



A Review of the MS Berge Istra Accident

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ABSTRACT

The MS Berge Istra accident, which occurred in January 1976, ranks as one of the most significant maritime disasters of the 1970s. This oil tanker, operated by the Norwegian shipping company Bergesen d.y., was built in 1972 and flagged in Liberia. While on a routine voyage transporting iron ore from Brazil to Japan, tragedy struck. The vessel lost contact in the Pacific Ocean, near the island of Mindanao, on December 30, 1975. After a week without any communication, the vessel was officially declared missing on January 7, 1976. This led to an extensive but ultimately unsuccessful search operation, which was called off on January 16. The incident resulted in the loss of 30 crew members.

The testimonies of the survivors, Imeldo Barreto León and Epifanio Perdomo López, who managed to survive for 20 days aboard a liferaft, provide a personal insight into the event. Their accounts describe extreme conditions and the crew's lack of preparedness to handle critical emergency situations [1]. Through a detailed examination of these accounts, alongside historical records and media reports from that time, this paper analyzes the multiple factors contributing to the accident. These include maintenance shortcomings on the vessel as well as inadequate training of the crew in operating critical safety systems [2].

The MS Berge Istra accident not only represents an individual tragedy but also exposes the systemic vulnerabilities present in the maritime industry during that era. This study seeks to provide a more comprehensive understanding of the contributing factors behind this disaster, emphasizing the importance of enhancing safety protocols and crew training in contemporary maritime operations [3].

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1. Introduction.

The MS Berge Istra, an oil tanker owned by the Norwegian company Bergesen d.y., was built in 1972 at the Uljanik shipyard in Pula, Croatia, and registered in Liberia. With a deadweight tonnage of 227,550 tons, the vessel represented a significant advancement in naval engineering, designed for large-scale cargo transportation. Its dual capacity to carry both crude oil and iron ore made it a crucial element in the global maritime trade network during a period of rapidly growing demand for raw materials. Throughout its operational life, the MS Berge Istra was primarily engaged in transporting minerals from Brazil to Japan and returning with crude oil from the Persian Gulf to Europe or the Americas.

Figure 1: Photo taken in Vitória, Brazil in 1974, one year before the accident.



Source: <https://www.shipsnostalgia.com/media/berge-istra.381304/>.

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During the 1970s, the merchant marine operated within a complex historical context. This era was marked by the expansion of globalization and international trade, fueled by the growing demand for natural resources and manufactured goods. However, it was also a time of increasing competition between shipping companies and the emergence of new market players. The maritime industry continually evolved, with the development of larger and more capable vessels, commonly referred to as Very Large Crude Carriers (VLCCs), to meet the growing demands of global trade. Despite advancements in shipbuilding, safety at sea remained a persistent concern, particularly with the introduction of these larger and more sophisticated ships.

On December 30, 1975, during one of its regular voyages, the MS Berge Istra disappeared in the Pacific Ocean near the island of Mindanao in the Philippines. The last communication with the ship was recorded in the early hours of the morning, and following that, no further information was available regarding its location. The official declaration of the ship's disappearance was made a week later, on January 7, 1976, and despite extensive search efforts, no wreckage was found. This event generated significant concern not only within the maritime community but also among the general public, resulting in widespread media coverage [4].

Figure 2: Voyage of the MS Berge Istra up to the moment of the accident.



Source: Documentary "The Castaways of the Berge Istra" by Víctor Calero.

The loss of the MS Berge Istra had a profound impact on the maritime industry, not only due to the human tragedy of the 30 crew members lost but also because of the implications it raised regarding the safety of large cargo vessels [5]. The ambiguity surrounding the causes of the accident led to critical questions about risk management in navigation and highlighted the need for stricter safety protocols. In this context, the survival of two crew members, Imeldo Barreto León and Epifanio Perdomo López, who managed to survive for 20 days on a lifeboat, became a rare source of hope amidst the tragedy. Their accounts provide invaluable testimony which, alongside investigative reports and historical documentation, offers insights into the circumstances of the vessel's disappearance and the prevailing navigation conditions at the time.

As we reflect on the lessons learned from the MS Berge Istra incident, it becomes evident that the maritime industry

of the 1970s faced significant challenges. Crew training and competency were often insufficient, leading to several deficiencies in the management of onboard safety systems. According to retired Bergesen captain Johnny Eilers, inert gas systems—critical for preventing explosions—were unreliable, and many officers lacked the proper training to operate these systems effectively. The harsh sea conditions, combined with the absence of adequate standard operating procedures, further aggravated the situation, culminating in a disaster that could have been prevented [6].

