

CURRICULUM VITAE

Milo Douglas Adkison

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University of Alaska Fairbanks
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Juneau, AK 99801

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Birthdate: April 19, 1962
Birthplace: Dillingham, Alaska

Education: Bachelor of Science, Biological Sciences
University of California, Davis, California (1984)
Master of Science, Biological Sciences - minor in Statistics
Montana State University, Bozeman, Montana (1989)
Doctor of Philosophy, Fisheries
University of Washington, Seattle, Washington (1994)
Postdoctoral Fellow, Simon Fraser University, 1994-1995

Honors and Awards:

Fulbright Scholar at Centro Nacional Patagónico, CONICET,
Puerto Madryn, Argentina
Wildlife Publication Award (article category) from the Wildlife
Society for the 1994 Ecological Applications article by
Pascual and Adkison
Roy Jensen Fellowship, 1992
SOF nominee for UW Distinguished Teaching Assistant, 1991
Visiting scholar, Renewable Resources Assessment Group,
Imperial College, London, 1991
H. Mason Keeler Fellowship, 1989-1992
National Merit Scholar, 1980

Professional Experience:

2003-present	Associate Professor, Fisheries Division, School of Fisheries and Ocean Sciences, University of Alaska, Fairbanks
1997-2003	Assistant Professor, Fisheries Division, School of Fisheries and Ocean Sciences, University of Alaska, Fairbanks
1995-1996	Research Fishery Biologist GS-12, National Biological Service, Anchorage, Alaska
1994-1995	Postdoctoral Fellow, School of Resource and Environmental Management, Simon Fraser University, Burnaby, B.C.

1978-1984, 1989 Commercial Salmon Fisherman, Bristol Bay, Alaska (summers)

Current Research Interests and Activities:

- Pacific salmon management, esp. forecasting methodologies, implications of climate fluctuations, early marine growth and survival, and the economic viability of rural fishing communities
- Application of decision analysis and bayesian statistics to resource management
- Model selection methodologies for ecological, epidemiological and fisheries data series
- Conservation and dynamics of small populations

Professional Activities:

2004-present	Member, Pacific Salmon Commission Technical Disputes Settlement Board, US-Canada Pacific Salmon Treaty
2003	Conference co-organizer, The Future of Alaska's Salmon Returns
2001-2003	Member, Norton Sound Salmon Research and Restoration Scientific and Technical Committee
1997-2003	Member, Alaska Scientific Review Group (reviewed marine mammal stock assessments for NMFS)
1997-present	Chair, Student Affairs Committee, UAF School of Fisheries
1997-present	Faculty Advisor, Juneau Student Chapter of the American Fisheries Society
1993-present	Reviewer for Alaska Sea Grant Wakefield Symposia, Canadian Journal of Fisheries and Aquatic Sciences, Conservation Biology, Ecological Applications, Fisheries Oceanography, Journal of Great Lakes Research, Natural Resource Modeling, North American Journal of Fisheries Management, Transactions of the American Fisheries Society, US Fishery Bulletin
1998	Substitute member of the Scientific and Statistical Committee for the North Pacific Fisheries Management Council
1997-1998	Organizing Committee, 1998 Lowell Wakefield Symposium
1992-1993	Chair, UW-SOF Graduate Student Council

Teaching Experience:

Fish 695: Salmon Fishery Management Field Course (4 credits) Joint offering with University of Washington at UW field camp in Aleknagik, AK (Summer 2005)

Fish 612: Fisheries Conservation Biology (4 credits) Juneau Center, University of Alaska, Fairbanks (Spring 1999 [2 cr. seminar], Spring 2001, Spring 2003)

Fish 693: Fishery Resource Modeling (2 credits) Juneau Center, University of Alaska, Fairbanks (Fall 1998 [Ind. Study], Fall 2000, Spring 2003)

Fish 421: Fisheries Population Dynamics (4 credits) Juneau Center, University of Alaska, Fairbanks (Spr. 1997, 1998, 2000, 2002)

Fish/Stat 693: Decision Analysis and Bayesian Statistics for Natural Resource Management (4 credits) Juneau Center, University of Alaska, Fairbanks (Fall 1997, 1999, 2001)

Natural Resource Modeling – 6 day intensive course at the Centro Nacional Patagonico, CONICET, in Puerto Madryn, Chubut, Argentina November 2003 (in Spanish)

Professional Development Seminar: Risk Assessment and Decision Theory for Natural Resource Management -- A two-day workshop at Simon Fraser University for Canadian Department of Fisheries and Oceans and Pacific Salmon Commission personnel, in collaboration with Randall Peterman. (May 1995)

MRM 663: Risk Assessment and Decision Theory for Natural Resource Management -- developed and taught a graduate course in collaboration with Randall Peterman. Simon Fraser University (Spring 1995)

Fisheries 456: Fundamentals of Fish Population Dynamics and Management (TA) School of Fisheries, University of Washington (Fall 1990, Fall 1991)

Current and Former Students:

Zhenming Su, Ph.D. Optimal in-season management of pink salmon given uncertain run sizes and declining economic value. *Graduated:* May 2002

John Moran, M.S. Counting seals: estimating the unseen fraction using a covariate and capture-recapture model. *Graduated:* Summer 2003

Ryan Briscoe, M.S. Factors affecting marine growth and survival of Auke Creek, Alaska coho salmon (*Oncorhynchus kisutch*). *Graduated:* Spring 2004

Kalei Shotwell, Ph.D. Methods for forecasting salmon returns in Western AK. *Graduated:* Spring 2004

Ed Farley, Ph.D. Determinants of early marine survival in Bristol Bay sockeye salmon

Brian Pyper, Ph.D. Setting salmon escapement goals that account for climatic fluctuations and uncertainty

Jody White, Ph.D. Sensitivity analyses of the Chinook Technical Committee model

Tadayasu Uchiyama, M.S. (co-chair w/B. Finney) Understanding the role of marine-derived nutrients in population dynamics of sockeye salmon

Josh Robins, M.S. Factors affecting marine growth and survival of Auke Creek, Alaska coho salmon (*Oncorhynchus kisutch*): Phase II.

Katy Howard, M.S. Inter-decadal change in sablefish growth and maturity in the northeast Pacific Ocean

Grants:

- AYK-SSI (through Kawerak, Inc.) 2005-2006. Genetic Variation in Norton Sound Chum Salmon Populations. \$7,000.
- Moore Foundation (through U. Washington) 2005-2007. Development of salmon management tools. \$55,000.
- UA President's Special Projects Fund. 2005. Salmon Fishery Management Field Course. \$5,000.
- NOAA, (through CIFAR) 2005. Inter-decadal change in sablefish growth and maturity in the northeast Pacific Ocean. \$58,000.
- Fulbright Foundation. 2004. Research and teaching at CONICET in Chubut, Argentina. \$10,000 + airfare.
- Alaska Department of Fish and Game, 2003-2005. Analyses of the Chinook Technical Committee model. \$50,000.
- US GLOBEC, (through CIFAR) 2002-2005. Early marine growth and survival of Bristol Bay sockeye salmon smolt. \$32,000
- Alaska Sea Grant College Program, 2002-2004. Understanding the role of marine-derived nutrients in population dynamics of sockeye salmon. (co-PI) with Finney of UAF. \$145,000.
- Internal UA funds. 2002. Future salmon returns to Alaska based on historical patterns. (PI) with Finney of UAF. \$10,000.
- GLOBEC. 2001-2005. Relationship between growth and survival of coho salmon utilizing the coastal Gulf of Alaska. (co-PI) with Heard (PI), Taylor, Wertheimer, and Orsi of NMFS. \$535,000.
- Alaska Sea Grant College Program, 2000-2004. Setting salmon escapement goals that account for climatic fluctuations and uncertainty. (PI) \$122,000.
- National Science Foundation, 1999-2001. Optimal model complexity for decision analytic approaches to natural resource management and conservation. (PI) \$46,000.
- North Pacific Marine Research Initiative, 1999-2001. A basin-wide retrospective analysis of growth and survival patterns in pink and chum salmon. With Smoker (PI) of UAF, Heard of NMFS, Kaeriyama of Hokkaido Tokai U., Klyashtorin of VINRO. \$262,000.
- Alaska Department of Fish and Game, 1999-2001. Forecasting relative abundance of Western Alaska chum and chinook salmon. \$67,000. (PI) with Smoker of UAF, Geiger of ADF&G.
- Alaska Department of Fish and Game, 1999-2000. Design of Alaska harbor seal surveys. \$41,000. (co-PI) with Quinn of UAF.
- SE Alaska Research Committee, 1997-2003. SE Alaska pink and chum salmon research. (PI) \$20,000 - \$89,000 per annum.

Peer-Reviewed Publications:

- Moran, J.R., M.A. Adkison, and B.P. Kelly. *In preparation*. Counting seals: estimating the unseen fraction using a photographic capture-recapture and covariate model.
- Briscoe, R.J., M.D. Adkison, A. Wertheimer., S.G. Taylor. *In preparation*. Factors influencing marine growth of Auke Creek, Alaska coho salmon
- Shotwell, S.K., M.D. Adkison, and D.H. Hanselman. *In press*. Accounting for climate variability in forecasting Alaskan chum salmon in data-limited situations. *In*: Kruse, G.H., V.F. Gallucci, D.E. Hay, R.I. Perry, R.M. Peterman, T.C. Shirley, P.D. Spencer, B. Wilson, and D. Woodby (eds.), Fisheries assessment and management in data-limited situations. Alaska Sea Grant College Program, University of Alaska Fairbanks.
- Briscoe, R.J., M.D. Adkison, A. Wertheimer., S.G. Taylor. 2005. Biophysical factors associated with the marine survival of Auke Creek, Alaska coho salmon. *Transactions of the American Fisheries Society* 134:817–828.
- Shotwell, S.K., and M.D. Adkison. 2004. Estimating indices of abundance and escapement of Pacific salmon for data limited situations. *Transactions of the American Fisheries Society* 133:538-558.
- Adkison, M.D., and B.P. Finney. 2003. The long-term outlook for salmon returns to Alaska. *Alaska Fisheries Research Bulletin* 10:83-94.
- Adkison, M.D., T.J. Quinn II, and R.J. Small. 2003. Evaluation of the Alaska harbor seal (*Phoca vitulina*) population survey: a simulation study. *Marine Mammal Science* 19:764-790.
- Su, Z. and M.D. Adkison. 2002. Optimal inseason management of pink salmon given uncertain run sizes and seasonal changes in economic value. *Canadian Journal of Fisheries and Aquatic Sciences* 59:1648-1659.
- Adkison, M.D. 2002. Preseason forecasts of pink salmon harvests in SE Alaska using Bayesian model averaging. *Alaska Fisheries Research Bulletin* 9:1-8.
- Adkison, M.D., and Z. Su. 2001. A comparison of salmon escapement estimates using a hierarchical Bayesian approach versus separate maximum likelihood estimation of each year's return. *Canadian Journal of Fisheries and Aquatic Sciences* 58:1663-1671.
- Su, Z., M.D. Adkison, and B.W. Van Alen. 2001. A hierarchical Bayesian model for estimating historical salmon escapement and escapement timing. *Canadian Journal of Fisheries and Aquatic Sciences* 58:1648-1662.
- Adkison, M.D., and R.M. Peterman. 2000. The predictability of Bristol Bay, Alaska sockeye salmon (*Oncorhynchus nerka*) returns 1 to 4 years in the future. *North American Journal of Fisheries Management*. 20:69-80.
- Adkison, M.D., B. Ballachey, J. Bodkin, and L. Holland-Bartels. 1998. Integrating ecosystem studies: a Bayesian comparison of hypotheses. pp. 495-509. *In*: F. Funk, J.N. Ianelli, T.J. Quinn II, and P.J. Sullivan (eds.) *Proceedings of the international symposium on fishery stock assessment models for the 21st century*. Alaska Sea Grant College Program. AK-SG-98-01.
- Peterman, R.M., B.J. Pyper, M.F. Lapointe, M.D. Adkison, C.J. Walters. 1998. Patterns of covariation in survival rates of British Columbia and Alaskan sockeye salmon

- (*Oncorhynchus nerka*) stocks. Canadian Journal of Fisheries and Aquatic Sciences 55:2503-2517.
- Berg, O.K., M.D. Adkison, and T.P. Quinn. 1997. Bilateral symmetry, sexual dimorphism, and nematode parasites in mature male sockeye salmon *Oncorhynchus nerka*. Northwest Science 71:305-312
- Adkison, M.D., R.M. Peterman, M.F. Lapointe, D.M. Gillis, and J. Korman. 1996. Alternative models of climatic effects on sockeye salmon (*Oncorhynchus nerka*) production in Bristol Bay, Alaska, and the Fraser River, British Columbia. Fisheries Oceanography 5:137-152
- Adkison, M.D., and R.M. Peterman. 1996. Results of Bayesian methods depend on details of implementation: an example estimating salmon escapement goals. Fisheries Research 25: 155-170.
- Quinn, T.P., M.D. Adkison, and M.B. Ward. 1996. Behavioral tactics of male sockeye salmon (*Oncorhynchus nerka*) under varying operating sex ratios. Ethology 102: 304-322
- Adkison, M.D. 1995. Population differentiation in Pacific salmon: local adaptation, genetic drift, or the environment? Canadian Journal of Fisheries and Aquatic Sciences 52: 2762-2777.
- Adkison, M.D., T.P. Quinn, and O. Rutten. 1995. An inexpensive, nondisruptive method for in situ dart tagging. North American Journal of Fisheries Management 15: 507-511.
- *Pascual, M.A. and M.D. Adkison. 1994. The decline of the Steller sea lion in the northeast Pacific: demography, harvest or environment? Ecological Applications 4: 393-403.
- (* Wildlife Publications Award from the Wildlife Society)
- Adkison, M.D. 1992. Parameter estimation for models of chaotic time series. Journal of Mathematical Biology 30: 839-852.

Other Publications:

- Moran, J., M. Adkison, and B. Kelly. 2003. Counting seals; estimating the unseen fraction using a covariate and capture-recapture model. Abstract from the 15th Biennial Conference on the Biology of Marine Mammals. Greensboro, North Carolina, USA. December 14-19.
- Adkison, M., and K. Shotwell. 2002. Forecast of the 2003 SE Alaska pink salmon harvest. JC-SFOS 2002-005.
- Adkison, M. 2002. Forecast of 2003 chum returns to SE Alaska. JC-SFOS 2002-006.
- Adkison, M., and K. Shotwell. 2001. Forecast of the 2002 SE Alaska pink salmon harvest. JC-SFOS 2001-009.
- Adkison, M. 2001. Forecast of 2002 chum returns to SE Alaska. JC-SFOS 2001-010.
- Adkison, M., and K. Shotwell. 2000. Forecast of the 2001 SE Alaska pink salmon harvest. JC-SFOS 2000-010.
- Adkison, M. 2000. Forecast of 2001 chum returns to SE Alaska. JC-SFOS 2000-012.
- Fu, C., T.J. Quinn II, and M.D. Adkison. 1999. Monte Carlo simulation study using length-based stock assessment model. In Ecosystem Considerations in Fisheries

- Management. Alaska Sea Grant College Program Rep. No. 99-01, University of Alaska Fairbanks. pp. 59-77.
- Farley, E.V. Jr., J.M. Murphy, R.E. Haight, G.M. Guthrie, C.T. Baier, M.D. Adkison, V.I. Radchenko, and F.R. Satterfield IV. 1999. Eastern Bering Sea (Bristol Bay) coastal research on Bristol Bay juvenile salmon, July and September 1999. (NPAFC Doc. 448) Auke Bay Laboratory, Alaska Fisheries Science Center, NMFS, NOAA, 11305 Glacier Highway, Juneau, AK 99801-8626. 22 p.
- Adkison, M.D. 1999. Preliminary forecast of SE AK chum salmon returns, 2000 season. JC-SFOS 99-08.
- Adkison, M.D., and K. Shotwell. 1999. Forecast of the 2000 SE Alaska pink salmon harvest. University of Alaska Fairbanks. JC-SFOS 99-07.
- Adkison, M.D., and Z. Su. 1998. Pre-season prediction for Southeast Alaska hatchery chum salmon returns using multiple cross-validation. University of Alaska Fairbanks. JC-SFOS 99-01
- Adkison, M.D., and Z. Su. 1998. Forecast of the 1999 SE Alaska pink salmon harvest. University of Alaska Fairbanks. JC-SFOS 98-011.
- Peterman, R.M., B.J. Pyper, M.L. Lapointe, M.D. Adkison. 1998. How related are environmental sources of variation for British Columbia and Alaska sockeye salmon? pp. 25-26 In: K. Myers (ed.) Workshop on climate change and salmon production. Tech. Rep. N. Pac. Anadromous Fish Comm., Vancouver, B.C., Canada.
- Adkison, M.D., and O.A. Mathisen. 1997. Forecast of the 1998 SE Alaskan pink salmon harvest. University of Alaska Fairbanks. JC-SFOS 97-08
- Peterman, R.M., B.J. Pyper, M.F. Lapointe, and M.D. Adkison 1997. Patterns of covariation in components of recruitment among sockeye salmon stocks in British Columbia. pp. 243-247 In: R.L. Emmett and M.H. Schiewe (eds.) Estuarine and ocean survival of Northeastern Pacific salmon: Proceedings of the workshop. U.S. Dept. Commerce, NOAA Tech. Memo. NMFS-NWFSC-29, 313pp.
- Adkison, M., M. Pascual, R. Hilborn, L. Fritz, X. He, and J. Moss. 1993. Modeling the trophic relationships between fish and marine mammal populations in Alaskan waters. Pages 54-56 In: Is it food?: addressing marine mammal and seabird declines: workshop summary. Alaska Sea Grant Report 93-01.

Formal Presentations:

- The Future of Alaska's Salmon Returns Conference, Anchorage, AK, April 2003. Future salmon abundance in Alaska: an overview.
- Annual Meeting, Alaska Chapter of the American Fisheries Society, Girdwood, AK, October 2002. title: Multi-stock state-space models for estimating trends in stock-recruit dynamics of Pacific salmon.
- Natural Resource Modeling Society, Logan, Utah, June 2001. title: Optimal model complexity for natural resource management.
- 20th Pink and Chum Salmon Workshop, Seattle, WA, March 2001. poster: Pre-season forecasts of chum harvests in SE Alaska.
- Bristol Bay Salmon Science Symposium, April 2001. University of Alaska research on Bristol Bay salmon.

ADF&G's 7th Alaska Salmon Workshop, Anchorage, AK, February 2001. title: Using Bayesian methods to estimate salmon escapement goals. Invited talk.

Annual Meeting, Alaska Chapter of the American Fisheries Society, Fairbanks, AK, November 2000. title: A hierarchical Bayesian model for estimating historical salmon escapement and escapement timing.

Annual Meeting, Alaska Chapter of the American Statistical Association, Kodiak, AK, August 2000. title: Redesigning the Alaska harbor seal survey.

ADF&G's 6th Alaska Salmon Workshop, Girdwood, AK, March 1999. title: Implications of climate fluctuations for salmon management. Invited talk.

19th Pink and Chum Workshop, Juneau, AK, March 1999. title: Pre-season forecasts of SE Alaska pink and chum returns.

Lowell Wakefield Symposium, Anchorage, AK, October 1998. title: The predictability of Bristol Bay, Alaska sockeye salmon returns 1-4 years into the future.

Lowell Wakefield Symposium, Anchorage, AK, October 1997. title: Integrating ecosystem studies: a Bayesian comparison of hypotheses.

AFS national conference, Monterey, CA, August 1997. title: Risk aversion for ensuring escapements and biodiversity.

Towards Sustainable Fisheries conference, Victoria, BC, April 1996. title: Genetic considerations in captive breeding to supplement a threatened population.

Annual meeting, American Fisheries Society - Alaska Chapter, Wassilla, Alaska, November 1995. title: Alternative models of climatic effects on sockeye salmon (*Oncorhynchus nerka*) production in Bristol Bay, Alaska, and the Fraser River, British Columbia.

Conference on the Role of Captive Breeding/Artificial Propagation in the Restoration of Endangered Species, Newport, Oregon, October 1995. title: Genetic models of captive breeding strategies for supplementing wild populations.

*Resource Modeling Association Conference, Juneau, Alaska, June 1995. title: Pitfalls in implementing Bayesian methods. (*keynote speaker)

Annual meeting, North Pacific International Chapter, American Fisheries Society, Vancouver, British Columbia, April, 1995. title: Population differentiation in Pacific salmon: Local adaptation, genetic drift, or the environment?

Enhancement and Habitat Restoration Workshop, Skeena Watershed Committee, Terrace, British Columbia, February 1995. title: The importance of genetic diversity in Pacific salmon.

Fisheries Centre Seminar, University of British Columbia, Vancouver, British Columbia, September 1994. title: Setting escapement goals using both historical abundance and habitat features: Important details of a Bayesian approach.

13th Pacific Coast Resource Modeling Conference, San Diego, California, July 1994. title: The genetics of supplementation.

Global Trends in Fisheries Management, Seattle, Washington, June 1994. poster: The genetics of supplementation.

Ecological and Evolutionary Ethology of Fishes, Victoria, British Columbia, May 1994. title: Response to tradeoffs between nest site quality and intrasexual competition in female salmon.

Workshop on the Importance of Prerecruit Walleye Pollock to the Bering Sea and North Pacific Ecosystems, Seattle, Washington, October 1993. title: Testing hypothesized causes for Steller sea lion declines using mechanistic models.

Sockeye-Kokanee Workshop, Richmond, British Columbia, March 1993. title: Factors affecting reproductive behavior in female lake-spawning sockeye salmon.

Natural Resources Modeling Society Conference, Berkeley, California, June 1992. title: Behavioral response to intrasexual nest-site competition in female sockeye salmon.

Pacific Northwest Workshop on Mathematical Biology, Seattle, Washington, March 1992. title: Parameter estimation for chaotic time series.

Ministry of Agriculture and Fisheries Lowestoft, England, June 1991. title: Improved estimates of historical abundance of Windermere perch.

Alaska Sea Grant "Is It Food?" Workshop on Addressing Marine Mammal and Seabird Declines in the Bering Sea and Gulf of Alaska, Fairbanks, Alaska, February 1991. title: A food-based model of marine mammal population dynamics.

Natural Resources Modeling Society Conference, Missoula, Montana, June 1990. title: Parameter estimation for chaotic time series.

Name: ANTHONY J. GHARRETT
School of Fisheries and Ocean Sciences
University of Alaska Fairbanks
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(907) 465-6445 ffaig@uaf.edu

Education:

California Institute of Technology	B.S. Biology, 1967
Oregon State University	M.S. Fisheries, 1973
Oregon State University	Ph.D. Genetics, 1975

Experience:

University of Alaska	August 1976 to present
Director, Fisheries Division	July 1994 to June 1998
Professor 1989	
Associate Professor 1980	
Assistant Professor 1976	
Hokkaido University, Fisheries Faculty and	October 1998 to January 1999
Kitasato University, School of Fisheries Sciences	January 1999 to April 1999
Fellow: Japan Society for the	
Promotion of Science	
NMFS Auke Bay Laboratory	January 1987 to December 1990
Geneticist, Interagency	
Personnel Act Assignment	
The University of Michigan	January 1985 to December 1986
Visiting Associate Professor	
University of Minnesota	November 1974 to July 1976:
NIH Postdoctoral Trainee	

Research interests:

I am actively engaged in research projects involving:

- Outbreeding depression in salmonids and variation in family size;
- Heritability and genotype by environmental interaction of development rate in pink salmon;
- Temporal and spatial structure of pink salmon populations;
- Phylogeographic relationships among Alaskan chinook salmon populations based on mitochondrial DNA polymorphisms;
- Comparison of genetic variation in allozymes, mtDNA, and microsatellite loci for use in stock identification in chum, sockeye, and pink salmon.
- Use of mtDNA RFLPs in identification, systematics, and population structure of rockfish (*Sebastes*).
- Population genetics in relationship to the management of *Sebastes* rockfishes.

Refereed Publications:

Gharrett, A.J. Submitted. The Genetics of fishes, Chapter 28. In M. Barton, *Bond's Biology of Fishes*, 3rd edition. Brooks/Cole Publishers, Belmont, CA.

Wang, I.A., E.H. Leder, W.W. Smoker, and A.J. Gharrett. Submitted. Timing of development during epiboly in embryos of second-generation crosses and backcrosses between odd- and even-broodyear pink salmon, *Oncorhynchus gorbuscha*. *Environmental Biology of Fishes*.

Geiger, H.J., I.A. Wang, P. Malecha, K. Hebert, W.W. Smoker, and A.J. Gharrett. Accepted. What causes variability in pink salmon family size? *Canadian Journal of Fisheries and Aquatic Sciences*. 000:000-000.

Refereed Publications (continued):

- Li, Z., M. M. Nishimoto, M.S. Love, and A. J. Gharrett. In press. Comparing the identification of Southern California juvenile rockfishes (genus *Sebastes* spp.) by restriction site analysis of the mitochondrial ND3/ND4 region and by morphological characteristics. *Fishery Bulletin* 000:000-000.
- Li, Z., A.K. Gray, M.S. Love, A. Goto, T. Asahida, and A.J. Gharrett. In press. A key to selected rockfishes (*Sebastes* spp.) based on mitochondrial DNA restriction fragment analysis. *Fishery Bulletin* 000:000-000.
- Gray, A.K., A.W. Kendall, Jr., B.L. Wing, M.G. Carls, J. Heifetz, Z. Li, A.J. Gharrett. In press. Identification and first documentation of larval rockfishes (*Sebastes* spp.) in Southeast Alaskan waters was possible using mitochondrial markers but not pigmentation patterns. *Transactions of the American Fisheries Society*. 000:000-000.
- Rodgveller, C.J., W.W. Smoker, A.K. Gray, J.E. Joyce, and A.J. Gharrett. In press. Effects of inbreeding and family origin on variation of size of chinook salmon (*Oncorhynchus tshawytscha*) fry. *Alaska Fishery Research Bulletin* 00:000-000.
- Gharrett, A.J., A.P. Matala, E.L. Peterson, A.K. Gray, and J. Heifetz. 2005. Two genetically distinct forms of roughey rockfish (*Sebastes aleutianus*) are different species. *Transactions of the American Fisheries Society*. 134:242-250.
- Smoker, W.W., I.A. Wang, A.J. Gharrett, and J.J. Hard. 2004. Embryo survival and smolt to adult survival in second-generation outbred coho salmon. *Journal of Fish Biology* 65 (Supplement A):254-262.
- Matala, A.P., A.K. Gray, M.S. Love, and A.J. Gharrett. 2004. Microsatellite variation indicates population genetic structure of bocaccio. *North American Journal of Fisheries Management*. 24:1189-1202
- Matsuoka, M.P., A.J. Gharrett, R.L. Wilmot, and W.W. Smoker. 2004. Genetic linkage mapping of allozyme loci in even- and odd-year pink salmon (*Oncorhynchus gorbuscha*). *Journal of Heredity*. 95:421-429.
- Matala, A.P., A.K. Gray, J. Heifetz, A.J. Gharrett. 2004. Population structure of Alaskan shorttraker rockfish, *Sebastes borealis*, inferred from microsatellite variation. *Environmental Biology of Fishes* 69:201-210.
- Gilk, S.E., I.A. Wang, C.H. Hoover, W.W. Smoker, S.G. Taylor, A.K. Gray, and A.J. Gharrett. 2004. Outbreeding depression in hybrids between spatially separated pink salmon (*Oncorhynchus gorbuscha*) populations: Marine survival, homing ability, and variability in family size. *Environmental Biology of Fishes* 69:287-297.
- Asahida, T., A.K. Gray, and A.J. Gharrett. 2004. Use of microsatellite locus flanking regions for phylogenetic analysis? A preliminary study of *Sebastes* subgenera. *Environmental Biology of Fishes* 69:461-470.
- Granath, K.L., W.W. Smoker, and A.J. Gharrett. 2004. Effects on embryo development time and survival of intercrossing three geographically separate stocks of Southeast Alaska coho salmon (*Oncorhynchus kisutch*). *Environmental Biology of Fishes* 69:299-306.
- Gharrett, A.J., S. Keller, R.G. Gustafson, P. Johnson, J. Nielsen, J.E. Seeb, L.W. Seeb, W.W. Smoker, G.A. Thorgaard, and W.L. Wilmot. 2004. Introduction to genetics of subpolar fish and invertebrates. *Environmental Biology of Fishes* 69:1-5.
- Matsuoka, M., A.J. Gharrett, R.L. Wilmot, and W.W. Smoker. 2004. Gene-centromere distances of allozyme loci in even- and odd-year pink salmon, (*Oncorhynchus gorbuscha*). *Genetica* 121:1-11.
- Halupka, K.C., M.F. Willson, M.D. Bryant, F.H. Everest, and A.J. Gharrett. 2003. Conservation of population diversity of Pacific salmon in Southeast Alaska. *North American Journal of Fisheries Management* 23:1057-1086.
- Gharrett, A.J., and L.A. Zhivotovsky. 2003. Migration. P. 141-174, in E.M. Hallerman [ed.] *Population genetics: Principles and applications for fisheries scientists*. American Fisheries Society, Bethesda, MD.
- Churikov, D. and A.J. Gharrett. 2002. Comparative phylogeography of the two pink salmon broodlines: an analysis based on mitochondrial DNA genealogy. *Molecular Ecology* 11:1077-1101.
- Hawkins, S.L., N.V. Varnavskaya, E.A. Matzak, V.V. Efremov, C.M. Guthrie III, R.L. Wilmot, H. Mayama, F. Yamazaki, and A.J. Gharrett. 2002. Contrasting population structures of Asian odd- and even-broodline pink salmon. *Journal of Fish Biology* 60:370-388.

