Dr. Jonathan D. Sharp

Research Scientist and Principal Investigator
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Research Interests

I am a chemical oceanographer with an interest in how carbon, oxygen, and dissolved nutrients cycle through the global ocean. Some of my current work involves using observational data from ship-based surveys and autonomous platforms to study spatiotemporal variability in ocean biogeochemistry. I have extensive experience with the marine carbonate system and have contributed to the development of analytical and computational tools for acquiring and working with carbonate system data. Future research will focus on exploring novel uses of measurements from autonomous platforms to further our understanding of ocean carbon storage and biogeochemistry.

Academic Appointments

2023–pres. **Research Scientist (RSE 4); Principal Investigator (2024–pres.)**
University of Washington CICOES and NOAA Pacific Marine Environmental Laboratory, Seattle, WA
Research Topic: Marine Carbon and Biogeochemistry

2020–22 **Postdoctoral Scholar**
University of Washington CICOES and NOAA Pacific Marine Environmental Laboratory, Seattle, WA
Research Topic: Marine Biogeochemical Cycling

2013–14 **Research Assistant**
University of Miami Rosenstiel School of Marine and Atmospheric Science, Miami, FL
Research Topic: Ionic Interactions in Seawater
Research Advisor: Frank J. Millero

Education

2015–20 **Ph.D. in Marine Science**
University of South Florida, St. Petersburg, FL
Dissertation: Analytical Methods and Critical Analyses Supporting Thermodynamically Consistent Characterizations of the Marine CO_2 System
Research Advisor: Robert H. Byrne

2010–14 **B.S. in Marine and Atmospheric Science**
University of Miami, Coral Gables, FL

Peer-Reviewed Publications

In review:

[1] Jiang, L.Q., Fay, A. Müller, J.D., Keppler, L., Carroll, D. … **Sharp, J.D.**, et al. Synthesis of data products for ocean carbonate chemistry. Submitted to Earth System Science Data.

[2] Carter, B.R., Schwinger, J., Sonnerup, R., Fassbender, A.J., **Sharp, J.D.**, Dias, L.M. Tracer-based Rapid Anthropogenic Carbon Estimation (TRACE). Submitted to Earth System Science Data.

[3] Koelling, J., Fassbender, A.J., Gray, A.R., Johnson, G.C., **Sharp, J.D.** Progressive oxygenation of the North Atlantic subpolar gyre. Submitted to AGU Advances.

[4] Liniger, G., **Sharp, J.D.**, Takeshita, Y., Johnson, K.S. Two decades of increase in Southern Ocean net community production revealed by BGC-argo floats. Submitted to Global Biogeochemical Cycles.

Published:

[1] Carter, B.R., **Sharp, J.D.**, García-Ibáñez, M., Woosley, R.J., Fong, M.B., Álvarez, M., Barbero, L., Clegg, S.L., Easley, R., Fassbender, A.J., Li, X., Schockman, K., Wang, Z., Dickson, A.G., Random and systematic uncertainty in ship-based seawater carbonate chemistry observations. Limnology and Oceanography, 69 (10), 2473–2488, https://doi.org/10.1002/lno.12674.

[2] **Sharp, J.D.**, Jiang, L., Carter, B.R., Lavin, P.D., Yoo, H., Cross, S.L., 2024. A mapped dataset of surface ocean acidification indicators in large marine ecosystems of the United States. Scientific Data, 11, 715, 10.1038/s41597-024-03530-7.

[3] Carter, B.R., **Sharp, J.D.**, Dickson, A.G., Álvarez, M., Fong, M.B., García-Ibáñez, M.I., Woosley, R.J., Takeshita, Y., Barbero, L., Byrne, R.H., Cai, W.-J., Chierici, M., Clegg, S.L., Easley, R.A., Fassbender, A.J., Fleger, K.L., Li, X., Martín-Mayor, M., Schockman, K.M., Wang, Z., 2024. Uncertainty sources for measurable ocean carbonate chemistry variables. Limnology and Oceanography, 69 (1), 1 – 21, 10.1002/lno.12477.

[4] Fassbender, A.J., Carter, B.R., **Sharp, J.D.**, Huang, Y., Arroyo, M.C., Frenzel, H., 2023. Amplified subsurface signals of ocean acidification. Global Biogeochemical Cycles, 37, 12, e2023GB007843, 10.1029/2023GB007843.