This article seeks not only to analyze the events leading to the MS Berge Istra tragedy but also to reflect on its implications for maritime safety regulations. By incorporating survivor testimonies, technical analysis, and a review of historical documentation, the goal is to offer a deeper understanding of this event and to underscore the critical importance of continuous improvement in maritime safety and training [7]. The story of the MS Berge Istra serves as a reminder that safety at sea is not merely an objective but a shared responsibility requiring constant vigilance and collaborative efforts between governmental institutions, shipping companies, and maritime professionals.

2. Literature Review.

2.1. Historical context.

The 1970s marked a period of profound transformation in the maritime industry, characterized by the expansion of global trade and the modernization of merchant fleets. Technological advancements in shipbuilding, coupled with the introduction of larger and more efficient vessels, revolutionized maritime transport. However, this growth also introduced new challenges related to safety and risk management [8].

During this time, the transport of oil and minerals became a vital part of the global economy. The MS Berge Istra, built during a period of growing demand for natural resources, symbolized the shipping industry's ambitions to capitalize on this trend. Designed to meet the demands of expanding markets, the vessel facilitated the transportation of large cargo volumes between Brazil and Japan, both of which were experiencing rapid economic growth.

Despite these technological advancements, maritime safety remained a concern. Many shipping companies, driven by fierce market competition, often prioritized operational efficiency over safety. This led to a lack of investment in crew training and vessel maintenance, both of which played a crucial role in the tragic disappearance of the MS Berge Istra [9].

2.2. Technical analysis of the breakdown leading to the accident.

The MS Berge Istra disaster exemplifies how multiple technical and operational deficiencies can converge into a catastrophic event. A detailed technical analysis reveals critical issues in the ship's design, insufficient maintenance of key systems, and inadequate specialized training of the crew, particularly in the management of inert gas systems [10].

One of the primary factors identified was the mismanagement of the inert gas system, which was a relatively new technology in the 1970s. These systems are used to mitigate the risk of explosions in hydrocarbon storage tanks by introducing inert gases—primarily carbon dioxide and nitrogen—thereby preventing the formation of explosive atmospheres. However, the operation of these systems was complex and not yet standardized, leaving many officers without adequate training to operate the equipment effectively. According to retired Captain Johnny Eilers, officers of that era struggled to measure gas levels accurately and ensure safe system operation.

In the case of the *Berge Istra*, the key issue arose from the vessel's mixed cargo operations. The ship, which had previously transported crude oil, was carrying iron ore from Brazil to Japan at the time of the accident. The side tanks, which had previously contained oil, were not properly cleaned after discharge, leading to the accumulation of residual hydrocarbon vapors. This became particularly dangerous when the vessel attempted to inert these tanks en route to Japan, where regulations required that the side tanks be inerted upon arrival.

The inerting process was further compromised by ineffective sealing of the tanks and the deck. In rough seas near the Philippines, the *Berge Istra*'s deck could not prevent oil vapors from escaping into the inert gas system, creating an explosive mixture. This mixture ignited when the ship's generator, used to power the inert gas system, was started. The resulting explosion was so powerful that, according to survivors, "the entire deck blew open," suggesting a massive internal blast that critically compromised the ship's structural integrity [11].

Another contributing technical factor was the lack of proper ventilation. Residual hydrocarbon vapors were not fully eliminated, leaving the tank atmosphere contaminated with flammable gases. Adequate ventilation is essential on tankers to remove hazardous vapors before activating the inert gas system. In this instance, insufficient ventilation exacerbated the risk of an explosive reaction when the system was initiated.

2.3. Survivors' testimony.

The accounts of the two survivors of the *MS Berge Istra*, Imeldo Barreto León and Epifanio Perdomo López, are crucial in reconstructing the vessel's final moments and the catastrophic events that followed the explosion. Their testimony was not only documented through interviews and press reports but also captured in the documentary *The Castaways of the Berge Istra* (directed by Víctor Calero), which offers a detailed narrative of the aftermath and insights into human resilience in extreme conditions [12].

