

DR. BRYSON ROBERTSON, PENG

Curriculum Vitae

EDUCATIONAL HISTORY

University of Guelph, Canada

PhD, Environmental Engineering

September, 2013

Thesis: Remote Measurement and Analysis of Shallow Water Wave Breaking Characteristics

Queens University, Canada

Civil Engineering

January, 2009

University of Victoria, Canada

BEng (Distinction), Mechanical Engineering

May, 2005

MAJOR FIELDS OF PROFESSIONAL AND RESEARCH INTERESTS

Wave, Tidal and Offshore Wind Energy Systems; Coastal Engineering; Energy Systems Analyses; Oceanography.

EMPLOYMENT HISTORY

Inclusive Years	Title/Position	Institution/Organization
2013 - present	Adjunct Professor (<i>pre: Research Engineer</i>)	University of Victoria

Relevant Activities: West Coast Wave Initiative

- Management of West Coast Wave Initiative; Collaboration of provincial and federal government agencies, international wave energy developers, and engineering companies to investigate the feasibility and opportunities for wave energy on the West Coast of Canada.
- Develop coupled wave, wind and tidal numerical SWAN models for Western Canada; utilize for long term hindcast reanalysis and short term forecasting (Collaboration with *Environment Canada* and *ECMWF*).
- Site, deploy and maintain fleet of five (5) wave measurement buoys and acoustic wave measurement devices across Western Canada (Collaboration with *AXYS Technologies*, *Nortek Instruments* and *Golder Associates*).
- Investigate long-term energy system analyses of wave power integration into BC electrical system and remote First Nations communities (Collaboration with *First Nations Communities* and *BC Hydro*).

Relevant Activities: 2060 Project

- Strategic management of the 2060 Project; a 13 member research project developing quantitative, physically representative pathways to low carbon energy future for the Canadian energy system. (Collaboration with *Pacific Institute of Climate Solutions*, *BC Hydro*, *British Columbia Ministry of Energy and Mines*, *Powerex*, *Alberta Energy*, *Alberta Market Surveillance Authority*, and *Alberta Electricity System Operator*)
- Quantify the technical and economic impacts of large scale-integration of wind, wave, geothermal and solar energy into existing energy systems in Western Canada.
- Work collaboratively with faculty members across academic disciplines to determine most effective and impactful research topics to help inform policy makers and help drive transformational change.

2009 - 2012	PhD Candidate	University of Guelph
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Relevant Activities:

- PhD Topic: *Remote Measurement and Analysis of Shallow Water Wave Breaking Characteristics* (Collaboration with *United States Geological Survey (USGS)*, *Barbados Coastal Zone Management Unit*, and *Coastal Watch USA*)
- Development of fundamental coastal wave process knowledge through ‘big data’ artificial neural networks (ANN) & gene expression programming (GEP) (Collaboration with *University of Guelph*, *University of Ottawa*, *University of Victoria* and *University of Newcastle*).
- Graduate Environmental Engineering courses; including *Environmental Contaminants: Fate Mechanisms & Renewable Energy*.

2007 – 2009 MAsc Candidate Queens University

Relevant Qualifications:

- Graduate Civil Engineering courses; including *Design of Coastal Structures, Fundamentals of Coastal Engineering, Water Waves & Marine Debris (Special Topics in Coastal Engineering)*

2006 – present Director OceanGybe Environmental Consultants

Key Services:

- Provide expert technical advising and consulting services for the marine sector; including marine energy resources assessments, marine debris and oceanographic measurement.

2006 – 2013 Co-Founder OceanGybe Environmental Expedition

Key Accomplishments:

- Sailed more than >70 000km, crossed all three major oceans, and completed plastic detritus studies on beaches in over 20 countries.
- Taught ~ 100 classes to over 15,000 Grade 3 – 12 students globally, bringing attention to the inter-relationships between tides, waves, ocean currents and pollution movement.
- Published findings through peer-reviewed journals, national television and radio, online media avenues and through an internationally acclaimed 90min documentary [Tidelines¹](#).

2006 - 2007 Research Engineer Forest Engineering Research Institute of Canada

Key Responsibilities:

- Project manager for hydrogen-injection in forestry equipment test study.
- Research opportunities, costs and hurdles for ‘on-block’ biodiesel generation.

