

## TOBY PERKINS, P.ENG.

### SENIOR ENGINEER

Mr. Toby Perkins is a Senior Engineer at Knight Piésold's Vancouver office. He has a Masters of Applied Science degree in Civil Engineering from the University of British Columbia and over ten years of professional experience. Toby specializes in hydrology, open channel hydraulics, and fluvial geomorphology, with experience in assessment of hydrologic and geomorphic impacts to aquatic habitat, hydroclimatic characterization, and open channel hydraulic modelling. His experience includes hydroelectric, mining and municipal projects.

#### KEY SKILLS / QUALIFICATIONS

- Hydrology and Climate Studies – Application of regional analysis techniques for characterizing mean and extreme streamflow and climatic conditions to support engineering design and environmental impact assessment. Assessment of climate change and climate variability on future conditions.
- Environmental Impact Assessment – Assessment of altered hydrologic conditions on geomorphic processes, channel morphology, hydraulics and aquatic habitat resulting from hydroelectric and mining developments, and the recommendation of impact mitigation measures.
- Open Channel Hydraulic Modelling – Study design, field data collection and development of 1- and 2-dimensional hydrodynamic models, and empirical models, for application to fish habitat, sediment transport, flow ramping and flood hazard studies.
- Hydrometric and Sediment Transport Data Collection – Study planning and installation of automated stations for hydrometric and/or sediment transport monitoring. Extensive experience in site and equipment selection, development of stage-discharge and turbidity-concentration rating curves, data QA/QC, and training of field staff.

#### SPECIFIC RELEVANT EXPERIENCE

- **Harper Creek Mining Project, BC, Canada** – Technical lead for hydrology and instream flow requirement studies for environmental assessment. These tasks included collection of streamflow data and assessment of long-term streamflow conditions, two-dimensional hydraulic and habitat suitability modelling and assessment hydrologic changes and impacts to fish habitat.
- **Sukunka Coal Project, BC, Canada** – Project Manager for water management design, hydrology and hydrogeology studies to support environmental assessment and permit applications. Water collection channel and sediment control pond design and review.
- **Selwyn Resources Mining Project, YT, Canada** – Assessment of long-term hydrology and climate at the Mine site, Filter Plant and 220 km pipeline corridor to support Project design and environmental permitting. Assistance with hydrology and meteorology data collection.
- **Schaft Creek Mining Project, BC, Canada** – Project Manager and technical lead for hydrology and climate studies in support of environmental assessment and permitting. Fluvial geomorphic characterization of a braided river system in northwest British Columbia. Assessment of hazards and mitigation planning for infrastructure located in the active braided river channel and on the surrounding valley flat.
- **15 MW Moyamba Hydroelectric Project, Sierra Leone** – Project Manager for concept development, optimisation and preliminary engineering of this low head, run-of-river facility.
- **16 MW Box Canyon Hydroelectric Project, BC, Canada** – Project Manager for owners engineering services for construction of the run-of-river facility. Technical lead for the assessment of fluvial geomorphology, hydrology, hydrologic changes and flow ramping during the successful environmental permitting of the project.



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#### EDUCATION

M.A.Sc. Civil Engineering  
University of British Columbia  
Canada, 2005

B.E. Natural Resources  
University of Canterbury  
New Zealand, 2000

#### SPECIALIZATIONS

- Assessment of Impacts to Fluvial Systems
- Hydrology and Climate Studies
- Sediment Transport and Fluvial Geomorphology
- Open Channel Hydraulic Modelling
- Field Data Collection in Remote Locations