The Commonwealth of the Bahamas

M.v. Skandi Skansen
IMO Number: 9459759
Official Number: 8001928

Report of the marine safety investigation into a fatality on an Anchor Handling Supply vessel on 21 February 2015
The Bahamas conducts marine safety or other investigations on ships flying the flag of the Commonwealth of the Bahamas in accordance with the obligations set forth in International Conventions to which The Bahamas is a Party. In accordance with the IMO Casualty Investigation Code, mandated by the International Convention for the Safety of Life at Sea (SOLAS) Regulation XI-1/6, investigations have the objective of preventing marine casualties and marine incidents in the future and do not seek to apportion blame or determine liability.

It should be noted that the Bahamas Merchant Shipping Act, Para 170 (2) requires officers of a ship involved in an accident to answer an Inspector’s questions fully and truly. If the contents of a report were subsequently submitted as evidence in court proceedings relating to an accident this could offend the principle that a person cannot be required to give evidence against themselves. The Bahamas Maritime Authority makes this report available to any interested individuals, organizations, agencies or States on the strict understanding that it will not be used as evidence in any legal proceedings anywhere in the world.
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1 GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AB  Able Body Seaman
AHT  Anchor Handling Towing
BMA  Bahamas Maritime Authority
CCTV  Closed-Circuit Television
CP  Controllable Pitch
CPR  Cardiopulmonary Resuscitation
DNV  Det Norske Veritas
KG  Kilogram
kW  Kilowatt
mm  Millimeter
PPE  Personal Protective Equipment
PTW  Permit to Work
SWL  Safe Working Load
TBT  Toolbox Talk
UTC  Universal Time Coordinated

All times noted in the report are given in the style of the standard 24-hour clock without additional annotation and as local time in Norway, which was UTC +1.
2 SUMMARY

2.1 On 21 February 2015, the vessel was berthed alongside Standkaien (Beach Quay) in Stavanger Harbour, Norway.

2.2 At 1200 hours the vessel received a work instruction from DOF Subsea Office to mobilize the vessel for a forthcoming anchor handling charter.

2.3 The operation entailed replacing the starboard side 105mm Gypsy\(^1\) from the main Anchor Handling Towing (AHT) winch with an 84 mm Gypsy, to suit the impending charter.

2.4 The starboard side 105 mm Gypsy was removed from the AHT winch without any incident.

2.5 When moving the 84mm Gypsy into a preliminary position for manual transportation to the starboard side of the AHT winch, the Gypsy tilted and fell trapping and crushing an Able Body Seaman between the Gypsy and the starboard side bulkhead.

2.6 The casualty was freed when the Gypsy was lifted clear. However, efforts by the ships complement including the ambulance medics were unable to revive him.

2.7 He was subsequently pronounced deceased on arrival at the local hospital.

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\(^1\) Gypsy – Wheel with machined pockets used for lifting chains on a winch.
3 DETAILS OF INVOLVED VESSEL(s) AND OTHER MATTERS

3.1 Details of vessel

3.1.1 Skandi Skansen is a versatile multipurpose construction anchor handling vessel built at STX OSV, Romania and registered in the port of Nassau, Bahamas. The accommodation and machinery spaces are situated forward with an open deck layout aft.

3.1.2 The vessel had the following principal particulars:

- Call sign: C6ZK9
- IMO number: 9459759
- MMSI number: 311058200
- Built: 2011
- Length overall: 107.20 metres
- Length between perpendiculars: 98.0 metres
- Breadth: 24.0 metres
- Depth moulded: 9.80 metres
- Propulsion power: 23860 kW
- Gross registered tonnage: 8222 tonnes
- Net registered tonnage: 2467 tonnes
- Type: AHTS construction field support vessel
- Bollard Pull: 350 tonnes
- Class Notation: DNV GL 1A1, SF, SUPPLY VESSEL, TUG, E0, DYNPOS-AUTR IMO DPII

3.1.3 The vessel has 2 Controllable Pitch propellers and is powered by 4 diesel-electric engines developing 10,400 kW.
3.1.4 Skandi Skansen is suited for deep-water mooring and field installation operations. The vessel has a working deck area of 1,070m² and has additional operating capabilities including a moon pool² and a 250-tonne crane.

