



**Panama Maritime Authority**  
Directorate General of Merchant Marine  
Maritime Affairs Investigation Department

**REPORT: M/V “WAKASHIO”**  
**IMO: NO. IMO 9337119**  
**R-029-2021-DIAM**  
**Casualty Date: JULY 25, 2020**



**SAFETY INVESTIGATION REPORT**  
**OF**  
**THE GROUNDING**  
**OF**  
**MV "WAKASHIO" IMO: 9337119**  
**VERY SERIOUS MARINE ACCIDENT**  
**INCIDENT OCURRED**  
**ON JULY 25, 2020**  
**AT 1925 ON THE SOUTHEAST COAST**  
**OF BLUE BAY IN FRONT OF POINTE D'ESNY ON**  
**THE ISLAND OF MAURITIUS**

According to Resolution No. 106-135-DGMM of September 9, 2013 of the General Directorate of Merchant Marine of the Panama Maritime Authority, in the second article it stipulates that "the investigations will not have the purpose of exercising actions of Criminal, civil or administrative nature, for which they will be subject only to the purposes established in the Code for the Investigation of Maritime Casualties and Events adopted by the International Maritime Organization (IMO).

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## OBJECTIVES

The main objective of this safety investigation is to provide information about the subject casualty, to relate the sequence of events surrounding the casualty, and to determine its cause(s), as far as practicable.

This investigation is conducted only for a safety point of view and in order for the Panama Maritime Authority to offer recommendations and contribute to the maritime safety by introducing the appropriate protective / preventing measures, in order to minimize possibility of similar Marine Casualties to re-occur in the future.

Moreover, it must be highlighted that the Panama Maritime Authority has no control over possible criminal or civil actions arising from / or related to the casualty.

During the casualty investigation the Panama Maritime Authority personnel as well as the appointed casualty investigator, are duly bound to maintain the strictest confidentiality in all matters pertaining to the casualty and its investigation.

This investigation has not been conducted with the purpose of determine liability, or to apportion blame, not is to be considered in any case a presumption of guilt or responsibility. The content's election and the report's style cannot be used for any judicial proceedings.

However, the investigating authorities have not refrained from fully reporting the cause(s) because fault or liability may be inferred from the findings.

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### INTRODUCTION

The Maritime Affairs Investigation Department of the Panama Maritime Authority received a notice by email on July 26, 2020 from the Company IHS GLOBAL LIMITED, in which it indicated that on July 25, 2020 at night. At approximately 1925 hrs LT, the ship "Wakashio" (Panama Flag) went aground on the southeast coast of Blue Bay in front of "Pointe d'Esny", on the island of Mauritius.

Once the information from the platform was received, the interested parties were notified via email, including the operating company of the Ship, and the local authorities, trying to generate the relevant communication as soon as possible.

### GENERAL DETAILS OF ACCIDENT

<b>Type of accident:</b>	<b>GROUNDING</b>
<b>Consequence:</b>	Oil spill about 1000 tons MCO, major pollution effects on the ecological system of the region.
<b>Category of Accident (IMO):</b>	Very Serious Marine Casualty
<b>Date &amp; Time:</b>	July 25th, 2020 & 19:25 Hrs LT
<b>Position Lat/Long</b>	Lat.: 20°26.6 S: Long.: 057°44.6 E.
<b>Location of Accident</b>	Southeast coast of Blue Bay in front of Pointe d'Esny, Island of Mauritius.
<b>Number of Crew Onboard</b>	20
<b>Number of Passengers</b>	0
<b>Damage / Loss</b>	Ecological Damage to Marine Fauna / Ship total loss.
<b>Number of Fatalities / Injured</b>	None

## EXECUTIVE SUMMARY

The ship "Wakashio" was making a trip from Singapore (Departure July 14<sup>th</sup>, 2020) to Tubarao-Brazil in ballast conditions, it was completely empty in its cargo holds, with a total of 20 crew on board and with drafts of Fwd. 7.91mts. and Aft 11.16m, with a Deadweight of 203,130 MT and with all ballast tanks full.

The passage plan had been prepared by the 2nd. Deck officer and the Captain and the Chief Officer had reviewing and approved the document. The navigation route was made though the Indian Ocean and way point No.23 was 25 miles south of the Island of Mauritius with a true heading of 241 °.

On July 23 at 0001 LT the ship begins to go off the actual course that the ship should had follow, then on July 25 the ship was about 19 miles off its actual course marked on the electronic chart (ECDIS), at that moment the 2nd. Officer on board leaves the watch at 1600, handing over the watch to the 1st officer of the ship.

On July 25 at 1815 LT, the Captain and the Chief Engineer went on the bridge with the intention of receiving Wi-Fi signal bound for Mauritius, at 1925 hours LT, the ship grounded on the coast towards the southeast of Blue Bay in front of "Pointe d'Esny", on the Island of Mauritius.

At 2000 LT, after confirming position of grounding by the Master, the ship reported the position and time to the Mauritius National Coast Guard by via VHF, and advising that they were in ballast conditions, afterward at 2010 LT reported to the DPA of vessel and send an email to all concerned parties including the MOL Company.

At 2025 LT, the Master and Chief officer walked to the main deck to access in verify the conditions of vessel. They could hear that air was gashing out from pipe passage manhole and air was gashing into fore peak tank, the Master immediately inform the engine staff to sound the fuel tank, also inform the deck crew to sound all the water ballast tanks.

The Chief Engineer instructed the engine staff to verify and sound all Double Bottom (DB) Tanks and they informed that DB tanks were in normal conditions. The chief Engineer went to the Bridge and check with the Master about the grounding, immediately the CE got a call from the engine room that water was entering the engine room. The CE went to the engine room and found the overflow tank suction valve was broken and the water rushing out from broken valve, with every pounding water entering was increasing.

The engine staff starts to Fire and GS pump, Bilge & Ballast pump and finally main sea water pump to keep the water level low, water level rose to more than 1 mt. on aft side tank top. All water ballast tanks sounded after grounding and the initial water levels sounding from Singapore is compared at follow:

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### Sounding of Tanks after grounding

FPk - 5.09 mtrs ( Initially - 18.5 Mtrs)  
1 P - 5.78 mtrs ( Initially - 24.6 Mtrs)  
1 S - 5.37 mtrs ( Initially - 24.8 Mtrs)  
2 P - 6.89 mtrs ( Initially - 24.07 Mtrs)  
2 S - 6.53 mtrs ( Initially - 24.4 Mtrs)  
3 P - 21.8 mtrs ( Initially - 23.8 Mtrs)  
3 S - 8.07 mtrs ( Initially - 23.9 Mtrs)  
4 P - 9.1 mtrs ( Initially - 24.0 Mtrs)  
4 S - 8.7 mtrs ( Initially - 24.0 Mtrs)  
5 P - 10.4 mtrs ( Initially - 20.1 Mtrs)  
5 S - 10.0 mtrs ( Initially - 11.9 Mtrs)

CH6- Ullage 6.21 (No change with initial)

CH5- Observe slight leaking from pipe passage manhole to No.5 cargo hold (hold not damaged, but leaking from manhole)

Fuel on board the Ship (at the time of departing Singapore):

- 2300 Metric Tons No.1 Fuel Oil Tank Port Side
- 1300 Metric Tons No.2 Fuel Oil Tank STBD
- 293 Metric Tons No.3 Fuel Oil Tank STBD
- 150 Metric Tons No.1 Diesel Oil Tank STBD
- 66 Metric Tons No.2 Diesel Oil Tank STB

### Other Information

The ship has all the technical certification valid and current. All certificates are issued by the Class Society and are reported correctly:

- Civil Liability Convention Certificate valid till Feb 2021
- Bunker Convention Certificate
- Wreck Removal Certificate
- The Blue Card was issued by The Japan Ship Owners' Mutual Protection & Indemnity Association



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### GLOSSARY AND ABBREVIATIONS

Abbreviation	Meaning
AB	Able Bodied Seamen
AIS	Automatic Identification System
ALRS	Admiralty list of radio signals.
ARPA	Automatic Radar Plotting Aid
COC	Certificate of Competency
COG	Course Over Ground.
DB	Doble Bottom
DPA	Designated Person Ashore
EPIRB	Emergency position-indicating radio beacon
GMT	Greenwich Mean Time
GPS	Global Positioning System.
IMO	International Maritime Organization.
ISM	International Safety Management
Kn/Kts	Knots
LT	Local Time
MAID	Maritime Affairs Investigation Department
Mt	Metric Tons
NM	Nautical Miles
OOW	Officer on Watch
OS	Ordinary Seaman
PMA	Panama Maritime Authority
RFA	Run Full Away
SMS	Safety Management System
SOLAS	Safety of Life at Sea.
STCW	Standards of Training Certification and Watch keeping for Seafarers
UTC	Universal Coordinated Time
VDR	Voyage Data Recorder
VHF	Very High Frequency
VTS	Vessel Traffic Services
WBT	Water Ballast Tank

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**Marine Incidents:** Means an event, or sequence of events, other than a marine casualty, which has occurred directly in connection with the operations of a ship that endangered, or, if not corrected, would endanger the safety of the ship, its occupants or any other person or the environment.

**Marine casualty:** Means an event, or a sequence of events, that has resulted in any of the following which has occurred directly in connection with the operations of a ship:

1. The death of, or serious injury to, a person,
2. The loss of a person from a ship;
3. The loss, presumed loss or abandonment of a ship; or
4. Material damage to a ship; or
5. The stranding or disabling of a ship, the involvement of a ship in a collision; or
6. Material damage to marine infrastructure external to a ship, that could seriously endanger the safety of the ship, another ship or an individual; or
7. Severe damage to the environment brought about by the damage of a ship or ships.

**A very serious marine casualty:** means a marine casualty involving the total loss of the ship or a death or severe damage to the environment.

**Serious Marine Casualty:** means a casualty which does not qualify as a very serious casualty and which involves:

1. A fire, explosion, grounding, contact, heavy weather, ice damage, hull cracking or suspected hull defect, etc. resulting in: Structural damage rendering the ship unworthy, such as penetration of the hull underwater, immobilization of main engines, extensive accommodation damage, etc.; or
2. Pollution (regardless of quantity); and /or
3. A breakdown necessitating towage or shore assistance.

**Substantially interested State:** Means a State:

1. Which is the flag State of a ship that is subject of an investigation; or
2. In whose internal waters or territorial sea a marine casualty has occurred; or
3. Where a marine casualty caused, or threatened, serious harm to the environment of that State, or within those areas over which the State is entitled to exercise jurisdiction as recognized under international law; or
4. Where the consequences of a marine casualty caused, or threatened, serious harm to that State or to artificial islands, installations, or structures over which it is entitled to exercise jurisdiction; or
5. Where, as a result of a casualty, nationals or citizens of that State lost their lives or received serious injuries; or
6. That has at its disposal important information that may be of use to the investigation,
7. That for some other reason establishes an interest that is considered significant by the lead investigating State.

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**1. FACTUAL INFORMATION**

**1.1 Ship's Particulars “WAKASHIO”**

Category	Particulars
Ship owners	OKIYO MARITIME CORP. / NAGASHIKI SHIPPING CO., TLD
Ship operators	Mitsui Osk Lines Ltd. (MOL) Tokyo Japan
Legal representatives	Arias B. Y Asociados
Port of Registry	Panama
Flag	Panama
IMO No.	9337119
Call Sign No.	3 E K F 7
Statutory Navigation No.	32709-07-B
Date of Registration	29/mar/2007
Type of Vessel	BULK CARRIER
Classification	NK, NS, BULK CARRIER Strengthened for Heavy Cargoes, HOLD No. 2,4,6 & 8 May be Empty, ESP, MNS & MO
Date of Keel Laid/Delivered	23 Sept. 2004 / 30 May 2007
Ship Builder	Universal Shipbuilding Corp. TSU Shipyard
Gross Tonnage:	101932 Tons
Net tonnage:	66396 Tons
Deadweight:	203130 mt
Light Weight:	25043 mt
LOA:	299,95 M (984.09 ft)
LBP:	290.00 M (951.44 ft)
Breadth MLD:	50,00 M (164.02)
Depth MLD:	24,10 M (79.07 ft)
Classification Society:	Nippon kaiji kyokai (NKK)
Main engine:	MAN B&W 6870MC (MK6)
Service speed:	14,7 Knts
Power:	MCO: 16,860 KW X 91.0/min, NCO: 14,330 KW x 86.2/min.



## 1.2 Weather Conditions (Indian Ocean)

According to the message ([molsafety@molgruop.com](mailto:molsafety@molgruop.com)) sent by the Ship Company to the Ship's Master on July 25, 0442 hrs. (UTC) reporting the Global weather condition, the following forecast was provided:

Stormy weather is anticipated in the vicinity of your good vessel.

---Around NE Madagascar---

Due to a low N of Madagascar, near gale-to-gale force winds and rough to very rough waves are expected.

**Time (UTC) 25<sup>th</sup> 0600 - 26<sup>th</sup> 0600**

Wind	SIG WAVE	MAX WAVE
SE	25 - 35kts SE/SSE	3.5 - 5.5m 5.5 - 9.0m

---Mauritius to Reunion---

Due to tight pressure gradient around this area, rough to very rough waves are expected.

**Time (UTC) 25<sup>th</sup> 0600 - 26<sup>th</sup> 0600**

Wind	SIG WAVE	MAX WAVE
SE/ESE	20 - 30kts S/SSE	3.5 - 4.5m 5.5 - 7.5m

## 1.3 Particulars Crew Onboard "WAKASHIO"

Official records show that, at the time of the grounding, the crew operating the ship consisted of twenty (20) people onboard.

