

Seth Zippel, PhD

Assistant Scientist

Applied Ocean Physics and Engineering
Woods Hole Oceanographic Institution
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EDUCATION

2017 **PhD** *Applied Physics Lab, University of Washington, WA*
Civil and Environmental Engineering: Hydrology and Hydrodynamics

2014 **MS Civil and Environmental Engineering** *Applied Physics Lab, University of Washington, WA*

2009 **BA Physics** *Whitman College, WA*

EMPLOYMENT

2019-present **Assistant Scientist** *Woods Hole Oceanographic Institution, MA*
2017-2019 **Postdoctoral Scholar** *Woods Hole Oceanographic Institution, MA*
2010-2012 **Research Assistant 1** *Woods Hole Oceanographic Institution, MA*
2009-2010 **NSF Swashzone Fellow** *Woods Hole Oceanographic Institution, MA*
2008-2009 **Lab Assistant** *Whitman College, WA*

PUBLICATIONS

Zippel, S., Maksym, T., Scully, M., Sutherland, P., Dumont, D., (2020) Measurements of Enhanced Near-Surface Turbulence Under Windrows. *J. Phys. Oceanogr.*, 50, 197-215.
Zippel, S., Thomson, J., Farquharson G. (2018). Turbulence from breaking surface waves at a river mouth. *J. Phys. Oceanogr.*, 48, 435-453.
Zippel, S., and Thomson, J. (2017). Surface wave breaking over sheared currents: observations from the Mouth of the Columbia River. *J. Geophys. Res. Oceans.*, 122, 3311-3328.
Thomson, J., Schwendeman, M. S., **Zippel, S. F.**, Moghimi, S., Gemmrich, J., & Rogers, W. E. (2016). Wave breaking turbulence in the ocean surface layer. *J. Phys. Oceanogr.*, 46, 1857-1870.
Zippel S., Thomson J. (2016). Air-sea interactions in the marginal ice zone. *Elem. Sci. Anth.*, 4: 000095.
Moghimi, S., Thomson, J., Özkan-Haller, T., Umlauf, L., & **Zippel, S.** (2016). On the modeling of wave-enhanced turbulence nearshore. *Ocean Modell.*, 103, 118-132.
Zippel, S., and J. Thomson (2015), Wave breaking and turbulence at a tidal inlet, *J. Geophys. Res. Oceans.*, 120, 1016-1031.
Thomson, J., Horner-Devine, A. R., **Zippel, S.**, Rusch, C., & Geyer, W. (2014). Wave breaking turbulence at the offshore front of the Columbia River Plume. *Geophys. Res. Lett.*, 41, 8987-8993.

TEACHING

2016 **Teaching Assistant** *Civil and Env. Engineering, University of Washington*
Developed CEE572, the graduate level addition to coastal engineering CEE473. Created graduate coursework, including an introduction to the wave model SWAN.
2014 **Teaching Assistant** *Civil and Env. Engineering, University of Washington*
CEE:473 Coastal Engineering. Gave multiple in class lectures, and ran office hours.

PRESENTATIONS

Feb, 2020 **Turbulence measurements from the SPURS-2 mooring**
Ocean Sciences Meeting, *San Diego, CA*
Jan, 2020 **M-O Scaling at the SPURS Moorings: A Cautionary Tale**
Coastal Ocean Fluid Dynamics Laboratory Seminar, *Woods Hole, MA*

