

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

ANEXOS

Anexo 1. Base de datos fisicoquímica y biológica del embalse Porce II

ABRIL DE 2010

Estación	Muestra	Transparencia Secchi (m)	Profundidad muestra (m)	Temperatura del agua (°C)	Oxígeno disuelto (mg/L)	Saturación de oxígeno (%)	pH (Unidades pH)	Conductividad eléctrica (µS/cm)	Alcalinidad total (mg CaCO ₃ /L)	Dióxido de carbono (mg/L)	Potencial de óxido-reducción (mV)	Dureza total (mg CaCO ₃ /L)	Dureza cálcica (mg CaCO ₃ /L)	Dureza magnésica (mg CaCO ₃ /L)	Sólidos Disueltos (mg/L)	Sólidos suspendidos (mg/L)	Sólidos totales (mg/L)
1	Subsuperficie	0.10	0.27	24.00	5.05	62.02	7.13	189.0	30.71	4.40	203.8	80.0	41.5	38.5	130.0	140.0	270.0
1	Fondo		3.20	24.30	4.89	60.37	7.09	189.1	28.00	4.40	207.9	77.0	42.0	35.0	128.0	141.0	269.0
2	Subsuperficie	0.15	0.10	24.20	4.23	52.13	6.86	177.8	19.73	5.28	205.1	72.0	56.0	16.0	116.0	35.0	151.0
2	1% Luz Incidente		0.41	24.00	4.43	54.41	6.70	177.6	13.63	5.28	214.0	75.0	51.5	23.5	128.0	30.0	158.0
2	Fondo		6.10	23.20	3.4	41.17	6.56	180.2	11.50	6.16	207.8	85.0	47.5	37.5	120.0	233.0	353.0
3	Subsuperficie	0.40	0.10	26.10	5.06	64.41	6.85	178.1	16.07	4.40	164.5	83.0	57.0	26.0	124.0	4.0	128.0
3	10% luz Incidente		0.52	26.30	5.21	66.54	6.93	199.8	19.33	4.40	181.3	82.0	60.0	22.0	92.0	8.0	100.0
3	1% Luz Incidente		1.08	25.80	4.73	59.91	6.85	178.2	16.07	4.40	175.4	84.0	60.5	23.5	154.0	5.0	159.0
3	Fondo		5.00	25.50	0.73	9.20	6.58	202.0	17.21	8.80	159.3	85.0	62.8	22.2	156.0	7.0	163.0
4	Subsuperficie	0.25	0.10	25.80	0.55	6.97	5.26	254.0	1.46	15.84	150.0	88.0	50.0	38.0	146.0	4.0	150.0
4	1% Luz Incidente		0.68	25.10	0.2	2.50	5.28	205.0	1.53	15.84	117.0	86.0	56.0	30.0	128.0	4.0	132.0
4	Fondo		12.00	24.00	0.8	9.82	5.51	201.0	1.59	9.68	150.0	89.0	43.0	46.0	160.0	93.0	253.0
5	Subsuperficie	0.40	0.10	28.20	6.55	86.29	6.80	192.0	8.59	2.64	198.2	79.0	58.0	21.0	106.0	4.0	110.0
5	10% luz Incidente		0.52	28.50	6.25	82.73	6.02	192.3	2.35	4.40	204.3	77.0	63.0	14.0	136.0	4.0	140.0
5	1% Luz Incidente		1.08	28.10	5.7	74.97	6.37	190.3	5.29	4.40	189.3	75.0	65.0	10.0	106.0	3.0	109.0
5	Fondo		5.00	27.70	2.32	30.32	6.12	183.6	4.75	7.04	187.3	77.0	56.0	21.0	118.0	4.0	122.0
6	Subsuperficie	0.60	0.10	25.20	5.82	72.97	7.08	231.0	43.77	7.04	207.1	76.0	63.0	13.0	132.0	4.0	136.0
6	10% luz Incidente		0.78	26.50	4.71	60.36	7.08	227.0	49.24	7.92	101.6	82.0	69.0	13.0	124.0	2.0	126.0
6	1% Luz Incidente		1.62	26.80	4.06	52.29	6.95	227.0	36.45	7.92	167.0	79.0	70.0	9.0	134.0	5.0	139.0
6	Fondo		17.70	24.00	0.68	8.35	6.84	217.0	43.96	12.32	70.0	88.0	59.0	29.0	132.0	6.0	138.0
7	Subsuperficie	0.37	0.10	26.20	2.75	35.07	7.05	226.0	ND	ND	ND	81.0	69.0	12.0	142.0	14.0	156.0
7	1% Luz Incidente		1.00	26.30	3.57	45.60	7.02	228.0	33.33	6.16	ND	79.0	68.5	10.5	144.0	13.0	157.0
7	Fondo		11.90	24.40	2.79	34.50	7.70	207.0	ND	7.92	ND	88.0	58.5	29.5	134.0	12.0	146.0
8	Subsuperficie	0.70	0.10	27.50	7.43	96.78	7.43	230.0	36.89	2.64	173.9	86.0	72.0	14.0	192.0	6.0	198.0
8	10% luz Incidente		0.91	26.90	6.97	89.91	7.39	233.0	33.63	2.64	161.1	86.0	65.0	21.0	200.0	4.0	204.0
8	1% Luz Incidente		1.89	26.80	7.17	92.34	7.37	231.0	ND	ND	170.8	85.0	59.0	26.0	160.0	6.0	166.0
8	Fondo		52.65	24.30	0.54	6.67	6.95	238.0	60.75	13.20	169.7	110.0	51.0	59.0	174.0	1.0	175.0
9	Subsuperficie	0.37	0.10	28.80	9.47	125.95	8.19	230.0	ND	2.64	238.0	80.0	65.0	15.0	132.0	9.0	141.0
9	1% Luz Incidente		1.00	27.70	7.51	98.14	7.97	246.0	ND	2.64	170.6	81.0	65.0	16.0	148.0	12.0	160.0
9	Fondo		17.30	25.30	0.60	7.54	6.89	243.0	52.87	13.20	8.0	87.0	59.0	28.0	150.0	175.0	325.0
11	Subsuperficie	0.70	0.10	27.70	12.00	156.82	8.85	231.0	ND	0.88	139.5	86.0	57.0	29.0	154.0	6.0	160.0
11	1% Luz Incidente		1.89	26.60	6.28	80.61	7.56	231.0	49.83	2.64	146.2	84.0	57.5	26.5	138.0	9.0	147.0
11	Fondo		57.00	24.90	0.79	9.85	6.70	216.0	43.15	16.72	164.0	89.0	56.5	32.5	146.0	9.0	155.0
12	Subsuperficie	0.60	0.10	27.90	8.80	115.37	8.68	231.0	ND	ND	145.3	81.0	55.0	26.0	166.0	8.0	174.0
12	10% luz Incidente		0.78	27.30	8.20	106.47	8.37	231.0	ND	ND	132.1	80.0	61.5	18.5	158.0	10.0	168.0
12	1% Luz Incidente		1.62	27.30	8.49	110.23	8.37	231.0	ND	ND	140.2	76.0	63.0	13.0	162.0	9.0	171.0
12	Fondo		86.00	23.90	2.12	25.99	6.68	206.0	36.86	14.96	16.0	83.0	48.0	35.0	146.0	8.0	154.0
13	Subsuperficie	NA	0.10	25.60	ND	ND	6.24	210.0	6.27	7.04	148.8	78.0	55.0	23.0	164.0	5.0	169.0

N.A.: No aplica, N.D.: No determinado

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Estación	Muestra	Nitratos (mg N-NO ₃ ⁻ /L)	Nitritos (mg N-NO ₂ ⁻ /L)	Nitrógeno amoniacoal (mg N-NH ₄ ⁺ /L)	Nitrógeno total Kheldahl (mg N/L)	Nitrógeno organico (mg N/L)	Nitrogeno total (mg N/L)	Fósforo total (mg P/L)	Ortofosfatos (mg P-PO ₄ ³⁻ /L)	Sílice (mg SiO ₂ /L)	Clorofila <i>a</i> (µg/L)
1	Subsuperficie	ND	0.411	2.902	4.333	1.431	7.646	ND	ND	11.694	ND
1	Fondo	ND	0.442	4.166	5.173	1.006	9.781	ND	ND	10.188	ND
2	Subsuperficie	0.376	0.404	2.117	3.553	1.436	6.450	ND	ND	10.465	ND
2	1% Luz Incidente	0.374	0.394	2.596	3.167	0.571	6.531	ND	ND	8.345	ND
2	Fondo	0.377	0.404	2.915	3.699	0.784	7.395	ND	ND	8.248	ND
3	Subsuperficie	0.297	0.064	2.528	3.555	1.026	6.444	ND	ND	12.947	ND
3	10% luz Incidente	0.303	0.072	1.025	2.069	1.044	3.469	ND	ND	13.345	ND
3	1% Luz Incidente	0.302	0.057	4.032	5.040	1.008	9.432	ND	ND	12.875	ND
3	Fondo	0.370	0.063	3.940	4.949	1.009	9.321	ND	ND	11.839	ND
4	Subsuperficie	ND	ND	2.974	3.994	1.021	6.968	ND	ND	8.369	ND
4	1% Luz Incidente	ND	ND	1.705	2.311	0.606	4.016	ND	ND	8.188	ND
4	Fondo	ND	ND	2.344	4.150	1.806	6.493	ND	ND	8.248	ND
5	Subsuperficie	ND	ND	0.610	1.084	0.473	1.694	ND	ND	11.092	ND
5	10% luz Incidente	ND	ND	0.292	0.504	0.212	0.796	ND	ND	11.381	ND
5	1% Luz Incidente	ND	ND	0.887	1.588	0.700	2.475	ND	ND	11.851	ND
5	Fondo	ND	0.011	3.671	5.315	1.644	8.997	ND	ND	12.200	ND
6	Subsuperficie	0.345	0.386	1.302	2.343	1.041	4.376	ND	ND	7.248	ND
6	10% luz Incidente	0.369	0.443	0.731	1.779	1.048	3.322	ND	ND	6.790	ND
6	1% Luz Incidente	0.371	0.451	5.989	6.974	0.984	13.785	ND	ND	7.116	ND
6	Fondo	0.371	0.008	2.730	3.754	1.024	6.862	ND	ND	9.019	ND
7	Subsuperficie	ND	0.463	2.205	5.914	3.708	8.582	ND	ND	8.200	ND
7	1% Luz Incidente	ND	0.466	1.848	8.047	6.199	10.361	ND	ND	6.971	ND
7	Fondo	ND	0.358	2.581	7.627	5.046	10.566	ND	ND	10.296	ND
8	Subsuperficie	0.406	0.392	0.874	4.088	3.214	5.760	ND	ND	5.598	ND
8	10% luz Incidente	0.394	0.387	1.487	2.526	1.039	4.793	ND	ND	5.525	ND
8	1% Luz Incidente	0.401	0.419	0.865	4.567	3.702	6.252	ND	ND	5.995	ND
8	Fondo	ND	0.050	2.993	5.200	2.207	8.243	ND	ND	10.200	ND
9	Subsuperficie	0.409	0.354	1.000	2.313	1.314	4.077	ND	ND	6.634	ND
9	1% Luz Incidente	0.402	0.351	0.832	1.686	0.854	3.270	ND	ND	7.092	ND
9	Fondo	0.390	0.023	3.637	4.650	1.013	8.700	ND	ND	11.525	ND
11	Subsuperficie	0.401	0.392	1.134	2.177	1.043	4.105	ND	ND	3.778	ND
11	1% Luz Incidente	0.402	0.412	1.067	2.111	1.044	3.991	ND	ND	3.947	ND
11	Fondo	0.412	0.106	2.344	3.372	1.028	6.234	ND	ND	7.718	ND
12	Subsuperficie	0.401	0.402	1.076	1.932	0.856	3.811	ND	ND	3.851	ND
12	10% luz Incidente	0.407	0.411	1.584	2.856	1.272	5.257	ND	ND	3.393	ND
12	1% Luz Incidente	0.403	0.421	0.823	1.870	1.047	3.516	ND	ND	3.200	ND
12	Fondo	0.233	0.132	2.505	3.764	1.259	6.636	ND	ND	7.754	ND
13	Subsuperficie	0.392	0.153	2.041	3.073	1.032	5.659	ND	ND	10.742	ND