The Captain of Indian nationality, First Deck Officer of Sri Lankan nationality, Second and Third Deck Officer of Philippine nationality; Regarding the engine room area, it was made up of the Chief Engineer of Indian nationality, Second, Third and Fourth Engineer of Philippine nationality, as for the deck and engine room all are of Philippine nationality; except for the kitchen assistant of Indian nationality.

The crew members were recruited by the ship's personnel office (SHL MARITIME CO., LTD.) and the working language spoken on board was English.

#### 1.4 Class, Statutory and Registry Certificates

<u>Certificate</u>	<u>Issue by</u>	<u>Issue date</u>	<u>Valid Until</u>
Certificate of Registry	PMA	Apr. 14, 2016	June 18, 2021
Minimum Safe Manning Cert.	PMA	Nov. 22, 2013	Until Revoked
Safety Management Cert.	NKK	Feb. 22, 2016	Feb. 09, 2021
Document of Compliance	NKK	Mar. 19, 2018	Apr. 20, 2023
Certificate of Classification	NKK	Apr. 23, 2016	Apr. 22, 2021
Load Line Certificate	NKK	July 12, 2016	Apr. 22, 2021
Inter. Tonnage Cert.	PMA	Apr. 23, 2017	Until Revoked
Continuous Synopsis Record	PMA	Feb. 17, 2011	Until Revoked
Inter. Ship Security Cert.	PMA	Jan. 12, 2016	Feb. 09, 2021
Cargo Ship Safety Radio Certificate	NKK	July 12, 2016	Apr. 22, 2021
Cargo Ship Safety Equipment	NKK	May 26, 2017	Apr. 22, 2021
Cargo Ship Safety Const.	NKK	July 12, 2016	Apr. 22, 2021
Inter. Air Pollution Prevention Cert.	NKK	Nov. 24, 2017	Apr. 22, 2021
Inter. Oil Pollution Prevention Cert.	NKK	Nov. 24, 2017	Apr. 22, 2021
Int. Anti-Fouling System Cert.	NKK	July 12, 2016	Until revoked
Int. Sewage Pollution Prevention	NKK	Nov. 24, 2017	Apr. 22, 2021
Cert. of Insurance for Bunker Oil	PMA	Feb. 03, 2020	Feb. 20, 2021
Cert. Insurance & liability for the removal of Wrecks	PMA	Feb. 03, 2020	Feb. 20, 2021

**\*PMA: PANAMA MARITIME AUTHORITY**

**\*NK: NIPPON KAIJI KYOKAI**

## **1.5 Ship's Licenses and experience of Crew**

### **Master**

Is an Indian citizen 58 years old, joined the vessel on December 2<sup>nd</sup>, 2019 holder of Panamanian Certificate Endorsement valid until Sept. 13<sup>th</sup>, 2021. He has 30 years like a seafarer. Like a Master have 25 years, he has navigation as a C/O in type vessels of Bulk Carriers and Oil Tankers vessel.

### **Chief Officer (Officer on duty at grounding)**

Is a Sri Lanka citizen 45 years old, joined the vessel on March 1<sup>st</sup>, 2020 holder of Panamanian Certificate Endorsement valid until February 20<sup>th</sup>, 2023. He has 24 years at sea, having those about 8 years as Chief Officer. All navigating experience in Bulk Carriers.

### **2<sup>nd</sup> Officer**

Is a Filipino citizen 44 years old, holder of Panamanian Certificate Endorsement valid until October 10, 2021. He has 20 years as a deck officer in different type of vessels and serve as Master Mariner in Domestic Trips.

### **Chief Engineer**

Is a Filipino citizen 63 years old, signed on board on October 2020, holder of Panamanian Certificate Endorsement valid until 18<sup>th</sup> December 2021. He has 20 years like Chief Engineer, which 5 years assigned as permanent on same vessel, different Master.

### **2<sup>nd</sup> Engineer**

Is a Filipino citizen 51 years old; signed on board on October 29<sup>th</sup>, 2019, holder of Panamanian Certificate Endorsement valid until 29<sup>th</sup> November 2021. He has 23 years at sea as Chief Engineer, which 6 years as 2<sup>nd</sup> engineer, different companies, container ships and bulk carrier.

### **3<sup>rd</sup> Engineer**

Is a Filipino citizen 58 years old; signed on board on October 29<sup>th</sup>, 2019, holder of Panamanian Certificate Endorsement valid until 20<sup>th</sup> October 2020. He has 23 years at sea, Chief Engineer, the last 7 contracts as 3<sup>rd</sup> Engineer in same vessel (3 times).

**All Panamanian certificates of competence (Licences) the remain of crew were verify and reviewed and were valid at the time of accident.**

## **2. INITIAL DECLARATION OF EVENTS**

On July 14, 2020, the vessel "Wakashio" set sail from the Offshore Terminal in Singapore with drafts of forward 7.91mts and aft 11.16mts, bound for Tubarao, Brazil.

Everything went without much concern until July 25 when the Ship faced adverse situations in terms of meteorological conditions.

The ship was navigating near the coast of the Island of Mauritius on July 25, 2020, suddenly runs aground on the beach of Blue Bay.

According to the declaration signed by the Captain and the First Officer of the Ship, they declare the following facts:

- **At 1200hrs**: The ship "Wakashio" was altering its course to 241 ° degrees, to avoid the strong waves on one of its sides.
- **1600hrs**: The first officer took charge of the second officer's watch, at latitude 20 ° 08.3S and longitude 058 ° 21.4E, heading 241 ° degree. During that time, the captain was also present on the bridge; it was decided to keep distance of about 5 miles south of Mauritius.
- **1700hrs**: The Captain left the bridge and the First Officer continued its course and speed.
- **1755hrs**: The course was adjusted to 233° degrees. Attention was made to the ECDIS screen, which was on a large scale and showed sufficient depth between 200m and 1000m contour.
- **1815hrs**: The Captain and Chief Engineer arrived at the bridge; the Captain reduced the RPM because the weather conditions were bad. The Captain also took a look at the ECDIS, but did not realize the danger.
- **1925hrs**: The ship had few vibrations and stopped moving when they realized that the ship had run aground; in the position latitude: 20 ° 26.6S and longitude: 057 ° 44.6E. The announcement was subsequently made for the crew to meet at the meeting station.
- **2000hrs**: The Mauritius National Coast Guard was informed about the grounding of the ship with the position and time.
- **2010hrs**: The incident was reported to Mr. Kochi San and email was also sent to all interested parties, including Mol.

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- **2025hrs**: The captain and the first officer made rounds on deck to approach the situation. He observed that air was coming out of the manhole of the pipe passage and air is flowing into the tank at the fore peak.
- The engineers were informed to proceed to probe all the fuel tanks. The deck crew was also advised to probe all ballast water tanks.
- **2030hrs**: The Chief Engineer reported flooding in the engine room.
- **2100hrs**: They began to pump water from the engine room, since the water level was between 1 meter to 1.5 meters.
- **2105hrs**: All ballast water tanks were probed, and the water level was compared to the sounding (before the flood).

### 2.1 Damages reported by the Master of the ship

After the ship ran aground, the Master together with the crew performed an inspection of the water ballast tanks and machine in order to assess the damages caused by the rocks.

After an inspection and evaluation of the ship's hull done by the crew, several ruptures are suspected:

- Fore Peak Tank
- Water Ballast Tanks
- Bilge Water Tank
- Overflow Tank
- Waste water tank

### 2.2 Sources of Information

The detailed account of events that led to and during the accident, in particular the events between July 23 at 0001 until the ship's grounding on July 25 at 1925 LT, is based mainly on the interview analysis with the crew members involved and the technical documents of the ship such as nautical charts, the voyage plan, statutory certificates and the positions taken from the AIS and emergency management at the scene of the accident.

In regards on obtaining the VDR data, the PMA was unable to get the equipment's data from the owners of the vessel or from the Mauritius Authorities, since the Master and Chief Officer crew was in a criminal complaint.

Many times the PMA tried to request such information from the Mauritius Maritime Authority; however, they were not authorized to provide the VDR, since it was in the custody of the Mauritius Police.



### **3. TIMELINE OF EVENTS SINCE GROUNDING**

**MAID:** Maritime Affairs Investigation Department

**MM:** Merchant Marine General Director

- **On July 26, 2020**, the MAID receives from the IHS Markit Company the notification of the incident that occurred with the vessel Wakashio that had run aground on July 25 in Blue Bay off Pointe d'Esny, Island of Mauritius.
- **On July 27**, an email was sent to the ship owners / operators of the vessel by the Maritime Affairs Investigation Department, requesting technical documentation of the accident.
- **On July 28**, MAID notified Segumar Tokyo and Imabari offices by email to contact the ship owners / operators so that they can give us information as soon as possible. which they responded the same day by saying that they were going to contact the operators.

The same day an email from the Mauritian Authorities is also received, reporting to the General Director of Merchant Marine, the accident of the vessel Wakashio. The MM General Director then immediately forwards the notification to MAID.

- **On July 29**, the ship operators reply to the MAID on sending the forms (Crew List, Preliminary Casualty Report, and IMO Annexes) that had been requested and the ship's Voyage Plan.

On the same day 29, the MAID writes back to the Mauritius Authorities requesting information on the accident and asking if they were going to perform the safety investigations

In addition, on the same day 29, the MAID responds to the operators' by email and requesting them a list of important Technical Documents from the ship, including the crew statements, the VDR, the rescue plan (Refloating of the ship), report of damages to the ship, report of some contamination to the surrounding waters, and other information about the case.

The operators replied to the MAID stating that the Salvage Company (Smith Salvage) was carrying out the study of the operation to follow, they send us the heavy damage to the ship caused by the grounding, and they told us that the SOF of the crew would send it to us as soon as possible.

- **On July 30**, the Mauritian Authorities replied to the MAID on an email of July 29, explaining that they had already sent a letter to the General Director of MM on July 29 explaining what had happened with the grounding of the ship.

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The same day, the MAID responded to the operators' email of July 29, where they are instructed to let us know what was the main reason for the grounding, because we were not clear what were the reasons for the accident also, to keep us informed of the actions done by the operators of the ship with the refloating of the same.

On the same day 30, MAID sends an email to the Mauritius Authorities offering our collaboration on behalf of both Authorities.

Following the same day, the MAID also sent an email to the Mauritian Authorities, requesting information on the reasons causing the grounding, also what were the reasons or decisions of the Captain along with the First Officer to ground the ship.

The operators responded to the MAID email, where they indicate that the shipowners / owners had already prepared this plan with the Salvage Company and Japan Salvage and that when they had more details they were going to let us know. They included on this mail the SOF of the Captain and the 1st. Officer

- **On July 31**, MAID sends an email to the ship's operating company, requesting more information about the accident, such as the VDR again, a copy of the deck and engine log records, a copy of the weather reports, a copy of the ship's course record, etc. The same day the operator sends the requested information.

On the same day, MAID asked the Polestar Company to send us a video of the Tracking path (Course) of the ship when it was navigating south of Mauritius. The same day the information was received from Polestar.

On August 2, the ship operator sends MAID technical documents that had been required, also provides the First report of the SMITH Salvage Company, the Daily Progress Report (08-01-2020), where it details the work and salvage. According to the Report, the vessels hired for this refloating were:

Name Vessel	Company	On Hire	Location
Expedition (AHT)	SMITH	26-July-2020 (1530 UTC)	En route to Reunion
Sherpa (AHT)	SMITH	27-July-2020 (0600 LT)	En route to Galle
Stanford Hawk (OSS)	Stanford Marine	26-July-2020 (1800 UTC)	At anchor/bert/en route
Summit (AHT)	SMITH		En route to Galle
VB Cartier	Boluda	31-July-2020 (2030 LT)	At Reunion

- **On August 3**, the MAID responds to the operators after having received the requested documentation and the Daily Progress Report (08-01-2020). The same day the Daily Progress Report (02-08-2020) is received again.

**IMPORTANT NOTE:** MAID saw on international media that the ship had cracked on the Starboard side by the FOT No.1 tank (STB) and that the sea was being polluted with bunker that was in the tank. (Neither the Authorities nor the operating company of the ship reported this event to us)

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- **On August 7**, MAID again sends an email to the ship operators requesting the following information:
- That they should keep us informed every day of the refloating work that they were doing with the SMITH SALVAGE company.
  - Procedure and contingency measures that were taken in this situation.
  - Planning communications with the Mauritius Authorities.
  - Updated reports of damages suffered by the ship.
  - Updated reports of damages to the maritime environment of the Mauritius beach. (Corals reefs, etc.)
- **On August 8**, the ship operators send us by email, the following information:
- The morning of the 8th, tankers ELISE and TRESTA STAR, ordered by the Mauritian authorities, went to the scene of the accident.
  - A tugboat was ordered by the Mauritius port authorities to assist the tankers going to the accident site.
  - The tanker ELISE was angled and established a hose connection to the vessel "Wakashio" and the pumping started from both tanks No.1 FOT (PS) and No.1 FOT (STB) the one with the crack, towards the tanker ELISE.
  - IBC containers filled with bunker extracted from the Wakashio were transported to the PSV Stanford Hawk. This operation was suspended due to interference from the ELISE tanker which was bent on the Wakashio
  - A towing connection was established between the tugboat and the Wakashio in the forward section to secure in the event of a split.
  - Contractors mobilized a senior Salvage Master to the site, expected to arrive the day after.
  - The Contractor's Chief Rescue Captain and Capt. Lars Tesmar Senior Consultant (Brand Marine Consultant) attended a meeting with the authorities and the Prime Minister of the Republic of Mauritius. In this meeting the participants were updated on the progress of the work and questions were answered.
  - The SUMMIT Tug arrived at the port of Port Louis, Mauritius and is in the process of the sail permit. All salvage equipment and personnel are on board the tugboat.
  - Contractors are in the process of finalizing a contract with another South African tanker. The oil tanker will receive the entire extracted bunker, as Mauritius does not have enough storage facilities and discharge ports.
  - Contractors are working on a SCOPIC cost.
- **On August 9**, the ship operators sent to the MAID the Daily Progress Report (08-08-2020) by email, reporting that 158 MT of FO from Tank No.1 FOT (PS) and 392 m3 of Tank No.1 FOT (STB) and tank No.2 FOT (STB) began to transfer to tank No.1 FOT (PS); In addition, they also sent the Salvage Plan (06-08-2020).
- **On August 10**, a reply was given to the operators' email that MAID had received the daily reports of the progress of the refloating works and they were asked to keep us informed of the events concerning the salvage of the ship.

