



**TELEDYNE MARINE**  
Everywhere **you** look™

- **23** PRODUCT BRANDS
- **15** GLOBAL MANUFACTURING AND SERVICE CENTERS
- **+1600** GLOBAL EMPLOYEES
- **24/7** GLOBAL SUPPORT
- **1** JOINT SOLUTION PROVIDER

**A Sea of Solutions**



# Teledyne Marine

A SEA OF SOLUTIONS



## From the seafloor to the surface...

Teledyne Marine is a group of leading-edge undersea technology companies that have been assembled by Teledyne Technologies Incorporated. Through acquisitions and collaboration, over the past 13 years Teledyne Marine has evolved into an industry powerhouse, bringing the best of the best together under a single umbrella. Each Teledyne Marine company is a leader in its respective field, with a shared commitment to providing premium products backed by unparalleled service and support.

In keeping with Teledyne's philosophy, the member companies within the Teledyne Marine Group remain committed to their technical heritage; however, they are now able to leverage and combine their talents and technology to provide their customers with a new level of collaborative technology, innovation, and worldwide support via their OneTeam approach.

## Leveraging Teledyne's resources to meet your challenges

In addition to its vast breadth of innovative products and technology, Teledyne Marine also has direct access to highly focused and unique resources that are available to them through the expanded Teledyne family and its world-renowned research center.

SCIENTIFIC RESEARCH ► PHYSICS / MATERIALS ► ANALYSIS, DESIGN, TESTING ► ENGINEERED SOLUTIONS

### It all starts with an idea.

With over 100 PhDs, Teledyne's research center invests in the brain power required to help our customers solve even their most complex issues. When challenges arise, the Teledyne Marine companies can turn to their very own "think tank" for solutions.

### Perfecting the design.

Teledyne's technology and reliability development center focuses on proving reliability through extensive testing and qualification in an ocean-simulation laboratory. Unmatched in the industry and funded by the world's largest energy companies, this unique 52,000 ft<sup>2</sup> facility focuses on resolving next-generation technical challenges for offshore and marine applications.

### Bringing it all together.

Teledyne's engineered solutions group collaborates with the Teledyne Marine companies to turn individual products and components into integrated system solutions. This organization has the experience, knowledge, and commitment required to deliver highly complex, turn-key systems for large defense and commercial programs.

Acoustic Communications and Acoustic Releases



Transducers and Hydrophones

Seismic Streamers

Benthos ODI Scientific  
(Teledyne Partner)

