Catherine Richardson Edwards
Department of Marine Sciences
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Professional Preparation:

Ph.D., Physical Oceanography, University of North Carolina at Chapel Hill, Department of Marine Sciences, September 2008.

B.S. Physics with highest honors, minors in Mathematical Sciences and Spanish, University of North Carolina at Chapel Hill, May 1999.

Recent Work Experience:

Associate Professor, Department of Marine Sciences, University of Georgia, Aug. 2020 to present.

Fellow, Institute for Artificial Intelligence, University of Georgia, 2025 to present.

Senior Summer Faculty Fellow, Office of Naval Research, U.S. Naval Research Laboratory, 2023.

Assistant Professor, Department of Marine Sciences, University of Georgia, Jul. 2013 to Jul. 2020.

Assistant Professor, Skidaway Institute of Oceanography, Savannah, GA.

Courtesy Assistant/Associate Professor, College of Engineering, University of Georgia, 2020 to present.

Adjunct Assistant/Associate Professor, Department of Earth and Atmospheric Sciences, Georgia Institute of Technology, 2012 to present.

Postdoctoral Scientist, Center for Ocean-Atmospheric Prediction Studies, Florida State University, Jun. 2009 to Jun. 2010: joint modeling/observational studies of coastal dynamics in the Big Bend region, Eric P. Chassignet, advisor.

Research Scientist, Renaissance Computing Institute, University of North Carolina at Chapel Hill, Dec. 2008 to May 2009: storm surge modeling coupling atmospheric, circulation, and wave models in a framework of joint probability risk assessment.

Oceanographer, Ocean Dynamics and Prediction Branch, Naval Research Laboratory, Stennis Space Center, MS, Aug. 1999 to Aug. 2003: finite element modeling and data assimilation.

Research Interests:

Physical oceanography of continental margins, nearshore and shelf-scale processes. Modeling and observing coastal tidal and wind-forced dynamics, and their interaction with topography and stratification using traditional and autonomous sampling, optimization strategies, and acoustics.

Publications (* denotes advised student author):

Peer-reviewed journal articles and book chapters:

McQuarrie, F.M.*, C.B. Woodson, and **C.R. Edwards**, Modeling transmission detectability on a coastal reef with significant interference, *Animal Biotelemetry*, in review.

McQuarrie, F.M.*, C.B. Woodson, and **C.R. Edwards**, Physical and biological forcing of acoustic telemetry detections in challenging acoustic environments, *Animal Biotelemetry*, in revision.

McQuarrie, F.M.*, C.B. Woodson, and **C.R. Edwards**, A reef's high frequency soundscape and the effect on telemetry efforts: a biotic and abiotic balance, *J. Mar. Sci. Eng.*, 13(3), doi:10.3390/jmse13030517, 2025.

Savidge, W., C.Y. Robertson, **C.R. Edwards**, and C. Percy, Annual material budgets in an open marsh system: Assessing the consequences of multiple export pathways on flux estimates, *Est. Coast. Shelf Sci.*, in revision.

Indeck, K.L., M.F. Baumgartner, L. Lecavalier, F. Whoriskey, D. Durette-Morin, N.R. Pettigrew, J.M. McSweeney, L.H. Thorne, K.L. Gallagher, **C.R. Edwards**, E. Meyer-Gutbrod, and K.T.A Davies, Glider surveillance for near real-time detection and spatial management of North Atlantic right whales, *Oceanogr.*, doi:10.5670/oceanog.2025e111, 2025.

Chiodi, A., H. Hristova, G. Foltz, J. Zhang, C. Mordy, **C.R. Edwards**, and other authors, Surface ocean warming in the core of Hurricane Sam and its representation in forecast models, *Front. Mar. Sci.*, doi: 10.3389/fmars.2023.1297974, 2023.

Zhang, C., G. Foltz, A. Chiodi, C. Mordy, **C.R. Edwards**, C. Meinig, D. Zhang, E. Mazza, E.D. Cokelet, E.F. Burger, F. Bringas, G. Goni, H. Hristova, H.-S. Kim, J. Triñanes, J. Zhang, K. Bailey, K. O'Brien, M. Morales Caez, N. Lawrence-Slavas, R. Jenkins, S. Chen, and X. Chen, Hurricane observations by uncrewed systems, *Bull. Am. Met. Soc.*, 2023.

Seim, H.E., D.K. Savidge, M. Andres, J. Bane, **C.R. Edwards**, G. Gawarkiewicz, R. He, R.E. Todd, M. Muglia, J. Zambon, L. Han, and S. Mao, Overview of the processes driving exchange at Cape Hatteras, *Oceanogr.*, https://doi.org/10.5670/oceanog.2022.205, 2022.

Codden, C.J.*, A. Stubbins, and **C.R. Edwards**, Investigating dissolved organic carbon outwelling in a Georgia salt marsh creek, *Est. Coast. Shelf Sci.*, 265:107708-107709, https://doi.org/10.1016/j.ecss.2021.107709, 2021.

Miles, T., D. Zhang, G. Foltz, J. Zhang, C. Meinig, F. Bringas, J. Triñanes, M. Le Heńaff, M.F. Aristizabal Vargas, S. Coakley, **C.R. Edwards**, D. Gong, R.E. Todd, M. Oliver, D. Wilson, K. Whilden, B. Kirkpatrick, P. Chardon-Maldonado, J. Morell, D. Hernandez, G. Kuska, C. Stienbarger, K. Bailey, C. Zhang, S. Glenn, and G. Goni, Uncrewed ocean gliders and saildrones support hurricane forecasting and research, *Oceanogr.* 78-81, https://doi.org/10.5670/oceanog.2021.supplement.02-28, 2021.

Hou., M.*, S. Cho*, H. Zhou, **C.R. Edwards**, and F. Zhang, Bounded cost path planning for underwater vehicles in a partitioned flow field model, *Front. In Robotics and AI*, 8, 203, doi:10.3389/frobt.2021.575267, 2021.

Cho, S.*, F. Zhang, and **C.R. Edwards**, Learning and detecting abnormal speed of marine robots, *Int. J. Adv. Robotic Sys.*, doi:10.1177/1729881421999268, 2021.

Codden, C.J.*, A.M. Snauffer, A.V. Mueller, **C.R. Edwards**, M. Thompson, Z. Tait, and A. Stubbins, Predicting dissolved organic carbon at high temporal resolution from diverse data streams and machine learning in a saltmarsh creek, *Limnol. Oceanogr. Methods*, https://doi.org/10.1002/lom3.10406, 19(2), 81-95, 2021.

Edwards, C.R., S. Cho*, F. Zhang, and S. Fangman, Field and numerical studies to assess performance of acoustic telemetry collected by autonomous mobile platforms, *Ser. Nat. Marine Fisheries*, ONMS-20-08, 2020.

Testor, P., B. De Young, D. Rudnick, ..., **C.R. Edwards**, and other authors, OceanGliders: A component of the integrated GOOS, *Front. Mar. Sci.*, https://doi.org/10.3389/fmars.2019.00422, 2019.

Seim, H.E., and **C.R. Edwards**, Upper slope jets and Gulf Stream filaments inshore of the Charleston Bump during Winter 2012, *J. Phys. Oceanogr.*, 49, 1423-1438, 2019.

Chang, D.*, **C.R. Edwards**, F. Zhang, and J. Sun, A data assimilation framework for data-driven flow models enabled by motion tomography, *Int. J. Intelligent Robotics and Applications*, 3(2), 158-177, 2019.

Chang, D.*, **C.R. Edwards**, W. Wu, and F. Zhang, Motion tomography: Mapping flow fields using autonomous underwater vehicles, *Int. J. Robotics Res.*, 36(3), 320-336, 2017.

Chang, D.*, F. Zhang, and **C.R. Edwards**, Real-time guidance of underwater gliders assisted by predictive ocean models, *J. Atmos. Ocean. Tech.*, 32(3), 562-578, 2015.

Chang, D.*, Liang, X., W. Wu, **C.R. Edwards**, and F. Zhang, Real-time modeling of ocean currents for navigating underwater glider sensing networks, peer-reviewed chapter in Cooperative Robots and Sensor Networks, ser. Studies in Computational Intelligence, pp. 61-75, Springer, 2014.

