

MATTHEW A. REIDENBACH

Professor & Chair, Department of Environmental Sciences, and
Dept. of Mechanical and Aerospace Engineering (by courtesy)
University of Virginia

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1. EDUCATION

1997 B.S. Cornell University, Civil and Environmental Engineering, *magna cum laude*
1998 M.S. Stanford University, Civil and Environmental Engineering
2004 Ph.D. Stanford University, Civil and Environmental Engineering

2004-2007 Post-Doc Univ. of California Berkeley, Dept. of Integrative Biology, *Miller Fellow*

2. PROFESSIONAL APPOINTMENTS

2024-present, Department Chair, Department of Environmental Sciences, University of Virginia
2019-present Professor, Department of Environmental Sciences, University of Virginia
2019-present Professor (by courtesy), Department of Mechanical and Aerospace Engineering,
University of Virginia
2022-present Affiliate Professor, Department of Music, University of Virginia
2016-2019 Associate Professor (by courtesy), Department of Mechanical and Aerospace
Engineering, University of Virginia
2013-2019 Associate Professor, Department of Environmental Sciences, University of
Virginia
2007-2013 Assistant Professor, Department of Environmental Sciences, University of
Virginia
2004-2007 Post-Doctoral Scientist, Dept. of Integrative Biology, U. of California Berkeley
1998-2004 Research Assistant, Civil and Environmental Engineering, Stanford University
1998-2001 Teaching Assistant, Civil and Environmental Engineering, Stanford University
1996-1997 Research Assistant, Civil and Environmental Engineering, Cornell University
1996 Teaching Assistant, Civil and Environmental Engineering, Cornell University

3. AWARDS AND HONORS

2022 Outstanding Researcher Award, Office of the V.P. for Research, U. of Virginia
2021 Friday Harbor Laboratories New Faculty Research Fellowship, U. of Washington
2015 Pritchard Award, Coastal and Estuarine Research Federation
2012 CAREER Award, National Science Foundation (Division of Ocean Sciences)
2011 All-University Teaching Award, University of Virginia
2011 Mead Honored Faculty (for faculty-student interaction), University of Virginia
2010-2011 Distinguished Young Investigator (FEST grant), University of Virginia
2009-2010 University Teaching Fellowship, University of Virginia
2009-2010 Professors as Writers Fellowship, University of Virginia
2010 Seven Society Teaching Recognition, University of Virginia

2004-2007 Miller Institute Post-Doctoral Fellowship, University of California Berkeley
2003 Best Speaker Award, NSF/ONR Physical Oceanography Dissertation Symposium
1997-2000 Stanford Graduate Fellowship, Stanford University

4. PUBLICATIONS (PEER REVIEWED)

* denotes UVA grad student author, + denotes UVA undergrad author

67. Turrietta E.* and **Reidenbach M.A.**, 2024, Edge effects of a fragmented seagrass habitat on flow, bivalve recruitment, and sediment dynamics, *Marine Ecology Progress Series*, 732, 52-71.
66. Murphy, E.A.K.* and **Reidenbach M.A.**, 2024, Pulsatile ventilation flow in polychaete *Alitta succinea* burrows. *Journal of Marine Science and Engineering*, 12, 1037. <https://doi.org/10.3390/jmse12071037>.
65. Kadakia N., Demir M., Michaelis B.T.*, DeAngelis B.D., **Reidenbach M.A.**, Clark D.A., and Emonet T., 2022, Odour motion sensing enhances navigation of complex plumes, *Nature*, doi.org/10.1038/s41586-022-05423-4
64. Murphy E.A.K.*, Barros J.M., Schultz M.P., Flack K.A., Steppe C.N., and **Reidenbach M.A.**, 2022, Boundary layer hydrodynamics of patchy biofilms, *Biofouling*, [doi:10.1080/08927014.2022.2117033](https://doi.org/10.1080/08927014.2022.2117033)
63. Hogan S.*, Murphy E.A.K.*, Volaric M.*, Castorani M., Berg P., and **Reidenbach M.A.**, 2022, Influence of oyster reefs on infauna and sediment spatial distributions within intertidal mudflats, *Marine Ecology Progress Series*, 686, 91-106.
62. Smith R.S., Hogan S.*, Tedford K.N.*, Lusk B., **Reidenbach M.A.**, Castorani M., 2022, Long-term data reveals greater intertidal oyster biomass in predicted suitable habitat, *Marine Ecology Progress Series*, 683, 221-226.
61. Hogan S.* and **Reidenbach M.A.**, 2022, Quantifying trade-offs in ecosystem services under various oyster reef restoration designs, *Estuaries and Coasts*, 45(3), 677-690.
60. Banerjee D., Langberg K., Abbas S., Odermatt E., Yerramothu P., Volaric M.*, **Reidenbach M.A.**, Krentz C., Rubinstein C.D., Brautigam D., Abbas T., Gelfand B., Ambati J., Kerur N., 2021, A non-canonical, interferon-independent signaling activity of cGAMP triggers DNA damage response signaling, *Nature Communications*, 12, 6207, [doi:10.1038/s41467-021-26240-9](https://doi.org/10.1038/s41467-021-26240-9).
59. Allen T., Behr J., Bukvic A., Calder R., Caruson K., Connor C., D'Elia C., Dismukes D., Ersing R., Franklin R., Goldstein J., Goodall J., Hemmerling S., Irish J., Lazarus S., Loftis D., Luther M., McCallister S.L., McGlathery K., Mitchell M., Moore W., Reid Nichols C.R., Nunez K., **Reidenbach M.A.**, Shortridge J., Weisberg R., Weiss R., Donelson Wright L., Xia M., Xu K., Young D., Zarillo G., Zinnert J., 2021, Anticipating and adapting to the future impacts of climate change on the health, security and welfare of low elevation coastal zone (LECZ) communities in Southeastern USA, *Journal of Marine Science and Engineering*, 9, 1196, [doi:10.3390/jmse9111196](https://doi.org/10.3390/jmse9111196).
58. Hogan S.*, Wiberg P.L., and **Reidenbach M.A.**, 2021, Utilizing airborne LiDAR data to quantify marsh edge morphology and the role of oyster reefs in mitigating marsh erosion, *Marine Ecology Progress Series*, 669, 17-31
57. **Reidenbach M.A.**, Stocking J.B.*, Szczyrba L.+ , Wendelken C.+ , 2021, Hydrodynamic interactions with coral topography and its impact on larval settlement, *Coral Reefs*, [doi:10.1007/s00338-021-02069-y](https://doi.org/10.1007/s00338-021-02069-y).
56. Zhu Q.*, Wiberg P., **Reidenbach M.A.**, 2021, Quantifying seasonal seagrass effects on flow and sediment dynamics in a back-barrier bay, *Journal of Geophysical Research: Oceans*, 126, e2020JC016547.

55. Besterman A.F^{*}, McGlathery K.J., **Reidenbach M.A.**, Wiberg P.L., and Pace M.L., 2021, Predicting benthic macroalgal abundance in shallow coastal lagoons from geomorphology and hydrologic flow patterns, *Limnology and Oceanography*, 66, 123-140.
54. Leathers K.⁺, Michaelis B.T.^{*}, and **Reidenbach M.A.**, 2020, Interpreting the spatial-temporal structure of turbulent chemical plumes utilized in odor tracking by lobsters, *Fluids*, 5, 82, doi:10.3390/fluids5020082.
53. Michaelis B.^{*}, Leathers K.⁺, Bobkov Y., Ache B., Principe J., Baharloo R., Park I.M., and **Reidenbach M.A.**, 2020, Odor tracking in aquatic organisms: the importance of temporal and spatial intermittency of the turbulent plume, *Scientific Reports*, 10, 7961, doi:10.1038/s41598-020-64766-y.
52. Volaric M.P.^{*}, Berg P., and **Reidenbach M.A.**, 2020, Drivers of oyster reef ecosystem metabolism measured across multiple timescales, *Estuaries and Coasts*, doi:10.1007/s12237-020-00745-w.
51. Pasour V.B., White, B.L., Ghisalberti M., Adams M.P., Long M.H., **Reidenbach M.A.**, Shavit U., Samson J.E. (Editors), 2020, Canopies in aquatic ecosystems: Integrating form, function, and biophysical processes, Lausanne, Switzerland: Frontiers Media SA. doi:10.3389/978-2-88963-340-1.
50. Hogan S.^{*} and **Reidenbach M.A.**, 2019, Quantifying and mapping intertidal oyster reefs utilizing LiDAR-based remote sensing, *Marine Ecology Progress Series*, 630, 83-99, doi:10.3354/meps13118.
49. Volaric M.P.^{*}, Berg P., and **Reidenbach M.A.**, 2019, An invasive macroalga alters ecosystem metabolism and hydrodynamics on a tidal flat, *Marine Ecology Progress Series*, 628, 1-16, doi:10.3354/meps13143.
48. **Reidenbach M.A.** and Timmerman R.^{*}, 2019, Interactive effects of seagrass and the microphytobenthos on sediment suspension within shallow coastal bays, *Estuaries and Coasts*, doi:10.1007/s12237-019-00627-w.
47. Wiberg P.L., Taube S.R., Ferguson A.E., Kremer M.R.⁺, **Reidenbach M.A.**, 2019, Wave attenuation by oyster reefs in shallow coastal bays, *Estuaries and Coasts*, 42, 331-347.
46. Murphy E.A.K.^{*}, Barros J.M., Schultz M.P., Flack K.A., Steppe C.N., **Reidenbach M.A.**, 2019, Roughness effects of diatomaceous slime fouling on turbulent boundary layer hydrodynamics, *Biofouling*, 34:9, 976-988.
45. Stocking J.B.^{*}, Laforsch C., Sigl R., and **Reidenbach M.A.**, 2018, The role of turbulent hydrodynamics and surface morphology on heat and mass transfer in corals, *Journal of the Royal Society, Interface*, 15:20180448, doi:10.1098/rsif.2018.0448.
44. **Reidenbach M.A.**, Thomas E.L.^{*}, 2018, Influence of the seagrass, *Zostera marina*, on wave attenuation and bed shear stress within a shallow coastal bay, *Frontiers in Marine Science*, 5, doi:10.3389/fmars.2018.00397.
43. Volaric M.P.^{*}, Berg P., and **Reidenbach M.A.**, 2018, Oxygen metabolism of intertidal oyster reefs measured by aquatic eddy covariance, *Marine Ecology Progress Series*, 599, 75-91.
42. **Reidenbach M.A.**, 2018, Tracking odorant plumes, in *Olfactory Receptors: Methods and Protocols*, ed. F.M. Simoes de Souza and G. Antunes, Springer New York, 251-263.
41. Hansen J.C.R.^{*} and **Reidenbach M.A.**, 2017, Turbulent mixing and fluid transport within Florida Bay seagrass meadows, *Advances in Water Resources*, 108, 205-215.
40. Murphy E.A.K.^{*}, Barros J.M., Schultz M.P., Flack K.A., Steppe C.N., **Reidenbach M.A.**, 2017, The turbulent boundary layer structure over diatomaceous slime

