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EDUCATION

2007 Ph.D. in Oceanography, Old Dominion University
1997 B.S. in Chemistry, Peking University, China

PROFESSIONAL EXPERIENCE

2023 – **Professor**, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi
2021 – **Editor**, *Ocean Science*
2020 – **Chair, Ecosystem Science and Modeling**, Harte Research Institute for Gulf of Mexico Studies, Texas A&M University-Corpus Christi
2018 –2022 **Associate Editor**, *Frontiers in Marine Science*
2018 – 2023 **Associate Professor**, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi
2017 – 2019 **Coordinator**, Coastal & Marine System Science Program, Department of Physical & Environmental Sciences, Texas A&M University-Corpus Christi
2017 **Coordinator**, Chemistry M.S. Program, Department of Physical & Environmental Sciences, Texas A&M University-Corpus Christi
2012 – 2018 **Assistant Professor**, Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi
2012 – 2012 **Assistant Research Scientist**, Department of Marine Sciences, University of Georgia
2007 – 2012 **Post Doctoral Associate**, Department of Marine Sciences, University of Georgia
2000 – 2006 **Graduate Research Assistant**, Department of Ocean, Earth and Atmospheric Sciences, Old Dominion University
1997 – 2000 **Research Assistant**, Institute of Oceanology, Chinese Academy of Sciences

TEACHING EXPERIENCE (Evaluation average 4.45/5.00)

Instructor of record at Texas A&M University – Corpus Christi for

2023	CHEM4344	Chemical Oceanography	12 undergraduate students
	CHEM6362	Chemical Oceanography	5 graduate students
2022	CHEM4344	Chemical Oceanography	11 undergraduate students
	CHEM6362	Chemical Oceanography	9 graduate students
2021	CHEM4344	Chemical Oceanography	16 undergraduate students
	CHEM6362	Chemical Oceanography	7 graduate students

	ESCI6203	Professional Skills for Scientists	11 graduate students
2020	CHEM1411	General Chemistry	45 undergraduate students
	ESCI6203	Professional Skills for Scientists	6 graduate students
2019	CHEM1411	General Chemistry	58 undergraduate students
	*ESCI4490	Ocean and Estuarine Acidification	15 undergraduate students
	*CMSS6590	Ocean and Estuarine Acidification	1 graduate student
2018	CHEM4344	Chemical Oceanography	7 undergraduate students
	CHEM5362	Chemical Oceanography	5 graduate students
2017	CMSS6357	Global Biogeochemical Cycles and Change	8 graduate students
	CHEM4344	Chemical Oceanography	9 undergraduate students
	CHEM1411	General Chemistry	51 undergraduate students
2016	CHEM4344	Chemical Oceanography	13 undergraduate students
	CHEM1411	General Chemistry	52 undergraduate students
2015	CHEM1411	General Chemistry Lab	23 undergraduate students
	CHEM4344	Chemical Oceanography	20 undergraduate students
	CHEM5490	Chemical Oceanography	2 graduate students
	*CMSS6357	Global Biogeochemical Cycles and Change	4 graduate students
2014	CHEM1411	General Chemistry Lab	23 undergraduate students
	*CHEM4344	Chemical Oceanography	18 undergraduate students
	*CHEM5490	Chemical Oceanography	2 graduate students
2013	#CMSS6102	Seminar in Coastal Marine System Science	14 graduate students
	*CHEM5421	Aquatic Chemistry	3 graduate students
	*CHEM4490	Aquatic Chemistry	3 undergraduate students
	#CHEM4344	Chemical Oceanography	14 undergraduate students

* Developed courses;

Significantly revised courses from prior instructors.

Guest lecturer at Texas A&M University-Corpus Christi for

2017	CMSS6307	Coastal and Marine Systems
2016	CMSS6307	Coastal and Marine Systems
2015	CMSS6307	Coastal and Marine Systems
2014	CMSS6307	Coastal and Marine Systems

ADVISING AND MENTORING

Graduate Students Supervised

Doctor of Philosophy – Dissertation Advisor

2022 -	EvaLynn Jundt, Coastal and Marine System Science
2017 – 2022	Larissa Dias, Coastal and Marine System Science (Postdoc, University of Washington)
2015 – 2021	Melissa McCutcheon, Coastal and Marine System Science (Natura Resource Specialist IV, Texas General Land Office)
2014 – 2019	Hongming Yao, Coastal and Marine System Science

2013 – 2018 (Associate Scientist, Chinese Academy of Sciences)
 Hongjie Wang, Coastal and Marine System Science
 (Assistant Professor, University of Rhode Island)

Master of Science – Thesis Advisor

2022 – present Adewumi Andrew, Environmental Science
 2021 – present Christian Amos, Chemistry
 2021 – present Nicole Kumbula, Chemistry
 2020 – 2022 EvaLynn Jundt, Coastal and Marine System Science
 2017 – 2019 Corrie Clark, Chemistry
 2013 – 2015 Melissa McCutcheon, Environmental Science

Graduate Committee Appointments

Current David Armstrong (Marine Biology, Ph.D.) 2023-
 Bryanna Herrera (Marine Biology, M.S.) 2022-
 Nin Gan (Marine Biology Ph.D.) 2020-
 Past Justin Elliott (Chemistry, M.S., graduated 2023)
 Danielle Marshal (Environmental Science, M.S., graduated 2023)
 William Wolfe (Environmental Science M.S., graduated 2022)
 Lauren Renner (Environmental Science, M.S., graduated 2022)
 Lily Walker (Coastal and Marine System Science M.S., graduated 2022)
 Kenneth Hayes (Environmental Science M.S., graduated 2020)
 Warren Duengan (Environmental Science M.S., graduated 2020)
 Sebastian Rubiano (Chemistry M.S., graduated 2019)
 I-Shuo Huang (Marine Biology Ph.D., graduated 2018)
 Cody Lopez (Environmental Science M.S., graduated 2018)
 Jamie Smith (Coastal and Marine System Science M.S., graduated 2018)
 Lixin Wang (Environmental Science M.S., graduated 2016)
 Melissa Trevino (Environmental Science M.S., graduated 2016)
 Lee Schroer (Environmental Science M.S., graduated 2014)

External Graduate and Defense Committee Appointments

Sarah Cryer (University of Southampton, Ph.D.) 2023
 Heather Donnelly (Boston College, Ph.D.) 2023-
 Caitlyn Fontenot (University of Southern Mississippi, M.S.) 2023-

Undergraduate Students Supervised

2022 Abril Lunar Garcia (TAMUCC)
 2021 Alicia Fraire (TAMUCC), Robert Carter (Yale)
 2019 Michael Trevino (TAMUCC)
 2018 Esteban De La Rosa (TAMUCC)
 2015-2016 Lucas Martinez (TAMUCC)
 2014 Anthony Guzman (Welch, TAMUCC)
 2013 Matina Granieri (NSF-REU, Temple University)

High School Students Supervised

2019 Elizabeth Clark, Will Chesnut (Flour Bluff High School)
 2018 Terrion Frank, Altio Saavedra (Foy Moody High School)

Visiting Scholars Supervised

2013-2014 Irma Kasaulya (U.S. Fulbright Scholar, Pattimura University, Indonesia)
 2013-2014 Zhangxian Ouyang (Visiting Scholar, Sun Yat-sen University, China)

RESEARCH INTERESTS

Ocean Carbon Cycle; Ocean and Estuarine Acidification; Stable Isotope Biogeochemistry; Sediment Biogeochemistry; Global Environmental Change

AWARDS AND HONORS

Endowed Ruth A. Campbell Professor in Coastal and Marine System Science (2018)
Outstanding Doctoral Mentor, Texas A&M University–Corpus Christi (2017)
National Science Foundation Early Career Development (CAREER) Award (2017)
Outstanding Ph.D. Student, Old Dominion University (2007)

PUBLICATIONS

Peer-Reviewed Publications in International Journals (“_” indicates student/trainee author)

Yin, H., **Hu, X.**, and Dias L.M. 2023. Sulfate enrichment in estuaries of the northwestern Gulf of Mexico: the potential effect of sulfide oxidation on carbonate chemistry under a changing climate. *Limnology and Oceanography Letters*, doi:10.1002/lol2.10335 (in press).

Johnston, M.A., Studivan, M.S., Enochs, I.C., Correa, A.M.S., Besemer, N., Eckert, R.J., Edwards, K., Hannum, R., **Hu, X.**, Nuttall, M., O'Connell, K., Palacio-Castro, A.M., Schmahl, G.P., Sturm, A.S., Ushijima, B. and Voss, J.D., 2023. Coral disease outbreak at the remote Flower Garden Banks, Gulf of Mexico. *Frontiers in Marine Science*, **10**, 1111749. doi:10.3389/fmars.2023.1111749.

