

CURRICULUM VITAE

A. PERSONAL DATA

NAME: BEACHAM,

TERRY DALE



DEGREES HELD:

B.Sc. (Hons.) University of Manitoba, 1974

Ph.D. University of British Columbia, 1979

PROFESSIONAL EXPERIENCE:

1979-80 Research Scientist (RES-01) specializing in groundfish stock assessment and biology, Fisheries and Marine Service, Bedford Institute of Oceanography, Dartmouth, Nova Scotia.

1980-86 Research Scientist, Salmon Population Dynamics and Ecology, Pacific Biological Station (PBS), Nanaimo, B.C. Promoted to RES-02 April 1981.

1987-91 Section Head, Salmon Dynamics (PBS), specializing in salmon stock identification, growth, morphology, genetics. Promoted to RES-03 April 1988.

1992-95 Section Head, Assessment Methods (PBS), Salmon Division, specializing in salmon stock identification biology, and growth. Reclassified to RES-04 April 1991. Promoted to RES-05, April 1992.

1996-2004 Section Head, Sustainable and Enabling Technologies, Aquaculture Division (PBS), specializing in salmon stock identification biology.

2005-11 Research Scientist, Molecular Genetics Laboratory, Salmon and Freshwater Ecosystems Division, specializing in population structure and stock identification.

B. AWARDS

Hogg and Guertin Manitoba Centennial Scholarship 1970

University of Manitoba Alumni Association Award for Excellence 1970

141 Fishing Club Scholarship 1973

National Research Council Graduate Scholarships 1975-79

Most Significant Paper, Journal of Aquatic Animal Health 1992

R. E. Foerster Publication Award (Best DFO Pacific Region paper) 1995, 2004

Stevan Phelps Memorial Award (Best genetics paper published in an AFS)

Journal) 2002
Queen's Jubilee Medal 2002

C. RESEARCH EXPERIENCE

1. University of Manitoba, summer 1971. Summer student in Winnipeg assisting in evaluating garter snake physiology with respect to temperature tolerance.
2. Department of Fisheries and Oceans, summers 1972-74. Summer student assisting in primary productivity studies in Experimental Lakes Area (1972), Mackenzie River fish populations surveys (1973), Red River and Tuktoyaktuk fish population surveys (1974).
3. Canadian Wildlife Service, 1974-75. Waterfowl surveys technician in Winnipeg, Manitoba. Banded waterfowl, evaluated morphometric techniques of stock identification for Canada geese, evaluated utility of aerial and ground surveys of population abundance of geese.
4. University of British Columbia, Vancouver, 1975-79. Investigated population dynamics of small mammals (field voles) for Ph.D. Conducted intensive population monitoring in field.
5. Department of Fisheries and Oceans, Marine Fish Division, Bedford Institute of Oceanography, Dartmouth, Nova Scotia, 1979-80. Prepared stock assessments of cod and white hake. Investigated variation in growth and age at maturity in Atlantic groundfish.
6. Department of Fisheries and Oceans, Pacific Biological Station, Nanaimo, British Columbia, 1980-present. Conducted research on variation in development, growth, morphology, stock identification, biochemical genetics, quantitative genetics, molecular genetics, maturity, ecology, and population dynamics of Pacific salmon, as well as other Pacific marine fish, invertebrates, and Atlantic marine species.

D. REVIEWED JOURNAL ARTICLES AND BOOK CHAPTERS

In review

166. Liu, J.-X., Andrey Tatarenkov, Terry D. Beacham, Victor Gorbachev, Sharon Wildes, John C. Avise. Effects of Pleistocene climatic fluctuations on phylogeographic and demographic history of Pacific herring, *Clupea pallasii*.
165. Flannery, B. G., P. A. Crane, J. H. Eiler, T. D. Beacham, W. D. Templin, O. L. Schlei, and J. K. Wenburg. Comparison of radio telemetry and genetic methods for determining the origin of Yukon River Chinook salmon. North American Journal of Fisheries Management.
164. Beacham, T. D., J. R. Candy, C. Wallace, M. Wetklo, L. Deng, and C. MacConnachie. In review. Microsatellite stock identification of coho salmon (*Oncorhynchus kisutch*) in British Columbia. Fisheries Management and Ecology
163. Beacham, T. D., K. Jonsen, and C. Wallace. In review. A comparison of stock and individual identification for Chinook salmon (*Oncorhynchus tshawytscha*) in British Columbia provided by microsatellites (STRs) and single nucleotide polymorphisms (SNPs). Marine and Coastal Fisheries.

