Oceanography & Measurement Systems

The Oceanography & Measurement Systems team focuses on measuring and understanding the world’s marine resources for hands-on, practical applications. In ports and harbors, Woods Hole Group provides precise measurements of water level, current speed, and the air gap between the water surface and overhead bridge infrastructure to ensure safe navigation and improve maritime commerce. For offshore oil and gas exploration and production, Woods Hole Group provides real-time, deep water current data to guide effective and safe drilling operations, and then utilizes the data to develop defensible engineering parameters for design of offshore facilities.

Woods Hole Group is distinguished by the quality and experience of the staff, and the emphasis on quality, safety, and customer service. The Oceanography & Measurement Systems staff includes reliable field engineers and technicians with worldwide experience, and world-class applied oceanographers and ocean engineers with practical industrial experience. Clients rely on us to provide turnkey services from integration and deployment of measurement systems, to data recovery and quality control, and through analysis and engineering/operational guidance. The team operates according to approved HSE protocols and quality standards, and emphasizes customer communications and responsiveness.

Capabilities

Port, Harbor & Coastal Monitoring Systems
- Aids to Navigation Safety & Security
- System Design & Integration
- Installation, Operation & Maintenance Services
- Real-Time Data Displays

Offshore Met-Ocean Systems & Moorings
- Rig/Platform Real-Time Systems
- Moorings & Buoys
- Oceanographic Surveys & Cruises
- Deployment & Recovery Services

Physical Oceanography/Ocean Engineering
- Design Criteria Studies
- Data Recovery, QA & Reporting
- Oceanographic Modeling
- Hydrographic/Geophysical Surveys & Cruises

Products and Software
- Integrated Real-Time Monitoring System (IRMS) Software/Displays
- Turnkey Systems Design, Assembly, Deployment & Maintenance
- Surface Environmental Monitoring Buoys
- SeaTeam Real-Time System Integration and Telemetry Module
- SeaPac Wave, Tide, and Current Meters
- Equipment Lease/Rental
**Featured Projects**

**Physical Oceanographic Real-Time System (PORTS®)**
National Oceanographic and Atmospheric Administration (NOAA)

Woods Hole Group provides installation, operation, routine maintenance and 24/7 emergency services to NOAA in support of PORTS® in Narragansett Bay, RI, New Haven, CT, Port of NY/NJ, Delaware Bay, Chesapeake Bay, Tampa Bay, Port of LA/Long Beach, and in the Great Lakes. Quality-controlled data are provided to the public every 6 minutes to ensure safe navigation, optimize maritime commerce, support environmental remediation, and improve emergency response.

**Lake Current Monitoring System**
Ontario Power Generation

Woods Hole Group designed, installed and maintains a real-time reporting system that supports the operation of nuclear and coal-fired electric power facilities. The system has operated effectively for more than 10 years.

**West Seno Integrated Real-Time Monitoring System**
Chevron Corporation

A customized software package was delivered to help guide operational processes onboard an offshore oil production facility. Environmental (e.g., currents, winds, waves) and operational (e.g., anchor/winches tension, platform position) data are combined in real-time, user-friendly displays and linked to alarms to guide safe and efficient decision-making in the oilfield.

**Texas Automated Buoy System (TABS)**
Texas A&M University

Woods Hole Group designed, built and delivered oceanographic buoys for incorporation into the TABS real-time ocean observation program, which has been used to support oil spill prevention and response in the Gulf of Mexico since 1995.

**Met-Ocean System onboard the Drillship Jack Ryan**
ExxonMobil Development Company/BP

A real-time reporting system was designed, installed, operated and maintained onboard the Jack Ryan. The system includes a deepwater 38 kHz current profiler (ADCP) that measures speed and direction down to a 1,000 m water depth, a shallow water directional wave/current profiling gauge, and a wind speed and direction system. Services were provided in the Gulf of Mexico, offshore South America, and offshore West Africa.

**Extreme Design Parameters and Fatigue Analysis, Makassar Strait**
Chevron Corporation

Deepwater current profiles were compiled from oceanographic moorings and platform-based systems, and analyzed to calculate extreme design parameters for design of offshore facilities. Current profiles also were developed to support evaluation of fatigue life and vortex-induced vibration (viv) for risers.

**Deepwater Mooring Program and Technology Transfer**
Instituto Mexicano de Petroleo (IMP)

A deep water mooring program was performed cooperatively with IMP to support the planning process for increased deepwater exploration and production of oil resources offshore Mexico. Equipment, in-field, and classroom training services were provided.