



SAFETY INVESTIGATION REPORT

201705/021

REPORT NO.: 10/2018

May 2018

The Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011 prescribe that the sole objective of marine safety investigations carried out in accordance with the regulations, including analysis, conclusions, and recommendations, which either result from them or are part of the process thereof, shall be the prevention of future marine accidents and incidents through the ascertainment of causes, contributing factors and circumstances.

Moreover, it is not the purpose of marine safety investigations carried out in accordance with these regulations to apportion blame or determine civil and criminal liabilities.

NOTE

This report is not written with litigation in mind and pursuant to Regulation 13(7) of the Merchant Shipping (Accident and Incident Safety Investigation) Regulations, 2011, shall be inadmissible in any judicial proceedings whose purpose or one of whose purposes is to attribute or apportion liability or blame, unless, under prescribed conditions, a Court determines otherwise.

The report may therefore be misleading if used for purposes other than the promulgation of safety lessons.

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MV UNIVERSAL DURBAN **Grounding in position 02° 14.65' N 109° 05.17' E** **13 May 2017**

SUMMARY

On 13 May 2017, the Maltese registered bulk carrier *Universal Durban*, while on passage from Bell Bay, Tasmania to Bintulu, Malaysia, ran aground on a shoal at 12 knots, South of the island of Pulau Serasan in position 02° 14.65' N 109° 05.17' E.

The vessel sustained minor damages in the bow area and bottom shell plating, in way of no. 1 cargo hold. No damage was found in the internal structures and the vessel's watertight integrity was not breached. There was no pollution and no injuries were reported.

The safety investigation revealed that the scale of digital chart in use on ECDIS was unsuitable for the area and the quality of data encoded within the composite data quality attribute of that chart was not within the thresholds defined by the category of zone of confidence.

A safety recommendation has been made to the East Asia Hydrographic Commission, with the aim to improve safety of navigation of vessels using digital charts.



FACTUAL INFORMATION

Vessel

Universal Durban, is a bulk carrier of 15,732 gt, owned by Beheermatschappij Universal Durban B.V., and managed by Universal Shipping B.V., Netherlands. The vessel was built by Zhejiang Hongxin Shipbuilding, China in 2012. She is classed by China Classification Society. *Universal Durban* has a length overall of 159.60 m. Propulsive power is provided by a single 7-cylinder, two-stroke single acting MAN-B&W 7S35MC-C diesel engine, producing 5,180 kW at 173 rpm. This gives a service speed of about 13 knots.

Navigation Equipment

Universal Durban is fitted with the following navigational equipment:

- a magnetic and gyro compass;
- two Radar sets (S and X bands, and ARPA);
- echo sounder;
- a GPS, AIS and BNWAS.

The vessel is also fitted with a voyage data recorder (VDR).

Universal Durban is also fitted with a dual Furuno ECDIS model FEA-2107 and compliant with the requirements of Chapter V of the IMO Convention on Safety of Life at Sea (SOLAS). No paper charts were carried on board and the primary means of navigation is ECDIS. The Cargo Ship Safety Equipment Certificate issued on 27 December 2012 confirms compliance with the Convention requirements. The last annual and periodical survey before the accident was completed on 09 May 2016. The certificate was valid until 18 June 2017.

Figure 1 shows the layout of navigational equipment on the bridge.



Figure 1: Bridge layout

Electronic Navigation Chart (ENC)

ENCs are vector charts used in ECDIS. The charts are compiled from a database containing charts information. The vector charts are displayed as a seamless chart and ECDIS can be programmed to give a warning for navigational hazards.

ENCs for use with ECDIS conform to IHO S57 specifications, and are issued by or on the authority of governments' hydrographic offices. Individual charts are identified by an 8-character unique cell¹ number. The first two characters indicate the name of the issuing hydrographic office. The third character of the cell (1 to 6) shows the navigational purpose band of the chart. The rest of the alphanumeric characters are chart identifier.

The navigational purpose, corresponding to the third character, and range scale are shown in Table 1.

¹ Basic unit for the distribution of data over a defined geographical area intended for a particular navigational purpose.

Table 1: Navigational purpose band and corresponding scale range

<i>Navigational Purpose band</i>	<i>Number (third character of cell)</i>	<i>Scale range</i>
<i>Overview</i>	<i>1</i>	<i>< 1:1,499,999</i>
<i>General</i>	<i>2</i>	<i>1:350,000 – 1: 1,499,999</i>
<i>Coastal</i>	<i>3</i>	<i>1:90,000 – 1: 349,999</i>
<i>Approach</i>	<i>4</i>	<i>1:22,000 – 1: 89,999</i>
<i>Harbour</i>	<i>5</i>	<i>1:4000 – 1:21,999</i>
<i>Berthing</i>	<i>6</i>	<i>> 1:4000</i>

Datema Chartplanner

An order for electronic navigation chart is made through the Company’s official chart supplier, Datema. A Chartplanner software programme installed on board enables the navigational officer to order charts from its catalogue of digital charts.

Charts and nautical publications are determined on opening the Chartplanner programme and using Globe view and the Publication Selection tabs². Routes for the voyage are planned by setting waypoints on the Globe View map. Chart cells and scale (for navigation purpose) selected for the route are displayed. A click on the ‘Add Items’ tab, will transfer charts to the Publication Selection.