2011 and In press

162. Beamish, R. J., R.M. Sweeting, C.M. Neville, K.L. Lange, T.D. Beacham and D. Preikshot. 2011. Wild Chinook salmon survive much better than hatchery salmon in a period of poor production. Environmental Biology of Fishes
161. Tucker, S., M. Trudel, D.W. Welch, J.R. Candy, J.F.T. Morris, M.E. Thiess, C. Wallace, Jr and T.D. Beacham. In press. Annual trends in seasonal stock- and life history-specific ocean migration of juvenile Chinook salmon. Transactions of the American Fisheries Society.
160. Beacham, T. D., B. McIntosh, and C. Wallace. 2011. A comparison of polymorphism of genetic markers and population sample sizes required for mixed-stock analysis of sockeye salmon (*Oncorhynchus nerka*) in British Columbia. Canadian Journal of Fisheries and Aquatic Sciences 68: 550-562.
159. Beacham, T. D., J. R. Candy, E. Porszt, S. Sato, and S. Urawa. 2011. Microsatellite identification of Canadian sockeye salmon rearing in the Bering Sea. Transactions of the American Fisheries Society 140: 296-306.
158. Beacham, T. D., M. Wetklo, L. Deng, and C. MacConnachie. 2011. Coho salmon population structure in North America determined from microsatellites. Transactions of the American Fisheries Society 140: 253-270.
157. Candy, J. R., C. G. Wallace, and T. D. Beacham. 2011. Distance-based population classification software using mean-field annealing. Molecular Ecology Resources 11: 116-125.

2010

156. Flannery, B. G., T. D. Beacham, J. R. Candy, R. R. Holder, G. F. Maschmann, E. J. Kretschmer, and J. K. Wenburg. 2010. Mixed-stock analysis of Yukon River chum salmon: Application and validation in a complex fishery. *North American Journal of Fisheries Management* 30: 1324-1338.
155. Beacham, T. D., B. McIntosh, and C. Wallace. 2010. A comparison of stock and individual identification for sockeye salmon (*Oncorhynchus nerka*) in British Columbia provided by microsatellites and single nucleotide polymorphisms. *Canadian Journal of Fisheries and Aquatic Sciences* 67: 1274-1290.
154. Olsen, J. B., T. D. Beacham, M. Wetklo, L. W. Seeb, C. T. Smith, B. G. Flannery, and J. K. Wenburg. 2010. The influence of hydrology and waterway distance on population structure of Chinook salmon (*Oncorhynchus tshawytscha*) in a large river. *Journal of Fish Biology* 76: 1128-1148.
153. Beacham, T. D. 2010. Revisiting trends in evolution of egg size in hatchery-enhanced populations of Chinook salmon from British Columbia. *Transactions of the American Fisheries Society* 139: 579-585.
152. Beacham, T.D., and R. E. Withler. 2010. Comment on "Gene flow increases temporal stability of Chinook salmon (*Oncorhynchus tshawytscha*) populations in the Upper Fraser River, British Columbia, Canada". *Canadian Journal of Fisheries and Aquatic Sciences* 67: 202-205.

2009

151. Beacham, T. D., J. R. Candy, C. Wallace, S. Urawa, S. Sato, N. V. Varnavskaya, K. D. Le, and M. Wetklo. 2009. Microsatellite stock identification of chum salmon on a Pacific Rim basis. *North American Journal of Fisheries Management* 29: 1757-1776.
150. Beacham, T. D., J. R. Candy, S. Urawa, S. Sato, K. D. Le, and M. Wetklo. 2009. Stock origins of chum salmon (*Oncorhynchus keta*) in the Gulf of Alaska and eastern Pacific Ocean during winter as estimated with microsatellites. *North Pacific Anadromous Fish Commission Research Bulletin* 5: 15-23.
149. McPhee, M., M. Zimmerman, T. Beacham, B. Beckman, J. Olsen, L. W. Seeb, and W. D. Templin. 2009. Hierarchies in pattern and process: genetics and ecology of Pacific salmon in the Alaska-Yukon-Kuskokwim region. Pages 1177-1198. In C. C. Krueger, and C. E. Zimmerman, editors. *Pacific Salmon: Ecology and Management of Western Alaska's Populations*. American Fisheries Society, Symposium 70, Bethesda, Maryland.
148. Winther, I., and T. D. Beacham. 2009. The application of Chinook salmon stock composition data to management of the Queen Charlotte Islands troll fishery, 2006. Pages 977-1004. In C. C. Krueger, and C. E. Zimmerman, editors. *Pacific Salmon: Ecology and Management of Western Alaska's Populations*. American Fisheries Society, Symposium 70, Bethesda, Maryland.

