

Tom Battin

List of Publications by Year in descending order

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95
papers

9,484
citations

87888

38
h-index

39675

94
g-index

100
all docs

100
docs citations

100
times ranked

10251
citing authors

#	ARTICLE	IF	CITATIONS
1	The boundless carbon cycle. <i>Nature Geoscience</i> , 2009, 2, 598-600.	12.9	1,223
2	Biophysical controls on organic carbon fluxes in fluvial networks. <i>Nature Geoscience</i> , 2008, 1, 95-100.	12.9	1,102
3	The ecology and biogeochemistry of stream biofilms. <i>Nature Reviews Microbiology</i> , 2016, 14, 251-263.	28.6	746
4	Contributions of microbial biofilms to ecosystem processes in stream mesocosms. <i>Nature</i> , 2003, 426, 439-442.	27.8	601
5	The ecological coherence of high bacterial taxonomic ranks. <i>Nature Reviews Microbiology</i> , 2010, 8, 523-529.	28.6	562
6	Glacier shrinkage driving global changes in downstream systems. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, 9770-9778.	7.1	381
7	Microbial landscapes: new paths to biofilm research. <i>Nature Reviews Microbiology</i> , 2007, 5, 76-81.	28.6	288
8	Effects of Current Velocity on the Nascent Architecture of Stream Microbial Biofilms. <i>Applied and Environmental Microbiology</i> , 2003, 69, 5443-5452.	3.1	262
9	Storage and release of organic carbon from glaciers and ice sheets. <i>Nature Geoscience</i> , 2015, 8, 91-96.	12.9	262
10	Biogeochemically diverse organic matter in Alpine glaciers and its downstream fate. <i>Nature Geoscience</i> , 2012, 5, 710-714.	12.9	254
11	Nanostructured TiO ₂ : Transport Behavior and Effects on Aquatic Microbial Communities under Environmental Conditions. <i>Environmental Science & Technology</i> , 2009, 43, 8098-8104.	10.0	216
12	Fluvial network organization imprints on microbial co-occurrence networks. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2014, 111, 12799-12804.	7.1	193
13	Microbial biodiversity in glacier-fed streams. <i>ISME Journal</i> , 2013, 7, 1651-1660.	9.8	168
14	Microbial degradation of terrigenous dissolved organic matter and potential consequences for carbon cycling in brown-water streams. <i>Scientific Reports</i> , 2014, 4, 4981.	3.3	165
15	Phylogenetic and Functional Heterogeneity of Sediment Biofilms along Environmental Gradients in a Glacial Stream. <i>Applied and Environmental Microbiology</i> , 2001, 67, 799-807.	3.1	159
16	Ecohydrological interfaces as hot spots of ecosystem processes. <i>Water Resources Research</i> , 2017, 53, 6359-6376.	4.2	155
17	Headwaters are critical reservoirs of microbial diversity for fluvial networks. <i>Proceedings of the Royal Society B: Biological Sciences</i> , 2013, 280, 20131760.	2.6	153
18	A mixing model analysis of stream solute dynamics and the contribution of a hyporheic zone to ecosystem function*. <i>Freshwater Biology</i> , 2003, 48, 995-1014.	2.4	112

