



# National Transportation Safety Board

## Fire Aboard Small Passenger Vessel *Conception*

Platts Harbor, Santa Cruz Island, 21.5 miles  
South-Southwest of Santa Barbara, California  
September 2, 2019

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## Managing Director's Introduction

- Adam Tucker, Investigator In Charge
- Joseph Panagiotou, Fire/Explosions
- Marcel Muisse, Survival Factors
- Andrew Ehlers, Operations
- Carrie Bell, Human Factors
- Bart Barnum, Engineering
- Kristyn Jeschelnik, Report Writer/Editor

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## Managing Director's Introduction

- Morgan Turrell, Acting Director, Office of Marine Safety
- Liam LaRue, Chief of Investigations, Office of Marine Safety
- Rob Jones, Deputy Chief of Investigations, Office of Marine Safety
- Jim Scheffer, Program Management Officer, Office of Marine Safety
- Kathleen Silbaugh, General Counsel
- Kathryn Catania, Deputy Director, Office of Safety Recommendations and Communications
- Jim Ritter, Director, Office of Research and Engineering
- Scott Rainey, Safety Recommendation Specialist
- Dr. Mary Pat McKay, Chief Medical Officer

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NTSB

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## Accident Overview

Adam Tucker, IIC

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## On-Scene Team

- Board Member Jennifer Homendy
- Office of Marine Safety
- Office of Research and Engineering
- Office of General Counsel
- Office of Safety Recommendations and Communication
- Office of Transportation Disaster Assistance



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## Staff Who Supported the Investigation

- Benjamin Allen, GC-1
- Cyndi Lake, MD-6
- Deven Chen, RE-40
- Paul Suffern, AS-30
- Jeff Marcus, SRC-50
- Christy Spangler, SRC-60
- Rolando Garcia, MD-5

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## Staff Who Produced Virtual Board Meeting

- James Anderson, SRC
- Michael Anthony, CIO
- Deidre Esters, AD
- Keith Holloway, SRC
- Kelley Romeo, CIO
- Van Slovak, CIO
- Rahiq Syed, CIO
- Carl Perkins, AD
- John Whitner, CIO
- Brian Young, MS-10

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## Parties to the Investigation

- US Coast Guard
- Truth Aquatics, Inc.
- Santa Barbara Sheriff's Office
- Santa Barbara Fire Department

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# Conception

Upper Deck  
Main Deck  
Below Deck



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# Truth Aquatics

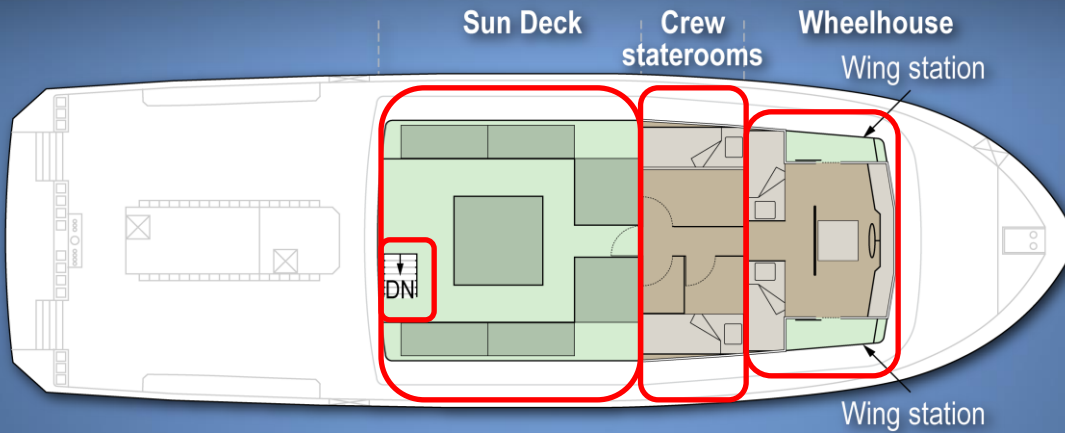


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## Conception Layout – Upper Deck

