SWEDISH MARITIME SAFETY INSPECTORATE

Swedish Maritime Administration report series B 2008-8

The General Cargo Ship SAGA - HMVJ6 - Grounding on June 20, 2008

REPORT

The General Cargo Ship SAGA - HMVJ6 - Grounding on June 20, 2008

IMO Number 6616746

REPORT

The General Cargo Ship SAGA - HMVJ6 - Grounding on June 20, 2008

Date:	14 August, 2008
Our reference	080202-08-21412
Maritime Casualty Investigation Division	Sten Anderson, +46 (0)11 19 12 69
The report is also published on our web site	www.sjofartsverket.se >Maritime Safety Inspectorate >Accidents and Near-misses >Accident investigation reports – listed

SE-601 78 Norrköping
Phone: +46 (0)11 19 10 00
Fax: +46 (0)11 23 99 34

List of Contents

The Swedish Maritime Safety Inspectorate investigate accidents and near-misses from a safety point of view. The aim of the investigations is to avoid future accidents. The purpose of the investigations is not to apportion blame or liability.

1 Summary

On June 20, 2008, the general cargo ship SAGA, registered in North Korea, was on its way from Uddevalla to Dubai. The dimensions of the ship were such that a pilot was not required, and no pilot was on board during the passage of the waters east of the islands Orust and Tjörn.

The SAGA had been lying in Uddevalla since the beginning of April. First she was under detention, and then she was waiting for cargo and bunker.

At departure her load consisted of four used trucks with spare parts and lashing material.

When she had passed Älgö east of the Marstrand fjord (see chart extract, paragraph 2.6) the ship's bottom bumped the ground Hunden, marked with a beacon, in position 57º55′.12N, 011º37′.20E. The time was about 2130 hours, (UTC +2 hours) on June 20, 2008.

The VTS (Vessel Traffic Service) Marstrand contacted the ship and a pilot boarded since the SAGA had begun to list and the extent of the damage was uncertain.

After mooring to quay at Älgö for divers inspection the SAGA, carrying a pilot and a boatman on board, returned to Uddevalla, where she was alongside on June 21 at 0500 hours .

In Uddevalla yet another divers inspection was carried out. A representative of the North Korean Classification Society also came on board in order to evaluate the damage and take decision about possible repair.

The investigation indicates that the reason for the grounding was that the insufficiently ballasted ship with light load and comparatively week engine made leeway by wind and sea.

2 Account of facts

2.1 The ship

Name:	SAGA
IMO No:	6616746
Call sign:	HMVJ6
Port of registry:	Wonsan
Shipping company:	Al-Noor Shipping Services Ltd Kingston
Operator:	Al-Noor Shipping Services Ltd Kingston
Gross tonnage:	698
Dead weight:	821 tons
LOA:	55.0 metres
Breadth:	9.33 metres
Current draught:	F = 1.85 m A = 2.95 m
Classification society:	Korean Classification Society
Year built:	1966
Construction material:	Steel
Propulsion power:	625 kW
Crew:	7

The general cargo ship SAGA was built at Orens Mekaniska Verkstad in Trondheim, Norway, in 1966 for Norwegian owners. As far as we have found out the original name was SILCO, whereafter she has been named KOMI and SUNKO. On January 1, 2006, she was acquired by interested parties in Dubai. She was given the present name and was transferred from Norwegian to Jamaican flag.

The present owners, who are also running their business in Dubai, purchased the ship on January 1 this year and registered her in North Korea.

