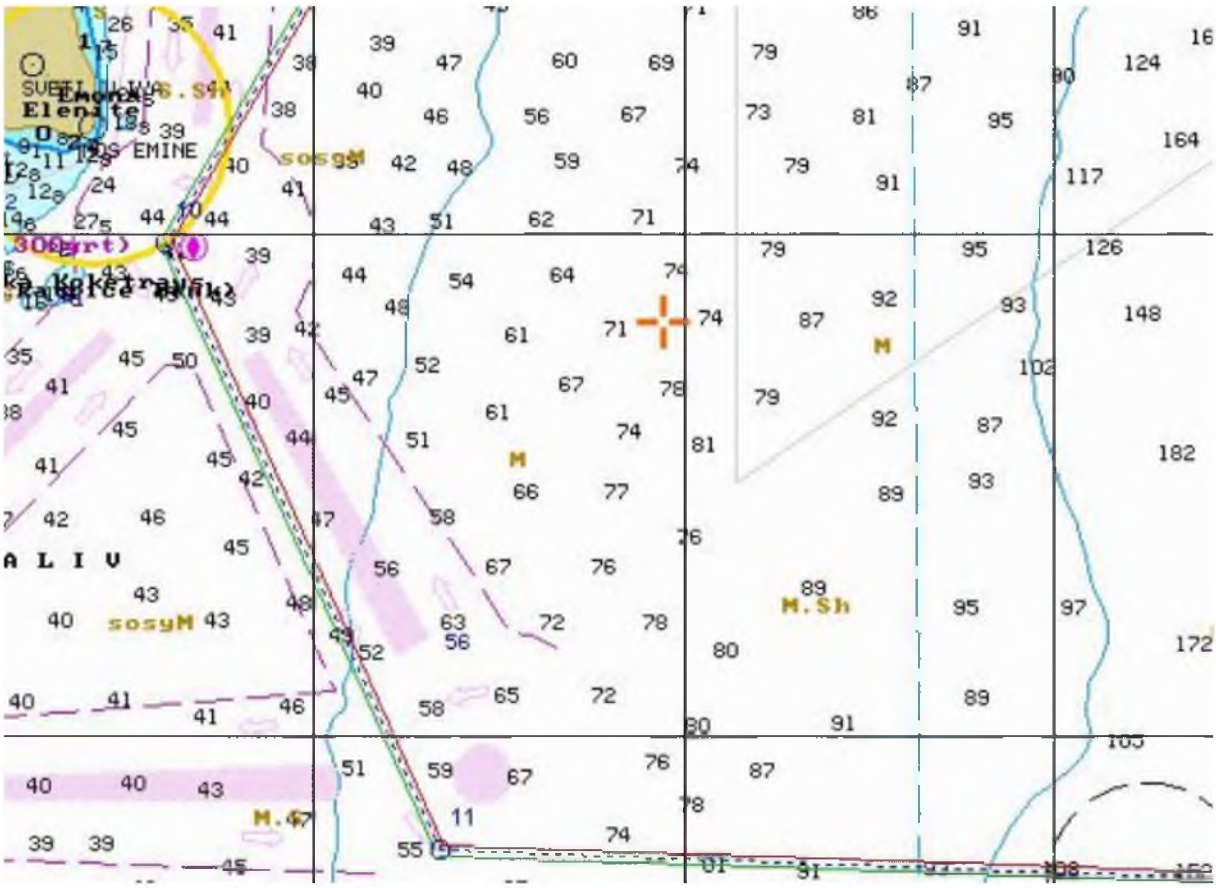
Weather forecast received on the board of the m/v„St. Catrien" for 14:00 (UTC + 2) on 07.03.2013.



Weather forecast received on the board of the m/v „St. Catrien" for 02:00 (UTC + 2) on 08.03.2013.



Planned and actual route of the m/v „St. Catrien" from Cape Kaliakra to the collision point with the m/v „Lady Gul" and actual route to Varna – berth No. 1. Data from the vessel's ECDIS.



Planned route of the m/v „St. Catrien" – entering and leaving the Traffic Separation Scheme southeast of Cape Emine. Data from the vessel's ECDIS.

5.3. Information about the marine casualty – a collision

Classification of the marine casualty: The accident was classified by MAIU as a „serious casualty".According to the definition of "Serious casualties" in the circular letter MSC-MEPC.3/Circ.3 of 18.12.2008: Serious casualties are casualties to vessels which do not qualify as "very serious casualties" and which involve a fire, explosion, collision, grounding, contact, heavy weather damage, ice damage, hull cracking, or suspected hull defect, etc., resulting in:

- immobilization of main engines, extensive accommodation damage, severe structural damage, such as penetration of the hull under water, etc., rendering the ship unfit to proceed and/or
- pollution (regardless of quantity); and/or
- a breakdown necessitating towage or shore assistance..

The above definition of "serious causalities" was referred to by Directive 2009/18/EC of the European Parliament and of the Council of 23.04.2009, in Article 3, p.3.

The same had been transposed in Ordinance No. 23 on reporting and investigation of accidents in the sea areas of MTITC from 24.10.2011, in § 1., Item 13 of the Additional Provisions.

Collision data 07.03.2013 at 17:22 (15:22 GMT)

Collision coordinates and position: φ = 43°13,70' N; λ = 028°22,96' E.

Black Sea, about 9 miles south-southwest of Cape Kaliakra and about 21 miles east to the Control Tower of VTMIS – Port Varna (B = 083°) and MRCC-Varna.

The hydro meteorological conditions in the area of the marine casualty: daytime, good visibility about 6-8 miles, wind from the south quarter 3-5 bft, sea 2-4 bft. Air Temperature +9 °C; cloudy.

5.4. The participation of the coastal authorities

On 07.03.2013 at 17:21:05 Varna-Traffic (VTMIS) made the first call to *m/v "Lady Gul"* on VHF channel 16. There was no response from *m/v "Lady Gul"*. At this moment *m/v"Lady Gul"* was located one cable (two ship lengths) from *m/v "St. Catrien "* which from 17:20:56 was in process of circulation to the right. At 17:21:20 there was a new call to *m/v "Lady Gul"* from Varna-Traffic on VHF channel 16. There was no reply. A collision followed.

At 17:26:17 and at 17:26:35 Varna-Traffic calls twice on VHF channel 16 the *m/v "St. Catrien"* which was not responding. From 17:25:18 the *m/v "St. Catrien"* was in radio contact with the *m/v"St.Filip"*, a vessel of the same type and of the same vessel owner, which was about 14 miles east of "St. Catrien" on the way to Samsun.

At 17:26:49 Varna-Traffic calls on VHF channel 16 the *m/v "Lady Gul*. The captain accepted the call. The call was transferred to VHF channel 11. Varna-Traffic enquired about the traffic situation, whether the vessels had undergone collision on water by the captain of the *m/v "Lady Gul*" who reports about a visible damage in the hull of the *m/v "St. Catrien"*.

At 17:29:46 the *m/v "Lady Gul"* called *m/v "St. Catrien"*.

At 17:30:22 the *m/v "St. Catrien"* called the *m/v "Lady Gul"*. An echo sounds.

At 17:30:30 the *m/v "Lady Gul"* established contact with the *m/v "St. Catrien"* and conversation continues on VHF channel 17. The captain of the *m/v"Lady Gul"* asked the captain of the *m/v"St. Catrien"* whether they need help. The captain of the *m/v"St. Catrien"* asked the captain of the *m/v*"Lady Gul" for escort. The conversation was in English.

At 17:31:39 and 17:32:25 Varna-Traffic called the *m/v "St. Catrien"* on VHF channel 16. There was no reply.

At 17:31:38 on a service channel the *m/v"St. Filip"* called *m/v"St. Catrien"*. The conversation was in Russian. *M/v"St.Filip"* approached *m/v"St. Catrien"*. The captain of the *"St. Catrien"* told him that they were approaching the coast. The captain of the *m/v"Lady Gul"* joined in.

At 17:32:30 the *m/v"Lady Gul"* called Varna-Traffic and the captain reported that the "St. Catrien"was on a course to the coast for anchorage. He reported that the "Lady Gul" and the "St. Catrien were seaworthy. Further, he reported that the *m/v"Lady Gul"* made for the anchorage under Cape Kaliakra. Varna-Traffic gave permission to the *m/v"Lady Gul"* to stand at an anchorage under Cape Kaliakra.

At 17:33:55, 17:36:00, 17:36:17, 17:38:19 and 17:38:34 Varna-Traffic called the *m/v"St. Catrien"* on VHF channel 16. There was no reply.

At 17:41:05 Varna-Traffic called the *m/v"Lady Gul"* on VHF channel 16. The *m/v"Lady Gul"* confirmed that she sailed to Cape Kaliakra to stand at an anchorage. Varna-Traffic commented that there was no radio contact with the *m/v"St. Catrien ".*

At 17:47:06, 17:47:43 and 17:49:41 Varna-Radio called the *m/v"Lady Gul"* on VHF channel 16. There is no reply.

At 17:48:12 and 17:49:21 Varna-Radio calls the *m/v"St. Catrien"* on VHF channel 16. There was no reply.

At 17:52:03 the *m/v"St. Catrien"* established contact with the *m/v"Lady Gul"* and again asked *m/v"Lady Gul"* for escort, indicating to Varna.

At 17:55:30 Varna-Radio called the *m/v"Lady Gul"* on VHF channel 16. *M/v"Lady Gul"* answered. They switched to operating VHF channel 26. At 15:57:23 MRCC-Varna attempted to contact the *m/v"Lady Gul"* through Varna Radio on VHF channel 26. The attempt failed.

At 17:58:36 through Varna-Radio on VHF channel 26 a second attempt for telephone connection between MRCC-Varna and the *m/v"Lady Gul"* was made, this time with success. MRCC-Varna inquired about the intentions of the m/v"Lady Gul". The *"Lady Gul"* reported that the *m/v"St. Catrien"* needed her escort to Varna harbour. It wasreported that there was only a small hole and there was no problem and that the vessel could approach a berth in any area. MRCC-Varna inquired whether there ~~is~~ was any marine pollution and whether both vessels ~~are~~ were seaworthy. The captain of the *m/v"Lady Gul"* answer~~s~~ed that there was no pollution and that both ships were seaworthy. The *m/v"St. Catrien"* was advancing on Varna harbour. The *m/v"Lady Gul"* received instruction from MRCC-Varna to escort the *m/v"St. Catrien"* to the berth in Varna.

At 18:07:09 Varna-Traffic called the *m/v"St. Catrien"* and established connection on VHF channel 16, then they switched to operational VHF channel 11.

At 18:07:35 the *m/v"St. Catrien"* called Varna-Traffic on VHF channel 11 and established connection. It was reported that the vessel owner has ordered that the vessel should proceed to Bourgas.

At 18:07:52 on VHF channel 11 Varna-Traffic ordered the *m/v"St. Catrien"* to make for berth No.1 – Varna according to the order of the Captain of Port of Varna. There was a question to the captain of the *m/v"St. Catrien"* whether the vessel was seaworthy. The answer was positive. They remained on VHF channels 11 and 16.

At 18:08:29, 18:09:18 and 18:09:30 Varna-Radio called *m/v"Lady Gul"* on VHF channel 16. At 16:09:30 *m/v"Lady Gul"* answered. The captain was busy with a phone call. He switched to operation VHF channel 26 in listening mod. At 18:11:09 the captain of *m/v"Lady Gul"* called Varna-Radio on operating channel 26.

In the morning of 08.03.2013 the Directorate Maritime Administration - Varna began an inspection in port of the *m/v"St. Catrien"* and *m/v"Lady Gul".* The inspection ended in the afternoon. Both vessels were detained in connection with impaired seaworthiness until its recovery and the *m/v"Lady Gul"* until the audit by the flag administration with respect to violation of the International Safety Management Code (ISM Code).

In the morning of 08.03.2013 an investigation of the marine casualty began by MAIU as information and evidence from the two vessels are collected by the end of the day.

In the period 21.03 - 22.03.2013 the vessel was taken by towage to Bourgas (see below "Consequences").

5.5. Consequences

M/v„St. Catrien" after the collision on 07.03.2013. Anchorage berth No. 1 –Varna.

The *m/v"St. Catrien"* sustained severe structural damage. The hull was heavily bent inwards for about 19 m from the 82nd to the 30th stiffener at a height of about 3 - 3.5 meters. The main deck port was severely bent from 75th to 30th stiffener. The main deck starboard was heavily bent from 71st to 31st stiffener. The hatch cover was damaged, disturbed and unsealed. The longitudinal vertical sheets of the cargo room were deformed and cracked, etc. The vessel gets about 3° heel to the right. The vessel was detained for state inspection on port by the "Maritime Administration" - Varna until the restoration of seaworthiness.

After unloading the cargo of baled straw in Port Varna on 21.03.2013 the vessel was taken in tow by the *tug "Multratug 25"* to Bourgas for repair in Bourgas Shipyards PLC where she arrived on 22.03.2013.

On 25.03.2013 the class of the *m/v"St. Catrien* was suspended after survey by BRS. On 19.04.2013 the vessel owner declared a constructive total loss to the insurer. On 14.09.2013 the total constructive loss was declared the flag administration, Union of the Comoros (Comoros Islands). On 14.10.2013 a certificate was issued by the Union of the Comoros for the deletion of the *m/v"St. Catrien"* from the register.

With the act of deletion of the *m/v"St. Catrien"* from the vessel register in Moroni the marine casualty by definition was classified as "very serious casualty" - a complete loss.