A summary of selected charts is also displayed in the upper part of the screen. Individual charts, if necessary, can be either

² If an ENC permit file already existed on board, Datema suggests opening Chartplanner using latest permit file to view all charts, including charts that are expired or will expire in less than a month.

added or removed from the Publication Selection list.

Selecting the ‘Order’ button will complete the selected charts order. Datema’s automated response system sends chart permit file and installation instructions. The permit file is saved on an external storage device and uploaded into the ECDIS system to start the permit, charts and chart updates installation.

Selection of charts can also be done by using the ‘Point’ and ‘Area’ button on the Globe view. Selecting ‘Point’ allows the user to select and deselect individual charts while selecting ‘Area’ will allow the user to drag a selection box and select charts within that box. It is critical that a route plan is drawn as accurately as possible to include the charts with all the navigational bands.

FURUNO ECDIS

FURUNO ECDIS FEA-2107 fitted on board *Universal Durban* combines and displays chart and navigational information on the same screen. The charts are displayed in the electronic chart area and navigational information on the right hand side of the screen. The status of the ECDIS display is shown at the top, including chart display settings³ and scale of the chart. ECDIS FEA-2107 is compatible with S57 release 3 ENC chart formats. ENC charts are converted into an internal format SENC⁴ (System Electronic Navigational Chart) for optimum display of charts.

When a chart is opened, it is displayed with the default scale, *i.e.*, the compilation scale⁵. The scale can be changed with the ‘zoom in’

³ Left click of the mouse button on ‘chart only’ field show user selected Chart Display settings.

⁴ Transfer formats are not standardized and are proprietary of individual ECDIS manufacturer.

⁵ The compilation scale is the scale at which the ENC was designed to be displayed.

and ‘zoom out’ functions. The ‘chart legend’, which can be toggled on and off by clicking the mouse button in the navigational bar, provides information on the ENC displayed on the screen.

Crew complement

The manning on board *Universal Durban* was in accordance with the Minimum Safe Manning Certificate. The master and navigational officers of the watch were qualified in accordance with the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978, as amended (STCW).

The master was 30 years old from Ukraine and had been at sea for 14 years. In 2015, he completed an approved ECDIS training course, based on IMO Model Course 1.27 and type specific training on FURUNO ECDIS. He joined *Universal Durban* on 25 March 2017.

The Ukrainian third mate was 26 years old. He had been at sea for seven years and on board the vessel for about six months.

The second mate was 25 years old and was also Ukrainian. The second mate and third mate had attended IMO Model Course 1.27 and type specific training on FURUNO ECDIS FEA-2107/FEA-2807 in Odessa, Ukraine. Their familiarisation of ECDIS was done on board the ship.

Environment

The weather was clear, with moderate to good visibility. The wind was Southerly Beaufort Force 3, smooth seas and no swell. The air temperature was 29 °C. The tidal range was reported to be 1.50 m.

Narrative⁶

On 28 April 2017, *Universal Durban* sailed from Bell Bay, Tasmania on an even keel and drawing a draft of 9.8 m. She was laden with 21,772 tonnes of manganese sinter for Bintulu in Borneo, Malaysia.

Prior to the departure from Bell Bay, ENCs for the voyage were selected using Chartplanner and a purchase order was made to Datema. A permit file was installed on ECDIS and the second mate prepared a passage plan with an XTD limit of 250 m. A safety alarm for safe water depth/contour was set at 12 m. The planned route was visually checked by the second mate and by ECDIS auto-scan route check⁷ function. No safety alarms were triggered and the passage plan was approved by the master. During the voyage, ENCs were updated. The last update was done on 07 May 2017.

At 1000 on 13 May 2017, *Universal Durban* was in position 001° 54.80' N 108° 55.26' E. She was transiting Alur Pelayaran Serasan between the island of Pulau Serasan and Palau Merunding. The third mate was the officer of the watch (OOW) and the master was on the bridge. The vessel was on autopilot on a course of 028° and the speed was about 11.5 knots. The safety depth and deep-water contour were set as shown in Figure 2.

During the course of the watch, the master observed breakers⁸ on the starboard side and expressed doubt on the accuracy of the charted objects displayed on ECDIS. At 1127, he set the autopilot on a course of 014° to keep clear of the nearest isolated danger.

⁶ Unless otherwise stated, all times in the safety investigation report are ship's time (UTC + 08).

⁷ The route check function checks chart database and triggers a safety warning when alarm settings defined by the user are breached.

⁸ Waves on a shoal become steep. The crest falls over and breaks into foam.

At 1144, the course was again adjusted to 020°, sailing outside of the port XTD limit (Figure 3) and about two nautical miles, West of the ⁹ symbol marked on the chart.