3.1.5 At the time of the incident, the vessel was owned by DOF Installer ASA and managed by DOF Management AS.

3.2 Vessel Certification

3.2.1 Skandi Skansen was first registered with the Bahamas Maritime Authority (BMA) in 2011 and was classed with DNV GL Classification Society. At the time of incident, the vessel complied with all statutory and international requirements and certification.

3.2.2 The vessel was subjected to a Bahamas Maritime Authority Annual Inspection at the Port of Sandnes, Norway on 15 September 2014. No deficiencies or observations were identified.

3.3.3 The vessel had a Port State Control Inspection at the Port of Lerwick on 13 September 2014 with no deficiencies identified.

² Moon pool – An opening in the hull through which equipment can pass.
Figure 1: Skandi Skansen general arrangement plan
4.1 On 21 February 2015, the vessel was berthed alongside Standkaien (Beach Quay) in Stavanger Harbour, Norway.

4.2 At 1200 hours the vessel received a work instruction from DOF Subsea Office to mobilize the vessel for an anchor handling task which required replacing the 105mm Gypsy with an 84mm Gypsy.

Figure 2: 84mm Gypsy
4.3 The deck crew was engaged in replacing the starboard side AHT Winch Cable Gypsy (Chain lifter) by removing the 105mm Gypsy and installing the smaller 84mm Gypsy which weighed approximately 2492 KG.

4.4 The 105mm Gypsy was uninstalled and transferred to a storage area on the main deck without any incident.

4.5 The Deck crew then connected the lifting sling to the 84mm Gypsy using the main crane whip line with a safe working load (SWL) of 20 tonnes at 40 meters.
4.6 The 84mm Gypsy was released and lifted from the stowage area. It was then lowered landing longitudinally aft of the starboard side AHT winch on the deck hatch cover between the chain hauler guide rails.

4.7 The crane sling was disconnected and the five (5) deck crew began to roll the Gypsy forward.

4.8 One rim of the Gypsy dropped into the starboard side chain hauler guide rail and became unbalanced, it immediately tipped over falling towards two (2) of the deck crew standing on the starboard side.
4.9 One (1) of the deck crew was caught between the Gypsy and the bulkhead as indicated by the arrow within figure 6 below. The Gypsy struck the crew member on the chest, pinning him to the bulkhead. Several members of the crew who witnessed the incident immediately attempted to free the crew member by lifting the Gypsy but due to its weight, were unable to do so.
4.10 The slings were reconnected and the crane was used to lift the Gypsy clear, freeing the crew member. Immediately the crew member slipped to the deck and was unresponsive.

4.11 The vessel’s first aid team administered cardiopulmonary resuscitation (CPR) until shore side medical assistance arrived. The casualty was taken by ambulance to a local hospital and was declared deceased shortly after arriving at the hospital, approximately 40 minutes after the incident.

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5.1 **Equipment Handling**

5.1.1 When the crane hook and slings were connected to the Gypsy, the crane hook was not directly above and in line with the center of the Gypsy. Therefore, when the crane lifted the Gypsy it swung out into the working area.

5.1.2 There were no guide-lines or chain block attached to the Gypsy to control swing or careful positioning of the Gypsy on the hatch cover when lifting or lowering.

5.1.3 When the Gypsy was finally landed longitudinally, it was not landed in its intended location. Instead, it was landed to starboard of its intended position with the starboard side Gypsy rim on the edge of the chain hauler guide rail.