The *m/v"Lady Gul"* got a triangular hole on the right side of the bow at the height of the hawse pipes (possibly by the broken safety life line of the *m/v"St. Catrien"* as a result of the collision). The vessel was detained after the state inspection on port by the "Maritime Administration"–Varna until the restoration of seaworthiness and the audit by the flag administration of the safe management of the vessel before its departure with regard to violation of the International Safety Management Code (ISM Code). The vessel was berthed on a pier for repair in the Lake Varna and after restoring the integrity of the hull she sailed from Varna on 12.03.2013. The time out of service of the vessel was five days.

M/v"Lady Gul" – the hole after the collision on 07.03.2013 berth No. 1 - Varna.

Fortunately, the *m/v"Lady Gul"* had no bulb at the bow. The hull of the *m/v"St. Catrien"* was not broken. There was no leakage of fuel or other pollutants into the sea. There were no dead, wounded and fallen overboard crew members of both ships.

6. Description of the marine casualty

6.1. Time line of the accident

On 07.03.2013 the *m/v"St. Catrien"* sailed loaded with full load of 500.212 tons baled straw in the cargo hold and on the deck from Port Constanta to Port of Samsun as the captain decided a route along the Romanian and Bulgarian coast. At 16:25 according to the logbook the *m/v"St. Catrien"* layed on the gyrocompass course 210°. The gyrocompass correction was red as +/- 0,0°. TC= 210° was drawn on the paper chart and on the electronic chart**.** The vessel followed the route as from the moment of lying GCH = 210° (16:25) to 17:00 according to the logbook when a position had been put on the charts she sailed on the average COG=210,8°. From 17:00 until the moment of beginning the circulation to the right (17:20:56) she sailed on the average COG = 209,5° as she progressively returned to the line of the course drawn on the charts. The vessel sheered heavily from side to side. Daytime, good visibility noted in the logbook of *m/v "St. Catrien"* as 8 miles (objectively 6-8 miles), wind from the south quarter 3-5 bft, sea 2-4 Bft. Air Temperature +9 °C; cloudy.

Objectively, at 17:00:00 the bearing from *m/v„St. Catrien"* to *m/v„Lady Gul"* was 190°; D = 64 cables. **The course angle was 14° port**. Speed of *m/v „St. Catrien"* 7,2 kt.

The ***m/v"St. Catrien"* and *m/v"Lady Gul"* sailed on crossing courses and were in sight of one another. According IRPCS, Rule 15 Crossing situation, the *m/v"St. Catrien* "has the right of way and the *m/v"Lady Gul"*, which has the other vessel *("St. Catrien")* on her own starboard is obliged to keep out of the way and do not cross the course of the other vessel *("St. Catrien")* in front of her bow, if the circumstances admit.**

The ***m/v"Lady Gul"* headed with ballast to an area west of Cape Kaliakra in order to ride at the sheltered anchor and to** wait for an order to load in Constanta. She followed the course drawn on a British Admiralty Nautical Chart 2285. **TC = 352°.**

At 16:32:10 *m/v"Lady Gul"* sailed on COG = 346,7 °; GCH = 343 °.
At 16:37:11 *m/v"Lady Gul"* sailed on COG = 350,6 °; GCH = 346 °.
At 16:42:12 *m/v"Lady Gul"* sailed on COG = 348,8 °; GCH = 346 °.
At 16:52:03 *m/v"Lady Gul"* sailed on COG = 349,0 °; GCH = 346 °.

M/v"Lady Gul" sheered also from side to side, the wind and the waves were at stern. From the aforementioned positions at 16:32, 16:37, 16:42 and 16:52 it could be seen that *m/v"Lady Gul"* deviated to the left from the set course 352°. From 16:00 to the collision with the *m/v"St. Catrien"* the position of the *m/v"Lady Gul"* was not laid down on the chart.

At 16:48:26:

From *m/v"Lady Gul"* to *m/v"St. Catrien"* P=008,2°; D=96 cables. The course angle was starboard.

From *m/v"St. Catrien"* to *m/v"Lady Gul"* P=188,2°; D=96 cables. The course angle was port.

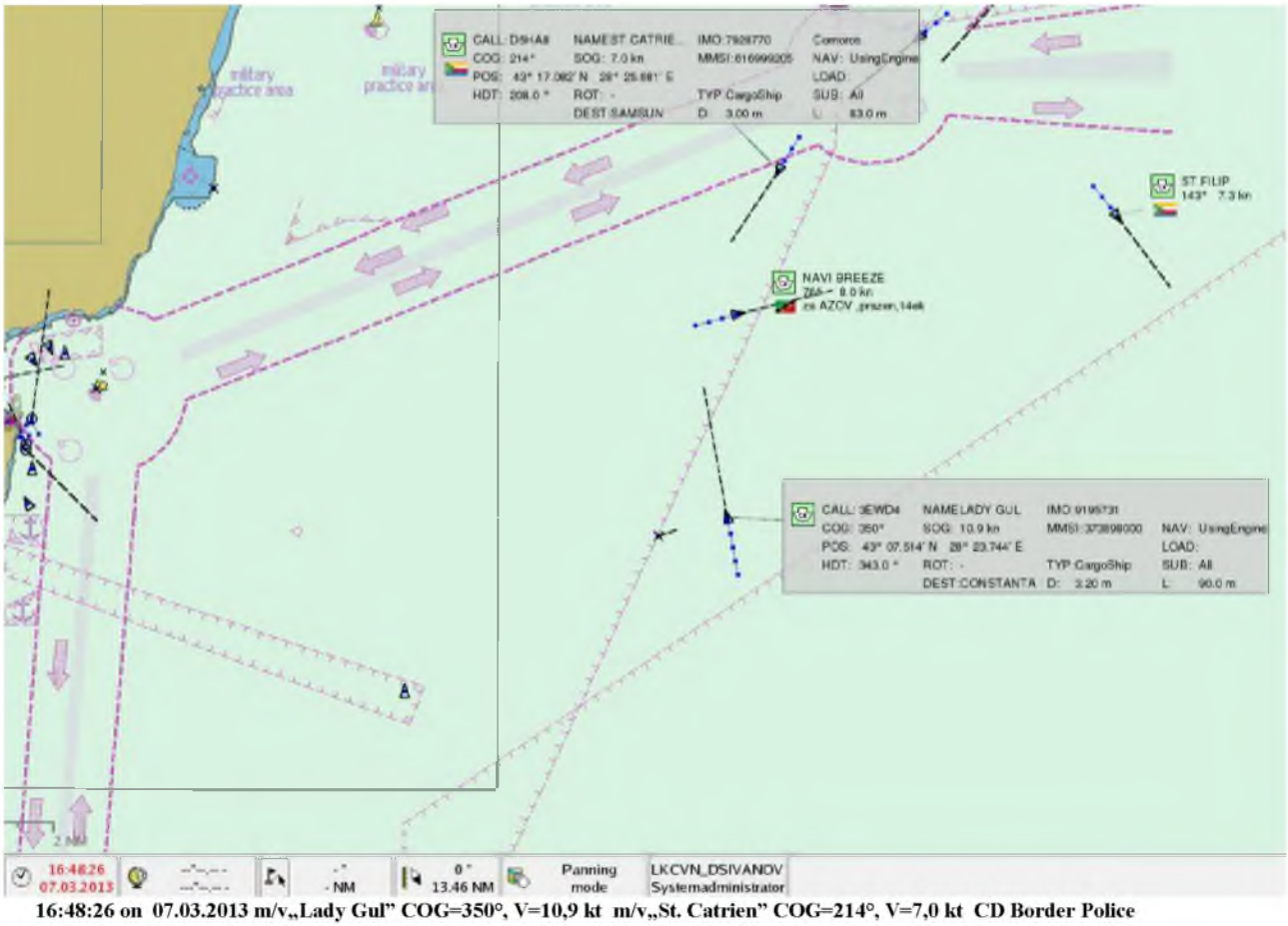
The Vessels were in sight of one another.

At 16:52:03

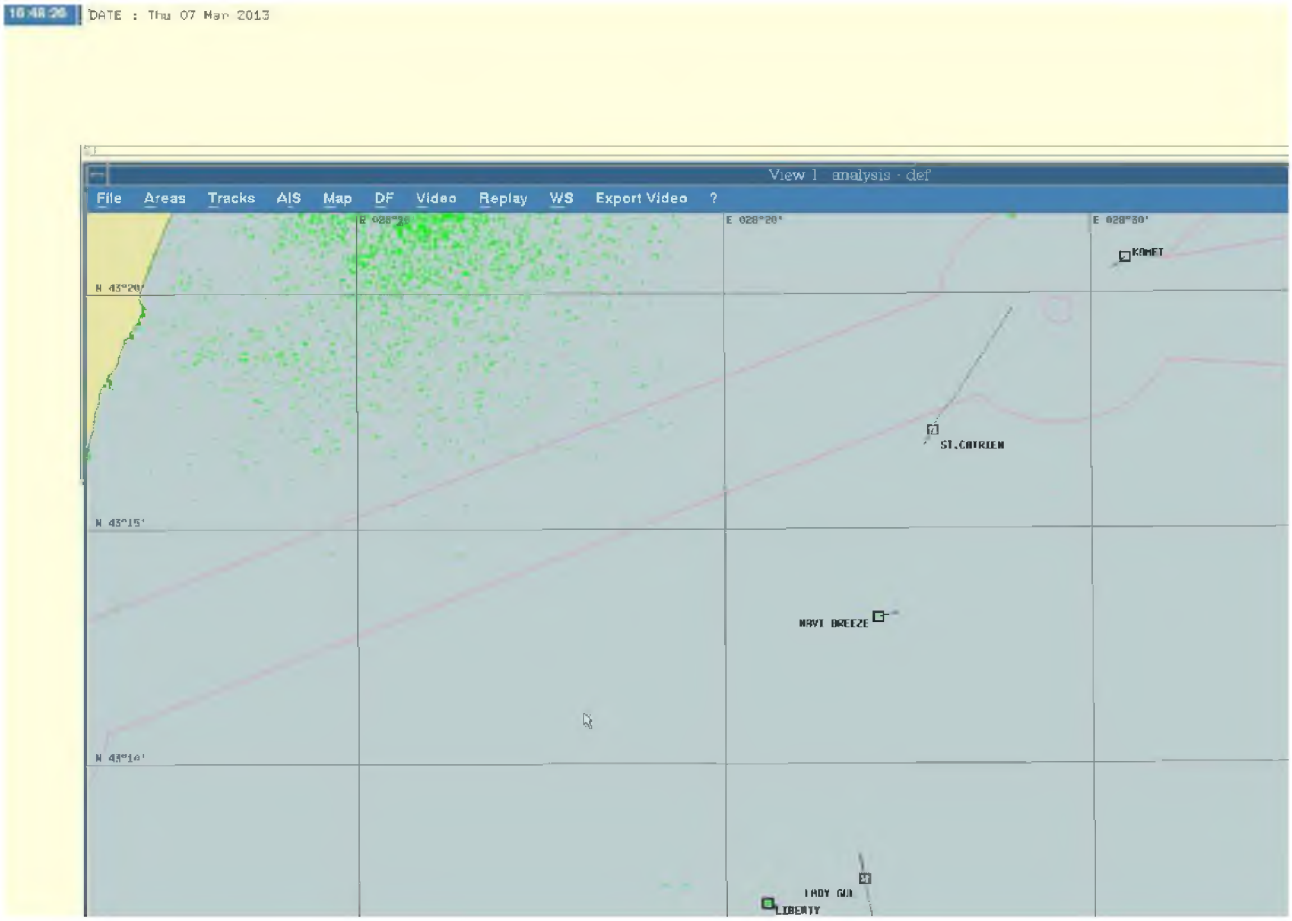
From *m/v"Lady Gul"* to *m/v"St. Catrien*" P=009°; D=86 cables. CA=23° starboard (GCH=346°).

From *m/v"St. Catrien"* to *m/v"Lady Gul"* P=189°; D=86 cables. CA=18° port (GCH = 207°).

