



E Navigation Data Auditing Report

Ship's Name	Name_not_disclosed
Period	March 1st to 31st, 2016

General

- 1. Introduction.** The data from the above ship was analyzed in order to carry our Navigational Audit of the above vessel performance during the period analyzed.
- 2. Findings.** No incidents of near groundings were found. Several incidents of close proximity to other vessels were observed and will be described further below.
- 3. Purpose.** The results of the EDA are brought to management attention in order to assist in establishing navigation safety standards onboard company ships and promulgate the company desire to keep such standards.
- 4. Assumptions.** The audit assumed "near misses " of importance should be considered as sailing in speeds over 15 knots, over depth less than 10 meters or passing in a distance closer than 0.4 miles to another vessel.
- 5. Disclaimer.** The incidents found were analyzed based on data recorded by ECDIS and VDR, without any input from the navigators or master or any information on visibility or sea state that may shed different light on the actions taken onboard.



Results

Findings	Number of cases	Comments
Near Grounding	0	
Shallow Depth	7	echo-sounder “glitch”
Close Proximity	18	

1. Shallow Depth. No such incidents were found. Although the data shows 7 such incidents (see table below), by checking vessels positions it was found that the ship was on a safe route with ample water below. It is assumed that the low depth recorded is an echo-sounder “glitch” from unknown reasons.

	Time	Position Long	Position Lat	Wind Direction	Wind Speed	ROT	Dep	Speed OG	Course OG	Heading
1	16-03-2016 01:31:14	001° 48.970' E	36° 42.240' N	14.00	23.80	0.00	5.70	15.80	226.40	227.20
2	21-03-2016 02:01:35	002° 56.276' E	51° 27.346' N	329.00	17.40	-2.30	8.00	16.40	81.60	82.20
3	21-03-2016 01:57:13	002° 58.146' E	51° 27.155' N	329.00	20.00	1.10	8.10	15.90	79.10	82.10
4	21-03-2016 02:18:11	002° 49.455' E	51° 28.962' N	14.00	15.70	0.00	9.40	15.10	58.90	60.10
5	23-03-2016 03:47:52	003° 01.993' E	51° 24.261' N	329.00	20.30	-1.00	9.50	16.60	58.80	60.20
6	23-03-2016 03:40:01	002° 58.909' E	51° 23.209' N	329.00	21.90	-2.10	9.80	17.00	64.00	64.90
7	11-03-2016 11:59:30	013° 17.553' E	45° 32.720' N	14.00	7.90	0.40	9.80	19.10	234.50	235.20

