

Why the 'Miracle on the Hudson' in the new movie Sully was no crash landing

Written by Eryn Grant, Research Fellow in Human Factors, University of the Sunshine Coast

On January 15, 2009, Captain Chesley “Sully” Sullenberger landed an Airbus A320-214 in New York’s freezing Hudson River following a bird strike-induced loss of both engines. All 155 passengers and crew on board [US Airways Flight 1549](#) survived.

The incident has been dubbed the “[Miracle on the Hudson](#)” and the story behind it is told in the movie [Sully](#), out today.

Actor Tom Hanks plays Captain “Sully” Sullenberger, an experienced pilot thrust into the limelight after gliding his disabled plane onto the frigid waters of the river shortly after takeoff.

This was not a crash, more a safe landing. In safety science, the incident represents what is known as a “near miss”.

A near miss is defined as a serious error or mishap that has the potential to cause an adverse event but fails to do so because of chance or because it is intercepted. These are events where more adverse outcomes were avoided.

Seconds from disaster

In this incident a collision with a flock of geese at low altitude caused both engines of the plane to lose thrust. Captain Sullenberger immediately lowered the aircraft’s nose to optimise glide speed and weighed up his options including turning back to LaGuardia Airport or landing at Teterboro Airport in New Jersey.

Given the total loss of power and time constraints, he ultimately opted to land on the Hudson River. His [final words](#) before losing contact with air traffic control were calm but direct:

We’re gonna be in the Hudson.

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With the support of his crew and copilot he safely landed the plane on the Hudson River. The time between the loss of the engines and landing the plane was 208 seconds, just under four minutes.

The movie details how Captain Sullenberger's actions were questioned in the days after the incident from air transport authorities for what they saw as a crash landing.

According to the movie, they believed the plane was capable of gliding to the closest airport and that Captain Sullenberger made an error in judgement landing on the Hudson River, ultimately risking the lives of those on board.

Who's to blame?

Unfortunately, this tendency to focus on those closest to incidents in [a search for blame](#) is common in accident and near miss investigations.

With the luxury of hindsight, investigators often focus their efforts on finding a root cause or bad apple, a concept which simply does not exist.

In retrospect, it is easy to say what someone should or could have done to remedy a situation. It is also easy to be perplexed at somebody else's actions. Why on earth would an experienced pilot fly a fully loaded plane into the Hudson River when there were other landing options seemingly available?

Of course, in reality, accidents and near misses are highly complex. They arise through many interactions between people, technology and their environment, some of these occurring even years before the event itself.

There are typically multiple interacting factors that influence the decisions and actions of the people involved. To understand more about accidents and how to avoid them, their complexity needs to be unravelled systematically.

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This provides a better picture of how accidents occur but also allows for changes to be made, preventing future incidents of the same kind. If investigations fail to understand these reasons, the likelihood of accidents reoccurring is high.

Lessons to be learnt

In the case of Flight 1549, rather than seek to admonish Sully, it is instead far more valuable to examine what it was about the aviation system that enabled his astonishing feat.

The questions to ask should be: why did it make sense for Sully to ditch in the Hudson, and how was it possible to do so without loss of life? The lessons learned from this viewpoint are far more powerful.

So from a safety perspective many things went right following the bird strike. But equally so, many things went right within the aviation system prior to the bird strike.

For Flight 1549, Sullenberger had the experience, skills and competencies to land the aircraft safely on water. Likewise the air traffic controllers were experienced and calm under pressure and the crew were trained to calmly prepare the cabin and passengers for the emergency landing.

The weather conditions were also favourable, the plane was equipped to land on water and emergency response crews were only minutes away.

In this sense, many played a role in the safe outcome: the aircrew, the cabin crew, the air traffic controllers, the aircraft designers, trainers and so on.

The real miracle

The miracle was enabled because of an optimal system response comprising many human and non-human parts. As is always the case in such recoveries, the human element was central in holding the system together.

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For safety scientists, Flight 1549 provides important lessons. Indeed, the study of [how things went right as well as how things go wrong](#) is now widely accepted as a critical line of inquiry.

Currently we know a lot about accidents, or unsafe systems, but generally when things are done well and safely we take them for granted. Near misses are just as important as accidents because they provide insight into healthy systems that can create safety or bring systems back from the brink.

As a result of the recent focus on safe as well as unsafe performance, we are beginning to learn more about what safe systems look like. Combined with accident analysis efforts, this is leading to a paradigm shift whereby we will be able to predict complex accidents before they occur.

What transpired on Flight 1549 was not really a “miracle on the Hudson” but rather evidence of a system that had all of the ingredients to operate safely.

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