RD Instruments

TIMELINE OF TELEDYNE MARINE ACQUISITIONS  
*Building a legacy.*

1965 Geophysical Instruments

2003

2004

2005

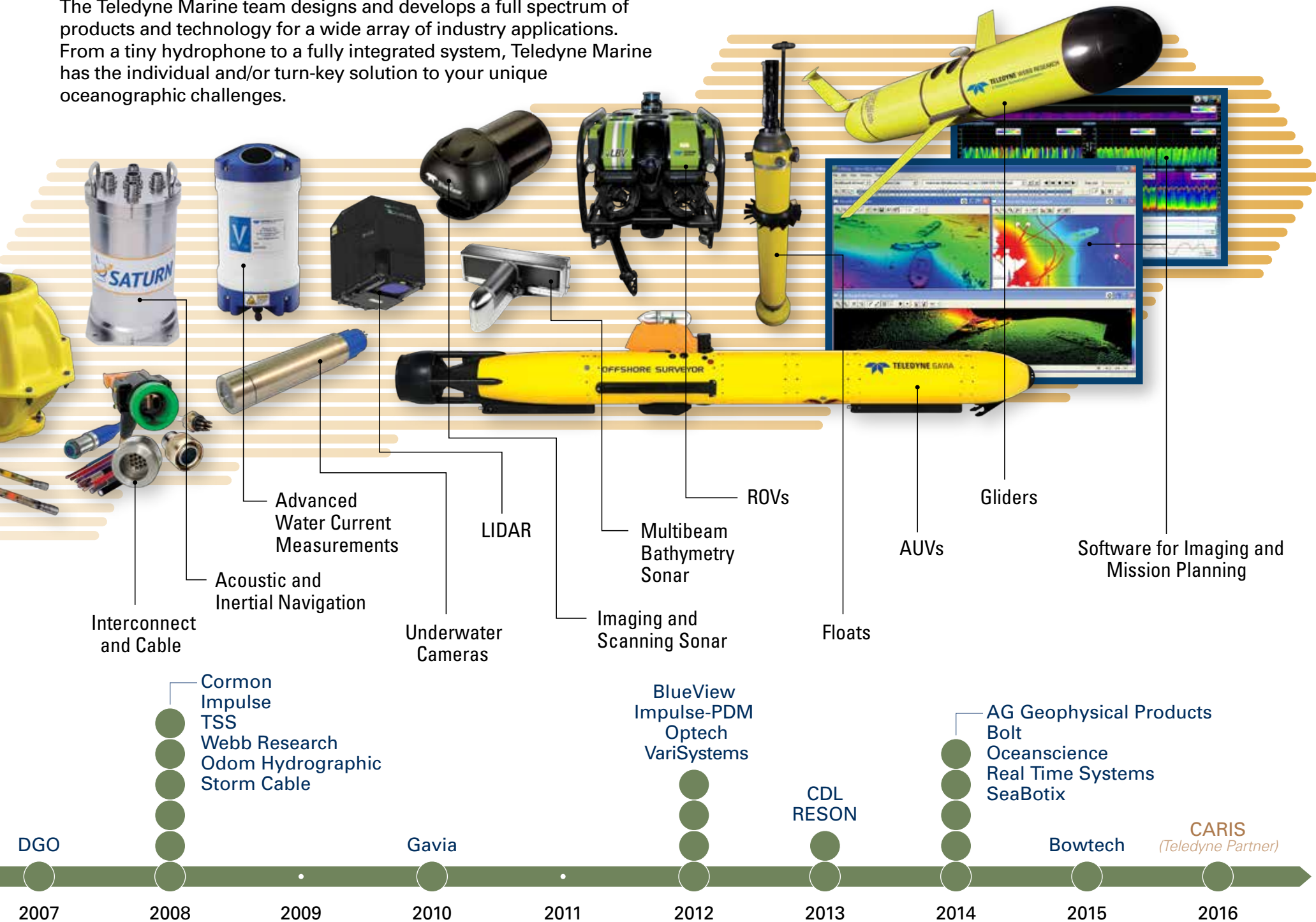
2006

# SENSORS

# SYSTEMS

# IMAGING & INFORMATION

The Teledyne Marine team designs and develops a full spectrum of products and technology for a wide array of industry applications. From a tiny hydrophone to a fully integrated system, Teledyne Marine has the individual and/or turn-key solution to your unique oceanographic challenges.





### Offshore Oil Rig, including:

- Dynamic Positioning
- Acoustic Doppler Current Profilers
- Corrosion and Erosion Sensors

### Surface Vessel, including:

- Underway SV
- Gyrocompass
- Long-Range LIDAR Scanner

### Subsea Oilfield, including:

- Glass-to-Metal Sealed Interconnect and Wellhead Feedthroughs
- Corrosion and Erosion Monitoring Systems
- ODI Subsea Power Systems

### Oceanographic Mooring, including:

- Acoustic Doppler Current Profilers
- Acoustic Modem
- CTD
- Glass Float
- Acoustic Release

### Teledyne Shallow and Deep Water Towed Survey Systems

### Teledyne AUV, including:

- 3D Profiler and Gap-Fill Sonar
- Doppler Velocity Log
- Acoustic Modem
- Inertial Navigation System
- Positioning

