



**Trust in Depth**



Providing a level of safety and security with efficient and proven technology from skilled professionals along with first rate maintenance and support, OceanWorks International is the company to turn to when

**TRUST in DEPTH** is required.

# flexible solutions





OceanWorks prides itself on being one of the world's premiere subsea technology companies, providing its customers with a significant range of advanced subsea systems for the international scientific & environmental, oil and gas and military markets.

The depth of experience in the design, manufacture, testing, certification, and delivery of customized subsea engineering designs, prototypes and systems extends over 30 years..

Our expertise also includes all engineering and project management disciplines required to support our core business areas.

The challenges faced in successfully providing our customers with unique and revolutionary subsea technology solutions have resulted in product innovations and robust cost-controls in our business processes. Finding solutions to unique industry requirements is always accomplished with this focused and disciplined business approach.

# for your critical subsea needs





# 30 Years of Innovative Solutions



2018



2015



2011



2007

US Navy PRMS delivered.

2006



2001

Management buyout complete.  
OceanWorks International is formed.

1998

Stolt Comex Seaway (now Subsea7)  
acquires AOD.



1996

International Hardsuits acquired by  
American Oilfield Divers (AOD).

1995



1986

International Hardsuits formed  
to develop atmospheric diving suit.



# Our Markets

OceanWorks' products and services can be broken down into three primary markets: Scientific and Environmental, Military, and Oil & Gas.

OceanWorks has been a leading supplier of subsea systems to military customers for nearly two decades. During this time we pioneered the introduction of submarine Remotely Operated Rescue Vehicle (RORV) and articulated mating skirt technology. The products and solutions we offer in the military segment include:

- Submarine rescue systems
- Submarine rescue intervention
- Atmospheric Diving Systems (ADS)
- Submarine emergency ventilation
- Integrated logistics solutions
- Spares and refurbishments

In 2005, OceanWorks' subsea networks expertise extended to supplying systems to Scientific & Environmental customers. The products and solutions offered in the scientific and environmental segment include:

- Seafloor networks
- Operations and maintenance
- Spares and refurbishments

Providing customized solutions to create, develop, maintain and enhance specific oil and gas requirements or challenges, OceanWorks' products and solutions offered to the oil & gas segment include:

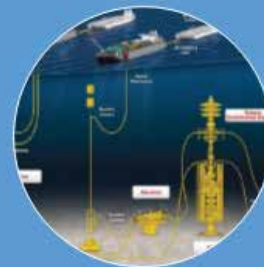
- Power distribution
- Control and subsea modules
- Enhanced launch and recovery solutions
- Seabed systems
- Customer specific research & development and prototyping



Science &  
Environmental



Military



Oil & Gas



# Global Reach

OceanWorks' customers and product lines can be found in over 20 countries around the globe.



## Our Commitments

### QUALITY ASSURANCE

OceanWorks International conducts all business using a Quality Assurance Program complying with ANSI/ISO 9001. Design and manufacturing is executed to an approved Quality Systems Manual with detailed procedures and instructions providing specific controls to be followed in order to fully meet all customer requirements.

The confirmation of the effectiveness of our high quality standards and systems during both the design and manufacturing/fabrication phase is reflected in the high number of repeat clients and in the documented satisfaction reflected to us by our customers.

### HEALTH & SAFETY

OceanWorks has a long history of delivering safe and reliable life support critical technology. The OceanWorks commitment to safety is not limited only to our products; it extends to all employees. OceanWorks maintains a disciplined culture in support of safety. The Occupational Health and Safety (OHS) Regulation of the Workers Compensation Act of Canada (WCA) contain legal requirements for workplace health and safety that must be met by all workplaces under the inspection jurisdiction of WorkSafeBC.

# Facilities

Our substantial Canadian facility is utilized for design, fabrication and testing of all OceanWorks' product lines, and for the research and development of customized equipment as required. Customer training is also conducted at our Vancouver facility.

