

CAROLINE HEIM, R.P.Bio.
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Summary of Qualifications

- Professional fisheries biologist and a member in good standing of the College of Applied Biology and the Association of Professional Biologists of B.C. for 22 years (#728).
- Areas of specialty include fish sampling and habitat assessments, environmental impact assessments of freshwater and marine habitats, riparian assessments and restoration, environmental monitoring, community outreach, interpretation and public education.
- Fish sampling experience including electrofishing, underwater electrofishing, beach seining, minnow trapping, gill netting, swim surveys, fish population estimates, fish salvaging and juvenile/adult fish handling, marking and identification
- Excellent technical writing and communication skills, author of over 40 major reports and educational material, designed and maintained company website.

Education

- Bachelor of Science, Major - Biology (First Class), University of Victoria, B.C.
- PID (Provincial Instructor Diploma), Vancouver Community College, projected completion 2017.

Employment History

Carolla Environmental Consulting
www.carollaenvironmental.com

1995- Present

- Sole proprietor of firm in charge of proposal writing, project management, budgeting and coordination, agency applications, environmental impact assessment design and implementation, field assessments, data collection and analysis, editing and report writing, website development and communications in the field of freshwater and marine fisheries biology in interior and coastal British Columbia.

Senior Staff Fisheries Biologist:

- P.A. Harder and Associates Ltd., Victoria, B.C. **1993-1995**
- Archipelago Marine Research Ltd., Victoria, B.C. **1989 -1991**

Sample Projects/Work Experience

Simms Park side channel restoration project: Project biologist assessing existing fish use of Simm's Park channel, and developing design improvements for habitat re-creation project for Project Watershed Society, 2016. Consulting biologist for project planning implementation and fish and plant salvage in lower Courtenay River, 2017.

Kokanee Assessment in Comox Lake: Developed assessment methodology and conducted enumeration of adult spawning Kokanee in Comox Lake and upper Puntledge watershed, in Association with the Courtenay Fish and Game Club. 2016.

Fields Sawmill Site Restoration Plan: Site assessment and estuarine planting prescription and budgeting for restoration of a 6acre industrial site in lower Courtenay River/K'omoks Estuary for Project Watershed Society. 2017.

Kicking Horse River: Habitat assessment and preparation of impact mitigation plan for gravel removal project in Kicking Horse River, environmental monitoring of gravel removal, and 6 years of post-construction monitoring and kokanee spawning surveys for the Town of Golden. Lower Kicking Horse River Fisheries Assessments with impact assessment of proposed whitewater kayaking park, 2009 to 2015.

Pacific Salmon Foundation: Post construction monitoring of compensation habitat related to Park Bridge in Kicking Horse canyon (Phase 3 East), and community group engagement pilot project in long term environmental monitoring. 2008 to 2010.

Golden Golf Club: Preparation of environmental mitigation plan, environmental monitoring, including temporary stream diversion and fish salvaging of 1km of stream channel, and 5 years of post- construction monitoring related to flood protection measures in Holt Creek. 2008- 2015.

District of Invermere: Restoration and Action plan for Abel Creek, Invermere. 2006.

Shaunessy Ranch Ltd: Fish habitat assessment, fish sampling, and restoration/ enhancement design for two streams and six lakes near Invermere, B.C. 2006.

Haig-Brown Kingfisher Creek Society: Provided design specifications for 1 km of reclaimed stream in the east branch of Kingfisher Creek, Campbell River, including design and placement of instream habitat enhancement structures. 1998- 2000.

DFO: Sub-tidal Herring spawn surveys from 1988-1990, Sockeye lake spawning surveys Babine Lake, overwintering juvenile Chinook surveys in Nechako River, 1989, eulachon spawn surveys, Kemano, 1987, with Archipelago Marine Research.

Kwakiutl Laich-Kwil-Tach Nations Treaty Society: Developed inventory of shellfish aquaculture opportunities in Johnstone Strait area. 1999.

Kwakwaka'wakw Territory Fisheries Commission: Designed and conducted clam population surveys with Fisheries Guardian crew, Vancouver Island. 1997.

Ministry of Transportation and Highways: Detailed pre-construction fish habitat assessments, fish population estimates, impact mitigation, design input and compensation opportunities of twenty creeks and rivers from Ladysmith to Courtenay as part of the Island Highway project. 1993-2000. Environmental monitoring of habitat compensation projects including 1km newly constructed stream channel on First Supply Creek, Courtenay, B.C.

Quadra Island Salmon Enhancement Society: Conducted detailed physical habitat assessments of fish bearing streams including fish sampling, identification of impacts, and restoration opportunities in 4 watersheds on Quadra Island. 2000/01.

Ministry of Environment Lands and Parks: Environmental impact assessment (EIA) of existing trail conditions, as well as EIA of proposed improvements to trail and camping facilities in Cape Scott Provincial Park, 1997.

Ocean Blue Cedar Products: Provided biological input in the creation of a Carex sedge saltwater marsh bed in the Campbell River estuary. Provided input into design, transplant methods and scheduling, and designed and conducted long term monitoring program. 2001-2006.

Highland Engineering Ltd: Prepared environmental prescriptions for construction practices in sensitive estuarine ecosystem, conducted Carex sedge transplanting, participated in public and agency meetings, intertidal construction monitoring and post construction monitoring of sewage pipe installation project in Campbell River, B.C. for the District of Campbell River, 1997/98

BC Hydro: Impact assessment of Quadra Island and Campbell River foreshore including intertidal and sub-tidal impacts for replacement of sub-marine hydro cable, construction monitoring of project, and habitat compensation. 1997.

Capilano Fish Hatchery/ Puntledge Hatchery: 2 seasons of marking and coded wire tagging of coho/chinook stock, and 1 year of mobile brood stock tagging of salmon farming stock. 2016.

OTHER

- SCUBA-NAUI certification since 1982. Over 200 hours logged dives
- WCB Level 1 Occupational First Aid, 2015.
- Certification and 10 years' experience in Backpack Electrofishing.
- RAR (Riparian Area Regulation) QEP course VIU, 2015.
- Bioengineering workshop with Dave Polster, 2010.
- Board member and director of Quadra Island Salmon Enhancement Society from 1995-2000, OCP steering committee for the Town of Golden OCP in Environmental Sector for 6 months in 2008, Board of Directors for Wildsight Golden Branch, and Golden and District Air Quality Committee Society from 2008-2013.
- CBEEN (Columbia Basin Environmental Educator Network member) Environmental Educator. Designed and delivered fisheries related programming to over 2,500 kids in SD6 and SD71 from 2008-2017.
- Artist and nature interpretive sign design and illustration with signs located at Ogden Pt. Breakwater SCUBA marine Park, Alex Fraser Bridge, and Kicking Horse and Columbia River confluence.