

CURRICULUM VITAE

FRED W. ALLENDORF

May 2007

E-mail: fred.allendorf@umontana.edu

Division of Biological Sciences
University of Montana
Missoula, MT 59812
USA

1440 Harrison Street
Missoula, MT 59802
Ph (406) 543-6443

Phone (406) 243-5503; FAX (406) 243-4184

School of Biological Sciences
P.O. Box 600
Victoria University of Wellington
Wellington, NZ

BIRTH: 29 April 1947; Philadelphia, Pennsylvania

MILITARY SERVICE: U.S. Army, 1965-1968 (Vietnam, 1966-1967)

EDUCATION: B.S., Zoology, Pennsylvania State University, 1971
M.S., Fisheries, University of Washington, 1973
Ph.D., Fisheries and Genetics, University of Washington, 1975
(co-directors, Fred Utter and Joe Felsenstein)

POST-DOCTORAL: Research Fellow, 1975-1976, Aarhus University, Denmark (Freddy Christiansen)
NATO/NSF Fellow, 1978-1979, Nottingham University (Bryan Clarke)

RESEARCH INTERESTS: Population Genetics and Conservation Biology

POSITIONS:

1975-1976	Research Fellow, Department of Genetics and Ecology, Aarhus University, Denmark
1976-1979	Assistant Professor of Zoology, University of Montana
1978-1979	NATO/NSF Fellow, Genetics Research Unit, University of Nottingham, England
1979-1984	Associate Professor of Zoology, University of Montana
1983-1984	Visiting Scientist, Department of Genetics, University of California, Davis
1984-1989	Professor of Zoology, University of Montana
1989-1990	Program Director, Population Biology and Physiological Ecology, NSF
1992-1993	Visiting Professor, University of Oregon
1993-1996	Director, Organismal Biology and Ecology Graduate Program, University of Montana
Fall 1997	Hill Visiting Professor, Dept. of Ecology, Evolution, and Behavior, Univ. of Minnesota
2000-2001	Fulbright Senior Scholar, Victoria University of Wellington, New Zealand
1990-2004	Professor of Biology, University of Montana
2004-present	Regents Professor, University of Montana
2005-present	Professorial Research Fellow, Victoria University of Wellington, New Zealand

HONORS: NATO/NSF Postdoctoral Fellowship, University of Nottingham, 1978-1979
European Molecular Biology Organisation (EMBO), Fellowship, University of Stockholm, 1979
Elected Fellow, American Association for the Advancement of Science (AAAS), February 1987

President, American Genetic Association, 1997
Hill Visiting Professor, University of Minnesota, 1997
Fulbright Senior Scholar, New Zealand, 2000-2001
Erskine Fellow, University of Canterbury, New Zealand, 2003
Appointed Regents' Professor, University of Montana, 2004
Awarded Gladden Visiting Senior Fellowship, University of Western Australia, 2007

STUDENT HONORS:

Robb Leary received the 1984 Theodosius Dobzhansky Prize by the Society for the Study of Evolution for his dissertation research under my direction (*Evolution* 38:995).
Gordon Luikart received a Fulbright Fellowship to spend a year (1994-1995) in Australia as part of his dissertation research under my direction.
Steve Forbes (1990) and Dara Newman (1994) received NSF Dissertation Improvement Grants for their dissertation research under my direction.
Charles Daugherty elected Fellow of The Royal Society of New Zealand, 1999
Andrew Whiteley received a 2003 Raney Award from the American Society of Ichthyologists and Herpetologists for his dissertation research under my direction.

MAJOR GRANTS:

NSF Research Grant, EPSCoR, 1980-1983, \$70,000
NSF Research Grant, Population Biology, 1980-1982, \$60,000
NSF Research Grant, Population Biology, 1983-1986, \$121,000
NSF Faculty Research Opportunity Award, 1986, \$10,000
U. S. Department of Agriculture Grant, Aquaculture, 1983-1985, \$43,000
NSF Research Grant, Population Biology, 1986-1989, \$148,000
NSF Dissertation Research Grant, Steve Forbes, 1988-1990, \$9,850
NSF Research Grant, Population Biology, 1989-1993, \$150,000
NSF Research Grant, Conservation and Restoration Biology, 1993-1998, \$265,000
NSF Dissertation Research Grant, Dara Newman, 1992-1994, \$9,500
NSF Grant. Training within Environmental Biology. P.F. Kukuk (Project Director), C.A. Brewer and F.W. Allendorf (co-PIs). Graduate Research Traineeship, 1995-2002, \$562,500.
NSF Equipment Grant, P. Kukuk, L.S. Mills, and F.W. Allendorf (co-PIs). Acquisition of instrumentation in evolutionary and conservation genetics. \$128,000.
Project Director, NSF Postdoctoral Research Fellowship in Biological Informatics, Dr. Eleanor Steinberg. 1999-2001. \$100,000.
NSF Small Grant for Experimental Research. Detection of trout species by PCR amplification of DNA from stream water. \$47,000. 2000-2002.
Exxon Valdez Oil Spill Trustee Council, Construction of a linkage map for the pink salmon genome, 1996-2004, \$1,420,000
The Royal Society of New Zealand. Marsden Fund. Do mutations in mitochondrial DNA affect population viability? Co-PI with Neil Gemmell, Canterbury University. \$NZ480,000, 3 years.
NSF Small Grant for Experimental Research, A population genomic approach to understand life history variation and sex chromosome evolution in rainbow trout. 2005-2006, \$44,000.

ASSOCIATE EDITORSHIPS: *Evolution* (1987-1990)
Journal of Heredity (1986-1989)
Molecular Biology and Evolution (1994-1996)
Conservation Genetics (1999-2005)

EDITORIAL BOARDS: Molecular Biology and Evolution (1983-1989)
Progressive Fish Culturist (1986-1989)
Conservation Biology (1990-1993)
Conservation Biology (Special Assigning Editor, 2002-present)
Molecular Ecology (1991-1995)
New Zealand Journal of Marine and Freshwater Research (2003-present)

PROFESSIONAL SERVICE:

Panel Member, Population Biology and Physiological Ecology, NSF (1987-1989)
Panel Member, International Program, NSF (1987)
Panel Member, Conservation and Restoration Biology, NSF (1991-1992; 1995)
Council Member, The American Genetic Association (1986-1989)
Genetics Nomenclature Committee, American Fisheries Society (1986-1991)
Member, Committee on the Protection and Management of Pacific Northwest Anadromous Salmonids, National Research Council (1992-1995)
Chair, Committee of Visitors, Systematic and Population Biology Programs, NSF (1993)
Member, AAAS Council, Biological Sciences Division (1996-1998)
President, American Genetic Association (1997)
Panel member, Dissertation Improvement Grants, NSF (1997)
Member, Board of Trustees, The Nature Conservancy, Montana Chapter (1995-2001).
Chair, Nominations Committee, American Genetic Association (1999)
Member, Invasive Species Collaboratory, NSF (1999-present)
Co-Chair, Organizing Committee, 2000 Annual Meeting of Society for Conservation Biology (SCB), Missoula, MT
Panel Member, Evolutionary Genetics, NSF (2003-present)
Fulbright Program for U.S. Students, Proposal Review Panel, San Francisco, 2005 and 2006.