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**IMPORTANT NOTE:** MAID received by email information from a 3rd party that the Captain and the rest of the crew had disembarked and were in a Hotel. (Neither the Authorities nor the operators informed us of this)

The same day the MAID sends an email to the Mauritian Authorities requesting information on the events:

- Procedure and contingency measures that were taken into consideration regarding the situation in which the ship was.
- Updated reports of some damage to the marine environment of the Mauritius beach. (Corals, reefs, etc.)
- They were informed that the AMP was requesting all the information regarding the main cause of the accident, however, we have not received a response from the operators of the ship, and the Authorities were asked if they had this information to provide it to us. And if they had any communication with the crew members of the ship.
- Again, the recovered VDR of the ship by the Captain was requested.

On the same day the 10<sup>th</sup>, the MM Director writes to the Mauritian Authorities requesting a meeting by video conference (ZOOM) to update the events that have occurred regarding the vessel Wakashio.

An email was also received at MAID from the operators supplying a report from SURVEYORS MARINE Daily Reports on August 10, 2020 is a company that was contracted by the Mauritius Authorities to perform cleaning work at different sites where contamination was found. In addition, a (Fire Damage report) was received made by the company SMITH SALVAGE (08-09-2020) of all the damage that the ship had at that time.

On the same day the 10<sup>th</sup>, the MAID again sent an email to the ship's operators requesting the ship's VDR, since in previous emails dated July 27 they had been requested.

The operators responded that the owner gave orders to the captain of the ship to give the VDR to someone from the Salvage company (SMITH SALVAGE) and that they were going to talk to the owner to get this information.

The MAID responds to the email from the operators, thanking them and if they could send us this as soon as possible, since the corresponding analysis was taken place and it is necessary to see certain information at different points of view to be able to reach for the possible causes that led to the grounding.

➤ **August 11**, the operators reply to the DIAM email requesting the VDR, which informs that once the ship-owner receives it, they will provide it to the DIAM. In addition, they updated us on the transfer of bunker from the Wakashio to land:

- The tanker ELISE was fueled with 518m3 of bunker extracted from the Wakashio, and then anchored near the ship.
- The GULF STAR tanker is expected to arrive in the afternoon alongside the Wakashio and receive the remaining bunker.
- Contractors have extracted approximately 2,648 m3 of bunker (FO) from the Wakashio to date 08-11-2020 1900hrs.LT.

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- **August 12**, The MM Director once again writes to the Mauritius Authorities confirming the intention of establishing a direct line of communication with them, in order to attend this case together.

On the same day, the operators send an email to MAID giving the updated reports of the company SMITH SALVAGE Daily Progress Report (08-11-2020) and in addition to the report of the company Polyecogroup, which is a cleaning operation company of the fuel oil that polluted the waters. On the SMITH SALVAGE report the total extracted is updated:

Date	Tank Space From (Wakashio)	Tank Space/Vessel To	Quantity	Total Removed from Wakashio to Date
08/08/20	FOT#2 STBD	FOT #1 PS	500 m <sup>3</sup>	
08/08/20	FOT #1 STBD	Elise	392 m <sup>3</sup>	
08/08/20	FOT #1 PS	Elise	138 m <sup>3</sup>	530 m <sup>3</sup>
09/08/20	FOT#1PS	IBC	30 m <sup>3</sup>	13 m <sup>3</sup>
10/08/20	FOT#1PS	Elise	553.28 m <sup>3</sup>	553.28 m <sup>3</sup>
10/08/20	24 IBC on shore	Bowser	14.5 m <sup>3</sup>	14.5 m <sup>3</sup>
11/08/20	FOT#1	Tresta Star	1103.7 m <sup>3</sup>	1103.7 m <sup>3</sup>
11/08/20	FOT#1/MGO 1&2 SB	Elise	460 m <sup>3</sup>	460 m <sup>3</sup>
11/08/20	75 IBC on shore	Bowser	38.4 m <sup>3</sup>	38.4 m <sup>3</sup>
		Total:		2699.88 m <sup>3</sup>

On the same day, the MAID asked the operators by email for the Number of the Nautical Chart of the area where the ship was grounded. The operators responded quickly giving us the number of the chart.

- **August 13**, The Mauritian Authorities (Deputy- Maritime Director) replied to the email sent by the MM Director, informing the following:
- The situation is extremely bad, and it has caused heavy marine pollution.
  - The ship is seriously damaged.
  - Later they will be making reports about the damage caused to the beach, marine life, the population and others, but now the priority is to clean up.
  - Until the 13th, they have managed to empty the tanks, which are still about 151m<sup>3</sup> still on board in different tanks and floating freely in the engine room and cargo hold No.9.
  - The preliminary investigation is ongoing and that it will determine the causes of the incident.
  - That the VDR card, although protected, has not yet been downloaded.
  - To confirm if we intended to send an investigator to Mauritius, as they have additional procedures regarding the COVID19 test.

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On the same day, the MM Director responded to the Mauritian Authorities (Deputy-Maritime Director) informing them that we will complete the maritime investigation according to IMO regulations, and that our intention is to send a representative to the site, to perform the interviews with the crew members and thus clarify the causes of the accident, and also requesting the protocols to follow with respect to the COVID19 procedures.

The Mauritius Authority replied on the protocols for COVID19 which will be send us. The MM Director responded to the Mauritius Authority that he would write on WhatsApp and that he could keep the number.

On the same day, MAID sent an email to the ship's Operators informing them that Panama was authorizing the Mauritian Authorities to collect the VDR data from the ship, which was in possession of the ship's Captain and the police. They were also notified that Panama joined with the Republic of Mauritius to carry out the safety investigation under the IMO Maritime Casualty Investigations Code and that they will cooperate with the Authorities with the technical information of the case.

The operators of the ship acknowledge received of the email and that they understand our intention and that they will be contacting the Ship-owners.

- **August 14**, The MM Director received a news update from a website: <https://splash247.com/birthday-party-and-quest-for-wifi-revealed-in-lead-up-to-wakashio-grounding-off-mauritius/>

The MAID received from the Segumar Department information on the authorizations and extensions that had been granted to the ship "Wakashio" since the ship was registered in Panama.

MAID requested by email from the operators the "Navigation Statutory Certificate" and the "Damage Control Plan". The same day the ship's operator replied that they would be sending it.

- **El 15 de agosto**, MAID received an email from the ship's operators informing that the ship had split into 2 parts near cargo hold No.8 (No.8 C / H), and that its conditions were as followed:

- That there was no impact due to the splitting of the ship into 2 parts, and that there was no danger to the crew.
- No objects fell on deck due to the splitting of the ship.
- The floating oil that was inside cargo hold No.8 was being collected with an absorbent additive.
- There are no major movements on the bow after splitting.
- In cargo hold No. 6, ballast water was being drained in order to obtain

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a buoyancy reserve and be able to refloat it.

- Oil extraction in the engine room continues in the aft of the ship.

The MAID requested by email to the operators, the Crew list of the Wakashio. After receiving the email from the operators that the ship had split, the MAID responded by requesting all the details of the salvage operations, photos and videos that they could provide us and also to keep us updated every day on this case. The ship's operators reply to the email that the bow of the ship could be towed towards INDIA. And that the Plan for the rest of the aft part would be in study to see how it is handled.

On the same day, MAID requests the ship operators again by email, the remaining technical list information that they must send us, since it is pending receipt.

- Last ISM Audit Record, Copy of VDR Data recovery, Navigation Statutory Registry, Class Occasional survey report, Damage Control Plan (That can be look), Crew List of MV Wakashio (Vessel Form), Statement of Facts (SOF) of all crewmembers.
  - Information of the rescue operation report from the Authorities (Republic of Mauritius), Unusual information report of : noise, vibrations, sounds, smell P&I and underwrites surveyor report, The last Maintenance and services Certificates of the ECDIS, RADAR and GMDSS record.
  - Copies of the Ship's positions 12 hrs. before the incident, Copy of course recorded (bridge courses & rpm), Copy of Deck log book (from the 23rd, 24th, 25th, 26th, of July 2020), Copy of Engine log Book (from the 23rd, 24th, 25th, 26th, of July 2020)
  - A copy of the chart used for your approach and with a sketch showing your route, speed, positions, actions taken before and after of the accident.
- **August 16**, MAID wrote an email to the operators asking them to clarify about 2 photos that they had sent us showing pipes with water inlets. The operators answer us the same day informing us that as far as they know there was never any entry of water anywhere on the ship, but that they were going to confirm these 2 photos with the crew, which was not going to be easy because the Mauritian Authorities had them under investigation.

On the same day, the operators reply to the request email on the list of pending documents, informing us that they were going to prepare the documents one by one to send us the requested information.

In addition, the MAID receives the crew list from the ship's operators.

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- **August 17**, The MM Director receives an email from SMITH SALVAGE attached with the "Daily Progress Report" from the Mauritius Authority.  
On the same day, the Legal Representatives (Arias B. & Asociados) of the ship's owners wrote to the MM Director asking him if DIGEMAR was going to require an accident report from the ship's owners before issuing the cancellation of the ship in due course and after the conclusion of the investigation by the AMP.

The MM Director, responds to the email informing them: that this investigation was going to be performed in conjunction with the Mauritian Authorities, that all the necessary information would be requested from the ship owners and operators, in addition that within the next 30 to 45 days there would be a process of many communications between the operators of the ship and the AMP. They were also asked to find a way to obtain the information from the VDR data, since the Mauritius Police had it in their custody.

On the same day, the DIAM receives an email from the operators sending some information from the list of pending documents that had been requested from them.

- **August 19**, DIAM was contacted by email by NKK Classification Society requesting permission from AMP to send the "Shell Plating Material Data" information to the Government of Japan, including the "Ultra High Tensile Steel". DIAM replied that we had no objection to the NKK Class Society on providing this information to the Japanese Government. The NKK Class Society informed us that this was with the full consent of the owners of the vessel (Nagashiki Shipping Co., Ltd.)
- **August 20**, The MM Director of sent an email to the Mauritius Authorities officially informing them that the Republic of Panama acting as the Flag State will join the safety investigation as a "State of Substantial Interest", and that we understand that the Republic of Mauritius will lead this safety investigation according to the standards and procedures of the IMO's Maritime Accident Investigation Code.

### **Actions taken by the coastal state (Republic of Mauritius), after the grounding occurred.**

- 1) On July 28, 2020: an email was received at 0620 from the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping of the Government of the Republic of Mauritius, formally notifying the Panama Maritime Authority; in details the event that occurred to the vessel "Wakashio".
- 2) On July 29, DIAM wrote to the Director of Shipping, requesting information on the incident and on the actions to be implemented by the Island Authorities. Although they replied to the following day, they did not present clear or concrete actions to be taken in order to Implement and mitigate or avoid possible contamination in the incident area.



**Actions taken by the flag state (Republic of Panama), after the grounding occurred.**

- 1) On July 26, upon receiving notification of the incident, the safety investigation procedure is activated. The case is nominated internally, and the Maritime Affairs Investigations Department proceeds with the corresponding investigations.
- 2) On July 27, 2020: at 0750hrs, the General Director of Merchant Marine of the Panama Maritime Authority, proceeded to answer the acknowledgment of the email sent, by the Authority of the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping of the Government of the Republic of Mauritius.  
It should be noted the information provided by the Director General of Merchant Marine is forwarded to the Maritime Affairs Investigation Department, in order to begin the corresponding investigations.
- 3) The Maritime Affairs Investigation Department, proceeded to contact the regional offices of Japan, in order to link communication with the operators of the ship "Wakashio", which they did not inform the Panama Maritime Authority at the time .
- 4) The Maritime Affairs Investigation Department proceeded to contact the operators (SHL Maritime Co., Ltd.) via email plus phone calls in order to request all possible information on the accident, such as technical documents, statements from the Captain, deck and engine officers, VDR data, cargo conditions, voyage plan and many other documents.
- 5) On August 1, 2020: at 1230hrs the operators of the ship "Wakashio" replied to the emails and informed us that they will be preparing the proper documentation requested by the Maritime Affairs Investigation Department of the Panama Maritime Authority.
- 6) The Panama Maritime Authority through the General Directorate of Merchant Marine in conjunction with the Maritime Affairs Investigation Department are performing continuous monitoring since the notification of the grounding was received.

**Actions taken by the Operators (SHL Maritime Co., LTD) after the grounding occurred.**

- 1) On August 02, 2020: The operators wrote and send different attached documents requested by the Flag State; and relevant information from the first salvage study report that the company will be conducting (Smith Salvage Pte. Ltd.); which was contracted by the operator of the ship "Wakashio", in that report various procedures or points to be followed in order to perform the refloating of the aforementioned ship are detailed.