147. Beacham, T. D., K. D. Le, M. Wetklo, B. McIntosh, T. Ming, and K. M. Miller. 2009. Population structure and stock identification of chum salmon from western Alaska determined with microsatellite and major histocompatibility complex variation. Pages 141-160. In C. C. Krueger, and C. E. Zimmerman, editors. Pacific Salmon: Ecology and Management of Western Alaska's Populations. American Fisheries Society, Symposium 70, Bethesda, Maryland.
146. Tucker, S., M. Trudel, D.W. Welch, J.R. Candy, J.F.T. Morris, M.E. Thiess, C. Wallace, D.J. Teel, W. Crawford, E.V. Farley, Jr and T.D. Beacham. 2009. Seasonal stock-specific migrations of juvenile sockeye salmon along the west coast of North America: implications for growth. Transactions of the American Fisheries Society. 138: 1458-1480.
145. Beacham, T. D., J. R. Candy, K. D. Le, and M. Wetklo. 2009. Structure of chum salmon (*Oncorhynchus keta*) populations across the Pacific Rim, determined from microsatellite analysis. Fishery Bulletin 107: 244-260.
144. Candy, J. R., R. G. Bonnell, T. D. Beacham, C. G. Wallace, and R. E. Withler. 2009. Dividing population genetic distance data with the software Partitioning Optimization with Restricted Growth Strings (PORGS): an application for Chinook salmon (*Oncorhynchus tshawytscha*), Vancouver Island, British Columbia. Fishery Bulletin 107: 45-56.

2008

143. Narum, S. R. , M. Banks, T. Beacham, R. Bellinger, M. Campbell, J. DeKoning, A. Elz, C. Guthrie, C. Kozfkay, K. Miller, P. Moran, R. Phillips, L. Seeb, C. Smith, K. Warheit, S. Young, and J.C. Garza. 2008. Differentiating populations at broad and fine geographic scales with microsatellites and SNPs. Molecular Ecology 17: 3464-3477.
142. Beacham, T. D., B. Spilsted, K. D. Le, and M. Wetklo. 2008. Population structure and stock identification of chum salmon *Oncorhynchus keta* from British Columbia determined with microsatellite DNA variation. Canadian Journal of Zoology 86: 1002-1014.
141. Olsen, J. B., B. Flannery, T. D. Beacham, J. F. Bromaghin, P. A. Crane, C. F. Lean, K. M. Dunmall, and J. K. Wenburg. 2008. The influence of hydrographic structure and seasonal run-timing on genetic diversity and isolation-by-distance patterns in chum salmon (*Oncorhynchus keta*). Canadian Journal of Fisheries and Aquatic Sciences 65: 2026-2042.
140. Beacham, T. D., S. Urawa, K. D. Le, and M. Wetklo. 2008. Population structure and stock identification of chum salmon from Japan determined with microsatellite DNA variation. Fisheries Science 74: 983-994.
139. Beacham, T. D., J. F. Schweigert, C. MacConnachie, K. D. Le, and L. Flostrand. In press. Use of microsatellites to determine population structure and migration of Pacific herring