SOCIETIES: Society for the Study of Evolution
Society for Conservation Biology
American Association for the Advancement of Science
American Society of Ichthyologists and Herpetologists
American Fisheries Society
American Genetic Association
Desert Fishes Council
Montana Native Plant Society

TEACHING (last five years): Genetics and Evolution (Biol 223; lower-division)
Conservation Genetics (Biol 480; upper-division/grad)
Conservation Ecology (Biol 495; field course, Flathead Lake BioStation)
Advanced Population Genetics (Biol 595; graduate)
Micro- and Macro-Evolution (Biol 595; graduate)
Ecology and Buddhism (Environmental Studies 594; graduate)

CONSERVATION GENETIC BIBLIOGRAPHY:

I have compiled a bibliography focused on genetics and conservation that contains over 75,000 references. This bibliography is updated regularly can be searched at <http://www.lib.umt.edu/guide/allendorf.htm>. The primary focus of this bibliography is genetic variation in natural populations of animals, plants, and microbes. The secondary focus has been conservation, with an emphasis on the application of genetic principles to conservation. There is a

taxonomic bias towards fish, especially salmon, trout, and their kin. There has been no effort to exclude papers dealing with other taxa, but there has been an effort to include more papers on the general biology and natural history of salmonid fishes.

GRADUATE STUDENTS DIRECTED:

- Mitchell, N. J. 1977. Genetic variation in populations of *Peromyscus maniculatus* in northwestern Montana. M. A.
- Wishard (now Seeb), L. N. 1977. Larval growth in *Rana pretiosa*: Ecological and genetic factors. M.A.
- O'Malley, D. 1977. Inheritance of isozyme variation and heterozygosity in ponderosa pine. M. A., Botany.
- Daugherty, C.H. 1979. Population ecology and genetics of *Ascaphus truei*: An examination of gene flow and natural selection. Ph. D. (co-director).
- Phelps, S.R. 1980. Genetic population structure of the kokanee, *Oncorhynchus nerka*, in Flathead Lake, Montana. M. A.
- Woods, J.H. 1982. Amount and distribution of isozyme variation in ponderosa pine from eastern Montana. M. S., Forestry. (co-director).
- Aronson, M.E. 1985. Effect of the *Pgm1-t* regulatory gene on liver metabolism in rainbow trout. M. A.
- Danzmann, R.G. 1986. Biochemical genetics of developmental rates of rainbow trout. Ph. D.
- Ferguson, M.M. 1986. Gene regulation and developmental divergence in salmonid fishes. Ph. D.
- Leary, R.F. 1986. Genetic control of meristic variation in salmonid fishes. Ph. D.
- Everett, R.J. 1986. The population genetics of Arctic grayling (*Thymallus arcticus*) of Montana. M. A.
- Forbes, S.H. 1990. Mitochondrial and nuclear genotypes in trout hybrid swarms: tests for gametic equilibrium and effects on phenotypes. Ph. D.
- Gellman, W.A. 1991. Sex linkage of two isozyme loci in rainbow trout. M.A.
- Sage, G.K. 1993. Population genetic analysis of westslope cutthroat trout in the Bob Marshall Wilderness. M. A.
- Lee-Chadde, S. 1994. Genetic effects of supplementation on wild populations of salmon. M. A..
- Newman, D. 1996. Importance of genetic factors on fecundity and survival of small populations. Ph. D.
- Luikart, G. 1992. Conservation genetics and mtDNA variation in bighorn sheep. M. A.
1997. Usefulness of molecular markers for detecting population bottlenecks and monitoring genetic change. Ph. D.
- Kanda, N. 1998. Genetic population structure and conservation of bull trout (*Salvelinus confluentus*). Ph.D.
- Pilgrim, K. 1999. Identification of the sex-determining locus in pink salmon. M.A.
- Thelen, G. 1999. Heterozygosity and fitness in rainbow trout: Marker loci or chromosomal segments? M.A.
- Smithwick, P. 2000. Development of nuclear DNA markers to detect hybridization between cutthroat and rainbow trout. M.A.
- Tallmon, D. 1995. Genetics, metapopulation structure, and conservation of salmonid fishes. M.A.
2001. Ecological and genetic effects of forest fragmentation on California red-backed voles. Ph.D. (co-director)
- Powers, L. 2002. Population genetics of the freshwater mussel *Margaritifera falcata*. M.A.
- Hitt, N. 2002. Introgressive hybridization between westslope cutthroat trout and rainbow trout: the role of limiting factors in the Flathead River system, Montana. M.A. (co-director)
- Funk, W.C. 2004. Ph.D. Patterns and consequences of dispersal in Columbia spotted frogs (*Rana luteiventris*). (co-director).
- Whiteley, A.R. 2005. Ph.D. Genetic and morphological diversity in the mountain whitefish, *Prosopium williamsoni*. (co-director)
- Hastings, K. Ph.D. 2005. The biogeography of isolated headwater stream fish populations of the Alexander Archipelago. (co-director)
- Ramstad, K. 2006. Ph.D. Colonization and local adaptation of sockeye salmon (*Oncorhynchus nerka*) in Lake Clark, Alaska.
- Boyer, M. M.S. 2006. Rainbow trout invasion and the spread of hybridization with native westslope cutthroat trout.

Woolf, J. Ph.D. Current. Effects of forest-fire management on black-backed woodpecker population connectivity and habitat. (co-director)
 Gardipee, F. M.A. 2007. Development of fecal DNA sampling methods to assess genetic population structure of Greater Yellowstone Bison. (co-director)
 Ph.D. Current. Conservation genetics of American bison. (co-director)
 Machura, M. Ph.D. Current. Ecological genetics of boreal toads. (co-director)
 Tucker, J. MS. Current. Genetics population structure of Pacific fishers. (co-director)

POST-DOCTORAL RESEARCHERS DIRECTED:

Paul Spruell, 1995-2000, Conservation genetics of bull trout
 Eleanor Steinberg, 1999-2001, NSF Postdoctoral Research Fellowship in Biological Informatics
 John Wenburg, 2000-2001, Hybridization and conservation of trout species
 Megan McPhee, 2006-present, Sex chromosome evolution and life history variation in rainbow trout

SELECTED INTERNATIONAL ACTIVITIES:

1975-1976 Postdoctoral research, Department of Genetics and Ecology, Aarhus University, Denmark.
 Oct 1975 Visiting scientist, Department of Genetics, Stockholm University, Sweden.
 1977 Participating scientist, Biochemical investigations of the evolution of genes and enzymes (C. Markert, Yale University, P. I.). Aboard R.V. Alpha Helix in Caribbean Sea (Belize, Honduras, and Panama). Nov-Dec.
 1978-1979 NATO/NSF Postdoctoral Fellow, Laboratory of Professor Bryan Clarke, Genetics Research Unit, University of Nottingham, England.
 Sep 1978 Genetics Society of America Grant to attend XIV International Congress of Genetics, Moscow, USSR.
 1979 EMBO Short-term Fellow, Department of Genetics, Stockholm University, Stockholm, Sweden. May-Jun.
 Dec 1983 Genetics Society of America Grant to attend XV International Congress of Genetics, Delhi, India.
 Jan 1989 USDA supported visit to Republic of China (Taiwan) to confer and advise on genetics and conservation of biodiversity.
 Aug 1993 Organized workshop on Conservation Biology and Genetics at the XVII International Congress of Genetics, Birmingham, England.
 Nov 1994 Presented Keynote Address at Symposium in Fish Genetics and Breeding Science, Sendai, Japan
 Sep 1997 Presented Keynote Address at International Conference on Fish Migration. Vienna, Austria.
 Jan 1998 Presented invited seminars at the Swedish University of Agricultural Sciences, Umeå and Stockholm University, Sweden.
 Feb 1998 Presented invited seminars at Dept. Ecology & Genetics, Aarhus University, and Inland Fisheries Institute, Silkeborg, Denmark.
 Jun 1998 Presented invited papers in two symposia at the annual meeting of the Society for Conservation Biology. Sydney, Australia.
 Jul 1999 Presented invited paper at European Union sponsored meeting on conservation of brown trout. St. Feliu, Spain.
 Jul 1999 Presented invited seminars at University Joseph Fourier, Grenoble, France.
 2000-2001 Fulbright Senior Scholar, National Institute of Water and Atmospheric Research, Christchurch, and Victoria University of Wellington, New Zealand.
 Sep 2001 Conservation Genetics Meeting, Lausanne, Switzerland. Invited speaker.
 Sep 2001 Keynote speaker. 2nd Nordic International Symposium on Freshwater Fish Migration and Fish Passage. Reykjavik, Iceland.
 May 2002 Participant in workshop on the viability of the Scandinavian wolf population. Färna, Sweden.