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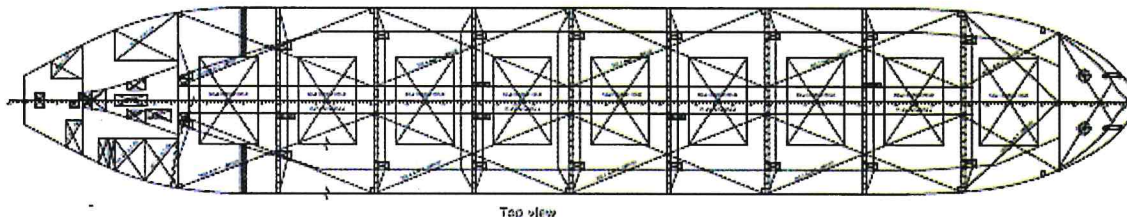
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- 2) On August 3, 2020: The operators (SHL Maritime Co., Ltd ", wrote and send attached relevant information to the Flag State about the second salvage study report that the company (Smith Salvage Pte. Ltd.) will be performing, within the Smith Company report that the operators sent us, detail various procedures or points to follow in order to refloat the aforementioned ship.
- 3) On August 08, 2020: The operators (SHL Maritime Co., Ltd ", wrote and send attached information to the Flag State about the points to be carried out in coordination with the company contracted for the refloating procedure and cleaning caused to the ecosystem of the island of Mauritius.
- 4) On August 9, 2020: The operators (SHL Maritime Co., Ltd", send a more detailed attached report of the salvage study that the company (Smith Salvage Pte. Ltd.) will be performing.

### CARGO HOLDS

The vessel has nine (9) CH, which all Cargo was empty; the vessel was navigating in ballast condition.



Total Cargo Capacity 217,968 m3 between Cargo Hold No.1 to CH No.9.

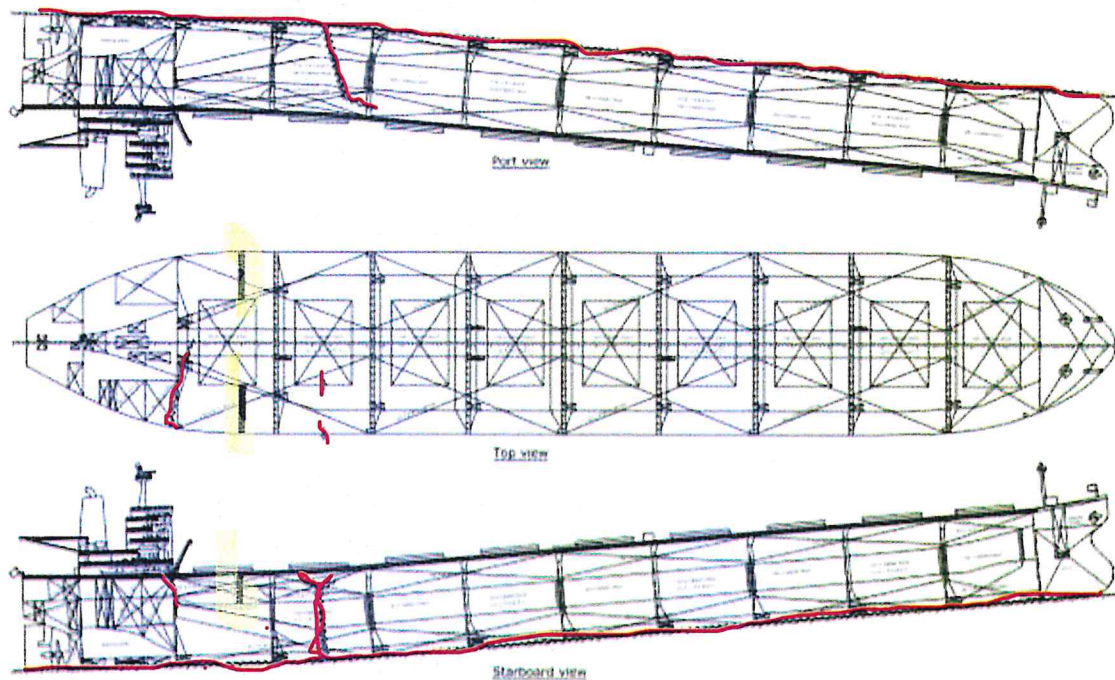
All cargo in this voyage and the time of the accident were empty.

## 4. OVERVIEW DAMAGES REPORT

### 4.1 Main Damage

The below figures show an overview of the damaged areas and other areas of interest on board of the Wakashio after the 8<sup>th</sup> of august 2020, the survey made on the vessel on 9<sup>th</sup> of August 2020 by the **Smith Salvage BV Company**.

The purpose of the inspection was to assess the severity of the damage on board and give a reasonable insight of the extent of damage at the moment to the ship's owners and insurance.



*Figure 1 Overview of the damages on the Wakashio.*

On the overview drawing of the damages on the Wakashio on August 9<sup>th</sup>, 2020, the various cracks and deflections were presented to the best accuracy possible with the means at hand. The crack propagation under water was based on experience and observations on the casualty.

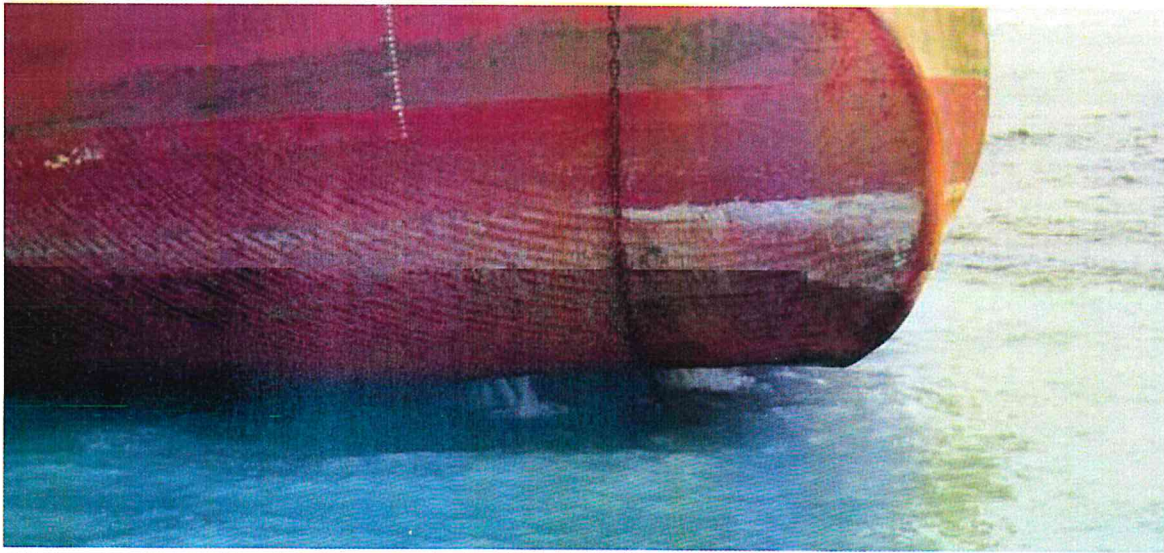
The cracks are presented above in red, and the buckling is presented in yellow. Note that based on the observations on board it seems that the vessel was almost broken in two pieces, attached by the deck only.

Since there was a large crack on the side shell on both sides at frame 83 and since this was also the location of the highest deflection, it was believed that this was where the vessel would be break eventually. This is also reflected by the motions of the bow section, which was floating and heaving on the swells. In the aft section there is little to no motion was sensed. As a result, both sides of the cracks were continuously moving and propagating.

However since there was also a crack forming just forward of the accommodation, the vessel could have also broken at this location after which it is uncertain whether the stern section was remained upright in the prevailing swells.

#### **4.2 Bottom damage**

With the bow of the vessel protruding above the waterline, the damage on the bottom shell plating is made clear by the amount of water flowing out. Also, from the interrupted curvature of the bulbous bow, it can be deduced that the bottom plating is compressed.



*Figure 2, Protruding bow section with water flowing out.*

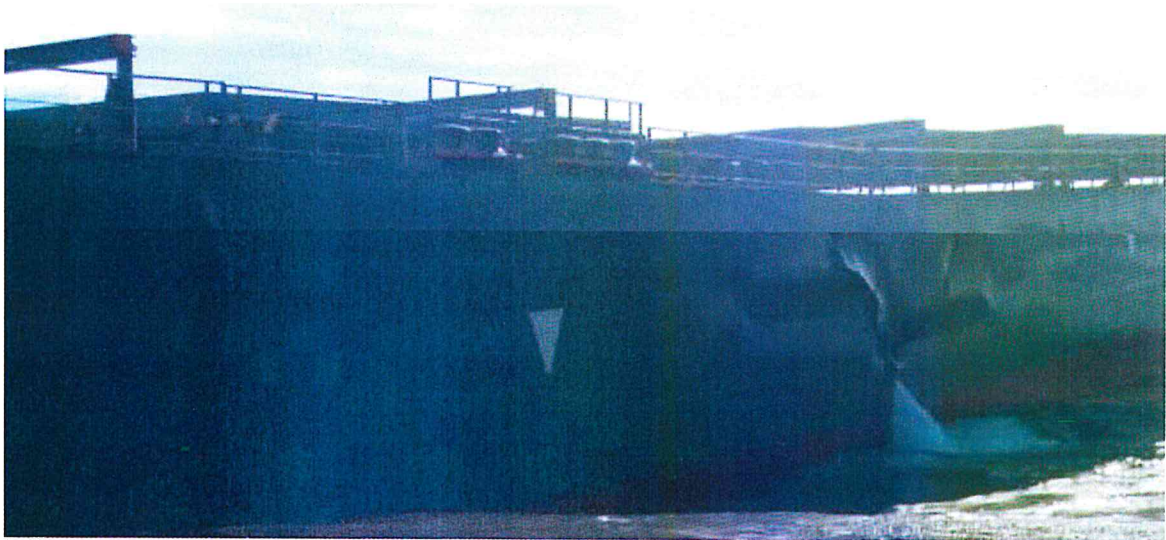
#### **4.3 Side Shells damage**

##### **Side Shell damage SB CH8**

On the SB side shell, a crack was propagating from Frame 83 up to 21.9m from the base. On main deck, this area is clearly the point at which the vessel is leaned, the forward section had an aft trim of approx. 5 deg. And the aft section had an aft trim of approx. 2 deg. This would bring the total deflection to about 3.2m at Frame 83. As can be seen on the picture was the crack showed in two directions towards main deck.

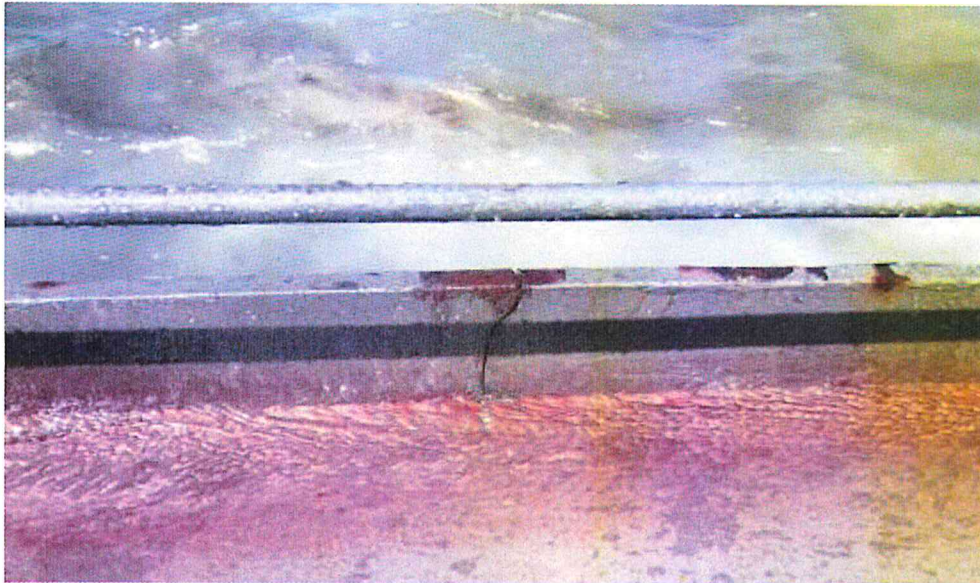


*Figure 3, SB crack at Frame 83*



*Figure 4, SB crack at Frame 83, view from aft*

On the morning of 9<sup>th</sup> August 2020, the side shell was also cracking on main deck.



*Figure 5, Side shell crack at main deck Fr.83*

On the SB coaming, the lashing bracket has broken off and the hatch cover is approx. 20cm above the coaming in the center. Where the lashing bracket has broken off, the coaming is starting to shear. This effect is not present on PS.



