James M Waddington

List of Publications by Year
in descending order

118 papers	6,187 citations	57631 44 h-index	79541 73 g-index
126 all docs	126 docs citations	126 times ranked	4226 citing authors

#	Article	IF	Citations
1	Hydrological feedbacks in northern peatlands. Ecohydrology, 2015, 8, 113-127.	1.1	335
2	Atmosphere-wetland carbon exchanges: Scale dependency of CO2and CH4exchange on the developmental topography of a peatland. Global Biogeochemical Cycles, 1996, 10, 233-245.	1.9	211
3	Cutover peatlands: A persistent source of atmospheric CO2. Global Biogeochemical Cycles, 2002, 16, 1-7.	1.9	189
4	Carbon balance of a boreal patterned peatland. Global Change Biology, 2000, 6, 87-97.	4.2	184
5	Shortâ€term response of methane fluxes and methanogen activity to water table and soil warming manipulations in an Alaskan peatland. Journal of Geophysical Research, 2008, 113, .	3.3	176
6	Water table control of CH4emission enhancement by vascular plants in boreal peatlands. Journal of Geophysical Research, 1996, 101, 22775-22785.	3.3	165
7	Relationship between ecosystem productivity and photosynthetically active radiation for northern peatlands. Global Biogeochemical Cycles, 1998, 12, 115-126.	1.9	165
8	Effects of Experimental Water Table and Temperature Manipulations on Ecosystem CO2 Fluxes in an Alaskan Rich Fen. Ecosystems, 2009, 12, 1329-1342.	1.6	157
9	Response of peatland carbon dioxide and methane fluxes to a water table drawdown experiment. Global Biogeochemical Cycles, 2007, 21, .	1.9	149
10	Interactive effects of vegetation, soil moisture and bulk density on depth of burning of thick organic soils. International Journal of Wildland Fire, 2011, 20, 418.	1.0	148
11	Moisture controls on <i>Sphagnum</i> growth and CO₂ exchange on a cutover bog. Journal of Applied Ecology, 2003, 40, 354-367.	1.9	147
12	Response of vegetation and net ecosystem carbon dioxide exchange at different peatland microforms following water table drawdown. Journal of Geophysical Research, 2006, 111, n/a-n/a.	3.3	145
13	Effect of water table drawdown on northern peatland methane dynamics: Implications for climate change. Global Biogeochemical Cycles, 2004, 18, n/a-n/a.	1.9	141
14	Effect of water table drawdown on peatland dissolved organic carbon export and dynamics. Hydrological Processes, 2008, 22, 3373-3385.	1.1	129
15	Moderate drop in water table increases peatland vulnerability to post-fire regime shift. Scientific Reports, 2015, 5, 8063.	1.6	122
16	Ebullition of methane-containing gas bubbles from near-surfaceSphagnumpeat. Geophysical Research Letters, 2004, 31, n/a-n/a.	1.5	120
17	Dynamics of biogenic gas bubbles in peat and their effects on peatland biogeochemistry. Global Biogeochemical Cycles, 2005, 19, .	1.9	119
18	Interannual variability of net ecosystem CO2exchange at a subarctic fen. Global Biogeochemical Cycles, 2000, 14, 1109-1121.	1.9	112