[5] Mogen, S.C., Lovenduski, N.S., Yeager, S., Keppler, L., **Sharp, J.D.**, Bograd, S.J., Quiros, N.C., Di Lorenzo, E., Hazen, E.L. Jacox, M.G., Pozo Buil, M., 2023. Skillful multi-month predictions of ecosystem stressors in the surface and subsurface ocean. Earth's Future, 11 (11), e2023EF003605. 10.1029/2023EF003605.

[6] Erickson, Z.K., Carter, B.R., Feely, R.A., Johnson, G.C., **Sharp, J.D.**, Sonnerup, R.E., 2023. PMEL's contribution to observing and analyzing decadal global ocean changes through sustained repeat hydrography. Oceanography 36 (2–3), 60–69. 10.5670/oceanog.2023.204.

[7] **Sharp, J.**, 2023: Tracking Global Ocean Oxygen Content [in "State of the Climate in 2022"]. Bull. Amer. Meteor. Soc., 104 (8), S28–S31, 10.1175/BAMS-D-23-0076.2.

[8] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Johnson, G.C., Schultz, C., Dunne, J.P., 2023. GOBAI-O_2: temporally and spatially resolved fields of ocean interior dissolved oxygen over nearly two decades. Earth System Science Data, 15, 4481–4518, 10.5194/essd-15-4481-2023.

[9] Jiang, L.Q., Dunne, J., Carter, B.R., Tjiputra, J.F., Terhaar, J., **Sharp, J.D.**, Olsen, A., Alin, S., Bakker, D.C., Feely, R.A., Hogan, P., Ilyina, T., Lange, N., Lauvset, S., Lovato, T., Palmieri, J., Santana-Falcón, Y., Schwinger, J., Séférian, R., Strand, G., Swart, N., Tanhua, T., Tsujino, H., Wanninkhof, R., Watanabe, M., Yamamoto, A., Ziehn, T., 2023. Global surface ocean acidification indicators from 1750 to 2100. Journal of Advances in Modeling Earth Systems 15, e2022MS003563. 10.1029/2022MS003563.

[10] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Lavin, P.D., Sutton., A.J., 2022. A monthly surface pCO_2 product for the California Current Large Marine Ecosystem. Earth System Science Data 14, 2081–2108. 10.5194/essd-14-2081-2022.

[11] Jiang, L.Q., Pierrot, D., Wanninkhof, R., Feely, R.A., Tilbrook, B., Alin, S., Barbero, L., Byrne, R.H., Carter, B.R., Dickson, A., Gattuso, J.-P., Greeley, D., Hoppema, M., Humphreys, M.P., Karstensen, J., Lange, N., Lauvset, S.K., Lewis, E.R., Olsen, A., Pérez, F.F., Sabine, C., **Sharp, J.D.**, Tanhua, T., Trull, T., Velo, A., Allegra, A.J., Barker, P., Burger, E., Cai, W.J., Chen, C.T., Cross, J., Garcia, H., Hernandez-Ayon, J.M., Hu, X., Kozyr, A., Langdon, C., Lee, K., Salisbury, J., Wang, Z.A., Xue, L., Yates, K., 2022. Best-practice Data Standards for Discrete Chemical Oceanographic Observations. Frontiers in Marine Science 8, 705638. 10.3389/fmars.2021.705638.

[12] Humphreys, M.P., Lewis, E.R., **Sharp, J.D.**, Pierrot, D., 2022. PyCO2SYS v1.8: marine carbonate system calculations in Python. Geoscientific Model Development 15, 15–43. 10.5194/gmd-15-15-2022.

[13] Carter, B.R., Bittig, H.C., Fassbender, A.J., **Sharp, J.D.**, Takeshita, Y., Xu, Y.-Y., Álvarez, M., Wanninkhof, R., Feely, R.A., Barbero, L., 2021. New and Updated Global Empirical Seawater Property Estimation Routines. Limnology and Oceanography: Methods 19, 785–809. 10.1002/lom3.10461.

[14] **Sharp, J.D.**, Byrne, R.H., 2021. Technical note: Excess alkalinity in carbonate system reference materials. Marine Chemistry 233, 103965. 10.1016/j.marchem.2021.103965.