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JULIO DE 2010

Estación	Muestra	Transparencia Secchi (m)	Profundidad muestra (m)	Temperatura del agua (°C)	Oxígeno disuelto (mg/L)	Saturación de oxígeno (%)	pH (Unidades pH)	Conductividad eléctrica (µS/cm)	Alcalinidad total (mg CaCO ₃ /L)	Dióxido de carbono (mg/L)	Potencial de óxido-reducción (mV)	Dureza total (mg CaCO ₃ /L)	Dureza cálcica (mg CaCO ₃ /L)	Dureza magnésica (mg CaCO ₃ /L)	Sólidos Disueltos (mg/L)	Sólidos suspendidos (mg/L)	Sólidos totales (mg/L)
1	Subsuperficie	0.10	0.27	21.70	5.9	69.52	6.95	116.8	60.75	13.20	95.7	46.6	25.4	21.2	24.0	197.3	221.3
2	Subsuperficie	0.52	0.10	22.30	4.19	49.92	6.55	148.2	36.92	20.24	40.4	38.8	24.6	14.2	158.0	ND	ND
2	1% Luz Incidente		1.40	22.30	4.7	55.99	6.46	130.4	28.68	19.36	99.5	39.4	23.6	15.8	74.0	77.5	151.5
2	Fondo		4.85	22.10	4.61	54.72	6.53	145.6	35.25	20.24	52.1	38.4	25.1	13.3	122.0	55.6	177.6
3	Subsuperficie	ND	0.10	26.20	4.55	58.02	6.76	113.2	62.62	21.12	62.6	40.0	25.2	14.8	114.0	2.0	116.0
3	Fondo		6.30	24.50	1.02	12.64	6.67	123.2	67.80	28.16	96.3	37.4	23.3	14.1	110.0	10.0	120.0
4	Subsuperficie	1.15	0.10	22.50	0.5	5.98	6.59	127.9	81.00	40.48	29.3	36.4	ND	ND	76.0	4.4	80.4
4	1% Luz Incidente		3.11	22.70	0.48	5.76	6.45	128.6	38.21	26.40	60.8	39.0	ND	ND	104.0	2.8	106.8
4	Fondo		21.00	22.20	1.35	16.05	6.61	125.2	47.95	22.88	42.4	36.2	22.1	14.1	102.0	8.8	110.8
5	Subsuperficie	ND	0.10	25.60	4.31	54.41	6.89	89.8	49.35	12.32	49.4	31.2	20.8	10.4	90.0	ND	ND
5	Fondo		6.50	25.40	3.31	41.64	6.44	95.2	37.34	26.40	65.8	28.4	20.6	7.8	100.0	0.8	100.8
6	Subsuperficie	1.12	0.10	24.40	1.52	18.80	6.69	132.5	62.14	24.64	115.7	34.2	22.6	11.6	116.0	4.4	120.4
6	10% luz Incidente		1.46	24.80	1.45	18.06	6.01	130.4	15.65	29.92	44.7	34.0	25.8	8.2	104.0	1.6	105.6
6	1% Luz Incidente		3.02	24.70	1.62	20.14	5.99	132.3	14.50	29.04	47.8	34.2	22.8	11.4	122.0	2.0	124.0
6	Fondo		18.50	24.60	1.39	17.25	5.81	126.6	8.11	24.64	36.4	34.4	25.5	8.9	106.0	32.4	138.4
7	Subsuperficie	0.79	0.10	25.50	11.14	140.39	8.24	137.3	ND	ND	28.0	38.2	25.5	12.7	104.0	15.5	119.5
7	1% Luz Incidente		2.13	25.00	8.8	109.96	8.20	138.1	ND	ND	21.8	39.0	25.4	13.6	126.0	15.5	141.5
7	Fondo		16.16	22.60	4.51	54.02	6.71	145.7	44.16	16.72	46.8	38.8	23.8	15.0	126.0	64.0	190.0
8	Subsuperficie	0.80	0.10	20.90	7.06	81.95	8.15	130.9	ND	ND	ND	34.6	23.3	11.3	60.0	4.0	64.0
8	10% luz Incidente		1.04	22.00	7.79	92.30	8.00	132.0	45.97	0.88	ND	35.8	23.9	11.9	66.0	34.4	100.4
8	1% Luz Incidente		2.16	22.00	4.55	53.91	6.70	136.9	31.80	12.32	ND	34.8	23.3	11.5	68.0	2.0	70.0
8	Fondo		58.00	19.70	1.16	13.16	6.49	131.2	47.50	29.92	ND	47.2	20.9	26.3	100.0	ND	ND
9	Subsuperficie	0.40	0.10	26.30	10.80	137.94	9.34	146.1	ND	ND	12.2	42.4	25.8	16.6	124.0	138.0	262.0
9	1% Luz Incidente		1.08	25.10	10.32	129.17	8.70	137.9	ND	ND	25.9	38.8	24.8	14.0	122.0	23.5	145.5
9	Fondo		17.84	23.60	1.74	21.22	6.24	145.8	24.29	27.28	47.7	40.4	24.4	16.0	126.0	47.3	173.3
12	Subsuperficie	0.52	0.10	24.00	6.72	82.53	8.09	131.1	ND	2.64	ND	35.2	24.3	10.9	42.0	15.5	57.5
12	10% luz Incidente		0.68	23.70	6.42	78.43	8.05	131.0	ND	2.64	ND	35.2	24.3	10.9	56.0	21.0	77.0
12	1% Luz Incidente		1.40	23.20	6.11	73.98	7.84	130.9	ND	2.64	ND	35.6	24.5	11.1	64.0	20.0	84.0
12	Fondo		81.90	21.80	1.54	18.18	6.64	134.1	55.35	24.64	ND	35.6	25.1	10.5	30.0	4.8	34.8
13	Subsuperficie	NA	0.10	23.20	1.49	18.04	6.56	137.6	41.07	22.00	47.6	35.4	23.0	12.4	122.0	0.8	122.8

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Estación	Muestra	Nitratos (mg N-NO ₃ ⁻ /L)	Nitritos (mg N-NO ₂ ⁻ /L)	Nitrógeno amoniacoal (mg N-NH ₄ ⁺ /L)	Nitrógeno total Kheldahl (mg N/L)	Nitrógeno organico (mg N/L)	Nitrogeno total (mg N/L)	Fósforo total (mg P/L)	Ortofosfatos (mg P_PO ₄ ³⁻ /L)	Sílice (mg SiO ₂ /L)	Clorofila <i>a</i> (µg/L)
1	Subsuperficie	0.357	0.153	2.551	5.118	2.567	8.179	0.318	0.106	7.333	2.96
2	Subsuperficie	0.396	0.161	3.081	3.975	0.894	7.614	0.318	0.112	8.381	5.92
2	1% Luz Incidente	0.377	0.145	1.937	3.093	1.156	5.553	0.414	0.100	8.236	2.96
2	Fondo	0.427	0.163	3.047	3.617	0.570	7.254	0.463	0.113	7.839	NA
3	Subsuperficie	0.217	0.008	1.926	2.028	0.101	4.179	0.231	0.067	12.345	ND
3	Fondo	0.328	0.065	1.762	2.850	1.088	5.006	0.137	0.074	9.537	NA
4	Subsuperficie	0.350	0.050	2.684	2.763	0.079	5.848	0.084	0.033	8.092	2.96
4	1% Luz Incidente	0.348	0.047	2.992	3.898	0.906	7.285	0.103	0.026	7.682	2.96
4	Fondo	0.362	0.095	2.725	3.669	0.944	6.852	0.124	0.064	8.357	NA
5	Subsuperficie	0.362	0.004	1.942	2.996	1.054	5.305	0.258	0.077	11.188	ND
5	Fondo	0.234	0.010	1.681	2.771	1.090	4.696	0.543	0.214	11.200	NA
6	Subsuperficie	0.641	0.035	0.879	1.719	0.840	3.274	0.373	0.132	7.549	59.2
6	10% luz Incidente	0.362	0.035	1.864	2.929	1.065	5.191	0.406	0.149	9.561	29.6
6	1% Luz Incidente	0.360	0.037	1.745	2.826	1.081	4.968	0.380	0.136	7.790	ND
6	Fondo	0.347	0.150	2.317	3.318	1.001	6.131	0.217	0.165	8.128	NA
7	Subsuperficie	0.330	0.030	2.027	3.069	1.042	5.456	0.131	0.019	8.682	41.44
7	1% Luz Incidente	0.395	0.046	2.014	3.057	1.044	5.513	0.139	0.021	8.441	50.32
7	Fondo	0.347	0.137	2.661	3.614	0.953	6.759	0.282	0.053	8.224	NA
8	Subsuperficie	0.381	0.061	1.777	2.854	1.077	5.073	0.266	0.046	7.851	50.32
8	10% luz Incidente	0.392	0.070	2.122	3.150	1.028	5.733	0.221	0.009	8.224	17.76
8	1% Luz Incidente	0.397	0.068	1.940	2.994	1.054	5.399	0.215	0.039	7.754	50.32
8	Fondo	0.402	0.131	3.276	5.285	2.009	9.095	0.212	0.055	7.598	NA
9	Subsuperficie	0.316	0.016	0.974	2.163	1.189	3.468	0.214	0.056	8.670	ND
9	1% Luz Incidente	0.313	0.042	1.432	2.396	0.964	4.183	0.378	0.025	8.549	ND
9	Fondo	0.328	0.013	2.838	3.766	0.928	6.946	0.518	0.031	8.742	NA
12	Subsuperficie	0.472	0.056	1.938	2.992	1.054	5.458	0.226	0.005	7.983	ND
12	10% luz Incidente	0.494	0.119	1.609	3.839	2.229	6.061	0.113	0.005	6.561	ND
12	1% Luz Incidente	0.387	0.062	1.573	3.367	1.794	5.388	0.114	0.025	8.839	16.68
12	Fondo	0.434	0.160	2.448	4.355	1.908	7.398	0.151	0.041	6.381	NA
13	Subsuperficie	0.372	0.085	2.452	3.434	0.982	6.344	0.115	0.025	8.248	ND

