Michael John Plank

List of Publications by Year
in descending order

120 papers	4,512 citations	172457 29 h-index	128289 60 g-index
142 all docs	142 docs citations	142 times ranked	5183 citing authors

#	Article	IF	Citations
1	Random walk models in biology. Journal of the Royal Society Interface, 2008, 5, 813-834.	3.4	1,101
2	Disentangling nestedness from models of ecological complexity. Nature, 2012, 487, 227-230.	27.8	195
3	Of mast and mean: differentialâ€temperature cue makes mast seeding insensitive to climate change. Ecology Letters, 2013, 16, 90-98.	6.4	195
4	Assessing LÃ©vy walks as models of animal foraging. Journal of the Royal Society Interface, 2011, 8, 1233-1247.	3.4	139
5	Lattice and non-lattice models of tumour angiogenesis. Bulletin of Mathematical Biology, 2004, 66, 1785-1819.	1.9	114
6	Optimal foraging: LÃ©vy pattern or process?. Journal of the Royal Society Interface, 2008, 5, 1077-1086.	3.4	107
7	On balanced exploitation of marine ecosystems: results from dynamic size spectra. ICES Journal of Marine Science, 2012, 69, 602-614.	2.5	102
8	A reinforced random walk model of tumour angiogenesis and anti-angiogenic strategies. Mathematical Medicine and Biology, 2003, 20, 135-181.	1.2	100
9	Sizeâ€spectra dynamics from stochastic predation and growth of individuals. Ecology, 2009, 90, 802-811.	3.2	98
10	Testing and recommending methods for fitting size spectra to data. Methods in Ecology and Evolution, 2017, 8, 57-67.	5.2	84
11	Sampling rate and misidentification of LÃ©vy and non-LÃ©vy movement paths. Ecology, 2009, 90, 3546-3553.	3.2	78
12	Atherosclerosis and calcium signalling in endothelial cells. Progress in Biophysics and Molecular Biology, 2006, 91, 287-313.	2.9	67
13	Optimizing the encounter rate in biological interactions: Ballistic versus LÃ©vy versus Brownian strategies. Physical Review E, 2008, 78, 051128.	2.1	67
14	An event-based model of superspreading in epidemics. Proceedings of the Royal Society B: Biological Sciences, 2007, 274, 741-747.	2.6	64
15	A mathematical model of tumour angiogenesis, regulated by vascular endothelial growth factor and the angiopoietins. Journal of Theoretical Biology, 2004, 229, 435-454.	1.7	62
16	Models of collective cell behaviour with crowding effects: comparing lattice-based and lattice-free approaches. Journal of the Royal Society Interface, 2012, 9, 2983-2996.	3.4	62
17	Fisheries, the inverted food pyramid. ICES Journal of Marine Science, 2016, 73, 1697-1713.	2.5	54
18	Worldwide border interceptions provide a window into humanâ€mediated global insect movement. Ecological Applications, 2021, 31, e02412.	3.8	53

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19	Balanced exploitation and coexistence of interacting, sizeâ€structured, fish species. Fish and Fisheries, 2016, 17, 281-302.	5.3	51
20	Squaring the circle: reconciling fishing and conservation of aquatic ecosystems. Fish and Fisheries, 2015, 16, 160-174.	5.3	47
21	Balanced harvest: concept, policies, evidence, and management implications. Reviews in Fish Biology and Fisheries, 2019, 29, 711-733.	4.9	41
22	Endothelial Nitric Oxide Synthase and Calcium Production in Arterial Geometries: An Integrated Fluid Mechanics/Cell Model. Journal of Biomechanical Engineering, 2008, 130, 011010.	1.3	39
23	Information on Biotic Interactions Improves Transferability of Distribution Models. American Naturalist, 2015, 185, 281-290.	2.1	38
24	The effect of competition on species' distributions depends on coexistence, rather than scale alone. Ecography, 2015, 38, 1071-1079.	4.5	38
25	The Nile perch invasion in Lake Victoria: cause or consequence of the haplochromine decline?. Canadian Journal of Fisheries and Aquatic Sciences, 2016, 73, 622-643.	1.4	38
26	Turn designation, sampling rate and the misidentification of power laws in movement path data using maximum likelihood estimates. Theoretical Ecology, 2011, 4, 397-406.	1.0	37
27	Inferring parameters for a lattice-free model of cell migration and proliferation using experimental data. Journal of Theoretical Biology, 2018, 437, 251-260.	1.7	37
28	Spatial moment dynamics for collective cell movement incorporating a neighbour-dependent directional bias. Journal of the Royal Society Interface, 2015, 12, 20150228.	3.4	35
29	Tumour-Induced Angiogenesis: A Review. Journal of Theoretical Medicine, 2003, 5, 137-153.	0.5	33
30	Spatial Point Processes and Moment Dynamics in the Life Sciences: A Parsimonious Derivation and Some Extensions. Bulletin of Mathematical Biology, 2015, 77, 586-613.	1.9	33
31	Gender and societies: a grassroots approach to women in science. Royal Society Open Science, 2019, 6, 190633.	2.4	33
32	The Role of the Angiopoietins in Tumour Angiogenesis. Growth Factors, 2004, 22, 1-11.	1.7	32
33	A stability analysis of the power-law steady state of marine size spectra. Journal of Mathematical Biology, 2011, 63, 779-799.	1.9	32
34	Differentiating the LÃ©vy walk from a composite correlated random walk. Methods in Ecology and Evolution, 2015, 6, 1179-1189.	5.2	32
35	Constructing Random Matrices to Represent Real Ecosystems. American Naturalist, 2015, 185, 680-692.	2.1	31
36	Effects of dispersal and stochasticity on the presenceâ€“absence of multiple species. Ecological Modelling, 2016, 342, 49-59.	2.5	31