[15] Jiang, L.-Q., Feely, R.A., Wanninkhof, R., Greeley, D., Barbero., L., Alin, S., Carter, B.R., Pierrot, D., Featherstone, C., Hooper, J., Melrose, C., Monacci, N., **Sharp, J.**, Shellito, S., Xu, Y.-Y., Kozyr, A., Byrne, R.H., Cai, W.-J., Cross, J., Johnson, G.C., Hales, B., Langdon, C., Mathis, J., Salisbury, J., Townsend, D.W., 2021. Coastal Ocean Data Analysis Product in North America (CODAP-NA) – An internally consistent data product for discrete inorganic carbon, oxygen, and nutrients on the U.S. North American ocean margins. Earth System Science Data 13, 2777–2799. 10.5194/essd-13-2777-2021.

[16] **Sharp, J.D.**, Byrne, R.H., 2020. Interpreting measurements of total alkalinity in marine and estuarine waters in the presence of proton-binding organic matter. Deep Sea Research Part I: Oceanographic Research Papers 165, 103338. 10.1016/j.dsr.2020.103338.

[17] **Sharp, J.D.**, Byrne, R.H., 2019. Carbonate ion concentrations in seawater: Spectrophotometric determination at ambient temperatures and evaluation of propagated calculation uncertainties. Marine Chemistry 209, 70–80. 10.1016/j.marchem.2018.12.001.

[18] **Sharp, J.D.**, Byrne, R.H., Liu, X., Feely, R.A., Cuyler, E.E., Wanninkhof, R., Alin, S.R., 2017. Spectrophotometric Determination of Carbonate Ion Concentrations: Elimination of Instrument-Dependent Offsets and Calculation of In Situ Saturation States. Environmental Science and Technology 51, 9127–9136. 10.1021/acs.est.7b02266.

[19] **Sharp, J.D.**, Albehadili, M.H.M., Millero, F.J., and Woosley, R.J., 2015. Estimating the Density and Compressibility of Natural Hypersaline Brines Using the Pitzer Ionic Interaction Model. Aquatic Geochemistry 21, 11–29. 10.1007/s10498-015-9252-4.

[20] Millero, F.J., **Sharp, J.D.**, 2013. Estimation of the Partial Molal Adiabatic Compressibility of Ions in Mixed Electrolyte Solutions Using the Pitzer Equations. Journal of Chemical and Engineering Data 58, 3458–3463. 10.1021/je400734v

Computational Tools, Data Products, and Reports

[1] **Sharp, J.D.**, Jiang, L.; Carter, B.R.; Lavin, P.D.; Yoo, H.; Cross, S.L., 2024. RFR-LME Ocean Acidification Indicators from 1998 to 2022 (NCEI Accession 0259304) [Data set]. 10.25921/z72m-yz67.

[2] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Johnson, G.C., Schultz, C., Dunne, J.P., 2022. GOBAI-O_2: A Global Gridded Monthly Dataset of Ocean Interior Dissolved Oxygen Concentrations Based on Shipboard and Autonomous Observations (NCEI Accession 0259304) [Data set]. 10.25921/z72m-yz67.

[3] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Lavin, P.D., Sutton, A.J., 2022. RFR-CCS: A monthly surface pCO_2 product for the California Current Large Marine Ecosystem (v1.1) [Data set]. 10.5281/zenodo.5523389.

[4] Frenzel, H., **Sharp, J.D.**, Fassbender, A.J., Buzby, N., 2022. OneArgo-Mat: A MATLAB toolbox for accessing and visualizing Argo data (v1.0.1). 10.5281/zenodo.6588041**.**

Featured in OCB Highlight: **Sharp, J.**, Frenzel, H., Cornec, M., Huang, Y., and Fassbender, A., "Powerful new tools for working with Argo data" www.us-ocb.org/powerful-new-tools-for-working-with-argo-data/.

[5] **Sharp, J.D.**, Pierrot, D., Humphreys, M.P., Epitalon, J.-M., Orr, J.C., Lewis, E.R., & Wallace, D.W.R., 2023. CO2SYSv3 for MATLAB (v3.2.1). 10.5281/zenodo.3950562.

[6] Adornato, L., Kaltenbacher, E., Byrne, R., Liu, X., and **Sharp, J.D.**, 2016. Development of a portable carbon system sensor for ocean acidification research. OCEANS '16 MTS/IEEE. Monterey, CA. 10.1109/OCEANS.2016.7761163.