Refereed Publications (continued):

- Gharrett, A.J., S. Lane, A.J. McGregor, and S.G. Taylor. 2001. Use of a genetic marker to examine genetic interaction among subpopulations of pink salmon (*Oncorhynchus gorbuscha*). *Genetica* 111:259-267.
- Gharrett, A.J., A.K. Gray, and V. Brykov. 2001. Phylogeographic analysis of mitochondrial DNA variation in Alaska coho salmon. *Fishery Bulletin*. 99:528-544.
- Churikov, D. M. Matsuoka, X. Luan, A.K. Gray, V.A. Brykov, and A.J. Gharrett. 2001. Assessment of concordance among genealogical reconstructions from various mtDNA segments in three species of Pacific salmon (genus *Oncorhynchus*). *Molecular Ecology* 10:2329-2339.
- Noll, C., N.V. Varnavskaya, E.A. Matzak, S.L. Hawkins, V.C. Midanaya, O.N. Katugin, C. Russell, N.M. Kinas, C.M. Guthrie III, H. Mayama, F. Yamazaki, B.P. Finney, and A.J. Gharrett. 2001. Analysis of contemporary genetic structure of even-year pink salmon, *Oncorhynchus gorbuscha*. *Fishery Bulletin* 99:123-138.
- Gharrett, A.J., A.K. Gray, and J. Heifetz. 2001. Identification of rockfish (*Sebastes* spp.) from restriction site analysis of the mitochondrial DNA ND-3/ND-4 and 12S rRNA regions. *Fishery Bulletin* 99:49-62.
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- Gharrett, A.J., W.W. Smoker, H.J. Geiger, I.A. Wang, K.P. Hebert, P.L. Goddard, A.J. McGregor, S. Lane, J. Joyce, and S.G. Taylor. 1999. Genetic structure in Auke Creek pink salmon and its role in productivity. *Bulletin of the National Research Institute of Aquaculture, Suppl.* 1:19-26.
- Gharrett, A.J., W.W. Smoker, R.R. Reisenbichler, and S.G. Taylor. 1999. Outbreeding depression in hybrids of even- and odd-broodline pink salmon (*Oncorhynchus gorbuscha* Walb.). *Aquaculture* 173:117-129.
- Smoker, W.W., A.J. Gharrett, and M.S. Stekoll. 1998. Genetic variation of return date in a population of pink salmon: A consequence of fluctuating environment and dispersive selection? *Alaska Fishery Research Bulletin* 5:46-54.
- Pella, J., M. Masuda, C. Guthrie III, C. Kondzela, A. Gharrett, A. Moles, G. Winans. 1998. Stock composition of some sockeye salmon, *Oncorhynchus nerka*, catches in Southeast Alaska based on incidence of allozyme variants, freshwater ages, and a brain-tissue parasite. NOAA Technical Report NMFS 132, a Technical Report of the Fishery Bulletin. 23p.
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- Geiger, H.L., and A.J. Gharrett. 1997. Salmon stocks at risk: What's the stock and what's at risk. *Alaska Fishery Research Bulletin*. 4(2):178-180.
- Carney, B.L., A.K. Gray, and A.J. Gharrett. 1997. Mitochondrial DNA restriction site variation within and among five populations of Alaskan coho salmon (*Oncorhynchus kisutch*). *Canadian Journal of Fisheries and Aquatic Science*. 54:940-949.
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Refereed Publications (continued):

- Takasaki, N., L. Park, M. Kaeriyama, A.J. Gharrett, and N. Okada. 1996. Characterization of species-specifically amplified SINEs in three salmonid species -- chum salmon, pink salmon, and kokanee: The local environment of the genome may be important for the generation of a dominant source gene at a newly retroposed locus. *Journal of Molecular Evolution* 42:103-116.
- Baker, T.T., A.C. Wertheimer, R.D. Burkett, R. Dunlap, D.M. Eggers, E.I. Fritts, A.J. Gharrett, R.A. Holmes, R.L. Wilmot. 1996. Status of Pacific salmon and steelhead escapements in Southeast Alaska. *Fisheries* 21:6-18.
- Gharrett, A.J. 1996. The genetics of Fishes. Pages 481-516 *In* C.E. Bond *Biology of Fishes*, 2nd ed. Saunders, Orlando, FL.
- Zhivotovsky, L.A., A.J. Gharrett, A.J. McGregor, M.K. Glubokovsky, and M.W. Feldman. 1994. Gene differentiation in Pacific salmon (*Oncorhynchus* sp.): Facts and models with reference to pink salmon (*O. gorbuscha*). *Canadian Journal of Fisheries and Aquatic Sciences* 51(Supplement 1):223-232.
- Kondzela, C.M., C.M. Guthrie, S.L. Hawkins, C.D. Russell, J.H. Helle, and A.J. Gharrett. 1994. Genetic relationships among chum salmon populations in Southeast Alaska and northern British Columbia. *Canadian Journal of Fisheries and Aquatic Sciences* 51 (Supplement 1):50-64.
- Smoker, W.W., A.J. Gharrett, M.S. Stekoll, and J.E. Joyce. 1994. Genetic analysis of size in an anadromous population of pink salmon. *Canadian Journal of Fisheries and Aquatic Sciences* 51(Supplement 1):9-15.
- Gharrett, A.J., and W.W. Smoker. 1994. Introduction to genetics of subarctic fish and shellfish. *Canadian Journal of Fisheries and Aquatic Sciences* 51(supplement 1):1-3.
- Joyce, J.E., R.L. Heintz, W.W. Smoker, A.J. Gharrett. 1994. Survival to fry and seawater tolerance of diploid and triploid hybrids between chinook, chum, and pink salmon. *Canadian Journal of Fisheries and Aquatic Sciences* 51(Supplement 1):25-30.
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- Gharrett, A.J. 1992. Adaptive microinfrastructure of a pink salmon population. *Japanese Journal of Ichthyology* 39:120-121.
- Wing, B.L., C.M. Guthrie III, and A.J. Gharrett. 1992. Atlantic Salmon in marine waters of Southeast Alaska. *Transactions of the American Fisheries Society*. 121:814-818.
- Gharrett, A.J., and W.W. Smoker. 1991. Two generations of hybrids between even- and odd-year pink salmon (*Oncorhynchus gorbuscha*): a test for outbreeding depression? *Canadian Journal of Fisheries and Aquatic Sciences* 48:1744-1749.
- Lane, S., A.J. McGregor, S.G. Taylor, and A.J. Gharrett. 1990. Genetic marking of an Alaskan pink salmon population, with an evaluation of the mark and the marking process. *American Fisheries Society Symposium* 7:395-406.
- Gharrett, A.J., and J.E. Seeb. 1990. Practical and theoretical guidelines for genetically marking fish populations. *American Fisheries Society Symposium* 7:407-417.
- Seeb, L.W., J.E. Seeb, and A.J. Gharrett. 1990. Genetic marking of fish populations, pp. 223-239. *In* D.H. Whitmore [ed.] *Electrophoretic and isoelectric focusing techniques in fisheries management*, CRC Press, Boca Raton FL.

Hop, H., and A.J. Gharrett. Genetic relationships of Arctic grayling in the Koyukuk and Tanana Rivers, Alaska. Transactions of the American Fisheries Society 118:290-295.

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- Gharrett, A.J., C. Smoot, A.J. McGregor, and P. Holmes. 1988. Genetic relationships of even-year northwestern Alaskan pink salmon. Transactions of the American Fisheries Society 117:536-545.
- Gharrett, A.J., and S.M. Shirley, and G.R. Tromble. 1987. Genetic relationships among populations of Alaskan chinook salmon (*Oncorhynchus tshawytscha*). Canadian Journal of Fisheries and Aquatic Sciences 44:765-774.
- Gharrett, A.J., and M.A. Thomason. 1987. Genetic changes in pink salmon (*Oncorhynchus gorbuscha*) following their introduction into the Great Lakes. Canadian Journal of Fisheries and Aquatic Sciences 44:787-792.
- Gharrett, A.J., and S.M. Shirley. 1985. A genetic examination of spawning methodology in a salmon hatchery. Aquaculture 47:245-256.
- Connett, J., A. Gharrett, and R. McHugh. 1985. Efficient estimation of protein binding constants. Biometrical Journal 175:367-375.
- Krueger, C.C., A.J. Gharrett, T.R. Dehring, and F.W. Allendorf. 1981. Genetic aspects of fisheries rehabilitation programs. Canadian Journal of Fisheries and Aquatic Sciences 38:1877-1881.
- Malkinson, A.M., A.J. Gharrett, and L. Hoky. 1978. Microheterogeneity of adenosine cyclic monophosphate-dependent-protein kinases from mouse brain and heart. Biochemical Journal 175:367-375.
- Malkinson, A.M., L. Hoky, A.J. Gharrett, and T.J. Gunderson. 1978. Ontogenetic studies of cyclic-AMP-dependent protein kinase enzymes from mouse heart and other tissues. Journal of Experimental Zoology 205:423-432.
- Gharrett, A.J., R.C. Simon, and J.D. McIntyre. 1977. Reassociation and hybridization properties of DNAs from several species of fish. Comparative Biochemistry and Physiology 56B:81-85.
- Gharrett, A.J., A.M. Malkinson, and J.R. Sheppard. 1976. Cyclic AMP-dependent protein kinases from normal and SV-40-transformed 3T3 cells. Nature 264:673-675.

Selected other publications, reports, abstracts, and presentations:

- Wang, I.A., W.W. Smoker, S.E. Gilk, D.S. Oxman, and A.J. Gharrett. 2004. Hatching time as an indicator of environmental incompatibility and outbreeding depression in intraspecific salmon hybrids. Journal of Fish Biology 65 (Supplement A): 314-325.
- Gharrett, A.J., R.G. Gustafson, J.L. Nielson, J.E. Seeb, L.W. Seeb, W.W. Smoker, G.H. Thorgaard, and R.L. Wilmot [editors]. 2004. Genetics of subpolar fish and shellfish. Kluwer Academic Press, Dordrecht, The Netherlands. 471 p.
- Smoker, W.W., and A.J. Gharrett. 1999. Genetic variation of life history traits in locally adapted populations of Pacific salmon and outbreeding depression between them. 79th Annual Meeting of the American Society of Ichthyologists and Herpetologists, 24-30 June, College Park, PA.
- Geiger, H.J., W.W. Smoker, I. Wang, P. Malacha, K. Hebert, A.J. Gharrett. 1999. Variability in pink salmon (*Oncorhynchus gorbuscha*) family size: effective population size and a genetic basis for family-specific survival, recruitment, and population increases. 79th Annual Meeting of the American Society of Ichthyologists and Herpetologists, 24-30 June, College Park, PA.
- Gharrett, A.J., A.K. Gray, and J. Heifetz. 1998. Identification of rockfish (*Sebastes* spp.) From restriction site analysis of the ND3-ND4 and 12S-16S rRNA regions of mitochondrial DNA. 10th Western Groundfish Conference, 1-5 February, 1998, Asilomar, CA.
- Wing, B., A. Gray, J. Heifetz, M. Carls, and A. Gharrett. 1998. Use of mitochondrial DNA analysis to corroborate identification of preflexon larval rockfish (*Sebastes* spp.) by pigment patterns. 10th Western Groundfish Conference, 1-5 February, 1998, Asilomar, CA.
- Feist, G., C.B. Schreck, and A.J. Gharrett. 1996. Controlling the sex of salmonids. ORESU-H-96-001. Oregon Sea Grant, Oregon State University, Corvallis, OR.
- Gharrett, A.J., A.K. Gray, D.Y. Churikov, M.P. Matsuoka, X. Luan, and V. Brykov. 1997. Comparison of

three genetic methodologies for stock identification of pink, chum, and sockeye salmon in the North Pacific (Phase 1). Final Report to Saltonstall-Kennedy Fund, Nat. Mar. Fish., NOAA.. 100p.

Selected other publications, reports, abstracts, and presentations (continued):

- Gharrett, A.J. 1992. Adaptive micro-infrastructure of Alaskan pink salmon. Japan Journal of Ichthyology 39:120-121.
- Hebert, K.P., W.W. Smoker, J.E. Joyce, and A.J. Gharrett. 1992. Development rate and instream survivals of early- and late-run pink salmon (*Oncorhynchus gorbusha*), page 30. In 16th Annual Larval Fish Conference, 6-10 June, University of Rhode Island, Kingston, RI.
- Gharrett, A.J., R.B. Wilson, B.M. Baker, C.M. Guthrie, C.M. Kondzela, and H.R. Carlson. 1990. Preliminary report on genetic diversity of southern Southeast Alaskan pink salmon populations. NOAA, NMFS Northwest and Alaska Fisheries Center, Processed Report 90-03, 50 p.
- Gharrett, A.J., M.A. Thomason, R.B. Wilson, A.J. McGregor, B.M. Baker, S. Lane, C.M. Kondzela, C. Smoot, and C.M. Guthrie III. 1990. Genetic structure within and among Alaskan pink salmon stocks. pages 68-69 In Abstracts of papers presented at the Pacific Salmon International Symposium, Yuzhno-Sakalinsk, U.S.S.R.
- Gharrett, A.J. 1988. Genetic relationships among populations of Alaskan chinook salmon. Pages 58-60 In W. Heard rapporteur, Report of the 1987 Alaska chinook salmon workshop. NOAA, NMFS Northwest and Alaska Fisheries Center Processed Report 88-06.
- Brown, W., R. Cox, C. Moritz, A. Gharrett, and L. Szura. 1987. Sequence duplications and rearrangements in animal mtDNA: are the tRNA genes mobilizing elements?, page 233. In J.E. Boynton, R.A. Butow, D.A. Clayton, and N.W. Gillham arrangers, Abstracts of papers presented at the 1987 meeting on Molecular Biology of Mitochondria and Chloroplasts. August 25-30, Cold Spring Harbor Laboratory, N.Y.
- Gharrett, A.J., R. Cox, L.L. Szura, E.C. Nordby, D.A. Harter, and W.M. Brown. 1986. Phylogenetic implications of echinoid mitochondria DNA analyses. At Echinoderm Phylogeny and Evolutionary Biology. December 15-17, London.
- Genetic Policy Review Team. 1985. Alaska Department of Fish and Game Genetic Policy. Alaska Department of Fish and Game, FRED Special Report, 25p.
- Gharrett, A.J., S. Lane, A.J. McGregor, and S.G. Taylor. 1983. The genetic mark: it's implementation and evaluation, pages 337-402. In A. Nagai ed. Proceedings of the Second North Pacific Aquaculture Symposium, Tokyo and Shimizu, Japan.
- Gharrett, A.J. 1975. Comparison of the reassociation and hybridization properties of several species of fish. Ph.D. thesis, Oregon State University, Corvallis OR. 66 pp.

Selected other publications, reports, abstracts, and presentations (continued):

- Gharrett, A.J. 1973. Extent of DNA homology in some distantly and intimately related fishes. M.S. thesis, Oregon State University, Corvallis, OR. 42 p.

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Education

Doctor of Philosophy	University of Hamburg, Germany	Fisheries Biology	2001
Master of Science	University of Alaska Fairbanks	Fisheries	1994
Vordiplom	University of Hamburg, Germany	Biology	1991

Research Interests

- Impacts of abiotic and biotic factors on early life stages of marine and estuarine fishes
- Trophic interactions in marine and estuarine fishes
- Ecology of marine fishes

Professional Experience

- Assistant Professor of Fisheries, Juneau Center, School of Fisheries and Ocean Science, University of Alaska Fairbanks, January 2002 to present
- Biologist, TUHH-Technologie GmbH (TuTech), Hamburg, Germany, 2001.
- Chief Scientist on four research cruises, Biological Institute of Helgoland, Alfred-Wegener-Institute for Polar and Marine Research, Hamburg, Germany, 1997- 1999.
- Research Assistant, Biological Institute of Helgoland, Alfred-Wegener-Institute for Polar and Marine Research, Hamburg, Germany, 1994 – 2001.
- Graduate Research Assistant, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, 1991 – 1994.
- Technician on six research cruises, Institute of Marine Science, University Kiel, Germany, 1987-1991.

Professional Affiliations

- American Fisheries Society (1994 – current)
- Alaska Chapter, American Fisheries Society (1994 – current)
- Early Life History Section (ELHS), American Fisheries Society (1994 – current)
- Estuarine Research Federation (2003 – current)
- Deutsche Gesellschaft fuer Meeresforschung
- The Fisheries Society of the British Isles (2004 – current)
- Fulbright Alumni (1993 – current)

Honors and Awards

- Ph. D. Stipend, Helgoland Institute of Marine Research, Hamburg, Germany (1994-1998)
- Best Paper Award. American Fisheries Society, Alaska Chapter Meeting, November 1993
- Best Student Paper Award. American Fisheries Society, Alaska Chapter Meeting, November 1993
- Fulbright Travel Award 1992
- Fulbright Scholarship 1991

Teaching and Advising

Present Graduate Students

STUDENT	DEGREE	THESIS TOPIC	SUPPORT AGENCY
• Brian W. Elliott	M.S.	Investigation of spawning distribution and habitat of sockeye salmon (<i>Oncorhynchus nerka</i>) in the Chilkat River drainage using pulse-coded radio telemetry transmitters	ADF&G, AK Sea Grant
• Sean E. Burril	M. S.	Feeding and condition of juvenile chum salmon (<i>Oncorhynchus keta</i>) in Kuskokwim Bay, Alaska	NPRB
• Angela M. Middleton	M. S.	Distribution, diet and energy density of age-0 walleye pollock, <i>Theragra chalcogramma</i> , in the Bering Sea and Chukchi Sea	NMFS, CIFAR
• Johnny D. Zutz	M. S.	Growth rates, back-calculated birthdates and age-1 validation in juvenile black rockfish (<i>Sebastes melanops</i>) using otolith microstructure analysis	ADF&G
• Andrew S. Eller	M. S.	Feasibility pilot study – Early life history of eulachon (<i>Thaleichthys pacificus</i>) – age validation and growth in Berners Bay, Alaska	AK Sea Grant
• Jared L. Guthridge	M. S.	Reproductive ecology of Atka mackerel (<i>Pleurogrammus monopterygius</i>): embryonic development at different temperature regimes	NPRB

Teaching Experience

- FISH 427: Introduction to Ichthyology (4 credits), Juneau Center, University of Alaska Fairbanks and University of Alaska Southeast (Fall 2002, 2003, 2004, 2005): Course provides an introduction to biology and taxonomy of fishes.
- FISH 650: Fish Ecology (3 credits), Juneau Center, University of Alaska Fairbanks (Spring 2003): Course provides an understanding of how fish react to environmental conditions by altering their resource allocation.
- FISH 693: Early Life History of Fishes (1 credit), Juneau Center, University of Alaska Fairbanks (2004): This course focuses on the contributions of early life stages of fishes to fisheries science.
- FISH 692: Department Seminar (1 credit), Juneau Center, University of Alaska Fairbanks (2004): Speakers were selected with emphasis on marine fisheries science.

Research and Publications

Research Projects

Grants and Contracts

1. Project Title: Chilkat River Sockeye Radio Tagging Project
Total Award Amount: \$ 78,789
Total Award Duration: 2 years
Funding Start: 2003
PI/Co-PI: N. Hillgruber
Source of Support: *Southeast Sustainable Salmon Fund (SSSF), Alaska Department of Fish & Game*
2. Project Title: Early Marine Ecology of Juvenile Chum Salmon (*Oncorhynchus keta*) in Kuskokwim Bay, Alaska
Total Award Amount: \$ 624,025
Total Award Period: 3 years
Funding Start: 2003
PI/Co-PI: N. Hillgruber, C. E. Zimmerman, L. J. Haldorson
Source of Support: *North Pacific Research Board*
3. Project Title: Growth rates, back-calculated birthdates and age-1 validation in juvenile black rockfish (*Sebastes melanops*) using otolith microstructure analysis
Total Award Amount: \$ 82,681
Total Award Duration: 2 years
Funding Start: 2004
PI/Co-PI: N. Hillgruber
Source of Support: *Nearshore Marine V, Alaska Department of Fish & Game*
4. Project Title: MRI/RUI Acquisition of Planktonic Sampling Equipment for Southeast Alaska.
Total Award Amount: \$ 112,530 (submitted through UAS)
Total Award Duration: 1 year
Funding Start: 2004
PI/Co-PI: G. Eckert, N. Hillgruber, L. Eisner
Source of Support: *National Science Foundation, OCE – MRI*
5. Project Title: Spatial and Temporal Distribution of Wild and Hatchery Chum Salmon in Marine Waters of Taku Inlet and Adjacent Areas
Total Award Amount: \$362,200
Total Award Duration: 3 years
Funding Start: 2003
PI/Co-PI: W. W. Smoker, N. Hillgruber
Source of Support: *SSSF, Alaska Department of Fish & Game*

6. Project Title: Ecological interactions of hatchery and wild salmon – cooperative Alaska Department of Fish & Game – University of Alaska Fairbanks research on restoration and sustainability of salmon in Southeast Alaska.
Total Award Amount: \$ 285,568
Total Award Duration: 3 years
Funding Start: 2003
PI/Co-PI: V. Alexander (retired), N. Hillgruber, W. W. Smoker
Source of Support: *Southeast Sustainable Salmon Fund*
7. Project Title: Feasibility Pilot Study - Early life history of eulachon (*Thaleichthys pacificus*) – age validation and growth in Berners Bay, Alaska
Total Award Amount: \$ 99,768
Total Award Duration: 2 year
Funding Start: 2004
PI/Co-PI: N. Hillgruber
Source of Support: *Alaska Sea Grant*
8. Project Title: Reproductive ecology of Atka mackerel, *Pleurogrammus monopterygius*, in Alaska
Total Award Amount: \$ 200,000
Total Award Duration: 1 year
Funding Start: 2004
PI/Co-PI: R. Lauth, N. Hillgruber, S. McDermott
Source of Support: *North Pacific Research Board*
9. Project Title: Survey strategies for assessment of Bering Sea forage species
Total Award Amount: \$ 499,236
Total Award Duration: 1 year
Funding Start: 2004
PI/Co-PI: M. Sigler, N. Hillgruber, E. Brown, J.K. Horne, S. Gauthier, J. H. Churnside, M. C. Benfield
Source of Support: *North Pacific Research Board*
10. Project Title: Energy, diet, and condition of juvenile pink salmon, *Oncorhynchus gorbuscha*, in the Gulf of Alaska
Total Award Amount: \$ 7,500
Total Award Duration: 1 year
Funding Start: 2004
PI/Co-PI: N. Hillgruber
Source of Support: *Cooperative Institute for Arctic Research*
11. Project Title: Reproductive ecology of Atka mackerel, *Pleurogrammus monopterygius*, in Alaska
Total Award Amount: \$ 500,000
Total Award Duration: 2 years
Funding Start: 2005
PI/Co-PI: S. McDermott, N. Hillgruber, M. Canino, S. Atkinson
Source of Support: *North Pacific Research Board*

12. Project Title: Relationships between pollock (*Theragra chalcogramma*) distribution and biomass, zooplankton biomass, and oceanographic conditions in the Bering Sea and Chukchi Seas, Alaska
Total Award Amount: \$ 8,098
Total Award Duration: 1 year
Funding Start: 2005
PI/Co-PI: N. Hillgruber Source of Support: *Cooperative Institute for Arctic Research*
13. Project Title: Growth rates, back-calculated birthdates and age-1 validation in juvenile black rockfish (*Sebastes melanops*) using otolith microstructure analysis (Supplemental Funding)
Total Award Amount: \$ 10,565.00
Total Award Duration: 1 year
PI/Co-PI: N. Hillgruber
Source of Support: *Nearshore Marine V, Alaska Department of Fish & Game*

Publications and Presentations

Published in Peer Reviewed Journals

1. Porter, S. M., L. Ciannelli, N. Hillgruber, K. M. Bailey, K. S. Chan, M. F. Canino, and L. J. Haldorson (2005). Analysis of factors influencing larval walleye pollock *Theragra chalcogramma* feeding in Alaskan waters. *Marine Ecology Progress Series* 302: 207-217.
2. Zimmerman, C. E., N. Hillgruber, S. E. Buriril, M. A. St. Peters, and J. D. Wetzel (2005). Offshore marine observation of willow ptarmigan (*Lagopus lagopus*) including water landings, Kuskokwim Bay, Alaska. *Wilson Bulletin* 117(1): 12-14.
3. Kloppmann, M., N. Hillgruber, and H. von Westernhagen (2002). Wind-mixing effects on feeding success and condition of blue whiting larvae in the Porcupine Bank area. *Marine Ecology Progress Series* 235: 263-277.
4. Hillgruber, N., and M. Kloppmann (2001). Small-scale patterns in distribution and feeding of Atlantic mackerel (*Scomber scombrus* L.) larvae in the Celtic Sea with special regard to intra-cohort cannibalism. *Helgoland Marine Research* 55: 135-149.
5. Hillgruber, N., and M. Kloppmann (2000). Vertical distribution and feeding of larval blue whiting in turbulent waters above Porcupine Bank. *Journal of Fish Biology* 57:1290-1311.
6. Hillgruber, N., and M. Kloppmann (1999). Distribution and feeding of blue whiting *Micromesistius poutassou* larvae in relation to different water masses in the Porcupine Bank area, west of Ireland. *Marine Ecology Progress Series* 187: 213-225.
7. Hillgruber, N., M. Kloppmann, E. Wahl, and H. von Westernhagen (1997). Feeding of larval blue whiting and Atlantic mackerel: a comparison of foraging strategies. *Journal of Fish Biology* 51 (Supplement A): 230-249.
8. Hillgruber, N., L. J. Haldorson, and A. J. Paul (1995). Feeding selectivity of larval walleye pollock *Theragra chalcogramma* in the oceanic domain of the Bering Sea. *Marine Ecology Progress Series* 120: 1-10.

Publications in Preparation, Submitted or Pending

1. Hillgruber, C. E. Zimmerman, and S. E. Burril (*in prep.*). Timing of outmigration and distribution during estuarine residence of juvenile chum salmon (*Oncorhynchus keta*) in Kuskokwim Bay, Alaska.
2. Elliott, B. W., and N. Hillgruber (*in prep.*). Migratory behavior and habitat use of sockeye salmon in the Chilkat River drainage. To be submitted to
3. Elliott, B. W., and N. Hillgruber (*in prep.*). Spawning distribution, interception rates, and management implications of sockeye salmon in the Chilkat River drainage. To be submitted to

Presentations to National and International Scientific Meetings

(* denotes presenter)

1. Hillgruber, N.*, C. E. Zimmerman, and S. E. Burril (2005). Timing of outmigration and distribution during estuarine residence of juvenile chum salmon (*Oncorhynchus keta*) in Kuskokwim Bay, Alaska. 135th Annual Meeting, American Fisheries Society, September 2005, Anchorage, Alaska.
2. Elliott, B and N. Hillgruber (2005). Spawning distribution and habitat of sockeye salmon (*Oncorhynchus nerka*) in the Chilkat River drainage. 135th Annual Meeting, American Fisheries Society, September 2005, Anchorage, Alaska. (Poster)
3. Eller, A. and N. Hillgruber (2005). Eulachon larvae (*Thaleichthys pacificus*) retention in the surface waters of Berners Bay, Alaska. 135th Annual Meeting, American Fisheries Society, September 2005, Anchorage, Alaska. (Poster)
4. Guthridge, J., N. Hillgruber, and R. Lauth (2005). Embryonic development of Atka mackerel and the effect of temperature. 135th Annual Meeting, American Fisheries Society, September 2005, Anchorage, Alaska. (Poster)
5. Middleton, A., N. Hillgruber, L. Eisner, and J. Moss (2005). Effects of physical and biological factors on distribution of age-0 walleye pollock in the Eastern Bering Sea, Alaska. 135th Annual Meeting, American Fisheries Society, September 2005, Anchorage, Alaska. (Poster)
6. Reese, C., N. Hillgruber, W. Smoker (2005). Potential for interaction between hatchery and wild juvenile chum salmon in the Taku River estuary, Alaska. 135th Annual Meeting, American Fisheries Society, September 2005, Anchorage, Alaska. (Poster)
7. Zutz, J. D. and N. Hillgruber (2005). Growth rates and back-calculated birthdates of juvenile black rockfish using otolith microstructure analysis. 135th Annual Meeting, American Fisheries Society, September 2005, Anchorage, Alaska. (Poster)
8. Hillgruber, N.*, C. E. Zimmerman, and S. E. Burril (2005). Timing of outmigration and distribution during estuarine residence of juvenile chum salmon (*Oncorhynchus keta*) in Kuskokwim Bay, Alaska. 29th Annual Larval Fish Conference. July 11-14, 2005, Barcelona, Spain.

9. Guthridge, J.*, N. Hillgruber, and R. Lauth (2005). Embryonic development of Atka mackerel and the effects of temperature. 29th Annual Larval Fish Conference. July 11-14, 2005, Barcelona, Spain.
10. Zutz, J. D.*, and N. Hillgruber (2005). Growth rates and back-calculated birthdates of juvenile black rockfish (*Sebastes melanops*) using otolith microstructure analysis. 29th Annual Larval Fish Conference. July 11-14, 2005, Barcelona, Spain.
11. Burril, S. E.*, N. Hillgruber, C. E. Zimmerman (2005). Estuarine ecology of juvenile chum salmon (*Oncorhynchus keta*) in Kuskokwim Bay, Alaska. 22nd Northeast Pacific Pink & Chum Salmon Workshop. February 23-25, 2005, Ketchikan, Alaska.
12. Reese, C.*, N. Hillgruber, W. Smoker, and D. Tersteeg (2005). Ecological interactions between hatchery and wild juvenile chum salmon (*Oncorhynchus keta*) in the Taku River estuary. 22nd Northeast Pacific Pink & Chum Salmon Workshop. February 23-25, 2005, Ketchikan, Alaska.
13. Guthridge, J.*, N. Hillgruber, R. Lauth, S. McDermott, S. Atkinson (2005). Reproductive ecology of Atka mackerel (*Pleurogrammus monopterygius*): embryonic developmental series. Marine Science in Alaska: 2005 Symposium (Poster)
14. Burril, S.*, N. Hillgruber, and C. Zimmerman (2004). Feeding ecology and energy density of juvenile chum salmon (*Oncorhynchus keta*) in Kuskokwim Bay. 31st Meeting of the Alaska Chapter, American Fisheries Society, November 14-18, 2004, Sitka, Alaska.
15. Elliott, B. W.*, and N. Hillgruber (2004). Spawning distribution and habitat of sockeye salmon (*Oncorhynchus nerka*) in the Chilkat River drainage. 31st Meeting of the Alaska Chapter, American Fisheries Society, November 14-18, 2004, Sitka, Alaska.
16. Middleton, A. M., E. V. Farley, and N. Hillgruber (2004). Distribution, diet, and energy density of age-0 walleye pollock, *Theragra chalcogramma*, in the Bering and Chukchi Seas, Alaska. 31st Meeting of the Alaska Chapter, American Fisheries Society, November 14-18, 2004, Sitka, Alaska. (Poster)
17. Guthridge, J., N. Hillgruber, R. Lauth, S. McDermott, and S. Atkinson (2004). Reproductive ecology of Atka mackerel: embryonic developmental series. 31st Meeting of the Alaska Chapter, American Fisheries Society, November 14-18, 2004, Sitka, Alaska. (Poster)
18. Reese, C.*, N. Hillgruber, and W. Smoker (2004). Ecological interactions between hatchery and wild juvenile chum salmon (*Oncorhynchus keta*) in the Taku River Estuary. 31st Meeting of the Alaska Chapter, American Fisheries Society, November 14-18, 2004, Sitka, Alaska.
19. Guthridge, J.*, N. Hillgruber, R. Lauth, S. McDermott, S. Atkinson (2004). Reproductive ecology of Atka mackerel (*Pleurogrammus monopterygius*): embryonic developmental series. Windows to the Sea. 3rd Annual Research Colloquium, Alaska SeaLife Center, October 27-28, 2004, Seward, Alaska.
20. Elliott, B. W.*, and N. Hillgruber (2004). Spawning distribution and habitat of sockeye salmon (*Oncorhynchus nerka*) in the Chilkat River drainage. 134th Annual Meeting, American Fisheries Society, August 2004, Madison, Wisconsin.
21. Hillgruber, N., and L. J. Haldorson (2002). Interannual variability in feeding patterns of walleye pollock larvae in the oceanic domain of the Bering Sea. 26th Annual Larval Fish Conference, American Fisheries Society, Bergen, Norway. (Poster)

22. Hillgruber, N. (2001). Vergleichende Untersuchungen über die Ernährungsstrategien mariner Fischlarven – Alaska Pollack, Blauer Wittling und Atlantische Makrele – unter besonderer Berücksichtigung von Beutefeld und Turbulenz. Ph. D. Seminar, Institute of Hydrobiology and Fishery Sciences, University of Hamburg, Germany.
23. Hillgruber, N. (2001). Fraßstrategien der Larven des blauen Wittlings (*Micromesistius poutassou*) und der Atlantischen Makrele (*Scomber scombrus*) südwestlich von Irland: Ein Vergleich. Department Seminar, Institute of Hydrobiology and Fishery Sciences, University of Hamburg, Germany.
24. Hillgruber, N.*, and H. von Westernhagen (1997). Feeding strategies of two species of larval fish, Atlantic mackerel, *Scomber scombrus*, and blue whiting, *Micromesistius poutassou*, over the European continental shelf break, west of Ireland. 77th Annual Meeting of the American Society of Ichthyologists and Herpetologists (ASIH) & 21st Annual Larval Fish Conference, American Fisheries Society, Seattle, Washington.
25. von Westernhagen, H.*, M. Kloppmann, and N. Hillgruber (1997). Comparison of feeding and growth in fish larvae with different adaptive strategies. Ichthyoplankton Ecology. An International Symposium on Marine and Freshwater Fish Eggs and Larvae. Fisheries Society of the British Isles, Galway, Ireland. (Invited)
26. Hillgruber, N. And M. Kloppmann (1996). Food and feeding selectivity of blue whiting (*Micromesistius poutassou*) larvae from Porcupine Bank, west of Ireland. International Council for the Exploration of the Sea (ICES), Reykjavik, Iceland. (Poster)
27. Hillgruber, N.*, M. Kloppmann, and H. von Westernhagen (1995). Distribution of blue whiting *Micromesistius poutassou* larvae in the Porcupine Bank area, west of Ireland, in relation to hydrography and the feeding environment. International Council for the Exploration of the Sea (ICES), Århus, Denmark.
28. Hillgruber, N.*, L. J. Haldorson, and A. J. Paul (1993). 17th Annual Larval Fish Conference. University of Texas, Austin, Texas. May 22-29, 1993.
29. Hillgruber, N.*, L. J. Haldorson, and A. J. Paul (1993). 20th Annual Alaska Chapter Meeting, American Fisheries Society, Fairbanks, Alaska.

Limited Distribution Publications, Reports and Theses

1. Reese, C., N. Hillgruber, W. W. Smoker (*in press*). Potential for interaction between Hatchery and wild Juvenile Chum Salmon in the Taku River Estuary, Alaska. Proceedings of the 22nd Northeast Pacific Pink & Chum Salmon Workshop, Ketchikan, Alaska.
2. Burrell, S., N. Hillgruber, and C. E. Zimmermann (*in press*). Estuarine ecology of juvenile chum salmon (*Oncorhynchus keta*) in Kuskokwim Bay, Alaska. Proceedings of the 22nd Northeast Pacific Pink & Chum Salmon Workshop, Ketchikan, Alaska.
3. Hillgruber, N., and C. E. Zimmerman (2004). Early marine ecology of juvenile chum salmon in Kuskokwim Bay, Alaska: Semiannual progress report. North Pacific Research Board, Anchorage, AK.
4. Hillgruber, N., and C. E. Zimmerman (2003). Early marine ecology of juvenile chum salmon in Kuskokwim Bay, Alaska: Semiannual progress report. North Pacific Research Board, Anchorage, AK.

5. Hillgruber, N. (2001). Comparative studies on the foraging strategies of marine fish larvae – walleye pollock, blue whiting and Atlantic mackerel – with special regard to prey field, light, and turbulence. Ph.D. Dissertation. University of Hamburg, Germany.
6. Kloppmann, M., C. Franco, A. Lago de Lanzos, A. Sola, D. Conway, E. Wahl, N. Hillgruber, A. Farinha, and P. Lopes (1997). Distribution of blue whiting (*Micromesistius poutassou* Risso 1826) larvae along the western Iberian coast. Results from a joint research cruise to Spanish and Portuguese waters. ICES C. M. 1997/S: 2.
7. Hillgruber, N. and M. Kloppmann (1996). Food and feeding selectivity of blue whiting (*Micromesistius poutassou*) larvae from Porcupine Bank, west of Ireland. . ICES C. M. 1996/S: 1.
8. Hillgruber, N., M. Kloppmann, and H. von Westernhagen (1995). Distribution of blue whiting *Micromesistius poutassou* larvae in the Porcupine Bank area, west of Ireland, in relation to hydrography and the feeding environment. ICES C. M. 1995/H: 27.
9. Hillgruber, N. (1994). Feeding of larval walleye pollock (*Theragra chalcogramma*) in the oceanic domain of the Bering Sea. M.S. Thesis. School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Fairbanks.

Professional Service

Public Service

Manuscript Review

- Archive of Fishery and Marine Research
- Alaska Fishery Research Bulletin
- Marine Biology
- Marine Ecology
- Marine Ecology Progress Series
- Fisheries Oceanography
- Journal of Experimental Marine Biology & Ecology

Book Review

- Garner, G. W., S. C. Armstrup, J. L. Laake, B. F. J. Manly, L. L. McDonald, and D. G. Robertson (Eds.). Marine mammal survey and assessment methods. Rotterdam: Balkeema (1999), 287 pp. Reviewed for Helgoland Marine Research.

Proposal Review

- California Sea Grant
- Center of Global Change and Arctic System Research (CIFAR) - Student Research Grant Competition
- Global Change Student Research Grant Competition (CGC)
- Gulf of Alaska Ecosystem Monitoring and Research (GEM)
- North Pacific Research Board (NPRB)

Presentation/Poster Review

- Alaska Chapter, American Fisheries Society, Presentation Award Committee Member (2002 - current)

Other Service

- Invited Judge for oral presentations at the 2005 Alaska Region National Ocean Sciences Bowl, Seward, Alaska.
- Mentor for undergraduate student in the summer of 2005. NSF funded research experience for undergraduates (REU) in marine biology, Juneau, Alaska.
- Session Co-Chair: Western Alaska Issues. 22nd Northeast Pacific Pink & Chum Salmon Workshop. February 23-25, 2005, Ketchikan, Alaska.
- Workshop Organizer. Regional workshop on early marine interactions of hatchery and wild chum salmon (*Oncorhynchus keta*) juveniles in southeast Alaska. November 20-21, 2003. Juneau, Alaska.

University ServiceCommittee Member

- Chair: School of Fisheries and Ocean Sciences, Curriculum Committee (2005 – current)
- Member: SFOS Ship and Ship Scheduling Committee
- Member: UAF Search Committee for GURU/NURP Director position (2005)
- Member: School of Fisheries and Ocean Sciences, Faculty of the Future Committee (2005)
- Member: School of Fisheries and Ocean Sciences, Fisheries Division, Scholarship Committee for Carlson Scholarship (2004)

NICHOLAS F. HUGHES

CURRICULUM VITAE

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PERSONAL

Date of Birth: January 17, 1962
Citizenship: Dual U.S.A./United Kingdom

DEGREES

- 1991. Ph.D. in biology, University of Alaska Fairbanks, Fairbanks, Alaska, USA
- 1990. M.A. in zoology, Oxford University, Oxford, England
- 1984. B.A. (Hons) in zoology, Oxford University, Oxford, England

EMPLOYMENT HISTORY

- 1998 - present. Assistant Professor, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Fairbanks, Alaska, 99775. Dean: Dr. Vera Alexander.
- 1995 - 1998. Research Associate, Behavioral Ecology Research Group, Department of Biological Sciences, Simon Fraser University, Burnaby, B.C., Canada, V5A 1 S6. Director: Dr. Lawrence Dill.
- 1992 - 1998. Research Associate, Institute of Arctic Biology, University of Alaska Fairbanks, Fairbanks, Alaska 99775-7220. Director: Dr. Robert White.
- 1993-1995. N.S.E.R.C. International Post-Doctoral Fellow, Behavioral Ecology Research Group, Department of Biological Sciences, Simon Fraser University, Burnaby, B.C., Canada V5A 1 S6. Supervisor: Dr. Lawrence Dill.
- Fall 1991-Spring 1992. Instructor (fall '91) and visiting assistant professor (spring '92), School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Fairbanks, Alaska 99775-7020. Dean: Dr. Vera Alexander.
- 1990 and 1991. Student Intern, Sportfish Division, Alaska Department of Fish and Game, 1300 College Road, Fairbanks Alaska. Supervisor: Dr. John Clark.

- 1984 -1991. Research Assistant and doctoral student, Alaska Cooperative Fish and Wildlife Research Unit, Biological Resources Division, United States Geological Survey, 209 Irving I, P.O. Box 757020, University of Alaska Fairbanks, Fairbanks, Alaska 99775-7020. Supervisor: Dr. James Reynolds.

AWARDS AND FELLOWSHIPS

- 2001. Nominated for the J.C. Stevenson Award, presented annually by the Canadian Conference for Fisheries Research to recognize the work of a young and energetic scientist making a significant contribution to fisheries and aquatic sciences.
- 1993-1995 N.S.E.R.C. International Post-Doctoral Fellowship to study with Dr. Lawrence Dill at the Behavioral Ecology Research Group, Simon Fraser University.
- 1984. Awarded a Gibbs prize by Oxford University.
- 1983. Awarded a Benefactors prize by The Queen's College, Oxford University.

RESEARCH GRANTS

- 2001-2002. PI, Dr. Nicholas Hughes. Title: Prey Capture Efficiency of Wild Brown Trout. Source: Cawthron Institute/New Zealand Foundation for Research Science and Technology. Amount: \$18,750.
- 2001-2002. PI, Dr. Nicholas Hughes. Title: Modeling Stream Habitat Use of Juvenile Coho Salmon and Steelhead Trout in Southeast Alaska Using Underwater Video. Source: National Fish and Wildlife Foundation. Amount: \$15,000.
- 2001-2002. PI, Dr. Nicholas Hughes. Title: Modeling the Mechanisms Linking Stream Habitat Characteristics to the Distribution, Growth, and Abundance of Juvenile Coho Salmon and Steelhead Trout. Source: United States Forest Service. Amount: \$20,000.
- 2000-2001. PI, Dr. Nicholas Hughes. Title: Prey Capture Efficiency of Wild Brown Trout. Source: Cawthron Institute/New Zealand Foundation for Research Science and Technology. Amount: \$18,750.
- 2000-2001. PI, Dr. Nicholas Hughes. Title: Modeling the Mechanisms Linking Stream Habitat Characteristics to the Distribution, Growth, and Abundance of Juvenile Coho Salmon and Steelhead Trout. Source: United States Forest Service. Amount: \$10,000.
- 2000-2002. PI, Dr. Nicholas Hughes. Title: Research and Development for the Nushagak River Sonar Project. Source: Alaska Department of Fish and Game. Amount: \$120,000.

- 2000-2002. PI, Dr. Nicholas Hughes. Title: Estimating the Abundance of Outmigrating Sockeye Salmon Smolts on the Kvichak River, Alaska, Using Acoustic and Video Techniques. Source: Alaska Department of Fish and Game. Amount: \$191,239.
- 1999-2000. PI, Dr. Nicholas Hughes. Title: Interactions between juvenile coho and steelhead in relation to habitat use. Source: United States Forest Service. Amount: \$6,000.
- 1999-2001. PI: Dr. Nicholas Hughes. Title: Effects of Suburbanization on Juvenile Salmonids in South Central Alaska. Source: United States Geological Survey, Water Resources Division. Amount: \$39,747.
- 1999-2000. PI's, Dr. Nicholas Hughes and Dr. James Reynolds. Title: Experimental Habitat Restoration for Juvenile Grayling in Badger Slough, Fairbanks, Alaska. Source: various, including Alaska Cooperative Fish and Wildlife Research Unit and the Alaska Department of Fish and Game. Amount (estimated): c.a. \$10,000.
- 1998-2000. PI's: Dr. John Hayes, Dr. Nicholas Hughes, and Ian Jowett. Title: Salmonid Foraging and Energetics Models 2. Source: New Zealand Foundation for Research Science and Technology. Amount: \$600,000 NZ.
- 1993. PI's: Dr. Nicholas Hughes, Dr. Jacqueline LaPerriere, and Dr. Jock Irons. Title: Testing Models Explaining Multi-Stream Distribution Patterns of Arctic Grayling Populations II. Source: Natural Resource Fund, University of Alaska. Amount: \$9,845
- 1992. PI's: Dr. Nicholas Hughes, Dr. Jacqueline LaPerriere, and Dr. Jock Irons. Title: Testing Models Explaining Multi-Stream Distribution Patterns of Arctic Grayling Populations I. Source: Natural Resource Fund, University of Alaska. Amount: \$4,983

REFEREED PUBLICATIONS

- Hughes, N.F., and T.C. Grand. 2000. Physiological ecology meets the ideal free distribution: predicting the distribution of size-structured fish populations across temperature gradients. *Environmental Biology of Fishes* 59: 285-298.
- Hughes, N.F. 2000. Testing the ability of habitat selection theory to predict interannual movement patterns of a drift-feeding salmonid. *Ecology of Freshwater Fish* 9: 4-8.
- Rincon, P.A., N.F. Hughes and G.D. Grossman. 2000. Landscape approaches to stream fish ecology, mechanistic aspects of habitat selection and behavioural ecology. Introduction and commentary. *Ecology of Freshwater Fish* 9: 1-3.
- Hughes, N.F. 1999. Population processes responsible for larger-fish-upstream distribution patterns of Arctic grayling (*Thymallus arcticus*) in interior Alaskan runoff rivers. *Canadian Journal of Fisheries and Aquatic Sciences* 56: 2292-2299.

- Hughes, N.F. 1998. A model of habitat selection by drift-feeding stream salmonids at different scales. *Ecology* 79: 281-294.
- Hughes, N.F. 1998. Use of whole-stream patterns of age segregation to infer the interannual movements of stream salmonids: A demonstration with Arctic grayling in an interior Alaskan stream. *Transactions of the American Fisheries Society* 127: 1067-1071.
- Hughes, N.F. 1998. Reduction in growth due to electrofishing and tagging may change interannual movement behavior of stream salmonids: Evidence from Arctic grayling in an interior Alaskan stream. *Transactions of the American Fisheries Society* 127: 1072-1077.
- Hughes, N. F., and L. H. Kelly. 1996. A hydrodynamic model for estimating the energetic cost of swimming maneuvers from a description of their geometry and dynamics. *Canadian Journal of Fisheries and Aquatic Sciences*, 53: 2484-2493.
- Hughes, N. F., and L. H. Kelly. 1996. New techniques for 3-D video tracking of fish swimming movements in still or flowing water. *Canadian Journal of Fisheries and Aquatic Sciences*, 53: 2473-2483.
- Hughes, N. F., and J. B. Reynolds 1994. Why do Arctic grayling *Thymallus arcticus* get bigger as you go upstream? *Canadian Journal of Fisheries and Aquatic Sciences*, 51: 2154-2163.
- Hughes, N. F. 1992. Ranking of feeding positions by drift-feeding Arctic grayling *Thymallus arcticus* in dominance hierarchies. *Canadian Journal of Fisheries and Aquatic Sciences*, 49: 1994-1998.
- Hughes, N. F. 1992. Growth and reproduction of the Nile perch, *Lates niloticus*, an introduced predator, in the Nyanza Gulf, Lake Victoria, East Africa. *Environmental Biology of Fishes*, 33: 299-305.
- Hughes, N. F. 1992. Nile perch, *Lates niloticus*, predation on the freshwater prawn, *Caridina nilotica*, in the Nyanza Gulf, Lake Victoria, East Africa. *Environmental Biology of Fishes*, 33: 307-309.
- Hughes, N. F. 1992. Selection of positions by drift-feeding salmonids in dominance hierarchies: model and test for Arctic grayling *Thymallus arcticus* in subarctic mountain streams, interior Alaska. *Canadian Journal of Fisheries and Aquatic Sciences*, 49: 1999-2008.
- Hughes, N. F., and L. M. Dill. 1990. Position choice by drift-feeding salmonids: a model and test for Arctic grayling (*Thymallus arcticus*) in subarctic mountain streams, Interior Alaska. *Canadian Journal of Fisheries and Aquatic Sciences*, 47: 2039-2048.

- Hughes, N. F. 1986. Changes in the feeding biology of the Nile perch *Lates niloticus* (L.) (Pisces: Centropomidae), in Lake Victoria, since its introduction in 1960, and its impact on the native fish community of the Nyanza Gulf. *Journal of Fish Biology*, 29: 541-548.
- Barel, C. D. N., R. Dorit, P. H. Greenwood, G. Fryer, N. Hughes, P. B. N. Jackson, H. Kanwanabe, R. H. Lowe-McConnel, M. Nagoshi, A. J. Ribbink, E. Trewavas, F. Witte, and K. Yamaoka. 1985. Destruction of fisheries in Africa's lakes. *Nature*, 315: 19-20.

MANUSCRIPTS SUBMITTED FOR PUBLICATION

- Hughes, N.F., and L.M. Dill. The economics of drift-feeding: a model and test using Arctic grayling. Submitted to *Ecology*.
- Hughes, N.F., and R. Dukas. A model of prey detection by drift-feeding fish. Submitted to *Ecology*.

MANUSCRIPTS IN FINAL STAGES OF PREPARATION

- Hughes, N.F., J.W. Hayes, and K.A. Shearer. Testing a model of drift-feeding using 3-D videography of wild rainbow trout in a New Zealand river.

GRADUATE STUDENTS

- M.S., Cheryl Dion. Current. Testing the ability of processed based models to predict the growth, diet, and distribution of Arctic grayling in Chena Slough, Interior Alaska. Funding: Alaska Department of Fish and Game. Co-supervised with Dr. James Reynolds.
- M.S., Lee McKinley. Current. Application of 3-D videography to evaluate hydroacoustic stock assessments of sockeye salmon smolts. Funding: Alaska Department of Fish and Game. Co-supervised with Dr. John Kelly.
- M.S., Scott McLean. Current. Influence of intergravel environment of the survival of chum salmon eggs and alevins. Funding: USGS Biological Resources Division.
- M.S., Julie Meka. Current. Effects of catch-and-release fishing on physiology and hooking injury of Alagnak River rainbow trout. Funding: USGS Biological Resources Division. Co-supervised with Dr. Jo Margraf.
- Ph.D., Jack Piccolo. Current. Development and test of habitat selection models for drift-feeding coho salmon and steelhead juveniles. Funding: US Forest Service and University of Alaska Rasmuson Fellowship.

- M.S., Alex Wilson. Current. The chemical and physical limnology and zooplankton ecology of Lake Clark, Alaska. Funding: US Park Service.
- M.S., Matthew Whitman. 2002. A Protocol for assessing the impacts of urbanization on coho salmon with application to Chester Creek, Anchorage, Alaska. Funding: USGS Water Resources Division.

CONFERENCE PRESENTATIONS

- Maclean, S.H., J.E. Finn, N.F. Hughes, J.F. Margraf, and D.L. Kane. Quantification of upwelling as a determinant of spawning site selection and quality for Yukon River chum salmon. Alaska Chapter of the American Fisheries Society Annual Meeting, 2001, Sitka, AK. ***Best student poster***
- Dion, C.A., N.F. Hughes, and F.J. Margraf. Predicting Growth of Juvenile Arctic Grayling in Interior Alaska. Alaska Chapter of the American Fisheries Society Annual Meeting, 2001, Sitka, Alaska.
- Hughes, N.F., Behavior of sockeye salmon smolts in the Kvichak River: relevance to hydroacoustic stock assessment. Bristol Bay Salmon Science Symposium, 2001, Bristol Bay, Alaska.
- Hughes, N.F., Using habitat selection theory to predict the migratory behavior of stream fish. International Congress on the Biology of Fish, 2000, Aberdeen, Scotland.
- Hughes, N.F. Prey detection by drift-feeding fish: model and test using Arctic grayling. Alaska Chapter of the American Fisheries Society Annual Meeting, 2000, Fairbanks, AK.
- Maclean, S.H., J.E. Finn, N.F. Hughes, J.F. Margraf, and D.L. Kane. Quantification of upwelling as a determinant of spawning site selection and quality for Yukon River chum salmon. Alaska Chapter of the American Fisheries Society Annual Meeting, 1999, Kodiak, AK. ***Best student poster***
- Hughes, N.F. Dynamic habitat selection theory: linking stream morphology to salmonid population dynamics. 3rd International Symposium on Ecohydraulics, 1999, Salt Lake City, Utah.
- Hughes, N.F. New approaches to understanding the velocity preferences of drift-feeding stream salmonids. American Fisheries Society, Western Division Meeting, 1998, Anchorage, Alaska.
- Hughes, N.F. Invited Plenary Speaker. Drift-feeding fish maneuver into mainstream foraging ecology: linking models of prey interception maneuvers and the spatial allocation of information processing capacity to predict the energy intake rate of a central place forager. FORAGING/98, an International Conference on Foraging Behavior, 1998, Santa Cruz, California.

- Hughes, N.F. A model of habitat selection by stream salmonids at the whole-stream scale. International Stream Fish Ecology Symposium, 1998, Lueca, Spain.
- Hughes, N.F. Why we still don't understand velocity choice by drift-feeding stream salmonids: a short review and prospectus. American Fisheries Society, National Meeting, 1997, Monterey, California.
- Hughes, N.F. A model of habitat selection by drift-feeding salmonids at different scales. American Fisheries Society, Western Division Meeting, 1996, Eugene, Oregon.
- Hughes, N.F. Influence of invertebrate drift abundance on position choice by drift-feeding salmonids: test of a foraging model using Arctic grayling *Thymallus arcticus*. American Fisheries Society, National Meeting, 1991, San Antonio, Texas.
- Hughes, N.F. Why do Arctic grayling get bigger as you go upstream? American Fisheries Society, Western Division Meeting, 1990, Sun Valley, Idaho.
- Hughes, N.F. A foraging model of position choice by drift-feeding salmonids makes accurate predictions for solitary Arctic grayling feeding in pools of a subarctic mountain stream. American Fisheries Society, National Meeting, 1989, Anchorage, Alaska.
- Hughes, N.F. The behavioural ecology of Arctic grayling distribution. Pacific Ecology Conference, 1988, Brackendale, British Columbia.
- Hughes, N.F. Why do Arctic grayling get bigger as you go upstream? American Fisheries Society, Alaska Chapter Meeting, 1987, Fairbanks, Alaska.

INVITED DEPARTMENTAL/INSTITUTIONAL SEMINARS

- Spring 2001. Cawthron Institute, Nelson, New Zealand. Use of 2-D hydrodynamic models to predict invertebrate drift distribution and fish habitat quality in relation to habitat change.
- Fall 1999. University of Alaska Fairbanks, Institute of Marine Science Seminar. Salmon migration, growth, and distribution in the Gulf of Alaska.
- Spring 1999. University of Alaska Fairbanks, Life Sciences Seminar. New approaches to understanding habitat selection by drift feeding stream fish: modeling prey interception maneuvers and the spatial allocation of information processing capacity.
- Spring 1999. Utah State, Biology, Fisheries, and Wildlife Seminar. New approaches to understanding velocity choice by drift-feeding stream salmonids.
- Spring 1999. National Institute of Water and Atmosphere, Christchurch, New Zealand. Developing and testing models of stream salmonid distribution patterns at different scales.

- Spring 1999. Cawthron Institute, Nelson, New Zealand. New approaches to understanding velocity choice by drift-feeding stream salmonids.
- Spring 1997. University of Alaska Fairbanks, Life Sciences Seminar. Modeling habitat selection by drift-feeding stream salmonids at different scales: a unified theory of distribution patterns and behavioral mechanisms.
- Fall 1996. University of Washington, Seattle, Vertebrate Biology Seminar. Distribution patterns of drift-feeding salmonids.
- Spring 1996. University of British Columbia, Vancouver, B.C., Ecology Seminar. Behavioral ecology of stream-salmonid distribution patterns.
- Spring 1995. University of Montana, Missoula, Biology Seminar. Behavioral ecology of stream-salmonid distribution patterns.
- Fall 1988. University of Alaska Juneau, Fisheries Seminar. Behavioral ecology of Arctic grayling distribution patterns.

TEACHING EXPERIENCE

- Fall 1998-Current. Teach the following courses at the School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Fairbanks, Alaska, USA, 99775-7020. Dean: Dr. Vera Alexander.

FISH/BIOL 650 Fish Ecology

FISH/BIOL 692 Seminar, Topics in Fisheries and Aquatic Sciences

FISH 401 Fisheries Management

FISH/BIOL 384 Freshwater Fishes of Alaska

- Fall 1991-Spring 1992. Developed and taught the following courses while instructor (fall '91) and visiting assistant professor (spring '92) at the School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Fairbanks, Alaska, USA, 99775-7020. Dean: Dr. Vera Alexander.

BIOL 650 Fish Ecology

FISH 400 Fisheries Science

FISH 401 Fisheries Management

BIOL 384 Freshwater Fishes of Alaska

- 1995-present. Invited lecturer in a wide variety of courses at the University of Alaska and Simon Fraser University, including courses in fish ecology, fisheries science, advanced animal behavior, animal ecology, ethology and statistical aspects of habitat selection.

- Fall 1985. Teaching Assistant and Lab Coordinator for Limnology 473 at University of Alaska Fairbanks, Fairbanks, Alaska 99775-7020. Professor: Dr. Mark Oswood.

EDITING, REVIEWING, AND SESSION CHAIRS

- 2002-present. Publication Committee, 4th World Fisheries Congress, 2-6 May, 2004, Vancouver.
- 2000-present. Editorial Board for Reviews in Fish Biology and Fisheries, Kluwer Academic Publishers.
- 1997-2000. Associate Editor for the American Fisheries Society, handling manuscripts on stream salmonids for the North American Journal of Fisheries Management.
- Invited Chair, Behavioral Ecology Session of the International Stream Fish Ecology Symposium, 1998, Lueca, Spain.
- Referee for:
 - Aquatic Living Resources
 - Achiv fur Hydrobiologie
 - Canadian Journal of Fisheries and Aquatic Sciences
 - Ecology
 - Ecological Applications
 - Environmental Biology of Fishes
 - Journal of Fish Biology
 - Functional Ecology
 - Hydrobiologia
 - New Zealand Journal of Marine and Freshwater Research
 - North American Journal of Fisheries Management
 - Oecologia
 - Transactions of the American Fisheries Society
 - Water Resources Research
- Solicited to evaluate proposals by:
 - Oregon Sea Grant
 - Canada's National Science and Engineering Council (N.S.E.R.C.)
 - Israeli Academy of Sciences

EXTERNAL EXAMINER

- 1999. Rapporteur for Mr. Jean Paul Mallet's Doctoral Thesis, Universite Claude Bernard, Lyon, France. Title: Recherche des Facteurs de Control de la Dynamique des Populations d'Ombre Commun *Thymallus thymallus* (L. 1758) de la Basse Rivere d'Ain.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- American Fisheries Society.

Curriculum Vitae of Gordon H. Kruse

C O N T A C T A D D R E S S

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E D U C A T I O N

Ph.D.	<i>Fisheries</i>	Oregon State University	1983
M.S.	<i>Fisheries</i>	Oregon State University	1981
B.A.	<i>Biostatistics</i>	Rutgers College, Rutgers University	1977

P R I M A R Y R E S E A R C H I N T E R E S T S

Applied marine fisheries research, including (1) population estimation models; (2) estimation of stock production parameters; (3) alternative management strategies; (4) fishery oceanography; and (5) dynamics of marine ecosystems.