Dias, L.M., **Hu, X.**, and Yin, H. 2022. A biogeochemical alkalinity sink in a shallow, semiarid estuary of the northwestern Gulf of Mexico. *Aquatic Geochemistry*, doi:10.1007/s10498-022-09410-z, in press.

Hu, X., Yao, H., McCutcheon, M.R., Dias, L., Saryk, C.J., Wetz, M.S., and Montagna, P.A. 2022. Aragonite saturation state in estuaries along a climate gradient in the northwestern Gulf of Mexico. *Frontiers in Environmental Science*, **10**, 951256. doi: 10.3389/fenvs.2022.951256.

Osborne, E., **Hu, X.**, Hall, E.R., Yates, K., Vreeland-Dawson, J., Shamberger, K., Barbero, L., Hernandez-Ayon, J.M., Gomez, F.A., Hicks, T., Xu, Y.-Y., McCutcheon, M.R., Acquafredda, M., Chapa-Balcorta, C., Norzagaray, O., Pierrot, D., Munoz-Caravaca, A., Dobson, K.L., Williams, N., Rabalais, N.N., and Dash, P. 2022. Ocean acidification in the Gulf of Mexico: drivers, impacts, and unknowns. *Progress in Oceanography*, **209**, 102882.

Yao, H., Montagna, P.A., Wetz, M.S., Saryk, C.J., **Hu, X.**, 2022. Subtropical estuarine carbon budget under various hydrologic extremes and implications on the lateral carbon exchange from tidal wetlands. *Water Research*, **217**, 118436. (Invited highlight by the North American Carbon Program, https://cce-signin.gsfc.nasa.gov/pub_docs/quad_chart_23224.pdf)

McCutcheon, M.R. and **Hu, X.**, 2022. Long-term trends in estuarine carbonate chemistry in the northwestern Gulf of Mexico. *Frontiers in Marine Science*, **9**, 793065. doi: 10.3389/fmars.2022.793065.

Jiang, L.-Q., Pierrot, D., Wanninkhof, R., Feely, R.A., Tilbrook, B., Alin, S., Barbero, L., Byrne, R.H., Carter, B.R., Dickson, A.G., 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.W., Velo, A., Allegra, A.J., Barker, P., Burger, E., Cai, W.-J., Chen, C.-T.A., Cross, J., Garcia, H., Hernandez-Ayon, J.M., **Hu, X.**, Kozyr, A., Langdon, C., Lee, K., Salisbury, J., Wang, Z.A. and Xue, L., 2022. Best practice data standards for discrete chemical oceanographic observations. *Frontiers in Marine Science*, **8**, 705638, doi:10.3389/fmars.2021.705638

- Huang, I.S., **Hu, X.**, Abdulla, H. and Zimba, P.V., 2021. Effects of climate change on metabolite accumulation in freshwater and marine cyanobacteria. *Climate Change Ecology*, 2, 100018.
- Rosenau, N.A., Galavotti, H., Yates, K.K., Bohlen, C.C., Hunt, C.W., Liebman, M., Brown, C.A., Pacella, S.R., Largier, J.L., Nielsen, K.J., **Hu, X.**, **McCutcheon, M.R.**, Vasslides, J.M., Poach, M., Ford, T., Johnston, K. and Steele, A., 2021. Integrating High-Resolution Coastal Acidification Monitoring Data Across Seven United States Estuaries. *Frontiers in Marine Science*, 8: 679913, doi: 10.3389/fmars.2021.679913.
- McCutcheon, M.R.**, Yao, H., Staryk, C.J. and **Hu, X.**, 2021. Temporal variability and driving factors of the carbonate system in the Aransas Ship Channel, TX: A time-series study. *Biogeosciences*, 18, 4571-4586.
- Huang, W.-J., Cai, W.-J. and **Hu, X.**, 2021. Seasonal Mixing and Biological Controls of the Carbonate System in a River-Dominated Continental Shelf Subject to Eutrophication and Hypoxia in the Northern Gulf of Mexico. *Frontiers in Marine Science*, 8, 621243, doi:10.3389/fmars.2021.621243.
- Hu, X.**, **Yao, H.**, Staryk, C.J., **McCutcheon, M.R.**, Wetz, M.S. and **Walker, L.**, 2021. Corrigendum: Disparate responses of carbonate system in two adjacent subtropical estuaries to the influence of Hurricane Harvey - A case study. *Frontiers in Marine Science*, 8, 647961, doi:10.3389/fmars.2021.647961.
- Walker, L.M. Montagna, P.A., **Hu, X.** and Wetz, M.S., 2021. Timescales and Magnitude of Water Quality Change in Three Texas Estuaries Induced by Passage of Hurricane Harvey. *Estuaries and Coasts*, 44, 960-971.
- Hu, X.**, 2020. Effect of organic alkalinity on seawater buffer capacity - A numerical exploration. *Aquatic Geochemistry*, 26, 161-178. (Invited highlight by the U.S. Ocean Carbon and Biogeochemistry Program, <https://www.us-ocb.org/the-curious-role-of-organic-alkalinity-in-seawater-carbonate-chemistry/>)
- Hu, X.**, **Yao, H.**, Staryk, C.J., **McCutcheon, M.R.**, Wetz, M.S. and **Walker, L.**, 2020. Disparate responses of carbonate system in two adjacent subtropical estuaries to the influence of Hurricane Harvey - A case study. *Frontiers in Marine Science*, 7, 26, doi:10.3389/fmars.2020.00026.
- Patrick, C.J., Yeager, L., Armitage, A.R., Carvallo, F., Congdon, V.M., Dunton, K.H., Fisher, M., Hardison, A.K., Hogan, J.D., Hosen, J., **Hu, X.**, Kiel Reese, B., Kinard, S., Kominoski, J.S., Lin, X., Liu, Z., Montagna, P.A., Pennings, S.C., Walker, L., Weaver, C.A. and Wetz, M., 2020. A system level analysis of coastal ecosystem responses to hurricane impacts. *Estuaries and Coasts*, 43, 943-959.
- Wang, H.**, **Hu, X.**, Wetz, M.S., Hayes, K.C. and Lu, K., 2020. Photochemical degradation of organic carbon in a eutrophic, semiarid estuary. *Limnology and Oceanography Letters*, 5, 246-253.
- Yao, H.**, **McCutcheon, M.R.**, Staryk, C.J. and **Hu, X.**, 2020. Hydrologic controls on CO₂ chemistry and flux in subtropical lagoonal estuaries of the northwestern Gulf of Mexico. *Limnology and Oceanography*, 65, 1380-1398.
- McCutcheon, M.R.**, Staryk, C.J. and **Hu, X.**, 2019. Characteristics of the carbonate system in a semi-arid estuary that experiences summertime hypoxia. *Estuaries and Coasts*, 42, 1509-1523.
- Fennel, K., Alin, S., Barbero, L., Evans, W., Bourgeois, T., Cooley, S., Dunne, J., Feely, R.A., Hernandez-Ayon, J.M., **Hu, X.**, Lohrenz, S., Muller-Karger, F., Najjar, R., Robbins, L., Shadwick, E., Siedlecki, S., Steiner, N., Sutton, A., Turk, D., Vlahos, P. and Wang, Z.A.,

