

Curriculum Vitae

Personal information

Name: David Fletcher

Qualifications

BSc in Mathematics (1st Class)	University of Southampton, UK	1980
MSc in Applied Statistics (Distinction)	University of Southampton, UK	1982
PHD in Statistics	University of Southampton, UK	1985

Professional Affiliations/Memberships

International Biometric Society
New Zealand Statistical Association

Employment History

2019–present	Director	David Fletcher Consulting Limited
2006–2019	Associate Professor	University of Otago
1997–2005	Senior Lecturer	University of Otago
1991–96	Lecturer	University of Otago
1989–91	Lecturer	University of Sydney
1985–88	Lecturer	University of Reading
1984–85	Lecturer	University of Texas at Austin
1983–84	Lecturer	Brunel University

Research Activities

Research Expertise: Statistical modelling

Research Grants

2018	AI	\$23k	UORG	Split-plot global ocean change experiments
2012 (from 1997)	Joint PI	\$1.5 million	FRST	Sustainability of titi harvest
2005	PI	\$12k	UORG	Analysis of research studies when data are skewed
2005	Joint PI	\$0.5 million	MFish	Estimation of seabird bycatch
2001	PI	\$3k	RSNZ	Travel grant for research at CNRS Montpellier
2001	Joint PI	\$30k	UORG	Estimating density dependence
2000	Joint PI	\$18k	DOC	Population modelling of black petrels
1996	Joint PI	\$60k	DOC	Analysis of bycatch observer coverage

Supervision of Postgraduate Students

PhD	2018–present	Population modelling of Hector's Dolphins	Lindsay Wickman (with Steve Dawson, Liz Slooten, Peter Dillingham)
	2018	Overdispersion in Sparse Multinomial Data	Farzana Afroz (with Matt Parry)
	2018	Focussed Model Averaging	Chuen Yen Hong (with Matt Parry)
	2013	Fast Bayesian Climate Reconstruction	Peter Green
	2013	Model-Averaged Confidence Intervals	Daniel Turek
	2012	Model-Averaged Confidence Intervals	Jimmy Zeng
	2009	Population Modelling of Seabirds	Peter Dillingham
	2009	Capture-Recapture Models and Diabetes	Claire Cameron (with Katrina Sharples, Kirsten Coppell)
	2009	Kia Whakamāramatia Mahi Titi	Rosemary Clucas (with Henrik Moller)
	2007	Conservation Biology of NZ Sea Lions	Simon Childerhouse (with Steve Dawson, Liz Slooten)
	2006	Population Modelling	Ari Samaranyaka (with Liz Slooten)
	2004	Bycatch of Hector's Dolphins	Eduardo Secchi (with Steve Dawson, Liz Slooten)
	2001	Population Modelling of Shearwaters	Christine Hunter (with Henrik Moller)
	1998	Spatial Design of Experiments	Austina Clark
	1994	Covariate Design	David Baird
	1994	Climatic Constraints on Wheat	Rizaldi Boer (with Lindsay Campbell)
	1993	Spatial Analysis of Field Trials	H. Lumbantobing (with Mick O'Neill)
MSc	2018–present	Study design for binomial mixed models	Megan Drysdale (with Tilman Davies)
	2012	Statistical Modelling of Football Matches	Tim Jowett
	2001	Bycatch of Sooty Shearwaters	Sebastian Uhlmann (with Henrik Moller)
	1995	Survival Rates of Hector's Dolphins	Claire Cameron (with Richard Barker)
	1993	Analysis of Geochemical Data	Brent Henderson
	1993	Biomass Confidence Limits	Raymond Webster

Teaching Activities

Papers taught in last three years

2017	STAT 341	Regression Modelling 2	Lectures and Labs
2017	STAT 210	Statistical Methods 2	Lectures and Labs
2018	STAT 341	Regression Modelling 2	Lectures and Labs
2018	STAT 210	Statistical Methods 2	Lectures and Labs

Teaching Administration, Leadership, Quality Assurance, Evaluation

2017–present	Statistical modelling advice to Quality Advancement Unit (Romain Miroso)
2008–2014	Director of Postgraduate Statistics programme
2013	Led development of Statistics Workshops for Research Students and Staff
2011	Chaired the University Forum on Statistical Training for Research Students
2010	Developed new paper on Statistical Modelling for Research Students
2002	Revamped first-year paper in Statistics (with Richard Barker)
2001	Developed new paper on Design of Research Studies
1998	Developed two new statistics papers for Environmental Scientists
1994	Developed a new statistics papers for Marine Scientists

