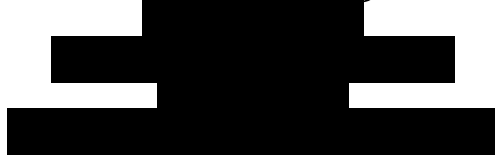


Krista Lange



WORK EXPERIENCE:

2011 to present
Aquaculture Biologist
Campbell River, BC
Supervisor: Kerra Hoyseth

Management of marine finfish aquaculture as part of the Aquaculture Environmental Operations team for the BC Aquaculture Regulatory Program

- Ensure compliance of Conditions of Licence for marine finfish aquaculture sites within the team or in partnership with Conservation and Protection
- Development and implementation of the benthic monitoring program for soft ocean sediments
- Reviewing and responding to benthic impact reports submitted by industry
- Data compilation of finfish aquaculture statistics for public reporting

2005 to 2010
Fisheries Biologist
Pacific Biological Station, Nanaimo, BC
Supervisor: Dr. R. Beamish

Working with a team of researchers to explore the early marine ecology and impact of climate change on juvenile Pacific salmon in the Strait of Georgia and Puget Sound.

- Organization, implementation and design of field projects in cooperation with others including First Nations, Naturalist groups, Marine Harvest, the Pacific Salmon Foundation and other scientific coworkers
- Chief Scientist on board research vessels and in field environments for extended periods of time
- Collection of biological data from juvenile salmon (species identification; length, weight and sex; scale and otolith removal; DNA sampling; tissue sampling)
- Extraction and reading of coded wire tags from juvenile and adult salmon
- Summarizing and analyzing biological data using Microsoft Office and DFO's Mark Recovery Program
- Preparing scientific reports, technical summaries and PowerPoint presentations
- Assisting in proposal preparation
- Attending meetings and workshops and working with contractors and volunteers

Production of a Long-term Research and Monitoring Plan (LRMP) and Bibliography on the effects of climate change on Pacific salmon in the North Pacific Region, in cooperation with the North Pacific Anadromous Fish Commission (NPAFC) and funded by the Gordon and Betty Moore Foundation.

- Note taking during drafting meetings in Korea, Russia, Nanaimo and Japan
- Organization of meetings and communication with the scientific community from Canada, Japan, Korea, Russia and the United States
- Compilation of reports including an annotated bibliography, a synthesis of knowledge, and a research and monitoring plan

Examination of the infection of sea lice on wild populations of Pacific salmon and other species such as stickleback and Pacific herring.

- Collection of lice off salmon at aquaculture sites
- Surveys (trawl, purse seine etc.) for collection of lice off various species of wild fish in the Broughton Archipelago and Gulf Islands
- Organization of data, analysis of results and writing technical reports

2002 and 2004

General Laborer

Inch Creek Hatchery, Dewdney, BC

Supervisor: Stu Barnettson

Duties included:

- General site maintenance and husbandry of coho, chinook and sockeye salmon fry
- Assistance in adult broodstock collection and release of juvenile salmon
- Working with the public, giving hatchery tours and answering questions from tourists

EDUCATION:

Malaspina University College

Bachelor of Science, with distinction

Major in Fisheries and Aquaculture - Completed 2007

Technology Diploma - Completed 2005

University College of the Fraser Valley

Bachelor of Arts, with honors

Major in Geography - Completed 2002

Liberal Arts Diploma - Completed 2000

VOLUNTEER WORK:

General student volunteer as a part of the practicum placement for Fisheries and Aquaculture program at Malaspina University-College. Weekly placements include a variety of facilities including oyster farms, commercial and enhancement salmon hatcheries, and the Pacific Biological Station in Nanaimo, BC.

Hatchery Volunteer at Inch Creek Hatchery in Dewdney, BC. My volunteer work at Inch Creek took place weekly for eight months, prior to my summer employment in 2002. Duties included cleaning tanks, feeding fish, assisting in spawning activities, broodstock collection, mort removal and general hatchery maintenance.

