



SAFETY INVESTIGATION REPORT

202101/002

REPORT NO.: 01/2022

January 2022

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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Pilot Boat *OHIO*

Allision with a tuna pen
in position 36° 00' N 014° 26.1' E
St. Pauls Bay, Malta

09 January 2021

SUMMARY

The Maltese registered pilot boat *Ohio* left Grand Harbour, Malta for an offshore conveyance operation.

Whilst underway, she allided with a tuna pen, 2.5 nautical miles Northeast of St. Paul's Bay, Malta. Upon impact, the boat scurried over the perimeter fence and into the pen. *Ohio* was eventually pulled out and towed back to the Grand Harbour.

The safety investigation concluded that visibility through the bridge front windows had deteriorated, reducing the crew's ability to detect the lights defining the fish farm zone.

The MSIU has issued one recommendation to Transport Malta's Ports & Yachting Directorate, designed to enhance safety of coastal navigation.



FACTUAL INFORMATION

Vessel

Ohio was a 12 m pilot boat built in 2013 by Aqua Star Ltd, Guernsey, UK. The boat's monohull and superstructure were built of glass reinforced plastic (GRP) and fitted with two internal combustion Perkins Marine diesel engine, having a combined propulsion power of 372 kW. Her gross tonnage was 8.10. She was owned by P. B. Delta Limited and managed / operated by Port Logistics Operations Ltd, Malta. (Company) Although built and registered as a pilot boat, *Ohio* was also used for conveyance of personnel and material.

The boat's navigation system included a GPS, an echo sounder, one 9 GHz radar / ARPA, a magnetic compass with autopilot, and a SIMRAD chart plotter and electronic charts, updated by the manufacturer. She was also fitted with an AIS, a VHF radio with DSC watch receiver, and an indicator for speed and distance through the water. There were no paper charts on board. A section of the general arrangement plan of *Ohio* is shown in Figure 1.

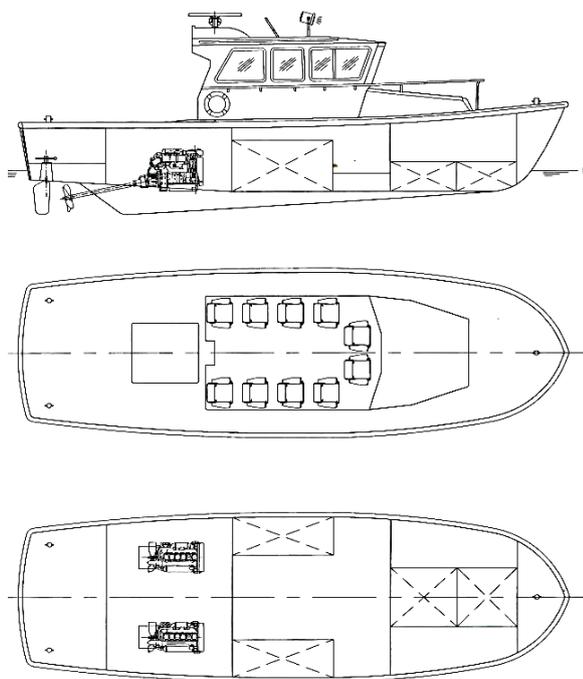


Figure 1: General Arrangement Plan

Vessel certification

Ohio had last been surveyed in accordance with the Non-Convention Survey Guidelines (IACS 99) for Cargo Vessels on 12 March 2020. She satisfied the GMDSS requirements for operations up to 25 nautical miles from the nearest shore and carried a valid Commercial Vessel Certificate issued by Transport Malta under the Commercial Vessels Regulations, 2002.

Manning

The Minimum Safe Manning (MSM) document was valid until 17 August 2024. The MSM document required *Ohio* to be manned by a coxswain and one general purpose hand (GPH). The crewing of the boat was conditional in that at least one person had to be the holder of an appropriate Radio Operators Licence and a Pilot Boat Engine Driver Certificate.

At the time of the accident, *Ohio* had a crew complement of two. The coxswain was a Filipino national and was 47 years old. He held a valid STCW II/2 Master Mariner Certificate, issued by the Republic of the Philippines. The Certificate had been endorsed for him by Transport Malta, to work as master on vessels of less than 3,000 GT. The master was employed by the Company on 27 September 2020.

