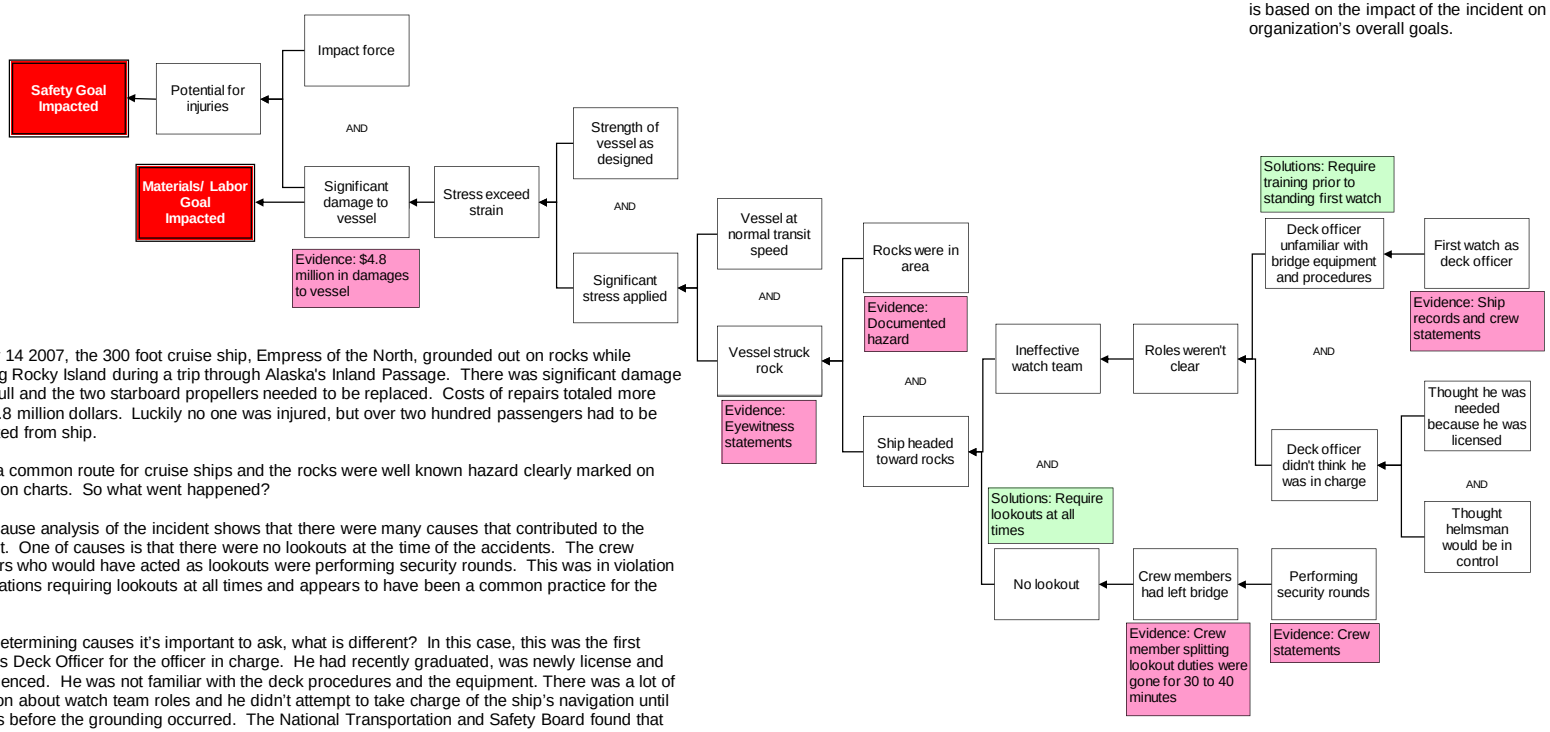
Grounding of Passenger Vessel
Alaska's Inland Passage, May 14 2007

A thorough root cause analysis built as a Cause Map can capture all of the causes in a simple, intuitive format that fits on one page.



Even more detail can be added to this Cause Map as the analysis continues. As with any investigation the level of detail in the analysis is based on the impact of the incident on the organization's overall goals.

On May 14 2007, the 300 foot cruise ship, Empress of the North, grounded out on rocks while rounding Rocky Island during a trip through Alaska's Inland Passage. There was significant damage to the hull and the two starboard propellers needed to be replaced. Costs of repairs totaled more than $4.8 million dollars. Luckily no one was injured, but over two hundred passengers had to be evacuated from ship.

This is a common route for cruise ships and the rocks were well known hazard clearly marked on navigation charts. So what went happened?

A root cause analysis of the incident shows that there were many causes that contributed to the accident. One of causes is that there were no lookouts at the time of the accidents. The crew members who would have acted as lookouts were performing security rounds. This was in violation of regulations requiring lookouts at all times and appears to have been a common practice for the crew.

When determining causes it's important to ask, what is different? In this case, this was the first watch as Deck Officer for the officer in charge. He had recently graduated, was newly license and inexperienced. He was not familiar with the deck procedures and the equipment. There was a lot of confusion about watch team roles and he didn't attempt to take charge of the ship's navigation until seconds before the grounding occurred. The National Transportation and Safety Board found that actions, or inaction as the case may be, of the Deck Officer were one of the major factors contributing to the accident.

It's tempting to stop at this point, but the analysis needs to go farther than just identifying the actions of the Deck Officer as a cause to do a through investigation. Why was he standing watch if he wasn't fully qualified? Why wasn't he prepared adequately prior to being given the responsibility?

The crew member originally assigned the watch was ill. There are a limited number of possible replacements on a ship this size. The Master of the ship believed the watch would be a good training watch because it was an easy watch with minimal course corrections needed. It was also not the practice of the crew to have specific night orders for the over night watches so the newly arrived junior third officer found himself standing the midnight to 4 am watch with minimal guidance.

Many investigation lead back to human error, but it's important to ask questions beyond that point. Changing how people are trained, improving the environment, providing specific writing inspections can help prevent human errors in many cases.

Cause Map
Detail Level

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Why?

Effect ← Cause

NOTE: Read the Cause Map from left to right with the phrase "Was Caused By" in place of each arrow.