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19	EFFECT OF PEATLAND DRAINAGE, HARVESTING, AND RESTORATION ON ATMOSPHERIC WATER AND CARBON EXCHANGE. Physical Geography, 2000, 21, 433-451.	0.6	109
20	Increasing contribution of peatlands to boreal evapotranspiration in a warming climate. Nature Climate Change, 2020, 10, 555-560.	8.1	106
21	Methane emissions from a peatland following restoration. Journal of Geophysical Research, 2007, 112, .	3.3	98
22	FLOW REVERSALS IN PEATLANDS INFLUENCED BY LOCAL GROUNDWATER SYSTEMS. Hydrological Processes, 1997, 11, 103-110.	1.1	91
23	Toward restoring the net carbon sink function of degraded peatlands: Shortâ€term response in CO₂ exchange to ecosystemâ€scale restoration. Journal of Geophysical Research, 2010, 115, .	3.3	87
24	Sedge Succession and Peatland Methane Dynamics: A Potential Feedback to Climate Change. Ecosystems, 2006, 9, 278-287.	1.6	84
25	Effect of temperature and atmospheric pressure on methane (CH4) ebullition from near-surface peats. Geophysical Research Letters, 2006, 33, n/a-n/a.	1.5	82
26	Effect of water table drawdown on peatland nutrient dynamics: implications for climate change. Biogeochemistry, 2013, 112, 661-676.	1.7	78
27	Statistical characterization of the spatial variability of soil moisture in a cutover peatland. Hydrological Processes, 2004, 18, 41-52.	1.1	73
28	Dynamics of biogenic gas bubbles in peat: Potential effects on water storage and peat deformation. Water Resources Research, 2005, 41, .	1.7	70
29	Hydrological controls on deep burning in a northern forested peatland. Hydrological Processes, 2015, 29, 4114-4124.	1.1	67
30	Advances in Canadian wetland hydrology an biogeochemistry. Hydrological Processes, 2000, 14, 1579-1589.	1.1	64
31	Ecosystem scale evapotranspiration and net CO2 exchange from a restored peatland. Hydrological Processes, 2001, 15, 2839-2845.	1.1	62
32	Mitigating wildfire carbon loss in managed northern peatlands through restoration. Scientific Reports, 2016, 6, 28498.	1.6	59
33	Atmospheric CO₂sequestration in restored mined peatlands. Ecoscience, 2001, 8, 359-368.	0.6	58
34	<i>Sphagnum</i> under pressure: towards an ecohydrological approach to examining <i>Sphagnum</i> productivity. Ecohydrology, 2008, 1, 299-308.	1.1	58
35	Effect of drainage and wildfire on peat hydrophysical properties. Hydrological Processes, 2013, 27, 1866-1874.	1.1	56
36	Peat properties and water retention in boreal forested peatlands subject to wildfire. Water Resources Research, 2013, 49, 3651-3658.	1.7	55

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37	The ecohydrology of forested peatlands: Simulating the effects of tree shading on moss evaporation and species composition. Journal of Geophysical Research G: Biogeosciences, 2013, 118, 422-435.	1.3	53
38	Groundwater connectivity controls peat burn severity in the boreal plains. Ecohydrology, 2016, 9, 574-584.	1.1	53
39	Landscape controls on longâ€term runoff in subhumid heterogeneous Boreal Plains catchments. Hydrological Processes, 2017, 31, 2737-2751.	1.1	53
40	Differential peat deformation, compressibility, and water storage between peatland microforms: Implications for ecosystem function and development. Water Resources Research, 2010, 46, .	1.7	51
41	Scientists' warning on extreme wildfire risks to water supply. Hydrological Processes, 2021, 35, e14086.	1.1	51
42	Pressure variations in peat as a result of gas bubble dynamics. Hydrological Processes, 2004, 18, 2599-2605.	1.1	50
43	Effect of entrapped gas on peatland surface level fluctuations. Hydrological Processes, 2006, 20, 3611-3622.	1.1	50
44	Scaling net ecosystem CO2 exchange from the community to landscape-level at a subarctic fen. Global Change Biology, 2000, 6, 459-473.	4.2	47
45	Controls on methane released through ebullition in peatlands affected by permafrost degradation. Journal of Geophysical Research G: Biogeosciences, 2014, 119, 418-431.	1.3	46
46	Moisture controls on CO₂ exchange in a <i>Sphagnum</i>â€dominated peatland: results from an extreme drought field experiment. Ecohydrology, 2009, 2, 454-461.	1.1	44
47	Dissolved organic carbon export from a cutover and restored peatland. Hydrological Processes, 2008, 22, 2215-2224.	1.1	43
48	Seasonal ice and hydrologic controls on dissolved organic carbon and nitrogen concentrations in a borealâ€rich fen. Journal of Geophysical Research, 2010, 115, .	3.3	43
49	The response of soil organic carbon of a rich fen peatland in interior Alaska to projected climate change. Global Change Biology, 2013, 19, 604-620.	4.2	43
50	Towards quantifying the negative feedback regulation of peatland evaporation to drought. Hydrological Processes, 2014, 28, 3728-3740.	1.1	41
51	Did enhanced afforestation cause high severity peat burn in the Fort McMurray Horse River wildfire?. Environmental Research Letters, 2018, 13, 014018.	2.2	41
52	Spatiotemporal variability in peatland subsurface methane dynamics. Journal of Geophysical Research, 2008, 113, .	3.3	40
53	Analysis of storm run-off sources using oxygen-18 in a headwater swamp. Hydrological Processes, 1993, 7, 305-316.	1.1	39
54	Peat oxidation in an abandoned cutover peatland. Canadian Journal of Soil Science, 2002, 82, 279-286.	0.5	37