- 1-3 May 2002.
- Sep 2002 Participant in Single Nucleotide Polymorphisms (SNPs) Workshop, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany
- Mar 2003 Erskine Fellow, University of Canterbury, Christchurch, New Zealand.
- Sep 2003 Keynote address, Exploitation and management of exotic and naturalized aquatic genetic resources in relation to native biodiversity. 24-26 September, 2003. Puerto Varas, Chile.
- May 2004 Keynote speaker, Conservation genetics workshop, Kasetsart University, Bangkok, Thailand
- May 2006 Keynote speaker, Conservation genetics workshop, Burapha University, Thailand

EDITED COLLECTIONS:

- Editor for special issue of the Journal of Heredity (Aug-Sep 1998) containing papers resulting from American Genetics Association Presidential Symposium (Conservation and Genetics of Marine Organisms).
- Editor for Special Section of Conservation Biology (Feb 2003; Population Biology of Invasive Species). These papers were presented in a symposium at the annual meeting of the Society for Conservation Biology in Hilo, Hawaii, 2001.

BOOKS:

- Allendorf, F.W., and G. Luikart. 2007. *Conservation and the Genetics of Populations*. Blackwell Publishing. 642 pp.
- National Research Council. 1996. *Upstream: Salmon and Society in the Pacific Northwest*. Member of NRC's Committee on Protection and Management of Pacific Northwest Anadromous Salmonids.

BOOK CHAPTERS:

- Utter, F.M., H.O. Hodgins, F.W. Allendorf, A.G. Johnson, and J.L. Mighell. 1973. Biochemical variants in Pacific salmon and rainbow trout: their inheritance and application in population studies. In: *Genetics and Mutagenesis of Fish*, pp. 329-339. Springer-Verlag, Berlin.
- Utter, F.M., H.O. Hodgins, and F.W. Allendorf. 1974. Biochemical genetic studies of fishes: potentialities and limitations. In: *Biochemical and Biophysical Perspectives in Marine Biology*, Vol. 1, pp. 213-238.
- Allendorf, F.W., F.M. Utter, and B.P. May. 1975. Gene duplication in the family Salmonidae: II. Detection and determination of the genetic control of duplicate loci through inheritance studies and the examination of populations. In: *Isozymes IV: Genetics and Evolution*, pp. 415-432. Clement L. Markert, editor. Academic Press, New York.
- Allendorf, F.W., and F.M. Utter. 1979. Population genetics. In: *Fish Physiology*, Volume 8, pp. 407-454. W.S. Hoar, D.J. Randall, and J.R. Brett, editors. Academic Press, New York.
- Allendorf, F.W., R.F. Leary, and K.L. Knudsen. 1983. Structural and regulatory variation of phosphoglucosmutase in rainbow trout. In: *Isozymes: Current Topics in Biological and Medical Research*, Vol. 9, pp. 123-142. Alan R. Liss Publ. Co., N.Y.
- Allendorf, F.W. 1983. Isolation, gene flow, and genetic differentiation among populations. In: *Genetics and Conservation*, edited by C. Schonewald-Cox, et al. Benjamin/Cummings. pp. 51-65.
- Allendorf, F.W., and G. Thorgaard. 1984. Tetraploidy and the evolution of salmonid fishes. In: *The Evolutionary Genetics of Fishes*, B.J. Turner, ed., Plenum Press, pp. 1-53.
- Allendorf, F.W., and R.F. Leary. 1986. Heterozygosity and fitness in natural populations of animals. In: *Conservation Biology: The Science of Scarcity and Diversity*. M. Soulé, editor. Sinauer Assoc. pp. 57-76.
- Allendorf, F.W., N. Ryman, and F.M. Utter. 1987. Genetics and fishery management: Past, present, and future. In: *Population Genetics and Fisheries Management*, edited by N. Ryman and F.M. Utter. University of Washington Press, pp. 1-19.
- Allendorf, F.W., and N. Ryman. 1987. Genetic management of hatchery stocks. In: *Population Genetics and*

- Fisheries Management, edited by N. Ryman and F.M. Utter. University of Washington Press, pp. 141-159.
- Thorgaard, G.H., and F. W. Allendorf. 1988. Developmental genetics of fishes. In: *Developmental Genetics of Animals and Plants*, edited by G. M. Malacinski. Macmillan Publishing Company, pp. 363-391.
- Powers, D.A., F.W. Allendorf, and T. Chen. 1990. Application of molecular techniques to the study of marine recruitment problems. In: *Large Marine Ecosystems: Patterns, Processes, and Yields*, ed. by K. Sherman, L.M. Alexander, and B.D. Gold. Amer. Assoc. Advancement Sci., pp. 104-121.
- Allendorf, F.W., and M.M. Ferguson. 1990. Genetics. In: *Methods for Fish Biology*, edited by C.B. Schreck and P.B. Moyle. Amer. Fish. Soc., Bethesda, Maryland, pp. 35-63.
- Ferguson, M.M., and F.W. Allendorf. 1991. Evolution of the fish genome. In: *Biochemistry and Molecular Biology of Fishes*, edited by P.W. Hochachka and T.P. Mommsen. Elsevier. pp. 25-42.
- Allendorf, F. W., R. J. Everett, A. J. Gharrett, M. K. Glubokovsky, W. Jones, T. P. Quinn, J. E. Smoker W. Seeb, and F. M. Utter. 1992. Biological interactions of wild enhanced stocks of salmon in Alaska: Genetic considerations. In Mathisen, O. A. and G. L. Thomas, eds. *Biological Interactions of Wild Enhanced Stocks of Salmon in Alaska*. Juneau Center Fish. and Ocean. Sciences Publ. 9201,
- Allendorf, F.W., and R.S. Waples. 1996. Conservation and genetics of salmonid fishes. In: *Conservation Genetics: Case Histories from Nature*, edited by J.C. Avise and J.L. Hamrick. Chapman & Hall. pp. 238-280.
- Allendorf, F.W. 1997. Genetics and demography of grizzly bear populations. In: *Principles of Conservation Biology*, Second Edition, by G K. Meffe and C.R. Carroll. Sinauer Associates. pp. 174-175.
- Allendorf, F. W., and N. Ryman. 2002. The role of genetics in population viability analysis. In: *Population Viability Analysis*. S. R. Beissinger and D. R. McCullough, editors. University of Chicago Press, Chicago, Illinois. pp. 50-85.
- Allendorf, F.W., C.R. Miller, and L.P. Waits. 2005. Genetics and demography of grizzly bear populations. In: *Principles of Conservation Biology*, Third Edition, by M.J. Groom, G K. Meffe, and C.R. Carroll. Sinauer Associates. pp. 404-407.
- Haig, S.M., and F.W. Allendorf. 2006. Hybrids and policy. In: *The Endangered Species Act at Thirty: Conserving Biodiversity in Human-Dominated Landscapes*, Vol. 2. J.M. Scott, D.D. Goble, and F. Davis, editors. Island Press. pp. 150-163.

