

**Name and mailing address:** Brigitte Dorner, Driftwood Cove Designs, General Delivery, Lasqueti Island, British Columbia, V5A 1S6, Canada

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**Areas of specialty:** Salmon Ecology, Fisheries Management, Operating Models, Management Strategy Evaluation, Landscape Ecology, Forest Ecology, Spatial Statistics, Spatial Modeling, GIS, Remote Sensing

**Education:** Undergraduate in Applied Mathematics (1988-1991, Technical University of Graz, Austria), M.Sc. in Computing Science (1994, Simon Fraser University), Ph.D. in Resource and Environmental Management (2002, Simon Fraser University)

**Relevant experience:** Through my work as a post-doctoral fellow with Dr. Peterman I have gained an extensive background in dynamics and management of Pacific salmon, including comparative analysis of time trends in salmon productivity (see Dorner et. al. 2008).

**Computer skills:**

Programming languages: C, C++, Perl, R/S/S-Plus, Pascal, Fortran, Visual Basic, Mathematica, IDL, Latex, html

Operating Systems: Mac OSX, Unix/Linux, MS-DOS/Windows, VMS

**Selected software development projects:**

NCEAS salmon-and-climate-change model: A stochastic simulation model for exploring the relative abilities of alternative salmon monitoring strategies to detect and track climate-induced and human-induced changes in salmon productivity (in R, as part of a contract for SFU , in collaboration with NCEAS and the Moore Foundation).

MALBEC: A pacific-wide model of multi-species salmon interactions and relationships between hatchery and wild runs. This modeling effort was conducted by an interdisciplinary research group consisting of members from various US and Canadian Universities. I was responsible for preparing data and providing parameter estimates for various model components, which involved custom software for aggregating data, infilling and imputing missing values, and generating parameter estimates (in R and Excel).

CLIM2: A closed-loop management strategy evaluation of pacific salmon dynamics and management. Incorporates multi-stock salmon dynamics under different climate and ocean conditions and a wide selection of single and multi-stock forecasting and stock assessment models (including Bayesian multi-stock mixed effects models with environmental covariates), as well as several models of management and implementation error (Model written in C++, parameter estimation software in R and S-Plus, visual user interface for model and software for processing and analysis of model output in Excel/VB and R/S-Plus)

SCARSTATS: A statistical analysis package for reconstructing fire regime parameters from fire scar data and evaluating the performance of different simulated sampling designs (in C++, developed in collaboration with J. Fall for the US Forest Service).

ROLLBACK: A stochastic simulation model for 'backcasting' forest age structure to estimate historical disturbance rates (in S-Plus, originally developed as part of a research contract for the Arrow IFPA) .

LandscapeStats: A landscape statistics package for analyzing landscape pattern in topographically complex landscapes (in C++, written as part of my Ph.D. research; available as a stand-alone version for Windows and as a set of GRASS GIS modules) .

**Work experience and academic background:**

1987 – 1988: Horticulture, Technical University of Munich, Freising, Germany  
1988 – 1991: Applied Mathematics, Technical University of Graz, Austria  
1989: Software developer, KWU, Erlangen, Germany  
1990: Software developer, Andritz Maschinenwerke, Graz, Austria  
1991 – 1994: M.Sc. in Computing Science, SFU  
1994 – 1995: Systems administrator, Computer Graphics Lab, SFU  
1994 – 1996: Custom web software developer and systems administrator, Centre for Experimental and Constructive Mathematics, SFU  
1995 – 1996: Research Associate, School of Resource and Environmental Management, SFU  
1996 – 2002: Ph.D. in Resource and Environmental Management, SFU  
2003 – 2007: Post-doctoral fellow, School of Resource and Environmental Management, SFU  
2000 – 2005 and 2007 - 2010: Independent Consultant, fisheries management and forest ecology