Summary of student evaluations and schedule of teaching responsibilities are on separate forms

Publications

BOOKS

Model Averaging. Springer, Berlin. 2018 (104 pages)

JOURNAL ARTICLES (SINCE 2010)

Farzana Afroz, Matt Parry and David Fletcher. Estimating overdispersion in sparse multinomial data. *Biometrics* (2019) doi: 10.1111/biom.13194

David Fletcher, Peter Dillingham and Jiaxu Zeng. Model-averaged confidence distributions. *Environmental and Ecological Statistics* 26: 367–384 (2019)

Jiaxu Zeng, David Fletcher, Peter Dillingham and Chris Cornwall. Studentized bootstrap model-averaged tail area intervals. *PLOS ONE* 14: e0213715 (2019)

Peter Dillingham, Jeffrey Moore, David Fletcher, Enric Cortés, Alexandra Curtis, Kelsey James and Rebecca Lewison. Improved estimation of intrinsic growth rmax: integrating matrix models and allometry. *Ecological Applications* 26: 322–333 (2016)

Michael Schaub and David Fletcher. Estimating immigration using a Bayesian integrated population model: choice of parametrisation and priors. *Environmental and Ecological Statistics* 22:535–549 (2015)

Jiaxu Zeng, Sheila Williams, David Fletcher, Claire Cameron, Jonathan Broadbent, Dara Shearer, Murray Thomson. Re-examining the association between smoking and periodontitis in the Dunedin Study with an enhanced analytical approach. *Journal of Periodontology* 85:1390–1397 (2014)

David Fletcher, Henrik Moller, Rosemary Clucas, Corey Bragg, Darren Scott, Paul Scofield, Christine Hunter, Ilka Win, Jamie Newman, Sam McKechnie, Justine de Cruz and Philip Lyver. Age at first return to the breeding colony and juvenile survival of Sooty Shearwaters. *The Condor* 115:465–476 (2013)

Stephen Dawson, David Fletcher and Elisabeth Slooten. Habitat use and conservation of an endangered dolphin. *Endangered Species Research* 21:45–54 (2013)

Daniel Turek and David Fletcher. Model-averaged Wald confidence intervals. *Computational Statistics and Data Analysis* 56:2809–2815 (2012)

David Fletcher. Estimating overdispersion when fitting a generalized linear model to sparse data. *Biometrika* 99:230–237 (2012)

Claire Cameron, Kirsten Coppell, David Fletcher and Katrina Sharples. Capture-recapture using multiple data sources: estimating the prevalence of diabetes. *Australian and New Zealand Journal of Public Health* 36:223–228 (2012)

Rosemary Clucas, Henrik Moller, Corey Bragg, David Fletcher, Philip O'B. Lyver and Jamie Newman. Rakiura Māori muttonbirding diaries: monitoring trends in titi (*puffinus griseus*) abundance in New Zealand. *New Zealand Journal of Zoology* 39:155–177 (2012)

David Fletcher and Daniel Turek. Model-averaged profile likelihood intervals. *Journal of Agricultural, Biological and Environmental Statistics* 17:38–51 (2012)

David Fletcher and Philip Dixon. Modelling data from different sites, times or studies: weighted vs. unweighted regression. *Methods in Ecology and Evolution* 3:168–176 (2012)

David Fletcher, Jean-Dominique Lebreton, Lucile Marescot, Michael Schaub, Olivier Gimenez, Steve Dawson and Elisabeth Slooten. Bias in estimation of adult survival and asymptotic population growth rate caused by undetected capture heterogeneity. *Methods in Ecology and Evolution* 3:206–216 (2012)

Peter Dillingham, Graeme Elliott, Kath Walker and David Fletcher. Adjusting age at first breeding of albatrosses and petrels for emigration and study duration. *Journal of Ornithology* 153:205–217 (2012)

David Fletcher. Statistical Ecology. In *International Encyclopedia of Statistical Sciences*. Lovric, M. (Ed.), Springer, Volume 3, 1410–1404 (2011)

Chris Jones, H.Clifford, David Fletcher, P.Cuming and Phil Lyver. Survival and age-at-first-return estimates for grey-faced petrels (*Pterodroma macroptera gouldi*) breeding on Mauao and Motuotua Island in the Bay of Plenty, New Zealand. *Notornis* 58:71–80 (2011)

David Fletcher and Peter Dillingham. Model-averaged confidence intervals for factorial experiments. *Computational Statistics and Data Analysis* 55:3041–3048 (2011)

