ORCA AI

TMS CARDIFF GAS

TMS Cardiff Gas Strengthens Navigational Safety and Bridge Skills

October 2025

20

Vessels installed to date

4.3M

Nautical miles sailed with Orca AI

725

Voyages from 2021 through 2025

13K+

Navigational events analyzed

31%

Reduction in close encounter events in open waters

21%

Improvement in average minimum distance in open waters

Analysis reflects TMS Cardiff Gas fleet performance from Q1 to Q4 2025

The Customer

TMS is one of Greece's largest independent ship managers, overseeing more than 140 vessels with over 45 newbuildings on order. Its operations span crude and product tankers, bulk carriers, and the Gas division TMS Cardiff Gas. Based in Marousi, Athens, TMS Cardiff Gas manages 21 LPG/LNG carriers and runs one of the few in-house maritime training centres in Greece, equipped with advanced simulators for both seafarers and shore staff. This focus on people and technology shapes the navigational standards expected across the TMS Cardiff Gas fleet.

The Need
Strengthening Navigational Safety in Demanding Conditions

As vessel operations grow more complex, TMS Cardiff Gas identified navigational safety and bridge competence as critical priorities. The company wanted officers to recognize developing risks earlier, interpret situations with more confidence, and maintain consistent standards across the fleet.

Even for experienced officers, modern LPG/LNG operations present new challenges:

- Traditional tools such as radar and ECDIS require officers to piece together information from multiple displays to understand what is happening around the vessel.
- In open waters, responsibility often rests on a single officer of the watch who must interpret limited cues and make timely decisions.
- Risk is also created by ship design, where numerous vertical structures, vent masts, cranes, and ventilation mushroom heads can restrict visibility from the bridge.
- Emerging threats such as GPS spoofing mean officers can no longer rely blindly on electronic data.

These situations require constant interpretation and can leave blind spots, particularly when officers cannot continuously validate their judgment against real scenarios.

"

Our focus is on ensuring officers act with confidence as operating conditions become more complex. Strong navigational awareness is essential to maintaining the safety standards we expect across the fleet.

Alexandros Politis Kalenteris, Deputy COO, TMS Cardiff Gas

The Solution

Integrating Digital Awareness into Bridge Practice

Navigation Support

Improving Target Detection and Bridge Clarity

TMS Cardiff Gas introduced Orca AI across its LPG/LNG newbuild vessels in 2020–21 to give bridge officers a clearer and more dependable view of their surroundings.

The onboard lookout, SeaPod, combines day and night cameras with ship sensors to detect and classify nearby targets, helping officers interpret situations without relying solely on radar or AIS.

TMS Cardiff Gas crews report that the visual reference supports focus during long passages and allows earlier response as traffic builds, including detection of small or non-metallic craft that radar may miss.

TMS Cardiff Gas masters note that this added clarity supports judgment when information is limited, which is why it has become part of normal bridge routines.

The Orca AI platform has also strengthened confidence during incidents of GPS spoofing, when satellite data can become unreliable. TMS Cardiff Gas crews use the visual detection as a trusted reference to verify their position and confirm what is happening around the vessel.

The images show a TMS Cardiff Gas vessel navigating in fog. The top image is a human-eye view from the bridge, while the bottom image shows the crew's view through Orca AI's thermal camera, revealing the collision risk.

> " Whether in congested areas or open waters, Orca AI is useful. At night or in fog, it remains reliable and gives us accurate information. My officers really see the value in it, especially for detecting targets when visibility is limited.
>
> **Captain Rodrigo Abapo Jr,** Kefalonia Gas, TMS Cardiff Gas

Crew Training
Turning Real Voyages into Learning

Navigational data becomes part of the company's training and mentoring process. Superintendents and training staff can review recorded events to assess how situations developed, evaluate COLREGs compliance, and identify where additional guidance is needed.

Recordings are used in debriefs and pre- and post-embarkation briefings, helping the crews learn from real events they were part of rather than abstract scenarios, reinforcing good navigational habits.