The 43-year-old GPH was also a Filipino national. He was a qualified STCW II/I officer, in charge of a navigational watch. He had joined the Company on 16 December 2020. The GPH was required to perform work related conveyance operations.

Both officers were duly qualified to operate the GMDSS radio. Upon joining the Company, the crew members had induction training, hands-on familiarisation of the boat's equipment, and practiced berthing manoeuvres.

At the time of the accident, both crew members had reportedly carried out

numerous conveyance operations around the coasts of Malta.

Bunkering Area 1 and the tuna farm

Offshore bunkering operations are carried out within five designated bunkering areas as shown in Figure 2. Bunkering Area 1 is located two nautical miles North of *Il-Ponta tal-Aħrax*.

A tuna farm is sited about three nautical miles Northeast of St. Paul's Bay, adjoining the bunkering area near *Sikka l-Bajda*. The coordinates and light characteristics delineating the fish farm (Figure 3) had been promulgated in the Transport Malta's Notice to Mariners No. 5, issued in 2019.

The tuna farm comprised of a number of tuna pens. Each tuna pen, formed of two concentric rings, were constructed of high-density polyethylene (HDPE) pipes, expanded polystyrene cylinders, a handrail pipe and stanchion brackets (Figure 4); complemented by two solar powered marine lights, fixed diametrically opposite, flashing yellow at an interval of five seconds from a three-metre spar (above the sea level).

At the time of the allision, there were no nets and hence no fish inside the tuna pens.

Vessel Traffic Services

Valletta VTS regulates the movement of ships and provides information service and navigational assistance. The VTS areas and service level were promulgated in Volume 6 of the Admiralty List of Radio Signals.

Before allowing vessels to bunker offshore, the VTS operators consider the vessel's size, type, and the weather conditions. No notification is needed for vessels licenced to operate in local waters, other than a VHF call to VTS prior to entering or leaving port. Valletta VTS, which is manned 24/7, was equipped with NorControl VOC5060 workstation and a network of radars, an AIS, VHF communications, a DF and weather stations.

Environment

The weather was overcast with good visibility. The wind was Southeasterly, Beaufort Force 4. The swell was Southeast 1.5 m.

