

CURRICULUM VITAE

Dr. RUSTON MATHEW SWEETING, PhD



EDUCATION:

Secondary:	1971-75	Nutana Collegiate Inst. Saskatoon, Saskatchewan
Post-Sec.:	1975-80	U. of Saskatchewan Saskatoon, Saskatchewan Degree: BSc.(Advanced), Biology
	1981-83	Simon Fraser Univ. Burnaby, British Columbia Degree: transferred from Masters to PhD. program (09/83)
	1984-88	Simon Fraser Univ. Burnaby, British Columbia Degree: PhD. (09/88)
Post-Doc.	1988-90	University of Winnipeg (Dr. J.G. Eales) Winnipeg, Manitoba

RESEARCH INTERESTS:

My graduate work focused on the endocrine control of smoltification and seawater adaptation in coho salmon. In particular, I was interested in the multiple roles of growth hormone in regulating the various physiological and behavioral changes that occur during the transformation of these salmonids from freshwater residents to marine residents. My post-doctoral work continued in this area but focused on a second endocrine axis – the thyroid hormone complex and its regulation of and by fish metabolic processes and states. Of particular interest at this time was the in situ regulation of T3 production within various tissue compartments of fish under various stressors (starvation, smoltification, seawater adaptation).

During this period, it became increasingly clear that the external environment had a major role in the regulation of both the physical and physiological state of fish, acting via the various endocrine axes. When I began working at DFO in the mid-1990s, I continued in this area of research – studying the impacts of global warming and changes in ocean and climate conditions on the growth and ultimate survival of Pacific salmon in the ocean. Within this framework also exists the role of regime shifts, sudden and significant changes in the physical climate and ocean that impact on biological systems and organisms, both from top-bottom and bottom-top. This continues to be my research interest area: how major and minor alterations in the marine environment act directly or indirectly on the ability of juvenile Pacific salmon to grow, survive and interact within the marine ecosystem. I have been the Chief Scientist on our juvenile salmon surveys for some 10 years, during which we have examined size, diet, otolith structure, and mortality of all five Pacific salmon species (not including steelhead or cutthroat trout).

Over the past decade of this research, I have established contacts with a number of multi-disciplinary colleagues in Canada and the United States (particularly within the Puget Sound region), and have collaborated on a number of projects and papers with this network. I have been a member, and am currently the head, of the Vessel Users Committee within the region, and have been either involved in and/or responsible for ships scheduling, vessel replacement and coordination of various programs within the schedule. I am very comfortable talking in a variety of settings, to a variety of levels of understanding. I have been responsible for finances within our program, as well as organizing a number of participants in our surveys over the past years: students (local and international), fellow fisheries scientists and physical oceanographers, as well as hatchery personnel and local residents interested in our programs.

PROFESSIONAL EXPERIENCE:

Fisheries Biologist 1996-2011 Dept. Fisheries and Oceans
(Dr. R. Beamish)
Pacific Biological Station
Nanaimo, B.C.

Research Associate 1990-95 Dr. B.A. McKeown
Sessional Instructor Simon Fraser University
Burnaby, British Columbia

Research Assistant 1981-88 Dr. B.A. McKeown
Simon Fraser University
Burnaby, British Columbia

Teaching Experience:

Instructor:

1995 (3) Simon	Ecology (Bisc 204) Fraser University
1994 (3) Simon	Comparative Endocrinology (Bisc 445) Fraser University
1994 (2) Simon	Introductory Biology (Bisc 100) Fraser University
1993 (3) Fish	Biology (Bisc 416) Simon Fraser University
1990(3) 4th	Human Physiology (CoSessional) year Nursing University of Manitoba

Teaching Assistantships

1981-88 Simon Fraser University

101: Intro. Biol.: Animal/Plant Physiology
102: Intro. Biol.: Systematics/Genetics
305: Animal Physiology
416: Fish Biology
445: Environmental Physiology
455: Endocrinology

PUBLICATIONS (Refereed):

