

Laura Rempel, *Ph.D., R.P.Bio.*

1. PROFILE

I am a freshwater habitat specialist with a PhD from the University of British Columbia and currently work as a Habitat Biologist with the Habitat Protection and Sustainable Development unit of DFO. Prior to my work with DFO Habitat, I was a DFO Research Scientist and led research programs in habitat risk assessment, aquatic biomonitoring, and fish habitat. I have worked in stream and river environments for over 15 years with focus on fish-habitat interactions, habitat productivity, and the physical and hydrological aspects of productive fish habitat. I have authored peer-reviewed publications and technical reports on these topics and made technical presentations to a wide range of audiences including First Nations, government, industry, academic, community and other interest groups. Building on my technical expertise, working with DFO has increased my knowledge of the roles and responsibilities of the various DFO sectors and of other governments with regard to the planning, environmental assessment and permitting of works affecting fish habitat, and applicable legislation.

2. EDUCATION

Ph. D. University of British Columbia, Physical Geography, 2004

DISSERTATION: Physical and ecological organization in a large, gravel-bed river and response to disturbance by gravel mining.

M. Sc. University of British Columbia, Ecology, 1997

THESIS: Habitat variation due to seasonal flooding of the lower Fraser River and the influence on the macroinvertebrate community.

B. Sc. University of Calgary, Ecology and Physical Geography, 1994

THESIS: Postglacial fish dispersal from the Mississippi refuge to the Mackenzie River basin.

3. WORK EXPERIENCE

Fisheries & Oceans Canada, Nov 2010 – Present

HABITAT BIOLOGIST

- Provide input on the planning, construction, and assessment of Fraser River sediment removal project designs to minimize impact to fish habitat
- Prepare Environmental Assessments and Fisheries Act Authorizations for Fraser River sediment removal projects

Fisheries & Oceans Canada, May 2008 – 2010

ENVIRONMENTAL ANALYST

- Assess project proposals and conduct Environmental Assessments and Fisheries Act reviews
- Provide recommendations on appropriate courses of action to protect fish habitat
- Make presentations and provide briefings to senior management and other government agencies on environmental assessments and project reviews
- Provide advice to stakeholders on the Canadian Environmental Assessment Act, the Fisheries Act and DFO policies during environmental assessments
- Consult with First Nations
- Provide input on the planning, construction, and assessment of Fraser River sediment removal project designs to minimize impact to fish habitat
- Prepare Environmental Assessments and Fisheries Act Authorizations for Fraser River sediment removal projects

Fisheries & Oceans Canada, 2005-2008

RESEARCH SCIENTIST

- Technical review of Mackenzie Gas Pipeline Environmental Impact Statement

- Provided expert testimony at the EA Joint Review Panel (JRP) hearings, authored Information Requests to/from the JRP, proponent, and other government departments, co-authored the DFO Intervention to the Mackenzie Gas Project Joint Review Panel
- Directed and reported on DFO Science programs to develop tools for Habitat Management that optimize regulatory duties, including a large-scale habitat monitoring program and a risk assessment tool to evaluate risk to fish habitat from pipeline development
- Liaised with government scientists, professionals, regulatory decision-makers, and First Nations on pipeline construction methods and appropriate mitigation to protect fish and fish habitat
- Partnered with other federal departments, territorial agencies, and Aboriginal co-management bodies for collaborative projects
- Consulted and partnered with First Nations
- Supervised students and DFO employees in both field and office environments
- Proficient use of computer programs such as Microsoft Access, Excel and PowerPoint to analyze and present information related to fish and aquatic habitats

California Bay-Delta Authority, 2004

RIVER SYSTEMS ECOLOGIST - made recommendations to senior managers on appropriate action to restore salmon spawning habitat in gravel-bed rivers; co-authored report on the state of science and critical uncertainties for gravel management related to protecting fish and fish habitat.

Land & Water BC, 2004-2005

RIVER SYSTEMS ECOLOGIST – designed and supervised an environmental monitoring program for major gravel removals in the Fraser River; prepared an environmental impact assessment and delivered technical reports to management on gravel mining impacts to fish and fish habitat.

Limnotek Research & Development, 2000-2005

RIVER SYSTEMS ECOLOGIST – prepared technical reports on projects related to Fraser River fisheries, fish habitat, and sediment management for federal, provincial and municipal government agencies.

Kerr Wood Leidal & Associates, 2001-2005

RIVER SYSTEMS ECOLOGIST – participated in projects related to gravel mining and fish habitat enhancement in British Columbia and Washington rivers.

University of British Columbia, 1998-2004

PHD CANDIDATE - developed a fish habitat classification for environmental monitoring in the Fraser River; recommended environmental monitoring protocols for instream gravel mining, now enforced by DFO; presented technical reports and advice to government agencies and stakeholders; liaised with scientists, the public, and government regulators on environmental impacts of gravel mining and appropriate action to protect fish habitat; supervised students in the field and office.

Pacific Rim National Park, 1998

NATIONAL PARK WARDEN - resource management, public safety, and enforcement.

Banff National Park, 1996

NATIONAL PARK WARDEN - resource management, public safety, and enforcement.

4. REFEREED PUBLICATIONS

Rempel, L.L. and M. Church. 2009. Physical and ecological response to disturbance by gravel mining in a large alluvial river. *Canadian Journal of Fisheries and Aquatic Sciences* 66:52-71.

Rempel, L.L. and G. Gill. 2009. Bioassessment of streams along the Mackenzie River Valley using the Reference Condition Approach: biological, habitat, landscape and climate data. *Canadian Data Report of Fisheries and Aquatic Sciences* (in prep).