- Sep, 2019 **The Effects of Ice and Currents on Wave-breaking Turbulence at the Ocean Surface**
UConn Marine Sciences Seminar, *Groton, CT*
- Jun, 2019 **The Circulation, Geometry, and Turbulence of Windrows: Measurements from the St. Lawrence Estuary**
Gordon Conference, *Manchester NH*
- Jun, 2019 **The Circulation, Geometry, and Turbulence of Windrows: Measurements from the St. Lawrence Estuary**
Gordon Seminar, *Manchester NH*
- Apr, 2019 **Modifications to Wave-breaking Turbulence at the Ocean Surface by Ice, Currents, and Windrows**
WHOI AOP&E Seminar, *Woods Hole, MA*
- Dec, 2018 **Measurements of Enhanced Near-Surface Turbulence Under Windrows**
AGU Fall Meeting, *Washington D.C.*
- Oct, 2018 **The Effects of Ice and Currents on Wave-breaking Turbulence at the Ocean Surface**
WHOI PO seminar *Woods Hole, MA*
- Feb, 2018 **Wave-breaking Turbulence at a River Inlet**
Ocean Sciences *Portland, OR*
- Jan, 2018 **The Effects of Ice and Currents on Wave-breaking Turbulence at the Ocean Surface**
UNH Oce. Eng. Seminar *Durham, NH*
- Dec, 2017 **The Effects of Ice and Currents on Wave-breaking Turbulence at the Ocean Surface**
Coastal Ocean Fluid Dynamics Laboratory Seminar *Woods Hole, MA*
- May, 2017 **Wave breaking over vertically sheared currents**
WISE Meeting *Victoria, Canada*
- Apr, 2017 **Field Measurements of Waves and Currents at the Mouth of the Columbia River**
EGU Meeting *Vienna, Austria*
- Jan, 2017 **Turbulence Estimates from a Free Drifting Platform at a River Inlet**
AMS *Seattle, WA*
- Jun, 2016 **Observations of Wave Breaking Induced by Wave-Current Interactions**
WISE Meeting *Venice, Italy*
- Feb, 2016 **The Effects of Ice and Currents on Wave-driven Turbulence at the Ocean Surface**
Ocean Sciences *New Orleans, LA*
- Apr, 2015 **Winds, Waves, and Turbulence in the Marginal Ice Zone**
Gas Transfer Workshop 7 *Seattle, WA*
- Dec, 2014 **Wave Transformation and Breaking on a Sheared Current**
AGU Fall Meeting *San Francisco, CA*
- Jun 2014 **Wave Breaking and Turbulence and New River Inlet, Depths, Currents, and Winds**
WISE Meeting *Reading, England*
- Feb 2014 **Wave Breaking Due To Depth and Currents**
Ocean Sciences *Honolulu, HI*
- Dec 2012 **Wave Breaking at New River Inlet**
AGU Fall Meeting *San Francisco, CA*
- Feb 2010 **Bottom Drag Coefficients on a Tidal Flat**
Ocean Sciences *Portland, OR*
- Dec 2009 **Friction Coefficients on the Skagit Tidal Flats**
Coastal Ocean Fluid Dynamics Laboratory Seminar *Woods Hole, MA*

CERTIFICATIONS

- 2011 **NOLS Leadership Training**
- 2010 **AAUS Scientific Diver**, Dry Suit Certification, Nitrox Certification
- 2011 **Woods Hole Oceanographic Institution Small Boat Certification**

FIELD WORK

- Feb-Mar 2018 **BicWin2018** *Rimouski, Quebec*
- Apr 2017 **Quinalt River** *Ocean Shores, WA*

Oct 2016 **RollEx** *Duck, NC*
Oct 2014 **Marginal Ice Zone DRI** *Beaufort Sea*
Aug 2014 **USCGC Healy** *Beaufort Sea*
Sept 2013 **USCGC Healy** *Beaufort Sea*
April-Sept 2013 **RIVET 2** *Columbia River Mouth, WA/OR*
Jun-Aug 2012 **HoleEx 2** *Duck, NC*
Apr-Jun 2012 **RIVET 1** *New River Inlet, NC*
Oct-Nov 2011 **Duck sensor tests** *Duck, NC*
Jul-Sept 2011 **Rivers and Inlets Study** *Katama Bay, MA*
May 2011 **Vorticity Experiment** *Duck, NC*
Jul-Aug 2010 **HoleEx 1** *Duck, NC*
Jun-Sept 2009 **Skagit Tidal Flats Experiment** *La Conner, WA*