1. **Sweeting, R.M.**, G.F. Wagner and B. A. McKeown. (1985) Changes in plasma glucose, amino acid nitrogen, and growth hormone during smoltification and seawater adaptation in coho salmon (*Oncorhynchus kisutch*). *Aquaculture* 45: 185-197.
2. **Sweeting, R.M.** and B.A. McKeown (1986) Somatostatin inhibits the growth hormone surge associated with seawater transfer in coho salmon, *Oncorhynchus kisutch*. *Canadian Journal of Zoology* 64: 2062-2063.
3. **Sweeting, R.M.** and B.A. McKeown (1987) Growth hormone and seawater adaptation in coho salmon, *Oncorhynchus kisutch*. *Comparative Biochemistry and Physiology* 88A: 147-151.
4. **Sweeting, R.M.** and B.A. McKeown (1989) Changes in plasma growth hormone and various metabolic parameters during smoltification of coho salmon, *Oncorhynchus kisutch*. *Aquaculture* 82: 279-295.
5. **Sweeting, R.M.** and J.G. Eales (1992) The effects of fasting and feeding on hepatic thyroxine 5'-monodeiodinase activity in the rainbow trout, *Oncorhynchus mykiss*., *Canadian Journal of Zoology* 70: 1516-1525.
6. **Sweeting, R.M.** and J.G. Eales (1992) HPLC analysis of *in vitro* hepatic deiodination products of thyroid hormones in the rainbow trout, *Oncorhynchus mykiss*. *General and Comparative Endocrinology* 85: 367-375.
7. Eales, J.G., D.L. MacLachy and **R.M. Sweeting** (1993) Thyroid hormone deiodinase systems in salmonids, and their involvement in the regulation of thyroidal status. *Fish Physiology and Biochemistry* 11: 313-321.
8. Alexander, G., **R.M. Sweeting** and B.A. McKeown (1994) The shift in visual pigment dominance in the retinae of juvenile coho salmon (*Oncorhynchus kisutch*): An indicator of smolt status. *Journal of Experimental Biology* 195: 185-197.
9. Johansen, J.A., C.J. Kennedy, **R.M. Sweeting**, A.P. Farrell and B.A. McKeown (1994) Sublethal effects of tetrachloroguaiacol on juvenile rainbow trout, *Oncorhynchus mykiss*, following acute and chronic exposure. *Canadian Journal of Fisheries and Aquatic Sciences* 51: 1967-1974.

10. Neilsen, M.E., L. Boesgaard, **R.M. Sweeting**, B.A. McKeown and P. Rosenkilde (1994) Plasma levels of lactate, potassium, glucose, cortisol, growth hormone and triiodo-L-thyronine in rainbow trout (*Oncorhynchus mykiss*) during exercise at various levels for 24 hours. Canadian Journal of Zoology 72: 1643-1647.
11. **Sweeting, R.M.**, G.P. Alexander and B.A. McKeown (1994) Hepatic and branchial thyroid hormone 5'-monodeiodinase activities during the parr-smolt transformation of juvenile coho salmon (*Oncorhynchus kisutch*). Aquaculture 121: 293.
12. **Sweeting, R.M.**, G.P. Alexander, J.G. Eales and B.A. McKeown (1994) Hepatic and branchial thyroid hormone deiodinase activities associated with the parr-smolt transformation of coho salmon (*Oncorhynchus kisutch*). General and Comparative Endocrinology 94: 171-181.
13. Kennedy, C.J., **R.M. Sweeting**, J.A. Johansen, A.P. Farrell and B.A. McKeown (1995) Acute effects of chlorinated resin acid exposure on juvenile rainbow trout, *Oncorhynchus mykiss*. Environmental Toxicology and Chemistry 14(6): 977-982.
14. Cousins, K.L., A.P. Farrell, **R.M. Sweeting**, D.L. Vesely and J.E. Keen (1997) Release of atrial natriuretic factor prohormone peptides 1-30, 31-67 and 99-126 from freshwater- and seawater-acclimated perfused trout (*Oncorhynchus mykiss*) hearts. Journal of Experimental Biology 200: 1351-1362.
15. Heath, D.D., R.H. Devlin, J.W. Heath, **R.M. Sweeting**, B.A. McKeown and G. Iwama (1997) Growth and hormonal changes associated with precocious sexual maturation in male chinook salmon (*Oncorhynchus tshawytscha* (Walbaum)). Journal of Experimental Marine Biology and Ecology 208: 239-250.
16. Alexander, G.P., **R.M. Sweeting** and B.A. McKeown (1998) The effect of thyroid hormones and thyroid hormone blocker on visual pigment shifting in juvenile coho salmon (*Oncorhynchus kisutch*). Aquaculture 168: 157-168.
17. Beamish, R.J., M. Folkes, **R.M. Sweeting** and C. Mahnken (1998) Intra-annual changes in the abundance of coho, chinook and chum salmon in Puget Sound in 1997. Puget Sound Research 1998 Proceedings, Vol 2: 531-541.