[7] Millero, F.J., **Sharp, J.D.**, Woosley, R.J., Rodriguez, C., Paine, J., Levy, J., Williamson, J., Byrne, J., and Mastropole, K., 2014. Global Ocean Repeat Hydrography Study: pH and Total Alkalinity Measurements in the Atlantic Ocean, A16 North and South. University of Miami Rosenstiel School of Marine and Atmospheric Science.

RESEARCH FUNDING

2025	**Lead PI: J. Sharp (CICOES/NOAA)**. Collaborative Research: Assessing Global Oxygen Inventory, Trends and Variability through the Intercomparison of Observation-based Gridded Datasets. Funding Agency: National Science Foundation, Chemical Oceanography. 5/2025–4/2028.	$76,935
2024	Lead PI: H. Yoo (NESDIS/NCEI); Co-PI: **J. Sharp (CICOES/NOAA)**. Sustaining the development of ocean acidification indicators in the U.S. Large Marine Ecosystems. Funding Agency: NOAA Ocean Acidification Program. 10/2024–9/2026.	$59,983
2024	Lead PI: A. Fassbender (NOAA); Co-PIs: **J. Sharp (CICOES/NOAA)**, B. Carter (CICOES/NOAA). Advancing understanding of ocean variability and change in support of NOAA's Climate Ecosystems Fisheries Initiative. Funding Agency: NOAA Climate Program Office, Climate Variability and Predictability. 9/2024–8/2027.	$467,567
2024	**Lead PIs: J. Sharp (CICOES/NOAA),** A. Fassbender (NOAA); Co-PIs: B. Carter (CICOES/NOAA), R. Rykaczewski (NOAA). Argo-Based Data Product Development in Support of the NOAA National Marine Fisheries Service Essential Data Acquisition Strategic Initiative Supported by the Inflation Reduction Act. Funding Agency: NOAA National Marine Fisheries Service. 7/2024–6/2027.	$1,018,876
2023	**J. Sharp (CICOES/NOAA)**. Advancement of artificial-intelligence-based methods to develop gridded fields of ocean interior biogeochemistry from novel observations. Funding Agency: Cooperative Institute for Climate, Ocean, and Ecosystem Studies. 1/2023–12/2023.	$34,028
2022	Lead PI: T. Boyer (NOAA NCEI); Co-PI's: L.Q. Jiang (CISESS/NOAA), B. Carter (CICOES/NOAA), **J. Sharp (CICOES/NOAA)**, P. Lavin (CISESS/NOAA). Temporal changes of ocean acidification indicators in the U.S. Large Marine Ecosystems (LMEs) - an operational data product at NOAA/NCEI in support of NOAA's National Marine Ecosystem Status effort. Funding Agency: NOAA Ocean Acidification Program. 7/2022–6/2024.	$199,831
2019	**J. Sharp (USF CMS)** and R. Venturelli (USF CMS). Isotopic and Carbonate Chemistry Characteristics of an Antarctic Subglacial Lake. Funding Agency: USF College of Marine Science, Von Rosenstiel Graduate Student Innovation Award.	$5,000
	Lead PI: R.H. Byrne (USF CMS). Characterization of aragonite and calcite solubility products in seawater using modern CO_2 system measurement techniques. NSF Division of Ocean Sciences. 2/2020–1/2023. **J. Sharp (USF CMS)** led the writing and preparation of proposal.	$405,933

CRUISE EXPERIENCE (108 DAYS)

2021	**DIC Analyst & Data Manager, NOAA/PMEL West Coast Ocean Acidification Cruise** Chief Scientists: Richard Feely and Brendan Carter, R/V Ronald H. Brown (35 days)
2020	**Carbonate Chemistry Analyst, USF Carbonate System Sampling in the Gulf of Mexico** Chief Scientist: Kristen Buck, R/V Weatherbird II (4 days)
2017	**pH/carbonate Analyst, NOAA/AOML Gulf of Mexico Ecosystems and Carbon Cycle Cruise** Chief Scientists: Leticia Barbero and Denis Pierrot, R/V Ronald H. Brown (35 days)
2016	**pH/carbonate Analyst, NOAA/PMEL West Coast Ocean Acidification Cruise** Chief Scientists: Simone Alin and Richard Feely, R/V Ronald H. Brown (34 days)

TEACHING AND MENTORSHIP EXPERIENCE

2025-pres. **Co-Mentor, University of Washington CICOES Postdoctoral Scholar**
Currently mentoring a postdoctoral scholar at the University of Washington CICOES who is working on intercomparison of data- and model-based representation of ocean biogeochemical variability.