> "The value is not only in the prevented events but in the training. Experience levels have changed, and younger officers need support. When I show them the video and explain what happened, they understand immediately and do not repeat the mistake.

Captain Denis Dude,
Marine Operations Manager, TMS Cardiff Gas

Fleet Performance Overview
Creating a Shared View of Performance across the Fleet

TMS Cardiff Gas shore teams use FleetView to maintain a continuous view of navigational performance across the LPG/LNG fleet. The platform brings together key safety indicators such as close-encounter events, passing distances, and manoeuvring behaviour, allowing the office to understand how vessels are operated across routes and conditions.

This visibility allows the office to move beyond isolated incidents and focus on patterns. By replaying real events and comparing behaviour across the fleet, managers can identify practices that increase risk, reinforce safer approaches, and support a consistent navigational standard.

Insights from these reviews guide coaching, pre-embarkation briefings, and ongoing dialogue with vessels, allowing the office to turn observed performance trends into action. This feedback loop between ship and shore helps TMS Cardiff Gas reinforce its safety culture and support consistent operational standards.
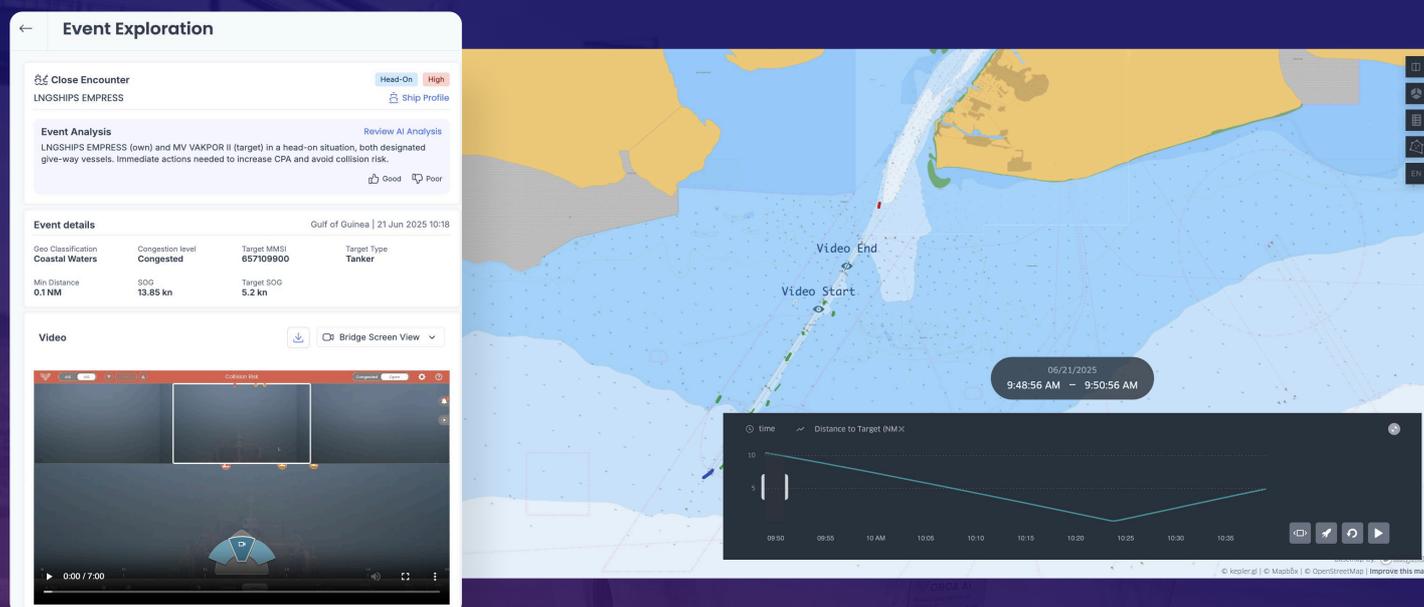
Orca AI FleetView dashboard showing a replay of a close encounter in the Gulf of Guinea, combining video playback with a Kepler map view of vessel tracks and a distance-to-target timeline, allowing the office to review how the situation evolved over time.
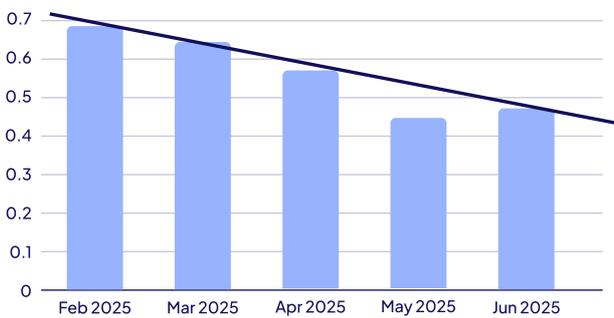
The Results
Fewer Close Encounters Across the Fleet