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19	Bacterial Community Composition of Stream Biofilms in Spatially Variable-Flow Environments. <i>Applied and Environmental Microbiology</i> , 2009, 75, 7189-7195.	3.1	106
20	Hydrology controls dissolved organic matter export and composition in an Alpine stream and its hyporheic zone. <i>Limnology and Oceanography</i> , 2016, 61, 558-571.	3.1	106
21	Distinct air-water gas exchange regimes in low- and high-energy streams. <i>Nature Geoscience</i> , 2019, 12, 259-263.	12.9	102
22	Physical Heterogeneity Increases Biofilm Resource Use and Its Molecular Diversity in Stream Mesocosms. <i>PLoS ONE</i> , 2010, 5, e9988.	2.5	96
23	Scales and drivers of temporal CO ₂ dynamics in an Alpine stream. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2014, 119, 1078-1091.	3.0	87
24	Hydrodynamics is a major determinant of streambed biofilm activity: From the sediment to the reach scale. <i>Limnology and Oceanography</i> , 2000, 45, 1308-1319.	3.1	80
25	Global carbon dioxide efflux from rivers enhanced by high nocturnal emissions. <i>Nature Geoscience</i> , 2021, 14, 289-294.	12.9	76
26	Unexpected large evasion fluxes of carbon dioxide from turbulent streams draining the world's mountains. <i>Nature Communications</i> , 2019, 10, 4888.	12.8	71
27	Substantial decrease in CO ₂ emissions from Chinese inland waters due to global change. <i>Nature Communications</i> , 2021, 12, 1730.	12.8	71
28	No evidence of aquatic priming effects in hyporheic zone microcosms. <i>Scientific Reports</i> , 2014, 4, 5187.	3.3	66
29	Scaling of dissolved organic carbon removal in river networks. <i>Advances in Water Resources</i> , 2017, 110, 136-146.	3.8	62
30	Attached biofilms and suspended aggregates are distinct microbial lifestyles emanating from differing hydraulics. <i>Nature Microbiology</i> , 2016, 1, 16178.	13.3	60
31	CO ₂ evasion from a steep, high gradient stream network: importance of seasonal and diurnal variation in aquatic pCO ₂ and gas transfer. <i>Limnology and Oceanography</i> , 2016, 61, 1826-1838.	3.1	57
32	Hydrologic flow paths control dissolved organic carbon fluxes and metabolism in an Alpine stream hyporheic zone. <i>Water Resources Research</i> , 1999, 35, 3159-3169.	4.2	54
33	Large-scale environmental controls on microbial biofilms in high-alpine streams. <i>Biogeosciences</i> , 2004, 1, 159-171.	3.3	54
34	Hydrologic controls on basin-scale distribution of benthic invertebrates. <i>Water Resources Research</i> , 2014, 50, 2903-2920.	4.2	48
35	High light intensity mediates a shift from allochthonous to autochthonous carbon use in phototrophic stream biofilms. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2017, 122, 1806-1820.	3.0	48
36	Key rules of life and the fading cryosphere: Impacts in alpine lakes and streams. <i>Global Change Biology</i> , 2020, 26, 6644-6656.	9.5	46

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37	Light availability affects stream biofilm bacterial community composition and function, but not diversity. <i>Environmental Microbiology</i> , 2015, 17, 5036-5047.	3.8	44
38	Architectural differentiation reflects bacterial community structure in stream biofilms. <i>ISME Journal</i> , 2009, 3, 1318-1324.	9.8	43
39	Altitudinal patterns of diversity and functional traits of metabolically active microorganisms in stream biofilms. <i>ISME Journal</i> , 2015, 9, 2454-2464.	9.8	43
40	Hydrologic Variability Affects Invertebrate Grazing on Phototrophic Biofilms in Stream Microcosms. <i>PLoS ONE</i> , 2013, 8, e60629.	2.5	41
41	Ecological strategies and metabolic trade-offs of complex environmental biofilms. <i>Npj Biofilms and Microbiomes</i> , 2017, 3, 21.	6.4	40
42	Unraveling the biophysical underpinnings to the success of multispecies biofilms in porous environments. <i>ISME Journal</i> , 2019, 13, 1700-1710.	9.8	39
43	Functional and Structural Responses of Hyporheic Biofilms to Varying Sources of Dissolved Organic Matter. <i>Applied and Environmental Microbiology</i> , 2014, 80, 6004-6012.	3.1	38
44	Climate-Induced Changes in Spring Snowmelt Impact Ecosystem Metabolism and Carbon Fluxes in an Alpine Stream Network. <i>Ecosystems</i> , 2018, 21, 373-390.	3.4	38
45	High-Resolution Spatial Sampling Identifies Groundwater as Driver of CO ₂ Dynamics in an Alpine Stream Network. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2019, 124, 1961-1976.	3.0	37
46	Light availability impacts structure and function of phototrophic stream biofilms across domains and trophic levels. <i>Molecular Ecology</i> , 2018, 27, 2913-2925.	3.9	35
47	Effects of Streambed Morphology and Biofilm Growth on the Transient Storage of Solutes. <i>Environmental Science & Technology</i> , 2009, 43, 7337-7342.	10.0	32
48	Flow history explains temporal and spatial variation of carbon fractionation in stream periphyton. <i>Limnology and Oceanography</i> , 2005, 50, 706-712.	3.1	31
49	Benthic biofilm controls on fine particle dynamics in streams. <i>Water Resources Research</i> , 2017, 53, 222-236.	4.2	31
50	Microcosm design and evaluation to study stream microbial biofilms. <i>Limnology and Oceanography: Methods</i> , 2006, 4, 436-447.	2.0	29
51	Biophysical controls on cluster dynamics and architectural differentiation of microbial biofilms in contrasting flow environments. <i>Environmental Microbiology</i> , 2014, 16, 802-812.	3.8	29
52	Coupling virtual watersheds with ecosystem services assessment: a 21st century platform to support river research and management. <i>Wiley Interdisciplinary Reviews: Water</i> , 2015, 2, 609-621.	6.5	29
53	Climate-induced hydrological variation controls the transformation of dissolved organic matter in a subalpine lake. <i>Limnology and Oceanography</i> , 2018, 63, 1355-1371.	3.1	29
54	Alpine Glacier Shrinkage Drives Shift in Dissolved Organic Carbon Export From Quasi-Chemostasis to Transport Limitation. <i>Geophysical Research Letters</i> , 2019, 46, 8872-8881.	4.0	29