S U M M A R Y O F P R O F E S S I O N A L E X P E R I E N C E

11/01 – pres. **President's Professor of Fisheries**, School of Fisheries & Ocean Sciences, University of Alaska Fairbanks, Juneau, Alaska

3/89 – 11/01 **Marine Fisheries Scientist**, Alaska Department of Fish and Game (ADF&G), Division of Commercial Fisheries, Juneau, Alaska

8/85 - 3/89 **Statewide Shellfish Biometrician**, ADF&G, Division of Commercial Fisheries, Juneau, Alaska

1/84 - 6/85 **Post-doctoral Research Fellow (Fisheries Biologist)**, Department of Fisheries and Oceans, St. John's, Newfoundland, Canada

9/77 - 11/83 **Graduate Research Assistant**, Oregon State University, Department of Fisheries and Wildlife, Corvallis, Oregon

Summer 1975-1977 **Research Assistant**, Rutgers University, Department of Biological Sciences, New Brunswick, New Jersey

U N I V E R S I T Y / T E A C H I N G E X P E R I E N C E

11/01 – pres. **President's Professor of Fisheries**, University of Alaska Fairbanks, School of Fisheries and Ocean Sciences. Currently serving on 18 graduate student committees, 4 (Jennifer Stahl, Nathan Soboleff, Naoki Tojo, Christie Hendrich) as major professor. Courses taught: *MSL 652 – Marine Ecosystems*; *FISH 421*

Fish Population Dynamics, FISH 693 – Management of Renewable Marine Resources, FISH 692 – Department Seminar

- 7/99 – 6/01 **Professor of Fisheries (Affiliate)**, University of Alaska Fairbanks, School of Fisheries and Ocean Sciences. Served on graduate committees of Caihong Fu (Ph.D., 2000), Jeff Short, Colin Schmitz, and Page Else.
- 1/96 - 5/96 **Part-time Associate Professor**, University of Alaska Fairbanks, taught 3-credit graduate course, *Fisheries Oceanography (MSL 640)*, also taught 1-credit graduate independent study course, *Fisheries Applications of Geographic Information Systems* to master's candidate, Page Else
- 5/96 – 11/01 **Affiliate Associate Professor**, University of Washington. Served on graduate committee of Teresa Turk.
- 1/94 - 5/94 **Part-time Associate Professor**, University of Alaska Fairbanks, taught 3-credit graduate course, *Fisheries Oceanography (MSL 640)*
- 9/87 - 10/87 **Instructor**, University of Alaska Southeast, taught 1 credit graduate course, *Introduction to Bootstrap Statistics (STAT 693)*
- 9/86 - 5/92 **Affiliate Associate Professor**, University of Alaska Fairbanks, served on graduate committees of Jie Zheng (Ph.D., 1993), Gregg Rosenkranz (MS, 1998), Audra Brase (MS, 1997), Page Else, and Caihong Fu
- 9/86 - pres. **Adjunct Faculty Member**, University of Washington, served on graduate committee of Marianne McClure (MS, 1991)
- 1/82 - 5/82 **Graduate Teaching Assistant**, Oregon State University, teaching assistant for population dynamics course, *Management of Marine Biological Resources (FW 431)*

O T H E R P R O F E S S I O N A L E X P E R I E N C E

- 10/05 - pres. **Chair**, Fishery Science Committee (FIS), North Pacific Marine Science Organization (PICES)
- 10/04 – pres. **Member, PICES Web Publications Committee**, North Pacific Marine Science Organization.
- 1/05 – pres. **Chair, Scientific and Statistical Committee**, North Pacific Fishery Management Council.
- 1/03 –12/04 **Vice chair, Scientific and Statistical Committee**, North Pacific Fishery Management Council.
- 11/02 – 10/04 **Member, Science Panel**, North Pacific Marine Research Board.

- 10/02 – pres. **Member, Scientific and Statistical Committee**, North Pacific Fishery Management Council.
- 11/00 – pres. **Chair, Editorial Board**, Alaska Fishery Research Bulletin, Alaska Department of Fish and Game.
- 8/95 - pres. **U.S. Delegate**, Fishery Science Committee (FIS), North Pacific Marine Science Organization (PICES)
- 1/94 - pres. **Member, Editorial Board**, Alaska Fishery Research Bulletin
- 8/02 – 6/04 **Member, Scientific Technical Committee**, AYK Sustainable Salmon Initiative.
- 7/01 – 1/03 **Member, Committee on Alaska Groundfish Fishery and Steller Sea Lions**, National Academy of Sciences.
- 12/00 – 6/02 **Member, Committee on Effects of Bottom Trawling on Seafloor Habitats**, National Academy of Sciences.
- 11/00 – 11/01 **Chair, Alaska Steller Sea Lion Restoration Team**
- 11/97 – 11/00 **Chair, Wally Noerenberg Award Committee**, Alaska Chapter, American Fisheries Society.
- 8/96 – 11/01 **State of Alaska Representative, Ecosystem Committee**, North Pacific Fishery Management Council
- 8/95 – 10/99 **State of Alaska Representative**, Coastal Marine Institute, Technical Steering Committee
- 6/93 – 11/01 **Member, Scallop Plan Team**, North Pacific Fishery Management Council
- 5/91 – 11/01 **Member, Marine and Estuarine Committee**, International Association of Fish and Wildlife Agencies
- 1/90 - 1/92 **Member, Scientific and Statistical Committee**, North Pacific Fishery Management Council
- 1/86 - 12/89 **Member, Crab Plan Team**, North Pacific Fishery Management Council

D E T A I L S O F P R O F E S S I O N A L E X P E R I E N C E

- 11/01 – pres. **President's Professor of Fisheries**, University of Alaska Fairbanks, School of Fisheries and Ocean Sciences.
- Conduct research in areas of interest. Current projects include (1) effects of climate on crab distribution and recruitment in the eastern Bering Sea, (2) relationships between crab and groundfish population dynamics in the eastern Bering Sea; (3) spatio-temporal variability of size of maturity of walleye pollock, (4) environmental cues of herring spawning time and

location in Togiak, eastern Bering Sea, (5) exploratory data analysis of Steller sea lion declines, and (6) review of ecosystem dynamics of the northern Gulf of Alaska.

- Supervise graduate students. I currently serve on 18 graduate student committees, including four as major professor.
- Teach graduate courses – e.g., *FISH 421: Fish Population Dynamics*, *FISH 693: Management of Renewable Marine Resources*, *MSL 652: Marine Ecosystems*, and *FISH 692: Department Seminar*. In the past, twice I have taught *MSL 640: Fishery Oceanography*. Planned future courses include may GIS Applications to Marine Fisheries.
- Serve on scientific and technical committees. I current serve as member of the Scientific and Statistical Committee of the North Pacific Fishery Management Council, Scientific Technical Committee of the AYI Sustainable Salmon Initiative, U.S. Delegate to the Fishery Science Committee of the North Pacific Marine Science Organization (PICES), and Chair of the Editorial Board of the Alaska Fishery Research Bulletin.

3/89 – 11/01 **Marine Fisheries Scientist**, ADF&G, Division of Commercial Fisheries, Juneau, Alaska

- Develop ADF&G's objectives and priorities for marine fisheries research and assessment, and administer ADF&G's marine fishery research/assessment program with annual budget of approximately \$4 million (direct supervision) and \$5 million (indirect supervision)
- Responsible for scientific and technical quality of the division's marine research program, and directly supervise a staff of four biometricians, two fishery biologists, a fishery scientist, and two analyst programmers to conduct applied fishery research and develop scientifically-sound fishery management plans, and indirectly oversee research conducted by 10 biometricians, 28 fishery biologists, and 14 technicians
- Serve as ADF&G's lead technical authority on marine fisheries research and management issues on state, federal and international scientific/technical committees and other fora
- As project leader, conduct applied research on population estimation methods, stock productivity, annual catch and overfishing levels, alternative management strategies, fishery oceanography, and ecosystem dynamics

8/85 - 3/89 **Statewide Shellfish Biometrician**, ADF&G, Division of Commercial Fisheries, Juneau, Alaska

- As project leader, conduct applied research on shellfish fisheries, including: develop stock assessment methods, analyze shellfish management strategies using statistical and modeling techniques, and investigate biological mechanisms that influence fishery productivity
- Develop objectives and priorities for ADF&G's shellfish research and assessment program, and control scientific and technical quality control of the division's shellfish program
- Serve as lead technical authority for the State of Alaska on Crab Fishery Management Plan Team of the NPFMC, and other public and scientific fora

1/84 - 6/85 **Fisheries Biologist**, Post-Doctoral Research Fellow, Department of Fisheries and Oceans, St. John's, Newfoundland, Canada

- Design a research proposal and implement an investigation of growth and survival of capelin (*Mallotus villosus*) larvae and biological and physical oceanographic conditions in Newfoundland coastal waters
- Collect oceanographic, planktonic and benthic data
- Administer a \$120,000 contract to collect oceanographic and meteorological data
- Analyze ecological data using multivariate statistical methods

9/77 - 11/83 **Graduate Research Assistant**, Oregon State University, Department of Fisheries and Wildlife, Corvallis, Oregon

- Conduct statistical and simulation studies of growth, spawning and population dynamics of English sole (*Parophrys vetulus*) off the Oregon and Washington coasts

6/77 - 9/77 **Research Assistant**, Rutgers University, Department of Biological Sciences, New Brunswick, New Jersey

- Collect larval, juvenile and adult surf clams (*Spisula solidissima*) with plankton nets, benthic grabs, and commercial hydraulic dredges, identify and enumerate species, and collect oceanographic data

6/76 - 9/76 **Research Assistant**, Rutgers University, Department of Biological Sciences, New Brunswick, New Jersey

- Maintain 100 tanks of the fish, *Poeciliopsis*, build apparatus and run electrophoretic starch gels, measure morphological characteristics, write statistical computer programs for analysis of genetic and morphological data, and write a report for journal publication

6/75 - 9/75 **Research Assistant**, Rutgers University, Department of Biological Sciences, New Brunswick, New Jersey

- Collect larval, juvenile and adult surf clams (*Spisula solidissima*) with plankton nets, benthic grabs, and commercial hydraulic dredges, identify and enumerate species, and collect oceanographic data

P R O F E S S I O N A L A N D H O N O R S O C I E T I E S

American Fisheries Society
American Society of Limnology
and Oceanography
American Statistical Association
National Shellfisheries Association

Phi Beta Kappa
Phi Sigma
Phi Kappa Phi
Sigma Xi

A W A R D S

Meritorious Service Award, American Fisheries Society, Alaska Chapter, November 1998

Most Significant Paper of 1989, Transactions of the American Fisheries Society, July 1990.

Commendation Award, Governor Steve Cowper, State of Alaska, August 1, 1989.

Performance Award for Meritorious Service, ADF&G, March 1989.

Honorable Mention, Best Paper Award for 1988, American Fisheries Society, Alaska Chapter, November 1988.

Post-doctoral Research Fellowship, National Sciences and Engineering Research Council of Canada, 1984-1985.

Walter G. Jones Fishery Development Award, Oregon State University, May 1982.

Outstanding Publication Award, Oregon State University Graduate School, July 1982.

R E F E R E E D P U B L I C A T I O N S

- Zheng, J., and **G.H. Kruse**. In press. Recruitment variation of eastern Bering Sea crabs: climate forcing or top-down effects? *Progress in Oceanography*, in press.
- Collie, J.S., A.K. DeLong, and **G.H. Kruse**. In press. Three-stage catch-survey analysis applied to blue king crabs Pages XX-XX *In* Kruse, G.H., V.F. Gallucci, D.E. Hay, R.I. Perry, R.M. Peterman, T.C. Shirley, P.D. Spencer, B. Wilson, and D. Woodby (eds.), *Fisheries assessment and management in data-limited situations*. Alaska Sea Grant College Program, University of Alaska Fairbanks.
- Kruse, G.H.**, J.P. Barnhart, and G.E. Rosenkranz. In press. Management of the data-limited weathervane scallop fishery in Alaska. Pages XX-XX *In* Kruse, G.H., V.F. Gallucci, D.E. Hay, R.I. Perry, R.M. Peterman, T.C. Shirley, P.D. Spencer, B. Wilson, and D. Woodby (eds.), *Fisheries assessment and management in data-limited situations*. Alaska Sea Grant College Program, University of Alaska Fairbanks.
- Kruse, G.H.**, A.V. Tyler, B. Sainte-Marie, and D. Pengilly. MS. A workshop on mechanisms affecting year-class strength formation of snow crabs (*Chionoecetes opilio*) in the eastern Bering Sea. *Alaska Fishery Research Bulletin*, in press.
- Schumacher, J.D., and **G.H. Kruse**. 2005. Toward sustainable ecosystem services from the Aleutian Archipelago. *Fisheries Oceanography* 14(Suppl. 1): 277-291.
- Zheng, J., and **G.H. Kruse**. 2003. Stock-recruitment relationships for Alaskan crab stocks. *Fisheries Research* 65: 103-121.
- National Research Council. 2003. *Decline of the Steller sea lion in Alaskan waters: untangling food webs and fishing nets*. National Academy Press, Washington, D.C. 204 p.

- Zheng, J., and **G.H. Kruse**. 2003. Stock-recruitment relationships for three major Alaskan crab stocks. *Fisheries Research* 65: 103-121.
- Paul, A.J., E.G. Dawe, R. Elner, G.S. Jamieson, **G.H. Kruse**, R.S. Otto, B. Sainte-Marie, T.C. Shirley, and D. Woodby (editors). 2002. Crabs in cold water regions: biology, management, and economics. University of Alaska Sea Grant, AK-SG-02-01, Fairbanks.
- Zheng, J., and **G.H. Kruse**. 2002. Retrospective length-based analysis of Bristol Bay red king crabs: model evaluation and management implications. Pages 475-494 *in* Paul, A.J., E.G. Dawe, R. Elner, G.S. Jamieson, **G.H. Kruse**, R.S. Otto, B. Sainte-Marie, T.C. Shirley, and D. Woodby (editors). Crabs in cold water regions: biology, management, and economics. University of Alaska Sea Grant, AK-SG-02-01, Fairbanks.
- Zheng, J., and **G.H. Kruse**. 2002. Assessment and management of crab stocks under uncertainty of massive die-offs and rapid changes in survey catchability. Pages 367-384 *in* Paul, A.J., E.G. Dawe, R. Elner, G.S. Jamieson, **G.H. Kruse**, R.S. Otto, B. Sainte-Marie, T.C. Shirley, and D. Woodby (editors). Crabs in cold water regions: biology, management, and economics. University of Alaska Sea Grant, AK-SG-02-01, Fairbanks.
- National Research Council. 2002. Effects of trawling and dredging on seafloor habitat. National Academy Press, Washington, D.C. 126 p.
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- Zheng, J., **G.H. Kruse**, and D.R. Ackley. 2001. Spatial distribution and recruitment patterns of snow crabs in the eastern Bering Sea. Pages 233-255 *in* G.H. Kruse, N. Bez, A. Booth, M.W. Dorn, S. Hills, R.N. Lipcius, D. Pelletier, C. Roy, S.J. Smith, and D. Witherell (editors). Spatial processes and management of marine populations. University of Alaska Sea Grant, Report AK-SG-01-02, Fairbanks.
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- Zhou, S., and **G.H. Kruse**. 2000. Modifications of cod pots to reduce Tanner crab bycatch. *North American Journal of Fisheries Management* 20: 897-907.
- Kruse, G.H.**, L.C. Byrne, F.C. Funk, S.C. Matulich, and J. Zheng. 2000. Analysis of minimum size limit for the red king crab fishery in Bristol Bay, Alaska. *North American Journal of Fisheries Management* 20: 307-319.

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- Zhou, S., and **G.H. Kruse**. 2000. Capture efficiency and size selectivity of two types of pots for red king crabs in the Bering Sea. *Alaska Fishery Research Bulletin* 6(2): 94-103.
- Kruse, G.H.**, and J. Zheng. 1999. Are changes in Bering Sea crab and groundfish populations related? Pages 143-148 *in* Ecosystem approaches for fisheries management. University of Alaska Sea Grant Report 99-01, Fairbanks.
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- Collie, J.S., and **G.H. Kruse**. 1998. Estimating king crab abundance from commercial catch and research survey data. Pages 73-83 *in* G.S. Jamieson and A. Campbell, editors. Proceedings of the North Pacific Symposium on Invertebrate Stock Assessment and Management. Canadian Special Publication of Fisheries and Aquatic Sciences 125.
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- Rosenkranz, G.E., A.V. Tyler, **G.H. Kruse**, and H.J. Niebauer. 1998. Relationship between wind and year class strength of Tanner crabs in the Southeastern Bering Sea. *Alaska Fishery Research Bulletin* 5(1): 18-24.
- Tyler, A.V., and **G.H. Kruse**. 1998. A comparison of year-class variability of red king crabs and Tanner crabs in the eastern Bering Sea. *Memoirs of the Faculty of Fisheries, Hokkaido University*, Vol. 45, No. 1: 90-95, Hakodate, Japan.
- Zheng, J., and **G.H. Kruse**. 1998. Stock-recruitment relationships for Bristol Bay Tanner crab. *Alaska Fishery Research Bulletin* 5(2): 116-130.
- Zheng, J., **G.H. Kruse**, and L. Fair. 1998. Use of multiple data sets to assess red king crab, *Paralithodes camtschaticus*, in Norton Sound, Alaska: A length-based stock synthesis approach. Pages 591-612 *in* F. Funk, T.J. Quinn II, J. Heifetz, J.N. Ianelli, J.E. Powers, J.F. Schweigert, P.J. Sullivan, and C.-I. Zhang. *Fishery Stock Assessment Models*. Alaska Sea Grant Report 98-01, Fairbanks.
- Zheng, J., **G.H. Kruse**, and M.C. Murphy. 1998. A length-based approach to estimate population abundance of Tanner crab, *Chionoecetes bairdi*, in Bristol Bay, Alaska. Pages 97-105 *in* G.S. Jamieson and A. Campbell, editors. Proceedings of the North Pacific Symposium on Invertebrate Stock Assessment and Management. Canadian Special Publication of Fisheries and Aquatic Sciences 125.
- Zheng, J., M.C. Murphy, and **G.H. Kruse**. 1998. Abundance estimation for St. Matthew Island blue king crab using survey and catch/effort data. Pages 575-589 *in* F. Funk, T.J. Quinn II, J. Heifetz, J.N. Ianelli, J.E. Powers, J.F. Schweigert, P.J. Sullivan, and C.-I. Zhang. *Fishery Stock Assessment Models*. Alaska Sea Grant Report 98-01, Fairbanks.

- Zhou, S., T.C. Shirley, and **G.H. Kruse**. 1998. Feeding and growth of the red king crab *Paralithodes camtschaticus* under laboratory conditions. *Journal of Crustacean Biology* 18: 337-345.
- Zheng, J. M.C. Murphy, and **G.H. Kruse**. 1997. Analysis of the harvest strategies for red king crab, *Paralithodes camtschaticus*, in Bristol Bay, Alaska. *Canadian Journal of Fisheries and Aquatic Sciences* 54:1121-1134.
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- Zheng, J. M.C. Murphy, and **G.H. Kruse**. 1996. A catch-length analysis for crab populations. *Fishery Bulletin (U.S.)* 94: 576-588.
- Murphy, M.C., and **G.H. Kruse**. 1995. An annotated bibliography of capture and handling effects on crabs and lobsters. *Alaska Fishery Research Bulletin* 2:23-75.
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- Zheng, J., M.C. Murphy, and **G.H. Kruse**. 1995. A length-based population model and stock-recruitment relationships for red king crab, *Paralithodes camtschaticus*, in Bristol Bay, Alaska. *Canadian Journal of Fisheries and Aquatic Sciences* 52:1229-1246.
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Fish Populations, University of Alaska Sea Grant College Program, Report 93-02, Fairbanks.

- Woodby, D., **G.H. Kruse**, and R. Larson. 1993. A conservative application of a surplus production model to the sea cucumber fishery in Southeast Alaska. Pages 191-202 in G.H. Kruse, D.M. Eggers, R.J. Marasco, C. Pautzke, and T.J. Quinn II (editors). Proceedings of the International Symposium on Management Strategies for Exploited Fish Populations, University of Alaska Sea Grant College Program Report 93-02, Fairbanks.
- Zheng, J., F. Funk, **G.H. Kruse**, and R. Fagen. 1993. Threshold management strategies for Pacific herring in Alaska. Pages 141-165 in G.H. Kruse, D.M. Eggers, R.J. Marasco, C. Pautzke, and T.J. Quinn II (editors). Proceedings of the International Symposium on Management Strategies for Exploited Fish Populations, University of Alaska Sea Grant College Program Report 93-02, Fairbanks.
- Zheng, J., T.J. Quinn, II, and **G.H. Kruse**. 1993. Comparison and evaluation of threshold estimation methods for exploited fish populations. Pages 267-289 in G.H. Kruse, D.M. Eggers, R.J. Marasco, C. Pautzke, and T.J. Quinn II (editors). Proceedings of the International Symposium on Management Strategies for Exploited Fish Populations, University of Alaska Sea Grant College Program Report 93-02, Fairbanks.
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- Kruse, G.H.**, and A.V. Tyler. 1989. Exploratory simulation of English sole recruitment mechanisms. Transactions of the American Fisheries Society 118: 101-118.
- Kruse, G.H.** 1988. An overview of Alaska's fisheries: Catch and economic importance of the resources, participants in the fisheries, revenues generated, and expenditures on management. Alaska Department of Fish and Game, Division of Commercial Fisheries, Fishery Research Bulletin 88-001, Juneau.
- Merritt, M.F., D.R. Bernard, and **G.H. Kruse**. 1988. King crab stock assessment studies in lower Cook Inlet, Alaska, in 1984 and 1985 and calculation of variance in the historical survey mean catch per pot. Alaska Department of Fish and Game, Division of Commercial Fisheries, Informational Leaflet 265, Juneau.
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- Peterman, R.M., M.J. Bradford, and **G.H. Kruse**. 1987. Simulation model of English sole (*Parophrys vetulus*) population dynamics in Washington and Oregon waters. Canadian Journal of Fisheries and Aquatic Sciences 44: 1870-1878.

- Kruse, G.H.**, and A. Huyer. 1983. Relationships among shelf temperatures, coastal sea level, and the coastal upwelling index off Newport, Oregon. *Canadian Journal of Fisheries and Aquatic Sciences* 40: 238-242.
- Kruse, G.H.**, and A.V. Tyler. 1983. Simulation of temperature and upwelling effects on the English sole (*Parophrys vetulus*) spawning season. *Canadian Journal of Fisheries and Aquatic Sciences* 40: 230-237.
- Kreuz, K.F., A.V. Tyler, **G.H. Kruse**, and R.L. Demory. 1982. Variation in growth of Dover soles and English soles as related to upwelling. *Transactions of the American Fisheries Society* 111: 180-192.

B O O K S A N D E D I T E D S Y M P O S I A

- National Research Council. 2003. Decline of the Steller sea lion in Alaskan waters: untangling food webs and fishing nets. National Academy Press, Washington, D.C. 204 p.
- Paul, A.J., E.G. Dawe, R. Elner, G.S. Jamieson, **G.H. Kruse**, R.S. Otto, B. Sainte-Marie, T.C. Shirley, and D. Woodby (editors). 2002. Crabs in cold water regions: biology, management, and economics. University of Alaska Sea Grant, AK-SG-02-01, Fairbanks.
- National Research Council. 2002. Effects of trawling and dredging on seafloor habitat. National Academy Press, Washington, D.C.
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- Kruse, G.H.**, D.M. Eggers, R.J. Marasco, C. Pautzke, and T.J. Quinn II (editors). 1993. Proceedings of the International Symposium on Management Strategies for Exploited Fish Populations, University of Alaska Sea Grant College Program, Report 93-02, Fairbanks.

N O N - R E F E R E E D S Y M P O S I A

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T H E S E S

Ph.D. A simulation of English sole (*Parophrys vetulus*) recruitment mechanisms.

M.S. Relationships between shelf temperatures, coastal sea level, the coastal upwelling index, and English sole (*Parophrys vetulus*) spawning activity off Oregon.

P R O F E S S I O N A L P R E S E N T A T I O N S

Investigation of the life history and ecology of spiny dogfish, Squalus acanthias, in Alaska: A progress report. Oral presentation at the First International Symposium on the Management and Biology of Dogfish Sharks, Seattle, WA. June 13-15, 2005.

Maturation of walleye pollock in the eastern Bering Sea in relation to temporal and spatial factors. Oral presentation at PICES annual meeting, Honolulu, HI. October 21, 2004, and 2004 Annual Alaska Chapter AFS Conference, Sitka, AK. November 17, 2004.

Advances in spiny dogfish research in the face of commercial fishing. Oral presentation at the 2004 Annual Alaska Chapter AFS Conference, Sitka, AK. November 16, 2004.

Implications of climate change on spawning timing and management of herring in northern Bristol Ba, Alaska. Oral presentation at the 2004 Annual Alaska Chapter AFS Conference, Sitka, AK. November 16, 2004.

Recent advances in knowledge of cold-water sharks in the North Pacific Ocean. Oral presentation at PICES annual meeting, Honolulu, HI. October 19, 2004.

Recruitment variation of eastern Bering Sea crabs: Density-dependent, "climate-control", or "top-down" effects? Oral presentation at PICES annual meeting, Honolulu, HI. October 19, 2004.

Potential interactions between state-managed fisheries and Steller sea lions. Poster presented at the Lowell Wakefield Symposium on Sea Lions of the World: Conservation and Research in the 21st Century. Anchorage, AK. October 2, 2004.

Overview of Bering Sea Crab stock abundance, management, and research needs. Oral presentation to Pribilof Islands Cooperative Workshop, Anchorage, AK. January 14, 2004.

An examination of the maturation of walleye pollock in the eastern Bering Sea in relation to temporal and spatial factors. Oral presentation at the Marine Science in Alaska Symposium, Anchorage, AK. January 13, 2004.

Environmental cues for Togiak herring spawning. Oral presentation at the Marine Science in Alaska Symposium, Anchorage, AK. January 13, 2004.

Effects of dredging and trawling on seafloor habitat: study results of the National Research Council. Oral presentation to the North Pacific Fishery Management Council, Anchorage, AK. December 10, 2003. [Invited]

Opening Address. Oral presentation at the Lowell Wakefield Symposium on Assessment and Management of Fisheries in Data-limited Situations. Anchorage, AK, October 22, 2003. [Invited]

Three-stage catch-survey analysis applied to blue king crabs. Oral presentation at the Lowell Wakefield Symposium on Assessment and Management of Fisheries in Data-limited Situations. Anchorage, AK, October 23, 2003, and presented at the School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Juneau, AK, October 31, 2003.

Management of the data-limited weathervane scallop fishery in Alaska. Oral presentation at the Lowell Wakefield Symposium on Assessment and Management of Fisheries in Data-limited Situations. Anchorage, AK, October 22, 2003 and as a department seminar, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Juneau, AK, January 30, 2004.

Related changes in crab and groundfish abundances in the eastern Bering Sea. Oral presentation at the Annual Meeting of the American Fisheries Society, Quebec City, Quebec, August, 12, 2003, and presented at the School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Juneau, AK, September 26, 2003.

Untangling food webs and fishing nets: results of the National Research Council's study of the Alaska groundfish fishery and Steller sea lions. Oral presentation at the School of Fisheries and Ocean Sciences, University of Alaska Fairbanks. February 7, 2003. Also, presented to the North Pacific Fishery Management Council, December 4, 2002 in Anchorage and an updated version was presented on January 27, 2003 in Seattle. Also, presented to the NPFMC's Reasonable and Prudent Alternative Committee, June 24, 2003 in Seattle. [All invited presentations]

Spatial and recruitment patterns of eastern Bering Sea crabs. Poster at annual meeting of the North Pacific Marine Science Organization (PICES), October 21-25, 2002, Qingdao, China, and at the Annual Meeting, Alaska Chapter, American Fisheries Society, October 21-24, 2002, Girdwood, Alaska.

Effects of dredging and trawling on seafloor habitat: study results of the National Research Council. Oral presentation at the School of Fisheries and Ocean Sciences, University of Alaska Fairbanks. September 20, 2002.

Crab populations are controlled by climate-mediated variability. Oral presentation to Oceans and Watersheds Conference, June 18-19, 2002, Anchorage. [Invited presentation]

Effects of water temperature and wind on recruitment of Tanner crabs in Bristol Bay, Alaska, Poster at the annual meeting of the North Pacific Marine Science Organization (PICES), October 15-19, 2001, Victoria, British Columbia.

Stock-recruitment relationships for Alaskan crab stocks. Poster at annual meeting of the North Pacific Marine Science Organization (PICES), October 15-19, 2001, Victoria, British Columbia.

Groundfish fisheries and the Endangered Steller sea lion: A new era in fisheries management in Alaska. Oral presentation to at Alaska Department of Fish and Game, and UAF School of Fisheries and Ocean Sciences, and general public. August, 2001, Juneau.

Overview of North Pacific ecosystem and fisheries. Oral presentation to the National Academy of Sciences, Committee on ecosystem effects of fishing, June 1, 2001, Anchorage. [Invited]

Steller sea lions and the Alaska groundfish fishery. Oral presentation to the Maurice Lamontagne Institute, Department of Fisheries and Oceans, April 15, 2001, Mont-Joli, Quebec. [Invited]

Retrospective length-based analysis of Bristol Bay red king crabs: model evaluation and management implications. Oral presentation at the Lowell Wakefield CRAB2001 Symposium, January 19, 2001, Anchorage. [Invited]

Climate Fluctuations and Dynamics of Alaskan Crab Populations. Oral presentation at the PICES Annual Meeting, October 20-28, 2000, Hakodate, Japan.

Insights into Alaskan Crab Population Dynamics. Oral presentation at the School of Fisheries and Ocean Sciences, University of Alaska Fairbanks. January 28, 2000.

A Rebuilding Plan for St. Matthew Island Blue King Crabs. Oral presentation to the Alaska Board of Fisheries, Anchorage, March 17, 2000, and the North Pacific Fishery Management Council, April 10-14, 2000.

Overview of Alaskan Crab and Scallop Fisheries. Oral presentation at the Alaska Region Workshop on Fishing Gear Impacts on Habitat, January 25, 2000, Auke Bay. [Invited]

Plans for Scallop Dredge Fishing Impact Studies. Oral presentation at the Alaska Region Workshop on Fishing Gear Impacts on Habitat, January 25, 2000, Auke Bay. [Invited]

Managing crab fisheries in a changing environment. Oral presentation at the Exxon Valdez Trustee Council Annual Restoration Meeting, January 18-19, 2000, Anchorage. [Invited]

Analysis of Minimum Size Limit for the Red King Crab Fishery in Bristol Bay, Alaska. Oral presentation at the American Fisheries Society, Annual Meeting, August 30-September 2, 1999, Charlotte, NC, and at the American Fisheries Society, Alaska Chapter Annual Meeting, November 9-11, 1999, Kodiak.

Perspectives of Crab Stock Declines. Oral presentation to the Board of Directors, Alaska Marine Conservation Council, October 22, 1999, Juneau. [Invited]

History and Development of the Scallop Fishery in Alaska. Oral presentation to the "Workshop on the Effects of the Alaska Scallop Fishery on Weathervane Scallop Population Dynamics and Benthic Community Structure," June 10, 1999, Kodiak.

Stock and Fishery History and Current Status of Tanner crabs in the Eastern Bering Sea. Oral presentation to the Alaska Board of Fisheries, March 18, 1999.

Review of Harvest Strategies for Tanner Crabs with Proposed New Harvest Strategies for the Eastern Bering Sea, Kodiak, Chignik, and South Peninsula Tanner Crab Fisheries. Oral presentation to the Alaska Board of Fisheries, March 18, 1999, Anchorage.

Relationships among Crabs, Environmental Change, and Groundfish in the Bering Sea. Oral presentation at the UAF Ecosystem Research Planning Workshop, January 17-18, 1999, Fairbanks, and at the NPFMC Ecosystem Committee Meeting, January 21, 1999, Anchorage. [Invited]

Implications of Recent Climate Changes on Salmon and Crabs in the Bering Sea. Oral presentation at the FOCI International Workshop on Recent Conditions in the Bering Sea, November 9, 1998, Seattle. [Invited]

Relationships between Crabs and Groundfishes in the Eastern Bering Sea. Oral presentation at Lowell Wakefield Symposium on Ecosystem Considerations in Fisheries Management on September 30, 1998, Anchorage.

Decadal-scale climate shifts and relationships to crab recruitment. Oral presentation at the Annual Meeting, Alaska Chapter, American Fisheries Society, November 18-20, 1997, Juneau.

Relationships between Crabs and Groundfishes in the Eastern Bering Sea. Oral presentation at American Fisheries Society Meeting in Hartford, CT, on August 27, 1998.

Unraveling Relationships between Marine Environments and Fish Recruitment: A Review of Approaches, Pitfalls, and Potential Solutions. Oral presentation at the PICES Annual Meeting, October 18-25, 1997, Pusan, Korea.

Recruitment Patterns of Alaskan Crabs as Related to Environmental Conditions. Oral presentation at the ICES Recruitment Symposium, September 22-24, 1997, Baltimore.

Biological Reference Points for Red King Crabs in Alaska. Oral presentation at the Lowell Wakefield Crab Symposium, Anchorage, October 1995.

Biological Reference Points for Weathervane Scallops in Alaska. Oral presentation at the Annual Meeting, Alaska Chapter, American Fisheries Society, Wasilla, November 14-16, 1995 and to North Pacific Symposium on Invertebrate Stock Assessment and Management, Nanaimo, British Columbia, March 1995.

Alaska's Developing Fisheries for Marine Invertebrates. Oral presentation at the Annual Meeting, Alaska Chapter, American Fisheries Society, Sitka, November 1994.

Size-sex-season Crab Management in Alaska: Panacea, Placebo or Plunder? Oral presentation at the Annual Meeting, Alaska Chapter, American Fisheries Society, Fairbanks, November, 1993 and to Annual National Meeting, American Fisheries Society, Portland, Oregon, September 1993.

The Alaskan Scallop Fishery and Its Management. Oral presentation at the Ninth International Pectinid Workshop, Nanaimo, British Columbia, April 1993.

Alaskan Crab Management in 1999: Getting Back to Basics. Oral presentation at the Annual Meeting, Alaska Chapter, American Fisheries Society, Valdez, Alaska, November 1992.

Biological Perspectives on Crab Management in Alaska. Oral presentation at the International Symposium on Management Strategies for Exploited Fish Populations, Anchorage, Alaska, October 1992.

Increasing Efficiency and Effectiveness of Alaska's Shellfish Management Program despite Budget Limitations and Reductions in Quality of Fishery Data. Oral presentation at the Annual Meeting, North Pacific International Chapter, American Fisheries Society, Vancouver, British Columbia, March 1989. [Invited]

Economic Importance of Alaska's Commercial Fisheries. Oral presentation at the Annual Meeting, Alaska Chapter American Fisheries Society, Juneau, Alaska, November 1988.

The Search for Linkages between Oceanographic Conditions and Fishery Productivity: The English Sole Case. Oral presentation at the Annual Meeting, Oregon Chapter, American Fisheries Society, Corvallis, February 1983.

A Simulation Model of the English sole (Parophrys vetulus) Recruitment Process. Oral presentation at the Annual Meeting, Oregon Chapter, American Fisheries Society, Kah-Nee-Ta, Oregon, January 1982.

Influence of Physical Factors on the English sole (Parophrys vetulus) Spawning Season. Oral presentation at the Western Groundfish Conference, Gleneden Beach, Oregon, November 1981.

RESUME

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Professional and academic credentials:

B.S., Biology, University of California Riverside
M.S., Biology/Ecology, Utah State University
Ph.D., Fisheries, University of Alaska Fairbanks
Past President, American Fisheries Society, Alaska Chapter

Professional Employment History:

UAF EMPLOYMENT:

2001-current	Associate Professor of Fisheries, adjunct/affiliate. Advise undergraduate students. Design and teach: <ul style="list-style-type: none">• FISH 493/693 Decision Making Techniques for Resource Management (funded by PCCRC)• FISH 101 Introduction to Fisheries,• FISH 400 Fishery Science,• FISH 401 Fishery Management.
1998	Frank and Marjorie Meek Visiting Professor. Develop and teach FISH 401, fisheries management.

ADFG EMPLOYMENT:

2001-2002	Fisheries Scientist, Alaska Department of Fish and Game (ADF&G). Facilitate strategic planning for research programs using decision analysis.
1989-2001	Research Supervisor, Fishery Biologist IV, Region III, Sport Fish Division (SFD), ADF&G, Fairbanks. Supervise the sport fish research program for the A-Y-K and Copper River areas.
1988-89	Fishery Biologist II, Seward Peninsula Arctic grayling research, SFD, ADF&G, Fairbanks. Directed the collection and interpretation of Arctic grayling stock assessment.
1986-88	Fishery Biologist II, Yukon River chinook salmon stock identification, Commercial Fisheries (CFD), ADF&G, Anchorage. Directed the collection and interpretation of stock composition data for use in US/Canada treaty negotiations.

Merritt Resume (Continued)
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- 1986 Fishery Biologist II, statewide shellfish research, Chief Fisheries Scientists Office, CFD, ADF&G, Anchorage. Assisted regions in data control and project design, including statistical evaluation of surveys.
- 1984-85 Fishery Biologist II, area shellfish research, CFD, ADF&G, Homer. Supervised and conducted population assessment studies on shellfish.
- 1981-83 Fishery Biologist II, Copper River salmon research, CFD, ADF&G, Glennallen. Developed and conducted sockeye salmon sonar research projects. Analyzed migratory timing of sockeye salmon for management of the fishery.
- 1979-80 Fishery Biologist II, Kotzebue Sound salmon research, Fisheries Rehabilitation, Enhancement and Development (FRED), ADF&G, Kotzebue. Site investigations for construction of a salmon hatchery, including water quality analyses and bioassays. Investigated the early life history of chum salmon.
- 1977-78 Fisheries Biologist II, FRED, ADF&G, Juneau. Designed and supervised tests on salmon alevin responses to incubator types.
- 1977 Technician III, SFD and CFD, ADF&G, Juneau. Supervised the operation of a weir to enumerate sockeye salmon.
- 1975-76 Research Biologist, U.S. International Biological Program, Desert Biome, Utah State. Supervised mammal demographics and energetics studies, collection of meteorological data, annuals growth, soil seed reserves. Analyzed and reported results for ecosystems analysis.
- 1973-74 Research fellow (UCR); assistant (National Geographic Society). Investigated distribution and ecology of desert bighorn sheep using radiotelemetry.

Publications:

Stock Assessment/Modeling

- Merritt, M. F. and T. J. Quinn II. 2000. Using perceptions of data accuracy and empirical weighting of information: assessment of a recreational fish population. *Canadian Journal of Fisheries and Aquatic Sciences* 57 (7) 1459-1469.
- DeCicco, F., M. Merritt and A. Bingham. 1997. Characteristics of a lightly exploited population of Arctic grayling residing in the Sinuk River, Seward Peninsula, Alaska. Pages 229-239 *In* J. Reynolds, editor. *Fish Ecology in Arctic North America*. American Fisheries Society Symposium No. 19, Bethesda, Maryland.
- Evenson, M. and M. Merritt. 1995. Catch per unit of effort estimates and catch-age analysis of burbot in the Tanana River drainage, 1994. Fishery Data Series No. 95-37. Alaska Department of Fish and Game, Division of Sport Fisheries, Anchorage.
- Merritt, M. and D. Fleming. 1991. Evaluations of various structures for use in age determination of Arctic grayling. Fishery Manuscript No. 91-6. Alaska Department of Fish and Game, Division of Sport Fisheries, Anchorage.
- Merritt, M., A. Bingham and N. Morton. 1990. Creel surveys conducted in interior Alaska during 1989. Fishery Data Series No. 90-54. Alaska Department of Fish and Game, Division of Sport Fisheries, Anchorage.
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- Hammarstrom, L. and M. Merritt. 1985. A survey of Pacific Weathervane scallops (Pecten caurinus) in Kamishak Bay, Alaska. Informational Leaflet No. 252 Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.
- Merritt, M. 1985. King (Paralithodes camtschatica) and Tanner crab (Chionoecetes bairdi) assessment studies in lower Cook Inlet, Alaska. Informational Leaflet No. 248. Alaska Department of Fish and Game, Division of Commercial Fisheries, Juneau.
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- Merritt, M. and J. Raymond. 1983. Early life history of chum salmon in the Noatak River and Kotzebue Sound. FRED Division Report No. 1. Alaska Department of Fish and Game, Juneau.
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Decision Analysis/Strategic Planning

- USFWS. *In Press*. Strategic plan for the subsistence fisheries resource monitoring program, Bristol Bay-Chignik area, 2004. Office of Subsistence Management, 3601 C Street Suite 1030, Anchorage AK 99503. www.r7.fws.gov/asm/strategic.cfm
- USFWS. 2005. Strategic plan for the subsistence fisheries resource monitoring program, Southcentral region, 2004. Office of Subsistence Management, 3601 C Street Suite 1030, Anchorage AK 99503. www.r7.fws.gov/asm/strategic.cfm
- KRSA. 2005. Strategic plan for focusing Pacific Coastal Salmon Recovery Program funds on priority habitat and fisheries concerns in the Kenai River watershed. Kenai River Sportfishing Association. PO Box 1228 Soldotna, AK 99669
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- Merritt, M. and A. Skilbred. 2002. Planning for sustainable salmon in Southeast Alaska, and prioritization of projects for the Southeast Sustainable Salmon Fund, 2001. Alaska Department of Fish and Game, Fishery Special Publication No. 02-01, Anchorage.
- Merritt, M. 2001. Strategic plan for salmon research in the Kuskokwim River drainage. Alaska Department of Fish and Game, Fishery Special Publication No. 01-07, Anchorage.

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- Merritt, M. F. 2000. Strategic plan for chinook salmon research in the Copper River drainage. Special Publication No. 00-03. Alaska Department of Fish and Game, Division of Sport Fisheries, Anchorage.
- Merritt, M. 1995. Application of decision analysis in the evaluation of recreational fishery management problems. Doctoral dissertation, University of Alaska Fairbanks.
- Merritt, M. and K. Criddle. 1993. Evaluation of the analytic hierarchy process for aiding management decisions in recreational fisheries: a case study of the chinook salmon fishery in the Kenai River, Alaska. Pages 683-703 *in* Proceedings of the International Symposium on Management of Exploited Fish Populations, University of Alaska Sea Grant No. 93-2, Fairbanks, Alaska.

Socioeconomics

- Duffield, J., Merritt, M. and C. Neher. 2002. Valuation and policy in Alaskan sport fisheries. In T. Pitcher and C. Hollingworth, editors. Evaluating recreational fisheries: an ecological, economic and social balance sheet. Blackwell Science.
- Duffield, J., C. Neher and M. Merritt. 2001. Alaska angler survey: use and valuation estimates for 1998 with a focus on burbot, pike and lake trout fisheries in Region III. Special Publication No. 01-03. Alaska Department of Fish and Game, Division of Sport Fisheries, Anchorage.
- Duffield, J., C. Neher and M. Merritt. 2001. Alaska angler survey: use and valuation estimates for 1997 with a focus on salmon fisheries in Region III. Special Publication No. 01-02. Alaska Department of Fish and Game, Division of Sport Fisheries, Anchorage.
- Duffield, J., C. Neher and M. Merritt. 2001. Alaska angler survey: use and valuation estimates for 1996 with a focus on Arctic grayling fisheries in Region III. Special Publication No. 01-05. Alaska Department of Fish and Game, Division of Sport Fisheries, Anchorage.
- Duffield, J., C. Neher and M. Merritt. 2001. Alaska angler survey: use and valuation estimates for 1995 with a focus on Tanana Valley major stocked waters. Special Publication No. 01-03. Alaska Department of Fish and Game, Division of Sport Fisheries, Anchorage.
- Duffield, J., C. Neher and M. Merritt. 2000. Effect of proposed changes to rod and reel subsistence harvest regulations in the lower Yukon/Kuskokwim area: surveys and analysis. Special Publication No. 00-02. Alaska Department of Fish and Game, Division of Sport Fisheries, Anchorage.
- Merritt, M., J. Duffield and C. Neher. 1999. Economic value of northern Alaska sport fisheries and the influence of management on stated trip frequency. Pages 119-123 *In* Evaluating the benefits of recreational fisheries. Fisheries Centre Research Reports University of British Columbia vol 7 (2).

Curriculum Vitae

Terrance J. Quinn II

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Birthdate: October 27, 1952

EDUCATION

Ph.D., Biomathematics, 1980, University of Washington, Seattle WA

M.S., Fisheries, 1977, University of Washington, Seattle WA

B.A., Mathematics, 1973, University of Colorado, Boulder CO

EXPERIENCE

1998-	Professor of Fish Population Dynamics, Juneau Center, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks
1985-1997	Associate Professor of Fish Population Dynamics, Juneau Center, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks
1978-1985	Biometrician, International Pacific Halibut Commission

PUBLIC SERVICE

Member since 1986 and former chair of the Statistical and Scientific Committee of the North Pacific Fishery Management Council.

Member of Ocean Studies Board of the National Research Council from 1995 to 1998; served on 5 NRC committees and chaired two of those, all leading to NRC publications.

Associate Editor, Canadian Journal of Fisheries and Aquatic Sciences

Reviewer, several journals in fisheries and statistics, for agencies, for individuals

Editor, three conference proceedings

AWARDS

National Associate of the National Academies of Science, Engineering, and Medicine, December 2001

CONSULTING

National Marine Fisheries Service (stock assessment and fishery management)

Alaska Dept. of Fish and Game (various shortcourses)

Ohio Dept. of Fish and Wildlife (catch-age analysis)

South Atlantic Fishery Management Council (swordfish)

New South Wales Fisheries Research Institute (catch-age analysis)

CSIRO, Australia (catch-age analysis)

Makah Indian Tribe (halibut, groundfish fisheries)

Ministry of Fisheries, New Zealand (hoki stock assessment)

MRAG Americas (North Pacific observer program)

Minnesota Department of Natural Resources (Mille Lacs Lake walleye assessment)

Natural Resources Consultants (independent peer reviewer for assessment of large coastal sharks)

STUDENTS

Bonita Nelson, Jack Turnock, Scott Johnson, Bob Lafferty, Scott MacPherson, Nicole Szarzi, Robert Marshall, Lowell Fair, Daniel Bosch, Edgar Jones, Jon Heifetz, Peter Hagen, Randy Ericksen, Lewis Coggins, Erik Williams, Caihong Fu, Matthew Foster, Dana Hanselman, James Savereide, Brian Battaile, Colin Schmitz, Ben Williams, Briana Witteveen, Sara Miller, Kray Van Kirk, Haixue Shen, Peter-John Hulson, Joe Liddle. (Not chaired but significant involvement: Jie Zheng, Mike Sigler, Peggy Merritt, Ed Farley, Chris Rooper, Michio Fukushima, William Templin)

COLLEAGUES (last 48 months)

Ram Myers, Paul Fanning, Robert Mohn, Paul Radomski, Jim Bence, Richard Deriso, Hal Geiger, Clive Turnbull, Vidar Weststad, Gordon Kruse, John Calambokidis, Chris Gabriele, Jan Straley, Sally Mizroch, Joe Niebauer, Steve Hare, Paul Spencer, Jeremy Collie, Jim Ianelli, Martin Dorn, Anne Hollowed, Richard Marasco, Reg Watson, Fritz Funk, Lewis Haldorson, William Smoker, Gary Marty, John Wilcock, Lev Zhivotovsky, Tony Gharrett, Doug McBride, Peggy Merritt, Richard Gates, Jeff Fujioka, Ben van Alen, Pat Livingston, Graeme Parks, Milo Adkison, Robert Small, Paul Radomski, Jim Bence, Yongshun Xiao, Andre Punt, Russell Millar, Jeep Rice, Brenda Norcross, Quinn Weninger, Carl Safina, Andy Rosenberg

Books

- Funk, F., T.J. Quinn II, J. Heifetz, J.N. Ianelli, J.E. Powers, J.F. Schweigert, P.J. Sullivan, and C.-I. Zhang (editors). 1998. Fishery Stock Assessment Models. Proc. Symp. Fishery Stock Assess. Models 21st Cent. Alaska Sea Grant College Program, Fairbanks AK, AK-SG-98-01. 1054 p.
- National Research Council. 1998a. Improving Fish Stock Assessments. National Academy Press, Washington DC. 177 p. (co-chair and co-author)
- National Research Council. 1998b. Review of Northeast Fishery Stock Assessments. National Academy Press, Washington DC. 128 p. (chair and co-author)
- Quinn, T.J., II, and R.B. Deriso. 1999. Quantitative Fish Dynamics. Oxford University Press, New York. 542 pp.

Recent Articles

- Adkison, M.D., Quinn, T.J., II, and R.J. Small. 2003. Evaluation of the Alaska harbor seal population survey: a simulation study. Marine Mammal Science 19: 764-790.
- Battaile, B.C., and Quinn, T.J., II. 2004. Catch per unit effort standardization of the eastern Bering Sea walleye pollock (*Theragra chalcogramma*) fleet. Fisheries Research 70: 161-177.
- Battaile, B.C., Quinn, T.J., II, Ackley, D., and Tromble, G. 2005. Catch estimation algorithm for the walleye pollock *Theragra chalcogramma* fishery and comparison to similar National Marine Fisheries Service databases. Alaska Fishery Research Bulletin 11: 1-14.
- Fu, C., and Quinn, T.J., II. 2000. Estimability of natural mortality and other population parameters in a length-based model: *Pandalus borealis* in Kachemak Bay, Alaska. Can. J. Fish. Aquat. Sci. 57: 2420-2432.
- Goodman, D., Mangel, M., Parkes, G., Quinn, T., Restrepo, V., Smith, T., and Stokes, K. 2002. Scientific review of the harvest strategy currently used in the BSAI and GOA groundfish fishery management plans. North Pacific Fishery Management Council, Anchorage AK.
- Hanselman, D.H., Quinn, T.J., II, Lunsford, C., Heifetz, J. and Clausen, D.M. 2003. Applications in adaptive cluster sampling of Gulf of Alaska rockfish. Fishery Bulletin 101: 501-512.
- Hanselman, D.H., and Quinn, T.J., II. 2004. Sampling rockfish populations: adaptive sampling and hydroacoustics. Pages 271 – 296 In (W.L. Thompson, ed.) Sampling Rare or Elusive Species. Island Press, Washington, DC.
- Marty, G.D., Quinn, T.J., II, Carpenter, G., Meyers, T.R., and Willits, N.H. 2003. Role of disease in abundance of a Pacific herring population. Can. J. Fish. Aquat. Sci. 60: 1258-1265.
- Myers, R., and T.J. Quinn II. 2002. Estimating and testing non-additivity in fishing mortality: implications for detecting a fisheries collapse. Can. J. Fish. Aquat. Sci. 59: 597-601.
- Quinn, T.J., II. 2003. Ruminations on the development and future of population dynamics models in fisheries. Natural Resource Modeling 16: 341-392.
- Quinn, T.J., II, and Collie, J.S. 2005. Sustainability in single-species population models. Philosophical Transactions of the Royal Society B 360: 147-162.
- Radomski, P., Bence, J.R., and Quinn, T.J., II. Comparison of virtual population analysis and statistical kill-at-age analysis for a recreational, kill-dominated fishery. 2005. Can. J. Fish. Aquat. Sci. 62:436-452.
- Safina, C., Rosenberg, A.A., Myers, R.A., Quinn, T.J., II, and Collie, J.S. 2005. U.S. ocean fish recovery: staying the course. Science 309: 707-708.
- Savereide, J.W., and Quinn, T.J., II. 2004. An age-structured assessment model for chinook salmon. Can. J. Fish. Aquat. Sci. 61:974-985.
- Straley, J.M., Quinn, T.J., II, and Gabriele, C.M. 2002. Estimates of the abundance of humpback whales in southeastern Alaska, 1994 to 2000. Final Report to the National Marine Mammal Laboratory, Seattle WA. 23 pp.
- Su, Z., and T.J. Quinn, II. 2003. Estimator bias and efficiency for adaptive cluster sampling with order statistics and a stopping rule. Environmental and Ecological Statistics 10:17-41.
- Xiao, Y., Punt, A.E., Millar, R.B., and Quinn, T.J., II [eds.]. 2004. Special issue – Models in Fisheries Research: GLMs, GAMs, and GLMMs. Fisheries Research 70 (2-3): 137-428.

Curriculum Vitae**William W. Smoker****November 7, 2005**

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RECENT UNIVERSITY SERVICE	17
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EDUCATION**Degrees**

- Ph.D. 1982 Oregon State University Major: Fisheries, Minor: Oceanography
- MS. 1970 Oregon State University Major: Oceanography, Minor: Zoology
- B.A. 1967 Carleton College Major: Biology

Certifications

- Certified Fisheries Scientist. American Fisheries Society.
- Fellow. American Institute of Fishery Research Biologists.

PROFESSIONAL EXPERIENCE

- Professor of Fisheries, University of Alaska Fairbanks, School of Fisheries and Ocean Science, Division of Fisheries, Juneau Center. Teacher of Fisheries Science, Aquaculture. Research in Aquaculture Genetics, Salmon Conservation, Aquaculture Technology, Biology of Salmon. 1993 - present.
- Associate Professor of Fisheries, University of Alaska Juneau and University of Alaska Fairbanks 1985 - 1993
- Assistant Professor of Fisheries, University of Alaska Juneau 1979 - 1985.
- Instructor in Fisheries, Southeastern Senior College, University of Alaska Southeast. 1978 - 1979.

Collateral Experience

- Director, Division of Fisheries, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks. 2000 – present.
- Hatchery Scientific Review Group, State of Washington Salmon Recovery Board, Olympia, WA. 2000 – present
- Independent Science Review Panel, Pacific Northwest Power and Conservation Council, Portland, OR 1999- 2005
<http://www.nwcouncil.org/fw/isrp/background.htm>
- Director (Member of the Board) Prince William Sound Aquaculture Corporation, 1994 - present
- Faculty Chair, Juneau Center for Fisheries and Ocean Sciences, School of Fisheries and Ocean Sciences, University of Alaska- Fairbanks. 1989 - 1992.
- Visiting Associate Professor University of Hokkaido, Faculty of Fisheries, Hakodate, Hokkaido, Japan. 1988-1989.
- Head (Acting) Department of Fisheries, University of Alaska Juneau. 1980-1982.
- US Coast Guard Reserve Commissioned Service on Active Duty
 - Staff officer, Marine Environmental Protection Office, US Coast Guard Headquarters. Development of pollution regulations. 1971-1973.
 - Deck Watch Officer, Operations Division, USCGC Storis. Alaska Fisheries Patrol, Law Enforcement, Search and Rescue, Oceanography in the Gulf of Alaska, Bering Sea. 1970 - 1971

Graduate Student Supervision**Students Graduated**

Student (present positn)	Degree, Year	Thesis Title
<ul style="list-style-type: none"> Ben W. Van Alen US Forest Service, Alaska Region 	MS, 1981	Feasibility of salmon enhancement programs in the Indian Lake System...Population Characteristics of Resident Dolly Varden Char...
<ul style="list-style-type: none"> Joyce H. Landingham Fisheries Research Biologist-Retired National Marine Fisheries Service 	MS, 1982	Feeding Ecology of Pink and Chum Salmon Fry in the Nearshore Habitat of Auke Bay, Alaska
<ul style="list-style-type: none"> Don G. Mortensen Fishery Research Biologist-Retired, National Marine Fisheries Service, Auke Bay Lab, Alaska 	MS, 1983	Laboratory Studies on Factors Influencing the First Feeding of Newly Emerged Pink Salmon ...Fry
<ul style="list-style-type: none"> Alex C. Wertheimer Team Leader-Fishery Research Biologist, National Marine Fisheries Service, Auke Bay Lab, Alaska 	MS, 1984	Maturation Success of Pink...and Coho Salmon...Held Under Three Salinity Regimes
<ul style="list-style-type: none"> Will D. Beattie Regional Biologist, Northwest Indian fisheries Commission 	MS, 1984	Physical and Chemical Regulation of Primary Production: Spring Blooms in Tenakee Inlet
<ul style="list-style-type: none"> Jeff J. Hard Program Director Population Biology, National Marine Fisheries Service Northwest Science Center 	MS, 1984	Rearing Performance of Juvenile Chinook Salmon...in Two Fishless Lakes...
<ul style="list-style-type: none"> John F. Thedinga Fishery Research Biologist, National Marine Fisheries Service, Auke Bay Lab, Alaska 	MS, 1985	Smolt Scale Characteristics and Yield of Coho Salmon...Smolts and Adults From Porcupine Creek...
<ul style="list-style-type: none"> John E. Joyce Fishery Research Biologist, National Marine Fisheries Service, Auke Bay Lab, Alaska 	MS, 1985	Genetic Variation in the Embryonic Development Rate of Odd and Even Year Pink Salmon...in Auke Creek, Alaska
<ul style="list-style-type: none"> David C. Mesiar Fishery Biologist, Central Region Alaska Dept. Fish & Game 	MS, 1986	Timing, Distribution, and Estimated Abundance of Seaward Migrating Pink Salmon...Nushagak River, Alaska
<ul style="list-style-type: none"> Al C. Tingley Fishery Biologist, Southeast Region, Alaska Dept. Fish & Game 	MS, 1986	Average Marine Age and Average Marine Scale Measurements of Sockeye Salmon...in the Ugashik River System

Student (present positn)	Degree, Year	Thesis Title
<ul style="list-style-type: none"> Ron A. Heintz Fishery Research Biologist, National Marine Fisheries Service, Auke Bay Lab, Alaska 	MS, 1987	The Use of Space and Forage by Dolly Varden Char...in Osprey Lake...
<ul style="list-style-type: none"> Paul E. Drury Professional Engineer, Washington Department of Fisheries and Wildlife 	MS, 1987	Bioengineering Evaluation of Chilled Recirculating Incubation of Chum Salmon...
<ul style="list-style-type: none"> Frank P. Thrower Team Leader-Fishery Research Biologist, National Marine Fisheries Service, Auke Bay Lab, Alaska 	MS, 1988	Migratory Behavior of Maturing Pink Salmon in Gastineau Channel...
<ul style="list-style-type: none"> Bill R. Bechtol Research Biologist-Retired. Alaska Dept. Fish & Game Central Region 	MS, 1988	Foraging Strategies of Juvenile Sockeye Salmon...at High Rearing Densities in Leisure Lake...
<ul style="list-style-type: none"> Craig W. Farrington Fishery Biologist Alaska Dept. Fish & Game headquarters 	MS, 1988	Mortality and Pathology of Juvenile Chinook ...and Chum Salmon...Exposed to ...Marine Diatom
<ul style="list-style-type: none"> Charles D. Russell Aquaculture specialist, Peace Corps 	MS, 1992	Response to One Generation of Selection for Size in an Anadromous Hatchery Stock of Pink Salmon...
<ul style="list-style-type: none"> Kyle Hebert Project Biologist-Marine Fisheries, Alaska Department of Fish & Game SE Region 	MS, 1994	Quantitative genetic variation of development in pink salmon
<ul style="list-style-type: none"> Michio Fukushima Research Scientist, Japan Nat'l Environmental Agency, Tsukuba 	PhD 1996	Population dynamics of pink salmon in Auke Creek, Alaska

Student (present positn)	Degree, Year	Thesis Title
<ul style="list-style-type: none"> Janet Rumble Fishery Biologist, Southeast Region, Alaska Dept. of Fish & Game 	MS 1997	Photoperiod Effects on Coho Salmon Growth
<ul style="list-style-type: none"> Makoto Matsuoka Postdoctoral Fellow, Institute for Marine Biosciences, Halifax 	PhD 1998	Genetic Linkage Mapping of Allozyme Loci in Even- and Odd-Year Pink Salmon (<i>Oncorhynchus gorbuscha</i>)
<ul style="list-style-type: none"> Jim Andel Fishery Biologist, Alaska Dept. Fish & Game 	MS 1998	Temperature Effects on Arctic Char Embryogeny
<ul style="list-style-type: none"> Karla Granath Fishery Biologist, Alaska Dept. Fish & Game, Dutch Harbor, AK 	MS 2002	Effects on fitness traits of intercrossing...populations of ..salmon
<ul style="list-style-type: none"> Pat Malecha Fishery Research Biologist, NOAA Fisheries, Auke Bay Lab, Juneau 	MS 2002	Egg size effects on embryo development
<ul style="list-style-type: none"> Judy Lum Fishery Biologist, Alaska Dept. of Fish and Game Sport Fish Division, Douglas, AK 	MS 2003	Effects of Smolt Length and Emigration Timing on ...survival and age...coho salmon...
<ul style="list-style-type: none"> Cara Rodgveller 	MS 2004	Effects of Inbreeding on Chinook Salmon
<ul style="list-style-type: none"> Maria (Lang) Wessell 	MS 2004	Domestication effects of five generations of hatchery culture on Chinook salmon ... in juvenile behavior
<ul style="list-style-type: none"> Erika Amman 	MS 2005	Agonistic Behavior, Social Dominance, of <i>Oncorhynchus mykiss</i> from Lake and Stream parents

Present Students

	Program	Thesis topic	Support agency
<ul style="list-style-type: none"> Tim Sands (part time) 	MS	Retrospective analysis of scale growth	NMFS
<ul style="list-style-type: none"> Bev Agler (part time) 	PhD	Basin-wide Retrospective Analysis of Chum Salmon Scale Growth ...	ADFG
<ul style="list-style-type: none"> Stan Triebenbach 	MS	Improved smolt production techniques	CSREES

Courses Taught

- Fish 633 Pacific Salmon Life Histories Biennial Offering
- Fish 436 Salmon Aquaculture. Biennial Offering
- Fish 692 Seminar, Fish 697 Individual Study, Fish 699 Thesis Research. Frequently.

