



Underwater Glider User Group

UG2 WORKSHOP SEATTLE  
SEPTEMBER 20-22, 2022

**Scientific Research  
Training & Education  
Best Practices & Innovation  
Data Management**

University of Washington Center for Urban Horticulture  
(NHS Hall and Merrill Commons)  
Seattle, WA

**Official Program**



# UG2 Workshop Seattle '22

September 20-22, 2022

University of Washington  
3501 NE 41st Street, Seattle, Washington 98105

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# Basis for the Meeting:

The third Underwater Glider User Group (UG2) workshop will help strengthen and coordinate underwater glider activities for marine monitoring, services, and scientific research as well as provide an opportunity for collaboration between the United States UG2 and the broader global community.

# Meeting Goals:

The overarching goal of UG2 is to establish a community that facilitates sharing and cooperation of glider missions both in the U.S. and internationally within areas of ocean monitoring, operational reliability, and data management. This meeting is designed to strengthen this collaboration through community dialogue, exchanges of information, sharing of experiences, and development of best practices to support the glider community.

# Planned Meeting Objectives:

- 1. Harmonize Glider Efforts:** Data management, leveraging partnerships, documenting best practices, collaboration within U.S. and international community;
- 2. Share New Developments:** Sensors, gliders, emerging requirements, novel glider applications;
- 3. Explore Extreme Operating Environments:** Sea ice, currents, severe weather conditions;
- 4. Share/Refine Operational Activities:** Sustained observing, reliability, sampling strategies, ocean modeling impacts (physical and biological), connecting coastal to open ocean biogeochemical observations; and
- 5. Ocean Decade and Ocean Obs'XX:** Strategy for the next decade of regional, national, and global ocean observing using glider technologies.

# Meeting Components:

**Oral Presentations.** Energetic and captivating speakers were invited to educate and inform the community with up-to-date science, practice, and unique case studies. Practitioners representing the full scope of the international glider community, from federal, state, and local agencies, to industry, and academia, will cover a wide breadth of examples, methodologies, and general uses of gliders.

**Working Groups.** Working Groups (WG) are an important aspect of the 2022 Underwater Glider Workshop in Seattle. These groups will create opportunities to interact with colleagues and work toward a specific outcome or goals, such as developing a plan for sustained glider observations, fostering regional collaboration, and aligning data management practices.

**Poster Presentations.** Poster presentations play a key role in the success of the 2022 Underwater Glider Workshop in Seattle. In order to promote networking between participants, the poster sessions will coincide with the evening receptions on Tuesday and Wednesday, September 20-21, 2022. Research, tools, and information can be showcased on a 36" tall x 48" wide poster.

# Working Groups

Working Groups are an important aspect of the 2022 Underwater Glider Workshop in Seattle. These groups will create opportunities to interact with colleagues and work toward a specific outcome or goal, such as developing a plan for sustained glider observations, fostering regional collaboration, and aligning data management practices. You will have daily opportunities to participate in a facilitated working group. The topics of focus will be: **Sustained Observing**, **BGC Sensors**, **Collaborative Science**, **Modeling Impacts**, and **Data Management**. Each of these Working Groups will have the following topical sessions:

## **WG 1: Sustained Observing** *(Lead: Robert Todd, Woods Hole Oceanographic Institution)*

Within the sustained Global Ocean Observing System, underwater gliders are particularly well suited to provide long-term, high-resolution observations that connect the coasts to the deep ocean and tie near-shore observing networks to basin-scale observing networks. Building on progress previously made by the OceanGliders Boundary Ocean Observing Network (BOON) effort, this working group will further develop plans for sustained, glider-based observing. Of particular focus will be: Forming teams focused on particular regions of interest; Identifying scientific and societal drivers and stakeholders for each region; Building observing plans for each region; and Discussion of funding needs and opportunities.

## **WG 2: BGC Sensors** *(Lead: Yui Takeshita, Monterey Bay Aquarium Research Institute)*

Underwater gliders are well suited to connect measurements from the coastal to open ocean. Biogeochemical (BGC) Argo is a growing network aimed to effectively observe open ocean biogeochemical processes, and now has a suite of six scalable sensors that measure O<sub>2</sub>, nitrate, pH, Chl fluorescence, optical backscatter, and downwelling irradiance, with standardized methods to calibrate and quality control (QC) these measurements. With a growing suite of BGC sensors for gliders, there is an opportunity to create an interoperable dataset that connects coastal to open ocean biogeochemical observations. However, to create such a dataset between BGC-Argo and underwater glider networks will require QC protocols with defined uncertainties for various BGC sensors utilized on gliders. This working group will focus on discussions towards creating such a framework, and aim to: Compile a list of BGC sensors currently utilized on gliders (with a focus on parameters in BGC-Argo), with associated pros and cons for sustained; Compile existing calibration and QC methods for each sensor, with associated uncertainties; Brainstorm ideas to QC BGC sensor data where reference fields are not available or as accurate; and Discuss strategies to maximize impacts of BGC glider observations.