![Figure 7: Demonstration of Gypsy dropped into the starboard side guide rail](image)

5.1.4 From the evidence collected it was observed that none of the deck crew were concerned with the positioning of the Gypsy, they were all concentrating on manually steadying the Gypsy in a vertical plane (weighing 2492 Kg) and disconnecting the crane hook.
5.1.5 There were no personnel on deck supervising the operation of lifting, landing or manual handling the Gypsy and no Officer on the bridge monitoring the actions of the crew on deck via the CCTV monitors.

5.2 Risk assessment

5.2.1 A Toolbox Talk\(^3\) and risk assessment were carried out prior to commencing the operation by the Crane Driver (refer Appendix I and Appendix II).

5.2.2 The TBT was convened involving all six members (Bosun, Crane Driver and 4 AB’s) involved in the operation to change the Gypsy.

5.2.3 Incorporated within the TBT (refer Appendix I) the following issues were identified and discussed:

- Type of operation to be executed.
- Methods/procedures to be adopted.
- Permit to Work\(^4\) precautions /controls.
- Safety equipment location.
- Individual responsibilities for control.
- Work equipment.
- Manual handling.
- Environmental considerations.
- Barriers / No Go Areas.
- Rescue plan.

5.2.4 Good communication was specifically recognised as an additional control measure required to control the hazards identified within the TBT assessment checklist.

5.2.5 Absent from the TBT was the identification of any potential hazards associated with moving a Gypsy. The TBT provided a prompt to remind the responsible person briefing to discuss areas which may prove to be a hazard identified within the risk assessment. The risk assessment conducted was for working at height and had no direct relation to hazards or risks associated with moving a Gypsy. Therefore, had a member of the crew handling the Gypsy identified the potential for the Gypsy to fall, they would have done so without the benefit of an adequate risk assessment.

5.2.6 The Permit to Work issued was valid from 1300hrs until 1700hrs (refer to Appendix III) and had been approved by the Bosun and authorised by the 1st Officer. The Permit to Work was in force approving the Bosun to commence the operation of changing the Gypsy. When read in conjunction with the Risk Assessment it concludes that the operation of the crane, as a function of working at height, was the most hazardous aspect of the task to be conducted.

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\(^3\) Toolbox Talk – A short safety talk to identify possible risks of the forthcoming activity.

\(^4\) Permit to Work- A formal management system used to minimise risk.
5.2.7 The description of hazards identified did not have hazards related to the chain hauler guide rails, the hatch cover coaming or the risk of manual handling of a Gypsy weighing 2492 kg.

5.2.8 There was no documented procedure for manual handling either for removal or refitting of a Gypsy for the AHT winch.

5.3 Weather conditions

5.3.1 There was no indication that the weather, sea state, swell or any other meteorological factor influenced the outcome of this incident.
6 CONCLUSIONS

6.1 The primary contributing factor which resulted in the fatality of the AB was concluded to be due to insufficient safe working procedures and an inadequate risk assessment to identify the hazards posed when manual handling the Gypsy on deck.

6.2 The only method available to the ship and crew to change out the AHT winch Gypsy was to roll it over the deck.

6.3 The hazard related to rolling any heavy objects in the vicinity of the chain hauler guide rails and the hatch cover coamings was not identified during the risk assessment of the task.

6.4 Had an adequate risk assessment been conducted, the risk associated with this task could have been identified before the task was initiated.

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The Bahamas Maritime Authority
7 RECOMMENDATIONS

Recommendation for the operator:

7.1 It is recommended to develop an effective safe working procedure for the manual handling of the Gypsy on deck.

7.2 It is recommended to review the risk assessment and permit to work procedures to facilitate an effective identification of hazards and mitigation of risks related to the handling of the Gypsy and associated equipment.

7.3 It is recommended to consider each task as a separate operation if more than one task is scheduled to take place involving manual handling of heavy equipment.

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Appendix I: Toolbox Talk

Toolbox Talk Assessment / Checklist

All Personnel involved in the work activity must participate in the Toolbox Talk (TBT) and sign below as being present.
The TBT objective is to communicate the Risk Assessment and capture any specific controls not already identified to the work party.