Figure 2: Image from ECDIS showing safety depth/contour settings in Alur Pelayaran Serasan

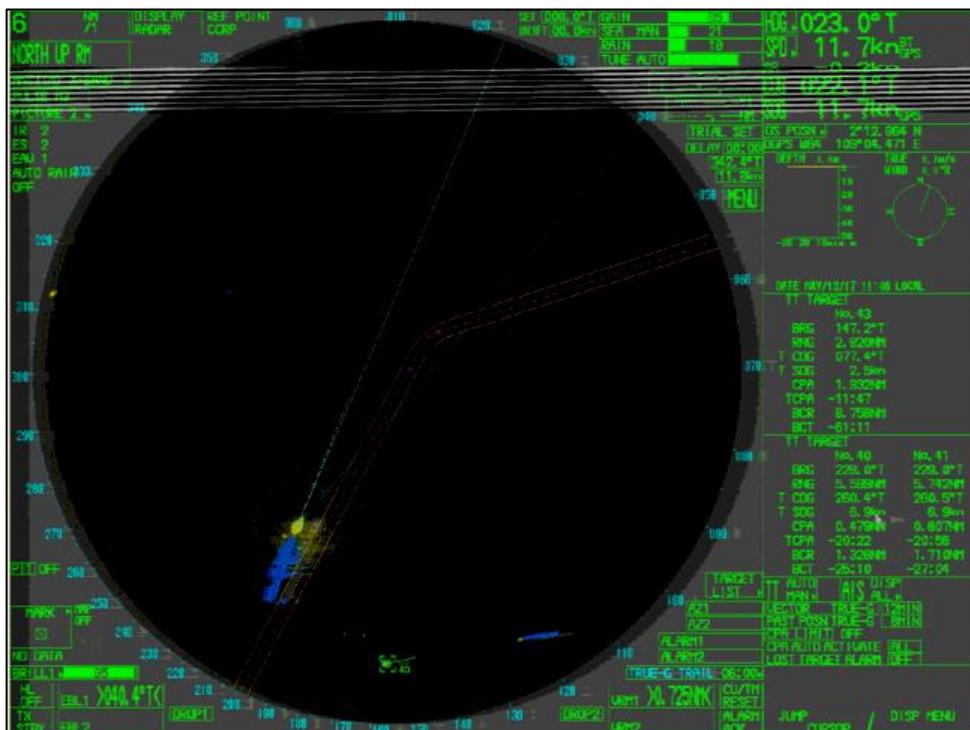


Figure 3: Radar image from VDR showing track outside of the port XTD limit.

⁹ Generic isolated danger symbol – with less depth than user-selected safety contour or where the depth is unknown.

At 1149 he left the bridge, instructing the OOW to call him as soon as he sights breakers. At the time, the water depth readings were about 19 m below the keel. At 1155, the OOW reportedly observed ‘abnormal’ waves about a mile on the starboard beam and called the master. It was recalled that the soundings quickly dropped and within a minute of calling the master, the speed dropped from 12 knots to zero.

At 1156 *Universal Durban* was reported stranded in position 02° 14.65' N 109° 05.17' E (Figure 4).

Post-grounding events

All tanks and cargo holds were checked by the crew and soundings confirmed no water ingress. There was no pollution and no injuries were reported. The vessel remained upright. The draft readings were 6.20 m forward and 11.50 m aft and the water depth around the vessel ranged from about 6 m at the bow to over 12 m at the stern.

Structural damages

Universal Durban was re-floated and anchored off Pulau Serasan for a damage survey by the Classification Society surveyor. On 28 May 2017, the following damages were reported by the surveyor:

- minor indentations in the bow area and in way of cargo hold no. 1;
- starboard bilge keel (2 m in length) slightly bent;
- superficial scratch marks covering an area from the bow to the port bilge-keel, abreast of cargo hold no. 2.

No structural damage was found on the port bilge keel, emergency fire-fighting sea chest, propeller and rudder. There was also no damage inside the fore peak tank and no. 1 port and starboard ballast tanks. The emergency fire pump, echo sounder and ECDIS were checked by the Class surveyor and found in good working condition.