ARTICLES:

- Heckman, J.R., F.W. Allendorf, and J.E. Wright, Jr. 1971. Trout leukocytes: growth in oxygenated cultures. *Science* 173:246-247.
- Allendorf, F.W., and F.M. Utter. 1973. Gene duplication in the family Salmonidae: disomic inheritance of two loci reported to be tetrasomic in rainbow trout. *Genetics* 74:647-654.
- Utter, F.M., F.W. Allendorf, H.O. Hodgins, and A.G. Johnson. 1973. Genetic basis of tetrazolium oxidase phenotypes in rainbow trout. *Genetics* 73:159.
- Utter, F.M., F.W. Allendorf, and H.O. Hodgins. 1973. Genetic variability and relationships in Pacific salmon and related trout based on protein variations. *Syst. Zool.* 22:257-270.
- Allendorf, F.W., F.M. Utter, and B.P. May. 1975. Gene duplication in the family Salmonidae: II. Detection and determination of the genetic control of populations. In *Isozymes IV: Genetics and Evolution*, pp. 415-432. C. L. Markert, editor. Academic Press, New York.
- May, B.P., F.M. Utter, and F.W. Allendorf. 1975. Biochemical genetic variation in pink and chum salmon: inheritance of intraspecies variation and apparent absence of interspecies introgression following massive hybridization of hatchery stocks. *J. Hered.* 66:227-232.
- Allendorf, F.W., and F.M. Utter. 1976. Gene duplication in the family Salmonidae: III. Linkage between two duplicated loci coding for aspartate aminotransferase in the cutthroat trout. *Hereditas* 82:19-24.
- Allendorf, F.W., N. Ryman, A. Stenneck, and G. Ståhl. 1976. Genetic variation in Scandinavian populations of brown trout: Evidence of distinct sympatric populations. *Hereditas* 83:73-82.
- Utter, F.M., F.W. Allendorf, and B.P. May. 1976. The use of protein variation in the management of salmonid populations. *Trans. 41st North American Wildlife and Natural Resources Conference*. pp. 373-384.

- Utter, F.M., F.W. Allendorf, and B.P. May. 1976. Genetic delineation of salmonid populations. In: *Salmonid Genetics: Status and Role in Aquaculture*. T. Noshov and W. Hershberger, editors. University of Washington Sea Grant Publication.
- Allendorf, F.W., N.J. Mitchell, N. Ryman, and G. Ståhl. 1977. Isozyme loci in brown trout (*Salmo trutta*): Detection and interpretation from population data. *Hereditas* 86:179-190.
- Allendorf, F.W. 1977. Genetic variation in populations of fish. In: *Fish Genetics-Fundamentals and Implications to Fish Management*, pp. 35-39. C.M. Fetterhoff, editor. Great Lakes Fishery Commission, Mich.
- Utter, F.M., and F.W. Allendorf. 1977. Determination of the breeding structure of steelhead trout (*Salmo gairdneri*) populations through gene frequency analysis. *Calif. Coop. Fish. Res. Unit Special Report* 77-1:44-54.
- Allendorf, F.W. 1977. Electromorphs or alleles? *Genetics* 87:821-822.
- Allendorf, F.W. 1978. Electrophoretic distinction of rainbow trout (*Salmo gairdneri*) and cutthroat trout (*S. clarki*). Letter to the editor. *J. Fisheries Res. Bd. Canada* 35:483.
- Allendorf, F.W. 1978. Protein polymorphism and the rate of loss of duplicate gene expression. *Nature* 272:76-78.
- Utter, F.M., F.W. Allendorf, and B. May. 1979. Genetic basis of creatine kinase isozymes in skeletal muscle of salmonid fishes. *Biochem. Genet.* 17:1079-1091.
- Ryman, N., F.W. Allendorf, and G. Ståhl. 1979. Reproductive isolation with little genetic divergence in sympatric populations of brown trout (*Salmo trutta*). *Genetics* 92:247-262.
- O'Malley, D.M., F.W. Allendorf, and G.M. Blake. 1979. Inheritance of isozyme variation and heterozygosity in *Pinus ponderosa*. *Biochem. Genet.* 17:233-250.
- Clarke, B., and F.W. Allendorf. 1979. Frequency-dependent selection due to kinetic differences between allozymes. *Nature* 279:732-734.
- Allendorf, F.W., F.B. Christiansen, T. Dobson, W.F. Eanes, and O. Frydenberg. 1979. Electrophoretic variation in large mammals. I. The polar bear, *Thalarctos maritimus*. *Hereditas* 91:19-22.
- Allendorf, F.W. 1979. Rapid loss of duplicate gene expression by natural selection. *Heredity* 43:247-259.
- Allendorf, F.W. 1979. Protein polymorphism and the rate of loss of duplicate gene expression, a reply. *Nature* 279:456.
- Allendorf, F.W., D.M. Espeland, D.T. Scow, and S.R. Phelps. 1980. Coexistence of native and introduced rainbow trout in the Kootenai River drainage. *Proc. Montana Acad. Sciences* 39:28-36.
- Allendorf, F.W., and S.R. Phelps. 1980. Loss of genetic variation in a hatchery stock of cutthroat trout. *Trans. Amer. Fish. Soc.* 109:537-543.
- Allendorf, F.W., and S.R. Phelps. 1981. Use of allelic frequencies to describe population structure. *Canadian Journal of Fisheries and Aquatic Sciences* 38:1507-1514.
- Krueger, C.C., A. 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.
- Allendorf, F.W., and S.R. Phelps. 1982. Isozymes and the preservation of genetic variation in salmonid fishes. *Ecological Bulletin (Stockholm)* 34:37-52.
- Allendorf, F.W., K.L. Knudsen, and G.M. Blake. 1982. Frequencies of null alleles at enzyme loci in natural populations of ponderosa and red pine. *Genetics* 100:497-504.
- Phelps, S.R., and F.W. Allendorf. 1982. Genetic comparison of upper Missouri River cutthroat trout to other *Salmo clarki lewisi* populations. *Proc. Mont. Acad. Sci.* 41:14-22.
- Allendorf, F.W., K.L. Knudsen, and S.R. Phelps. 1982. Identification of a gene regulating the tissue expression of a phosphoglucosyltransferase locus in rainbow trout. *Genetics* 102:259-268.
- Simonsen, V., F.W. Allendorf, W.F. Eanes, and F.O. Kapel. 1982. Electrophoretic variation in large mammals: III. The ringed seal, the harp seal, and the hooded seal. *Hereditas* 97:87-90.
- Phelps, S.R., and F.W. Allendorf. 1983. Genetic identity of pallid and shovelnose sturgeon (*Scaphirhynchus albus* and *S. platyrhynchus*). *Copeia* 1983(3):696-700.
- Allendorf, F.W. 1983. Linkage disequilibrium generated by selection against null alleles at duplicate loci. *American Naturalist* 121:588-592.
- Daugherty, C.H., F.W. Allendorf, W.W. Dunlap, and K.L. Knudsen. 1983. Systematic implications of