Research Interests

Salmon Aquaculture Technology

- Enhancement of smolt production in ocean ranched salmon by feeding manipulation. (Cooperative States Extension Education Research Service).

Salmon Biodiversity

- Quantitative genetic analysis of adaptive variation in populations of Pacific salmon.(Alaska Sea Grant)
- Outbreeding depression in Pacific salmon. (USDI Fish & Wildlife Service, Alaska Sea Grant; NOAA Nat'l Marine Fisheries Service Northwest Fisheries Center, NOAA NMFS Auke Bay Lab)
- Variation between wild and domesticated chinook salmon (NOAA NMFS Auke Bay Lab; Alaska Dept. of Fish and Game Sustainable Salmon Initiative)

Salmon Oceanography/ Climate Effects

- Restrospective analysis of archived scales and environmental data (North Pacific Marine Research program)

Publications (denotes my graduate student, * other graduate student)**

Published with Peer Review

Research Papers

1. ** Rodgveller, C.J., W.W. Smoker, A.K. Gray, J.E. Joyce, and A.J. Gharrett. 2005. Effects of inbreeding and family origin on size of Chinook salmon (*Oncorhynchus tshawytscha*) fry. *Alaska Fishery Research Bulletin*. 11(2):73–81.
2. Smoker, W.W., I.A. Wang, A.J. Gharrett, J.J. Hard. 2004. Embryo survival and smolt to adult survival in second-generation outbred coho salmon. *Journal of Fish Biology* () 65 (Supplement A): 254–262. doi:10.1111/j.1095-8649.2004.00550.
3. Alex C. Wertheimer, William R. Heard, J. M. Maselko and William W. Smoker. 2004. Relationship of size at return with environmental variation, large-scale enhancement, and productivity of pink salmon in Prince William Sound, Alaska: Does size matter? *Reviews in Fish Biology and Fisheries* 14: 321–334. DOI 10.1007/s11160-004-2942-4
4. **Matsuoka, M., A. J. Gharrett, R. L. Wilmot, and W. W. Smoker. 2004. Genetic linkage mapping of allozyme loci in even- and odd-year pink salmon (*Oncorhynchus gorbuscha*). *Journal of Heredity*: 95(5):421–429
5. *Gilk, S.E., *I.A. Wang, *C.L. Hoover, W.W. Smoker, S.G. Taylor, A.K.Gray, and A.J. Gharrett. 2004. Outbreeding depression between spatially separated pink salmon (*Oncorhynchus gorbuscha*) populations: Marine survival, homing ability, and variability in family size. *Environmental Biology of Fishes* 69:287-298.
6. **Granath, Karla L., W.W. Smoker, A.J. Gharrett and Jeffrey J. Hard. 2004. Effects on embryo development time and survival of intercrossing three geographically separate stocks of southeast Alaska coho salmon (*Oncorhynchus kisutch*). *Environmental Biology of Fishes* 69:299-306.
7. Wertheimer, A. C., W.W. Smoker and W. R. Heard. 2004. Effects of hatchery releases and environmental variation on wild-stock productivity: consequences for sea ranching of pink salmon in Prince William Sound, Alaska. Chapter 23, pp 307-

- 326 In K. M. Leber, S. Kitada, T. Svasand & H. L. Blankenship, editors. Stock Enhancement and Sea Ranching 2d Edition, Blackwell Science Ltd, Oxford.
8. **Matsuoka, M., A. J. Gharrett, R. L. Wilmot, and W. W. Smoker. 2004. Gene-Centromere Distances of Allozyme Loci in Even- and Odd-Year Pink Salmon (*Oncorhynchus gorbuscha*). *Genetica* 121:1-11.
 9. Gharrett, A.J., *I.A. Wang, W.W. Smoker, *S.E. Gilk, S.G. Taylor. 2002. Preliminary tests of outbreeding depression in hybrids between spatially separated pink salmon (*Oncorhynchus gorbuscha*) populations. (Abstract, Genetics in Aquaculture VII, J.A.H. Benzie and G. Hulata, eds). *Aquaculture* 204:206.
 10. Wertheimer, A.C., W.W. Smoker, T.L. Joyce, and W.R. Heard. 2001. Comment: a review of the hatchery programs for pink salmon in Prince William Sound and Kodiak Island, Alaska. *Transactions of the American Fisheries Society* 130:712-720.
 11. Smoker, W.W., A.J. Gharrett, M.S. Stekoll, and S.G. Taylor. 2000. Genetic variation of fecundity and egg size in anadromous pink salmon *Oncorhynchus gorbuscha* Walbaum. *Alaska Fishery Research Bulletin* 7:44-50.
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Review and Perspective Articles

1. Hatchery Scientific Review Group (Lars Mobrand, John Barr, Lee Blankenship, Don Campton, Trevor Evelyn, Tom Flagg, Conrad Mahnken, Lisa Seeb, Paul Seidel, William Smoker). 2005. Hatchery Reform in Washington State: Principles and Emerging Issues. *Fisheries Management Feature*. *Fisheries* 30:11-23.
2. Smoker, W.W. 2004. Regional non-profit corporations—an institutional model for stock enhancement. Chapter 19 In: *Stock Enhancement and Sea Ranching 2*. (Ed. by K. M. Leber, S. Kitada, T. Svasand & H. L. Blankenship), Blackwell Science Ltd, Oxford.
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2. Gharrett, A.J., W.W. Smoker, R.L. Wilmot, J.H. Helle, J.E. Seeb, and L.W. Seeb. 1994. Proceedings of the International symposium on Genetics of Subarctic Fish and Shellfish [May 17-19, 1993. Juneau, Alaska, USA]. Canadian Journal of Fisheries and Aquatic Sciences 51 (Supplement 1); 224 pp.
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Publication Pending

1. Smoker, W.W. and W.R. Heard. Productivity of Alaska's salmon hatchery ocean ranching program and management of biological risks to wild Pacific salmon. Chapter 18 In T.M. Bert, editor. Ecological and Genetic Implications of Aquaculture Activities. Kluwer Academic Publishers, Dordrecht. In Press.
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6. Wang, I.A., Erica H. Leder, William W. Smoker & Anthony J. Gharrett. Timing of development during epiboly in embryos of second-generation crosses and backcrosses between odd- and even-broodyear pink salmon, *Oncorhynchus gorbuscha*. Environmental Biology of Fishes. Accepted.
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Recent Presentations to Scientific Meetings

1. Smoker, W.W., A. Gharrett, J. Joyce, K. Hebert, M. Fukushima, I. Wang, J. Taylor. Local adaptation in an Alaskan pink salmon stream II. Temporal structure and the genetics of development rates. Oral presentation to Symposium on The Future of Conservation Genetics: Integrating Molecular and Quantitative Genetic Approaches, American Fisheries Society National Meeting. Anchorage 11-15 Sept. 2005.
2. Reese, C., N. Hillgruber, W. Smoker. Potential for Interaction between Hatchery and Wild Juvenile Chum Salmon in the Taku River Estuary, Alaska. Poster, Marine Fish Ecology: Growth and Recruitment Session, American Fisheries Society National Meeting. Anchorage 11-15 Sept. 2005.

3. Oxman, D., P. Hagen, W. Smoker, A. Gharrett. Genetic and Environmental Effects on Otolith Formation in Pink Salmon from Auke Creek, Juneau Alaska. Poster, Genetics Session, American Fisheries Society National Meeting. Anchorage 11-15 Sept. 2005.
4. Gharrett, A.J., W. Smoker, S. Gilk, C. Hoover, H. Geiger, A. McGregor, S. Lane. Local adaptation in pink salmon: I. Genetic marking, quantitative genetics, local structure, and outbreeding depression. Oral presentation to Symposium on The Future of Conservation Genetics: Integrating Molecular and Quantitative Genetic Approaches, American Fisheries Society National Meeting. Anchorage 11-15 Sept. 2005.
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6. W.W. Smoker, A.J. Gharrett, J.E. Joyce, K.P. Hebert, M. Fukushima, I.A. Wang, S.G. Taylor. Local adaptation in an Alaskan pink salmon stream: (II) Temporal structure and the genetics of development rates. State of the Salmon Conference 2005. Anchorage 17-21 April 2005. Poster Presentation
7. William Smoker, Ivan Wang, Anthony Gharrett and Jeffrey Hard. No effect on survival at sea in second generation after outbreeding of coho salmon. The Fisheries Society of the British Isles. Annual International Conference 2004 Comparative Biology and Interactions of Wild and Farmed Fish. Imperial College, London 19-23 July 2004. Oral Presentation.
8. *Wang, I., W. Smoker, *S. Gilk, *D. Oxman, & A. Gharrett. Hatching time as an indicator of environmental incompatibility and outbreeding depression in intraspecific salmon hybrids. Annual Meeting of the Western Division of the American Fisheries Society. Salt Lake City. Feb 29- Mar 4, 2004.
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10. Alex C. Wertheimer, William R. Heard, and J. M. Maselko and William W. Smoker. Relationship of Size at Return with Environmental Variation, Large-Scale Enhancement, and Productivity of Pink Salmon in Prince William Sound, Alaska: Does Size Matter? Symposium on Interactions of Hatchery and Wild Fishes in Marine and Estuarine Environments, Western Division American Fisheries Society, San Diego, April 2003
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12. A.C. Wertheimer, W.R. Heard, W.W. Smoker. Effects of hatchery releases and environmental variation on wild-stock productivity: consequences for sea ranching of pink salmon in Prince William Sound, Alaska. 2002 Alaska Chapter AFS Annual Conference, October 21-24, Girdwood, Alaska.

13. Smoker, W.W. Regional non-profit corporations—an institutional model for stock enhancement. Second International Symposium on stock enhancement and sea ranching, Kobe, Japan 28 January-1 February 2002.
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16. W.W. Smoker, R. Heintz, A.C. Wertheimer, S.D. Rice. Genetic analysis of development mortality in oiled and unoled lines of pink salmon. 20th Northeast pacific pink and chum salmon workshop. March 21-23, 2001. Seattle, Washington.
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18. *Shotwell, S.K., M.D. Adkison, W.W. Smoker & H.J. Geiger. Indices of abundance of western Alaska chum salmon. 20th Northeast pacific pink and chum salmon workshop. March 21-23, 2001. Seattle, Washington
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21. SMOKER, WILLIAM W., GHARRETT, ANTHONY J. Genetic Variation of Life History Traits in Locally Adapted Populations of Pacific Salmon and Outbreeding Depression in Hybrids Between Them. Symposium on Reproductive Success in Salmonids, 1999 Meeting of the American Society of Ichthyology and Herpetology. The Pennsylvania State University, State College Pennsylvania, June 24 – 30, 1999.
22. Smoker, W.W. A review of interactions between hatchery-produced and wild salmon in Alaska. Symposium on Ecological and Genetic Effects of Aquaculture on the Environment and Their Solutions. American fisheries Society 129th Annual Meeting, August 29-September 2 1999, Charlotte, NC.
23. Smoker, W.W., A.J. Gharrett, M.S. Stekoll, S.G. Taylor. Genetic variation of fecundity and egg size in anadromous pink salmon (*Oncorhynchus gorbuscha* Walb.). Sixth International Symposium on Genetics in Aquaculture. Stirling, Scotland. June 1997.
24. Gharrett, A.J., W.W. Smoker, R.R. Reisenbichler, S.G. Taylor. Outbreeding depression in hybrids between odd- and even-broodyear pink salmon. Sixth International Symposium on Genetics in Aquaculture. Stirling, Scotland. June 1997.

25. Changes of Adult Body Size in Alaska Salmon: Genetic and Environmental Sources of Variation. Hokkaido Salmon Hatchery, Special Lecture. Sapporo, February 1996.
26. Long term changes of body size in Alaska salmon. Research Institute of North Pacific Fisheries, Hokkaido University. Hakodate, February 27, 1996.
27. Quantitative genetic variation of body size and reproduction characters in pink salmon. Laboratory of Embryology and Genetics, Hokkaido University. Hakodate. February 29, 1996
28. Genetic and environmental variation of body size in a pink salmon stock. North Pacific Marine Science Organization (PICES) Fourth Annual Meeting. Qingdao, PR China. Oct. 1995.
29. Genetic and Environmental Variation of Fitness Traits in Pink Salmon. 17th Northeast Pacific Pink & Chum Salmon Workshop. Bellingham. March 1995

Recent Limited Distribution Reports

1. Hatchery Scientific Review Group (HSRG)–Lars Mobrand (chair), John Barr, Lee Blankenship, Don Campton, Trevor Evelyn, Tom Flagg, Conrad Mahnken, Robert Piper, Paul Seidel, Lisa Seeb and Bill Smoker. April 2004. Hatchery Reform: Principles and Recommendations of the HSRG. Long Live the Kings, 1305 Fourth Avenue, Suite 810, Seattle, WA 98101 (available from www.hatcheryreform.org).
2. Smoker, W.W. and Ivan A. Wang. 2003. Annual Research Progress Report for 2002. Macaulay Salmon Broodstock Laboratory. SFOS-JCSFOS 03-004. Juneau Center, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks, 11120 Glacier Highway, Juneau, AK 99801
3. Hatchery Scientific Review Group (HSRG)–Lars Mobrand (chair), John Barr, Lee Blankenship, Don Campton, Trevor Evelyn, Conrad Mahnken, Paul Seidel, Lisa Seeb and Bill Smoker. March 2003. Hatchery Reform Recommendations for the Puget Sound and Coastal Washington Hatchery Reform Project. Long Live the Kings, 1305 Fourth Avenue, Suite 810, Seattle, WA 98101 (available from www.lltk.org/hatcheryreform.html). Cite in text as HSRG Recommendations 2003.
4. A.C. Wertheimer, W.W. Smoker, T.L. Joyce, W.R. Heard. Hatchery salmon in Prince William Sound: Enhancement or Displacement? P. 8 In K. Neely, O. Johnson, J. Hard, K. Myers, rapporteurs. Proceedings of the 20th Northeast Pacific pink and chum salmon workshop, March 21-23, 2001, Seattle, Wa.
5. Smoker, W.W., R. Heintz, A.C. Wertheimer, S.D. Rice. Genetic analysis of development mortality in oiled and unoiled lines of pink salmon. P57-61 In K. Neely, O. Johnson, J. Hard, K. Myers, rapporteurs. Proceedings of the 20th Northeast Pacific pink and chum salmon workshop, March 21-23, 2001, Seattle, Wa.
6. Sands, T.M., W.W. Smoker, T.J. Quinn, & M.D. Adkison. . P. 19 In K. Neely, O. Johnson, J. Hard, K. Myers, rapporteurs. Proceedings of the 20th Northeast Pacific pink and chum salmon workshop. March 21-23, 2001. Seattle, Washington
7. Shotwell, S.K., M.D. Adkison, W.W. Smoker & H.J. Geiger. Indices of abundance of western Alaska chum salmon. P. 16 In K. Neely, O. Johnson, J. Hard, K. Myers, rapporteurs. Proceedings of the 20th Northeast Pacific pink and chum salmon workshop. March 21-23, 2001. Seattle, Washington

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9. I.A. Wang, W.W. Smoker, and A.J. Gharrett. Evidence of outbreeding depression through differences in development rates of pink salmon hybrids. P 50-51 in S. Hawkins, rapporteur. Proceedings of the Northeast Pacific pink & chum salmon workshop, March 3,4,5, 1999, Juneau, Ak. National Marine fisheries, 11305 Glacier highway, Juneau, AK
10. H.J. Geiger, W.W. Smoker, I. Wang, P. Malecha, K. Hebert, and A.J. Gharrett. Variation in pink salmon (*Oncorhynchus gorbuscha*) family size: effective population size and a genetic basis for family-specific survival, recruitment, and population increases. Pp 52 –57 in S. Hawkins, rapporteur. Proceedings of the Northeast Pacific pink & chum salmon workshop, March 3,4,5, 1999, Juneau, Ak. National Marine fisheries, 11305 Glacier highway, Juneau, AK
11. Smoker, W.W. 1999. Annual Research Progress Report for 1998 Gastineau Salmon Broodstock Laboratory. SFOS-JCFOS 99-02. Juneau Center, School of Fisheries and Ocean Sciences University of Alaska 11120 Glacier Highway Juneau, AK 99801
12. Sands, T., T.J. Quinn II, W.W. Smoker. 1998. Sample size calculations for retrospective analysis of Yukon River chum salmon scales. Progress Report to US NOAA NMFS Auke Bay Laboratory OCC Project NA 67 RJ 0147. SFOS JCSFOS 98-05.
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15. Smoker, W.W., P.A. Crandell, M. Matsuoka. 1997. Culture of gynogen salmon. Final Report to Alaska Science and Technology Foundation Project 90-1-40. SFOS-JCSFOS 97-05. University of Alaska Fairbanks, School of Fisheries & Ocean Sciences, Fisheries Division. Juneau.31pp+attachments.
16. Sands, T.M., W.W. Smoker. 1997. Time trends in egg size in coho broodstocks at Southern Southeast Regional Aquaculture Association. Progress Report to US NMFS Auke Bay Laboratory Project 621-10-338-322 and Southern Southeast Regional Aquaculture Association. SFOS-JCSFOS 97-07. University of Alaska Fairbanks, School of Fisheries & Ocean Sciences, Fisheries Division. Juneau.31pp+attachments. 6pp.
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18. Matsuoka, M., A.J. Gharrett, R.L. Wilmot, P.A. Crandell, W.W. Smoker. 1996. Gene -centromere recombination rates of allozyme loci in even and odd year pink salmon. Pp 131-138 In E.M. Donaldson & D.D. MacKinlay, eds. Aquaculture Biotechnology Symposium Proceedings, International Congress on the Biology of Fishes. Physiology Section, American Fisheries Society. 168 pp
19. Smoker, W.W., P.T. Hagen, K. Munk. 1995. Development of otolith thermal marking standards 92-3-135S. Final Report to Alaska Science and Technology Foundation. SFOS-JCFOS 9601. Juneau Center, School of Fisheries and Ocean Sciences, UAF.
20. Smoker, W.W. and P.A. Crandell. 1995. Augmented roe production NA90AA-H-SK680. Final Report to National Marine Fisheries Service. SFOS-JCSFOS 95-03. Juneau Center, School of Fisheries and Ocean Sciences, UAF
21. Gharrett, A.J. and W.W. Smoker. Outbreeding depression in hybrids of odd and even year pink salmon. P. 71-75 In Proceedings of the 16th Northeast Pacific Pink & Chum Salmon Workshop. Alaska Sea Grant College Program Report No. 94-02. University of Alaska Fairbanks. 192 p.
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23. Smoker, W.W. & P.A. Crandell 1996. Annual Research Progress Report 1995. Gastineau Salmon Broodstock Laboratory. SFOS-JCSFOS 9603. Juneau Center for Fisheries and Ocean Sciences University of Alaska Fairbanks, Juneau. 47 pp.

RECENT PROFESSIONAL PUBLIC SERVICE

Public Process Participant

- Member, Technical Dispute Settlement Board, US-Canada Pacific Salmon Commission. 2004
- Member, Board of Directors, Prince William Sound Aquaculture Corporation. 1994--Present
- Member, Peer Review Team. The Salmon Fishery Evaluation Framework, Alaska Dept. of Fish & Game. 1997.
- Member, Governor's Salmon Industry Response Cabinet Hatchery Forum. 1996.

Research Peer Reviewer

Boards and Panels

- Science Panel, Southeast Sustainable Salmon Fund, State of Alaska
- Independent Science Review Panel, Northwest Power and Conservation Council, Portland. 1999 – present
- Hatchery Scientific Review Group, State of Washington. 2000—present
- Editorial Board, Associate Editor. American Fisheries Society, Progressive Fish-Culturist. 1994-- 1997
- Sound Science Review Team (Prince William Sound, Ak., interactions of wild and hatchery salmon). 1998

Manuscript Reviewer

- Journal of Fish Biology
- Council of Biology Editors

- Fisheries
- Canadian Journal of Fisheries and Aquatic Sciences.
- American Fisheries Society Special Publications.
- North American Journal of Fisheries Management.
- Transactions of the American Fisheries Society.
- North American Journal of Aquaculture
- Aquaculture
- Fishery Research
- North Pacific Anadromous Fish Commission Bulletin
- Alaska Sea Grant Rasmuson Symposiums

Research Proposal Reviewer

- Natural Sciences and Engineering Research Council of Canada.
- National Science Foundation.
- National Marine Fisheries Service, Saltonstall Kennedy Program
- Alaska Science and Technology Foundation.
- Oregon Sea Grant College Program

Conference Organizer

- Member, Steering Committee, 2005 Biennial Northeast Pacific Pink and Chum Salmon Workshop
- Member, Steering Committee, 2003 International Symposium on Genetics of Subpolar Fish and Invertebrates, 20th Wakefield Symposium. (Session Chair, Proceedings Co-Editor)
- Session Convener. Annual Conference, American Fisheries Society Alaska Chapter. 2003
- Member, Steering Committee. 2002 Second International Symposium on Stock Enhancement and Sea Ranching, Kobe, Japan 28 January-1 February.

PROFESSIONAL DEVELOPMENT**Current Memberships**

- American Fisheries Society
Alaska Chapter
Fish Culture Section
Fish Genetics Section
- American Institute of Fishery Research Biologists (Fellow)
- Sigma Xi
- The Society for Conservation Biology

Recognition

- Selected to the US-Canada Pacific Salmon Commission Technical Dispute Settlement Board. 2004
- Appointed by the Washington Salmon Recovery Board to the Hatchery Scientific Review Group, 2000 (nominated by the Past Presidents of the American Fisheries Society.) (Reappointed annually)

- Appointed by the Northwest Power and Conservation Council to its Independent Science Review Panel, 1999. (Reappointed 2002)
- Appointed Associate Editor, American Fisheries Society, Progr. Fish- Cult. 1994 (Reappointed 1995, 1996)
- Promoted to Fellow, American Institute of Fishery Research Biologists. 1994
- Meritorious Service Award, School of Fisheries and Ocean Sciences, University of Alaska Fairbanks. 1990
- Dean's Fellowship, Faculty of Fisheries, University of Hokkaido. 1989
- Sigma Xi, Elected to Membership. 1988.
- Elected Officer (Secretary/Treasurer), Alaska Chapter, American Fisheries Society. 1983.
- Sea Grant Association, Dissertation Competition, Honorable Mention. 1982
- American Institute of Fishery Research Biologists, Elected Member. 1982
- Certified Fishery Biologist, American Fisheries Society. 1982
- American Men and Women of Science. 1981
- National Defense Service Medal. 1970
- Phi Sigma Biological Honorary Society. 1968

RECENT UNIVERSITY SERVICE

Administrative Support

- Director, Fisheries Division, School of Fisheries and Ocean Sciences. 2001--present
- SFOS Merit Pay procedures committee 1996
- Chancellor's Task Force on the University of Alaska Fairbanks School of Fisheries and Ocean Sciences. Appointed Member. 1994-1995
- UAF Accreditation review committee 1995.
- SFOS Strategic Plan Committee. 1995.

Research Support

- Panel Member, Alaska Sea Grant Site Review. July 1996.

Academic Support

- Head of Academic Programs in Fisheries, School of Fisheries and Ocean Sciences. 2001--present
- Member, UAF Program Review Committee for the MS and PhD programs in Biology and Wildlife. 2003-04.
- Tenure/Promotion Review Subcommittee. SFOS 1995 - 1998.
- Faculty Senate, UAF. Alternate Member. 1993 - 1996
- Graduate Council, UAF. Alternate Member. 1993 - 1996.

Mark Steven Wipfli

Associate Professor & Assistant Unit Leader
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University of Alaska, Fairbanks, AK 99775-7020

Email: Mark.Wipfli@uaf.edu; Phone: 907-474-6654; Fax: 907-474-6101

EDUCATION

- Ph.D., 1992, Michigan State University, Aquatic Ecology & Environmental Toxicology
- M.Sc., 1987, University of Wisconsin – Madison, Entomology
- B.Sc., 1984, University of Wisconsin – Madison, Natural Science

PROFESSIONAL EXPERIENCE

- 2004-present: Associate Professor & Assistant Unit Leader, USGS Alaska Cooperative Fish and Wildlife Research Unit, University of Alaska Fairbanks, Fairbanks, AK
- 2002-2003: Research Ecologist, Pacific Northwest Research Station, USDA Forest Service, Wenatchee, WA
- 1996-2001: Research Ecologist, Pacific Northwest Research Station, USDA Forest Service, Juneau, AK
- 1993-1995: Post-Doctoral Research Associate, Pacific Northwest Research Station, USDA Forest Service, Juneau, AK
- 1988-1992: Ph.D. Research Assistant, Michigan State University, East Lansing, MI
- 1985-1987: M.Sc. Research Assistant, University of Wisconsin, Madison, WI

TEACHING EXPERIENCE

- Freshwater Foodwebs 693 (3 credit) – Fall semester 2005; University of Alaska Fairbanks.
- Freshwater Foodweb seminar 692 (1 credit) – Fall semester 2004; University of Alaska Fairbanks.
- Aquatic Entomology 422 laboratory – 1989-1990; Michigan State University.
- Aquatic Entomology 422 lecture – 1989-1990, assisted; Michigan State University.
- Forest Entomology 407 laboratory – 1991, assisted; Michigan State University.

RESEARCH INTERESTS

Research experience and interests include understanding the ecological processes that govern freshwater and riparian productivity, spatial subsidies, biodiversity and community interactions, trophic interactions, fish feeding ecology and carrying capacity, and the restoration and management of freshwater and riparian ecosystems. My Alaska and Columbia River Basin research has focused on three primary topics: the role of marine nutrients and energy from salmon runs in regulating freshwater food webs, ecological linkages between fishless headwaters and downstream salmonid

communities, and the role of forest and riparian vegetation and their management in governing food resources (aquatic and terrestrial invertebrates) for salmonids.

PUBLICATIONS

Peer-reviewed publications

1. Gomi, T., A.C. Johnson, R.L. Deal, P.E. Hennon, E.H. Orlikowska, and M.S. Wipfli. In press. Factors affecting distribution of wood, detritus, and sediment in headwater streams draining managed young-growth red alder-conifer forests in Southeast Alaska. *Canadian Journal of Forest Research*.
2. Lang, D.W., G.H. Reeves, and M.S. Wipfli. In press. The influence of fall-spawning salmon on growth rate and production of juvenile coho salmon (*Oncorhynchus kisutch*) on the Copper River Delta, Alaska. *Canadian Journal of Fisheries and Aquatic Sciences*.
3. LeSage, C.M., R.W. Merritt, and M.S. Wipfli. In press. Headwater riparian invertebrate communities associated with red alder and conifer wood and leaf litter in southeastern Alaska. *Northwest Science*.
4. Hicks, B.J., M.S. Wipfli, D.W. Lang, and M.E. Lang. 2005. Marine-derived nitrogen and carbon in freshwater-riparian food webs of the Copper River Delta, southcentral Alaska. *Oecologia* 144: 558-569.
5. Hernandez, O., R.W. Merritt, and M.S. Wipfli. 2005. Benthic invertebrate community structure in headwater streams is influenced by forest succession after clearcut logging in southeastern Alaska. *Hydrobiologia*. 533: 45-59.
6. Wipfli, M.S. 2005. Trophic linkages between headwater forests and downstream fish habitats: implications for forest and fish management. *Landscape and Urban Planning*. 72: 205-213.
7. Wipfli, M.S., J.P. Hudson, and J.P. Caouette. 2004. Restoring productivity of salmon-based food webs: Contrasting effects of salmon carcass and salmon analog additions on stream-resident salmonids. *Transactions of the American Fisheries Society*. 133: 1440-1454.
8. Chaloner, D.T., G.A. Lamberti, R.W. Merritt, N.L. Mitchell, P.H. Ostrom, and M.S. Wipfli. 2004. Variation in responses to spawning Pacific salmon in three southeastern Alaska streams. *Freshwater Biology*. 49: 587-599.
9. Heintz, R.A., B.D. Nelson, J.P. Hudson., M. Larsen, L. Holland, and M.S. Wipfli. 2004. Marine subsidies in freshwater: Effects of salmon carcasses on the lipid class and fatty acid composition of juvenile coho salmon. *Transactions of the American Fisheries Society*. 133: 559-567.