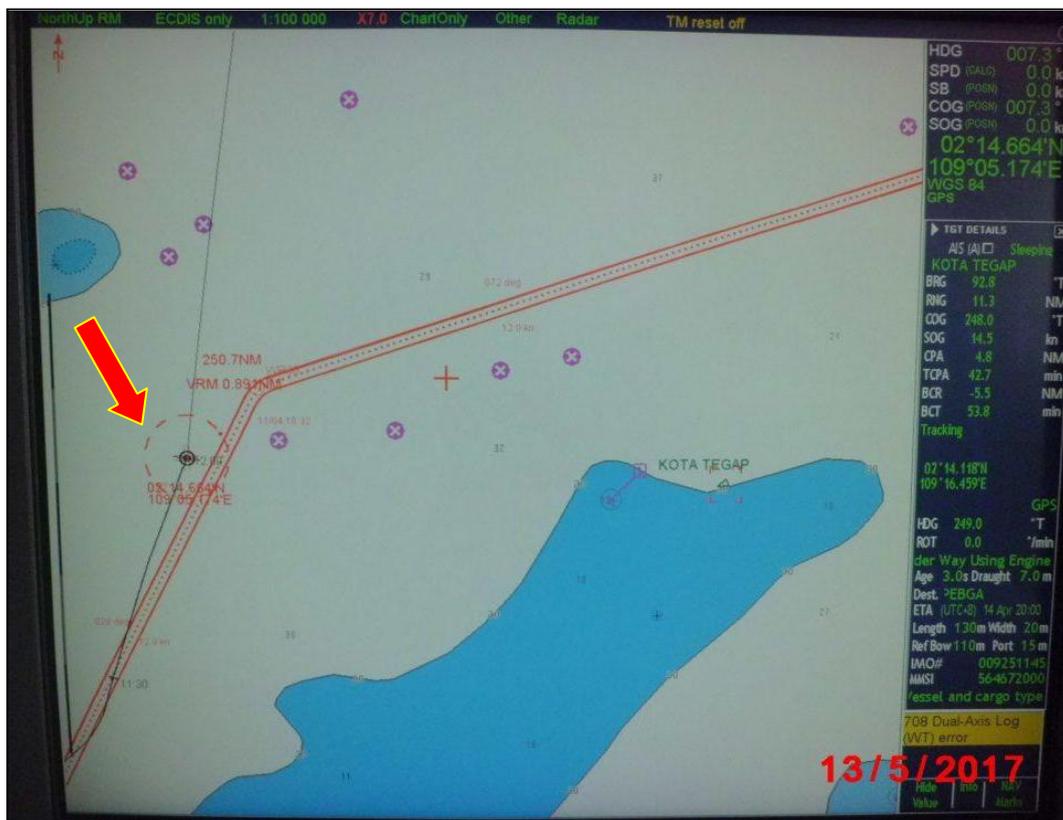


Figure 4: ECDIS image showing *Universal Durban* aground in position 02° 14.65' N 109° 05.17' E

Archipelagic Sea Lanes

Archipelagic Sea Lanes (ASL) in the Indonesian Archipelago are assigned for the expeditious passage of ships. The principal route into the South China Sea follows ASL from Selat Sunda to Pulau Jagautara, through Selat Karimata and then between the islands of Natuna Besar (04° 00' N 108° 00' E) and Subi Besar (02° 55' N 108° 50' E) (Figure 5).



Figure 5: ASL route from Selat Sunda into the South China Sea

Source: Admiralty Sailing Directions NP 136, p. 189.

South Group of Natuna Besar Islands

The South group of Natuna Besar consists of three groups of islands. The North and middle group are known as Pulau Subi Besar and Pulau Serasan (02° 31' N 109° 03' E) respectively.

Pulau Serasan lies 20 miles SSE of Pulau Subi Besar. The third group consists of islets and reefs, extending 25 miles SSE to Pulau Merundung (02° 04.42' N 109° 05.73' E), a small swampy island covered with mangroves. The three groups are separated from each other, and from the coast of Borneo, by

navigable channels orientated Southwest to Northeast.

Pulau Serasan is separated from Pulau Subi Besar by Alur Pelayaran Kota and Pulau Serasan from Pulau Merundung and other islets and reefs, by Alur Pelayaran Serasan. Pulau Malu, a small isolated islet and fringed by a narrow reef, lies 13 nautical miles SSW of Pulau Serasan.

Karang-Karang Sembuni (Figure 6), which lies about 9 nautical miles North of Pulau Merundung, is a series of reefs, consisting of shallow rocky heads, the most West of which dries. From this position, the reef extends about eight nautical miles to the ENE.

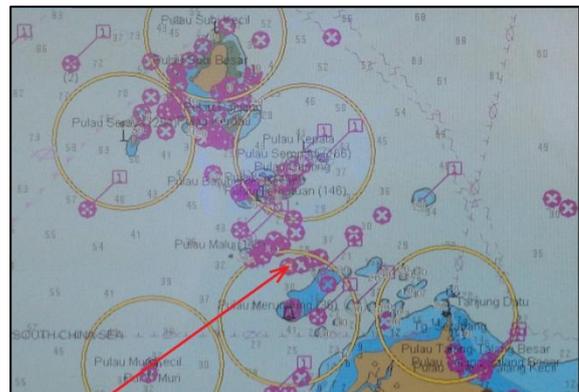


Figure 6: Karang-Karang Sembuni Reef

Source: Admiralty Sailing Directions e-NP 31, pp. 89, 90-91.

ANALYSIS

Aim

The purpose of a marine safety investigation is to determine the circumstances and safety factors of the accident as a basis for making recommendations, and to prevent further marine casualties or incidents from occurring in the future.

Voyage planning

Section A-VIII/2 of the STCW Convention addresses voyage planning. It is submitted that:

‘Prior to each voyage the master of every ship shall ensure that the intended route from the port of departure to the first port of call is planned using adequate and appropriate charts and other nautical publications as necessary for the intended voyage, containing accurate, complete and up-to-date information regarding those navigational limitations and hazards which are of a permanent or predictable nature and which are relevant to the safe navigation of the ship.’

Universal Durban’s guidelines on voyage planning stated that an appraisal of all information relevant to the voyage should be considered including appropriate scale charts, sailing directions, list of lights and radio aids to navigation, tide tables and current atlas, hydrographical and metrological information. Moreover, it was necessary for the master to approve the passage plan and related details.

The progress of the vessel had to be closely and continuously monitored in accordance with the passage plan. If conditions during passage posed unacceptable navigational hazard, the master was required to consider whether that section of the passage should be executed or changes made to the plan to ensure that it remained consistent with the guidelines.

Appraisal of the voyage plan

A prima facie, evidence submitted to the MSIU suggested ineffectual appraisal of the voyage plan. There was no indication of sailing directions being referred to or chart permits sent by the chart supplier checked before uploading to ECDIS¹⁰. Moreover, the MSIU believes that since the ECDIS auto scan route check triggered no safety alarm, the visual route check by the second mate was only cursory and eventually, the route North of Pulau Merunding through Alur Pelayaran Serasan (Figure 7) was approved by the master.



Figure 7: ECDIS image showing planned route, North of Pulau Merunding

¹⁰ During the course of the Consultation Period, the Company advised that the master used eNP31 to plan the voyage.