2019. Carbon cycling in the North American coastal ocean: A synthesis. *Biogeosciences*, **16**, 1281-1304.
- Turk, D., Wang, H., Hu, X., Gledhill, D.K., Wang, Z.A., Jiang, L. and Cai, W.-J. 2019. Time of emergence of surface ocean carbon dioxide trends in the North American coastal margins in support of ocean acidification observing system design. *Frontiers in Marine Science*, **6**, 91. doi:10.3389/fmars.2019.00091.
- Wang, H., Hu, X., Wetz, M.S. and Hayes, K.C., 2018. Oxygen consumption and respired organic matter in two eutrophic subtropical coastal embayments. *Environmental Science & Technology*, **52**, 13004-13014.
- Wang, H., Hu, X., Rabalais, N.N. and Brandes, J., 2018. Drivers of oxygen consumption in the northern Gulf of Mexico hypoxic waters - A stable carbon isotope perspective. *Geophysical Research Letters*, **45**, 10528-10538.
- Spalt, N., Murgulet, D. and Hu, X. 2018. Relating estuarine geology to groundwater discharge at an oyster reef in Copano Bay, TX. *Journal of Hydrology*, **564**, 785-801.
- Hu, X., Nuttall, M.F., Wang, H., Yao, H., Staryk, C.J., McCutcheon, M.R., Eckert, R.J., Embesi, J.A., Johnston, M.A., Hickerson, E.L., Schmahl, G.P., Manzello, D., Enochs, I.C., DiMarco, S. and Barbero, L., 2018. Seasonal variability of carbonate chemistry and decadal changes in waters of a marine sanctuary in the Gulf of Mexico. *Marine Chemistry*, **205**, 16-28.
- Scherer, A.E., Bird, C.E., McCutcheon, M.R., Hu, X. and Smee, D.L., 2018. Two-tiered defense strategy may compensate for predator avoidance costs of an ecosystem engineer. *Marine Biology*, **165**, 131.
- Montagna, P.A., Hu, X., Palmer, T.A. and Wetz, M.S., 2018. Effect of hydrological variability on the biogeochemistry of estuaries across a regional climatic gradient. *Limnology and Oceanography*, **63**, 2465-2478.
- Murgulet, D., Trevino, M., Douglas, A., Spalt, N., Hu, X. and Murgulet, V., 2018. Temporal and spatial fluctuations of groundwater-derived alkalinity fluxes to a subtropical coastal embayment. *Science of the Total Environment*, **630**, 1343-1359.
- Najjar, R.G., Herrmann, M., Alexander, R., Boyer, E.W., Burdige, D., Butman, D., Cai, W.J., Canuel, E.A., Chen, R.F., Friedrichs, M.A.M., Feagin, R.A., Griffith, P., Hinson, A.L., Holmquist, J.R., Hu, X., Kemp, W.M., Kroeger, K.D., Mannino, A., McCallister, S.L., McGillis, W.R., Mulholland, M.R., Piskaln, C., Salisbury, J., Signorini, S., St-Laurent, P., Tian, H., Tzortziou, M., Vlahos, P., Wang, Z.A. and Zimmerman, R.C., 2018. Carbon budget of tidal wetlands, estuaries, and shelf waters of Eastern North America. *Global Biogeochemical Cycles*, **32**, 389-416.
- Laruelle, G.G., Cai, W.-J., Hu, X., Gruber, N., Mackenzie, F.T. and Regnier, P., 2018. Continental shelves as a variable but increasing global sink for atmospheric carbon dioxide. *Nature Communications* **9**, 454.
- Yao, H. and Hu, X., 2017. Responses of carbonate system and CO₂ flux to extended drought and intense flooding in a semiarid subtropical estuary. *Limnology and Oceanography* **62**, S112-S130. (Special Issue on Headwaters to oceans: Ecological and biogeochemical contrasts across the aquatic continuum).
- Wang, H., Hu, X., Cai, W.-J. and Sterba-Boatwright, B., 2017. Decadal *f*CO₂ trends in global ocean margins and adjacent boundary current-influenced areas. *Geophysical Research Letters* **44**, 8962-8970.
- Reimer, J.J., Cai, W.-J., Xue, L., Vargas, R., Noakes, S., Hu, X., Signorini, S.R., Mathis, J.T., Feely, R.A., Sutton, A.J., Sabine, C., Musielewicz, S., Chen, B. and Wanninkhof, R., 2017.

- Time series $p\text{CO}_2$ at a coastal mooring: internal consistency, seasonal cycles, and interannual variability. *Continental Shelf Research*, **145**, 95-108.
- Hu, X.**, Li, Q., Huang, W.-J., Chen, B., Cai, W.-J., Rabalais, N.N. and Turner, R.E., 2017. Effects of eutrophication and benthic respiration on water column carbonate chemistry in a traditional hypoxic zone in the Northern Gulf of Mexico. *Marine Chemistry*, **190**, 33-42.
- Schoepf, V. *, **Hu, X.***, Holcomb, M., Cai, W.-J., Li, Q., Wang, Y., Xu, H., Warner, M.E., Melman, T.F., Hoadley, K.D., Pettay, D.T., Matsui, Y., Baumann, J.H. and Grottoli, A.G., 2017. Coral calcification under environmental change: A direct comparison of the alkalinity anomaly and buoyant weight technique. *Coral Reefs*, **36**, 13-25 (* equal contributions).
- Wang, H., **Hu, X.** and Sterba-Boatwright, B., 2016. A new statistical approach for interpreting oceanic $f\text{CO}_2$ data. *Marine Chemistry*, **183**, 41-49.
- Hu, X.**, Cai, W.-J., Rabalais, N.N. and Xue, J., 2016. Coupled oxygen and dissolved inorganic carbon dynamics in coastal ocean and its use as a potential indicator for detecting water column oil degradation. *Deep-Sea Research Part II*, **129**, 311-318. (The Gulf of Mexico Ecosystem - before, during and after the Macondo Blowout Special Issue).
- Cai, W.-J., Ma, Y., Hopkinson, B.M., Grottoli, A.G., Warner, M.E., Ding, Q., **Hu, X.**, Yuan, X., Schoepf, V., Xu, H., Han, C., Melman, T.F., Hoadley, K.D., Pettay, D.T., Matsui, Y., Baumann, J.H., Levas, S., Ying, Y. and Wang, Y., 2016. Microelectrode characterization of coral daytime interior pH and carbonate chemistry. *Nature Communications*, **7**, 11144 doi:10.1038/ncomms11144.
- Xue, L., Cai, W.-J., **Hu, X.**, Sabine, C., Jones, S., Sutton, A.J., Jiang, L.-Q. and Reimer, J.J., 2016. Sea surface carbon dioxide at the Georgia time series site (2006-2007): air-sea flux and controlling processes. *Progress in Oceanography*, **140**, 14-26.
- Xue, J., Cai, W.-J., **Hu, X.**, Huang, W.-J., Lohrenz, S.E. and Gundersen, K., 2015. Temporal variation and stoichiometric ratios of organic matter remineralization in bottom waters of the northern Gulf of Mexico during late spring and summer. *Journal of Geophysical Research – Oceans*, **120**, 8304-8326.
- Hoadley, K.D., Pettay, D.T., Grottoli, A.G., Cai, W.-J., Melman, T.F., Schoepf, V., **Hu, X.**, Li, Q., Xu, H., Wang, Y., Matsui, Y., Baumann, J.H. and Warner, M.E., 2015. Physiological response to elevated temperature and $p\text{CO}_2$ varies across four Pacific coral species: Understanding the unique host+symbiont response. *Scientific Reports*, **5**, 18371.
- Huang, W.J., Cai, W.J., Wang, Y., **Hu, X.**, Chen, B., Lohrenz, S.E., Chakraborty, S., He, R., Brandes, J. and Hopkinson, C.S., 2015. The response of inorganic carbon distributions and dynamics to upwelling favorable winds on the northern Gulf of Mexico during summer. *Continental Shelf Research*, **111**, Part B, 211-222.
- Hu, X.**, Beseres Pollack, J., *McCutcheon, M.R.*, Montagna, P.A. and Ouyang, Z., 2015. Long-term alkalinity decrease and acidification of estuaries in Northwestern Gulf of Mexico. *Environmental Science & Technology*, **49**, 3401-3409. (Reported by *The Houston Chronicle*)
- Levas, S., Grottoli, A.G., Warner, M.E., Cai, W.J., Bauer, J., Schoepf, V., Baumann, J.H., Matsui, Y., Gearing, C., Melman, T.F., Hoadley, K.D., Pettay, D.T., **Hu, X.**, Li, Q., Xu, H. and Wang, Y., 2015. Organic carbon fluxes mediated by corals at elevated $p\text{CO}_2$ and temperature. *Marine Ecology Progress Series*, **519**, 153-164.
- Rabalais, N.N., Cai, W.-J., Carstensen, J., Conley, D.J., Fry, B., **Hu, X.**, Quiñones-Rivera, Z., Rosenberg, R., Slomp, C.P., Turner, R.E., Voss, M., Wissel, B. and Zhang, J., 2014. Eutrophication-driven deoxygenation in the coastal ocean. *Oceanography*, **27**, 172-183.