10. Orlikowska, E.H., R.L. Deal, P.H. Hennon, and M.S. Wipfli. 2004. Role of red alder in riparian forest structure along headwater streams in southeastern Alaska. *Northwest Science*. 78: 111-123.
11. Wipfli, M.S. and J. Musslewhite. 2004. Density of red alder (*Alnus rubra*) in headwaters influences invertebrate and organic matter subsidies to downstream fish habitats in Alaska. *Hydrobiologia*. 520: 153-163.
12. Allan, J.D., M.S. Wipfli, J.P. Caouette, A. Prussian, and J. Rodgers. 2003. Influence of streamside vegetation on terrestrial invertebrate inputs to salmonid food webs. *Canadian Journal of Fisheries and Aquatic Sciences*. 60(3): 309-320.
13. Wipfli, M.S., R.L. Deal, P.E. Hennon, A.C. Johnson, R.T. Edwards, T.L. De Santo, T. Gomi, E.H. Orlikowska, M.D. Bryant, M.E. Schultz, C. LeSage, R. Kimbirauskus, and D.V. D'Amore. 2003. Chapter 4. Compatible management of red alder-conifer ecosystems in southeastern Alaska. *In* Monserud, R.A., Haynes, R., and Johnson, A. (eds.). *Compatible Forest Management*. Kluwer Academic Publ., Dordrecht, The Netherlands. Pp. 55-81.
14. Wipfli, M.S., J.P. Hudson, J.P. Caouette, and D.T. Chaloner. 2003. Marine subsidies in freshwater ecosystems: salmon carcasses increase the growth rates of stream-resident salmonids. *Transactions of the American Fisheries Society*. 132: 371-381.
15. Chaloner, D.T., K.M. Martin, M.S. Wipfli, P.H. Ostrom, and G.A. Lamberti. 2002. Marine carbon and nitrogen in southeastern Alaska stream food webs: evidence from artificial and natural streams. *Canadian Journal of Fisheries and Aquatic Sciences*. 59: 1257-1265.
16. Gende, S.M., R.T. Edwards, M.F. Willson, and M.S. Wipfli. 2002. Pacific salmon in aquatic and terrestrial ecosystems. *BioScience*. 52: 917-928.
17. Piccolo, J.J., and M.S. Wipfli. 2002. Does red alder (*Alnus rubra*) along headwater streams increase the export of invertebrates and detritus from headwaters to fish-bearing habitats in southeastern Alaska? *Canadian Journal of Fisheries and Aquatic Sciences*. 59(3): 503-513.
18. Chaloner, D.T., and M.S. Wipfli. 2002. Influence of decomposing Pacific salmon carcasses on macroinvertebrate growth and standing stock in southeastern Alaska streams. *Journal of the North American Benthological Society*. 21(3): 430-442.
19. Wipfli, M.S., and D.P. Gregovich. 2002. Export of invertebrates and detritus from fishless headwater streams in southeastern Alaska: implications for downstream salmonid production. *Freshwater Biology*. 47(5): 957-969.
20. Chaloner, D.T., M.S. Wipfli, and J.P. Caouette. 2002. Mass loss and macroinvertebrate colonization of Pacific salmon carcasses in southeastern Alaska streams. *Freshwater Biology*. 47(2): 263-273.

21. Wipfli, M.S., J.P. Hudson, D.T. Chaloner, and J.P. Caouette. 1999. Influence of salmon spawner densities on stream productivity in Southeast Alaska, USA. *Canadian Journal of Fisheries and Aquatic Sciences*. 56: 1600-1611.
22. Wipfli, M.S., J.P. Hudson, and J.P. Caouette. 1998. Influence of salmon carcasses on stream productivity: response of biofilm and benthic macroinvertebrates in southeastern Alaska, USA. *Canadian Journal of Fisheries and Aquatic Sciences*. 55: 1503-1511.
23. Wipfli, M.S. 1997. Terrestrial invertebrates as salmonid prey and nitrogen sources in streams: contrasting old-growth and young-growth riparian forests in southeastern Alaska, USA. *Canadian Journal of Fisheries and Aquatic Sciences*. 54: 1259-1269.
24. Wipfli, M.S., and R.W. Merritt. 1994. Disturbance to a stream food web by a bacterial larvicide specific to black flies: feeding responses of predatory macroinvertebrates. *Freshwater Biology*. 32: 91-103.
25. Wipfli, M.S., and R.W. Merritt. 1994. Effects of *Bacillus thuringiensis* var. *israelensis* on non-target benthic insects through direct and indirect exposure. *Journal of the North American Benthological Society*. 13: 190-205.
26. Wipfli, M.S., R.W. Merritt, and W.W. Taylor. 1994. Low toxicity of the black fly larvicide *Bacillus thuringiensis* var. *israelensis* to early stages of brook trout, *Salvelinus fontinalis*; brown trout, *Salmo trutta*; and steelhead trout, *Oncorhynchus mykiss* following direct and indirect exposure. *Canadian Journal of Fisheries and Aquatic Sciences*. 51: 1451-1458.
27. Wotton, R.S., M.S. Wipfli, L. Watson, and R.W. Merritt. 1993. Feeding variability among individual aquatic predators in experimental channels. *Canadian Journal of Zoology*. 71: 2033-2037.
28. Wipfli, M.S., S.S. Petersen, D.B. Hogg, and J.L. Wedberg. 1992. Spatial analysis and optimum sample size for three plant bug (Hemiptera: Heteroptera: Miridae) species associated with birdsfoot trefoil in Wisconsin. *Environmental Entomology*. 21: 1248-1252.
29. Merritt, R.W., M.S. Wipfli, and R.S. Wotton. 1991. Changes in feeding habits of selected nontarget aquatic insects in response to live and *Bacillus thuringiensis* var. *israelensis*-killed black fly larvae (Diptera: Simuliidae). *Canadian Entomologist*. 123: 179-185.
30. Wipfli, M.S., J.L. Wedberg, and D.B. Hogg. 1991. Screen barriers for reducing interplot movement of three adult plant bug (Hemiptera: Heteroptera: Miridae) species in small plot experiments. *Great Lakes Entomologist*. 24: 169-172.
31. Wipfli, M.S., J.L. Wedberg, and D.B. Hogg. 1990. Cultural and chemical control strategies for three plant bug (Heteroptera: Miridae) pests of birdsfoot trefoil in northern Wisconsin. *Journal of Economic Entomology*. 83: 2086-2091.

32. Wipfli, M.S., J.L. Wedberg, and D.B. Hogg. 1990. Damage potentials of three plant bug (Hemiptera: Heteroptera: Miridae) species to birdsfoot trefoil grown for seed in Wisconsin. *Journal of Economic Entomology*. 83: 580-584.
33. Wipfli, M.S., J.L. Wedberg, D.B. Hogg, and T.D. Syverud. 1989. Insect pests associated with birdsfoot trefoil, *Lotus corniculatus* L., in Wisconsin. *Great Lakes Entomologist*. 22: 25-33.

Manuscripts in revision or preparation

34. Wipfli, M.S., J.S. Richardson, and R.J. Naiman. In prep. Are subsidies from headwaters important for downstream riverine ecosystems? *Journal of the American Water Resources Association*.
35. Rosenberger, A.E., J.B. Dunham, M.S. Wipfli, and J.M. Buffington. In prep. Long-term effects of wildfire and geomorphic disturbance on drifting macroinvertebrates and predation by trout in central Idaho streams. *Canadian Journal of Fisheries and Aquatic Resources*.
36. Wipfli, M.S., J.P. Hudson, J.P. Caouette, N. Mitchell, J. Lessard, R.L. Heintz, D.T. Chaloner, J.L. Tank, G.A. Lamberti, and R.W. Merritt. In prep. Salmon carcasses vs. inorganic fertilizer pellets for elevating stream productivity: role of carbon and nutrients in stream food webs in southeastern Alaska. *Journal of the North American Benthological Society*.
37. Wipfli, M.S., J.P. Hudson, J.P. Caouette, T. Cak, J., R.L. Heintz, and D.T. Chaloner. In prep. Additions of processed hatchery salmon as a tool for restoring stream food web productivity in areas with suppressed salmon runs. *Transactions of the American Fisheries Society*.

Technical reports and other non peer-reviewed publications

38. Musslewhite, J. and M.S. Wipfli. 2004. Effects of alternatives to clearcutting on invertebrate and detritus transport from headwaters in southeastern Alaska. General Technical Report PNW-GTR-602. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.
39. Deal, R.L., E.H. Orlikowska, P.E. Hennon, M.S. Wipfli, A.C. Johnson, T.L. De Santo, M.E. Schultz, R.T. Edwards, and M.D. Bryant. 2002. Red alder as a tool for restoring forest ecosystems in young-growth western hemlock-Sitka spruce stands of southeastern Alaska. *Proceedings of the Society of American Foresters*, Winston-Salem, NC, Oct 5-9, 2002. Pp. 159-169.
40. Wipfli, M.S., P.E. Hennon, R.L. Deal, A.C. Johnson, T.L. De Santo, E.H. Orlikowska, T. Gomi, M.D. Bryant, R.T. Edwards, M.E. Schultz, and T.A. Hanley. 2002. Ecological role of red alder in even-aged conifer forests of Southeast Alaska, USA. *In* *Proceedings of the International Union of Forest Research Organizations (IUFRO) conference on Forest Restoration in the Boreal and Temperate Zones*, E.S.

Gardiner and L.J. Breland Eds. Published by the Danish Center for Forest Landscapes and Planning, Report 11:124-125.

41. Hennon, P.E., M.S. Wipfli, R.L. Deal, A.C. Johnson, T.L. De Santo, M.E. Schultz, T.A. Hanley, E.H. Orlikowska, T. Gomi, M.D. Bryant, and R.T. Edwards. 2002. Mixed alder-conifer forests: managing upland ecosystems in Southeast Alaska for wood products, wildlife, and fish. Special Wood Compatibility Symposium, Hood River, OR. General Technical Report PNW-GTR-563. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR. Number 5, Pp. 51-60.
42. Deal, R.L., M.S. Wipfli, A.C. Johnson, T.L. De Santo, P.E. Hennon, and T.A. Hanley. 2002. Does red alder enhance wildlife, aquatic and fisheries resources in young-growth western hemlock-Sitka spruce forests of southeast Alaska? *In* Beyond 2001: A silvicultural odyssey to sustaining terrestrial and aquatic ecosystems. Proceedings of the National Silviculture Workshop, Hood River, OR, May 6-10, 2001. *Compiled by* Parker, S. and Hummel-Stevens, S. PNW General Technical Report PNW-GTR-546. USDA Forest Service, PNW Research Station, Portland, OR. Pp. 93-102.
43. Wipfli, M.S., R.L. Deal, P.E. Hennon, A.C. Johnson, T.L. De Santo, T.A. Hanley, M.E. Schultz, M.D. Bryant, R.T. Edwards, E.H. Orlikowska, and T. Gomi. 2002. Managing young upland forests in Southeast Alaska for wood products, wildlife, aquatic resources, and fishes: problem analysis and study plan. General Technical Report PNW-GTR-558. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.
44. McClellan, M.H., D.N. Swanston, P.E. Hennon, R.L. Deal, T.L. De Santo, and M.S. Wipfli. 2000. Alternatives to clearcutting in the old-growth forests of Southeast Alaska: study plan and establishment report. General Technical Report PNW-GTR-494. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR. 48 pp.
45. Undersander, D., L. Greub, R. Leep, P. Beuselinck, J. Wedberg, D. Smith, K. Kelling, J. Doll, D. Cosgrove, C. Grau, S. Petersen, M. Wipfli, and J. English. 1993. Birdsfoot trefoil for grazing and harvested forage. University of Wisconsin North Central Region Extension Publication 474.

EXTERNAL FUNDING RECEIVED

1. 2005-2008, USGS-BRD (\$215,000). *Developing Ecological Salmon Escapement Goals for the Yukon River*.
2. 2005-2006, Kenai Watershed Forum (\$80,000). *Marine-Derived Nutrients in the Kenai River Drainage*. Other PIs include A. Milner (University of Birmingham, UK), and J. Richardson (University of British Columbia, Vancouver, BC).
3. 2004-2006, Department of Energy-BPA (\$675,000). *Developing Monitoring Protocols for Assessing Productivity and Watershed Condition in Headwater*

Subcatchments of the Wenatchee Basin. Other PIs include C. Jordan (NMFS-Seattle), P. Hessburg (PNW Station), and K. Polivka (PNW Station).

4. 2004-2006, Exxon Valdez Oil Spill Trustee Council – Gulf of Alaska Ecosystem Monitoring Program (\$450,000). *Presence and Effects of Marine Derived Nutrients (MDN) in Stream, Riparian and Nearshore Ecosystems on Southern Kenai Peninsula, Alaska*. Other PIs include C. Walker (ADFG) and C. Stricker (USGS-Colorado).
5. 2003-2007, PNW Research Station, USDA Forest Service (\$205,000). *Influence of Riparian Vegetation and Its Management on Stream Food Webs*.
6. 2002-2003, USDA Forest Service, Alaska Regional Office (\$45,000). *Salmon Carcass and Salmon Carcass Analog Enrichment*.
7. 2000-2003, USDA Forest Service, Alaska Regional Office (\$200,000). *Responses of Aquatic and Riparian Food Webs to Marine-Derived Nutrients in the Copper River Delta, Cordova, Alaska*. G.H. Reeves (PNW Station) is the other PI.
8. 2000-2003, Wood Compatibility Initiative (WCI), Pacific Northwest Research Station, Portland, OR (\$1.2 million). *Managing Young Upland Forests in Southeast Alaska for Wood Products, Wildlife, Aquatic Resources, and Fishes*. Other PIs include R.L. Deal, P.E. Hennon, A.C. Johnson, R.T. Edwards, T.L. De Santo, E.H. Orlikowska, M.D. Bryant, M.E. Schultz (PNW Station), and T. Gomi (University of British Columbia).
9. 2000-2002, USDA-CSREES National Research Initiative Competitive Grants Program, Washington, DC (\$420,000). *Influence of Marine Nutrients from Salmon on Stream Ecosystems*. Other PIs include R.W. Merritt (Michigan State University), G.A. Lamberti (University of Notre Dame), and P.H. Ostrom (Michigan State University).
10. 1991, Sport Fishing Institute, DC. (\$2500). *B.t.i.-effects on invertebrates and fish*. I wrote the proposal to fund the completion of existing field research for my Ph.D. program.
11. 1990, Hutson Foundation, Michigan State University, Dept. of Entomology. *Thesis Improvement Grant* (\$1000). Funds were used for augmenting research for my Ph.D. program.

HONORS AND AWARDS

1. Science Findings Award, 2004, for a submission titled “*Ecological Payoffs from Red Alder in Southeastern Alaska*”, presented by Dr. Thomas Quigley, Station Director, PNW Research Station, Portland, OR.
2. Certificate of Merit, 2002, “*In recognition of organizing and convening the interagency workshop – Eastside Aquatic and Land Interactions Science Needs*”

Workshop”, presented by Dr. Richard D. Woodsmith, Wenatchee ALI Team Leader, Wenatchee, WA.

3. Rise to the Future Award, Group Research Achievement, 2001, to Dirk Lang, Mark Wipfli, Maria Lang, Samantha Greenwood, Gordon Reeves, Becky Clausen, Ken Hodges, Robin Lohse, Robbie Piehl, Jennifer Pirtle, Molly Puchlerz and Merlyn Schelske, in recognition of the “*Copper River Delta Nutrient Study*”, presented by USDA Forest Service, Washington, DC.
4. Science Findings Award, 2001, for a submission titled “*Food For Fish, Food For Thought: Managing the Invisible Components of Streams*”, presented by Dr. Thomas J. Mills, Station Director, PNW Research Station, Portland, OR.
5. Certificate of Merit, 2000, for successfully coordinating a multidisciplinary project in Alaska as part of the PNW Station’s Wood Compatibility Initiative (WCI), presented by Dr. Deanna J. Stouder, ALI Program Manager, PNW Research Station, Olympia, WA.
6. Certificate of Merit, 2000, for successfully planning and coordinating a science and resource management field visit that included 31 participants from the USFS Washington D.C. Office, Alaska Region, USFS Alaska District Offices, PNW Station Headquarters, and Juneau Forestry Sciences Laboratory. Presented by Dr. Deanna J. Stouder, ALI Program Manager, PNW Research Station, Olympia, WA.
7. Rise to the Future Award, Individual Research Achievement, 1999, for “*Leadership in moving [the Forest Service] towards a better, more scientifically credible Riparian Management Strategy, and for tireless efforts in helping [the Forest Service] understand the importance of nutrients and carbon from salmon runs to aquatic and riparian ecosystems*”, presented by USDA Forest Service, Washington, DC.
8. Certificate of Merit, 1998, for “*Leadership on the ecological effects of marine nutrients and carbon*” which integrates multiple Programs, Teams, and university cooperators, presented by Dr. James R. Sedell, ALI Program Manager, PNW Research Station, Corvallis, OR.
9. Special Achievement Award, 1996, to the Fisheries and Aquatic Ecology Research Team, in recognition of outstanding contributions to the conservation of Forest Service aquatic resources, presented by Dr. James R. Sedell, ALI Program Manager, PNW Research Station, Corvallis, OR.
10. 1st place, 1994, for best poster presentation, American Fisheries Society – Alaska Chapter conference, Sitka, AK.
11. 1st place, Hydrolab Award, 1993, for best student paper, North American Benthological Society conference, Calgary, Alberta.
12. Dr. R.R. Driesbach Award, 1992, for outstanding achievement in Ph.D. program, Department of Entomology, Michigan State University.

13. Honorable mention, 1991, for runner-up in student poster presentation, Entomological Society of America conference, Snowbird, UT.

14. Alpha Zeta Honorary Society, since 1982.

MEMBERSHIP AND SERVICE IN PROFESSIONAL SOCIETIES

Membership

- American Fisheries Society, 1993 to present
- American Society of Limnology and Oceanography, 1999 to present
- North American Benthological Society, 1988 to present
- Xerces Society, 1992 to present

Service

1) American Fisheries Society

- Alaska Chapter, Environmental Concerns Committee member; 1997-1999.
- Western Division, Environmental Concerns Committee member; 2003-present.
- Assistant editor on a book that is being published by American Fisheries Society as a product of the special symposium “*International Symposium on Restoring Nutrients to Salmonid Ecosystems*” that was held in Eugene, OR, April, 2001.

2) North American Benthological Society

- Student paper judge; 1997-2003
- Program Committee for 2004 conference
- Program Co-Chair for 2006 conference

INVITED SEMINARS AND LECTURES

1. 2005, seminar, “*Effects of salmon carcasses, analogs, and nutrient pellets on freshwater foodwebs in Alaska*”, for a salmon restoration workshop sponsored by the US Environmental Protection Agency, Seattle, WA.
2. 2005, plenary talk, “*Alder, fish, and aquatic resources*”, for a red alder workshop sponsored by the University of Washington, Center for Urban Horticulture, Seattle, WA.
3. 2004, lecture, “*Marine nutrients from salmon runs in freshwater foodwebs*”, 1-hr lecture for Pacific Salmon Life Histories FISH 663 course, University of Alaska Fairbanks.

4. 2004, seminar, “*Marine subsidies in riverine ecosystems: returning salmon fuel freshwater and riparian food webs*”, presented to the Department of Biological Sciences, University of Alaska Anchorage, Anchorage, AK.
5. 2004, seminar, “*Marine-derived nutrients in freshwater ecosystems: implications for restoration*”, presented to the US Environmental Protection Agency and the Department of Fisheries and Wildlife, Oregon State University, Corvallis, OR.
6. 2004, seminar, “*Marine subsidies in freshwater ecosystems*”, presented to the Institute of Arctic Biology, University of Alaska Fairbanks, Fairbanks, AK.
7. 2002, seminar, “*Trophic pathways influencing food resources for stream-resident salmonids*”, presented to the Center for Water and Watershed Studies, Colleges of Forest Resources, Engineering, and Ocean and Fishery Sciences, University of Washington, Seattle, WA.
8. 2000, seminar, “*Trophic processes governing fish production in freshwater ecosystems*”, presented to the Department of Fisheries and Wildlife, Oregon State University, Corvallis, OR.
9. 2000, seminar, “*Salmon carcasses fuel riverine food webs in Alaska*”, presented to the Ecology, Evolutionary Biology and Behavior Program, Michigan State University, E. Lansing, MI.
10. 1997, lecture, “*Restoration of young-growth forests in Southeast Alaska*”, presented to a Restoration Ecology class, Department of Biological Sciences, University of Notre Dame, Notre Dame, IN.
11. 1997, three seminars, “*Do salmon carcasses increase stream and riparian productivity?*”, presented at Michigan State University, Department of Entomology, E. Lansing, MI; University of Notre Dame, Department of Biological Sciences, Notre Dame, IN; and University of Alaska-Fairbanks, School of Fisheries and Ocean Sciences, Juneau, AK.
12. 1997, seminar, “*Management of young-growth riparian forests in southeastern Alaska: consequences for food resources of juvenile salmonids*”, presented to the Department of Forest Resources, University of British Columbia, Vancouver, BC.
13. 1997, seminar, “*Nutrient, organic matter, and invertebrate transport from headwater to fish-bearing streams*”, presented at the University of British Columbia workshop, Headwater Streams: Are they Ecologically Unique?, UBC, Vancouver, BC.

Post-docs supervised

1. Binckley, C. (currently supervising), IAB

Graduate students advised

1. Mellon, C. (currently advising), M.S., Fisheries
2. Rinella, D. (currently advising), Ph.D., Biology
3. Medhurst, B. (currently advising), M.S., Biology
4. Gregovich, D. (currently advising), M.S., Fisheries
5. Martin, A. (currently advising), M.S., Fisheries
6. Peirce, J. (currently advising), M.S., Biology
7. Green, E. (currently advising), M.S., Biology
8. Boltwood, M. (currently advising), Ph.D., Biology, IGERT
9. Apodaca, C. (begins degree program Spring 2006), Ph.D., Biology

Graduate student committee member

1. Love, A. (currently serving), Ph.D., Fisheries, UAF
2. Sayer, A. (currently serving), M.S., Biology, UAA
3. Jones, S. (currently serving), M.S., Education, UAF
4. Tanner, T. (currently serving), M.S., Fisheries, UAF
5. Peterson, M. (currently serving), M.S., IMS, UAF
6. Jones, M. (currently serving), M.S., Fisheries, UAF
7. Carlson, J. (currently serving), M.S., Fisheries, UAF
8. Heintz, R. (currently serving), Ph.D., Fisheries, UAF
9. Plumb, M. (currently serving), M.S., Fisheries, UAF
10. Stichert, M. (currently serving), M.S., Fisheries, UAF
11. Neyme, J. (2004-2005), M.S., Fisheries, UAF
12. Lessard, J. (2001-2004), Ph.D.; Michigan State University
13. Kimbirauskas, R. (2001-2003), M.S.; Michigan State University
14. LeSage, C. (2000-2003), M.S.; Michigan State University

15. Hernandez, O. (1998-2000), M.S.; Michigan State University

PRESENTATIONS

Invited papers

1. Wipfli, M.S. 2004. Prey and detritus subsidies in riverine ecosystems: a watershed perspective of marine, terrestrial, and headwater inputs for fish-bearing food webs in coastal Alaska. Special Session, New Directions in Food Web Analysis. North American Benthological Society annual meeting, Vancouver, Canada, June. (NABS abstract)
2. Wipfli, M.S. 2004. Food versus habitat: understanding the significance of food and nutrient subsidies in salmonid food webs. Special Session, Food Webs and Fish Carrying Capacity. Western Division American Fisheries Society annual meeting, Salt Lake City, UT, March.
3. Wipfli, M.S., J.P. Hudson, J.P. Caouette, D.T. Chaloner, G.A. Lamberti, R.W. Merritt, R.T. Edwards, and R.A. Heintz. 2003. Restoring nutrients and productivity in salmonid food webs. Western Division American Fisheries Society, San Diego, CA, April. (AFS abstract)
4. Wipfli, M.S. 2003. Linkages between headwaters and downstream fish habitats: upland forest management influences prey and organic matter subsidies to salmonid food webs. Headwater Stream Research Forum, Oregon Headwaters Research Cooperative and Oregon State University, Corvallis, OR, January. (workshop abstract)
5. Wipfli, M.S., J.P. Hudson, J.P. Caouette, D.T. Chaloner, and R.A. Heintz. 2002. Ecological effects of returning salmon on freshwater food webs. Special Session, Ecological Links to Population Dynamics and Productivity of Salmon. American Society of Limnology and Oceanography, Victoria, BC, June, and Kachemak Bay Science Conference, Homer, AK, April. (ASLO abstract)
6. Wipfli, M.S., J.J. Piccolo, J. Musslewhite, and D.P. Gregovich. 2002. Fluvial transport of aquatic and terrestrial invertebrates from upland, fishless headwaters to downstream, fish-bearing habitats in southeastern Alaska. North American Benthological Society annual meeting, Pittsburg, PA, May. (NABS abstract)
7. Wipfli, M.S. 2002. Synthesis: linkages and interactions among marine, freshwater, and terrestrial ecosystems. Kachemak Bay Science Conference, Homer, AK, April.
8. Wipfli, M.S., D.P. Gregovich, J.J. Piccolo, and J. Musslewhite. 2002. Headwaters are source areas of food for downstream, fish-bearing stream food webs. Symposium on Small Stream Channels and Their Riparian Zones: Their Form, Function and Ecological Importance in a Watershed Context. University of British Columbia, Vancouver, BC, Canada, February. (symposium abstract)

9. Wipfli, M.S., J.P. Hudson, J.P. Caouette, R.A. Heintz, D.T. Chaloner, M.L. Larsen, and L.G. Holland. 2001. Marine subsidies in freshwater ecosystems: salmon carcasses increase growth and lipids of stream-resident salmonids in Alaska. North American Benthological Society annual meeting, LaCrosse, WI, May. (NABS abstract)
10. Wipfli, M.S., J.P. Hudson, J.P. Caouette, D.T. Chaloner, R.A. Heintz, and B.D. Nelson. 2001. Ecological effects of salmon spawners in stream ecosystems in southeast Alaska. International Conference: Restoring Nutrients to Salmonid Ecosystems, American Fisheries Society North Pacific International Chapter, Eugene, OR, April. (AFS abstract)
11. Wipfli, M.S., J.P. Hudson, J.P. Caouette, R.A. Heintz, and D.T. Chaloner. 2001. Salmon-driven marine-freshwater linkages: marine nutrients and energy increase stream food web productivity in Alaska, USA. American Society of Limnology and Oceanography special session Anadromous Fishes as Links Between Marine and Freshwater Ecosystems, Albuquerque, NM, February. (ASLO abstract)
12. Wipfli, M.S. 2000. Role of salmon carcasses in the ecosystem. Audubon Society, Juneau, September.
13. Wipfli, M.S., J.P. Hudson, J.P. Caouette, D.T. Chaloner, R.E. Heintz, and K.M. Martin. 2000. Marine-freshwater-riparian linkages: salmon carcasses fuel riverine food webs in Southeast Alaska. Special Session: Wanted dead or alive: role of fish in benthic food webs. North American Benthological Society annual conference, Keystone, CO, May. (NABS abstract)
12. Wipfli, M.S. 2000. Salmon carcasses fuel riverine food webs in Alaska. Seminar presented for the Ecology, Evolutionary Biology and Behavior Program, Michigan State University, East Lansing, MI. March.
13. Wipfli, M.S., J.P. Hudson, J.P. Caouette, and D.T. Chaloner. 1999. Marine-derived nutrients from salmon runs subsidize freshwater food webs. Proceedings of the 19th Northeast Pacific Pink and Chum Salmon Workshop, Sponsored by the National Marine Fisheries Service, Auke Bay, AK, March. (NPPCSW abstract)
14. Wipfli, M.S., J.P. Hudson, D.T. Chaloner, and J.P. Caouette. 1998. Managing salmon escapements to sustain stream-riparian food web productivity in Alaska. Special Symposium: American Fisheries Society joint Alaska Chapter and Western Division meeting in conjunction with Lowell Wakefield Fisheries Symposium, Anchorage, AK, September. (AFS abstract)
15. Wipfli, M.S., J.P. Hudson, and J.P. Caouette. 1997. Do salmon carcasses increase aquatic productivity? Symposium: Achieving Healthy Pacific Salmon Populations: Interfacing Creative Biology, Science, and Management, American Fisheries Society conference, Monterey, CA, August. (AFS abstract)
16. Wipfli, M.S. 1996. Ecology of freshwater ecosystems in southeastern Alaska. Discovery Foundation Environmental Education seminar, Juneau, AK, May.

17. Wipfli, M.S. 1996. Function of alder in stream riparian zones. Society of American Foresters conference, Sitka, AK, April.

