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On the determination of mass transfer in a concentration boundary layer

Gregory N. Nishihara[1] *and Josef D. Ackerman*[*1,2]
[1]Department of Integrative Biology and [2]Faculty of Environmental Sciences, University of Guelph, Guelph, Ontario, N1G 2W1, Canada

Web Appendix A

The O_2 flux (J_{obs}) estimated for ecological systems using the hyperbolic tangent, linear, and logarithmic models

		Hyperbolic tangent model			Linear model			Logarithmic model			
Ecological system	**Original figure**	J_{obs} (μmol m^{-2} s^{-1})	*n*	r^2	J_{obs} (μmol m^{-2} s^{-1})	*n*	r^2	J_{obs} (μmol m^{-2} s^{-1})	*n*	r^2	**Reference***
Sediment	2	–1.16	18	1.00	–1.08	8	1.00	–2.08	13	0.98	1
Sediment	2	–1.38	18	1.00	–1.18	8	1.00	–2.15	9	0.99	1
Sediment	2	–1.75	18	1.00	–1.37	7	0.99	–2.84	14	1.00	1
Sediment	2	–2.31	18	1.00	–1.68	6	0.99	–3.29	5	0.99	1
Sediment	2	–2.93	18	0.99	–2.08	5	0.99	–6.90	6	0.96	1
Sediment	2	–3.34	18	0.99	–1.90	5	0.93	–6.36	4	0.97	1
Biofilm	3	–0.24	11	1.00	–0.22	5	1.00	–0.40	6	0.99	2
Biofilm	3	–0.26	11	1.00	–0.23	4	1.00	–0.34	4	0.99	2
Biofilm	3	–0.28	11	0.99	–0.22	5	0.99	–0.39	4	0.98	2
Biofilm	1	–3.63	12	0.96	–2.48	6	0.90	–3.02	10	0.98	3
Planktonic algae	5	0.42	9	1.00	0.34	6	0.99	0.64	5	0.98	4
Planktonic algae	5	0.43	9	0.99	0.28	7	0.97	0.56	5	0.99	4
Planktonic algae	5	0.33	9	1.00	0.28	5	0.99	0.55	5	0.98	4
Planktonic algae	5	0.31	9	0.99	0.22	6	0.98	0.47	5	0.99	4
Epilithic algae	2A	4.84	24	0.99	4.13	10	1.00	5.31	6	0.99	5
Epilithic algae	2A	4.41	24	0.99	3.50	12	1.00	5.13	7	0.99	5
Epilithic algae	2A	1.54	24	0.97	1.48	11	0.99	1.92	8	0.96	5
Epilithic algae	2A	0.45	24	0.97	0.45	11	0.95	0.69	8	0.91	5
Epilithic algae	2A	0.21	24	0.91	0.20	15	0.91	0.40	10	0.91	5
Epilithic algae	2A	–0.80	24	0.99	–0.53	15	0.98	–1.06	10	0.98	5
Epilithic algae	2A	–1.00	24	1.00	–0.82	10	0.99	–1.31	10	0.99	5

Negative J_{obs} indicate O_2 uptake and positive J_{obs} indicate O_2 production. Data were digitized from publications. *1, Jørgensen and Des Marais 1990; 2, Glud et al. 1994; 3, Lewandowski et al. 1993; 4, Ploug et al. 1999; 5, Larkum et al. 2003