2. Close Proximity. 18 cases of close proximity were found as can be seen in the table below.

	Time	Position Long	Position Lat	Wind Direction	Wind Speed	ROT	Depth	Speed OG	Course OG	Heading	Target Number	Distan	Bearing	COG of Target	SOG of Target
1	22-03-2016 13:05:47	002° 39.182' E	49° 53.254' N	345.00	10.50	-2.80	57.40	17.00	75.50	73.90	ARPA 67	0.08	109.10	72.40	15.14
2	22-03-2016 13:07:11	002° 38.586' E	49° 53.353' N	14.00	20.20	0.00	57.90	17.10	75.70	74.10	ARPA 67	0.13	96.90	75.70	18.94
3	21-03-2016 18:14:21	002° 52.165' E	51° 28.297' N	345.00	20.50	-0.80	18.20	16.00	245.90	245.10	ATIS 236597000	0.21	323.19	64.80	12.10
4	22-03-2016 11:00:49	003° 33.357' E	49° 48.703' N	329.00	13.60	-6.20	64.10	17.20	96.30	92.20	ARPA 17	0.23	181.80	27.30	1.44
5	17-Mar-16 00:23:10	007° 34.337' E	33° 56.736' N	345.00	12.00	0.00	117.00	16.90	177.40	176.90	ARPA 27	0.26	10.00		
6	10-Mar-16 15:34:53	014° 33.198' E	43° 44.779' N	74.00	28.10	2.10	74.20	16.40	314.60	316.20	ARPA 17	0.26	77.30	268.40	11.64
7	31-03-2016 17:36:10	007° 53.522' E	53° 52.103' N	59.00	25.80	0.90	13.00	16.70	281.50	282.30	ATIS 211464260	0.26	192.14	113.00	1.50
8	02-Mar-16 06:01:19	033° 22.312' E	28° 09.684' N	345.00	14.00	-0.60	56.80	15.80	317.00	316.10	ARPA 37	0.29	241.30	141.20	0.70
9	23-03-2016 03:34:13	002° 56.522' E	51° 22.542' N	329.00	21.50	2.30	10.30	16.70	68.80	70.00	ATIS 256021000	0.29	353.50	268.90	10.80
10	31-03-2016 17:21:20	008° 00.340' E	53° 51.250' N	59.00	24.40	0.00	13.40	16.50	282.50	282.50	ATIS 246650000	0.30	6.72	100.10	13.50
11	31-03-2016 18:39:36	007° 24.186' E	53° 50.800' N	104.00	13.60	-4.50	18.40	16.70	261.20	261.00	ARPA 27	0.30	169.60	284.40	3.34
12	02-Mar-16 12:22:04	032° 34.701' E	29° 37.446' N	104.00	4.30	-1.90	40.20	15.10	351.70	352.10	ARPA 77	0.31	251.00	351.80	11.75
13	22-03-2016 10:27:22	003° 47.507' E	49° 49.720' N	14.00	16.90	1.30	66.00	15.10	74.90	74.90	ARPA 37	0.32	175.20	257.10	3.46
14	22-03-2016 21:01:07	000° 53.979' E	50° 27.270' N	14.00	22.10	-1.10	36.00	17.90	65.40	64.90	ATIS 227314310	0.32	347.32	344.30	3.00
15	15-Mar-16 14:23:08	000° 26.401' E	38° 47.698' N	29.00	16.30	12.20	147.70	15.60	200.50	202.10	ARPA 87	0.33	82.30	276.10	10.49
16	02-Mar-16 03:30:51	033° 53.694' E	27° 41.658' N	345.00	22.50	0.00	36.90	16.00	310.00	310.20	ARPA 37	0.34	212.00	82.40	7.17
17	13-Mar-16 17:37:55	009° 25.632' E	38° 27.252' N	59.00	16.90	-5.10	55.60	19.30	283.40	283.90	ARPA 17	0.36	29.20	151.90	8.24
18	22-03-2016 19:48:31	000° 20.754' E	50° 21.683' N	329.00	20.30	0.10	37.80	18.40	80.50	80.10	ARPA 57	0.36	128.60	78.30	13.44

Close proximity was defined as an event when the distance to another vessel was less than 0.4 miles, with ship’s speed above 15 knots and in open waters. Four such cases were found to be violating the **International Regulations for Preventing Collision at sea (1972)** and consequently requiring



management attention. These events will be analyzed further below, with the DST set at a range of 12 miles and 0.5 miles minimum CPA.

2.1 March 13th, 17:37:

Not giving way to a Fishing vessel crossing from Starboard, forcing the other vessel to alter course and speed. Close proximity of 0.36 miles. Several pictures showing the chain of events are brought below.

It should **be emphasized that by the International Regulations for Preventing Collision** at sea (1972), Rule 18(a)(iii), **A power driven vessel underway shall keep out of the way of a vessel engaged in fishing, in addition to the requirement of rule 15 for a 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.)**

Chain of events was as follows:

- a. At 17:14, A fishing vessel sailing on course 165.5 at 8.4 knots on the starboard side shows danger of collision (CPA 0.02 miles in 22.9 minutes). No other traffic in the area. Advice by the DST was to alter course by 4.5 degrees to stbd in order to stay 0.5 miles from the target.
- b. At 1732 the distance to the target is 2.5 miles but same course is steered by both vessels. DST advice was to alter course by 30 degrees to stbd in order to stay 0.5 miles from the target.
- c. At 1735 the distance to the target is 1.1 miles and the course of own ship was changed to port, contradicting the COLREGS requirement of **avoid crossing ahead of the other vessel**. Possibly this was justified because at the same time we see that the target started changing course to port and reduced its speed.

2.2 March 22nd, 10:27:

Mixed action resulting in close proximity (0.36 miles) to an ARPA target. It is not clear why a change to port was taken so early, unless the target was seen to be a fishing vessel. In any case a change of course to stbd is preferred by the COLREGS, and is mandatory if in bad visibility.

Chain of events (pictures below):

- a. At 1012, altering course to stbd for a target 4.4 miles on the port side.
- b. At 1013, altering course to port about 1 minute after change to stbd. .
- c. At 1016 : Steaming on a course that will bring the target very close on the stbd side.