Savidge, D.K., J. Norman, J.A. Amft, T. Moore, **C.R. Edwards**, and G. Voulgaris, Shelf edge tide correlated eddies along the Southeastern United States, *Geophys. Res. Lett.*, doi:10.1029/2010GL045430, 2010.

Edwards, C.R., and H.E. Seim, Complex EOF analysis as a method to isolate internal structure in shallow water, *J. Atmos. Ocean. Tech.*, 25, 808-821, 2008.

Savidge, D.K., **C.R. Edwards**, and M. Santana, Baroclinic effects of tides on the Cape Hatteras continental shelf, *J. Geophys. Res.*, 112, C09016, doi:10.1029/2006/JC003832, 2007.

Seim, H.E., and **C.R. Edwards**, Comparison of buoy-mounted and bottom-moored ADCP performance at Gray's Reef, *J. Atmos. Ocean. Tech.*, 24(2), 270-284, 2007.

Peer-reviewed conference papers:

Lin, L., Y. Ding, D.R. Krafft, S.L. Spurgeon, B.C. McFall, C.B. Woodson, and **C.R. Edwards**, Numerical modeling of coastal processes with beneficial use of dredged sediment in the near shore at Jekyll Island, Georgia, ERDC Technical Report, 2024.

Yang, R.*, M. Hou*, C. Lembke, **C.R. Edwards**, and F. Zhang, Automated anomaly detection for underwater gliders: algorithm and field validation, *Proc. Symp. Underwater Technology (UT23)*, Tokyo, Japan, pre-print available at https://arxiv.org/abs/2212.12963, 2023.

McQuarrie, F.*, C.B. Woodson, and **C.R. Edwards**, Modeling acoustic telemetry detection ranges in a shallow coastal environment, Proc. 15th Int. Conf. on Underwater Networks and Systems/WUWNet (WUWNet'21), Shenzhen, Guangdong, China, pp. 1-5, doi: 10.1145/3491315.3491331, 2021.

Kondrakunta, S., M. Cox, D. Coleman, X. Tan, T. Lin*, M. Hou*, F. Zhang, F. McQuarrie*, **C. Edwards**, and M. Cox, Rational selection of goal operations and the integration of search strategies with a cognitive architecture, *Proc. Ann. Conf. Of Advances in Cognitive Systems*, 1-20, arXiv:2201.088883v1, 2021.

Lin, T.*, M. Hou*, **C.R. Edwards**, M. Cox, and F. Zhang, Bounded cost HTN planning for marine autonomy, *Proc. IEEE OCEANS 2020 Global*, Singapore/virtual, 2020.

Zhang, Z, M. Hou*, F. Zhang, and **C.R. Edwards**, An LSTM-based Kalman filter for spatio-temporal ocean current assimilation, *Proc. 13th ACM Int. Conf. on Underwater Networks and Systems* (WUWNet'19), 1-7, Atlanta, GA, 2019.

Nidzieko, N., **C.R. Edwards**, and R.E. Todd, Autonomous Lagrangian profiling systems in coastal oceanography, *Proc. Autonomous and Lagrangian Profiling Systems II (ALPS-II)*, D. Rudnick and M.L. Timmermans (eds.), pp. 1-8, San Diego, CA, 2017.

Cho, S.*, F. Zhang, and **C.R. Edwards**, Detecting abnormal speed of marine robots using controlled Lagrangian particle tracking methods, *Proc. 12th ACM Int. Conf. on Underwater Networks and Systems (WUWNet'17)*, pp. 11.1-11.5, Halifax, NS, Canada, 2017.

Cho, S.*, F. Zhang, and **C.R. Edwards**, Tidal variability of acoustic detection, *Proc. IEEE Int. Conf. on Sustainable Computing and Communications*, pp. 431-436, Atlanta, GA, 2016.

Other conference papers and reports:

Hu, A.*, A. Gray*, G. Li, E. Meyer-Gutbrod, and **C.R. Edwards**, Evaluation of a deep learning-based algorithmic pipeline for real-time onboard removal of glider self-noise from passive acoustic data, *Proc. MTS OCEANS*, Chicago, IL, pp. 1-7, 2025.

Gray, A.*, Hu.*, G. Li, E. Meyer-Gutbrod, and **C.R. Edwards**, Analyzing self-noise sources and mitigation strategies in glider-based passive acoustic monitoring, *Proc. MTS OCEANS*, Chicago, IL, pp. 1-7, 2025.

Book, J.W., M.D. Miller, N.L. Beaird, C. Barron, **C.R. Edwards**, J.R. Edwards, D. Gong, A. Lawrence, S.D. Lynch, T. Miles, J. Osborne, and J. Slater, Predictions of AcousticS with Smart Experimental Networks of GlidERS (PASSENGERS), *Proc. MTS OCEANS*, Biloxi, MS, pp. 1-7, 2023.

McQuarrie, F.M.*, C.B. Woodson, and **C.R. Edwards**, Analyzing daily, synoptic, and seasonal drivers of acoustic telemetry efficiency on a coastal reef, *Proc. MTS OCEANS*, Biloxi, MS, pp. 1-6, 2023.

Yang, R.*, Hou, M.*, Lembke, C., Zhang, F., and **C.R. Edwards**, General anomaly detection of underwater gliders validated by large-scale deployment datasets, *Proc. MTS OCEANS*, Biloxi, MS, pp. 1-7, 2023.

Hou, M.*, S. Liu, F. Zhang, and **C.R. Edwards**, Path tracking error analysis for underwater glider navigation in a spatially and temporally varying flow field, *Proc. IEEE OCEANS'18*, pp. 1-8, 2018.

Hou, M.*, S. Liu, F. Zhang, and **C.R. Edwards**, A combined path planning and path following method for underwater glider navigation in a strong, dynamic flow field, *Proc. IEEE OCEANS Techno-Ocean*, pp. 1-8, 2018.

Cho, S.*, F. Zhang, and **C.R. Edwards**, Anomaly detection for controlled Lagrangian particles, *Proc. MTS/IEEE Oceans*, pp. 1-6, Anchorage, AK, 2017.

Seim, H.E., **C.R. Edwards**, and S. Lockhart*, Observations and processes of persistent near-bottom offshore flow at the shelfbreak off South Carolina, USA, *Proc. VIIIth Int. Symp. on Stratified Flows*, L. Armi and K. Winters (eds.), pp. 1-6, San Diego, USA, Aug. 29-Sept. 1, 2016.

Cho, S.*, F. Zhang, and **C.R. Edwards**, Localization of autonomous underwater vehicles incorporating flow models and acoustic detection, *Proc. MTS/IEEE Oceans 2016*, pp 1-6, Monterey, CA USA, 2016.

Seim, H., L. Leonard, D. Savidge, M. Fletcher and **C.R. Edwards**, Observing system depiction of circulation in the SE US coastal ocean, *Proc. IEEE US/EU Baltic Symposium*, pp. 1-4, May 2008, Tallin, Estonia, 2008.

Allard, R.A. C.A. Blain, L.F. Smedstad, T. Keen, A.J. Wallcraft, C.N. Barren, J.D.Dykes, **C.R.**

Edwards, B.D. Estrade, M. Bettencourt, G. Peggion, S. Howington, J. McKee Smith, W.E. McBride, and R.P. Signell, High fidelity simulation of littoral environments: applications and coupling of participating models, *Proc. DOD User Group Conf.*, 306-313, 2003.

Edwards, C.R., P. Hwang, and C.A. Blain, Application of non-stationary time series analysis techniques to Mississippi Sound data, *Proc. Mississippi Academy of Sciences*, 48(1), 2003.

Edwards, C.R., and C.A. Blain, Applications of the incremental approach to Yellow Sea modeling, *Proc. Estuarine and Coastal Modeling VII*, M. Spaulding et al. [eds.], ASCE, 447-466, 2002.

Blain, C.A., and **C.R. Edwards**, Development of a forecast capability for coastal embayments of the Mississippi Sound, *Proc. Marine Technology Society/Oceans*, 3, 1501-1508, 2002.

Edwards, C.R., and C.A. Blain, Operational evaluation of ADCIRC-2DDi as applied to the Western North Atlantic Ocean, NRL Formal Report NRL/FR/7320-0210005, 2002.