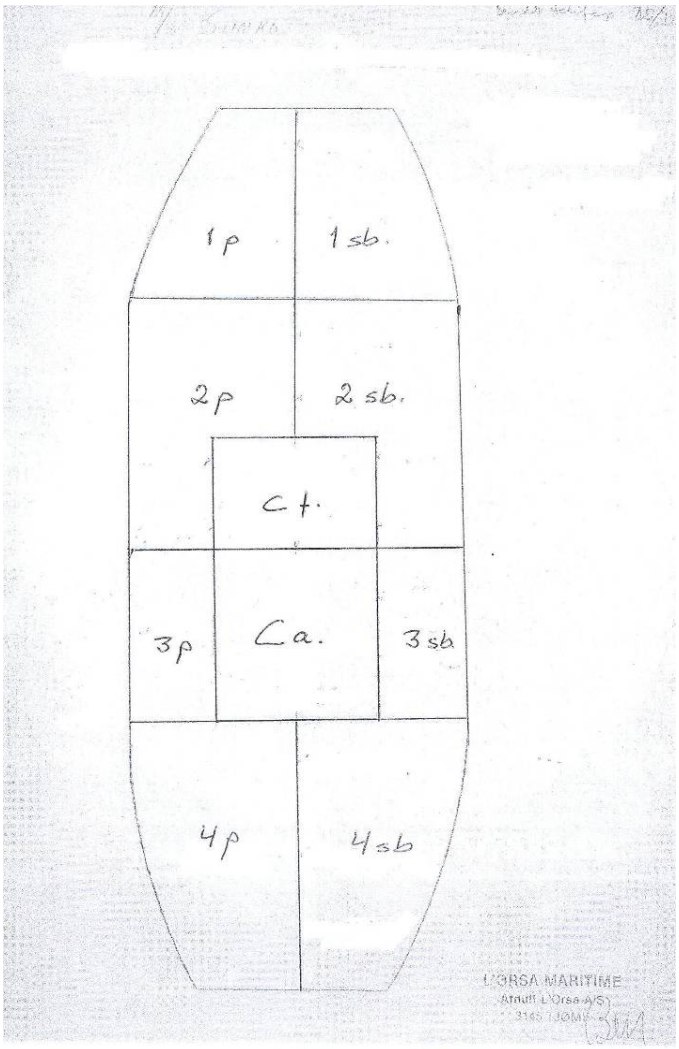
The SAGA was a typical general cargo ship of the old-fashioned type with the deck house, the bridge and the accommodation area in the far aft, with the engine room underneath.

Ahead of the deck house and the engine room was the cargo area, which consisted of a single 36 metre long cargo hold, covered by a Mac Gregor steel hatch, 30x6 metres. The steel hatch cover rested on a hatch frame. It was divided in 16 sections, which were rolled on and off, half of them forward and the rest astern. The cover sections were pulled by means of wires, which were connected to the anchor windlass.

Under the whole cargo space was a double bottom, which was divided into double bottom tanks. No. 1 starboard and port held 36 m^3 each, No. 2 starboard and port 34.9 m^3 each, No. 3 starboard and port 19.6 m^3 each and No. 4 starboard and port 38.5 m^3 each. All these tanks, as well as the forepeak tank with a capacity of 11.9 m^3, were intended for ballast water.

In the ship's centre line, from the front edge of tanks No. 4 up to half of tanks No. 2 were two centre tanks, intended for bunker. The front tank held 19 m^3 and the aft tank 28.6 m^3.

Aft of the engine room was an afterpeak tank and a stern tank intended for fresh water. They held 15.9 and 7.4 m^3 respectively.



Picture. The tank plan of the SAGA

At departure from Uddevalla there was 39 m^3 gas oil and 20 tons fresh water onboard. Ballast was not filled until after departure.

The main engine was a 6 cylinder motor of 625 kW of make Bergens Mekaniska Verksteder. It was connected to an controlable pitch propeller which at full speed could reach slightly more than 8 knots. The engine revolutions as well as the pitch propeller could be controlled from the bridge.

The main engine was the one originally installed in the newbuilding in 1966 and was very reliable, according to statements on board.

2.2 The bridge

The bridge was about five metres wide with an open bridge wing of about two metres on each side.

At the very front on the bridge starboard side was the engine control and in the centre, forward of the steering wheel, was a Sperry gyro compass. Close to it was a Simrad AP 50 auto pilot.

Picture SAGA's bridge with the engine control in the background

On the far end on the port side a second-hand radar of make Koden MD 3840 was fixed to a bench. The master said that it was in very good working order. Close by, on the floor, was an old radar of make JRC, which was not in use.

The SAGA was equipped with a GPS (Global Positioning System).

Ships larger than 300 gross tons shall be equipped with AIS. It is true that the SAGA was of 698 GT, but since a note in the ship's certificate stated her old gross tonnage, which was 296, this figure was applicable as far as the AIS requirement was concerned.

Picture View from SAGA's bridge

2.3 The crew

The crew consisted of master, chief officer, chief engineer, motorman, cook and two able seamen. The master, who had been on the ship for seven months, was of Indian nationality and the rest of the crew were Indian and Pakistani.

They were all qualified for their tasks and the ship was manned in accordance with the requirements of the flag state. At sea a watch by watch system was applied with 6 hours watch and 6 hours time off.