- Hu, X** and Cai, W.-J., 2013. Estuarine acidification and minimum buffer zone - a conceptual study. *Geophysical Research Letters*, **40**, 5176-5181.
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- Wang, Z.A., Wanninkhof, R., Cai, W.-J., Byrne, R.H., **Hu, X.**, Peng, T.-H. and Huang, W.-J., 2013. The Marine Inorganic Carbon System along the Gulf of Mexico and Atlantic Coast of the United States. *Limnology Oceanography*, **58**, 325-342.
- Powell, E.N.*, **Hu, X.***, Cai, W.-J., Ashton-Alcox, K. A., Hubbard, K. and Walker, S., 2012. Geochemical controls on carbonate shell taphonomy in the northern Gulf of Mexico sediments. *Palaios*, **27**, 571-587. (* equal contributions).
- Hopkinson, C.S., Cai, W.-J. and **Hu, X.**, 2012. Carbon sequestration in wetland dominated coastal systems - a global sink of rapidly diminishing magnitude. *Current Opinion Environmental Sustainability*, **4**, 186-194.
- Hu, X.**, Burdige, D.J. and Zimmerman, R.C. $\delta^{13}\text{C}$ is a signature of light availability and photosynthesis in seagrass., 2012. *Limnology and Oceanography*, **57**, 441-448.
- Hu, X.** and Cai, W.-J., 2011. The impact of denitrification on the atmospheric CO₂ uptake potential of seawater. *Marine Chemistry*, **127**, 191-198.
- Cai, W.-J., **Hu, X.**, Huang, W.-J., Murrell, M.C., Lehrter, J.C., Lohrenz, S. E., Chou, W.-C., Zhai, W., Hollibaugh, J.T., Wang, Y., Zhao, P., Guo, X., Gundersen, K., Dai, M. and Gong, G.-C., 2011. Acidification of subsurface coastal waters enhanced by eutrophication. *Nature – Geoscience*, **4**, 766-770.
- Hu, X.**, Cai, W.-J., Wang, Y., Guo, X. and Luo, S., 2011. Geochemical environments of continental shelf-upper slope sediments in the northern Gulf of Mexico. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **312**, 265-277.
- Hu, X.** and Cai, W.-J., 2011. An assessment of ocean margin anaerobic processes on oceanic alkalinity budget. *Global Biogeochemical Cycles*, **GB3003**, doi:10.1029/2010GB003859.
- Jiang, L.-Q., Cai, W.-J., Feely, R.A., Wang, Y., Guo, X., Gledhill, D.K., **Hu, X.**, Arzayus, F., Chen, F., Hartmann, J. and Zhang L., 2010. Carbonate mineral saturation states along the U.S. southeastern coast. *Limnology and Oceanography*, **55**, 2424-2432.
- Burdige, D.J., **Hu, X.** and Zimmerman, R.C., 2010. The widespread occurrence of coupled carbonate dissolution/precipitation in surface sediments on the Bahamas Bank. *American Journal of Science*, **310**, 492-521.
- Cai, W.-J., **Hu, X.**, Huang, W.-J., Jiang, L.-Q., Wang, Y., Peng, T.-H. and Zhang, X., 2010. Surface ocean alkalinity distribution in the western North Atlantic Ocean margins. *Journal of Geophysical Research*, **115**, C08014, doi:10.1029/2009JC005482.
- Cai, W.-J., Chen, L., Chen, B., Gao, Z., Lee, S.H., Chen, J., Pierrot, D., Sullivan, K., Wang, Y., **Hu, X.**, Huang, W.-J., Zhang, Y., Xu, S., Murata, A., Grebmeier, J.M., Jones, E.P. and Zhang, H., 2010. Decrease in the CO₂ uptake capacity in an ice-free Arctic Ocean basin. *Science*, **329**, 556-559.
- Hu, X.**, Cai, W.-J., Wang, Y., Luo, S. and Guo, X., 2010. Pore-water geochemistry of two contrasting brine-charged seep sites in the northern Gulf of Mexico continental slope. *Marine Chemistry*, **118**, 99-107.
- Jiang, L.-Q., Cai, W.-J., Wang, Y., Diaz, J., Yager, P. and **Hu, X.**, 2009. Pelagic community respiration on the continental shelf off Georgia, USA. *Biogeochemistry*, **98**, 101-113.

- Hu, X.** and Burdige, D.J., 2008. Effect of O₂ input into sediment on carbonate dissolution - a simulation experiment. *Journal of Marine Research*, **66**, 489-527.
- Burdige, D.J., Zimmerman, R.C. and **Hu, X.**, 2008. Rates of carbonate dissolution in permeable sediments estimated from pore water profiles: the role of seagrasses. *Limnology and Oceanography*, **53**, 549-565.
- Hu, X.** and Burdige, D.J., 2007. Enriched stable carbon isotopes in the pore waters of carbonate sediments dominated by seagrasses: evidence for coupled carbonate dissolution and reprecipitation. *Geochimica et Cosmochimica Acta*, **71**, 129-144.

Refereed Book Chapters/Technical Publications (“_” indicates student/trainee author)

- Blakeway, R.D., O’Connell, K., Nuttall, M.F., Hannum, R., Johnston, M.A., **Hu, X.**, Hickerson, E.L., Schmahl, G.P. and Sinclair, J., 2022. Stetson Bank long-term monitoring: 2020 and 2021 annual report. National Marine Sanctuaries Conservation Series ONMS-22-02. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX. 26 pp.
- Galavotti, H., Vasslides, J., Bohlen, C., Hunt, C.W., Liebman, M., **Hu, X.**, McCutcheon, M.R., Ammerman, J., O’Donnell, J., Howard-Strobel, K., Vella, P., Lehrter, J., Nielsen, K., Largier, J., Ford, T., Steele, A., Yates, K.K., Johnson, Y., Brown, C. and Pacella, S.R., 2021. *Measuring coastal acidification using in situ sensors in the National Estuary Program*. U.S. Environmental Protection Agency, Washington D. C., Document No. EPA-842-R-21001.
- Johnston, M.A., O’Connell, K., Blakeway, R.D., MacMillan, J., Nuttall, M.F., **Hu, X.**, Embesi, J.A., Hickerson, E.L. and Schmahl, G.P., 2021. Long-Term Monitoring at East and West Flower Garden Banks: 2019 Annual Report. Marine Sanctuaries Conservation Series ONMS-21-02. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX. 88 pp.
- Wang, H. and **Hu, X.**, 2020. Multidecadal variations of sea surface CO₂ fugacity (fCO₂) in the Oyashio Current-influenced ocean margin In: C.-T.A. Chen and X. Guo (Editors), *Asia Pacific Marginal Seas*. Springer. pp. 245-263.
- Nuttall, M.F., Blakeway, R., MacMillan, J., Sterne, T., O’Connell, K., **Hu, X.**, Embesi, J.A., Hickerson, E.L., Johnston, M.A., Schmahl, G.P., and Sinclair, J., 2020. Stetson Bank Long-term Monitoring: 2015–2018 Synthesis Report. National Marine Sanctuaries Conservation Series ONMS-21-01. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries, Silver Spring, MD. 165 pp.
- Johnston, M.A., Blakeway, R.D., O’Connell, K., MacMillan, J., Nuttall, M.F., **Hu, X.**, Embesi, J.A., Hickerson, E.L. and Schmahl, G.P., 2020. Long-Term Monitoring at East and West Flower Garden Banks: 2018 Annual Report. National Marine Sanctuaries Conservation Series ONMS-20-09. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX. 124 pp.
- Hu, X.**, 2019. Ocean acidification studies in the Gulf of Mexico: Current status and future research needs. In: L. McKinney, M. Besonen and K. Withers (Editors), *Proceedings: The Gulf of Mexico Workshop on International Research*. U.S. Department of the Interior Bureau of Ocean Energy Management, New Orleans, LA, pp. 97-110.
- Nuttall, M.F., Blakeway, R.D., MacMillan, J., O’Connell, K., **Hu, X.**, Embesi, J.A., Hickerson, E.L., Johnston, M.A., Schmahl, G.P. and Sinclair, J., 2019. Stetson Bank Long-Term Monitoring: 2018 Annual Report. National Marine Sanctuaries Conservation Series ONMS-