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

NOVIEMBRE DE 2010

Estación	Muestra	Transparencia Secchi (m)	Profundidad muestra (m)	Temperatura del agua (°C)	Oxígeno disuelto (mg/L)	Saturación de oxígeno (%)	pH (Unidades pH)	Conductividad eléctrica (µS/cm)	Alcalinidad total (mg CaCO ₃ /L)	Dióxido de carbono (mg/L)	Potencial de óxido-reducción (mV)	Dureza total (mg CaCO ₃ /L)	Dureza cálcica (mg CaCO ₃ /L)	Dureza magnésica (mg CaCO ₃ /L)	Sólidos Disueltos (mg/L)	Sólidos suspendidos (mg/L)	Sólidos totales (mg/L)
1	Subsuperficie	0.10	0.27	21.00	6.33	73.61	8.17	155.8	41.71	0.55	220.2	73.4	16.8	56.6	92.0	9.0	101.0
2	Subsuperficie	0.10	0.10	21.13	6.767	78.88	7.67	161.8	48.82	2.08	228.4	53.8	20.8	33.0	98.0	144.6	242.6
3	Subsuperficie	0.68	0.10	25.36	7.087	89.10	5.13	121.3	50.72	ND	260.2	39.4	21.2	18.2	64.0	2.4	66.4
3	10% luz Incidente		0.88	25.34	7.089	89.10	5.12	121.5	59.25	ND	260.8	39.4	22.0	17.4	66.0	6.4	72.4
3	1% Luz Incidente		1.84	23.08	2.963	35.80	7.07	118.7	51.67	8.80	264.3	40.4	21.6	18.8	76.0	11.2	87.2
3	Fondo		4.44	21.90	2.989	35.35	7.04	118.6	50.72	9.30	261.4	47.2	21.2	26.0	ND	ND	ND
4	Subsuperficie	0.74	0.10	24.03	6.739	82.81	7.87	119.8	43.61	1.17	276.7	32.0	22.6	9.4	72.0	9.6	81.6
4	1% Luz Incidente		1.99	22.27	8.4855	101.04	7.69	116.7	38.39	1.55	278.5	34.0	19.8	14.2	84.0	26.4	110.4
4	Fondo		12.25	21.29	0.135	1.58	7.15	116.1	58.78	8.33	284.9	54.0	15.9	38.1	82.0	191.0	273.0
5	Subsuperficie	NA	0.10	25.30	5.95	74.73	6.99	161.7	31.76	6.49	ND	25.2	12.7	12.5	80.0	171.0	251.0
6	Subsuperficie	0.57	0.10	22.67	7.826	93.86	7.43	106.9	40.29	2.99	244.3	30.6	17.6	13.0	92.0	10.4	102.4
6	10% luz Incidente		0.75	21.86	7.947	93.91	7.44	108.3	37.92	2.77	244.9	31.0	18.2	12.8	58.0	11.2	69.2
6	1% Luz Incidente		1.54	21.81	8.19	96.70	7.44	101.8	36.50	2.67	244.9	33.6	20.9	12.7	76.0	12.0	88.0
6	Fondo		10.97	20.97	1.905	22.14	7.04	112.5	46.45	8.42	247.9	51.6	15.4	36.2	68.0	ND	ND
7	Subsuperficie	0.37	0.10	22.10	3.01	35.73	6.63	119.8	38.39	17.99	ND	38.8	17.0	21.8	84.0	6.5	90.5
7	1% Luz Incidente		1.00	22.40	2.23	26.62	6.68	120.5	40.76	17.02	ND	36.0	18.2	17.8	88.0	4.5	92.5
7	Fondo		7.02	20.90	4.52	52.46	6.82	128.1	44.56	13.48	ND	45.6	21.5	24.1	110.0	24.0	134.0
8	Subsuperficie	0.48	0.10	24.21	7.62	93.93	5.15	126.1	35.08	ND	255.5	37.4	19.2	18.2	82.0	8.4	90.4
8	10% luz Incidente		0.62	24.28	7.61	93.91	5.12	126.7	34.13	ND	258.5	36.4	22.3	14.1	76.0	5.6	81.6
8	1% Luz Incidente		1.30	24.03	7.82	96.08	6.88	126.8	32.71	8.62	260.8	33.2	22.7	10.5	82.0	10.0	92.0
8	Fondo		48.82	21.43	1.95	22.80	6.98	122.9	41.71	8.79	175.5	53.4	24.2	29.2	80.0	ND	ND
9	Subsuperficie	0.76	0.10	24.53	7.51	93.09	7.43	130.4	41.71	3.11	232.0	73.4	16.8	56.6	108.0	12.0	120.0
9	1% Luz Incidente		2.05	23.97	9.83	120.68	9.00	132.4	36.50	0.07	217.8	53.8	20.8	33.0	108.0	8.8	116.8
9	Fondo		18.81	21.71	0.16	1.88	7.09	131.8	31.76	5.12	159.0	39.4	21.2	18.2	96.0	24.8	120.8
10	Subsuperficie	0.83	0.10	26.30	11.83	151.09	6.61	117.8	40.29	19.77	ND	39.4	22.0	17.4	66.0	11.0	77.0
10	1% Luz Incidente		2.27	23.10	1.49	18.01	6.61	122.7	41.24	20.24	ND	40.4	21.6	18.8	64.0	5.6	69.6
10	Fondo		39.12	21.00	1.33	15.47	6.37	120.2	43.13	36.79	ND	47.2	21.2	26.0	82.0	ND	ND
11	Subsuperficie	0.86	0.10	26.49	6.17	79.08	6.83	135.4	30.34	9.03	250.8	32.0	22.6	9.4	104.0	8.8	112.8
11	1% Luz Incidente		2.32	22.98	11.16	134.62	8.82	125.0	36.02	0.10	228.4	34.0	19.8	14.2	104.0	8.4	112.4
11	Fondo		60.23	21.20	0.09	1.05	6.85	110.5	42.66	12.13	144.3	54.0	15.9	38.1	100.0	ND	ND
12	Subsuperficie	0.63	0.10	22.50	6.76	80.78	7.34	129.1	39.34	3.57	279.6	25.2	12.7	12.5	78.0	4.8	82.8
12	10% luz Incidente		0.82	22.85	6.75	81.20	7.33	128.2	42.66	3.98	279.1	30.6	17.6	13.0	94.0	4.4	98.4
12	1% Luz Incidente		1.70	22.59	2.43	29.04	7.32	127.9	31.28	2.99	257.9	31.0	18.2	12.8	70.0	6.8	76.8
12	Fondo		82.21	21.20	0.10	1.22	6.93	110.0	36.02	8.46	117.2	33.6	20.9	12.7	88.0	ND	ND
13	Subsuperficie	NA	0.10	21.90	2.13	25.19	6.52	119.9	34.60	20.89	ND	51.6	15.4	36.2	86.0	3.6	89.6

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

Estación	Muestra	Nitratos (mg N-NO ₃ ⁻ /L)	Nitritos (mg N-NO ₂ ⁻ /L)	Nitrógeno amoniaco (mg N-NH ₄ ⁺ /L)	Nitrógeno total Kheldahl (mg N/L)	Nitrógeno organico (mg N/L)	Nitrogeno total (mg N/L)	Fósforo total (mg P/L)	Ortofosfatos (mg P-PO ₄ ³⁻ /L)	Sílice (mg SiO ₂ /L)	Clorofila <i>a</i> (µg/L)
1	Subsuperficie	0.378	0.107	0.742	3.701	2.959	4.928	0.714	0.102	8.236	7.75
2	Subsuperficie	0.369	0.137	1.105	4.075	2.970	5.686	0.704	0.090	8.730	7.7
3	Subsuperficie	0.167	0.019	0.519	1.190	0.671	1.895	0.042	0.004	12.827	21.09
3	10% luz Incidente	0.264	0.019	0.465	1.196	0.731	1.944	0.059	0.004	12.694	28.86
3	1% Luz Incidente	0.191	0.023	1.167	1.433	0.266	2.813	0.054	0.003	12.296	25.13
3	Fondo	0.386	0.024	1.288	2.879	1.591	4.576	0.103	0.004	9.441	NA
4	Subsuperficie	0.255	0.072	0.763	1.344	0.581	2.435	0.069	0.006	8.899	32.21
4	1% Luz Incidente	0.303	0.043	0.954	1.038	0.083	2.337	0.096	0.009	7.899	19.87
4	Fondo	0.300	0.013	2.115	4.037	1.922	6.466	0.601	0.015	3.911	NA
5	Subsuperficie	0.168	0.005	0.430	0.992	0.562	1.595	0.109	0.006	13.224	ND
6	Subsuperficie	0.243	0.048	0.898	1.320	0.422	2.509	0.061	0.010	10.140	2.4
6	10% luz Incidente	0.246	0.049	0.863	1.564	0.701	2.722	0.058	0.010	9.935	0.37
6	1% Luz Incidente	0.268	0.051	0.750	1.283	0.533	2.352	0.069	0.013	9.116	0.99
6	Fondo	0.486	0.070	1.409	4.255	2.847	6.220	0.142	0.022	7.995	NA
7	Subsuperficie	0.596	0.092	0.667	1.718	1.051	3.072	0.101	0.029	7.899	ND
7	1% Luz Incidente	0.331	0.087	0.653	1.828	1.175	2.899	0.131	0.045	8.043	ND
7	Fondo	0.362	0.115	0.890	3.075	2.185	4.442	0.446	0.055	7.369	NA
8	Subsuperficie	0.239	0.070	0.711	1.322	0.611	2.343	0.070	0.003	6.887	55.05
8	10% luz Incidente	0.320	0.071	0.581	1.622	1.041	2.594	0.084	0.021	6.742	51.38
8	1% Luz Incidente	0.302	0.071	0.659	1.185	0.526	2.218	0.062	0.012	6.971	51.78
8	Fondo	0.273	0.096	0.871	1.992	1.121	3.231	0.159	0.030	8.031	NA
9	Subsuperficie	0.348	0.058	0.812	1.368	0.556	2.586	0.076	0.006	7.947	56.38
9	1% Luz Incidente	0.429	0.061	0.788	1.874	1.086	3.151	0.058	0.004	7.947	44.37
9	Fondo	0.326	0.043	0.761	1.231	0.470	2.360	0.102	0.025	7.875	NA
10	Subsuperficie	0.343	0.071	0.944	1.691	0.747	3.048	0.078	0.019	7.369	ND
10	1% Luz Incidente	0.324	0.081	0.930	1.798	0.868	3.133	0.076	0.019	7.694	ND
10	Fondo	0.347	0.075	1.013	2.782	1.769	4.217	0.147	0.024	7.778	NA
11	Subsuperficie	0.368	0.063	0.761	1.384	0.624	2.576	0.063	0.004	7.622	45.82
11	1% Luz Incidente	0.347	0.068	1.000	1.441	0.441	2.856	0.087	0.007	7.730	17.06
11	Fondo	0.434	0.032	1.406	3.537	2.132	5.410	0.166	0.033	7.947	NA
12	Subsuperficie	0.248	0.083	0.863	1.985	1.122	3.178	0.061	0.012	7.875	6.69
12	10% luz Incidente	0.315	0.085	0.688	1.040	0.352	2.128	0.057	0.011	7.911	8.48
12	1% Luz Incidente	0.303	0.085	0.984	1.134	0.151	2.507	0.070	0.011	7.827	5.41
12	Fondo	0.292	0.017	1.030	1.613	0.583	2.951	0.124	0.014	7.381	NA
13	Subsuperficie	0.333	0.069	0.591	1.519	0.927	2.512	0.072	0.052	8.140	ND