- in British Columbia and adjacent regions. Transactions of the American Fisheries Society 137: 1795-1811.
138. Beacham, T. D., K. J. Supernault, and K. M. Miller. 2008. Population structure of Dungeness crab (*Cancer magister*) in British Columbia. Journal of Shellfish Research 27: 901-906.
 137. Beacham, T. D., N. V. Varnavskaya, K. D. Le, and M. Wetklo. 2008. Population structure and stock identification of chum salmon (*Oncorhynchus keta*) from Russia determined with microsatellite DNA variation. Fishery Bulletin 106: 245-256.
 136. Beacham, T. D., M. Wetklo, C. Wallace, J. B. Olsen, B. G. Flannery, J. K. Wenburg, W. D. Templin, A. Antonovich, and L. W. Seeb. 2008. The application of microsatellites for stock identification of Yukon River Chinook salmon. North American Journal of Fisheries Management. 28: 283-295.
 135. Parken, C. K., J. R. Candy, J. R. Irvine, and T. D. Beacham. 2008. Genetic and coded wire tag results combine to allow more precise management of a complex Chinook salmon aggregate. North American Journal of Fisheries Management 28: 328-340.
 134. Beacham, T. D., I. Winther, K. L. Jonsen, M. Wetklo, L. Deng, and J. R. Candy. 2008. The application of rapid microsatellite-based stock identification to management of a Chinook salmon troll fishery off the Queen Charlotte Islands, British Columbia. North American Journal of Fisheries Management. 28: 849-855.

2007

133. Withler, R.E., T. Rundle and T.D. Beacham. 2007. Genetic identification of wild and domesticated strains of Chinook salmon in southern British Columbia, Canada. Aquaculture 272 (Supplement 1): S161-S171.
132. Seeb, L. W., A. Antonovich, M. A. Banks, T. D. Beacham, M. R. Bellinger, M. Campbell, N. A. Decovich, J. C. Garza, C. M. Guthrie III, P. Moran, S. R. Narum, J. J. Stephenson, K. J. Supernault, D. J. Teel, W. D. Templin, J. K. Wenburg, S. F. Young, and C. T. Smith. 2007. Development of a standardized DNA database for Chinook salmon. Fisheries 32: 540-552.

2006

131. Beacham, K. L. Jonsen, J. Supernault, M. Wetklo, L. Deng, and N. Varnavskaya. 2006. Pacific Rim population structure of Chinook salmon as determined from microsatellite variation. Transactions of the American Fisheries Society 135: 1604-1621.
130. Beacham, T. D., J. R. Candy, K. L. Jonsen, J. Supernault, M. Wetklo, L. Deng, K. M. Miller, and R. E. Withler. 2006. Estimation of stock composition and individual identification of Chinook salmon across the Pacific Rim using microsatellite variation. Transactions of the American Fisheries Society 135: 861-888.

129. Beacham, T. D., B. McIntosh, C. MacConnachie, K. M. Miller, R. E. Withler, and N. V. Varnavskaya. 2006. Pacific Rim population structure of sockeye salmon as determined from microsatellite analysis. *Trans. Am. Fish. Soc.* 135: 174-187.
128. Beacham, T.D., N. V. Varnavskaya, B. McIntosh, and C. MacConnachie. 2006. Population structure of sockeye salmon from Russia determined with microsatellite DNA variation. *Trans. Am. Fish. Soc.* 135: 97-109.

2005

127. Beacham, T.D., B. McIntosh, and C. MacConnachie. 2005. Population structure and stock identification of sockeye salmon (*Oncorhynchus nerka*) in coastal lakes in British Columbia, Canada. *Can. J. Zool.* 83: 834-844.
126. Beacham, T.D., J.R. Candy, B. McIntosh, C. MacConnachie, A. Tabata, K. Kaukinen, L. Deng, K. M. Miller, R. E. Withler, and N. V. Varnavskaya. 2005. Estimation of stock composition and individual identification of sockeye salmon on a Pacific Rim basis using microsatellite and major histocompatibility complex variation. *Trans. Am. Fish. Soc.* 134: 1124-1146.
125. Beacham, T.D., J.R. Candy, B. McIntosh, C. MacConnachie, A. Tabata, K.M. Miller, and R.E. Withler. 2005. DNA-level variation of sockeye salmon in southeast Alaska and the Nass and Skeena rivers, British Columbia, with applications to stock identification. *N. Amer. J. Fish. Manage.* 25: 763-776.
124. Beacham, T.D., D. E. Hay, and K. D. Le. 2005. Population structure and stock identification of eulachon (*Thaleichthys pacificus*), an anadromous smelt, in British Columbia, Canada. *Mar. Biotech.* 7: 363-372.

