ORCA AI   IONIC

Enhancing Safety and Operational Efficiency in the World's Most Challenging Waters

October 2025

19
Vessels fleet-wide rollout confirmed across bulk carriers and tankers

160K+
nautical miles sailed with Orca AI across seven tankers

2K+
Navigational events analyzed

53%
Reduction in close encounter events per 1,000 NM in open waters

20%
Increase in minimum passing distance in the North Sea

3%
Reduction in fuel consumption

*Analysis of Ionic tankers' voyages from Q1 2024–Q1 2025

The Customer
Ionic: Quality-Conscious Shipping with Global Reach

Ionic, founded in 2009 and based in Athens, operates a fleet of eight modern tankers and 11 bulk carriers trading worldwide. From its inception, Ionic has positioned itself as a safety-first, service-driven operator, investing in vessel quality, technical management, and crew training. Its ships are maintained to first-class standards, safeguarding cargo and crew while minimizing downtime. Guided by 200+ years of management experience, Ionic pursues its ambition of "zero incidents, zero spills", learning trust across the global maritime industry.

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> We aim to operate a fleet that not only delivers reliable transport solutions but also continuous improvement in safety, efficiency, and environmental performance.
>
> **Spyros Vlassopoulos,** Managing Director, Ionic

The Need
Navigating Safely Through the World's Most Challenging Waters

Ionic's trading routes span the globe, from long-haul voyages across the South Pacific to shorter passages through the English Channel, Black Sea and Gulf of Mexico. Each region presents unique challenges:

- In **congested waters** such as the South China Sea and the Sea of Marmara, dense traffic and numerous fishing vessels, many without AIS, pose significant collision risks.

- **Restricted traffic zones** like the English Channel and Panama Canal require precise navigation and strict adherence to COLREGs.

- **Low-visibility conditions** caused by fog, rain, or nighttime operations further complicate hazard detection, particularly when dealing with small boats invisible to Radar or unmarked buoys.

- Adding to this complexity, tankers and bulk carriers **operate on tight schedules**, where even minor course deviations can affect fuel efficiency and charter performance.

While Ionic already had a strong safety culture in place, the company recognized that traditional navigation tools alone are no longer enough to promote risk-free operations in today's complex maritime environment.

The Solution

Fleet-wide Deployment of Orca AI

To remain aligned with its zero-incident vision, Ionic sought a technology solution that would:

- Enhance vessel situational awareness in all weather and visibility conditions.

- Help officers identify and prioritize high-risk targets early, even when AIS signals are absent.

- Provide fleetwide visibility to shore teams, enabling real-time oversight and proactive safety management.

- Deliver measurable improvements in safety performance and operational efficiency across both its tanker and bulker fleets.

Tankers Were First, Then Bulkers

After equipping its initial seven tankers with Orca AI and seeing measurable improvements, Ionic decided to implement a fleet-wide rollout across its entire fleet of tankers and bulk carriers.

With SeaPod, Ionic's bridge officers get a "second set of eyes" that detect hazards that Radar may miss. In busy sea lanes, this extra layer of visibility can mean the difference between safe passage and disaster.
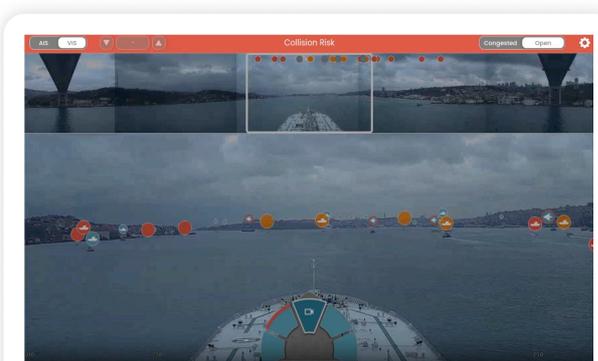
Ionic using Orca AI in the Bosphorus Strait to detect and classify multiple targets in real time, providing additional situational awareness where Radar and AIS data are limited.

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We usually use Orca AI at night, especially in open waters, switching the system to VIS Mode. The thermal camera helps us see targets more clearly, particularly fishing vessels, since we can track their movements. We also use it when approaching anchorage, to safely navigate between other vessels.

Captain Christoforos Stathokostas, Ionic Ariadne

Full Fleet Visibility

Ionic's shore-based teams use FleetView to continuously monitor navigational performance across the fleet, ensuring adherence to COLREGs and identifying close encounters or potential risks even when no incident occurs.

This proactive oversight through FleetView helps the company refine safety policies, highlight best practices, and deliver timely feedback to vessels.

When critical situations arise, real-time video access within the platform allows operations personnel to view conditions on the bridge and support crews in decision-making.

FleetView event log from the Sea of Marmara: Ionic Anassa navigating through hyper-congested waters. Orca AI automatically detected a passenger vessel at just 0.12 NM, enabling early corrective action and compliance with COLREGs.