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55	Microdiversity characterizes prevalent phylogenetic clades in the glacier-fed stream microbiome. <i>ISME Journal</i> , 2022, 16, 666-675.	9.8	28
56	Ecosystem respiration increases with biofilm growth and bed forms: Flume measurements with resazurin. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2014, 119, 2220-2230.	3.0	27
57	Experimental evidence reveals impact of drought periods on dissolved organic matter quality and ecosystem metabolism in subalpine streams. <i>Limnology and Oceanography</i> , 2019, 64, 46-60.	3.1	26
58	Exposure of dissolved organic matter to UV-radiation increases bacterial growth efficiency in a clear-water Alpine stream and its adjacent groundwater. <i>Aquatic Sciences</i> , 2012, 74, 143-153.	1.5	25
59	Genomic and metabolic adaptations of biofilms to ecological windows of opportunity in glacier-fed streams. <i>Nature Communications</i> , 2022, 13, 2168.	12.8	25
60	Metabolism of mineral-adsorbed organic matter and microbial lifestyles in fluvial ecosystems. <i>Geophysical Research Letters</i> , 2016, 43, 1582-1588.	4.0	24
61	Thinking like a consumer: Linking aquatic basal metabolism and consumer dynamics. <i>Limnology and Oceanography Letters</i> , 2021, 6, 1-17.	3.9	23
62	Modeling the coupled dynamics of stream metabolism and microbial biomass. <i>Limnology and Oceanography</i> , 2020, 65, 1573-1593.	3.1	21
63	The microbiome of cryospheric ecosystems. <i>Nature Communications</i> , 2022, 13, .	12.8	20
64	Patterns and Drivers of Extracellular Enzyme Activity in New Zealand Glacier-Fed Streams. <i>Frontiers in Microbiology</i> , 2020, 11, 591465.	3.5	18
65	Trait-specific dispersal of bacteria in heterogeneous porous environments: from pore to porous medium scale. <i>Journal of the Royal Society Interface</i> , 2020, 17, 20200046.	3.4	18
66	Optimised biomolecular extraction for metagenomic analysis of microbial biofilms from high-mountain streams. <i>PeerJ</i> , 2020, 8, e9973.	2.0	18
67	Voronoi Tessellation Captures Very Early Clustering of Single Primary Cells as Induced by Interactions in Nascent Biofilms. <i>PLoS ONE</i> , 2011, 6, e26368.	2.5	17
68	Gravel bars are sites of increased CO ₂ outgassing in stream corridors. <i>Scientific Reports</i> , 2017, 7, 14401.	3.3	16
69	Regimes of primary production and their drivers in Alpine streams. <i>Freshwater Biology</i> , 2021, 66, 1449-1463.	2.4	15
70	Unexpectedly minor nitrous oxide emissions from fluvial networks draining permafrost catchments of the East Qinghai-Tibet Plateau. <i>Nature Communications</i> , 2022, 13, 950.	12.8	15
71	Glacier shrinkage will accelerate downstream decomposition of organic matter and alters microbiome structure and function. <i>Global Change Biology</i> , 2022, 28, 3846-3859.	9.5	15
72	The odonate mating system, communication, and sexual selection: A review. <i>Bollettino Di Zoologia</i> , 1993, 60, 353-360.	0.3	14