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

ABRIL DE 2011

Estación	Muestra	Transparencia Secchi (m)	Profundidad muestra (m)	Temperatura del agua (°C)	Oxígeno disuelto (mg/L)	Saturación de oxígeno (%)	pH (Unidades pH)	Conductividad eléctrica (µS/cm)	Alcalinidad total (mg CaCO ₃ /L)	Dióxido de carbono (mg/L)	Potencial de óxido-reducción (mV)	Dureza total (mg CaCO ₃ /L)	Dureza cálcica (mg CaCO ₃ /L)	Dureza magnésica (mg CaCO ₃ /L)	Sólidos Disueltos (mg/L)	Sólidos suspendidos (mg/L)	Sólidos totales (mg/L)
1	Subsuperficie	ND	0.27	23.90	4.84	59.34	5.86	148.6	36.90	ND	174.5	38.6	21.4	17.2	146.0	104.0	250.0
3	Subsuperficie	0.25	0.68	26.80	5.01	64.52	7.04	124.9	55.80	10.17	196.0	34.8	30.3	4.5	118.0	20.0	138.0
5	Subsuperficie	ND	0.10	28.40	6.23	82.33	6.91	82.5	47.70	11.73	192.9	26.0	20.5	5.5	96.0	28.4	124.4
6	Subsuperficie	0.79	0.10	23.60	0.62	7.56	6.21	117.2	52.20	ND	82.4	27.4	20.9	6.5	116.0	7.0	123.0
6	10% luz Incidente		1.03	23.00	0.39	4.71	6.65	130.9	49.50	22.15	77.0	35.0	18.3	16.7	110.0	18.5	128.5
6	1% Luz Incidente		2.13	22.60	1.36	16.29	6.46	151.6	42.30	29.32	127.3	31.6	19.5	12.1	122.0	26.0	148.0
6	Fondo		5.79	22.80	1.16	13.95	6.41	148.3	42.30	32.90	38.0	31.2	20.8	10.4	84.0	ND	ND
7	Subsuperficie	0.31	0.10	23.00	0.81	9.77	6.36	156.6	43.20	37.71	101.1	30.2	20.6	9.6	118.0	45.5	163.5
7	1% Luz Incidente		0.83	23.20	0.62	7.51	6.35	156.5	43.20	38.58	110.7	25.2	22.1	3.1	138.0	34.0	172.0
7	Fondo		4.00	23.10	0.77	9.31	6.39	157.7	44.10	35.92	23.3	37.8	21.0	16.8	156.0	ND	ND
8	Subsuperficie	0.86	0.10	26.20	8.02	102.26	8.41	146.2	40.50	0.31	103.7	27.6	19.8	7.8	128.0	10.5	138.5
8	10% luz Incidente		1.12	25.60	7.04	88.87	7.22	148.0	38.70	4.66	140.6	27.6	19.6	8.0	124.0	10.5	134.5
8	1% Luz Incidente		2.32	23.90	0.69	8.46	6.35	154.5	40.50	36.17	132.0	26.6	19.3	7.3	120.0	10.5	130.5
8	Fondo		47.00	22.80	0.30	3.61	6.38	157.5	52.20	43.51	75.0	29.2	21.7	7.5	104.0	53.5	157.5
9	Subsuperficie	0.87	0.10	30.50	11.08	151.31	7.04	147.7	34.20	6.23	157.6	29.0	20.8	8.2	128.0	10.5	138.5
9	1% Luz Incidente		2.35	26.20	7.18	91.55	7.19	146.6	35.10	4.52	178.1	33.4	19.2	14.2	126.0	8.0	134.0
9	Fondo		28.90	23.80	0.70	8.57	6.35	153.4	39.60	35.37	77.5	26.5	23.9	2.6	122.0	40.0	162.0
10	Subsuperficie	0.94	0.10	28.70	10.59	140.62	8.87	157.5	35.10	0.09	103.2	27.3	21.8	5.5	118.0	11.5	129.5
10	1% Luz Incidente		2.50	24.90	2.25	28.07	6.51	151.8	43.20	26.69	167.0	33.4	21.2	12.2	134.0	5.0	139.0
10	Fondo		35.90	23.00	1.20	14.48	6.73	141.7	45.90	17.08	39.0	28.0	18.6	9.4	102.0	16.4	118.4
11	Subsuperficie	0.78	0.10	29.00	12.06	160.90	8.28	146.1	36.00	0.37	123.5	23.4	20.9	2.5	124.0	8.0	132.0
11	1% Luz Incidente		2.11	25.90	6.28	79.68	6.77	148.1	35.10	11.91	203.5	27.6	19.9	7.7	122.0	4.5	126.5
11	Fondo		44.00	23.20	0.97	11.75	6.62	142.4	40.50	19.42	57.6	30.6	21.6	9.0	128.0	21.6	149.6
12	Subsuperficie	0.68	0.10	26.90	7.36	94.94	7.39	148.1	48.60	3.95	87.7	27.6	20.3	7.3	112.0	25.0	137.0
12	10% luz Incidente		0.88	27.00	6.36	82.17	7.44	148.5	43.20	3.13	72.4	81.6	19.9	61.7	110.0	24.5	134.5
12	1% Luz Incidente		1.84	26.10	6.00	76.38	7.27	148.3	43.20	4.63	55.9	29.0	19.2	9.8	88.0	17.5	105.5
12	Fondo		79.00	23.20	0.65	7.87	6.83	162.5	73.80	21.82	-110.9	38.2	22.5	15.7	98.0	ND	ND
13	Subsuperficie	NA	0.10	23.40	2.72	33.05	5.91	148.9	41.40	ND	213.5	26.4	20.7	5.7	124.0	8.0	132.0

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

Estación	Muestra	Nitratos (mg N-NO ₃ ⁻ /L)	Nitritos (mg N-NO ₂ ⁻ /L)	Nitrógeno amoniacoal (mg N-NH ₄ ⁺ /L)	Nitrógeno total Kheldahl (mg N/L)	Nitrógeno organico (mg N/L)	Nitrogeno total (mg N/L)	Fósforo total (mg P/L)	Ortofosfatos (mg P-PO ₄ ³⁻ /L)	Sílice (mg SiO ₂ /L)	Clorofila <i>a</i> (µg/L)
1	Subsuperficie	0.394	0.156	1.728	2.812	1.084	5.090	0.438	0.046	8.133	7.44
3	Subsuperficie	0.173	0.043	1.268	1.664	0.395	3.148	0.098	0.023	13.778	24.31
5	Subsuperficie	0.277	0.004	0.821	2.032	1.211	3.135	0.049	0.032	16.467	3.58
6	Subsuperficie	0.227	0.063	0.572	1.720	1.148	2.581	0.071	0.012	13.467	3.39
6	10% luz Incidente	0.282	0.069	1.445	2.569	1.123	4.365	0.086	0.012	12.211	3.75
6	1% Luz Incidente	0.322	0.118	2.132	3.146	1.014	5.718	0.172	0.043	9.800	4.83
6	Fondo	0.336	0.113	2.044	2.474	0.429	4.966	0.190	0.045	10.722	NA
7	Subsuperficie	0.313	0.145	1.546	2.588	1.042	4.592	0.252	0.038	9.089	12.96
7	1% Luz Incidente	0.363	0.141	2.917	3.834	0.917	7.255	0.393	0.043	8.900	10.82
7	Fondo	0.300	0.147	2.476	2.724	0.248	5.648	0.195	0.047	8.878	NA
8	Subsuperficie	0.389	0.080	1.544	2.653	1.110	4.665	0.113	0.004	8.800	40.03
8	10% luz Incidente	0.369	0.074	1.363	1.994	0.631	3.801	0.120	0.026	9.044	40.3
8	1% Luz Incidente	0.343	0.116	2.339	3.337	0.998	6.135	0.257	0.054	8.767	8.93
8	Fondo	0.273	0.033	3.322	4.182	0.860	7.809	0.260	0.044	8.278	NA
9	Subsuperficie	0.370	0.065	1.418	2.158	0.740	4.010	0.108	0.024	9.156	38.17
9	1% Luz Incidente	0.224	0.069	2.293	2.951	0.658	5.538	0.137	0.028	8.989	26.04
9	Fondo	0.733	0.103	2.018	2.584	0.566	5.437	0.269	0.030	8.989	NA
10	Subsuperficie	0.628	0.070	1.409	1.969	0.560	4.077	0.114	0.004	8.856	38.91
10	1% Luz Incidente	0.394	0.091	1.758	2.278	0.520	4.521	0.101	0.027	8.389	6.75
10	Fondo	0.569	0.035	2.431	3.077	0.646	6.112	0.143	0.010	7.478	NA
11	Subsuperficie	0.476	0.067	1.703	2.790	1.087	5.035	0.096	0.023	9.067	35.15
11	1% Luz Incidente	0.657	0.066	1.552	1.937	0.385	4.212	0.074	0.025	9.056	13.48
11	Fondo	0.689	0.063	2.287	3.094	0.807	6.133	0.203	0.031	8.589	NA
12	Subsuperficie	0.340	0.059	1.758	2.722	0.964	4.879	0.126	0.027	9.111	134.52
12	10% luz Incidente	0.330	0.061	1.571	2.276	0.705	4.238	0.164	0.032	8.967	89.43
12	1% Luz Incidente	0.385	0.062	1.330	2.435	1.104	4.211	0.164	0.032	8.956	69.38
12	Fondo	0.264	0.006	4.305	5.028	0.722	9.603	0.283	0.229	9.022	NA
13	Subsuperficie	0.351	0.077	2.041	2.726	0.685	5.195	0.116	0.029	8.511	ND