Considering the long time at port, which will be accounted for under the headline Port State Controls (item 2.9), there is no reason to assume that fatigue had an influence on the course of events.

2.4 Certificates

The ship's Load Line Certificate was dated January 24, 2007, and was valid until November 11, 2011. It was endorsed on May 8, 2008.

Also the Cargo Ship Safety Radio Certificate was dated January 14, 2007, and was valid until November 11, 2011.

The Safe Manning Document was dated January 7, 2008, and was valid until November 10, 2008.

The Classification Certificate was issued on February 25, 2008.

2.5 The weather

According to SMHI (the Swedish Meteorological and Hydrological Institute) the mean value of the wind was westsouthwest 12 m/sec at Måseskär and westsouthwest 9 m/sec at Vinga. The observations were made about one hour before the accident.

The master stated that the wind was increasing during the voyage and at the time of the accident it was 10–15 m/sec.

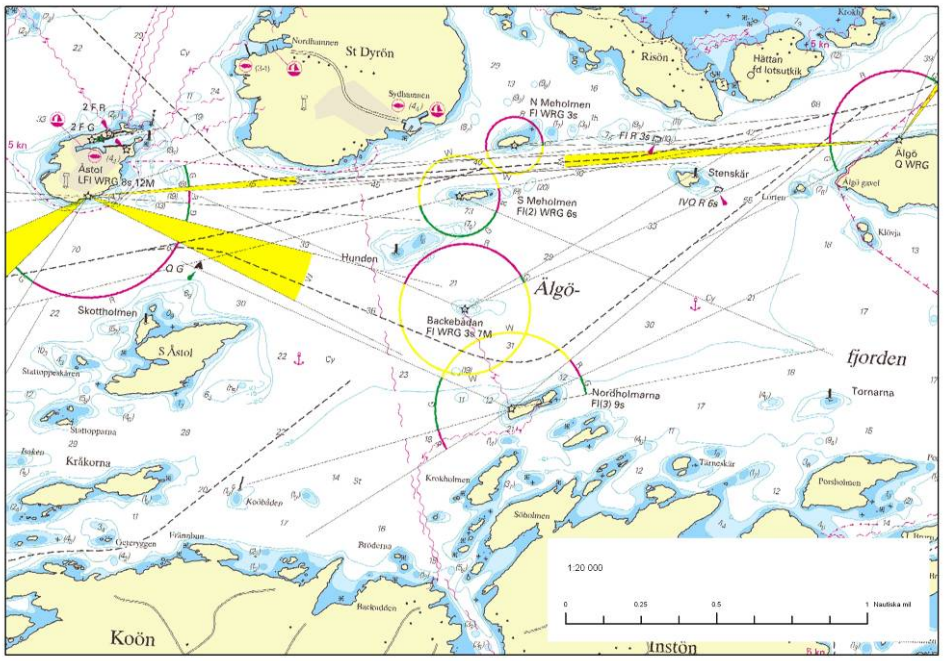
The pilot, who took the ship back to Uddevalla, estimated the wind to be westerly, 12–15 m/sec.

According to statements from pilots an ingoing current due to westerly wind and the generally outgoing current at the grounding site cancel each other out. It may therefore be assumed that no significant current has influenced the course of events, even though that possibility cannot be completely ruled out.

The sea caused by moderate to strong westerly wind in open water often influence the area where the grounding took place.

The visibility was good.

2.6 The fairway (see extract from chart)



Going west after passing the Älgön the fairway splits in two so one can choose to pass either north or south of Stenskär.

The northern fairway goes between N Meholmen and S Meholmen and continues between Åstol and the green light-buoy (Q G) north of S Åstol. From the light-buoy one turns towards Hätteberget and out in open sea.

The southern fairway goes south of the lighthouse Backebådan, between the lighthouse and Nordholmarna, and connects then to the northern fairway at the green light-buoy.

There was also the possibility to pass north of Backebådan, between the lighthouse and the cairn Hunden. This is the passage that the SAGA's master chose, and which is actually no public fairway.

The distance between the lighthouse Backebådan and the beacon Hunden was 2.7 cables (1 cable = 185 metres).

2.7 VTS at the time of the accident

VTS WC, VTS meaning Vessel Traffic Service and WC meaning West Coast, has inter alia two stations which serve the vessels with information about the traffic in the area. One station serves the fairways to Göteborg

and the other one serves the main fairways and ports along the coast of the counties Halland and Bohuslän.