- 19-05. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX. 43 pp.
- Windham-Myers, L., Cai, W.-J., Alin, S. R., Andersson, A., Crosswell, J., Dunton, K. H., Hernandez-Ayon, J. M., Herrmann, M., Hinson, A. L., Hopkinson, C.S., Howard, J., **Hu, X.**, Knox, S.H., Kroeger, K., Lagomasino, D., Megonigal, P., Najjar, R.G., Paulsen, M.-L., Peteet, D., Pidgeon, E., Schäfer, K.V.R., Tzortziou, M., Wang, Z.A. and Watson, E.B., 2018: Chapter 15: Tidal wetlands and estuaries. In Second State of the Carbon Cycle Report (SOCCR2): A Sustained Assessment Report [Cavallaro, N., G. Shrestha, R. Birdsey, M. A. Mayes, R. G. Najjar, S. C. Reed, P. Romero-Lankao, and Z. Zhu (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 596-648, <https://doi.org/10.7930/SOCCR2.2018.Ch15>.
- Fennel, K., Alin, S.R., Barbero, L., Evans, W., Bourgeois, T., Cooley, S.R., Dunne, J., Feely, R.A., Hernandez-Ayon, J.M., Hu, C., **Hu, X.**, Lohrenz, S.E., Muller-Karger, F., Najjar, R.G., Robbins, L., Russell, J., Shadwick, E.H., Siedlecki, S., Steiner, N., Turk, D., Vlahos, P. and Wang, Z.A., 2018: Chapter 16: Coastal ocean and continental shelves. In Second State of the Carbon Cycle Report (SOCCR2): A Sustained Assessment Report [Cavallaro, N., G. Shrestha, R. Birdsey, M. A. Mayes, R. G. Najjar, S. C. Reed, P. Romero-Lankao, and Z. Zhu (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 649-688, <https://doi.org/10.7930/SOCCR2.2018.Ch16>.
- Johnston, M.A., Sterne, T.K., Blakeway, R.D., MacMillan, J., Nuttall, M.F., **Hu, X.**, Embesi, J.A., Hickerson, E.L. and Schmahl, G.P., 2018. Long-Term Monitoring at East and West Flower Garden Banks: 2017 Annual Report. Marine Sanctuaries Conservation Series ONMS-18-02. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX. 124 pp.
- Nuttall, M.F., Blakeway, R.D., MacMillan, J., Sterne, T.K., **Hu, X.**, Embesi, J.A., Hickerson, E.L., Johnston, M.A., Schmahl, G.P. and Sinclair, J., 2018. Stetson Bank Long-Term Monitoring: 2017 Annual Report. National Marine Sanctuaries Conservation Series ONMS-19-03. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX. 94pp.
- Nuttall, M.F., Sterne, T.K., Eckert, R.J., **Hu, X.**, Sinclair, J., Hickerson, E.L., Embesi, J.A., Johnston, M.J. and Schmahl, G.P., 2018. Stetson Bank Long Term Monitoring: 2016 Annual Report. Marine Sanctuaries Conservation Series ONMS 19-02. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX. 78 pp.
- Johnston, M.A., Sterne, T.K., Eckert, R.J., Nuttall, M.F., Embesi, J.A., Walker, R.D., **Hu, X.**, Hickerson, E.L. and Schmahl, G.P., 2017. Long-Term Monitoring at East and West Flower Garden Banks: 2016 Annual Report. Marine Sanctuaries Conservation Series ONMS-17-09. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX. 132 pp.
- Nuttall, M.F., T.K. Sterne, R.J. Eckert, **Hu, X.**, J.A. Embesi, E.L. Hickerson, M.A. Johnston, and G.P. Schmahl., 2017. Long-Term Monitoring at Stetson Bank, Flower Garden Banks National Marine Sanctuary, 2015 Annual Report. U.S. Marine Sanctuaries Conservation Series ONMS-17-06. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX. pp. 98.
- Johnston, M.A., Eckert, R.J., Sterne, T.K., Nuttall, M.F., **Hu, X.**, Embesi, J.A., Hickerson, E.L. and Schmahl, G.P., 2016. Long-Term Monitoring at East and West Flower Garden Banks:

2015 Annual Report. U.S. Marine Sanctuaries Conservation Series ONMS-16-02. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Flower Garden Banks National Marine Sanctuary, Galveston, TX, pp. 86.

Non-Refereed Publications (“_” indicates student/trainee author)

- Hu, X., McCutcheon, M.R.**, Murgulet, D., Douglas, A. and Lopez, C.V., 2019. Evaluating groundwater exported acidity in Copano Bay. Scientific report submitted to Texas General Land Office October 2019; p. 50; GLO Contract No. 17-180-000-9817.
- Hu, X., Wang, H.**, 2018. Mechanistic modeling of bottom water dissolved oxygen dynamics in Baffin Bay, Contract #1729. Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi, Corpus Christi, TX, 24 p.
- Hu, X., McCutcheon, M.R.** and Staryk, C.J., 2018. Ocean and coastal acidification monitoring. Final Report to the Coastal Bend Bays and Estuaries Program, Contract #1605. Department of Physical and Environmental Sciences, Texas A&M University-Corpus Christi, Corpus Christi, TX, 24 p.
- Montagna, P.A., Wetz, M.S. and **Hu, X.**, 2017. Monitoring Mid-Coastal Estuaries - 2016. Final Report to the Texas Water Development Board, Contract #1600011924. Texas A&M University-Corpus Christi, Corpus Christi, Texas, 51p.
- Wetz, M.S. and **Hu, X.**, 2015. Spatial-temporal distribution of organic matter and carbonate chemistry parameters in Texas mid-coast estuaries: 2014-2015. Final Report to the Texas Water Development Board, Contract #1448311639. Department of Life Sciences, Texas A&M University-Corpus Christi, Corpus Christi, TX, 12 p.
- Robbins, L.L., Wanninkhof, R., Barbero, L., **Hu, X.**, Mitra, S., Yvon-Lewis, S., Cai, W.-J., Huang, W.-J. and Ryerson, T., 2014. Air-sea exchange. In: H.M. Benway, P. Coble (Eds.), Report of The U.S. Gulf of Mexico Carbon Cycle Synthesis Workshop, March 27-28, 2013, Ocean Carbon and Biogeochemistry Program and North American Carbon Program, pp. 17-20.
- Pilskaln, C., Burdige, D.J., Cai, W.-J., Canuel, E. and **Hu, X.**, 2012. Sediment-water exchange. In: Najjar, R.G., Friedrichs, M.A.M., Cai, W.-J. (Eds.), Report of The U.S. East Coast Carbon Cycle Synthesis Workshop, January 19-20, 2012, Ocean Carbon and Biogeochemistry Program and North American Carbon Program pp. 11-12.

FUNDED RESEARCH

External Funding (since 2012)

Current

- National Science Foundation – “Collaborative Research: A hydrological seesaw and its effect on alkalinity dynamics in estuaries along a climate gradient” – (09/01/2023-08/31/2026) (PI, \$569,663)
- Exxon Biomedical Sciences - “Assessments of Carbonate Chemistry Baseline and Potential Impact of Carbon Dioxide Addition in the Northwestern Gulf of Mexico Shelf Waters, M2301407” (12/15/2022-12/14/2023) (PI, \$150,000, Hu portion, \$100,041)
- Louisiana State University/National Aeronautics and Space Administration – “Impacts of Transient Events on Ecosystem Resistance and Resilience along the Western Gulf of Mexico Coast” - (11/17/2022-11/16/2025) (TAMUCC PI, \$301,300)
- National Science Foundation – “NRT-Stakeholder-Guided Environmental Science” – (05/01/2022-04/30/2026) (coPI, Total \$2,000,000)

National Oceanic and Atmospheric Administration – Supplemental Funding to “Ocean Acidification at a Crossroad – Enhanced Respiration, Upwelling, Increasing Atmospheric CO₂, and their interactions in the northwestern Gulf of Mexico” – (11/01/2022-08/31/2024) (PI, \$152,738, Hu portion \$48,318)

USDA-Natural Resources Conservation Services – “Gulf Coast VESU 68-3A75-17-4669. Help to gain better understanding of living shorelines in blue carbon capture & storage in support of climate smart conservation practices” – (09/17/2021 – 11/08/2024) (coPI, Total \$350,000, Hu portion \$140,000)

University of Southern Mississippi/National Oceanic and Atmospheric Administration – “Addressing the Impacts of Multiple Stressors on Shellfish Aquaculture through Research/Industry Partnerships” – (09/01/2021-08/31/2024) (TAMUCC PI, \$48,728)

National Oceanic and Atmospheric Administration – “Ocean Acidification at a Crossroad – Enhanced Respiration, Upwelling, Increasing Atmospheric CO₂, and their interactions in the northwestern Gulf of Mexico” – (08/01/2019-08/31/2024) (PI, \$1,595,179, Hu portion \$361,946)

Past

Texas General Land Office - “Freshwater Inflows to Texas Bays and Estuaries: A State-Wide Review, Synthesis, and Recommendations” (04/01/2021 – 03/31/2023) (coPI, Total \$1,325,449, Hu portion \$ 56,066.)