2004 - 2006 R&D Engineer Xantrex Technologies

Key Responsibilities:

- Lead mechanical engineer on power rectifier for Race Rocks Tidal Turbine.
- Design, manufacture and commissioning of hybrid mini-grids for Nemiah FN (PV, Battery & LP generator).
- Energy audit of Race Rocks Ecological Reserve Infrastructure (Demand and DSM options)

¹ <http://www.oceangybe.com/tidelines/>

ADMINISTRATIVE, COMMITTEE AND SERVICE ACTIVITIES

Professional Committees and Assignments

Year(s)	Committee/Assignments
2017 - present	Stakeholder Committee, “ <i>North American Renewables Integration Study (NARIS)</i> ” – Natural Resources Canada, US Department of Energy, Mexican Secretaria de Energia
2017 - present	Conference Steering Committee, <i>2018 International Marine Renewable Energy Conference</i> , Washington DC, USA
2015 - present	Chair - Steering Committee, “ <i>Early Market Identification and Marine Hydrokinetic Resource Assessment Project</i> ” – US Department of Energy, National Renewable Energy Laboratory, Sandia National Laboratory, Pacific Northwest National Laboratory
2015 - present	Steering Committee, “ <i>BC Marine Energy Resource Atlas and Technical Resource Assessment</i> ” – Natural Resources Canada, Canmet Energy and National Research Council of Canada.
2014 - present	Canadian Shadow Committee, “ <i>International Electrotechnical Commission TC-114</i> ” PT 100: Electricity Producing Wave Energy Converters – Power Performance Assessment PT 101: Wave Energy Resource Assessment and Characterization PT 30: Electrical Power Quality Requirements for Wave, Tidal and Other Current Energy Converters PT 102: Wave Energy Converter Power Performance Assessment and a Second Location using Measured Assessment Data
2017	Conference Steering Committee, <i>2017 International Marine Renewable Energy Conference</i> , Washington DC, USA
2017	Conference Steering Committee, <i>2017 Marine Energy Technology Symposium</i> Washington DC, USA
2015	Steering Committee, “ <i>Evaluation of Wave Models and Methodologies for Resource Assessment</i> ” - US Department of Energy, Sandia National Laboratory, Pacific Northwest National Laboratory.
2015	Conference Steering Committee, <i>2016 HydroVision International</i> , Portland, USA

Expert Technical Testimony

Year(s)	Activity/Contribution
2017	Canadian Parliamentary House of Commons Standing Committee on Natural Resources – Electrical Interties

Curriculum Development

Year(s)	Committee/Assignments
2017	UVic Engineering Accreditation: 446 Technical Report and Co-op Workterm Review

Technical Reviewer

- Reviewer, *Ocean Engineering* (3)
- Reviewer, *Renewable Energy* (3)
- Reviewer, *Coastal Engineering Journal* (2)
- Reviewer, *Applied Energy* (3)
- Reviewer, *Energies* (3)
- Reviewer, *International Journal of Marine Energy* (3)
- Reviewer, *Journal of Coastal Research* (2)
- Reviewer, *Journal of Waterway, Port, Coastal and Ocean Engineering*. (1)
- Reviewer, *Journal of Ocean, China*. (1)
- Reviewer, *Journal of Remote Sensing* (1)
- Reviewer, *IEEE Journal of Oceanic Engineering* (1)

PROFESSIONAL SOCIETY MEMBERSHIPS

Year(s)	Position	Society
2005 – present	Member	Engineers and Geoscientists of British Columbia (formerly APEGBC)

PUBLICATIONS

Books, Contributions to Books

2017

1. **Robertson, B.**, “Wave Energy Assessments: Quantifying the Resource and Understanding the Uncertainty”. Chapter in *Marine Renewable Energy: Resource Characterization and Effects on Physical Systems*, Edited by Z. Yang and A. Copping, Springer Press, ISBN 978-3-319-53536-4 (2017)

Refereed Journal Publications

2017

1. Niet, T., J. English, B. Lyseng, K. Palmer-Wilson, I. Moazzen, L. Pitt, **B. Robertson**, P. Wild, A. Rowe. “Hedging the risk of increased emissions in long term energy planning”, *Energy Strategy Reviews*, 16, pp. 1-12, 2017.
2. Reikard, G., **B. Robertson**, and J.R., Bidlot, “Wave Energy Worldwide: Simulating Wave Farms, Forecasting, and Calculating Reserves.” *International Journal of Ocean and Marine Energy*, 17, 156-185, 2017.
3. **Robertson, B.**, H. Bailey, Y. Jin, B. Buckham. “Calibrating Wave Resource Assessments through Application of the Triple Collocation Technique,” *Renewable Energy*, Vol 114, pp. 166 – 179, 2017.
4. Fairley, I., H. Smith, **B. Robertson**, M. Abusara, and I. Masters. “Spatio-Temporal Variation in Wave Power and Implications for Electricity Supply”, *Renewable Energy*, Vol 114, pp. 154 – 165, 2017.
5. **Robertson, B.**, B. Gharabaghi, H. Power. “Predicting Breaking Wave Conditions Using Gene Expression Programming”. *Coastal Engineering Journal*, Vol 59, pp. 1 – 14, 2017
6. Bailey, H., **B. Robertson**, B. Buckham, “Variability and Stochastic Simulation of Power from Wave Energy Converter Arrays,” accepted in *Renewable Energy*, 2017.
7. Smith, H., I. Fairley, **B. Robertson**, M. Abusara, I. Masters. “Wave Resource Variability: Impacts on Wave Power Supply over Regional to International Scales”, *Energy Procedia*, Vol 125, pp. 240 – 249, 2017
8. Luczko, E., **B. Robertson**, H. Bailey, C. Hiles, B. Buckham. “Assimilating a Time-Domain, Hydrodynamic Representation of a WEC into SWAN”, accepted in *Renewable Energy*, 2017
9. Lyseng, B., T. Niet, J. English, K. Palmer-Wilson, I. Moazzen, **B. Robertson**, V. Keller, P. Wild, A. Rowe. “System-level Power-to-Gas Energy Storage for High Penetrations of Variable Renewables”, accepted in *International Journal of Hydrogen Energy*, November 2017.

2016

10. **Robertson, B.**, H. Bailey, D. Clancy, J. Ortiz, B. Buckham, “Influence of wave resource assessment methodology on wave energy production estimates,” *Renewable Energy*, 86, pp. 1-16, 2016.
11. **Robertson, B.** C. Hiles, E. Luzko, B. Buckham., “Quantifying wave power and wave energy converter array production potential”, *International Journal of Marine Energy*, 14, pp. 143-160, Jun 2016
12. Moazzen, I., **B. Robertson**, P. Wild, A. Rowe, Buckham, B., “Impacts of large-scale wave integration into a transmission-constrained grid”, *Renewable Energy*, 88, pp. 408-417 2016

13. Bailey, H., **B. Robertson**, B. Buckham, “Wave-to-Wire Simulation of a Floating Water Column Wave Energy Converter,” *Ocean Engineering*, 125 pp. 248-260, 2016.
- 2015
14. Reikard, G., **B. Robertson**, B. Buckham, J-R Bidlot and C. Hiles, “Simulating and Forecasting Ocean Wave Energy in Western Canada,” *Ocean Engineering*, 103, pp. 223-236, 2015.
 15. Reikard, G., **B. Robertson**, and J-R Bidlot, “Combining Wave Energy with Wind and Solar: Short-term Forecasting,” *Renewable Energy*, 71, pp. 665-678, 2015.
 16. **Robertson, B.**, B. Gharabaghi, and K. Hall, “Prediction of Incipient Breaking Wave Conditions using Artificial Neural Networks and Empirical Relationships” *Coastal Engineering Journal*, 57.04, 1550018, 2015.
- 2014
17. Hiles, C., B. Buckham, P. Wild and **B. Robertson**, “Wave Energy Resources Near Hot Springs Cove Canada,” *Renewable Energy*, 71, pp. 598-608, 2014.
 18. **Robertson B.**, C Hiles, and B. Buckham, “Characterizing the Near Shore Wave Energy Resource on the West Coast of Vancouver Island,” *Renewable Energy*, 71, pp. 665-678, 2014.
- 2013
19. **Robertson, B.**, K. Hall, R. Zytner, and I. Nistor. “Breaking waves: Review of characteristic relationships.” *Coastal Engineering Journal*, 55(01), 1350002, 2013
 20. **Robertson, B.**, K. Hall, I. Nistor, R. Zytner, and C. Storlazzi, “Remote sensing of irregular breaking wave parameters in field conditions”. *Journal of Coastal Research*, 31(2), 348-363, 2013
- 2012
21. Heskett, M., H. Takada, R. Yamashita, M. Yuyama, M. Ito, Y. Geok, **B. Robertson**, and J. Mermoz, “Measurement of Persistent Organic Pollutants (POPs) in Plastic Resin Pellets from Remote Islands: Toward Establishment of Background Concentrations for International Pellet Watch.” *Marine Pollution Bulletin*, 64(2), 445-448, 2012
- 2010
22. **Robertson, B.**, “Ocean Wave Energy Generation on the West Coast of Vancouver Island and the Queen Charlotte Islands”. *Guelph Engineering Journal* 3, 9, 2010

Work Submitted for Journal Publication

23. **Robertson, B.**, H. Bailey, B. Buckham. ”Uncertainty and Variability Impacts of Environmental Conditions on WEC Power Production and Mooring Line Tension”, submitted to *Renewable Energy*, January 2018
24. Hiles, C, **B. Robertson**, B. Buckham. ” Extreme Wave Statistics of the British Columbia Coast”, submitted to *Ocean Modelling*, December 2017
25. Palmer-Wilson, K., W. Walsh, J. Banks, **B. Robertson** “Sedimentary Basin Geothermal Favourability Mapping and Power Generation Assessments” submitted to *Renewable Energy*, December 2017
26. English, J., T. Niet, B. Lyseng, V. Keller, K. Palmer-Wilson, **B. Robertson**, P. Wild, A. Rowe. “Impact of Flexibility Requirements of Electricity System Decarbonization”, submitted to *Energy Strategy Reviews*, October 2017

27. Keller, V., B. Lyseng, J. English, K. Palmer-Wilson, T. Niet, **B. Robertson**, P. Wild, A. Rowe. "System Value of Coal-to-Biomass Retrofit to Reduce Net Carbon Emissions", submitted to *Renewable Energy*, July 2017

Refereed Conference Publications

2017

1. Smith, H., I. Fairley, **B. Robertson**, M. Abusara, I. Masters. "Wave Resource Variability: Impacts on Wave Power Supply over Regional and International Scales", *European Geosciences Union General Assembly 2017*, Vienna, Austria, April 2017
2. Keller, V., J. English, **B. Robertson**, P. Wild, A. Rowe. "Comparing Pathways for Decarbonizing a Fossil-Based Power System Through Inertie Expansions and Bioenergy", *26th Canadian Congress of Applied Mechanics*, Victoria, Canada. May 2017
3. Hiles, C., **B. Robertson**, B. Buckham. "Long-term Wave Statistics for British Columbia". *Waves In Shallow Water (WISE)*, Victoria, Canada. May 2017
4. Thatcher, E., H. Bailey, **B. Robertson**, S. Beatty, J. Goldsworthy, B. Buckham. "Development of Control Strategies for Cascaded Pneumatic Wave Energy Converters", *Conference on Ocean, Offshore and Arctic Engineering*, Trondheim, Norway. June 2017
5. Palmer-Wilson, K., J. Banks, W. Walsh, **B. Robertson**, P. Wild, A. Rowe. "Geothermal Favourability Mapping and Resource Assessment in a Sedimentary Basin – a Case Study for British Columbia, Canada", European Geothermal Workshop, Kalsruhe, Germany, October 2017
6. Xu, X., **B. Robertson**, H. Bailey, R. Canessa, B. Buckham. "Using GIS to Identify Strategically Important Wave Energy Sites". *ESRI Ocean GIS Forum*, Redlands, USA, October 2017

2016

7. Bailey, H., **B. Robertson**, B. Buckham. "Quantifying and Discretizing the Uncertainty in the Power Production Estimates of a Wave Energy Converter," *Proc. 4th Marine Energy Technology Symposium*, Wash. DC, Apr 2016.
8. Luczko, E., H. Bailey, **B. Robertson**, C. Hiles, B. Buckham. "Assimilating a Time-Domain Representation of a Spectral Wave Energy Converter Model into a Spectral Wave Model," *Proc. ASME Offshore Mech. & Arctic Eng. Conference*, Busan S. Korea, OMAE2016-54235, 2016.
9. Keller, V., B. Lyseng, J. English, K. Palmer-Wilson, T. Niet, I. Moazzen, **B. Robertson**, P. Wild, A. Rowe. "Bioenergy as a Potential to Avoid Early Phase Out of Stranded Assets," *International Energy Workshop*, Cork, Ireland, June 2016.
10. Lyseng, B., T. Niet, J. English, K. Palmer-Wilson, P. Wild, A. Rowe, I. Moazzen, **B. Robertson**, V. Keller, "Resource diversity impacts on storage in a high variable renewable power system", *International Energy Workshop*, Cork, Ireland, June 2016
11. Niet, T., B. Lyseng, P. Wild, A. Rowe, J. English, K. Palmer-Wilson, I. Moazzen, **B. Robertson**, V. Keller. "Lowering Curtailment Costs with Investments in Storage", *Energy Systems Conference*, London, UK, June 2016.

2015

12. **Robertson, B.**, Y. Lin, H. Bailey, B. Buckham, "Triple Collocation Calibration Application to Wave Resource and Wave Energy Converter Performance Assessments," *Proceedings of the 14th International Workshop on Wave Hindcasting and Forecasting and Coastal Hazards*, Key West, FL, 2015.

13. **Robertson, B.**, D. Clancy, H. Bailey, B. Buckham. “Improved Energy Production Estimates from Wave Energy Converters through Spectral Partitioning of Wave Conditions,” *Proceedings of the 25th Int. Ocean and Polar Eng. Conference*, 1, pp. 862-868, 2015.
14. Bailey, H., **B. Robertson**, J. Ortiz, B. Buckham. “Stochastic Methods to Predict WEC Array Power for Grid Integration,” *Proceedings of the 11th European Wave & Tidal Energy Conference*, Sep 2015.

2014

15. Bailey, H., J. Ortiz, **B. Robertson**, B. Buckham, R. Nicoll, “A Methodology for Wave-to-Wire WEC Simulations,” *Proceedings of the 2nd Marine Energy Technology Symposium*, Seattle, WA, April 2014.
16. **Robertson, B.**, I. Nistor, K. Hall, B. Buckham, “Remote Measurement and Prediction of Breaking Wave Parameters”, *Proceedings of the International Conference on Coastal Engineering*, Seoul, Korea, Sept. 2014.
17. **Robertson, B.**, C. Hiles, E. Luczko, B. Buckham, “Quantifying the Wave Energy Resource and Farm Siting Opportunities for Western Canada”, *Proceedings of the 2014 International Conference on Ocean Energy*, Halifax, NS, Nov.2014.
18. **Robertson, B.**, H. Bailey, D. Clancy, J Ortiz, B. Buckham, “Influence of Wave Resource Assessment Methods on Wave Power Production Estimates,” *Proceedings of the 2014 International Conference on Ocean Energy*, Halifax, NS, Nov. 2014.
19. Hiles, C., **B. Robertson**, B. Buckham, “Development of a Nearshore Wave Forecasting Model for the British Columbia Coast,” *Proceedings of the 2014 International Conference on Ocean Energy*, Halifax, NS, Nov. 2014. (named an ICOE 2014 ‘Iconic Moment’)
20. Bailey, H., **B. Robertson**, B. Buckham, “Optimizing WECs for Canadian Waters,” *Proceedings of the 2014 International Conference on Ocean Energy*, Halifax, NS, Nov. 2014.

2013

21. **Robertson, B.**, K. Hall, “Wave Vortex Parameters as an Indicator of Breaking Intensity”, *International Conference on Coastal and Ocean Engineering*, Zurich, Switzerland, 2013
22. **Robertson, B.**, C. Hiles, B. Buckham, “Characterizing the Near-Shore Wave Energy Resource on the West Coast of Vancouver Island,” *Proceedings of the 13th International Workshop on Wave Hindcasting and Forecasting and Coastal Hazards*, Banff, AB, 2013

