



*The Marine Technology Society's 15th
BIENNIAL BUOY WORKSHOP
May 20-23, 2024
7 Cedars Casino, Sequim, WA*



PROGRAM OF SPEAKERS & EVENTS

Revision: E

5/20/2024

Monday, May 20th

- 10:00-12:00 **Early Career Buoys and Moorings Discussions, 7 Cedars Casino, Cedar Room**
- 14:00-16:00 **ProteusDS Seminar, 7 Cedars Casino, Cedar Room (Ryan Nicoll, ryan@dsaocean.com)**
- 17:30-19:30 **Icebreaker – 7 Cedars Casino, Appetizers with complimentary drinks**
- Workshop Registration Desk Open.** Pick up your workshop badges

Tuesday, May 21st

- 7:30-8:30 Coffee and Tea upon arrival – Exhibit Area, Blyn Bay Room
- 8:00-9:00 Workshop Registration Desk Open
- 8:00-16:30 Exhibits Open, Blyn Bay Room
- Please plan to view exhibits only during morning and afternoon breaks & lunch**
- 8:00-8:30 **WELCOME, ANNOUNCEMENTS, and HOUSEKEEPING:**
- Buoy Workshop Organizers:**
- Rick Cole**, Co-Chair, *RDSEA International, Inc.*
- Don Peters**, Co-Chair, *Woods Hole Oceanographic Institution*
- Kristina Norman**, MTS Senior Director of Operations and Events
- Judy Rizoli** aka "The Boss," Exhibitor Liaison
- PNNL Partner Support:**
- Christian Meinig**, PNNL Division Director, Coastal Sciences
- Dr. Alicia Mahon**, PNNL Wind Energy Program Manager, Operation Systems Engineering Group Leader
- Colette Campbell**, PNNL Coastal Science Division Administrator
- OPENING REMARKS/KEYNOTE:**
- Christian Meinig**, PNNL Division Director, Coastal Sciences

SESSION 1: PNNL Projects Overview-1

- 8:30-8:50 Jonathan Whiting (PNNL): *MCRLdata: Establishing Long-Term Coastal Modeling in Sequim Bay*
- 8:50-9:10 Christopher Rumpel, Alex Turpin, Robert, Diehl, Emma Cotter, Jenny Wehof (PNNL): *Development of an At-Sea Biological Radar System for Offshore Wind*
- 9:10-9:30 Mark Severy presenting on behalf of R. Krishnamurthy (PNNL), S. Miller (Univ. of Albany, NY), M. Pekour, M. Severy, J. Wehof, A. Mahon (PNNL): *Novel Instrumentation Development on DOE Buoys for Offshore Wind and Beyond*
- 9:30-9:50 Joseph Haxel (PNNL), Scott Stalin (NOAA PMEL), Haru Matsumots (Oregon St. Univ.), James Turnbull (Oregon St. Univ.), Chris Jones (Embedded Ocean Systems), Chris Meinig (PNNL), Michael Craig (NOAA PMEL), Nicholas Delich, Robert Dziak (NOAA PMEL): *A Buoy System for Continuous, Long-Term Monitoring and Reporting of Underwater Sound Emissions from Offshore Renewable Energy in Near-Real-Time*
- 9:50-10:05 **PANEL DISCUSSION – Session Chair / Panel Leader: Alicia Mahon**
- 10:05-10:20 **15 MINUTE BREAK – Exhibit Area**

SESSION 2: PNNL Projects Overview-II

- 10:20-10:40 Alicia Mahon presenting on behalf of Jennifer Wehof, Raghavendra Krishnamurthy, Mark Severy (PNNL): *The Development of an Instrumentation Test Buoy*
- 10:40-11:00 Molly Grear, James McVey (presenting), Mikaela Freeman, Lysel Garavelli (PNNL): *The Use of a Low Cost Sensor Package to Characterize a Site for a Co-Location of Marine Energy and Aquaculture*
- 11:00-11:20 Mark Severy, Raghavendra Krishnamurthy, Jenny Wehof (PNNL): *Recent Lidar Buoy Developments Offshore CA and HI*
- 11:20-11:40 Alicia Mahon presenting on behalf of Shari Matzner (PNNL): *Birds and Bats and Buoys, Oh My!*
- 11:40-11:55 **PANEL DISCUSSION – Session Chair / Panel Leader: Chris Meinig**
- 11:55-12:55 **LUNCH - Blyn Bay Room**

