



## ABOUT GME

**Industry:** Civil

**Location:** Korea

Global Maritime is a marine, offshore and engineering consultancy that specializes in marine warranty, dynamic positioning and engineering services. Known for innovation, practical experience, operational excellence, & safety.

Founded in 1979, and majority-owned by Private Equity Fund HitecVision, Global Maritime's services span the entire offshore project lifecycle from engineering & design, construction and third party verification through to marine warranty surveying, dynamic positioning, installation, risk management and decommissioning.

# Hull Stress Monitoring

## The Challenge

In order to avoid damage to ships and catastrophic accidents, maritime operators needed to be able to measure the stresses and torsions on ship hulls caused by waves, cargo operations, and motions.

## The Solution

HULLFIB works by generating a warning when stress, bending moment, and acceleration of the ship approaches maximum levels at which corrective action is required.

Luna's Optical Sensing Interrogator uses Fiber Bragg Grating (FBG) sensors to measure the strains, temperature, acceleration and pressure. With the FBG technology, there is



no drift and no electrical power at the sensors, making the system intrinsically safe. GME sensors used in conjunction with the interrogator are immune to electromagnetic radiation and present no download effects, ensuring a stable and durable system in the long-term. Fiber optic technology allows any number of sensors to be fitted anywhere in the ship's hull for uninterrupted recordings of actual degree of stress.

- ✓ **Zero Drift**
- ✓ **Intrinsically Safe**
- ✓ **EMI Immune**
- ✓ **Durable**

## The Results

The project was a success and the vessel informed that the HULLFIB is a more convenient monitoring tool for navigation compared with conventional systems adapted with electric sensors. Additionally, HULLFIB presents an advantage, as the solution eliminated the need for annual calibration which was previously performed under hazardous conditions.

📄🔍 **INSTRUMENTS USED**

Luna's si155 Optical Sensing Interrogator was used in conjunction with GME's strain sensors and GME fiber optic accelerometer and pressure transducer

### Typical HULLFIB Configuration:

