

# TRISTAN GUEST

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## EDUCATION

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**Dalhousie University**, Department of Oceanography, Halifax, Nova Scotia. 2020  
Ph.D., Physical Oceanography.

**Dalhousie University**, Halifax, Nova Scotia.  
B.Sc., Combined honours in Mathematics and Oceanography. 2013

## RESEARCH EXPERIENCE

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**Grand, Petit, and Minas Passages, Bay of Fundy** 2020 – 2021  
*Scientist*

- Various field campaigns focused on tidal energy site assessment and marine animal monitoring using multibeam sonar, echosounders, Doppler profilers, and UAV-based Lagrangian tracer tracking.

**Advocate Beach, Bay of Fundy** 2018  
*Scientist*

- Mixed sand-gravel beach field campaign. Measured the coevolution of beach surface elevation and sediment mean grain size in the intertidal zone using precision GPS, camera imagery, and acoustic range sensors.

**Aquatron pool tank, Dalhousie University** 2018  
*Scientist*

- Laboratory experiment. Used ceiling-mounted cameras and fluorescent tracer floats (particle tracking velocimetry) to characterize the velocity dynamics of a partially constrained turbulent jet at the air-water interface.

**Atlantic Zone Monitoring Program (AZMP) Spring Cruise** 2016  
*Research Assistant*

- Sea time aboard CCGS Hudson. Obtained and managed water samples for dissolved gas analysis.

**Advocate Beach, Bay of Fundy** 2015  
*Scientist*

- Mixed sand-gravel beach field campaign. Measured steep beach hydro- and morphodynamic processes using buried pressure sensors, video, and GPS.

**Grand Passage, Bay of Fundy** 2013  
*Research Assistant*

- Field experiment. Carried out a geotechnical characterization of the seafloor and profiled turbulence in Grand Passage.

**Advocate Beach, Bay of Fundy** 2013  
*Scientist*

- Mixed sand-gravel beach field campaign. Measured swash and surf zone hydrodynamics using pressure sensors and video, alongside a sediment transport measurement program.

- Field experiment. Observed nearshore processes and sediment transport using acoustic methods.

## PUBLICATIONS

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### Peer-reviewed:

Guest, T. B. and A. E. Hay (2021), Small-scale morpho-sedimentary dynamics in the swash zone of a megatidal mixed sand-gravel beach. *Journal of Marine Science and Engineering*, 9(4):413.

Guest, T. B. (2020), Morpho-sedimentary dynamics of a megatidal, mixed sand-gravel beach. *PhD Thesis*.

Guest, T. B. and A. E. Hay (2019), Timescales of beach cusp evolution on a steep, megatidal, mixed sand-gravel beach. *Marine Geology*, 416, 105984.

Guest, T. B. and A. E. Hay (2017), Vertical structure of pore pressure under surface gravity waves on a steep, megatidal, mixed sand-gravel-cobble beach. *Journal of Geophysical Research: Oceans*, 122, 153–170.

### Other:

Guest, T. B. (Editor-in-Chief), Current Tides Vol. IV (2020), *Dalhousie Oceanography Research Magazine*.

## CONFERENCE AND INSTITUTIONAL TALKS

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Guest, T. B. Investigating the role of grain size in beach morphological change: Insights from a megatidal mixed sand-gravel beach. *Dalhousie Oceanography Departmental Seminar Series*, 12 May 2020, Halifax, NS, Canada.

Guest, T. B. and A. E. Hay. Swash zone morpho-sedimentary dynamics on a megatidal, mixed sand-gravel beach. *11th River, Coastal, and Estuarine Morphodynamics Symposium (RCEM)*, 20 November 2019, Auckland, NZ.

Guest, T. B. and A. E. Hay. Cobble dynamics on a mixed sediment substrate. *Conference for Dalhousie Oceanography Graduate Students (CDOGS)*, 22 March 2019, Halifax, NS, Canada.

Guest, T. B. and A. E. Hay. Timescales of beach cusp evolution on a megatidal, mixed sand-gravel beach. *Conference for Dalhousie Oceanography Graduate Students (CDOGS)*, 23 March 2018, Halifax, NS, Canada.

Guest, T. B. and A. E. Hay. Timescales of beach cusp evolution on a megatidal, mixed sand-gravel beach. *Ocean Sciences Meeting (OSM)*, 14 February 2018, Portland, OR, USA.

Guest, T. B. and A. E. Hay. Vertical structure of pore pressure under surface gravity waves on a steep, megatidal, mixed sand-gravel-cobble beach. *American Geophysical Union (AGU) Fall Meeting*, 14 December 2016, San Francisco, CA, USA.

Guest, T. B. and A. E. Hay. Vertical structure of pore pressure under surface gravity waves on a steep, megatidal, mixed sand-gravel-cobble beach. *Bedford Institute of Oceanography (BIO) Ocean and Ecosystem Science Seminar Series*, 14 October 2016, Dartmouth, NS, Canada.

Guest, T. B. and A. E. Hay. Pressure response of a sand and gravel bed to water waves. *Conference for Dalhousie Oceanography Graduate Students (CDOGS)*, 18 March 2016, Halifax, NS, Canada.

Guest, T. B. and A. E. Hay. Mixed sediment beaches: Cusps and edge waves. *Conference for Dalhousie Oceanography Graduate Students (CDOGS)*, 20 March 2015, Halifax, NS, Canada.

## INSTITUTIONAL ROLES

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### **Current Tides Magazine**

2018-2020

*Editor-in-Chief*

- Oversaw the production and launch of Volume 4 of the Dalhousie Oceanography student research magazine (<http://currenttides.ocean.dal.ca/>)
- Responsible for obtaining funding, managing a team of 11 authors and 7 editors, graphic design, orchestrating layout and print production processes, and hosting a launch event

### **Current Tides Magazine**

2017-2018

*Assistant Editor*

- Provided editorial assistance in the production of Volume 3 of the Dalhousie Oceanography student research magazine

### **Oceanography 1000: Conversations with Ocean Scientists**

2017-2018

*Teaching Assistant*

- First year science writing course
- Guided students through writing of original academic articles in weekly tutorials