Events preceding the grounding

Key navigational information captured by radar in the VDR¹¹, is tabulated in table 2.

officer, was unaware of the approaching hazard both visually and on the radar (Figure 8).

Table 2: Navigational information

<i>Local Time</i> <i>hh mm ss</i>	<i>DGPS/WGS84</i> <i>Lat</i> <i>Long</i>	<i>Hdg</i> °	<i>COG</i> °	<i>SOG</i> <i>Kts</i>
10 30 00	02° 00.00' N 108° 57.90' E	029	027.5	11.6
11 00 00	02° 05.35.00' N 109° 00.43' E	024.5	023	11.6
11 30 00	02° 10.34' N 109° 03.60' E	020	018.5	11.8
11 45 00	02° 13.00' N 109° 04.52' E	023	021.6	11.7
11 50 00	02° 13.68' N 109° 04.82' E	022.6	021.6	11.8
11 53 00	02° 14.24' N 109° 05.02' E	019.8	018.7	11.9
11 55 00	02° 14.52' N 109° 05.12' E	018.4	023	11.9
11 56 00	02° 14.65' N 109° 05.17' E	006	020	2.6

The safety investigation noticed that as *Universal Durban* approached the waypoint off Karang-Karang Sembuni in Alur Pelayaran Serasan, the ECDIS was displaying chart data from a small-scale chart - ENC EA200003.

The master noted positional inconsistency of charted objects on display and changed course outside of the port XTD limit to give  symbol a wider berth.

He felt that the adjusted course was safe to advance through Alur Pelayaran Serasan.

His leaving the bridge, however, severely impacted visual situational awareness. The OOW coming close to finishing his watch and preparing to hand-over to the relieving

¹¹ The Company reported that ECDIS was not interphased with the VDR.

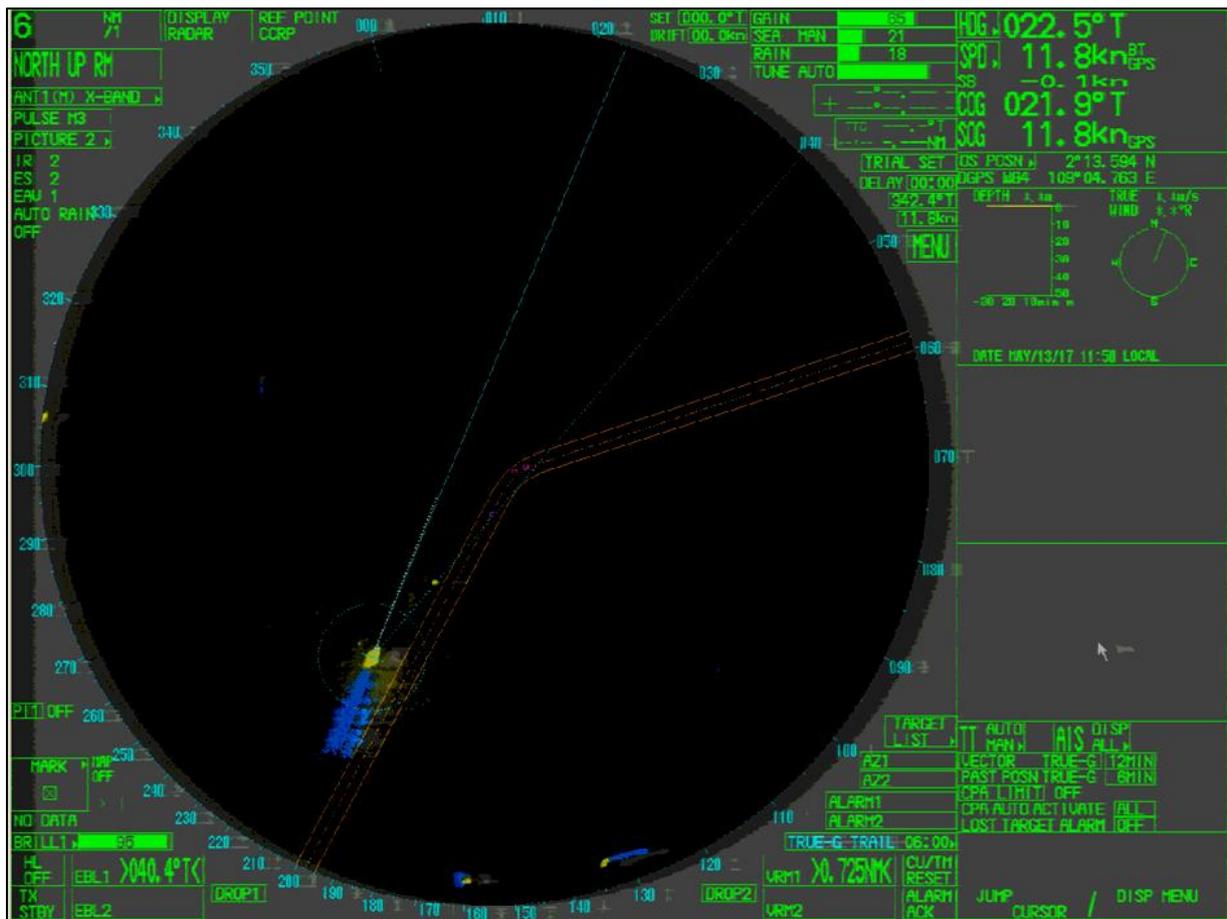


Figure 8: Shallow rocky head detected by X-band radar

Post-grounding assessment

A post-grounding assessment of events on board indicated that ENC ID300428 (compilation scale 1:180,000), was not displayed on ECDIS, although the master was convinced that an order file containing ENC ID300428, had been generated and sent to the chart supplier.