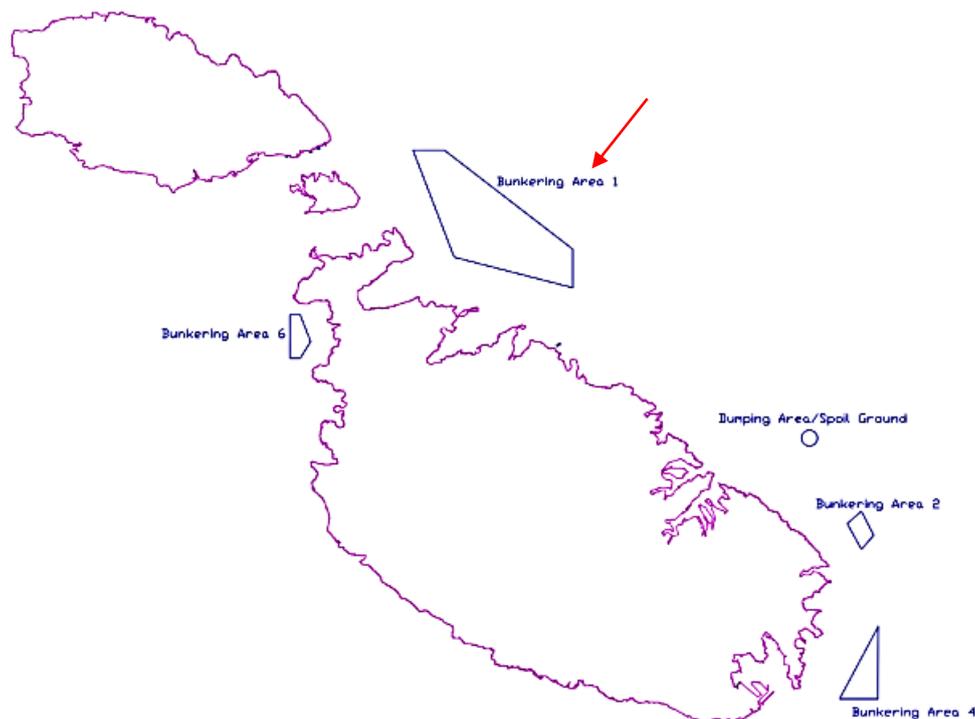


Figure 2: Diagram showing designated bunkering areas

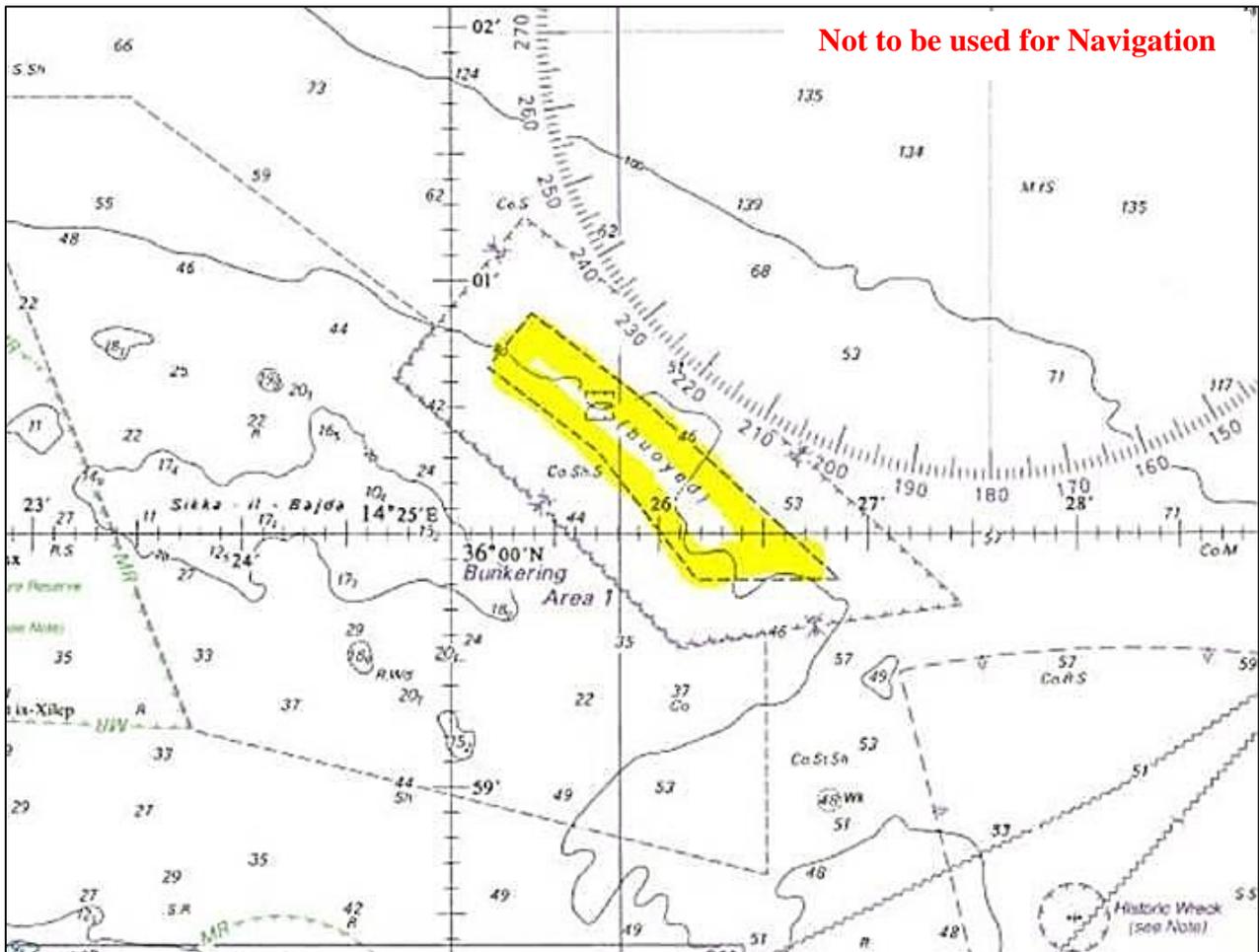


Figure 3: Bunkering Area 1 and Tuna Farm



Figure 4: Tuna Farm showing tuna pens (in the background at anchor is *CMA CGM Titus*)

Narrative¹

On 09 January 2021, *Ohio* was moored at Boiler Wharf, Grand Harbour. Having completed the pre-departure checks at 2140, the coxswain obtained permission from the VTS for an offshore conveyance operation. Three persons were on board – two crew members and another person.