### Ocean Observatory, including:

- Bottom Mount with Acoustic Doppler Current Profiler and CTD
- Acoustic Modem

**Workclass Remotely Operated Vehicle, including:**

- Pipe and Cable Detection System
- Forward-Looking Sonar
- Inertial Navigation System with Integrated Doppler Velocity Log
- Multibeam Echosounder
- Camera and LED Lights

**Teledyne Autonomous Surface Vehicle, including:**

- Multibeam Echosounder

**Survey Vessel, including:**

- Multibeam Echosounder
- Acoustic Doppler Current Profiler
- Inertial Navigation and Motion Compensation Systems
- Streamers
- Sound Source
- Seismic Controllers

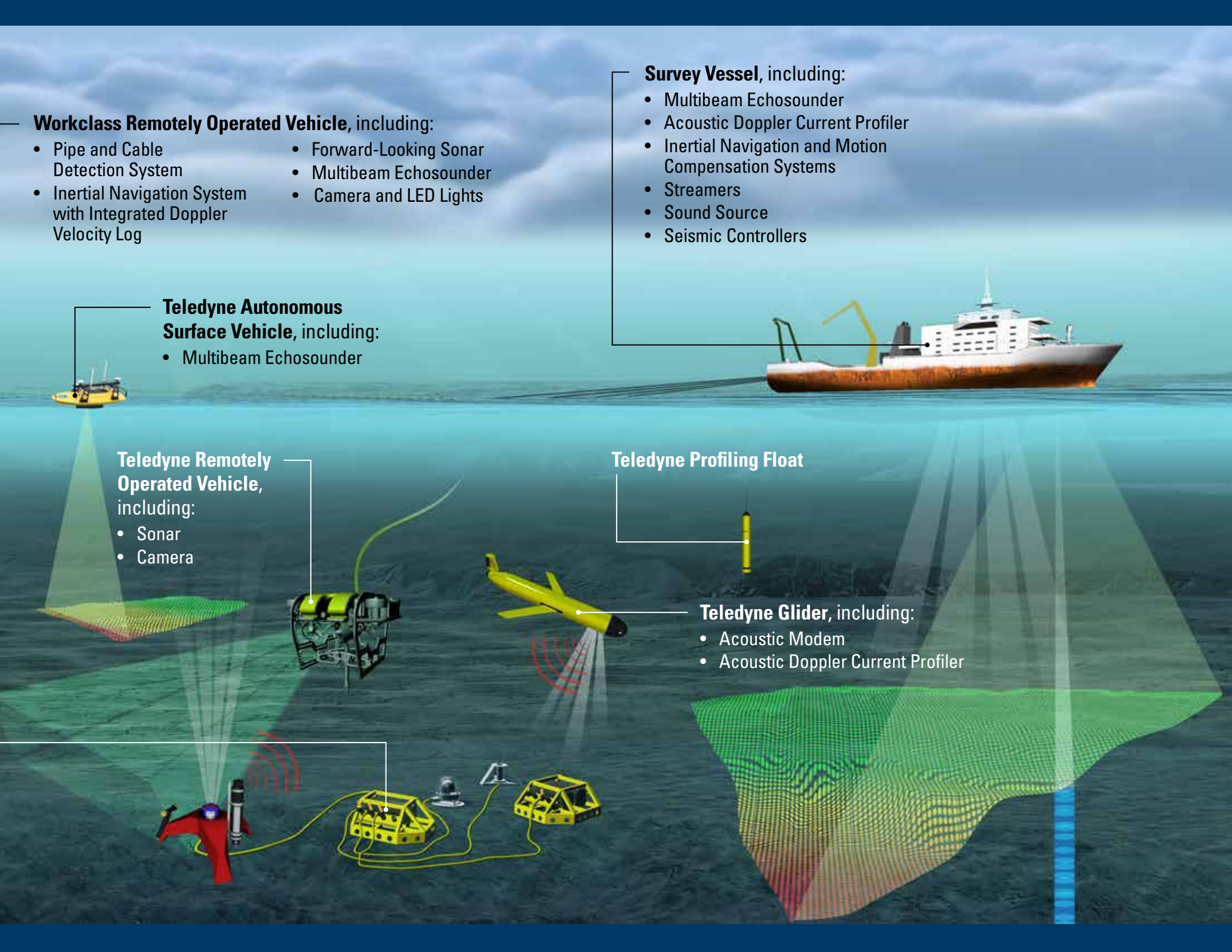
**Teledyne Remotely Operated Vehicle, including:**

