DYLAN SCHLICHTING

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EDUCATION

Ph.D. Oceanography, Texas A&M University — Jan 2020 - Aug 2024 (Expected)
Advisors: Drs. Robert Hetland & Henry Potter

B.S. Civil Engineering, University of Maine — Aug 2016 - Dec 2019
Minor: Mathematics

RESEARCH EXPERIENCE

Graduate Research Assistant — Jan 2020 - Present
Texas A&M University: Dept. Oceanography

- Characterized numerical tracer mixing in a high-resolution ocean model of the Texas-Louisiana continental shelf.
- Developed idealized numerical simulations with the Regional Ocean Modeling System (ROMS) for further analysis of numerical mixing.
- Helped develop the concept of mixing pathways for characterizing tracer mixing.
- Provided shore support for two oceanographic cruises in 2021/2022 as part of the Submesoscales Under Near-Resonant Inertial Shear Experiment (SUNRISE, https://sunrise-nsf.github.io/).

Student Research Assistant — May 2017 - Dec 2019
UMaine: Dept. Civil Engineering

- Used analytical modeling to study the interaction of flow and suspended kelp farms.
- Analyzed the environmental impacts of coastal armoring structures on pocket beaches in Southern Maine.
- Participated in the construction, deployment, and management of an oceanographic mooring system for the Sensing Storm Surge Citizen Science Project. (http://sensingstormsurge.acg.maine.edu/).
- Designed and co-managed laboratory experiments to study hydrodynamic and turbulent characteristics of flow through floating oyster cages.

Engineering Research Assistant — Aug 2018 - May 2019
UMaine: School of Marine Sciences

- Characterized inertial oscillations in the Gulf of Maine using observational data.
- Used spectral analysis to study ocean circulation in the Gulf of Maine.

Research Experience for Undergraduates — May 2018 - Aug 2018
Texas A&M University: Dept. Oceanography

- Characterized salinity structure in Copano Bay, TX using ROMS model output.

· Analyzed time scales, total exchange flow, and salinity variance in Copano Bay to improve performance of existing numerical models.
· Cruise: R/V Pelican (3 days). Cocodrie, LA, to Flower Garden Banks National Marine Sanctuary in the northern Gulf of Mexico.

RESEARCH INTERESTS

High resolution coastal ocean modeling, spurious mixing, submesoscale processes and dynamics, estuarine exchange flow and mixing.

PUBLICATIONS

3. **Schlichting, D.**, Qu, L., Kobashi, D., & Hetland, R. (2023). Quantification of physical and numerical mixing in a coastal ocean model using salinity variance budgets. *Journal of Advances in Modeling Earth Systems*, 15, e2022MS003380. `https://doi.org/10.1029/2022MS003380`.

2. Qu, L., Hetland, R., & **Schlichting, D.** Mixing pathways in simple box models (2022). *Journal of Physical Oceanography*, 52(11), 2761-2772. `https://doi.org/10.1175/JPO-D-22-0074.1`.

1. Spicer, P., **Schlichting, D.**, Huguenard, K., Roche, A., & Rickard, L. (2021). Sensing Storm Surge: A framework for establishing a citizen scientist monitored water level network. *Ocean and Coastal Management*, 211, 105802. `https://doi.org/10.1016/j.ocecoaman.2021.105802`.

MANUSCRIPTS IN PREPARATION

1. Wei Hsu, F., Shearman, R. Kipp , **Schlichting, D.**, Kobashi, D., & Hetland, R. S_2 Atmospheric Tide Driven Superinertial Oscillation on the Texas-Louisiana Shelf. Intent to submit to *Journal of Physical Oceanography*.

INVITED TALKS/LECTURES

2. **Schlichting, D.** (2022). An introduction to numerical mixing in a coastal ocean model of the Texas-Louisiana continental shelf. Submesoscales under near-resonant inertial shear experiment (SUNRISE) meeting. December 11. Bend, OR.

1. **Schlichting, D.**, Qu, L., Hetland, R., & Kobashi, D. (2022). Quantification of physical and numerical mixing using tracer variance dissipation in a coastal ocean model. Pacific Northwest National Laboratory coastal modeling group. July 11.