To supervise the traffic the VTS WC uses a system from Norcontrol for surveillance of sea traffic. There is also a certain coverage by means of CCTV (Closed Circuit surveillance TV), primarily of the fairways to Göteborg, but also to a certain extent in the outer area at Marstrand.

The Norcontrol system has got both radar and AIS presentation in the digital navigational chart. There is complete radar coverage of the fairways to Göteborg. In the fairway passing Marstrand there is a certain coverage of radar up to the passage of the Tjörn bridge. The main part of the fairway to Brofjorden is covered by radar. The system offers coverage of a wide area as well as possibility to zoom in a port or a particularly sensitive fairway area.

The VTS operator's main tool is the VHF phone. There are also meters for information on wind and sea state.

All ships over 300 GT shall call the VTS when entering the area. The borderline when entering the Marstrand fairway is 3 M west of the lighthouse Hätteberget.

At such calls the ship shall state name, call sign, draught, destination and, if applicable, Pilot Exemption Certificate. Information is also given the VTS about observations which may be of interest to other traffic in the area.

The VTS shall then give information about other vessels and relevant navigational information. Since the calls are made on an open channel other ships in the area can hear the conversations and adjust their voyages accordingly.

2.8 Pilot

The Masters of the ships were obliged to engage a pilot in the sheltered waters off the coast. The areas where pilotage is compulsory to and from Swedish ports are specified in enclosure 1 of the Swedish Maritime Administration's regulations and general advice (SJÖFS 2008:6) on pilotage as regards whether pilotage is compulsory or not, fairway lengths, pilot boarding positions, etc.

The fairway in which the SAGA was sailing stretched from Uddevalla to the lighthouse Hätteberget and was 40 M long (1 M = 1 852 metres).

The limit for engaging a pilot was that the ship's length and breadth should equal or exceed 90 x 16 metres. This means that compulsory pilotage did not apply to the SAGA with the measurements 55 x 9.33 metres, nor was a pilot engaged.

2.9 Port state controls

As mentioned above the SAGA was sold on January 1, 2006, to interested parties in Dubai and was registered first in the Jamaican and then in the North Korean ships register.

On March 6, 2006, the ship was subject to a port state control in Esbjerg, Denmark. On that occasion 19 deficiencies were noted, seven of which were ground for detention. The detention was lifted on August 14 the same year, after 162 days.

On January 25, 2007, the SAGA was again subject to a port state control in the same port. On that occasion 29 deficiencies were noted, 15 of which were ground for detention. After 429 days, on March 28, 2008, the detention was lifted.

The ship had on that occasion undergone a classification in dry dock and the hull with cooling water chests was inspected, the propeller shaft was examined, the rudder was dismounted and the anchors with chains were inspected. Also the double bottom and the lifeboats were controlled.

In addition the main engine, auxiliary engines, cooler, generators, valves, turbine and fire extinguishing pumps were overhauled. The hatch covers were repacked and hose tested. The crew went through instructions in ship familiarity.

On April 9 the next port state control took place, this time in Uddevalla, Sweden. Eleven (11) deficiencies were noted, 1 of which was ground for detention. On May 22, after 44 days, the detention was lifted.

Since January 1, 2006, the SAGA has been lying in detention for 635 days, i.e. about 21 months out of a period of 30 months.

2.10 Collection of facts

Information for this investigation has been collected from the following sources:

- Visit on board in Uddevalla with the Swedish Maritime Safety Inspectorate's surveyor on duty
- Interview with the ship's surveyor
- Interview with the pilots concerned and a written account from the pilot who came on board after the grounding
- Interview with the VTS operator
- Statement from one of the pilots
- Seasearcher

3 Course of events

3.1 Course of events up to the grounding according to the master

The SAGA arrived at Uddevalla on April 7, 2008. On May 22 the latest detention was lifted, whereafter the SAGA awaited cargo and bunker before starting her voyage.

On June 19 cargo and bunker was loaded. The ship was loaded with 4 trucks and accessories bound for Dubai.

On the following day the cargo was lashed and at 1645 hours the SAGA left Uddevalla without a pilot, carrying 115 tons of cargo, 39 m^3 gas oil, 20 m^3 fresh water but no ballast. The draught at departure was 1.85 metres forward and 2.95 metres aft.