- fouling. *Tenth International Symposium on Turbulence and Shear Flow Phenomena*, Chicago, IL, USA, 7 pp.
39. Ludeman D.A., **Reidenbach M.A.**, and Leys S.P., 2017, The energetic cost of filtration by demosponges and their behavioural response to ambient currents, *Journal of Experimental Biology*, 220, 995-1007.
 38. Murphy E.A.K.* and **Reidenbach M.A.**, 2016, Oxygen transport in periodically ventilated polychaete burrows, *Marine Biology*, 163, 208. doi:10.1007/s00227-016-2983-y.
 37. Stocking J.B.*, Rippe J.P.⁺, and **Reidenbach M.A.**, 2016, Structure and dynamics of turbulent boundary layer flow over healthy and algae-covered corals, *Coral Reefs*, 35, 1047-1059.
 36. Park I.J., Hein A.M., Bobkov Y.V., **Reidenbach M.A.**, Ache B.W., and Principe J.C., 2016, Neurally encoding time for olfactory navigation, *PLOS Computational Biology*, 12(1): e1004682. doi:10.1371/journal.pcbi.1004682.
 35. Waldrop L.D., Koehl M.A.R., and **Reidenbach M.A.**, 2015, Flexibility of crab chemosensory sensilla enables flicking antennules to sniff, *The Biological Bulletin*, 229, 185-198.
 34. Hubbard A.⁺ and **Reidenbach M.A.**, 2015, The effects of larval swimming behavior on the dispersal and settlement of the eastern oyster, *Crassostrea virginica*, *Marine Ecology Progress Series*, 535, 161-176.
 33. Berg P., Reimers C.E., Rosman J.H., Huettel M., Delgard M.L., **Reidenbach M.A.**, and Ozkan-Haller T., 2015, Technical Note: Time lag correction of aquatic eddy covariance data measured in the presence of waves, *Biogeosciences*, 12, 6721-6735.
 32. Pravin S.*, Mellon DeF., Berger E.J., and **Reidenbach M.A.**, 2015, Effects of sensilla morphology on mechanosensory sensitivity in the crayfish, *Bioinspiration & Biomimetics*, 10, 036006, doi:10.1088/1748-3190/10/3/036006.
 31. Mellon DeF., Pravin S.*, and **Reidenbach M.A.**, 2014, A nose too far: regional differences in olfactory receptor neuron efficacy along the crayfish antennule, *The Biological Bulletin*, 227, 40-50.
 30. Li A.⁺, and **Reidenbach M.A.**, 2014, Forecasting decadal changes in sea surface temperatures and coral bleaching within a Caribbean coral reef, *Coral Reefs*, 33, 847-861.
 29. Pravin S.* and **Reidenbach M.A.**, 2013, Simultaneous sampling of flow and odorants by crustaceans can aid search within a turbulent plume, *Sensors*, 13, 16591-16610.
 28. **Reidenbach M.A.**, Berg P., Hume A., Hansen J.C.R.*, and Whitman E.R.*, 2013, Hydrodynamics of intertidal oyster reefs: the influence of boundary layer flow processes on sediment and oxygen uptake, *Limnology and Oceanography: Fluids and Environments*, 3, 225-239.
 27. Nelson J.M.⁺, Mellon DeF., and **Reidenbach M.A.**, 2013, Effects of antennule morphology and flicking kinematics on flow and odor sampling by the freshwater crayfish, *Procambarus clarkii*, *Chemical Senses*, 38(8), 729-741.
 26. Fuchs H.L. and **Reidenbach M.A.**, 2013, Biophysical constraints on optimal patch lengths for settlement of a reef-building bivalve, *PLoS ONE*, 8(8): e71506. doi:10.1371/journal.pone.0071506.
 25. McGlathery K., **Reidenbach M.A.**, D'Odorico P., Fagherazzi S., Pace M., and Porter J.H., 2013, Nonlinear dynamics and alternative stable states in shallow coastal systems, *Oceanography*, 26(3):220-231.
 24. Grady A.E.*, Moore L.J., Storlazzi C.D., Elias E., and **Reidenbach M.A.**, 2013, The influence of sea-level rise and changes in fringing reef morphology on gradients in

- alongshore sediment transport, *Geophysical Research Letters*, 40(12), 3096-3101.
23. Hansen J.C.R.* and **Reidenbach M.A.**, 2013, Seasonal growth and senescence of a *Zostera marina* seagrass meadow alters wave-dominated flow and sediment suspension within a coastal bay, *Estuaries and Coasts*, 36, 1099-1114.
 22. Whitman E.R.* and **Reidenbach M.A.**, 2012, Benthic flow environments affect recruitment of *Crassostrea virginica* larvae to an intertidal oyster reef, *Marine Ecology Progress Series*, 463, 177-191.
 21. Pravin S.*, Mellon D.F., and **Reidenbach M.A.**, 2012, Micro-scale fluid and odorant transport to antennules of the crayfish, *Procambarus clarkii*, *Journal of Comparative Physiology A*, 198, 669-681.
 20. Katz T., Yahel G., **Reidenbach M.A.**, Tunncliffe V., Herut B., Crusius J., Whitney F., and Lazar B., 2012, Resuspension by fish facilitates the transport and redistribution of coastal sediments, *Limnology and Oceanography*, 57(4), 945-958.
 19. Hansen J.C.R.* and **Reidenbach M.A.**, 2012, Wave and tidally driven flows in eelgrass beds and their effect on sediment suspension, *Marine Ecology Progress Series*, 448, 271-287.
 18. **Reidenbach, M.A.** and Koehl, M.A.R., 2011, The spatial and temporal patterns of odors sampled by lobsters and crabs in a turbulent plume, *Journal of Experimental Biology*, 214, 3138-3153.
 17. Mellon D.F. and **Reidenbach M.A.**, 2011, Fluid mechanical problems in crustacean active chemoreception, in *Frontiers in Sensing Systems*, F. Barth, J.A.C. Humphrey and M.V. Srinivasan (Eds.), Springer-Verlag, 159-170.
 16. Leys S.P., Yahel, G., **Reidenbach M.A.**, Tunncliffe V., Shavit U., and Reiswig H.M., 2011, The sponge pump: the role of current induced flow in design of the sponge body plan, *PLoS ONE*, 6(12): e27787.doi:10.1371/journal.pone.0027787.
 15. **Reidenbach M.A.**, Limm M., Hondzo M., and Stacey M.T., 2010, The effects of bed roughness on boundary layer mixing and mass flux across the sediment-water interface, *Water Resources Research*, 46, W07530, doi:10.1029/2009WR008248.
 14. Koehl M.A.R. and **Reidenbach M.A.**, 2010, Swimming by microscopic organisms in ambient water flow, in *Animal Locomotion: Hydrodynamics of Swimming and Physics of Flying*, G. Taylor, M. Triantafyllou, and C. Tropea (Eds.), Springer-Verlag, 117-130.
 13. Monismith S.G., Davis K.A., Shellenbarger G.G., Hench J.L., Nidzieko N.J., Santoro A.E., **Reidenbach M.A.**, Rosman J.H., Holtzman R., Martens C.S., Lindquist N.L., Southwell M.W., and Genin A., 2010, Flow effects on benthic grazing on a tropical reef, *Limnology and Oceanography*, 55, 1881-1892.
 12. Genin A., Monismith S.G., **Reidenbach M.A.**, Yahel G., and Koseff J.R., 2009, Intense benthic grazing of phytoplankton in a coral reef, *Limnology and Oceanography*, 54(3), 938-951.
 11. **Reidenbach M.A.**, Koseff J.R., and Koehl M.A.R., 2009, Hydrodynamic forces on larvae affect their settlement on coral reefs in turbulent, wave driven flow, *Limnology and Oceanography*, 54(1), 318-330.
 10. **Reidenbach M.A.**, George N.T., and Koehl M.A.R., 2008, Antennule morphology and flicking kinematics facilitate odor sampling by the spiny lobster, *Panulirus argus*, *Journal of Experimental Biology*, 211, 2849-2858.
 9. Kamio M., **Reidenbach M.A.**, and Derby C.D., 2008, To paddle or not: context dependent courtship display by male blue crabs, *Callinectes sapidus*, *Journal of Experimental Biology*, 211, 1243-1248.