Edwards, C.R., and C.A. Blain, Evaluation of an application of adjoint methods to Yellow Sea modeling, NRL Formal Report NRL/RF/7320-019976, 2001.

Grants:

Awarded >$5.33M + since joining UGA July 2013

Office of Naval Research Research, Marine Mammals Program, Assessing and optimizing near real-time North Atlantic right whale detections from an autonomous underwater vehicle in the southeast US, $600k ($404k SkIO), 2026-2029, under review.

National Oceanographic and Atmospheric Administration, Increasing resilience of SECOORA ocean observing through infrastructure , $65k (sole PI), 2025-2028.

National Oceanographic and Atmospheric Administration, Southeast Coastal Ocean Observing Regional Association (SECOORA) real time monitoring of right whales using gliders, $330k ($260k SkIO), 2025-2028.

National Oceanographic and Atmospheric Administration, SECOORA Gliders: Investment in Capacity and Infrastructure, $550k (sole PI), 2024-2029.

National Oceanographic and Atmospheric Administration, SECOORA hurricane gliders 2024, $110k (sole PI), 2024-2025.

National Oceanographic and Atmospheric Administration, Office of Marine and Aviation Operations: A coordinated observing strategy for saildrones and gliders during the Atlantic hurricane season and advancement of data assimilation for the coupled hurricane forecast system, $500k ($99k SkIO), 2023-2024.

National Oceanographic and Atmospheric Administration, Accelerating improvements in hurricane forecasting with underwater glider field campaigns, $2.8M ($235k SkIO), 2022-2024.

Broad Reach Foundation: Detecting vocalizations of endangered North Atlantic right whales along the winter migration corridor, $342k ($157k SkIO), 2021-2025 (includes 1-year supplemental).

Office of Naval Research, Task Force Ocean: Predictions of AcousticS with Smart Experimental Networks of GlidERS (PASSENGERS), $5.47M ($396k SkIO), 2021-2024.

NOPP/IOOS-2016-2002515: Southeast Coastal Ocean Observing Regional Association (SECOORA): Coordinated monitoring, prediction, and assessment to support decision-makers' needs for coastal and ocean data and tools, $30M over 2016-2020, (lead PI for glider component, $1.25M, $550k Edwards; co-PI for HF radar component and associated awards, $619k Edwards), Jun. 2021-May 2026.

SECOORA, Navy glider operations in the Southeast Atlantic, sole PI, $179k, July 1 2022-2025.

National Oceanographic and Atmospheric Administration, SECOORA Hurricane Gliders: Improving tropical storm intensity forecasts with gliders, $350k ($177k Edwards), Apr. 2019-Mar. 2021.

University of Georgia, State of the Art Conference grant, Office of the Provost, International workshop on western boundary current-subtropical continental shelf interactions, $8k, Oct. 2019-Jun. 2020.

National Oceanographic and Atmospheric Administration, Soundscape metrics to support marine protected area management at Gray's Reef National Marine Sanctuary, Sep. 2019-Aug. 2020, $136k.

National Science Foundation, Smart and Autonomous Systems, Collaborative: Goal-driven marine autonomy with application to fisheries science and management, $1M ($250k Edwards), Feb. 2019-Dec. 2022.

National Science Foundation, International workshop on subtropical shelf ecosystems – western boundary current interactions: Savannah, GA: Winter 2019-2020, $50k ($25k Edwards), Apr. 2019-Mar. 2020.

National Science Foundation: Collaborative Research: Processes driving Exchange At Cape Hatteras (PEACH), $5M ($629k Edwards), Apr. 2016-Mar. 2020.

NOPP/IOOS-2016-2002515: Southeast Coastal Ocean Observing Regional Association (SECOORA): Coordinated monitoring, prediction, and assessment to support decision-makers needs for coastal and ocean data and tools, $20M over 2016-2020, (lead PI for glider component, $750k, $175k Edwards; co-PI for HF radar component and associated awards, $594k Edwards), Jun. 2016-May 2021.

Gulf of Mexico Research Initiative, Ecosystem Impacts of Oil and Gas Inputs to the Gulf (ECOGIG-2), $18.8M ($110k Edwards), Jan. 2015-Dec. 2017.

National Science Foundation: Tempo and mode of salt marsh exchange, $700k ($118k Edwards), Sept. 2012-Aug. 2015.

University of Georgia, SkIO/MAREX, Choose your own adventure: A novel STEM education program based on navigation of autonomous underwater vehicles in Georgia coastal waters, $15k, 2013.

National Science Foundation: Collaborative Research: Mechanisms of nutrient input at the shelf margin supporting persistent winter phytoplankton blooms downstream of the Charleston Bump, $1.656M ($484k Edwards portion), 2010-2013.

Thomas S. and Caroline H. Royster Fellowship: $109,500 over 2003-2008.

Special Recognition, Awards:

Senior Summer Faculty Fellow, Office of Naval Research, 2023.

Member, Leadership Savannah class of 2014.

Thomas S. and Caroline H. Royster Fellow, University of North Carolina, 2003-2008.

One of four non-faculty speakers chosen for the Carolina Speakers Bureau (UNC), 2003-2009.

Recipient of U.S. Navy Special Act Award for emergency real-time modeling support to the Spanish government, Mar. 2003.

Selected to attend the Third Summer School on Inverse Methods and Data Assimilation, Oregon

State University, Jul. 22-Aug. 2, 2002.

Recipient of AGU 2000 Scholar Fellowship, Jan. 2000.

Summer Student Fellow, Woods Hole Oceanographic Institution, Summer 1999.

Recipient of Science Opportunity Fellowship (NSF), May 1997-May 1999.

SOARS (Significant Opportunities in Atmospheric Research and Science) Fellow, National Center for Atmospheric Research, Summer 1998.

Presentations (* denotes student author):

Invited seminars and lectures:

Collecting acoustic data in the ocean: New insights from autonomous underwater vehicles, Georgia Department of Natural Resources, Feb. 11, 2025.

Mechanisms for persistent off-shelf export near-bottom in Long Bay, SC, University of Southern California, Oct. 8, 2024.

Upper slope jets in Long Bay, SC: Nutrient input and bio-physical interactions, University of North Carolina at Wilmington, Feb. 14, 2024.

Robotic oceanography: Expanding impact from science to decision-making, University of North Carolina at Wilmington, Planet Ocean Series, Feb. 13, 2024.

Expanding autonomy: Integrating data and model streams to optimize sampling in complex multidisciplinary systems, Arizona State University/Bermuda Institute of Ocean Sciences, March 2, 2023.

Gulf Stream Observing Systems: Improving Hurricane Intensity forecasting, World Meteorological Organization Observation Coordinating Group Meeting (OCG-12), May 13, 2021.

Autonomous Tools and Technologies: Platforms, Mid Atlantic Committee on the Ocean Mid-Atlantic Ocean Forum, May 5, 2021.

Alexa, map fish habitats! Developing intelligent systems for robotic fisheries management, Scripps Institute of Oceanography, Feb. 25, 2021.

Marine robotic networks: From platforms to services, NSF Advancing Underwater Cyber Infrastructure for Blue Science Workshop (BLUE-UCI 2021), Jan. 14, 2021.

South Atlantic Bight: Insights from gliders deployed for Hurricane Florence, invited HurricaneGliders OneNOAA seminar series lecture, Apr. 29, 2020.

Improving hurricane intensity forecasts with gliders, SECOORA webinar, Apr. 28, 2020.

Acoustic robotics: New directions in fisheries science using autonomous underwater vehicles, Georgia American Fisheries Society meeting, Augusta, GA, Jan. 29, 2020.

Seeding snow: Mississippi River plume interaction with surface oil in the northern Gulf of Mexico, Center for Ocean-Atmospheric Prediction Studies, Florida State University, Nov. 13, 2019.

Expanding autonomy – integrating data streams to optimize glider sampling, 8th EGO Meeting and International Glider Workshop (EGO/UG^2), New Brunswick, NJ, May 2019.

Bio-physical coupling in Long Bay, SC: Observations and bio-physical interaction, Marine Science Seminar Series, College of Charleston, Mar. 29, 2019.

Wintertime phytoplankton blooms and upper slope jets in Long Bay, SC, Coastal Carolina University, Jan. 24, 2019.