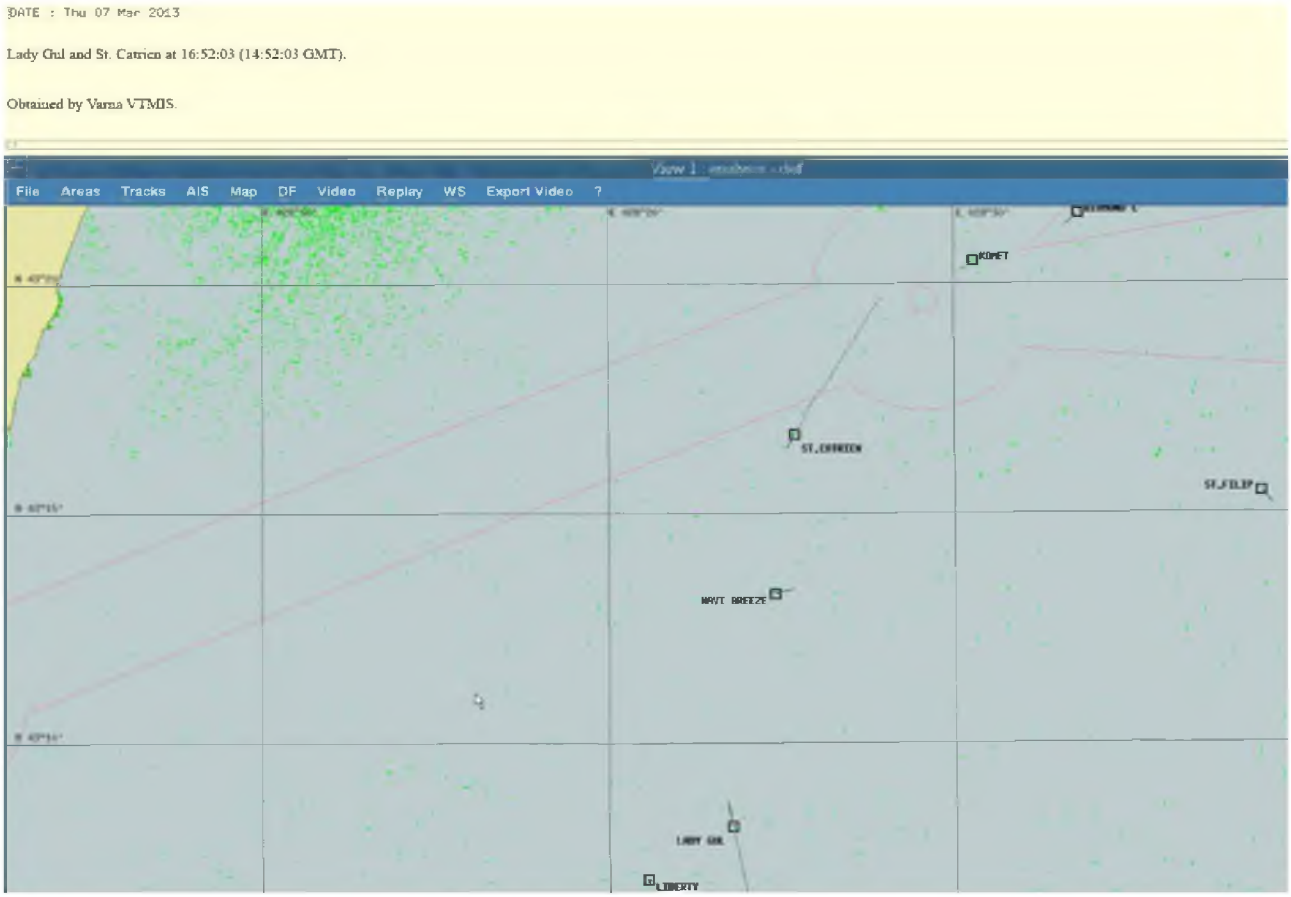
The chief mate of the *m/v"Lady Gul"* testified that at 16:52 he had seen the *m/v"St. Catrien"* right of the bow of his own vessel about six miles away and had made attempt to establish contact on VHF channel 16, then he had changed course to starboard. **Objectively** there was no call recorded on VHF 16 channel by the monitoring and the distance to the *m/v"St. Catrien "* was 8.6 miles. The course of "Lady Gul" on the gyrocompass had been changed with 8° to the right at 16:57.



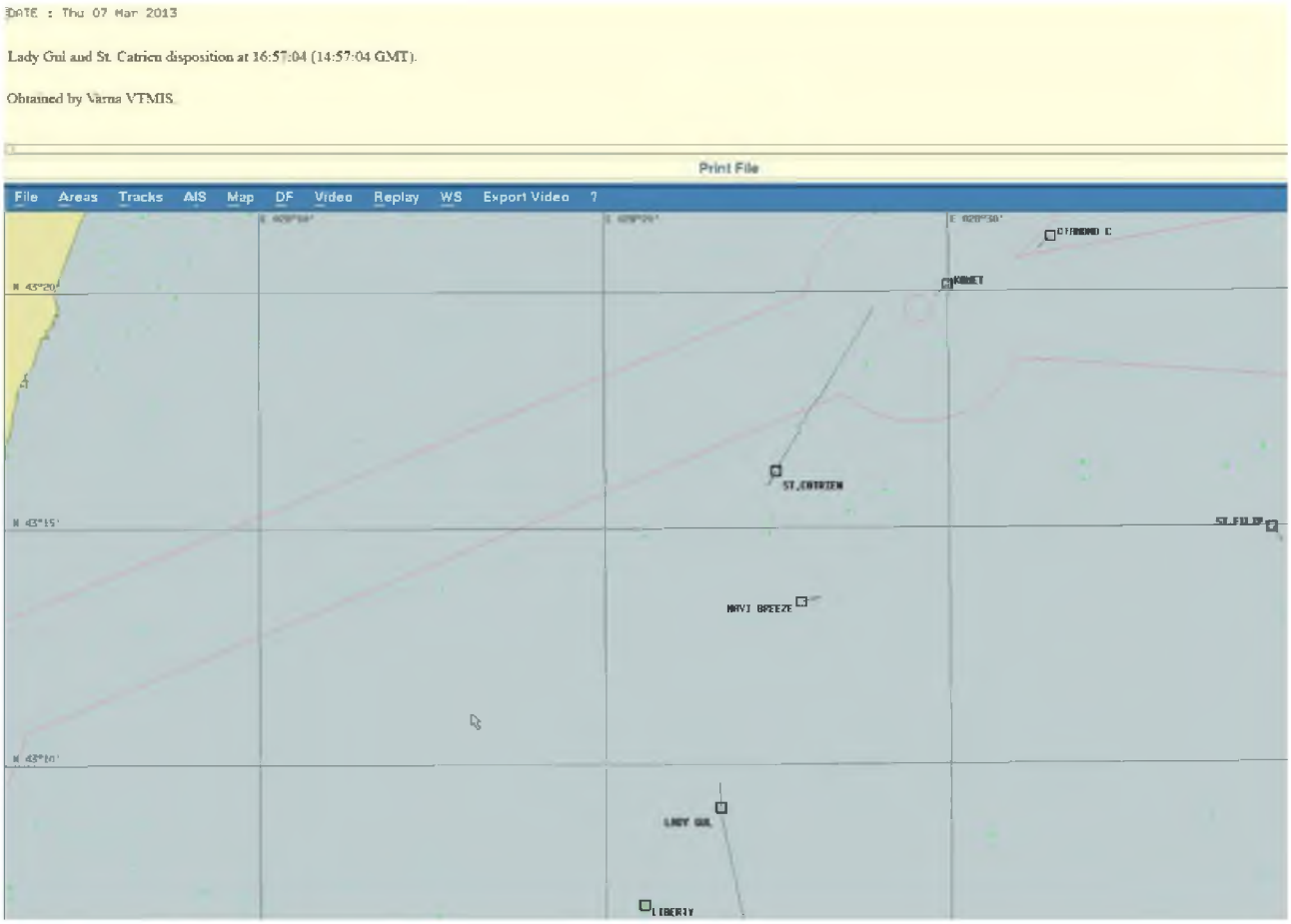
16:48:26 on 07.03.2013 m/v„Lady Gul" COG=350°, V=10,9 kt m/v„St. Catrien" COG=214°, V=7,0 kt CD Border Police



16:48:26 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 008,2°; D = 96 cables.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 188,2°; D = 96 cables. VTMIS – Varna



16:52:03 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 009°; D = 86 cables.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 189°; D = 86 cables. VTMIS – Varna



16:57:04 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 009,6°; D = 72 cables.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 189,6°; D = 72 cables. VTMIS – Varna

At 16:57 ч.:

M/v"Lady Gul" layed on the gyrocompass heading 354° and already sailed on COG = 357,2°. The speed was 11.0 knots.

The *m/v"Lady Gul"* changed the course to starboard by 8° which did not lead to change in the situation. The vessels approached dangerously close tending *m/v"Lady Gul"* to cross dangerously close the course of *m/v"St. Catrien"* (the bearing to *m/v" St. Catrien"* increased very slowly).

From *m/v"Lady Gul"* to *m/v"St. Catrien"* P = 009,6°; D = 72 cables. CA = 15,6° starboard (GCH = 354°). COG = 357,2°. V = 11,0 kt

From *m/v"St. Catrien"* to *m/v"Lady Gul"* P = 189,6°; D = 72 cables. CA = 14,4° port (GCH = 204°). COG = 208,8°. V = 7,0 kt

At 17:00:00 ч.:

From *m/v"Lady Gul"* to *m/v"St. Catrien"* P = 010°; D = 64 cables. The course angle was starboard.

From *m/v"St. Catrien"* to *m/v"Lady Gul"* P = 190 °; D = 64 cables. The course angle port.

At 17:12:07 the situation was as follows:

M/v"Lady Gul": bearing to *m/v"St. Catrien"* = 010°; D = 28 cables. The course angle was 17 ° starboard (GCH = 353 °).

M/v"St. Catrien": bearing to *m/v"Lady Gul"* = 190°; D = 28 cables. The course angle was 15 ° port (GCH = 205°).

This means that within the past 12 minutes only the distance decreased from 64 to 28 cables. No change was observed in the bearings of each of the two vessels. *M/v "Lady Gul"* and *m/v "St. Catrien"* went surely on collision! This was a psychological moment.

It was urgent that *m/v"Lady Gul"* which was obliged to give way to the *m/v"St. Catrien"* should take a substantial and clearly visible manoeuvre.

M/v "Lady Gul" was on COG = 357,0° at a speed of 11,2 kt and *m/v"St. Catrien"* was on COG = 210,9° at a speed of 7,2 kt. *M/v"Lady Gul"* and *m/v"St. Catrien"* did not change course and speed.

At 17:17:08 the mutual disposition of the two vessels was as follows:

M/v"Lady Gul": bearing to *m/v"St. Catrien"* = 009°; D = 13,2 cables. The course angle was 17° starboard (GCH = 353 °).

M/v"St. Catrien": bearing to *m/v"Lady Gul"* = 189°; D = 13,2 cables. The course angle was 15° port (GCH = 205°).

M/v"Lady Gul" was on COG = 358,1° at a speed of 11,4 kt and *m/v "St. Catrien"* was on COG = 209,1° at a speed of 7,1 kt. *M/v "Lady Gul"*and *"St. Catrien"* did not change course and speed.

Another 20 decisive minutes elapsed, but neither one of the vessels reacted. There was no significant change in the bearings to each of the two vessels. It was time for manoeuvre at the last moment. Nothing happened. The distance decreased critically. Both vessels went surely on collision. The captains of both vessels were not informed about the situation.

At 17:18:53:

From *m/v"Lady Gul"* to *m/v"St. Catrien"* P = 013,8°; D = 8 cables. The course angle was starboard. COG = 356,2°.

From *m/v"St. Catrien"* to *m/v"Lady Gul"* P = 193,8°; D = 8 cables. The course angle port. COG = 210,0°.

At 17:20:20:

From *m/v"Lady Gul"* to *m/v"St. Catrien"* P = 020°; D = 3 cables. The course angle was starboard. COG = 355°. V = 11,2 kt

From *m/v"St. Catrien"* to *m/v"Lady Gul"* P = 200°; D = 3 cables. The course angle port. COG = 208°. V = 7,2 kt

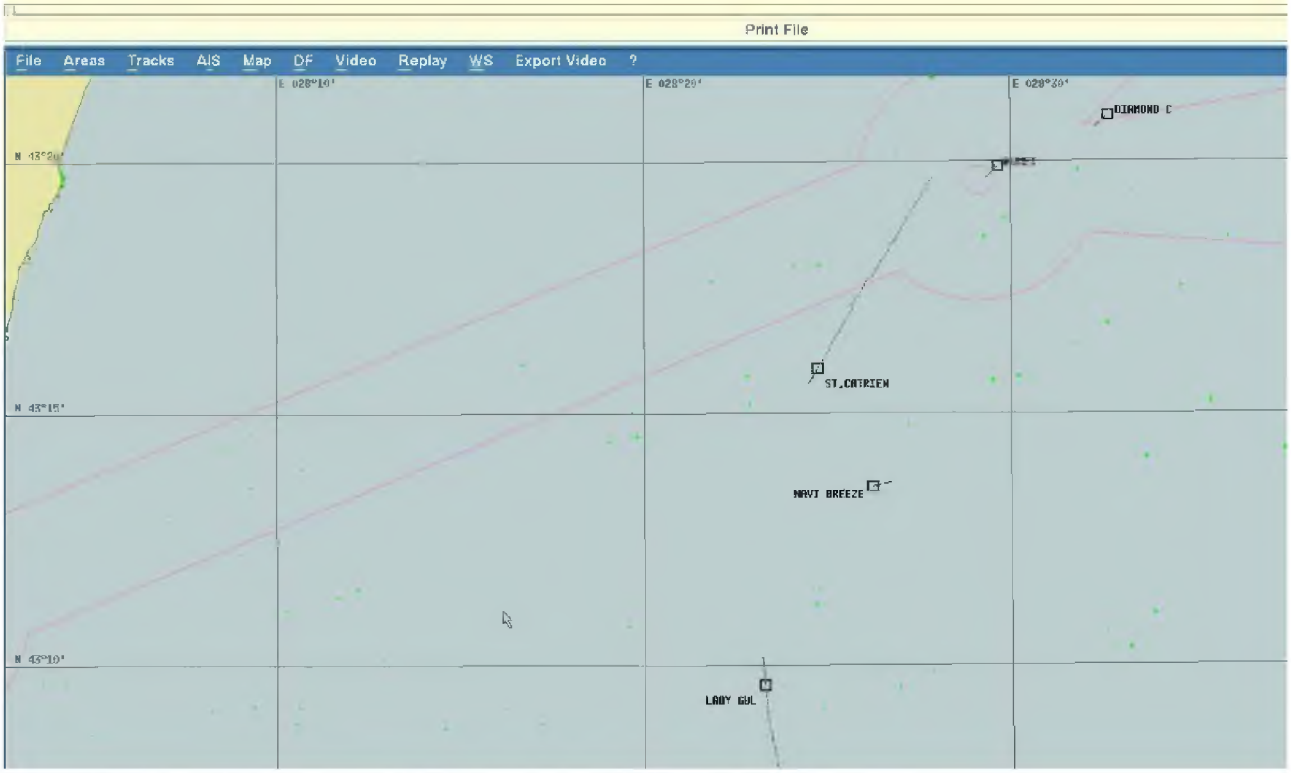
M/v "Lady Gul" was firm to take away the advantage of *m/v"St. Catrien"* by passing at front of her bow and *m/v"St. Catrien"* did not respond. The bearing increased slowly, but the distance was only 3 cables.