8. Koehl M.A.R. and **Reidenbach M.A.**, 2007, Swimming by microscopic organisms in ambient water flow, *Experiments in Fluids*, 43, 755-768.
7. **Reidenbach M.A.**, Koseff J.R., and Monismith S.G., 2007, Laboratory experiments of fine-scale mixing and mass transport within a coral canopy, *Physics of Fluids*, 19(7), 075107.
6. Koehl M.A.R., Strother J.A., **Reidenbach M.A.**, Koseff J.R., and Hadfield M.G., 2007, Individual-based model of larval transport to coral reefs in turbulent, wave-driven flow: behavioral responses to dissolved settlement inducer, *Marine Ecology Progress Series*, 335, 1-18.
5. **Reidenbach M.A.**, Monismith S.G., Koseff J.R., Yahel G., and Genin A., 2006, Boundary layer turbulence and flow structure over a fringing coral reef, *Limnology and Oceanography*, 51(5), 1956-1968.
4. Monismith S.G., Genin A., **Reidenbach M.A.**, Yahel G., and Koseff J.R., 2006, Thermally driven exchanges between a coral reef and the adjoining ocean, *Journal of Physical Oceanography*, 36(7), 1332-1347.
3. **Reidenbach M.A.**, Koseff J.R., Monismith S.G., Steinbuck J.V., and Genin A., 2006, The effects of waves and morphology on mass transfer within branched reef corals, *Limnology and Oceanography*, 51(2): 1134-1141.
2. Holzman R., **Reidenbach M.A.**, Monismith S.G., Koseff J.R., Genin A., 2005, Near-bottom depletion of zooplankton over a coral reef: II. Relationships with zooplankton swimming ability, *Coral Reefs*, 24(1), 87-94.
1. Genin A., Yahel G., **Reidenbach M.A.**, Monismith S.G. and Koseff J.R., 2002, Intense benthic grazing on phytoplankton in coral reefs revealed using the control volume approach, *Oceanography*, 15(2), 90-96

5. SPONSORED GRANT ACTIVITIES

CURRENT

- **NSF Coastlines and People:** Focused CoPe: Enhancing resilience and equity in urban coastal communities through the co-generation of community capitals, Senior Personnel, Person-Months/Year: 0.5, 09/2022-08/2027, \$5,000,000
- **NSF Biological Oceanography:** Collaborative Research: Microscale interactions of foundation species with their fluid environment: biological feedbacks alter ecological interactions of mussels, co-PI, Person-Months/Year: 1, 02/01/2021-1/31/2024, \$787,360 (UVA portion: \$233,058)
- **NSF Long Term Ecological Research** (Grant #: DEB-1832221): LTER: Climate drivers, dynamics, and consequences of ecosystem state change in coastal barrier systems, signatory co-PI, 12/1/18-11/30/24, \$6,762,000. (UVA portion: \$6,762,000, I am one of five signatory PIs on the grant)

COMPLETED

- **National Fish and Wildlife Federation:** Building oyster reefs and enhancing saltmarsh habitat to strengthen coastal resilience on Virginia's Eastern Shore, co-PI (lead PI for UVA), Person-Months/Year: 0.75, 04/01/2020-03/31/2023, \$804,878 (UVA portion: \$299,426)
- **NSF Neural and Cognitive Systems** (Grant#: IIS-1631864): Collaborative Research: NCS-FO: A computational neuroscience framework for olfactory scene analysis within

complex fluid environments, lead PI, 09/01/16 - 08/31/21, \$1,012,814 (UVA portion: \$249,237)

- **NSF CAREER** (Grant#: OCE-1151314): Quantifying wave-driven mixing and mass transport processes within coastal ecosystems, lead PI, 6/1/2012-5/31/2021, \$531,428 (UVA portion: \$531,428)
- **Australian Research Council** (Grant #: DP170100802) Redefining sediment transport predictions in aquatic ecosystems, co-PI, 1/01/17-12/31/20, AUS\$285,000 (UVA portion: \$15,000)
- **UVA Environmental Resilience Institute**: Coupled Human–Natural Capital Lab (CoH-N) for Resilient Coastal Futures, co-PI, 1/1/18-1/1/20, \$30,000. (UVA portion: \$30,000)
- **UVA 3-Cavaliers Research Program**: Climate change impacts on coral reefs: linkages between the warming ocean and coral bleaching, PI, 10/1/18-12/31/19, \$60,000 (UVA portion: \$60,000)
- **NSF Long Term Ecological Research** (Grant #: DEB-1237733): Drivers, dynamics and consequences of non-linear change in coastal barrier systems, signatory co-PI, 11/1/12-10/31/19, \$5,882,889. (UVA portion: \$5,882,889, I am one of four signatory PIs on the grant)
- **Office of Naval Research** (Grant#: N00014-15-1-2560): Interactions between biofilms and boundary layer flows, lead PI, 6/1/2015-8/31/18, \$125,915
- **NSF Chemical, Bioengineering, Environmental, and Transport Systems** (Grant#: CBET-0933034): Interdisciplinary Research: Olfactory processing of flow and odor structure within a turbulent plume, lead PI, 9/1/09-8/31/14, \$575,552.
- **UVA Environmental Resilience Grant**: Reforming Virginia’s coastal urban and rural communities around water, co-PI, 3/15/2016-3/14/2017, \$28,000.
- **UVA School of Engineering and Applied Sciences Seed Funding Program**: Establishing collaborative research and expertise in near boundary turbulent flows, co-PI, 9/1/11-8/31/14, \$40,000.
- **UVA Fund for Excellence in Science and Technology**: Predicting long-term impacts of climate change on coral reef degradation and coastal erosion, lead PI, 5/1/10-5/31/12, \$35,000.
- **UVA Deepening Global Education Grant Program**: Sustainable Development in Panama: Ecosystems and Society, An Integrated Approach, co-PI, 1/1/11-6/31/12, \$75,000.
- **The Everglades Foundation**: Effects of submerged aquatic vegetation on fluid retention and sediment dynamics in the Florida Everglades, Grant for Ph.D. student Jennifer Romanowich, lead PI, 4/1/09-3/31/10, \$20,000

6. SERVICE

DEPARTMENT, UNIVERSITY AND COMMONWEALTH OF VIRGINIA

- Department Chair, Dept. of Environmental Sciences, 2024-present
- Undergraduate Area Review Committee, Dept. of Environmental Sciences, 2023-2024
- Director of Diversity, Equity, and Inclusion, Dept. of Envi. Sci., 2020-2023
- Diversity, Equity, and Inclusion Steering Committee, Virginia Coast Reserve LTER, 2020-2023
- Chair Search Committee: Department of Physics, UVA, 2020-2021
- Department Graduate Admissions Committee Chair, 2018-2020

- Chair Search Committee: Department of Biology, UVA, 2019
- Search Chair: surface process geosciences, two open rank faculty positions, 2017-2018
- Faculty coordinator for Department graduation ceremony, 2010-2016
- Jefferson Scholars Program Undergraduate Selection Committee, 2008-present
- Harrison Undergraduate Research Awards Committee, 2013-2017
- Environmental Sciences Graduate Admissions Committee, 2012-2016
- Environmental Sciences Financial Aid Committee (Chair), 2011-2016
- Environmental Sciences Website Committee (Chair), 2008-2016
- Environmental Sciences Department Chair Selection Committee, 2014
- 1st and 2nd year non-major undergraduate advisor, 2011-2014
- Brown College Faculty Fellow, 2009-2013
- Environmental Sciences Undergraduate Review Committee, 2011-2012
- Seminar Speaker, University of Virginia College Science Scholars Program, 2008-2012
- Robert J. Huskey Research Exhibition Judge, 2008-2011
- Environmental Sciences Department Seminar Series (Chair), 2009-2010
- Graduate Academic Review Committee, Dept. of Environmental Sciences, 2008-2009

NATIONAL AND INTERNATIONAL

Topics Editor: *Frontiers in Marine Science*, 2017-2020

Associate Editor: *Advances in Water Resources*, 2015-2017

Journal Reviewer: *Limnology & Oceanography*; *Marine Ecology Progress Series*; *Estuarine & Coastal Shelf Science*; *Journal of Experimental Biology*; *Journal of Experimental Marine Biology and Ecology*; *Oecologia*; *Journal of Marine Systems*; *Journal of Hydrology*; *Limnology & Oceanography, Methods*; *Coral Reefs*; *Ecology*; *Journal of Geophysical Research-Oceans*; *Geophysical Research Letters*; *Water Resources Research*; *Journal of the Royal Society Interface*; *PLoS ONE*; *Continental Shelf Research*; *Chemical Senses*; *Frontiers in Marine Science*

Proposal Reviewer: NOAA: Climate Change Program, Texas Sea Grant, South Carolina Sea Grant; NSF: Physical Oceanography, Major Research Instrumentation, Integrative Organismal Systems, Chemical Oceanography, Biological Oceanography, Coastal Sustainability (SEES)

Session Chair: Society of Integrative and Comparative Biology Meeting, 2009; 2012
AGU/ASLO Ocean Sciences Meeting, 2005, 2014

Committee Member: Pritchard Award Committee, Coastal and Estuarine Research Federation, 2016-2017; LTER All-Scientists Meeting Organizing Committee, 2012; LTER Network Office Visioning Committee, 2012