2004

123. Beacham, T.D., M. Lapointe, J.R. Candy, B. McIntosh, C. MacConnachie, A. Tabata, K. Kaukinen, L. Deng, K.M. Miller, and R.E. Withler. 2004. Stock identification of Fraser River sockeye salmon (*Oncorhynchus nerka*) using microsatellites and major histocompatibility complex variation. *Trans. Am. Fish. Soc.* 133: 1106-1126.
122. Beacham, T.D., B. McIntosh, and C. MacConnachie. 2004. Population structure of lake-type and river-type sockeye salmon in transboundary rivers of northern British Columbia, Canada. *J. Fish. Biol.* 65: 389-402.
121. Beacham, T.D., M. Lapointe, J.R. Candy, K.M. Miller, and R.E. Withler. 2004. DNA in action: Rapid application of DNA variation to sockeye salmon fisheries management. *Cons. Gen.* 5: 411-416.
120. Withler, R.E., J.R. Candy, T.D. Beacham and K.M. Miller. 2004. Forensic DNA analysis of Pacific salmonid samples for species and stock identification. *Env. Biol. Fish.* 69: 275-285.

119. Beacham, T.D., K.D. Le, and J.R. Candy. 2004. Population structure and stock identification of steelhead trout (*Oncorhynchus mykiss*) in British Columbia based on microsatellite variation. *Env. Biol. Fish.* 69: 95-109.

2003

118. Beacham, T.D. 2003. Comment on "Rapid evolution of egg size in captive salmon" (II). *Science* 302: 59d.
117. Beacham, T.D., J.R. Candy, K.J. Supernault, M. Wetklo, B. Deagle, K. Labaree, J.R. Irvine, K.M. Miller, R.J. Nelson, and R.E. Withler. 2003. Evaluation and application of microsatellites for population identification of Fraser River chinook salmon (*Oncorhynchus tshawytscha*). *Fish. Bull.* 101: 243-259.
116. Beacham, T.D., K.J. Supernault, M. Wetklo, B. Deagle, K. Labaree, J.R. Irvine, J.R. Candy, K.M. Miller, R.J. Nelson, and R.E. Withler. 2003. The geographic basis for population structure in Fraser River chinook salmon, *Oncorhynchus tshawytscha*. *Fish. Bull.* 101: 229-242.

2002

115. Beacham, T.D., B. McIntosh, and C. MacConnachie. 2002. Microsatellite identification of individual sockeye salmon *Oncorhynchus nerka*) in Barkley Sound, British Columbia. *J. Fish Biol.* 61: 1021-1032.
114. Beacham, T.D., J. Bratney, K.D. Le, K.M. Miller, and R.E. Withler. 2002. Multiple stock structure of Atlantic cod (*Gadus morhua*) off Newfoundland and Labrador determined from genetic variation. *ICES J. Mar. Sci.* 59: 650-665.

2001

113. Miller, K.M., K.H. Kaukinen, T.D. Beacham, and R.E. Withler. 2001. Geographic heterogeneity in natural selection of an MHC locus in sockeye salmon. *Genetica* 111: 237-257.
112. Beacham, T.D., J.R. Candy, K.J. Supernault, T. Ming, B. Deagle, A. Schultz, D. Tuck, K. Kaukinen, J.R. Irvine, K.M. Miller, and R. E. Withler. 2001. Evaluation and application of microsatellite and major histocompatibility complex variation for stock identification of coho salmon in British Columbia. *Trans. Am. Fish. Soc.* 130: 1116-1155.
111. Withler, R.E., T.D. Beacham, A.D. Schulze, L.J. Richards, and K.M. Miller. 2001. Co-existing populations of Pacific Ocean perch, *Sebastes alutus*, in Queen Charlotte Sound, British Columbia. *Mar. Biol.* 139: 1-12.
110. Nelson, R.J., M.P. Small, T.D. Beacham, and K.J. Supernault. 2001. Population structure of Fraser River chinook salmon (*Oncorhynchus tshawytscha*): an analysis using microsatellite DNA markers. *Fishery Bulletin* 99: 94-107.