*Figure 6, Coaming and hatch cover CH8 SB.*

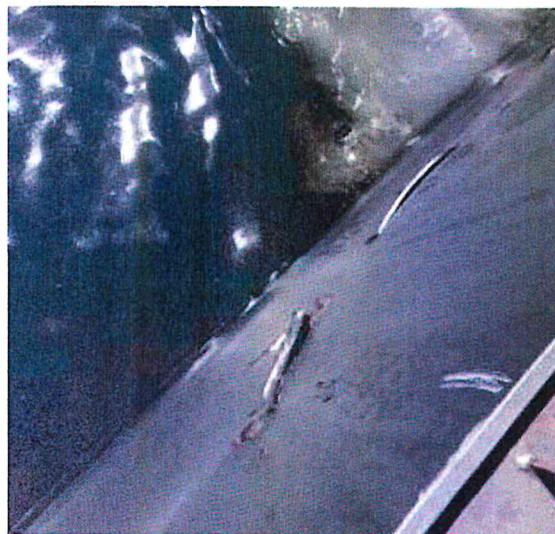
**Side shell damage PS CH8**

On the portside side shell a crack was started at frame 91 (WL) and was progressing upwards to 21.35m from the base and forwards to Frame 99. Similar to the starboard side, this area is where the vessel was showed a clear deflection. It was expected that this crack originates from around frame 83 on the baseline, similar to the starboard side.



*Figure 7, PS crack at Frame 91.*

The buckling on the aft part of this crack had started to crack as from 9<sup>th</sup> August, a view from the deck is shown below.



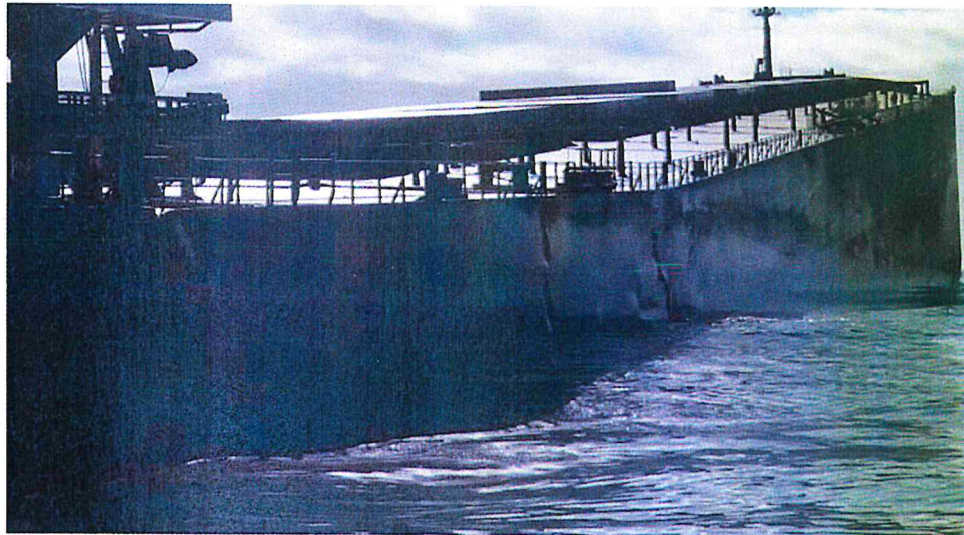
*Figure 8, PS crack at Frame 91, view from deck*

**Side shell and deck buckling at CH9**

At approx. Frame 60, the side shell and deck were buckled, this had been observed for at the same time as the crack at CH8 was observed and does not seem to change. No cracks were visible in this area.

This buckling continues on main deck over the entire beam of the vessel, the PS side shell was not buckled visibly.

In the same picture below, the deflection of the vessel is also clearly visible.



*Figure 9, SB buckling at frame 60, view from aft.*



*Figure 10, SB buckling at frame 60, view from deck*

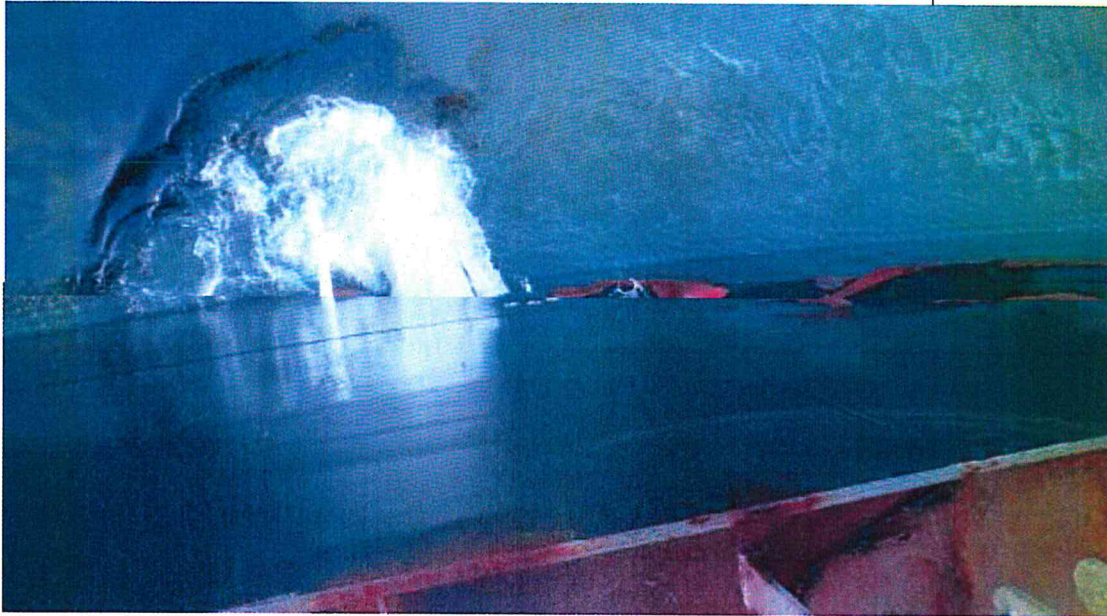


**Side shell crack FOT1(S) and main deck**

The crack at number 1 starboard fuel tank be started just forward of frame 42 and continues up to main deck at frame 40.



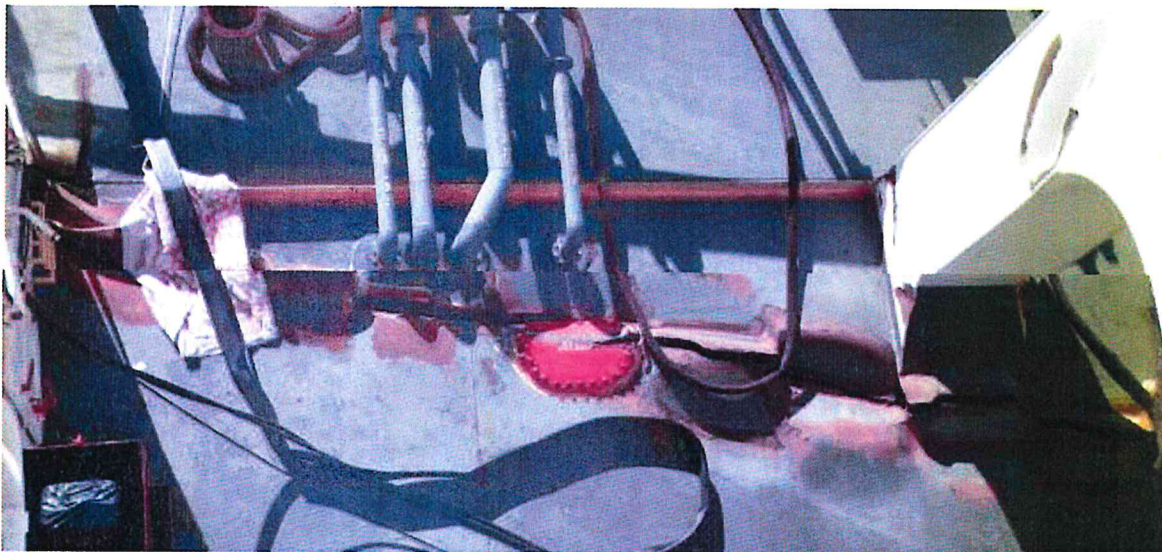
*Figure 11, SB crack at frame 42*



*Figure 12, SB crack at frame 42, view from main deck.*

The crack at frame 40 continues onto main deck, where the deck is completely cracked up to about 50cm PS of the CL. The two sides of the crack were continuously moved lengthwise by about 2cm with the bow section moving in the swells and the stern section firmly grounded. The following pictures show this crack spreading to PS and forward (on the CL, the crack is at frame 46).

*Figure 13, SB crack at frame 40 on main deck*



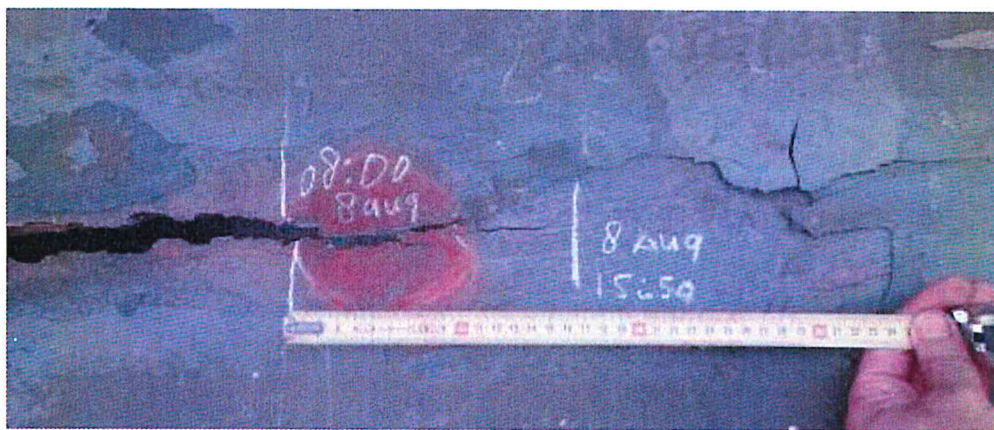
Note in the above images, the support of the bridge wing cracking, as one this support is on the forward part of the crack, while the rest of the structure was on the aft.

Crack spreading in this area was monitored for a few hours and continues with about 1-2cm per hour depending on the location of the crack. The crack spreading at the centerline was a bit less with about 2-5mm per hour, this can change as parts of the structure give way.



*Figure 14, SB crack at frame 42-46 on main deck.*

#### 4.4 Oil in Cargo Hold No.9



*Figure 15, SB crack spreading on main deck.*

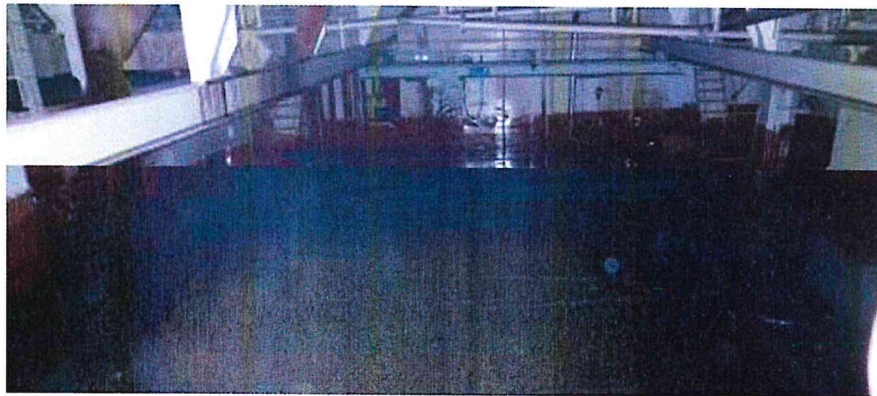
As the crack on SB frame 40-46 was propagated through both FOT1(S) and CH9, it caused these two compartments to be common, the picture below from CH9 shows an oil sheen on the water inside CH9. The oil is blown away from the access hatch due to the air being pushed in and out of the hold by the swells was continued into the hold.



*Figure 16, Oil in CH 9.*

#### 4.5 Engine room

The engine room is tidal with a layer of oil of about 2cm on top of the water level. The increased oil level can be caused by rolling and pitching or due to an increased previous water level in the ER. It is unknown whether the engine room is common with any other tank.



*Figure 17, Engine room from funnel access staircase looking fwd.*



*Figure 26, Engine room from funnel access staircase looking aft.*

#### 4.6 Steering gear room

The steering gear room is also tidal with a similar layer of oil floating on the water, there is also some debris floating around in this space.



*Figure 28, Steering gear room from main deck access staircase looking aft.*



### **Confirmed Intact Tanks**

On the 8<sup>th</sup> August 2021 it was confirmed that the following tanks were intact and no oil has leaked from these tanks:

- No. 2 FO tank SB
- No. 1 FO tank PS

The two SB diesel oil tanks was sounded after weather and wave conditions allow access to the SP stern deck again. However no external damages on these tanks were observed.

The inspection onboard of MV Wakashio on 9<sup>th</sup> August 2021 was made by the professional personnel and special team with the safety equipment and experience with the purpose of recognizing the structural conditions of the ship at the time that the hull was cracking and polluting the sea.

## **5. OIL SPILL AND DAMAGES TO MARINE FAUNA**

- The grounding produced cracks in some parts of the hull, where the engine room was highly affected. However, the response to the spill by the ship was fast. The Mauritius Authorities after the grounding date began the investigations on next day to clear the causal factors of incident. The actions taken by the coastal state were slow on respect to contain the oil spill, possibly by different factors as to the lack of equipment and supply, also the difficult swell and the weather for the month of July 2020, made it difficult to reach the ship and be able to contain the spill products derived from oil (Bunker) to the coast at soon possible, which has caused damage to the area's ecosystem such as natural reserve coral reefs, marine species, causing several damage to the areas.
- In the same way, it seems that the company has acted a bit slow considering the magnitude of the possible ecological situation that we have on hand, regardless of whether the Smith Salvage Company was hired.

Subsequently, the operators of the ship and the authorities of the Republic of Mauritius; they tried to take appropriate measures in order to further contain the damage to the ecosystem, but the rough waves made it difficult for the tugs were refloat the ship, but there were some decisions that were made, since they did not know if the ship could be raised without any damage.