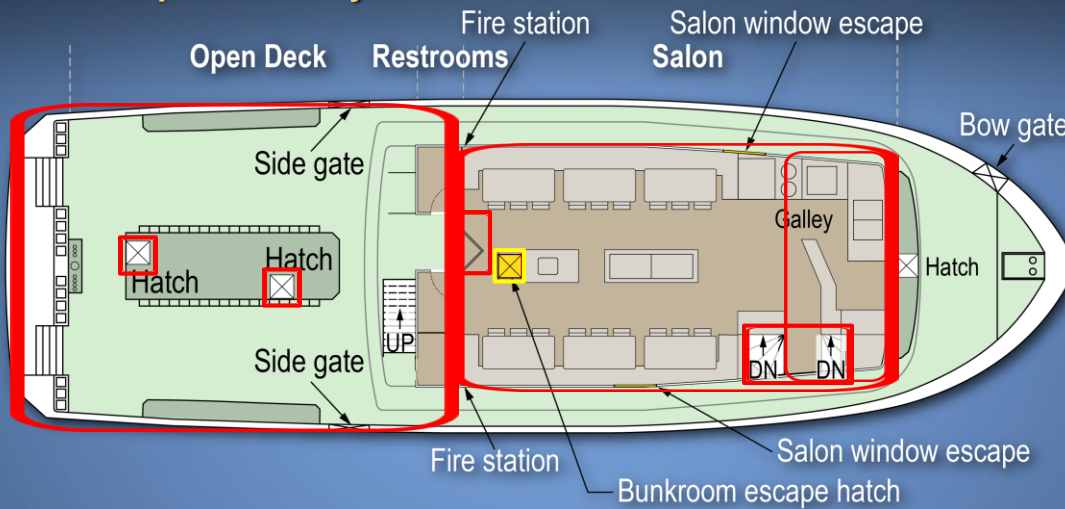


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## Conception Layout – Main Deck

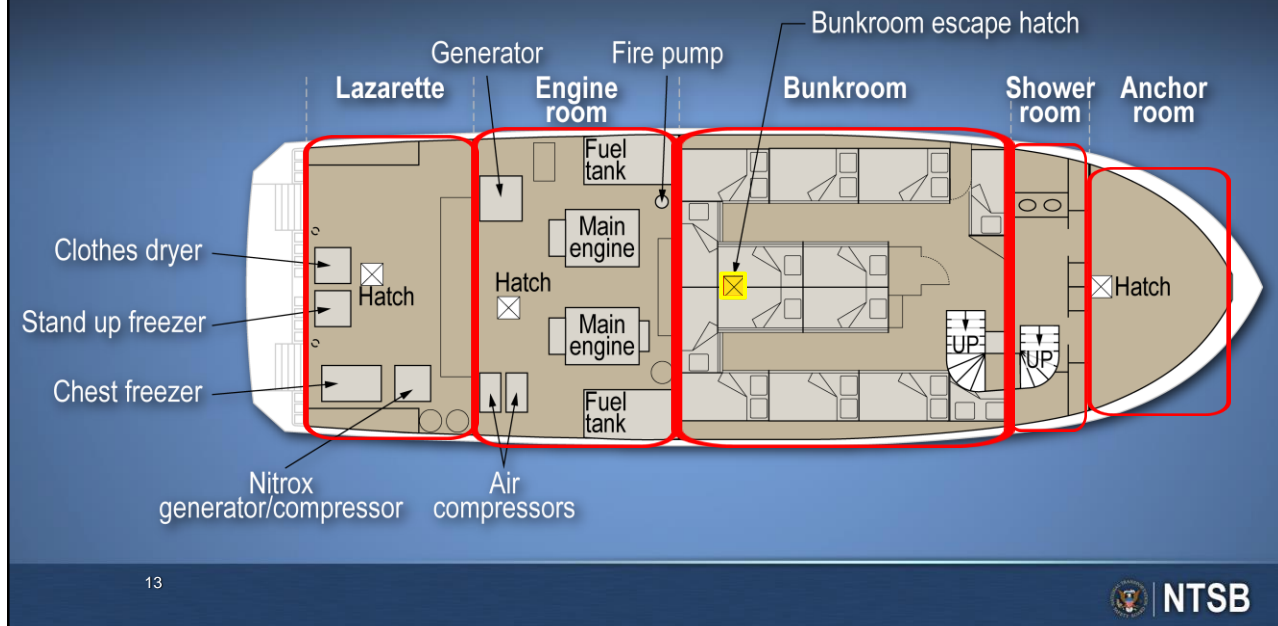


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## Conception Layout – Below Deck



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## Conception Accident Voyage

- Three-day dive trip
- 39 people on board:
  - 33 passengers
  - 6 crew

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## Map of Accident Area



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## Accident Events

- 11:00 p.m. September 1 – *Conception* at anchor
- September 2
  - 1:30–2:35 a.m. – Crewmember works in galley
  - About 3:00 a.m. – Same crewmember awakens and discovers fire
  - Salon fully engulfed

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## Accident Events (cont.)

