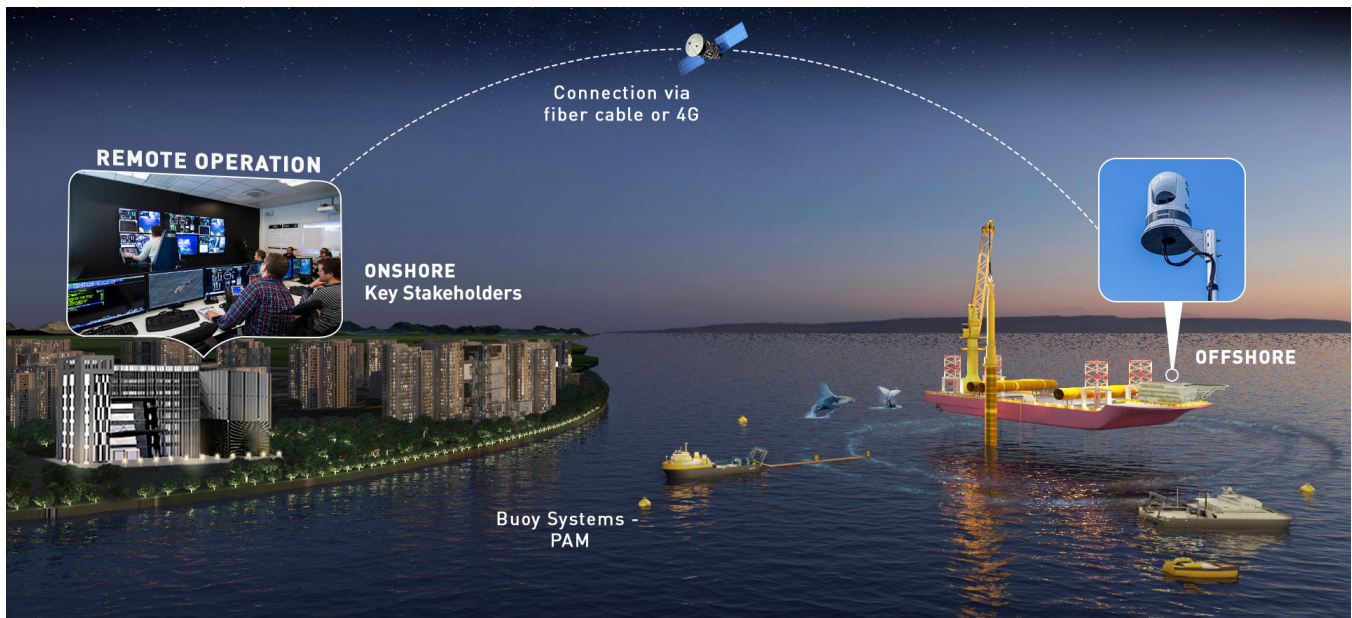


Ocean Perception[™]

Innovative platform for marine mammal mitigation operations



BENEFITS

Increases localization of marine mammal vocalizations

Improves regulatory compliance with vessel speed monitoring

Increases operational window by using thermal cameras to support nighttime operations

Ocean Perception™

The patented Ocean Perception™ platform is a unique software solution that integrates equipment and sensor information to a vessel-based control center, streamlining operations and overall situational awareness. Remote operations infrastructure allows data to be shared with key stakeholders onshore.

Increase Protection of Marine Mammals

- » CAB (Coastal Acoustic Bouy) Guardian System delivers increased mammal localizations
- » Thermal cameras provide reliable mammal detection to 9,843 ft / 3000 m
- » Advanced sensors support mammal detection and tracking

Increase Operational Efficiency

- » Stabilization through rough seas
- » Clear visibility through darkness, fog, rain, and challenging weather conditions
- » Global monitoring and remote capabilities for increased collaboration
- » Collision alerts

Maintain Regulatory Compliance

- » AIS speed monitoring of support vessels
- » Real-time monitoring of GPS enabled vessels
- » Playback capability for species confirmations
- » Ranging algorithm for thermal cameras

Perception is Visualization

Ocean Perception is a first-of-its-kind solution delivering visualization of the mitigation regime and operations for monitoring zones, observation timers, mammal detections, and vessel traffic. This solution increases situational awareness with alarm behaviors delivering improved mitigation and coordination with all offshore and onshore project stakeholders.



Increased Situational Awareness via Patented Software Platform	<ul style="list-style-type: none"> » First-of-its-kind, real-time visualization of mitigation operations » Visualization of alarms and mitigation timers » Map display of acoustic and visual mammal detections and locations » Oversight of vessel traffic » Radar detections
Buoy Integration Enhances Detections through Localization	<ul style="list-style-type: none"> » Improves detection and localization when compared with towed arrays » Detections visually displayed and mapped in software » Minimizes disruptions to operations attributable to weather conditions
Automatic Identification System (AIS) Supports Vessel Speed Monitoring	<ul style="list-style-type: none"> » Drives compliance of contract vessel adherence to dictated speed restrictions in areas where mammals have been detected » AIS targets generate alarms for speeding and when entering monitoring zones
Global Positioning System (GPS) Increases Operational Oversight	<ul style="list-style-type: none"> » Provides situational awareness for offshore operations » Delivers real time overview of vessel movements and speed
Artificial Intelligence (AI) and Machine Learning (ML) Improves Visual Monitoring and Mammal Detections	<ul style="list-style-type: none"> » Leverages automation to enhance protected species observer (PSO) monitoring » Visual documentation of mammals detected via artificial intelligence (AI)
Remote Operations Architecture Improves Coordination and Monitoring	<ul style="list-style-type: none"> » Enables real time monitoring of operations from remote locations globally » Provides holistic view of operations to improve situational awareness and efficiency
Radar Integration Enhances Monitoring	<ul style="list-style-type: none"> » Supplements situational awareness methods, especially during nighttime operations
Thermal Cameras Support Improved Visual Observation	<ul style="list-style-type: none"> » Expands operating window to include nighttime operations, reducing cost and risk while improving efficiency
Ranging Algorithm Improves Data Related to Visual Observations	<ul style="list-style-type: none"> » Advanced camera systems and algorithms support highly accurate range determination

■ For more information: oceaneering.com/ocean-perception

