

Underwater Intervention Conference 2011

(UI 2011)

**New Orleans, Louisiana, USA
22 – 24 February 2011**

Volume 1 of 2

ISBN: 978-1-61782-793-8

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2011) by the Marine Technology Society
All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact the Marine Technology Society
at the address below.

Marine Technology Society
5565 Sterrett Place, Suite 108
Columbia, MD 21044

Phone: (410) 884-5330
Fax: (410) 884-9060

membership@mtsociety.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Volume 1

CABLES AND CONNECTORS

Opportunities for Cables and Connector Operational Improvements.....	1
<i>David Pfosi</i>	
Copper or Fiber?	3
<i>Brad Fisher, Dave Jenkins</i>	
Challenges and Lessons Learned with Cable and Connectors with Tsunami Monitoring & Detection.....	4
<i>Craig Kohler</i>	
NOAA /NDBC TAO Inductive Modem (IM) Coupler Evolution and Development	5
<i>Lex LeBlanc</i>	
NDBC Underwater Buoy Cabling Experience	7
<i>Rodney Riley</i>	

DEEP OCEAN MINING

Exploring for Seafloor Massive Sulfide Deposits in the South Pacific	8
<i>Roy Truman</i>	
Renewable Treasure Fresh Water From The Sea	9
<i>Craig Mullen, Michael Becker</i>	
Microbiological Investigations on the Role of Rusticles in the Deterioration of Sunken Ship Wrecks	11
<i>D. Roy Cullimore, Lori Johnston</i>	

DIVING

Diver -Based Rapid Response Capability For Maritime - Port Security Operations	12
<i>Dennis G. Gallagher</i>	
An Underwater Augmented Reality System for Commercial Diving Operations	24
<i>R. Morales, P. Keitler, P. Maier, G. Klinker</i>	
Monitoring H2S in The Diving Bell.....	32
<i>Simon Lunt, Mark Lewis</i>	
Monitoring CO in Saturation Diving Systems.....	54
<i>Mark Lewis</i>	
Internal vs. External Monitoring – Can We Reduce the Need for Calibration?	67
<i>Mark Lewis</i>	
Implementing a Quality Management System to Comply with ISO 9001 and Beyond: How Diving Companies Can Apply It and Excel	87
<i>Miriam Boudreaux</i>	
Legal Update 2011 For the Commercial Dive Industry.....	88
<i>Richard Lesser</i>	
Upstream Control Project, Phase 1	90
<i>Mike Langen</i>	
Shallow Air Saturation Diving from a Subsea Habitat.....	91
<i>Saul Rosser</i>	
Baseline Body Habitus in the Commercial Diver	92
<i>Brian M. Bourgeois, Andre Labbe</i>	
First Aid For Marine Life Bites, Stings, Etc.....	93
<i>Sarah Parks</i>	
Lionfish In The Gulf Of Mexico	94
<i>N/A</i>	
Lionfish NOAA Diver Memo	106
<i>N/A</i>	
Diving Could Be Commercial and Scientific? A Case Study from Sultanate of Oman	107
<i>Anita G. Mary, P. Madhupal</i>	

Innovative Combination of Different Work Technologies to Affect the Underwater Repair of a DOT Oil Transmission Pipeline Riser Inside of the Leg of a Platform in Alaska.....	109
<i>David DeVilbiss</i>	
Emergency Patch Prevents Trawler Capsize	110
<i>Claus Christian Apneseth</i>	
Commercial Dive Harness Technical Presentation.....	111
<i>Christopher Peppeler</i>	

EDUCATION

MTS and MATE: Partners in Preparing the Next Generation of Ocean Professionals	112
<i>Jill Zande</i>	
MATE Summer Internship: SERPENT: An Academic-Industrial Partnership to Explore the Deep Sea.....	114
<i>Stuart L. Cook</i>	
ROV in a Bag - An Introduction to Remotely Operated Vehicles (ROVs) for the Classroom.....	116
<i>Erica L. Moulton</i>	