18. Beamish, R.J., R.M. **Sweeting** and Z. Zhang (1998) Estimating the percentage of hatchery-reared juvenile coho salmon in the Strait of Georgia in 1997. Canadian Stock Assessment Section, Research document 98/93, Ottawa.
19. Beamish, R.J., D. Noakes, G. McFarlane, W. Pinnix, **R. Sweeting**, J.R. King and M. Folkes (1998) Trends in coho marine survival in relation to the regime concept. Canadian Stock Assessment Section, Research Document 98/171, Ottawa.
20. Beamish, R.J. and **R.M. Sweeting** (2000) Patterns in the recapture rates among release locations of coded-wire tagged juvenile coho salmon in the Strait of Georgia. North Pacific Anadromous Fisheries Commission, Document 436, 24 pp.
21. Beamish, R.J., D. McCaughran, J.R. King, **R.M. Sweeting** and G.A. McFarlane (2000) Estimating the abundance of juvenile coho salmon in the Strait of Georgia by means of surface trawls. North American Journal of Fisheries Management 20: 369-375.
22. Beamish, R.J., D.J. Noakes, G.A. McFarlane, W. Pinnix, **R.M. Sweeting** and J.R. King (2000) Trends in coho marine survival in relation to the regime concept. Fisheries Oceanography 9: 114-119.
23. Beamish, R.J., K.L. Poier, **R.M. Sweeting** and C.M. Neville (2000) An abrupt increase in the abundance of juvenile salmon in the Strait of Georgia. North Pacific Anadromous Fisheries Commission, Document 473, 24 pp.
24. Nielsen, M.E., L. Boesgaard, **R.M. Sweeting**, B.A. Mc Keown and P. Rosenkilde (2000) Physiological and endocrinological responses during prolonged exercise in hatchery-reared rainbow trout (*Oncorhynchus mykiss*). Acta Veterinaria Scandinavica 41:173-184.
25. Noakes, D.J., R.J. Beamish, **R.M. Sweeting** and J. King (2000) Changing the balance: interactions between hatchery and wild Pacific coho salmon in the presence of regime shifts. North Pacific Anadromous Fisheries Commission Bulletin 2:155-163.
26. Alexander, G.A., **R.M. Sweeting** and B.A. McKeown (2001) The effects of 3,4,3'-Triiodo-thyronine on Dideretinol synthesis by isolated coho salmon retinal pigment epithelial cells. General and Comparative Endocrinology 123: 192-202.

27. Beamish, R.J., C.M. Neville, **R.M. Sweeting**, K.L. Poier, and G.A. McFarlane. 2002. Changes in the dynamics of coho in the Strait of Georgia in the last decade. Pages 56-64 *in* C. Orr , P. Gallagher, and J. Penikett (eds.) *Speaking for the salmon: hatcheries and the protection of wild salmon*. Continuing Studies in Science, Simon Fraser University, British Columbia.
28. Beamish, R.J., C. Neville, **R. Sweeting**, K. Poier and R. Khan. (2002) Recent increases in coho production in the Strait of Georgia are related to changes in climate. Pages 10-19, *In* Proceedings of the 2001 Puget Sound Research Conference, Puget Sound Water Quality Action Team, Olympia, Washington, 345 pp.
29. **Sweeting, R.M.**, R.J. Beamish, D.J. Noakes and C.M. Neville. (2003) Replacement of wild coho salmon by hatchery-reared coho in the Strait of Georgia over the past 3 decades. *North American Journal of Fisheries Management* 23:492-502.
31. Beamish, R.J., C.M. Neville, and **R.M. Sweeting**. (2003) The Importance of Incorporating information on Climate-Related Marine Ecosystem Changes into Fisheries Management. Pages 13-18, *In* Ecological Forecasting: New Tools for Coastal and Marine Ecosystem Management, N. Valette-Silver and D. Scavia (eds.), NOAA Technical Memorandum NOS NCCOS 1, 116 pp.
32. Beamish, R.J., A.J. Benson, **R.M. Sweeting**, and C.M. Neville. (2004) Regimes and the history of the major fisheries off Canada's west coast. *Progress in Oceanography* 60:355-385.
33. Beamish, R.J., **R.M. Sweeting** and C.M. Neville. (2004) Improvement of juvenile Pacific salmon production in a regional ecosystem after the 1998 climatic regime shift. *Transactions of the American Fisheries Society*. 133:1163-1175.
34. **Sweeting, R.M.**, R.J. Beamish and C.M. Neville. (2004) Crystalline otoliths in teleosts: comparisons between hatchery and wild coho salmon (*Oncorhynchus kisutch*) in the Strait of Georgia. *Reviews in Fish Biology and Fisheries* 14:361-369.
35. R.J. Beamish, C.M. Neville and **R.M. Sweeting**. (2004) Sea lice counts on adult Pacific salmon caught in the central coast area of British Columbia using trawl and troll gear. NPAFC Doc. 819.