Society Member: American Geophysical Union, American Society of Limnology and Oceanography, Society of Integrative and Comparative Biology

Diversity and Inclusion: Committee member to develop the diversity and inclusion plan for the NSF funded Virginia Coast Reserve LTER program, 2020-2022; Director of Diversity, Equity, and Inclusion for the Department of Environmental Sciences, 2020-2023

PUBLIC OUTREACH

- Working group member of APEAL: Advancing Public Engagement Across LTERs, (2023-present)
- Team leader and planning committee member in an NSF IGE-funded Team Science cross-disciplinary problem-solving and research workshop. The program focused on

building graduate students' professional skills in team science, particularly in the teamwork competencies and self-reflective practices. (2017-2019)

- Developed online curriculum for middle school students to meet Commonwealth of Virginia learning standards for Environmental Sciences. Two online modules were developed: Sea-level rise impacts on coastal communities, and Marine biology and coastal ecosystems. (<http://www.wiseengineering.org>)
- Lecturer in Massive Open Online Course (MOOC), *Linking Biology and Geomorphology in Coastal Wetlands*, 2013
- Research Experience for High School Students faculty advisor: Advisor for a high school student from Broadwater Academy on the Eastern Shore, VA who participated in an NSF funded outreach program, June-August 2009, 2013
- Eastern Shore Environmental Education Council participant: Designed and presented a hands-on demonstration about importance of oysters in the Chesapeake Bay at the annual Water Festival in Anancock, VA, August 2009, 2011
- Participant in the Curry School of Education program for middle school science teachers entitled '*Teaching Scientific Inquiry and the Nature of Science*', 2011-present

7. TEACHING EXPERIENCE

Fall 2007

- Biomechanics of Organisms (EVSC 493/793), 4 students, 2 credits

Spring 2008

- Physical Hydrology (EVSC 340), 39 students, 3 credits + 1 credit lab
 - 3 teaching assistants supervised

Fall 2008

- EVSC 493/793 Coastal Oceanography, 11 students, 3 credits
 - Team taught with Prof. Karen McGlathery and Pat Wiberg
- EVHY 545 Hydrologic Transport and Mixing Processes, 11 students, 4 credits
 - Team taught with Prof. Paolo D'Odorico, 1 T.A. supervised
- EVSC 494 Independent Study, 1 student, 1 credit

Spring 2009

- EVSC 498/796 Physical Oceanography, 14 students, 3 credits
- EVSC 498/796 Biomechanics of Organisms, 12 students, 2 credits
- EVHY 746 Current Research in Hydrology, 1 student officially enrolled, approximately 10 attending each week, 1 credit
 - Team taught with Prof. Pat Wiberg
- EVSC 494 Independent Study, 2 students, 1 credit

Fall 2009

- EVSC 3600 Physical Hydrology, 47 students, 3 credits
- EVSC 3601 Physical Hydrology Laboratory, 43 students, 1 credit
 - 3 teaching assistants supervised
- EVSC 7092 Departmental Seminar, 15 students, 1 credit
- EVSC 4993/4995 Independent Study, 2 students, 1 credit

Spring 2010

- EVSC 3600 Physical Hydrology, 41 students, 3 credits
- EVSC 3601 Physical Hydrology Laboratory, 39 students, 1 credit
 - 3 teaching assistants supervised

- EVSC 3060 Biomechanics of Organisms, 33 students, 3 credits
 - EVSC 7092 Departmental Seminar, 3 students, 1 credit
 - EVSC 4993/4995 Independent Study, 4 students, 1 credit
- Fall 2010- On Sesqui leave
- EVSC 4995 Supervised Research, 1 student, 3 credits
- Spring 2011
- EVSC 5060 Coastal Oceanography, 12 students, 3 credits
 - Team-taught with Patricia Wiberg and Karen McGlathery
- Fall 2011
- EVSC 3600 Physical Hydrology, 55 students, 3 credits
 - EVSC 3601 Physical Hydrology Laboratory, 51 students, 1 credits
 - 3 teaching assistants supervised
 - EVSC 4995 Supervised Research, 1 student, 3 credits
- Spring 2012
- EVSC 3600 Physical Hydrology, 49 students, 3 credits
 - EVSC 3601 Physical Hydrology Laboratory, 51 students, 1 credit
 - 3 teaching assistants supervised
 - EVSC 3060 Biomechanics of Organisms, 20 students, 3 credits
- Fall 2012
- EVSC 5060 Coastal Oceanography, 21 students, 3 credits
 - Team-taught with Patricia Wiberg and Karen McGlathery
 - EVSC 5650 Hydrologic Transport Processes, 14 students, 4.0 credits + lab
 - Team taught with Prof. Paolo D'Odorico, 1 T.A. supervised
 - EVSC 4995 Supervised Research, 2 students, 3 credits
- Spring 2013
- EVSC 5440 Physical Oceanography, 8 students, 3 credits
 - EVSC 4999 Supervised Research, 2 students, 3 credits
- Fall 2013
- EVSC 3060 Biomechanics of Organisms, 23 students, 3 credits
 - 1 teaching assistant supervised
 - EVSC 4999 Supervised Thesis Research, 2 students, 3 credits
- Spring 2014
- EVSC 3600 Physical Hydrology, 50 students, 3 credits
 - EVSC 3601 Physical Hydrology Laboratory, 44 students, 1 credit
 - 3 teaching assistants supervised
 - EVSC 4999 Supervised Thesis Research, 1 student, 3 credits
- Fall 2014
- EVSC 5650 Hydrologic Transport Processes, 7 students, 4.0 credits + lab
 - Team taught with Prof. Paolo D'Odorico, 1 T.A. supervised
 - EVSC 4995 Supervised Research, 2 students, 2 credits
- Spring 2015
- EVSC 3600 Physical Hydrology, 79 students, 3 credits
 - EVSC 3601 Physical Hydrology Laboratory, 56 students, 1 credit
 - 4 teaching assistants supervised
 - EVSC 5440 Physical Oceanography, 9 students, 3 credits
 - EVSC 4999 Supervised Research, 3 students, 1 credit
- Fall 2015

- EVSC 3060 Biomechanics of Organisms, 38 students, 3 credits
 - EVSC 4999 Supervised Thesis Research, 2 students, 3 credits
 - EVSC 4995 Supervised Research, 1 student, 1 credit
- Spring 2016
- EVSC 3600 Physical Hydrology, 74 students, 3 credits
 - EVSC 3601 Physical Hydrology Laboratory, 58 students, 1 credit
 - 4 teaching assistants supervised
 - EVSC 4999 Supervised Thesis Research, 2 students, 3 credits
 - EVSC 4995 Supervised Research, 2 students, 1 credit
- Fall 2016
- EVHY 5650 Hydrologic Transport Processes, 7 students, 4.0 credits + lab
 - 1 teaching assistant supervised
 - EVSC 4995 Supervised Research, 2 students, 3 credits
- Spring 2017
- On academic leave
- Fall 2017
- EVSC 3600 Physical Hydrology, 54 students, 3 credits
 - EVSC 3601 Physical Hydrology Laboratory, 50 students, 1 credit
 - 4 teaching assistants supervised
 - EVSC 4999 Supervised Thesis Research, 1 student, 3 credits
 - EVSC 4995 Supervised Research, 1 student, 1 credit
- Spring 2018
- EVSC 3060 Biomechanics of Organisms, 33 students, 3 credits
 - EVSC 4559/7559 Dynamics of Oceans and Estuaries, 11 students, 2 credits
 - EVSC 4999 Supervised Thesis Research, 1 students, 3 credits
 - EVSC 4995 Supervised Research, 2 students, 2 credits
- Fall 2018
- EVHY 5650 Hydrologic Transport Processes, 6 students, 4 credits + lab
 - EVSC 4999 Supervised Thesis Research, 1 students, 3 credits
 - EVSC 4995 Supervised Research, 1 students, 2 credits
- Spring 2019
- EVSC 3600 Physical Hydrology, 67 students, 3 credits
 - EVSC 3601 Physical Hydrology Laboratory, 59 students, 1 credit
 - 4 teaching assistants supervised
 - EVSC 5060, Coastal Oceanography, 11 students, 3 credits
 - Co-taught with Scott Doney
 - EVSC 4999 Supervised Thesis Research, 1 student, 3 credits
 - EVSC 4995 Supervised Research, 1 student, 2 credits
- Fall 2019
- EVHY 5559 Watershed Restoration, 10 students, 4 credits + lab
 - Co-taught with Larry Band, Aaron Mills, 1 TA supervised
 - EVSC 4559/7449 Estuarine and Ocean Dynamics, 27 students, 3 credits
 - EVSC 4995 Supervised Research, 1 student, 2 credits
- Spring 2020
- EVSC 3060 Biomechanics of Organisms, 38 students, 3 credits
 - EVSC 4995 Supervised Research, 2 students, 2 credits

Fall 2020

- EVHY 5650 Hydrologic Transport Processes, 22 students, 4 credits + lab
- EVSC 4995 Supervised Research, 1 student, 1 credit

Spring 2021

- EVSC 3600 Physical Hydrology, 71 students, 3 credits
- EVSC 3601 Physical Hydrology Laboratory, 60 students, 1 credit
 - 4 teaching assistants supervised
- EVSC 5060, Coastal Oceanography, 12 students, 3 credits
 - Co-taught with Scott Doney

