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Curriculum Vitae

University of North Carolina Wilminton
601 S. College Rd.
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Education

Ph.D. (2020) in Physical Oceanography, Scripps Institution of Oceanography, UCSD
B.S. (2014) in Physics *summa cum laude*, University of North Carolina at Wilmington

Work Experience

8/2021–present	Assistant Professor: Physics & Physical Oceanography, UNCW
9/2020–7/2021	Post-Doctoral Researcher: SIO, UCSD
2014–2020	Graduate Student Researcher: SIO, UCSD
9/2012–9/2014	Undergraduate Student Researcher: Complex Adaptive Systems Lab, UNCW

Fellowships & Honors

2015–2020	NSF: Graduate Research Fellowship Recipient (ID:2015200859)
2019	Principal Investigator for XSEDE Super Computing Allocation (TG-OCE180014)
2014	Walter Schmid Award for *Excellence in Physics*, UNCW
2014	Physics Department Honors Graduate, UNCW

Published Manuscripts

Grimes, Feddersen, Giddings, Long-distance/time surf-zone tracer evolution affected by inner-shelf tracer retention and recirculation (2021). *J. Geophysical Res. Oceans*, 126, e2021JC017661. https://doi.org10.1029/2021JC017661.

Spydell, Suanda, **Grimes**, et al., Internal Bore Evolution Across the Shelf Near Pt. Sal CA interpreted as a Gravity Current, in press at *J. Phys. Oceangr.*

Pendergraft, **Grimes**, et al., 2021. Airborne transmission pathway for coastal water pollution, *PeerJ*, https://doi.org/10.7717/peerj.11358

Grimes and Feddersen, 2021. The self-similar stratified inner-shelf response to transient rip-current induced mixing (2021). *J. Fluid Mechanics*, 126, e2021JC017661. https://doi.org10.1029/2021JC017661

Kovatch, Feddersen, **Grimes**, MacMahan, 2021:Vorticity recirculation and asymmetric generation at a small headland with broadband currents, *J. Geophysical Res. Oceans*, https://doi.org/10.1029/2020JC016639

Kumar,. . . , **Grimes** et al., 2021: The inner-shelf dynamics experiment. *Bulletin of the American Meteorological Society*, https://doi.org/10.1175/BAMS-D-19-0281.1

Grimes, Feddersen & Kumar, 2020b: Tracer exchange across the stratified inner-shelf driven by transient rip-currents and diurnal surface heat fluxes. *Geophys. Res. Lett.***47** (10), https://doi.org/10.1029/2019GL086501

Grimes, Feddersen., Giddings, Pawlak, 2020a: Cross-shore deformation of a surf-zone released dye plume by an internal tide on the inner-shelf. *J. Phys. Oceangr.*, **50**,35-54, https://doi.org/10.1175/JPO-D-19-0046.1

Grimes, Cortale, Baker, and McNamara, 2015: Nonlinear forecasting of intertidal shoreface evolution. *Chaos: An Interdisciplinary Journal of Nonlinear Science*, **25**, https://doi.org/10.1063/1.4931801

Professional Development

Winter 2021	Pathways to Scientific Teaching, remote instruction
Spring 2020	XSEDE: Message Passing Interface (MPI) Workshop, remote instruction
Fall 2016	COAWST modeling workshop, Woods Hole Oceanographic Institution
Spring 2016	Scientific/Rescue Diver Certification at SIO, UCSD

Teaching & Mentor Experience

2021	**Professor**: Elementary College Physics (PHY101)
2020	**Mentor**: Adrien Stella, Research Intern Masters Thesis Report on ISDE obs.
2018	**Teaching Assistant** (Prof. Feddersen): graduate SIOC 261 Nearshore Phys. Ocn.

2017 **Mentor**: Luke kachelein, First-Year SIO Graduate Student (ongoing)
2017 **Mentor**: Daniel Smith, Undergraduate Research Fellow analyzing LaJIT obs.
2017 **Teaching Assistant** (Prof. Feddersen): graduate course SIOC 211A Ocean Waves

Outreach & Community Experience

2016–2019 **Outreach**: Wave-tank teaching demonstrations (grade school students)
2016 **Presenter & Panelist**: International Boundary Water Commission public forum
2015 **Training Coordinator**: Student & community volunteers for CSIDE field work

Membership & Services

2022 **Session Co-Chair**: Nearshore Processes, 2022-OSM
2022 **Reviewer**: Journal of Geophysical Research
2020–present **Reviewer**: Journal of Physical Oceanography
2015–present **Member**: American Geophysical Union (AGU)
2016–2019 **Student Representative**: Hydraulics Laboratory Advisory Panel

Field Work & Cruises

2019 Maiden Voyage of **R.V. Beyster**: Aided in piloting, watchkeeping, and provided emergency mechanical services during Port Angeles, WA to San Diego, CA transit
2018 **Wind Effects on Wave Shape Experiment** (WEWS: Wolfinger Family funded): deployed and managed remote and *in situ* instrumentation and sampling
2017 **Inner-Shelf Dynamics Experiment** (ISDE: ONR funded): experiment preparation, instrument deployment and maintenance, *in situ* sampling, and recovery
2016 **La Jolla Internal Tide Experiment** (LaJIT: ONR funded): contributed to experiment design, deployment, maintenance, recovery, and post-processing
2015 **Cross–Surf-zone/Inner-shelf Dye Exchange Study** (CSIDE: NSF funded): scientific/technical support for all aspects of field research project

Data Sets

Grimes, Feddersen, Giddings, (2021). The Cross-Surfzone/Inner-shelf Dye Exchange (CSIDE) Study. UC San Diego Library Digital Collections. https://doi.org/10.6075/J0K64J72

Grimes, & Feddersen, (2021). Data from: The self-similar stratified inner-shelf response to transient rip-current induced mixing. UCSD Library Digital Collections. https://doi.org/10.6075/J05Q4TMR

Grimes, Feddersen, and Kumar, (2020). Data from: Tracer Exchange Across the Stratified Inner-shelf Driven by Transient Rip-Currents and Diurnal Surface Heat Fluxes. UCSD Library Digital Collections. https://doi.org/10.6075/J0WM1BSJ

Waterhouse,... **Grimes, Derek J.**, et al., (2020). Observations and Model Simulations from the Inner-Shelf Dynamics Experiment (ISDE). UCSD Library Digital Collections. https://doi.org/10.6075/J0WD3Z3Q

Conference Oral Presentations

Grimes, Feddersen, & Giddings, Surf-zone alongshore tracer transport, dilution, and spreading over long distance and time, 2020 Fall AGU Virtual Meeting

Grimes, Feddersen, Kumar, & Giddings, Transient rip-current exchange across the stratified inner-shelf, 2020 Ocean Sciences Meeting (OSM)

Grimes, Feddersen, Kumar, & Giddings, Influence of diurnal thermal forcing on transient rip-current induced tracer exchange nearshore, 2019 International Union of Theoretical and Applied Mechanics Thematic Session on Vortex Dynamics

Grimes, Feddersen, Giddings, & Pawlak, Cross-shore advection and deformation of a surf-zone dye release by the internal tide, 2018 OSM

Grimes, Feddersen, Giddings, Kumar, & Pawlak, Observations of cross–surf-zone/inner-shelf dye exchange from aerial hyperspectral and *in situ* data, 2016 Fall AGU Meeting

Grimes, Feddersen, Giddings, Pawlak, & Kumar, Down by the CSIDE: aerial hyperspectral and in situ observations of a nearshore dye release, Winter 2016 OSM.