Some key features:

- 22,435 square feet of manufacturing space
- 13,650 square feet of office space
- Mechanical Assembly Shop
- Electronics/ESD Safe Assembly Shop
- Electrical Clean Room
- High Voltage and Accelerated Lifetime Testing
- Orbital Welding
- Oxygen Cleaning
- High Bay Assembly Area for Larger Equipment
- Hydrostatic Testing Facility
- Test Tank





# Capabilities

## PROJECT MANAGEMENT - A HISTORY OF SUCCESS

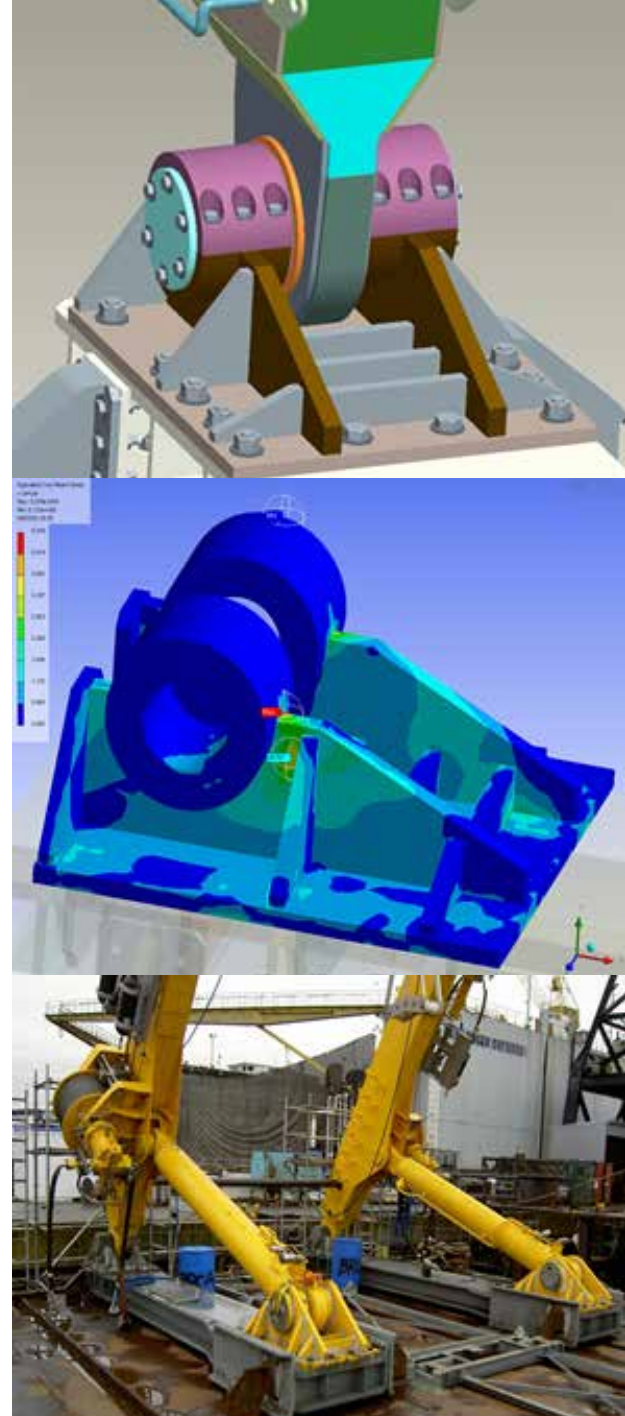
- An effective project TEAM with PASSION for subsea!
- Active risk management
- Ensuring clarity on expectations, priorities, and responsibilities
- Effective governance and forecasting

## THE DESIGN PROCESS

- Documented stage-gate design review process
- Compliance matrix for full requirements traceability
- Interface control documents
- Design for manufacturability, testability (DFx)
- Qualification test plans (design robustness)
- Functional test plans (assembly correctness)

## DESIGN STANDARDS

Applicable third party design standards are identified and act as the foundation of the design. Registrations include (but are not limited to) Lloyds Register of Shipping, American Bureau of Shipping, and Det Norske Veritas (DNV)





## ENGINEERING CAPABILITY - A HISTORY OF INNOVATION

### MECHANICAL DESIGN

- Centered around usability, low total cost of ownership, safety and reliability
- Hydraulic and pneumatic Systems
- Pressure vessels and pressure piping/components
- Life support
- Structural and load

### ELECTRICAL / ELECTRONICS DESIGN

- Power distribution systems
- Variable frequency drives
- Subsea oil-filled transformers
- Subsea power converters