The master reported the ship's departure to the VTS and also the passage of all reporting points. The ship was steered manually.

When approaching the open sea the chief engineer was ordered to start filling ballast. The ballast pump is said to have a capacity of about 1 m^3 per minute. One started off with the forepeak and continued with tanks No.2 to

port and starboard. The intention was that both No. 4 tanks should then be filled simultaneously.

After passing Älgön the master chose to go between Backebådan and Hunden. Backebådan was passed on the north side at a distance of about 100 metres and the course was then laid towards the green buoy north of S Åstol.

The moderate wind and the increasing sea on portside bow affected the ship and made her come too close to Hunden. The starboard side of the SAGA touched the bottom just aft of L/2 (half the ship's length) at about 2100 hours on June 20, 2008, in position 57º55′.12N
011º 37′.20E.

3.2 Course of events after the grounding according to the master

After the grounding the SAGA kept steering southsouthwest. She was called up by the VTS, who recommended the master to stop the engine. He was also requested by a pilot to anchor to wait for the pilot to come aboard.

The chief engineer had just opened the valve to No. 4 starboard ballast tank when he felt the grounding. In his excitement he then forgot to open also the valve to No. 4 port ballast tank, which made the SAGA get an increasing list to starboard.

Because of the increasing list, which finally reached 4–5°, the master assumed that the ship had sprung a leak. He thus failed to comply with the recommendation to drop anchor, since he wished to take the ship to more sheltered waters.

At 2125 hours just southsouthwest of Backebådan a pilot came aboard. The SAGA was taken to a military quay on the northern side of Älgön, where she was alongside at 2230 hours.

After divers inspection and a visit by the surveyor on duty the ship was allowed, with a pilot on board, to return to Uddevalla, where she was alongside on June 21 at 0500 hours.

3.3 Statement of the VTS operator

The SAGA reported her departure from Uddevalla and reported also her passage of the reporting points.

The VTS operator thought that a long time passed from the latest reporting point at Mitholmarna until the SAGA should have come into naked eye sight south of St Dyrön.

When he turned his surveillance camera to see further to the east he caught sight of the SAGA between Kråkorna and S Åstol, heading for the ground Isaken. The VTS operator got the impression that the ship had gone astray.

The VTS operator then called up the ship with a caution against the hazardous course. He recommended the SAGA to stop her engine and drop anchor to wait for a pilot to come.

The SAGA then turned and steered an easterly course towards Backebådan, where the pilot embarked at 2125 hours.

4 Damage

Two divers inspections were made, first at Älgön and then at Uddevalla.

The divers found scratches on the hull only on the starboard side, but the bilge keel was damaged between frames 49 and 53 and between frames 32 and 44.

The first touch to the ground was thus ahead of L/2 in level with No. 2 ballast tank to starboard, and then just aft of L/2 in level with No. 3 ballast tank to starboard.

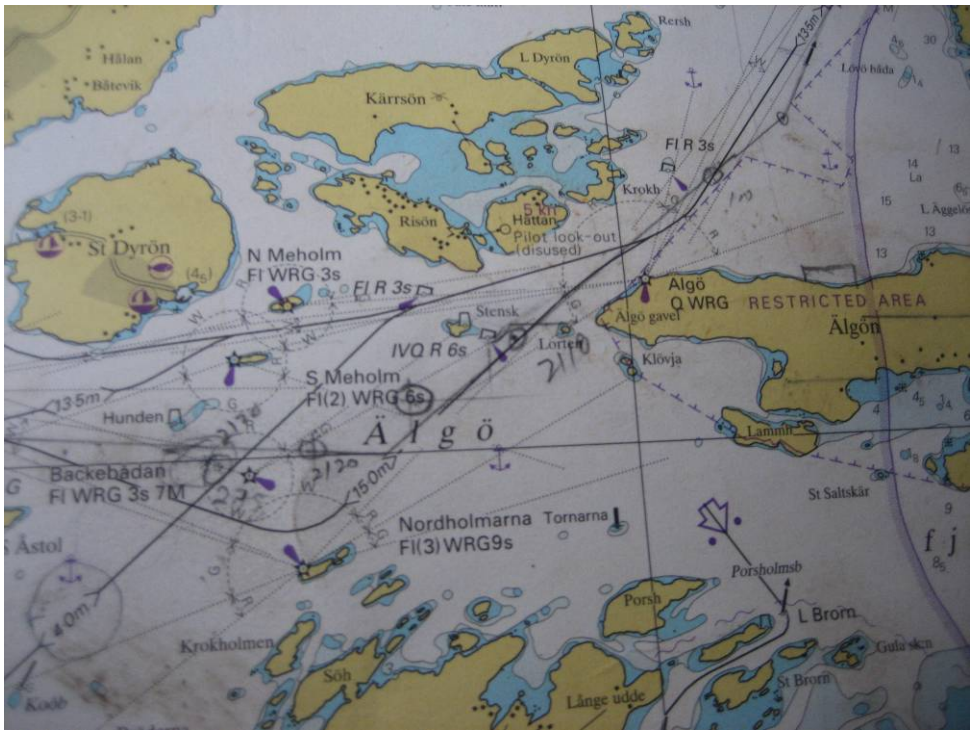
The total extension of the damage to the bilge keel was about 10 metres.