# Working Groups *(continued)*

## **WG 3: Collaborative Science** *(Lead: Emily Smith, NOAA; Kerri Whilden, Fugro)*

More can be accomplished if we work together. Diverse backgrounds with complementary goals can lead to innovative solutions. This working group will allow an opportunity for individuals and groups with a range of experience and resources to connect by region or area of interest. Potential topics include: 1) Introduction to regional associations and cooperative institutes; 2) Examples of ongoing efforts in collaborative science; 3) Private/Public partnerships; and 4) Suggestions for how UG2 can help foster future collaborations.

## **WG 4: Modeling Impacts (maximizing impact of glider data)**

*(Lead: Chris Edwards, University of California Santa Cruz;  
Scott Glenn, Rutgers University)*

Sampling coastal and deep ocean waters at high spatial and temporal resolution, gliders provide unique subsurface data that can be used for ocean model evaluation and state estimation. Complementing other remote sensing and in situ observations, glider data is presently being used operationally and non-operationally by models in U.S. coastal waters and global ocean basins for physical, biogeochemical and coupled ocean-atmosphere applications. This working group will focus on documenting these applications and more importantly identifying issues, gaps, and potential opportunities to enhance model applications for societally-relevant needs. We encourage people interested in physical, biogeochemical, and ocean-atmosphere modeling and data assimilation, glider operations and data flows, to attend. Thoughts for discussion:

What glider data is being used in conjunction with ocean models?

How are models accessing glider data?

How are models using glider data?

What are challenges modelers face in glider data use?

How can models inform the glider community?

What gaps exist between existing and potential glider data sets and models?

What societal needs are being or could be met through model and glider use?

## **WG 5: Data Management Topics** *(Lead: Kevin O'Brien, NOAA) (Day 1 Only)*

This working group will focus on current and future data management topics facing the glider community. Potential topics to be covered include: 1) Completed tasks from the 2019 Rutgers meeting, 2) Status of the OG1.0 format development and alignment, 3) Introduction and application of the GOOS Observations Coordination Group (OCG) data implementation strategy, 4) Improving metadata transmission with OceanOPS, 5) Distribution and exchange of near-real time glider data on the GTS, and 6) Advancements in unification of the QC process across DACs. The session will also feature a tutorial demonstrating how to access glider data through the NCEI archive and the World Ocean Database (WOD).

# Agenda Day 1: September 20

**07:30** Registration, Coffee & Continental Breakfast

**08:30** Day 1 Opening (Bill Lingsch, UG2)

- **Welcome to PNW** (Jan Newton, Northwest Association of Networked Ocean Observing Systems)
- **UG2 SC Welcome** (Carl Gouldman, U.S. Integrated Ocean Observing System, National Oceanic and Atmospheric Administration)
- **UG2 Overview** (Bill Lingsch)
- **OceanGliders Intro** (Brad de Young, Memorial University of Newfoundland)
- **Outcomes of Previous Workshops** (Scott Glenn, Rutgers University)
- **Overview of Goals for this Workshop** (Robert Todd, Woods Hole Oceanographic Institution)
- **Logistics** (Nick Rome, Consortium for Ocean Leadership)

**09:30** Science Talks: Sustained Obs, Facilitator: Emily Smith, NOAA

- **Heather Tabisola** (University of Washington): *A NOAA Transition Project and the Operational Hurdles of a New Glider Program*
- **Olle Petersson** (Voices of the Ocean Foundation): *Voice of the Ocean Observatories: Lessons from Continuous Glider Occupations of Multiple Observatory Sites in the Baltic Sea*
- **Alice Ren** (Woods Hole Oceanographic Institution): *The Annual Cycle of Dissolved Oxygen in the California Current System from Glider Observations*
- **Christian Reiss** (National Oceanic and Atmospheric Administration, Antarctic Ecosystem Research Division): *REFOCUS - Reimagining Ecosystem and Fisheries Observations by Combining Two UxS Fleets*
- **Robert Todd** (Woods Hole Oceanographic Institution): *Eddy Fluxes and Shelf-Deep Ocean Exchange Near Cape Hatteras*

