Curriculum Vitae
Stephen M. Henderson

Associate Professor,
School of the Environment,
Washington State University (Vancouver),
Vancouver, WA 98686,
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Positions

Employment

2013 – 2019 Associate Professor,
School of the Environment,
Washington State University (Vancouver)

2007 – 2013 Assistant Professor,
School of the Environment,
Washington State University (Vancouver)

2007 Joint Research Investigator,
Cooperative Institute for Limnology and Ecosystems Research,
University of Michigan

2004 – 2007 Postdoctoral Research Associate,
Center for Coastal Studies,
Scripps Institution of Oceanography

2001 – 2003 Postdoctoral Research Associate,
College of Oceanic and Atmospheric Sciences,
Oregon State University

Education

2002 Ph.D. Physical Oceanography,
Dalhousie University, Canada.

1996 M.Sc. Earth Sciences,
University of Waikato, New Zealand.

1993 B.Sc. Earth Sciences & Mathematics,
University of Waikato, New Zealand.

Research

Refereed Publications

many pdfs available at https://labs.wsu.edu/stephen-henderson/papers/

†*Indicates Henderson corresponding author.*

**Indicates student or postdoc with Henderson primary advisor.*

†Henderson, Stephen M., (2019), Motion of Buoyant, Flexible Aquatic Vegetation Under Waves: Simple Theoretical Models and Parameterization of Wave Dissipation, *Coastal Engineering,* 152, https://doi.org/10.1016/j.coastaleng.2019.04.009.

Norris, Benjamin, Mullarney, Julia C., Bryan, Karin, R., Henderson, Stephen M., (2019), Turbulence within Natural Mangrove Pneumatophore Canopies, *Journal of Geophysical Research (Oceans),* 124,, 2263 – 2288, https://doi.org/10.1029/2018JC014562.

Mullarney., J., Henderson, Stephen M., (2018), Flows Within Marine Vegetation Canopies, bookchapter, p1 – 46, *Advances in Coastal Hydraulics.*

†Henderson, Stephen M., *Arnold, Joshua, Özkan-Haller, H.T. and Solovitz, Steve (2017), Depth-Dependence of Nearshore Currents and Eddies, *Journal of Geophysical Research (Oceans),* 122, doi:10.1002/2016JC012349.

†Henderson, Stephen M., Mullarney, Julia C., Bryan, Karin, R., Norris, Benjamin (2017), Wave-frequency flows measured within a near-bed vegetation canopy, *Continental Shelf Research,* 147, 91 – 101.

Norris, Benjamin, Mullarney, Julia C., Henderson, Stephen M., Bryan, Karin, R., (2017), The effect of pneumatophore density on turbulence: A field study in a Sonneratia-dominated mangrove forest, Vietnam, *Continental Shelf Research,* 147, 114 – 127.

Mullarney, Julia C., Henderson, Stephen M., Reyns, Johan, Bryan, Karin, R., Norris, Benjamin, (2017), Spatially varying drag within a wave-exposed mangrove forest and on the adjacent tidal flat, *Continental Shelf Research,* 147, 102 – 113.

Mullarney, Julia C., Henderson, Stephen M., Norris, Benjamin, Bryan, Karin, R., Fricke, Aaron T., Sandwell, Dean R. (2017), A question of scale: The role of turbulence within mangrove roots in shaping the Mekong Delta, *Oceanography,* 30(3), 34 – 47.

†Henderson, Stephen M., (2016), Upslope Internal-Wave Stokes Drift, and Compensating Downslope Eulerian Mean Currents, Observed Above a Lakebed, *Journal of Physical Oceanography,* 46, 1947 – 1961.

†Henderson, Stephen M., (2016), Turbulent Production in an Internal Wave Bottom Boundary Layer Maintained by a Vertically Propagating Seiche, *Journal of Geophysical Research (Oceans),* 121, 2481 – 2498.

†Lienard, Jean, *Lynn, Kendra, Strigul, Nikolay, Norris, Benjamin, Gatziolis, Demetrios, Mullarney, Julia C., Bryan, Karin, R., Henderson, Stephen M., (2016), Efficient Three-Dimensional Reconstruction of Aquatic Vegetation Geometry: Estimating Morphological Parameters Influencing Hydrodynamic Drag, *Estuarine, Coastal, and Shelf Sciences,* 178, 77 – 85.

Deemer, Bridget R., Henderson, Stephen M., Harrison, John A. (2015), Chemical mixing in the bottom boundary layer of a eutrophic reservoir: The effects of internal seiching on nitrogen dynamics, *Limnology and Oceanography,* 60, 1642 – 1655.