M/v"St. Catrien" sheered heavily (Table-1 on page 31: moments; φ, λ; heading (GCH); COG; V).

DATE : Thu 07 Mar 2013

Lady Gul and St. Catrien at 17:00:00 (15:00:00 GMT)

Obtained by Varna VTMIS

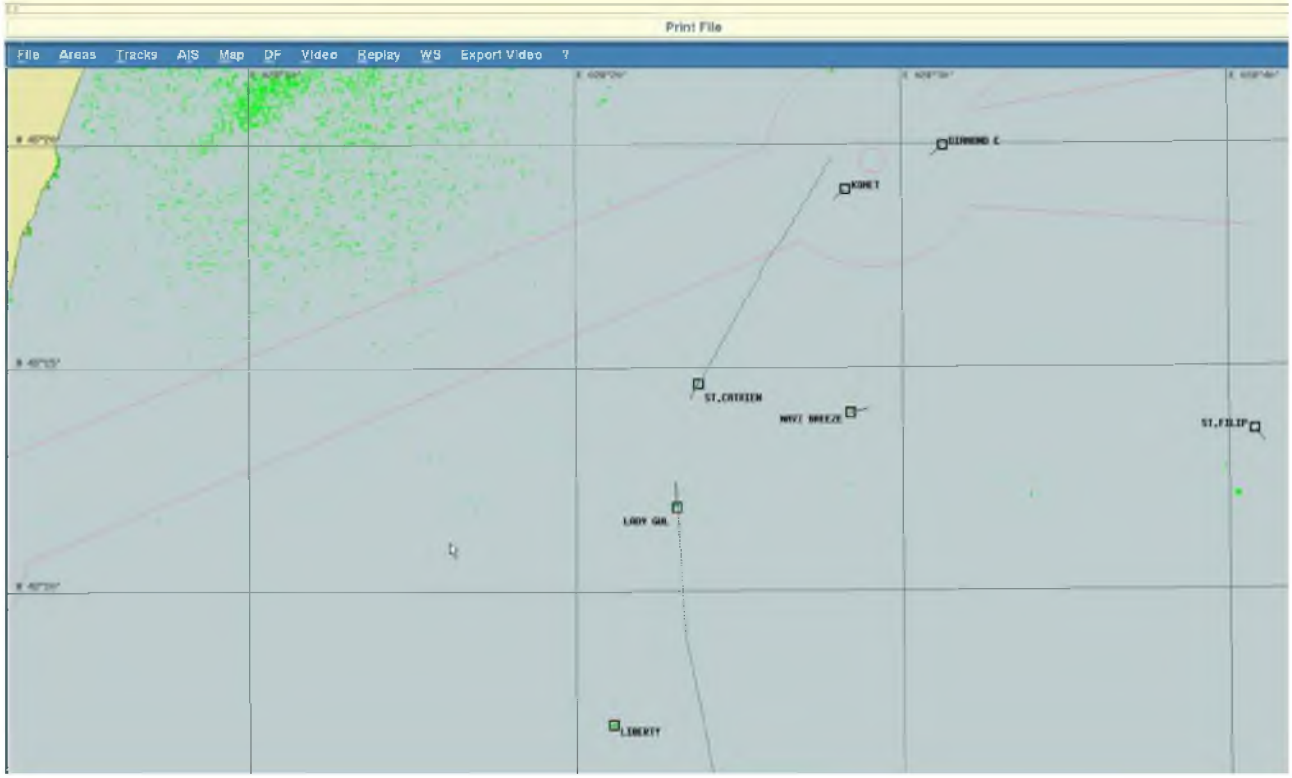


17:00:00 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 010°; D = 64 cables.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 190°; D = 64 cables. VTMIS – Varna

DATE : Thu 07 Mar 2013

Lady Gul and St. Catrien disposition at 17:12:07 (15:12:07 GMT)

Obtained by Varna VTMIS.

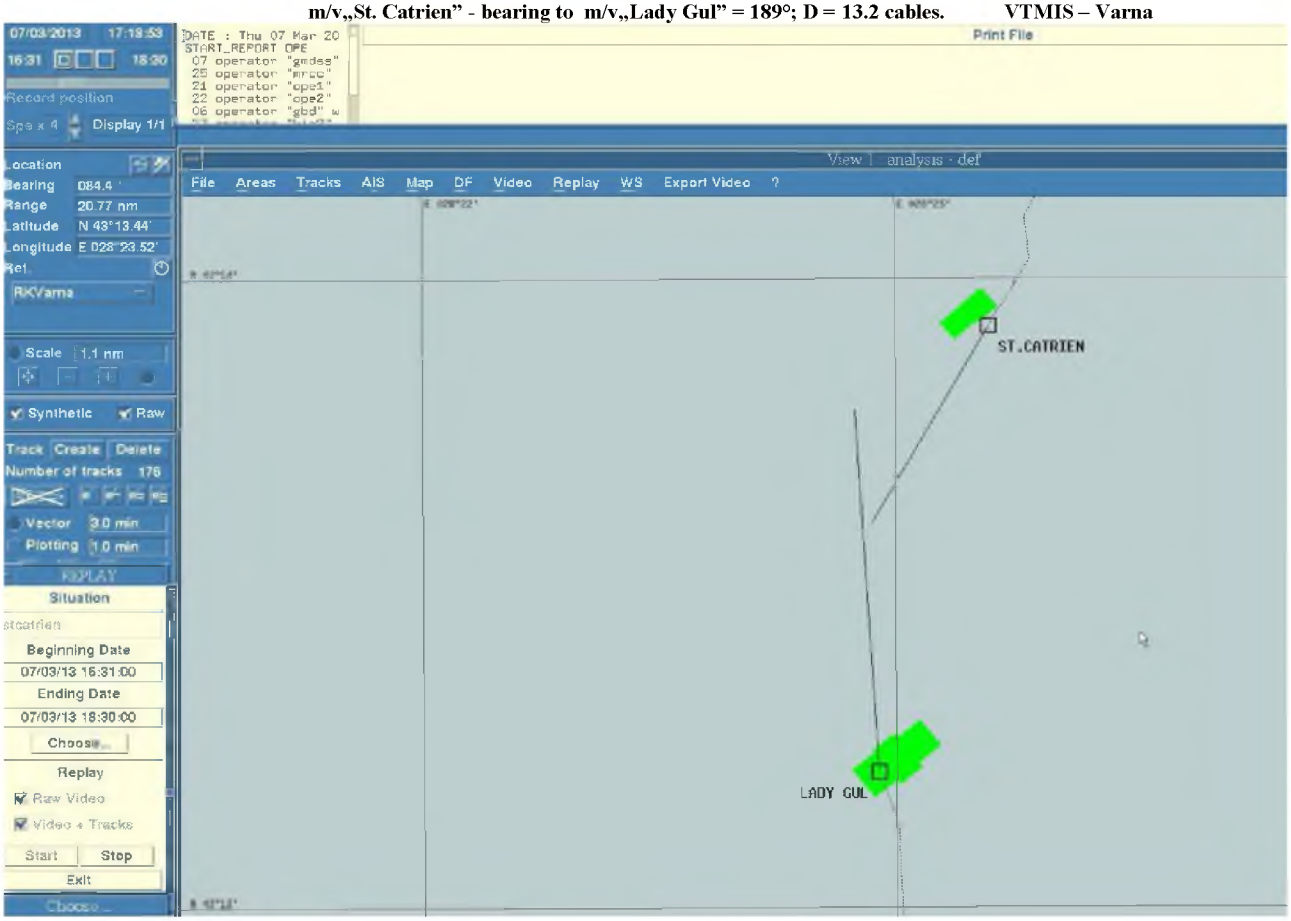


17:12:07 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 010°; D = 28 cables.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 190°; D = 28 cables. VTMIS – Varna

Lady Gul and St. Catrien disposition at 17:17:08 (15:17:08 GMT).

Obtained by Varna VTMIS.

17:17:08 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 009°; D = 13,2 cables.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 189°; D = 13.2 cables. VTMIS – Varna

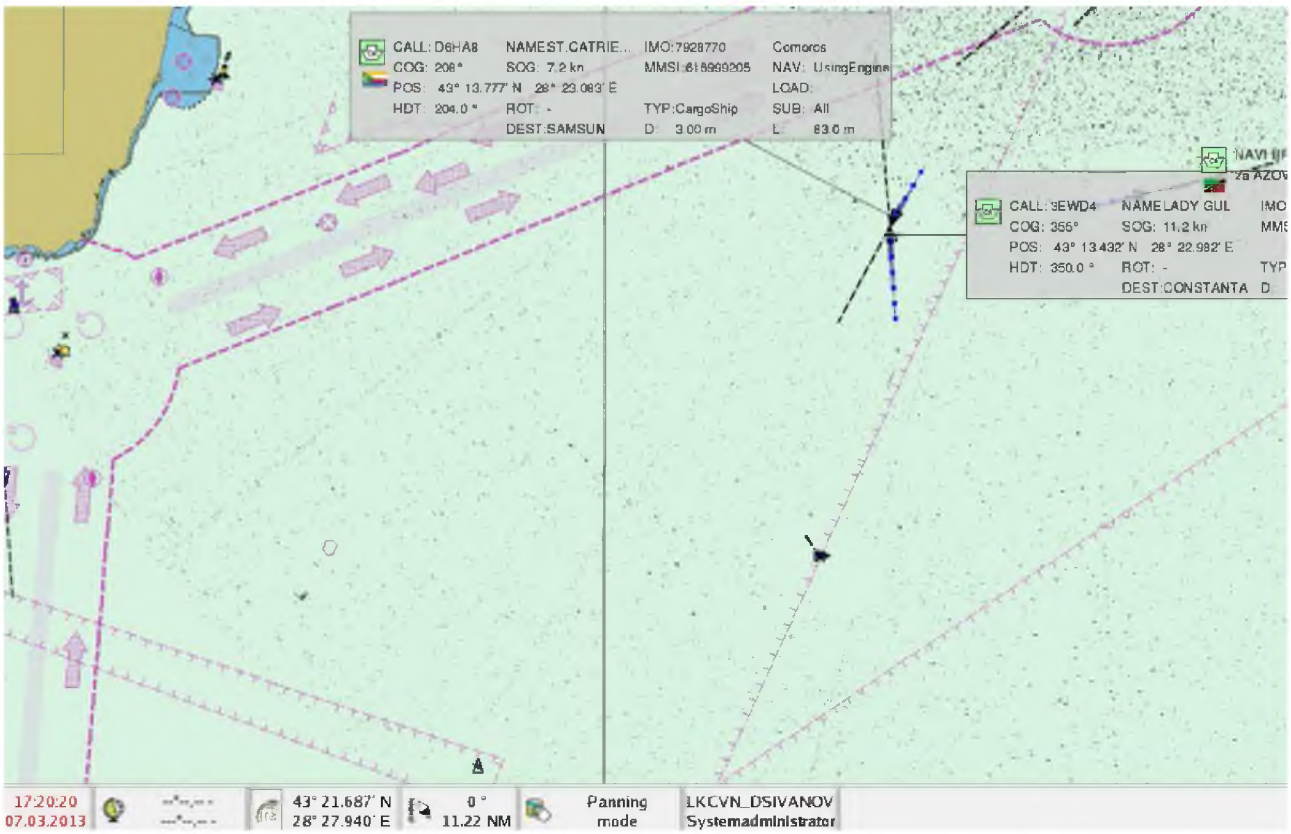


17:18:53 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 013,8°; D = 8 cables.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 193,8°; D = 8 cables. VTMIS – Varna

Lady Gul and St. Catrien disposition at 17:20:20 (15:20:20 GMT).