**INFORMATION RECEIVED FROM THE DIFFERENT INTERNATIONAL MEDIA.**



*Figure No.1 Aerial view of the vessel "Wakashio"*

Later, according to images and news published in the different international media that detail that the ship "Wakashio" with IMO 9337119; It was still stranded since July 25, 2020; being 12 days after the first events of the maritime accident have been reported; occurred on the southeast coast specifically in the Blue Bay in front of "Pointe d'Esny", on the island of Mauritius.

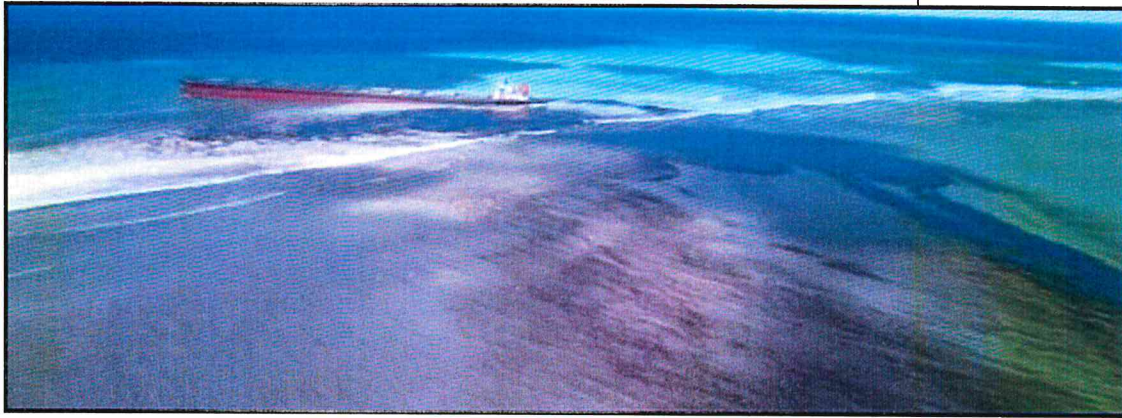


*Picture No.1 Containment barriers placed in the Blue Bay beach area of Mauritius.*

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*Picture No.2 The ship “Wakashio”, aground on the area of its stern, on the coast of the Blue Bay in front of “Pointe d'Esny”, Mauritius.*

Sources related to the subject ship are attached:

- <https://splash247.com/birthday-party-and-quest-for-wifi-revealed-in-lead-up-to-wakashio-grounding-off-mauritius/>
- <https://youtu.be/QX17eIWHrEs>
- <https://www.efeverde.com/noticias/la-isla-mauricio-bajo-la-alarmanza-de-una-marea-negra/>
- [https://www.publico.es/internacional/isla-mauricio-isla-mauricio-enfrenta-catastrofe-ecologica-vertido-petroleo-barco-encallado.html?utm\\_source=whatsapp&utm\\_medium=social&utm\\_campaign=web](https://www.publico.es/internacional/isla-mauricio-isla-mauricio-enfrenta-catastrofe-ecologica-vertido-petroleo-barco-encallado.html?utm_source=whatsapp&utm_medium=social&utm_campaign=web)
- [http://www.elconfidencial.com/mundo/2020-08-09/islas-mauricio-negro-barco-encallado-1000tcombustible-2709112/?utm\\_source=whatsapp&utm\\_medium=social&utm\\_campaign=amp](http://www.elconfidencial.com/mundo/2020-08-09/islas-mauricio-negro-barco-encallado-1000tcombustible-2709112/?utm_source=whatsapp&utm_medium=social&utm_campaign=amp)
- <https://www.france24.com/es/20200808-mauricio-derrame-ambiental-petroleo-francia>



## 6. ANALYSIS

### 6.1 Events leading to the accident according to the information of crewmembers.

During the collection of evidence, the Maritime Affairs Investigation Department (MAID) received statements of the facts from the crew, after having reviewed such statements, interviews were carried out with all crew members in the Republic of Mauritius, which were questioned according to the statements.

According to the results of the interviews made by the investigators with the crew, it was possible to recognize that the events occurred as follows:

Since July 25 at 1200 LT the ship was sailing with a heading of 241° T according to the voyage plan and a speed of 11 knots, the captain prepared the Noon Report when he was mainly in the vicinity of the command bridge.

At 1600 hours LT the chief officer went up to the bridge to take the navigational watch, the gyro course (heading) was 241° which was programmed in the ECDIS, the speed was 11.5 knots, there was no fishing vessels or traffic of other vessels. The 2nd. officer gave the watch to the Chief Officer (1st Officer) in the Captain's presence, the 2nd officer instructed the Chief Officer to pass 5 miles south of Mauritius, according to the instructions given by the Captain.

The Captain spoke with the 2nd Officer about the ship's course of 241°, which the 2nd officer was instructed to tell the Chief Officer to keep the course at 241°, because with that course the ship would pass 5 miles if maintained. . However, the Chief Officer commented that the Captain ordered him to keep the course (COG) at 240° which was initially 245° which was out of the position of the ECDIS. The Captain left the navigation bridge at 1700 LT, went to his cabin, and then went with the Chief Engineer to the Crew mess room. While in the Crew Mess room the captain ordered to prepare a special meal for the party.

According to the statement of the Chief Officer, between 1740 and 1800 hrs the ship reached the position that the Captain had required, therefore, the CO changed the gyro compass (Heading) course to 234° to maintain a heading. (Course Over Ground) 240°, the same continued with that course, he could observe in the ECDIS that there was a clear distance of more than 3 miles from the coastline and the ship was sailing at a depth level between 200 and 1000 meters. The scale used in the ECDIS was of a large scale. The CO thought that the scale that was being used was not correct, however, he trusted what the captain had said about the interest of approaching the coast.

At 1800 the CO was alone on the bridge without any crew on duty, as the AB on duty had promoted him to Bosun, as the Bosun had jumped overboard a month before the accident. The company was unable to send another AB on board due to COVID-19 restrictions.



The Captain after leaving the party went to the navigation bridge between 1815 and 1830 together with the Chief Eng. Someone had told them that there was a telephone and internet signal on the bridge.

At 1815-1830 when the captain arrived at the bridge, the first thing he asked the Chief Officer was if the Coast Guard had called and observed that the Chief Officer was speaking from his cell phone since at that time the CO had received a message to his cell phone.

According to the Chief officer statement, he activated the signal (Hotspot) and was able to supply the Captain and the Chief Eng., Since they were having problems with the signal on their cell phones, and thus the Chief Eng. and the Captain could communicate. At the same time the Messman had brought food to the bridge, then the CO called 3O to his cabin to inform him that he was going to have dinner after his bridge watch.

(The Captain had ordered the Messman to bring food to the bridge for him and Chief Eng.)

Between 1800 and 1830 the Chief Officer had spoken with his wife via WhatsApp (both calls were less than 5 minutes), he also made 2 satellite calls to his wife and brother, to compensate for my mobile connection, he also told the deck cadet that took some peanuts to the bridge and around 1845 the cadet left.

Between 1830 and 1900, according to the CO statement, the Captain lowered RPMs assuming he was trying to slow down so he could get more phone and internet signal.

According to the Captain's statement, he was on the bridge on the starboard side (Strb. Wing) sometimes inside and sometimes outside and with his cell phone that was not activated, after a while; the captain invited the CE to sit down in the pilot's chair.

According to the statements of the CO at 1900 hrs. He monitored the ECDIS to see the progress of the vessel, just as the Captain kept a watch on the fishing vessels.

The ship was passing 200, 1000 meters deep and having more than 3 miles clear of the coast. The CO while observing the ECDIS, he never had any doubt about the position of the vessel. The CO said that the Master and Chief Eng. we're trying to use their cell phones and having some food, the Chief Eng. Was sitting in the pilot's seat on the starboard side and as the CO had previously said, the Captain and the CE monitored the ECDIS.

According to the Captain's statement, he never approached any electronic navigation equipment, he did not want to interfere with the duty officer Chief Officer, and he relied on the experience of the CO in command.

At 1925 LT, the CO notified the Captain that the ship was grounded due to some vibrations, and then the Captain said: "the ship is grounded."

## **6.2 Minimum Safe Manning**

The Minimum Safe Manning Certificate of MV Wakashio was issued by the Panama Maritime Authority on November 22, 2013 under the provisions of regulation V/14 of the International Convention for the Safety of Life at Sea, 1974, as amended (SOLAS '74). No other certificate of MSM was issued to the vessel.

The Provision V/14 (SOLAS '74) is mentioned as follow:

1. *Contracting Governments undertake, each for its national ships, to maintain, or, if it is necessary, to adopt, measures for the purpose of ensuring that, from the point of view of safety of life at sea, all ships shall be sufficiently and efficiently manned.\**

\* Refer to the Principles of minimum safe manning, adopted by the Organization by **resolution A.1047 (27)**

2. *For every ship to which chapter I applies, the Administration shall:*

*2.1 establish appropriate minimum safe manning following a transparent procedure, taking into account the relevant guidance adopted by the Organization\*; and*

*2.2 issue an appropriate minimum safe manning document or equivalent as evidence of the minimum safe manning considered necessary to comply with the provisions of paragraph 1.*

The Panama Maritime Authority issues MSM certificates with respect to the criteria and guidelines given in IMO Res. A.1047 (27), complying with all the criteria of the guide, by which each certificate issued is verified depending on the relevant factors including the following:

- .1 size and type of ship;
- .2 number, size and type of main propulsion units and auxiliaries;
- .3 level of ship automation;
- .4 construction and equipment of the ship;
- .5 method of maintenance used;
- .6 cargo to be carried;
- .7 frequency of port calls, length and nature of voyages to be undertaken;
- .8 trading area(s), waters and operations in which the ship is involved;
- .9 extent to which training activities are conducted on board;
- .10 degree of shoreside support provided to the ship by the company;
- .11 applicable work hour limits and/or rest requirements; and
- .12 the provisions of the approved Ship's Security Plan.

The vessel was certified as an unattended machinery space.

Minimum quantity of crew described in the certificate: **14 Crew Members**

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Grade/Capacity	Certificate (STCW Regulation)	Ratings
Master	II/2	ONE (1)
Chief mate	II/2	ONE (1)
Deck Officer	II/1	ONE (1)
A.B. Seamen	II/4	THREE (3)
Ordinary Seamen	VI/1	TWO (2)
Chief Engineer	III/2	ONE (1)
2 <sup>nd</sup> . Engineer	III/2	ONE (1)
Eng. Officer	III/1	**ONE (1)
Oiler(s) / Motorman	III/4	**THREE (3)

*\*\*While the vessel holds an Unattended Machinery Space Certificate (UMS) issued by a Recognized Organization, the Engineer Officer and one Oiler/Motorman may be dispensed with.*

- The vessel had a special requirement described in the MSM Certificate:

*"Watchkeeping Deck officers are required to have the appropriate GMDSS Radio operator Certificate General or restricted, depending upon the ship's intended sea area of operation."*

During the Marine Casualty the vessel was fully manned with total 20 crewmembers with 16 Philippines, 3 Indians and 1 Sri Lanka as per below crew list provided by vessel's Master.

### 6.3 Crew List "Wakashio"

In the below table it can be observed the crew list provided by Vessel's Master before the accident: **20 crew on board.**

Deck Department		Engine Department	
Officers	Ratings	Engineers	Ratings
MASTER (1) ONE	AB SEAMEN (3)	CHIEF ENG. (1) ONE	THREE (3) OILER / MOTORMEN
CHIEF OFF. (1) ONE	THREE	2 <sup>nd</sup> ENG. (1) ONE	
2 <sup>ND</sup> OFF. (1) ONE	O. SEAMEN (2) TWO	3 <sup>rd</sup> ENG. (1) ONE	
3 <sup>RD</sup> OFF. (1) ONE	WIPER (1) ONE	4 <sup>th</sup> ENG. (1) ONE	
DECK CADET (1)	CH. COOK (1) ONE		
ONE	MESSMAN (1) ONE		

The requirements of Minimum Safe Manning at the time of the grounding have been fulfilled as per the above crew list. The following table shows the requirements of Minimum Safe Manning and crew on board.

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The deck Cadet is into the crew list but according with the STCW the rank is not recognized with the crewmember with responsibilities.

MSM Requirements		Crew on-board as per crew list	
Capacity / STCW / Number		Capacity / STCW / Number	
✓ Master (II/2)	One (1)	✓ Master (II/2)	One (1)
✓ Chief Mate (II/2)	One (1)	✓ Chief Mate (II/2)	One (1)
✓ Deck Officer (II/1)	One (1)	✓ Deck Officer (II/1)	Two (2)
✓ AB Seaman (II/4)	Three (3)	✓ AB Seaman (II/4)	Three (3)
✓ Ordinary Seamen	Two (2)	✓ Ordinary Seamen (VI/1)	Two (2)
✓ Chief Engineer	One (1)	✓ Chief Engineer	One (1)
✓ 2 <sup>nd</sup> Engineer	One (1)	✓ Engineer Officer (2 <sup>nd</sup> , 3 <sup>rd</sup> , 4 <sup>th</sup> )	Three (3)
✓ Engineer Officer	One (1)	✓ Oilers / Motorman	Three (3)
✓ Oilers / Motorman	Three (3)	✓ Wiper	One (1)
		✓ Cook	One (1)
		✓ Messman	One (1)

### 6.4 Crew Certificates

During the analysis of the casualty investigation, copies of officers and ratings certificates (including National licenses, Medical fit certificate, Panama endorsements, and training certificates) presented, reviewed or examined and were found in compliance with the SCTW and Flag State requirements.

