



ORCA AI



seaspan



Improving Safety and Reducing Fuel Costs for Global Shipping Giant Seaspan Corporation

September 2024

680K+

Nautical miles sailed

208

Voyages

37%

Reduction in number of
close encounter events

\$100K

Annual fuel cost savings
per vessel

500 MT

Annual reduction in CO2
emissions per vessel*Analysis of voyages conducted in
Q1 2023–Q2 2024

The customer

Seaspan Corporation: Committed to Maritime Excellence

Seaspan Corporation is a global leader in maritime asset management and ownership, focusing on long-term, fixed-rate leases with top shipping lines. With a workforce of over 6,000 across offices in Hong Kong, Canada, and India, the company's fleet includes 165 vessels and 23 more under construction. The world's leading container liner companies trust Seaspan Corporation to safely and securely transport their valuable cargo across the globe.

The need

Always on the Lookout for Safety Innovation

Seaspan's comprehensive digitalization strategy is designed to maintain its unique market position – where the corporation is neutral and works with everyone – and leverage its size to scale new digital technologies and reap the benefits at pace. Operational excellence, emissions data and reporting, and navigation safety are the three key areas beyond crew welfare that Seaspan Corporation is poised for digital transformation:

- Operational excellence**
 Reach operational excellence through adoption of new technologies, while ensuring that every new technology deployed improves safety, enhances reliability and reduces cost.
- Navigation safety**
 Build on a strongly embedded safety culture, seafarers can adopt digital technologies that can provide assistance throughout their daily assignments.
- Emissions data and reporting**
 Designed to ensure the vessels comply with emissions reporting data by using the most appropriate system while passing it on to the right charterer at the right time.

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Enhanced safety and less emissions leads to greater sustainability, socially and business-wise. We all want that. But you have to build on a strong safety culture. If you don't have the culture, there's a danger your new digital tools will either be ignored or used wrongly. You can't build on poor practice, you can only build on good practice."

Torsten Pedersen, Chief Operating Officer, Seaspan Corporation

The solution

Helping Crews Identify High-Risk Targets in High-Density Areas

Seaspan Corporation searched for a tool that would provide their crews with a more immediate understanding of the vessel's surroundings during the voyage, regardless of weather patterns, time of day and sea conditions.

By using Orca AI's SeaPod, the Seaspan Corporation bridge crew have an additional digital lookout that complements traditional navigation systems. SeaPod enhances situational awareness in low visibility conditions by helping navigation officers trace small ships – with and without AIS – to navigate more safely and prioritize the vessels that should be closely monitored and the actions required to avoid risk.

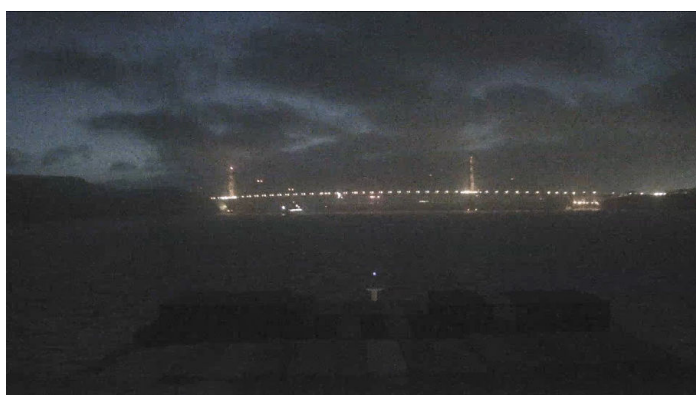
Complementing its array of 8 day and night (thermal) cameras responsible for visual target detection, the platform utilizes existing installed ship sensors like AIS and GPS, aggregating all input sources into a bridge screen, which provides a data-rich view of the marine environment.

The platform mirrors Seaspan Corporation's various safety policy (SMS) thresholds, including stipulating the minimum allowed distance to other vessels, both in congested and open waters. SeaPod enhances situational awareness by alerting the crew to high-risk targets in high-density areas and in low visibility conditions, empowering them to take early action.



The Orca AI SeaPod is an intuitive and valuable tool for enhancing navigational awareness among officers. It is extremely helpful in detecting ships and boats under poor visibility conditions. Additionally, it provides visual cues on how targets will pass the vessel and whether they pose a risk to navigation.

Captain Sergiy Gayevyk, Cosco Korea



The images show Seaspan Corporation's container vessel navigating congested waters at night. The left image is a human-eye view from the bridge, while the right shows the crew's view through Orca AI's thermal camera.

Actionable insights for the office

By integrating Starlink into its operations, Seaspan Corporation has transformed their ships into floating offices with seamless ship-to-shore connectivity. Among the innovative tools adopted is the Orca AI FleetView dashboard. This application enhances the visibility of vessel performance for operations teams, offering both real-time and comprehensive overviews.

Actionable insights

With FleetView, operations teams can identify navigation trends, understand fleet performance, pinpoint areas for improvement, and promote best practices across the fleet.