MANNED UNDERWATER VEHICLES

Manned Underwater Vehicles Activity Overview for 2010/2011.....	121
<i>William Kohnen</i>	
Update of Hull Fabrication Status for the New ALVIN Upgrade	140
<i>Jerry Henkener</i>	
WHOI ALVIN RHOV Upgrade Project.....	174
<i>Kurt Uetz, Anthony Tarantino</i>	
Review of Existing Guidelines for Lithium Ion Batteries in Human Occupied Underwater Vehicles	200
<i>Daniel Gomez-Ibanez</i>	
The MTS MUV Program MIR Sub Diving Expedition in Lake Baikal	215
<i>Paul Isley</i>	
OceanGate Sea Trials 2010: Lessons Learned During Our First Year Operating Antipodes.....	300
<i>Guillermo Söhnlein</i>	
Project Palau: Cancer Research Funding Request - Diving for the Cure-	322
<i>C. Hartman, B. Adams</i>	
Filming Giant Humboldt Squid Eating Salmon Using New Red Light Technology	349
<i>Scott Cassell</i>	
SEAmagine New Submersible Deliveries.....	352
<i>Charles Kohnen</i>	
Practical Applications of ROVs on Small Manned-Submersibles	376
<i>Sean Newsome</i>	
Diving in Mongolia: Adventures in the Land of Chinggis Khan Over, Under & Across Mongolia.....	397
<i>Gregg Mikolasek</i>	
Study of the Cost of Navy Certification for Deep Submergence Systems	398
<i>Lorri Bennett</i>	
The US Navy's Deep Submergence Systems Program.....	416
<i>Alfred H. Ford</i>	
Overview of the Rule Change Proposals for the ABS Underwater Rules	515
<i>Roy Thomas</i>	
Personal Submersibles Organization - www.psubs.org	526
<i>J. Wallace</i>	
Protecting Intellectual Property Around The World	551
<i>Mitchell P. Brook</i>	

Volume 2

Micropore Inc.	567
<i>Tom Daley</i>	

MARINE STRUCTURE

Risk-Based Inspection for Life Extension of Fixed and Floating Offshore Structures	595
<i>Peter W. Marshall</i>	
Oceanic Platform of the Canary Islands	596
<i>C. Barrera, J. Hernández-Brito, O. Llinas</i>	
Backbone Control System for Rapid Development of Underwater Robotic Systems	597
<i>Matthew Cook</i>	

MOORINGS

WELCOME Project: Towards a new Wave Energy Converter Technology Concept	599
<i>C. Barrera, R. Ibáñez; O. Sauquet; J.A. García-Alzórriz, O. Llinas</i>	
AMASS: Autonomous Maritime Surveillance System	601
<i>C. Barrera; T. Anderson; C. Travieso; J. Honne; E. Porosinska; H. Podolski; C. O'Neal, T. Metz; W. Krueger; S. Crabbe, O. Llinas</i>	
Two-SHIP Mooring System Analysis	603
<i>John Flory</i>	
Inspection and Assessment of US Navy Fleet Moorings	605
<i>Daniel Stromberg, Steven A. Cohen</i>	
Recent Advances in the Connecting Elements for Synthetic Rope Connectors	606
<i>Richard D. Haun, Richard E. Hall</i>	
Resolving a Cable Design Through a Multivariable Testing Program	607
<i>Frederick Murdock</i>	

OCEAN ENGINEERING

Don't be Spineless – Get an Acoustic Backbone	609
<i>Jan Erik Faugstadmo, Ian Florence</i>	
Underwater 3D Scanners for Structure Inspection – The Missing Link	N/A
<i>Jason Seawall</i>	
Plastic-Part Solutions For Undersea Applications	610
<i>Samuel Hart, Robert L. Underwood</i>	
Enhanced Subsea Security through Automatic Target Recognition and Performance Assessment Tools	611
<i>Ioseba Tena, Jon Wood</i>	
How Present Advancements in Underwater Technology is Changing the Approach to Mine Counter-Measures	613
<i>Jim Garrington</i>	
Submarine Cabled Networks Deliver Real-Time Data on Ocean Environmental Conditions	614
<i>Stephanie Ingle, Ken du Vall, Jeff Snider, Karen Juntunen</i>	

ROV – REMOTELY OPERATED VEHICLES

Combining a MicroROV, Side Scan and Imaging Sonar and Image Enhancement to Find and Recover Marine Debris	615
<i>Rachael Z. Miller</i>	
Pushing the Limits of Underwater Video	648
<i>Anders Holm</i>	
Capturing Broadcast Quality High Definition Video with a MicroROV	664
<i>Craig Thorngren, Brian Luzzi</i>	
National Geographic: Expedition Great White ROV Video Footage	N/A
<i>Craig Thorngren, Brian Luzzi</i>	