Alongside strong crew feedback and high engagement, TMS Cardiff Gas has recorded measurable improvements across the safety indicators it uses to assess navigational risk. The LPG/LNG fleet reduced close encounter events and increased average minimum passing distances in both open waters and key trading routes, providing clear, data-based evidence of improved navigational safety performance over time.
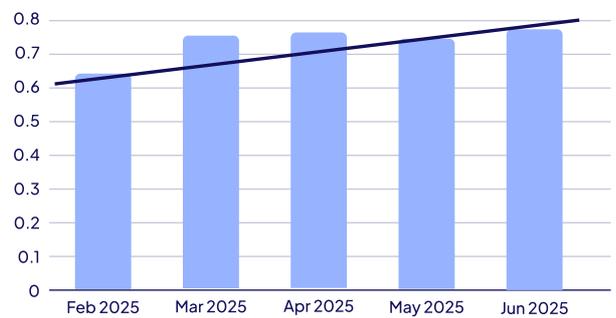
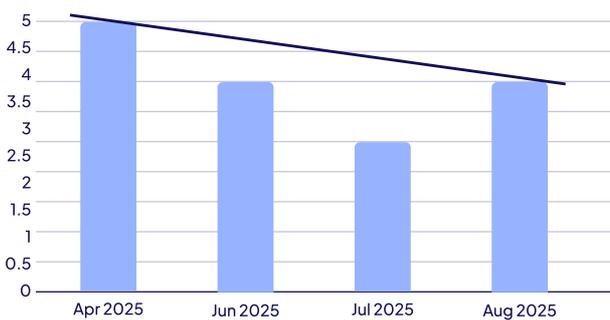## Open Waters

↓31%
Close Encounter Events per 1,000 NM

	Feb 2025	Mar 2025	Apr 2025	May 2025	Jun 2025

↑21%
Average Minimum Distance

	Feb 2025	Mar 2025	Apr 2025	May 2025	Jun 2025

North Sea

↓20%
Close Encounter Events per Vessel

	Apr 2025	Jun 2025	Jul 2025	Aug 2025

↑22%
Average Minimum Distance

	Mar 2025	Apr 2025	May 2025	Jun 2025
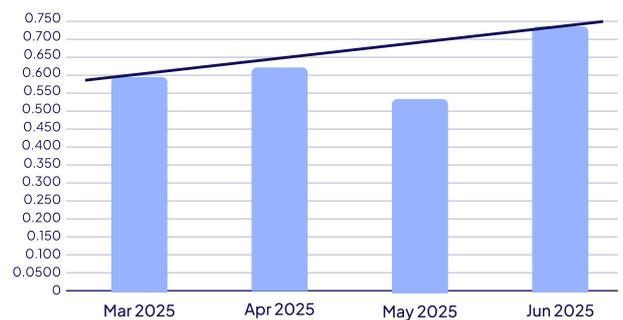
> "
> Orca AI improves watchkeeping by giving the bridge team a clear view so they can see targets, understand what other ships are doing and make better decisions."
>
> **Captain Denis Dude,**
> Marine Operations Manager, TMS Cardiff Gas

▷ **Watch Video**

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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