Fall 2021

- EVSC 5440 Dynamics of Oceans and Estuaries, 18 students, 3 credits
- EVSC 4995 Supervised Research, 1 student, 1 credit

Spring 2022

- EVSC 3060 Biomechanics of Organisms, 29 students, 3 credits
- EVSC 5650 Hydrologic Transport Processes, 8 students, 4 credits
 - 1 teaching assistant supervised
- EVSC 4995 Supervised Research, 1 student, 3 credits

Fall 2022

- EVSC 3600 Physical Hydrology, 49 students, 4 credits + lab
- EVSC 4559 Coastal Restoration, 20 students, 1 credit
- EVSC 4995 Supervised Research, 1 student, 1 credit

Spring 2023

- On academic leave

Fall 2023

- EVSC 5650 Hydrologic Transport Processes, 8 students, 4 credits
 - 1 teaching assistant supervised
- EVSC 4995 Supervised Research, 2 students, 3 credits

Spring 2024

- EVSC 3600 Physical Hydrology, 50 students, 4 credits + lab
- EVSC 3060 Biomechanics of Organisms, 37 students, 3 credit
- EVSC 4995 Supervised Research, 4 students, 1-3 credits

Fall 2024

- EVSC 5440, Dynamics of Oceans and Estuaries, 27 students, 3 credits
- EVSC 4995 Supervised Research, 2 students, 1 credit
- EVSC 4999 Thesis Research, 1 student, 3 credits

8. ADVISING

GRADUATE STUDENTS AND POST-DOCS (AS PRIMARY ADVISOR)

Current:

- Kelsey O'Donnell, Ph.D. student
- Savannah Atchley, Ph.D. student
- Griffin Yates, M.S. student
- Heather Christensen, Ph.D. student
- Qingguang Zhu, Post-doc (co-advised with Pat Wiberg)

Completed:

Libby Bieri, M.S. 2022, Thesis: Evaluating coastal protection benefits of restored oyster reef designs

Elise Turrietta, M.S. 2022, Thesis: The effects of seagrass edges on hydrodynamic conditions, sediment transport, and bivalve recruitment

Sara Hogan, Ph.D. 2021, Dissertation: Quantifying the distributions and ecosystem services of oyster reefs within Virginia's coastal bays

Will Kearney, Post-Doc 2018-2019, Project: Sediment exchange between a salt marsh and a coastal bay

Martin Volaric, Ph.D. 2019, Dissertation: Oxygen exchange and hydrodynamics of tidal flat ecosystems along the Virginia, USA coast

Elizabeth Murphy, Ph.D. 2018, Dissertation: Marine biofluidics in benthic and naval systems

Jonathan Stocking, Ph.D. 2017 and Post-Doc 2017, Dissertation: Turbulence hydrodynamics and scalar transport processes in boundary layer flow past corals

Swapnil Pravin, Ph.D. 2014 and Post-Doc 2014-2015, Dissertation: Fluid mechanics of chemical and flow sensing in aquatic animals

Ross Timmerman, M.S. 2014, Thesis: Biophysical controls on sediment suspension in a shallow coastal bay

Emily Thomas, M.S. 2014, Thesis: Influence of *Zostera marina* on wave dynamics, sediment suspension, and bottom boundary layer development within a shallow coastal bay

Jennifer Hansen, Ph.D. 2013, Dissertation: The effects of waves and turbulence on sediment suspension and mixing in seagrass systems

Elizabeth Whitman, M.S. 2011, Thesis: Hydrodynamics affecting larval transport and settlement onto intertidal oyster reefs

GRADUATE STUDENT COMMITTEES

Current:

Daniel Lassiter, Ph.D. candidate (Civil and Environmental Engineering)

John Kelly, Ph.D. candidate (Mechanical and Aerospace Engineering)

Zihao Huang, Ph.D. candidate (Mechanical and Aerospace Engineering)

Leo Liu, Ph.D. candidate (Mechanical and Aerospace Engineering)

Natalie Lerma, Ph.D. candidate (Civil and Environmental Engineering)

Georgette Tso, Ph.D. Candidate, East Carolina University

MacKenzie Nelson, Ph.D. candidate (EVSC)

Michael Jeong, Ph.D. candidate (Mechanical and Aerospace Engineering)

Robert Herbst, Ph.D. candidate, (Engineering Systems and Environment)

Completed:

Yuchen Gong, Ph.D. 2024 (Mechanical and Aerospace Engineering)

Carly Laroche, Ph.D. 2024 (EVSC)

Jemima Elsherbini, M.S. 2024 (EVSC)

Kota Ishikawa, Ph.D. 2024 (Okinawa Institute of Science and Technology)

Catarina Conran, M.A. 2023 (EVSC)

Kinsey Tedford, Ph.D. 2023 (EVSC)

Allison Lepp, Ph.D. 2023 (EVSC)

Chelsea Dandridge, Ph.D. 2023 (Engineering Systems and Environment)

Yu Pan, Ph.D. 2023 (Mechanical and Aerospace Engineering)
Nathaniel Gibbons, Ph.D. 2023 (Mechanical and Aerospace Engineering)
Amber Slatosky, Ph.D. 2022 (EVSC)
Qingguang Zhu, Ph.D. 2022 (EVSC)
Faria Tuz Zahura, Ph.D. 2022 (Engineering Systems and Environment)
Damian Martin, M.A. 2022 (EVSC)
Qiang Zhong, Ph.D. 2021 (Mechanical and Aerospace Engineering)
Darius Carter, Ph.D. 2021 (Mechanical and Aerospace Engineering)
Shea Johnson, Ph.D. 2021 (Chemistry)
Amelie Berger, Ph.D. 2021 (EVSC)
Junshi Wang, Ph.D. 2021 (Mechanical and Aerospace Engineering)
Keegan Marsh, M.A. 2021 (EVSC)
Benjamin Bowes, Ph.D. 2021 (Engineering Systems and Environment)
Pan Han, Ph.D. 2020 (Mechanical and Aerospace Engineering)
Brian Connelly, Ph.D. 2020 (Mechanical and Aerospace Engineering)
Yawen Shen, Ph.D. 2020 (Engineering Systems and Environment)
Andreas Rauch, Ph.D. 2020 (Mechanical and Aerospace Engineering)
Catherine Vincent, M.S. 2020 (EVSC)
Ruijie 'Roger' Zhu, Ph.D. 2019 (Mechanical and Aerospace Engineering)
Ayodeji Bode-Oke, Ph.D. 2019 (Mechanical and Aerospace Engineering)
Gina O'Neil, Ph.D. 2019 (Civil and Environmental Engineering)
Kathryn Jaquish, M.S. 2018 (Civil and Environmental Engineering)
Xiaomin Zhao, Ph.D. 2018 (Civil and Environmental Engineering)
Amy Ferguson, M.S. 2018 (EVSC)
Matthew Foretich, Ph.D. 2017, University of Miami
Kelcy Kent, M.S. 2017 (EVSC)
Justin Kirk, Ph.D. 2017 (Mechanical and Aerospace Engineering)
Chengyu Li, Ph.D. 2017 (Mechanical and Aerospace Engineering)
Heather Sullivan, Ph.D. 2017 (EVSC)
Blair St. Ledger Olsen, M.S. 2017 (EVSC)
Gina Digiantonio, M.S. 2017 (EVSC)
Yan Ren, Ph.D. 2016 (Mechanical and Aerospace Engineering)
Chengyu Li, Ph.D. 2016 (Mechanical and Aerospace Engineering)
Alexandra Bijak, M.S. 2016 (EVSC)
Kyle Emery, M.S. 2015 (EVSC)
Mao Xiadong, M.A. 2015 (EVSC)
Allison Colden, Ph.D. 2015, Virginia Institute of Marine Sciences
Saewoong Kil, Ph.D. 2014 (Mechanical and Aerospace Engineering)
Melissa Duvall, M.S. 2014 (EVSC)
Kevin Waters, Ph.D. 2014 (Civil and Environmental Engineering)
Erin Heath, Ph.D. 2013 (EVSC)
Jill Greiner, M.S. 2013 (EVSC)
Sara Taube, M.S. 2013 (EVSC)
Matthew Long, Ph.D. 2013 (EVSC)
Alexis Espinosa-Gayosso, Ph.D. 213, University of Western Australia
Dong Liu, Ph.D. 2012 (Civil and Environmental Engineering)
Bret Wolfe, Ph.D. 2012 (EVSC)
Scott Russo, Ph.D. 2012 (Mechanical and Aerospace Engineering)

Lu Tan, Ph.D. 2012 (Civil and Environmental Engineering)
Kelly Hondula, M.S. 2012 (EVSC)
Chad Smith, Ph.D. 2012 (Mechanical and Aerospace Engineering)
Charles Clarkson, Ph.D. 2012 (EVSC)
James Coloso, M.S. 2010 (EVSC)
Spencer Ingram, M.A. 2010 (EVSC)
Shee Pagsuyoin, Ph.D. 2010 (Civil and Environmental Engineering)
Zhenlin Zhang, Ph.D. 2010, University of Western Australia

SUPERVISED UNDERGRADUATE RESEARCH (AS PRIMARY ADVISOR)

Current:

Kendle Schooler, EVSC
Samuel Veliveli, Computer Science
Matthew Herring, MAE
Rachel Weghorst, EVSC, Distinguished Majors Program

Completed:

Autumn Summers, 2024, EVSC
Katie Shelton, 2024, EVSC
Skylar Jackman, 2023, EVSC, Distinguished Majors Program
Morgan Foster, 2022, EVSC
Becca Danese, 2021, EVSC
Hayley Marshall, 2021, EVSC
Isabel Kezman, 2020, EVSC
Jacob Bushey, 2020, EVSC
Lucija Svane, 2020, EVSC
Kiana Jones, 2020, EVSC
Craig Wendelken, 2019, Mechanical and Aerospace Engineering major
Hana Thurman, 2019, EVSC major, Distinguished Majors Program
Kyle Leathers, 2018, EVSC major, Distinguished Majors Program
Justin Safarik, 2017, EVSC major, Undergraduate Thesis Program
Nicolle Powell, 2015-2016, EVSC
Savannah Artusi, 2016, EVSC
Marnie Kremer, 2016, EVSC, Distinguished Majors Program
Laura Szczyrba, 2016, EVSC, Distinguished Majors Program
Allison Rhea, 2015, EVSC
Alfred Hubbard, 2014, EVSC, Distinguished Majors Program
Melissa Reardon, 2014, EVSC
Angang Li, 2013, EVSC, Undergraduate Thesis Program
Jonathan Rippe, 2013, EVSC, Distinguished Majors Program
Emma Hollowell, 2012-2013, EVSC
Alejandro Garcia-Chinchilla, 2012, Biochemistry major
Daniel Ellis, 2011-2012, EVSC, Undergraduate Thesis Program
Joseph Nelson, 2009-2011, EVSC, Distinguished Majors Program
Kate Walsh, 2009-2011, EVSC, Undergraduate Thesis Program
Melissa Reardon, 2011, EVSC
Alec Norman, 2009-2010, EVSC
Meredith Weakley, 2010, EVSC

9. PRESENTATIONS

CONFERENCE PRESENTATIONS (*student author)

- O'Donnell, K.* , K. Murie, **M.A. Reidenbach**, E. Carrington, M. Nishizaki, "Microscale fluid-structure interactions within mussel aggregations and its impact on water chemistry", American Geophysical Union Meeting, San Francisco CA, December 2023.
- **M.A. Reidenbach**, "Long-term impacts of seagrass and oyster restoration on ecosystem services along coastal Virginia", Natural Areas Association Virtual Conference, November 2023.
- Castorani, M., S. Cheng, S.Hogan*, B. Lusk, **M.A. Reidenbach**, K. Tedford, R. Smith, "Oyster restoration recovers ecosystem function: evidence from meta-analysis and long-term study", Coastal and Estuarine Research Federation Meeting, Portland OR, November 2023.
- **M.A. Reidenbach**, S. Hogan*, E. Bieri*, P. Wiberg, "Evaluating the coastal protection benefits provided by restored oyster reefs" Association for the Sciences of Limnology and Oceanography, Mallorca Spain, June 2023.
- Larkins, H., E. Carrington, K. Murie, **M.A. Reidenbach**, K. O'Donnell*, "The effect of flow on filtering and gaping behavior in *Mytilus galloprovincialis*" Society of Integrative and Comparative Biology Meeting, January 2023.
- Zhu, Q., P.L. Wiberg, K. McGlathery, **M.A. Reidenbach**, "Seasonal growth and senescence of seagrass alters sediment dynamics in the coupled tidal flat-marsh system", American Geophysical Union, December 2022.
- French, L., J. Litle, **M.A. Reidenbach**, E. Carrington, "Stirring it up: Comparison of biogenic currents in two mussel species", Society of Integrative and Comparative Biology Meeting, January 2022.
- Bieri, E.* , P.L. Wiberg, **M.A. Reidenbach**, "Quantifying the effects of seagrass on local flow conditions and bivalve larval presence in South Bay, Virginia", Coastal and Estuarine Research Federation Meeting, November 2021.
- E. Turrietta* and **M.A. Reidenbach**, "Quantifying the effects of seagrass on local flow conditions and consequences for bivalve recruitment and sediment transport", Coastal and Estuarine Research Federation Meeting, November 2021.
- Hogan S.* and **M.A. Reidenbach**, "Quantifying trade-offs in ecosystem services under various oyster reef restoration designs", Coastal and Estuarine Research Federation Meeting, November 2021.
- **M.A. Reidenbach**, B. Michaelis*, Y. Bobkov, B. Ache, J. Principe, "Odor tracking by aquatic organisms: Utilizing bursting olfactory receptor neurons to sample the intermittent structure of chemical plumes", 7th Annual BRAIN Investigators Meeting, Bethesda, MD (Virtual Meeting), June 2021.
- Stocking, J.B., **M.A. Reidenbach**, "Effects of waves and surface roughness on turbulence-mediated heat and mass transfer in corals", American Physical Society Fluid Dynamics Meeting, March 2021.
- Hogan, S.* , Wiberg, P. and **Reidenbach, M.A.**, "Using airborne LiDAR data to quantify marsh edge morphology and the role of oyster reefs in reducing edge erosion", Restore America's Estuaries Conference, Providence, RI (Virtual Meeting), September 2020.
- **M.A. Reidenbach**, B. Michaelis*, R. Baharloo, K. Leathers*, Y. Bobkov, B. Ache, J. Principe, "Odor tracking by organisms: A neural mechanism dedicated to sampling the

- intermittent structure of chemical plumes”, 6th Annual BRAIN Investigators Meeting, Bethesda, MD (Virtual Meeting), June 2020.
- **M.A. Reidenbach**, J. Stocking*, L. Szczyrba*, Craig Wendelken*, "Wave-dominated flow interactions with coral topography and its impact on larval settlement", 2020 Ocean Sciences Meeting, San Diego, California, February 2020.
 - Michaelis, B.* , **M.A. Reidenbach** , Kyle Leathers* , Y. Bobkov, B. Ache, R. Baharloo, J. Principe, " Odor tracking in marine organisms: the role of temporal and spatial intermittency of the odor signal", 2020 Ocean Sciences Meeting, San Diego, California, February 2020.
 - J. Bushey*, **M.A. Reidenbach**, S. Hogan, W. Kearney, "Impacts of oyster reefs on wave climate along a marsh edge", 2020 Ocean Sciences Meeting, San Diego, California, February 2020.
 - N. Neto, A. Pomeroy, **M.A. Reidenbach**, M. Ghisalberti, R. Lowe, "Measuring hydrodynamics and sediment suspension in seagrass meadows", 2020 Ocean Sciences Meeting, San Diego, California, February 2020.
 - Hogan, S.* , **M.A. Reidenbach**, " Quantifying and mapping intertidal oyster reefs using LiDAR- based remote sensing", 2019 Coastal and Estuarine Research Federation Conference, Mobile, Alabama, November 2019.
 - Odermatt, E., D. Banerjee, K. Langberg, M. P. Volaric*, **M.A. Reidenbach**, N. Kerur, “Exploring non-canonical cGAMP signaling in organisms without interferon-based immunity”, 2019 University of Virginia Immunology Research Symposium, Charlottesville, Virginia, May 2019.
 - Michaelis, B.* , Y.V. Bobkov, J. Principe, B. Ache, I. Park, T.R. Matthews, **M.A. Reidenbach**, “Interpretation of the Spatial-Temporal Structure of Turbulent Chemical Plumes for Odor Tracking”, 2019 Association for Chemoreception Sciences (AChemS) Meeting, Bonita Springs, Florida, April 2019.
 - Bobkov, Y.V., I. Park, B. Michaelis*, T.R. Matthews, **M.A. Reidenbach**, J. Principe, B. Ache, “Coding spatiotemporal characteristics of odor signals”, 2019 Association for Chemoreception Sciences (AChemS) Meeting, Bonita Springs, Florida, April 2019.
 - **Reidenbach, M.A.**, B. Michaelis*, Y. Bobkov, R. Baharloo, J. Principe, B. Ache, “Turbulent chemical plumes and odor tracking: A computational neuroscience framework for olfactory scene analysis”, 5th Annual BRAIN Investigators Meeting, Washington, D.C., April 2019.
 - Volaric, M.P*. E.M. Stine, P. Berg, **M.A. Reidenbach**, “Oyster reef activity investigated using a novel combination of bioacoustics and aquatic eddy covariance oxygen flux”, Association for the Sciences of Limnology and Oceanography Meeting, San Juan, Puerto Rico, February 2019.
 - Michaelis, B.* , Principe, J.C., B.W. Ache, Y. Bobkov, **M.A. Reidenbach**, “Smelling time: using temporal variability in chemical cues to aid odor-mediated search by lobsters”, Society of Integrative and Comparative Biology, Tampa, Florida, January 2019.
 - **Reidenbach, M.A.**, R. Timmerman, "Interactive effects of seagrass and the microphytobenthos on sediment suspension within a shallow coastal bay", American Geophysical Union Meeting, Washington D.C., December 2018.
 - **Reidenbach, M.A.**, “Ecosystem connectivity within the Virginia Coast Reserve”, 2018 Long Term Ecological Research All-Scientists Meeting, Asilomar, California, October 2018.