NOAA/Texas Sea Grant – “Ocean Acidification Graduate Fellowship: Impacts of freshwater on ocean acidification for three northwestern Gulf of Mexico estuaries” (09/01/2020 – 08/31/2022) (PI, \$92,000, student fellowship)

National Science Foundation – “CAREER: The Impact of Hydrologic State on CO₂ Flux and Acidification in Subtropical Estuaries” – (05/01/2017-04/30/2023, with NCE) (PI, \$459,668)

National Science Foundation – Supplemental Funding to “CAREER: The Impact of Hydrologic State on CO₂ Flux and Acidification in Subtropical Estuaries” – (05/01/2019-04/30/2023, with NCE) (PI, \$47,665)

Texas General Land Office – “Evaluating Groundwater Exported Acidity in Copano Bay” – (10/1/2016-8/31/2019) (PI, \$98,206, Hu portion \$66,335)

National Oceanic and Atmospheric Administration – “The Hydrological Switch: A Novel Mechanism Explains Eutrophication and Acidification of Estuaries” – (09/01/2015 – 08/31/2019) (co-PI, \$1,265,000, Hu portion - \$243,632)

Gulf Research Program of the National Academies of Sciences, Engineering, and Medicine – “Ocean and Coastal Acidification Monitoring at Aransas Ship Channel” (04/01/2018-03/31/2019) (PI, \$9,814)

National Science Foundation – “RAPID: Capturing the Signature of Hurricane Harvey on Texas Coastal Lagoons” (10/01/2017-08/31/2019) (co-PI, \$182,790, Hu portion - \$54,330)

Coastal Bend Bays and Estuaries Program - "Mechanistic Modeling of Bottom Water Dissolved Oxygen Dynamics in Baffin Bay" – (09/01/2016-04/30/2018) (PI, \$50,110)

Coastal Bend Bays and Estuaries Program – “Ocean and Coastal Acidification Monitoring” – (11/1/2015-03/31/2018) (PI, \$65,000)

Texas Water Development Board - "Water Quality Monitoring of Mid-Coast Estuaries." - (4/1/2016-3/31/2017) (co-PI, \$19,500)

Texas Sea Grant – "Identification of Organic Matter Sources Contributing to Hypoxia Formation in Two Eutrophic South Texas Estuaries: Relationships to Watershed Land use Practices." - (02/01/2014-01/31/2016) (co-PI, \$272,693, Hu portion - \$128,709)

Gulf Research Initiative – “Dynamics of Dissolved Inorganic Carbon and Dissolved Oxygen Following Natural or Manmade Petroleum Carbon Release into Marine Environments” - (01/01/2013-8/31/2016) (co-PI, TAMUCC PI, \$288,441)
 Texas Water Development Board – "Water Quality Monitoring of Mid-Coast Estuaries." - (07/01/2014-06/30/2015) (co-PI, \$20,000)
 National Science Foundation - "MRI: Acquisition of Elemental Stable Isotope Chemistry (ESIC) Mass Spectrometer" - (06/1/2013-05/31/2016) (co-PI, \$419,259)

Internal Funding

TAMUCC Texas Comprehensive Research Fund – “Quantifying Estuarine CO₂ Flux Using Chamber and Eddy Covariance Methods” – (09/01/2018-08/31/2019) (PI, \$20,000)
 TAMUCC Texas Research Development Fund – “Alkalinity Decline and Acidification in Dewatering Estuaries” – (09/01/2014-08/31/2015) (PI, \$20,000)
 TAMUCC Research Enhancement Fund - "Estuarine Minimum Buffer Zone - a Proof of Concept" - (09/01/2013-08/31/2014) (PI, \$5,000)

PRESENTATIONS (since 2012, “_” indicates student/trainee author)

Jundt, E.P., **Hu, X.** and Barbero, L. 2023. Statistical Models for pH and Aragonite Saturation State in the Gulf of Mexico. Ocean Carbon & Biogeochemistry Summer Workshop, Woods Hole, MA.
Hu, X., DiMarco, S.F., Barbero, L., Kobashi, D., Jin, L., Gayanilo, F. 2023. Carbonate chemistry variability in subsurface waters of the northwestern Gulf of Mexico. NOAA Ocean Acidification Community Meeting. San Diego, CA.
Yao, H., Montagna, P.A., Wetz, M.S., Staryk, C.J., **Hu, X.*** 2022. Subtropical estuarine carbon budget Under Various Hydrologic Conditions. OCB 2022 Summer Workshop. Woods Hole, MA. (* presenter)
Yin, H. and **Hu, X.** 2022. Sulfate Enrichment and Its Relationship with Alkalinity in Estuaries Across the Northwestern Gulf of Mexico. OCB 2022 Summer Workshop. Woods Hole, MA.
 Osborne, E.M., **Hu, X.*** et al., 2022. Ocean acidification in the Gulf of Mexico: Drivers, impacts, and unknowns. Gulf of Mexico Conference. Baton Rouge, LA. (* presenter)
Jundt, E.P., **Hu, X.** and Barbero, L. 2022. Multilinear regression model for aragonite saturation state estimation in the northwestern Gulf of Mexico. Ocean Sciences Meeting. (virtual).
Hu, X., Barbero, L., DiMarco, S.F., Jundt, E.P., Staryk, C.J., Jin, L., Kobashi, D., Kumbula, N. and Yin, H. 2022. Subsurface acidification in the northwestern Gulf of Mexico. Ocean Sciences Meeting. (virtual).
 Osborne, E.B., **Hu, X.*** et al., 2021. Ocean Acidification in the Gulf of Mexico: Drivers, Impacts, and Unknowns. 26th Biannual Conference of the Coastal and Estuarine Research Federation (virtual). (* presenter).
Hu, X., Yao, H., McCutcheon, M.R., Staryk, C.J. and Dias, L., 2020. Carbonate Chemistry in Estuaries Along a Hydrological Gradient in the Northwestern Gulf of Mexico. Ocean Sciences Meeting. San Diego, CA.
McCutcheon, M.R., **Hu, X.**, Murgulet, D., Douglas, A.R. and Lopez, C.V., 2020. Examining the relationship between alkalinity and submarine groundwater discharge in a semi-arid estuary. Ocean Sciences Meeting. San Diego, CA.

- Hu, X.** and **McCutcheon, M.R.**, 2020. Buffer capacity of estuaries in the northwestern Gulf of Mexico. NOAA OA Community Meeting and Mini-Symposium, Miami, FL. (Presenter - McCutcheon)
- Dias, L.M.** and **Hu, X.**, 2019. Carbonate system dynamics in Galveston Bay. 25th Biannual Conference of the Coastal and Estuarine Research Federation, Mobile, AL.
- McCutcheon, M.R.**, **Yao, H.**, **Saryk, C.J.** and **Hu, X.**, 2019. Temporal variability and driving factors of the carbonate system in an estuary with long-term acidification. 25th Biannual Conference of the Coastal and Estuarine Research Federation, Mobile, AL.
- Hu, X.**, 2018. Effect of organic alkalinity on seawater buffer capacity - A numerical exploration. American Geophysical Union Fall Meeting, Washington, DC.
- McCutcheon, M.R.** and **Hu, X.**, 2018. Temporal variability and driving factors of the carbonate system in the tidal inlet of a semiarid estuary. Gulf Estuarine Research Society Fall Meeting, Galveston, TX.
- Dias, L.M.**, **Hu, X.** and **Murgulet, D.**, 2018. Factors influencing the alkalinity of a south Texas estuary. Gulf Estuarine Research Society 2018 Fall Meeting, Galveston, TX.
- Hu, X.**, 2018. Two tales of one storm. Harvey Research Symposium. Port Aransas, TX.
- Yao, H.**, **Hu, X.** and **Montagna, P.A.**, 2018. CO₂ flux in northwestern Gulf of Mexico estuaries - a hydrological control? ASLO 2018 Summer Meeting. Victoria, Canada.
- McCutcheon, M.R.** and **Hu, X.**, 2018. Understanding uncertainties in the changing carbon budget of estuaries: A case study in the northwestern Gulf of Mexico. ASLO 2018 Summer Meeting. Victoria, Canada.
- Hu, X.**, 2018. Temporal Variations in Carbonate Chemistry and Decadal Acidification in Flower Garden Banks Marine Sanctuary. Mini-Symposium: 2016 Flower Garden Banks Localized Mortality Event. Galveston, TX.
- Hu, X.**, **Saryk, C.J.**, **McCutcheon, M.R.**, **Yao, H.**, **Wetz, M.S.** and **Montagna, P.A.**, 2018. Extreme weather event induced changes in estuarine CO₂ flux and carbon cycle. Ocean Sciences Meeting. Portland, OR.
- Wang, H.** and **Hu, X.**, 2018. Decadal $f\text{CO}_2$ Trends in Western Boundary Current- and Eastern Boundary Current-influenced Areas. Ocean Sciences Meeting. Portland, OR.
- Montagna, P. A.**, **Hu, X.**, **L. Walker**, **M.S. Wetz.**, 201. Biogeochemical Impact of Hurricane Harvey on Texas Coastal Lagoons. Ocean Sciences Meeting. Portland, OR.
- Huang, W.-J.**, **Cai, W.-J.**, **Hu, X.**, **Y. Wang.**, 2018. Mixing and Biological Controls of Carbonate Saturation State in the Mississippi River Dominated Ocean Margin (Northern Gulf of Mexico). Ocean Sciences Meeting. Portland, OR.
- Hu, X.**, **Wang, H.**, **M.S. Wetz**, and **K.C. Hayes.**, 2017. Modeling of Dissolved Oxygen and pH Dynamics in Baffin Bay. 24th Biannual Conference of the Coastal and Estuarine Research Federation. Providence, RI.
- Saryk, C.J.**, **McCutcheon, M.R.** and **Hu, X.** Seasonal hypoxia and high buffer capacity in a shallow subtropical estuary. 24th Biannual Conference of the Coastal and Estuarine Research Federation. Providence, RI.
- Wang, H.**, **N.N. Rabalais**, and **Hu, X.**, 2017. Multi-decadal acidification enhanced by eutrophication in the northern Gulf of Mexico. 24th Biannual Conference of the Coastal and Estuarine Research Federation. Providence, RI.
- Hayes, K.C.**, **M.S. Wetz**, **Wang, H.** and **Hu, X.** Identification of organic matter sources contributing to hypoxia in two eutrophic South Texas estuaries. 24th Biannual Conference of the Coastal and Estuarine Research Federation. Providence, RI.