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55	Methane Dynamics in Peat: Importance of Shallow Peats and a Novel Reduced-Complexity Approach for Modeling Ebullition. Geophysical Monograph Series, 0, , 173-185.	0.1	35
56	Multi-decadal Changes in Water Table Levels Alter Peatland Carbon Cycling. Ecosystems, 2017, 20, 1042-1057.	1.6	35
57	Effect of atmospheric pressure and temperature on entrapped gas content in peat. Hydrological Processes, 2009, 23, 2970-2980.	1.1	34
58	Groundwater residence time distributions in peatlands: Implications for peat decomposition and accumulation. Water Resources Research, 2011, 47, .	1.7	34
59	Water balance of a burned and unburned forested boreal peatland. Hydrological Processes, 2014, 28, 5954-5964.	1.1	34
60	Estimating the heat transfer to an organic soil surface during crown fire. International Journal of Wildland Fire, 2015, 24, 120.	1.0	33
61	Effect of drought on hydrology and sulphate dynamics in a temperate swamp. Hydrological Processes, 2001, 15, 3133-3150.	1.1	32
62	Wildfire effects on vadose zone hydrology in forested boreal peatland microforms. Journal of Hydrology, 2013, 486, 48-56.	2.3	32
63	Environmental drivers of <i>Sphagnum</i> growth in peatlands across the Holarctic region. Journal of Ecology, 2021, 109, 417-431.	1.9	32
64	Impact of wildfire on the thermal behavior of northern peatlands: Observations and model simulations. Journal of Geophysical Research, 2012, 117, .	3.3	31
65	The biophysical climate mitigation potential of boreal peatlands during the growing season. Environmental Research Letters, 2020, 15, 104004.	2.2	31
66	Oxidative stress, inflammation, and muscle soreness in an 894-km relay trail run. European Journal of Applied Physiology, 2012, 112, 1839-1848.	1.2	30
67	The effect of peat structure on the spatial distribution of biogenic gases within bogs. Hydrological Processes, 2014, 28, 5483-5494.	1.1	29
68	Burn severity alters peatland moss water availability: implications for postâ€fire recovery. Ecohydrology, 2016, 9, 341-353.	1.1	29
69	Hydrophobicity of peat soils: Characterization of organic compound changes associated with heat-induced water repellency. Science of the Total Environment, 2020, 714, 136444.	3.9	28
70	Reducing the Carbon Footprint of Canadian Peat Extraction and Restoration. Ambio, 2009, 38, 194-200.	2.8	25
71	Environmental and taxonomic controls of carbon and oxygen stable isotope composition in <i>Sphagnum</i> across broad climatic and geographic ranges. Biogeosciences, 2018, 15, 5189-5202.	1.3	25
72	Moss and peat hydraulic properties are optimized to maximize peatland water use efficiency. Ecohydrology, 2016, 9, 1039-1051.	1.1	24