Peter Dillingham and David Fletcher. Potential biological removal of albatrosses and petrels with minimal demographic information. *Biological Conservation* 144:1885–1894 (2011)

Sam McKechnie, David Fletcher, Jamie Newman, Darren Scott, Corey Bragg and Henrik Moller. Modelling the intensity of harvesting of Sooty Shearwater chicks by Rakiura Māori in New Zealand. *Journal of Wildlife Management* 74:828–842 (2010)

Simon Childerhouse, Steve Dawson, David Fletcher, Liz Slooten and Louise Chilvers. Growth and reproduction of female New Zealand sea lions. *Journal of Mammalogy* 91:165–176 (2010)

Ari Samaranayaka and David Fletcher. Modelling environmental stochasticity in adult survival for a long-lived species. *Ecological Modelling* 221:423–427 (2010)

Simon Childerhouse, Steve Dawson, Liz Slooten, David Fletcher and Ian Wilkinson. Age distribution of lactating New Zealand sea lions: inter-annual and inter-site variation. *Marine Mammal Science* 26:123–139 (2010)

Book Reviews (since 2010)

R through Excel: a Spreadsheet Interface for Statistics, Data Analysis and Graphics (by Heiberger and Neuwirth). *Australian and New Zealand Journal of Statistics* 53:491–492 (2011)

Research Reports (since 2010)

David Fletcher. Population modelling of Takahē. Report for Department of Conservation (2013)

David Fletcher. Interpreting the results from a student feedback survey. Akoranga 2012 Issue 8, p.15

David Fletcher, Rosemary Clucas, Henrik Moller, Jamie Newman, Corey Bragg, Sam McKechnie, Phil Lyver, Darren Scott and T. Downs. Will the Titi remain plentiful enough for the mokopuna? A sustainability assessment of the Rakiura Māori Titi harvests. In R. Taonui (Ed.), Proceedings of Ngā Kete a Rēhua Inaugural Māori Research Symposium. University of Canterbury (2010)

University Service

2018–present	Statistics Seminar Organiser in the Department of Mathematics and Statistics
2018	Member of Division of Sciences PBRF Portfolio Review Panel
2017–present	Statistical advice to Quality Advancement Unit on Student feedback questionnaires (Romain Miroso)
2017–present	Mentor to Tim Jowett, Statistical Consultant in the Division of Sciences
2017	Special Request to Peer Review Teaching by Staff Member outside Mathematics and Statistics
2008–2015	Head of Statistics Group in the Department of Mathematics and Statistics
2011–2013	University Senate Working Group on Teaching Evaluation
2010–2013	Elected Representative on Sciences Divisional Board
2008–2010	Departmental Representative on Ecology Board of Studies
2007–2009	Sciences Representative on Commerce Divisional Board

Professional Activities

DEPARTMENT OF CONSERVATION

2013–2014	Population modelling of takahē
2002–2005	Design and analysis of skink monitoring programme Population modelling of Hamilton's frog
1999–2000	Relationship between ecklonia and kina density Yellow-eyed penguin abundance
1998	Rabbit abundance Effect of fisheries bycatch mitigation
1996–2004	New Zealand sealion bycatch
1995	Spatial distribution of grand skinks
1994	Yellow-eyed penguin diet

OTHER

2004	Resource Consent Hearing: Effects of mussel farms on dusky dolphins
2003–2010	Ministry of Fisheries: Seabird bycatch
1998	Electricity Corporation of New Zealand: Design of an environmental impact study
1997–2012	Rakiura Titi Administrative Body: Management of titi (sooty shearwater) harvest
1997	Otago Regional Council: Pest-monitoring protocols
1996	Otago Daily Times: Design and analysis of electoral opinion poll Cawthron Institute: Design of a cockle survey
1995	Bluff Oyster Enhancement Company: Oyster spat experiments

1991–1992 Sydney Water Board: Environmental sampling strategies
Southern Clams: Design and analysis of a cockle survey

Service to the Academic Community

2018–present Associate Editor, Environmental and Ecological Statistics
2014–2015 External examiner for honours, PGDip and MSc theses at Auckland University
2013–2015 Associate Editor, Biometrics
2008–2010 Member of New Zealand Statistical Association Executive Committee
2006–2008 Secretary of New Zealand Statistical Association
1991–present External examiner for various MSc and PhD theses in Australia and New Zealand
1991–present Referee for the following statistics journals: Biometrics, Canadian Journal of Statistics, Computational Statistics and Data Analysis, Environmental and Ecological Statistics, Journal of Agricultural, Biological and Environmental Statistics.
Referee for the following life science journals: Canadian Journal of Fisheries and Aquatic Science, Ecology, Journal of Animal Ecology, Methods in Ecology and Evolution, New Zealand Journal of Marine and Freshwater Research.