Seeding snow: Mississippi River plume interaction with surface oil in the northern Gulf of Mexico, Dept. of Marine Sciences, University of North Carolina at Chapel Hill, Oct. 4, 2018.

Robotic acoustic telemetry: New directions in fisheries management using AUVs, 2nd Annual Coastal Ecology Symposium, College of Coastal Georgia, Nov. 19, 2016.

Bio-physical coupling in Long Bay, SC: New advances using gliders, Dept. of Marine Science, Savannah State University, Feb. 19, 2015.

Autonomous sampling on the shelf edge using gliders: Lessons from Long Bay and Gliderpalooza, University of Georgia., Department of Marine Sciences, Sept. 2013.

Persistent winter phytoplankton blooms in Long Bay, SC: Nutrient input and bio-physical coupling, Monterey Bay Aquarium Research Institute, Aug. 2012.

Developing a glider coordinated control system for Long Bay, SC, Depts. of Computer Science, Biology, and Chemistry, Armstrong Atlantic State University, Nov. 18, 2011.

Coastal ocean response to sea breeze/land breeze near the critical latitude for diurnal/inertial resonance, Dept. of Marine Sciences, University of Georgia, Nov. 1, 2010.

Larval transport in the Georgia Bight: Why bio-physical interactions matter, Savannah State University, Savannah, GA, Aug. 25, 2010.

A new potential larval transport mechanism for vertically migrating species in the Big Bend Region, National Marine Fisheries Service, Pascagoula, MS, June 18, 2010.

The viability of sea breeze/land breeze forced currents as a mechanism for onshore transport mechanism for vertically migrating species in the Big Bend Region, Coastal Marine Laboratory, Florida State University, Sep. 24, 2009.

Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, Skidaway Institute of Oceanography, Apr. 13, 2009.

On diurnal/inertial resonance in the South Atlantic Bight, Workshop on Coupled Modeling in the South Atlantic Bight, Taylor Engineering Research Institute, Univ. of North Florida, Mar. 25, 2009.

Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, Department of Oceanography, Florida State University, Jan. 21, 2009.

Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, Coastal Dynamics and Prediction Branch, Naval Research Laboratory, Nov. 26, 2008.

Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, College of Marine and Earth Studies, University of Delaware, Nov. 14, 2008.

Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight: stratification and shear, Skidaway Institute of Oceanography, Oct. 27, 2008.

Coastal dynamics in the Georgia Bight: Atmosphere and ocean near-resonance at the critical latitude, University of North Florida Taylor Engineering Research Institute, Oct. 21, 2008.

Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, Physical Oceanography Dissertation Symposium, Honolulu HI, Oct. 5-10, 2008.

Sea breeze/land breeze forcing of the coastal ocean near the resonant critical latitude in the Georgia Bight, Skidaway Institute of Oceanography, Feb. 22, 2008.

Conference talks:

McQuarrie, F.M.*, C.B. Woodson, and **C.R. Edwards**, A reef's high frequency soundscape and the effect on telemetry efforts: a biotic and abiotic balance, FACT Acoustic Telemetry Network meeting, (Student Award), Feb. 12, 2025.

Edwards, C.R., Gray's Reef: A regional perspective, Gray's Reef NMS Science Meeting, November 19, 2024.

Edwards, C.R., A. Vincent*, L. Looney, E. Mazza, A. Savarin, G. Foltz, C. Zhang, and other authors, Coordinated autonomous surface vehicle and underwater glider operations in the Gulf Stream during hurricane season, Ocean Sciences Meeting 2024, February 23, 2024.

Edwards, C.R., F. McQuarrie*, A. Soss, and K. Roberson, Using underwater gliders and autonomous surface vehicles to monitor changing sound and seas of the South Atlantic Bight, Gray's Reef NMS Science Meeting, October 19, 2023.

McQuarrie, F.M.*, C.B. Woodson, and **C.R. Edwards**, Analyzing daily, synoptic, and seasonal drivers of acoustic telemetry efficiency on a coastal reef, Proc. MTS OCEANS, Biloxi, MS, pp. 1-6, 2023.

Yang, R.*, Lembke, C., Zhang, F., and **C.R. Edwards**, Automated anomaly detection for underwater gliders: algorithm and field validation, Proc. MTS OCEANS, Biloxi, MS, pp. 1-7, 2023.

Currier, R., B. Kirkpatrick, and **C.R. Edwards**, Integrating diverse uncrewed systems into the GANDALF piloting portal, Underwater Glider User Group (UG^2) 2022, Seattle, WA, Sept. 20-22, 2022.

Edwards, C.R., F. McQuarrie*, M. Hou, T. Lin, F. Zhang, D. Coleman, P. Reickert, X. Tan, S. Gogeneni, M. Cox, Alexa, Map Fish Habitats! Developing Intelligent Systems for Robotic Fisheries Management, FACT Acoustic Cooperative Telemetry meeting, Dec. 15, 2021.

Edwards, C.R., Gulf Stream Observing Systems: Improving Hurricane Intensity forecasting, World Meteorological Organization Observation Coordinating Group Meeting (OCG-12), May 13, 2021 (invited).

Edwards, C.R., Autonomous Tools and Technologies: Platforms, Mid Atlantic Committee on the Ocean Mid-Atlantic Ocean Forum, May 5, 2021 (invited).

McQuarrie, F.*, C.B. Woodson, and **C.R. Edwards**, Modeling acoustic telemetry detection ranges in a shallow coastal environment, 15th Int. Conf. on Underwater Networks and Systems (WUWNet'21), Nov. 23, 2021.

McQuarrie, F.*, C.B. Woodson, and **C.R. Edwards**, Acoustic coverage without the guitar: Using autonomous underwater vehicles to quantify marine protected area effectiveness, Georgia American Fisheries Society annual meeting (2nd place, Best Student Presentation), Jan. 19, 2021.

Edwards, C.R., S. Cho*, F. Zhang, and S. Fangman, Robotic acoustic telemetry: New directions in fisheries science using AUVs, Southeastern Acoustic Consortium, St. Petersburg, FL, Mar. 2, 2020.

Edwards, C.R., K. Ziervogel, and N. D'souza, Seeding snow: Mississippi River plume interaction with surface oil in the Gulf of Mexico, Gulf of Mexico Oil Spill and Ecosystem Sciences (GOMOSES) 2020, Tampa, FL, Feb. 5, 2020.

Edwards, C.R., S. Cho*, D. Chang*, F. Zhang, and S. Fangman, Codden, C.*, A. Snauffer, A. Mueller, **C.R. Edwards**, and A. Stubbins, Addressing dissolved organic carbon (DOC) outwelling in a Georgia tidal saltmarsh with machine learning, physical, and chemical techniques, Northeast

Student Chemistry Research Conference, Boston, MA, May 4, 2019.

Miles, T.N., **C.R. Edwards**, G.J. Goni, S.M. Glenn, and other authors, Initial impacts of the Hurricane Sentinel glider fleet deployed during the 2018 hurricane season, AGU Fall Meeting, Washington, DC, Dec. 10, 2018.

Edwards, C.R., T. Miles, and C. Gouldman, Improving tropical intensity forecasts using gliders, **invited** panel, MTS/OCEANS 2018, Charleston, SC, Oct. 24, 2018.

Edwards, C.R., K. Ziervogel, and N. D'souza, Seeding snow: Mississippi River plume interaction with surface oil in the northern Gulf of Mexico, Mid Atlantic Bight Physical Oceanography Meeting (MABPOM), Woods Hole, MA, Oct. 11, 2018.

Seim, H.E., **C.R. Edwards**, L. Han, S. Haines, and A. Whipple, Shelf glider observations near Cape Hatteras during PEACH, Mid Atlantic Bight Physical Oceanography Meeting (MABPOM), Woods Hole, MA, Oct. 11, 2018.

Codden, C.*, **C.R. Edwards**, and A. Stubbins, Temporally resolved dissolved organic carbon dynamics in a Georgia saltmarsh, Goldschmidt Conference, Boston, MA, Aug. 15, 2018.

Codden, C.*, T. Bittar, S. Wagner, R. Spencer, A. Stubbins, and **C.R. Edwards**, Temporally resolved dissolved organic carbon dynamics in a Georgia saltmarsh, Marine Science Center Graduate Student Symposium, Nahunt, NH, May 1, 2018.