Strong Crew Adoption

Fleet engagement was consistently positive with usage peaking in the very situations where it matters most – entering and exiting ports, narrow channels, and highly congested areas.

Crews have highlighted the value of thermal camera support and real-time visual alerts in these high-pressure environments.

This combination of measurable safety improvements, reliable engagement, and strong crew feedback has established a consistent digital safety standard across Ionic's wet and dry operations.

Framing AI as a Complement Rather than a Competitor

Ionic's approach to AI adoption is rooted in the belief that digital tools should support, not replace, human judgment.

This belief shaped how the company introduced Orca AI to its crews, encouraging officers to try it casually, without obligation, rather than imposing it from above.

Dedicated crew training has helped Ionic's officers become proficient in using thermal cameras, zoom features and visual alerts.

Feedback loops between ship and shore have led to adjustments such as recalibrating CPA/TCPA thresholds and optimizing camera use.

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> Orca AI is not a replacement for Radar, ECDIS, or human lookouts or bridge officers. It's a cross-check. It verifies what is happening around the vessel in real time. That's invaluable in today's crowded maritime environment.
>
> **Spyros Vlassopoulos,** Managing Director, Ionic

The Results
# Improvement in Navigational Patterns

The data shows a clear shift toward earlier decisions, steadier vessel handling, and more consistent spacing across regions. Close-encounter events decreased up to 53% in open waters, while minimum passing distances increased, indicating better anticipation in dense traffic. These smoother track patterns also reduced avoidable maneuvers, contributing to a 3% reduction in fuel consumption.

Together, the results point to more predictable navigation and a stronger margin of safety across the fleet.
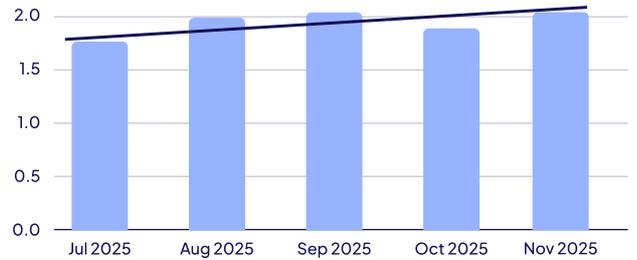
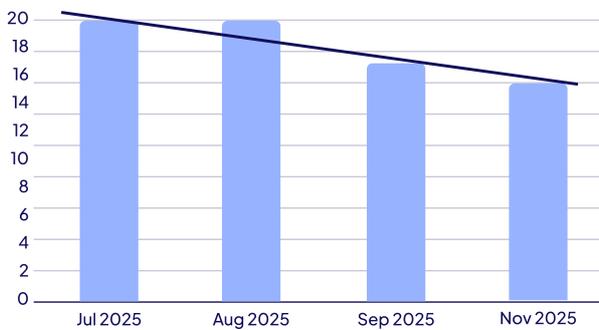## Open Waters

↓53%
Close Encounter Events Per Vessel
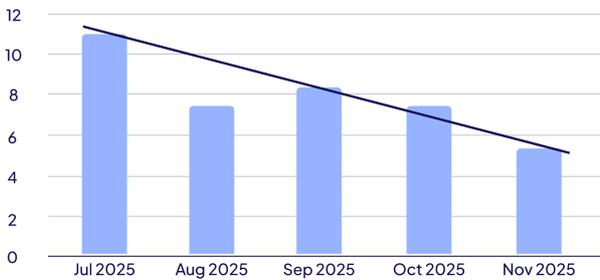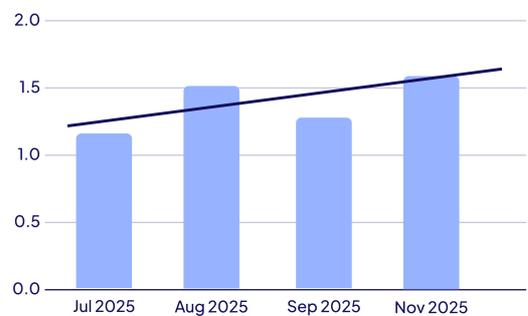
↑2%
Average Minimum Distance

North Sea

↓22%
Close Encounter Events Per Vessel

↑20%
Average Minimum Distance

ABOUT ORCA AI

Orca AI is the leading maritime operations platform utilizing artificial intelligence and computer vision to drive one of the most important navigational safety and efficiency transformations in modern shipping. The Orca AI platform empowers shipping companies to maximize operational efficiency and voyage safety for ships and fleets. With Orca AI, crew can now make rapid, data-driven decisions in congested waters or low visibility conditions, while fleet managers and operators gain unprecedented insights into their fleets' performance.

Orca AI brings autonomous mobility to the shipping industry, having powered the world's first commercial autonomous voyage in 2022, in partnership with Designing the Future of Full Autonomous Ships (DFFAS) and The Nippon Foundation.

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