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37	Collective Cell Behaviour with Neighbour-Dependent Proliferation, Death and Directional Bias. Bulletin of Mathematical Biology, 2016, 78, 2277-2301.	1.9	30
38	Efficient or Inaccurate? Analytical and Numerical Modelling of Random Search Strategies. Bulletin of Mathematical Biology, 2010, 72, 896-913.	1.9	29
39	Lattice-free descriptions of collective motion with crowding and adhesion. Physical Review E, 2013, 88, 062720.	2.1	29
40	Ecological drivers of stability and instability in marine ecosystems. Theoretical Ecology, 2012, 5, 465-480.	1.0	28
41	Evaluating random search strategies in three mammals from distinct feeding guilds. Journal of Animal Ecology, 2016, 85, 1411-1421.	2.8	27
42	The role of astrocytic calcium and TRPV4 channels in neurovascular coupling. Journal of Computational Neuroscience, 2018, 44, 97-114.	1.0	26
43	The role of endothelial calcium and nitric oxide in the localisation of atherosclerosis. Mathematical Biosciences, 2007, 207, 26-39.	1.9	25
44	Integrated models of neurovascular coupling and BOLD signals: Responses for varying neural activations. NeuroImage, 2018, 174, 69-86.	4.2	25
45	Estimated inequities in COVID-19 infection fatality rates by ethnicity for Aotearoa New Zealand. New Zealand Medical Journal, 2020, 133, 28-39.	0.5	25
46	A COVID-19 vaccination model for Aotearoa New Zealand. Scientific Reports, 2022, 12, 2720.	3.3	25
47	Balanced harvesting can emerge from fishing decisions by individual fishers in a smallâ€scale fishery. Fish and Fisheries, 2017, 18, 212-225.	5.3	24
48	Balanced harvesting could reduce fisheriesâ€induced evolution. Fish and Fisheries, 2018, 19, 1078-1091.	5.3	24
49	Spatial structure arising from neighbour-dependent bias in collective cell movement. PeerJ, 2016, 4, e1689.	2.0	24
50	Dynamic myogenic autoregulation in the rat kidney: a whole-organ model. American Journal of Physiology - Renal Physiology, 2008, 294, F1453-F1464.	2.7	23
51	Capacity to support predators scales with habitat size. Science Advances, 2018, 4, eaap7523.	10.3	23
52	Importance of Altered Levels of SERCA, IP 3 R, and RyR in Vascular Smooth Muscle Cell. Biophysical Journal, 2017, 112, 265-287.	0.5	21
53	Effects of different dispersal patterns on the presence-absence of multiple species. Communications in Nonlinear Science and Numerical Simulation, 2018, 56, 115-130.	3.3	21
54	Effects of biotic interactions and dispersal on the presence-absence of multiple species. Chaos, Solitons and Fractals, 2017, 99, 185-194.	5.1	20