Ohio left the Grand Harbour at around 2150, bound to motor vessel *CMA CGM Titus*, which was anchored at Bunkering Area 1. The GPH, who was being trained as coxswain (trainee-coxswain), had the con. He was seated at the conning station port side (Figure 5), while the boat's coxswain was seated on the starboard side.

On clearing the Grand Harbour's breakwater and the 8.0 m contour, *Ohio* set on a Northwesterly course. Although heaving and yawing in the following sea, she was progressively adjusting course in the general direction of the Bunkering Area 1. The engine's RPM was set to give a speed of 13.5 knots. The steering was in the autopilot mode.



Figure 5: Conning station port side

¹ Unless otherwise stated, all times are local time (UTC +1).

When *Ohio* was about two nautical miles East of the tuna farm, the coxswain saw a yellow flashing light on the starboard bow. He instructed the trainee-coxswain to alter course to port and to keep clear of the fish farm.

The trainee coxswain recalled having difficulty seeing through the bridge-front window; the operation of window wiper² had made the visibility even worse. The trainee-coxswain executed the helm order using autopilot (push button) to turn the boat.

About eight minutes later, the coxswain sighted a flashing light. He stood up and saw that the boat was very close to the tuna pen. Immediately, he pulled back the engine throttle, but *Ohio* breached into the perimeter fence, scurried over the HDPE pipes, and entered the enclosed section of the tuna pen. The allision occurred at 2233, in position 36° 00' N 014° 26.1' E (Figure 6).

Post allision events

Soon after the occurrence, the crew inspected the boat internally for damages. No water ingress was observed. There were no reported injuries and pollution. The coxswain informed the Company of the accident, who in turn, informed the owners of the tuna farm. Supply vessel *Moor* was dispatched to the accident site by the owners.

The following morning, at 0850, service boat *Gang Pil Lee* arrived on site. A tow line was passed to *Ohio* and the pilot boat was successfully pulled out of the tuna pen. The tow line was transferred to the supply vessel *Moor* and *Ohio* was towed to the Grand Harbour.

² The pump for the window water washer had been dismantled for repairs.