- Sonar
- Camera

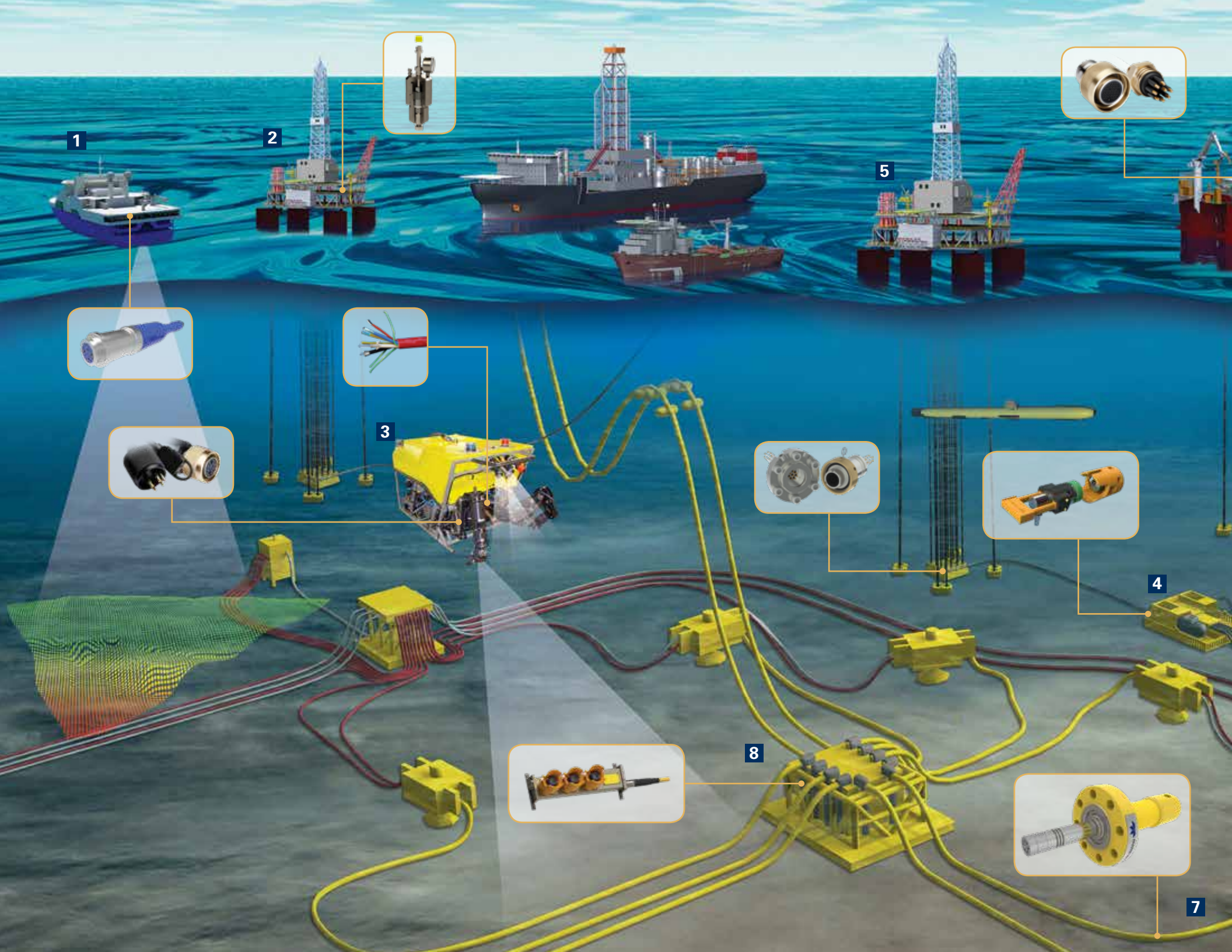
**Teledyne Profiling Float**

**Teledyne Glider, including:**

- Acoustic Modem
- Acoustic Doppler Current Profiler







1

2

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# Teledyne Marine Interconnect