On December 30, 1975, both seamen, natives of Tenerife, were on deck when they heard a loud explosion. According to their account, the ship shook violently, followed by a second, more devastating explosion that tore the structure apart. Flames, smoke, and debris engulfed them almost instantly, obscuring visibility and leaving them with little time to react. Following the explosions, the deck began to rupture due to the accumulation of gases and the failure of containment systems—a phenomenon they described in their testimonies that aligns with expert theories regarding inert gas system malfunctions.

Both survivors managed to jump into the sea and board a lifeboat. Over the next 20 days, Barreto and Perdomo endured severe conditions, including hunger, thirst, and extreme fatigue. In their account, they emphasized that the first few days were critical, as high daytime temperatures, coupled with freezing nights, caused constant physical suffering. With no food or potable water, they were forced to ration small quantities of rainwater they managed to collect [13].

In the documentary, the survivors also recount the profound emotional toll of witnessing the rest of the 30-person crew vanish into the Pacific Ocean. The isolation and uncertainty surrounding their rescue were among the most difficult challenges they faced. Despair was a constant adversary, but they survived due to their maritime experience and sheer determination.

Finally, on January 18, 1976, they were sighted and rescued by a Japanese fishing vessel. The documentary highlights that, despite being rescued alive, both seamen faced significant challenges reintegrating into normal life, largely due to the psychological aftermath of the shipwreck [14].

Figure 3: Imeldo Barreto León and Epifanio Perdomo López, the only survivors of the accident, after being rescued and taken to Japan.



Source: Documentary "The Castaways of the Berge Istra" by Víctor Calero.

The testimony of Imeldo Barreto and Epifanio Perdomo not only reflects the harsh reality of surviving a maritime disaster but also offers an implicit critique of the support system for victims at the time. Their experience serves as a reminder of the dangers at sea and the structural and operational deficiencies in the maritime industry, which at that time did not always prioritize the safety and well-being of the crew [15].

2.4. The treatment of survivors and families by the norwegian company.

The response of Bergesen d.y., the shipowner, to the tragedy was marred by controversy and criticism [16]. According to survivors Barreto and Perdomo, the company remained tight-lipped regarding the cause of the accident and provided little support to the survivors or the families of the deceased. The

company neglected the survivors' well-being and left the bereaved families without adequate support. They sought explanations and fair compensation but often faced a lack of communication and transparency from Bergesen d.y., which maintained a veil of secrecy surrounding the vessel's technical failures [17].

This treatment fostered a deep sense of distrust toward the company and highlighted the need for shipping companies to assume greater responsibility for their crews and the families affected by maritime tragedies. The company's inadequate response drew media criticism and sparked broader discussions on the need for cultural changes within the maritime industry [18].

2.5. International Conventions in force at the time.

In 1975, when the *MS Berge Istra* accident occurred, international maritime safety regulations were still evolving. Since the *MS Berge Istra* was built in 1972, it did not fall directly under the 1974 SOLAS Convention, which came into force in 1980. Instead, it was governed by the SOLAS 1960 Convention, the prevailing standard during its construction [19].

The 1960 SOLAS Convention was a significant update to maritime regulations. While it established important criteria for vessel construction, equipment, and operation, it did not incorporate the more advanced safety measures introduced in the 1974 SOLAS Convention. A critical factor in the *Berge Istra* disaster was the failure of the inert gas system—a system more rigorously regulated under SOLAS 1974, which introduced stringent measures to prevent explosions in cargo tanks, particularly in vessels transporting oil or related products [20].

Another relevant convention at the time was the MARPOL Convention, whose first protocol was adopted in 1973. Although MARPOL was not fully enforced in 1975, it laid down principles for preventing pollution from oil and other harmful substances, indirectly promoting better operational practices when handling mixed cargoes, such as oil and ore—a combination believed to have contributed to the explosions on board the *Berge Istra* [21].

Additionally, the 1966 International Load Line Convention was in effect, regulating the maximum permissible load to ensure the stability of vessels under various conditions. While this convention is not directly linked to the accident's cause, its proper application was crucial for ensuring the stability of the *Berge Istra*, which was carrying a heavy cargo of iron ore [22].

The STCW Convention, adopted in 1978, three years after the accident, would have had a significant impact if it had been in effect at the time. The STCW Convention introduced minimum training and certification standards for seafarers globally. If in place, it would have ensured that the officers and crew of the *Berge Istra* had received standardized training in critical areas, such as inert gas system management and explosion prevention—deficiencies identified in survivor testimonies and later investigations as contributing to the disaster [23].