Codden, C.*, T. Bittar, S. Wagner, R. Spencer, A. Stubbins, and **C. R. Edwards**, Temporally resolved dissolved organic carbon dynamics in a Georgia saltmarsh, Northeast Student Chemistry Research Conference, Boston, MA, Apr. 15, 2018.

Codden, C.*, T. Bittar, S. Wagner, R. Spencer, A. Stubbins, and **C. R. Edwards**, Temporally resolved dissolved organic carbon dynamics in a Georgia saltmarsh, Society for Women in Marine Science Spring Symposium, Narragansett, RI, Mar. 24, 2018.

Codden, C.*, T. Bittar, S. Wagner, R. Spencer, A. Stubbins, and **C.R. Edwards**, Temporally resolved dissolved organic carbon dynamics in a Georgia saltmarsh, Geological Society of America Northeastern Section 52nd annual meeting, Burlington, VT, Mar. 20, 2018.

Codden, C.*, T. Bittar, S. Wagner, R. Spencer, A. Stubbins, and **C.R. Edwards**, Temporally resolved dissolved organic carbon dynamics in a Georgia saltmarsh, Plum Island Ecosystems LTER All Scientists Meeting, Woods Hole, MA, Mar. 9, 2018.

Edwards, C.R, K.L. Dreger, and S. DiMarco, Disaster planning and shore-side ops: Lessons learned after Hurricane Irma, **invited** Underwater Glider Users Group (UG^2), Jan. 16, 2018.

Edwards, C.R., C. Lembke, and M. Oliver, Robotic acoustic telemetry: New directions in fisheries management using AUVs, Florida Atlantic Coast Telemetry Network Conference, Tequesta, FL, Dec. 15, 2017.

Edwards, C.R., Q. Tao*, M. Hou*, and F. Zhang, Integrated autonomous planning for gliders and AUVs under strong spatial/temporal gradients, Mid Atlantic Bight Physical Oceanography Meeting, Coastal Studies Institute, Sept. 28, 2017.

Seim, H.E., **C.R. Edwards**, S. Haines, R. Todd, M. Muglia, D. Savidge, G. Gawarkiewicz, and J. Bane, Variation in the position and character of the Hatteras Front, Mid Atlantic Bight Physical Oceanography Meeting, Coastal Studies Institute, Sept. 28, 2017.

Edwards, C.R., C. Lembke, H. Seim, R. He, and F. Zhang, First observations from the SECOORA regional glider network, SECOORA annual meeting, Melbourne, FL, May 18, 2017.

Edwards, C.R., Cho, S. *, and F. Zhang, Glider-based fisheries acoustics and tidal variability at

Gray's Reef, Gray's Reef National Marine Sanctuary Science Advisory Group, Mar. 1, 2017.

Edwards, C.R., C. Lembke, R. He, H.E. Seim, and F. Zhang, SECOORA regional glider observatory: Year 1 efforts, NOAA webinar, Sept. 12, 2016.

Edwards, C.R., S. Fangman, and F. Zhang, New advances in glider acoustic telemetry at Gray's Reef, Gray's Reef National Marine Sanctuary Science Advisory Group, Mar. 2, 2016.

Edwards, C.R., R.M. Castelao, L. Powers, and P. Medeiros, Physical and geochemical drivers of CDOM variability near a natural seep site in the Gulf of Mexico, Ocean Sciences meeting, New Orleans, LA, Feb. 2016.

Seim, H.E., and **C.R. Edwards**, Upper slope jets inshore of the Charleston Bump – barriers to shelf-slope exchange?, Ocean Sciences meeting, New Orleans, LA, Feb. 2016.

Edwards, C.R., S. Cho*, F. Zhang, and S. Fangman, Glider acoustic telemetry at Gray's Reef, Gray's Reef National Marine Sanctuary Science Advisory Group, Feb. 2015.

Edwards, C.R., D. Chang*, S. Cho*, K. Szwaykowska*, and F. Zhang, Advances in glider sampling using navigation with guidance from ocean models, Mid Atlantic Bight Physical Oceanography Meeting, Oct. 2014.

Edwards, C.R., D. Chang*, S. Cho*, K. Szwaykowska*, and F. Zhang, Autonomous underwater vehicle navigation with guidance from HF radar, Radiowave Oceanography Workshop, May 2014.

Edwards, C.R., D. Chang*, S. Cho*, K. Szwaykowska*, and F. Zhang, Advances in glider sampling using navigation with guidance from ocean models, Southeastern Coastal Ocean Observing Regional Association meeting, May 2014.

Edwards, C.R., D. Chang*, S. Cho*, and F. Zhang, Advances in regional physical and biological oceanography using gliders and autonomous systems, NOAA Southeastern and Caribbean Regional Team (SECART) workshop meeting, May 2014.

Chang, D.*, **C.R. Edwards**, and F. Zhang, Real-time guidance of autonomous underwater vehicle navigation using predictive ocean models, 2013 SIAM Conference on Control and its Applications (CT13), May 2013.

Edwards, C.R., and H.E. Seim, Interaction of the internal tide and the Gulf Stream in Long Bay, SC, poster for Physics of Estuaries and Coasts (PECS), New York City, NY, Aug. 2012.

Seim, H.E., and **C.R. Edwards**, Shelf and slope circulation inshore of the Charleston Bump, Physics of Estuaries and Coasts (PECS), New York City, NY, Aug. 2012.

Edwards, C.R., K. Speer, S. White, P. Ruscher, S. Morey, E.P. Chassignet, Near-resonant dynamics in the ocean and atmosphere in the Florida Big Bend Region (BBR), Fourth annual SECOM meeting, May 27-28, 2010.

Edwards, C.R., and H.E. Seim, Glider applications in the Georgia Bight, Workshop on Underwater Robotics, Autonomous Ocean Sampling Networks, and Applications to Ocean Sciences, Georgia Tech-Savannah, Oct. 30 2008.

Edwards, C.R., and H.E. Seim, Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight: stratification and shear, Physics of Estuaries and Coastal Seas (PECS), Liverpool UK, Aug. 24-29 2008.

Edwards, C.R., and H.E. Seim, Sea breeze/land breeze winds forcing the coastal ocean near the critical latitude in the Georgia Bight, Mentoring Physical Oceanography Women to Increase Retention (MPOWIR), Charleston SC, May 18-21 2008.

Edwards, C.R., and H.E. Seim, Near-resonant forcing of the coastal ocean by sea breeze/land

breeze near the critical latitude in the Georgia Bight, SouthEast Coastal Oceanography and Meteorology (SECOM) Conference, Columbia SC, May 12-13 2008.

Edwards, C.R., and H.E. Seim, Coastal ocean response to near-resonant sea breeze/land breeze near the critical latitude in the Georgia Bight, Ocean Sciences 2008, Orlando FL, Mar. 2-7 2008.

Plueddemann, A.J., A.R. Krishfield, and **C.R. Edwards**, Eddies in the Beaufort Gyre, OAII All Hands Meeting, 1999.

Poster presentations (* denotes advised student or technical staff author):

F. McQuarrie*, C.B. Woodson, and **C.R. Edwards**, The effect of high winds on acoustic telemetry at Gray's Reef, poster (F. McQuarrie) at Gray's Reef NMS Science Meeting, November 18, 2024.

C.R. Edwards, E. Meyer-Gutbrod, F.M. McQuarrie*, K. Dreger*, A. Krueser, and A. Afua-Twerefour, Eavesdropping underwater: Monitoring North Atlantic right whale calving areas with gliders, Underwater Glider User Group (UG^2) Workshop 2024, September 10, 2024.

Miller, G., A. Silverman, H. Broadbent, R. Russell, S. Beckwith, E. Hughes, K.L. Dreger, **C.R. Edwards**, and C. Lembke, Slocum glider data in R shiny, Underwater Glider User Group (UG^2) Workshop 2024, September 10, 2024.

F. McQuarrie*, C.B. Woodson, and **C.R. Edwards**, Quantifying the Predictable Effect of Physical Processes on a Coastal Reef?s Acoustic Environment, poster, Ocean Sciences Meeting, February 2024.