36. Beamish, R.J., J.T. Schnute, A.J. Cass, C.M. Neville and **R.M. Sweeting**. (2004) The influence of climate on the stock and recruitment of pink and sockeye salmon from the Fraser River, British Columbia, Canada. *Transactions of the American Fisheries Society* 133:1396-1412.
37. Beamish, R.J., C.M. Neville, **R.M. Sweeting**, N. Ambers and E.K. Gordon (2005). Adult Pacific salmon are a major source of sea lice in coastal ecosystems. Extended abstract In *Lessons from the Past to Optimize the Future. Aquaculture Europe 2005*, Trondheim, Norway, August 05-09, 2005, pp 127-128 (extended abstract).
38. Beamish, R.J., C.M. Neville, **R.M. Sweeting** and N.F. Ambers (2005) Sea lice on adult Pacific salmon in the coastal waters of central British Columbia, Canada. *Fisheries Research* 76:198-208.
39. Beamish, R.J., S. Jones, C.M. Neville, **R.M. Sweeting**, G. Karreman, S. Saksida and E. Gordon. (2006) Exceptional marine survival of pink salmon that entered the marine environment in 2003 suggests that farmed Atlantic salmon and Pacific salmon can coexist successfully in a marine ecosystem on the Pacific west coast of Canada. *ICES Journal of Marine Science* 63:1326-1337.
40. Morris, J.F.T., M. Trudel, M.E. Theiss, **R.M. Sweeting**, J. Fisher, S.A. Hinton, E. Fergusson, J.A. Orsi, E.V. Farley Jr., and D.W. Welch. (2007) Stock-specific migrations of juvenile coho salmon derived from coded-wire tag recoveries on the continental shelf of western North America. Pages 81-104 in C.B. Grimes, R.D. Brodeur, L.W. Haldorson, and S.M McKinnell (eds). *The Ecology of Juvenile Salmon in the Northeast Pacific Ocean; Regional Comparisons.*, American Fisheries Society, Symposium 57, Bethesda, Maryland.
41. Orsi, J. A., J.A. Harding, S.S. Pool, R.D. Brodeur, L.J. Haldorson, J.M. Murphy, J.H. Moss, E.V. Farley Jr., **R.M. Sweeting**, J.F.T. Morris, M. Trudel, R.J. Beamish, and R.L. Emmett (2007) Epipelagic fish assemblages associated with juvenile Pacific salmon in neritic waters of the California Current and the Alaska Current. Pages 105-156 in C.B. Grimes, R.D. Brodeur, L.W. Haldorson, and S.M McKinnell (eds). *The Ecology of Juvenile Salmon in the Northeast Pacific Ocean; Regional Comparisons.*, American Fisheries Society, Symposium 57, Bethesda, Maryland.

42. Trudel, M., S.R.M. Jones, M.E. Theiss, J.F.T. Morris, D.W. Welch, **R.M. Sweeting**, J.H. Moss, B.L. Wing, E.V. Farley Jr., J.M. Murphy, R. E. Baldwin, and K.C. Jacobson (2007) Infestations of Motile Salmon Lice on Pacific Salmon along the West Coast of North America. Pages 157-182 in C.B. Grimes, R.D. Brodeur, L.W. Haldorson, and S.M McKinnell (eds). The Ecology of Juvenile Salmon in the Northeast Pacific Ocean; Regional Comparisons. American Fisheries Society Symposium 57, Bethesda, Maryland
43. Beamish, R.J., C.M. Neville, **R.M. Sweeting**, S.R.M. Jones, N. Ambers, E.K. Gordon, K.L. Hunter, T.E. McDonald and S.C. Johnson. (2007) A proposed life history strategy for the salmon louse, *Lepeophtheirus salmonis*, in the subarctic Pacific. Aquaculture 264:428-440.
44. Beamish R.J., **R.M Sweeting**, K.L. Lange, and C.M. Neville. 2008. Changes in the population ecology of hatchery and wild coho salmon in the Strait of Georgia. Transactions of the American Fisheries Society 137: 503-520.
45. Beamish R.J., **R.M Sweeting**, and C.M. Neville. 2009. Planning the management of Pacific salmon in a changing climate. American Fisheries Society Symposium 69: 155-173.
46. Beamish, R.J., G.A. McFarlane, **R.M. Sweeting** and C. Neville. (2009) The sad history of dogfish management. Pages 11-18 in V.F. Gallucci, G.A. McFarlane and G.G. Bargmann (eds). Biology and Management of Dogfish Sharks, American Fisheries Society, Bethesda, Maryland.
47. Beamish, R.J. and **R.M. Sweeting**. (2009) Spiny dogfish in the Pelagic Waters of the Strait of Georgia and Puget Sound. Pages 101-118 in V.F. Gallucci, G.A. McFarlane and G.G. Bargmann (eds). Biology and Management of Dogfish Sharks, American Fisheries Society, Bethesda, Maryland.
48. Beamish R.J., **R.M Sweeting**, and C.M. Neville. 2009. We are on the right path, but it is uphill both ways. American Fisheries Society Symposium 71: 45-62.
49. Chittenden, C.M., R.J. Beamish, C.M. Neville, **R.M. Sweeting**, and R.S. McKinley. (2009). The use of acoustic tags to determine the timing and location of the juvenile coho salmon migration out of the Strait of Georgia, Canada. Transactions of the American Fisheries Society 138: 1220-1225.