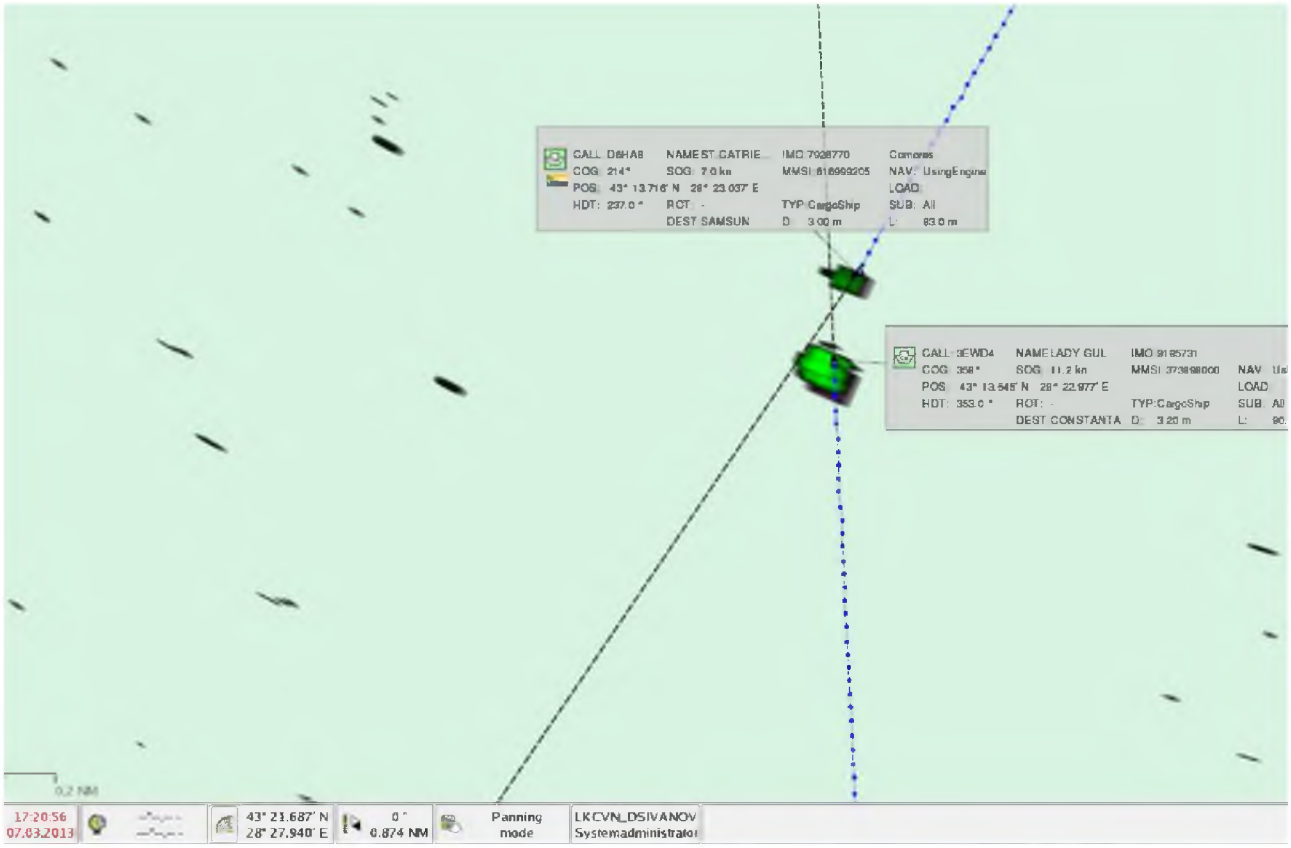
Obtained by Varna VTMIS.

17:20:20 on 07.03.2013 m/v„Lady Gul" - Bearing to m/v„St. Catrien" = 20°; D = 3 cables.
m/v„St. Catrien" - Bearing to m/v„Lady Gul" = 200°; D = 3 cables. VTMIS – Varna



17:20:20 on 07.03.2013 m/v„Lady Gul" COG=355°, V=11,2 kt m/v„St. Catrien" COG=208°, V=7,2 kt CD Border Police

The *m/v"St. Catrien"* began to circulate to the right in order to avoid the collision and according to the chief mate the set deviation angle of the rudder blade was 25-30° starboard. The *m/v"Lady Gul"* did not react until the collision and sailed at full speed, V = 11,2 kt, COG = 358°.



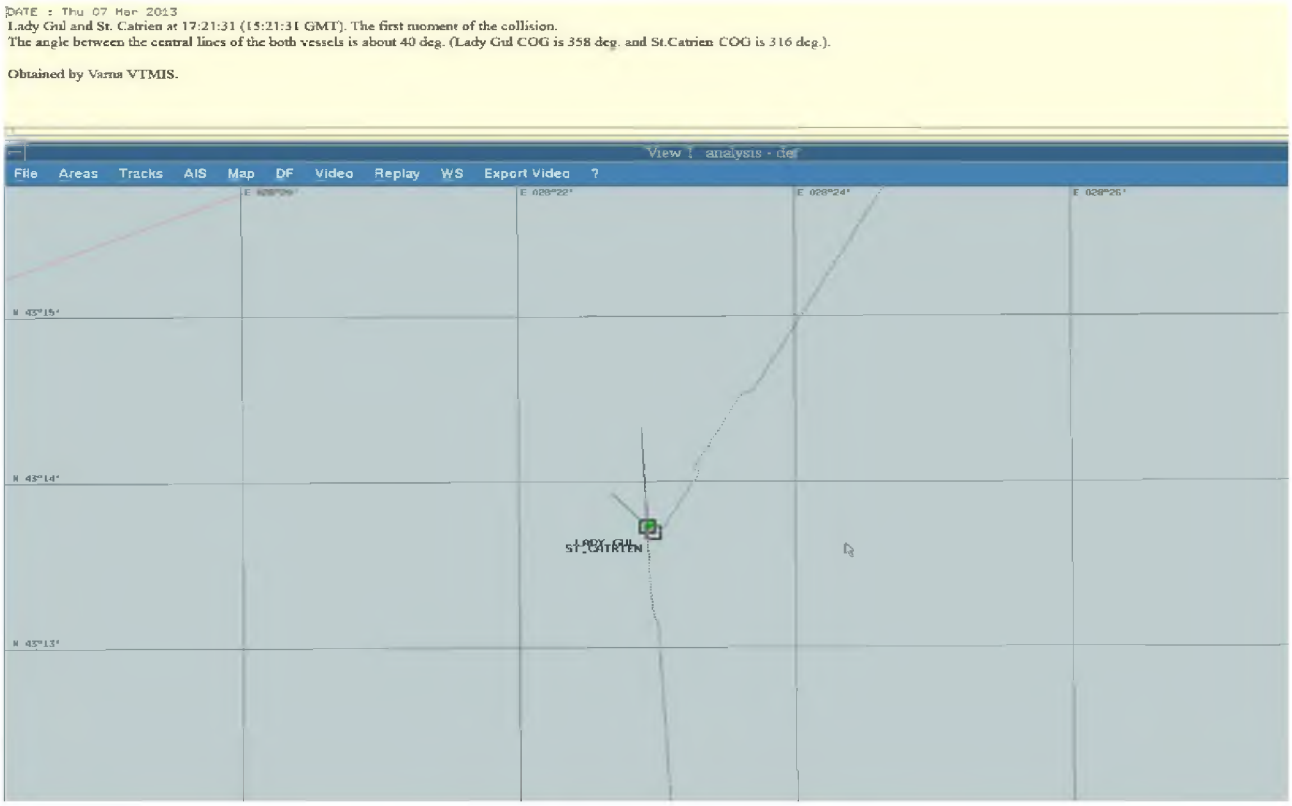
17:20:56 on 07.03.2013 m/v„Lady Gul" COG=358°, V=11,2 kt m/v„St. Catrien" COG=214°, V=7,0 kt CD Border Police

Lady Gul and St. Catrien disposition at 17:20:56 (15:20:56 GMT).

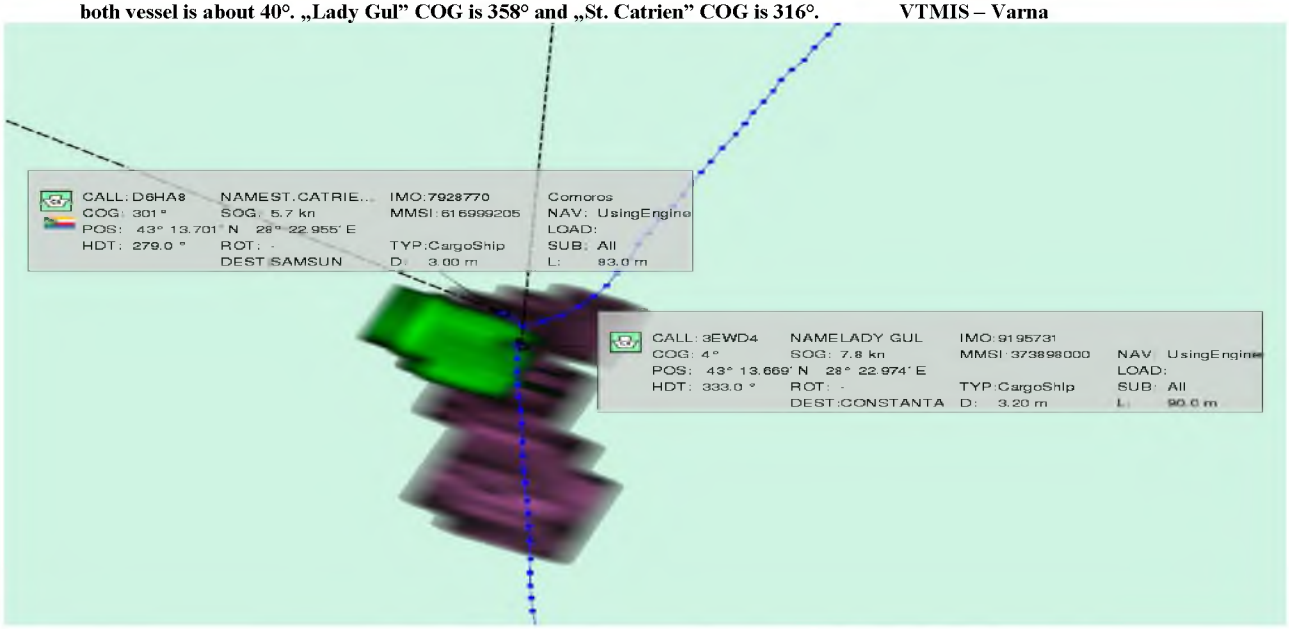
Obtained by Varna VTMIS.

17:20:56 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 33°; D = 210 m.
m/v„St. Catrien" - bearing to m/v „Lady Gul" = 213°; D = 210 m. VTMIS – Varna

At 17:21:31was the starting point of the collision between the *m/v"Lady Gul"* and the *m/v" St. Catrien"*. The *m/v "Lady Gul"* was still on COG = 358°. The *m/v "St. Catrien"* was on COG = 316°. The collision began at an angle of 40° between the centre planes of the two vessels. The impact was with the right side of the bow of *"Lady Gul"* to the left side of the *"St. Catrien"* between the housing and the load line mark on the middle. The pressure of *"Lady Gul"* applied behind the middle of *"St. Catrien"* stopped the circulation at 17:21:41. Her motion was on COG = 301°. In turn, the chief mate of *"Lady Gul"* stopped the engine, the captain got on the bridge and orders full astern. The collision continued and initially the right bow side of *"Lady Gul"* slides forward on the port side of *"St. Catrien"* which got a hole behind the right hawse pipe by the broken reinforced safety life line of *"St. Catrien"*. Then, once the speed of *"Lady Gul"* was killed, the vessel lagged and passed astern of the *"St. Catrien"*.



17:21:31 on 07.03.2013: m/v„Lady Gul" and m/v„St. Catrien". The first moment of the collision. The angle between centre lines of both vessel is about 40°. „Lady Gul" COG is 358° and „St. Catrien" COG is 316°. VTMIS – Varna



17:21:41 on 07.03.2013. A moment of the collision. M/v„Lady Gul" COG=004°, V=7,8 kt M/v„St. Catrien" COG=301°, V=5,7 kt Radar image. CD Border Police