**10:45** Break

**11:00** Science Talks: BGC and Ecological Sensors, Facilitator: Robert Todd, Woods Hole Oceanographic Institution

- **Dan Hayes** (Cyprus Subsea Consulting and Services Ltd): *Integration of Sensors with Gliders: New Advances for Carbon Dioxide, Methane, Optical Imaging, and Sonar Imaging*
- **Yui Takeshita** (Monterey Bay Aquarium Research Institute): *Estimating Gross Primary Production and its Relationship to Light from Diel Measurements of Oxygen and pH from Underwater Gliders*
- **John Horne** (University of Washington): *Adding Echosounders and Acoustic Brains to Characterize Water Column Biomass Distributions*
- **Selene Fregosi** (Ocean Associates, Inc.): *Advancing Remote Marine Mammal Stock Assessment with Passive Acoustic Gliders*
- **Dave Mellinger** (Oregon State University): *Real-Time Detection of High-Frequency Marine Mammals with Passive Acoustic Gliders*

# Agenda Day 1: September 20 *(continued)*

## 12:15 Lunch

- Early Career Mentorship Luncheon - Part 1: Federal and Academic Jobs
- Knowledge Sharing Groups

## 13:45 Working Groups

- **WG 1: Sustained Observing** (Lead: Robert Todd)
- **WG 2: BGC Sensors** (Lead: Yui Takeshita)
- **WG 3: Collaborative Science** (Lead: Emily Smith and Kerri Whilden)
- **WG 4: Modeling Impacts** (Maximizing Impact of Glider Data) (Lead: Chris Edwards and Scott Glenn)
- **WG 5: Data Management** (Lead: Kevin O'Brien)
  - Tutorial: How to Find Archived Glider Data at NCEI (Matt Grossi, NOAA NCEI)

## 15:30 Break

## 15:45 Science Talks: Modeling, Facilitator: Yui Takeshita, Monterey Bay Aquarium Research Institute

- **Chris Edwards** (University of California Santa Cruz): *Assimilating Glider Data in Physical and Biogeochemical Regional Ocean Models*
- **Avichal Mehra** (National Oceanic and Atmospheric Administration, National Weather Service): *Use of Ocean Observations for Operational Ocean and Hurricane Forecast Systems at NWS/NCEP*
- **Doug Wilson** (University of the Virgin Islands): *Gliders, Climatology, and Ocean Models – What We Can Learn About the NE Caribbean by Increasing Upper Ocean Observation Density*
- **Victor Turpin** (OceanOPS, World Meteorological Organization): *Leveraging the Multi-system Glider Data Assimilation Experiments Within EuroSea to the International Level*

## 16:45 Break

## 17:00 Vendor Presentation and Community Feedback, Facilitator: Emily Smith, NOAA

- **RBR** (Greg Johnson): *RBR sensor Development for Gliders and AUVs: A Fully-Integrated Approach*
- **MRV** (Kasia Zaba): *Spray2: Next-Generation Underwater Glider*
- **Ocean Sonics** (Manuel Morgan): *Ocean Listening for Gliders*
- **Community Questions**

## 18:00 Sponsored Cocktail Hour with Posters and Vendor Booths

## 19:30 Adjourn

# Agenda Day 2: September 21

**07:30** Coffee & Continental Breakfast

**08:30** Welcome (David Legler, National Oceanic and Atmospheric Administration)

- Day 1 Recap & Day 2 Setup (Kathleen Bailey, U.S. IOOS)

**09:00** Science Talks: Collaborative, Facilitator: Kevin Martin, University of Southern Mississippi

- **Dan Rudnick** (Scripps Institution of Oceanography): *A Four-Dimensional Survey of the Almeria-Oran Front by Underwater Gliders: Tracers and Circulation*
- **Nikolaos Zarokanellos** (Balearic Islands Coastal Observing and Forecasting System): *Glider Survey Reveals the Mesoscale and Submesoscale Dynamics in the Balearic Sea.*
- **Yixi Zheng** (University of East Anglia): *Multi-Disciplinary Glider Mission in the Amundsen Sea, Antarctica*
- **Nolan Pearce** (Trent University): *Primary Production in the Great Lakes Measured from Autonomous Underwater Vehicles*
- **Catherine Edwards** (Skidaway Institute of Oceanography - University of Georgia): *Integrating Diverse Uncrewed Systems Platforms into the GANDALF Piloting Portal*
- **Adam Comeau** (Ocean Tracking Network): *Coordination to Monitor the North Atlantic Spring Bloom*