2024 **Guest Lecturer, Marine Pollution, University of Washington**
- "Monitoring Ocean Acidification with Measurements and Models" (5/13/2024)

2023-pres. **Co-Mentor, University of Washington Graduate Student**
Currently mentoring a graduate student in Chemical Oceanography at the University of Washington who is using observation-based data products to constrain variability in ocean biogeochemical processes.

2023 **Co-Mentor, NOAA Hollings Scholarship Program**
Mentored an undergraduate student intern from Haverford College who performed a summer project at NOAA PMEL using Biogeochemical Argo data.

2023 **Co-Mentor, NOAA Lapenta Internship Program**
Mentored a graduate student intern from the University of Arizona who performed a summer project with the NOAA Ocean Acidification Program using surface ocean CO_2 data.

2023 **Guest Lecturer, Marine Pollution, University of Washington**
- "Observing Ocean Acidification" (5/1/2023)

2023 **Guest Lecturer, Physical Chemistry of Seawater, University of South Florida**
- "Marine CO_2 System Uncertainty Estimation and Propagation" (4/20/2023)

2023 **Guest Lecturer, Marine Carbon Seminar, University of Washington**
- "Thermodynamics and Carbonate Chemistry" (1/6/2023)

2022 **Primary Mentor, NOAA Hollings Scholarship Program**
Mentored an undergraduate student intern from the University of Maryland who performed a summer project at NOAA PMEL using Biogeochemical Argo data.

2022 **Guest Lecturer, Intro to Environmental Metrology, Georgetown University**
- "The seawater CO_2 System and Uncertainty Considerations" (4/19/2022)

2022 **Guest Lecturer, Marine Chemistry, University of Washington**
- "The Inorganic Carbon System: Acid–Base Chemistry" (2/2/2022)

2018 **Guest Lecturer, Physical Chemistry of Seawater, University of South Florida**
- "Using CO2SYS to Make CO_2 System Calculations I" (10/16/2018)
- "Using CO2SYS to Make CO_2 System Calculations II" (10/18/2018)
- "Uncertainty Propagation in Marine CO_2 System Calculations" (11/13/2018)

2018 **Teaching Assistant, Physical Chem. of Seawater, University of South Florida**
- Organized classes and exam review sessions; graded homework assignments.

2017 **Mentor, Eckerd College / USF College of Marine Science**
Mentored an undergraduate student intern from who performed measurements of pH and carbonate ion concentration during the NOAA/AOML Gulf of Mexico Ecosystems and Carbon Cycle cruise.

ACADEMIC FELLOWSHIPS

2018 **Knight Endowed Fellowship for Marine Science** $28,000/yr (1.5 years)
USF College of Marine Science

2016 **NSF Graduate Student Research Fellowship** $34,000/yr (3 years)
National Science Foundation

2015 **Anne and Werner Von Rosenstiel Fellowship** $10,000/yr (1 year)
USF College of Marine Science

RECENT PRESENTATIONS

[1] **Sharp, J.D.**, Sauzède, R., Xing, X. Coordinating the Development of Observation-based Digital Twins of the Ocean from the Biogeochemical Argo Array. 2025 Xiamen Symposium on Marine Environmental Sciences. Xiamen, China. 1/15/2025 (poster).

[2] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R. Model Simulation Experiments Bolster Confidence in Machine-Learning-Based Ocean Biogeochemistry Products. 2024 AGU Annual Meeting. Washington D.C. 12/11/2024 (poster).

[3] **Sharp, J.D.**, Yoo., H., Jiang, L., Carter, B., Lavin, P., Cross, S.L.. Ocean Acidification Indicators in US Coastal Waters. Ocean Acidification Week 2024: North American Ocean Acidification Network. 11/22/2024 (virtual talk).

[4] **Sharp, J.D.**, Jiang, L., Carter, B., Lavin, P., Yoo., H., Cross, S.L.. Mapping Observational Data with Machine Learning to Detect Ocean Acidification in U.S. Large Marine Ecosystems. Optimizing Ocean Observing Networks for Detecting the Coastal Climate Signal Workshop. Boulder, CO. 9/23/2024 (poster).

[5] **Sharp, J.D.**. Can the global BGC float array be used to map and monitor ocean biogeochemistry in near-real-time? GO-BGC Annual Meeting. Moss Landing, CA. 9/18/2024 (invited talk).