- geographic patterns of genetic variation in the genus *Dicamptodon*. *Copeia* 1983(3):679-691.
- Woods, J.H., G.M. Blake, and F.W. Allendorf. 1983. Amount and distribution of isozyme variation in ponderosa pine from eastern Montana. *Silvae Genetica* 32:151-157.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1983. Developmental stability and enzyme heterozygosity in rainbow trout. *Nature* 301:71-72.
- Thorgaard, G.H., F.W. Allendorf, and K.L. Knudsen. 1983. Gene-centromere mapping in rainbow trout: High interference over long map distances. *Genetics* 103:771-783.
- Allendorf, F.W., K.L. Knudsen, and R.F. Leary. 1983. Adaptive significance of differences in the tissue-specific expression of a phosphoglucomutase gene in rainbow trout. *Proc. Nat. Acad. Sci. USA* 80:1397-1400.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1983. Consistently high meristic counts in natural hybrids between brook trout and bull trout. *Syst. Zool.* 32:369-376.
- Allendorf, F.W., G. Ståhl, and N. Ryman. 1984. Silencing of duplicate genes: Evidence for a common null allele polymorphism for lactate dehydrogenase in brown trout (*Salmo trutta*). *Molecular Biology and Evolution* 1:238-248.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1984. Major morphological effects of a regulatory gene: *Pgm1-t* in rainbow trout. *Molecular Biology and Evolution* 1:183-194.
- Leary, R.F., F.W. Allendorf, S.R. Phelps, and K.L. Knudsen. 1984. Introgression between westslope cutthroat and rainbow trout in the Clark Fork River drainage, Montana. *Proc. Montana Acad. Sci.* 43:1-18.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1984. Superior developmental stability of enzyme heterozygotes in salmonid fishes. *American Naturalist* 124:540-551.
- Allendorf, F.W., and R.F. Leary. 1984. Heterozygosity in gynogenetic diploids and triploids estimated by gene-centromere recombination rates. *Aquaculture* 43:413-420.
- Woods, J.H., G.M. Blake, and F.W. Allendorf. 1984. Using isozyme analysis to aid in selecting ponderosa pine for coal mine spoil reclamation. *Northwest Science* 58:262-268.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1985. Developmental instability as an genetic variation in hatchery trout. *Trans. Amer. Fish. Soc.* 114:230-235.
- Leary, R.F., F.W. Allendorf, K.L. Knudsen, and G.H. Thorgaard. 1985. Heterozygosity and developmental stability in gynogenetic diploid and triploid rainbow trout. *Heredity* 54:219-225.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1985. Inheritance of meristic variation and the evolution of developmental stability in rainbow trout. *Evolution* 39:308-314.
- Danzmann, R.G., M.M. Ferguson, and F.W. Allendorf. 1985. Allelic differences in initial expression of paternal alleles at an isocitrate dehydrogenase locus in rainbow trout. *Developmental Genetics* 5:117-127.
- Ferguson, M.M., R.G. Danzmann, and F.W. Allendorf. 1985. Developmental divergence among hatchery strains of rainbow trout (*Salmo gairdneri*). I. Pure strains. *Can. J. Genet. and Cytol.* 27:289-297.
- Ferguson, M.M., R.G. Danzmann, and F.W. Allendorf. 1985. Developmental divergence among hatchery strains of rainbow trout (*Salmo gairdneri*). II. Hybrids. *Can. J. Genet. and Cytol.* 27:298-307.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1985. Developmental instability and high meristic counts in interspecific hybrids of salmonid fishes. *Evolution* 39:1318-1326.
- Gyllensten, U., R.F. Leary, F.W. Allendorf, and A.C. Wilson. 1985. Introgression between two cutthroat trout subspecies with substantial karyotypic, nuclear, and mitochondrial genomic divergence. *Genetics* 111:905-915.
- Ferguson, M.M., R.G. Danzmann, and F.W. Allendorf. 1985. Absence of developmental incompatibility in hybrids between rainbow trout and two subspecies of cutthroat trout. *Biochemical Genetics* 23:557-570.
- Danzmann, R.G., M.M. Ferguson, and F.W. Allendorf. 1985. Does enzyme heterozygosity influence developmental rate in rainbow trout? *Heredity* 56:417-425.
- Hedrick, P.W., P.F. Brussard, F.W. Allendorf, J. Beardmore, and S. Orzak. 1986. Protein variation, fitness, and captive propagation. *Zoo Biology* 5:91-100.
- Allendorf, F.W. 1986. Genetic drift and the loss of alleles versus heterozygosity. *Zoo Biology* 5:181-190.
- Danzmann, R.G., M.M. Ferguson, and F.W. Allendorf. 1986. Heterozygosity and developmental rate in a strain of rainbow trout. *Evolution* 40:86-93.