Contract Research Reports

1. **Robertson, B.** “Wave Energy: The British Columbia Opportunity”, Pacific Institute for Climate Solutions, 2017
2. **Robertson, B.**, Doetzel, L. “BC Marine Energy Centre: An Implementation Roadmap”, British Columbia Ministry of Energy and Mines, 2017
3. **Robertson, B.**, A. Rowe, P. Wild. “2060 Project Annual Report”, Pacific Institute for Climate Solutions, 2017
4. Bailey, H., **B. Robertson**, B. Buckham, “AOE WEC Information for Preliminary WEC Characterization and Power Production Assessment,” *Accumulated Ocean Energy*, 19 pg, 2016.
5. **Robertson, B.**, A. Rowe, P. Wild. “2060 Project Annual Report”, Pacific Institute for Climate Solutions, 2016

6. **Robertson, B.**, B. Buckham, “Wave Resource Assessment for Florencia Bay, Amphitrite Bank and Estevan Point,” Resolute Marine Energy, 70 pg, 2015.
7. **Robertson, B.**, B. Buckham, “Wave Resource Assessment for Florencia Bay.” Carnegie Wave Energy, 20 pg, 2015.
8. **Robertson, B.**, B. Buckham, “Wave Resource Assessment for Amphitrite Bank,” Seawood Designs, 20 pg, 2015.
9. **Robertson, B.**, H. Bailey, B. Buckham, “WCWI Extended Research Program Final Report,” Marine Renewables Canada, 37 pg., 2015.

Opinion Editorials and Media Articles

1. Bailey, H., **B. Robertson**, “Wave Energy: Reducing Cost and Risk,” *Hydro Review*, Penwell Publishing, July, 2017.
2. Rowe, A., P. Wild, **B. Robertson**; “Canada’s Paris Agreement obligations means a herculean electrification effort” *Globe and Mail*, 2017
3. English, J., A. Rowe, P. Wild, **B. Robertson**, “Opinion: Imports may not be the Solution to Replace Alberta’s Coal Power Plants”, *Vancouver Sun, Calgary Herald & Ottawa Citizen*, 2016. <http://vancouver.sun.com/opinion/opinion-imports-may-not-be-solution-to-replace-albertas-coal-power-plants>
4. Keller, V., **B. Robertson**, P. Wild, A. Rowe, “Refueling Alberta Coal Plants with Biomass”, *Policy Options*, 2017. <http://policyoptions.irpp.org/magazines/february-2017/refuelling-alberta-coal-plants-with-biomass/>
5. **Robertson, B.**, “OceanGybe: A Journey Across Maps, Cultures and Garbage”, *Mountain Life*, *Mountain Life*, May 2016

PROFESSIONAL CONTRIBUTIONS AND ACTIVITIES

Guest Lectures, Invited Talks, and Other Presentations

Date	Title	Occasion
February, 2018	Wave Resource Assessment Uncertainty and Impact on WEC Power Prediction	<i>Invited Speaker</i> , Ocean Sciences Meeting; American Geophysical Union (Portland, USA)
January, 2018	The Role of Techno-Economic Modelling in the Energy Transition; and lack of Public Confidence Constraints	<i>Invited Speaker</i> , Trust in Energy Transition Workshop (Ottawa, Canada)
November, 2017	Going Off-Grid; Residential Energy Self-Sufficiency	CFAX News Radio (Victoria, Canada)
November, 2017	Marine Renewables in a Decarbonising Energy System	<i>Invited Speaker</i> , Marine Renewables Canada Annual Conference 2017 (Ottawa, Canada)
September, 2017	Marine Renewables and its Implications for Coastal Resilience.	<i>Invited Speaker</i> , Ocean Renewable Energy Conference (Portland, USA)
June, 2017	Pathways to a Decarbonized 2060	<i>Invited Speaker</i> , EnVision Conference (Victoria, Canada)
June, 2017	Wave Energy: British Columbia's Opportunity	<i>Invited Speaker</i> , EnVision Conference (Victoria, Canada)
June, 2017	Wave Research and Energy in BC	<i>Invited Speaker</i> , WERA Wave Radar Workshop. (Victoria, Canada)
June, 2017	Wave Energy and Decarbonizing Energy	CFUV Radio's <i>Winds of Change</i> (Victoria, Canada)
May 2017	Wave Energy in BC	NEWS 1130 Radio (Vancouver, Canada)
April, 2017	Utility 2.0: What Happens when Energy is Free?	<i>Invited Speaker</i> , Energy: Our Present, Our Future (Penticton, Canada)
Oct 2016	Integration of Wind and Solar into Alberta and British Columbia	Alberta Electricity System Operator (AESO)
September, 2016	West Coast Wave Initiative: An Update from Canada	<i>Invited Speaker</i> , Northwest National Marine Renewable Energy Centre AGM (Seattle, USA)