Power, communications and sensing solutions for harsh environments

## 1. Seismic Vessel, including:

- Source Connectors/Assemblies, Hydrophones, Seismic Source Management Systems, and Submersible Connectors for Seismic Streamers

## 2. Offshore Oil Rig, including:

- Topside Data Acquisition and Corrosion Probes
- Topside Electrical Connectors and Penetrators

## 3. Remotely Operated Vehicle, including:

- Submersible Assemblies
- Application-Specific Cable

## 4. Umbilical Termination Assembly, including:

- Cable Terminations, Wet Mate Electrical Connectors, Distribution Systems, High Power/High Pressure Interconnect and Penetrations

## 5. Offshore Drilling Rig, including:

- Glass-to-Metal Sealed Electrical Connectors
- Dry Mate Submersible Assemblies

## 6. Subsea Christmas Tree, including:

- High Pressure/High Temperature Electrical Feedthrough Systems
- Pressure and Temperature Sensors
- Fiber Optic and Hybrid Wet Mate Jumper Assemblies

## 7. Subsea Pipeline, including:

- Erosion and corrosion probes, and Pressure and Temperature (PT) Sensors

## 8. Subsea Manifold Systems, including:

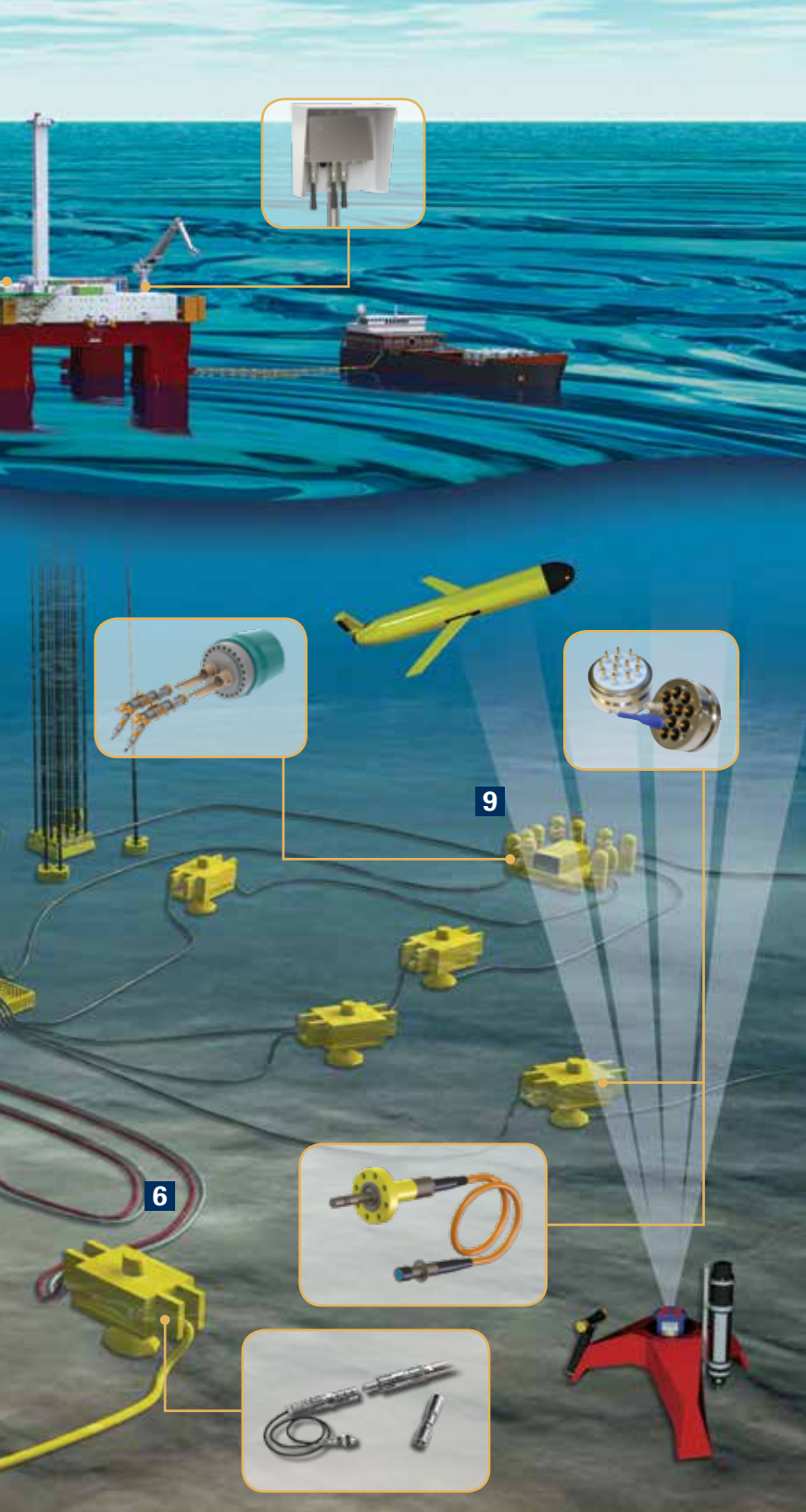
- Active Flying Leads (AFL), Wet Mate Electrical/Hybrid Connectors, and Distribution Systems