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

AGOSTO DE 2011

Estación	Muestra	Transparencia Secchi (m)	Profundidad muestra (m)	Temperatura del agua (°C)	Oxígeno disuelto (mg/L)	Saturación de oxígeno (%)	pH (Unidades pH)	Conductividad eléctrica (µS/cm)	Alcalinidad total (mg CaCO ₃ /L)	Dióxido de carbono (mg/L)	Potencial de óxido-reducción (mV)	Dureza total (mg CaCO ₃ /L)	Dureza cálcica (mg CaCO ₃ /L)	Dureza magnésica (mg CaCO ₃ /L)	Sólidos Disueltos (mg/L)	Sólidos suspendidos (mg/L)	Sólidos totales (mg/L)
1	Subsuperficie	0.10	0.27	22.20	5.99	71.23	7.23	142.3	45.91	5.40	163.5	36.0	20.3	15.7	106.0	251.0	357.0
1	Fondo		5.00	22.20	5.56	66.12	7.13	129.5	46.91	6.94	115.9	42.8	22.7	20.1	110.0	100.0	210.0
2	Subsuperficie	0.19	0.10	22.40	5.13	61.23	7.02	130.0	45.91	8.76	177.8	42.4	20.1	22.3	114.0	118.5	232.5
2	1% Luz Incidente		0.51	23.10	5.49	66.36	7.09	130.5	45.91	7.45	177.8	45.2	25.5	19.7	106.0	81.5	187.5
2	Fondo		4.20	23.00	4.94	59.60	7.21	132.1	42.91	5.28	166.6	43.2	20.8	22.4	120.0	178.5	298.5
3	Subsuperficie	0.72	0.10	29.00	8.15	108.73	8.60	114.6	46.91	0.23	200.2	39.6	20.2	19.4	94.0	6.0	100.0
3	10% luz Incidente		0.94	28.80	8.08	107.46	8.61	109.7	46.91	0.22	200.2	40.0	24.2	15.8	96.0	16.0	112.0
3	1% Luz Incidente		1.94	24.40	3.95	48.85	6.85	112.3	45.91	12.96	206.1	41.6	20.3	21.3	90.0	13.5	103.5
3	Fondo		4.00	23.40	1.78	21.63	6.65	113.2	47.90	21.44	219.6	43.2	23.1	20.1	98.0	116.5	214.5
4	Subsuperficie	0.45	0.10	27.50	6.68	87.01	7.73	110.7	41.92	1.55	263.7	31.0	16.6	14.4	16.0	8.0	24.0
4	1% Luz Incidente		1.21	25.10	7.76	97.13	7.67	110.7	43.91	1.87	257.3	36.6	20.5	16.1	94.0	18.5	112.5
4	Fondo		11.50	24.20	4.47	55.09	6.97	113.2	41.92	8.97	274.3	38.2	20.4	17.8	94.0	76.5	170.5
5	Subsuperficie	0.41	0.10	26.40	5.55	71.00	7.53	77.1	52.89	3.11	266.5	35.0	18.9	16.1	46.0	11.6	57.6
5	10% luz Incidente		0.53	25.70	5.40	68.28	7.23	81.5	54.89	6.45	264.6	36.2	20.8	15.4	90.0	20.4	110.4
5	1% Luz Incidente		1.11	24.70	5.15	64.02	7.27	78.1	54.89	5.88	258.7	37.2	22.1	15.1	74.0	18.0	92.0
5	Fondo		2.44	23.90	5.04	61.79	6.53	78.5	49.90	29.44	234.1	54.0	21.8	32.2	70.0	ND	ND
6	Subsuperficie	0.57	0.10	25.70	5.21	65.88	7.04	98.7	40.92	7.45	234.9	34.4	19.1	15.3	82.0	17.5	99.5
6	10% luz Incidente		0.46	26.70	5.45	70.07	7.13	94.6	42.91	6.35	235.5	34.4	19.4	15.0	44.0	16.5	60.5
6	1% Luz Incidente		0.95	25.70	4.97	62.84	6.92	94.9	39.92	9.59	235.5	33.2	20.5	12.7	102.0	16.5	118.5
6	Fondo		14.00	22.60	1.61	19.29	6.64	123.8	49.90	22.85	224.3	45.8	22.0	23.8	98.0	ND	ND
7	Subsuperficie	0.65	0.10	26.30	4.70	60.03	6.97	128.5	43.91	9.40	224.3	37.6	20.7	16.9	78.0	13.5	91.5
7	1% Luz Incidente		1.76	24.00	4.71	57.84	7.04	139.1	46.91	8.55	230.2	42.2	24.3	17.9	112.0	19.5	131.5
7	Fondo		3.51	23.50	5.26	64.03	7.09	144.0	48.90	7.94	223.7	46.6	21.1	25.5	68.0	ND	ND
8	Subsuperficie	0.48	0.10	28.30	7.12	93.95	8.28	125.3	38.92	0.40	101.9	40.4	21.4	19.0	76.0	10.0	86.0
8	10% luz Incidente		0.78	27.70	6.48	84.68	8.02	125.4	42.91	0.81	103.7	37.4	19.2	18.2	100.0	9.2	109.2
8	1% Luz Incidente		1.62	26.20	4.49	57.25	7.01	128.7	38.92	7.60	105.4	38.6	19.1	19.5	116.0	8.0	124.0
8	Fondo		49.09	23.50	1.43	17.41	6.95	132.6	45.91	10.29	-41.7	38.8	21.1	17.7	ND	6.8	ND
9	Subsuperficie	0.87	0.10	28.40	7.14	94.36	8.51	128.5	46.91	0.28	193.1	35.6	21.2	14.4	92.0	7.0	99.0
9	1% Luz Incidente		2.35	24.70	3.41	42.39	6.98	130.3	44.91	9.40	193.7	36.8	22.9	13.9	92.0	5.0	97.0
9	Fondo		16.00	23.30	1.25	15.16	6.86	130.3	50.90	14.04	192.5	45.4	21.4	24.0	94.0	63.0	157.0
10	Subsuperficie	0.55	0.10	25.80	7.23	91.57	7.67	129.1	41.92	1.78	183.1	31.4	19.6	11.8	88.0	6.0	94.0
10	1% Luz Incidente		1.48	24.10	4.26	52.41	7.10	130.2	41.92	6.65	185.5	26.4	22.8	3.6	74.0	7.0	81.0
10	Fondo		37.50	23.00	1.15	13.88	6.83	126.5	38.92	11.51	163.7	60.6	21.4	39.2	54.0	ND	ND
11	Subsuperficie	1.00	0.10	28.10	7.28	95.75	8.05	134.3	58.88	1.04	170.2	30.4	26.3	4.1	58.0	4.0	62.0
11	1% Luz Incidente		2.70	24.10	2.76	33.96	6.85	131.9	46.91	13.24	167.8	32.4	22.9	9.5	68.0	5.0	73.0
11	Fondo		44.00	23.00	0.89	10.74	6.67	125.2	62.87	26.87	-96.4	37.8	21.5	16.3	62.0	15.5	77.5
12	Subsuperficie	0.35	0.10	26.28	7.19	91.79	9.17	140.4	43.91	0.05	141.3	64.6	19.8	44.8	104.0	8.4	112.4
12	10% luz Incidente		0.46	26.28	7.31	93.33	9.00	140.5	47.90	0.09	145.5	36.8	19.7	17.1	108.0	10.4	118.4
12	1% Luz Incidente		0.95	26.27	7.38	94.22	8.96	141.6	50.90	0.10	146.0	37.2	17.5	19.7	92.0	9.6	101.6
12	Fondo		92.00	21.87	0.12	1.39	7.32	154.4	67.86	6.56	-108.8	47.6	22.5	25.1	94.0	5.2	99.2
13	Subsuperficie	NA	0.10	22.90	2.44	29.39	6.89	127.0	47.90	12.33	211.4	36.8	19.4	17.4	44.0	4.8	48.8

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

Estación	Muestra	Nitratos (mg N-NO ₃ ⁻ /L)	Nitritos (mg N-NO ₂ ⁻ /L)	Nitrógeno amoniaco (mg N-NH ₄ ⁺ /L)	Nitrógeno total Kheldahl (mg N/L)	Nitrógeno organico (mg N/L)	Nitrogeno total (mg N/L)	Fósforo total (mg P/L)	Ortofosfatos (mg P-PO ₄ ³⁻ /L)	Sílice (mg SiO ₂ /L)	Clorofila <i>a</i> (µg/L)
1	Subsuperficie	6.345	0.203	1.241	2.499	1.258	10.288	0.631	0.135	8.732	2.55
1	Fondo	6.006	0.165	1.296	2.594	1.298	10.062	0.426	0.140	8.523	NA
2	Subsuperficie	6.571	0.170	1.450	2.628	1.178	10.819	0.191	0.141	8.473	ND
2	1% Luz Incidente	5.532	0.173	1.313	2.785	1.472	9.802	0.506	0.130	9.070	ND
2	Fondo	6.819	0.169	1.344	4.107	2.764	12.440	0.502	0.009	8.901	NA
3	Subsuperficie	2.281	0.068	0.581	1.201	0.620	4.130	0.075	0.008	8.881	24.59
3	10% luz Incidente	2.165	0.066	0.780	1.340	0.561	4.351	0.094	0.009	9.815	24.33
3	1% Luz Incidente	4.561	0.071	0.614	1.395	0.781	6.641	0.102	0.009	9.785	22.26
3	Fondo	2.371	0.082	0.924	2.254	1.329	5.631	0.118	0.013	8.990	NA
4	Subsuperficie	2.326	0.071	1.274	2.422	1.147	6.093	0.082	0.009	7.767	26.82
4	1% Luz Incidente	2.529	0.092	1.120	2.289	1.169	6.030	0.125	0.013	7.509	39.04
4	Fondo	2.868	0.099	1.028	1.336	0.308	5.331	0.151	0.025	7.499	NA
5	Subsuperficie	0.567	ND	0.532	1.261	0.728	2.360	0.062	0.006	13.394	17.4
5	10% luz Incidente	0.616	ND	0.440	1.704	1.264	2.761	0.066	0.005	5.511	24.46
5	1% Luz Incidente	0.601	ND	0.585	1.327	0.742	2.512	0.055	0.006	13.732	16.44
5	Fondo	0.714	0.025	0.591	1.329	0.738	2.659	0.068	0.011	14.318	NA
6	Subsuperficie	1.635	0.067	1.152	2.317	1.164	5.171	0.110	0.010	8.692	30.27
6	10% luz Incidente	2.732	0.066	1.178	2.339	1.161	6.315	0.106	0.011	9.755	26.99
6	1% Luz Incidente	2.023	0.070	0.984	1.296	0.312	4.372	0.111	0.010	8.791	38.44
6	Fondo	3.387	0.078	1.260	1.854	0.595	6.579	0.183	0.042	7.310	NA
7	Subsuperficie	ND	0.113	1.372	1.761	0.390	3.246	0.167	0.008	7.598	5.12
7	1% Luz Incidente	ND	0.136	0.818	3.686	2.868	4.639	0.222	0.012	9.239	7.92
7	Fondo	5.148	0.189	1.746	3.672	1.926	10.756	0.346	0.120	9.666	NA
8	Subsuperficie	3.455	0.093	0.444	2.831	2.387	6.823	0.126	0.009	7.996	53.5
8	10% luz Incidente	2.619	0.089	0.880	2.295	1.415	5.883	0.123	0.055	8.314	57.58
8	1% Luz Incidente	4.900	0.102	0.617	2.503	1.886	8.121	0.133	0.085	8.702	58.52
8	Fondo	3.635	0.087	1.285	2.367	1.082	7.375	0.157	0.036	8.642	NA
9	Subsuperficie	3.658	0.090	1.013	1.600	0.587	6.361	0.081	0.008	8.553	42.06
9	1% Luz Incidente	2.732	0.078	1.941	2.995	1.054	7.746	0.096	0.021	8.473	34.44
9	Fondo	1.714	0.137	1.260	1.711	0.452	4.822	0.101	0.028	8.553	NA
10	Subsuperficie	2.177	0.065	1.014	1.923	0.909	5.178	0.081	0.019	8.493	18.67
10	1% Luz Incidente	2.199	0.074	1.288	2.301	1.013	5.862	0.099	0.020	8.344	23.23
10	Fondo	5.623	0.102	1.555	3.499	1.944	10.779	0.095	0.044	8.414	NA
11	Subsuperficie	1.983	0.061	1.401	2.197	0.796	5.642	0.087	0.007	8.443	33.27
11	1% Luz Incidente	4.065	0.079	1.344	1.827	0.483	7.315	0.109	0.022	8.453	28.67
11	Fondo	2.303	0.083	1.469	2.199	0.730	6.053	0.112	0.012	8.125	NA
12	Subsuperficie	2.574	0.084	0.357	2.393	2.036	5.408	0.119	0.008	7.728	43.58
12	10% luz Incidente	2.665	0.083	0.346	3.766	3.420	6.861	0.127	0.007	7.738	62.09
12	1% Luz Incidente	3.365	0.082	0.496	3.377	2.881	7.319	0.136	0.008	7.579	66.51
12	Fondo	6.142	0.010	2.930	3.632	0.702	12.713	0.108	0.090	7.996	NA
13	Subsuperficie	3.726	0.102	1.210	1.858	0.648	6.896	0.103	0.038	7.986	ND