**10:30** Break

**10:45** Science Talks: Misc, Facilitator: Mike Crowley, Rutgers University

- **Lina Eyouni** (The Red Sea Development Company, King Abdullah University of Science and Technology): *Summertime Stratification and Inflow into the Northern Red Sea Using High Resolution Glider and Remote Sensing Observations*
- **Alexandre Heumann** (University of Toulon): *Real-Time and Continuous Monitoring of Magmatic Fluid Emissions in the Mayotte Sea Using a SeaExplorer Glider*
- **Joe Gradone** (Rutgers University): *Slocum Glider ADP Based Observations of Caribbean Through-Flow and Their Implications for Global Climate*
- **Justin Shapiro** (University of Washington Applied Physics Laboratory): *Backseat Sensing on TWR Slocum G2/G3*
- **Atle Lohrmann** (Hefring Engineering): *Glider Development à la iPhone*

**12:15** Lunch

- Early Career Mentorship Luncheon - Part 2: Industry Jobs
- Knowledge Sharing Groups



# Agenda Day 2: September 21 *(continued)*

## 13:45 Working Groups

- **WG 1:** *Sustained Observing (Lead: Robert Todd)*
- **WG 2:** *BGC Sensors (Lead: Yui Takeshita)*
- **WG 3:** *Collaborative Science (Lead: Emily Smith and Kerri Whilden)*
- **WG 4:** *Modeling Impacts (maximizing impact of glider data) (Lead: Chris Edwards and Scott Glenn)*

## 15:30 Break

## 15:45 Science Talks: Best Practices, Facilitator: Kathleen Bailey, U.S. IOOS

- **Mathieu Dever** (RBR Global): *Using the RBRlegato3: Standard Operating Procedures from Field Operations to Data Processing*
- **Victor Turpin** (OceanOPS, World Meteorological Organization): *Progress Towards OceanGliders Best Practices and Standards*
- **Hank Statscewich** (University of Alaska Fairbanks): *What's in Your Glider Toolkit? Essentials for Ensuring Reliable Slocum Glider Deployments*
- **Matt Grossi** (National Oceanic and Atmospheric Administration, National Centers for Environmental Information): *From Good to Great: Strengthening the FAIRness of Underwater Glider Data Through Community Metadata Implementation*

## 16:45 Break

## 17:00 Vendor Presentation and Community Questions, Facilitator: Kevin Martin, University of Southern Mississippi

- **Sea-Bird Scientific** (Jochen Klinke and Eric Rehm): *What Lies Beneath: Underwater Glider Technology & Innovation*
- **Teledyne** (Clayton Jones): *Celebrating our History and Looking to the Future of Slocum Gliders*
- **Community questions**

## 18:00 Sponsored Cocktail Hour with Posters and Vendor Booths

## 19:30 Adjourn

# Agenda Day 3: September 22

**07:30** Coffee & Continental Breakfast

**08:30** Welcome and Working Group Report Outs

- **WG 1:** *Sustained Observing (Lead: Robert Todd)*
- **WG 2:** *BGC Sensors (Lead: Yui Takeshita)*
- **WG 3:** *Collaborative Science (Lead: Emily Smith and Kerri Whilden)*
- **WG 4:** *Modeling Impacts (Lead: Chris Edwards and Scott Glenn)*
- **WG 5:** *Data Management (Lead: Kevin O'Brien)*

**10:00** Break

**10:30** Discussion on Role of UG2 and Activities for the Community (Bill Lingsch)

**11:00** Review Action Items and Assign (Bill Lingsch, Nick Rome)

**11:30** Adjourn / Lunch-To-Go

**13:00** UG2 Steering Committee Working Session (Closed Session)

# Logistics

## When:

September 20-22, 2022

## Where:

Center for Urban Horticulture  
University of Washington  
3501 NE 41st Street, Seattle, WA 98105

## Directions from the Airport:

### Seattle-Tacoma International Airport (SEA):

Located 12 miles from Downtown Seattle or 17 miles from workshop venue. Information on public transport from the airport to hotels can be accessed here: [Link Light Rail 1-Line](#) (from SeaTac Airport Station to U District Station, then walk to hotels).