[6] **Sharp, J.D.** Strategies, Challenges, and Implications of Mapping Ocean Interior Biogeochemical Observations Over Time. Monterey Bay Aquarium Research Institute. Moss Landing, CA. 4/24/2024 (invited seminar).

[7] **Sharp, J.D.,** Fassbender, A.J., Frenzel, H., Carter, B.R., Johnson, G.C. New Opportunities from BGC Argo for Global Mapping of Ocean Biogeochemical Properties. 2024 Ocean Sciences Meeting. New Orleans, LA. 2/22/2024 (poster).

[8] **Sharp, J.D.** Harnessing the Strengths of BGC-Argo to Map and Monitor Global Ocean Biogeochemistry with Seasonal Resolution. GO-BGC / BGC-Argo Float Data Workshop. Boston, MA. 8/21/2023 (invited talk).

[9] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Johnson, G.C. Variability in Southern Ocean Oxygen Content Revealed by New Observation-Based Data Product. Chemical Oceanography Gordon Research Conference. Manchester, NH. 7/19/2023 (poster).

[10] **Sharp, J.D.**, Carter, B., Lavin, P., Jiang, L., Boyer, T., Cross, S., Yoo, H., Fassbender, A. Observation-based mapping of Ocean Acidification in the Pacific Northwest and other US Large Marine Ecosystems. WOAC Ocean Acidification Science Symposium. Seattle, WA. 5/23/2023 (talk).

[11] **Sharp, J.D.**, Carter, B., Fassbender, A., Lavin, P., Jiang, L., Boyer, T., Cross, S., Yoo, H., Sutton, A. Leveraging Direct Observations to Monitor Ocean Acidification in US Large Marine Ecosystems. UW Chemical Oceanography Lunch Seminar. Seattle, WA. 2/24/2023 (talk).

[12] **Sharp, J.D.**, Sauzède, R., Fassbender, A.J. Status updates and feedback on BGC Argo based data products. 23rd Argo Data Management Team Meeting. Miami, FL. 12/6/2022 (virtual talk).

[13] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Johnson, G.C., Schultz, C., Dunne, J.P. Variability in ocean oxygen from GOBAI-O2: A machine-learning-based data product. 7th Argo Science Workshop. Brussels, Belgium. 10/13/2022 (talk).

[14] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Johnson, G.C. GOBAI-O_2: A four-dimensional data-driven product of ocean interior oxygen. OCB 2022 Summer Workshop. Woods Hole, MA. 6/21/2022 (poster).

[15] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Johnson, G.C. Leveraging New Observational Platforms for the Creation of a Seasonally Resolved Global Gridded Oxygen Data Product. 53rd International Colloquium on Ocean Dynamics: 3rd GO2NE Oxygen Conference. 5/17/2022 (virtual poster).

[16] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Johnson, G.C. Enhanced reconstructions of ocean interior dissolved oxygen using biogeochemical Argo float data. UW Chemical Oceanography Lunch Seminar. Seattle, WA. 3/4/2022 (talk).

[17] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R., Johnson, G.C., Enhanced reconstructions of ocean interior dissolved oxygen using biogeochemical Argo float data. 2022 Ocean Sciences Meeting. 2/28/2022 (virtual talk).

[18] **Sharp, J.D.**, Fassbender, A.J., Carter, B.R. Observation-based surface pCO_2 and air–sea CO_2 flux in the California Current Ecosystem. OCB 2021 Summer Workshop. Virtual. 6/21/2021 (virtual poster).

[19] **Sharp, J.D.** Analytical Methods and Critical Analyses Supporting Thermodynamically Consistent Characterizations of the Marine CO_2 System. Dissertation Defense. USF College of Marine Science. St. Petersburg, FL. 10/6/2020 (talk).

[20] **Sharp, J.D.**, Byrne, R.H. Alkalinity and Intercomparability: proton exchange with organic bases during TA titrations induces carbonate system inconsistencies. 2020 Ocean Carbonate System Intercomparison Forum. 6/29/2020 (virtual talk).

[21] **Sharp, J.D.**, Byrne, R.H. Total Alkalinity Determined by Titration in the Presence of Dissolved Organic Matter. 2020 Ocean Sciences Meeting. San Diego, CA. 2/20/2020 (poster).

[22] **Sharp, J.D.** and Venturelli, R. Understanding Isotopic and Carbonate Chemistry Characteristics of an Antarctic Subglacial Lake. Student Innovation Fund Awards Competition. USF College of Marine Science. St. Petersburg, FL. 11/19/2019 (collaborative talk).