50. Trudel, M., J. Fisher, J.A. Orsi, J.F.T. Morris, M.E. Thiess and **R.M. Sweeting**. (2009). Distribution and migration of juvenile Chinook salmon derived from coded wire tag recoveries along the continental shelf waters of western North America. *Transactions of the American Fisheries Society* 138: 1369-1391.
51. Beamish, R.J. and **R.M. Sweeting**. (2009) The History of Surprises Associated with Pacific Salmon Returns Signals that Critical Information is Missing from our Understanding of their Population Dynamics. Pages 1159-1168 in C.C. Krueger and C.E Zimmerman (eds). *Pacific Salmon: Ecology and Management of Western Alaska's Populations*. American Fisheries Society, Symposium 70, Bethesda, Maryland.
52. **Sweeting, R.M.** and R.J. Beamish. (2009) A comparison of the diets of hatchery and wild coho salmon (*Oncorhynchus kisutch*) in the Strait of Georgia from 1997-2007. Pages 255-264 in E.J. Farley Jr., T. Azumaya, R. Beamish, M. Koval, K. Myers, K.B. Seong, and S. Urawa (eds). *Climate Change, Production Trends, and Carrying Capacity of Pacific Salmon in the Bering Sea and Adjacent Waters*. North Pacific Anadromous Fisheries Commission, Bulletin 5, Vancouver, Canada.
53. Duffy, E.J., D.A. Beauchamp, **R.M. Sweeting**, R.J. Beamish and J.S Brennan. 2010. Ontogenetic diet shifts of juvenile Chinook salmon in nearshore and offshore habitats of Puget Sound. *Transactions of the American Fisheries Society* 139:803-823.
54. 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* 2:424-439.
55. Beamish, R., Gordon, E., Wade, J., Pennell, B., Neville, C., Lange, K., **Sweeting, R.**, and Jones, S. 2011. The Winter Infection of Sea Lice on Salmon in Farms in a Coastal Inlet in British Columbia and Possible Causes. *Journal of Aquaculture Research and Development* 2:107. doi:10.4172/2155-9546.1000107.
56. Beamish, R.J., **Sweeting, R.M.**, Neville, C.M., Lange, K.L., Beacham, T.D., and Preikshot, D. 2011. Wild chinook salmon survive better than hatchery salmon in a period of poor production. *Environmental Biology of Fishes* 91:XX-XX doi: 10.1007/s10641-011-9783-5.

57. Beamish, R.J., C. Neville and **R.Sweeting**. [2011] Evidence of a synchronous failure in juvenile Pacific salmon and herring production in the Strait of Georgia in the spring of 2007. Coastal and Marine Fisheries X:XXX-XXX. (in review).
59. Preikshot, D., R. Beamish, **R. Sweeting** and C. Neville. [2011]. The residence time of juvenile Fraser River sockeye salmon (*Oncorhynchus nerka*) smolts in the Strait of Georgia. Coastal and Marine Fisheries X:XXX-XXX. (in review).
60. Beamish, R.J., **R.M. Sweeting**, C.M. Neville, D. Preikshot, K.L. Lange and T.D. Beacham. [2011] A late ocean entry life history type has improved survival for sockeye and chinook salmon in recent years in the Strait of Georgia. Coastal and Marine Fisheries X:XXX-XXX. (in review).

REFERENCES:

- (1) Dr. Don Noakes, P.Eng
Dean,
School of Advanced Technology and Mathematics
Thompson Rivers University
Kamloops, British Columbia (250) 828-5056
Dnoakes@tru.ca
- (2) Dr. Richard Beamish
Senior Scientist,
Head, Salmon Interactions
Pacific Biological Station
Nanaimo, British Columbia (250) 756-7029
Beamishr@pac.dfo-mpo.gc.ca
- (3) Dr. Gordon McFarlane
Section Head, Stock Assessment
Pacific Biological Station
Nanaimo, British Columbia (250) 756-7052
Mcfarlanes@pac.dfo-mpo.gc.ca

PUBLICATIONS (non-refereed)

- Beamish, R.J., J.R. King, D. Noakes, G.A. McFarlane, and R. Sweeting. (1996) Evidence of a new regime starting in 1996 and the relation to Pacific salmon catches. North Pacific Anadromous Fish Commission Document 321, 31 pp.
- Beamish, R.J., S. Dawe, R.M. Sweeting, E. Gordon, N. Ambers, A. Hurst and C.M. Neville. (2003) Surveys of Pacific salmon in the major inlets of British Columbia. North Pacific Anadromous Fish Commission Document 708.
- Beamish, R.J., R.M. Sweeting, C.E. Neville and K. Poier. (2002) A climate related explanation for the natural control of Pacific salmon abundance in the first marine year. NPAFC Tech Rep. 4:9-11.
- Sweeting, R.M., Beamish, R.J., and Neville, C.M. 2004. The continuation of the productive regime in the Strait of Georgia. (NPAFC Doc. 818).