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

NOVIEMBRE DE 2011

Estación	Muestra	Transparencia Secchi (m)	Profundidad muestra (m)	Temperatura del agua (°C)	Oxígeno disuelto (mg/L)	Saturación de oxígeno (%)	pH (Unidades pH)	Conductividad eléctrica (µS/cm)	Alcalinidad total (mg CaCO ₃ /L)	Dióxido de carbono (mg/L)	Potencial de óxido-reducción (mV)	Dureza total (mg CaCO ₃ /L)	Dureza cálcica (mg CaCO ₃ /L)	Dureza magnésica (mg CaCO ₃ /L)	Sólidos Disueltos (mg/L)	Sólidos suspendidos (mg/L)	Sólidos totales (mg/L)
1	Subsuperficie	0.10	0.10	20.60	6.80	78.48	7.20	113.4	37.00	4.66	169.9	43.4	16.6	26.8	120.5	413.5	534.0
2	Subsuperficie	0.10	0.10	20.90	6.65	77.19	7.04	112.0	40.00	7.29	183.6	39.5	13.9	25.6	241.0	369.0	610.0
2	Fondo		4.20	20.80	6.87	79.59	7.05	111.9	40.00	7.12	188.6	43.6	17.5	26.1	12.0	408.0	420.0
3	Subsuperficie	0.27	0.10	25.50	9.58	120.73	7.84	100.6	54.00	1.55	261.0	37.4	13.5	23.9	60.5	25.5	86.0
3	1% Luz Incidente		0.73	24.30	6.08	75.06	7.13	103.3	52.00	7.70	178.9	38.9	18.2	20.7	84.5	37.5	122.0
3	Fondo		5.50	21.80	1.87	22.07	6.78	96.2	48.00	15.92	165.5	36.0	18.5	17.5	146.0	ND	ND
4	Subsuperficie	0.20	0.10	25.90	8.08	102.51	7.37	100.2	44.00	3.74	213.9	32.1	14.5	17.6	118.5	29.5	148.0
4	1% Luz Incidente		0.54	23.70	6.16	75.25	6.93	102.8	44.00	10.33	222.0	32.7	16.8	15.9	98.5	41.5	140.0
4	Fondo		15.50	22.50	2.44	29.18	6.77	104.0	41.00	13.92	257.2	39.1	18.8	20.4	143.0	ND	ND
5	Subsuperficie	0.15	0.10	25.00	7.42	92.72	7.37	66.0	48.00	4.09	224.1	26.5	15.5	11.0	58.5	75.5	134.0
5	Fondo		3.20	22.40	6.01	71.73	7.11	70.5	52.00	8.06	189.4	31.2	15.2	16.0	95.0	ND	ND
6	Subsuperficie	0.20	0.10	25.10	7.41	92.75	7.13	85.8	48.00	7.11	205.8	29.6	5.9	23.7	83.0	39.0	122.0
6	1% Luz Incidente		0.54	23.10	3.85	46.54	6.93	178.3	39.00	9.16	94.6	29.2	6.8	22.4	112.5	41.5	154.0
6	Fondo		17.50	21.80	2.07	24.44	6.80	101.5	44.00	13.94	83.8	68.9	18.4	50.5	138.0	ND	ND
7	Subsuperficie	0.10	0.10	23.20	3.43	41.53	6.95	120.5	44.00	9.86	265.1	36.0	16.3	19.7	128.0	52.0	180.0
7	Fondo		5.10	22.00	5.20	61.61	6.86	103.5	45.00	12.41	259.8	46.3	18.9	27.5	184.0	434.0	618.0
8	Subsuperficie	1.10	0.10	24.60	5.01	62.17	7.00	120.2	46.00	9.19	283.9	32.1	14.7	17.4	104.0	4.0	108.0
8	10% Luz Incidente		1.43	23.20	3.95	47.83	6.94	119.5	48.00	11.01	284.3	31.7	15.1	16.7	110.7	3.2	114.0
8	1% Luz Incidente		2.97	22.50	2.67	31.93	6.91	115.3	46.00	11.31	281.5	32.5	ND	ND	106.0	7.3	113.3
8	Fondo		50.00	22.10	2.80	33.24	6.75	114.5	48.00	17.06	275.4	32.5	13.9	18.6	108.3	31.7	140.0
9	Subsuperficie	1.65	0.10	25.60	5.99	75.61	7.28	126.0	53.00	5.55	237.3	35.6	11.3	24.3	96.0	2.0	98.0
9	1% Luz Incidente		4.46	22.50	2.60	31.09	6.83	123.5	49.00	14.49	226.1	31.9	13.9	18.0	101.5	4.5	106.0
9	Fondo		9.30	22.20	0.85	10.11	6.73	119.6	53.00	19.73	242.0	36.4	13.5	22.9	111.0	3.0	114.0
10	Subsuperficie	1.32	0.10	25.90	5.47	69.40	8.68	125.4	45.00	0.18	222.2	32.7	11.6	21.1	99.5	2.5	102.0
10	1% Luz Incidente		3.56	22.90	2.37	28.54	6.69	122.5	46.00	18.77	218.5	31.9	14.5	17.4	108.0	2.0	110.0
10	Fondo		40.40	21.90	3.10	36.66	6.65	104.9	48.00	21.48	227.3	32.7	15.8	17.0	142.5	47.5	190.0
11	Subsuperficie	1.30	0.10	24.40	5.71	70.67	6.99	123.9	47.00	9.52	270.4	31.9	11.8	20.2	107.0	1.0	108.0
11	1% Luz Incidente		3.51	22.60	1.40	16.77	6.77	122.1	44.00	14.94	262.8	31.2	13.6	17.5	102.0	2.0	104.0
11	Fondo		40.80	22.40	2.83	33.78	6.75	108.2	45.00	16.00	271.3	30.8	14.2	16.6	115.5	30.5	146.0
12	Subsuperficie	1.25	0.10	24.10	5.67	69.76	7.14	122.3	39.00	5.64	251.2	31.9	7.1	24.8	101.5	4.5	106.0
12	10% Luz Incidente		1.63	23.90	4.84	59.34	6.98	121.7	45.00	9.41	235.6	31.9	10.4	21.5	102.7	5.3	108.0
12	1% Luz Incidente		3.38	23.40	4.32	52.50	6.98	121.7	41.00	8.58	245.3	31.3	6.7	24.6	111.7	6.2	118.0
12	Fondo		87.30	22.80	2.84	34.14	6.96	118.0	45.00	9.86	21.6	32.7	12.6	20.1	143.0	ND	ND
13	Subsuperficie	NA	0.10	21.70	2.73	32.17	6.79	109.8	45.00	14.59	218.5	31.0	13.6	17.3	108.7	11.3	120.0

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

Estación	Muestra	Nitratos (mg N-NO ₃ ⁻ /L)	Nitritos (mg N-NO ₂ ⁻ /L)	Nitrógeno amoniaco (mg N-NH ₄ ⁺ /L)	Nitrógeno total Kheldahl (mg N/L)	Nitrógeno organico (mg N/L)	Nitrogeno total (mg N/L)	Fósforo total (mg P/L)	Ortofosfatos (mg P-PO ₄ ³⁻ /L)	Sílice (mg SiO ₂ /L)	Clorofila <i>a</i> (µg/L)
1	Subsuperficie	3.880	0.112	1.024	2.659	1.636	7.675	0.525	0.033	9.183	6.63
2	Subsuperficie	3.946	0.120	0.942	2.014	1.072	7.022	0.603	0.052	8.476	7.37
2	Fondo	3.983	0.103	0.562	2.714	2.152	7.362	0.623	0.055	8.972	NA
3	Subsuperficie	1.042	0.029	0.556	0.984	0.428	2.610	0.087	0.008	11.940	80.41
3	1% Luz Incidente	0.886	0.019	0.510	0.980	0.470	2.395	0.086	0.006	12.433	94.13
3	Fondo	2.501	0.073	0.926	1.695	0.769	5.195	0.191	0.045	11.840	NA
4	Subsuperficie	2.264	0.058	0.656	1.705	1.049	4.683	0.093	0.010	9.152	33.04
4	1% Luz Incidente	2.979	0.078	0.395	2.286	1.891	5.738	0.123	0.019	8.474	33.98
4	Fondo	3.302	0.090	1.002	2.297	1.294	6.691	0.228	0.063	12.693	NA
5	Subsuperficie	0.017	0.004	0.475	0.886	0.411	1.383	0.082	0.011	12.322	22.25
5	Fondo	0.476	0.029	1.455	2.494	1.039	4.454	0.125	0.012	11.088	NA
6	Subsuperficie	1.337	0.048	0.823	1.360	0.537	3.568	0.099	0.015	7.924	18.87
6	1% Luz Incidente	2.766	0.067	0.684	1.421	0.737	4.938	0.111	0.065	6.605	20.16
6	Fondo	3.442	0.087	0.851	2.131	1.280	6.510	0.166	0.033	11.997	NA
7	Subsuperficie	3.880	0.090	0.751	1.946	1.195	6.667	0.082	0.061	10.674	10.06
7	Fondo	3.369	0.086	0.707	1.616	0.909	5.778	0.169	0.056	12.443	NA
8	Subsuperficie	3.696	0.084	0.429	1.009	0.579	5.218	0.066	0.031	9.169	17.35
8	10% luz Incidente	3.702	0.081	0.573	1.110	0.537	5.466	0.071	0.028	8.433	15.75
8	1% Luz Incidente	3.746	0.081	0.524	1.271	0.746	5.622	0.078	0.030	9.097	8.31
8	Fondo	3.881	0.100	0.641	1.435	0.794	6.057	0.121	0.038	9.238	NA
9	Subsuperficie	3.139	0.060	0.584	1.320	0.736	5.102	0.169	0.024	9.066	4.14
9	1% Luz Incidente	3.211	0.066	1.235	2.277	1.042	6.789	0.080	0.043	8.329	2.65
9	Fondo	3.027	0.086	0.879	1.721	0.842	5.713	0.080	0.042	7.981	NA
10	Subsuperficie	4.037	0.075	0.481	0.843	0.362	5.436	0.061	0.038	9.279	10.89
10	1% Luz Incidente	3.937	0.080	0.645	1.136	0.491	5.799	0.070	0.036	8.959	3.69
10	Fondo	3.498	0.092	0.681	1.435	0.754	5.707	0.092	0.026	12.862	NA
11	Subsuperficie	4.259	0.080	0.666	1.404	0.737	6.409	0.071	0.035	7.836	9.03
11	1% Luz Incidente	3.555	0.074	0.827	1.523	0.695	5.980	0.086	0.054	7.690	2.93
11	Fondo	3.709	0.094	0.482	1.013	0.531	5.298	0.120	0.045	9.195	NA
12	Subsuperficie	3.909	0.077	0.713	1.084	0.372	5.783	0.080	0.034	6.153	18.3
12	10% luz Incidente	3.914	0.077	0.674	1.117	0.442	5.782	0.089	0.030	9.536	20.97
12	1% Luz Incidente	3.900	0.075	0.412	1.080	0.668	5.468	0.118	0.064	9.655	12.14
12	Fondo	3.794	0.089	1.062	2.472	1.410	7.417	0.186	0.043	10.867	NA
13	Subsuperficie	4.110	0.096	0.591	1.362	0.771	6.160	0.115	0.030	8.114	ND

