POLE STAR
DEFENSE

CASE STUDY

BALTIMORE KEY BRIDGE COLLAPSE

**Real-Time Maritime Intelligence
in a National Emergency**

THE CHALLENGE

The Francis Scott Key Bridge collapse in Baltimore created an urgent need for real-time maritime situational awareness across multiple agencies responding to the crisis that shut down an $80 billion annual cargo port.

The Key Bridge collapse created a high-stakes emergency:

- Major shipping channel was blocked, halting all maritime commerce through the port.

- Dozens of vessels required real-time tracking and emergency rerouting.

- Situational clarity was difficult to achieve using traditional tools alone.

- Curious citizens and civilian boaters unknowingly entered restricted areas, complicating search and rescue operations.

- Agencies operating across federal, state, and local levels needed to coordinate vessel control, safety perimeters, and recovery logistics.

Pole Star Defense, with ESRI deployed a custom data solution utilizing USCG AIS data to provide real-time vessel intelligence, enabling authorities to identify vessels, enforce security zones, and coordinate response operations.

BACKGROUND

In the early morning of March 26, 2024, the Francis Scott Key Bridge in Baltimore, Maryland collapsed after being struck by the container ship Dali. The incident claimed multiple lives and effectively blocked access to one of the most vital U.S. East Coast ports, causing a full shutdown of vessel traffic to and from the Port of Baltimore - a port responsible for over $80 billion in cargo annually. With rescue operations underway and critical infrastructure disrupted, maritime situational awareness became an immediate operational priority.

Multiple agencies - including the U.S. Coast Guard, local law enforcement, port authorities, and the Army Corps of Engineers (ACOE) - required a common operating picture of vessel movements in real time.

THE RESULTS

✓ Effective vessel rerouting and maritime zone enforcement following the port shutdown

✓ Real-time and historical vessel data used to inform security, recovery, and investigative operations

✓ Enhanced agency coordination through a unified maritime intelligence feed

✓ Rapid deployment of live area-based monitoring without the need for new system infrastructure

U.S Army Corps of Engineers

United States Coast Guard

Baltimore Local Authorities

Baltimore Port Authority

Marine Spill Response Corporate
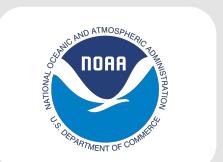
National Oceanic and Atmospheric Administration

Synergy Marine

United States Navy

SAFEGUARDING YOUR DOMAIN

The response to the Key Bridge collapse illustrates the operational importance of Pole Star Defense's mission-ready tools:

- Live AIS, LRIT, and sensor data fusion
- Polygon-based vessel tracking for zone control
- Secure APIs for seamless integration into ESRI, command centers, and decision support systems
- Real-time and historical playback capabilities Spoofing alerts and behavioral anomaly detection for future threats

CONCLUSION

The Baltimore Key Bridge collapse has triggered broader conversations among U.S. maritime security stakeholders about the need for dynamic port surveillance and infrastructure protection tools.

The incident demonstrated the value of real-time vessel tracking and data fusion in emergency response.

With the increasing frequency of maritime incidents and evolving threats at sea, maritime domain awareness is no longer optional—it's mission critical.

THE SOLUTION

Pole Star's Role in the Response:

✓ **Polygon-Based Vessel Isolation**
Pole Star's custom AGOL (ArcGIS-online) solution enabled responders to create custom zones around the incident area, providing real-time tracking of all vessels entering, exiting, or remaining within defined boundaries, plus retrospective vessel behavior analysis.

✓ **Nationwide AIS Data Integrated in ESRI Velocity**
Pole Star's ESRI Velocity integration gave the Coast Guard and responders secure, shared access to high-fidelity AIS feeds, eliminating information silos and enabling collaborative monitoring.
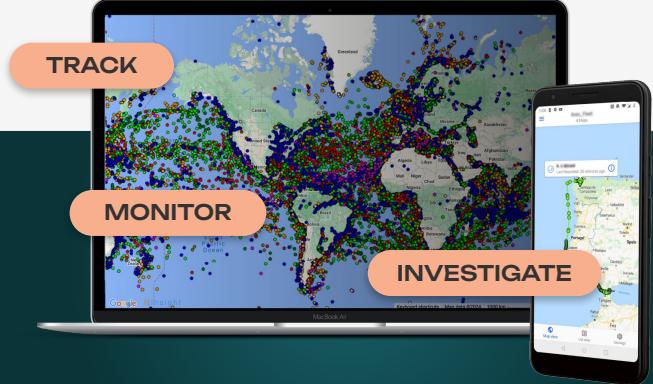
✓ **Response Forces Coordination**
The system supported:
- Real-time Coast Guard vessel oversight
- Security zone placement with local police
- Army Corps cleanup operation coordination
- Commercial traffic rerouting

✓ **Verification & Spoofing Confidence**
Pole Star's verified terrestrial AIS data eliminated uncertainty around vessel positions, providing trusted information critical for avoiding false positives during crisis response.

TRACK

MONITOR

INVESTIGATE

DEFENSE SOLUTIONS

INTELLIGENCE FOR CRITICAL MARITIME INSIGHTS

By leveraging expertise in advanced surveillance, data fusion, and real-time analytics, Pole Star Defense provides defense agencies with the tools to detect, deter, prevent, and disrupt threats at sea.

GET STARTED NOW

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