### SUBSEA AND SURFACE CONTROL SYSTEMS

- Off the shelf PLC type controllers packaged for subsea or marine applications
- Embedded controllers with custom interfaces, digital and analog I/O
- Ethernet based systems with surface PC based controllers
- Custom control and diagnostic software using matlab/simulink



# Example Projects

## CSNET

- Five OceanWorks Nodes that form the basis of the monitoring infrastructure for the Offshore Communication Backbone (OCB)
- 2500 Meter Depth
- Up to 80km between Nodes
- Additional refurbishment to existing Node structure

## OCEAN NETWORKS CANADA

### NEPTUNE

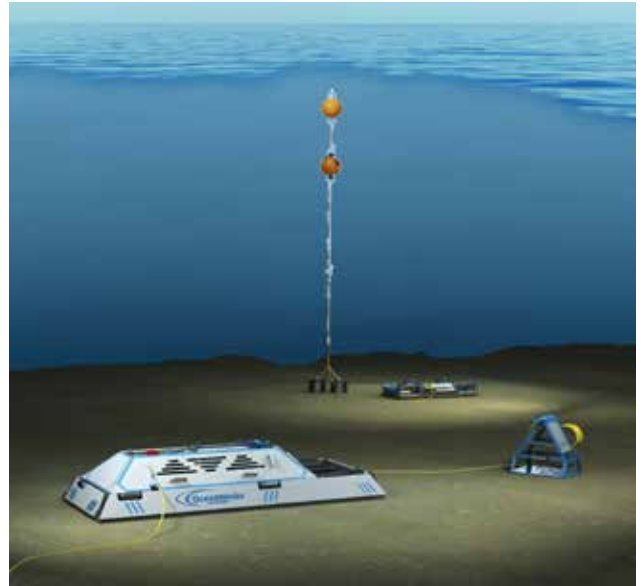
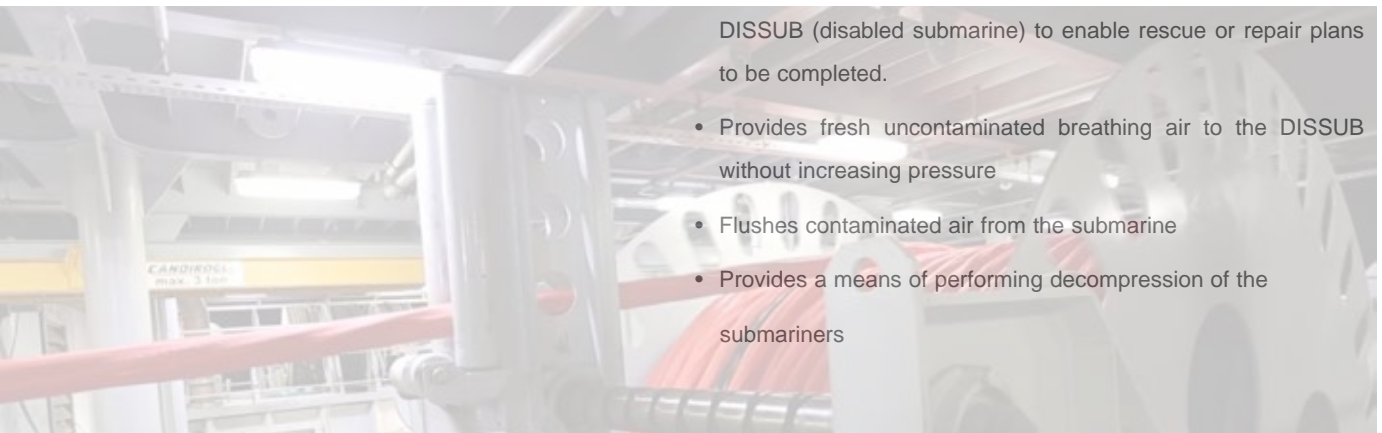
- Subsea Instrument Interface Modules (SIIM)
- New Generation SIIMs, Operational Support