Work Location: W/DECK M/DECK  
Work Activity: CHANGE CABULAR

Date: 21.2.15  
Discipline: AB

Permit, Work Instruction or Procedure No.: 031079  
Risk Assessment, Lift Plan, COSH or Manual Handling No.: RA 21.006

CHECKLIST/PROMPT (Tick where appropriate)

<table>
<thead>
<tr>
<th>Type of operation to be executed</th>
<th>Work equipment</th>
<th>Hazardous substances used/present</th>
<th>Rescue plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods/procedures to be adopted</td>
<td>Production/operational constraints</td>
<td>Isolation requirements</td>
<td>Communication</td>
</tr>
<tr>
<td>PPE/precautions/controls</td>
<td>Human factor assessment</td>
<td>Conflicting activities</td>
<td>Stop the Job Policy</td>
</tr>
<tr>
<td>Safety equipment location</td>
<td>Crane/lifting requirements</td>
<td>Environmental considerations</td>
<td>Waste management</td>
</tr>
<tr>
<td>Individual responsibilities for controls</td>
<td>Confined space entry requirements</td>
<td>Working environmental conditions</td>
<td></td>
</tr>
<tr>
<td>Access/egress</td>
<td>Manual handling</td>
<td>Matting / No Go Areas</td>
<td></td>
</tr>
<tr>
<td>Tests/monitoring</td>
<td>Potential hazards</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ADDITIONAL CONTROL MEASURES NEEDED TO CONTROL ABOVE HAZARDS

GOOD COMMUNICATION

OPERATIONS SUMMARY

CHANGE CABULAR

EQUIPMENT SUMMARY

SAFETY HARNESS HAND TOOLS PRE EXAM CHAIN BLOCKS

SAFETY TOPICS / RESCUE PLAN DISCUSSED

SLIPS, TRIPS, FALLS, DROPPING OR TOOLS

ATTENDEES

<table>
<thead>
<tr>
<th>Print Name</th>
<th>Signature</th>
<th>Print Name</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bosun</td>
<td>AB</td>
<td>Crane Driver</td>
<td>AB</td>
</tr>
<tr>
<td>AB</td>
<td></td>
<td>AB</td>
<td></td>
</tr>
</tbody>
</table>

TALK CONDUCTED BY

Planned By: Print Name: Bosun  
Signature:  
Date: 21.2.15

Talk Carried Out By: Print Name: Bosun  
Signature:  
Date: 21.2.15
## Appendix II: Risk Assessment

<table>
<thead>
<tr>
<th>Job</th>
<th>Hazard Description and Effect</th>
<th>Population at Risk</th>
<th>Likelihood</th>
<th>Risk Rating</th>
<th>Controls Required</th>
<th>Hazard Severity</th>
<th>Likelihood</th>
<th>Risk Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working at a Height</td>
<td>Fall Injury caused by: 1. Working outside guardrails at height, 2. Poor supervision, 3. Incorrect PPE Procedures followed, 4. Nervousness</td>
<td>Ships crew Service men.</td>
<td>4</td>
<td>4</td>
<td>16</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Working at a Height</td>
<td>Shock caused by: 1. Dropping Tools at Worksite, 2. Poor communication with other personnel in area, 3. Misunderstanding, 4. Walking into danger 5. Other personnel unaware of person working aloft</td>
<td>Ships crew Service men.</td>
<td>4</td>
<td>4</td>
<td>16</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Working at a Height</td>
<td>Movement of equipment in the area causes injury / Collision caused by: 1. Equipment not isolated, 2. Poor supervision</td>
<td>Ships crew Service men.</td>
<td>4</td>
<td>3</td>
<td>12</td>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
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</table>

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Appendix III: Permit to Work