## 9. Subsea Pumping/Boosting System, including:

- Subsea Power Systems
- Penetrators and Wet Mate Electrical/Hybrid Interconnect Assemblies

The diverse needs of Oil & Gas, government, and military customers are successfully served through a broad portfolio of field-proven, time-tested electrical, optical, and hybrid interconnect capabilities optimized for mission-critical applications, where performance and reliability are imperative.

Solutions for these harsh environments include wet-mate, splash-mate, and dry-mate connectors, pressure boundary penetrators, cable assemblies, cable terminations, and custom-engineered encapsulation and molding. They are available as stand-alone items, or as complex higher-order solutions that integrate cross-platform technologies into advanced, value-added systems.



# Teledyne Marine's Markets—diverse solutions for your diverse needs

The Teledyne Marine team collectively engages in providing leading-edge technology solutions to the six major markets identified below. Whether you're seeking vital new oil and gas deposits off the coast of Africa, conducting climate change research in the frozen Arctic, or assessing the integrity of bridge pilings along the mighty Mississippi River, Teledyne is there leading the way, providing you with the tools you need to get the job done. From the shallowest stream to the deepest ocean, Teledyne Marine has you covered.

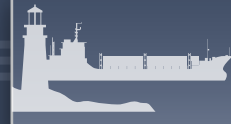
**Learn more about market specific capabilities at: [www.teledynemarine.com](http://www.teledynemarine.com)**



## Oceanography

### Applications

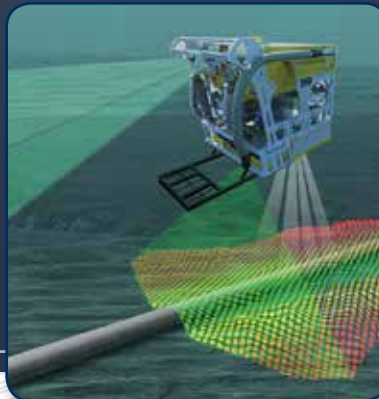
- Integrated ocean observatories
- Climate change studies
- Deep water surveys
- Research moorings
- Passive acoustic monitoring
- Hydro thermal vent detection
- Profile measurements
- Wreck survey and salvage
- Earthquake and tsunami monitoring