Conference Organization

2018 Member of the Planning Committee for International Statistical Ecology Conference 2022
2018 Member of the Organising Committee for New Zealand Statistical Association Conference 2019, Dunedin
2013 Session Chair: Dynamic Response Models. European Meeting of Statisticians (Hungary)
2012 Chair of the Organizing Committee, New Statistical Association Conference
2009 Session Chair: Model Diagnostics. EURING 2009 (Italy)
2005 Chair of the Organizing Committee, New Zealand Statistical Association Conference
2002 Chair of the Organizing Committee, SEEM₄ Conference
1996 Chair of the Organizing Committee, SEEM₂ Conference
1993 Chair of the Organizing Committee, SEEM₁ Conference
1993–2002 Initiated the SEEM Conferences on Statistics in Ecology and Environmental Monitoring (with Bryan Manly)

Conference Talks and Posters (since 2010)

2018 Confounding, pseudoreplication and split-plot designs in multi-factor global ocean change experiments. Ocean Global Change Biology Gordon Research Conference, USA (with Peter Dillingham, Chris Cornwall, Christina McGraw, Jiaxu Zeng)
2018 Model-averaged confidence distributions. 2018 International Symposium on Big Data and Applied Statistics, China (with Peter Dillingham and Jiaxu Zeng)
2018 Model-averaged confidence distributions. 40th Annual Conference of the International Society for Clinical Biostatistics, Belgium (with Peter Dillingham and Jiaxu Zeng)
2017 Model-averaged confidence distributions. SEEM 2017 Conference, Queenstown, New Zealand
2016 Postgraduate peer statistics advisers: a pilot programme. TERNZ 2016, Dunedin (with Brigid Casey, Jenny McDonald, Christoph Matthaei, Matt Parry, Claire Cameron, C. Dakson)
2015 Focussed model averaging for generalised linear models. SEEM 2015 Conference, Queenstown, New Zealand
2014 Statistical modelling in ecology. Ecology@Otago Symposium. Orokonui Ecosanctuary, Dunedin, New Zealand

- 2014 Measuring lack-of-fit of a Bayesian model. International Statistical Ecology Conference (France) and the International Biometric Society Conference (Italy)
- 2013 Invited talk: Model-averaged profile-likelihood intervals. Australasian Region of International Biometric Society Conference (Australia)
- 2010 Estimating overdispersion in sparse multinomial data. European Meeting of Statisticians (Hungary)
- 2012 Estimating immigration using a Bayesian integrated population model. International Statistical Ecology Conference (Norway)
- 2012 A new approach to model-averaged confidence intervals. International Statistical Ecology Conference (Norway)
- 2010 A cross-cultural partnership for adaptive co-management of a traditional Māori seabird harvest. Annual Meeting of the Society of Ethnobiology (Canada)
- 2010 Quantifying the sustainability value of traditional seabird harvest lore. Annual Meeting of the Society of Ethnobiology (Canada)
- 2010 Coverage properties of model-averaged confidence intervals. International Statistical Ecology Conference (England)

Seminars (since 2010)

EXTERNAL

- 2018 Confidence distributions. Massey University
- 2013 Model-averaged confidence intervals. Hong Kong Baptist University
- 2010 How much human-caused mortality might a bird population be able to sustain? University of Bern
- 2010 How much human-caused mortality might a bird population be able to sustain? Swiss Ornithological Institute

UNIVERSITY OF OTAGO

- 2018 Confidence distributions
- 2017 What is n?
- 2015 Statistical guidelines for scientists
- 2015 Model averaging
- 2012 Bayes, asymptotics, simulation and the bootstrap
- 2011 A new method for estimating overdispersion in count data
- 2011 Modelling data from different sites, times or studies: weighted versus unweighted regression
- 2011 Bias in estimation of adult survival and asymptotic population growth rate caused by undetected capture heterogeneity
- 2010 Coverage properties of model-averaged confidence intervals

Workshops (since 2010)

- 2014–2015 Mixed Effects Models in R (Workshop for University of Otago Research Students and Staff)
- 2012 Invited Participant at a Shark-Population Modelling Workshop, for the National Oceanic and Atmospheric Administration (San Diego, USA)

Film and media (since 2010)

- 2011 Talk on my work in the sooty shearwater project, for a DVD on Statistics In Research