Daniel M. Robb

	Department of Civil Engineering Queen's University Kingston, Ontario, Canada	Email: danielrobb@gmail.com Phone: +1 604 880 0120 Website: https://danielrobb.github.io	
Employment	Postdoctoral Fellow Department of Civil Engineering, Queen Advisor: Jason Olsthoorn	2023–Present 's University	
Education	Ph.D., Civil Engineering, University of British Columbia 2016 Advisor: Gregory A. Lawrence Thesis: Physical processes affecting turbidity in a glacier-fed hydroelectric reserve		
	M.Eng., Civil Engineering, McGill Unive Advisor: Susan J. Gaskin Thesis: <i>Smoothed particle hydrodynamics</i>	rsity 2010–2013 applied to river ice dynamics	
	B.A.Sc., Civil Engineering, University of	British Columbia 2004–2010	
PUBLICATIONS	1. Robb, D. M., Pieters, R., and Lawrence, G. A. (2025). The bathymetric effect and epilimnetic turbidity in a glacier-fed hydroelectric reservoir. <i>ARC Geophysical</i> <i>Research</i> , 1(1), 6.		
	2. Olsthoorn, J., Kaminski, A. K., and Robb, D. M. (2023). Dynamics of asymmetric stratified shear instabilities. <i>Physical Review Fluids</i> , 8(2), 024501.		
	3. Robb, D. M., Pieters, R., and Lawrence, G. A. (2021). Fate of turbid glacial inflows in a hydroelectric reservoir. <i>Environmental Fluid Mechanics</i> , 21(6), 1201–1225.		
	 Robb, D. M., Gaskin, S. J., and Ma free-surface flows containing solids ap <i>Research</i>, 54(1), 27–40. 	arongiu, JC. (2016). SPH-DEM model for pplied to river ice jams. <i>Journal of Hydraulic</i>	
Previous Employment	Northwest Hydraulic Consultants, North Project Engineer (contract, 6 months)	Vancouver 2023	
	University of British Columbia Environm Graduate Research Assistant	nental Fluid Mechanics 2016–2023	
	Northwest Hydraulic Consultants, North Project Engineer (full-time)	Vancouver 2013–2016	
	McGill University Civil Engineering Graduate Research Assistant	2010–2013	
	Andritz Hydro, Research and Developme Intern (9 months)	nt, Vevey, Switzerland 2011–2012	
	Coanda Research and Development, Bur	naby, Co-op Student (4 months) 2010	
	University of British Columbia Environm Undergraduate Research Assistant (4 mo	nental Fluid Mechanics 2009 (nths)	
	Klohn Crippen Berger, Vancouver, Co-op	Student (8 months) 2008	
	Worley Parsons, Singapore, Co-op Stude	nt (4 months) 2007	
	Douglas Partners, Sydney, Australia, Co-	op Student (8 months) 2006	