Ship's name	IMO Nr.	Time stamp	AIS Time stamp	LATITUDE - N	LONGITUDE - E	HEADING	COG	SOG
				[deg.min.thnd.]	[deg.miu.thnd.]	[degree]	[degree]	[knot]
LADY GUL	9195731	Thu, 07 Mar 2013 14:32:10 GMT	Thu, 07 Mar 2013 14:32:08 GMT	43°04,595'	28°24,495'	343	346.7	11.1
LADY GUL	9195731	Thu, 07 Mar 2013 14:37:11 GMT	Thu, 07 Mar 2013 14:37:05 GMT	43°05,491'	28°24,262'	346	350.6	11.1
LADY GUL	9195731	Thu, 07 Mar 2013 14:42:12 GMT	Thu, 07 Mar 2013 14:42:05 GMT	43°06,388'	28°24,033'	346	348.8	11.0
LADY GUL	9195731	Thu, 07 Mar 2013 14:52:03 GMT	Thu, 07 Mar 2013 14:51:55 GMT	43°08,146'	28°23,568'	346	349.0	11.0
LADY GUL	9195731	Thu, 07 Mar 2013 14:57:04 GMT	Thu, 07 Mar 2013 14:57:01 GMT	43°09,064'	28°23,327'	354	357.2	11.0
LADY GUL	9195731	Thu, 07 Mar 2013 15:02:05 GMT	Thu, 07 Mar 2013 15:01:54 GMT	43°09,968'	28°23,250'	351	354.8	11.1
LADY GUL	9195731	Thu, 07 Mar 2013 15:07:06 GMT	Thu, 07 Mar 2013 15:07:05 GMT	43°10,934'	28°23,170'	353	357.3	11.2
LADY GUL	9195731	Thu, 07 Mar 2013 15:12:07 GMT	Thu, 07 Mar 2013 15:12:05 GMT	43°11,872'	28°23,098'	353	357.0	11.2
LADY GUL	9195731	Thu, 07 Mar 2013 15:17:08 GMT	Thu, 07 Mar 2013 15:17:05 GMT	43°12,819'	28°23,025'	353	358.1	11.4
LADY GUL	9195731	Thu, 07 Mar 2013 15:22:09 GMT	Thu, 07 Mar 2013 15:22:08 GMT	43°13,682'	28°22,943'	314	314.6	3.6
LADY GUL	9195731	Thu, 07 Mar 2013 15:27:10 GMT	Thu, 07 Mar 2013 15:27:03 GMT	43°13,794'	28°22,898'	281	354.7	1.3
LADY GUL	9195731	Thu, 07 Mar 2013 15:32:11 GMT	Thu, 07 Mar 2013 15:32:08 GMT	43°13,944'	28°22,809'	264	298.6	4.2
LADY GUL	9195731	Thu, 07 Mar 2013 15:37:12 GMT	Thu, 07 Mar 2013 15:37:05 GMT	43°13,844'	28°22,274'	235	246.3	6.2
LADY GUL	9195731	Thu, 07 Mar 2013 15:42:13 GMT	Thu, 07 Mar 2013 15:42:05 GMT	43°13,736'	28°21,765'	235	263.1	2.8
ST.CATRIEN	7928770	Thu, 07 Mar 2013 14:32:10 GMT	Thu, 07 Mar 2013 14:32:05 GMT	43°18,754'	28°27,091'	210	204.7	7,2
ST.CATRIEN	7928770	Thu, 07 Mar 2013 14:37:11 GMT	Thu, 07 Mar 2013 14:37:06 GMT	43°18,245'	28°26,658'	208	213.1	7.2
ST.CATRIEN	7928770	Thu, 07 Mar 2013 14:42:12 GMT	Thu, 07 Mar 2013 14:42:05 GMT	43°17,728'	28°26,230'	209	211.1	7.2
ST.CATRIEN	7928770	Thu, 07 Mar 2013 14:52:03 GMT	Thu, 07 Mar 2013 14:51:55 GMT	43°16,724'	28°25,385'	207	207.8	7.1
ST.CATRIEN	7928770	Thu, 07 Mar 2013 14:57:04 GMT	Thu, 07 Mar 2013 14:56:54 GMT	43°16,208'	28°24,976'	204	208.8	7.0
ST.CATRIEN	7928770	Thu, 07 Mar 2013 15:02:05 GMT	Thu, 07 Mar 2013 15:01:54 GMT	43°15,688'	28°24,576'	204	202.9	7.2
ST.CATRIEN	7928770	Thu, 07 Mar 2013 15:07:06 GMT	Thu, 07 Mar 2013 15:07:04 GMT	43°15,153'	28°24,163'	205	208.7	7,3
ST.CATRIEN	7928770	Thu, 07 Mar 2013 15:12:07 GMT	Thu, 07 Mar 2013 15:12:05 GMT	43°14,630'	28°23,756'	205	210.9	7.2
ST.CATRIEN	7928770	Thu, 07 Mar 2013 15:17:08 GMT	Thu, 07 Mar 2013 15:17:05 GMT	43°14,111'	28°23,348'	205	209.1	7.1
ST.CATRIEN	7928770	Thu, 07 Mar 2013 15:22:09 GMT	Thu, 07 Mar 2013 15:22:05 GMT	43°13,716'	28°22,911'	266	285.7	4.4
ST.CATRIEN	7928770	Thu, 07 Mar 2013 15:27:10 GMT	Thu, 07 Mar 2013 15:27:05 GMT	43°13,830'	28°22,758'	116	71.0	0,8
ST.CATRIEN	7928770	Thu, 07 Mar 2013 15:32:11 GMT	Thu, 07 Mar 2013 15:32:05 GMT	43°13,664'	28°22,748'	220	230.1	5.6
ST.CATRIEN	7928770	Thu, 07 Mar 2013 15:37:12 GMT	Thu, 07 Mar 2013 15:37:05 GMT	43°13,235'	28°22,234'	213	219.1	7.6
ST.CATRIEN	7928770	Thu, 07 Mar 2013 15:42:13 GMT	Thu, 07 Mar 2013 15:42:12 GMT	43°12,774'	28°21,640'	258	251.4	7,3

Data obtained by Varna VTMIS (Sofrelog).

ТАБЛИЦА-1

6.2. Reconstruction of the actions of **m/v„Lady Gul" and m/v„St. Catrien"**

The reconstruction of the accident was based on objective data obtained from VTMIS - Varna and Varna-Radio trough VTMIS – Varna as well as data from the system for continuous monitoring of the Chief Directorate "Border Police" at the Ministry of Interior, including the recorded conversations on VHF channel 16. The testimony of the watch mates, the captains and other crew members were used as well.

Actions of m/v„Lady Gul":

At 16:00 the chief mate took the deck. The vessel sailed on TC = 352°.

At 16:52 he saw the *m/v"St. Catrien"* on the starboard bow. At this point, the designated by him distance to *"St. Catrien"* of about 6 miles did not match to the actual one which was taken from data obtained from VTMIS - Varna.(at 16:52:03: From *m/v"Lady Gul"* to *m/v"St. Catrien"* B = 009 °; D = 8.6 miles. CA = 23° starboard, GCH = 346°; COG = 348,5°). This indicated that the elements of the target's movement, such as distance, course and speed, were not taken from the radar. He claimed that he had tried to get in contact with *"St. Catrien"* when 6 and 3 miles from the target but he hadn't received any response. No call from *"Lady Gul"* to *"St. Catrien"* had been registered by the means of monitoring the VHF channel 16 of VTMIS - Varna and CD Border Police.

The chief mate claimed that he had changed the course by 8° degrees to starboard, which was confirmed at 16:57 when the change was fixed. *"Lady Gul"* lied on GCH = 354°;COG=357,2°. V = 11,0 kt. At this point from m/v"Lady Gul" *to m/v"St. Catrien"* P = 009,6°; D = 7.2 miles. CA = 15,6° starboard.

The chief mate claimed that he had changed the course to starboard because he ~~has~~ recognized that the bearing to the target did not change, i.e. he was aware that the vessels went on collision. The course change by 8° to starboard did not result in a change of the situation. There was

a tendency that *"Lady Gul"* should cross dangerously close the course of *"St. Catrien"(*bearing to" *St. Catrien"* increased very slowly). From this moment to the very collision at 17:21:31 "Lady Gul" virtually did not change her course and speed.

Till 17:17:08 when the distance to *"St. Catrien"* had been decreased to 13,2 cables the bearing remained unchanged P = 009°; CA = 17 ° starboard; GCH = 353°; COG = 358,1°; V = 11,4 kt. The chief mate did not react to the dangerously close approach. The captain had not been called to the bridge.

From 17:18:53, when a small alteration of the course to the left has been registered, to the very there was a strongly expressed striving of *m/v"Lady Gul"* to pass at front of the bow of the *m/v"St. Catrien".* At this point the bearing to *"St. Catrien"* had been increased from P = 009° to P = 013,8°, but the distance was now critically small. It had been decreased from D = 13,2 cables to D = 8 cables. COG = 356,2°. The course angle was starboard.

The dependence of the value of the shortest target passing distance (STPD) by one and the same change of bearing to the target was not the same for small and for large distances to the target. At very short distances only a substantial manoeuvre resulting in a great change of the course and a very substantial change of the bearing to the target respectively should result in a substantial change of the shortest target passing distance (STPD).

At 17:20:56 the starboard of the *m/v"Lady Gul"* was right on the bow of the *m/v"St. Catrien".* At this point the distance between the starboard of *"Lady Gul"* and the bow of the *"St. Catrien"* was about 210 meters. Now, the bearing to *"St. Catrien"* was 33°, but this did not change the fact that the *m/v"Lady Gul"* had taken away the advantage of *m/v"St. Catrien",* while approached too dangerously to her.

At 17:21:31 was the starting point of the collision between starboard bow of the m/v"Lady Gul" and the port side of the *m/v"St. Catrien".* The *m/v"Lady Gul"* was still traveling at constant speed and course. COG = 358°. V = 11,2 kt. according to data obtained from CD Border Police.

The chief mate was shocked by the collision. He had expected to pass the *"St. Catrien".* There was no registered attempt from his side to establish contact with the *m/v"St. Catrien"* on VHF channel 16 and such was not required by the Regulations for Preventing Collisions at Sea.

At the last moment the chief mate gave an acoustic signal of 5 short whistles with the ship's whistle in order to catch the attention of the other vessel due to a lack of understanding to her intentions and doubt whether sufficient actions had been taken to avoid collision, and sent the watch steerer to call the captain to the bridge ordering stop of the engine. The captain got on the bridge and ordered full astern.

M/v"Lady Gul" struck *m/v"St. Catrien"* and the speed was killed at 7,8 kt at 17:21:41, 10 seconds after the initial contact. The bow starboard of *"Lady Gul"* slid forward on the port side of *"St. Catrien"* which got a hole behind the right hawse pipe by the broken reinforced safety life line of *"St. Catrien",* then the speed of "Lady Gul" was finally killed to 1-2 knots. The vessel lagged and passed astern of the *"St. Catrien"* around 17:23:30.

The time of engine stopping was entered in the engine logbook as 17:23 and the time of going astern was 17:24. Both times were corrected for unknown reasons. In the logbook there was no entry for the collision time. This time was noted on a British Admiralty Nautical Chart 2285 B as a position at the time of the collision at 17:35

Actions of *m/v„St. Catrien":*

From 16:25 *m/v"St. Catrien"* sailed of TC = 210° at speed of 7,2 kt. The chief mate standed watch. He had taken the deck at 12:00. He changes with the captain every 6 hours.

The watch officer sits in an armchair in the middle of the bridge at hand from the vessel's control and monitoring means. The visibility was restricted in sitting by the crowded with equipment control panel. He had a helmsman at disposal, who was an observer as well. The vessel sheered with 2° - 3° as the total amplitude reaches 4°- 6°.

At 17:00 the position of the vessel was laid down upon the chart. At the same time there was an entry in the logbook that an oncoming vessel had been spotted on bearing 170 at a distance of 8 miles.

Objectively the data provided by the Vessel Traffic Management Information System (VTMIS) and CD Border Police showed that at 17:00:00 the bearing to *"Lady Gul"* is P = 190°, D = 6.4 miles; COG = 208°, V = 7,2 kt. *"St. Catrien"* was standing at the right side in relation to "Lady Gul".

At 17:17:08 the bearing to *"Lady Gul"* was P = 189°; D = 13,2 cables. The course angle was 15° port (GCH = 205°). The distance was critically decreased and the bearing remained almost unchanged.

The chief mate neither reacted with a manoeuvre to avoid the existing risk of collision nor called the captain on the bridge. *M/v"St. Catrien"* maintained her course and speed. COG = 209,1°; V = 7,1 kt

The chief mate claimed that he had made 3-4 attempts to contact the coming vessel on VHF channel 16 calling her MMSI because there was no name of the vessel coming on collision to be seen on the AIS monitor. There is no registered call from *"St. Catrien"* to MMSI by the means of monitoring VHF channel 16 of VTMIS - Varna and CD Border Police.

From 16:50:47 to 16:50:56 a call from the *m/v"St. Catrien"* to the *m/v" St.Filip"* that was an identical vessel of the same manager and vessel owner Sudoservice Shipping Consultancy and Trading Ltd.- Istanbul, Turkey was registered on VHF channel 16 with which it had been proposed and accepted to switch to operating channel 15.

From 17:20:25 to 17:20:56 the *m/v"Lady Gul"* was exactly on the bow and the distance decreased dangerously. The chief mate gave five short whistles with the ship's whistle in order to catch the attention of *"Lady Gul"*, sounds alarm using the internal signalling system and switch to manual control of the steer.

At 17:20:56, when the distance from the *"St. Catrien"* bow to *"Lady Gul"* was about 210 m, COG = 214°; V = 7,0 kt, the m/v"St. Catrien" began circulation to the right to avoid collision and according to the chief mate the set deviation angle of the rudder blade was 25-30° starboard.

At 17:21:31 *"St. Catrien"* was hit in the port side between the middle and the housing at an angle of about 40° between the centre planes of the two vessels. The circulation was stopped by the pressure of *"Lady Gul"*, which slide forward on the board, and then lagge and passed astern.

7. Analysis

7.1. Information about the human factor aspect and analysis

According to the International Convention on Standards of Training, Certification, and Watchkeeping, 1978 (STCW 1978 Convention) and the Code attached to it (STCW 1978 Code), as amended, Section A-VIII/1, Fitness for duty:

- all persons forming part of a watch shall be provided minimum 10 hours rest in any 24 hour period;
- the hours for rest may be divided in no more than 2 periods, one of which shall be at least 6 hours;
- for each 7 day period the rest hours may be not less than 70 hours.

Under the Convention № 180 of the International Labour Organisation (ILO Convention No.180) the minimum rest hours are increased for the period of 7 days and may not be less than 77 hours.

In the waters of the European Union the hours for rest on the vessels must comply with the Convention № 180 of the International Labour Organization, in conjunction with Directive 1999/95/EC.

M/v„Lady Gul":

The main human factor in the collision was the watch officer on the bridge – the chief mate.

The watchkeeping officers on the bridge are the captain, the chief mate and the second mate. One takes the deck two times for four hours a day without releasing from the other duties arising from the nature of the positions.

The chief mate regularly had used 15-16 hours for rest a day since the beginning of March. Therefore the issue of the cumulative fatigue is out of question.

The chief mate is holder of all necessary documents which certify and attest his professional training required for his position. He has completed training for familiarization with the vessel and the bridge. He has got on the vessel on 24.12.2012 in Bandirma. He was on the vessel for two and a half months. He had visited 10 ports in Black Sea, Marmara Sea and Mediterranean Sea. His experience as chief mate till 07.03.2013 is 7 months after having 2 years of experience as a second mate. According to the vessel owner he has good skills and recommendations.

Therefore, the chief mate should know the Regulations for Preventing Collisions at Sea (COLREG 1972).

The collected and analysed evidence material and the interview with the chief mate on board of *m/v"Lady Gul"* as well as the written statements did not confirm the above assumption.

M/v„St. Catrien":

The very late call of the captain on the bridge was also a result of the human factor.