CERTIFICATIONS:

Small Vessel Operator Proficiency (2011)

Small Non-Pleasure Vessel Basic Safety (MED A3) (2011)

WHIMIS (2010)

Worksafe BC Occupational First Aid Level 1 (2011)

Worksafe BC Transportation Endorsement (2011)

Level C CPR/AED (2011)

Marine Basic First Aid (2011)

Pleasure Craft Operators Card (2005)

Restricted Operator's Certificate (Maritime) (2011)

Electrofishing Crew Supervisor Certification (2009)

GPS Field Operator Training (2011)

Inspector/Guardian Training (2011)

SKILLS:

Good work ethic
Innovative
Organized, honest, reliable and punctual
Work well with the public
People oriented and outgoing
Computer literate with excellent word processing and spreadsheet skills

PERSONAL ACHIEVEMENTS:

Frank Bernard Award in Fisheries (2006)
Underwater Harvesters Association Research Society Award (2005)
Canadian Wildlife Federation Orville Erickson Memorial Scholarship (2005)
Don Duncan Memorial Award (2005)
Nanaimo Marine Pavilion Scholarship (2004)
Frank Bernard Award in Fisheries (2004)
BC Hydro Sustainability Scholarship (2004)
Credit Union Foundation of BC Award in recognition of academic excellence (2004)
UCFV "Recognition of Outstanding Achievement" for the Bachelor of Arts Degree (Geography Major) (2002)
Achieved "Honor Society" standing upon Secondary School graduation (1998)
Mission Riverside Chev Olds Bursary (1998)
Passport to Education, given to the top 30% of highschool students, per grade each year (1998)
Service & Citizenship Award (1998)
Earth Science Award (1998)

LIST OF PUBLICATIONS:

- Beamish, R.J., R.M. Sweeting, C.M. Neville and K. Lange. 2005. Changing trends in the rearing capacity of the Strait of Georgia ecosystem for juvenile Pacific salmon. October 2005. NPAFC Doc. 875. Fisheries & Oceans Canada, Science Branch – Pacific Region, Pacific Biological Station, Nanaimo, BC V9T 6N7, Canada.
- Beamish, R.J., R.M. Sweeting, C.M. Neville, and K. Lange. 2006. Hatchery and wild percentages of coho salmon in the Strait of Georgia are related to shifts in species dominance. NPAFC Doc. 981. Fisheries & Oceans Canada, Science Branch – Pacific Region, Pacific Biological Station, Nanaimo, BC V9T 6N7, Canada. 21 p.
- Beamish, R.J., R.M. Sweeting, C.M. Neville, and K. Lange. 2007. Ocean changes in the Strait of Georgia indicate a need to link hatchery programs, fishing strategies and early marine studies of ocean carrying capacity into an ecosystem approach to manage coho salmon. Extended abstract for NPAFC Technical Report 7: 49-51.
- Beamish, R.J., R.M. Sweeting and K.L. Lange. 2007. A preliminary interpretation of coded wire tag recoveries from juvenile coho and chinook salmon released into the Strait of Georgia and Puget Sound from 1997 to 2006. Georgia Basin Puget Sound Research Conference Proceedings. 14pp.
- Beamish, R.J., R.M. Sweeting, K.L. Lange and C.M. Neville. 2008. Changing trends in the population ecology of hatchery and wild coho salmon in the Strait of Georgia. Transactions of American Fisheries Society. 37: 503-520.
- Beamish, R.J., R.M. Sweeting, C.M. Neville and K. Lange. 2008. Is changing capacity of the Strait of Georgia to produce more pink and chum salmon and less coho and chinook salmon an indication of a similar

trend throughout the subarctic Pacific? Extended abstract for Proceedings of the 23rd Northeast Pacific Pink and Chum Salmon Workshop, Feb 19-21, 2008, Bellingham WA.