2.3 March 22nd, 11:00:

Mixed action on an ARPA target resulting in close proximity (0.23 miles). Target had to change course possibly to avoid own vessel from passing close on her stern.

Chain of events:

- a. At 1046 : change of course to stbd – not clear why, possibly for a radar target that was not locked by



ARPA and had no AIS.

- b. At 1055: sailing at 17.5 knots **toward a target**, possibly a fishing vessel, slightly on the stbd side of the bow at distance of less than 1 mile (!).
- c. At 1057 : Target changes course abruptly to port and is steaming away from own vessel.
- d. At 105730 : altering course to stbd for a very close target on the bow.
- e. At 105820 : altering course again to port for the same target that by now changed course completely.

The above led to the assumption that the vessel was not following COLREGS rule 8, demanding alteration of course to be large enough and in ample time and result in passing at a safe distance. Passing very close to the stern of another vessel, particularly a fishing trawler, can be risky.

2.4 March 22nd, 1305:

Not giving way while overtaking in a separation zone, forcing the other vessel to increase speed in order to pass clear. Minimum distance recorded was 0.08 miles.

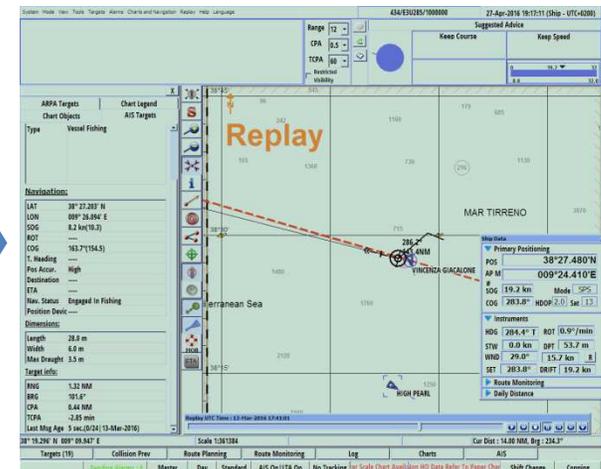
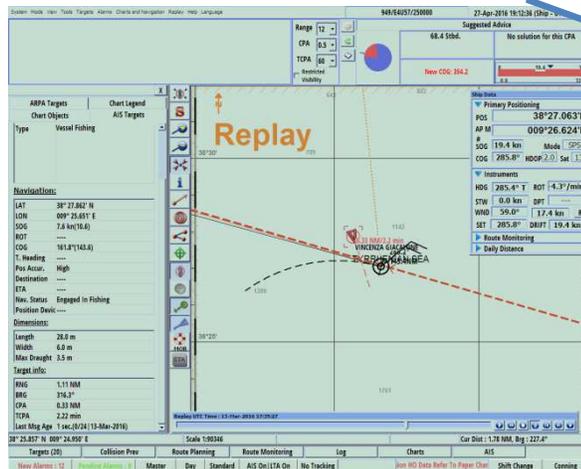
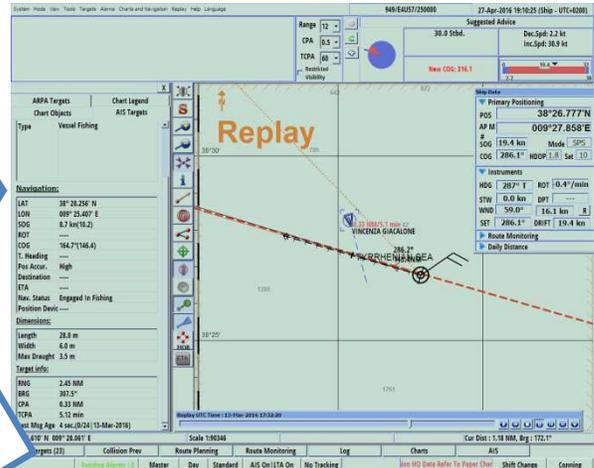
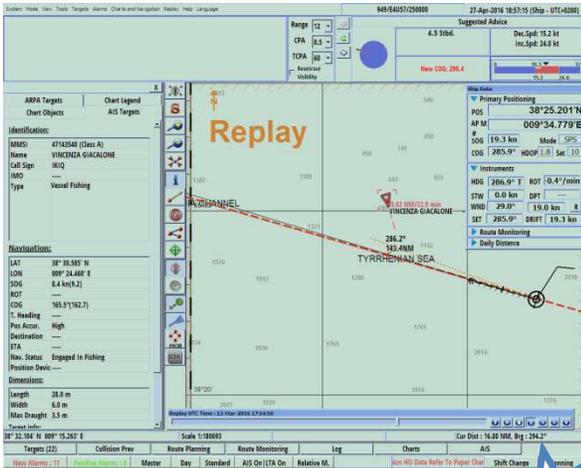
Chain of events:

- a. At 1245: ARPA target was 0.8 miles on the stbd side, being overtaken, and the DST advised to alter course slightly to port .
- b. At 1252: ARPA target was 0.6 miles on the stbd side, being overtaken, and the DST advised to alter course 7.5 degrees to port . CPA was expected to be 0.19 miles. Target speed was 16.5 knots and own ship speed 17.3 knots.
- c. At 1302 : ARPA target was 0.2 miles on the stbd side. CPA was expected to be 0.038 miles.
- d. At 1307 : ARPA target was 0.1 miles on the stbd side and her speed increased to 19.2 knots.
- e. At 1311 : ARPA target was 0.2 miles ahead, target reduces speed to 17.8 knots.

Apparently the target changed speed in order to avoid collision with the own ship that overtook her and had to give her way. The target course was not parallel with the separation zone, but separation zones do not give any exemption from the COLREGS.

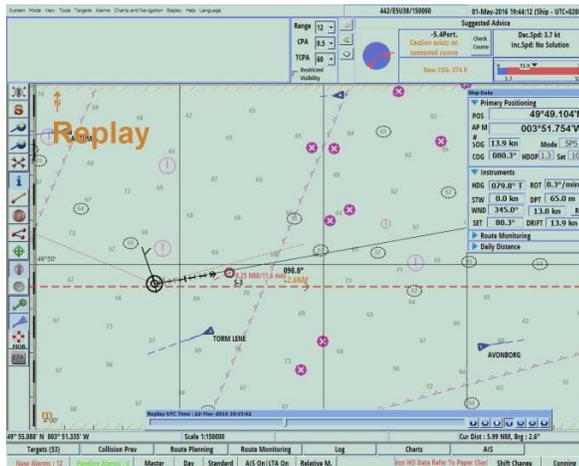
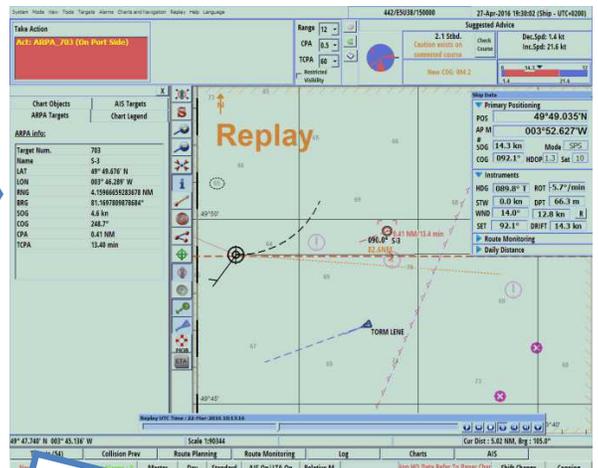
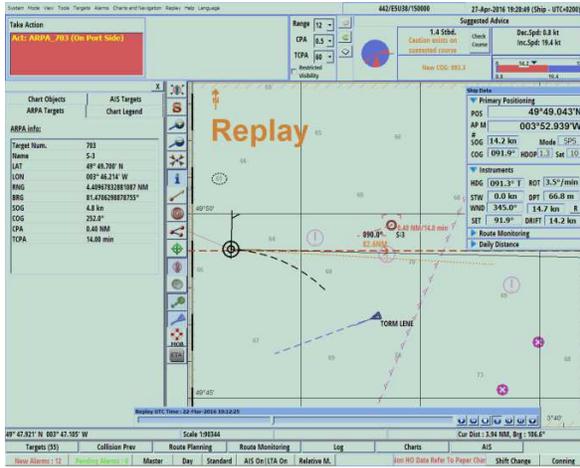