F. McQuarrie*, C.B. Woodson, and **C.R. Edwards**, Analyzing daily, synoptic, and seasonal drivers of acoustic telemetry efficiency on a coastal reef, poster (F. McQuarrie) at Gray's Reef NMS Science Meeting, October 18, 2023.

Edwards, C.R., K. Szwaykowska*, D. Chang*, S. Cho*, M. Hou*, Q. Tao*, and F. Zhang, Expanding autonomy: Integrating data streams to optimize glider sampling in western boundary currents, WBC-STE workshop, Savannah, GA, May 2023.

Edwards, C.R., G. Foltz, C. Zhang, F. Bringas, E. Burger, A. Chiodi, E. Cokelet, G. Goni, H. Hristova, R. Jenkins, C. Mordy, C. Meinig, D. Zhang, and J. Zhang, Coordinated autonomous surface vehicle and underwater glider operations in the Gulf Stream during hurricane season 2021, Underwater Glider User Group (UG^2) 2022, Seattle, WA, Sept. 20-22, 2022.

Dreger, K.L.*, **C.R. Edwards**, S.G. Hefner*, A. Silverman, C. Lembke, K. Maedke-Russell*, H.E. Seim, and F. Zhang, Power consumption rates of Slocum gliders across the SECOORA glider fleet: A historical look at over a decade of data, Underwater Glider User Group (UG^2) 2022, Seattle, WA, Sept. 20-22, 2022.

Edwards, C.R., G. Foltz, C. Zhang, F. Bringas, E. Burger, A. Chiodi, E. Cokelet, G. Goni, H. Hristova, R. Jenkins, C. Mordy, C. Meinig, D. Zhang, and J. Zhang, Coordinated autonomous surface vehicle and underwater glider operations in the Gulf Stream during hurricane season 2021, US CLIVAR "Whither the Gulf Stream" workshop, Woods Hole, MA, June 15-17, 2022.

Edwards, C.R., H. Seim, L. Han, S. Haines, D. Savidge, and G. Gawarkiewicz, Vertical structure of the Hatteras and Gulf Stream fronts near Cape Hatteras, NC, Ocean Sciences 2020, San Diego, CA, Feb. 19, 2020.

Hefner, B.*, D. Savidge, and **C.R. Edwards**, Judicious pairing of redundant radials from nested radar systems to optimize radar surface current mapping at Cape Hatteras, Ocean Sciences 2020, San Diego, CA, Feb. 19, 2020.

Seim, H.E., **C.R. Edwards**, D. Savidge, S. Haines, L. Han, J. Bane, and G. Gawarkiewicz, Variations in the mass field over 1.5 years at a persistent convergent shelf front, Ocean Sciences 2020, San Diego, CA, Feb. 19, 2020.

Savidge, D.K., M. Muglia, H. Seim, **C.R. Edwards**, S. Haines, N. Desimone, B. Hefner, and G. Matthias, Shelf export at Cape Hatteras observed in high resolution HF-radar surface currents and mooring data, Ocean Sciences 2020, San Diego, CA, Feb. 19, 2020.

Edwards, C.R., F. Zhang, X. Tan, and M. Cox, Designing a robotic network for fisheries management using artificial intelligence, Georgia American Fisheries Society meeting, Jan. 28, 2020.

Edwards, C.R., K. Szwaykowska*, D. Chang*, S. Cho*, M. Hou*, Q. Tao*, and F. Zhang, Expanding autonomy – integrating data streams to optimize glider sampling, OceanObs'19, Honolulu, HI, Sept. 17, 2019.

Codden, C.*, **C.R. Edwards**, A. Snauffer, A. Mueller, and A. Stubbins, A Georgia tidal saltmarsh: the flux of dissolved organic carbon, Skidaway 50th Anniversary meeting, Savannah, GA, Oct. 26, 2018.

Edwards, C.R., R.M. Castelao, K. Ziervogel, and N. D'souza, Mississippi River plume interactions with surface oil in the northern Gulf of Mexico, Gulf of Mexico Research Initiative Conference, New Orleans, LA, Feb. 6, 2018.

Edwards, C.R., Advances in glider sampling using navigation with guidance from ocean models, Autonomous and Lagrangian Profiling Systems (ALPS-2), San Diego, CA, Feb. 21-24, 2017.

Edwards, C.R., R.M. Castelao, K. Ziervogel, and N. D'souza, Mississippi River plume interactions with surface oil in the northern Gulf of Mexico, Gulf of Mexico Research Initiative Conference, New Orleans, LA, Feb. 7, 2017.

Edwards, C.R., R.M. Castelao, K. Ziervogel, and N. D'souza, Mississippi River plume interactions with surface oil in the northern Gulf of Mexico, Marine Oil Snow Sedimentation and Flocculent Accumulation (MOSSFA) workshop, New Orleans, LA, Feb. 6, 2017.

Chang, D.*, F. Zhang, and **C.R. Edwards**, Flow mapping based on the motion-integration errors of autonomous underwater vehicles, Ocean Sciences meeting, New Orleans, LA, Feb. 2016.

Lockhart, S.*, H.E. Seim, and **C.R. Edwards**, Chlorophyll distribution in relation to physical process off Long Bay, South Carolina, USA, Ocean Sciences meeting, New Orleans, LA, Feb. 2016.

Nelson, J.R., **C.R. Edwards**, H.E. Seim, S. Lockhart*, T. Moore, C. Robertson, and J. Amft, Export of a winter shelf phytoplankton bloom at the shelf margin of Long Bay (South Atlantic Bight, USA), Ocean Sciences meeting, New Orleans, LA, Feb. 2016.

Edwards, C.R., R.M. Castelao, L. Powers, and P. Medeiros, Physical and geochemical drivers of CDOM variability near a natural seep site in the Gulf of Mexico, 2016 GoMRI meeting, Feb. 2016.

Castelao, R.M., Y. Wang*, Y. Yuan, **C.R. Edwards**, and P. Medeiros, Surface ocean variability and transport pathways in the Gulf of Mexico, 2016 annual GoMRI meeting, Feb. 2016.

Edwards, C.R., D. Chang*, and S. Cho*, Advances in glider sampling using navigation with guidance from ocean models, poster for Georgia Coastal Research Colloquium, Oct. 2015.

Edwards, C.R., M. Timmons, and M. Sweeney-Reeves, Autonomous Underwater Vehicle (AUV) gathers data for oceanographic researchers and excites a classroom with STEM challenges, 2015 Georgia STEM Teaching and Learning Conference, Mar. 2015.

Seim, H.E., and **C.R. Edwards**, Upper slope jets related to Gulf Stream warm filaments inshore of the Charleston Bump, poster for EGU, Vienna, Austria, Mar. 2015.

Bittar, T. C. Robertson, M. Thompson, Z. Tait, W. Savidge, **C.R. Edwards**, A. Stubbins, and J. Brandes, Tidal and seasonal dynamics of autotrophic and heterotrophic microbial communities in a tidal salt marsh-creek ecosystem, 2015 Aquatic Sciences Meeting, Feb. 2015.

Edwards, C.R., D. Chang*, K. Szwaykowska*, S. Cho*, and F. Zhang, Advances in glider sampling using navigation with guidance from ocean models, Gulf of Mexico Research Initiative meeting, Feb. 2015.

Lockhart, S.*, H. Seim, C. Calloway, and **C.R. Edwards**, Glider-based observations of wintertime blooms on the outer shelf and slope in Long Bay, SC, USA, poster for AGU/Ocean Sciences 2014, Honolulu, HI, Feb. 2014.

Robertson, C.Y, J. Nelson, J.A. Amft, H.E. Seim, and **C.R. Edwards**, Export of phytoplankton bloom material from the continental shelf to the upper slope off Long Bay (SE US) – evidence from moored time-series observations, poster for AGU/Ocean Sciences 2014, Honolulu, HI, Feb. 2014.

Seim, H.E., **C. R. Edwards**, J. Nelson, and S. Haines, Gulf Stream and wind influence on shelf and slope circulation during 2012 off Long Bay (SE US), poster for AGU/Ocean Sciences 2014, Honolulu, HI, Feb. 2014.

Brandes, J.A., **C.R. Edwards**, C .Y. Robertson, W. Savidge, and A. Stubbins, Carbon cycling in a well-constrained southeastern US salt marsh, poster for AGU/Ocean Sciences 2014, Honolulu, HI, Feb. 2014.