Rempel, L.L. and M. Porter. 2008. A risk assessment tool for evaluating geohazards and fisheries sensitivity at pipeline water crossings. *Proceedings of the 7th International Pipeline Conference*, Calgary, Canada.

Perrin, C.J., L.L. Rempel, and M.L. Rosenau. 2003. White sturgeon spawning habitat in an unregulated river: Fraser River, Canada. *Transactions of the American Fisheries Society* 132:154-165.

Rempel, L.L., J.S. Richardson, and M.C. Healey. 2000. Macroinvertebrate community structure along a gradient of hydraulic and sedimentary conditions in a large, gravel-bed river. *Freshwater Biology* 45:57-73.

Rempel, L.L., J.S. Richardson, and M.C. Healey. 1999. Flow refugia for benthic macroinvertebrates during flooding of a large river. *Journal of the North American Benthological Society* 18:34-48.

Rempel, L.L. and D.G. Smith. 1998. Postglacial fish dispersal from the Mississippi refuge to the Mackenzie River basin. *Canadian Journal of Fisheries and Aquatic Sciences* 55:893-899.

5. TECHNICAL/PROFESSIONAL REPORTS

Perrin, C.J., S.A. Bennett, and L.L. Rempel. 2007. Baseline conditions and model development for bioassessment of streams along the Mackenzie River Valley using the Reference Condition Approach. Prepared for Fisheries & Oceans Canada.

B. Harvey, S. McBain, D. Reiser, L. Rempel, and L. Sklar. 2005. Critical uncertainties in gravel augmentation: geomorphic and biological research needs for effective river restoration. Prepared for the CALFED Science and Ecosystem Restoration Programs.

Perrin, C.J., I.J. Parnell, L.L. Rempel, and D.R. Marmorek. 2004. Data needs for assessing the impact of dredging activities on aquatic communities in the Fraser River Estuary. Prepared by Limnotek Research and Development and ESSA Technologies for the Fraser River Estuary Management Program.

Weatherly, H. and L.L. Rempel. 2004. Lillooet River gravel management plan. Prepared by Kerr Wood Leidal Associates Ltd. for the Pemberton Valley Dyking District and BC Ministry of Water, Land and Air Protection.

Rempel, L.L. and M. Church. 2003. The Harrison Bar gravel removal experiment: final report. Department of Geography, University of British Columbia.

Perrin, C.J. and L.L. Rempel. 2002. The effect of transfer pit operations on the aquatic community in the Fraser River at Barnston Island, 2000. Prepared by Limnotek Research and Development Inc. for Fraser River Port Authority.

Rempel, L.L. and M. Church. 2002. Morphological and habitat classification of the Lower Fraser River gravel-bed reach: confirmation and testing. Prepared by Department of Geography, University of British Columbia for Fraser Basin Council.

Rempel, L.L. and C.J. Perrin. 2002. The effect of riprap bank protection on habitat use by fish in the Fraser River at Peters Island. Prepared by Limnotek Research and Development Inc. for BC Hydro.

Weatherly, H. and L.L. Rempel. 2002. 2003 Fraser River potential gravel removals. Prepared by Kerr Wood Leidal Associates Ltd. for BC Ministry of Water, Land, and Air Protection.

Church, M., L.L. Rempel, and S.P. Rice. 2000. Morphological and habitat classification of the Lower Fraser River gravel-bed reach. Prepared by Department of Geography, University of British Columbia for Fisheries and Oceans Canada.

Perrin, C. J. and L.L. Rempel. 2000. Eulachon (*Thaleichthys pacificus*) spawning activity in the Fraser River at Barnston Island, 2000, Final Report. Prepared by Limnotek Research and Development Inc. for Fraser River Port Authority.

6. PRESENTATIONS

North American Benthological Society - Salt Lake City, UT (2008); Vancouver, BC (2004); San Marcos, TX (1997)

Canadian Conference for Fisheries Research -Calgary (2006); Vancouver (2001); Ottawa (1995)

American Geophysical Union Joint Assembly - Montreal (2004)

CALFED Rivers, Rocks & Restoration Workshop - Sacramento, CA (2004)

Northwest Regional Floodplain Managers Association - Bow, WA (2004)

American Fisheries Society - Vancouver (1995)

7. TRAINING

Occupational Helicopter Safety Technician (2010, Rescue Canada)

Swift Water First Responder (2010, Rescue 3 International)

Wilderness Survival (2010, Canada West Mountain School)

Erosion and Sediment Control (2010, Vancouver Island University)

IHA-RVA and PHABSIM Methods for Instream Flow Needs Assessment (2008, Hardin-Davis, Inc)

Introduction to ArcGIS I (2008, ESRI)

Standard First-Aid (2008, St. John's Ambulance)

Leading Scientific Teams (2007, Canada School of Public Service)

Swift Water Rescue Technician 1 (2006, Raven Rescue)

Expert Witness Training (2006, Justice Canada)

8. DFO NATIONAL HABITAT TRAINING

FA 301 – Habitat Inspections and Investigations Course (2010)

EA-EE 201/202 – EA Screening Track and Process and DFO/CEAA Registry

FA-LP 201 – Referral Review Process

IM-GI 201 – Habitat Management's National Information System

IM-GI 101 – Overview of the IM and National HMP IM Systems

9. PROFESSIONAL AWARDS

Fisheries and Oceans Canada Distinction Award (2006)

10. PROFESSIONAL SERVICE

Registered Professional Biologist #1815 (College of Applied Biology)

North American Benthological Society member