Case 2.1: pictures



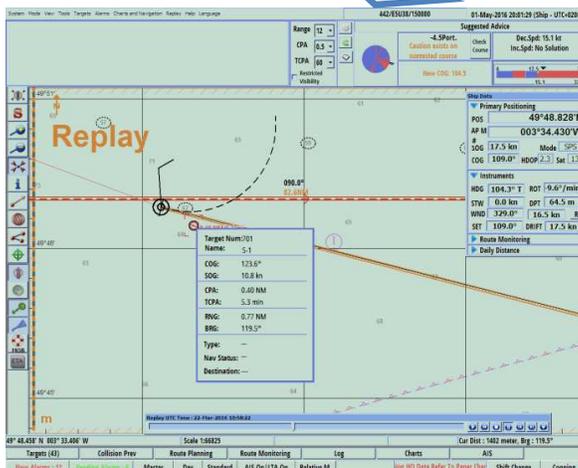
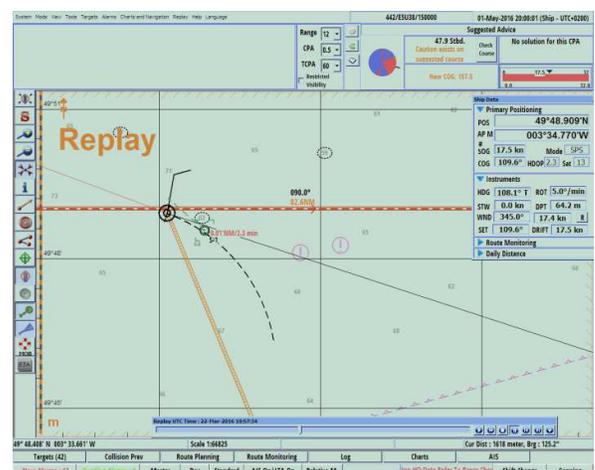
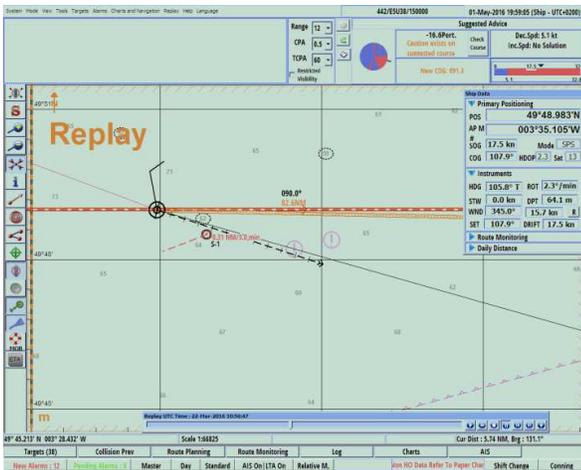
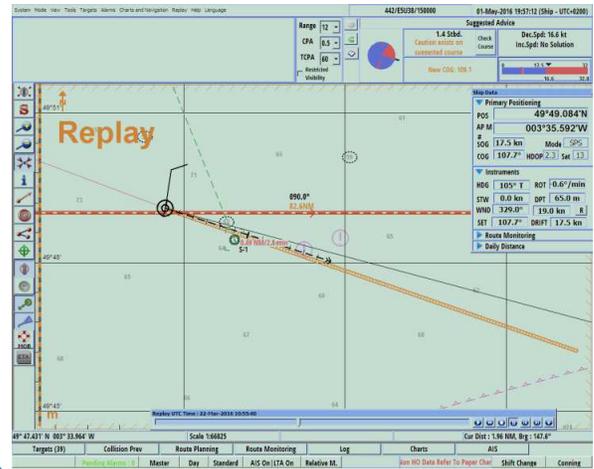
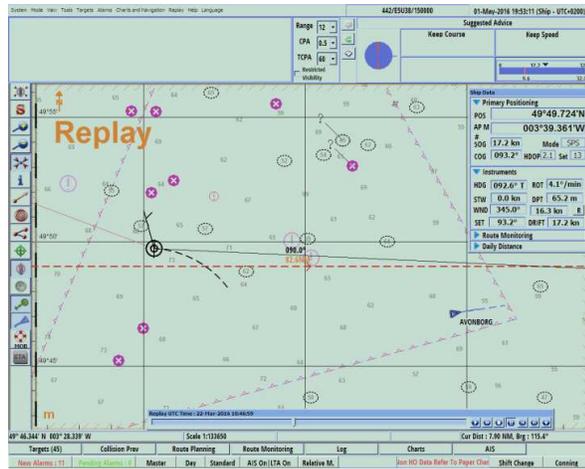


Case 2.2: pictures





Case 2.3: pictures





Case 2.4: pictures