Crowley, M.F., S. Glenn, O. Schofield, F. Whoriskey, W. Brown, ... **C.R. Edwards**, and others, Gliderpalooza 2013: So much more than gliders, poster for AGU/Ocean Sciences 2014, Honolulu, HI, Feb. 2014.

Edwards, C.R., K. Speer, and E. Chassignet, Vertical structure of tides and near-inertial motions in the Florida Big Bend, poster for the Gordon Research Conference on Coastal Ocean Circulation, Biddeford, ME, Jun. 2013.

Edwards, C.R., D. Chang*, K. Szwaykowska*, and F. Zhang, Development of a glider coordinated control system for Long Bay, SC, poster for AGU/Ocean Sciences 2012, Salt Lake City, UT, Feb. 2012.

Szwaykowska*, K., **Edwards, C.R.**, and F. Zhang, Path planning for autonomous gliders with guidance from ocean models, poster for AGU/Ocean Sciences 2012, Salt Lake City, UT, Feb. 2012.

Chang*, D., **Edwards, C.R.**, and F. Zhang, The glider coordinated control system for study of persistent wintertime phytoplankton blooms near Long Bay, SC, poster for AGU/Ocean Sciences 2012, Salt Lake City, UT, Feb. 2012.

Edwards, C.R., D. Chang, K. Szwaykowska, and F. Zhang, Development of a glider coordinated control system for Long Bay, SC, poster for the Gordon Research Conference on Coastal Ocean Modeling, Jun. 2011.

Edwards, C.R., E.P. Chassignet, S.L. Morey, and P. Ruscher, Near-resonant dynamics in the ocean and atmosphere in the Florida Big Bend Region (BBR), Joint MABPOM-SECOM meeting, Aug. 17-18, 2009.

Edwards, C.R., H.E. Seim, and E.P. Chassignet, Coastal ocean response to near-resonant sea breeze/land breeze in the Georgia Bight, Gordon Research Conference on Coastal Ocean Circulation, Jun. 7-12, 2009.

Edwards, C.R., and H.E. Seim, Near-resonant response to sea breeze wind forcing near the critical latitude in the South Atlantic Bight, Mid-Atlantic Bight Physical Oceanography Meeting 2006, Oct.

30-31, 2006.

Edwards, C.R., and H.E. Seim, Mid-shelf observations of internal waves in the South Atlantic Bight, AGU/Ocean Sciences, Feb. 20-24, 2006.

Edwards, C.R., and H.E. Seim, Towards characterizing internal wave activity in the South Atlantic Bight, Gordon Research Conference, Coastal Ocean Circulation, Jun. 5-10, 2005.

Aretxabaleta, A., **C.R. Edwards**, H.E. Seim, and J.R. Nelson, Characterizing spring and summer Gulf Stream water intrusions in the mid-shelf of the South Atlantic Bight, Gordon Research Conference, Coastal Ocean Circulation, Jun. 5-10, 2005.

Edwards, C.R., S.M. Haines, H.E. Seim, J.R. Nelson, and T. Moore, Seasonal and interannual variability on the Georgia Bight, ASLO/TOS, Feb. 15-20, 2004.

Blain, C.A, **C.R. Edwards**, and B.D. Estrade, Issues in developing an operational forecast capability for coastal waters, TOS, Jun. 4-6, 2003.

Blain, C.A., and **C.R. Edwards**, ADCIRC coastal circulation model support of AUV mission, Fall AGU, Dec. 5-10, 2001.

Edwards, C.R., and A.J. Plueddemann, Identification and analysis of Arctic eddies in the Beaufort Gyre **(invited poster)**, AGU/Ocean Sciences, Jan. 24-28, 2000.

Field Experience:

2011-present, R/V Neil Armstrong, R/V Savannah, R/V Point Sur, R/V Acadiana, R/V Miss Caroline, R/V Sam Gray, R/V Joe Ferguson: Glider activities in support of funded work in South Atlantic Bight, Mid Atlantic Bight, Gulf of Mexico, and North Atlantic

2011-2013, R/V Savannah: glider, buoy work, and survey activities in Long Bay, SC as co-PI.

2010/2011, R/V Gordon Gunter: SEAMAP surveys in Gulf of Mexico, ADCP/T-chain deployment, recovery in FL Big Bend

2009, R/V Savannah: 2 short (<1 week) cruises conducting transects/time series of turbulent microstructure, shelf CTD surveys, ADCP tripod deployment/recovery

2009, R/V Seminole: day cruise conducting shelf CTD transects in the Big Bend Region

2005-2009, R/V Savannah: 11 short (<1 week) cruises on the mid- to outer Georgia shelf (2 as Chief Scientist), glider deployment/recovery, ADCP tripod deployment, and instrument switch-out

2005-2006, R/V SeaHawk: glider deployments, recoveries in Onslow Bay

2005, R/V Savannah: Mar. 15-18, CTD carousel/bottle sampling on Georgia shelf (PI: J. Nelson)

2004, CODAR work, May 24-28, relocated transmit/receive antennae, performed super-transponder run aboard private vessel

1999, R/V Asterias: Set up, monitored horizonal ADCP array in Massachusetts Bay (PI: S. Anderson)

1998, Piper Seneca III: deployment of AXBTs, data collection for El Niño project (PI: J. Bane)

1997, multiple missions aboard Piper Seneca III: deployment of AXBTs, data collection for coastally trapped wind reversals (PI: J. Bane)

Teaching and Mentoring:

Co-advisor to F. McQuarrie (PhD expected 2025), UGA/Engineering; A. Hu (MS expected 2025), UGA/Artificial Intelligence; K. Szwaykowska (PhD 2013), D. Chang (PhD 2016), S. Cho (PhD 2017), M. Hou (PhD 2022), and R. Yang (PhD expected 2026), Electrical and Computer Engineering, Georgia Tech.

Postdoctoral advisor to L. Chi, 2020-2022.

MARS 4800/6800: Regional Oceanography of the South Atlantic Bight (undergraduate/graduate, capstone course for B.S. in Ocean Science), Semester@Skidaway, University of Georgia, Fall 2022, 2023, 2024

MARS 4100/6100: Physical and Geological Oceanography (undergraduate, required for B.S. in Ocean Science, co-taught), University of Georgia, Spring 2021, 2022, 2023, 2024, 2025

MARS 8030: Physical Oceanography (graduate, co-taught), University of Georgia, Spring 2021; MARS 8190 (recitation), Spring 2022, 2023

MARS/ENGR 8900: Research Techniques, University of Georgia, Fall 2016, Spring/Summer/Fall 2017, Spring/Summer/Fall 2020, Spring/Summer/Fall 2021, Spring/Summer/Fall 2022, Spring/Summer/Fall 2023, Spring/Summer/Fall 2024

Service on PhD committees for P. Duffy (UGA, Marine Sciences), Md Masud-ul-alam (UGA, Marine Sciences), B. Lowin (UGA Marine Sciences), M. Agonsi (UGA Marine Sciences), Y. Jeong (UNC, Marine Sciences), C. Amos (UGA, Marine Sciences), C. Codden (Northeastern), Y. Wang (UGA, Marine Sciences), W. Gu (UGA, Engineering), and Masters committee for G. Bilderback (UGA, Engineering), K. Aaron (UGA, Marine Sciences), and B. Hefner (UGA, Engineering).

Formal mentor for UGA MARS PhD students (A. Reynolds, K. Ma, M. Ricci, K. Aaron, M. Sheridan, G. Mann)

Reader, undergraduate honors thesis for S. Brown (BS/MS Marine Sciences 2021)

Supervised field research for multiple UNC students (Y. Jeong, L. Han, M. Hunt, A. Jacober, K. Lat), 2017-present.

Advised SkIO interns (A. Gray, 2024, X. Giomi, 2023, A. Vincent, 2020-2021, G. Hefner, 2019, B. Evans, 2018, Y. Bebieva, 2012).

Taught week-long "glider camp" training session for SkIO, UNC, and UGA scientists, 2007, 2011, 2017.

Mentored junior physical oceanography graduate students at UNC and FSU, 2005-2010.

Guest lecturer for *Quantitative Methods in Marine Science*, 2016, "Introductory Oceanography", 2004-2008.