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55	Spatial Moment Description of Birthâ€“Deathâ€“Movement Processes Incorporating the Effects of Crowding and Obstacles. Bulletin of Mathematical Biology, 2018, 80, 2828-2855.	1.9	20
56	Early intervention is the key to success in COVID-19 control. Royal Society Open Science, 2021, 8, 210488.	2.4	20
57	On the growth of locally interacting plants: differential equations for the dynamics of spatial moments. Ecology, 2013, 94, 2732-2743.	3.2	19
58	LÃ©vy or Not? Analysing Positional Data from Animal Movement Paths. Lecture Notes in Mathematics, 2013, , 33-52.	0.2	19
59	Mathematical modelling to inform New Zealandâ€™s COVID-19 response. Journal of the Royal Society of New Zealand, 2021, 51, S86-S106.	1.9	19
60	Managing the risk of a COVID-19 outbreak from border arrivals. Journal of the Royal Society Interface, 2021, 18, 20210063.	3.4	19
61	A stochastic mathematical model of 4D tumour spheroids with real-time fluorescent cell cycle labelling. Journal of the Royal Society Interface, 2022, 19, 20210903.	3.4	17
62	James et al. reply. Nature, 2013, 500, E2-E3.	27.8	16
63	Considering unseen arrivals in predictions of establishment risk based on border biosecurity interceptions. Ecological Applications, 2020, 30, e02194.	3.8	16
64	Identifying density-dependent interactions in collective cell behaviour. Journal of the Royal Society Interface, 2020, 17, 20200143.	3.4	16
65	A model of neurovascular coupling and the BOLD response: PART I. Computer Methods in Biomechanics and Biomedical Engineering, 2017, 20, 508-518.	1.6	15
66	A nonlinear model of age and size-structured populations with applications to cell cycles. ANZIAM Journal, 2007, 49, 151-169.	0.2	13
67	Lattice-Free Models of Cell Invasion: Discrete Simulations and Travelling Waves. Bulletin of Mathematical Biology, 2013, 75, 2150-2166.	1.9	13
68	Population dynamics with spatial structure and an Allee effect. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20200501.	2.1	13
69	Taylor's law and body size in exploited marine ecosystems. Ecology and Evolution, 2012, 2, 3168-3178.	1.9	12
70	Living in groups: Spatial-moment dynamics with neighbour-biased movements. Ecological Modelling, 2020, 415, 108825.	2.5	12
71	Model-free estimation of COVID-19 transmission dynamics from a complete outbreak. PLoS ONE, 2021, 16, e0238800.	2.5	12
72	Effect of vaccination, border testing, and quarantine requirements on the risk of COVID-19 in New Zealand: A modelling study. Infectious Disease Modelling, 2022, 7, 184-198.	1.9	12

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73	An assessment of the potential impact of the Omicron variant of SARS-CoV-2 in Aotearoa New Zealand. Infectious Disease Modelling, 2022, 7, 94-105.	1.9	12
74	Effects of Arterial Bifurcation Geometry on Nucleotide Concentration at the Endothelium. Annals of Biomedical Engineering, 2006, 34, 605-617.	2.5	11
75	Modeling Secondary Messenger Pathways in Neurovascular Coupling. Bulletin of Mathematical Biology, 2013, 75, 428-443.	1.9	11
76	A model of neurovascular coupling and the BOLD response PART II. Computer Methods in Biomechanics and Biomedical Engineering, 2017, 20, 519-529.	1.6	11
77	Concentration of blood-borne agonists at the endothelium. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2006, 462, 671-688.	2.1	9
78	A dynamical model of honeydew droplet production by sooty-beech scale insects (Ultracoelostoma) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 5	2.5	9
79	A mathematical framework for modelling cambial surface evolution using a level set method. Annals of Botany, 2011, 108, 1001-1011.	2.9	9
80	Lattice-free models of directed cell motility. Physica A: Statistical Mechanics and Its Applications, 2016, 442, 110-121.	2.6	9
81	A Mathematical Model of anIn VitroExperiment to Investigate Endothelial Cell Migration. Journal of Theoretical Medicine, 2002, 4, 251-270.	0.5	8
82	Sampling rate and misidentification of LÃ©vy and non-LÃ©vy movement paths: reply. Ecology, 2011, 92, 1701-1702.	3.2	8
83	Habitat fragmentation: Simple models for local persistence and the spread of invasive species. Journal of Theoretical Biology, 2012, 310, 231-238.	1.7	8
84	Balanced harvesting is the bioeconomic equilibrium of a size-structured Beverton-Holt model. ICES Journal of Marine Science, 2017, 74, 112-120.	2.5	8
85	How should fishing mortality be distributed under balanced harvesting?. Fisheries Research, 2018, 207, 171-174.	1.7	8
86	Spatial structure arising from chase-escape interactions with crowding. Scientific Reports, 2019, 9, 14988.	3.3	8
87	Potential reduction in transmission of COVID-19 by digital contact tracing systems: a modelling study. Mathematical Medicine and Biology, 2022, 39, 156-168.	1.2	8
88	EPIDEMIC DYNAMICS ON RANDOM AND SCALE-FREE NETWORKS. ANZIAM Journal, 2012, 54, 3-22.	0.2	7
89	Macro scale modelling of cortical spreading depression and the role of astrocytic gap junctions. Journal of Theoretical Biology, 2018, 458, 78-91.	1.7	7
90	Using family network data in child protection services. PLoS ONE, 2019, 14, e0224554.	2.5	7