Offered papers and posters

18. Wipfli, M.S. 2005. Predicted influence of environmental change on nutrient and energy flow in salmonid food webs in Alaska and the Pacific Northwest. American Fisheries Society annual meeting, Anchorage, AK, 12-15 Sept. (AFS abstract)
19. Wipfli, M.S. 2005. Spatial subsidies in riverine food webs: consequences of disturbance and environmental change for stream fishes in Alaska and the Pacific Northwest. American Geophysical Union / North American Benthological Society joint assembly conference. New Orleans, LA, 23-26 May. (AGU abstract)
20. Rosenberger, A.E., J.B. Dunham, M.S. Wipfli, and J.M. Buffington. 2005. Effects of fire and subsequent channel-reorganizing events on invertebrate drift and rainbow trout diet in small headwater streams 10 years post-disturbance. American Geophysical Union / North American Benthological Society joint assembly conference. New Orleans, LA, 23-26 May. (AGU abstract)
21. Rinella, D.J., M.S. Wipfli, C. Walker, and C.A. Stricker. 2005. Marine-derived nutrients (MDN) in riverine ecosystems: Developing monitoring tools for tracking MDN in Alaska watersheds. American Geophysical Union / North American Benthological Society joint assembly conference. New Orleans, LA, 23-26 May. (NABS abstract)
22. Mellon, C.D., M.S. Wipfli, and J.L. Li. 2005. Wildfire and headwater stream productivity: Effects of intense fire on food subsidies to downstream and riparian habitats in eastern Washington. American Geophysical Union / North American Benthological Society joint assembly conference. New Orleans, LA, 23-26 May. (NABS abstract)
23. Walker, C., D.J. Rinella, M.S. Wipfli, and C.A. Stricker. 2005. Tracking marine-derived nutrients in Alaska watersheds. State of the Salmon Conference. Anchorage, Alaska, 18-21 April. (EVOS abstract)
24. Rinella, D.J., M.S. Wipfli, C. Walker, and C.A. Stricker. 2005. Tracking marine-derived nutrients in riverine ecosystems in Alaska. Exxon Valdez Oil Spill Trustee Council Symposium. Anchorage, AK, 24-26 Jan. (NABS abstract)
25. Wipfli, M.S. 2004. Prey and nutrient subsidies in salmonid food webs: implications for fish and forest management in Alaska. American Fisheries Society-Alaska Chapter annual meeting, Sitka, AK, 16-18 Nov. (AFS abstract)
26. Wipfli, M.S. 2004. Macroinvertebrate community response to riparian red alder in forested headwaters of southeastern Alaska. North American Benthological Society annual meeting, Vancouver, Canada, June. (NABS abstract)

27. Kimbirauskas, R.K., R.W. Merritt, M.S. Wipfli, and P.E. Hennon. 2004. Macroinvertebrate community response to riparian red alder in forested headwaters of southeastern Alaska. North American Benthological Society annual meeting, Vancouver, Canada, June. (NABS abstract)
28. Chaloner, D.T., G.A. Lamberti, A.D. Cak, J.P. Hudson, J.L. Lessard, R.W. Merritt, P.H. Ostrom, J.L. Tank, and M.S. Wipfli. 2003. Do salmon carcasses and pellets of processed salmon carcasses have the same effects on streams? North American Benthological Society annual meeting, Athens, GA, May. (NABS abstract)
29. Kimbirauskas, R.K., R.W. Merritt, M.S. Wipfli, and P.E. Hennon. 2003. Management of headwater riparian habitats to maximize benthic invertebrate densities in southeastern Alaska streams. North American Benthological Society annual meeting, Athens, GA, May. (NABS abstract)
30. Lamberti, G.A., D.T. Chaloner, R.T. Edwards, R.W. Merritt, P.O. Ostrom, J.L. Tank, and M.S. Wipfli. 2003. Do salmon migrations subsidize stream food webs in Alaska? Current knowledge and research gaps. North American Benthological Society annual meeting, Athens, GA, May. (NABS abstract)
31. Piccolo, J.J., and M.S. Wipfli. 2002. Influence of upland forest management on the export of invertebrates and detritus from headwaters to downstream, fish-bearing habitats. Presented to: Mountain forests: conservation and management. International Union of Forest Research Organizations (IUFRO) Conference, Vernon, BC, Canada, July. (IUFRO abstract)
32. Orlikowska, E.H., R.L. Deal, P.E. Hennon, and M.S. Wipfli. 2002. Stand structure and composition of red alder-conifer forests along headwater streams in the coastal mountains of Southeast Alaska. Presented to: Mountain forests: conservation and management. International Union of Forest Research Organizations (IUFRO) Conference, Vernon, BC, Canada, July. (IUFRO abstract)
33. Piccolo, J.J., and M.S. Wipfli. 2002. Export of aquatic and terrestrial invertebrates from upland, fishless headwaters to downstream, fish-bearing habitats in southeastern Alaska. Special Session, Headwater Ecosystems in Forested Landscapes and Beyond, American Society of Limnology and Oceanography, Victoria, BC, June. (ASLO abstract)
34. Kimbirauskas, R.K., R.W. Merritt, M.S. Wipfli, and P.E. Hennon. 2002/01. Benthic invertebrate communities colonizing red alder and conifer wood in headwater streams, Prince of Wales Island, Southeast Alaska. North American Benthological Society annual meeting, Pittsburg, PA, May, 2002, and North American Benthological Society annual meeting, LaCrosse, WI, May, 2001. (NABS abstracts)
35. Chaloner, D.T., R.T. Edwards, G.A. Lamberti, R.W. Merritt, P.O. Ostrom, and M.S. Wipfli. 2002. Do spawning Pacific salmon increase the productivity of

- freshwater ecosystems? North American Benthological Society annual meeting, Pittsburg, PA, May. (NABS abstract)
36. Allan, J.D., and M.S. Wipfli. 2002. Influence of streamside vegetation on terrestrial invertebrate subsidies to salmonid food webs. North American Benthological Society annual meeting, Pittsburg, PA, May. (NABS abstract)
37. LeSage, C.M., R.W. Merritt, M.S. Wipfli, and P.E. Hennon. 2002. Riparian arthropod abundance in leaf litter and wood along headwater streams within mixed coniferous and red alder forests in Southeast Alaska. North American Benthological Society annual meeting, Pittsburg, PA, May. (NABS abstract)
38. Graham, B.S., P.O. Ostrom, D.T. Chaloner, R.W. Merritt, G.A. Lamberti, and M.S. Wipfli. 2002. Incorporation of marine-derived nutrients in Southeast Alaska streams: similarities and variability in carbon and nitrogen isotopes. North American Benthological Society annual meeting, Pittsburg, PA, May. (NABS abstract)
39. Hudson, J.P., M.S. Wipfli, N.L. Mitchell, J.P. Caouette, R.A. Heintz, D.T. Chaloner, B.S. Graham, C.L. Crenshaw, J.L. Lessard, G.A. Lamberti, R.W. Merritt, P.O. Ostrom, and J.L. Tank. 2002. Salmon carcasses vs. fertilizer: stream food web responses to organic and inorganic nutrient enrichment in Alaska. North American Benthological Society annual meeting, Pittsburg, PA, May. (NABS abstract)
40. Wipfli, M.S., P.E. Hennon, R.L. Deal, A.C. Johnson, T.L. De Santo, E.H. Orlikowska, T. Gomi, M.D. Bryant, R.T. Edwards, M.E. Schultz, and T.A. Hanley. 2002. Ecological role of red alder in even-aged conifer forests of Southeast Alaska, USA: Implications for forest restoration. Presented to: Forest Restoration in the Boreal and Temperate Zones, International Union of Forest Research Organizations (IUFRO) Conference. Vejle, Denmark, April.
41. Wipfli, M.S., P.E. Hennon, R.L. Deal, A.C. Johnson, T.L. De Santo, M.E. Schultz, M.D. Bryant, T.A. Hanley, and R.T. Edwards. 2001. Synthesis of mixed red alder-conifer forests: Managing upland ecosystems in southeast Alaska for multiple values – wood, wildlife, aquatic resources, and fishes. Pacific Northwest Research Station, Wood Compatibility Initiative synthesis workshop, Skamania, OR, December.
42. Hennon, P.E., M.S. Wipfli, R.L. Deal, A.C. Johnson, T.L. De Santo, M.E. Schultz, T.A. Hanley, E.H. Orlikowska, T. Gomi, M.D. Bryant, and R.T. Edwards. 2001. Mixed alder-conifer forests: Managing upland ecosystems in southeastern Alaska for wood products, wildlife, and fish. Pacific Northwest Research Station, Wood Compatibility Initiative synthesis workshop, Skamania, OR, December.
43. Wipfli, M.S., J.P. Hudson, J.P. Caouette, D.T. Chaloner, and R.A. Heintz. 2001. Ecological effects of marine nutrients from salmon spawners on stream

- ecosystems in Alaska. Pacific Rim Wild Salmon and Steelhead Conference, Portland, OR, November.
44. Lang, M.E., M.S. Wipfli, B.J. Hicks, R.T. Edwards, and K. Hodges. 2001. Water chemistry and stable isotope analysis ($\delta^{15}\text{N}$ and $\delta^{13}\text{C}$) of a complex beaver pond system in the Copper River Delta, Cordova, Alaska. American Fisheries Society Alaska Chapter meeting, Sitka, AK, November. (AFS abstract)
 45. Nelson, B.D., R.A. Heintz, M.S. Wipfli, and J.P. Hudson. 2001. Effect of supplementation with marine-derived nutrients on the lipid class and fatty acid composition of juvenile coho salmon. American Fisheries Society Alaska Chapter meeting, Sitka, AK, November. (AFS abstract)
 46. Chaloner, D.T., M.S. Wipfli, G.A. Lamberti, R.W. Merritt, P.O. Ostrom, N.L. Mitchell, J.L. Lessard, B.S. Graham, B.E. Wright, and J.P. Hudson. 2001. The ecological effects of salmon migrations in Southeast Alaska streams. American Fisheries Society Alaska Chapter meeting, Sitka, AK, November. (AFS abstract)
 47. Merritt, R.W. and M.S. Wipfli. 2001/1999. The effects of *B.t.i.* on black flies and non-target organisms. Seminar presented at the University of Arizona, Tucson, AZ, October 2001, and at Rutgers University, New Brunswick, NJ, October, 1999.
 48. Lamberti, G.A., D.T. Chaloner, R.W. Merritt, P.H. Ostrom, and M.S. Wipfli. 2001. Marine nutrients in freshwater ecosystems: role of salmon migrations in supporting stream food webs. Ecological Society of America annual meeting, Madison, WI. August. (ESA abstract)
 49. Deal, R.L., M.S. Wipfli, A.C. Johnson, T.L. De Santo, P.E. Hennon, T.A. Hanley. 2001. Does red alder enhance wildlife, aquatic and fisheries resources in young-growth western hemlock-Sitka spruce stands in southeast Alaska? Beyond 2001: A silvicultural odyssey to sustaining terrestrial and aquatic ecosystems. National Silviculture Workshop, Hood River, OR, May.
 50. Ostrom, P.H., M.S. Wipfli, R.A. Heintz, J.P. Hudson, M.L. Larsen, D.T. Chaloner, and R.W. Merritt. 2001. Interpreting stream ecosystem responses to marine-derived nutrients using stable isotope and fatty acid analyses. North American Benthological Society annual meeting, LaCrosse, WI, May. (NABS abstract)
 51. Graham, B.S., P.H. Ostrom, D.T. Chaloner, K.M. Martin, M.S. Wipfli, J.P. Hudson, R.W. Merritt, and G.A. Lamberti. 2001. Influences of marine-derived nutrients from salmon on stream food webs as revealed by stable isotope analysis. North American Benthological Society annual meeting, LaCrosse, WI, May. (NABS abstract)
 52. Chaloner, D.T., G.A. Lamberti, M.S. Wipfli, R.W. Merritt, P.H. Ostrom, N.L. Mitchell, J.L. Lessard, B.S. Graham, B.E. Wright, and J.P. Hudson. 2001. Ecological consequences of salmon enrichment for streams: where do marine-

derived nutrients go? North American Benthological Society annual meeting, LaCrosse, WI, May. (NABS abstract)

53. Lang, M.E., M.S. Wipfli, B.J. Hicks, R.T. Edwards, and K. Hodges. 2001. Water chemistry and stable isotope analysis ($\delta^{15}\text{N}$ and $\delta^{13}\text{C}$) of a complex beaver pond system in the Copper River Delta, Cordova, Alaska. International Conference: Restoring Nutrients to Salmonid Ecosystems, American Fisheries Society North Pacific International Chapter, Eugene, OR, April. (AFS abstract)
54. Heintz, R.A., B.D. Nelson, M.S. Wipfli, and J.P. Hudson. 2001. Effects of supplementation with marine derived nutrients on the lipid class and fatty acid composition of juvenile coho salmon. International Conference: Restoring Nutrients to Salmonid Ecosystems, American Fisheries Society North Pacific International Chapter, Eugene, OR, April. (AFS abstract)
55. Chaloner, D.T., M.S. Wipfli, G.A. Lamberti, R.W. Merritt. 2001. Influence of enrichment by Pacific salmon on macroinvertebrate growth and standing stock in southeast Alaska streams. International Conference: Restoring Nutrients to Salmonid Ecosystems, American Fisheries Society North Pacific International Chapter, Eugene, OR, April. (AFS abstract)
56. Stricker, C.A., M. Lang, A. Hodgson, P.O. Ostrom, and M.S. Wipfli. 2001. Tracing marine-derived nutrients into the Chilkat River valley of southeast Alaska: a stable isotope approach. International Conference: Restoring Nutrients to Salmonid Ecosystems, American Fisheries Society North Pacific International Chapter, Eugene, OR, April. (AFS abstract)
57. Nelson, B.D., R.A. Heintz, M.S. Wipfli, and J.P. Hudson. 2001. Effects of supplementation with marine derived nutrients on the lipid class and fatty acid composition of juvenile coho salmon. American Society of Limnology and Oceanography special session on Marine Subsidies in Freshwater Ecosystems, Albuquerque, NM, February (ASLO abstract); and University of Alaska Fairbanks Seminar, Juneau, AK, February.
58. Hudson, J.P., Wipfli, M.S., J.P. Caouette, and R.A. Heintz. 2000/1999. Salmon carcasses increase growth and lipid content of stream-dwelling salmonids in southeast Alaska. American Fisheries Society Alaska Chapter meeting, Fairbanks, AK, November, 2000, and American Fisheries Society Alaska Chapter meeting, Kodiak, AK, November, 1999. (AFS abstracts)
59. Wipfli, M.S., J.P. Hudson, D.T. Chaloner, J.P. Caouette, and R.A. Heintz. 2000. Marine-freshwater linkages: nutrients and energy from salmon carcasses help sustain the productivity of freshwater food webs in Alaska, USA. Presented to: Feeding the world in the next millennium: the balance between production and the environment. Third World Fisheries Congress, Beijing, China, October. (proceedings abstract)
60. Wipfli, M.S., J.P. Hudson, D.T. Chaloner, J.P. Caouette, K.M. Martin, and R.A. Heintz. 2000. Marine-freshwater-riparian linkages: salmon carcasses fuel riverine

- food webs in Alaska. North American Benthological Society annual meeting, Keystone, CO, May. (NABS abstract)
61. Chaloner, D.T., M.S. Wipfli, J.P. Hudson, J.P. Caouette, and K.M. Martin. 2000. Carcass-invertebrate interactions: implications for the influence of Pacific salmon on ecosystem productivity. Special Session: Wanted dead or alive: role of fish in benthic food webs. North American Benthological Society annual conference. Keystone, CO, May. (NABS abstract)
62. Hernandez, O., R.W. Merritt, and M.S. Wipfli. 2000. Effects of timber harvesting and forest succession on headwater stream benthic community structure in Southeast Alaska. North American Benthological Society annual meeting, Keystone, CO, May. (NABS abstract)
63. Gregovich, D.P., and M.S. Wipfli. 2000. Export of macroinvertebrates and detritus from fishless headwater streams that drain upland forests in Southeast Alaska: implications for downstream fish-bearing food webs. North American Benthological Society annual meeting, Keystone, CO, May. (NABS abstract)
64. Contreras, G.P., M.S. Wipfli, J.P. Hudson, J.P. Caouette, and D.T. Chaloner. 1999. Bears facilitate energy and nutrient flow in riverine food webs that receive salmon runs in Southeast Alaska, 12th International Conference on Bear Research and Management, Poinana Brasov, Romania, October. (conference abstract)
65. Merritt, R.W. and M.S. Wipfli. 1999. The current status of black fly programs in Michigan. Southern Extension and Research Activities Information Exchange Group Mtg., Flamingo, FL, February.
66. Merritt, R.W. and M.S. Wipfli. 1998. Effects of *B.t.i.* on non-target insects, fish and stream community structure. International Black Fly workshop, Kronlund, Sweden, December.
67. Chaloner, D.T. and M.S. Wipfli. 1998. Aquatic and terrestrial invertebrates colonizing salmon carcasses in southeastern Alaska. Special Symposium: American Fisheries Society joint Alaska Chapter and Western Division meeting in conjunction with Lowell Wakefield Fisheries Symposium, Anchorage, AK, September. (AFS abstract)
68. Wipfli, M.S., J.P. Hudson, and J.P. Caouette. 1997. Salmon carcasses increase stream macroinvertebrate abundance in Alaska. North American Benthological Society conference, San Marcos, TX, June. (NABS abstract)
69. Merritt, R.W. and M.S. Wipfli. 1997. Effects of *B.t.i.* on non-target organisms. Black Fly Training Mtg., Lake George, N.Y., January.
70. Wipfli, M.S. 1996. Influence of juvenile coho salmon on stream macroinvertebrate densities: benthic, drift, adult emergence. Ecological Society of America conference, Providence, RI, Aug., and North American Benthological Society conference, Polson, MT, June. (NABS abstract)

71. Wipfli, M.S. 1996/1994. Terrestrial invertebrates in stream food webs: their importance to juvenile salmonids in five southeastern Alaska streams with different riparian vegetation. Ecology and Management of Westside Riparian Areas: Ecology, Fisheries, Wildlife & Silviculture workshop, Oregon State University, Corvallis, OR, May, 1996; American Fisheries Society, Salmon Ecosystem Restoration: Myth and Reality workshop, Eugene, OR, November, 1994; and North American Benthological Society conference, Orlando, FL, May, 1994. (AFS and NABS abstracts)
72. Wipfli, M.S. 1995. Terrestrial invertebrates as prey, detritus, and sources of nitrogen in streams: contrasting old-growth and young-growth riparian ecosystems in southeastern Alaska. Ecological Society of America conference, Snowbird, UT, August; and North American Benthological Society conference, Keystone, CO, May. (NABS abstract)
73. Wipfli, M.S. 1994. Role of terrestrial invertebrates in streams: their importance to juvenile salmonids in selected southeast Alaska streams within old- and young-growth forest ecosystems. American Fisheries Society conference, Sitka, AK. *Presentation was awarded 1st place by AFS for quality of content.* (AFS abstract)
74. Wipfli, M.S., and R.W. Merritt. 1993. *B.t.i.* for black fly control: trophic-level disturbance for predatory macroinvertebrates. North American Benthological Society conference, Calgary, Alberta, Canada, May. *Presentation won 1st place Hydrolab Award at NABS conference for best student poster in Applied Ecology.* (NABS abstract)
75. Wipfli, M.S., and R.W. Merritt. 1992. Does *B.t.i.* affect the feeding habits of predatory stoneflies? North American Benthological Society conference, Louisville, KY, May. (NABS abstract)
76. Wipfli, M.S., and R.W. Merritt. 1991. Impact of *Bacillus thuringiensis* var. *israelensis* on the feeding habits of predatory stoneflies. Entomological Society of America conference, Reno, NV, December. (ESA abstract)
77. Wipfli, M.S., and R.W. Merritt. 1991. Survival and adult emergence success of *Acroneuria lycurias*, *Isoperla signata* (Plecoptera), and *Siphonurus* spp. (Ephemeroptera) after consuming *Bacillus thuringiensis* var. *israelensis*-contaminated black fly larvae. North American Benthological Society conference, Santa Fe, NM, May. (NABS abstract)
78. Wipfli, M.S., and R.W. Merritt. 1991. Impact of the black fly larvicide *Bacillus thuringiensis* var. *israelensis* on two predatory stoneflies and one mayfly. Midwest Pollution Control Biologists conference, Chicago, IL, March.
79. Wipfli, M.S., and R.W. Merritt. 1991. Are *Bacillus thuringiensis* var. *israelensis*-contaminated black fly larvae toxic to predatory stoneflies? Michigan Mosquito Control Association conference, E. Lansing, MI, February.

80. Wipfli, M.S., and R.W. Merritt. 1990. Effects of *B.t.i.* on selected non-target insects following its application for larval black fly control. Entomological Society of America conference, New Orleans, LA, December. (ESA abstract)
81. Wipfli, M.S., and R.W. Merritt. 1990. Impact of *Bacillus thuringiensis* var. *israelensis*, a black fly larvicide, on selected non-target aquatic insects. Society of Environmental Toxicology and Chemistry conference, St. Clair, MI, September. (SETAC abstract)
82. Wipfli, M.S., and R.W. Merritt. 1990. Changes in feeding habits of *Acroneuria lycorias*, *Isoperla signata*, and *Prostoia completa* (Plecoptera) in response to *B.t.i.*-treated larval black flies. North American Benthological Society conference, VPI&SU, Blacksburg, VA, May. (NABS abstract)
83. Wipfli, M.S., and R.W. Merritt. 1989. Changes in stonefly predation in response to *B.t.i.*-treated larval black flies. Entomological Society of America conference, San Antonio, TX, December. (ESA abstract)

Technology transfer papers and seminars

84. Hudson, J.P., M.S. Wipfli, N.L. Mitchell, J.P. Caouette, R.A. Heintz, D.T. Chaloner, J.L. Lessard, G.A. Lamberti, and R.W. Merritt. 2002. Salmon vs. fertilizer: Stream food web responses to organic and inorganic nutrient enrichment in Alaska. US Forest Service Alaska Region workshop, Juneau, AK, April.
85. Wipfli, M.S., R.L. Deal, P.E. Hennon, A.C. Johnson, T.L. De Santo, M.E. Schultz, M.D. Bryant, T.A. Hanley, E.H. Orlikowska, T. Gomi, C. LeSage, and R.T. Edwards. 2002. Ecological role of red alder in young-growth conifer forests of southeastern Alaska: Implications for Ecosystem Restoration. US Forest Service Region 10 workshop, Juneau, AK, April.
86. Wipfli, M.S., J.P. Hudson, J.P. Caouette, D.T. Chaloner, R.A. Heintz, N.L. Mitchell, M.E. Lang, G.A. Lamberti, and R.T. Edwards. 2002. Ecological effects of marine biomass from salmon runs on freshwater food webs. US Forest Service Alaska Region workshop, Juneau, AK, April.
87. Wipfli, M.S., J.P. Hudson, J.P. Caouette, R.T. Edwards, M. Lang, D.T. Chaloner, R.A. Heintz, and D. Lang. 2002. Changes in aquatic food webs and rearing salmonid populations when salmon carcasses are present. Exxon Valdez Oil Spill Trustee Council annual meeting, Anchorage AK, January.
88. Wipfli, M.S., J.P. Hudson, J.P. Caouette, R.A. Heintz, and D.T. Chaloner. 2001. Influence of salmon spawners on freshwater productivity: should salmon escapement goals take marine nutrients into account? Alaska Department of Fish and Game annual salmon management workshop, Anchorage, AK. February.
89. Wipfli, M.S., J.P. Hudson, J.P. Caouette, D.T. Chaloner, R.E. Heintz, and K.M. Martin. 2000. Salmon carcasses fuel riverine food webs: implications for

- fisheries management in Southeast Alaska. Alaska Department of Fish and Game seminar, Juneau, Alaska. June.
90. Wipfli, M.S. 2000. Stream-Riparian Trophic Processes. USFS Alaska Region Silviculture conference, Petersburg, AK. March.
 91. Wipfli, M.S., R.L. Deal, P.E. Hennon, and M.E. Schultz. 2000. Role of red alder in upland ecosystems: overview of a new study. USFS Alaska Region Silviculture conference, Petersburg, AK. March.
 92. Wipfli, M.S., R.L. Deal, T.A. Hanley, T.L. De Santo, A.C. Johnson, P.E. Hennon, M.E. Schultz, R. Woodsmith, M.D. Bryant, W.P. Smith. 2000. Overview of a new study: Managing young upland forests in Southeast Alaska for wood products, wildlife, aquatic resources, and fishes. Sealaska Native Corporation "Large Woody Debris Source and Transport" Workshop, Juneau, AK. January.
 93. Wipfli, M.S., D.P. Gregovich, and J.J. Piccolo. 2000. Transport of invertebrates and detritus from headwaters in Southeast Alaska: implications for upland forest management and downstream salmonid habitats. Sealaska Native Corporation "Large Woody Debris Source and Transport" Workshop, Juneau, AK. January.
 94. Wipfli, M.S., J.P. Hudson, J.P. Caouette, and D.T. Chaloner. 1999. Do marine-derived nutrients from spawning salmon help sustain ecosystem productivity in the Copper River Delta? USFS Copper River Delta Conference, Cordova, AK. May.
 95. Wipfli, M.S. 1999. Stream-Riparian Trophic Processes. USFS Alaska Region Silviculture conference, Craig, AK. April.
 96. Wipfli, M.S. 1997. Riparian plant species affect prey abundance for juvenile salmonids: implications for young-growth riparian forest management. USFS Alaska Region Silviculture conference, Petersburg, AK, May.
 97. Wipfli, M.S., J.P. Hudson, and J.P. Caouette. 1997. Nutrients from salmon carcasses increase stream macroinvertebrate abundances in Alaska. USFS Alaska Region, Wildlife, Fisheries, Ecology, and Watershed conference, Juneau, AK, February.
 98. Wipfli, M.S. 1997. Update on Prince of Wales Island riparian ecology and restoration project. USFS Alaska Region, Wildlife, Fisheries, Ecology, and Watershed conference, Juneau, AK, February.
 99. Wipfli, M.S. 1996. Ecology and management of stream riparian areas. Second-Growth Management workshop, Craig Ranger District, Craig, AK, April.
 100. Wipfli, M.S. 1995. Maintaining stream productivity through restoration of young-growth riparian forests. Riparian Restoration workshop, Pacific Northwest Research Station, Juneau, AK, December.

101. Wipfli, M.S. 1995. Stream productivity: interactions of debris and buffers with stream biota. Land Management in Riparian Areas of Alaska training workshop, PNW Research Station, Juneau, AK, March.
102. Wipfli, M.S. 1995. Biomonitoring streams with aquatic macroinvertebrates. USDA Forest Service seminar, Juneau, AK, February.

PARTICIPATION IN TECHNICAL CONFERENCES AND WORKSHOPS

1. Organized an interagency Eastside OR/WA Science Needs Workshop that brought together scientists and resource managers interested in eastside aquatic resource issues to discuss current projects, explore opportunities for collaboration, and identify future avenues of funding. The workshop took place 19-20 March, 2002 in Wenatchee, WA.
2. Co-organized the special session Nutrients and Food Web Processes for a USFS Alaska Region workshop, Restoring Nutrients, Biota, and Functional Condition Within Aquatic Ecosystems, 2-4 April 2002, held in Juneau, AK.
3. Organized the special session Salmon Carcasses and Aquatic Food Webs for an American Fisheries Society symposium, International Conference on Restoring Nutrients to Salmonid Ecosystems, 24-26 April 2001, held in Eugene, OR.
4. Organized the special session Anadromous Fishes as Links Between Marine and Freshwater Ecosystems for an American Society of Limnology and Oceanography conference, Making Connections in the 21st Century, 12-16 February 2001, held in Albuquerque, NM.
5. Co-organized the Special Symposium on Anadromous Fishes in Fresh Water for American Fisheries Society joint Alaska Chapter and Western Division meeting in conjunction with Lowell Wakefield Fisheries Symposium, September, 1998, held in Anchorage, AK.
6. As part of a Wildlife, Fisheries, Ecology, and Watershed conference and workshop I organized with USFS Alaska Region a Watershed Restoration Workshop, February, 1997, held in Juneau, AK.
7. I organized a 2-day Riparian Restoration workshop with speakers and participants from USFS, PNW, NOAA, and Alaska Dept. of Environmental Conservation, December, 1995, held in Juneau, AK.

ADMINISTRATIVE DUTIES

- 2004-present, Assist with administration of the USGS Alaska Cooperative Fish and Wildlife Research Unit, University of Alaska Fairbanks.
- 1993-2003, Supervised at any given time up to five professional biologists and field technicians.

- 1993-2003, Concurrently managed up to six project budgets ranging in size from \$10,000 to \$1,200,000.
- 1998-2003, Served as Aquatic and Land Interactions Research Program representative on the PNW Station QA/QC committee for developing QA/QC guidelines.
- 2000-2003, Project coordinator of a multidisciplinary, team research project “*Managing young upland forests in Southeast Alaska for wood products, wildlife, aquatic resources, and fishes*” that involves 10 agency and university PIs, and graduate students. Responsibilities include overseeing the budget, coordinating field research to keep the individual research components aligned with objectives and integrated in the overall project, aiding the dissemination of research results, and writing synthesis papers.
- 2002, Served as the interim Aquatic and Land Interactions Research Program Safety Coordinator for the PNW Research Station for part of the year.

BOOK REVIEWS

- Wipfli, M.S. 1997. Comprehensive Methods for Stream Ecologists. Review of *Methods in Stream Ecology* by F.R. Hauer & G.A. Lamberti. Ecology. 78(3): 960.

EDITORSHIPS

- 2002, Served as assistant editor on several papers published in Stockner, J.L. (ed.) 2003. *Nutrients in freshwater salmonid ecosystems*, American Fisheries Society Special Publication 34, Bethesda, Maryland.

CONSERVATION AND SCIENCE EDUCATION

- 1994-2001, Science mentor and science fair judge for high school students, (10-20 hrs/yr), Juneau-Douglas High School, Juneau, AK.
- 1995, Helped develop conservation education curriculum for the Sister City Russian-American Student Exchange Environmental Education Program, sponsored by the City and Borough of Juneau, AK. The Program integrated multidisciplinary studies aimed to increase environmental understanding and awareness for Russian and American high school students in both Juneau, AK, and Vladivostok, Russia. My contribution was the planning and leading of a field trip to area streams where students sampled benthic macroinvertebrates to assess stream health.
- 1996, Helped develop curriculum for the EPA-funded water quality student education program Camp Water, Discovery Foundation - Environmental Education, Juneau, AK; purpose of the curriculum was to provide middle school students with hands-on involvement in monitoring and understanding stream health in southeastern Alaska; outcome was a benthic macroinvertebrate sampling protocol that enabled students to successfully measure regional stream health.

- 1996-2000, Science mentor for middle school students and guest lecturer for four science classes, (10-20 hrs/yr), Dzantik'i Heeni Middle School, Juneau, AK.
- 1997-2001, Board member for Southeast Discovery (formerly Discovery Foundation), non-profit environmental education organization, Juneau, AK.