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

FEBRERO DE 2012

Estación	Muestra	Transparencia Secchi (m)	Profundidad muestra (m)	Temperatura del agua (°C)	Oxígeno disuelto (mg/L)	Saturación de oxígeno (%)	pH (Unidades pH)	Conductividad eléctrica (µS/cm)	Alcalinidad total (mg CaCO ₃ /L)	Dióxido de carbono (mg/L)	Potencial de óxido-reducción (mV)	Dureza total (mg CaCO ₃ /L)	Dureza cálcica (mg CaCO ₃ /L)	Dureza magnésica (mg CaCO ₃ /L)	Sólidos Disueltos (mg/L)	Sólidos suspendidos (mg/L)	Sólidos totales (mg/L)
1	Subsuperficie	0.10	0.10	25.10	6.12	76.60	7.11	149.5	ND	ND	301.5	33.3	11.2	22.1	98.4	144.5	242.9
3	Subsuperficie	0.37	0.10	26.00	12.34	156.82	8.99	125.4	ND	ND	147.8	40.0	21.7	18.2	127.6	26.7	154.3
3	1% Luz Incidente		1.00	26.20	7.95	101.37	7.78	124.9	ND	ND	178.7	42.4	23.7	18.6	133.4	39.5	172.9
3	Fondo		2.50	24.60	5.77	71.61	7.14	118.3	ND	ND	275.0	42.0	26.8	15.2	121.2	124.5	245.7
5	Subsuperficie	0.10	0.10	26.10	6.16	78.42	7.30	82.5	ND	ND	276.7	28.4	16.5	11.9	83.7	52.0	135.7
5	Fondo		1.10	26.50	6.53	83.68	7.50	82.6	ND	ND	306.2	28.0	17.5	10.5	72.8	84.3	157.1
6	Subsuperficie	0.45	0.10	26.10	4.41	56.14	7.30	166.9	ND	ND	311.0	32.7	17.6	15.1	120.1	11.3	131.4
6	10% luz Incidente		0.59	24.40	4.25	52.56	7.16	167.5	ND	ND	272.6	32.0	19.6	12.3	116.8	14.7	131.4
6	1% Luz Incidente		1.22	24.40	3.97	49.10	7.07	162.0	ND	ND	238.9	31.2	17.4	13.9	113.4	13.8	127.1
6	Fondo		15.00	23.80	3.16	38.67	6.90	165.0	ND	ND	231.3	36.1	16.3	19.9	106.2	52.3	158.6
7	Subsuperficie	0.40	0.10	24.90	3.50	43.66	7.03	167.4	ND	ND	170.8	30.7	18.5	12.2	118.9	14.0	132.9
7	1% Luz Incidente		1.08	24.10	3.99	49.09	7.04	166.9	ND	ND	165.4	31.1	11.1	20.0	119.7	21.8	141.4
7	Fondo		5.20	24.60	4.15	51.50	7.05	168.4	ND	ND	178.3	34.3	15.8	18.4	91.4	ND	ND
8	Subsuperficie	0.70	0.10	27.80	7.59	99.35	7.60	167.6	ND	ND	126.8	31.3	20.3	11.0	127.9	7.8	135.7
8	10% luz Incidente		0.91	27.00	5.95	76.88	7.51	165.7	ND	ND	120.4	32.5	15.8	16.7	113.3	9.6	122.9
8	1% Luz Incidente		1.89	23.95	5.33	65.40	7.07	159.3	ND	ND	121.9	32.9	15.9	16.9	111.9	9.5	121.4
8	Fondo		48.33	22.90	1.19	14.33	6.91	166.0	ND	ND	-119.1	39.3	18.3	21.0	99.7	ND	ND
9	Subsuperficie	0.55	0.10	25.00	7.31	91.34	7.16	156.4	ND	ND	345.8	31.5	17.1	14.4	103.5	10.8	114.3
9	1% Luz Incidente		1.49	24.60	5.09	63.17	7.44	157.5	ND	ND	271.7	30.9	15.4	15.4	94.1	13.0	107.1
9	Fondo		26.00	22.70	2.14	25.68	6.95	160.6	ND	ND	46.8	34.8	16.4	18.4	105.2	ND	ND
10	Subsuperficie	0.44	0.10	25.10	10.55	132.05	9.35	155.6	ND	ND	196.6	29.7	18.3	11.4	113.9	49.0	162.9
10	1% Luz Incidente		1.19	24.60	6.84	84.88	7.56	156.7	ND	ND	113.8	28.8	18.0	10.8	114.6	24.0	138.6
10	Fondo		44.00	22.70	0.88	10.56	7.24	146.6	ND	ND	67.4	36.5	17.0	19.6	89.6	87.5	177.1
11	Subsuperficie	0.70	0.10	22.90	4.59	55.28	6.80	161.9	ND	ND	188.4	35.7	22.4	13.3	149.5	10.5	160.0
11	1% Luz Incidente		1.89	24.00	3.71	45.56	6.83	162.7	ND	ND	170.9	35.5	19.7	15.8	135.3	7.6	142.9
11	Fondo		64.00	21.80	1.15	13.58	6.61	132.4	ND	ND	-19.3	34.1	18.5	15.6	113.7	3.4	117.1
12	Subsuperficie	0.68	0.10	23.90	4.10	50.26	7.09	161.9	ND	ND	266.4	33.8	17.3	16.5	124.9	12.3	137.1
12	10% luz Incidente		0.88	23.70	3.08	37.63	6.93	169.6	ND	ND	275.8	34.7	18.3	16.4	157.9	13.5	171.4
12	1% Luz Incidente		1.84	23.80	2.81	34.39	6.91	163.3	ND	ND	260.6	32.8	18.5	14.2	ND	ND	ND
12	Fondo		75.00	22.10	0.66	7.83	6.91	138.1	ND	ND	-54.2	32.1	20.1	12.1	118.7	227.0	345.7
13	Subsuperficie	NA	0.10	23.60	1.72	20.98	6.67	165.8	ND	ND	261.4	35.9	21.1	14.8	124.9	8.0	132.9

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

Estación	Muestra	Nitratos (mg N-NO ₃ ⁻ /L)	Nitritos (mg N-NO ₂ ⁻ /L)	Nitrógeno amoniacoal (mg N-NH ₄ ⁺ /L)	Nitrógeno total Kheldahl (mg N/L)	Nitrógeno organico (mg N/L)	Nitrogeno total (mg N/L)	Fósforo total (mg P/L)	Ortofosfatos (mg P-PO ₄ ³⁻ /L)	Sílice (mg SiO ₂ /L)	Clorofila <i>a</i> (µg/L)
1	Subsuperficie	6.216	0.190	1.260	3.580	2.320	11.246	0.425	0.178	9.011	3.69
3	Subsuperficie	1.432	0.032	1.201	2.159	0.958	4.823	0.199	0.015	11.353	106.16
3	1% Luz Incidente	1.028	0.025	0.913	1.635	0.722	3.601	0.142	0.010	12.041	74.42
3	Fondo	0.581	0.021	0.524	1.054	0.529	2.180	0.146	0.009	12.816	NA
5	Subsuperficie	0.413	0.001	0.386	1.052	0.666	1.852	0.051	0.017	14.274	4.29
5	Fondo	0.414	ND	0.684	1.217	0.534	2.315	0.099	0.017	14.422	NA
6	Subsuperficie	4.365	0.117	2.263	2.654	0.391	9.399	0.168	0.033	9.913	12.55
6	10% luz Incidente	4.774	0.158	1.843	3.218	1.375	9.993	0.210	0.088	9.887	14
6	1% Luz Incidente	4.865	0.151	2.051	3.077	1.026	10.144	0.189	0.083	9.241	8.46
6	Fondo	5.375	0.155	2.246	4.166	1.919	11.942	0.477	0.108	9.261	NA
7	Subsuperficie	4.466	0.218	1.694	2.519	0.825	8.897	0.177	0.053	9.604	19.09
7	1% Luz Incidente	4.565	0.216	1.856	2.617	0.761	9.255	0.191	0.062	10.374	18
7	Fondo	4.465	0.211	2.017	3.157	1.140	9.850	0.236	0.067	9.683	NA
8	Subsuperficie	4.225	0.293	1.044	2.087	1.042	7.649	0.079	0.014	8.854	24.82
8	10% luz Incidente	4.301	0.320	1.306	2.256	0.951	8.183	0.105	0.019	9.324	21.06
8	1% Luz Incidente	4.412	0.379	1.187	2.430	1.243	8.407	0.091	0.013	9.148	30.3
8	Fondo	0.107	0.013	3.957	5.185	1.228	9.262	0.395	0.143	8.067	NA
9	Subsuperficie	4.594	0.376	0.417	1.900	1.483	7.287	0.105	0.010	9.543	26.2
9	1% Luz Incidente	4.500	0.371	0.485	2.377	1.891	7.733	0.119	0.006	9.809	25.32
9	Fondo	2.235	0.059	1.856	3.180	1.324	7.330	0.264	0.080	8.615	NA
10	Subsuperficie	4.388	0.310	0.402	6.178	5.776	11.278	0.358	0.005	9.433	25.1
10	1% Luz Incidente	4.533	0.354	0.615	3.192	2.577	8.694	0.207	0.005	9.070	24.99
10	Fondo	4.459	0.048	2.356	4.144	1.788	11.007	0.542	0.095	7.861	NA
11	Subsuperficie	3.970	0.479	0.426	1.770	1.344	6.644	0.099	0.008	8.478	23.86
11	1% Luz Incidente	4.151	0.476	0.914	1.628	0.714	7.168	0.101	0.011	8.393	23.73
11	Fondo	0.191	0.020	1.758	2.081	0.323	4.049	0.088	0.024	7.346	NA
12	Subsuperficie	4.022	0.483	0.755	2.225	1.471	7.485	0.151	0.010	8.476	71.07
12	10% luz Incidente	4.035	0.492	0.917	1.871	0.954	7.316	0.146	0.005	9.598	60.08
12	1% Luz Incidente	4.156	0.494	0.655	2.849	2.194	8.155	0.147	0.005	10.033	29.72
12	Fondo	0.660	0.019	1.408	3.639	2.232	5.726	0.172	0.061	7.448	NA
13	Subsuperficie	2.497	0.140	1.282	2.612	1.330	6.532	0.162	0.020	8.093	ND