Beamish, R.J., Neville, C.M., and Sweeting, R.M. (2004) Sea lice counts on Adult Pacific salmon caught in the Central Coast of British Columbia using trawl and troll gear. (NPAFC Doc. 819)

Beamish, R.J., M. Trudel, and R.M. Sweeting. (2007) Canadian Coastal and High Seas juvenile Pacific salmon studies. NPAFC Tech Rep. 7:1-4.

Beamish, R.J., R.M. Sweeting, C.M. Neville and K.L. 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. NPAFC Tech. Rep. 7:4-9.

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). 1282(Canada).pdf

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). 1283(Canada).pdf

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). 1284(Canada).pdf

Preikshot, D., R.J. Beamish, and R.M. Sweeting. 2010. Changes in the diet composition of juvenile sockeye salmon in the Strait of Georgia from the 1960s to the early 21st Century. NPAFC Doc. 1285. 17 pp. (Available at www.npafc.org). 1285(Canada).pdf

RESEARCH DOCUMENTS

Simpson, K., D. Dobson, S. Lemke, R. Sweeting, R.W. Tanasichuk and S. Baillie. Forecast for southern British Columbia coho salmon in 2002. Canadian Science Advisory Secretariat, research document 2002/094, pp.75.

Simpson, K., M. Chamberlain, J. Fagan, B. Holtby, R. Sweeting and R.W. Tanasichuk. Forecasts for southern and central British Columbia coho

salmon in 2003. Canadian Science Advisory Secretariat, research document 2002/094, pp. 68.

CONFERENCE PROCEEDINGS

San diego

Seattle

Vancouver

Beamish, R.J., C. Neville, **R.M. Sweeting**, K. Poier and R. Khan. 2002. Recent increases in coho production in the Strait of Georgia are related to changes in climate. Pages 10-19 *In* T. Droscher (ed.) Proceedings of the 2001 Puget Sound Research Conference. Plenary Session and Panel Discussion: The challenges facing Puget Sound and Georgia Basin scientists. Puget Sound Action Team. Olympia, Washington.

Beamish, R.J., C.M. Neville, **R.M. Sweeting**, K.L. Poier, and G.A. McFarlane. 2002. Changes in the dynamics of coho in the Strait of Georgia in the last decade. Pages 56-64 *In* C. Orr, P. Gallagher, and J. Penikett (eds.) Speaking for the salmon: hatcheries and the protection of wild salmon. Continuing Studies in Science, Simon Fraser University, British Columbia.

Beamish, R.J., Neville, C.M., **Sweeting, R.M.**, Ambers, N. & Gordon, E.K. Adult Pacific Salmon are a Major Source of Sea lice in Coastal Ecosystems. Extended abstract. Pages 127-128 (extended abstract) *In* Lessons from the Past to Optimize the Future. Aquaculture Europe 2005, Trondheim, Norway, August 5-9, 2005.

Saksida, S., A. Donald, J. Constantine, G. Karreman, C. Neville, **R. Sweeting**, R. Beamish and D. Stucchi.(2006) Evaluation of sea lice, *Lepeophtheirus salmonis*, abundance levels on farmed salmon in British Columbia, Canada. *In* Proceedings of the 11th symposium of the International Society for Veterinary Epidemiology and Economics, Cairns, Australia, ISVEE 11, 159, 2006.

Beamish, R.J., **R.M. Sweeting** and C. Neville. (2006) We are on the right path but it is uphill both ways. Proceedings of the AFS 2005 symposium in Anchorage, AK, Pacific Salmon Life History Models: Advancing Science for Sustainable Salmon in the Future. (in press)