- Yao, H. and **Hu, X.**, 2017. Hydrologic control on CO₂ fluxes in subtropical estuaries. 24th Biannual Conference of the Coastal and Estuarine Research Federation. Providence, RI.
- McCutcheon, M.R. and **Hu, X.**, 2017. CO₂ flux and long-term *p*CO₂ trends of the estuaries of the Northwestern Gulf of Mexico. 24th Biannual Conference of the Coastal and Estuarine Research Federation. Providence, RI.
- Wang, H. and **Hu, X.**, 2017. Multi-decadal *f*CO₂ trends in Western Boundary Current- and Eastern Boundary Current-Dominated Margins. Ocean Carbon Hot Spots Workshop (U.S. CLIVAR), Moss Landing, CA.
- McCutcheon, M.R. and **Hu, X.**, 2017. CO₂ flux and long-term *p*CO₂ trends of the estuaries of the Northwestern Gulf of Mexico. Gordon Research Conference on Chemical Oceanography, New London, NH.
- Yao, H. and **Hu, X.**, 2017. Hydrologic control on CO₂ fluxes in subtropical estuaries. Gordon Research Conference on Chemical Oceanography, New London, NH.
- Hayes, K.C., M.S. Wetz, E.K. Cira, Wang, H. and **Hu, X.**, 2017. Is Baffin Bay 'Eutrophic'?, 2017 Texas Bays and Estuaries Meeting, Port Aransas, TX.
- Wang, H., **Hu, X.**, M.S. Wetz, and K. Hayes., 2017. Numerical Modeling of Oxygen Dynamics in Baffin Bay., 2017 Texas Bays and Estuaries Meeting, Port Aransas, TX.
- Yao, H. and **Hu, X.**, 2017. Hydrologic control on subtropical estuarine CO₂ fluxes., 2017 Texas Bays and Estuaries Meeting, Port Aransas, TX.
- Yao, H. and **Hu, X.**, 2017. Hydrologic control on subtropical estuarine CO₂ fluxes. Joint NACP and AmeriFlux Principal Investigators Meeting, North Bethesda, MD.
- Hu, X.**, 2017. Dealkalization of estuaries in the northwestern Gulf of Mexico. NOAA Ocean Acidification Program PI meeting, Seattle, WA.
- Wang, H., K.C. Hayes, M.S. Wetz, and **Hu, X.**, 2016. Identification of organic matter that drives oxygen consumption in Baffin Bay, TX. Gulf Estuarine Research Society 2016 Fall Meeting, Pensacola, FL.
- McCutcheon, M.R. and **Hu, X.**, 2016. Estimating air-sea CO₂ flux and long-term *p*CO₂ trends of the northwestern Gulf of Mexico estuaries. Gulf Estuarine Research Society 2016 Fall Meeting, Pensacola, FL.
- Hu, X.**, N.N. Rabalais, R.E. Turner., 2016. Eutrophication, storm, and benthic respiration: a case study on carbonate chemistry in the northern Gulf of Mexico. Gulf Estuarine Research Society 2016 Fall Meeting, Pensacola, FL.
- Hu, X.**, H. Yao, and C.J. Starky., 2016. Mysterious alkalinity loss during a drought year (2014) in the Mission-Aransas Estuary. 12th Texas Bays and Estuaries Meeting, Port Aransas, TX.
- Wang, H., K.C. Hayes, M.S. Wetz, and **Hu, X.**, 2016. A stable isotope study on organic matter driving oxygen consumption in two south Texas estuaries. 12th Texas Bays and Estuaries Meeting, Port Aransas, TX.
- Hayes, K.C., E.K. Cira, Wang, H., **Hu, X.** and M.S. Wetz., 2016. Spatial and temporal distribution of organic carbon and nitrogen in a eutrophic estuary (Baffin Bay, TX). 12th Texas Bays and Estuaries Meeting, Port Aransas, TX.
- McCutcheon, M.R. and **Hu, X.**, 2016. Long-term trends and spatial variability of *p*CO₂ in the Texas estuaries. 12th Texas Bays and Estuaries Meeting, Port Aransas, TX.
- Trevino, M., D. Murgulet, **Hu, X.**, A. Douglas, and N. Spalt., 2016. Alkalinity dynamics in groundwater affected secondary bay in south Texas. 12th Texas Bays and Estuaries Meeting, Port Aransas, TX.

- Wang, H., **Hu, X.**, Cai, W.-J. and N.N. Rabalais., 2016. Comparison of $f\text{CO}_2$ trends in a river dominated and an ocean dominated ocean margins. Ocean Sciences Meeting, New Orleans, LA.
- Wang, H., **Hu, X.** and N.N. Rabalais., 2016. What Drives Oxygen Consumption in the Northern Gulf of Mexico? – A Stable Isotope Perspective. Ocean Sciences Meeting, New Orleans, LA.
- Yao, H. and **Hu, X.**, 2016. Seasonality of Carbonate Chemistry and CO_2 Flux in a Northwestern Gulf of Mexico Estuary. Ocean Sciences Meeting, New Orleans, LA.
- McCutcheon, M.R. and **Hu, X.**, 2016. Exploring relationships of calcification rate with respiration rate and predator cue presence in juvenile *Crassostrea virginica*. Ocean Sciences Meeting, New Orleans, LA.
- Huang, W.-J., Cai, W.-J., Wang, Y. and **Hu, X.**, 2016. Spatial and Temporal Distributions of Carbonate Saturation State on the Mississippi River Dominated Northern Gulf of Mexico. Ocean Sciences Meeting, New Orleans, LA.
- Wang, Q., Evans, M., Bacosa, H., **Hu, X.** and Liu, Z., 2016. The Fate of Crude Oil during Photooxidation under Natural Sunlight. Ocean Sciences Meeting, New Orleans, LA.
- Reimer, J., Cai, W.-J., Noakes, S., **Hu, X.**, Chen, B., Wang, A.Z., Jiang, L. and Salisbury, J., 2016. $p\text{CO}_2$ time series ground truthing and internal consistency at the Gray's Reef mooring (NDBC-41008) in the South Atlantic Bight. Ocean Sciences Meeting, New Orleans, LA.
- Hu, X.**, Staryk, C.J. and Yao, H., 2015. Acidification of a shallow Subtropical Estuary - Reduced Freshwater Inflow, Hypoxia, and Ocean Acidification". 23rd Biannual Conference of the Coastal and Estuarine Research Federation. Portland, OR.
- Wang, H., Heyes, K., Wetz, M.S. and **Hu, X.**, 2015. A Stable Isotope Study on Organic Matter Driving Oxygen Consumption in Two South Texas Estuaries. 23rd Biannual Conference of the Coastal and Estuarine Research Federation. Portland, OR.
- Wang, H., Sterba-Boatwright, B. and **Hu, X.**, 2015. A new statistical approach finterpreting or ocean $f\text{CO}_2$ record. Gordon Research Conference on Chemical Oceanography, Holderness, NH.
- Yao, H. and **Hu, X.**, 2015. Alkalinity dynamics in a South Texas estuary. 11th Texas Bays and Estuaries Meeting, Port Aransas, TX.
- Wang, H., **Hu, X.**, Cai, W.-J., Rabalais, N.N., Huang, W.-J. and Xue, J., 2015. Evidence of Cross-shelf Inorganic Carbon Export in the Northern Gulf of Mexico. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Houston, TX.
- Hu, X.**, Bacosa, H. and Liu, Z., 2015. Photo-oxidation of Louisiana Sweet Crude Oil in Gulf Waters - A Preliminary Result. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Houston, TX.
- Hu, X.**, 2014. Long-term alkalinity decrease and acidification of estuaries in southwestern United States. Coastal CARbon Synthesis (CCARS) Community Workshop. Woods Hole, MA.
- McCutcheon, M.R., **Hu, X.**, Beres Pollack, J., Montagna, P.A. and Ouyang., Z., 2014. Long-term alkalinity decline in dewatering Texas estuaries". 10th Texas Bays and Estuaries Meeting. (1st Prize student poster).
- Hu, X.**, 2014. Exploring estuarine acidification and minimum buffer zone. Ocean Sciences Meeting. Honolulu, HI.
- Wang, H., **Hu, X.**, Turner, R.E., Cai, W., Rabalais, N.N., 2014. Stable isotope composition of remineralizing organic carbon In the Northern Gulf of Mexico continental shelf sediments. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL.