Enhanced safety compliance

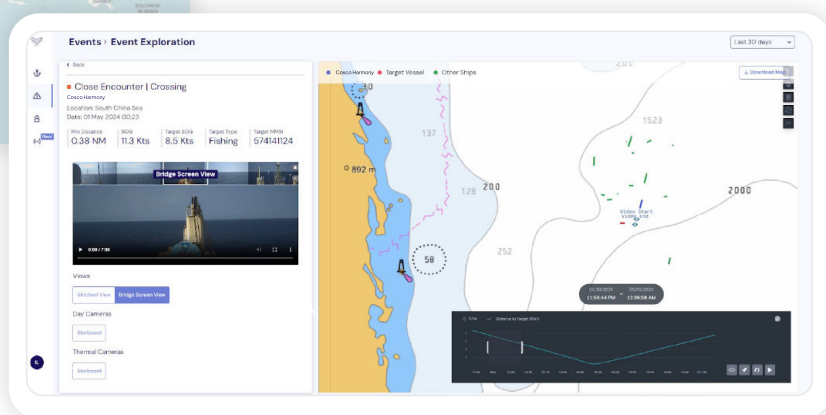
Seaspan Corporation's management uses Orca AI to assess vessel compliance with COLREGs and the company's Safety Management System (SMS), providing continuous support and feedback to ensure high safety standards.

Real-time monitoring

Live maritime navigation video streaming allows office personnel to experience the captain's perspective in real-time from the bridge and receive alerts on events requiring immediate attention, ensuring prompt responses.



Image showing the typical nautical routes of the Seaspan Corporation fleet. The red dots show areas with a high number of event.



FleetView enables operations teams to explore maritime events in real time, providing a live-stream view and nautical map for a better understanding of vessel context and surroundings.

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Obviously, a root-cause analysis must be performed in the event of an incident, but FleetView enables managers to take a step back, analyze events that did not result in an incident and generate valuable learnings that can be rolled out fleetwide.”

Torsten Pedersen, Chief Operating Officer, Seaspan Corporation

Proven ROI

USD 100,000 saving per vessel per year due to reduction of collision avoidance maneuvers

Seaspan Corporation management values long-term partnerships as a key to success for safety and efficiency initiatives. With Orca AI, Seaspan Corporation is seeing tangible benefits, less likelihood of incidents and cost savings.

Given the Capex required to install a new technology on a 200-strong fleet, Seaspan Corporation management sought to prove that Orca AI would, if nothing else, prevent one navigational incident or provide other explicit benefits. As Torsten Pedersen explains, "Harm reduction is hard to measure in terms of ROI, but fuel reduction isn't. Safety is the most important factor, but this cost benefit in terms of operational savings is the 'icing on the cake'."

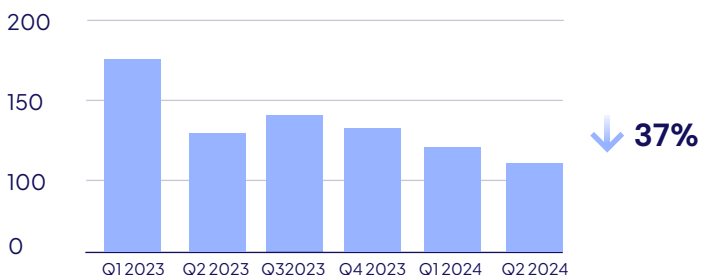


The business case demands that there should always be less of something. Less incidents means your insurance premiums go down in the long term. More efficient navigation means you use less fuel. We are one of the first movers but the entire shipping industry needs to travel in this direction."

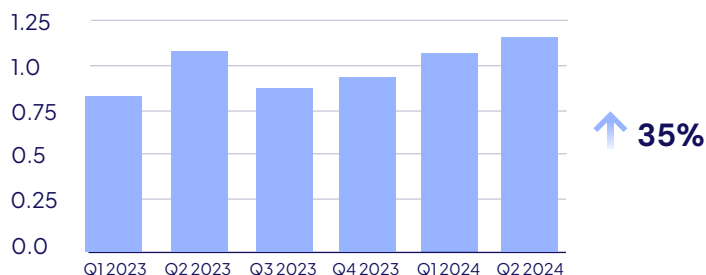
Torsten Pedersen, Chief Operating Officer, Seaspan Corporation

An analysis conducted on Seaspan Corporation's vessels in 2023–2024 found that the minimum average distance between vessels in open waters has increased, and the number of close encounters has decreased significantly:

Average number of events per vessel



Average minimum distance

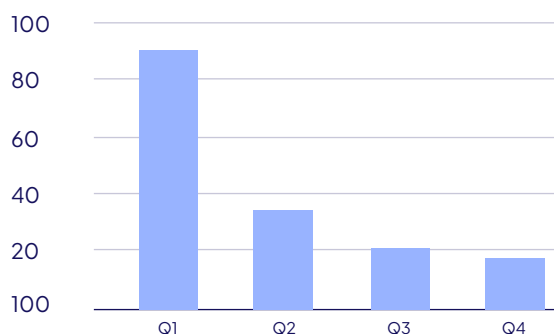


But Seaspan Corporation not only enhanced the safety of navigation with Orca AI. The reduction in close encounters also led to a reduction in collision avoidance maneuvers – saving more fuel as a result.

The analysis found that 60% of Seaspan Corporation vessels alter course to avoid SMS violation with an average deviation alteration time of 20 minutes at 18 Kt. This led to increased fuel burn and speed adjustments to stay on schedule.

According to the analysis, Seaspan Corporation ships equipped with Orca AI reduced their fuel consumption by USD 100,000 per year. This equates to a reduction of 500 metric tons of CO2.

Number of events per 1000 miles in 2023



ABOUT ORCA AI

Orca AI brings pioneering AI technologies to the maritime industry to tackle some of the most demanding tasks of operations at sea. While serving in the navy, co-founders Yarden Gross (CEO) and Dor Raviv (CTO) experienced first-hand some of the most challenging aspects of ocean navigation. The two founded Orca AI in 2018, leveraging their business and technological expertise with far-reaching maritime industry knowledge.

Join us in safeguarding the world's oceans and maritime interests for generations to come.