2000

109. Beacham, T.D., S. Pollard, and K. Le. 2000. Microsatellite DNA population structure and stock identification of steelhead trout in the Nass River and Skeena River in northern British Columbia. *Mar. Biotechnol.* 2: 587-600.
108. Miller, K.M., K.D. Le, and T.D. Beacham. 2000. Development of tri- and tetranucleotide repeat microsatellite loci in Atlantic cod (*Gadus morhua*). *Mol. Ecol.* 9: 238-239.
107. Beacham, T.D., C.C. Wood, R.E. Withler, and K.M. Miller. 2000. Application of microsatellite DNA variation to estimation of stock composition and escapement of Skeena River sockeye salmon (*Oncorhynchus nerka*). *N. Pac. Anad. Fish. Comm. Res. Bull.* 2: 263-276.
106. Withler, R.E, K.D. Le, R.J. Nelson, K.M. Miller, and T.D. Beacham. 2000. Intact genetic structure and high levels of genetic diversity in bottlenecked sockeye salmon, *Oncorhynchus nerka*, populations of the Fraser River, British Columbia, Canada. *Can. J. Fish. Aquat. Sci.* 57: 1985-1998.
105. Beacham, T.D., K.D. Le, M.R. Raap, K. Hyatt, W. Luedke, and R.E. Withler. 2000. Microsatellite DNA variation and estimation of stock composition of sockeye salmon *Oncorhynchus nerka*, in Barkley Sound, British Columbia. *Fish. Bull.* 98: 14-24.
104. Candy, J.R., and T. D. Beacham. 2000. Patterns of homing and straying in southern British Columbia coded-wire tagged chinook salmon (*Oncorhynchus tshawytscha*) populations. *Fish. Res.* 47: 41-56.

1999

103. Beacham, T.D., S. Pollard, and K.D. Le. 1999. Population structure and stock identification of steelhead (*Oncorhynchus mykiss*) in southern British Columbia, Washington, and the Columbia River based on microsatellite DNA variation. *Trans. Am. Fish. Soc.* 128: 1068-1084.
102. Shaklee, J.B., T.D. Beacham, L. Seeb, and B.A. White. 1999. Managing fisheries using genetic data: Case studies from four species of Pacific salmon. *Fish. Res.* 43: 45-78.
101. Nelson, R.J., and T.D. Beacham. 1999. Isolation and cross species amplification of microsatellite loci useful for study of Pacific salmon. *Anim. Genet.* 30: 228-229.
100. Beacham, T.D., and C.C. Wood. 1999. Application of microsatellite DNA variation to estimation of stock composition and escapement of Nass River sockeye salmon (*Oncorhynchus nerka*). *Can. J. Fish. Aquat. Sci.* 56: 297-310.

1998

99. Nelson, R.J., T.D. Beacham, and M.P. Small. 1998. Microsatellite analysis of the population structure of a Vancouver Island sockeye salmon (*Oncorhynchus nerka*) stock complex using non-denaturing gel electrophoresis. *Mol. Mar. Biol. Biotech.* 7: 312-319.

98. Beacham, T.D., and J.B. Dempson. 1998. Population structure of Atlantic salmon (Salmo salar) from the Conne River, Newfoundland as determined from microsatellite DNA. J. Fish Biol. 52: 665-676.
97. Small, M.P., R.E. Withler, and T.D. Beacham. 1998. Population structure and stock identification of British Columbia coho salmon, Oncorhynchus kisutch based on microsatellite DNA variation. Fish. Bull. (US) 96: 843-858.
96. Small, M.P., T.D. Beacham, and R.E. Withler. 1998. Discriminating coho salmon (Oncorhynchus kisutch) populations within the Fraser River, British Columbia using microsatellite DNA markers. Mol. Ecol. 7:141-155.
95. Beacham, T.D., L. Margolis, and R. J. Nelson. 1998. A comparison of methods of stock identification for sockeye salmon (Oncorhynchus nerka) in Barkley Sound, British Columbia. North Pac. Anad. Fish. Comm Bull. 1: 227-239.

1997

94. Withler, R.E., T.D. Beacham, T.J. Ming and K.M. Miller. 1997. Species identification of Pacific salmon by means of a major histocompatibility gene. N. Amer. J. Fish. Manage. 17: 929-938.
93. Miller, K.M., R.E. Withler, and T.D. Beacham. 1997. Molecular evolution at Mhc genes in two populations of chinook salmon Oncorhynchus tshawytscha. Mol. Ecol. 6: 937-954.