TA for "Estuarine and Coastal Marine Science" (interdisciplinary upper level undergraduate course), Fall 2005.

Supervised undergraduate research assistants through summer and shorter-term projects for NRL, 2002-2003.

Service and Outreach:

Professional service:

Member, U.S. Integrated Ocean Observing System Advisory Committee, National Oceanographic and Atmospheric Administration, 2021-present.

Co-host, International Workshop on Subtropical Shelf Ecosystems-Western Boundary Current Interactions, Savannah, GA, 2020-2021 (virtual), and 2023 (in person).

Planning team member, session chair, Advancing Underwater Cyber Infrastructure for Blue Science (BLUE-UCI 2021), Jan. 12-14, 2021.

Session chair and discussion leader, Shelf-deep ocean exchange, Gordon Research Conference on Coastal Ocean Dynamics, 2021-2023.

Discussion leader, US CLIVAR "Whither the Gulf Stream" Workshop, Jun. 2022.

Invited participant, NOAA Unmanned Systems (UxS) Community Workshop, Aug. 2020.

Invited participant, NOAA OAR/IOOS Atlantic Regional Workshop, June 2020.

Invited participant, National Science Foundation Underwater Wireless Infrastructure workshop, Washington, DC, Nov. 2018.

Invited participant, Autonomous and Lagrangian Profiling Systems (ALPS-2), Scripps Institute of Oceanography, Feb. 2017.

Invited participant, U.S. Underwater Gliders Workshop, Stennis Space Center, MS, Jan. 2017.

Program Reviewer, Ocean Observatories Initiative, National Science Foundation, 2017-2021.

Panelist, National Science Foundation, Physical Oceanography, CyberSEES, National Robotic Initiative, and Foundational Research in Robotics panels.

Panelist, NOAA/IOOS regional associations, 2020.

Reviewer, National Science Foundation (Physical Oceanography, Biological Oceanography, Major Research Instrumentation Program, Postdoctoral Research Fellowship Program), South Carolina Sea Grant, National Oceanographic and Atmospheric Administration (National Undersea Research Program), Integrated Ocean Observing System Regional Associations.

Guest editor, *Oceanography* supplement on autonomous ecosystem monitoring and management, 2023-2025.

Reviewer for *Oceanography*, *J. Phys. Oceanogr.*, *J. Geophys. Res. (Oceans)*, *J. Field Robotics*, *J. Atmos. Ocean. Tech.*, *J. Geophys. Res. (Biogeosciences)*, *Stoch. Envir. Res. and Risk Assess.*

Co-founder, Coastal Computing Cluster, a cooperative cluster among 8 Marine Sciences and Engineering faculty.

Gray's Reef National Marine Sanctuary Ecological Connectivity Working Group, 2015-present.

Science Advisory Group member, Gray's Reef National Marine Sanctuary, 2014-present.

Member, OceanGliders Ocean Health and Ecosystems Task Team, 2021-present.

Session co-chair, Boundary currents and shelf-deep ocean exchange, Ocean Sciences meeting San Diego, CA, Feb. 2020.

SECOORA representative and white paper co-author, IOOS National Glider Strategy meeting, 2012.

Session co-chair, Adaptive sampling of coastal waters using gliders and autonomous underwater

vehicles (AUVs): Novel integration of oceanography and engineering research, Ocean Sciences 2012, Salt Lake City, UT, 2012.

Co-organizer for South East Coastal Oceanography and Meteorology (SECOM) meeting, 2010, Tallahassee, FL.

Public outreach:

Co-developer of week-long "Girls Code Games" summer camp for 20+ girls in grades 5-8 to learn to code and program a game based on underwater gliders and the research they enable, taught by high school and rising first year university student instructors, 2022.

National/federal representative for Hurricane Glider research, NOAA/Saildrone Media Day (St. Petersburg, FL) and organizer of regional media event for Hurricane Gliders, resulting in national and regional coverage (Hearst Media and dozens of local affiliates, The Weather Channel, Accuweather), 2022-2024.

Lead, Film project to develop short and long format films to demonstrate the scientific process and connections to society based on ongoing work at Cape Hatteras (creative lead: Kyle Lawrence, MadMax Productions, Savannah, GA), screened for the public at SkIO Mar. 2020, screened as part of Woods Hole Film Festival Jul./Aug. 2020.

Session developer/leader, volunteer, fundraiser, Girls Engineer It Day (annual day of hands-on activities for 350+ students and their parents), Society of Women Engineers, 2012-present.

Speaker, Improving hurricane intensity forecasts with gliders, SECOORA webinar, Apr. 2020.

Invited panelist, Hurricanes and sea level rise: What does the data show?, public fora hosted by SECOORA and St. Johns River Keeper, Jan. 2018, and Wilmington, NC Jun. 2019.

Invited panelist, Improving hurricane forecasts with ocean robots, public panel with an audience of 240 for the PULSE Art+Technology Festival at the Jepson Museum of Art, Jan. 2020.

Research highlighted in local, regional, and national media (Science Magazine, WIRED, Forbes, Savannah Morning News, Charleston Post Courier, All Things Considered/National Public Radio, statewide Georgia Public Broadcasting, The Weather Channel *Weather Geeks* podcast and broadcast, local television affiliates, online, and other outlets).

Invited film introduction, Jepson Art Museum PULSE Art+Technology film festival, Savannah, GA, Jan. 2019

Public lecture, Evening at Skidaway Lecture Series, 2014, 2018, 2019, 2020, 2021, 2022, 2023; Open Lab Night, 2018, 2019, 2023.

Developed, taught modules for middle school robotics for Women in Marine Sciences (WIMS) camp, 2018, 2019; for local classroom use and outreach events via SkIO/MAREX grant, 2014.

Presenter, Skidaway Marine Science Day, 2010-2019.

Invited speaker, "Eavesdropping Underwater: Monitoring Right Whales off Georgia's Coast", 4 local Rotary, sailing, and community groups, 2023-present.

Invited speaker, "Marine Robots, Sound, and Artificial Intelligence: New Tools for Fisheries Science", 5 local Rotary, sailing, and community groups, 2019-present.

Invited speaker, "Robotic Oceanography at Skidaway Institute of Oceanography", 12 local Rotary, sailing, and community groups, 2012-present.

Invited film introduction, PULSE Art+Technology film festival, Jepson Art Museum, Savannah,

GA, Jan. 25, 2019.

Invited speaker "Underwater Robots: Using Gliders in Oceanography", Geechee Sailing Club, Aug 12, 2013.

Invited speaker, "Under water: the ocean's role in shaping our future", Carolina Meadows University Speakers seminar series (via Carolina Speakers Bureau), Dec. 2008.

Co-organized and presented "Observing our Oceans - Using Cool Toys" for half day on-site outreach activity with local elementary schools, UNC Department of Marine Sciences, May 2008.

Invited speaker, Ocean Awareness Day Teacher Workshop on Integrating AUV Technology into the Classroom, Pine Knoll Shores Aquarium, Pine Knoll Shores, NC, Apr. 2008.

Invited speaker, "The ocean and climate change", Peer Learning (via Carolina Speakers Bureau), Oct. 2006.

Invited speaker, "I want to be an oceanographer when I grow up", Central North Carolina Mineral Society (via Carolina Speakers Bureau), Feb. 2006.

Career Day speaker at various middle/high schools in LA, NC, and FL, 2002-2010.

Internal service:

SkIO IT committee chair (2010-present)

UGA MARS Physical Oceanography Faculty Search committee member, 2023-2024

UGA MARS Undergraduate Affairs committee (2022-present)

UGA MARS Ad Hoc DAT committee member, 2023

UGA MARS Diversity and Inclusion committee member, chair of Student Life subcommittee (2020-present)

UGA MARS Ad Hoc Evaluations Committee member, 2022

UGA MARS Strategic Planning committee (2019-2022)

UGA Georgia Advanced Computing Resource Center Advisory Committee (GACRC-AC, 2015-Mar. 2018)

SkIO 50th Anniversary Activities committee (2017-2018)

SkIO IT Director search committee (chair, 2015-2016)

SkIO seminar chair (2012-2015)

SkIO Marine Operations committee (2011-2017)

SkIO Marine Superintendent search committee (2015)

MARS head search committee (2015)

MARS graduate affairs transition committee (2013)