Mullarney., J., Henderson, Stephen M., (2013), A novel drifter designed for use with a mounted Acoustic Doppler Profiler in shallow environments, *Limnology and Oceanography Methods,* 11, 438 – 449, doi: 10.4319/lom.2013.11.438.

†Henderson, Stephen M., Mullarney., J., (2013), Wave Mixed, Wind Generated Near-Surface Shear Observed Over a Tidal Flat, *Continental Shelf Research,* 60, S22-S29.

†Henderson, Stephen M., Deemer, Bridget R. (2012), Vertical Propagation of Lakewide Internal Waves, *Geophysical Research Letters,* 39, doi:10.1029/2011GL050534.

Mullarney., J., Henderson, Stephen M., (2012), Lagrangian Measurements of Turbulent Dissipation Over a Shallow Tidal Flat From Pulse Coherent Acoustic Doppler Profilers, *Proceedings of the 33rd International Conference on Coastal Engineering.*

*Riffe, Kassi C., Henderson, Stephen M., *Mullarney., J., (2011), Wave Dissipation by Flexible Vegetation, *Geophysical Research Letters,* 38, doi:10.1029/2011GL048773.

*Mullarney, J., Henderson, Stephen M., (2011), Hydraulically-Controlled Front Trapping on a Tidal Flat, *Journal of Geophysical Research,* 116, C04023, doi:10.1029/2010JC006520.

*Mullarney, J., Henderson, Stephen M., (2010), Wave-Forced Motion of Submerged Single Stem Vegetation, *Journal of Geophysical Research,* 115, C12061, doi:10.1029/2010JC006448.

†Henderson, Stephen M. (2007), Comment on 'Breaking wave induced cross-shore tracer dispersion in the surfzone: Model results and scalings', *Journal of Geophysical Research, 112*, C11005, doi:10.1029/2007JC004378.

†Henderson, Stephen M., R.T. Guza, Steve Elgar, T.H.C. Herbers, and A.J. Bowen (2006), Nonlinear generation and loss of infragravity wave energy, *Journal of Geophysical Research, 111*, C12007, doi:10.1029/2006JC003539.

†Henderson, Stephen M., R.T. Guza, Steve Elgar and T.H.C. Herbers (2006), Refraction of surface gravity waves by shear waves, *Journal of Physical Oceanography, 36*, 629–635.

King, A.J., Henderson, Stephen M., Schmidt, M.H., Cole, A.G. and Adamo, S.A. (2005), Using ultrasound to understand vascular and mantle contributions to venous return in the cephlapod *Sepia officinalis* Linnaeus, *Journal of Experimental Biology, 208*, 2071–2082.

†Henderson, Stephen M., J.S. Allen, and P.A. Newberger (2004), Nearshore sandbar migration predicted by an eddy-diffusive boundary layer model, *Journal of Geophysical Research, 109*, C06024, doi:10.1029/2003JC002137.

†Henderson, Stephen M. and A.J. Bowen (2003), Simulations of dissipative, shore-oblique infragravity waves, *Journal of Physical Oceanography, 33*, 1722–1732.

†Henderson, Stephen M. and A.J. Bowen (2002), Observations of surf beat forcing and dissipation, *Journal of Geophysical Research, 107*(C11), 3193, doi:10.1029/2000JC000498.

†Henderson, Stephen M., Steve Elgar and A.J. Bowen (2001), Observations of surf beat propagation and energetics, *Proceedings of the 27'th International Conference on Coastal Engineering*, Sydney, Australia, ASCE, 1412–1421.

†Henderson, Stephen M. and A.J. Bowen (2001), The dynamics of dissipative edge waves, *Coastal Dynamics '01*, H Hanson and M. Larson, Eds., ASCE, 263–271.

Conferences and Seminars Since 2010

2018 Presenter, AGU Ocean Sciences Conference, Portland (1 lead presentation, 1 co-authorship). Presenter, ASLO Summer Meeting (1 lead presentation, 2 co-authorships).

2017 Presenter, University of Bangor Ocean Sciences Seminar Series.

2016 Presenter, Physical Processes in Natural Waters conference, Bath, England. Presenter, Ocean Sciences AGU conference, New Orelans (2 lead presentations, 2 co-authorships). American Geophysical Union (AGU) fall meeting presentation co-author.

2015 Presenter, University of Waikato Coastal Seminar Series, Portland State University Physics Seminar Series, University of Landau-Koblenz special seminar, Scottish Association of Marine Sciences Seminar Series, University of Lancaster CEH Seminar Series, University of Liverpool Oceanography Seminar Series, University of Bangor Ocean Sciences Seminar Series, Lewis and Clark College Physics seminar series, Reed College Physics seminar series, University of California, Santa Barbara, Ocean Sciences seminar series.