April, 2016	Perspectives from Europe and North America on Marine Renewable Energy	<i>Invited Speaker</i> , International Marine Renewable Energy Conference (Washington DC, USA)
February, 2016	Wave Energy Conversion: Resource Assessments and Technology Review	<i>Guest Lecture</i> , Tokyo University of Marine Science and Technology (Tokyo, Japan)
February, 2016	Exploring Wave Energy – Energy Saviour or White Elephant?	<i>Guest Lecture</i> , University of New South Wales, Water Research Laboratory (Sydney, Australia)
February, 2016	Coastal Wave Measurement and Wave Energy	<i>Guest Lecture</i> , University of Newcastle (Newcastle, Australia)
July, 2015	7 th Annual Oregon Wave Energy Industry Summit	Invited Workshop, Oregon Wave Energy Trust (Portland, USA)
July, 2015	Emerging Market Concerns: Integrating Variability and the Cost of Energy	<i>Invited Speaker</i> , HydroVision International (Portland, USA)
November, 2014	Wave Resource Assessments and WEC Performance Optimization	<i>Invited Speaker</i> , Marine Renewables Canada AGM (Ottawa, Canada)
October, 2014	The West Coast Wave Initiative: A Strategic Approach to Wave Energy	<i>Invited Speaker</i> , Northwest National Marine Renewable Energy Centre AGM (Seattle, USA)
June, 2014	Developing Ocean Wave Energy in BC	<i>Invited Speaker</i> , Canadian Institute of Marine Engineering New Wave Conference (Victoria, Canada)
May, 2014	Extreme Conditions Modelling Workshop	Invited Workshop, NREL and SNL Workshop. (Albuquerque, USA)
April, 2014	The West Coast Wave Initiative: A Strategic Approach to Wave Energy	<i>Invited Speaker</i> , Global Marine Renewable Energy Conference (Seattle, USA)
November, 2013	Harnessing the Power of the Ocean: An Overview of the West Coast Wave Initiative	<i>Invited Speaker</i> . Pacific Economic Cooperation Council: Energy Transitions (Victoria, Canada)
April, 2013	West Coast Wave Initiative: A Multi-Disciplinary Collaboration of Industry and Academia	<i>Invited Speaker</i> , Global Marine Renewable Energy Conference (Washington DC, USA)

April, 2012	OceanGybe: A Global Perspective on Plastic Beach Debris	<i>Invited Speaker</i> , International Conference on Marine Debris (Honolulu, USA)
March, 2012	OceanGybe: A Global Research and Outreach Expedition	<i>Keynote Speaker</i> : EPiC Sustainability Expo (Vancouver, Canada)
June, 2009	Garbage Flooding World's Beaches, Researcher Says	CTV News National (Canada)
March, 2007	On-Board Monitoring of Fuel Consumption – What are Machine Manufacturers Offering?	<i>Invited Speaker</i> , FORREX Workshop: Managing Energy Use in Woodlands Operations. (Vernon, Canada)

GRANTS AND FUNDING

Grants and Research Contracts²

Year(s)	Amount	Source	Title
2017	\$312,036	NSERC Collaborative Research and Development Grant: Co-applicant	Quantifying the Western Canadian Marine Energy Resources and Potential for Large Scale Marine Electricity Production
2017	\$472,000	MEOPAR: Co-applicant	Risk Assessment of Wave Run-up on Beaches (<i>in review</i>)
2017	\$35,036	SSHRC Connection: Co-applicant	Trust in Transition: Public Confidence in Energy Transition (<i>in review</i>)
2016	\$49,750 USD	National Renewable Energy Laboratory: Principal Investigator	Early Market Opportunity Hot Spot Site Identification and Resource Characterization: Technical Advisor
2016	\$90,000	BC Ministry of Energy and Mines: Principle Investigator	BC Marine Energy Centre – A Roadmap to Implementation
2016	£41,347	Trident Energy Ltd. (with Wave Energy Scotland): Co-applicant	Hydrodynamic modelling of a Linear Generator System
2016	\$150,000	BC Ministry of Energy and Mines: Co-applicant	The West Coast Wave Initiative 2016-2020: Sustainable Development of a Sustainable Resource
2015	\$247,800	NRCan ecoEnergy Innovation Initiative: Co-applicant	WCWI 2015 Add-on Project
2014	\$80,960	Marine Renewables Canada: Co-applicant	WCWI Extended Research Program
2011	\$9,000	Mountain Equipment Co-op: Principle Investigator	OceanGybe Expedition: Advocacy and Education

² Unless noted, all dollar figures in CAD \$. Only grants and research contracts with Principle Investigator or Co-applicant roles are detailed.