1996

92. Beacham, T.D., K.M. Miller, and R.E. Withler. 1996. Minisatellite DNA variation and stock identification of coho salmon (Oncorhynchus kisutch). J. Fish. Biol. 49: 411-429.
91. Beacham, T.D. 1996. The use of minisatellite DNA variation for stock identification of chum salmon (Oncorhynchus keta). Fisheries Bulletin (U.S.) 94: 611-626.
90. Beacham, T.D., R.E. Withler, and T.A. Stevens. 1996. Stock identification of chinook salmon (Oncorhynchus tshawytscha) using minisatellite DNA variation. Can. J. Fish. Aquat. Sci. 53: 380-394.
89. Miller, K.M., R.E. Withler, and T.D. Beacham. 1996. Stock identification of coho salmon (Oncorhynchus kisutch) using minisatellite DNA variation. Can. J. Fish. Aquat. Sci. 53: 181-195.

1995

88. Withler, R.E. and T.D. Beacham. 1995. Freshwater growth, smolting, and marine survival and growth of diploid and triploid coho salmon (Oncorhynchus kisutch). Aquaculture 136: 91-107.
87. Beacham, T.D., R.E. Withler, and C.C. Wood. 1995. Stock identification of sockeye salmon by means of minisatellite DNA variation. N. Amer. J. Fish. Manage. 15: 249-265.

1994

86. Withler, R.E., T.D. Beacham, R.F. Watkins, and T.A. Stevens. 1994. Identification of farm and native chinook salmon (Oncorhynchus tshawytscha) on the west coast of Vancouver Island, British Columbia, using the nuclear DNA probe B2-2. *Can. J. Fish. Aquat. Sci.* 35(Suppl. 1): 267-276.
85. Withler, R.E., and T.D. Beacham. 1994. Genetic consequences of the simultaneous or sequential addition of milt from multiple males during hatchery spawning of chinook salmon (Oncorhynchus tshawytscha). *Aquaculture* 126: 11-23.
84. Withler, R.E., and T.D. Beacham. 1994. Genetic variation in growth and flesh colour of coho salmon (Oncorhynchus kisutch) in British Columbia. *Aquaculture* 119: 135-148.
83. Beacham, T.D., C.B. Murray, and L.W. Barner. 1994. Influence of photoperiod on the timing of reproductive maturation in pink salmon (Oncorhynchus gorbuscha), and its application to genetic transfers between odd- and even-year spawning populations. *Can. J. Zool.* 72: 826-833.
82. Taylor, E.B., T.D. Beacham, and M. Kaeriyama. 1994. Population structure and identification of North Pacific Ocean chum salmon (Oncorhynchus keta) revealed by an analysis of minisatellite DNA variation. *Can. J. Fish. Aquat. Sci.* 51: 1430-1442.

1993

81. Murray, C.B., T.D. Beacham, and L.W. Barner. 1993. Growth and survival of newly emerged and juvenile coho salmon (Oncorhynchus kisutch) reared at different salinities. *Can. J. Zool.* 71: 1230-1237.
80. Beacham, T.D. 1993. Competition between juvenile pink (Oncorhynchus gorbuscha) and chum salmon (O. keta) and its effect on growth and survival. *Can. J. Zool.* 71: 1270-1274.
79. Stevens, T.A., R.E. Withler, S.H. Goh, and T.D. Beacham. 1993. A new multi-locus probe for DNA fingerprinting in chinook salmon (Oncorhynchus tshawytscha), and comparisons with a single locus probe. *Can. J. Fish. Aquat. Sci.* 50: 1559-1567.
78. Beacham, T.D., and C.B. Murray. 1993. Fecundity and egg size variation in North American Pacific salmon (Oncorhynchus). *J. Fish. Biol.* 42: 485-508.
77. Beacham, T.D., and C.B. Murray. 1993. Acceleration of maturity of pink salmon (Oncorhynchus gorbuscha) using photoperiod control. *Aquaculture* 109: 315-325.

1992

76. Varnavskaya, N.V., and T.D. Beacham. 1992. Biochemical genetic variation in odd-year pink salmon (Oncorhynchus gorbuscha) from Kamchatka. *Can. J. Zool.* 70: 2115-2120.

75. Beacham, T.D. 1992. Early survival and growth of pink salmon (Oncorhynchus gorbuscha) in fresh and saline water. *Aquaculture* 106: 151-159.
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