## Hydrography/Navigation

### Applications

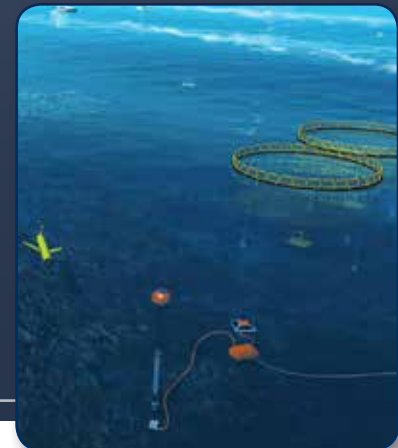
- Ports and harbor surveying
- Dredge guidance / monitoring
- Hazard detection
- Coastal construction
- Environmental monitoring
- Harbor inspection
- Navigation



## Aquaculture/Fisheries

### Applications

- Aquaculture
- Fisheries
- Environmental studies
- Mammal detection / monitoring
- Coastal moorings
- Plume studies







## Energy

### Applications

- Seismic surveys
- Hydrographic surveys
- Pipeline and cable tracking
- Environmental monitoring
- Rig monitoring
- Metrology
- Visual inspection
- External pipeline inspections
- Leak detection
- Flow assurance / asset integrity
- Power / data networks
- Positioning
- Acoustic communications
- Data acquisition and storage



## Defense / Security

### Applications

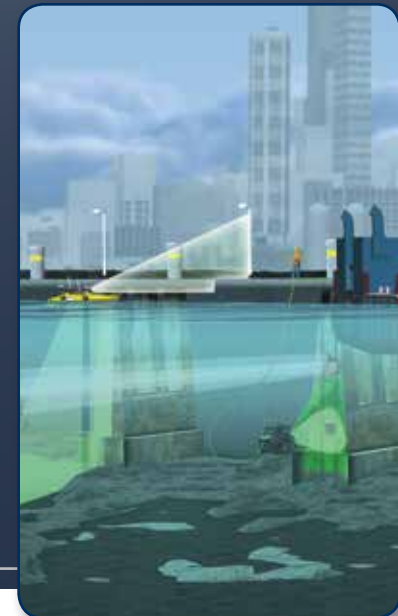
- Port and harbor security
- Mine countermeasures
- Anti-submarine warfare (ASW)
- Rapid environmental assessment
- Terrain mapping and navigation
- Obstacle avoidance
- Hydrophones
- Diver detection
- First responder / diver support
- Surveillance
- Search, rescue, and recovery
- Fire control system stabilization
- Nuclear reactor inspection
- Hull and maritime infrastructure inspections
- Pressure hull penetrators



## Water Resources/ Civil Engineering

### Applications

- River / stream monitoring
- Discharge measurement
- Hydro power optimization
- Environmental monitoring
- Flood planning / control
- Bridge / dam inspection
- Scour monitoring
- Bathymetric mapping



# Teledyne Marine—solving your toughest challenges

## Small company feel, large company resources

Since its inception in 2005, Teledyne Marine has continued to grow in size and scope; adding technology and capabilities through organic and acquisition growth. Now recognized as a preeminent leader in marine technology, no other organization offers the vast spectrum of product solutions and technologies that the Teledyne Marine team delivers to resolve challenges in some of the most demanding scenarios and environments imaginable.

The unique structure of Teledyne Marine offers its customers the best of both worlds—an intimate small company feel, where our customers deal with the familiar faces that they've grown to know and trust, backed by the vast resources and collaboration made possible through the Teledyne organization. Whether you're seeking a single sensor or an end-to-end product solution, Teledyne Marine's OneTeam has your answers.