HONOURS AND	Queen's Vice-Principal Research Postdoctoral Fellowship (\$100,000) 2023	
AWARDS	NSERC Alexander Graham Bell CGS D, Doctoral Program (\$105,000) 2017	
	UBC Faculty of Applied Science Graduate Award (\$10,000) 2017	
	NSERC Alexander Graham Bell CGS M, Masters Program (\$17,500) 2010	
	McGill Provost's Graduate Fellowship (\$4,500) 2010, 2011	
	NSERC Undergraduate Student Research Awards Program (\$4,500) 2009	
Invited Talks	 Robb, D. M., Pieters, R., and Lawrence, G. A. (2023). Physical processes affecting turbidity in the epilimnion of a glacier-fed reservoir. AGU Fall Meeting 2023, H51E-01. San Francisco, CA. 	
Conference Presentations	1. Robb D. M., and Olsthoorn, J. (2024). Sediment resuspension beneath periodic internal solitary waves of depression over a flat bottom (oral). APS Division of Fluid Dynamics Abstracts. Salt Lake City, UT.	
	 Robb D. M., Pieters, R., and Lawrence, G. A. (2022). Seiching, upwelling and particle settling in a stratified reservoir (poster). IX International Symposium on Stratified Flows, Cambridge, UK. 	
	3. Robb D. M., Pieters, R., and Lawrence, G. A. (2022). Epilimnetic turbidity in a glacier-fed reservoir (oral). 24th Workshop on Physical Processes in Natural Waters, Vancouver, Canada.	
	4. Robb D. M., Pieters, R., and Lawrence, G. A. (2020). Transport of glacial melt- water to the surface layer of a stratified reservoir (oral). AGU Fall Meeting 2020, H125-06. Online.	
	5. Kaminski, A.K., Olsthoorn, J., Robb, D.M., and D'Asaro, E. (2019). Overturning structures in symmetric and asymmetric shear instabilities (oral). APS Division of Fluid Dynamics Abstracts. Seattle, WA.	
	6. Robb D. M., Pieters, R., and Lawrence, G. A. (2019). Glacial inflows in a hydro- electric reservoir (oral). 22nd Workshop on Physical Processes in Natural Waters, Yichang, China.	
	7. Robb D. M., Pieters, R., and Lawrence, G. A. (2018). Effects of hydropower op- eration on turbidity in a glacially-fed reservoir (oral). 21st Workshop on Physical Processes in Natural Waters, Solothurn, Switzerland.	
	8. Robb D. M., Pieters, R., and Lawrence, G. A. (2018). The effect of hydropower operation on turbidity in a fast-flushing reservoir (oral). 8th International Symposium on Environmental Hydraulics. University of Notre Dame, Notre Dame, IN.	
	9. Robb D. M., Gellis, M. S., Vasquez, J. A., and Wang, E. C. (2017). Tunnel re- placement project: morphodynamic modelling of trench migration (oral). 23rd Canadian Hydrotechnical Conference, Vancouver, Canada.	
	 Robb D. M., and Vasquez, J. A. (2015). Numerical simulation of dam-break flows using depth-averaged hydrodynamic and three-dimensional CFD models (oral). 22nd Canadian Hydrotechnical Conference, Montreal, Canada. 	
	 Neuhauser, M., Leboeuf, F., Marongiu, JC., Parkinson, E., and Robb, D.M. (2014). Simulations of rotor-stator interactions with SPH-ALE (oral). Advances in Hydroinformatics. (pp. 349–361). Springer. 	
	 Henscheid, P. J., Hughes, B. H., Schwall, D., Robb, D. M., and Hurtig, K. I. (2014). Nine Mile Dam: Sediment Bypass Tunnel Rehabilitation (oral). HydroVision In- ternational. Nashville, TN. 	