The master explained that since no warning had been triggered by the Chartplanner software, he had no reason to suspect that ENC ID300428 had been inadvertently deleted prior to placing an order for chart permits.

Within two hours of the grounding, the missing digital chart (ID300428) was ordered and installed on ECDIS. The two charts-ENC ID300428 and ENC EA200003-were closely examined. Observations and positional discrepancies with respect to Karang-Karang Sembumi were noticed as follows:

ENC ID300428 -

- date of edition 2 – 25.11.2015;
- last update 15.05.2017;
- compilation scale 1: 180,000;
- navigational purpose band 3/coastal;
- chart accuracy CATZOC C¹²;
- horizontal datum: WGS 84; and

¹² Positional and depth accuracy of +/- 500 m and 2 m + 5% depths respectively.



Figure 9: ECDIS image showing ENC EA200003 and ENC ID300428 at scale 1:200,000

cautionary note on chart accuracy:

Owing to the age and quality of the source information, some detail may not be positioned accurately. Particular caution is advised when navigating in the vicinity of dangers, even when using an electronic positioning system such as GPS.

ENC EA200003 -

- date of edition 2 - 30.09.2008;
- last update 17.01.2017;
- compilation scale 1: 700,000;
- navigational purpose band 2/general;
- horizontal datum: WGS 84
- chart accuracy CATZOC A1¹³;
- cautionary note on chart accuracy: None.

Moreover, it was apparent that the original course drawn on ENC ID300428 was unsafe and the stranded position in Figure 9 (ENC ID300428) appeared very close to the West most extremity of Karang-Karang Sembumi. The safety investigation considered this as a compelling indication of a positional anomaly on ENC EA200003.

Categorisation of charted data

Hydrographic survey data used in paper charts is printed under the chart title and/or in a source diagram, showing name of surveying authority, method, date and scale of survey.

In digital charts, however, survey data is encoded within a composite data quality indicator referred to as category of zone of confidence (CATZOC). The categorisation relates to the accuracy of the digital chart, determined by position, depth accuracy, and seafloor coverage.

¹³ Positional and depth accuracy of +/- 5 m and 0.5 m + 1% depth respectively.

CATZOC is a mandatory attribute of S-57 format ENC and is populated by ENC-producing IHO member states. There are six levels of CATZOC, ranging from the most accurate A1 to U – unassessed. By reference to the CATZOC layer, an ECDIS menu option, information on quality of data is displayed.

A distinctive symbol also appears on the chart. The number of asterisks in the symbol acknowledges quality of data (Figure 10). This key information gives mariners an estimate of the reliability of charted data when planning or conducting navigation.