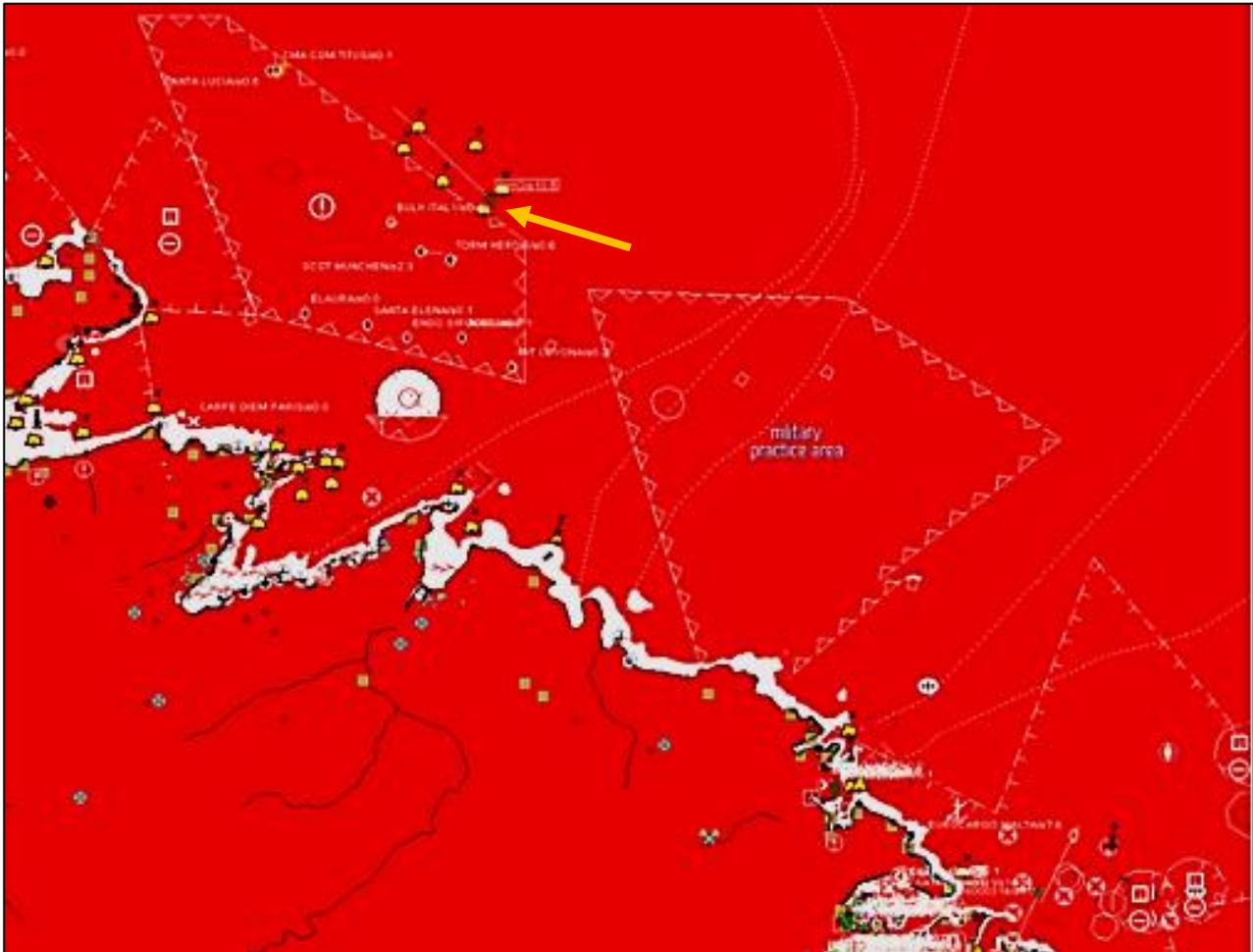


Figure 6: VTS screen shot showing *Ohio* stationary inside the tuna pen (yellow arrow)

Structural damages

The following damages were reported by the owners of the tuna pen:

- 20 pieces - stanchion triangular;
- 83 metres –hand rail;
- 83 metres – black HDPE pipe;
- six pieces – HDPE ‘H’ reinforced sections;
- 92 pieces –stoppers for brackets;
- three pieces – black stanchion bracket triangular; and
- 164 pieces – expanded polystyrene cylinders.

The following damages were sustained by *Ohio*:

- two propellers and propeller shafts;
- one missing rudder and one bent rudder;
- two rudder stocks;
- one Cutlas bearing;
- exhaust outlet; and
- minor hull damage on starboard side (Figure 7).



Figure 7: Photo showing hull damage

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.

Conduct of navigation

The crew members had undergone hands-on training and having conducted numerous conveyance operations and transfer of pilots at sea, they were familiar with routing around the coasts of Malta.

The crew had a mental plan, relying upon their own local knowledge of coastal features and shore-based navigational aids for course-plotting and position. This gave the crew members enough confidence to navigate by eye.

Visibility and accident dynamics

Ohio was fitted with two large, ‘reverse angled’ bridge-front windows, providing visibility ahead. Both windows were provided with wipers and window screen water-washers. However, the pump for the window washers had been dismantled for repairs ashore and was unavailable on the night of the accident.

After leaving Grand Harbour, the crew reported seeing lights of the anchored vessels as well as the fish farm’s yellow flashing light. As *Ohio* drew closer to the bunkering area, it was considered likely that fine sea spray or salt particles over the bridge-front windows compromised visibility from the conning position. The operation of the wiper (without water) in an attempt at improving visibility, smudged the glass. The glare and the reflected light exacerbated the crew members’ ability to see clearly through the bridge-front window.

Following the initial course alteration to port³, the crew members were neither able to spot the farm’s yellow lights in good time, nor monitor *Ohio*’s position, relative to the fish farm. The minor hull damage that *Ohio* sustained to her starboard side indicated that the crew members had not recognised that the course alteration made earlier had not been enough to pass clear of the tuna pen.