### 6.5 Voyage Plan of MV Wakashio between Singapore to Tubarao, Brazil.

This voyage plan was prepared by the 2<sup>nd</sup> officer with the guidelines of Master, reviewed by Chief officer and Approved by Ship's Master. The voyage plan shows all waypoints included into the different Nautical Charts and electronic Charts that were in the Chart Room on the Bridge.

Between every waypoint is indicated with the distance and true course the vessel should navigate.

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**Passage Plan (Pilot to Pilot)** (Ocean and Open Water)

POS No	Waypoint (Cross out When Passed)	Positions LAT/LONG or Lead Marks/Buoys etc.	Distance Miles	True Course To Oxide	Radar on Y/N	Hazards to Navigate		Mean & Frequency of Passes GPS/RADAR Landmarks Compare Bearing with Lead Marks	Remarks			
						No-Go Areas	Safe Dist off Danger Shlands Landmarks		1 Used Charts	2 Light Lists	3 Tides Current Table	
1	01° 10 20' N	104° 05 20' E	EBA	1.9	002.0	Y			S 10mins GPS/RADAR Landmarks	BA3042 4041 4039 3833 3946 3940 3947		
2	01° 16 42' N	104° 04 80' E	IONING TSS	1.7	122.6	Y	No-Go Areas are marked on charts	As marked on charts	S 10mins GPS/RADAR Landmarks	3945 3941 3940 3944 4707 4702 4700		
3	01° 15 50' N	104° 06 00' E	SINGAPORE TSS	6.3	254.7	Y			S 10mins GPS/RADAR Landmarks	4264 4156 4155 4153 4152 4268 4201		
4	01° 13 05' N	104° 00 00' E		5.3	243.4	Y			S 10mins GPS/RADAR Landmarks	4922 4909		
5	01° 11 48' N	103° 55 30' E										
6	01° 10 50' N	103° 48 00' E										
7	01° 08 30' N	103° 44 00' E										
8	01° 10 70' N	103° 40 00' E										
9	01° 14 70' N	103° 24 20' E										
10	01° 20 20' N	103° 10 00' E										
11	01° 36 00' N	103° 00 00' E							S 10mins GPS/RADAR Landmarks			
12	01° 40 00' N	102° 54 00' E							S 10mins GPS/RADAR Landmarks			
13	01° 55 50' N	102° 18 50' E							S 10mins GPS/RADAR Landmarks			
14	02° 21 00' N	101° 48 00' E							S 10mins GPS/RADAR Landmarks			
15	02° 37 00' N	101° 28 50' E							S 10mins GPS/RADAR Landmarks			
16	02° 50 00' N	101° 00 00' E							S 10mins GPS/RADAR Landmarks			
17	03° 02 00' N	100° 47 00' E	13 FATHOM FRIDGE	7.7	312.6	Y			S 10mins GPS/RADAR Landmarks			
18	04° 00 00' N	099° 48 00' E		130.1	310.2	Y			S 10mins GPS/RADAR Landmarks			
19	05° 24 00' N	098° 07 00' E		183.7	285.2	Y			S 10mins GPS/RADAR Landmarks			
20	05 42 00' N	095 10 00' E		19.9	270.0	Y			S 10mins GPS/RADAR Landmarks			
21	06° 12 00' N	094° 50 00' E		1403.8	226.2	Y			S 10mins GPS/RADAR Landmarks			
22	10° 00 00' S	078° 00 00' E	OUTSIDE HRA	1329.4	241.0	Y			S 10mins GPS/RADAR Landmarks			
23	20° 45 00' S	058° 00 00' E	SOUTH MAURITIUS	652.6	243.1	Y			S 10mins GPS/RADAR Landmarks			
24	26° 40 00' S	047° 30 00' E	SOUTH MADAGASCAR	1134.7	243.9	Y			S 10mins GPS/RADAR Landmarks			
25	34° 00 00' S	028° 00 00' E	S FRANCIS	265.6	260.7	Y			S 10mins GPS/RADAR Landmarks			
26	34° 46 00' S	022° 20 00' E	US ENTRY	79.1	261.6	Y			S 10mins GPS/RADAR Landmarks			
27	34° 57 50' S	020° 45 00' E	6 MILE	125.8	280.3	Y			S 10mins GPS/RADAR Landmarks			
28	34° 35 00' S	016° 15 00' E	START LOG	3231.9	285.3	Y			S 10mins GPS/RADAR Landmarks			
29	20° 20 60' S	040° 13 10' W	#REF!	#REF!					S 10mins GPS/RADAR Landmarks			

**Remarks**  
 Navigate with caution. Expect heavy traffic when navigating in Japanese waters.  
 No-Go Areas are marked on charts.  
 All necessary precautions to be taken in compliance with MARPOL and COMPANY ENVIRONMENTAL POLICY. No garbage to be thrown overboard.

**Radar Local Warning**  
 NAVAREA 11 R 7.5

**Contingency Plan/Contingency Anchorage**  
 See attached file for contingency plan.  
 Contingency Anchorage & Abort Points  
 As marked on charts

Officer of the Watch: [Signature]    Officer of the Watch: [Signature]    Officer of the Watch: [Signature]    The Master: [Signature]

\*Small modification will be allowed to fit vessel's specification

We are going to focus on two (2) important waypoints:

- Way Point No.22 (Lat. 10°00.00 S, Long. 078° 00.00 E) True Course 241° Distance 1329.4
- Way Point No.23 (Lat. 20°45.00 S, Long. 058° 00.00 E) True Course 243.1° Distance 652.6

For the navigation of voyage plan described from Singapore until the Wakashio ran aground, the Master and the navigation deck officers used 4 nautical charts which were the following:

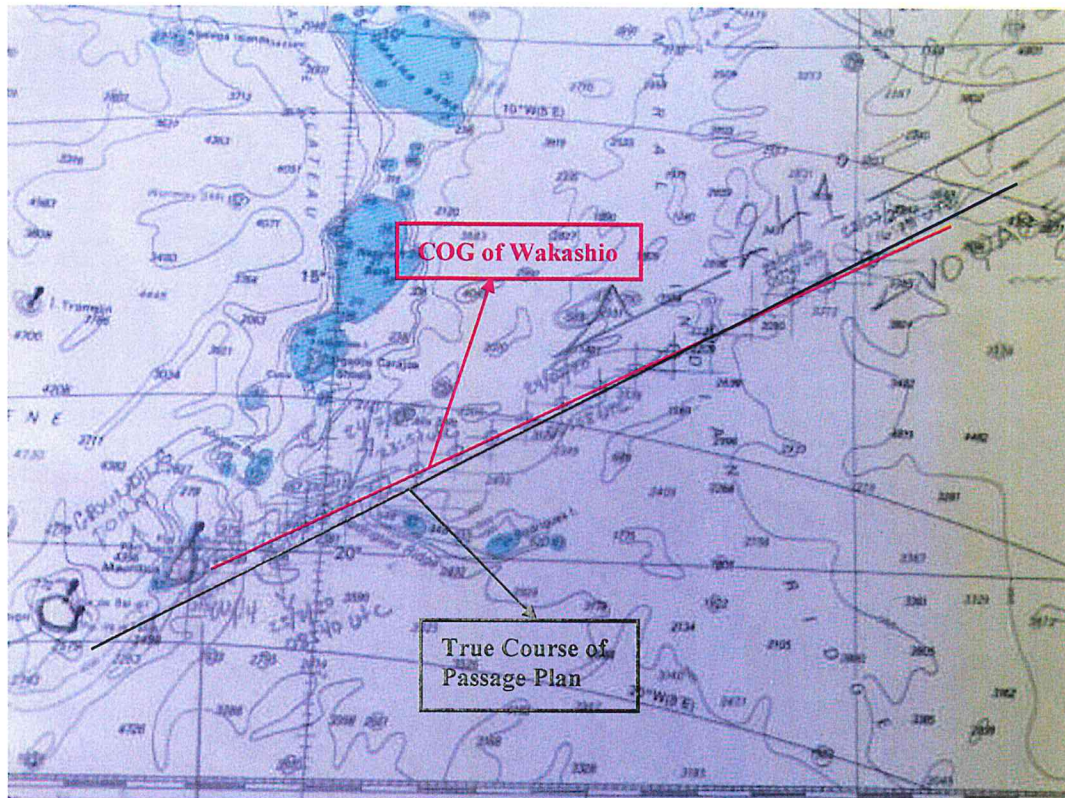
1. Admiralty Nautical Chart No.3904 (Great Nicobar Island to Pulau Simeulu) 1:500,000 Edition date: 9<sup>th</sup> July 2015.
2. Admiralty Nautical Chart No.4707 (Maldives to Sumatera) 1:3,500,000 Edition date: 24<sup>th</sup> Feb. 2011
3. Admiralty Nautical Chart No.4702 (Chagos Archipelago to Madagascar) 1:3,500,000 Edition date: 12<sup>th</sup> Aug. 2010.
4. Admiralty Nautical Chart No.4700 (Port Elizabeth to Mauritius) 1:3,500,000 Edition date: 17<sup>th</sup> Sept. 2015

The 4 nautical charts were plotted and reviewed by the Master and 2nd Deck Officer, which all charts were up to date according to the Notices to Mariners.

**6.6 Course of the Accident and Investigation**

The ship and equipment were in good, seaworthy condition, no deficiencies were noticed in respect to the proper function/use of the navigation equipment.

**Extract from the Navigational Chart No. 4071 (Admiralty)**



*Figure No.1 Nautical Chart plotted the True Course and Course over ground.*

- Line of True Course according to Voyage Plan
- Line of COG of MV Wakashio

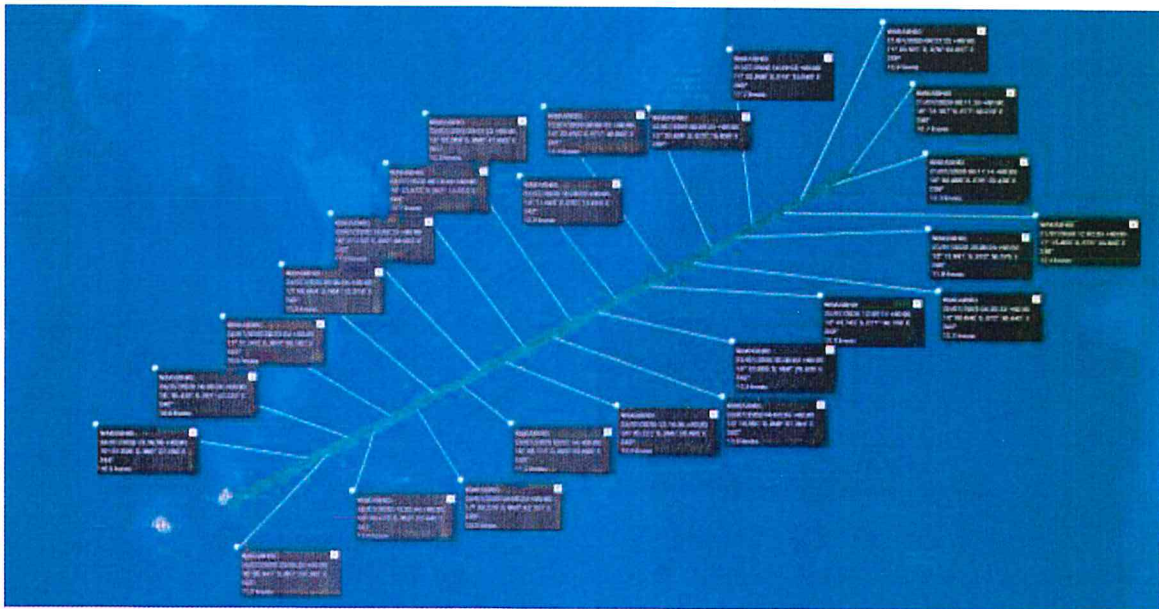
On the map we can see the black line that is the true course according to the Voyage Plan that the ship should follow and the red line is the Gyrocompass course (COG) which the ship began to change course from July 23 at 0001 UTC, the change was ordered by the Master to be able to pass close to 5 miles off the coast of Mauritius.

For this outline the DIAM used the Nautical Chart no. 4071 (Indian Ocean Northern Part) since it is a minor scale chart (Small-Scale) and it is easier to show the positions from the 23rd of July, and thus be able to plot the course provided by the Voyage Plan. We can see that the course tracking is between the Lat position 10 ° 00.00 'S, Long.078 ° 00.00' and the Lat position. 20 ° 45.00 'S, Long. 058 ° 00.00 'E.

The change of course in order to pass 5 miles off the coast of Mauritius was given because the Captain had the idea of being able to receive Wi-Fi connection signal on cell phones,

since the crew had months on board, without communicating with their relatives., some had expired contract extensions and other months of their initial contract, at that time the World Pandemic (Sars-Covid 19), had the Governments of the Countries with restrictions for the change of crew in the ports, and many vessels worldwide had to continue navigating with the crew they had on board, many crewmembers received license extensions and contracts from the Flag State in order to continue on board.