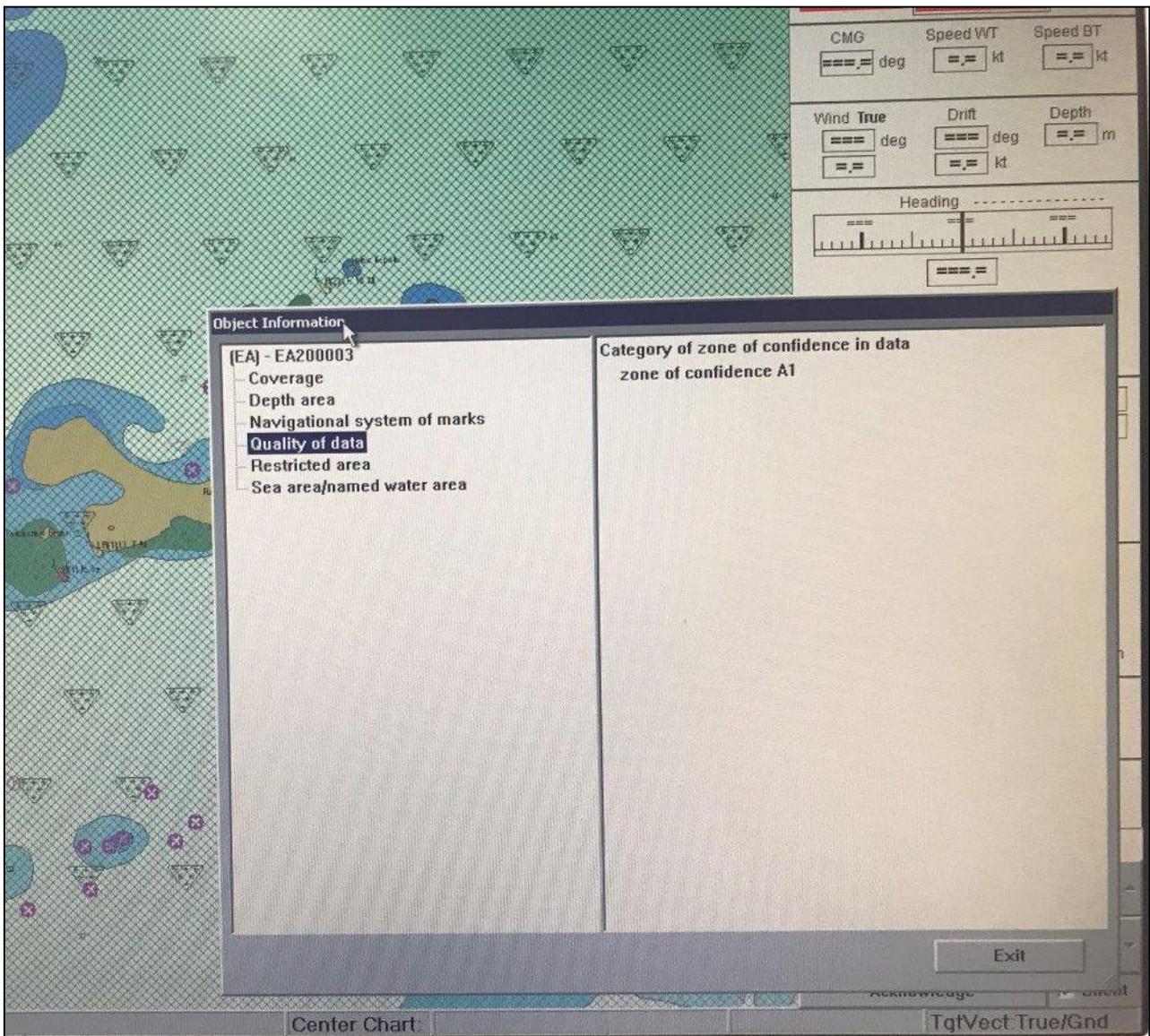


Figure 10: ECDIS image showing quality of data and COTZAC symbol on ENC EA200003

In this instance, however, cursor query of  (underwater/awash rock) in Figure 11 shows the position marked at 02° 15.053' N 109° 07.114' E. The fact that *Universal Durban* stranded in position 02° 14.65' N 109° 05.17' E, where water depths are indicated to be in the region of 30 m are given on ENC EA200003, suggested that the area North of Pulau Merunding was not comprehensively surveyed¹⁴ and that generic isolated danger exceed the tolerance defined by the CATZOC.

It was evident that the quality of data encoded within the composite data quality did not correspond with the value shown on the chart. Indeed, data quality attribute CATZOC A1 gave a misleading impression of accuracy.

During the safety investigation of *Universal Durban*, the MSIU was informed that ENC EA200003 was temporarily withdrawn due to the numerous and pending updates.

A table of CATZOC from The Mariner's Handbook, Eighth Edition, 2004 is reproduced in Table 3.