Moreover, the convention required ongoing training programs and emergency simulations, which would have better prepared the crew for life-threatening situations like the one

they encountered. Additionally, it improved uniformity in training among seafarers worldwide, reducing discrepancies in technical knowledge among crew members of different nationalities—an issue that could have affected the international crew's response aboard the *Berge Istra*.

Finally, in 1975, the International Safety Management (ISM) Code had not yet been adopted; it came into force in 1994. The ISM Code would have greatly reinforced the safety culture within shipping companies by mandating stricter controls over operational procedures and the maintenance of critical systems, such as the inert gas system [24].

2.6. Impact on the industry.

The *MS Berge Istra* disaster had a profound and lasting impact on the maritime industry. It spurred immediate changes in shipping companies' safety and operational policies and prompted a comprehensive review of international maritime regulations [25][26]. The lessons learned from this and other supertanker accidents of that era helped shape new regulations and safety standards, enhancing protection for seafarers and improving maritime operations overall [27][28].

The tragedy also led to increased scrutiny of maritime accident investigations and greater transparency in the industry [29]. It fueled debates about the need for shipping companies to be more accountable and committed to maintaining higher safety standards [30].

3. Methodology.

This article on the *MS Berge Istra* accident employed a comprehensive, multi-layered approach, integrating various data collection and analysis techniques. This approach is premised on the understanding that a complex event like a shipwreck involves numerous factors that must be thoroughly examined. The methodology can be divided into the following stages:

3.1. Documentary study.

The first phase of the research involved an exhaustive review of documents related to the *MS Berge Istra*, including academic papers and contemporary press reports. Sources consulted included the local newspaper *La Opinión de Tenerife* and relevant scholarly articles. This review provided crucial historical context regarding the construction and operation of the vessel, as well as insights into the events leading to its disappearance.

The review also included technical documents and studies on maritime safety during the 1970s, alongside the international regulations in force at the time of the accident, such as the SOLAS Convention. This phase was essential in establishing a theoretical framework to underpin subsequent analyses.

3.2. Testimonial analysis.

The testimonies of the survivors, Imeldo Barreto León and Epifanio Perdomo López, were invaluable sources of qualitative data. Their accounts were analyzed through the documentary *Los naufragos del Berge Istra* by Víctor Calero. This analysis identified recurring themes in their experiences, offering

deeper insights into the circumstances of the shipwreck and the emotional and physical challenges they faced while adrift in the Pacific Ocean.

Special attention was given to how these testimonies reflected the crew's culture, expectations regarding safety and communication, and the lessons drawn from their ordeal. These accounts were cross-referenced with technical findings related to the ship and its operations, allowing significant connections between the testimonies and the ship's operational failures to be established.

3.3. Analysis of the company's response.

A critical analysis was conducted on the response of Bergeesen d.y., the shipping company, following the accident. This included reviewing press releases and media coverage to evaluate how the company managed the aftermath of the tragedy, both for the survivors and the families of the deceased crew members.

Figure 4: Commemorative plaque in Punta Hidalgo dedicated to the deceased and survivors of the Berge Istra.



Source: Author.

Conclusions.

The tragic accident of the MS *Berge Istra* in 1976 underscores the complexities and challenges inherent to the maritime industry and the pressing need to uphold high standards of safety and accountability. Through a thorough analysis of available information—including survivor testimonies, contemporary press reports, and the company’s response—the context of this catastrophic event has been reconstructed.

One of the most significant findings of this investigation is the identification of operational and maintenance failures that contributed to the disaster. Key deficiencies in the management of safety systems, such as the generators and inert gas systems, were instrumental in precipitating the accident. Furthermore, a review of the maritime regulations of the time reveals that while international standards existed, their enforcement and implementation were often inadequate, emphasizing the need for stricter regulation and more effective crew training.

The impact of the accident extended far beyond the immediate tragedy. Lessons learned have since driven the adoption of better practices within the maritime industry, stressing the importance of a strong safety culture and continuous training for maritime professionals.

Finally, the memory of those who perished aboard the MS *Berge Istra*, along with the experiences of the survivors, serves as a poignant reminder that behind every maritime incident lie human lives, making it all the more urgent to prioritize safety in every maritime operation.

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