- 3:14 a.m. – Captain made Mayday call
- Crew attempted to open forward galley window
- Port and starboard fire hose stations blocked by fire
- Skiff launched

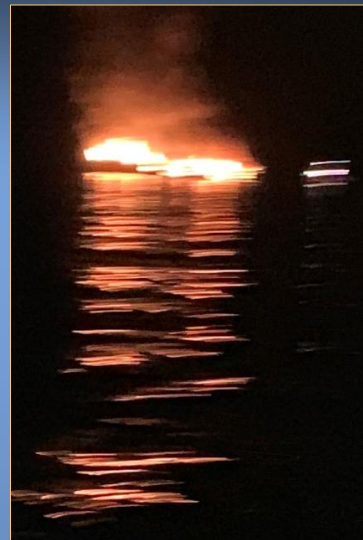
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## Accident Events (cont.)

- 3:29 a.m. – Distress call from the *Grape Escape*
- Skiff returned to search for survivors
- Coast Guard launched response assets



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## Accident Events (cont.)

- 4:27 a.m. – First Coast Guard boat on scene
- 4:55 a.m. – Firefighting efforts begin
- 6:54 a.m. – *Conception* sinks



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## Salvage



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## Safety Issues

- Lack of regulations for smoke detection in accommodation spaces on small passenger vessels
- Construction requirements for means of escape
- Lack of a roving patrol
- Ineffective company oversight

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## Exclusions

- Weather and sea conditions
- Use of alcohol or other drugs by the deck crew

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## Overview

- Fire damage to the *Conception*
- Determination of origin and cause
- Issues regarding the smoke-detection system



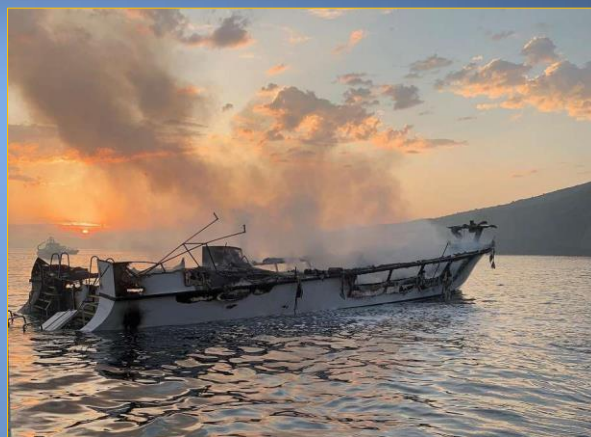
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## Fire Damage to the *Conception*

- The fire burned without intervention for about 1 hour and 40 minutes
- Fire suppression took an additional 13 minutes
- The *Conception* sank and became inverted
- Little material remained from the main and upper decks



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## Determination of Origin and Cause

- The wreckage was reconstructed by ATF, FBI, and Coast Guard
- The wreckage was laid out in sections representing each deck
- Could not determine origin area or cause of the fire from wreckage examination



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## Determination of Origin and Cause (cont.)

The determination of the origin and cause relied on:

- Interviews with the surviving crewmembers
- Examination of the similar vessel *Vision*
- Statements from previous passengers



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## Determination of Origin and Cause (cont.)

- Smoke rising along periphery of sun deck
- Fire at the base of the stairs to the sun deck
- Fire filling and blocking entrance way into the salon
- Fire filling aft part of salon and area of escape hatch
- Smoke and flames exiting portside salon windows

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## Determination of Origin and Cause (cont.)