GRADUATE STUDENT SUPERVISION AND EXAMINATION

PhD and Master's Students under Supervision³

Years	Student	Degree	Thesis Subject
2015 - present	Xinxin Xu	MASc	Geospatial Analyses of Competing Uses for Marine Energy Resources
2016 – present	Jessica Bekker	MASc	Optimization of Remote Community Renewable Energy Systems
2016 – present	Victor Keller	PhD	Biomass and Transportation Fuels
2016 – present	Kevin Palmer-Wilson	PhD	Geothermal Energy and Land Transformation
2016 – present	James Donald	PhD	Social License and Public Confidence in the Energy Transition
2017 – present	Cameron Wade	PhD	Energy Storage and Control Theory
2017 – present	Sven Scholtysik	PhD	Electrification of Residential Heating
2017 – present	McKenzie Fowler	MASc	Distributed Solar Generation

Chair of Oral Examination

Year	Student	Degree	Thesis Title
2017	Trevor Mearce	MASc	Along-Strike Changes in the Active Tectonic Configuration of the Northwestern Himalaya: Insights from landscape Morphology, Erosion Rates, and River Profiles

Supervision of Professional Contractor Staff

Year(s)	Contact	Company	Service Area
2013 – present	N. Van Heest	Wichito Towing	Vessel Support for Deployment and Recovery of Wave Buoys (northern buoys)
2013 - present	J. Heggeland	Heggeland Fishing	Vessel Support for Deployment and Recovery of Wave Buoys (southern buoys)
2013 – 2016	G. Puritch	AXYS Technologies	Wave Measurement Buoys and Moorings
2013 - 2016	C. Hiles	Cascadia Coastal Research	SWAN modelling of Vancouver Island

³ Co-advisor for all noted students. Primary supervisors vary based on student topics.

OTHER INFORMATION (CONTRIBUTIONS NOT DOCUMENTED ABOVE)

Television, Newspaper and Magazine Mentions

- Quoted in “*Ever Wonder Where Your Trash Ends Up?*” Canadian Geographic. June 2009
- Biography, “*For Whom the Swell Tolls*” Coast Mountain Culture. September 2016
- Blog, “*OceanGybe*”, <https://surferspath.com/author/oceangybe>, 2007 - 2010
- Blog, “*OceanGybe Expedition Updates*” SBC Surf, 2007 - 2010
- Biography. “*The OceanGybe Guys: Around the World Sailors*” Explore Magazine, May 2012.
- Biography, “*TideLines: The OceanGybe Expedition Documentary*” Gamut Productions, September 2014
- Quoted in “*Beach Report: Human Health Linked to Oceans*” Georgia Straight Magazine, August, 2011
- Quoted in “*BC Tide Rising for Wave Energy*” Times Colonist Newspaper, April 2017
- Quoted in “*Watts in the Water*” Hakai Magazine, June 2017
- Quoted in “*UVic Researcher Sees Powerful Future in Waves*” Vancouver Sun, May 2017
- Quoted in “*The BC Advantage is Wave Power*” Business in Vancouver, May 2017
- Quoted in “*Solar Self-Sufficiency Possible, but not Feasible in Coastal BC*” CBC News BC, November 2017

Teaching and Instruction (not detailed above)

Year(s)	Course
2011/2012	Offshore Weather and Marine Conditions (40hrs of instruction/class); <i>Blue Water Sailing Association</i>

Volunteer and Outside Activities

- Head Judge, Canadian Surfing Championships, 2014 - present
- Scientific Advisor, The Surfrider Foundation (Victoria Chapter), 2005 – present
- Mountain Biking Ambassador, Arbutus Routes, 2015 – present