2014 Presenter, Ocean Sciences Conference (Henderson, Arnold, Ozkan-Haller, Solowitz and Aiken).

2013 Presenter, Gordon conference in Coastal Ocean Circulation (poster by Henderson, Deemer and Harrison). Presenter, seminar for Applied Ocean Physics and Engineering, Woods Hole Oceanographic Institution.

2012 Presenter, Ocean Sciences Conference (presentations by Henderson and Mullarney, Mullarney and Henderson, Day and Henderson). Presenter, College of Oceanic and Atmospheric Sciences Physical Oceanography seminar series, Oregon State University.

2011 Presenter, University of Waikato Earth Sciences Seminar Series. Presenter, WSU Pullman Physics Seminar Series. Presenter, WSU Pullman SEES Seminar Series.

2010 Ocean Sciences Conference (presentations by Mullarney and Henderson, by Henderson and Mullarney, and by Dallavis, Mullarney and Henderson). Presenter, Office of Naval Research Coastal Geosciences Review. Presenter, Shannon Point Marine Center Seminar Series. Presenter, University of Puget Sound Seminar Series.

Funded Grants

2019 – 2021 Co-PI, 'Collaborative Research: Shoreward Sediment Transport: Combining Highly Resolved Field Observations and Modeling to Examine Fundamental Processes Controlling Shoreline Adjustment.' Funding $993,054 from the US National Science Foundation (Henderson sole WSU PI, share $133,650).

2016 – 2018 Co-I, 'Linking pollution dynamics in lake sediments to overlying water chemistry' £12,000 international excahnge grant from the Royal Society of England, PI Lee Bryant of University of Bath (Henderson share £1,700).

2014 – 2018 Associate Investigator, 'Bed roughness controls on mangrove swamp stability' Funding NZ$710,000 from the New Zealand Marsden Fund (Lead investigators Karin Bryan and Julia Mullarney, NZ$10,900 for Henderson travel and collaboration).

2014 – 2018 Co-I, 'Integrating Biogeochemistry and Physics to Understand Hot Spots and Hot Moments for Nitrogen Transformation in Lakes and Reservoirs.' Funding $575,000 from the US National Science Foundation (roughly even dollar split with lead PI John Harrison).

2013 –2016 Sole PI, 'Hydrodynamics and morphodynamics of mangrove swamps in the Mekong Delta Vietnam: WSU component'. Funding $150,557 from the US Office of Naval Research

2011–2016 Lead PI, 'Collaborative research: Three-dimensional surfzone currents and eddies.' Funding $889,113 from the US National Science Foundation (Sole PI for $431,782 WSU component of grant).

2011–2012 Co-I, 'ETBC: Interacting Hydrological and Biogeochemical Controls on Nitrogen Transformation Hot-Spots and Hot-Moments in a Eutrophic Reservoir.' Funding $130,000 from the US National Science Foundation (roughly even dollar split with lead PI John Harrison).

2008–2009 Sole PI, 'Three-dimensional flow in tidal channels'. Funding $195,194 from US Office of Naval Research.

2010–2011 Sole PI, 'Hydrodynamics and morphodynamics of tidal channels'. Funding $101,601 from US Office of Naval Research.

2010–2011 Co-I, 'Developing a Novel, Interdisciplinary Approach to Understand Hot Moments in Reservoir Nutrient Transformation'. Funding $27,923 from USGS (roughly even dollar split with lead PI John Harrison).

Field Research

Large suite of physical instrumentation (9 turbulence-resolving Acoustic Doppler Current Profilers, 2 Acoustic Doppler Velocimeters, 110 RBR Temperature loggers). Independent deployment capability in lake, estuarine, and ocean-beach environments. PADI Rescue Diver.

2011: Led experiment on Duck beach, North Carolina. 9-person field crew, 6 weeks in field.

2008 – 2009: Led field campaign on tidal flats of Puget Sound, Washington. 10 people, 9 weeks in field.

2014 – 2016: Co-leader of field campaign in magrove swamps, Mekong Delta, Vietnam. 4 people, 6 weeks in field.

2009 – 2019: Jointly led multiple experiments, Lacamas Lake, Washington. >10 people, >4 weeks in field.

2010: Led field experiment on Agate Beach, Oregon. 6 people, 3 days in field.

2018: Fieldwork near Toolik Lake, Alaska. 1 person, 10 days in field.

2017: Participant, field experiment in mangrove forests funded by Marsden grant, Whitianga estuary, New Zealand, 5 days in field.