- **Reidenbach, M.A.**, I.J. Park, I.M. Park, Y. Bobkov, B. W. Ache, R. Baharloo, J.C. Principe, “Utilizing ensembles of bursting olfactory neurons to code stimulus interval and intensity”, 4th Annual BRAIN Investigators Meeting, Bethesda, Maryland, April 2018.
- Volaric M.*, P. Berg, **M.A. Reidenbach**, “Oxygen metabolism and hydrodynamics of the invasive macroalga *Gracilaria vermiculophylla*”, Association for the Sciences of Limnology and Oceanography Meeting, Portland, OR, February 2018.
- **Reidenbach, M.A.**, Murphy E.A.K.*, Stocking J.*, "Hydrodynamics of algal biofilms", Society of Integrative and Comparative Biology, San Francisco, California, January 2018.
- Murphy E.A.K.*, Barros J.M., Schultz M.P., Flack K.A., Steppe C.N., **Reidenbach M.A.**, "The turbulent boundary layer structure over diatomaceous slime fouling", 10th International Symposium on Turbulence and Shear Flow Phenomena, Chicago, Illinois, July 2017.
- Principe, J.C., B.W. Ache, A.M. Hein, **M.A. Reidenbach**, M.A., Y. Bobkov, “Smelling Time: A Neural Basis for Olfactory Scene Analysis”, American Chemical Society Meeting, Bonita Springs, Florida, April 2017.
- **Reidenbach, M.A.**, “Wave-current interactions and their effect on sediment suspension within a *Zostera marina* seagrass bed”, Association for the Sciences of Limnology and Oceanography Meeting, Honolulu, Hawaii, March 2017.
- Murphy, E. A.* , J.M. Barros, M.P. Schultz, K.A. Flack, C.N. Steppe, **M.A. Reidenbach**, “Effects of algal biofilm patchiness on boundary layer hydrodynamics”, Association for the Sciences of Limnology and Oceanography Meeting, Honolulu, Hawaii, March 2017.
- **Reidenbach, M.A.**, J.C. Principe, B.W. Ache, Y. Bobkov, “A computational neuroscience framework for olfactory scene analysis within complex fluid environments”, 3rd Annual BRAIN Investigators Meeting, Bethesda, Maryland, December 2016.
- Murphy, E.A.K.* , M.P. Schultz, **M.A. Reidenbach**, "Interactions between biofilms and boundary layer flows". Office of Naval Research Biofouling/Coatings program review, Washington D.C., December 2016.
- Murphy, E.A.K.* , J.M. Barros, M.P. Schultz, C. Steppe, K. Flack, **M.A. Reidenbach**, "The turbulent boundary layer structure over diatomaceous slime fouling". American Physical Society Conference, Portland, Oregon, November 2016.
- Stocking, J.B.* , **M.A. Reidenbach**, “Coral surface rugosity effects on turbulent boundary layer hydrodynamics”. Society of Integrative and Comparative Biology Conference, Portland, Oregon, January 2016.
- Murphy, E.A.K.* , J.M. Barros, M.P. Schultz, C. Steppe, K. Flack, **M.A. Reidenbach**, "Characteristics of turbulent boundary layer flow over algal biofilms". American Physical Society Conference, Boston, Massachusetts, November 2015.
- **Reidenbach, M.A.**, E. Thomas*, R. Timmerman*, J. Hansen*, "Wave attenuation and wave-current interactions within a seagrass bed", Coastal and Estuarine Research Federation Conference, Portland, Oregon, November 2015.
- Volaric, M.* , P. Berg, and **M.A. Reidenbach**, “Measurements of oxygen flux over intertidal oyster reefs: Changes in metabolism as reefs grow and develop”, LTER All-Scientists Meeting, Estes Park, Colorado, September 2015.
- **Reidenbach, M.A.**, “Following the scent: Odor and flow tracking by aquatic organisms", Fluid Dynamics of Living Systems Conference, Washington D.C., September 2014.
- **Reidenbach, M.A.**, DeF. Mellon, and S. Pravin*, “Simultaneous sampling of flow and odorants by aquatic organisms can aid tracking within a turbulent plume”, ASLO Ocean Sciences Meeting, Honolulu Hawaii, February 2014.

- Grady, A.E.* , C. J. Jenkins, L.J. Moore, D.C. Potts, P.M. Burgess, C.D. Storlazzi, E. Elias, and **M.A. Reidenbach**, “Feedbacks between wave energy and declining coral reef structure: Implications for coastal morphodynamics”, American Geophysical Union Conference, San Francisco, California, December 2013.
- Ludeman, D.A.* , **M.A. Reidenbach**, S.P. Leys, “What is the cost of filtration? Sponges use behavioural responses to take advantage of ambient currents”, World Sponge Conference, Fremantle, Australia, November 2013.
- Fuchs, H.L. and **M.A. Reidenbach**, “Behavioral and physical controls on optimal patch lengths for larval settlement on oyster reefs”, Coastal and Estuarine Research Federation Conference, San Diego, California, November 2013.
- Thomas, E.L.* and **M.A. Reidenbach**, “Wave-current boundary layer interactions within a *Zostera marina* seagrass bed”, Coastal and Estuarine Research Federation Conference, San Diego, California, November 2013.
- Hansen, J.C.R.* and **M.A. Reidenbach**, “Seasonal growth and senescence of a *Zostera marina* seagrass meadow alters wave-dominated flow and sediment suspension within a coastal bay”, Coastal and Estuarine Research Federation Conference, San Diego, California, November 2013.
- Stocking, J.* and **M.A. Reidenbach**, "Boundary layer flow effects on photosynthesis in scleractinian corals", Society of Integrative and Comparative Biology Conference, San Francisco, California, January 2013.
- Rippe, J.P.* , J. Stocking*, **M.A. Reidenbach**, "Coral-macroalgae dominance shift may impact flow-mediated recovery from bleaching", Society of Integrative and Comparative Biology Conference, San Francisco, California, January 2013.
- Pravin S.* , M.A.R. Koehl, **M.A. Reidenbach**, "Simultaneous sampling of flow and odorants in a turbulent plume can aid tracking behavior in aquatic organisms", Society of Integrative and Comparative Biology Conference, San Francisco, California, January 2013.
- Grady A.E.* , L.J. Moore, C.D. Storlazzi, E. Elias, and **M.A. Reidenbach**, “The influence of sea-level rise and changes in fringing reef morphology on gradients in alongshore sediment transport”, American Geophysical Union Meeting, San Francisco, California, December 2012
- Thomas E.* , **M.A. Reidenbach**, “Influence of seagrass on wave dynamics within a shallow coastal bay”, Atlantic Estuarine Research Society, Chincoteague, Virginia, October 2012.
- Koehl M.A.R., **M.A. Reidenbach**, M. Hadfield, “Larval settlement onto reefs in turbulent wave-driven flow”, 12th International Coral Reef Symposium, Cairns, Australia, July 2012.
- **Reidenbach M.A.**, M.A.R. Koehl, "Temporal and spatial odor patterns sampled by lobsters and crabs in a turbulent plume", Ocean Sciences Meeting, Salt Lake City, Utah, February 2012.
- Fuchs H.L., **M.A. Reidenbach**, "Turbulence-induced sinking and substrate type impact settlement patterns of oyster larvae", Ocean Sciences Meeting, Salt Lake City, Utah, February 2012.
- **Reidenbach M.A.**, E. Whitman*, “Benthic flow environments impacting larval recruitment on *Crassostrea virginica* oyster reefs”, Society of Integrative and Comparative Biology Conference, Charleston, South Carolina, January 2012.
- Hansen J.C.R.* , **M.A. Reidenbach**, "Wave and tidally driven flows within *Zostera marina* seagrass beds and their impact on sediment suspension", Coastal and Estuarine Research Federation Conference, Daytona Beach, Florida, November 2011.

- Whitman E. *, **M.A. Reidenbach**, “Hydrodynamics affecting larval transport and settlement onto intertidal oyster reefs and adjacent restoration sites”, The Society of Ecological Restoration 6th Annual Conference, College Park, Maryland, April 2011.^[SEP]
- Nelson J. *, DeF Mellon, **M.A. Reidenbach**, “Effects of antennule morphology and flicking kinematics on flow and odor sampling by the freshwater crayfish, *Procambarus clarkii*”, Society of Integrative and Comparative Biology Conference, Salt Lake City, Utah, January 2011.^[SEP]
- Pravin S. *, DeF Mellon, **M.A. Reidenbach**, “Numeric simulation of convective-diffusive odor transport to chemosensory hairs of the crayfish, *Procambarus clarkii*”, Society of Integrative and Comparative Biology Conference, Salt Lake City, Utah, January 2011.
- Leys S.P., G. Yahel, **M.A. Reidenbach**, U. Shavit, V. Tunnicliffe, H.M. Reiswig, “Glass sponges take advantage of current-induced flow”, Aspen Ocean Symposium: Microenvironments Modulating Biophysical Interactions in the Ocean, Aspen, CO, January 2011.
- Romanowich J.C. *, and **Reidenbach, M.A.**, “The effects of currents and waves on shear structure, turbulence, and sediment transport within seagrass meadows of Florida Bay”, 2010 ASLO Aquatic Sciences Meeting, Portland Oregon, February 2010.
- **Reidenbach M.A.**, Berg P., Whitman E. *, Romanowich J. *, and Hume A., “Hydrodynamics of intertidal oyster reefs: the influence of boundary layer flow processes on sediment and oxygen uptake”, 2010 ASLO Aquatic Sciences Meeting, Portland Oregon, February 2010.
- Katz T., Tunnicliffe V., Yahel G., **Reidenbach M.A.**, Herut B., Crusius J., Whitney F., Lazar, “Sediment resuspension by groundfish facilitates the transport and redistribution of sediments in deep coastal basins”, 2010 ASLO Aquatic Sciences Meeting, Portland Oregon, February 2010.
- **Reidenbach M.A.**, Limm M., and Stacey M.T., “The effect of streambed topography on mixing and mass flux at the sediment-water interface”, 2009 ASLO Aquatic Sciences Meeting, Nice France, January 2009.
- **Reidenbach M.A.** and Koehl M.A.R., “The spatial and temporal patterns of odors sampled by lobsters and crabs in a turbulent plume”, 2009 Society of Integrative and Comparative Biology Meeting, Boston Massachusetts, January 2009. (session chair)^[SEP]
- Bobkov Y.V., Ukhanov K.Y., Jezzini S.H., **Reidenbach M.A.**, and Ache B.W., “Coding intermittency in odor signals with ensembles of bursting olfactory receptor neurons”, 2008 International Symposium on Smell and Taste, San Francisco California, July 2008.
- McDonald C., Dunbar R., Koseff J.R., Monismith S.G., Hoegh-Guldberg O., and **Reidenbach M.A.**, “Large-scale, in-situ measurements of coral reef community metabolism using an integrated control volume, 11th International Coral Reef Symposium, Ft. Lauderdale Florida, July 2008.
- **Reidenbach M.A.**, Limm M., and Stacey M.T., “The influence of bottom topography on mixing and nutrient transport across the sediment-water interface”, 2008 ASLO/AGU Ocean Sciences Meeting, Orlando Florida, March 2008.
- **Reidenbach M.A.**, George N.T., and Koehl M.A.R., “Antennule morphology and flicking kinematics facilitate odor sampling by the spiny lobster, *Panulirus argus*”, 2008 Society of Integrative and Comparative Biology Meeting, San Antonio Texas, January 2008.
- Waldrop L.D., **Reidenbach M.A.**, and Koehl M.A.R., “Fluid dynamics of antennule flicking of the blue crab, *Callinectes sapidus*”, 2008 Society of Integrative and Comparative Biology Meeting, San Antonio Texas, January 2008.