On the one hand, for his not short service on the bridge the chief captain had not learned that in case of any suspicion of danger to the vessel with all the consequences he had to notify the captain.

On the other hand, the captain was the chief navigator and he was responsible for the standard of service on the vessel. The quality of the Passage plan, where the passage to Cape Kaliakra and the anchoring place had been planned on a General Admiralty Chart 2230 while being used also a General Admiralty Chart 2285 for approaching anchoring, did not point to a high standard of service on the bridge.

M/v"St. Catrien":

Again, the main human factor for the collision was the watchkeeping officer on the bridge, the chief mate.

The watchkeeping officers on the bridge were the captain and the chief mate. They took deck two times for six hours without releasing from other obligations arising from the nature of their positions.

The chief mate was on the vessel from 15.02.2013. From 18.02.2013 to 06.03.2013, for 17 consecutive days he had worked 14 hours and had rested for 10 hours a day according to the provided on board form for work and rest hours. During this period the vessel was in "Bourgas Shipyards" JSC, Bourgas and Constanta. The requirement for a minimum of 77 hours for rest in any period of seven consecutive days was not met. This was a violation of the Convention № 180 of the International Labour Organisation which should be applied in the waters of the countries of the European Union in conjunction with Directive 1999/95/EC.

For the last day, from 18:00 on 06.03.2013 to 18:00 on 07.03.2013 he had worked 10 and has rested 14 hours as one of the two resting periods was from 18:00 on 06.03.2013 to 05:00 on 07.03.2013 and the other resting period was from 09:00 to 12:00 on 07.03.2013

Therefore, the chief mate had been rested when took the deck at 12:00 on 07.03.2013.

The very late manoeuvre undertaken by him to avoid the collision, however, may also be result of lull the vigilance due to accumulated fatigue.

Here again, the chief mate had proper documents required for his position.

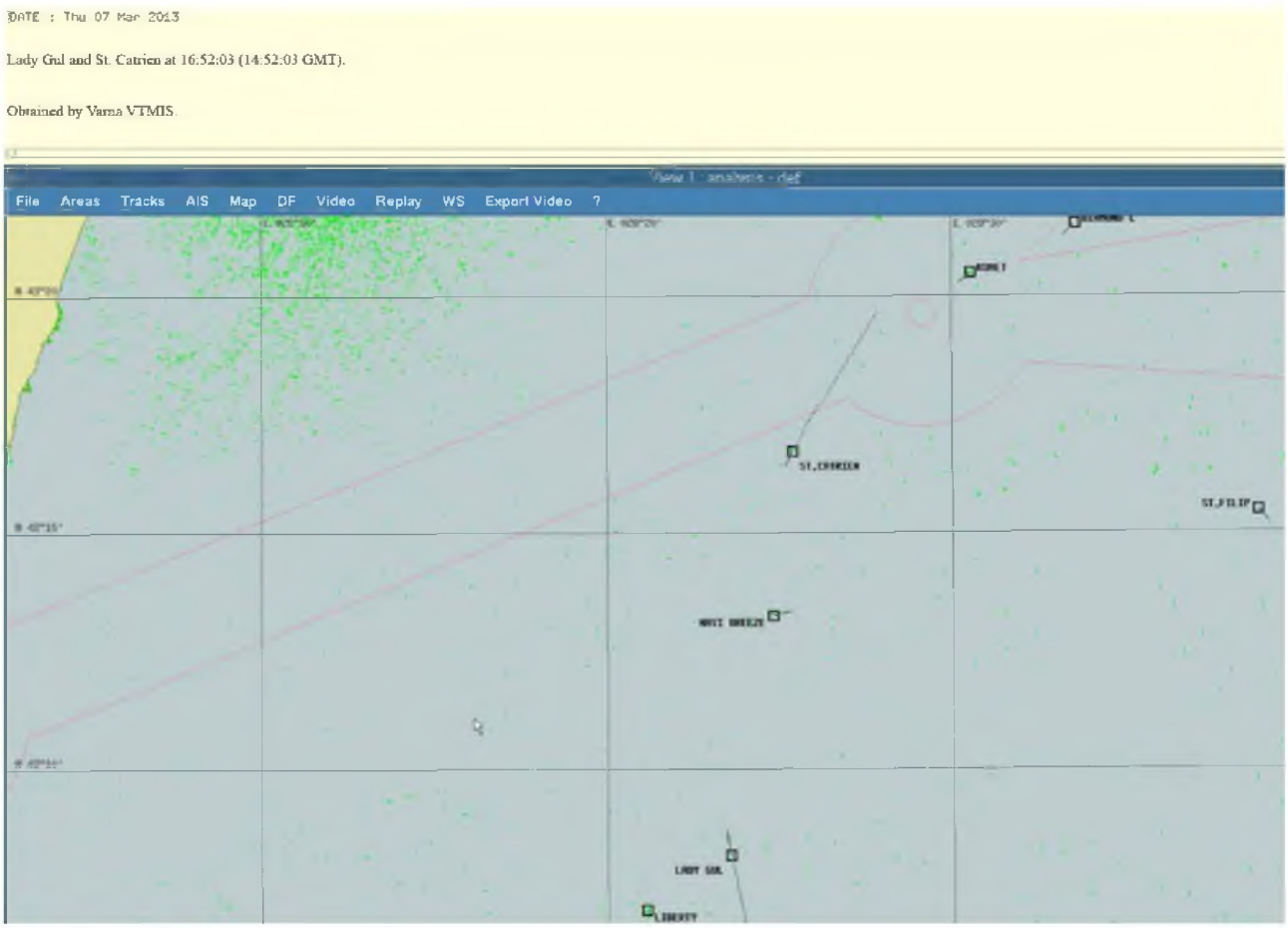
He had completed training for familiarization with the vessel and the bridge in "Bourgas Shipyards" JSC, Bourgas after getting on the vessel to the sail to Constanta on 01.03.2013.

He had experience as a chief mate from the second half of 2011 to the very collision on 07.03.2013. As watchkeeping chief mate he had experience from 2007 until his promotion to chief mate. He had applied very late Rules 17 (a) 2 and 17 (b) of IRPCS that can be attributed to the accumulated fatigue and the delayed assessment of the dangerous situation of the vessel as well as to the organization of the watchkeeping on the bridge. The six hour watch and layout of the communication and navigation console and the panic button imply watchkeeping in sitting. The visibility from the captain's chair (seated position of the officer on watch) was restricted by the navigation means.

Here again the understanding of the captain's responsibility was not at the required level. The chief mate triggered the internal ship signalling systems. For calling the captain on the bridge was too late. The captain was unable to participate in the manoeuvre to avoid the collision with the *m/v"Lady Gul".*

7.2 Analysis of the causes and circumstances led to the marine casualty

Figure 1 shows the mutual disposition of the vessels at 16:52 when the chief mate of the *m/v"Lady Gul"* saw the *m/v"St. Catrien"* on the starboard bow.



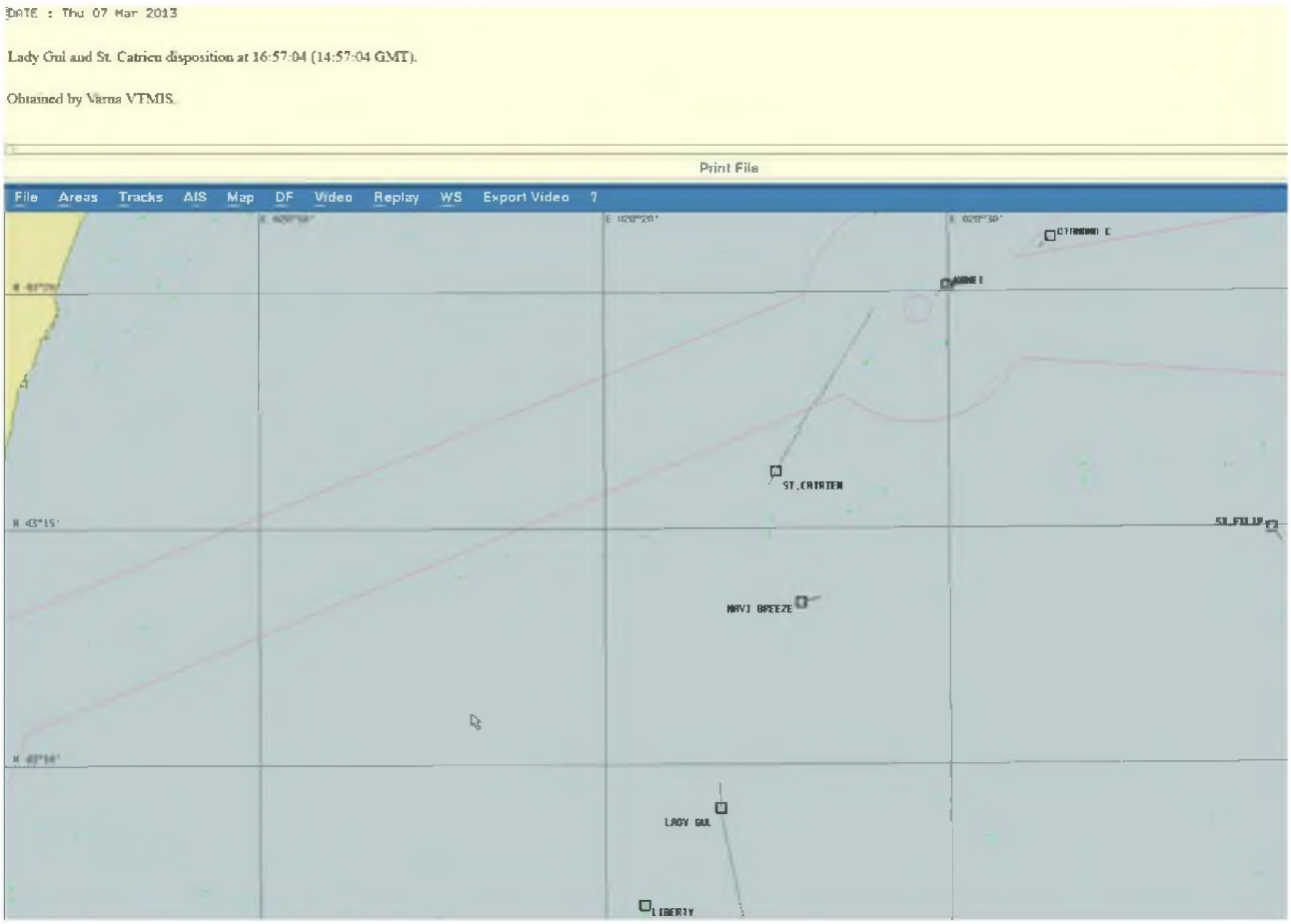
16:52:03 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 009°; D = 86 cables. m/v„St. Catrien" - bearing to m/v„Lady Gul" = 189°; D = 86 cables. VTMIS – Varna

Fig.1

The distance was 8.6 miles. It was evident that the courses of the two vessels cross. Both vessel should use the technical means for navigation and to assess the dangerous situation. At this point, this was done by the chief mate of the *m/v"Lady Gul".* According to the Regulations for Preventing Collisions at Sea the *m/v"Lady Gul"* was obliged to give way to the m/v"St. Catrien" as a left-hand vessel with a large deviation from the maintained so far course so that the manoeuvre to be substantial and to avoid a dangerous approach.

At 16:57, on a distance of 7.2 miles from the *m/v"St. Catrien"* the *m/v"Lady Gul"* altered her course be 8° to starboard, which did not result a change of the situation. On the contrary, the

bearing to the target virtually remains the same, which was a clear indication that the two vessel are going on collision or in the best case on a dangerous convergence as shown on Fig.2.



16:57:04 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 009,6°; D = 72 cables.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 189,6°; D = 72 cables. VTMIS – Varna

Fig.2

The *m/v"St. Catrien"* discovered the oncoming vessel at a distance of 8 miles. There was no reason to believe the deck clock or the time records in the logbook of *"St. Catrien"* as the reported time of collision differs by 10 minutes from the time of the collision as reported on board of the *m/v"Lady Gul"* and 13 minutes from the time determined in on the grounds of the objective data obtained from VTMIS - Varna and CD Border Police at MI.

The chief mate of *"St. Catrien"* recognized that the bearing to *"Lady Gul"* did not change and the fact that *"St. Catrien"* had the right of stand on. This fact, the tiredness, the very late manoeuvre and the fact that from 16:51 he was in contact with the m/v"St.Filip" on VHF channel 15 for an unknown time, give reason to conclude that his attention on the bridge had been blunted.

At 17:17, when the distance between "Lady Gul" and *"St. Catrien"* was only 1.3 miles, each of the two ships continued to maintain unchanged course and speed. This was the critical moment for a substantial actions at the last moment for both vessels separately or simultaneously in accordance with IRPCS and the practice for good seamanship and for taking command by the captain. Nothing like this happened as can be seen from Figure 3.