Fitness for duty

Before joining the Company, both crew members were medically examined and certified fit, in compliance with the STCW and MLC conventions. Prior to reporting for duty on *Ohio*, the coxswain had 18 hours and 25 minutes of rest, split into two periods of 9.75 hours and 8.5 hours. Similarly, the trainee-coxswain had a total rest period of 14 hours and 45 minutes. The safety investigation did not have evidence of behaviour, which suggested that fatigue may have been an issue.

Following the accident, the coxswain and the trainee-coxswain were tested for alcohol and drugs at a local hospital. The tests returned negative results.

Therefore, fatigue and alcohol were not considered to be a contributory cause to this accident.

³ The trainee-coxswain could not recall the extent of the course alteration.

Actions by the VTS

At the time of *Ohio*'s conveyance, traffic in the Grand Harbour and in the approaches to Valletta port was relatively active⁴. The VTS operator, who was also responsible for bunkering areas, was largely focussed on vessels manoeuvring in the port.

In any event, the duty operator would have relied on the coxswain's judgement to call VTS for navigational assistance. However, the absence of a guard zone around the fish farm, which would alert the operator in the event of a breach, was considered by the safety investigation to be a missing safety barrier. Moreover, the VTS chart window had confusingly turned red (as the workstation software had not been reportedly upgraded), making detection even more challenging.

CONCLUSIONS

1. An alteration of course was not sufficient to avoid the tuna pens within the fish farm perimeter.
2. Navigation was primarily conducted by eye;
3. The chart plotter and radar fitted on board were not used;
4. The crewmembers relied on their own local knowledge of coastal and other navigational features for course-plotting;
5. Accumulation of fine spray and salt particles on the bridge-front windows, and the operation of the wiper (without water) deteriorated the visibility from the conning station;
6. The VTS operator was largely focused on vessels manoeuvring in the port area;

7. The guard zone around the fish farm was neither displayed nor activated on the VTS workstation screen;
8. The VTS chart window had confusingly turned red (as the workstation software had not been reportedly upgraded), making detection challenging.

SAFETY ACTIONS TAKEN DURING THE COURSE OF THE SAFETY INVESTIGATION⁵

Port Logistics Operations Ltd. has updated its departure / navigation / arrival checklists.

Moreover, crew members have been issued with instructions to make use of all resources and equipment, including navigational instruments. They have also been encouraged to report defective / non-operational equipment to management.

RECOMMENDATIONS

Transport Malta's Ports & Yachting Directorate is recommended to:

01/2022_R1 Upgrade VOC5060 and consider the functionality and activation of guard zones on the VTS operators' workstations.

⁴ Three vessels were manoeuvring in the port area.

⁵ **Safety actions and recommendations shall not create a presumption of blame and / or liability.**

SHIP PARTICULARS

Vessel Name:	<i>Ohio</i>
Flag:	Malta
Classification Society:	Not applicable
IMO Number/Official Number:	14866
Type:	Pilot boat
Registered Owner:	P. B. Delta Limited
Managers:	Port Logistics Operations Ltd., Malta
Construction:	Glass reinforced plastic
Length Overall:	12.19 m
Registered Length:	12.19 m
Gross Tonnage:	8.10
Minimum Safe Manning:	2
Authorised Cargo:	Not applicable

VOYAGE PARTICULARS

Port of Departure:	Grand Harbour, Malta
Port of Arrival:	Bunker Area 1, Malta
Type of Voyage:	Coastal
Cargo Information:	Not applicable
Manning:	2

MARINE OCCURRENCE INFORMATION

Date and Time:	09 January 2021 at 22:33 (LT)
Classification of Occurrence:	Serious marine casualty
Location of Occurrence:	36° 00' N 014° 26.1' E
Place on Board	Underwater hull
Injuries / Fatalities:	None
Damage / Environmental Impact:	Structural damage to two rudders, propeller brackets and trim tabs. Minor damage on the hull's starboard side. A section of the Tuna pen damaged.
Ship Operation:	In passage
Voyage Segment:	Transit
External & Internal Environment:	Overcast and good visibility. The wind was Southeasterly Beaufort Force 4, and the swell was 1.5 m. Air and sea temperatures were 14 °C and 17 °C respectively.
Persons on board:	3