**Publications:**

- Dorner, B., R.M. Peterman, and Z. Su 2009. Evaluation of performance of alternative management models of Pacific salmon (*Oncorhynchus* spp.) in the presence of climatic change and outcome uncertainty using Monte Carlo simulations. To be published in the Canadian Journal of Fisheries and Aquatic Science.
- Peterman, R. M., B. J. Pyper, F. J. Mueter, S. L. Haesecker, Z. Su, and B. Dorner 2009. Statistical models of Pacific salmon that include environmental variables. Pages 125-146 in E. E. Knudsen and J. H. Michael, Jr., editors. Pacific salmon environmental and life history models: advancing science for sustainable salmon in the future. American Fisheries Society, Symposium 71, Bethesda, Maryland.
- Dorner, B., R.M. Peterman, and S.L. Haesecker 2008. Historical trends in productivity of 120 Pacific pink, chum, and sockeye salmon stocks reconstructed by using a Kalman filter. Canadian Journal of Fisheries and Aquatic Science 65:1842 – 1866.
- Haesecker, S.L., B. Dorner, R.M. Peterman, and Z. Su 2007. An Improved Sibling Model for Forecasting Chum Salmon and Sockeye Salmon Abundance. North American Journal of Fisheries Management 27(2):634-642
- Bradford, M.J., R.M. Peterman, J. McGarvie, and B. Dorner 2006. Review of frameworks for risk assessment and risk management and their application to human disturbances of fish habitat in Canada. Report prepared for the Habitat Management Program, Fisheries and Oceans Canada, Ottawa, Ontario.
- Peterman, R.M., B. Dorner, and M.A. Nelitz 2005. Review of experimental design principles for projects to restore salmon populations in the Arctic-Yukon-Kuskokwim region of Alaska. Report prepared for the Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative, Anchorage, Alaska.
- Wong, C., H. Sandmann, and B. Dorner. 2004. Historical variability of natural disturbances in British Columbia: A literature review. FORREX-Forest Research Extension Partnership, Kamloops, B.C. FORREX Series 12. [www.forrex.org/publications/forrexseries/fs12.pdf](http://www.forrex.org/publications/forrexseries/fs12.pdf)
- Dorner, B. and C. Wong 2003. Natural Disturbance Dynamics in the CIT Area. Background report prepared for the Coast Information Team, Victoria, BC.
- Dorner, B., H. Sandmann, and C. Wong. 2003. Analysis of pre-1860 disturbance intervals in the Fraser Timber Supply Area. Report prepared for the BC Ministry of Sustainable Resource Management, Victoria, BC.

- Wong, C., H. Sandmann, and B. Dorner. 2003. Estimating Historical Variability of Natural Disturbances in British Columbia. Land Management Handbook 53, British Columbia Ministry of Forests and British Columbia Ministry of Sustainable Resource Management, Victoria, BC. [www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh53.htm](http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh53.htm)
- Dorner, B., and C. Wong. 2003. Natural Disturbance Dynamics on the North Coast. Background report prepared for the North Coast LRMP, Prince Rupert, BC. <http://srmwww.gov.bc.ca/rmd/lrmp/ncoast/docs/dec2002/NaturalDisturbancefinalDec162002.pdf>
- Dorner, B., K. Lertzman and J. Fall, 2002. Landscape pattern in topographically complex landscapes: Issues and techniques for analysis. *Landscape Ecology* 17: 729-743.
- Dorner, B. 2002. Forest Management and Natural Variability: The Dynamics of Landscape Pattern in Mountainous Terrain. Ph.D. Thesis. Simon Fraser University, Burnaby, BC.
- Dorner, B. 2001. Natural landscape pattern and range of natural variability in the Arrow TSA. Final project report to the Arrow IFPA, Nelson, BC.
- Lertzman, K., J. Fall and B. Dorner. 1998. Three kinds of heterogeneity in fire regimes: at the crossroads of fire history and landscape ecology. *Northwest Science* 72:4-23.
- Dorner, B. and E. Hagen. 1994. Towards an American Sign Language interface. *Artificial Intelligence Review* 8:235-253.
- Dorner, B. 1994. Chasing the Colour Glove: Visual Hand Tracking. M.Sc. Thesis, Simon Fraser University, Burnaby British Columbia.
- Dorner, B. 1993. Hand shape identification and tracking for sign language interpretation. In *Proceedings of WS26: Looking at people: recognition and interpretation of human action*, IJCAI, Chambery, France.