### King County International Airport (BFI):

Located 6 miles from Downtown Seattle or 11 miles from workshop venue. Information on public transport from the airport to hotels can be accessed here: [King County Metro](#) on [Route 107](#) or [Route 60](#) (from S Albro Pl Bus Stop to Beacon Hill Station) and transfer to [Link Light Rail 1-Line](#) (from Beacon Hill Station to U District Station, then walk to hotels)

## Transportation to the Venue:

**Getting there by bus:** King County Metro bus route 78 stops right in front of the Center for Urban Horticulture on NE 41st Street. Metro bus routes 25, 65, and 75 stop at NE 45th Street and Mary Gates Memorial Drive NE. Route 67 stops at NE 45th and Montlake Boulevard NE. Not sure which one you need? Use [Metro's Trip Planner](#) to get here.

**Getting there by car:** From I-5: Take the NE 45th Street exit. Drive east on NE 45th Street for approximately one mile. You will pass the University of Washington and come down a viaduct. At the stoplight at the bottom of the viaduct, turn left to stay on NE 45th Street. At the next stoplight (5-way intersection), turn right onto Mary Gates Memorial Drive NE. Continue to the bend in the road where Mary Gates Drive NE becomes NE 41st Street. The center is on your right. NHS Hall and Isaacson Hall are in the first complex of buildings.

**Free shuttle:** (see next page)



## Shuttle from Hotel to UW Center for Urban Horticulture:

A free shuttle to the UW Center for Urban Horticulture is available to all Workshop participants staying at the Silver Cloud - Lake Union and Silver Cloud - University District hotels. Shuttles are available at the beginning and end of each day. A van from the shuttle service, Shuttle Express, will meet each day at the following times: Morning shuttles from the hotels to venue will be available starting at 7:15am PDT on September 20-21. Evening shuttles from the venue to hotels will be available starting at 6pm PDT on September 20-21. Afternoon shuttles from the venue to hotels will be available starting at 11am PDT on September 22.

## Parking at UW Center for Urban Horticulture:

Ample parking is available for the public in the lots off 41st Street. The lower lot is reserved for staff.

## Glider Workshop Hotel Blocks:

Silver Cloud Hotel, [University District](#), 5036 25th Ave NE, Seattle, WA 98105

Silver Cloud Hotel, [Lake Union](#), 1150 Fairview Ave North Seattle, WA 98109

## Meals and Beverages:

Bring your reusable water bottle; individual bottles of water will not be available. A continental breakfast and lunch will be provided each day of the conference, followed by an evening reception on September 20th and 21st, featuring hors d'oeuvres and bar service.

### Dinner options near the Silver Cloud Hotel (University District)

[Mamma Melina Ristorante & Pizzeria](#)

[Piatti Seattle](#)

[Veggie Grill](#)

[Frank's Oyster House & Champagne Parlor](#)

[Pinkaew](#)

[Chipotle Mexican Grill](#)

[Bamboo Sushi](#)

[Din Tai Fung](#)

[Arepa Venezuelan Kitchen](#)

[Mas Veggies Vegan Taqueria](#)

[La Villa Mexican Restaurant](#)

### Dinner options near the Silver Cloud Hotel (Lake Union)

[Duke's Seafood](#)

[The White Swan Public House](#)

[Lakeside at South Lake Union](#)

[I Love Sushi on Lake Union](#)

[The Lookout](#)

[Finch & Pine](#)

[Mbar](#)

[Harry's Fine Foods](#)

[Cactus South Lake Union](#)

[Ba Bar Green](#)

[Kati Vegan Thai](#)

## Contacts:

We welcome all questions before or during the event. Please reach out to, Cassie Wilson ([cwilson@oceanleadership.org](mailto:cwilson@oceanleadership.org)), Nick Rome ([nrome@oceanleadership.org](mailto:nrome@oceanleadership.org)) or UG2 Coordinator Bill Lingsch ([bill.lingsch@noaa.gov](mailto:bill.lingsch@noaa.gov)).

## COVID-19 Protocols:

The UG2 organizers encourage participants to follow the University of Washington Covid-19 guidelines on masking and social distancing. Please see the guidelines summary [here](#).