- Kamio M., **Reidenbach, M.A.**, and Derby C.D., "The courtship display of male blue crabs (*Callinectes sapidus*) is a chemical signal to females", 2007 Benthic Ecology Meeting, Atlanta Georgia, March 2007. [SEP]
- **Reidenbach M.A.**, Koseff J.R., and Koehl M.A.R., "Sniffing far and near: How flicking lobster antennules sample the spatio-temporal structure of an odor plume at different distances from the source", 2007 ASLO Aquatic Sciences Meeting, Santa Fe New Mexico, February 2007.
- **Reidenbach M.A.**, Koehl M.A.R., Genin A., Monismith S.G., and Koseff J.R., "The effects of coral morphology and ambient flow on mass transfer in coral communities", 2007 Society of Integrative and Comparative Biology Meeting, Phoenix Arizona, January 2007.
- **Reidenbach M.A.**, Koehl M.A.R., and Koseff J.R., "The effect of localized shear and fine-scale turbulent mixing on larval settlement in coral reefs", 2006 ASLO/AGU Ocean Sciences Meeting, Honolulu Hawaii, February 2006 (poster).
- **Reidenbach M.A.**, Koseff J.R., Monismith S.G., Genin A., Dunbar R.B., and Zerbe L., "Interaction between CO₂, calcification, and hydrodynamics on coral reefs", 2005 ASLO Aquatic Sciences Meeting, Salt Lake City Utah, February 2005.
- Koseff J.R., **Reidenbach M.A.**, and Monismith S.G., "The effect of wave action on mixing and mass transfer in coral communities", 2005 ASLO Aquatic Sciences Meeting, Salt Lake City Utah, February 2005.
- **Reidenbach M.A.**, "Boundary Layer Dynamics in Coral Reef Systems", Dissertations Initiative for the Advancement of Limnology and Oceanography (DIALOG) VI, Dauphin Island Sea Lab, Alabama, November 2004.
- **Reidenbach M.A.**, Koseff J.R., Genin A., and Monismith S.G., "The Effect of Coral Morphology and Flow on Mass Transfer in Coral Communities", 2004 ASLO Ocean Research Conference, Honolulu Hawaii, February 2004.
- **Reidenbach M.A.**, Koseff J.R., Monismith S.G., Yahel G., and Genin A., "Turbulence and Mixing Properties in the Bottom Boundary Layer of Coral Reefs", 2004 AGU Ocean Sciences Meeting, Portland Oregon, January 2004.
- **Reidenbach M.A.**, "Laboratory Measurements of Fine Scale Mixing above a Coral Reef", Physical Oceanography Dissertations Symposium II, Waikoloa Hawaii, October 2003 (won Best Conference Presentation Award).
- **Reidenbach M.A.**, Koseff J.R., Monismith S.G., Genin A., and Yahel G., "Shear Stress and Turbulent Mixing in the Bottom Boundary Layer of a Fringing Coral Reef", American Geophysical Union, Fall Meeting 2002, San Francisco California, December 2002 (poster).
- **Reidenbach M.A.**, Koseff J.R. and Koehl M.A.R., "A Laboratory Study of Fine-scale Mixing and Mass Transport Above a Coral Reef", 9th International Coral Reef Symposium, Bali Indonesia, October 2000.
- Monismith S.G., **Reidenbach M.A.**, Koseff J.R., Genin A. and Yahel G., "Boundary Layer Mixing and Circulation Over Rough Topography: Flow over Coral Reefs", 9th International Coral Reef Symposium, Bali Indonesia, October 2000.
- **Reidenbach M.A.**, Monismith S.G., Koseff J.R., Yahel G., Ohevia M. and Genin A., "Flow and Plankton Dynamics in the Rough Boundary Layer over Coral Reefs: I: Effects of Topographic Roughness on Turbulent Transport and Mixing Processes", 2000 AGU Ocean Sciences Meeting, San Antonio Texas, January 2000.
- **Reidenbach M.A.**, and Koseff J.R., "A Laboratory Study of Mass Transport over the coral *Porites compressa*", International Conference on Scientific Aspects of Coral Reef Assessment, Monitoring, and Restoration, Fort Lauderdale Florida, April 1999 (poster).

INVITED LECTURES

- "Following the Scent: How animals detect and track odors" Friday Harbor Laboratories, University of Washington, Friday Harbor, WA, July 2022.
- "Odor tracking by organisms: understanding the connection between the fluid dynamics and neurobiology controlling odorant detection", Department of Mechanical and Aerospace Engineering, Penn State University, State College, PA, March 2022 (virtual).
- "Odor tracking in aquatic organisms: The importance of temporal and spatial intermittency of the turbulent plume", Systems and Behavioral Neuroscience, Department of Psychology, University of Virginia, Charlottesville VA, September 2020.
- "Coupled hydrodynamics between seagrass and oyster ecosystems", University of Western Australia Oceans Institute, Perth, Australia, March 2019.
- "Following the Scent: Chemical and Flow Tracking by Aquatic Organisms", Chesapeake Biological Lab, University of Maryland, Solomons, Maryland, March 2016.
- "Following the Scent: How Animals Track Odors", Whitney Marine Laboratory, University of Florida, St. Augustine FL, October 2014.
- "Following the Scent: How Animals Track Odors", Amerimech Mechanics in Biology II Conference, Virginia Tech, Blacksburg VA, May 2014.
- "Wave-dominated mixing and mass transport within coral reef ecosystems", Institute of Marine and Coastal Science, Rutgers University, January 2013.
- "Wave enhanced sediment resuspension within a *Zostera marina* seagrass bed", Dept. of Earth and Environment, Florida International University, Miami, FL, November 2012.
- "Wave dominated mixing and mass transport within coastal ecosystems", Hopkins Marine Station, Stanford University, Pacific Grove, CA, October 2012.
- "Following the Scent: How Animals Track Sources of Odor within Turbulent Plumes", Department of Meteorology, Penn State University, December 2011.
- "Hydrodynamics of coral reef and seagrass ecosystems", Dept. of Marine Sciences, Horn Point Marine Laboratory, University of Maryland, Cambridge, MD, April 2011.
- "Mixing and mass transport dynamics in coral reef and seagrass ecosystems", Dept. of Marine Sciences, University of North Carolina, Chapel Hill, NC, February 2011.
- "Mixing and Mass Transport Dynamics in Coral Reefs", Dept. of Chemical Engineering, University of Virginia, Charlottesville, VA, September 2010.
- "Following the Scent: How Organisms Track and Locate Odor Sources in Moving Fluids", Miller Institute for Basic Research in Science, University of California, Berkeley CA, 2007.
- "Turbulent Times on a Coral Reef: The Hydrodynamics of Coral Ecosystems", Department of Environmental Sciences, University of Virginia, 2006
- "The Hydrodynamics of Nutrient Exchange and Larval Settlement in Coral Reefs", Bodega Bay Marine Lab, University of California, Davis CA, 2005
- "Boundary Layer Mixing and Nutrient Exchange in Coral Reefs", Moss Landing Marine Lab, Moss Landing CA, 2005
- "Mixing and Mass Transport Processes in Coral Reefs", Department of Mathematics, University of California, Davis CA, 2005
- "The Biological and Geochemical Impacts of the Anthropogenic CO₂ Transient on Coral Reef Systems", BIO-X Interdisciplinary Initiatives Symposium, Stanford University, Stanford CA, 2003.
- "Laboratory Measurements of Fine Scale Mixing above a Coral Reef", Coastal Geology Seminar Series, Earth Sciences Department, University of California, Santa Cruz CA, 2003.

- "Field and Laboratory Measurements of Mixing and Mass Transfer within a Coral Reef", H. Steinitz Marine Biological Laboratory, Eilat, Israel, 2002.
- "Fluid Mechanics and the Biology of Marine Organisms", Frontiers in Interdisciplinary Biosciences, Department of Biology, Stanford University, Stanford CA, 2000.