A Survey of Spatial Measurement Tools for MicroROV.....	673
<i>Andrew Goldstein</i>	
Project SeaViculite: ROV Support is Critical in Historic Offshore Project in North Carolina	689
<i>Rusty Batey</i>	
The First Americans and Their Migrations.....	702
<i>Rusty Batey</i>	
Drowning – Case Study: Long Lake, Three Lakes, WI.....	705
<i>Thomas W Wrasse</i>	
Multibeam Imaging Sonar on ROVs - Why They Matter?.....	720
<i>Lee Thompson</i>	
Raw Water Intake Inspections While “IN-SERVICE”	732
<i>Mark Klein</i>	
Navigation in Shallow Water and Tight Spaces with a Tether-Based Non-Acoustic Positioning System	762
<i>Jeremy Frank</i>	
Critical Infrastructure Protection.....	781
<i>Jack Stewart, Gary Szotko</i>	
Lake Trout Research: Trout Lake, Boulder Junction, WI	792
<i>Thomas W Wrasse</i>	
SARbot - Rescuing Cold Water Drowning Victims	812
<i>Jeff Conger</i>	
Tools for International ROV Rapid Response	845
<i>Don Draper</i>	
Major ROV Contractor? Look Out the Little Guys Are Coming!.....	911
<i>Ian MacDonald</i>	
Micro ROV Support to the Worldwide Offshore Oil &Gas Industry	931
<i>Steve Van Meter</i>	
LeakROV Pilot 2010: Offshore Leak Detection	954
<i>Bjarte Langeland</i>	
Facilitating MicroROV System Development	966
<i>Andrew Goldstein</i>	
REEFBOT: An Underwater Adventure and Educational Aquarium Exhibit.....	992
<i>Justine Kasznica</i>	
Use of Various Sonar Methods To Support Underwater Investigations	1019
<i>Mark Klein</i>	
Retrieving Large Underwater Items Using a Small Micro-ROV.....	1042
<i>Craig Thorngren</i>	
Remotely Operated Vehicle Underwater Hazardous Device Search Course.....	1055
<i>Wayne Stoner</i>	
Virtual Exploration of Marine Environments.....	1079
<i>David Scaradozzi</i>	
Increasing Hydraulic Power Subsea: A Comparison of Economies and Capabilities of Available and Emerging Technologies Which Promise to Supply Greater Hydraulic Energies to High Pressure BOP Control Equipment.....	1092
<i>William S. Averill, W. Scott Waters</i>	
H2000 Mini Work Class ROV	1093
<i>Liz Taylor</i>	
A Commercial Hybrid AUV/ROV System	1098
<i>Jonathan Epstein, Graham Hawkes</i>	
Creating an All in One Universal Computer and Controller to Control of Unmanned Vehicles and Systems	1099
<i>Jane Kamentser</i>	
High Definition Video Systems for Underwater Inspection	1100
<i>Cyril Poissonnet</i>	
Real Time 3D Sonar Technology for Commercial and Security Applications.....	1108
<i>Dave Robinson</i>	
Historical and Current Development of NDT Tooling for ROVs	1110
<i>Lawrence Goldberg</i>	
Development of an Economical Modular Experimental Unmanned Underwater Vehicle Design and Feasibility Study in Cooperative Robotics.....	1112
<i>Eduardo Moreno</i>	

Unmanned Underwater Vehicles in Renewable Energy Projects	1113
<i>John Davies</i>	

SHIPWRECKS

The Exploration of the Schooner Hattie Wells: A Case Study of Cooperation	1115
<i>Mark Gleason</i>	
The Search for Australia's Most Famous WW2 Shipwrecks: HMAS SYDNEY & AHS CENTAUR	1116
<i>David L. Mearns</i>	
The Jacksonville 'Blue China' Shipwreck (Site BA02): Production, Marketing, and Consumer Trends in Mid-19th Century America	1117
<i>Ellen Gerth</i>	

UNMANNED UNDERWATER VEHICLES

Brian Bourgeois Bio.....	1118
<i>Brian Bourgeois</i>	
Underwater Intervention 2011 Call for Papers.....	1119
<i>Brian Bourgeois, Samantha Zambo</i>	
Position Estimation using Forecast Ocean Currents	1121
<i>Brian S. Bourgeois, Samantha Zambo</i>	
Challenges and Benefits of Unmanned Multi-Vehicle Deep Water Operations	1132
<i>Andrew Sherrell</i>	
Hydrographic Survey Planning Using a Geospatial Approach.....	1134
<i>Donald L. Brandon, Brian S. Bourgeois</i>	
Mission Management for Unmanned Underwater Vehicles	1135
<i>Marvin Roe, Brian S. Bourgeois</i>	
Compact Unmanned Landers for Deep Sea Research	1136
<i>C. Lee Frey, Andrew Sherrell, N. Justin Marshall</i>	
Offshore Underwater Gliders	1138
<i>Edison Hudson</i>	
Powered Tow Body Operations	1139
<i>Rafael Mandujano</i>	
AUV Technologies Impacting Underwater Operations.....	1140
<i>William O'Halloran</i>	
Computer Aided Design of Ocean Bottom Seismographs	1141
<i>Martin Rapa</i>	
Control System of Small AUV for Multiple Vehicle Operation.....	1145
<i>Mikhail Denisenko, Fedor Dubrovin, Sergey Mun, Evgeny Nepostaev, Nikolay Suraev, Igor Tuphanov, Yuri Vaulin</i>	
Multi-Sensor Pipeline Inspection with AUV.....	1147
<i>Chris Hancock</i>	
Author Index	