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91	MÄori and Pacific people in New Zealand have a higher risk of hospitalisation for COVID-19. New Zealand Medical Journal, 2021, 134, 28-43.	0.5	7
92	Inferring fishing intensity from contemporary and archaeological size-frequency data. Journal of Archaeological Science, 2018, 93, 42-53.	2.4	6
93	Massively parallel simulations of neurovascular coupling with extracellular diffusion. Journal of Computational Science, 2018, 24, 116-124.	2.9	6
94	Kia kaua te reo e rite ki te moa, ka ngaro: do not let the language suffer the same fate as the moa. Journal of the Royal Society Interface, 2020, 17, 20190526.	3.4	6
95	What unmanaged fishing patterns reveal about optimal management: applied to the balanced harvesting debate. ICES Journal of Marine Science, 2020, 77, 901-910.	2.5	6
96	Small-scale spatial structure affects predator-prey dynamics and coexistence. Theoretical Ecology, 2020, 13, 537-550.	1.0	5
97	Small-scale spatial structure influences large-scale invasion rates. Theoretical Ecology, 2020, 13, 277-288.	1.0	5
98	Modelling biological invasions over homogeneous and inhomogeneous landscapes using level set methods. Biological Invasions, 2008, 10, 157-167.	2.4	4
99	Distinguishing between LÃ©vy walks and strong alternative models: comment. Ecology, 2014, 95, 1104-1109.	3.2	4
100	Emergence of balanced harvesting in an agent-based model of an open-access small-scale fishery. Mathematical Biosciences, 2019, 316, 108245.	1.9	4
101	The effects of cerebral curvature on cortical spreading depression. Journal of Theoretical Biology, 2019, 472, 11-26.	1.7	4
102	Vaccination and testing of the border workforce for COVID-19 and risk of community outbreaks: a modelling study. Royal Society Open Science, 2021, 8, 210686.	2.4	4
103	Exploring tradeâ€offs in mixed fisheries by integrating fleet dynamics into multispecies sizeâ€spectrum models. Journal of Applied Ecology, 0, , .	4.0	4
104	Evolutionarily Stable Strategies for Fecundity and Swimming Speed of Fish. Bulletin of Mathematical Biology, 2016, 78, 280-292.	1.9	3
105	Simplified calculation of diffusivity for a lattice-based random walk with a single obstacle. Results in Physics, 2017, 7, 3346-3348.	4.1	3
106	Commentary: Fishing Without a Trace? Assessing the Balanced Harvest Approach Using EcoTroph. Frontiers in Marine Science, 2021, 7, .	2.5	3
107	ModellingTradescantia fluminensisto assess long term survival. PeerJ, 2015, 3, e1013.	2.0	3
108	Speciesâ€rangeâ€size distributions: Integrating the effects of speciation, transformation, and extinction. Ecology and Evolution, 2022, 12, e8341.	1.9	3

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109	Comment on â€˜Government mandated lockdowns do not reduce COVID-19 deaths: implications for evaluating the stringent New Zealand responseâ€™. New Zealand Economic Papers, 2022, 56, 29-35.	0.8	3
110	Group by subject or by ability? Tertiary mathematics for engineering students. International Journal of Mathematical Education in Science and Technology, 2011, 42, 857-865.	1.4	2
111	Unfinished synchrony. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 201707731.	7.1	2
112	Individual heterogeneity affects the outcome of small mammal pest eradication. Theoretical Ecology, 2021, 14, 219-231.	1.0	2
113	Modelling the Early Stages of Atherosclerosis. , 2007, , 263-274.		2
114	Minimal model of calcium dynamics in two heterogeneous coupled cells. Neurocomputing, 2019, 323, 128-138.	5.9	1
115	Asymptotic expansion approximation for spatial structure arising from directionally biased movement. Physica A: Statistical Mechanics and Its Applications, 2020, 541, 123290.	2.6	1
116	Comment: weekly COVID-19 testing with household quarantine and contact tracing is feasible and would probably end the epidemic. Royal Society Open Science, 2021, 8, 201546.	2.4	1
117	Modelling the dynamic response of oxygen uptake to exercise. Discrete and Continuous Dynamical Systems - Series B, 2009, 12, 361-370.	0.9	1
118	EFFECTS OF PREDATOR DIET BREADTH ON STABILITY OF SIZE SPECTRA. ANZIAM Journal, 2011, 53, 38-47.	0.2	0
119	Limiting Effect of Self-Shading on the Height of Tradescantia fluminensis Mats. Bulletin of Mathematical Biology, 2019, 81, 3918-3932.	1.9	0
120	Cooperative and non-cooperative behaviour in the exploitation of a common renewable resource with environmental stochasticity. Applied Mathematical Modelling, 2021, 89, 1041-1054.	4.2	0