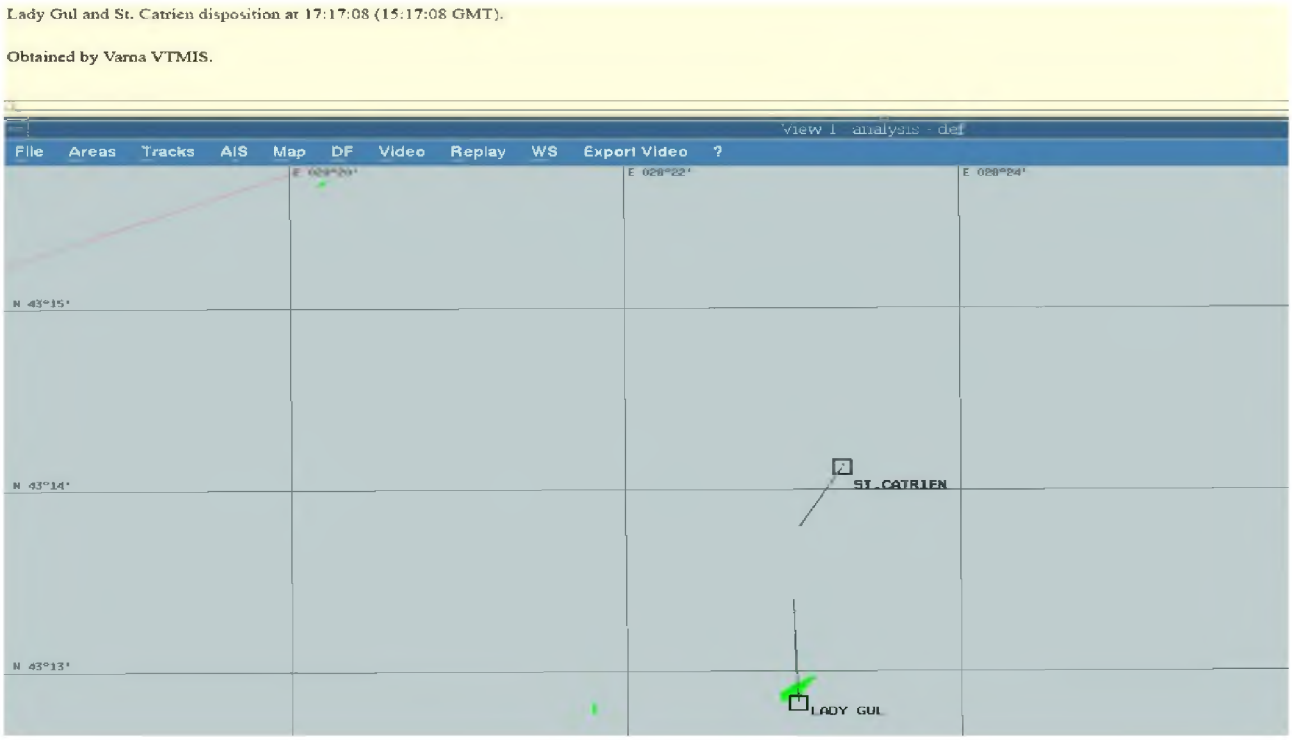
At 17:20:56 the *m/v"St. Catrien"* reacted to the set 25°-30° starboard deviation of the rudder blade. The result was described above in this report. The manoeuvre was too late and led to the collision.

If one examines the hypothesis that the same manoeuvre has started at 17:17, the collision would have been avoided.

Not seeking the minimum time interval which would be necessary before 17:22 to avoid the collision using the manoeuvre of the *m/v"St. Catrien"*, it should be noted that at 17:20:56 *"Lady Gul"* was on starboard bow of *"St. Catrien"* at a distance of 210 meters. The probability of passing

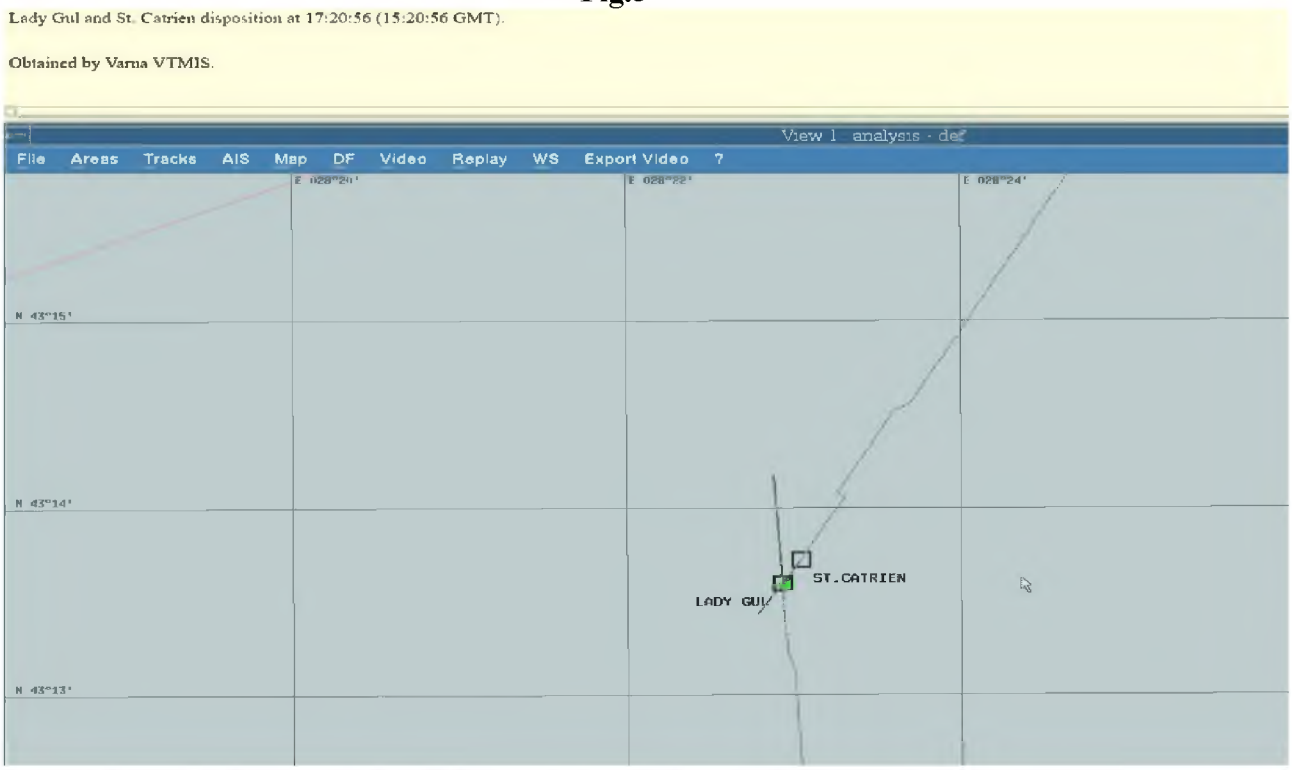
of the two vessels, provided that *"St. Catrien"* had stand on her initial course, was not less than the probability to avoid the collision using otherwise correct, but too late manoeuvre of the *m/v"St. Catrien"*, see Figure 4. On the other hand, it can be said that the crew of *"St. Catrien"* had been lucky in this accident. There was no one injured in the two crews. A full board deviation (33°) of the rudder blade of *"St. Catrien"* would probably lead to exposure of the housing of *"Lady Gul"* to the impact with all the resulting consequences.

At 17:22 the vessels collided.



17:17:08 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 009°; D = 13,2 cables.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 189°; D = 13.2 cables. VTMIS – Varna

Fig.3



17:20:56 on 07.03.2013 m/v„Lady Gul" - bearing to m/v„St. Catrien" = 33°; D = 210 metres.
m/v„St. Catrien" - bearing to m/v„Lady Gul" = 213°; D = 210 metres. VTMIS – Varna

Fig.4

8. Conclusions

8.1. Main cause for the accident

The **collision was a result of failure to comply with the International Regulations for Preventing Collisions at Sea - IRPCS-72 (1972 COLREGs), as amended, which were adopted by the Convention of 20.10.1972, signed in London.**

IRPCS, Part B – Steering and Sailing Rules, Section I – Conduct of vessels in any condition of visibility, ACTION TO AVOID COLLISION - Rule 8 (b) reads: „Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided." **Rule 8 (d):** „Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear."

Without fully quote Rule 8 of IRPCS we will note that it had been totally ignored.

Rule 15 and Rule 16 from Section II, Part B of IRPCS had been totally ignored too. This also applied to Rule 17, paragraphs (a) item 2; (b) and (d).

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 sub-paragraph (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.

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

Pursuant to Rule 15, Rule 16, Rule 8 (b) and 8 (d) the *m/v"Lady Gul"* seeing a course crossing target, the *m/v"St. Catrien"*, on her starboard bow, should change her course and/ or speed early and substantially so this change to be noticeable to the target and the passing to be at a safe distance.

The circumstances allowed performing such a change of the course and/or speed. If there was sufficient sea room, and this was the case which was evident from the data obtained through VTMIS – Varna the early and substantial alteration of the course alone could turn out to be the most effective action, see rule 8 (c) of IRPCS .

According to the practice of good seamanship for substantial change the course should be changed so as the vessel to which the manoeuvre was performed to be able to notice the change when the

two vessels were visible. In case of crossing courses that are close to the opposite when the two vessels were visible, a noticeable change of the course was when the manoeuvring vessel showed her opposite board to the vessel to which the manoeuvre was performed, provided that there was sufficient sea room and such an alteration of the course should not lead to excessive convergence with other vessels. That is the practice of good seamanship that *m/v "Lady Gul"* (obliged to give way according to Rule 15 of IRPCS) shall change her course angle to the *m/v"St. Catrien"*, from CA starboard to CA port.
The change of the course of the *m/v"Lady Gul"* by only 8° to starboard at 16:57 was insufficient and was contrary to Rule 8 (b) and 8 (d) and to the practice of the good seamanship. The further inactivity of the *m/v"Lady Gul"* was inexplicable. On the other hand, the *m/v"St. Catrien"* (having the right to stand on according to Rule 17 (a) (1) of IRPCS) did not react in a timely manner according to Rule 17 (a) (2) through a manoeuvre to avoid the risk of collision regardless of the finding that the bearing to the *m/v"Lady Gul"* remained constant and the distance decreased. Finally, after the *m/v"St. Catrien"* began to turn to starboard, the *m/v"Lady Gul"* should begin to turn to port in order to avoid the collision, see rule 17 (d).
The *m/v"Lady Gul"* did not react with course change to port which can hardly be explained only by ignorance of IRPCS.

8.2. Associated causes for the accident

The main associated cause for the accident was the delayed call to the bridge of captains of the two vessels.

In turn, this could be due to the poor organization and insufficient knowledge of the watchkeeping on the bridge and to an excessive conceit and poor discipline of the chief mates on deck of the two vessels.

Further associated cause for the accident was related to accumulation of fatigue in the chief mate of the m/v"St. Catrien" and the bride duty scheme which was 6 hours duty and 6 hours rest and additional work which resulted in only 10 hours rest a day for 17 days.

The bridge duty scheme of the *m/v"St. Catrien"* had also an influence on the organization of the workplace of the watchkeeping officer such as the ergonomic technical means of navigation. The watchkeeping officer often remained sitting in the captain's chair from where the visibility was poorer than at the control panel or the bridge wings.

8.3. Repetition of the marine casualty collision

There was a repetition of the marine casualty collision of power-driven vessels engaged in international cargo in the territorial waters of the Republic of Bulgaria.

On 29.11.2010, in the territorial waters of the Republic of Bulgaria about 10 miles southeast of Cape Emine, the chemical tanker *"Alessandro DP"*, IMO No. 9384162, struck and sank the *m/v "Drive 1"*, IMO No. 7516711. Disappearances 5 persons. Collision was analogous to the collision of *m/v "Lady Gul"* with *m/v "St. Catrien"*.
In the first case five lives were lost.
In the second case, fortunately, the *m/v"Lady Gul"* had no bulb and the hull of the *m/v"St. Catrien"* was not broken. There were no lost lives. Both collisions represent a huge risk for marine pollution with oil products.

Conclusion: It is necessary to find a solution of the problem with the early warning of the vessels sailing on dangerous courses leading to collision. Such a solution may be to exercise statutory and effective traffic control of the commercial shipping in the Bulgarian territorial waters.

9. Proposals for safety measures

On the base of the conducted investigation and the analysis of a very serious casualty, a collision of the *m/v„Lady Gul"* with *m/v„St. Catrien"* which led to the constructive loss of the *m/v"St. Catrien "* as well as of the conclusions made for the main and associated causes of the collision and the conclusion made for the repetition of the marine casualty collision in the territorial waters of the Republic of Bulgaria the Commission proposed the following measures aimed to avoid similar sea accidents in the future:

1. The vessel owners and the managers of the *m/v„Lady Gul"* and the *m/v„St. Catrien"*, GN Group Corporation, Istanbul, Turkey and Sudoservice Shipping Consultancy and Trading Ltd. –Istanbul, Turkey respectively, to include in the form for familiarization of the deck officers with the bridge upon getting on their vessels questions about knowledge of the steering and sailing rules – Part B of IRPCS-72.

2. The vessel owners and the managers of the *m/v„Lady Gul"* and the *m/v„St. Catrien"*, GN Group Corporation, Istanbul, Turkey and Sudoservice Shipping Consultancy and Trading Ltd. –Istanbul, Turkey respectively, to include in the form for familiarization of the deck officers with the bridge upon getting on their vessels questions about the obligation of the officer on deck to call the captain in case of danger or suspicion of danger to the ship, assuming the presumption for the captain's responsibility.

3. The Bulgarian Ports Infrastructure Company should introduce and implement mandatory traffic control of the vessels sailing in the Bulgarian territorial waters to protect vessels from collision with all the consequences of loss of life, vessels, cargo and marine pollution with oil and other substances

4. The maritime administrations of the EU Member States should inspect the vessels visiting ports in the EU countries for implementation of the ILO Convention № 180 in conjunction with Directive 1999/95/EC. This recommendation is to be brought to the attention of the EU Member States with the help and assistance of the European Maritime Safety Agency (EMSA)