# Appendix A: Committees

## Organizing Committee

The organizing committee would like to thank the community for coming together to highlight the successes of the national and international Glider Community and for taking the time to tackle the difficult challenges we face. The organizing committee includes:

- **Kathleen Bailey** – *Glider Program Manager, U.S. IOOS, National Oceanic and Atmospheric Administration*
- **Mike Crowley** – *RUCOOL & MARACOOS Technical Director, Rutgers University*
- **Edward Dever** – *Professor, Oregon State University*
- **Donglai Gong** – *Associate Professor, Virginia Institute of Marine Science*
- **Daniel Hayes** – *Managing Director, Cyprus Subsea Consulting and Services Ltd*
- **Bauke (Bob) Houtman** – *Executive Liaison, National Science Foundation, NOAA, IOOC*
- **Barb Kirkpatrick** – *Executive Director, Gulf of Mexico Coastal Ocean Observing System*
- **Kevin Martin** – *Senior Marine Instrumentation Specialist – Ocean Observing Manager, University of Southern Mississippi*
- **Emily Smith** – *Global Ocean Monitoring and Observing Program Manager, National Oceanic and Atmospheric Administration*
- **Yui Takeshita** – *Scientist, Monterey Bay Aquarium Research Institute*
- **Robert Todd** – *Associate Scientist, Woods Hole Oceanographic Institution*
- **Victor Turpin** – *OceanGLiders, AniBOS, and Argo Technical Coordinator, OceanOPS, World Meteorological Organization*
- **Neil Van De Voorde, Ph.D.** – *Owner, Naval and Marine Analysts, LLC*
- **Kerri Whilden, Ph.D.** – *Senior Environmental Manager, Fugro*
- **Katherine Zaba** – *Director of Glider Programs, MRV Systems, LLC*

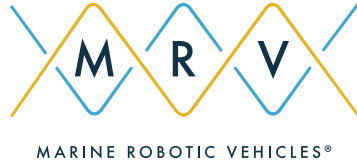
# Appendix A: Committees *(continued)*

## Steering Committee

- **Kathleen Bailey** – *Glider Program Manager, U.S. IOOS, National Oceanic and Atmospheric Administration*
- **Michael Bendzlowicz** – *Sectoral, Naval Meteorology and Oceanography Command*
- **Patricia Chardón-Maldonado** – *Technical Director, Caribbean Coastal Ocean Observing System*
- **Carl Gouldman** – *Executive Liaison, U.S. IOOS, NOAA*
- **Daniel Hayes** – *Managing Director, Cyprus Subsea Consulting and Services Ltd*
- **Bauke (Bob) Houtman** – *Executive Liaison, National Science Foundation, NOAA, IOOC*
- **Hyun-Sook Kim** – *Oceanography Scientist, National Oceanic and Atmospheric Administration Environmental Modeling Center*
- **Barbara Kirkpatrick, Ph.D.** – *Executive Director, Gulf Coast Ocean Observing System*
- **Chad Kramer** – *Stakeholder – Operator, Naval Oceanographic Office*
- **David Legler** – *Executive Liaison, Global Ocean Monitoring and Observing, NOAA/Oceanic and Atmospheric Research*
- **Bill Lingsch** – *U.S. Glider User Group Coordinator, National Oceanic and Atmospheric Administration*
- **Kevin Martin** – *Senior Marine Instrumentation Specialist – Ocean Observing Manager, University of Southern Mississippi*
- **Travis Miles** – *Assistant Professor, Rutgers University*
- **Hank Statscewich** – *Physical Oceanographer, University of Alaska Fairbanks College of Fisheries and Ocean Sciences*
- **Robert Todd** – *Associate Scientist, Woods Hole Oceanographic Institution*
- **Victor Turpin** – *OceanGLiders, AniBOS, and Argo Technical Coordinator, OceanOPS, World Meteorological Organization*
- **Katherine Zaba** – *Director of Glider Programs, MRV Systems, LLC*

# Appendix B: Sponsors

The UG2 Workshop Seattle '22 participants extend a special thanks to our sponsors:



# Appendix C: Registrants

- David Aragon** – *Rutgers University*
- Kathleen Bailey** – *NOAA/NOS/U.S. IOOS*
- Carlos Barrera** – *PLOCAN*
- Shaun Bell** – *NOAA/PMEL*
- Lindsey Biondo** – *Sea-Bird Scientific*
- Charles Branham** – *Sea-Bird Scientific*
- Peter Brickley** – *Woods Hole Oceanographic Institution*
- Francis Bringas** – *NOAA/AOML*
- Steve Brodet** – *Kongsberg Underwater Technology, LLC*
- Eugene Burger** – *NOAA/OAR/PMEL*
- Cailin Burmaster** – *Open Ocean Robotics*
- Roxanne Carini** – *NANOOS*
- Filipa Carvalho** – *National Oceanography Centre*
- Rob Cermak** – *UAF*
- Jonathan Chapman** – *Bermuda  
Institute of Ocean Sciences*
- Michael Coleman** – *Navoceano*
- Natalie Coleman** – *WA Department of Ecology*
- Adam Comeau** – *Ocean Tracking Network*
- Jeff Condiotty** – *Kongsberg Underwater Technology*
- Anthony Cossio** – *NOAA*
- Michael Crowley** – *Rutgers University*
- Robert Currier** – *Texas A&M/GCOOS*
- Beth Curry** – *MRV Systems*
- Richard Davis** – *Ocean Frontier  
Institute, Dalhousie University*
- Eric De Tretaigne** – *ALSEAMAR*
- Patrick Deane** – *Woods Hole Oceanographic Inst.*
- Kruti Desai** – *Consortium for Ocean Leadership*
- Edward Dever** – *Oregon State University*
- Mathieu Dever** – *RBR*
- Hayley Dosser** – *Fisheries and Oceans Canada*
- Karen Dreger** – *Skidaway Institute of  
Oceanography, University of Georgia*
- Masha Edmondson** – *Consortium for Ocean Leadership*
- Catherine Edwards** – *Skidaway Institute of  
Oceanography, University of Georgia*
- Chris Edwards** – *University of California-  
Santa Cruz (UCSC)*
- Rob Ellison** – *Sea-Bird Scientific*
- Zachary Erickson** – *NOAA/PMEL*
- Charlie Eriksen** – *University of Washington*
- Lina Eyouni** – *The Red Sea Development Company. King  
Abdullah University of Science and Technology (KAUST)*
- Andrea Fassbender** – *NOAA PMEL*
- Eleanor Frajka-Williams** – *University Hamburg*
- Selene Fregosi** – *Ocean Associates, Inc. Contracted  
to NOAA Pacific Island Fisheries Science Center*
- Hartmut Frenzel** – *University of  
Washington / NOAA-PMEL*
- Erica Fruh** – *NOAA OMAO UXS Operations Center*
- Jordan Gates** – *Sea-Bird Scientific*
- Scott Glenn** – *Rutgers University*
- Judah Goldberg** – *Rockland Scientific*
- Donglai Gong** – *Virginia Institute of  
Marine Science - William & Mary*
- Cordielyn Goodrich** – *Teledyne Webb Research*
- Carl Gouldman** – *IOOS Office*
- Joe Gradone** – *Rutgers University*
- Matt Grossi** – *NOAA NCEI*
- Daniel Hayes** – *Cyprus Subsea Consulting  
and Services C.S.C.S. Ltd*
- Alexandre Heumann** – *Université de Toulon*
- Patrick Hogan** – *NOAA/NCEI*
- John Horne** – *University of Washington*
- Micah Horwith** – *Washington State  
Department of Ecology*
- Clara Hulburt** – *Teledyne Marine*
- Vince Jelsema** – *Sea-Bird Scientific*