- Sweeting, R.M.**, R.J. Beamish and C. Cooper. (2007) Comparison of juvenile salmon diets in the Strait of Georgia and Puget Sound 1997-2006. Georgia Basin Puget Sound Research Conference Proceedings. (in press)
- 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. (in press)
- Beamish, R.J., Sweeting, R.M., Lange, K.L. and Neville, C.M. 2007. Changing trends in the percentages of hatchery and wild coho salmon in the Strait of Georgia and the implications for management. (in press)
- Beamish, R.J. and Sweeting, R.M. 2007. The history of surprises associated with Pacific salmon returns signals that critical information is missing from our understanding of their population dynamics. (submitted to AYK SSI Symposium)
- Beamish, R.J., Neville, C.M., Sweeting, R.M., Jones, S.R.M., Ambers, N., Gordon, E.K., Hunter, K.L., McDonald, T.E., and Johnson, S.C. 2007. A proposed life history strategy for the salmon louse, *Lepeophtheirus salmonis*, in the subarctic Pacific. *Aquaculture* 264: 428-440.
- Beamish, R.J., Neville, C.M., and Sweeting, R.M. 2007. Response to Dr. Neil Frazer's comment on "Sea lice on adult Pacific salmon in the coastal waters of British Columbia, Canada" R.J. Beamish et al. 2005. Letter to the Editor, *Fisheries Research* 85: 346-347.
- Morris, J.F.T., M. Trudel, M.E. Thiess, R.M. Sweeting, J. Fisher, S.A. Hinton, E.A. Fergusson, J.A. Orsi, E.V. Farley, Jr., and D.W. Welch. (2007). Stock-Specific Migrations of Juvenile Coho Salmon Derived from Coded-Wire Tag Recoveries on the Continental Shelf of Western North America. *In Ecology of Juvenile Salmon in the Northeast Pacific Ocean: Regional Comparisons*, C.B. Grimes, R.D. Brodeur, L.J. Haldorson, and S.M. McKinnell (editors). *Am. Fish. Soc. Symp.* 57: 81-104.
- Orsi, J.A., J.A. Harding, S.S. Pool, R.D. Brodeur, L.J. Haldorson, J.M. Murphy, J.H. Moss, E.V. Farley, Jr., R.M. Sweeting, J.F.T. Morris, M. Trudel, R.J. Beamish, R.L. Emmett, and E.A. Fergusson. (2007). Epipelagic Fish Assemblages Associated with Juvenile Pacific Salmon in Neritic Waters of the California Current and the Alaska Current *In Ecology of Juvenile Salmon in the Northeast Pacific Ocean: Regional Comparisons*, C.B.

Grimes, R.D. Brodeur, L.J. Haldorson, and S.M. McKinnell (editors). Am. Fish. Soc. Symp. 57: 105-156.

Trudel, M., S.R.M. Jones, M.E. Thiess, J.F.T. Morris, D.W. Welch, R.M. Sweeting, J.H. Moss, B.L. Wing, E.V. Farley, Jr., J.M. Murphy, R.E. Baldwin, and K.C. Jacobson. (2007). Infestations of Motile Salmon Lice on Pacific Salmon along the West Coast of North America. *In Ecology of Juvenile Salmon in the Northeast Pacific Ocean: Regional Comparisons*, C.B. Grimes, R.D. Brodeur, L.J. Haldorson, and S.M. McKinnell (editors). Am. Fish. Soc. Symp. 57: 157-182.

CONFERENCE PRESENTATIONS:

1983 "Possible temporal related bioactivity of salmon growth hormone", G.F. Wagner and R.M. Sweeting, Western Regional Conference on Comparative Endocrinology, Univ. of California at Berkeley, Berkeley, California.

1984 "Growth hormone during smoltification of coho salmon", R.M. Sweeting and B.A. McKeown, Western Regional Conference on Comparative Endocrinology, Simon Fraser University, Burnaby, British Columbia.

"Changes in plasma glucose, amino acid nitrogen and growth hormone during smoltification and seawater adaptation in coho salmon (*Oncorhynchus kisutch*)", R.M. Sweeting and B.A. McKeown, 2nd International Conference on Smoltification, University of Stirling, Pitlochry, Scotland.

1986 "Growth hormone and liver glycogen in smolting coho salmon", R.M. Sweeting and B.A. McKeown, Smolt Workshop, University of Washington, Seattle, Wash.

1987 "Plasma free fatty acids during seawater adaptation of coho salmon smolts", R.M. Sweeting and B.A. McKeown, Smolt Workshop, Univ. of California at Berkeley, Berkeley, California.

1988 "Growth hormone in fish", B.A. McKeown, R.M. Sweeting and B.A. Barrett, 3rd International Conference on Smoltification, University of Trondheim, Trondheim, Norway.

1990 "Hepatic deiodination of thyroxine (T₄) in rainbow trout *Oncorhynchus mykiss*: acute effects of starvation and triiodothyronine (T₃)", R.M.

Sweeting and J.G. Eales, Canadian Society of Zoologists, 29th Annual Meeting, Simon Fraser University, Burnaby, British Columbia, Canada.

1991 "Thyroid hormone deiodinase systems in the rainbow trout (*Oncorhynchus mykiss*), and their involvement in the regulation of thyroidal status", J.G. Eales, D.L. MacLatchy, and R.M. Sweeting, 14th European Endocrinology Meeting, St. Malo, France.

"The effect of feed cycling on growth and circulating plasma levels of growth hormone, triiodo-thyronine (T3) and cortisol in chinook salmon (*Oncorhynchus tshawytscha*)", J. Quinton, B.A. McKeown, D. Higgs, R. M. Sweeting and A. Prendergast, 14th European Endocrinology Meeting, St Malo, France.

1992 "Hepatic and branchial thyroid hormone 5'-mono-deiodinase activities during the parr-smolt transformation of juvenile coho salmon (*Oncorhynchus kisutch*)", R.M. Sweeting, G.P. Alexander and B.A. McKeown, 4th International Conference on Smoltification, St. Andrews, New Brunswick, Canada.