5 Analysis

The master chose to pass between Backebådan and Hunden, which is not a public fairway, but can be considered to fulfil the requirements regarding breadth and draught for ships of the SAGA's size to pass.

The SAGA is said to have passed about 100 metres north of Backebådan and steered then, according to the master, towards the green buoy north of S Åstol or, as is common when passing a buoy, pass with the buoy slightly by the side of the bow course. This would give a course of about 281º towards an imaginary point about 140 metres north of the buoy.

A touch to the bottom at Hunden would be possible at a course over ground of 295º, i.e. a drift to north of 14º.



Picture. The chart in question with marked positions.

As appears from the chart above, photographed on board the ship, a position (at 2130 hours) had been marked about 140 metres westnorthwest of Backebådan. If this position is correct, a course towards the point assumed above would be 284° and the course over ground for a touch to the bottom at Hunden would be 305°, which implies a drift to the north of 25°.

According to statements made on board, the ship made a speed of about 8.2 knots in still water. From a position in the ship's chart when passing Stenskär at 2110 hours to a position eastnortheast of Backebådan at 2120 hours the SAGA made a speed of 4.8 knots, provided the positions and times stated are correct.

When the ship turned up against the wind and the growing sea the speed slowed down to just above 1.5 knots in the next ten minutes.

The VTS operator stated that he thought it took a long time for the SAGA to get in sight, which may indicate a considerable speed reduction after the latest reporting point at Mitholmarna.

Since the ship had very low speed, only a small draught and comparatively large freeboard and, in addition, got the moderate wind and growing sea on the port bow it is not unlikely that the northerly drift may have been a great number of degrees. It is therefore not impossible that the touch to the bottom may have taken place at Hunden.

Thus, it is a possibility that the outcome would have been another, had the ship been ballasted on an earlier stage. The sensitivity to wind and sea is then likely to have been of less importance.

Since it was daylight and the visibility was good the master should have noted that the SAGA got near the beacon Hunden and should therefore have altered course to port in order to steer clear. Due to the action of the rudder and the tendency to turn at the grounding, the ship has probably passed head to wind after the grounding, got the wind in from starboard and gone on a southsouthwesterly course. This is what brought the SAGA down to the position where the VTS operator caught sight of her.

The fact that the chief engineer, in the excitement at the grounding, failed to open the valves to the two No. 4 ballast tanks made the master believe that the increasing list was due to leakage, whereas it in fact was due to the ballast activity.

It is not unlikely that the grounding and the list were the reason why the master, as expressed by the VTS operator and the pilot, had gone astray.

The increasing list gave reason to the master’s fears that the ship could capsize which most probably increased his confusion.

There is reason to believe that the VTS operator’s intervention prevented the SAGA from grounding again.

If the SAGA had been equipped with AIS the VTS operator could have traced the SAGA on his radar screen. He could then probably have intervened and thereby prevented the grounding.

6 Cause

The reason for the grounding was that the insufficiently ballasted ship with light load and comparatively week engine sagged to leeward by wind and sea.

7 Factors and observations

The Swedish Maritime Safety Inspectorate has considered the following factors to contribute to the course of events.

- There was not maximum quantity of ballast water on board.
- The master, who was not familiar with the area, failed to engage a pilot.
- The master continued his voyage towards the open sea in spite of the fact that the speed was decreasing dramatically, which must have made the ship very difficult to steer.

8 General recommendation

It is always important that the master of a ship, when preparing each voyage, estimates the limitations of his ship in every respect.