SESSION 3: Mooring Design I:

- 12:55-13:15 Don Peters, Kris Newhall, Al Plueddemann, WHOI: *A Shallow-Water Surface Mooring for Wire-Following Profilers*
- 13:15-13:35 Howard Painter, Sunfish Engineering, *Torpedo Moorings for Buoy Applications, a Cost Effective and Proven Technology*

- 13:35-13:55 Clifford Goudey, Eric LaRose, Cameron Falkenburg, Thomas Kinsey, Loretta Robinson, Domenic Manganelli: *A Variable-Displacement Spar Buoy for Seaweed Farm Depth Cycling*
- 13:55-14:15 Ersen'S Joseph, UM Dartmouth/WHOI, Amit Tandon, UM Dartmouth, Thomas Farrar, WHOI, Don Peters, WHOI: *Understanding the Impact of Helical Grooves and Pitch on Flow Vibrations in Marine Mooring Applications*
- 14:15-14:30 **PANEL DISCUSSION – Session Chair / Panel Leader: Don Peters**
- 14:30-14:45 **15 MINUTE BREAK – Exhibit Area**
- SESSION 4: Power:**
- 14:45-15:05 Robert Cavagnaro, D. Lu, N. Williams, J. McVey (PNNL): *A Comparative Analysis of Lithium-Ion Batteries for Cold Climate Marine Applications*
- 15:05-15:25 Tyler Robertson (Triton Systems): *TSI WEC: Development of a Novel Wave Energy Converter for the Blue Economy*
- 15:25-15:40 Curtis Rusch (APL-UW): *A Moored Test of the TigerRAY Wave Energy Converter: Successes and Lessons Learned*
- 15:40-16:00 Ruth Branch, Rob Cavagnaro, Alex Turpin, James McVey, Ben Roberts, Fadia Ticona Rollano, Emma Geon, Mike Steele, Amuscheh Nawaz, Martin Wickett, Mairi Wickett (PNNL): *A Wave Energy Converter Buoy for Arctic Observations*
- 16:00-16:15 **PANEL DISCUSSION – Session Chair / Panel Leader: Julie Fouquet**
- SESSION 5: Sensors and Instrumentation-I:**
- 16:15-16:35 Scott Stalin (NOAA PMEL), Courtney Avioli (NOAA Cooperative Inst. for Climate, Ocean and Ecosystem Studies, UW), Jonathon Klay, Dirk Tagawa (NOAA PMEL), Bruce Haines (Jet Propulsion Lab, CA Inst. of Technology): *The SWOT Buoy Array: High Precision GNSS and Prowler Data*
- 16:35-16:55 J. Fouquet, I. Izrailit (3newable, LLC), M. Carroll (WHOI), M. Minsky (3newable, LLC), J. Fram, K. Politano (OSU, Corvallis), M. Palanza (WHOI): *An Ultraviolet Illuminator to Prevent Biofouling of Oceanographic Sensors with Elongated Geometries*
- 16:55-17:15 Zachary Johnson (SoFar Ocean): *Bristlemouth: An Open Full-Stack Connectivity Standard for Marine Sensors*
- 17:15-17:30 **PANEL DISCUSSION – Session Chair / Panel Leader: Jake Davis**

Day 1 Adjourned - DINNER ON YOUR OWN

Wednesday, May 22nd

8:00-8:30 *Coffee and Tea upon arrival, Exhibit Area, Blyn Bay Room*

8:00-9:00 *Workshop Registration Desk Open*

8:00-16:30 *Exhibits Open, Blyn Bay Room*

Please plan to view exhibits only during morning and afternoon breaks & lunch

8:00-8:10 **EARLY START AND ANNOUNCEMENTS**

SESSION 6: Long-Term Observing Systems I:

8:10-8:30 Andreas Marouchos, Pete Jansen, David Hughes (CSIRO): *Measuring the East Australian Current: A Decade of Deepwater Moorings Measurements*

8:30-8:50 Jason Law, Yonggang Liu, R.H. Weisberg (USF-College of Marine Science), Jennifer Dorton (IOOS-SECOORA): *The USF Coastal Ocean Monitoring and Prediction System: Surviving the Storm*

8:50-9:10 James Elliott, National Data Buoy Center, Stennis Space Center, MS: *TAO Recapitalization Project*