- Crewmember statements identify the fire at the aft portion of the salon
- Crewmember statements exclude:
  - The upper deck, the galley, the engine room, the lazarette, the anchor room and the shower room
- The occupied bunkroom is unlikely

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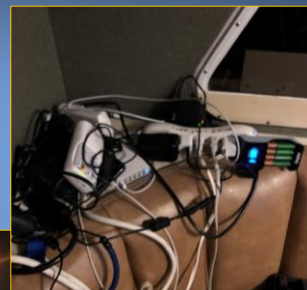


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## Determination of Origin and Cause (cont.)

Potential ignition sources in the aft portion of the salon:

- Electrical systems
- Charging batteries and devices
- Improperly discarded smoking materials
- Unknown



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## Ignition Time of the Accidental Fire

- The last crewmember in the galley and salon was at 2:35 a.m.
- Fire discovered approximately 30 minutes later
- The exact time of the ignition is not known

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## Smoke Detection

- T-boats are required to have smoke detectors in the passenger bunkrooms
- Smoke and hot products of combustion rise, making it difficult for them to migrate below deck
- T-boats are not required to have smoke detectors in the other accommodation spaces



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## Smoke Detection (cont.)

- Early fire detection is critical
- Smoke detectors in all accommodation spaces provide better coverage
- Had there been smoke detectors in all accommodation spaces, the fire would have been detected early

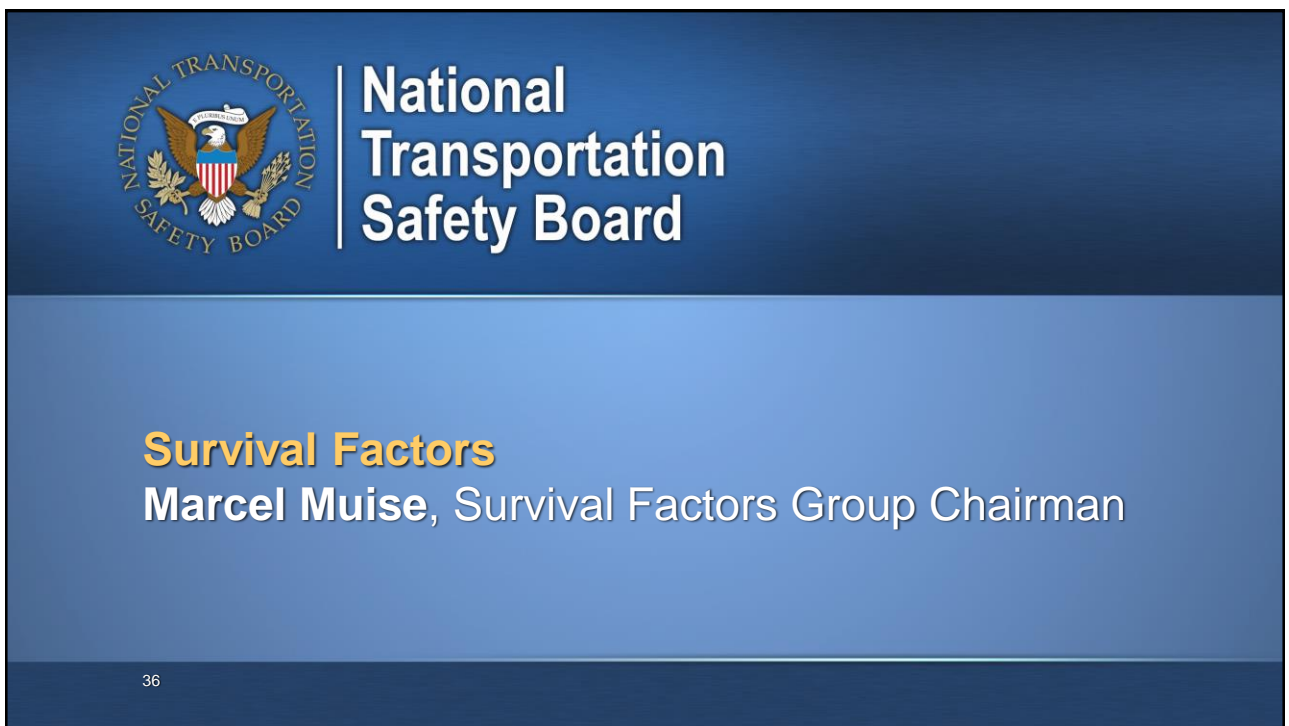
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## Safety Issues