- Scheerer, P.D., G.H. Thorgaard, F.W. Allendorf, and K.L. Knudsen. 1986. Androgenetic rainbow trout produced from inbred and outbred sperm sources show similar survival. *Aquaculture* 57:289-298.
- Allendorf, F.W., J.E. Seeb, K.L. Knudsen, G.H. Thorgaard, and R.F. Leary. 1986. Gene-centromere mapping of 25 loci in rainbow trout. *J. Heredity* 77:307-312.
- Allendorf, F.W., and C. Servheen. 1986. Conservation genetics of grizzly bears. *Trends in Ecology and Evolution* 1:88-89.
- Danzmann, R.G., M.M. Ferguson, and F.W. Allendorf. 1987. Heterozygosity and oxygen consumption rate as predictors of growth and developmental rate in rainbow trout. *Physiol. Zool.* 60:211-220.
- Marnell, L.F., R.J. Behnke, and F.W. Allendorf. 1987. Genetic identification of the cutthroat trout (*Salmo clarki*) in Glacier National Park, Montana. *Can. J. Fish. Aquat. Sci.* 44:1830-1839.
- Leary, R.F., F.W. Allendorf, S.R. Phelps, and K.L. Knudsen. 1987. Genetic divergence and identification of seven subspecies of cutthroat trout and rainbow trout. *Trans. Amer. Fish. Soc.* 116:580-587.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1987. Differences in inbreeding coefficients do not explain the association between heterozygosity at isozyme loci and developmental stability in rainbow trout. *Evolution* 41:1413-1415.
- Ferguson, M.M., R.G. Danzmann, and F. W. Allendorf. 1987. Adaptive significance of developmental rate in rainbow trout: an experimental test. *Biol. J. Linnean Soc.* 33:205-216.
- Leary, R.F., F.W. Allendorf, S.R. Phelps, and K.L. Knudsen. 1988. Population genetic structure of westslope cutthroat trout: Genetic variation within and among populations. *Proc. Montana Acad. Sci.* 48:57-70.
- Danzmann, R. G., M. M. Ferguson, and F. W. Allendorf. 1988. Heterozygosity and components of fitness in a strain of rainbow trout. *Biol. J. Linnean Soc.* 33:285-304.
- Ferguson, M.M., K. L. Knudsen, R. G. Danzmann, and F. W. Allendorf. 1988. Developmental rate and viability of rainbow trout with a null allele at a lactate dehydrogenase locus. *Biochem. Genet.* 26:177-189.
- Ferguson, M.M., R.G. Danzmann, and F.W. Allendorf. 1988. Developmental success of hybrids between two taxa of salmonid fishes with moderate structural gene divergence. *Can. J. Zool.* 66:1389-1395.
- Allendorf, F.W., and R.F. Leary. 1988. Conservation and distribution of genetic variation in a polytypic species, the cutthroat trout. *Conservation Biology* 2:170-184.
- Allendorf, F. W. 1988. Conservation biology of fishes. *Conservation Biology* 2:145-148.
- Lesica, P., R.F. Leary, F.W. Allendorf, and D.E. Bilderback. 1988. Lack of genic diversity within and among populations of an endangered plant, *Howellia aquatilis*. *Conservation Biology* 2:275-282.
- Harris, R.B., and F. W. Allendorf. 1989. Genetically effective population size of large mammals: Assessment of estimators. *Conservation Biology* 3:181-191.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1989. Genetic differences among rainbow trout spawned on different days within a single spawning season. *Progressive Fish-Culturist* 51:10-19.
- Leary, R.F., and F.W. Allendorf. 1989. Fluctuating asymmetry as an indicator of stress: Implications for conservation biology. *Trends Ecol. Evol.* 4:214-217.
- Shaklee, J.B., F.W. Allendorf, D.C. Morizot, and G.S. Whitt. 1989. Genetic nomenclature for protein-coding loci in fish: proposed guidelines. *Trans. Amer. Fish. Soc.* 118:218-227.
- Danzmann, R. G., M.M. Ferguson, and F.W. Allendorf. 1989. Genetic variability and components of fitness in hatchery strains of rainbow trout. *J. Fish Biol.* 35 (Suppl. A):313-320.
- Ferguson, M.M., R.G. Danzmann, F.W. Allendorf, and K.L. Knudsen. 1990. Metabolic effects of the expression of a phosphoglucosmutase locus in the liver of rainbow trout. *Canad. J. Zool.* 68:1499-1504.
- Shaklee, J.B., F.W. Allendorf, D.C. Morizot, and G.S. Whitt. 1990. Gene nomenclature system for protein-coding loci in fish. *Trans. Amer. Fish. Soc.* 119:2-15.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1991. Effects of rearing density on meristics and developmental stability of rainbow trout. *Copeia* 1991(1):44-49.
- Forbes, S.H., and F.W. Allendorf. 1991. Associations between mitochondrial and nuclear genotypes in cutthroat trout hybrid swarms. *Evolution* 45:1332-1349.
- Forbes, S.H., and F.W. Allendorf. 1991. Mitochondrial genotypes have no detectable phenotypic effects in cutthroat trout hybrid swarms. *Evolution* 45:1350-1359.

- Allendorf, F.W. 1991. Ecological and genetic effects of fish introductions: Synthesis and recommendations. *Canadian J. Fish. and Aquatic Sciences* 48 (Suppl. 1):178-181.
- Scheerer, P.D., G.H. Thorgaard, and F.W. Allendorf. 1991. Genetic analysis of androgenetic rainbow trout. *J. Exp. Zool.* 260:382-390.
- Campton, D.E., F.W. Allendorf, R.J. Behnke, and F.M. Utter. 1991. Reproductive success of hatchery and wild steelhead: A reanalysis. *Trans. Amer. Fish. Soc.* 120:816-822.
- Allendorf, F.W., R.B. Harris, and L.H. Metzgar. 1991. Estimation of effective population size of grizzly bears by computer simulation. *Proceedings Fourth International Congress of Systematics and Evolutionary Biology*, pp. 650-654. Dioscorides Press, OR.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1992. Genetic, environmental, and developmental causes of meristic variation in rainbow trout. *Acta Zoologica Fennica* 191:77-93.
- Lesica, P., and F.W. Allendorf. 1992. Are small populations of plants worth protecting? *Conservation Biology* 6:135-139.
- Allendorf, F.W. 1993. Delay of adaptation to captive breeding by equalizing family size. *Conservation Biology* 7:416-419.
- Ryman, N., F. Utter, F.W. Allendorf, C. Busack, and J. Shaklee. 1993. Genetic concerns about hatchery populations - A comment on conclusions of Nyman and Ring. *J. Fish Biology* 42:471-480.
- Leary, R.F., F.W. Allendorf, and S.H. Forbes. 1993. Conservation genetics of bull trout in the Columbia and Klamath River drainages. *Conservation Biology* 7:856-865.
- Leary, R.F., F.W. Allendorf, and K.L. Knudsen. 1993. Null allele heterozygotes at two lactate dehydrogenase loci in rainbow trout are associated with decreased developmental stability. *Genetica* 89:3-13.
- Allendorf, F. W., W. A. Gellman, and G. H. Thorgaard. 1994. Sex linkage of two enzyme loci in rainbow trout. *Heredity* 72:498-507.
- Forbes, S.H., K.L. Knudsen, T. W. North, and F.W. Allendorf. 1994. One of two growth hormone genes in coho salmon is sex-linked. *Proc. Nat. Acad. Sci. USA.* 91:1628-1631.
- Allendorf, F.W. 1994. Comparative utility of genetic markers in the management of Pacific salmon: proteins, nuclear DNA, and mitochondrial DNA. NOAA Technical Memorandum NMFS-NWFSC-17, pp. 127-133.
- Forbes, S.H., K.L. Knudsen, and F.W. Allendorf. 1994. Genetic variation in coho salmon detected by PCR amplification of growth hormone gene introns. NOAA Tech. Mem. NMFS-NWFSC-17, pp. 29-33.
- Utter, F.M., and F. W. Allendorf. 1994. Phylogenetic relationships among species of *Oncorhynchus*: A consensus view. *Conservation Biology* 8:864-867.
- Leary, R.F., F.W. Allendorf, and G.K. Sage. 1995. Hybridization and introgression between introduced and native fish. *Amer. Fish. Soc. Symposium* 15:91-101.
- Allendorf, F.W. 1995. Genetics: Defining the units of conservation. *Amer. Fish. Soc. Symposium* 17:247-248.
- Lesica, P.L., and F.W. Allendorf. 1995. When are peripheral populations valuable for conservation? *Conservation Biology* 9:753-760.
- Allendorf, F.W., and N. Kanda. 1995. Genetics and the conservation of salmonid fishes in western North America and Japan. *Fish Genetics and Breeding Science (Japan)* 21:79-102.
- Forbes, S.H., J.T. Hogg, F.C. Buchanan, A.M. Crawford, and F.W. Allendorf. 1995. Microsatellite evolution in congeneric mammals: Domestic and bighorn sheep. *Molec. Biol. Evol.* 12:1106-1113.
- Luikart, G., and F.W. Allendorf. 1996. Mitochondrial-DNA variation and genetic-population structure in Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*). *J. Mammal.* 77:109-123.
- Mills, L.S., and F.W. Allendorf. 1996. The one-migrant-per-generation rule in conservation and management. *Conservation Biology* 10:1509-1518.
- Hedrick, P., R. Lacy, F.W. Allendorf, and M. Soulé. 1996. Directions in conservation biology: Comments on Caughley. *Conservation Biology* 10:1312-1320.
- Allendorf, F.W., and R. G. Danzmann. 1997. Secondary tetrasomic segregation of *MDH-B* and preferential pairing of homeologues in male rainbow trout. *Genetics* 145:1083-1092.
- Allendorf, F.W., D. Bayles, D.L. Bottom, K.P. Currens, C.A. Frissell, D. Hankin, J. A. Lichatowich, W. Nehlsen,