### VENUS (Saanich)

- Communication Nodes, Shore Station, SIIMs

### VENUS (Strait of Georgia)

- Communication Nodes, Shore Station, SIIMs



## U.S. NAVY SUBMARINE RESCUE DIVING AND RECOMPRESSION SYSTEMS (SRDRS)

- Remotely Operated Rescue Vehicle (RORV)
- Transfer Skirt
- Control Van
- Umbilical Winch
- Air Transport Interfaces
- Launch & Recovery Systems (LARS)
- Auxiliary Equipment

## SUBMARINE EMERGENCY VENTILATION AND DECOMPRESSION SYSTEM (SEVDS)

- Provided full systems and configurations thereof to several Naval Groups and their vessels
- A submarine rescue intervention system to prolong life within a DISSUB (disabled submarine) to enable rescue or repair plans to be completed.
- Provides fresh uncontaminated breathing air to the DISSUB without increasing pressure
- Flushes contaminated air from the submarine
- Provides a means of performing decompression of the submariners

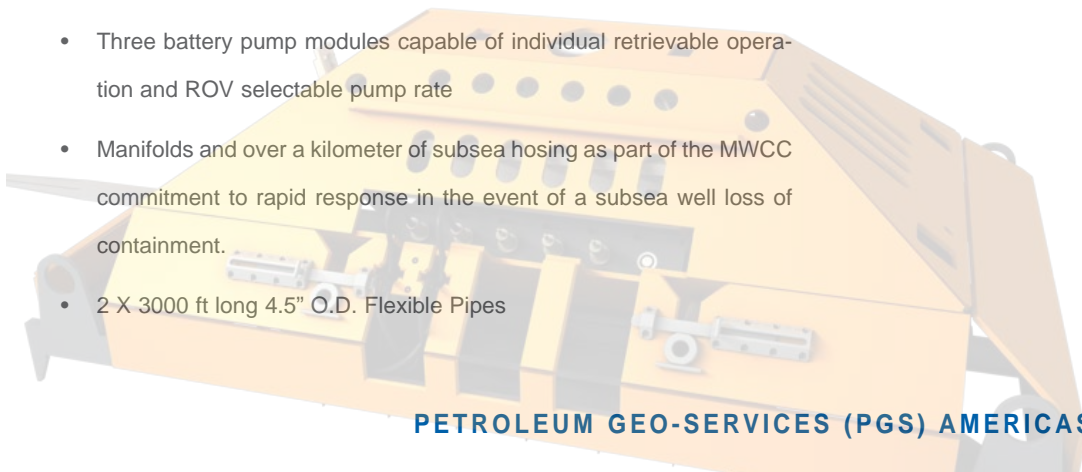


## MARINE WELL CONTAINMENT COMPANY (MWCC)

### SUBSEA FLUID DISPERSANT SYSTEM (SFDS)

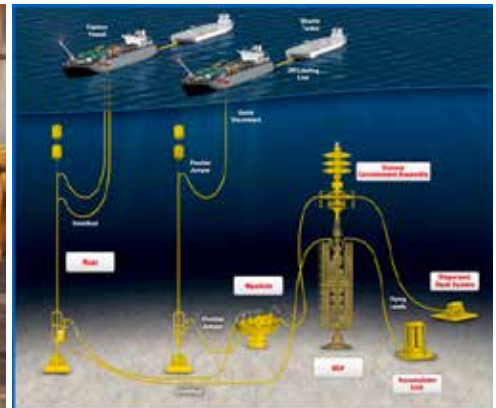
Supplied all subsea equipment allowing MWCC to respond rapidly in the event of a well containment issue. System includes:

- Bladder skids capable of holding 84,000 US gal of dispersant.
- Three battery pump modules capable of individual retrievable operation and ROV selectable pump rate
- Manifolds and over a kilometer of subsea hosing as part of the MWCC commitment to rapid response in the event of a subsea well loss of containment.
- 2 X 3000 ft long 4.5" O.D. Flexible Pipes



## PETROLEUM GEO-SERVICES (PGS) AMERICAS

- Provision of a termination node for the Jubarte SMSI Permanent Reservoir Monitoring (PRM) system for Petrobras in Brazil.
- System design allows for oil and gas customers to use existing and proven Node structure designs developed for the Cabled Observatory industry
- Provides termination of the Permanent Reservoir Monitoring (PRM) system sensor cables to the main backbone cable..



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