- Two means of escape
- Adequacy of egress regulations
- Effectiveness of the bunkroom escape arrangement
- Coast Guard and municipal emergency response

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## Egress Path



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## Emergency Exit



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## Egress Regulations

- Existing vessels (*Conception* and vessels built before 1996)
  - Two avenues of escape
  - No prohibition on two exits into the same space
  - No requirements regarding size, escape times, vertical access, or obstructions
- New vessels (Built since 1996)
  - Minimum 32 inches
  - No prohibition on two exits into the same space
  - Number and size sufficient for rapid evacuation

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## Egress Configuration

- Climb ladder
- Crawl to center
- Stand
- Pull up through hatch



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## Smoke Inhalation

- Fire above the bunkroom
- Ventilation fans running
- Open stairway



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## Search and Rescue

- Coast Guard small boats and helicopter search
- County and city fire boats
- Commercial towing service



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## Operations

Andrew Ehlers, Operations Group Chairman

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## Safety Issues

- Roving patrol requirements
- Verification of compliance
- Safety management systems for small passenger vessels

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## Roving Patrol Requirement

- *“Suitable number of watchmen to guard against and give alarm in case of fire or other danger”*
  - Must patrol throughout the vessel
  - Required regardless of whether or not vessel is under way
  - Required at all times when passengers are embarked and bunks are occupied
- Requirement well known in industry

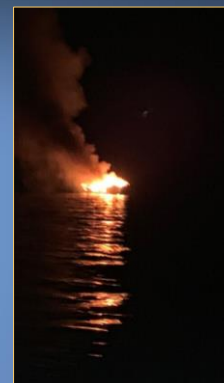
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## Roving Patrol on the *Conception*

- All members of the crew asleep the morning of the fire
- No roving patrol
- Fire well developed when second galley hand awoke
- Due to the advanced stage of the fire, crew unable to fight fire or aid passengers in evacuation



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## Regulatory Compliance

- Truth Aquatics Inspection Record
  - All vessels inspected annually
  - Only minor discrepancies in 5 years prior to accident
  - Vessels regularly operated without roving patrol

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## Regulatory Compliance

- Coast Guard inspections
  - No way to verify roving patrol requirement
    - Inspections not conducted at night or while passengers embarked
    - No logs or other records to verify compliance
  - Inspection aids do not include verification of roving patrol requirement
  - Since 1991, no citations issued or fines levied for failure to post a roving patrol



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## Safety Management System (SMS)

- Elements
  - Defines roles and responsibilities of all personnel
  - Standardizes procedures for normal operations and emergencies
  - Establishes safeguards against identified risks
  - Includes procedures for reporting accidents and nonconformities with SMS
  - Includes procedures for internal audits and management reviews of system

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## Safety Management System

- Truth Aquatics did not have, nor was it required to have, an SMS
- Company's *Loss Control Program* included elements of SMS, but did not have:
  - Normal operating procedures for vessel
  - Requirement to develop procedures to prevent future occurrences of accidents
  - Company audit process



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## Safety Issues

- Training in Critical Areas
- Complacency and Normalization of Deviance
- Lack of Oversight
  - Responsibility beyond the COI

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## Training & Safety Critical Roles

Ensure crew's knowledge of emergency duties

- Station bill duties
- Demonstration of skills
- Participation in fire drills

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## Passenger Safety Briefing

- Required to include:
  - Emergency exit locations
  - Demonstration of donning a lifejacket
  - Placards used in place of crew briefing
- Briefing conducted around 0900, 5 hours after departure

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## Complacency

- Lack of familiarization and training
  - No verification that policies were understood
  - Relatively inexperienced deckhands
  - Delayed handout of employee documentation
- Insufficient record-keeping

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## Complacency

- Navigation watches
  - Captains assigned deckhands to helm watches
- No roving patrols
- Complacency can lead to *normalization of deviance*

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## Normalization of Deviance

- Desensitized to non-standard practices
- Degradation of performance
- Occurs over time
- Can lead to unintended consequences

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## Oversight

- Company was known in the industry as reputable; however, they demonstrated—
  - Poor overall safety culture
  - Lack of involvement
- Good safety management requires top-down commitment

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