	13. Robb, D. M., Gaskin, S. J., Marongiu, JC., and Villeneuve, M. (2013). Smoothed particle hydrodynamics simulations of freely moving solid objects in a free-surface flow with applications to river ice dynamics (oral). 21st Canadian Hydrotechnical Conference. Banff, Canada.
Technical Reports	 Perrin, C. J., Pieters, R., Harding, J., Robb, D. M., and Bennet, S. (2018) Carpen- ter Reservoir Productivity Model (BRGMON-10). Prepared for BC Hydro.
	2. Pieters, R., Robb, D. M., Lawrence, G. A., and Bray, K. (2011) Hydrology of Kin- basket and Revelstoke Reservoirs, 2010 (CLBMON-3). Prepared for BC Hydro.
	3. Pieters, R., Robb, D. M., Lawrence, G. A., and Bray, K. (2010) Hydrology of Kin- basket and Revelstoke Reservoirs, 2009 (CLBMON-3). Prepared for BC Hydro.
Projects	1. Fraser River Tunnel Project, British Columbia. Analysis of field data collected in the Fraser River Delta to investigate the hydrodynamics and sedimentation pat- terns in the vicinity of a proposed eight-lane tunnel to replace the existing George Massey Tunnel. Data included time series measurements of water level, temper- ature, electrical conductivity, and turbidity from a variety of sources. Northwest Hydraulic Consultants (NHC) 2023.
	2. Skagit River Hydroelectric Project, Water Quality Model, Washington. Hydro- dynamic and water quality modelling (CE-QUAL-W2) to evaluate the effects of cold-water releases from upstream reservoirs (Ross, Diablo, and Gorge lakes) on water temperatures in the Skagit River downstream of Gorge Dam. NHC (2023).
	3. Bridge River Water Use Plan, British Columbia. Field observations and numerical modelling (CE-QUAL-W2) to investigate the potential effects of changes in reservoir operation on turbidity and primary productivity in a glacier-fed hydroelectric reservoir. University of British Columbia in collaboration with Limnotek Research, BC Hydro, and St'át'imc Eco Resources (2016–2018).
	4. Kinbasket and Revelstoke Reservoirs Ecological Productivity Monitoring, British Columbia. Field observations to investigate the physical limnology and nutrient dynamics in Kinbasket and Revelstoke Reservoirs. Work included deploying moor- ings, collecting profiles of water column properties, and servicing weather stations. University of British Columbia in collaboration with BC Hydro (2017).
	 Site C Fish Habitat Mitigation, British Columbia. Hydrodynamic modelling (Telemac- 2D) of four reaches on the Peace River downstream of the Site C Hydroelectric Project. The modelling supported the evaluation and design of in-stream channel works for improving fish habitat in side-channels downstream of the dam. NHC (2016).
	6. Dam-Break Inundation Study for Proposed Hydroelectric Facility, Peru. Dam- break modelling (Telemac-2D) for a proposed 115-m tall hydroelectric dam on the Marañon River, the main stem of the Amazon River. The modelling provided data for flood-inundation and flood-hazard mapping to evaluate the consequences of a potential dam failure and to support emergency response planning. NHC (2015).
	7. George Massey Tunnel Replacement Project, British Columbia. Hydrodynamic and morphodynamic modelling (Telemac-3D) of the lower Fraser River to evaluate the effects of the proposed removal of the George Massey Tunnel on the hydraulic and sedimentation conditions in the study area. NHC (2015).
	8. Salmon River Highway Crossing, British Columbia. Hydrodynamic modelling (Telemac-2D) to evaluate erosion protection design alternatives for a highway crossing over Salmon River, BC. NHC (2015).

- 9. Kingsclear Foreshore Repair, New Brunswick. Hydrodynamic modelling (Telemac-2D) to evaluate erosion protection design alternatives downstream of Mactaquac Dam on the Saint John River. NHC (2015).
- 10. Marina Floating Breakwater, British Columbia. Conceptual design of a floating breakwater for a marina expansion. The project included a site survey, wind and wave data analysis, two-dimensional wave generation modelling (SWAN), and floating breakwater attenuator sizing. NHC (2014).
- 11. Pattullo Bridge Seismic Upgrades, British Columbia. Hydrodynamic-morphodynamic modelling (Telemac-3D / Sisyphe) of a reach on the lower Fraser River containing two bridges to evaluate the effects of proposed seismic upgrades to the Pattullo Bridge piers on the hydraulic and morphological conditions in the study area. NHC (2014).
- 12. Iowa Hill Pumped Storage Project, California. Computational fluid dynamics modelling (OpenFOAM) of an inlet/outlet structure for a proposed pumped storage facility. NHC (2014).
- 13. North Thompson Bank Erosion Protection, British Columbia. Hydrodynamic modelling (Telemac-2D/3D) to evaluate design alternatives for erosion protection on an outside bend of the North Thompson River near a railway. NHC (2014).
- 14. Toba Montrose Hydroelectric Project: Montrose Coanda Screen Testing, British Columbia. Project engineer for a test section (physical model) used to evaluate the effectiveness of five Coanda screen designs across a range of design parameters (slot spacing, wire size, wire tilt angle, and screen wear) on the hydraulic capacity, sediment exclusion, and debris exclusion of the different Coanda screens. NHC (2013).
- 15. Skookumchuck Bank Erosion Protection, British Columbia. Hydraulic modelling (HEC-RAS) to determine design velocities and water levels for bank protection design on the Lillooet River. NHC (2013).
- 16. Nine Mile Hydroelectric Project: Sediment Bypass Improvements, Washington. Project engineer for a 1:30 scale, mobile-bed physical hydraulic model study aimed to reduce the volume of sediment passing through the powerhouse intakes by evaluating design alternatives including modifications to an existing sediment bypass tunnel. NHC (2013).
- 17. Smoothed Particle Hydrodynamics applied to river ice jams. Adapted an existing computational fluid dynamics code, originally used for turbo-machinery applications, to model open-channel flows containing solids with applications to river ice jams. McGill University in collaboration with Andritz Hydro, Vevey, Switzerland (2011–2013).

