



## Dr. Robyn Irvine, R.P.Bio.

Statistical Ecologist

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**Certifications:** Occupational River Safety Technician (Level 3), Backpack Electrofishing (Crew Supervisor), OFA (Level 1) with TE, MED-A3, Pleasure Craft Operators Card, Driver's Licence (Class V), PADI Diver (Advanced Open Water), Firearm PAL and Avalanche Skills Training (Rec. Level 1 and 2).

**Affiliations:** College of Applied Biology, Regional Councillor, Board of Directors (2006-2008); Association of Professional Biologists of British Columbia, Member (2004-Present); American Fisheries Society Member (2005-2008)

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### **Selected Project Experience:**

- **Duncan River Gap Analysis** 2008-2009. Carried out power analysis and gap analysis to help determine strategy for future years of Duncan flow ramping study program.
  - **Duncan River Ramping Study** 2004-2008. Study design, field biologist, principal analyst, and project manager (2007-08) for this project assessing environmental and operational factors that affect juvenile fish stranding on the lower Duncan River.
  - **Columbia River Ramping Study** 2004-2008. Study design, field technician and principal analyst for this project assessing fish stranding in relation to juvenile fish stranding risk.
  - **Large River Fish Indexing Program – Columbia River** 2004-2009. This project is a long term monitoring program to assess the population trends of key fish species in the Columbia River. Acted as main analyst on mark-recapture data and have worked on study design and iterative reviews of the program's effectiveness.
  - **Tumbler Ridge Coal Development** 2004-2006 Led and trained a field crew of First Nations and Golder Associates staff to collect baseline algae, benthic invertebrate and water quality samples to monitor creek and pond selenium levels.
  - **Restoration of Upper Columbia River White Sturgeon** 2004-2008 Completed population projections, sensitivity analyses to determine critical life history stages, and population dynamics analyses for juvenile and adult sturgeon. Managed project and was principal analyst on a study determining the success of a long-term minimum flow program.
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***Selected Publications:***

- **Irvine RL**, T Oussoren, JS Baxter, and DC Schmidt. 2008. The effects of ramping rates and other environmental parameters on the stranding rates of fish below hydro-electric dams in British Columbia, Canada. *River Research and Applications* **25**: 405-415.
  - **Irvine RL**. 2009. Gap analysis for Duncan River Flow Ramping Study Programs. Prepared for BC Hydro for WUP DDMMON #1.
  - **Irvine RL**, DC Schmidt, C Canning and T Moffat. 2008. Duncan River Flow Ramping Assessment, Fall 2007. Golder Associates Report. Prepared for BC Hydro, 2008.
  - **Irvine RL**, DC Schmidt and LR Hildebrand. 2007. Population Status of White Sturgeon in the Lower Columbia River, Canada. *Transactions of the American Fisheries Society* **136**: 1472–1479.
  - Ford D, **RL Irvine**, J Thorley, DC Schmidt and L Hildebrand. 2009 Large river fish indexing program – Lower Columbia River 2008 Phase 8 investigations. Prepared for BC Hydro, Castlegar, BC, Canada.
  - **Irvine RL** and LJ Jackson. 2006. “Spatial variance of nutrient limitation of periphyton in montane, headwater streams. *Aquatic Ecology* **40**(3): 337-348.
  - **Irvine RL**, EE Crone, LJ Jackson, and EA Maclsaac. 2004. The importance of scale in ecological model predictions: assessing the consistency of fertilization responses in lakes. *Ecological Applications* **14**(4): 1178-1188.
  - **Irvine RL**, T Oussoren, and DC Schmidt. 2007. Columbia River Ramping Rate Assessment, Phase III and IV Investigations, Winter and Summer 2006. Golder Associates Report prepared for BC Hydro, Castlegar, BC.
  - **Irvine RL**, DC Schmidt and L Hildebrand. 2005. Analysis of white sturgeon spawning in relation to the Waneta Dam white sturgeon flow augmentation program. A Golder Associates Report. Prepared for Teck Cominco Metals Ltd.
  - Contributing author and analyst for Large River Fish Indexing Program, Middle Columbia River, 2004, 2005, 2006, 2007 and 2008 Reports. Prepared for BC Hydro.
  - Contributing author and analyst for “Upper Columbia River: white sturgeon population dynamics and analysis.” A Golder Associates Ltd. Report. Prepared for Upper Columbia River White Sturgeon Recovery Initiative, 2005.
  - Contributing analyst for Upper Columbia River white sturgeon monitoring, Phase III investigations, August 2004-February 2005.” Golder Associates Report No. 04-1480-051D. Prepared for BC Hydro, 2005.
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