- P.C. Trotter, and T.H. Williams. 1997. Prioritizing Pacific salmon stocks for conservation. *Conservation Biology* 11:140-152.
- Leary, R.F., and F.W. Allendorf. 1997. Genetic confirmation of sympatric bull trout and Dolly Varden in western Washington. *Trans. Amer. Fish. Soc.* 126:715-720.
- Kanda, N., R.F. Leary, and F.W. Allendorf. 1997. Population genetic structure of bull trout in the Upper Flathead River drainage. Pages 299-308, *Proceedings, Friends of the Bull Trout Conference*. Trout Unlimited, Calgary, Alberta.
- Allendorf, F.W. 1997. The conservation biologist as Zen student. *Conservation Biology* 11:1045-1046.
- Luikart, G., F.W. Allendorf, J-M. Cornuet, and W.B. Sherwin. 1998. Distortion of allele frequency distributions provides a test for recent population bottlenecks. *J. Heredity* 89:238-247.
- Allendorf, F.W., and B. Byers. 1998. Salmon in the net of Indra: A Buddhist view of nature and communities. *Worldviews: Environment, Culture, Religion* 2:37-52.
- Luikart, G., W.B. Sherwin, B.M. Steele, and F.W. Allendorf. 1998. Usefulness of molecular markers for detecting population bottlenecks via monitoring genetic change. *Molecular Ecology* 7:963-974.
- Currens, K. P., F. W. Allendorf, D. Bayles, D. L. Bottom, C. A. Frissell, D. Hankin, J. A. Lichatowich, P. C. Trotter, and T. A. Williams. 1998. Conservation of Pacific salmon: Response to Wainwright and Waples. *Conservation Biology* 12:1148-1149.
- Hodges, M., and F.W. Allendorf. 1998. Population genetics and the pattern of larval dispersal of the endemic Hawaiian freshwater amphidromous gastropod *Neritina granosa*. *Pacific Science* 52:237-249.
- Luikart, G., J-M. Cornuet, and F.W. Allendorf. 1998. Temporal changes in allele frequencies provide useful estimates of population bottleneck size. *Conservation Biology* 13:523-530.
- Lesica, P., and F.W. Allendorf. 1999. Ecological genetics and the restoration of plant communities: mix or match? *Restoration Ecology* 7:42-50.
- Spruell, P., B.A. Greene, C. Habicht, K.L. Knudsen, K.R. Lindner, J.B. Olsen, K.L. Pilgrim, G.K. Sage, J.E. Seeb, and F.W. Allendorf. 1999. Inheritance of nuclear DNA markers in gynogenetic haploid pink salmon (*Oncorhynchus gorbuscha*). *Journal of Heredity* 90:289-296.
- Hughes, J.M., P.B. Mather, A.L. Sheldon, and F.W. Allendorf. 1999. Genetic structure of the stonefly, *Yoraperla brevis*, populations: the amount of gene flow among adjacent montane streams. *Freshwater Biol.* 41:63-72.
- Spruell, P., B.E. Rieman, K.L. Knudsen, F.M. Utter, and F.W. Allendorf. 1999. Genetic population structure within streams: Microsatellite analysis of bull trout populations. *Ecology Freshwater Fish* 8:114-121.
- Funk, W.C., D.A. Tallmon, and F.W. Allendorf. 1999. Small effective population size in the long-toed salamander. *Molecular Ecology* 8:1633-1640.
- Tallmon, D.A., W.C. Funk, W.W. Dunlap, and F.W. Allendorf. 2000. Genetic differentiation among long-toed salamander (*Ambystoma macrodactylum*) populations. *Copeia* 2000:27-35.
- Allendorf, F.W., and L.W. Seeb. 2000. Concordance of genetic divergence among sockeye salmon populations at allozyme, nuclear DNA, and mtDNA markers. *Evolution* 54:640-651.
- Lindner, K.R., J. E. Seeb, C. Habicht, E. Kretschmer, D. J. Reedy, P. Spruell, and F. W. Allendorf. 2000. Gene-centromere mapping of 312 marker loci in pink salmon by half-tetrad analysis. *Genome* 43:538-549.
- Gemmell, N. J., and F. W. Allendorf. 2001. Mitochondrial mutations may decrease population viability. *Trends Ecol. Evol.* 16:115-117.
- Allendorf, F.W., P. Spruell, and F.M. Utter. 2001. Whirling disease and wild trout: Darwinian fisheries management. *Fisheries* 26(5):27-29.
- Boyd, D.K., S.H. Forbes, D.H. Pletscher, and F.W. Allendorf. 2001. Identification of Rocky Mountain gray wolves. *Wildlife Society Bulletin* 29:78-85.
- Kanda, N., and F.W. Allendorf. 2001. Genetic population structure of bull trout from the Flathead River basin as shown by microsatellites and mitochondrial DNA markers. *Trans. Amer. Fish. Soc.* 130:92-106.
- Thelen, G.C., and F. W. Allendorf. 2001. Heterozygosity-fitness correlations in rainbow trout: effects of allozyme loci or associative overdominance? *Evolution* 55:1180-1187.
- Rieman, B., and F.W. Allendorf. 2001. Effective population size and genetic conservation criteria for bull trout. *N.A. Jour. Fish. Management* 21:756-764.