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73	A mass-spring model unveils the morphogenesis of phototrophic Diatoma biofilms. <i>Scientific Reports</i> , 2015, 4, 3649.	3.3	14
74	Environmental heterogeneity promotes spatial resilience of phototrophic biofilms in streambeds. <i>Biology Letters</i> , 2018, 14, 20180432.	2.3	14
75	The Metabolic Regimes at the Scale of an Entire Stream Network Unveiled Through Sensor Data and Machine Learning. <i>Ecosystems</i> , 2021, 24, 1792-1809.	3.4	14
76	Dynamics and potential drivers of CO ₂ concentration and evasion across temporal scales in high-alpine streams. <i>Environmental Research Letters</i> , 2019, 14, 124082.	5.2	13
77	Benthic Biofilms in Glacier-Fed Streams from Scandinavia to the Himalayas Host Distinct Bacterial Communities Compared with the Streamwater. <i>Applied and Environmental Microbiology</i> , 2022, 88, .	3.1	12
78	Morphogenesis and oxygen dynamics in phototrophic biofilms growing across a gradient of hydraulic conditions. <i>IScience</i> , 2021, 24, 102067.	4.1	11
79	Revision of the puella group of the genus <i>Coenagrion</i> Kirby, 1890 (Odonata, Zygoptera), with emphasis on morphologies contributing to reproductive isolation. <i>Hydrobiologia</i> , 1993, 262, 13-29.	2.0	10
80	Sources and variability of CO ₂ in a prealpine stream gravel bar. <i>Hydrological Processes</i> , 2019, 33, 2279-2299.	2.6	10
81	Benchmarking protocols for the metagenomic analysis of stream biofilm viromes. <i>PeerJ</i> , 2019, 7, e8187.	2.0	9
82	Hydrology controls the carbon mass balance of a mountain lake in the eastern European Alps. <i>Limnology and Oceanography</i> , 2021, 66, 2110-2125.	3.1	8
83	A New UV Oxidation Setup for Small Radiocarbon Samples in Solution. <i>Radiocarbon</i> , 2013, 55, 373-382.	1.8	7
84	Catchment land cover influences macroinvertebrate food web structure and energy flow pathways in mountain streams. <i>Freshwater Biology</i> , 2019, 64, 1557-1571.	2.4	7
85	Travel Time and Source Variation Explain the Molecular Transformation of Dissolved Organic Matter in an Alpine Stream Network. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2020, 125, e2019JG005616.	3.0	7
86	Daily entropy of dissolved oxygen reveals different energetic regimes and drivers among high mountain stream types. <i>Limnology and Oceanography</i> , 2021, 66, 1594-1610.	3.1	7
87	The Microbial Ecology of Benthic Environments. , 2015, , 4.2.1-1-4.2.1-20.		6
88	Sources, Transformation, and Fate of Dissolved Organic Matter in the Gravel Bar of a Prealpine Stream. <i>Journal of Geophysical Research G: Biogeosciences</i> , 2020, 125, e2019JG005604.	3.0	6
89	Biophysical properties at patch scale shape the metabolism of biofilm landscapes. <i>Npj Biofilms and Microbiomes</i> , 2022, 8, 5.	6.4	6
90	Light and hydrologic variability as drivers of stream biofilm dynamics in a flume experiment. <i>Ecohydrology</i> , 2014, 7, 391-400.	2.4	5

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91	Microbial metabolism mediates interactions between dissolved organic matter and clay minerals in streamwater. <i>Scientific Reports</i> , 2016, 6, 30971.	3.3	4
92	Automated 3D Optical Coherence Tomography to Elucidate Biofilm Morphogenesis Over Large Spatial Scales. <i>Journal of Visualized Experiments</i> , 2019, , .	0.3	4
93	Microbial Ecology of Methanotrophy in Streams Along a Gradient of CH ₄ Availability. <i>Frontiers in Microbiology</i> , 2020, 11, 771.	3.5	4
94	Viral diversity is linked to bacterial community composition in alpine stream biofilms. <i>ISME Communications</i> , 2022, 2, .	4.2	4
95	A New UV Oxidation Setup for Small Radiocarbon Samples in Solution. <i>Radiocarbon</i> , 2013, 55, .	1.8	2