9:10-9:25 **PANEL DISCUSSION – Session Chair / Panel Leader: Andreas Marouchos**

SESSION 7: Waves:

9:25-9:45 Chris Archer, Liesl Danyluk (APL-UW), Joe Schumacker (Quinalt Indian Nation Marine Resources), Jennifer Hagen (Quileute Natural Resources), John Mickett (APL-UW), Duncan Mactavish (SoFar Ocean), Jan Newton, Roxanne Carini (APL-UW-UW School of Oceanography-NANOOS): *Sofar Wave Buoys in the Pacific Northwest's Backyard*

9:45-10:05 Randolph Bucciarelli, Noah Sheen, James Behrens, (CDIP-SIO): *Coastal Data Information Program: Innovations in Operating a National Wave Buoy Network*

10:05-10:25 Jake Davis presenting on behalf of Jim Thomson, P. Bush, J. Davis, A de Klerk, S. Dickinson, F. Drum, E. Rainville, B. Salmi, M. Steele, J. Talbert (APL-UW): *Expendable "microSWIFT" Buoys for Surface Waves, Sea Surface Temperature, and Sea Surface Salinity*

10:25-10:40 **PANEL DISCUSSION – Session Chair / Panel Leader: Rick Cole**

10:40-10:55 **15 MINUTE BREAK – Exhibit Area**

SESSION 8: Long-Term Observing Systems-II

10:55-11:15 Chris Meinig, (PNNL): *A Regional Hub for Marine R&D*

11:15-11:35 Yiing Jang Yang, Wen-Hwa Her (Institute of Oceanography, National Taiwan Univ (NTU), Taipei, Taiwan): *Typhoon Observation and Buoy Walking in the Western North Pacific Subtropical Ocean*

- 11:35-11:55 Diego Johansen, Steven Colbert (Marine Sciences Dept., Univ. of Hawaii at Hilo), Melissa Iwamoto (Pacific Islands Observing System, Univ. of Hawaii at Manoa, Honolulu): *Hawai'i Island Water Quality Buoys: Tools for Resource Management and Education*
- 11:55-12:10 **PANEL DISCUSSION – Session Chair / Panel Leader: Craig Kohler**
- 12:10-13:10 **BOX LUNCH: Buses Depart for PNNL at 1330**
- SITE TOUR: PNNL Campus**
- 4:30-5:00 **Return to the 7 Cedars Casino**
- 6:00 PM **Welcome Reception - Room Club 7**
- 6:30 PM **Gala Dinner with special guest Loni Grinnell-Greninger - Room Club 7**

Thursday, May 23rd

- 8:00-8:30 *Coffee and Tea upon arrival – Exhibit Area, Blyn Bay Room*
- 8:00-15:00 *Exhibits Open, Blyn Bay Room*
Please plan to view exhibits only during morning and afternoon breaks & lunch
- 8:20-8:30 **ANNOUNCEMENTS**
- SESSION 9: Environmental Monitoring, Ecosystems and Data:**
- 8:30-8:50 Rick Cole (RDSEA): *A Dual ADCP-Seafloor Massive Sulfides (SMS) Mooring System Survives Incredible Odds in the Pacific Ocean, an Eight-Year Journey*
- 8:50-9:10 Matthew Cuomo (Mitre Corp.): *Oceanic Connectivity: Engenuitizing Research with Starlink*
- 9:10-9:30 Lukas Taenzer (PhD candidate, MIT-WHOI), Frank Nilsen, Marcos Porcires (Univ. Center, Svalbad Longyearbyen, Norway): *Learning by Doing: Introducing Undergraduate Students to Data Collection with Moorings*
- 9:30-9:50 Nathan Wardell, Michael Zieseri, Drew Lindow (JOA Surveys, LLC): *Offshore Water Level Measurements Using GNSS Enable Buoys*
- 9:50-10:05 **PANEL DISCUSSION – Session Chair / Panel Leader: Jennifer Ewald**
- 10:05-10:20 **15 MINUTE BREAK – Exhibit Area**