### **Wakashio AIS Positions (Indian Ocean)**

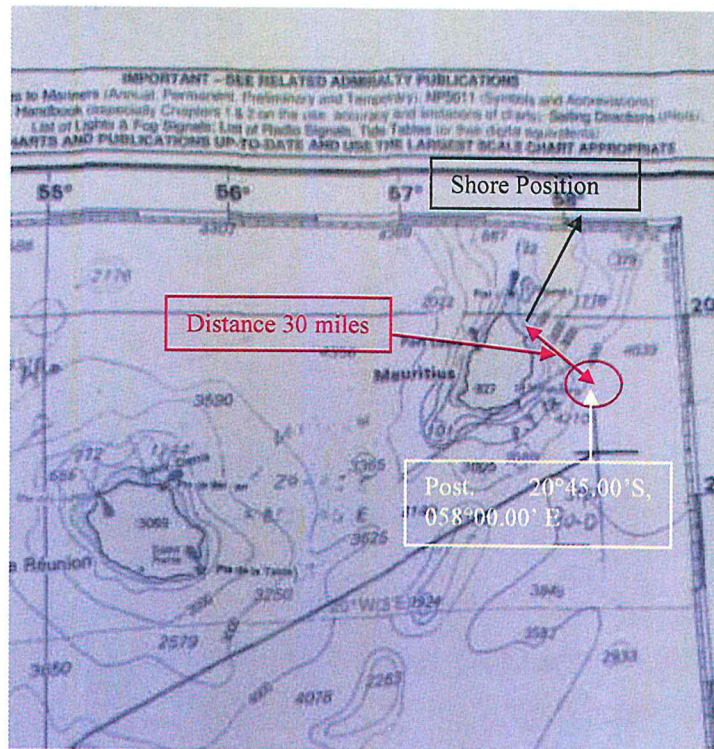


*Figure No. 2 AIS positions during the Indian ocean navigation.*

We can see in the figure the positions of the Wakashio taken by the AIS during the navigation through the Indian Ocean when it was heading towards Mauritius. In each box are the date, time, position, course and speed of the ship.

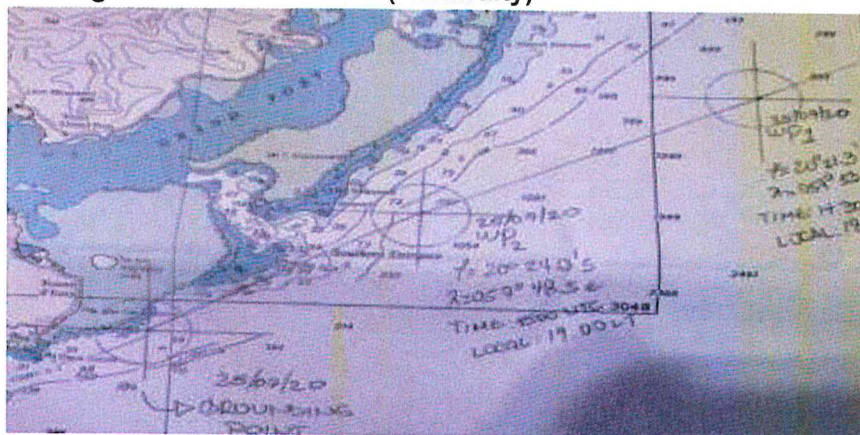
**Extract from Navigational Chart No.4700 (Admiralty)**





In the chart it can be observed that the distance between the Way Point of the Voyage Plan and the southern coast of Mauritius was 30 miles difference, which was well away from the coast, according to the Captain's orders the ship would pass within 5 miles of the South coast of Mauritius Island.

**Extract from Navigational Chart No.711 (Admiralty)**



*Figure No.3 Position of Grounding*

During the July 25 navigation, the OOW was aware that it had to pass 5 miles from the south of the island, if it can be observed in figure No. XX we see that if the ship had passed 5 miles the depth would be 200 meters, which would have followed their course.

**Extract from Navigational Chart No. 4702 (Admiralty)**



Figure No.4 approaching to Mauritius Island and Way Point No. 23 of Passage Plan

During the navigation from July 23 at 0001, the change of course began to be noticed, however, there was a route traced to pass 5 miles south of the coast of Mauritius, it is not known exactly whom of the officers drew it, however the Captain's orders were followed.

- True Course (As per Voyage Plan)
- - - - - Course plotted to pass 5 miles from south of Island
- Course Over ground (navigation and grounding)

During July 25, the navigation was closer and closer to the coast and the 2nd officer handed over the guard to the 1st officer at 1600 LT with the Master's orders to pass 5 miles south of Mauritius Island.

## 7. ROOT CAUSES ANALYSIS

This section of the report investigates the failure using facts left behind from the initial flaw. By evaluating the evidence collected after the Marine Casualty, and information from crew members of the "Wakashio" associated with the Marine Casualty, the MAID can identify both the contributing and non-contributing causes of the event.

Root cause analysis provides a method for investigating, categorizing, and eliminating, root causes of Marine Casualties in respect to people related, resources related to monitoring safety, quality, reliability, and manufacturing process consequences.

It is the opinion of the attended Panama Flag Casualty Investigators of factors contributed to the outcome of the marine casualty “Grounding”. The marine casualty investigation be performed with interviews, ship’s technical documents provided by ship’s owners/operators and information submitted by the Maritime Authorities of the Republic of Mauritius, the Panama Flag Investigators cannot board the vessel because the vessel was split in 2 parts when it traveled to Mauritius for investigation.

In the analysis of all sources available to the MAID as the interviews of crew, technical documents of vessel and AIS positions, it is clear that a wide variety of factors were responsible for the vessel running aground. Only the total of those contributing factors, which we aim to name and explain individually in the following part of this section, given on the day of the accident.

#### **1. Lack of Safety Awareness**

➤ Lack of Safe Clear Distance off Coast:

- When the Master decided to pass 5 nautical miles away from the coast, the OOW misidentified that there was insufficient water depth on ship’s planning course, so he did not realize that the ship would be running aground.
- Lack of awareness that it is very risky for large vessel to navigate close to shore at a few distance.

#### **2. Lack of Recognition and Implementation of Voyage Rules**

➤ Lack of Recognition and Insufficient Performance Related to ECDIS:

- Lack of recognition on the ship’s electronic charts that it contains insufficient information such as water depth and is not suitable for coastal voyages.
- Large scale nautical charts which are necessary for navigation in the sea area relevant to the voyage were not arranged in accordance with the voyage plan procedure specified by the Ship Management Company.
- When the ship decided to alter the original course two days before running aground (23th July), verification of risk on the new course was not conducted properly as the new voyage plan was not prepared.

➤ Lack of Vigilance / Failure to conduct proper navigation:

- There was no small-scale electronic chart available to confirm the distance and depth of water from the shore.
- The OOW failed to visually check the tracking and the distance clearance from the shore with the ECDIS.
- The OOW failed to maintain proper vigilance for safe navigation during the watch.

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- Duty officer brought the mobile phone to the bridge and used it with the Master during the watch.
- The Helmsman was not assigned to the watch during the navigation on duty with the OOW, and even after sunset, only the watch officer was on duty.

### 8. CONCLUSIONS

The present casualty in the initial event was a serious marine casualty (grounding) happened in southeast coast of Blue Bay in front of Pointe d'Esny, Island of Mauritius. This accident caused no injuries, however caused a great damage to the vessel (Total Loss) and environmental impact (severe damage to the marine fauna), leads to classify it as a very serious marine casualty.

- The Wakashio ran aground on July 25, 2020 at Lat.: 20 ° 26.6 S, Long.: 057 ° 44.6 E, in ballast conditions, without cargo onboard and with FO for engine consumption.
- All navigation equipment was working properly; there were no reports of equipment's malfunction.
- The vessel was manned with sufficient personnel for the operations and appropriate navigation for such voyage.
- It was not found that a causal factor was fatigue, since the crew was carrying out an oceanic navigation which is very calm, since during the voyage there was no high traffic of ships for several days of navigation before the vessel ran aground.
- The crew celebrated the birthday of a crew member and relaxed on July 25, and this caused the helmsman not to attend the watch from 1600 to 2000 on July 25, 2020.
- The crew wanted to know about his family and the Master decided to pass 5 miles south of the island of Mauritius.
- The Master's decision to pass near the Island of Mauritius was to be able to obtain a Wi-Fi signal during navigation.
- The OOW during the July 25 navigation, which was sailing south of Mauritius Island, was not aware of the navigational watch.
- The OOW kept his cell phone on the bridge while doing the navigational watch. The distraction of the cell phone most likely caused the lack of supervision or lookout in navigation.
- The Master never doubted of the Chief Officer of the Bridge watchkeeping, as the Chief Officer had many years of experience at sea navigating these types of ships.
- Despite the Captain's decision to pass 5 miles from Island of Mauritius, the OOW did not maintain the correct course to be able to pass 5 miles south of Mauritius.
- If the ship had passed within 5 miles of the island of Mauritius, the vessel probably would not have run aground.
- The vessel reported to the Mauritius Coast Guard 30 min. after they had run aground.
- According to the statements of the Master and the Chief Officer, no calls were reported by the Mauritius Coast Guard to the Wakashio, reporting the danger or risk



to navigation while the vessel was extremely close to the coast.

In the absence of the vessel tracking records by VDR/S-VDR (Audio and Video), there is no evidence of the marine communications between Wakashio and Mauritius Coast Guard, and no evidence of what happen exactly on the Bridge with the Master and Chief Officer sharing comments.

The most probable cause is that the Master didn't see the risk during the vessel will be passing 5 miles south of Mauritius, and the distraction by looking for a signal and communicating with their families, the safety of navigation and monitoring supervision in the ECDIS system, caused in the OOW to not being able to see the risk and the unsafe navigation that the ship was on the day of the accident.

As a general conclusion, from the records available from the crewmember statement of facts and, the attended investigators interview, the grounding was most probably a result of "human factor". Evidence supporting this statements, interviews and documents have been already analysed within this report, and can be summarised as following:

**Lack of Vigilance / Failure to support in the Bridge:** Lack of vigilance for Chief Officer and Master which was on the Bridge at the moment of accident, to realise promptly that the vessel was heading towards shallow waters. Officer on watch (Chief Officer) in-charge of watch, did not view the danger because was distracted with his cell phone while trying to contact their next of kin, which shows that Shipboard Working Arrangements weren't followed.

**Overconfidence and lack of Personal Capability:** The fact that the captain decided to pass 5 miles from the coast, he never thought about the lack of vigilance and follow-up of the Chief Officer with the navigation in the ECDIS System and the positions taken on the proper paper Chart.

**Inadequate ISM Procedures:** The fact that the Master was on the bridge, the responsibility of the duty officer (CO) is not removed or without clear confirmation from the Master for his taking over, regardless of the presence of Master in the bridge. In this case the Captain did not relieve to OOW.

## 9. RECOMMENDATIONS

### To Ship Company:

#### 1. Preventive Actions against Lack of Safety Awareness

- Conducting a Pre-Boarding Briefing:
  - Participate in a pre-boarding briefing for Master and Chief Engineer conducted by the ship management company or the crew manning company to share information and exchange opinions about the accident in order to promote safety awareness.
- Evaluation of Senior Officers:
  - Before senior officer (Master, Chief engineer, Chief Officer, First engineer) board on the vessel, check the evaluation of senior officers which is conducted by the Ship Management Company or the Crew Manning Company. In particular, for mid-career candidates, inquire/check the evaluation of candidate with the previous Ship Management Company or Crew Manning Company and check if there were any problems with the senior officer during boarding on the previous vessel.
  - For senior officers who are planning to board on the company's ship for the first time, interviews will be conducted to evaluate the personnel and if there is a problem, boarding will be cancelled.
- Marine Notice to Fleet:
  - The ship's operator and Owners should make a marine notice about the causes induce to accident, including countermeasures that will take, and shall be informed to all Ship's Masters of Group Owners of the company in order to prevent reoccurrence thoroughly.
- Visiting Ship for Conversation with Ship's Crew:
  - The ship's operators should visit the vessels to take a safety meeting with ship's crew member and share information and exchange opinions about the past accident cases and/or this accident in order to promote safety awareness of crews and to prevent recurrence thoroughly. In addition, Master, Chief engineer, and Chief Officer shall be interviewed individually.
- Evaluation of Onboard and Working Conditions:
  - Conduct a questionnaire on the status of the ship with disembarked crew members and if there is any problem, notify it to the Ship Management Company or Crew Manning Company of the problems and requested for a corrective action.
  - In the event of changing senior officers, request the senior officer for preparing and submitting a handover note in advance, and after checked the content, if

there is any problem, notify it to the Ship Management Company or Crew Manning Company of the contents and request for a corrective action.

## **2. Measures to Prevent Recurrence of Insufficient Recognition and Implementation of Voyage Regulations**

- Compliance with Voyage Regulations Strictly:
  - The Ship Management Company shall have deck officers who are scheduled to join the ship to read carefully about the duty regulations, bridge watch standards, and voyage planning procedures and forward the signed document by the deck officers and the ship management company before joining the ship.
  - Notify to all owned vessels that the use of private cellular phones during the watch at bridge is strictly prohibited and comply with it.
- Implementation of Education on ECDIS Operation:
  - Provide information that could lead to improvement of knowledge on ECDIS operation to the deck officers who conduct the watch on all owned vessels.
- Introduction of Fail-Safe for Operation of ECDIS:
  - Plan to introduce a service that allows to seafarers to view all scale of global charts on ECDIS without the process of purchasing charts.

## **3. Additional Hardware Support**

- Strengthening supervision on the bridge:
  - Plan to install surveillance cameras on the ship's bridge and integrate to the VDR of vessel.
- Improvement of Ship Communication Equipment:
  - Plan to install a high-speed (WiFi), large-capacity communication system to all fleet ships. Controlled by the Ship Master.
- Reviewing on Introduction of Ship Movement Monitoring System:
  - Introduce a system which allows monitor the ship movement of all fleet vessels from Headquarters.