**Greg Johnson** – RBR

**Becky Johnston** – Hefring Engineering

**Andrew Jones** – KAUST

**Burton Jones** – KAUST

**Clayton Jones** – Senior Director of Technology

**John Kerfoot** – Rutgers University

**Billy Kessler** – NOAA / Pacific Marine Environmental Laboratory

**Youcef Khamallah** – Enssmal

**Jochen Klinke** – Sea-Bird Scientific

**John Kluge** – Nova Southeastern University

**Jody Klymak** – University of Victoria

**Chad Kramer** – NAVOCEANO

**Christopher Krembs** – Washington State Department of Ecology

**Gerhard Kuska** – MARACOOS / IOOS Association

**Kenneth Larrieu** – UC Davis

**David Legler** – NOAA

**Chad Lembke** – University of South Florida

**Xiang Ling** – CEOTR/OFI

**William Lingsch** – UG2

**Atle Lohrmann** – Hefring Engineering

**Jacki Long** – MBARI

**Chris Mackenzie** – Hakai Institute / CPROOF

**Kevin Martin** – University of Southern Mississippi

**Jasmin McInerney** – NIWA

**Avichal Mehra** – NOAA\NWS\NCEP\EMC

**Dave Mellinger** – NOAA Pacific Marine Environmental Lab and Oregon State University

**Alberto Mestas-Nunez** – University of Texas at San Antonio

**Travis Miles** – Rutgers University

**Garrett Miller** – University of South Florida CMS

**Russ Miller** – University of Michigan CIGLR

**Robert Millsap** – Industry Professional

**Albert Miralles** – SOCIB

**Alexey Mishono** – University of Maryland / NCEI

**Manuel Morgan** – Ocean Sonics Ltd.

**Eric Munday** – Supplier - interested in a vendor booth if available

**Daniel Nelson** – RBR Ltd

**Jan Newton** – University of Washington & NANOOS

**Emery Nolasco** – Aqua Satellite

**Addie Norgaard** – University of Alaska Fairbanks International Arctic Research Center

**Kevin O'Brien** – UW/CICOES, NOAA/PMEL, GOOS OCG

**Lenka O'Connor Sraj** – Monterey Bay Aquarium Research Institute

**Shah Parth** – NIWC Pacific

**Nolan Pearce** – Trent University

**Stuart Pearce** – Oregon State University/ Ocean Observatories Initiative

**James Pegg** – Fisheries and Oceans Canada & C-PROOF

**Olle Petersson** – Voice of the Ocean Foundation

**Dawn Petraitis** – NOAA/NWS/ National Data Buoy Center

**Luis Pomales Velázquez** – University of Rhode Island, Graduate School of Oceanography

**Evan Price** – Nortek

**Shea Quinn** – Teledyne Webb Research

**Pablo Quiroga** – Alseamar

**Grant Rawson** – NOAA/AOML/PHOD

**Eric Rehm** – Sea-Bird Scientific

**Christian Reiss** – NOAA - Antarctic Ecosystem Research Division

**Alice Ren** – Woods Hole Oceanographic Institution

**Eric Rignot** – UC Irvine

**Ulises Rivero** – NOAA/AOML

**Callum Rollo** – Voice of the Ocean foundation

**Nick Rome** – Consortium for Ocean Leadership

**Melissa Rossi** – Teledyne Marine

**Dan Rudnick** – Scripps Institution of Oceanography

**Julianne Ruffner** – Department of Ecology

**Angel Ruiz-Angulo** – University of Iceland

**Christopher Rushing** – NAVO

**Saraswathy Sabu** – Indian National Centre  
for Ocean Information Services (INCOIS)

**Christian Sarason** – Immersion Science

**Shannon Searing** – Teledyne Marine

**Charles Seaton** – Columbia River Inter-  
Tribal Fish Commission

**Jennifer Sevadjian** – UC San Diego

**Justin Shapiro** – APL/UW

**Margaret Sinsky** – Aqua Satellite, Inc.

**Ana Sirviente** – Great Lakes Observing System (GLOS)

**Emily Smith** – NOAA/GOMO

**Fritz Stahr** – MRV Systems, LLC

**Hank Statscewich** – University of Alaska Fairbanks

**Margaret Sullivan** – University of Washington,  
CICOES and NOAA/PMEL

**Heather Tabisola** – University of Washington/  
NOAA PMEL (CICOES)

**Yui Takeshita** – MBARI

**Anneke ten Doeschate** – Rockland Scientific

**Joaquín Tintoré** – SOCIB and IMEDEA (CSIC-UIB)

**Jim Todd** – NOAA/OAR/GOMO

**Robert Todd** – WHOI

**Mark Traganza** – Civilian

**Romain Tricarico** – Rockland Scientific

**Senam Tsei** – University of Southern Mississippi

**Victor Turpin** – Oceanops

**Eduardo Vaz** – RBR

**Nicolai von Oppeln-Bronikowski**  
– Memorial University

**Nicole Waite** – Rutgers University

**Jen Walsh** – NOAA/SWFSC

**Kerri Whilden** – Fugro

**Doug Wilson** – University of the Virgin Islands

**Cassie Wilson** – Consortium for Ocean Leadership

**Wendy Wilz** – NAVOCEANO

**Rachel Wold** – UW/APL, NANOOS

**Mitchell Wolf** – Ocean Networks Canada

**Samuel Woodman** – NOAA SWFSC  
Antarctic Ecosystem Research Division

**Meng Xia** – Professor

**Matthew Yanagi** – USN

**Katherine Zaba** – MRV Systems, LLC

**Nikolaos Zarokanellos** – SOCIB

**Yixi Zheng** – University of East Anglia

**Andy Ziegwied** – Ocean Aero