SESSION 10:**Mooring Design II:**

- 10:20-10:40 Ryan Nicoll, DSA Ocean, Don Peters, John Kemp, John Lund, Andrew Reed, WHOI: *Investigation of the Link Between VIV Drag Amplification and Extreme Mooring Deflection and Component Failure in the Argentine Basin*
- 10:40-11:00 Michael Craig, Noah Lawrence, Stephen Smith, Matias Gradilla, NOAA PMEL: *A Multiyear Mooring Line*
- 11:00-11:20 Eric Gay, NOAA NDBC: *NDBC Mooring Performance Evaluation*
- 11:20-11:40 Dana Manalang, John Mickett, Jan Newton, (APL-UW), Beth Curry (MRV Systems), Zoltan Szuts, Seth Travis, Amy Larsen, Chris Archer, Liesl Danyluk, Robert Daniels, Charles Parker, Brenton Salmi, Derek Martin, Madison Pickett, Christian Sarason, Michael Kenny, Sharon Chinchilla (APL-UW): *An Upgrade of Puget Sound ORCA Moorings: Plans for Buoyancy-Driven Float-Based Profiling*
- 11:40-11:55 **PANEL DISCUSSION – Session Chair / Panel Leader: Ryan Nicoll**
- 11:55-12:55 **LUNCH**

SESSION 11:**Sensors and Instrumentation-II**

- 12:55-13:15 Noah Lawrence-Slavas (NOAA PMEL), Mathew Casari (SeaMount Sensors & Automation), Basharat Martin (NOAA PMEL), Joseph Kurina (UW-Cooperative Inst. for Climate, Ocean, and Ecosystem Studies): *The Low Cost Profiler: An Affordable Profiler to Enable Ocean Science at Scale*
- 13:15-13:35 Anuscheh Nawaz, David Burnett, Eleftheria Roumeli, Mike Steele (APL-UW): *With EcoBuoys Toward Scalable Oceanography*
- 13:35-13:55 Eric McCorquodale (JASCO Applied Sciences): *Reduction and Isolation of Mooring Self-Noise on Passive Acoustic Monitoring (PAM) Buoys*
- 13:55-14:15 Daniel Nelson (RBR): *Active Anti-Fouling and Other Sensor Technology Advancements from RBR*
- 14:15-14:35 Carl Mancuso (Teledyne Benthos): *Acoustic Trigger Feature for Subsea Device Control*
- 14:35-14:50 **PANEL DISCUSSION – Session Chair / Panel Leader: Jay Law**
- 14:50-15:05 **15 MINUTE BREAK – Exhibit Area**

SESSION 12: Reliability and Hazardous Environments:

15:05-15:25	William Baxley (Stabbert Maritime); <i>A Tidal Power Concept for the San Juan Islands Region of the Salish Sea</i>
15:25-15:45	Bobby Kovach (SATEG Corp. Rochester Institute of Technology), Yurry Lobunets (SATEG Corp. Ukrainian Inst. of Renewable Energy), Arkady Malakhov (Solid Cell, Inc.): <i>A Scalable Antarctic Thermoelectric Generator for Harvesting Ocean Thermal Energy as a Synergistic Power Supply Over a Wide Area Network</i>
15:45-16:05	David Crawford (NOAA NDBC): <i>Field Performance of the SCOOP High-Latitude Buoy System</i>
16:05-16:25	Jonathan Fram (WHOI-OOI): <i>Profiling Up to the Air-Sea Interface in Rough Seas or Strong Currents</i>
16:25-16:45	Joseph Pratt (Ocean Tracking Network, Canada): <i>Maintenance of Moored Sensors in the Minas Passage, Bay of Fundy</i>
16:45-17:00	PANEL DISCUSSION – Session Chair / Panel Leader: Bill Baxley
17:00- ?	Workshop Wash, Comments, Recommendations, What did you Learn, Announcements

Exhibitors

DeepWater Buoyancy	Orcina/JTEC/Ocean Flow International
DSA Ocean	Pacific Northwest National Laboratory
Flynn Technical Solutions	RBR
Fondriest Environmental, Inc.	Rockland Scientific
High Tech, Inc.	Sea-Bird Scientific
In-Situ	Sequoia Scientific, Inc.
MacArtney Inc.	Sofar Oceans
McLane Research Labs	Teledyne Marine
MOBILIS	Xeos Technologies
National Renewable Energy Lab	Xylem
Nortek	Yale Cordage
Ocean Innovations	

**The 15th MTS Buoy Workshop is Adjourned
Thank you all for Coming and Participating!
** See you in 2026, Location TBD ****

*And Thank You to Our Partner, Exhibitors, Speakers, and Sponsors,
We Appreciate Your Continued Support for this Workshop !!*

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