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

MAYO DE 2012

Estación	Muestra	Transparencia Secchi (m)	Profundidad muestra (m)	Temperatura del agua (°C)	Oxígeno disuelto (mg/L)	Saturación de oxígeno (%)	pH (Unidades pH)	Conductividad eléctrica (µS/cm)	Alcalinidad total (mg CaCO ₃ /L)	Dióxido de carbono (mg/L)	Potencial de óxido-reducción (mV)	Dureza total (mg CaCO ₃ /L)	Dureza cálcica (mg CaCO ₃ /L)	Dureza magnésica (mg CaCO ₃ /L)	Sólidos Disueltos (mg/L)	Sólidos suspendidos (mg/L)	Sólidos totales (mg/L)
1	Subsuperficie	0.10	0.10	22.50	3.86	46.15	6.99	192.8	75.00	15.33	50.5	92.0	29.9	62.1	139.1	928.0	1067.1
3	Subsuperficie	0.16	0.10	32.00	8.34	116.50	9.85	107.1	56.00	0.01	ND	24.1	21.7	2.4	98.8	52.7	151.4
3	1% Luz Incidente		0.50	31.80	8.03	111.84	9.54	107.3	53.00	0.02	ND	35.2	23.9	11.3	106.2	52.4	158.6
3	Fondo		2.00	28.60	4.94	65.49	6.64	145.8	57.00	26.10	ND	50.7	28.1	22.7	116.3	128.0	244.3
5	Subsuperficie	0.10	0.10	30.70	4.36	59.72	6.52	83.4	56.00	33.81	ND	25.7	20.6	5.1	84.2	281.5	365.7
7	Subsuperficie	0.12	0.10	23.70	4.26	52.04	6.53	120.5	59.00	34.81	149.6	36.8	19.8	17.0	89.8	81.7	171.4
7	Fondo		2.50	22.33	5.50	65.56	6.92	138.9	55.00	13.21	76.0	47.8	20.8	27.1	79.2	296.5	375.7
8	Subsuperficie	0.53	0.10	29.40	7.37	98.95	7.18	115.7	47.00	6.20	159.9	29.4	18.7	10.8	81.6	8.4	90.0
8	10% luz Incidente		0.69	23.82	7.15	87.53	6.64	124.7	49.00	22.44	119.5	31.7	18.1	13.6	95.5	11.7	107.1
8	1% Luz Incidente		1.43	22.87	7.56	91.00	7.03	120.5	49.00	9.14	126.0	30.1	17.5	12.6	83.0	18.4	101.4
8	Fondo		50.00	21.71	0.57	6.72	6.68	106.8	48.00	20.05	-7.6	31.5	16.1	15.4	88.2	54.7	142.9
9	Subsuperficie	0.66	0.10	26.10	5.80	73.83	6.99	114.3	48.00	9.81	197.7	31.5	16.8	14.7	82.8	14.3	97.1
9	1% Luz Incidente		1.78	24.50	4.45	55.13	6.55	113.6	50.00	28.17	205.1	30.7	ND	ND	89.9	13.0	102.9
9	Fondo		7.48	23.10	1.75	21.15	6.66	112.2	51.00	22.30	207.6	39.5	19.2	20.3	63.1	ND	ND
10	Subsuperficie	0.66	0.10	24.90	4.74	59.13	6.45	114.6	49.00	34.76	180.1	32.0	21.1	10.9	85.3	14.7	100.0
10	1% Luz Incidente		1.78	23.00	3.25	39.21	6.28	113.1	47.00	49.32	175.0	39.4	21.2	18.1	78.8	18.4	97.1
10	Fondo		40.42	22.90	1.49	17.95	6.73	114.0	52.00	19.35	46.7	31.5	21.4	10.1	15.4	87.5	102.9
11	Subsuperficie	0.82	0.10	27.00	4.94	63.83	7.57	112.5	51.00	2.73	197.5	31.0	20.2	10.8	92.0	9.4	101.4
11	1% Luz Incidente		2.21	24.80	4.32	53.80	6.72	110.9	32.00	12.19	109.0	30.2	19.3	10.9	90.2	15.5	105.7
11	Fondo		70.00	23.80	2.03	24.84	6.43	115.1	49.00	36.40	-157.6	54.3	24.6	29.7	88.6	ND	ND
12	Subsuperficie	0.53	0.10	25.80	5.86	74.22	7.09	123.1	50.00	8.12	82.5	26.6	20.1	6.6	81.8	8.2	90.0
12	10% luz Incidente		0.69	24.81	7.37	91.79	6.96	120.4	48.00	10.52	56.0	22.5	20.6	1.9	80.2	14.1	94.3
12	1% Luz Incidente		1.43	23.79	7.64	93.48	7.19	121.5	45.00	5.80	65.4	28.7	20.0	8.7	77.1	12.9	90.0
12	Fondo		75.00	21.61	0.11	1.29	6.54	113.7	52.00	29.98	79.0	56.5	22.3	34.2	81.3	ND	ND
13	Subsuperficie	NA	0.10	22.30	2.01	23.95	6.81	107.0	51.00	15.79	209.4	36.1	18.5	17.6	94.3	14.3	108.6

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

Estación	Muestra	Nitratos (mg N-NO ₃ ⁻ /L)	Nitritos (mg N-NO ₂ ⁻ /L)	Nitrógeno amoniaco (mg N-NH ₄ ⁺ /L)	Nitrógeno total Kheldahl (mg N/L)	Nitrógeno organico (mg N/L)	Nitrogeno total (mg N/L)	Fósforo total (mg P/L)	Ortofosfatos (mg P-PO ₄ ³⁻ /L)	Sílice (mg SiO ₂ /L)	Clorofila <i>a</i> (µg/L)
1	Subsuperficie	ND	0.139	3.104	6.603	3.500	9.847	0.206	0.053	10.340	2.67
3	Subsuperficie	1.255	0.051	0.523	0.821	0.298	2.650	0.236	0.010	9.720	32.49
3	1% Luz Incidente	4.339	0.047	1.275	2.294	1.019	7.954	0.199	0.008	12.113	32.34
3	Fondo	3.941	0.027	0.410	2.558	2.147	6.936	0.262	0.008	16.343	NA
5	Subsuperficie	0.359	ND	0.657	1.170	0.512	2.186	0.231	0.005	16.142	5.45
7	Subsuperficie	8.188	0.139	0.777	1.244	0.467	10.348	0.041	0.016	8.244	5.89
7	Fondo	8.403	0.136	1.500	2.731	1.231	12.770	0.113	0.022	8.502	NA
8	Subsuperficie	4.994	0.077	0.481	0.653	0.172	6.204	0.041	0.007	4.666	11.09
8	10% luz Incidente	5.515	0.079	0.817	1.695	0.878	8.107	0.059	0.008	4.936	10.7
8	1% Luz Incidente	5.560	0.075	0.879	1.581	0.702	8.095	0.075	0.009	4.743	18.2
8	Fondo	6.802	0.091	1.219	1.989	0.771	10.101	0.165	0.030	8.306	NA
9	Subsuperficie	5.342	0.076	0.604	0.881	0.277	6.904	0.047	0.007	4.469	9.15
9	1% Luz Incidente	5.810	0.079	1.364	1.599	0.235	8.852	0.081	0.010	6.833	16.99
9	Fondo	6.666	0.089	1.584	2.683	1.099	11.023	0.140	0.021	7.803	NA
10	Subsuperficie	4.440	0.068	1.134	1.698	0.564	7.340	0.047	0.004	4.233	8.56
10	1% Luz Incidente	3.677	0.068	0.954	1.646	0.692	6.345	0.060	0.006	4.304	14.95
10	Fondo	6.909	0.056	1.318	1.403	0.086	9.686	0.092	0.010	6.908	NA
11	Subsuperficie	3.799	0.068	0.511	1.561	1.051	5.938	0.038	0.008	3.940	22.52
11	1% Luz Incidente	3.409	0.071	0.976	2.233	1.258	6.689	0.075	0.010	4.117	25.37
11	Fondo	7.032	0.099	1.111	4.673	3.562	12.916	0.165	0.033	5.864	NA
12	Subsuperficie	3.503	0.075	0.874	1.920	1.046	6.372	0.040	0.006	3.360	5.99
12	10% luz Incidente	3.588	0.075	1.017	2.061	1.044	6.741	0.047	0.006	2.890	6.65
12	1% Luz Incidente	3.714	0.075	0.566	1.002	0.437	5.356	0.059	0.007	3.020	15.73
12	Fondo	6.405	0.104	0.849	1.829	0.980	9.187	0.186	0.043	6.867	NA
13	Subsuperficie	6.481	0.105	1.611	2.906	1.295	11.104	0.083	0.021	5.391	ND

N.A.: No aplica, N.D.: No determinado

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

Anexo 2. Actividad enzimática extracelular medida en muestras de agua y biofilm asociado a las raíces de *Eichornnia crassipes* en el embalse Porce II.

Fecha	Muestra	Fosfatasa (mmol/L/h)	β -glucooxidasa (mmol/L/h)	Nitratos (mg/L)	Amonio (mg/L)	Ortofosfatos (mg/L)	COD (mg/L)	clorofila a (μ g/L)
1. Feb-11	Biofilm	427.887	93.959	ND	ND	ND	ND	ND
1. Feb-11	Biofilm	542.801	104.099	ND	ND	ND	ND	ND
1. Feb-11	Biofilm	684.754	116.266	ND	ND	ND	ND	ND
1. Feb-11	Biofilm	610.398	112.210	ND	ND	ND	ND	ND
1. Feb-11	Agua	9.464	ND	ND	1.270	0.074	3.153	5.98
1. Feb-11	Agua	11.491	ND	ND	1.270	0.074	3.153	5.98
1. Feb-11	Agua	9.464	5.408	ND	1.270	0.074	3.153	5.98
1. Feb-11	Agua	6.084	0.676	ND	1.270	0.074	3.153	5.98
2. Mar-11	Biofilm	107.479	84.496	ND	ND	ND	ND	ND
2. Mar-11	Biofilm	114.914	89.228	ND	ND	ND	ND	ND
2. Mar-11	Biofilm	113.562	137.221	ND	ND	ND	ND	ND
2. Mar-11	Biofilm	133.841	134.517	ND	ND	ND	ND	ND
2. Mar-11	Agua	12.167	8.112	12.900	0.590	0.081	7.21	6.08
2. Mar-11	Agua	18.251	ND	12.900	0.590	0.081	7.21	6.08
2. Mar-11	Agua	12.167	10.815	12.900	0.590	0.081	7.21	6.08
2. Mar-11	Agua	ND	8.112	12.900	0.590	0.081	7.21	6.08
3. Apr-11	Biofilm	714.496	524.550	ND	ND	ND	ND	ND
3. Apr-11	Biofilm	786.149	68.949	ND	ND	ND	ND	ND
3. Apr-11	Biofilm	ND	47.318	ND	ND	ND	ND	ND
3. Apr-11	Biofilm	871.997	32.446	ND	ND	ND	ND	ND
3. Apr-11	Agua	8.788	ND	7.310	0.931	0.036	3.726	4.66
3. Apr-11	Agua	12.843	ND	7.310	0.931	0.036	3.726	4.66
3. Apr-11	Agua	6.084	ND	7.310	0.931	0.036	3.726	4.66
3. Apr-11	Agua	2.028	ND	7.310	0.931	0.036	3.726	4.66

DINÁMICA DE NUTRIENTES EN EL EMBALSE PORCE II, ANTIOQUIA, COLOMBIA

Fecha	Muestra	Fosfatasa (mmol/L/h)	β -glucooxidasa (mmol/L/h)	Nitratos (mg/L)	Amonio (mg/L)	Ortofosfatos (mg/L)	COD (mg/L)	clorofila a (μ g/L)
4. May-11	Biofilm	579.979	279.174	ND	ND	ND	ND	ND
4. May-11	Biofilm	425.183	260.923	ND	ND	ND	ND	ND
4. May-11	Biofilm	708.413	175.075	ND	ND	ND	ND	ND
4. May-11	Biofilm	667.855	158.176	ND	ND	ND	ND	ND
4. May-11	Agua	11.491	ND	0.830	0.238	0.006	2.568	5.37
4. May-11	Agua	15.547	ND	0.830	0.238	0.006	2.568	5.37
4. May-11	Agua	6.760	ND	0.830	0.238	0.006	2.568	5.37
4. May-11	Agua	8.112	ND	0.830	0.238	0.006	2.568	5.37
5. Sep-11	Biofilm	1938.671	422.479	ND	ND	ND	ND	ND
5. Sep-11	Biofilm	1435.394	425.859	ND	ND	ND	ND	ND
5. Sep-11	Biofilm	2184.723	953.788	ND	ND	ND	ND	ND
5. Sep-11	Biofilm	1476.310	903.091	ND	ND	ND	ND	ND
5. Sep-11	Agua	8.112	ND	7.240	1.481	0.036	5.149	31.9
5. Sep-11	Agua	7.436	ND	7.240	1.481	0.036	5.149	31.9
5. Sep-11	Agua	8.788	ND	7.240	1.481	0.036	5.149	31.9
5. Sep-11	Agua	8.788	ND	7.240	1.481	0.036	5.149	31.9
6. Nov-11	Biofilm	1063.971	299.453	ND	ND	ND	ND	ND
6. Nov-11	Biofilm	1489.830	227.801	ND	ND	ND	ND	ND
6. Nov-11	Biofilm	710.441	120.998	ND	ND	ND	ND	ND
6. Nov-11	Biofilm	504.947	89.904	ND	ND	ND	ND	ND
6. Nov-11	Agua	24.335	ND	5.921	0.164	0.025	ND	6.63
6. Nov-11	Agua	ND	ND	5.921	0.164	0.025	ND	6.63
6. Nov-11	Agua	27.039	ND	5.921	0.164	0.025	ND	6.63
6. Nov-11	Agua	23.659	ND	5.921	0.164	0.025	ND	6.63