[23] **Sharp, J.D.**, Byrne, R.H. Interpreting seawater alkalinity measurements in the presence of dissolved organic matter. Graduate Student Seminar Series. USF College of Marine Science. St. Petersburg, FL. 11/14/2019 (talk).

[24] **Sharp, J.D.**, Byrne, R.H. Carbonate ion determinations in seawater: A decade of methodological development. ASLO 2019 Aquatic Sciences Meeting. San Juan, PR. 2/27/2019 (talk).

[25] **Sharp, J.D.**, Hudson-Heck, E., Schockman, K.M., Tierney, C., Byrne, R.H. Acidification in the Gulf: Insights from measurements of pH and $[CO_3^{2-}]$ on GOMECC-3. 2018 Ocean Sciences Meeting. Portland, OR. 2/14/2018 (poster).

[26] **Sharp, J.D.**, Byrne, R.H. Direct measurements of seawater carbonate ion concentrations in the Gulf of Mexico: Implications for spatial mapping of $CaCO_3$ saturation states. OCB 2017 Summer Workshop. Woods Hole, MA. 7/27/2017 (poster).

[27] **Sharp, J.D.**, Byrne, R.H., Liu, X., Feely, R.A., Cuyler, E.E. Wanninkhof, R. Direct UV measurements of seawater carbonate ion concentrations: Observations and angstrom-scale adjustments. ASLO 2017 Aquatic Sciences Meeting. Honolulu, HI. 3/1/2017 (poster).

[28] **Sharp, J.D.**, Byrne, R.H., Liu, X., Cuyler, E.E**.** Direct UV measurements of seawater carbonate ion concentration: Smoothing troubled data with angstrom-scale adjustments. Graduate Student Symposium. USF College of Marine Science. Saint Petersburg, FL. 1/13/2017 (talk). *Best Oral Presentation*

ACADEMIC SERVICE AND COMMUNITY OUTREACH

2023-pres. **4D-BGC SCOR Working Group Co-Chair**
Co-wrote a proposal to chair a working group on four-dimensional biogeochemical data product development that is being supported by the Scientific Committee on Ocean Research (SCOR).

2022-pres. **BGC-Argo Webinar Series**
Served as an organizing committee member for this webinar series, which is sponsored by GO-BGC and the OCB Project Office

2025 **Session Convener: 2025 Xiamen Symposium on Marine Environmental Sciences**
Co-convened a conference session titled *Leveraging Autonomous Platforms to Study Marine Biogeochemistry and Ecosystem Dynamics*.

2022-2024 **NOAA PMEL Adopt-a-Float Program**
Prepared educational materials for teaching high school students about the Argo program. Visited classrooms to introduce students to Argo.

2020-2024 **Ocean Carbonate System Intercomparison Forum**
Participant and presenter for this working group, which is sponsored by the OCB Project Office

2024 **Session Convener: 2024 AGU Annual Meeting**
Co-convened a conference session titled *Recent Advances in the Quantification and Understanding of Ocean Deoxygenation Using Observational, Modeling, and Data Science Approaches*.

2024 **MBARI/GO-BGC Education and Research: Testing Hypotheses (EARTH) Workshop**
Presented to a group of science educators about observations of global ocean acidification.

2024 **Journal Reviews (5)**: Journal of Geophysical Research: Oceans; International Journal of Digital Earth; PMEL Internal (2); Earth System Science Data

2024 **Session Convener: 2024 Ocean Sciences Meeting**
Co-convened a conference session titled *Observation-Based Data Products of Ocean Biogeochemistry and the Importance of Standardized Measurement and Uncertainty Estimation Protocols in Marine Science*.

2023 **4D-BGC SCOR Working Group Co-Chair**
Co-wrote a proposal to chair a working group on four-dimensional biogeochemical data product development that is being supported by the Scientific Committee on Ocean Research (SCOR).

2023 **GO-BGC / BGC Argo Float Data Workshop**
Led a group through four-dimensional mapping of BGC Argo data in the North Atlantic Ocean for data analysis portion of the workshop.

2023 **Interview on Ocean Acidification with Children's Climate Championship**
Was interviewed for a YouTube channel about climate change and ocean acidification.