- Sakai, A.K., F.W. Allendorf, J.S. Holt, D.M. Lodge, J. Molofsky, K.A. With, S. Baughman, R.J. Cabin, J.E. Cohen, N.C. Ellstrand, D.E. McCauley, P. O'Neal, I. M. Parker, J.N. Thompson, and S.G. Weller. 2001. The population biology of invasive species. *Annu. Rev. Ecol. Syst.* 32:305-332.
- Allendorf, F.W., R.F. Leary, P. Spruell, and J.K. Wenburg. 2001. The problems with hybrids: Setting conservation guidelines. *Trends Ecol. Evol.* 16:613-622.
- Allendorf, F.W., P. Spruell, and F.M. Utter. 2001. Response. Whirling disease and wild trout. *Letter. Fisheries* 26(8):36.
- Spruell, P.S., M.L. Bartron, N. Kanda, and F.W. Allendorf. 2001. Detection of hybrids between bull trout (*Salvelinus confluentus*) and brook trout (*S. fontinalis*) using PCR primers complementary to interspersed nuclear elements. *Copeia* 2001:1093-1099.
- Kanda, N., R.F. Leary, P. Spruell, and F.W. Allendorf. 2002. Molecular genetic markers identifying hybridization between Colorado River cutthroat trout and Yellowstone cutthroat trout or rainbow trout. *Trans. Amer. Fish. Soc.* 130:312-319.
- Kanda, N., R.F. Leary, and F.W. Allendorf. 2002. Evidence of introgressive hybridization between bull trout and brook trout. *Trans. Amer. Fish. Soc.* 131:772-782.
- Daugherty, C.H., and F. W. Allendorf. 2002. The numbers that really matter (Editorial). *Conservation Biology* 16:283-284.
- Schwartz, M.K., L.S. Mills, K.S. McKelvey, L.F. Ruggiero, and F.W. Allendorf. 2002. DNA reveals high dispersal synchronizing the population dynamics of Canada lynx. *Nature* 415:520-522.
- Tallmon, D.A., H.M. Draheim, L. S. Mills, and F.W. Allendorf. 2002. Insights into recently fragmented vole populations from combined genetic and demographic data. *Molec. Ecology* 11:699-709.
- Steinberg, E. K., K. R. Lindner, J. Gallea, A. Maxwell, J. Meng, and F. W. Allendorf. 2002. Rates and patterns of microsatellite mutations in pink salmon. *Molecular Biology and Evolution* 19:1198-1202.
- Harris, R.B., W.A. Wall, and F.W. Allendorf. 2002. Genetic consequences of hunting: what do we know and what should we do? *Wildlife Society Bulletin* 30:634-643.
- Spruell, P., A.R. Hemmingsen, P.J. Howell, N. Kanda, and F.W. Allendorf. 2003. Conservation genetics of bull trout: Geographic distribution of variation at microsatellite loci. *Conservation Genetics* 4:17-29.
- Nichols, K.M., and 18 additional authors. 2003. A consolidated genetic linkage map for rainbow trout (*Oncorhynchus mykiss*). *Animal Genetics* 34:102-115.
- Allendorf, F.W., and L.L. Lundquist. 2003. Population biology, evolution, and control of invasive species. *Conservation Biology* 17:24-30.
- Schwartz, M.K., L.S. Mills, Y. Ortega, F. Ruggiero, and F.W. Allendorf. 2003. Landscape location affects genetic variation of Canada lynx (*Lynx canadensis*). *Molec. Ecol.* 12:1807-1816.
- Hitt, N.P., C.A. Frissell, C. Muhlfeld, and F.W. Allendorf. 2003. Spread of hybridization between native westslope cutthroat trout, *Oncorhynchus clarki lewisi*, and non-native rainbow trout, *O. mykiss*. *Canadian J. Fish. Aquat. Sci.* 60:1440-1451.
- Ramstad, K.M., C.A. Woody, C.A., G. K. Sage, and F. W. Allendorf. 2004. Founding events influence genetic population structure of sockeye salmon (*Oncorhynchus nerka*) in Lake Clark, Alaska. *Molec. Ecol.* 13:277-290.
- Morin, P., G. Luikart, R.K. Wayne, and the SNP workshop group (F. W. Allendorf, C. F. Aquadro, T. Axelsson, M. Beaumont, K. Chambers, G. Durstewitz, T. Mitchell-Olds, P. J. Palsbøll, H. Poinar, M. Przeworski, B. Taylor and J. Wakeley). 2004. SNPs in ecology, evolution, and conservation. *Trends in Ecol. Evol.* 19:208-216.
- Marshall, A., K.L. Knudsen, and F.W. Allendorf. 2004. Linkage disequilibrium between the pseudoautosomal *PEPB-1* locus and the sex determining region in chinook salmon. *Heredity* 92:85-97.
- Gemmell, N.J., V. Metcalf, and F.W. Allendorf. 2004. Mother's curse: The role of mtDNA in population viability. *Trends in Ecol. Evol.* 19:238-244.
- Allendorf, F.W., R.F. Leary, N.P. Hitt, K.L. Knudsen, L.L. Lundquist, and P. Spruell. 2004. Intercrosses and the U.S. Endangered Species Act: should hybridized populations be included as westslope cutthroat trout? *Conservation Biology* 18:1203-1213.

- Funk, W.C., Tyburczy, J.A., Knudsen, K.L., Lindner, K.R., and F. W. Allendorf. 2005. Genetic basis of variation in morphological and life history traits of pink salmon (*Oncorhynchus gorbuscha*). *J. Heredity* 96:24-31.
- Whiteley, A.R., P. Spruell, and F.W. Allendorf. 2004. Ecological and life history characteristics predict population genetic divergence of two salmonids in the same landscape. *Molec. Ecol.* 13:3665-3688.
- Funk, W.C., A.E. Greene, P.S. Corn, and F.W. Allendorf. 2005. High dispersal in a frog suggests that it is vulnerable to habitat fragmentation. *Biology Letters* 1:13-16.
- Funk, W.C., M.S. Blouin, P.S. Corn, B.A. Maxell, D.S. Pilliod, S. Amish, and F.W. Allendorf. 2005. Population structure of Columbia spotted frogs (*Rana luteiventris*) is strongly affected by the landscape. *Molec. Ecol.* 14:483-496.
- Allendorf, F.W., R.F. Leary, N.P. Hitt, K.L. Knudsen, M.L. Boyer, and P. Spruell. 2005. Cutthroat trout hybridization and the U.S. Endangered Species Act: One species, two policies. *Conservation Biology* 19:1326-1328.
- Whiteley, A.R., P. Spruell, and F.W. Allendorf. 2006. Can common species provide valuable information for conservation? *Molec. Ecol.* 15:2767-2786.
- Whiteley, A.R., P. Spruell, B.E. Rieman, and F.W. Allendorf. 2006. Fine-scale genetic structure of bull trout at the southern limit of their distribution. *Trans. Amer. Fish. Soc.* 135:1238-1253.
- Nielson, M., K. Lohman, C.H. Daugherty, F.W. Allendorf, K.L. Knudsen, and J. Sullivan. 2006. Allozyme and mitochondrial DNA variation in the tailed frog (*Anura: Ascaphus*): the influence of geography and gene flow. *Herpetologica* 62:235-258
- Ramstad, K.M., C.A. Woody, C. Habicht, G.K. Sage, J.E. Seeb, and F.W. Allendorf. 2006. Concordance of nuclear and mitochondrial DNA markers in detecting a founder event in Lake Clark sockeye salmon. *American Fisheries Society Symposium* 53:19-38.
- Palsbøll, P.J., Bérubé, M., and F. W. Allendorf. 2007. Defining management units among natural populations from genetic markers. *Trends in Ecol. Evol.* 22:11-16.
- Ramstad, K.M., N.J. Nelson, G. Paine, D. Beech, A. Paul, P. Paul, F.W. Allendorf, and C.H. Daugherty. 2007. press. Species and cultural conservation in New Zealand: Māori traditional ecological knowledge of tuatara. *Conservation Biology* 21:455-464.
- McPhee, M.V., F. Utter, J. A. Stanford, K. V. Kuzishchin, K. A. Savvaitova, D. S. Pavlov, and F. W. Allendorf. In press. Population structure and partial anadromy in *Oncorhynchus mykiss* from Kamchatka: relevance for conservation strategies around the Pacific Rim. *Ecology of Freshwater Fish*.
- Hay, J.M., S.D. Sarre, F.W. Allendorf, and C.H. Daugherty. In revision. Genetics and conservation of tuatara (*Sphenodon*): Island size explains long term effective population size. *Molecular Ecology*.
- Boyer, M., C. Muhfeld, C., and F. W. Allendorf. In revision. Rainbow trout invasion and the spread of hybridization with native westslope cutthroat trout. *Canadian J. Fish. Aquat. Sci.*
- Ramstad, K.M., C.A. Woody, and F.W. Allendorf. Submitted. Local adaptation of recently founded sockeye salmon populations to beach, tributary, and glacial spawning habitats. *Evolutionary Ecology*.