- Noakes, D.J., R.J. Beamish, R.M. Sweeting, C-E. Neville, and K. Lange. submitted. Trends in the marine survival of coho salmon (*Oncorhynchus kisutch*) in relation to shifts in climate and their ecosystem. Environmetrics.
- Beamish, R., J. Wade, W. Pennell, E. Gordon, S. Jones, C. Neville, K. Lange and R. Sweeting. 2009. A large, natural infection of sea lice on juvenile Pacific salmon in the Gulf Islands area of British Columbia, Canada. Aquaculture. 297: 31-37.
- Beamish, R.J., B.E. Riddell, K.L. Lange, E. Farley Jr., S. Kang, T. Nagasawa, V. Radchenko, O. Temnykh, S. Urawa, T. Azumaya, R. Brodeur, R. Emmett, H. Imai, Y. Ishida, M. Kaeriyama, S. Kim, L. Klyashtorin, M. Koval, G. Kristianson, C.S. Lee, L-L. Low, I. Melnikov, J. Moss, P. Mundy, K. Myers, S. Naydenko, V. Nazarov, G. Ruggerone, J. Seeb, J. Seki, K.B. Seong, G. Smith, V. Sviridov, B. Templin, M. Trudel, V. Volobuev and S. Young. 2009. A Long-term Research and Monitoring Plan (LRMP) for Pacific salmon (*Oncorhynchus* spp.) in the North Pacific Ocean. N. Pac. Anadr. Fish Comm. Sp. Pub. 1.
- Beamish, R., R. Sweeting, K. Lange, C. Neville and D. Preikshot. 2009. Juvenile sockeye salmon survival in the Strait of Georgia in 2007. Manuscript report presented to Paul Macgillivray, Associate Regional Director General, Dec. 9, 2009.
- Beamish, R.J., K.L. Lange, B.E. Riddell, S. Urawa. (eds). 2010. Climate Impacts on Pacific salmon: Bibliography. N. Pac. Anadr. Fish Comm. Sp. Pub. 2.
- Beamish, R.J., R.M. Sweeting, K.L. Lange, D.J. Noakes, D. Preikshot, and C.M. Neville. 2010. Early marine survival of coho salmon in the Strait of Georgia declines to very low levels. Marine and Coastal Fisheries XX: XX-XX (accepted Aug 2010, in press)
- Beamish, R.J., R.M. Sweeting, C.M. Neville, K.L. Lange, T.D. Beacham, and D. Preikshot. 2010. Wild chinook salmon survive better than hatchery salmon in a period of poor production. Environmental Biology of Fishes - Ecological Interactions Special Issue (accepted Nov 2010, in press)
- Beamish, R., R. Sweeting, C. Neville, K. Lange, and D. Preikshot. 2009. Juvenile salmon in the Strait of Georgia. Pages 118-119 in W.R. Crawford and J.R. Irvine (eds.) State of physical, biological, and selected fishery resources of Pacific Canadian marine ecosystems. DFO Canadian Science Advisory Secretariat Research Document 2009/022
- Beamish, R., R. Sweeting, K. Lange, C. Neville, D. Preikshot, R. Thomson, T. Beacham and M. Trudel. 2010. The ecology of juvenile sockeye salmon in the Strait of Georgia and an explanation for the poor return of sockeye salmon to the Fraser River in 2009. (report in progress)
- Sweeting, R., K. Lange, C. Neville, and R. Beamish. 2010. Juvenile salmon surveys in the Strait of Georgia. Pages 133-134 in W.R. Crawford and J.R. Irvine (eds.) State of physical, biological, and selected fishery resources of Pacific Canadian marine ecosystems. DFO Canadian Science Advisory Secretariat Research Document 2010/053.
- Beamish, R.J., R.M. Sweeting, T.D. Beacham, K.L. Lange, and C.M. Neville. 2010. A late ocean entry life history strategy improves the marine survival of chinook salmon in the Strait of Georgia. NPAFC Doc. 1282. 14 pp. (Available at www.npafc.org).

Beamish, R.J., K.L. Lange, C.M. Neville, R.M. Sweeting, T.D. Beacham and D.Preikshot. 2010. Late ocean entry of sea type sockeye salmon from the Harrison River in the Fraser River drainage results in improved productivity. NPAFC Doc. 1283. 30 pp. (Available at www.npafc.org).

Beamish, R.J., R.M. Sweeting, C.M. Neville, and K.L. Lange. 2010. Competitive interactions between pink salmon and other juvenile Pacific salmon in the Strait of Georgia. NPAFC Doc. 1284. 26 pp. (Available at www.npafc.org).

REFERENCES:

Dr. R.J. Beamish
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Department of Fisheries and Oceans Canada
Pacific Biological Station, Nanaimo, BC
[REDACTED]

Dr. B.E. Riddell
President and C.E.O.
Pacific Salmon Foundation, Vancouver, BC
[REDACTED]

Dr. C. Foote
University-College Professor
Vancouver Island University, Nanaimo, BC
[REDACTED]