- Xue, J., Cai, W.-J., **Hu, X.**, Huang, W.-J., 2014. Relative rates and stoichiometry ratios of organic matter respiration in bottom water of the northern Gulf of Mexico during summertime. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL.
- Rabalais, N.N., Smith, L.M., Turner, R.E., Overton, E.B., **Hu, X.**, Cai, W.-J., 2014. Deepwater Horizon Oil Spill and Gulf of Mexico Shelf Hypoxia. Gulf of Mexico Oil Spill & Ecosystem Science Conference. Mobile, AL.
- Hu, X.**, Cai, W.-J. and Rabalais, N.N., 2013. Organic carbon remineralization stoichiometry - a useful indicator for detecting oil degradation in water column. Gulf of Mexico Oil Spill & Ecosystem Science Conference. New Orleans, LA.
- Schoef, V., **Hu, X.**, Grottoli, A.G., Cai, W.-J., Warner, M.E., Melman, T., Xu, H., Li, Q., Wang, Y., Hoadley, K., Pettay, D.T, Baumann, J. and Matsui, Y., 2012. Coral calcification under elevated $p\text{CO}_2$ and temperature: A Comparison of the buoyant weight and alkalinity anomaly method. Third Symposium on Ocean in a High CO_2 world. Monterey, CA.

INVITED TALKS

- “Ocean Acidification and NSF CAREER” – Office of Research and Innovation Research Café, Texas A&M University-Corpus Christi (May 13, 2022).
- "Carbonate Chemistry Trends in Estuaries along a Climate Gradient - Symptoms and Causes" - College of Marine Science, University of South Florida (October 29, 2021).
- "Acidification of Texas Estuaries" - Monitoring and Research Subcommittee of the Galveston Bay Estuary Program (December 9, 2020).
- “Carbonate Chemistry of Estuaries along a Climatic Gradient” - OneNOAA Science Seminar Series (January 16, 2020).
- "Ocean Acidification in the northwestern Gulf of Mexico” - Gulf of Mexico Coastal Ocean Observing Network (G-CAN) Webinar (August 21, 2019).
- "Decadal changes in the carbonate chemistry in northern Gulf of Mexico waters – Rising CO_2 , “leaked” nutrient and potential sea changes" - T.W. Bennett Symposium, University of Southern Mississippi, Ocean Springs, MS (March 21, 2019).
- “Disparate Responses of Estuarine and Ocean Acidification to Aerobic Respiration” - Gulf Coast Research Lab, University of Southern Mississippi, Ocean Springs, MS (Sept 13, 2018).
- "Estuarine Acidification - Through the Looking Glass" - Department of Oceanography, Texas A&M University, College Station, TX (April 16, 2018).
- "Estuarine Acidification, A Subtropical (Texas) Flavor” - Gulf of Mexico Coastal Ocean Observing Network (G-CAN) Webinar (May 18, 2017).
- “Ocean Acidification – Myths, Facts, and a Case Study in a South Texas Estuary” - Harte Institute for Gulf of Mexico Studies, Corpus Christi, TX. (February 19, 2016).
- "Estuarine Acidification in the Context of Ocean Acidification a Theoretical Exploration" - TAMU Galveston Marine Biology Seminar Series, Department of Marine Biology - TAMU Galveston, Galveston, TX. (November 21, 2013).
- "Estuarine Acidification in the Context of Ocean Acidification a Theoretical Exploration" - UTMSI Technician Seminar Series, University of Texas Marine Science Institute, Port Aransas, TX. (October 25, 2013).
- "Estuarine Acidification – Controls and Implications" - Harte Institute for Gulf of Mexico Studies, Corpus Christi, TX. (April 12, 2013).

PROFESSIONAL SOCIETIES

American Geophysical Union,
Association for the Sciences of Limnology and Oceanography
Coastal & Estuarine Research Federation
European Geophysical Union

PROFESSIONAL ACTIVITIES (external)

2023 **Session Chair**, Ocean Carbon&Biogeochemistry Summer Workshop “Marginal sea biogeochemical cycling in the Anthropocene”
2022 **Session Chair**, Ocean Sciences Meeting “CB13 Acidification in the Gulf of Mexico – chemical changes, biological and ecological responses”
2021-2023 **Scientific Steering Committee Member**, U.S. Ocean Carbon & Biogeochemistry Program
2021 Invited NSF Panelist
2020 Invited NOAA Panelist
2019 Invited Sea Grant Panelist
2018-2019 Invited NSF Panelist
2017-present **Guest Speaker**, “Aquatic Science”, Foy Moody High School, Corpus Christi, TX
2017-present **Steering Committee Member and Science Working Group Cochair**, Gulf of Mexico Coastal Acidification Network (GCAN)
2016 **Guest Speaker**, 4th Grade's "Ocean Planning Week", Windsor Park Elementary School, Corpus Christi, TX

Manuscript Reviews (31 journals)

Aquatic Geochemistry
Aquatic Microbial Ecology
Biogeosciences
Chemical Geology
Continental Shelf Research
Deep-Sea Research I
Deep-Sea Research II
Elementa: Science of the Anthropocene
Environmental Science and Pollution Research
Environmental Science & Technology
Estuaries and Coasts
Estuarine, Coastal and Shelf Science
Frontiers in Marine Science
Geochimica et Cosmochimica Acta
Geophysical Research Letters
Global Biogeochemical Cycles
Journal of Geophysical Research
Journal of Marine Systems
Journal of Oceanography
Limnology and Oceanography
Limnology and Oceanography: Methods
Marine and Freshwater Research
Marine Chemistry
Marine Pollution Bulletin

Paleogeography, Paleoclimatology, Palaeoecology
 Rapid Communications in Mass Spectrometry
 Royal Society Open Science
 Science
 Scientific Reports
 Terrestrial Atmospheric and Oceanic Sciences
 The ISME Journal

Grant Proposal Reviews (federal, state, private, and international agencies)

University of Sharjah, United Arab Emirates
 Ministry of Science and Technology, Taiwan, Republic of China
 Hudson River Foundation
 National Park Service
 National Science Foundation
 National Oceanic and Atmospheric Administration
 Sea Grant Programs (New Hampshire, New York/Connecticut, Georgia, Louisiana, South Carolina)
 Schmidt Ocean Institute
 Fonds de recherche du Québec, Canada

PROFESSIONAL ACTIVITIES (internal)

University

2023- University Representative, Federal Demonstration Partnership
 2022- Chair, Operations & Communication for Sponsored Programs of the Council for Principal Investigators and Research Administrators
 2022 Search Committee Member – Associate Vice President for Research Position
 2021- Member, Council for Principal Investigators and Research Administrators
 2021-2022 Chair, Curriculum Subcommittee of the Graduate Council
 2019-2020 Member, Promotion & Tenure Task Force
 2019-2022 Member, University Curriculum Committee
 2019-2020 Chair, Curriculum Subcommittee of the Graduate Council
 2016- Member, Environmental Council
 2016-2022 Member, Graduate Council

College

2022- Member, College of Science Scholarship Committee, Texas A&M University-Corpus Christi
 2017-2019 Wes Tunnel Distinguished Lecturers Selection Committee - College of Science and Engineering
 2014-2017 Member, Strategic Plan Steering Committee - College of Science and Engineering,

Department & Program

2021-2022 Search Committee Member – Endowed Chair for Socioeconomics Position
 2018- Member – Faculty Promotion and Tenure Committee
 2016- Member, Course & Curriculum Committee, Coastal Marine System Science Program
 2016-2017 Library Liaison, Coastal Marine System Science Program
 2014-2015 Search Committee Chair – Environmental Chemistry Faculty Position
 2014-2015 Search Committee Member – Marine Chemistry Faculty Position

2014	Search Committee Member – Visiting Assistant Professor in Environmental Sciences
2013-2014	Search Committee Co-Chair – Two Chemistry Faculty Positions
2013-2014	Search Committee Member – Chair for the Department of Physical and Environmental Sciences, Marine Microbial Ecologist Position