1993 "The effects of long-term exercise on plasma parameters in rainbow trout (*Oncorhynchus mykiss*)", L. Boesgaard, M.E. Nielsen, R.M. Sweeting, B.A. McKeown and P. Rosenkilde, 6th International Symposium on Fish Physiology, Kirkkonummi, Finland.

"The effects of short-term exercise on plasma parameters in rainbow trout, (*Oncorhynchus mykiss*)", M.E. Nielsen, L. Boesgaard, R.M. Sweeting, B.A. McKeown and P. Rosenkilde, 6th International Symposium on Fish Physiology, Kirkkonummi, Finland.

"Use of visual pigment shift as an indicator of smolt status", G.P. Alexander, R.M. Sweeting and B.A. McKeown, 16th Smolt Workshop, Simon Fraser University, Burnaby, B.C.

1994 "Gill 5'-monodeiodinase in juvenile coho salmon (*Oncorhynchus kisutch*): effects of season and smoltification", R.M. Sweeting, G.A. Alexander and B.A. McKeown, Canadian Society of Zoologists, 33rd Annual Meeting, University of Manitoba, Winnipeg, Manitoba.

"Seasonal changes in visual pigment composition and hypo-osmoregulatory ability in juvenile coho salmon, *Oncorhynchus kisutch*", G.A. Alexander, R.M. Sweeting and B.A. McKeown, Canadian Society

of Zoologists, 33rd Annual Meeting, University of Manitoba, Winnipeg, Manitoba.

"Effects of environmental factors on 5'-monodeiodinase activity in the gills and liver of juvenile salmonids", R.M. Sweeting, G.A. Alexander, L. Boesgaard, B.A. McKeown and J.G. Eales, International Fish Physiology Symposium, University of British Columbia, Vancouver, B.C.

OTHER PRESENTATIONS:

Invited Seminars:

1987 "The whims of salmon growth hormone: a story of how little fish become big fish", Physiology Seminar Series, Simon Fraser Univ., Burnaby, B.C.

1988 "Growth hormone and seawater adaptation in coho salmon", Western Washington University, Bellingham, Washington.

1990 "The roles of growth hormone in smoltification of Pacific salmonids", University of Manitoba, Winnipeg, Manitoba.

Posters:

1993 "The porphyropsin to rhodopsin shift in the retinae of juvenile coho salmon as an indicator of smolt status", G. Alexander, R.M. Sweeting and B.A. McKeown, American Fisheries Society Meeting, Portland, Oregon.

1993 "Stress effects in juvenile rainbow trout following acute and chronic exposure to tetrachloroguaiacol", J.A. Johansen, C.J. Kennedy, R.M. Sweeting, A.P. Farrell and B.A. McKeown, American Fisheries Society Meeting, Portland, Oregon.

1993 "A bioindicator-based environmental monitoring program for the pulp and paper industry", C.J. Kennedy, R.M. Sweeting, J.A. Johansen, A.P. Farrell and B. A. McKeown. A quatic Resources Research Project Workshop, Simon Fraser University, Burnaby, B.C.

1994 " Influence of sustained exercise and endurance training on growth, muscle physiology, cardiovascular parameters and plasma levels of metabolic hormones of seawater-adapted all-female chinook salmon", A. Kiessling, P. Gallager, H. Thorarensen, A. Kolok, J.G. Eales, R. Sweeting, B. Gong, B.A. McKeown, B. Dosanjh, A. Farrell, and D. Higgs. International Fish Physiology Symposium, University of British Columbia, Vancouver, B.C.

Reports:

Sweeting, R.M., C.J. Kennedy, J.A. Johansen, A.P. Farrell and B.A. McKeown.(1993) "Biological Indicators of Contaminant-Induced Stress in Fish", *In Towards Environmental Risk Assessment and Management of the Fraser River Basin*, The Aquatic Resource Research Project, Simon Fraser University Press, pp. 163-177.

Kennedy, C.J., **R.M. Sweeting**, J.A. Johansen, A.P. Farrell and B.A. McKeown "Stress Effects of Pulp Mill Effluent and its Components in Fishes: A Literature Review", *In Towards Environmental Risk Assessment and Management of the Fraser River Basin*, The Aquatic Resource Research Project, Simon Fraser University Press, pp. 123-162, 1993.

Ford, B.S., P.S. Higgins, A.F. Lewis, K.L. Cooper, T.A. Watson, C.M. Gee, G.L. Ennis and **R.M. Sweeting** (1995) "Literature reviews of the life history, habitat requirements and mitigation/compensation strategies for thirteen sport fish species in the Peace, Laird and Columbia river drainages of British Columbia." Canadian Manuscript Report Fisheries and Aquatic Sciences 2321, 366 pp.

Beamish, R., Sweeting, R., Lange, K., Neville, C., Preikshot, D., Thomson, R., Beacham, T., and Trudel, M. 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).