TEACHINGQueen's University
Guest Lecturer, Hydrodynamic Modelling (CIVL 851), for J. Olsthoorn2023

University of British Columbia

Guest Lecturer, Fluid Mechanics (CIVL 215), for G. A. Lawrence (G. A. L.)2019Teaching Assistant, Environmental Fluid Mechanics (CIVL 541), for G. A. L.2023Teaching Assistant, Environmental Hydraulics (CIVL 416), for G. A. L.2020Teaching Assistant, Fluid Mechanics (CIVL 215), for G. A. L.2017–2019

McGill University2012Teaching Assistant, Dynamics (CIVE 206), for S. J. Gaskin2012Teaching Assistant, Hydraulic Engineering (CIVE 428), for S. J. Gaskin2011

Technical Training and Professional Development	Certificate in Professional Development for Postdoctoral Researchers Queen's University	2023
	Turbulence and Mixing201L. Armi (Scripps Oceanography) and G. A. Lawrence (UBC)	
	Physical Limnology 2019 B. Boehrer (Helmholtz Centre for Environmental Research) Magdeburg, Germany	
	Gerhard Jirka Summer School on Environmental Fluid Mechanics Lucerne, Switzerland	2012
Graduate Courses Taken	University of British Columbia 2016– Environmental Fluid Mechanics (CIVL 541) Physical Limnology (CIVL 598) Estuary Hydraulics (CIVL 547) Numerical Techniques for Ocean, Atmosphere and Earth Scientists (EOSC 511) Advanced Geophysical Fluid Dynamics (EOSC 512)	2023
	McGill University2010-Computational Hydraulics (CIVE 572)2010-Advanced Fluid Mechanics (MECH 562)2010-Applied Mathematics (MECH 605)2010-Fundamentals of Turbulent Flow (MECH 656)2010-Atmospheric and Oceanic Dynamics (ATOC 512)2010-	2013
Computer Skills	 Programming: Python (advanced), Matlab (advanced), C/C++ (intermediate Python libraries (daily use): NumPy, Pandas, Xarray, Matplotlib Version control: Git High-Performance computing: SLURM workload manager, Bash scripting, par processing Computational fluid dynamics: OpenFOAM, Flow-3D Hydrodynamic modelling: Telemac-2D/3D, HEC-RAS, CE-QUAL-W2 Data visualization software: BlueKenue, ParaView Mesh generation: BlueKenue, Gmsh GIS software: QGIS 	rallel
Professional Service	 Peer Reviewer for the Journal of Hydraulic Research (2024, 2025) Reviewer for the AGU23 Outstanding Student Presentation Awards (Dec 2023) Organizer for the UBC Physical Oceanography Seminar Series (Jan-Aug 2018) 	3) 5)
Professional Registration	• Registered Professional Engineer in British Columbia, Licence 43785 (2016–Present)	
Personal	Languages: English (native), French (fluent)Citizenship: Canadian	