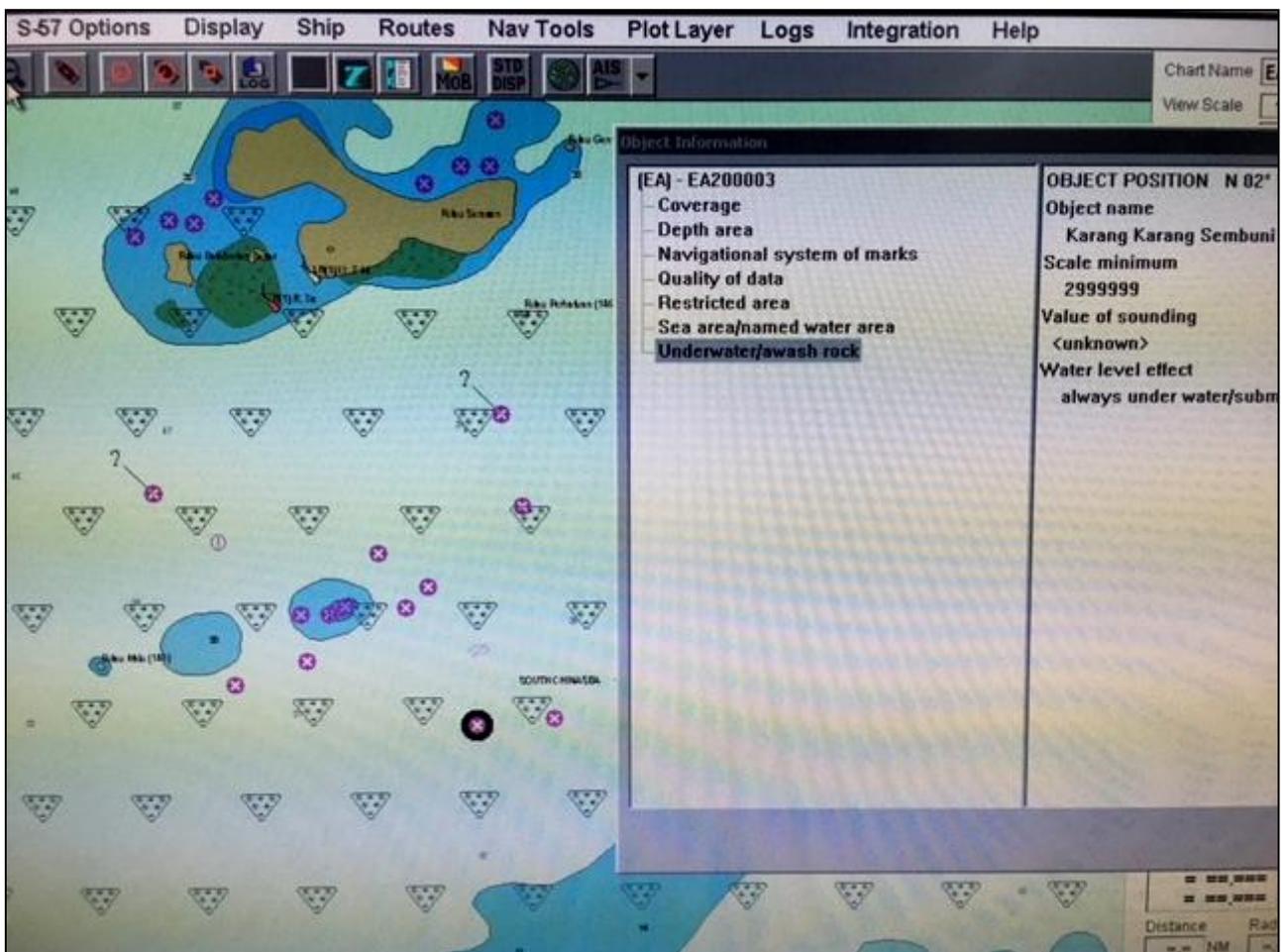


Figure 11: ECDIS image showing position and textual information of  on ENC EA200003

¹⁴ The minor damage to the bottom shell plating reported by Class suggested *Universal Durban* struck a relatively soft seabed.

Table 3: Category of Zones of Confidence

ZOC	Position Accuracy	Depth Accuracy		Seafloor Coverage
A1	± 5 m	= 0.50 + 1% depth		Full seafloor coverage. All significant features detected and depths measured.
		Depth (m)	accuracy (m)	
		10	± 0.6	
		30	± 0.8	
		100	± 1.5	
		1000	± 10.5	
A2	± 20 m	= 1.00 + 2% depth		Full seafloor coverage. All significant features detected and depths measured.
		Depth (m)	accuracy (m)	
		10	± 1.2	
		30	± 1.6	
		100	± 3.0	
		1000	± 21.0	
B	± 50 m	= 1.00 + 2% depth		Full seafloor coverage not achieved; uncharted features, hazardous to surface navigation are not expected but may exist.
		Depth (m)	accuracy (m)	
		10	± 1.2	
		30	± 1.6	
		100	± 3.0	
		1000	± 21.0	
C	± 500 m	= 2.00 + 5% depth		Full seafloor coverage not achieved, depth anomalies may be expected.
		Depth (m)	accuracy (m)	
		10	± 2.5	
		30	± 3.5	
		100	± 7.0	
		1000	± 52.0	
D	Worse than ZOC C. Full seafloor coverage not achieved, large depth anomalies may be expected			
U	Unassessed			

CONCLUSIONS

- ENC ID300428 was inadvertently deleted while preparing an Order File on Chartplanner;
- No warning of the deletion had been triggered;
- A small scale chart, designated 'general' in the navigational purpose band, was displayed on ECDIS;
- The passage plan prepared by the navigational officer deviated from the designated ASL for the Indonesian Archipelago;
- There was no evidence of reference to the Admiralty Sailing Directions prior to laying courses in Alur Pelayaran Serasan;
- ECDIS auto-scan route check triggered no navigational warning within the safety zone defined by the XTD and safe water depth/contour settings;
- Visual route check by the OOW was cursory and the master did not cross-check the passage on ECDIS;
- Digital chart permits received from Datema were not checked before uploaded to ECDIS;
- Significant positional and depth anomalies were noticed on ENC EA200003 in an area North of Pulau Merundung.

SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION¹⁵

In order to prevent a recurrence of the accident, the Company has changed the ECDIS chart licenses with the chart supplier. The Company has now opted for a pay-as-you-go licence which will now ensure that all

¹⁵ Safety actions and recommendations shall not create a presumption of blame and / or liability.

charts are on board and no charts are ‘lost’ during the ordering process.

Datema Delfzijl B. V. has confirmed that with the development of the new version of its Chartplanner software, the findings of the safety investigation report will be taken into consideration a decision will be taken as to whether a forewarning needs to be built in the software.

RECOMMENDATIONS

The East Asia Hydrographic Commission is recommended to:

10/2018_R1 Review the ENC production process in order to ensure that CATZOCs are populated with meaningful values, commensurate with quality of data survey.

SHIP PARTICULARS

Vessel Name:	<i>Universal Durban</i>
Flag:	Malta
Classification Society:	China Classification Society
IMO Number:	9644251
Type:	Bulk carrier
Registered Owner:	Beheermatschappij Universal Durban
Managers:	Universal Shipping B. V., The Netherlands
Construction:	Steel
Length Overall:	159.60 m
Registered Length:	149.95 m
Gross Tonnage:	15732
Minimum Safe Manning:	14
Authorised Cargo:	Dry Bulk

VOYAGE PARTICULARS

Port of Departure:	Bell Bay, Tasmania
Port of Arrival:	Bintulu, Malaysia
Type of Voyage:	International
Cargo Information:	21,772 mt of Manganese Sinter
Manning:	16

MARINE OCCURRENCE INFORMATION

Date and Time:	13 may 2017 at 11:56 (LT)
Classification of Occurrence:	Serious Marine Casualty
Location of Occurrence:	02° 14.65' N 109° 05.17' E
Place on Board	Ship/other
Injuries / Fatalities:	None
Damage / Environmental Impact:	None
Ship Operation:	In passage
Voyage Segment:	Transit
External & Internal Environment:	Sea: smooth, no swell. Wind: Southerly 7 to 10 knots. Visibility: 6 miles. Air and sea temperature: 29 °C and 27 °C respectively.
Persons on board:	16