### DCF Permit to Work

<table>
<thead>
<tr>
<th>Permit no.</th>
<th>037979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position/Name</td>
<td></td>
</tr>
<tr>
<td>Area Authority</td>
<td>Bosun</td>
</tr>
<tr>
<td>Area Technician</td>
<td></td>
</tr>
<tr>
<td>Gas Tester</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>21/2/18 from 1000 to 1700</td>
</tr>
<tr>
<td>Extended to</td>
<td></td>
</tr>
<tr>
<td>Area Authority (sign)</td>
<td></td>
</tr>
<tr>
<td>Issuing Authority (sign)</td>
<td></td>
</tr>
<tr>
<td>Area Technician (sign)</td>
<td></td>
</tr>
<tr>
<td>Requires approval from engine room</td>
<td></td>
</tr>
<tr>
<td>Requires Isolation</td>
<td></td>
</tr>
<tr>
<td>Risk Assessment ref no</td>
<td>RA-21006</td>
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</table>

#### Operations and Safety Preparations

<table>
<thead>
<tr>
<th>A. Required performed by Area Technician</th>
<th>B. Required Performed by Permit Holder</th>
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</thead>
<tbody>
<tr>
<td>Drainage/empting</td>
<td>Portable gas detector No. in the workplace</td>
</tr>
<tr>
<td>Cleaning/gas testing</td>
<td>Verify mechanical is not no.</td>
</tr>
<tr>
<td>Isolation by single valve/double lock &amp; bleed</td>
<td>Electrical isolation tagging tag no.</td>
</tr>
<tr>
<td>Isolation by blind isolation plan</td>
<td>Fire Extinguisher/fire prevention</td>
</tr>
<tr>
<td>Safety tag &amp; lock</td>
<td>Machine safety located and marked</td>
</tr>
<tr>
<td>Venting/Ex-ta ventilation</td>
<td>Continuous two-way communication</td>
</tr>
<tr>
<td>Prevent release of fluids in the area</td>
<td>Falls blocked/disabled</td>
</tr>
<tr>
<td>Measures against radiative radiation</td>
<td>Safety sign/announcement</td>
</tr>
<tr>
<td>Response of the area every:</td>
<td></td>
</tr>
<tr>
<td>Toolbox Talk</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

#### System Isolation

- Electrical
- Mechanical

#### Isolation Safety System

- Island: Q Bridge
- Location: Bridge/area sensors: |
- Compromising measures: |

#### Approval / Authorisation

- Area Authority: Bosun
- Responsible Officer: 1st Officer
- Time: 13:10

#### Precautions prior to during work execution

<table>
<thead>
<tr>
<th>Remarks</th>
</tr>
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</table>

#### Gas Test Value

<table>
<thead>
<tr>
<th></th>
<th>Time</th>
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<tr>
<td>O2</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td></td>
</tr>
<tr>
<td>HELD</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

#### Permit Issue

The work is approved by Bridge

- Area Authority (sign) |
- 1st Officer |

#### Precautions

- Work completed |
- Work site cleaned & secured

#### Compliance

- Permit Holder (time and sign) | 7:00 |
- Area Authority (sign) |
- Issuing Authority (sign) |

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Appendix IV: Deck Log Book Extract

24 02 2015

13:00 Changing watch on stern winch.

16:00 CRASHED WINCH CAUGHT INciągARA AND BROKE AS A SERVICE PERSON ON SHOULDER. HE MAD SURE A CRASH INJURY.

16:02 CAPTAIN CALLED 119 EMERGENCY NUMBER TO "CONTINUE CJRN".

Marine crew conducted AID AND CPR until the Ambulance and Police arrived.

16:07 (APPROX) THE AMBULANCE RECEIVED AND TOOK OVER THE EMERGENCY crew AND RESCUES CONTINUED TO "WORK" ON THE INJURED.

16:50 (APPROX) HE WAS TAKEN TO THE HOSPITAL SHORTLY AFTER ARRIVAL AT THE HOSPITAL, HE WAS NEGROZED.

DUT CHARGE NUMBER WAS SPELLED 16:20 HRS.