2023 **Journal Reviews (8)**: EGUSphere, Global Biogeochemical Cycles; Marine Chemistry; Geophysical Research Letters; PMEL Internal; Scientific Reports; Geochimica et Cosmochimica Acta; Nature Communications

2022 **Graduate School Seminar for CICOES Interns**
Sat on a panel to discuss applying to and attending graduate school for CICOES undergraduate interns.

2022 **MBARI/GO-BGC Education and Research: Testing Hypotheses (EARTH) Workshop**
Presented to a group of science educators about ship-based oceanographic observations.

2022 **GO-BGC Data Example**
Wrote a research highlight about using Biogeochemical Argo float data to constrain ocean deoxygenation.

2022 **Journal Reviews (5)**: Earth System Science Data; Journal of Geophysical Research: Oceans; Scientific Reports; PMEL Internal (2)

2021 **Building a Community of Biogeochemistry Float Data Users Workshop**
Prepared code for workshop tutorials to inform attendees about how to access BGC-Argo float data at this GO-BGC-sponsored workshop.

2021 **Journal Reviews (5)**: International Journal of Greenhouse Gas Control; Biogeosciences; Limnology and Oceanography: Methods; Communications Earth and Environment; PMEL Internal

2021 **Proposal Reviews (1):** National Science Foundation Division of Ocean Sciences

2021 **The Global Biogeochemical-Argo Fleet: Knowledge to Action Workshop**
Recorded and synthesized notes from each session for this G7-sponsored workshop. Participated in discussion of cross-cutting themes for planning of final session.

2020 **Journal Reviews (3):** Marine Chemistry (2); PLOS ONE

2018 **St. Petersburg Saturday Morning Market Ocean Education Booth**
Volunteer at a recurring public education booth sponsored by the University of South Florida College of Marine Science (Topics: ocean acidification, marine pollution).

2017 **St. Petersburg Science Festival**
Exhibitor for the University of South Florida College of Marine Science CO_2 System Chemistry Lab. Taught festival-goers about the pH scale and ocean acidification.

2017 **NOAA GOMECC-3 Cruise Blog**
Wrote a blog post about pH and ocean acidification for the cruise.

2017 **Eckerd College Marine Science Seminar**
Served on a panel that discussed applying to and choosing a graduate school with undergraduate students from Eckerd College in St. Petersburg, FL.

2016–17 **University of South Florida Marine Science Advisory Council**
Served as the Social Chair for the USF College of Marine Science student organization.

2016–17 **Spoonbill Ocean Sciences Bowl**
Served as a scorekeeper and science judge for a regional competition of the National Ocean Sciences Bowl.

2016–17 **College of Marine Science Honors & Awards Committee**
Served as the Student Representative on the committee that assigns endowed fellowships to students at the USF College of Marine Science.

2016–17 **College of Marine Science 50th Anniversary Committee**
Served as a Student Member on the planning committee of the USF College of Marine Science 50th Anniversary celebration.

2016 **NOAA WCOA Cruise Blog**
Wrote a blog post about instrument development for the cruise.

2015–16 **St. Petersburg Science Festival**
Served on the Marketing Committee to plan the St. Petersburg Science Festival.

PROFESSIONAL DEVELOPMENT

2024 **UW Strategic Leadership Program (Professional & Organizational Development)**
A two-day workshop that provides a comprehensive education in the essential elements of leadership, in general and specific to the University

2024 **NOAA/NCAR/NREL Open Hackathon (NVIDIA and OpenACC)**
A four-day hackathon designed for computational scientists to port, accelerate, and optimize their scientific applications to modern computer architectures.

2022 **SOCCOM/GO-BGC Media Training (Riveter Communications)**
A two-day workshop for scientists involved with the SOCCOM and GO-BGC programs to work on strategies for communicating their work to the media.

2022 **Argovis Hackathon (University of Colorado Boulder)**
A three-day hackathon during which Jupyter Notebooks for accessing and plotting Argo data using the Argovis API were prepared.

2019 **Developing the Science of Science Communication Workshop (National Science Foundation)**
A day-long workshop focused on honing verbal and visual communication skills for scientists and science communicators.

2015 **Presentation Bootcamp (COSEE)**
Two-day workshop from the Consortium for Ocean Science Exploration and Engagement (COSEE) that provided training in planning and preparing presentations that communicate messages clearly and have a lasting impact on the audience

2010 **Open Water Diver SCUBA Certification (SSI)**
Earned certification through the University of Miami SCUBA Club.