ACADEMIC PRESENTATIONS

10. **Schlichting, D.**, & Hetland, R. (2023). Numerical mixing in idealized simulations of baroclinic instabilities over a shelf. Gordon Research Seminar/Conference on coastal ocean dynamics, June 17-23. Poster.

9. **Schlichting, D.**, Qu, L., Hetland, R., & Kobashi, D. (2022). Quantification of physical and numerical mixing using tracer variance dissipation in a coastal ocean model. Gordon Research Seminar/Conference on ocean mixing, June 4-10. Poster.

8. Hetland, R., Qu, L., & **Schlichting, D.** (2022). Tracer variance mixing in simple box models. Ocean Sciences Meeting. February 24 - March 4. Talk.

7. **Schlichting, D.**, Qu, L., Hetland, R., & Kobashi, D. (2022). Using salinity variance budgets to quantify numerical mixing in a coastal ocean model. Ocean Sciences Meeting. February 24 - March 4. Talk.

6. **Schlichting, D.**, Hetland, R., Qu, L., & Kobashi, D. (2021). Using tracer variance budgets to quantify numerical mixing offline in a coastal ocean model. Warnemünde Turbulence Days Meeting. December 6-9. Talk.

5. **Schlichting, D.**, Lieberthal, B., & Huguenard, K. (2019). An assessment into vegetation farms as a solution to coastal erosion in southern Maine. Northeast Aquaculture Conference, Boston MA. January 9-11. Poster.

4. **Schlichting, D.** & Hetland, R. (2018). Using salinity variance and total exchange flow to analyze salinity structure in an unsteady estuary. Physics of Estuaries and Coastal Seas Conference, Galveston TX. October 14-18. Poster.

3. **Schlichting, D.** & Hetland, R. (2018). Mechanisms controlling salinity structure structure in a broad, shallow, unsteady estuary. Sustainable Ecological Aquaculture Network Undergraduate Research Symposium, Walpole ME. August 7. Poster.

2. **Schlichting, D.** & Hetland, R. (2018). Salinity structure in Copano Bay. Texas A&M University Observing the Ocean REU Student Symposium, College Station, TX. August 2. Talk.

1. **Schlichting, D.**, Lieberthal, B., & Huguenard, K. (2017). Vegetation farms as a solution to coastal erosion for Saco, Maine. Sustainable Ecological Aquaculture Network Undergraduate Research Symposium, Walpole ME. August 16. Poster.

ADDITIONAL CONFERENCES/WORKSHOPS

4. Texas Center for Climate Studies High Resolution Earth System Modelling Workshop (2023). College Station, TX, January 23-25.

3. Scientific Computing with Python Conference (2021). July 12-18. *Virtual*.

2. Scientific Computing with Python Conference (2020). July 6-12. *Virtual*.

1. Coastal and Estuarine Research Federation Conference (2017). Providence, RI, November 5-9.

SERVICE AND TEACHING

Judge: Student Research Week (two 2 hour sessions)	Spring 2023
NSF PROGRESS Mentor	Fall 2022
Judge: Environmental Geosciences (GEOS 405, TAMU)	Spring 2022
Tutor: Computers in Civil Engineering (CIE 115, UMaine)	Spring 2019

HONORS AND AWARDS

Louis and Elizabeth Scherck Scholarship	2020-Present
NSF S-STEM Scholar	Jan 2020 - Aug 2021

Oceanography Graduate Council mini-grant recipient (X3)	2021
Frank Sleeper - Sawyer Scholarship	2017 - 2019
Best capstone project	2019
Chi Epsilon Member: Civ. Eng. Honors Society	2019
NSF Research Experience for Undergraduates Scholar	May 2018 - Aug 2018
Alpha Tau Omega Memorial Scholarship	2018

SKILLS

- High-level programming languages: Python (advanced), Matlab (intermediate), FORTRAN (basic), C++ (basic).
- Proficient in LaTeX and Markdown (6 years of experience).
- Proficient in Linux administration.
- Website design with GitHub Pages, HTML, Ruby, and CSS.
- Ocean modeling: Realistic and idealized simulations with ROMS and COAWST. Basic experience with FVCOM output.

PROFESSIONAL SOCIETIES

Association for the Sciences of Limnology and Oceanography

The Oceanography Society

American Society of Civil Engineers