## Our commitment to you

At Teledyne Marine, we are committed to strengthening the value proposition to our customer by consistently delivering:

- **Best-in-class products, engineered solutions, and services**
- **One-stop shopping options for innovative technology solutions**
- **One-on-one relationships built on trust and integrity**
- **Reliable, consistent, and demonstrable quality program**
- **Field-proven product/system reliability**
- **New product development and qualification programs**
- **Continuous product and process improvements**
- **24/7 service and support when and where you need us**



Photo by Dan Crowell.

## First Transatlantic AUV Crossing

In December 2009, Teledyne's Slocum autonomous underwater glider completed the first transatlantic crossing of an autonomous underwater vehicle (AUV).

Launched from the east coast of the US, and navigated by students from the Rutgers University, *Scarlet Knight* traveled more than 4,500 miles across the Atlantic during its 7-month voyage, using the equivalent energy of about four Christmas tree lights. During its crossing, the vehicle collected measurements of ocean water salinity and temperature, transmitting the data via satellite to the lab at Rutgers. After 201 days in the water, the *Scarlet Knight* successfully completed its impressive journey, surfacing on November 14, 2009, in Spanish waters.

<http://rucool.marine.rutgers.edu/atlantic/>





## Navigating the Way to a Record-Setting Dive

Nereus is a hybrid unmanned autonomous underwater vehicle built by Woods Hole Oceanographic Institution (WHOI). Capable of autonomous or tethered operation to depths of 11,000 meters, the vehicle was designed to explore the deep mysteries of the Mariana Trench.

Equipped with a Teledyne Doppler Velocity Log (DVL) to provide vital precision underwater navigation updates, on May 31st, 2009, Nereus successfully dove to 10,902M, making it the world's deepest-diving vehicle then in operation. Teledyne's DVL aided in vehicle navigation and allowed operators to hover on location for 10 hours, collecting previously inaccessible deep water findings.

<http://www.whoi.edu/main/nereus>

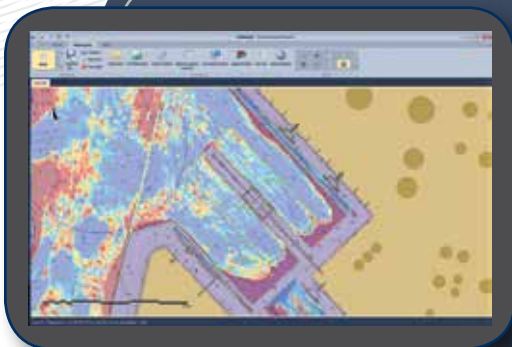


## "The Golden Spike" for Ocean Observatories

When the construction of the Transcontinental Railroad was completed in the 1800s, a final golden spike was hammered in to officially link the two coasts of the country. This momentous event signified the joining of the East and West, and the opening of a new means of transportation and delivery of information across the continent.

Although it was not carrying a golden connector, a similarly historic connection was made when an ROV plugged the Teledyne electro-optical cables connecting the seafloor sensors into the primary observatory node. This connection was a huge step forward in the construction of the Ocean Observatories Initiative seafloor cabled network, providing the infrastructure required for a near real-time, continuous window into the deep ocean.

[http://novae.ocean.washington.edu/story/The\\_Golden\\_Spike.html](http://novae.ocean.washington.edu/story/The_Golden_Spike.html)



## Driving Down Costs for Europe's Busiest Port

The Port of Rotterdam is an open deep-water port in the river estuary Maas. The location of the port in an estuarine environment necessitates maintenance dredging due to siltation 'attacks' from both tidal current and river discharge. To control the dredging activities, the Port of Rotterdam conducts hydrographic surveys on a daily basis. Their two survey vessels were recently outfitted with leading-edge Teledyne multibeam echosounders to provide precision mapping capabilities. Teledyne's advanced mapping technology allows for wider swaths, faster surveys, and cleaner data, which have contributed to a cost saving to the port of nearly €150,000 per year.

<http://goo.gl/O60r5o>

## TELEDYNE MARINE WORLDWIDE



[teledynemarine.com](http://teledynemarine.com)



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