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73	Shifting environmental controls on CH₄ fluxes in a sub-boreal peatland. Biogeosciences, 2013, 10, 7971-7981.	1.3	23
74	Postfire Soil Carbon Accumulation Does Not Recover Boreal Peatland Combustion Loss in Some Hydrogeological Settings. Journal of Geophysical Research G: Biogeosciences, 2019, 124, 775-788.	1.3	23
75	<i>Sphagnum</i> moss moisture retention following the reâ€vegetation of degraded peatlands. Ecohydrology, 2011, 4, 359-366.	1.1	22
76	Seasonal variation in albedo and radiation exchange between a burned and unburned forested peatland: implications for peatland evaporation. Hydrological Processes, 2015, 29, 3227-3235.	1.1	22
77	Advances in Canadian Peatland Hydrology, 2003-2007. Canadian Water Resources Journal, 2009, 34, 139-148.	0.5	21
78	Utikuma Region Study Area (URSA) â€“ Part 1: Hydrogeological and ecohydrological studies (HEAD). Forestry Chronicle, 2016, 92, 57-61.	0.5	21
79	Low Evapotranspiration Enhances the Resilience of Peatland Carbon Stocks to Fire. Geophysical Research Letters, 2017, 44, 9341-9349.	1.5	21
80	Shallow peat is most vulnerable to high peat burn severity during wildfire. Environmental Research Letters, 2020, 15, 104032.	2.2	21
81	Assessing the peatland hummockâ€“hollow classification framework using high-resolution elevation models: implications for appropriate complexity ecosystem modeling. Biogeosciences, 2019, 16, 3491-3506.	1.3	18
82	Moisture dynamics and hydrophysical properties of a transplanted acrotelm on a cutover peatland. Hydrological Processes, 2008, 22, 1776-1787.	1.1	17
83	Net ecosystem CO2 exchange of a cutover peatland rehabilitated with a transplanted acrotelm. Ecoscience, 2008, 15, 258-267.	0.6	17
84	Severe wildfire exposes remnant peat carbon stocks to increased post-fire drying. Scientific Reports, 2019, 9, 3727.	1.6	17
85	Do peatland microforms move through time? Examining the developmental history of a patterned peatland using groundâ€penetrating radar. Journal of Geophysical Research, 2012, 117, .	3.3	16
86	Threshold peat burn severity breaks evaporationâ€limiting feedback. Ecohydrology, 2020, 13, e2168.	1.1	16
87	Delineating boreal plains bog margin ecotones across hydrogeological settings for wildfire risk management. Wetlands Ecology and Management, 2018, 26, 1037-1046.	0.7	15
88	Assessing Drivers of Cross-Scale Variability in Peat Smoldering Combustion Vulnerability in Forested Boreal Peatlands. Frontiers in Forests and Global Change, 2019, 2, .	1.0	15
89	Modelling groundwater-surface water mixing in a headwater wetland: implications for hydrograph separation. Hydrological Processes, 2000, 14, 2697-2710.	1.1	14
90	Peat depth as a control on moss water availability under evaporative stress. Hydrological Processes, 2017, 31, 4107-4121.	1.1	14