Teaching

Courses taught at WSU

2018, 2017, 2016, 2010, 2009, 2008	Physics 101 (undergraduate)
2013, 2012, 2011, 2010, 2008	Water in the Environment (undergraduate and graduate)
2013, 2012, 2012	Physics 201 (undergraduate)
2011, 2008	Advanced Physical Oceanography (graduate)
2019, 2018, 2016	Environmental Science Senior Seminar (undergraduate)
2019	Water in the Earth (undergraduate, global online)
2017	Environmental Hydrodynamics (graduate)
2009	Introductory Coastal Physical Oceanography (graduate)
2018	Environmental Science Internships (undergraduate)

Supervision

Graduate Students (University of Waikato; ** Henderson primary advisor)*

2016 – 2019	Jeffrey Nielson (PhD in Environmental Science)**
2016 – 2019	Sofia D'Ambrosio (PhD in Environmental Science)
2017 – 2019	Katerine Swensen (PhD in Environmental Science)
2014 – 2019	Benjamin Norris (PhD, Earth Sciences)*
2014 – 2018	Cori Kane (PhD in Environmental Science)
2008 – 2016	Bridget Deemer (MS, PhD in Environmental Science)
2010 – 2013	Alyson Day (MS in Environmental Science)**
2011 – 2013	Joshua Arnold (MS in Mechanical Engineering)
2012	Carl Wepking (MS in Environmental Science)
2008 – 2010	Kassondera Dallavis (MS in Environmental Science)**
2011	Farhad Saffaraval (MS in Mechanical Engineering)
2010	Joel Quenette (MS in Environmental Science)
2008 – 2010	Kara Goodwin (MS in Environmental Science)
2009	Laura Friedenberg (MS in Environmental Science)

Graduate and Undergraduate Summer Research Assistants Supervised

Bridget Ovall, Madeline Kelsch, Kendra Lynn, Francesca Wignes, Katrina Pang, Greg Harris, Nate Raynor, Whitney Maxwell, Gabriel Garcia, Greg Wilson, Chris Scheffler, Lisa Hodges.

Postdoctoral Scholars Mentored

2008–2010 Julia Mullarney (now Senior Lecturer at the University of Waikato)

Service

WSU level

2019	Earth Materials Search Committee Member.
2017 – 2019	Program Leader, WSUV Environmental Sciences.
2018 – 2019	School of the Environment Undergraduate Studies Committee Member.
2018 – 2019	Mentoring Committee Chair, Deepti Singh.
2015 – 2017	Program Leader, WSUV Physical Sciences.
2015 – 2016	Program Leader, WSUV Environmental Sciences.
2016 – 2017	School of the Environment Graduate Studies Committee Member.
2016 – 2017	Mentoring Committee Chair, Adenike Otoikhian.
2016 – 2017	Mentoring Committee Chair, George Newman.
2016 – 2017	Mentoring Committee Chair, Jose Vasquez-Bello.
2015 – 2017	Mentoring Committee Member, Marc Kramer.
2013 – 2014	WSUV Academic Planning Advisory Committee.
2013 – 2014	Program Leader, WSUV Physical Sciences.
2013 – 2014	Environmental Hydrology Search Committee Chair.
2012 – 2013	Quantitative Spatial Ecology Search Committee Member.
2012	School of the Environment Graduate Studies Committee Member.
2008 – 2009	Applied Mathematics Search Committee Member.
2009 – 2010	Applied Mathematics Search Committee Member.
2010 – 2011	Applied Mathematics Search Committee Member.
2010	School of Earth, Ecology, and Environment Curriculum Development Committee member.
2008	Coordinator, WSUV Weekly Science Seminar Series.

National Level

2016	National Science Foundation Physical Oceanography Proposal Review Panelist (23 – 26 May).
2007–present	Proposals reviewer (mail-in reviews): National Science Foundation (15 proposals), National Oceanic and Atmospheric Administration (3 proposals).
2007–present	Papers reviewed: Journal of Physical Oceanography (2007, 2010, 2010, 2013, 2016, 2018), Journal of Geophysical Research, Oceans (2008, 2011,... 2012, 2012, 2013, 2013, 2014, 2015, 2017, 2017,2019), Limnology and Oceanography (2017, 2019) Oceanography (2017, 2017) Journal of Fluid Mechanics (2018) Water Resources Research (2018) Journal of Marine Research (2017) Geophysical Research Letters (2015), Journal of Fluids and Structures (2015), New Zealand Journal of Marine and Freshwater Research (2015), Continental Shelf Research (2010), Estuaries and Coasts (2010), Physics Essays (2008).
2009	Organizational committee member, Columbia River and Adjacent Waters (CRAW) seminar series, a Portland venue to promote discussion and interaction among researchers.