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91	Ecosystem scale evapotranspiration and CO₂ exchange in burned and unburned peatlands: Implications for the ecohydrological resilience of carbon stocks to wildfire. Ecohydrology, 2020, 13, e2189.	1.1	14
92	Modelling <i>Sphagnum</i> moisture stress in response to projected 21stâ€century climate change. Hydrological Processes, 2015, 29, 3966-3982.	1.1	13
93	Controls on soil carbon dioxide and methane fluxes from a peat swamp vary by hydrogeomorphic setting. Ecohydrology, 2019, 12, e2162.	1.1	12
94	Hydrological and thermal properties of moss and lichen species on rock barrens: Implications for turtle nesting habitat. Ecohydrology, 2019, 12, e2057.	1.1	12
95	Increased Peatland Nutrient Availability Following the Fort McMurray Horse River Wildfire. Diversity, 2019, 11, 142.	0.7	11
96	Seismic Lines in Treed Boreal Peatlands as Analogs for Wildfire Fuel Modification Treatments. Fire, 2020, 3, 21.	1.2	11
97	Extreme variability of water table dynamics in temperate calcareous fens: Implications for biodiversity. Hydrological Processes, 2011, 25, 3790-3802.	1.1	10
98	Peat deformation and biogenic gas bubbles control seasonal variations in peat hydraulic conductivity. Hydrological Processes, 2013, 27, 3208-3216.	1.1	10
99	Initial Effects of Wildfire on Freshwater Turtle Nesting Habitat. Journal of Wildlife Management, 2020, 84, 1373-1383.	0.7	10
100	Evidence that piezometers vent gas from peat soils and implications for poreâ€water pressure and hydraulic conductivity measurements. Hydrological Processes, 2009, 23, 1249-1254.	1.1	9
101	Validity of managing peatlands with fire. Nature Geoscience, 2019, 12, 884-885.	5.4	9
102	Peat depth as a control on<i>Sphagnum</i>moisture stress during seasonal drought. Hydrological Processes, 2021, 35, e14117.	1.1	9
103	Disturbance Impacts on Thermal Hot Spots and Hot Moments at the Peatlandâ€Atmosphere Interface. Geophysical Research Letters, 2018, 45, 185-193.	1.5	8
104	Hydraulic redistribution and hydrological controls on aspen transpiration and establishment in peatlands following wildfire. Hydrological Processes, 2019, 33, 2714-2728.	1.1	7
105	Assessment of an integrated peat-harvesting and reclamation method: peatland-atmosphere carbon fluxes and vegetation recovery. Wetlands Ecology and Management, 2015, 23, 491-504.	0.7	6
106	Effect of hydrogeomorphic setting on calcareous fen hydrology. Hydrological Processes, 2018, 32, 1695-1708.	1.1	6
107	Primary Drivers of Reptile Overwintering Habitat Suitability: Integrating Wetland Ecohydrology and Spatial Complexity. BioScience, 2020, 70, 597-609.	2.2	6
108	Mapping smouldering fire potential in boreal peatlands and assessing interactions with the wildlandâ€"human interface in Alberta, Canada. International Journal of Wildland Fire, 2021, 30, 552-563.	1.0	6

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109	Portable irrigation system for studying hillslope and wetland runoff generation processes. Hydrological Processes, 2001, 15, 281-287.	1.1	5
110	Regulation of peatland evaporation following wildfire; the complex control of soil tension under dynamic evaporation demand. Hydrological Processes, 2021, 35, e14132.	1.1	5
111	Landscape and weather controls on fine-scale calcareous fen hydrodynamics. Hydrology Research, 2012, 43, 780-797.	1.1	4
112	Spatial Heterogeneity of Surface Topography in Peatlands: Assessing Overwintering Habitat Availability for the Eastern Massasauga Rattlesnake. Wetlands, 2020, 40, 2337-2349.	0.7	4
113	Temporal variability of overwintering conditions for a species-at-risk snake: Implications for climate change and habitat management. Global Ecology and Conservation, 2020, 22, e00923.	1.0	4
114	The influence of system heterogeneity on peat-surface temperature dynamics. Environmental Research Letters, 2021, 16, 024002.	2.2	3
115	Ten Best Practices to Strengthen Stewardship and Sharing of Water Science Data in Canada. Hydrological Processes, 0, , e14385.	1.1	3
116	Ecohydrological controls on lichen and moss CO₂ exchange in rock barrens turtle nesting habitat. Ecohydrology, 2021, 14, .	1.1	2
117	Multi-scale Assessment of Rock Barrens Turtle Nesting Habitat: Effects of Moisture and Temperature on Hatch Success. Ichthyology and Herpetology, 2021, 109, .	0.3	2
118	Advances in Canadian wetland hydrology an biogeochemistry. , 2000, 14, 1579.		1